APPENDIX E
AIR QUALITY

This appendix contains supporting documentation for the assessment of air quality impacts given in Chapter 4, *Affected Environment*, and Chapter 5, *Environmental Consequences*, Section 5.5, *Air Quality*.

The appendix includes the Draft Air Quality Technical Report with the following attachments:

Attachment 1 Exhibits – There are many exhibits referenced in the Draft Air Quality Technical Report. All the exhibits are found in Attachment 1.

Attachment 2 Air Quality Scoping Meeting Materials – Copies of scoping materials are included in this attachment, which includes meeting agendas, meeting minutes, and handout materials distributed for the agency coordination meetings conducted with the Federal, state, and local agencies.

Attachment 3 EDMS Files by Alternative - The location of the electronic computer modeling files for the input and output of the Emissions and Dispersion Modeling System (EDMS) are referenced in Attachment 3.

Attachment 4 EDMS Inventory Output Files by Alternative – The inventory summary printouts from EDMS are included in this attachment. The dispersion results, along with all the input data are in files available electronically (see Attachment 3).

Attachment 5 On-Site GSE Survey Summary and Stationary Source Survey Summary – The reports summarizing the surveys conducted to determine the use of GSE and the operation of stationary sources at the Airport are included in this attachment.

Attachment 6 Construction Emissions Inventory Tables – Construction emissions are provided by task, by year, by alternative.

Attachment 7 MOBILE 6.2 Input and Output Files – The MOBILE 6.2 motor vehicle emission factor computer program files, both input and output, are provided in this attachment.

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Port Columbus International Airport
Environmental Impact Statement

FINAL Technical Report

Air Quality Assessment Methodology

NOTE: This Final Technical Report contains the methodology and procedure used for conducting the air quality assessment required for the Port Columbus International Airport (CMH) Environmental Impact Statement (EIS). It is provided for deliberative purposes only and should not be cited or quoted. This DRAFT Technical Report was developed through coordination with the Federal Aviation Administration (FAA), the U.S. Environmental Protection Agency (USEPA Region 5), the USEPA Office of Transportation and Air Quality, the Ohio Environmental Protection Agency (OEPA), and the Mid-Ohio Regional Planning Commission (MORPC). The data in the report is based on the best available information and is consistent with USEPA-approved methodologies for air quality evaluations. If major components of the project are changed, this report will be revised by FAA as necessary.

March 2009

Prepared for:

Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Romulus, Michigan 48174

Prepared by:

Landrum & Brown, Incorporated
11279 Cornell Park Drive
Cincinnati, OH 45242

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1.0 INTRODUCTION AND PROPOSED PROJECT

The Federal Aviation Administration (FAA) is preparing an Environmental Impact Statement (EIS) for the Port Columbus International Airport (CMH or Airport). As the airport sponsor, the Columbus Regional Airport Authority (CRAA) proposes a Federal action to replace Runway 10R/28L with a new runway of approximately the same length. The new runway is proposed to be relocated south of the existing Runway 10R/28L to allow for passenger terminal expansion that will accommodate future aviation demand at the airport. The procedures and methodologies used to develop the existing and future emission database and computer modeling input data are provided in this Air Quality Technical Report.

The FAA is including a review of air quality impacts in the CMH EIS under the following cases:

- 2006 Existing Conditions;
- 2009 Conditions for the State Implementation Plan (SIP) eight-hour ozone attainment year, inventory only[1];
- 2010 Conditions for the SIP one-hour ozone budget (milestone) year, inventory only[1];
- 2012 Alternative A: No Action;
- 2012 Runway Development Alternatives;
- 2012 Accelerated Alternative A: No Action and Sponsor's Proposed Project Alternative;
- 2018 Alternative A: No Action;
- 2018 Runway Development Alternatives; and
- 2018 Accelerated Sponsor's Proposed Project.

Proposed Project

The airport currently has a set of parallel runways as shown in the photograph in **Figure 1, *Aerial Photograph of the Airport***. The shorter Runway 10L/28R, located north of the passenger terminal area, is 8,000 feet long. The longer Runway 10R/28L is located south of the terminal core[2] and is 10,125 feet long.

[1] The first year of proposed project implementation is not until 2012. However, construction is anticipated to begin in 2009. Therefore, the emission inventories for 2009 and 2010 conditions included estimated construction emissions.

[2] The "terminal core" is intended to refer to the existing passenger terminal and parking garage, and the areas (including parking lots) either side of International Gateway Drive leading from the interstate highway to the passenger terminal.



FIGURE 1 **Aerial Photograph of the Airport**. Aerial photograph of CMH showing the existing runways, the approximate location of the replacement runway (dotted line), and the orientation to north. Both alternatives (702-foot shift and 800-foot shift) for the proposed replacement runway are illustrated. Positions are approximate.

The proposed project includes:

- Relocation of Runway 10R/28L to the south
- Various construction tasks including a replacement runway and additional taxiways to support the replacement runway
- Installation of navigational aids (NAVAIDS)
- Terminal development
- Roadway improvements
- Parking facility improvements
- Proposed noise abatement actions from the 2007 Final Part 150 Noise Compatibility Study Update (2007 Part 150 Study).[3]

[3] The Final Part 150 Study Update for Port Columbus International Airport was submitted to the FAA for approval in November 2007. The FAA accepted the NEMs on December 5, 2007. The FAA issued a Record of Approval on the NCP on May 28, 2008.

2.0 OHIO SIP

This section summarizes the status of Ohio's SIP. The Ohio SIP is included in the Ohio Administrative Code,[4] (OAC) Chapter 3745, which recognizes the State's responsibilities under the National Environmental Policy Act (NEPA)[5] and the provisions of the Clean Air Act, including the 1990 Amendments (CAA).[6] According to the Ohio SIP, Franklin County is designated nonattainment for ozone development and fine particulate matter ($PM_{2.5}$) emissions. The following document was referenced for information regarding the expected attainment years in Franklin County, and the emission budgets for the milestone years:[7]

- Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the: Franklin, Delaware, Licking, Fairfield, Madison, and Knox County Ozone Non-Attainment Area and the Franklin, Delaware, Licking, Fairfield, and Coshocton (Franklin Twp) County $PM_{2.5}$ Non-Attainment Area , prepared by the Mid-Ohio Regional Planning Commission (MORPC), dated May 10, 2007.

According to the MORPC conformity determination for both ozone and $PM_{2.5}$, the milestone and attainment years for which emission budgets were prepared are 2009, 2018, 2020 and 2030. Both the 2020 and 2030 years are beyond the farthest planning year for the CMH EIS, which is 2018. During scoping coordination meetings, the Ohio Environmental Protection Agency (OEPA) requested that an airport inventory for the 2009 ozone attainment year and the 2010 one-hour ozone SIP budget year be included in the air quality assessment, along with an inventory of the year during which the total direct and indirect emissions from the action is expected to be the greatest on an annual basis.

The conformity determination data for 8-hour ozone from MORPC's Table 10 is reproduced in **Figure 2**. The conformity determination data for $PM_{2.5}$ from MORPC's Table 15 is reproduced in **Figure 3**. The MORPC analysis used the U.S. Environmental Protection Agency (USEPA) MOBILE6.2 program to generate emission factors for motor vehicles for the conformity analysis. The MOBILE6.2 input and output files, along with the reference files required to run the emission factor calculations for the Franklin County conformity analyses, were provided to the FAA consultant by MORPC.[8] These files were used to generate emission factors for motor vehicles for the EIS analysis of motor vehicle emissions.

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4 Ohio Administrative Code (OAC) Chapter 3745 *Ohio Environmental Protection Agency* , available on the Internet at http://www.epa.gov/reg5oair/ sips/ohio.pdf

5 Ohio Administrative Code (OAC), Chapter 3745-102-04, *Conformity Regulations (Purpose),* effective date May 10, 1996, available on the Internet at http://www.epa.gov/reg5oair/ sips/ohio.pdf

6 Ohio Administrative Code (OAC) Chapter 3745-102-03 *Conformity Regulations (Applicability)*, effective date May 10, 1996, available on the Internet at http://www.epa.gov/reg5oair/ sips/ohio.pdf

7 Email from Chris Gawronski, Principal Planner, Mid-Ohio Regional Planning Commission to Ginny Raps, Landrum and Brown. July 30, 2007. Subject: MORPC air quality info – CORRECTION.

8 MOBILE6.2 files were provided to Landrum & Brown, via an e-mail transmission from Chandra Parasa, MORPC, on April 9, 2007.

Conformity Determination

Table 10 illustrates that the emissions for VOC and NO_x are less than their corresponding budgets. Thus, the MORPC and LCATS 2030 Transportation Plans are in conformity with the requirements of the CAAA and the SIP.

Table 10: TIP Air Quality Analysis for the Columbus Ozone Nonattainment Area

	VOC (tons/day)	Budget (tons/day)	NOx (tons/day)	Budget (tons/day)
2009 Build	62.633	72.160	108.534	125.430
2018 Build	35.941	41.500	48.788	56.300
2020 Build	33.089	41.500	42.169	56.300
2030 Build	33.419	41.500	33.134	56.300

Source: Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the: Franklin, Delaware, Licking, Fairfield, Madison, and Knox County Ozone Non-Attainment Area and the Franklin, Delaware, Licking, Fairfield, and Coshocton (Franklin Twp) County $PM_{2.5}$ Non-Attainment Area, prepared by the Mid-Ohio Regional Planning Commission (MORPC), dated May 10, 2007.

FIGURE 2 Conformity Determination for the Ozone Nonattainment Area.

Conformity Determination

The conformity test for the Columbus PM2.5 nonattainment area consisting of the modeled counties of Franklin, Delaware and Licking, the modeled portion of the Fairfield county and the HPMS-based areas of Fairfield County and Coshocton County is the "no greater than 2002 Baseline Interim Conformity Test." Table 15 illustrates that the emissions for NO_x and PM2.5 are less than the 2002 baseline level.

Table 15: TIP Air Quality Analysis for the Columbus PM2.5 Nonattainment Area

	NOx (tons/year)	2002 Emissions (tons/year)	PM 2.5 (tons/year)	2002 Emissions (tons/year)
2009 Build	36,172	51,434	583	858
2018 Build	16,298	51,434	347	858
2020 Build	13,947	51,434	346	858
2030 Build	10,884	51,434	367	858

Source: Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the: Franklin, Delaware, Licking, Fairfield, Madison, and Knox County Ozone Non-Attainment Area and the Franklin, Delaware, Licking, Fairfield, and Coshocton (Franklin Twp) County $PM_{2.5}$ Non-Attainment Area, prepared by the Mid-Ohio Regional Planning Commission (MORPC), dated May 10, 2007.

FIGURE 3 Conformity Determination for the $PM_{2.5}$ Nonattainment Area.

The 2009 budget for the ozone nonattainment area were originally presented in tons per day by MORPC, as shown in Figure 2. The budgets were converted to tons per year in **Table 1**. There is no emission budget for the 2010 milestone year in the MORPC document.

Table 1
MORPC TRANSPORTATION IMPROVEMENT PROGRAM (TIP) AIR QUALITY ANALYSIS FOR THE COLUMBUS OZONE AND $PM_{2.5}$ NONATTAINMENT AREAS

YEAR	ANNUAL BUDGETED EMISSIONS (tons per year)			
DATA FROM THE MAY 2007 TIP REPORT - TABLE 10 AND TABLE 15				
YEAR	**OZONE**		**$PM_{2.5}$ EMISSIONS**	
	VOC	**NO_X**	**NO_X**	**$PM_{2.5}$**
2009	26,338	39,615	36,172	583
2018	15,148	17,808	16,298	347
2020	15,148	15,392	13,947	346
2030	15,148	12,094	10,884	367
10 PERCENT LIMIT FOR REGIONAL SIGNIFICANCE (Refer to Section 3.2)				
YEAR	**OZONE**		**$PM_{2.5}$ EMISSIONS**	
	VOC	**NO_X**	**NO_X**	**$PM_{2.5}$**
2009	2,634	3,961	3,617	58
2018	1,515	1,781	1,630	35
2020	1,515	1,539	1,395	35
2030	1,515	1,209	1,088	37

Note: MORPC is Mid-Ohio Regional Planning Commission.

Source: Mid-Ohio Regional Planning Commission (MORPC), *Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the: Franklin, Delaware, Licking, Fairfield, Madison and Knox County Ozone Non-Attainment Area and the Franklin, Delaware, Licking, Fairfield, and Coshocton (Franklin Twp) County $PM_{2.5}$ Non-Attainment Area*, Table 10 and Table 15, VOC and NO_x data for ozone converted to tons per year, May 10, 2007.

3.0. REGULATORY REQUIREMENTS

The assessment of air quality was prepared in accordance with the guidelines provided in the FAA *Air Quality Procedures for Civilian Airports & Air Force Bases,*[9] and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, which together with the guidelines of FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, constitutes compliance to all the relevant provisions of NEPA and the CAA.

[9] FAA and USAF, *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997.

3.1 NEPA

NEPA requires compliance to Section 176(c)(1) of the CAA. This section of the CAA requires Federal agencies to ensure project compliance to the National Ambient Air Quality Standards (NAAQS). The USEPA established the standards, or "criteria," for seven pollutants determined to be harmful to human health and welfare[10] and are listed below. The standards for each pollutant are given in **Table 2** and are valid for Federal and Ohio regulatory purposes.[11]

- Ozone (O_3)
- Carbon monoxide (CO)
- Nitrogen dioxide (NO_2)
- Particulate matter (PM_{10} and $PM_{2.5}$)[12]
- Sulfur dioxide (SO_2)
- Lead (Pb)

For each of these pollutants, the USEPA established primary standards intended to protect public health, and secondary standards for the protection of other aspects of public welfare, such as preventing materials damage, preventing crop and vegetation damage, and assuring good visibility. Areas of the country where air pollution levels consistently exceed these standards may be designated "nonattainment" by the USEPA. Such is the case in Franklin County for ozone and $PM_{2.5}$.

When dispersion modeling is conducted for a NAAQS compliance assessment, the analysis should meet the requirements of 40 CFR Part 93.158(b)(1 and 2):

93.158(b) The area wide and/or local air quality modeling analyses must:

(1) Meet the requirements in 40 CFR Part 93.159;[13] and

(2) Show that the action does not:

(i) cause or contribute to any new violation of any standard in any area; or

(ii) increase the frequency or severity of any existing violation of any standard in any area.

[10] Title 40 of the Code of Federal Regulations (40 CFR) Part 50 *National Primary and Secondary Ambient Air Quality Standards (*NAAQS).

[11] Ohio Administrative Code (OAC) Chapter 3745 Sections 17-02, 18-02, 21-02, and 71-03..

[12] PM_{10} and $PM_{2.5}$ are airborne inhalable particles that are less than 10 micrometers and less than 2.5 micrometers in diameter, respectively. $PM_{2.5}$ is a subset of PM_{10} emissions.

[13] 40 CFR Part 93.159 outlines the procedures for conformity determinations of general Federal actions and includes planning assumptions, vehicle emission modeling, and gives the required years of analysis.

Table 2
NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

POLLUTANT	AVERAGING PERIOD	PRIMARY STANDARDS	SECONDARY STANDARDS
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	80 $\mu g/m^3$ (0.03 PPM)	None
	24-Hour Average	365 $\mu g/m^3$ (0.14 PPM)	None
	3-Hour Average	None	1,300 $\mu g/m^3$ (0.50 PPM)
Particulate Matter (PM_{10})	24-Hour Average	150 $\mu g/m^3$	150 $\mu g/m^3$
Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	15 $\mu g/m^3$	15 $\mu g/m^3$
	24-Hour Average	35 $\mu g/m^3$	35 $\mu g/m^3$
Carbon Monoxide (CO)	8-Hour Average	10,000 $\mu g/m^3$ (9 PPM)	None
	1-Hour Average	40,000 $\mu g/m^3$ (35 PPM)	None
Ozone (O_3)	8-Hour Average (1997 Std.)	0.084 PPM	0.084 PPM
	8-Hour Average (2008 Std.)	0.075 PPM	0.075 PPM
	1-Hour Average	0.12 PPM	0.12 PPM
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	100$\mu g/m^3$ (0.053 PPM)	100$\mu g/m^3$ (0.053 PPM)
Lead (Pb) [1]	3-Month Arithmetic Mean	0.15 $\mu g/m^3$	0.15 $\mu g/m^3$

Note: $\mu g/m^3$ is micrograms per cubic meter and PPM is parts per million.

[1] Airborne lead in urban areas is primarily emitted by vehicles using leaded fuels. The chief source of lead emissions at airports would be the combustion of leaded aviation gasoline in small piston-engine general aviation aircraft. However, the USEPA and FAA have determined that an exceedance of the lead standard would be unlikely at an airport because of the use of low-lead fuel for piston-engine aircraft. Therefore, emissions of lead were not considered in this analysis. The lead standard reflects the October 2008 revised standard of 0.15 $\mu g/m^3$.

Sources: USEPA, *Code of Federal Regulations Title 40*, Part 50 *National Primary and Secondary Ambient Air Quality Standards*, Section 50.4 – Section 50.12, July 1, 2008.
USEPA, *Final Revisions to National Air Quality Standards for Lead*, available on the USEPA website at http://www.epa.gov/air/lead/actions.html and http://www.epa.gov/ttnnaaqs/standards/pb/data/20071204_pb_anpr.pdf
Ohio Administrative Code (OAC), Chapter 3745.

In FAA Order 1050.1E, the FAA and USEPA determined that an analytical assessment of compliance to the NAAQS (referred to as a NEPA assessment)[14] due to a Federal airport action is not always required or necessary. Rather, the requirement is dependent upon the nature of the project and the size of the airport as evaluated through the application of screening criteria.[15] The screening criteria consider two factors: the annual number of passengers[16] and the number of combined general aviation and air taxi aircraft operations at the airport. An airport that accommodates or projects to accommodate more than 2.6 million annual passengers (or 1.3 million annual enplanements) or an airport that operates or projects to operate more than 180,000 combined general aviation and air taxi aircraft operations annually, then an analysis to assess the Federal action against the NAAQS should be considered. The relationship between these two factors is incorporated into the following equation, which should be used as a guide for determining whether a NEPA assessment should be considered for an airport project:[17]

$$3.5 - \left[\left(1.346 \times MAP\right) + \left(0.0194 \times GA\right)\right] < 0$$

Where, MAP is the millions of annual passengers, and GA denotes the combined annual general aviation and air taxi aircraft operations, given in 1,000's. When this statement is true, a NEPA assessment is indicated; if false, and the solution is >0, then a NEPA assessment would not be required. There are approximately 184,500 combined GA and air taxi aircraft operations each year at CMH. Application of this data to the above equation, regardless of the number of enplanements, indicates that a NEPA assessment would be required for a proposed Federal action at CMH. The NEPA assessment would specifically examine the pollutant concentrations (in parts per million) of NO_X, SO_X, PM_{10}, $PM_{2.5}$, and CO under the Federal action and compare the results with the NAAQS.

3.2 CLEAN AIR ACT

The CAA established the provision that a SIP will include the strategy that a state environmental agency intends to use to meet and maintain the NAAQS within a given timeframe. To ensure Federal projects will comply with the NAAQS and not interfere with the goals of the SIP, the USEPA promulgated the conformity regulations on November 24, 1993[18] - the Transportation Conformity Rule for Federal highway and transit projects, and the General Conformity Rule for all other general Federal actions, including airport improvement projects.

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[14] FAA, *Air Quality Procedures for Civilian Airports & Air Force Bases,* September 2004 Addendum, Parag. 2.1.2, p. AD-7, April 1997.

[15] The requirement for a NAAQS assessment would also depend on whether the Federal action is exempt or advisory in nature. The CMH Proposed Project is neither exempt nor an advisory.

[16] Includes enplanements and deplanements, and transfer passengers, but excludes through passengers.

[17] FAA, *Air Quality Procedures for Civilian Airports & Air Force Bases,* April 1997.

[18] Federal Register Volume 58, p. 62188 (58 FR 62188), dated November 24, 1993.

Compliance to the SIP requires the sponsoring Federal agency to prepare an analytical demonstration of the potential for significant air quality impacts from Federal actions unless the action is exempt under the CAA regulations, or is a project included in the sponsoring agency's Presumed to Conform List.[19]

General Conformity Rule Applicability

The General Conformity Rule under the CAA establishes minimum values, referred to as the de minimis thresholds, for the criteria and precursor pollutants[20] for the purpose of:

- Identifying Federal actions with project-related emissions that are clearly negligible (*de minimis*);
- Avoiding unreasonable administrative burdens on the sponsoring agency; and,
- Focusing efforts on key actions that would have potential for significant air quality impacts.

Notably, there are no de minimis thresholds to account for ozone in the atmosphere. This is because ozone is not directly emitted from a source. Rather, ozone is formed through photochemical reactions involving emissions of nitrogen oxides (NO_X), volatile organic compounds (VOC), and abundant sunlight. Therefore, the formation of ozone on a project level is evaluated based on emissions of the ozone precursor pollutants, NO_X and VOC.

Although $PM_{2.5}$ is sometimes emitted directly, fine particle emissions can form resulting from chemical reactions involving emissions of the $PM_{2.5}$ precursor pollutants NO_X, VOC, sulfur oxides (SO_X), and ammonium (NH_4).

Conformity to the *de minimis* thresholds is relevant only with regard to the pollutants and precursor pollutants for which the area is nonattainment or maintenance. The *de minimis* rates vary depending on the severity of the nonattainment area and further depend on whether the general Federal action is located inside an ozone transport region.[21] The General Conformity Rule (the Rule), published under 40 CFR Part 93,[22] applies only to general Federal actions that are:

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19 The Proposed Project at CMH is neither exempt nor is the project included on the FAA Presumed to Conform List.

20 Precursor pollutants are pollutants that are involved in the chemical reactions that form the resultant pollutant. Ozone precursor pollutants are NO_x and VOC, whereas $PM_{2.5}$ precursor pollutants include NO_x, VOC, SO_x, and ammonium (NH_4).

21 An ozone transport region (OTR) is a single transport region for ozone (within the meaning of Section 176A(a) of the CAA), comprised of the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia, as given at Section 184 of the CAA.

22 USEPA, 40 CFR Part 93, Subpart B *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*, July 2006.

Federally-funded or Federally-approved:

- Not a highway or transit project;
- Not identified as an exempt project[23] under the CAA;
- Not a project identified on the approving Federal agency's Presumed to Conform list;[24] and,
- Located within a nonattainment or maintenance area.

Otherwise, the Federal action is not applicable under the Rule. When the action is applicable under the Rule, the net emissions due to the Federal action may not equal or exceed the applicable *de minimis* thresholds unless:

- An analytical demonstration is provided that shows the emissions would not exceed the NAAQS; or
- Net emissions are accounted for in the SIP planning emissions budget; or,
- Net emissions are otherwise accounted for by applying a solution prescribed under 40 CFR Part 93.158.

The Federal *de minimis* thresholds, which are adopted by reference in the Ohio Administrative Code,[25] are given in **Table 3**, ***Clean Air Act De Minimis Thresholds***.

Franklin County is included in a nonattainment area for both ozone and emissions of $PM_{2.5}$; further, the Proposed Project meets all the remaining criteria indicating the general conformity regulations would apply to the Proposed Project for CMH. Because Franklin County is nonattainment for ozone, project-related net emissions of the ozone precursor pollutants, NO_X and VOC, would be evaluated in the air quality assessment for this EIS and net emissions would be compared against the minimum threshold of 100 tons per year, each.

[23] The CMH Proposed Project is not listed as an action exempt from a conformity determination pursuant to 40 CFR Part 93.153(c). An exempt project is one that the USEPA has determined would clearly have no impact on air quality at the facility, and any net increase in emissions would be so small as to be considered negligible.

[24] The provisions of the CAA allow a Federal agency to submit a list of actions demonstrated to have low emissions that would have no potential to cause an exceedance of the NAAQS and are presumed to conform to the CAA conformity regulations. This list would be referred to as the "Presumed to Conform" list. The FAA published the Final Notice for their Presumed to Conform List July 30, 2007. Department of Transportation Federal Aviation Administration Federal Presumed To Conform Actions Under General Conformity Final Notice Federal Register Vol. 72, No 145. July 30, 2007.

[25] Ohio Administrative Code (OAC) Chapter 3745-102-03 *Conformity Regulations (Applicability)*, effective date May 10, 1996 (last updated April 21, 1999), available on the Internet at http://www.epa.gov/reg5oair/sips/ohio.pdf

Table 3
CLEAN AIR ACT *DE MINIMIS* THRESHOLDS

POLLUTANT TYPE AND VIOLATION SEVERITY	NONATTAINMENT AREA THRESHOLD EMISSIONS (tons per year)	MAINTENANCE AREA THRESHOLD EMISSIONS (tons per year)
Carbon Monoxide (CO)	100	100
Particulate Matter (PM_{10})		100
Moderate Nonattainment Area	100	
Serious Nonattainment Area	70	
Particulate Matter ($PM_{2.5}$)	100	100
Precursor pollutants SO_2, NO_X, VOC, & NH_4[1]	100	100
Sulfur Dioxide (SO_2)	100	100
Nitrogen Dioxide (NO_2)	100	100
Lead (Pb)	25	25
Ozone[2] (O_3)	$\underline{VOC/NO_X}$	$\underline{VOC/NO_X}$
Serious Nonattainment Area	50/50	
Severe Nonattainment Area	25/25	
Extreme Nonattainment Area	10/10	
Inside an ozone transport region[3]:		50/100
Marginal Nonattainment Area	50/100	
Moderate Nonattainment Area	50/100	
Outside an ozone transport region[3]**:**		100/100
Marginal Nonattainment Area	100/100	
Moderate Nonattainment Area	100/100	

[1] NH_4 is the chemical formula for ammonium (ammonia), a precursor pollutant that aids in the development of $PM_{2.5}$. Net emissions of pollutants identified by USEPA as precursors, or contributors, to $PM_{2.5}$ emissions include SO_X, NO_X, VOC, and NH_4, and are each limited to net emissions of 100 tons per year in a $PM_{2.5}$ nonattainment or maintenance area.

[2] The rate of increase of ozone emissions is not usually evaluated in an environmental review because the formation of ozone occurs on a regional level and is the result of the photochemical reaction of NO_X and VOC in the presence of abundant sunlight. Therefore, USEPA considers the rates of increase of NO_X and VOC emissions to reflect the likelihood of ozone formation on a project level.

[3] An ozone transport region (OTR) is a single transport region for ozone, comprised of the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia.

Source: 40 CFR Part 93.153(b)(1), July 2006.
CAA Title 1, Section 176A(a) and Section 184.
71 FR 17003, April 5, 2006, *$PM_{2.5}$ De Minimis Emission Levels for General Conformity Applicability*.

Like ozone, the Proposed Project's net emissions of $PM_{2.5}$ and the precursor pollutants[26] SO_X, NO_X, and VOC would be compared against the minimum threshold of 100 tons per year, each. If the general conformity evaluation for this air quality assessment were to show that any of these thresholds were equaled or exceeded due to the Proposed Project, further more detailed analysis to demonstrate conformity would be required, referred to as a General Conformity Determination.

If the general conformity evaluation were to show that none of the thresholds were equaled or exceeded, the Proposed Project at CMH would be assumed to conform to the Ohio SIP and no further analysis would be required under the Rule unless the project is shown to be regionally significant under the general conformity regulations.

Regional Significance Under General Conformity

A regionally significant Federal action under the CAA is one where the total direct and indirect emissions (net emissions) represent greater than ten percent of the total emissions of any pollutant in the nonattainment or maintenance area, as provided in the SIP emissions budget. According to the USEPA and the FAA, it would be unlikely that an airport improvement project would cause an increase in net emissions that is regionally significant.[27] Refer to Table 1 for the calculation of the maximum allowable net emissions under the General Conformity regional significance provisions for Franklin County.

Transportation Conformity Rule Applicability

Although airport improvement projects are considered general Federal actions, there are elements of a proposed airport project alternative that may require an analysis to show transportation conformity, such as actions relating to transportation plans, programs, or projects developed, funded, or approved under Title 23 United States Code (U.S.C.) or the Federal Transit Act.[28] In such cases, the sponsoring Federal agency would be required to coordinate with the Federal Highway Administration (FHWA), the State Department of Transportation (DOT), and the local metropolitan planning organization (MPO) to assist in completing a transportation conformity evaluation. As with General Conformity, Transportation Conformity regulations apply only to Federal actions located within a nonattainment or maintenance area.

The Proposed Project at CMH includes the realignment of a short section of Stelzer Road; however, realignment of this roadway is not a highway or transit project requiring FHWA or DOT approval.[29] Therefore, the Transportation Conformity regulations would not apply to the CMH Proposed Project.

Indirect Source Review

[26] Emissions of ammonium (NH_4) are generally associated with commercial animal agriculture, including feeding operations. Therefore, emissions of NH_4 were not included in this analysis.
[27] FAA, *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997.
[28] USEPA, 40 CFR Part 93.153, *Applicability*, July 2006.
[29] USEPA, 40 CFR Part 51.394, *Applicability*, July 2006.

Some states require an air quality review when a Federal action has the potential to cause an increase in net emissions from indirect sources. Indirect sources cause emissions that occur later in time or are farther removed from the Federal action. Depending on the state, indirect sources may be identified as motor vehicles on highways, parking at sports and entertainment facilities, or an increase in aircraft operations. The state requirement is referred to as the Indirect Source Review (ISR) and each state requiring an ISR sets thresholds for increased operation of the indirect sources. When a Federal action has the potential to exceed these thresholds, an air quality review is required to assess the character and impact of the additional emissions, which is an evaluation separate from the analyses required under NEPA or the CAA. According to FAA, *Air Quality Procedures for Airports and Air Force Bases*,[30] Ohio is not listed as one of the states requiring an ISR.

4.0 MODELING APPROACH

The air quality assessment includes the following analyses:

- Criteria and precursor pollutant emission inventory;
- Construction equipment emissions inventory; and
- Dispersion analysis for criteria pollutants (excluding lead and ozone).

4.1 EMISSIONS INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS

A local-area[31] inventory of all direct and indirect emissions was prepared to disclose the air quality impact of the existing conditions and the relevant project alternatives, including the future baseline conditions. The future project emissions were compared to the future baseline emissions to disclose the net emissions and the potential for significant impact to air quality under each relevant project alternative. The net emissions due to the preferred alternative[32] were compared to the *de minimis* threshold to determine compliance to the General Conformity Rule under the CAA. The emission inventories include estimated emissions in tons per year for the following criteria and precursor pollutants:

- Carbon monoxide (CO)
- Volatile organic compounds (VOC)
- Nitrogen oxides (NO_X)
- Sulfur oxides (SO_X)
- Particulate matter (PM_{10} and $PM_{2.5}$)

30 FAA, *Air Quality Procedures for Civilian Airports & Air Force Bases*, Appendix J, April 1997.

31 A local-area inventory focuses on emissions over a relatively limited area from a single source or closely related sources, which is in contrast with a regional emissions inventory typically prepared by the metropolitan planning organization (MPO) for the regional transportation system.

32 The preferred alternative is defined as the project alternative relevant for evaluation under general conformity regulations and the alternative that would ultimately be funded or approved by the FAA.

- Volatile organic compounds (VOC)

The emission inventories were estimated using the FAA Emissions and Dispersion Modeling System (EDMS) computer model Version 4.5., applying average annual meteorological conditions for temperature and mixing height. The FAA EDMS computer program is the FAA-required and USEPA-approved model for estimating emissions and calculating pollutant concentrations from airport-specific sources, such as aircraft engines, ground support equipment (GSE) and auxiliary power units (APUs). The model is also approved for modeling emissions from motor vehicles on roadways and in parking lots, and modeling emissions from stationary sources such as heating plants (boilers), fuel storage tanks, and generators.

4.2 CONSTRUCTION EMISSIONS INVENTORY

An inventory of emissions from the use of construction equipment is a regulatory requirement because construction equipment is considered a direct source of emissions due to a development project.

The construction equipment emissions inventory was prepared using USEPA-approved methodology and equipment emission factors from the USEPA NONROAD computer model database and 40 CFR Part 89.[33] Emission factors for the Tier 2, Tier 3, and Tier 4 emission standards for nonroad diesel engines applicable for the three years previous to the commencement of construction were used for calculation of the inventory.[34] This allows the construction contractor the opportunity to use readily available tier-compliant equipment. The emission inventory from construction equipment was prepared using the Microsoft EXCEL® spreadsheet program and applied the use of construction equipment by type (i.e. bulldozer, backhoe), by horsepower, by load factor, and by hours of use to complete each construction task. [35]

4.3 DISPERSION ANALYSIS

A dispersion analysis was conducted based on the emission inventory of all airport sources (excluding construction), for existing conditions and for all the future alternatives, including the future baseline conditions. The dispersion analysis was conducted using the EDMS computer model and applied one full year of meteorological data (surface observations and upper air data). Refer to Section 5.0, *Meteorology*.

[33] 40 CFR Part 89.112 *Oxides of nitrogen, carbon monoxide, hydrocarbon, and particulate matter exhaust emission standards*.
[34] 40 CFR Part 89.
[35] FAA letter from Ms. Katherine Jones to USEPA, dated October 17, 2006; reference Comment #3 of the memorandum attached to the letter, which relates to construction emissions.

Dispersion modeling typically creates very large files that must be manipulated during calculations. Individual files may be as large as 1.5 gigabyte (GB) and one "study," which is the directory containing all the EDMS input and output files may be as large as 3GB.

The dispersion analysis using EDMS was run on a five-computer system with the following parameters for each unit:

- Windows XP Professional 2002, Service Pack 2
- Intel Pentium D Central Processing Unit (CPU) ™ 3.00 Gigahertz (GHz)
- 2GB Random-Access Memory (RAM)
- 74GB Hard Drive

The dispersion analysis was conducted for the criteria pollutants (excluding ozone and lead, and not including VOC,[36] the ozone precursor pollutant). Dispersion modeling was applied to all the scenarios listed in Section 1.0, *Introduction*, except the 2009 and 2010 SIP years, which require an emission inventory and not dispersion modeling. The same sources evaluated for the emission inventory were evaluated through dispersion modeling.

5.0 METEOROLOGY

Local meteorology can affect pollutant concentrations depending on the severity of temperature inversions that occur in the morning and late in the afternoon. A temperature inversion occurs when the upper air is warmer than the air near the ground. This causes air pollutants released at the surface to be trapped beneath the level where the air begins to warm. An illustration of a temperature inversion is shown in **Figure 4**, ***Temperature Inversion***.

Mixing heights are calculated at National Weather Service Forecast Office (NWSFO) upper-air stations every morning (1200 Coordinated Universal Time, UTC)[37] and again in the afternoon (0000 UTC). Upper-air observations are conducted using a balloon filled with helium or hydrogen gas that is released with an attached radio-transmitter that transmits data, including atmospheric pressure, wind speed, wind direction, temperature, and water vapor content, directly into a computer processor that calculates the mixing height. The calculated mixing height is used to calculate the inventory of aircraft emissions

[36] There is no NAAQS for VOC, therefore, VOC was not included in the dispersion analysis.

[37] Coordinated Universal Time, UTC, sometimes referred to as Greenwich Mean Time (GMT), or Zulu time (Z), is the local time at the Greenwich Observatory outside London, England, the location of the prime meridian (zero degrees longitude), and is based on the atomic clock. All upper-air observations in the U.S. are conducted at or near 0000 UTC (midnight) and 1200 UTC (noon) so that all upper-air observations commence at approximately the same time providing a "snapshot" of the weather across the U.S. The "morning" upper-air observations in the U.S. generally coincide with the noon hour (1200 UTC) in Greenwich; the "afternoon" observations in the U.S. generally coincide with the midnight (0000 UTC) observation in Greenwich.

The calculation of emissions from aircraft assumes that aircraft operate only within the mixing layer, below the mixing height, where the emissions may influence ground-based pollutant concentrations. The mixing height, combined with the angle of approach (usually 3 degrees above the horizon) and the departure angle, determines the total time an aircraft operates during approach and climbout.

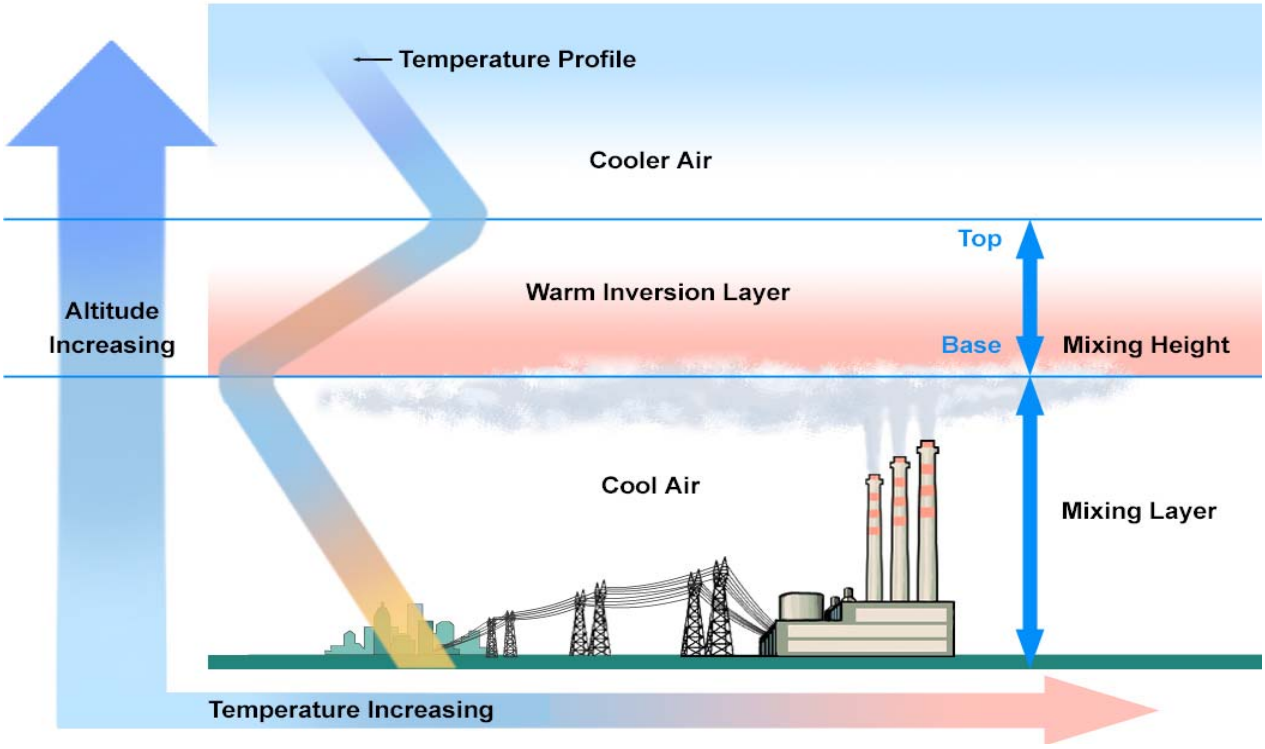


FIGURE 4 **Temperature Inversion.** Pollutants released within the mixing layer are trapped in the cool air below the mixing height, which acts as a "cap." A relatively low mixing height causes pollutants to be forced downward in the sinking air, resulting in higher pollutant concentrations at ground level.

The inventory calculations required the average annual temperature and the average annual mixing height. The values are provided in **Table 4**, ***Meteorological Parameters for the Emission Inventory***.

Dispersion calculations require one full year of meteorological data that includes several parameters such as temperature, pressure, relative humidity, wind speed, and wind direction for each hour of the year. The USEPA requested that five years of data beginning with the year 2001 and ending with the year 2005 be used in the analysis for CMH. Five years of hourly surface aviation meteorological data was obtained from the National Climatic Data Center (NCDC) for CMH. In addition, five years of upper air data required for the analysis was also obtained from NCDC for the nearest upper-air station to the airport, which is the Wilmington National Weather Service Office. Refer to **Table 5**, ***Meteorological Data for Dispersion Analysis.***

TABLE 4
METEOROLOGICAL PARAMETERS FOR THE EMISSION INVENTORY
PORT COLUMBUS INTERNATIONAL AIRPORT

METEROLOGICAL PARAMETER	VALUE	SOURCE
Average Annual Temperature	52.9 Deg. F	1971-2000 NCDC Normals for Columbus WSO Airport, OH (COLUMBUS INTL AP, FRANKLIN CO.), *Historic Climate Data: Temperature Summary*, Midwestern Regional Climate Center, U.S. Cooperative Network, a cooperative program of the Illinois State Water Survey and the National Climatic Data Center (NCDC), http://mcc.sws.uiuc.edu/climate_midwest/historical/temp/oh/331786_tsum.html
Average Annual Mixing Height	3,052 feet	USEPA, Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States, AP-101, January 1972, Table B-1, *Mean Seasonal and Annual Morning and Afternoon Mixing Heights and Wind Speeds for NOP and All Cases*.

Note: WSO is Weather Service Office.
NOP refers to no precipitation.
Deg. F refers to degrees Fahrenheit.

TABLE 5
METEOROLOGICAL DATA FOR DISPERSION ANALYSIS
PORT COLUMBUS INTERNATIONAL AIRPORT

DATA REQUIREMENT	SOURCE
Hourly Surface Aviation Observations	National Climatic Data Center (NCDC) for Port Columbus International Airport, collected by the National Weather Service, Columbus, Ohio.
Upper-Air Observations	National Climatic Data Center (NCDC), collected by the National Weather Service, Wilmington, Ohio.

Procedure for Applying Weather Data and Determination of Worst-Case Meteorological Year

According to the letter from Ms. Katherine Jones, FAA Community Planner, dated October 17, 2006, Comment #1,[38] a teleconference was held October 2, 2006, to determine the number of years of meteorological data would be applied to dispersion modeling for the CMH EIS. The following is quoted from the minutes summarizing the teleconference proceedings:

> "The modeling is done with 5 years of met data for the base case. Then the worst-case year is chosen and used to evaluate the alternatives in the EIS. When the final alternative is chosen, then the alternative is run with the 5 years of met data. USEPA and the Ohio Environmental Protection Agency (OEPA) concurred with this approach."

The procedure for selection of the worst—case meteorological year was based on the guidelines provided in the *Use of Meteorological Data in Air Quality Trend Analysis* [39] and based on coordination with Ohio Environmental Protection Agency (OEPA), USEPA Region 5, and MORPC.

According to the USEPA publication referenced above, variations in pollutant concentrations when calculated as a one-hour to 24-hour average, are primarily due to meteorology. This indicates that averaging periods greater than 24 hours may not be sensitive enough to show variations caused by meteorology alone. The discussion implies that the 1-hour, 3-hour, 8-hour, and 24-hour averages should be sensitive to weather changes.

The document further states, "Except in the case of specific point sources, where daily changes in emissions can affect air quality in a substantial manner, the general uniformity in daily emissions over most urban areas dictates that short-term changes of measured concentrations are caused by meteorological fluctuations." Further, "The longer the period of analysis (i.e. averaging period), the greater the potential for pollutant variances to be complicated by both meteorological and emission factors." The short-term averaging period is defined by USEPA as a 24-hour average or less.[40] The following procedure was used to select one worst-case year for each pollutant:

A sensitivity analysis was conducted for each pollutant using a short-term averaging period established by the NAAQS. The analysis for NO_x emissions, however, applied an annual average, pursuant to the NAAQS. The 2006 Existing Conditions case was run in EDMS using 145 receptors. Refer to Section 8.4, *Dispersion Receptors*. Data for the five receptors showing the highest concentrations for each pollutant for each

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38 Letter from Ms. Katherine S. Jones, FAA Community Planner, to Ms. Sherry Kamke, Environmental Scientist, USEPA Region 5, dated October 17, 2006, with attached minutes summarizing the teleconference held October 2, 2006.

39 M.D. Zeldin and W.S. Meisel *Use of Meteorological Data in Air Quality Trend Analysis* USEPA, EPA-450/3-78-024, May 1978 USEPA Project Manager Neil H. Frank Office of Air Quality Planning and Standards.

40 U.S. Environmental Protection Agency, ISC3 User's Guide page 3-9, EPA-454/B-95-003a.

year was extracted from the output files and summarized in a spreadsheet. The analysis showed that the highest concentration would occur at a receptor located at the arrival curb. This was true for all five pollutants for each of the five years. For all the pollutants except CO, the highest concentrations occurred in one unique year. For instance, the highest concentrations of NO_x occurred in 2003, meaning the highest five values all occurred in 2003. For SO_x, application of 2005 weather data resulted in higher concentrations than any of the other four years in the analysis. Results of the sensitivity analysis for particulate matter showed that weather unique to 2002 resulted in the highest concentration values for all five years. This was true for both PM_{10} and $PM_{2.5}$. As such, all the future baseline and project alternatives were run for each pollutant using the weather file corresponding to the results of the sensitivity analysis, as given in **Table 6, *Worst-Case Meteorological Data for Dispersion Analysis***.

TABLE 6
WORST-CASE METEOROLOGICAL DATA FOR DISPERSION ANALYSIS
PORT COLUMBUS INTERNATIONAL AIRPORT

POLLUTANT	AVERAGING PERIOD	YEAR
CO	1-Hour and 8-Hour	2001
NO_X	Annual	2003
SO_X	3-Hour, 24-Hour, and Annual	2005
PM_{10}	24-Hour	2002
$PM_{2.5}$	24-Hour and Annual	2002

Source: Landrum and Brown analysis, 2007.

6.0 BACKGROUND CONCENTRATIONS

A map of the location of the five monitoring sites that recorded data for the development of the background concentrations in Franklin County is presented in **Exhibit E-1**, ***Central Ohio Air Quality Monitoring Sites***. The background concentrations in Franklin County, which were provided to FAA by MORPC,[41] are summarized in **Table 7, *Franklin County Background Concentrations***. The associated NAAQS are provided for comparison.

The background concentrations of $PM_{2.5}$ already exceed the NAAQS. The $PM_{2.5}$ background concentrations cause this area to be in violation of the average 24-hour and average annual $PM_{2.5}$ standards regardless of any emissions at the airport.

[41] Background concentration data were provided to Landrum & Brown, via an e-mail transmission from Ms. Sarah Hedlund, Ohio EPA, during May 2007.

TABLE 7
FRANKLIN COUNTY BACKGROUND CONCENTRATIONS

CRITERIA POLLUTANT	AVERAGING PEROD	NAAQS Standards ($\mu g/m^3$)	BACKGROUND CONCENTRATION ($\mu g/m^3$)
CO	1-Hour	40,000	4,796.40
	8-Hour	10,000	2,284
NO_X	Annual	100	39
PM_{10}	24-Hour	150	85
$PM_{2.5}$	24-Hour	35	52.1
	Annual	15	16.67
SO_X	3-Hour	1,300	138.86
	24-Hour	365	73.36
	Annual	80	10.74

Source: MORPC, May 2007.
40 CFR Part 50.

7.0. EMISSION SOURCES

An emission inventory was prepared for each of the scenarios listed under Section 1.0, *Introduction and Proposed Project*. Several types of emission sources were evaluated for the emission inventory; the same sources used in the inventory were analyzed through dispersion analysis. The sources include:

- Aircraft;
- APUs;
- GSE;
- Motor vehicles in parking lots and parking garages;
- Motor vehicles on airport access roadways; and
- Stationary sources, including fuel tank storage, deicing, emergency generators, boilers, and an incinerator.

7.1 AIRCRAFT, APUS, GSE, AND TAXI/DELAY TIME

Aircraft emissions depend partly on the physical characteristics and performance parameters of each unique aircraft type. These include the airframe type, the type and number of engines, takeoff weight, and approach angle.

In addition to the physical characteristics of the aircraft operating at the airport, emissions further depend on the time that each aircraft type operates in the various modes that define a landing and takeoff cycle. A landing and takeoff cycle (LTO) consists of the approach, landing roll, taxi to and from the gate area, idle time, takeoff, and climbout, as illustrated in **Figure 5**, ***Aircraft Landing and Takeoff Cycle (LTO)***.

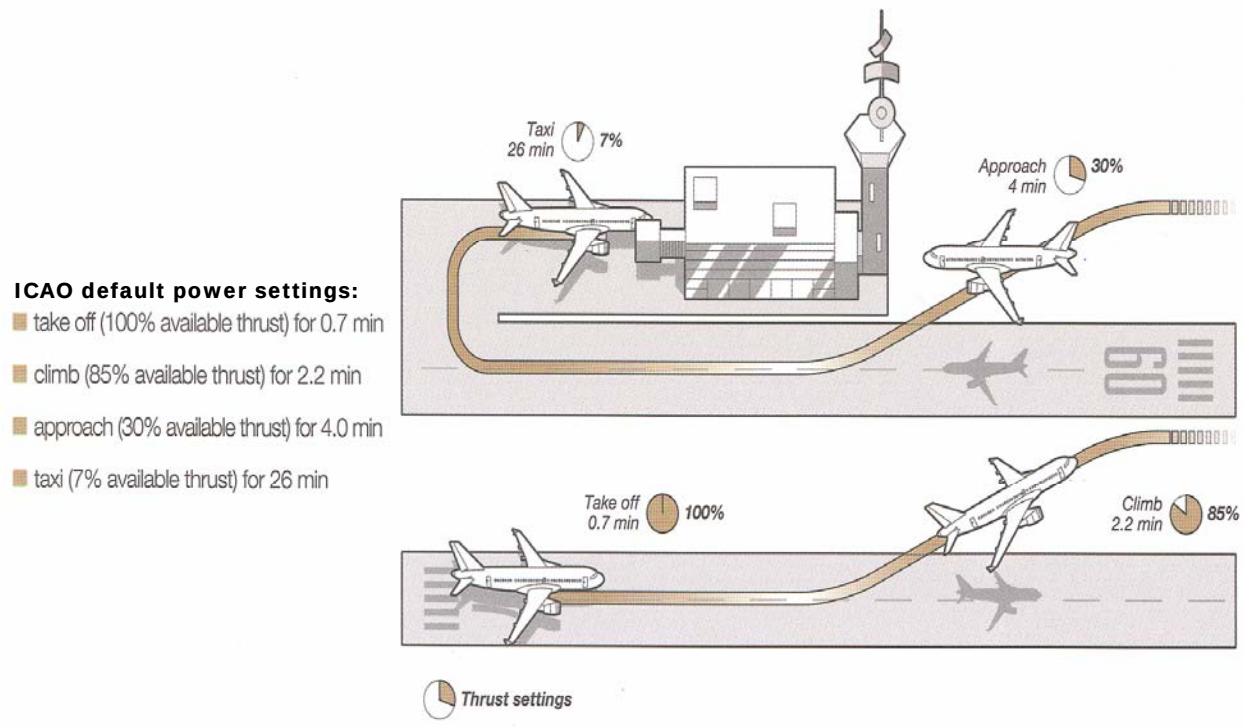


FIGURE 5 Aircraft Landing and Takeoff Cycle (LTO)
Source: Airbus, 2004.

The time an aircraft operates in each mode depends on the aircraft type, the mixing height, the airfield configuration, and the number of annual operations.

- Approach begins as the aircraft descends along the approach path, usually at an angle three degrees above the horizon; continuing to a point above ground level known as the mixing height. Approach mode lasts for approximately three to four minutes, depending on the aircraft type, until touchdown on the runway end.
- For dispersion calculations, only emissions below 1,000 feet above ground level (AGL) during approach are included.
- Landing roll begins at touchdown and continues until the aircraft exits the runway onto the taxiway, usually just a few seconds.

The aircraft fleet was based on the fleet evaluated for the noise analysis except when airframe and aircraft engine substitutions were necessary to match the aircraft available in the EDMS database. The fleet of aircraft utilizing the airport consists of air carrier passenger jets, commuter jets, cargo jets and turboprops, air taxi jets and turboprops, and small general aviation jets, turboprops, and piston-powered aircraft. The aircraft and engine types that were used for analysis are given in **Attachment 3, EDMS Input and Output Files by Alternative**.

APUs

The larger jet aircraft use an APU to run heat, air conditioning, and electric for the aircraft at the gate. The APU is also used to restart the engines before departing from the gate area. The assignments of APUs were made using the EDMS default assignments.

GSE

Ground support equipment were assigned based on the on-site survey completed in July 2006[42], and is based on aircraft type. The summary report from the on-site survey is found in **Attachment 5, *On-site GSE Survey Summary and Stationary Source Survey Summary.*** The results of the survey are given in **Table 8, *On-Site Survey of Aircraft GSE Assignments***. EDMS default GSE assignments were assumed for general aviation, military, and corporate aviation aircraft.

TABLE 8
ON-SITE SURVEY OF AIRCRAFT GSE ASSIGNMENTS
PORT COLUMBUS INTERNATIONAL AIRPORT

GSE TYPE	AIRCRAFT TYPE (minutes of operation per landing/takeoff cycle)		
	LARGE JETS	SMALLER JETS	TURBOPROPS
Diesel Aircraft Tractor	21	9	6
Diesel Baggage Tractor	57	12	2
Gasoline Baggage Tractor		26	20
Diesel Belt Loader	46	28	
Gasoline Belt Loader	22	21	21
Gasoline Catering Truck	15		
Diesel Fuel Truck	20	11	10
Electric GPU Hookup (400 Hz)			30

Note: GSE is ground support equipment. EDMS default assignments were used for general aviation, military, and corporate aviation GSE.

Source: Gresham, Smith and Partners. Memorandum: Mobile Source Emission Survey Summary Report. July 21, 2006.

[42] Gresham, Smith and Partners. Memorandum: Mobile Source Emission Survey Summary Report. July 21, 2006.

Aircraft Average Taxi and Queue Delay Time

For the emission inventory, the EDMS computer model requires the combined average aircraft ground taxi and ground delay time. This information was obtained from the *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport (Airfield Planning Report)*.[43] Average taxi times were calculated by using Geographical Information Systems (GIS) to "sketch" generalized taxi routes to and from the runway ends and aircraft parking locations. Eight possible taxi scenarios were created for the 2006 Existing Conditions for travel inbound and outbound to each of the four runway ends and to each of the three gate areas, the commercial aviation gate, the general aviation gate, and the corporate aviation gate. Taxi paths were further defined under the runway development alternatives for 2012 and 2018, including alternative paths that allow for the proposed passenger terminal under the 2018 runway development alternatives, and the 2012 and 2018 Accelerated Sponsor's Proposed Project. The taxi time was calculated assuming an average taxi speed of 16.53 miles per hour, based on the data in the *Airfield Planning Report*. Diagrams of the taxi paths used for calculation of taxi times are given in **Exhibit E-2a-E-2f**, **Exhibit E-3a-E-3f**, and **Exhibit E-4a-E-4h**. Refer to Attachment 1, List of Exhibits.

Average aircraft departure delay time was also based on data provided in the *Airfield Planning Report*. Changes in delay time were based proportionally on the number of aircraft operations in each year, 2012, 2018, and the higher level of operations for the 2012 and 2018 accelerated alternatives. The taxi and departure queue delay times for all alternatives are presented in **Table 9**, ***Average Departure Taxi and Delay Times***.

7.2 MOTOR VEHICLES IN PARKING LOTS AND GARAGES

Data relating to motor vehicles utilizing the airport's parking lots and garages were obtained from the following sources:

- *International Gateway Realignment, Categorical Exclusion Reevaluation Level 4*, prepared for the Ohio Department of Transportation, District 6, dated August 2006.
- T*raffic Impact Study: 17th Avenue Parking Lot*, prepared for the CRAA, preliminary report dated October 19, 2006.
- *Traffic Impact Study: New Employee Parking Lot*, prepared for the CRAA, preliminary report dated October 19, 2006.
- *Rental Car Update & Analysis*, prepared for the CRAA, dated February 2005.
- On-site survey of vehicles accessing the arrival and departure curbs, conducted by CRAA on July 25, 2007.

[43] CRAA, *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*, February 14, 2006.

TABLE 9
AVERAGE AIRCRAFT TAXI AND DEPARTURE DELAY TIMES
PORT COLUMBUS INTERNATIONAL AIRPORT

Existing Conditions / Project Alternative	Average Unimpeded Taxi-in Time	Average Unimpeded Taxi-out Time	Average Ground & Queue Departure Delay	Total Average Taxi & Delay Time	Delay by Runway End			
					10L	10R/X [1]	28L/X [1]	28R
	(in minutes)							
2006 Existing Conditions	4.07	4.52	1.19	9.78	0.53	0.63	1.83	1.78
2009 Inventory for SIP Attainment Year				9.85[2]				
2010 Inventory for SIP Milestone Year				9.92[2]				
2012 Alternative A: No Action	4.04	4.48	1.46	9.98	0.84	0.56	2.52	1.91
2012 Alternative C2a	4.36	4.55	1.34	10.25	0.62	0.67	2.16	1.91
2012 Alternative C2b	4.25	4.76	1.34	10.35	0.79	0.86	1.98	1.74
2012 Alternative C3a	4.33	4.51	1.34	10.19	0.62	0.67	2.16	1.91
2012 Alternative C3b	4.22	4.73	1.34	10.29	0.79	0.86	1.98	1.74
2012 Accelerated Alternative A: No Action	3.96	4.45	8.42	16.82	4.63	3.67	13.61	11.75
2012 Accelerated Sponsor's Proposed Project	4.18	4.70	5.45	14.33	2.99	3.82	7.47	7.51
2018 Alternative A: No Action	4.02	4.48	1.64	10.14	1.00	0.60	2.87	2.08
2018 Alternative C2a	4.18	4.87	1.51	10.55	0.53	1.18	1.76	2.54
2018 Alternative C2b	4.09	5.03	1.51	10.62	0.67	1.39	1.61	2.35
2018 Alternative C3a	4.14	4.82	1.51	10.47	0.53	1.18	1.76	2.54
2018 Alternative C3b	4.05	4.99	1.51	10.54	0.67	1.39	1.61	2.35
2018 Accelerated Sponsor's Proposed Project	4.01	4.98	6.39	15.39	2.53	6.34	6.12	10.57

Notes: 2012 and 2018 Alternative A: No Action alternatives include use of the crossover taxiway. Taxi-in time increases while taxi-out time decreases with the implementation of the Noise Compatibility Program (NCP) for 2012 and 2018 alternatives due to the increase in east flow. The 2018 runway development alternatives, and the 2012 and 2018 accelerated alternatives for runway development, include operations at a proposed midfield terminal. Weighted taxi time decreases with the 2012 Accelerated Sponsor's Proposed Project because more operations are operating at the proposed terminal and have shorter taxi paths as compared to the GA and corporate gates. Taxi-in paths are shorter as compared to taxi-out paths because the aircraft stop short and exit before the end of the runway.

[1] 10R/X and 28L/X indicate either the existing Runway 10R/28L or the proposed relocated Runway 10X/28X.

[2] Data was interpolated for 2009 and 2010 using the Existing (2006) data and the 2012 Alternative A; No Action.

Sources: *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*, Tables 2-11 & 2-12, February 14, 2006. Landrum & Brown, analysis, 2007.

Diagrams of the parking lots and garages that were considered for analysis are presented on the following exhibits:

- **Exhibit E-5, *2006 Parking Lots and Garages for 2006 Existing Conditions***,
- **Exhibit E-6, *Parking Lots and Garages for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A: No Action***, and
- **Exhibit E-7, *Parking Lots and Garages for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project*.**

The analysis performed to determine the distance traveled from motor vehicle in parking lots and garages was prepared using the Microsoft EXCEL® spreadsheet program and considered the hourly number of motor vehicles per lot, average speed, and aviation activity forecasts, assuming the number of cars on the airport would be directly related to the number of origination and destination passengers.[44] The motor vehicle distance traveled in feet for each of the parking lots and garages are given in **Attachment 3, EDMS Input and Output Files by Alternative**.

7.3 MOTOR VEHICLES ON ROADWAYS

Data relating to motor vehicles traversing the airport's access roadways were obtained from the same sources used for parking lots and garages. Diagrams of the airport's access roadways that were considered for analysis under all the alternatives are presented in the following exhibits, which also include the traffic counts:

- **Exhibit E-8a-E-8b**
- **Exhibit E-9a-E-9e**
- **Exhibit E-10a-E-10d**

Roadway names, the length in round-trip miles, number of vehicles per hour, and the speed in miles per hour considered for analysis are given in **Attachment 3, EDMS Input and Output Files by Alternative**.

7.4 MOTOR VEHICLES EMISSION FACTORS

Emission factors were determined though use of the USEPA mobile source emission program, MOBILE6.2. The MOBILE6.2 input and output files, along with the reference files required to run the emission factor calculations for Franklin County, were provided to the FAA by MORPC.[45] The emissions factors determined by MOBILE6.2 are dependent upon input data including vehicle type, age, miles

[44] Origination and destination passengers (O&D) would be those passengers that begin or end their journey at CMH and are not at the terminal solely to transfer to another flight, referred to as transfer passengers. O&D passengers leave the terminal and travel either to the parking areas, to the rental car area, or are transported by taxi or other forms of transportation.

[45] MOBILE6.2 files were provided to Landrum & Brown, via an e-mail transmission from MORPC, on April 9, 2007.

traveled, vehicle speed, and percent of hot and cold starts. Operating characteristics such as ambient temperature also influence the calculations of the emissions factors. Emission factors are given in **Attachment 7, MOBILE 6.2 Input and Output Files.**

7.5 STATIONARY SOURCES

Stationary sources of emissions were identified based on an on-site survey completed in July 2006. The summary report from the on-site survey is found in **Attachment 5, *On-Site GSE Survey Summary and Stationary Source Survey Summary.***

The sources identified in the survey included boilers, storage tanks, and incinerators and are presented in **Table 10, *On-Site Survey of Stationary Sources***. The location of the stationary sources inventoried in the survey are presented in the following exhibits:

- **Exhibit E-11, *Stationary Sources for 2006 Existing Conditions*,**
- **Exhibit E-12, *Stationary Sources for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A: No Action*,** and
- **Exhibit E-13, *Stationary Sources for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project***.

Operational parameters of some of the stationary sources of emissions identified for 2006 Existing Conditions, such as generators and incinerators, were assumed to remain the same through 2012 and 2018 for all alternatives, although the position of the sources could change with the runway development alternatives. Emissions from fuel tanks would vary proportionally with the number of aircraft operations in 2012, 2018, and under the 2012 and 2018 accelerated alternatives. Also, the status of the Nationwide fuel farm identified by Map ID #51 would change in 2012 and 2018. This stationary source was not part of the 2006 Existing Conditions but was included in all future baselines (2012 and 2018) and all other 2012 and 2018 runway development alternatives. The heating units required for the proposed terminal building would be included in the 2018 runway development alternatives and in the 2012 and 2018 Accelerated Sponsor's Proposed Project.

TABLE 10
ON-SITE SURVEY OF STATIONARY SOURCES
PORT COLUMBUS INTERNATIONAL AIRPORT

Map ID	Stationary Source	Type
1	Concourse A	Emergency Generator W/ Diesel Fuel Tank
2	Concourse B Diesel	Emergency Generator W/ Diesel Fuel Tank
3	Concourse B Natural Gas	Natural Gas Boiler
4	Concourse C	Emergency Generator W/ Diesel Fuel Tank
5	PEA	Natural Gas Boiler
6	Lane Corridor A	Natural Gas Boiler
7	Lane Hangar 3	Natural Gas Boiler
8	Lane Hangar 4	Natural Gas Boiler
9	Lane Hangar 5	Natural Gas Boiler
10	Backup IT	Emergency Generator W/ Diesel Fuel Tank
11	Backup Concourse A	Natural Gas Boiler
12	Backup Concourse C	Emergency Generator W/ Diesel Fuel Tank
13	Misc. Concourse B	Emergency Generator W/ Diesel Fuel Tank
14	Backup Garage	Emergency Generator W/ Diesel Fuel Tank
15	Backup ARFF	Emergency Generator W/ Diesel Fuel Tank
16	Aircraft Deice PG TI	Deice Area
17	Aircraft Deice EG	Deice Area
18	Airfield Maintenance Gas	Gasoline Storage Tank
19	Airfield Maintenance Diesel	Diesel Fuel Storage Tank
20	Lane – Jet A	Jet A Storage Tanks
21	Lane Diesel	Diesel Fuel Storage Tank
22	Lane Gasoline	Gasoline Storage Tank
23	Incinerator	Incinerator
24	Air Deice PG TIV	Deice Area
25	Lane 100LL	Avgas Storage Tanks
26	Runway Deice KOAC	Deice Area
27	Million Air Jet A	Jet A Storage Tanks
28	Million Air Diesel	Diesel Fuel Storage Tank
29	Million Air Av Gas	AvGas Storage Tank
30	45 Hotel Jet A	Jet A Storage Tanks
31	Alamo Gasoline (not in use)	Gasoline Storage Tank
32	Dollar Gasoline	Gasoline Storage Tank
33	Englefield Gasoline	Gasoline Storage Tank
34	Englefield Gasoline	Gasoline Storage Tank
35	Englefield Gasoline	Gasoline Storage Tank
36	Englefield Diesel	Diesel Fuel Storage Tank
37	Englefield Kerosene	Kerosene Storage Tank
38	FAA Control Tower	Emergency Generator W/ Diesel Fuel Tank
39	Hertz Gasoline	Gasoline Storage Tank
40	NetJets Diesel	Emergency Generator W/ Diesel Fuel Tank
41	Quick Turnaround Gasoline	Gasoline Storage Tanks
42	Avis Gasoline	Gasoline Storage Tank
43	National Gasoline	Gasoline Storage Tank
44	FAA ASR-9	Emergency Generator W/ Diesel Fuel Tank
45	Flight Safety	Emergency Generator W/ Diesel Fuel Tank
46	Lift Station	Emergency Generator W/ Diesel Fuel Tank
47	Electrical Vault	Emergency Generator W/ Diesel Fuel Tank
48	NetJets	Emergency Generator W/ Diesel Fuel Tank
49	Nationwide	Fuel Farm and Emergency Generator W/ Diesel Fuel Tank
50	North Fuel Farm	Jet A Storage Tanks
51	Nationwide	Fuel Farm
52	Heating Unit	Natural Gas Boiler (proposed midfield terminal)

Source: Gresham, Smith and Partners. Memorandum: Stationary Source Emission Survey Summary Report. dated July 21, 2006.

7.6 CONSTRUCTION EQUIPMENT

Construction is expected to begin in 2009; the first year of full operation of the CMH Sponsor's Proposed Project would be 2012. The year of greatest emissions is expected to be 2012. Locations of possible construction impacts are shown on the following exhibits:

- **Exhibit E-14a, Construction Impacts for All 2012 and 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project;**
- **Exhibit E-14b, *Additional Construction Impacts for 2012 and 2018 Runway Development Alternatives (C2a and C2b*);** and
- **Exhibit E-14c, *Additional Construction Impacts for 2012 and 2018 Runway Development Alternatives (C3a and C3b).***

The calculations for the emissions from construction relating to the projects shown in the exhibits listed above are provided in **Attachment 6**, ***Construction Emissions Inventory Tables***. The construction equipment emissions for Alternatives C2a, C2b, C3a, and C3b for 2012 and 2018 are presented in Chapter Five, Section 5.5 *Air Quality*. Construction emissions for the "C2" alternatives, C2a and C2b, are the same; likewise, construction emissions for the "C3" alternatives are the same for a given analysis year, 2012 or 2018. This is because the only difference between the C2 and the C3 alternatives in a given analysis year is the use of the noise program, which has no need for construction.

8.0 DISPERSION MODELING VARIABLES

Several modeling input variables are necessary for the dispersion analysis. In addition to the input data for the emission inventory, operational profiles are required; the assignment of gates is necessary; taxiway and runway assignments are needed; and dispersion receptors are placed.

8.1 OPERATIONAL PROFILES

A statistical description of runway use at the airport is required in dispersion calculations to distribute aircraft operations, and ultimately aircraft emissions, across the airfield throughout the year. Operational profiles were derived from the Airports Noise and Operations Management System (ANOMS) data for the period from April 1, 2005 through March 31, 2006. The three sets of operational profiles are presented in **Table 11**, ***Operational Profiles.*** The operational profiles for the runway queue time and queue length would be the same as the profiles used for the aircraft.

TABLE 11
OPERATIONAL PROFILES
PORT COLUMBUS INTERNATIONAL AIRPORT

Hour	Percent
0	14.7%
1	6.1%
2	5.3%
3	6.2%
4	7.8%
5	20.0%
6	57.3%
7	55.1%
8	64.3%
9	84.0%
10	79.3%
11	80.4%
12	79.8%
13	77.1%
14	82.0%
15	75.4%
16	97.8%
17	100.0%
18	84.9%
19	65.1%
20	58.2%
21	55.5%
22	53.2%
23	40.3%

Weekday	Percent
Sunday	82.0%
Monday	92.0%
Tuesday	95.0%
Wednesday	98.0%
Thursday	100.0%
Friday	95.0%
Saturday	67.0%

Month	Percent
January	90.0%
February	75.0%
March	80.0%
April	100.0%
May	98.0%
June	90.0%
July	90.0%
August	90.0%
September	87.0%
October	88.0%
November	84.0%
December	66.0%

Source: CRAA Aircraft Noise and Operations Management System (ANOMS) for CMH, April 1, 2005 through March 31, 2006.

8.2 GATE AREAS

Aircraft for each of the scenarios were assigned to a gate area, grouped by runway end, and included the taxi path to and from the runway end. Three general gate areas were identified, the Commercial Aviation, General Aviation, and Corporate Aviation. The gate areas are shown on the following exhibits:

- **Exhibit E-15, *Location of Generalized Aircraft Gate Areas for Computer Modeling for 2006 Existing Conditions, 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and for 2012 and 2018 Accelerated Alternative A: No Action,* and**
- **Exhibit E-16, *Location of Generalized Aircraft Gate Areas for Computer Modeling for 2012 and 2018 Runway Development Alternatives, and for 2012 and 2018 Accelerated Sponsor's Proposed Project.***

8.3 TAXIWAY AND RUNWAY ASSIGNMENTS

For dispersion, runway assignments were determined as given in the noise analysis. Taxi paths were assigned the same as given for the taxiway analysis described in Section 7.1, *Aircraft, APUs, GSE, and Taxi/Delay Time.*

8.4 DISPERSION RECEPTORS

There were 145 receptors assigned for dispersion modeling for the 2006 existing conditions as shown on:

- **Exhibit E-17, *Fenceline and Community Grid Receptors for 2006 Existing Conditions,* and**
- **Exhibit E-18, *Terminal Area Dispersion Receptor Locations for 2006 Existing Conditions***.

The first array of receptors are located every ten degrees around the airport property line perimeter, beginning at 360 degrees, as measured from the airport reference point. Another ring of receptors were located outward 1,500 feet along the same vectors, and a third ring of receptors were located 1,500 feet further out from the property line, also along the same vectors. Additional receptors were placed in the parking areas along International Gateway Drive and at the parking garage adjacent to the terminal.

The first version of the 2006 Existing Conditions analysis was dated July 14, 2007 (the 071407 sensitivity run), and included all weather years (5 years) and all receptors (145 receptors). The 071407 sensitivity run showed the higher concentrations would all occur in the "terminal core," defined as including the arrival and departure curbs, the parking garage adjacent to the terminal building, and along International Gateway. Based on the 071407 run, the locations of the terminal area receptors were revised as shown on:

- **Exhibit E-19, *Terminal Area Dispersion Receptor Locations for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and for 2012 and 2018 Accelerated Alternative A: No Action*, and**
- **Exhibit E-20, *2018 Terminal Area Dispersion Receptor Locations for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project.***

These receptors more accurately capture the concentrations at the terminal curbs and the garage, as well as International Gateway. In addition, updated information was provided by CRAA that increased the traffic count on all the terminal-area roadways. Another dispersion sensitivity analysis was calculated on August 6, 2007 (the 080607 run). The results were then coordinated with FAA, CRAA, and OEPA as demonstrated in **Attachment 2**, **Air Quality Scoping Meeting Materials** and were used to suggest the likely location of the highest concentration, and to determine the most representative locations for sensitive community receptors.

The analysis applied 65 receptor locations including the entire perimeter boundary (36 receptors), the receptors in the terminal core, and several community receptors. The 10 receptor locations determined to be representative of the impacts under the project alternatives are shown in the following exhibit:

Exhibit E-21, *Airport Fenceline and Community Sensitive Receptor Locations for All Years, All Alternatives*. The list of the 10 receptors for which results were extracted and reported in Chapter 5, Environmental Consequences are presented in **Table 12**, ***Airport and Community Sensitive Receptor Locations for All Years, All Alternatives.***

Table 12
AIRPORT AND COMMUNITY SENSITIVE RECEPTOR LOCATIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

RECEPTOR NAME	RECEPTOR LOCATION AND PROXIMITY TO SENSITIVE STRUCTURES	RECEPTOR IDENTIFICATION ON EXHIBIT E-21 AND IN MODELING OUTPUT[1]
Arrival Curb	Located at the existing terminal building on the east side of the roadway situated in front of the passenger-pickup area from which arriving passengers are transported to parking areas, rental car facilities, or other destinations off-airport. Pollutant concentrations would be expected to be highest at this receptor due to the close proximity to both motor vehicles and GSE at the terminal gate area.	Arr Curb
Gahanna East	Located northeast of the airport near Friendship Park, and near Wonderland Community Church, Shepherd Church of the Nazarene and Christian School, and Christian Center Church.	60
Gahanna North	Located north of the airport near Denison Avenue and Goshen Lane; near Victory in Pentecost Church and Goshen Lane Elementary School.	120 (G-1)
Mifflin South	Located southwest of the airport near Krumm Park; near Living Word Church, East Columbus Elementary School, Corinthian Baptist Church, and East Mount Olivet Baptist Church.	118 (MIF-2)
Whitehall	Located south of the airport near Yearling Road; near Holy Spirit School and Whitehall Library.	123 (W-1)
Gahanna West	Located north of the airport, near Hermitage Road; near Victory in Pentecost Church and Goshen Lane Elementary School.	53
Airport South	Located south of the airport; selected to capture potential impacts in public access areas south of the proposed replacement runway.	32
Airport Northwest	Located northwest of the airport; selected to capture potential impacts in a public access area from pollutants evaluated as a three-hour average concentration.	11
Mifflin North	Located northwest of the airport; selected to capture potential impacts in public access areas due to the one-hour average concentration of pollutants.	119 (MIF-1)
Golf Course	Located east of the airport in the public golf course near Runway 28L.	Golf Course

Note: GSE are ground support equipment.

[1] The receptor name is given as it appears on Exhibit E-21. The computer modeling output files may have a different identification name for some receptors, where the different identification is given in parenthesis.

Source: OEPA, 2007.
Landrum & Brown, 2007.

ATTACHMENT 1

EXHIBITS

All of the exhibits referred to in this Final Technical Report are contained in this attachment.

EXHIBIT E-1 Central Ohio Air Quality Monitoring Sites

EXHIBIT E-2a Generalized Arrival Taxi Paths to Terminal Gate for 2006 Existing Conditions

EXHIBIT E-2b Generalized Arrival Taxi Paths to General Aviation Gate for 2006 Existing Conditions

EXHIBIT E-2c Generalized Arrival Taxi Paths to Corporate Gate for 2006 Existing Conditions

EXHIBIT E-2d Generalized Departure Taxi Paths from Terminal Gate for 2006 Existing Conditions

EXHIBIT E-2e Generalized Departure Taxi Paths from General Aviation Gate for 2006 Existing Conditions

EXHIBIT E-2f Generalized Departure Taxi Paths from Corporate Gate for 2006 Existing Conditions

EXHIBIT E-3a Generalized Arrival Taxi Paths to Terminal Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action

EXHIBIT E-3b Generalized Arrival Taxi Paths to General Aviation Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action

EXHIBIT E-3c Generalized Arrival Taxi Paths to Corporate Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action

EXHIBIT E-3d Generalized Departure Taxi Paths from Terminal Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action

EXHIBITS, *Continued*

EXHIBIT E-3e Generalized Departure Taxi Paths from General Aviation Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action

EXHIBIT E-3f Generalized Departure Taxi Paths from Corporate Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action

EXHIBIT E-4a Generalized Arrival Taxi Paths to Existing Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-4b Generalized Arrival Taxi Paths to Proposed Midfield Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-4c Generalized Arrival Taxi Paths to General Aviation Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-4d Generalized Arrival Taxi Paths to Corporate Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-4e Generalized Departure Taxi Paths from Existing Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-4f Generalized Departure Taxi Paths from Proposed Midfield Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-4g Generalized Departure Taxi Paths from General Aviation Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-4h Generalized Departure Taxi Paths from Corporate Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-5 Parking Lots and Garages for 2006 Existing Conditions

EXHIBITS, *Continued*

EXHIBIT E-6 Parking Lots and Garages for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A: No Action

EXHIBIT E-7 Parking Lots and Garages for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-8a Roadways for 2006 Existing Conditions

EXHIBIT E-8b Roadway Traffic Counts for 2006 Existing Conditions

EXHIBIT E-9a Generalized Roadway Segments for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A: No Action

EXHIBIT E-9b Roadway Traffic Counts for 2012 Alternative A: No Action

EXHIBIT E-9c Roadway Traffic Counts for 2012 Runway Development Alternatives

EXHIBIT E-9d Roadway Traffic Counts for 2012 Accelerated Sponsor's Proposed Project

EXHIBIT E-9e Roadway Traffic Counts for 2018 Alternative A: No Action

EXHIBIT E-10a Generalized Roadway Segments for 2018 Runway Development Alternatives and Accelerated Sponsor's Proposed Project for 2012 and 2018

EXHIBIT E-10b Roadway Traffic Counts for 2018 Runway Development Alternatives.....

EXHIBIT E-10c Roadway Traffic Counts for 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-10d Roadway Traffic Counts for 2012 Accelerated Sponsor's Proposed Project

EXHIBIT E-11 Stationary Sources for 2006 Existing Conditions

EXHIBIT E-12 Stationary Sources for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A: No Action

EXHIBITS, *Continued*

EXHIBIT E-13 Stationary Sources for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-14a Construction Impacts for All 2012 and 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-14b Additional Construction Impacts for 2012 and 2018 Runway Development Alternatives (C2a and C2b)

EXHIBIT E-14c Additional Construction Impacts for 2012 and 2018 Runway Development Alternatives (C3a and C3b)

EXHIBIT E-15 Location of Generalized Aircraft Gate Areas for Computer Modeling for 2006 Existing Conditions, 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and for 2012 and 2018 Accelerated Alternative A: No Action

EXHIBIT E-16 Location of Generalized Aircraft Gate Areas for Computer Modeling for 2012 and 2018 Runway Development Alternatives, and for 2012 and 2018 Accelerated Sponsor's Proposed Project

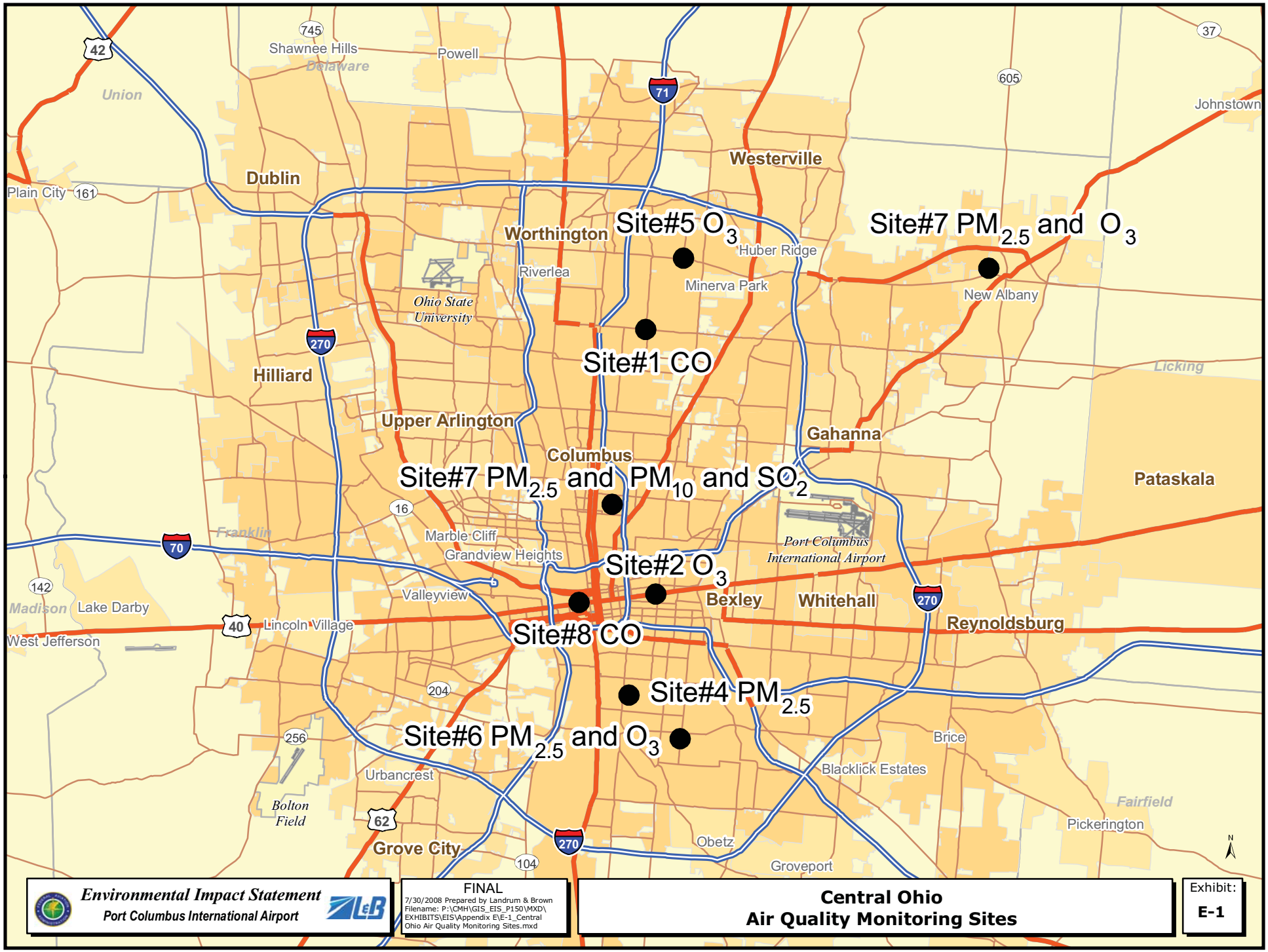
EXHIBIT E-17 Fenceline and Community Grid Receptors for 2006 Existing Conditions

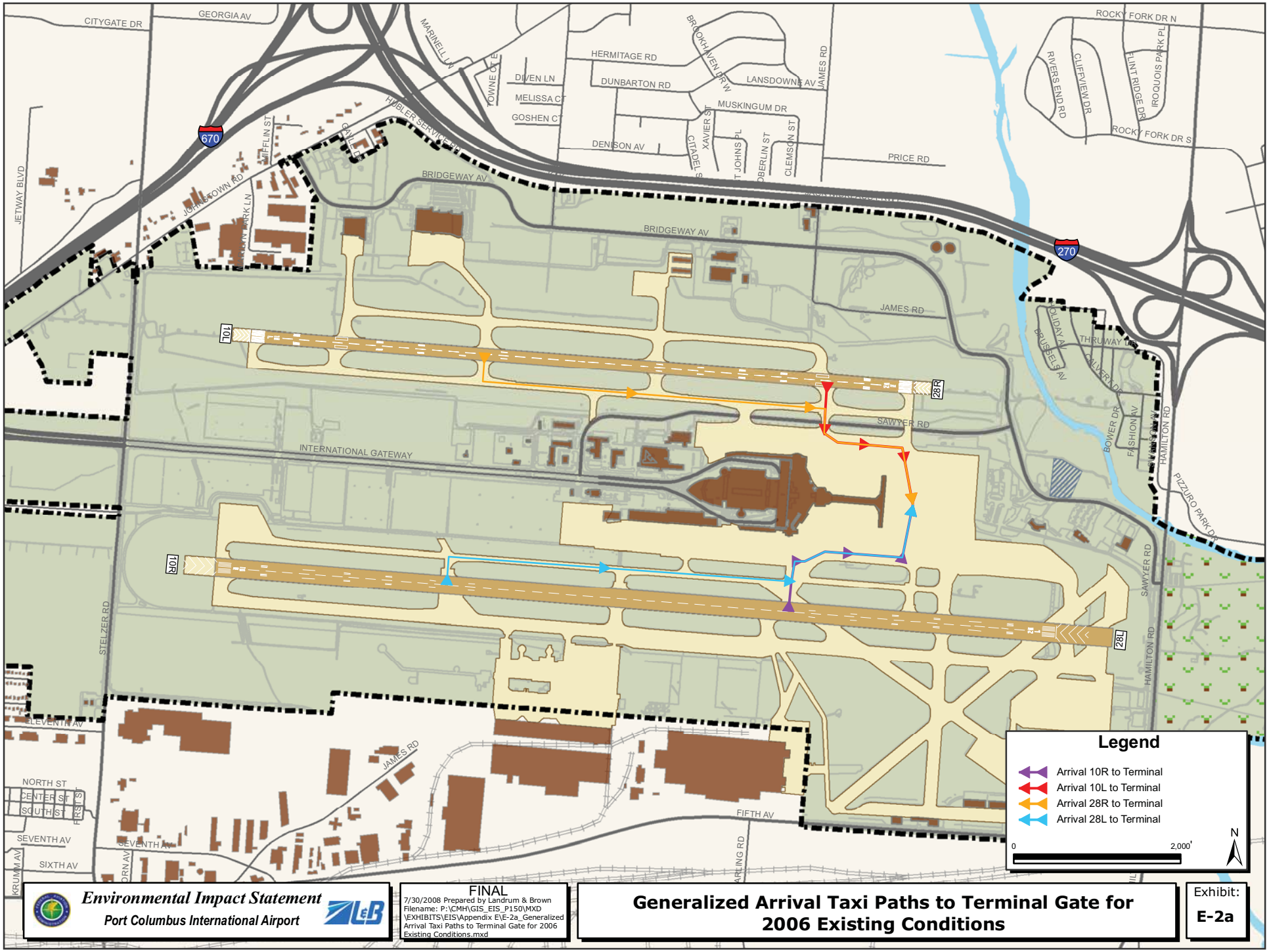
EXHIBIT E-18 Terminal Area Dispersion Receptor Locations for 2006 Existing Conditions

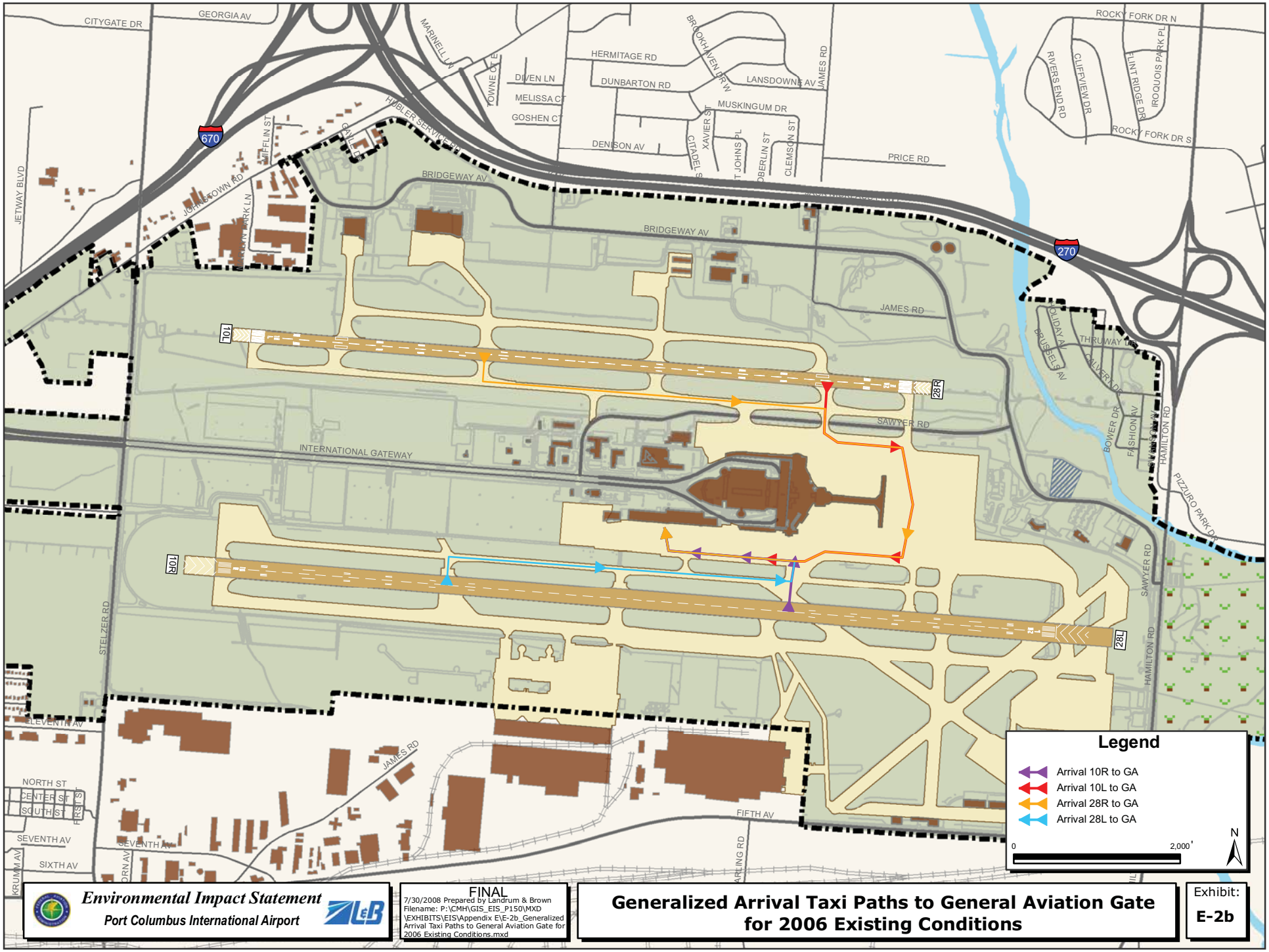
EXHIBIT E-19 Terminal Area Dispersion Receptor Locations for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and for 2012 and 2018 Accelerated Alternative A: No Action

EXHIBIT E-20 Terminal Area Dispersion Receptor Locations for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

EXHIBIT E-21 Airport Fenceline and Community Sensitive Receptor Locations for All Years, All Alternatives


Site#5 O3
Site#7 PM2.5 and O3
Site#1 CO
Site#7 PM2.5 and PM10 and SO2
Site#2 O3
Site#8 CO
Site#4 PM2.5
Site#6 PM2.5 and O3
Shawnee Hills
Delaware
Powell
Union
Dublin
Plain City
Westerville
Worthington
Riverlea
Huber Ridge
Minerva Park
New Albany
Johnstown
Ohio State University
Hilliard
Upper Arlington
Columbus
Gahanna
Licking
Pataskala
Franklin
Marble Cliff
Grandview Heights
Port Columbus International Airport
Valleyview
Bexley
Whitehall
Reynoldsburg
Madison
Lake Darby
West Jefferson
Lincoln Village
Urbancrest
Bolton Field
Grove City
Obetz
Groveport
Blacklick Estates
Brice
Fairfield
Pickerington
Environmental Impact Statement
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7/30/2008 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-1_Central Ohio Air Quality Monitoring Sites.mxd
Central Ohio
Air Quality Monitoring Sites
Exhibit:
E-1


CITYGATE DR
GEORGIA AV
MARINELL LN
HERMITAGE RD
DIVEN LN
MELISSA CT
GOSHEN CT
DUNBARTON RD
BROOKHAVEN DR W
LANSDOWNE AV
JAMES RD
MUSKINGUM DR
XAVIER ST
CITADEL ST
ST JOHNS PL
OBERLIN ST
CLEMSON ST
DENISON AV
PRICE RD
ROCKY FORK DR N
RIVERS END RD
CLIFFVIEW DR
FLINT RIDGE DR
IROQUOIS PARK PL
ROCKY FORK DR S
670
270
HUBLER SERVICE RD
CAMPUS CT
MIFFLIN ST
JOHNSTOWN RD
JETWAY BLVD
BRIDGEWAY AV
BRIDGEWAY AV
JAMES RD
10L
10R
28R
28L
SAWYER RD
INTERNATIONAL GATEWAY
HOLIDAY AV
BRUSSELS AV
THRUWAY
CULVERT DR
BOWER DR
FASHION AV
HAMILTON RD
PIZZURO PARK DR
STELZER RD
SAWYER RD
HAMILTON RD
ELEVENTH AV
NORTH ST
CENTER ST
SOUTH ST
FIRST ST
SEVENTH AV
SEVENTH AV
SIXTH AV
KRUMM AV
DORN AV
JAMES RD
FIFTH AV
DARLING RD
Legend
Arrival 10R to Terminal
Arrival 10L to Terminal
Arrival 28R to Terminal
Arrival 28L to Terminal
0
2,000'
N
Environmental Impact Statement
Port Columbus International Airport
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Arrival Taxi Paths to Terminal Gate for 2006
Existing Conditions.mxd
Generalized Arrival Taxi Paths to Terminal Gate for
2006 Existing Conditions
Exhibit:
E-2a

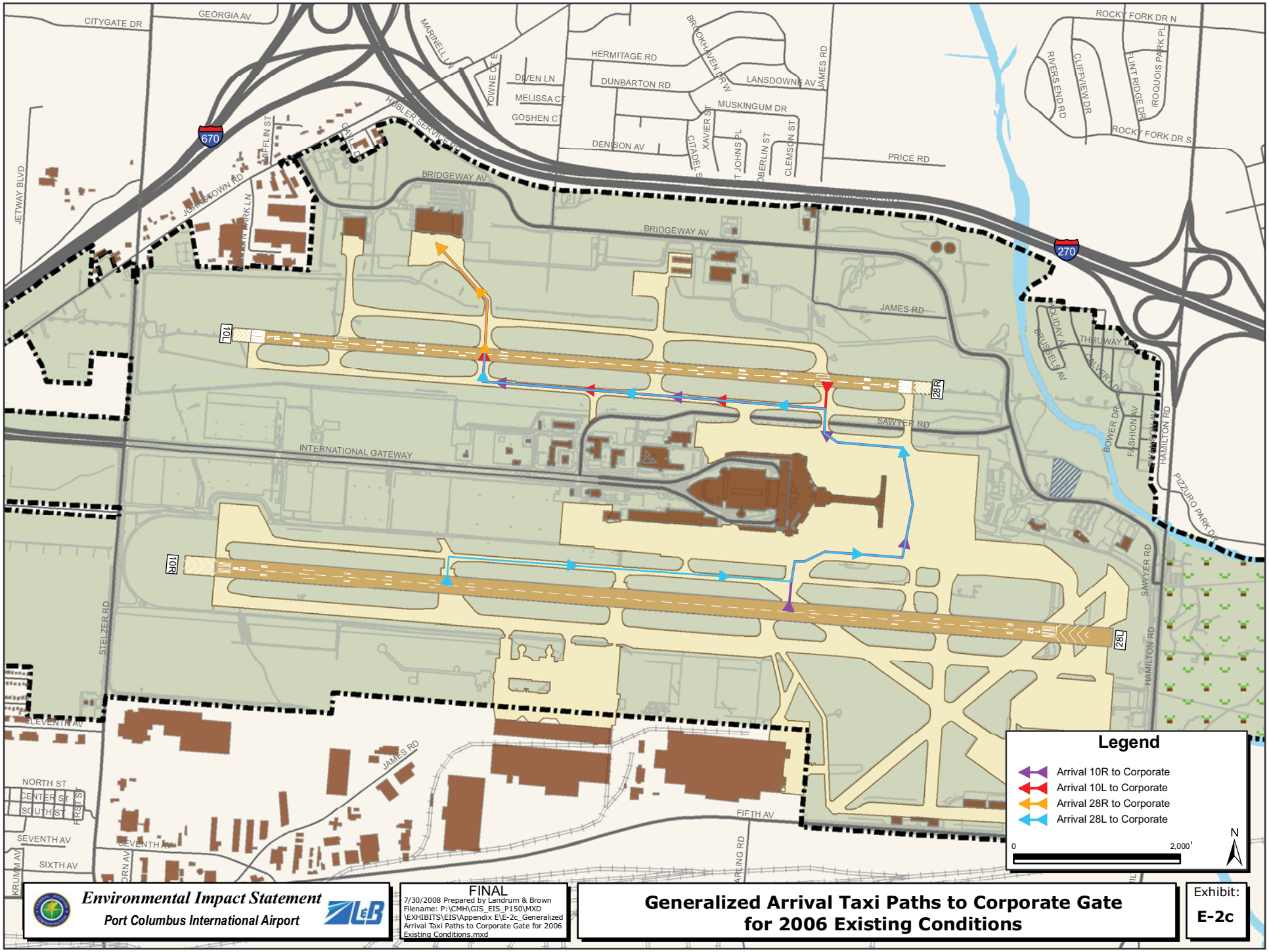


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Generalized Arrival Taxi Paths to General Aviation Gate for 2006 Existing Conditions

Exhibit:
E-2b

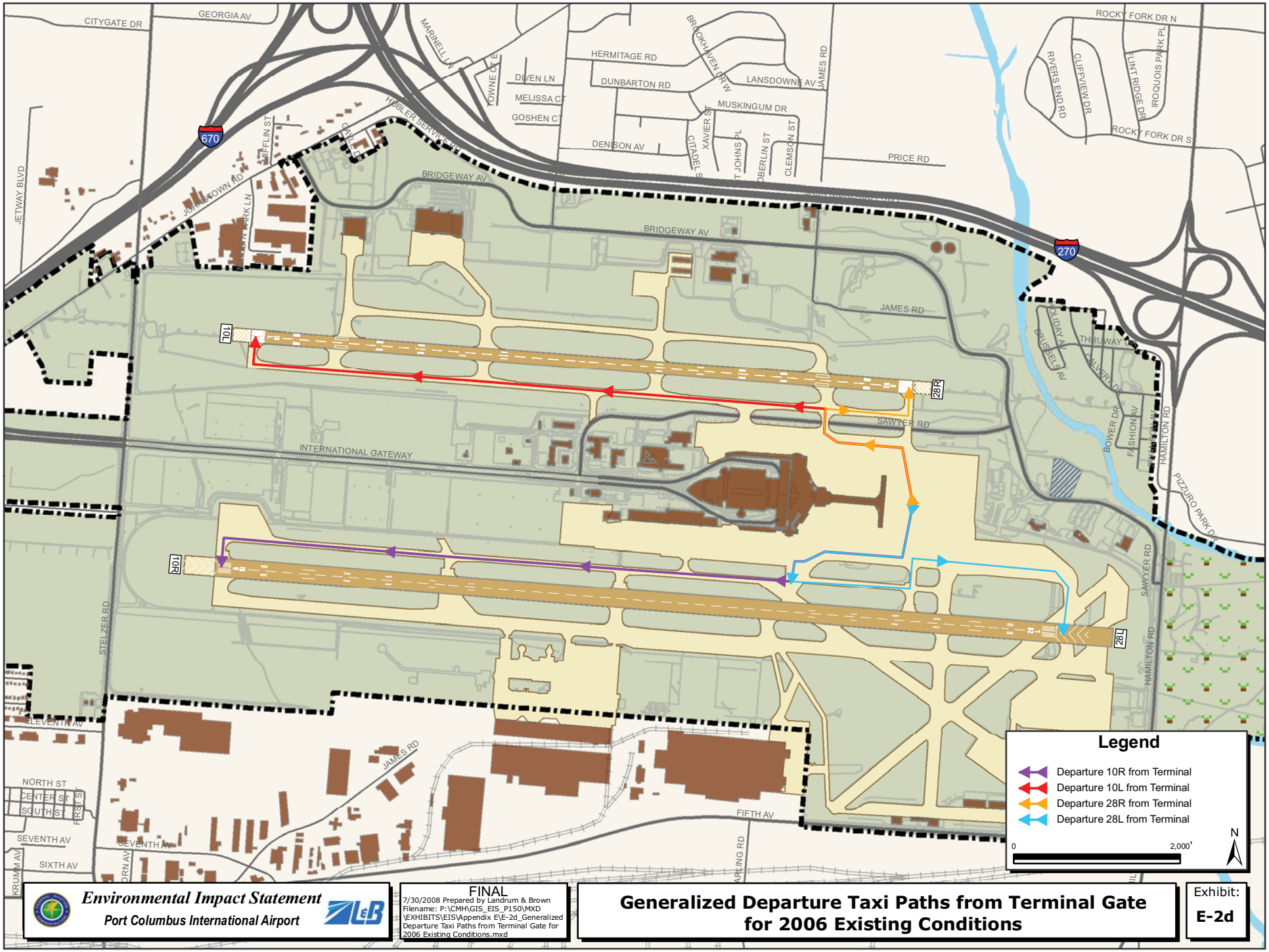


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Port Columbus International Airport

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7/30/2008 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-2c_Generalized Arrival Taxi Paths to Corporate Gate for 2006 Existing Conditions.mxd

Generalized Arrival Taxi Paths to Corporate Gate for 2006 Existing Conditions

Exhibit:
E-2c

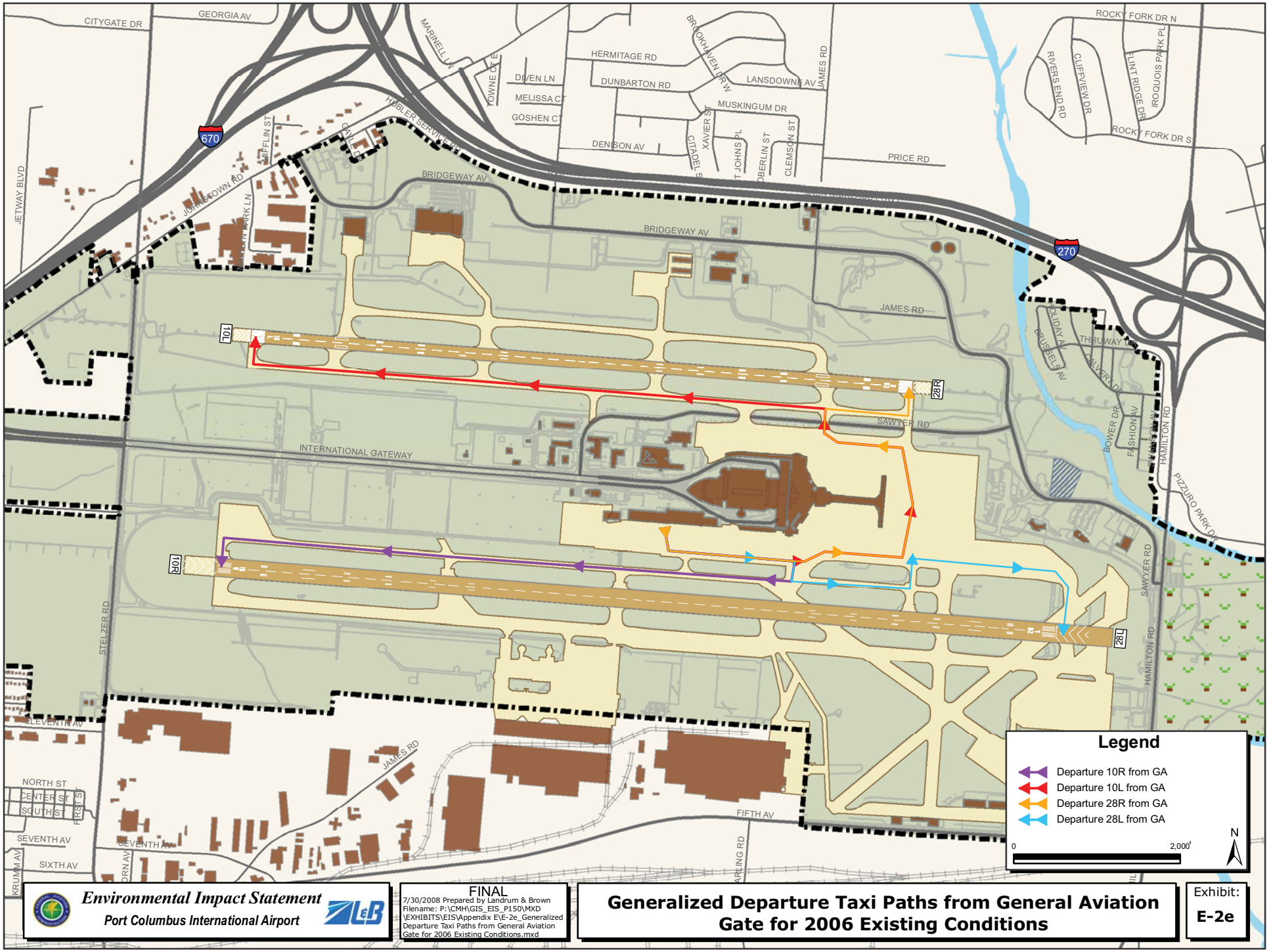


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Port Columbus International Airport

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7/30/2008 Prepared by Landrum & Brown
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Generalized Departure Taxi Paths from Terminal Gate for 2006 Existing Conditions

Exhibit:
E-2d

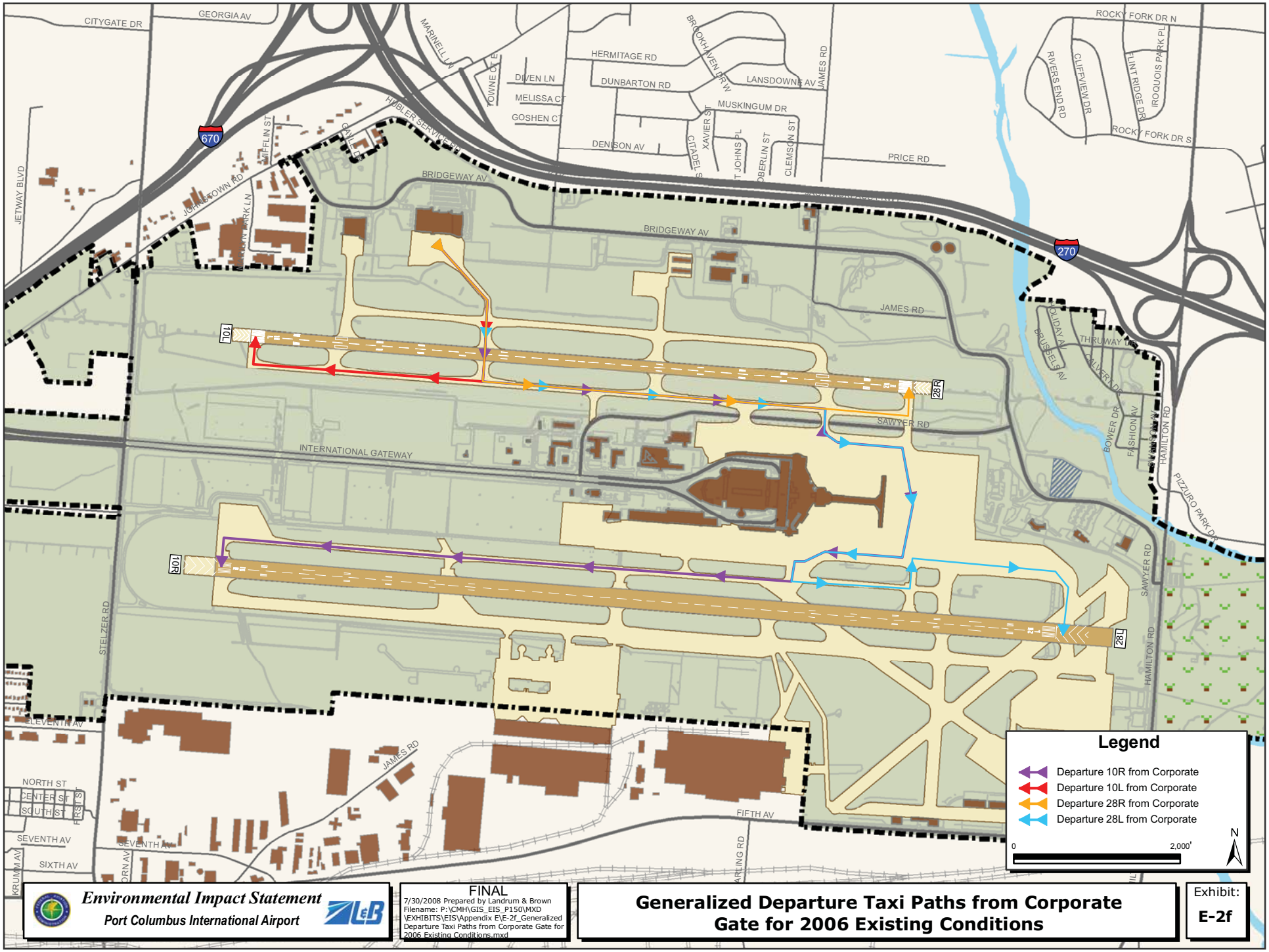


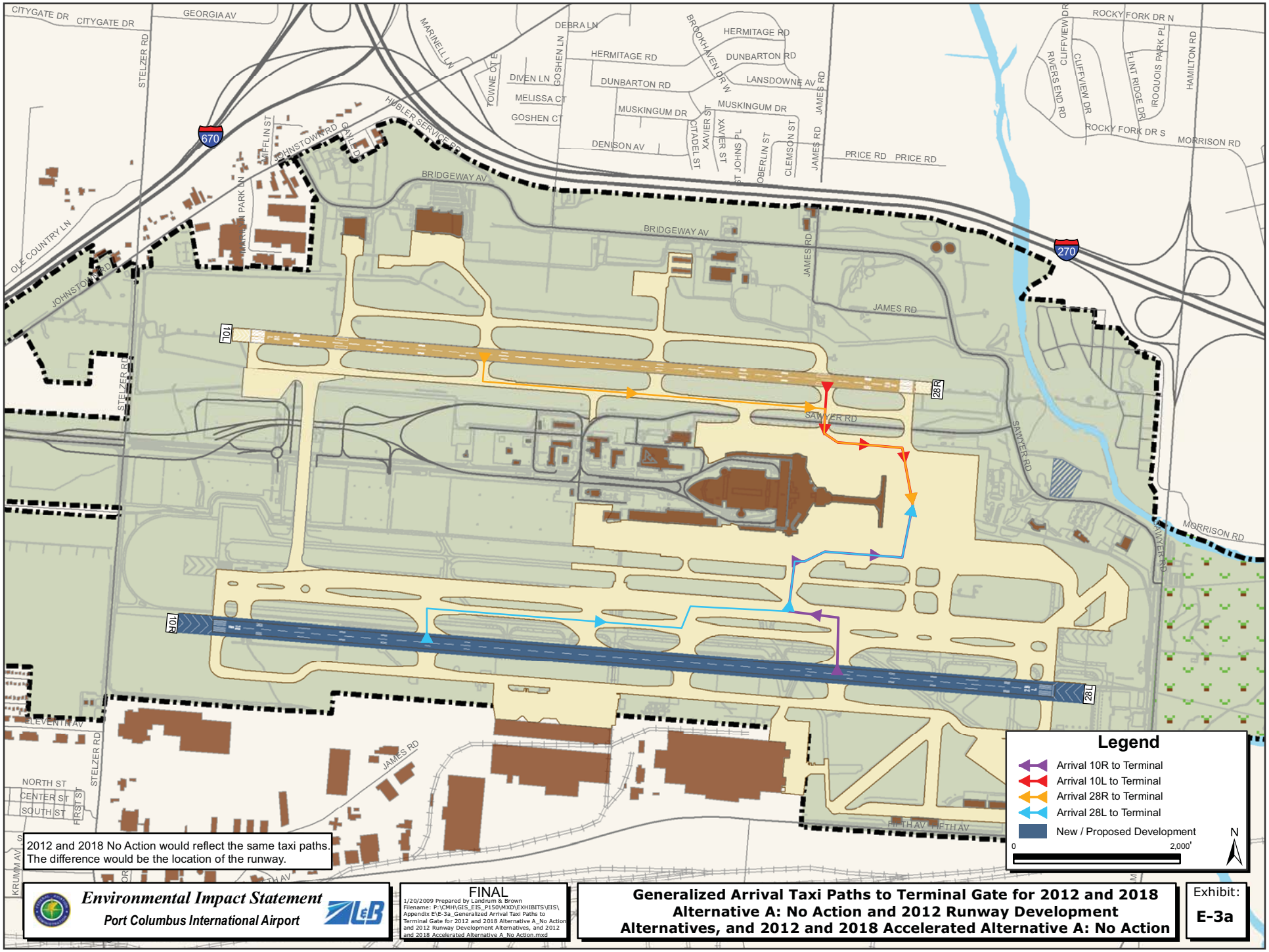
Environmental Impact Statement
Port Columbus International Airport

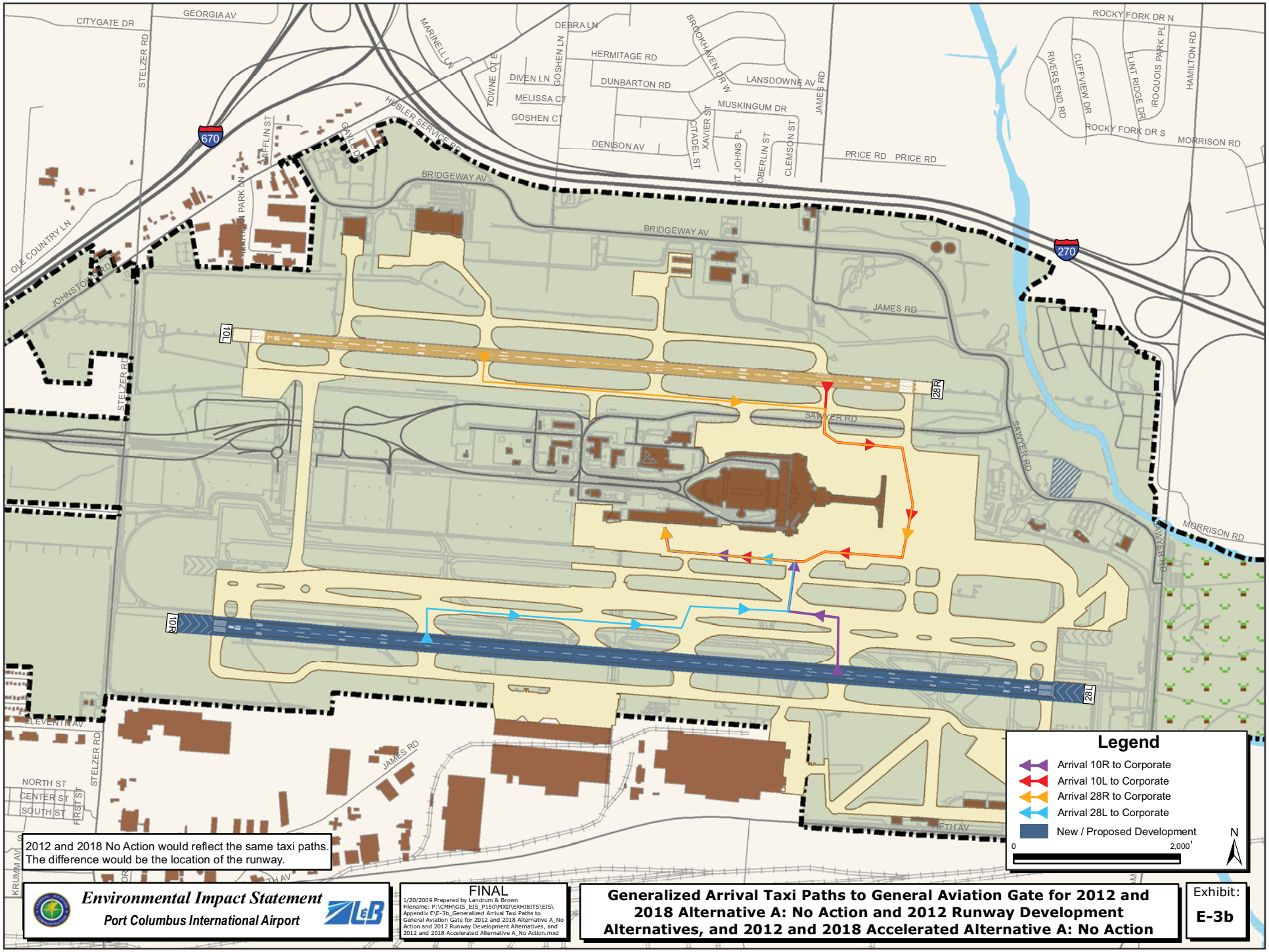
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7/30/2008 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-2e_Generalized Departure Taxi Paths from General Aviation Gate for 2006 Existing Conditions.mxd

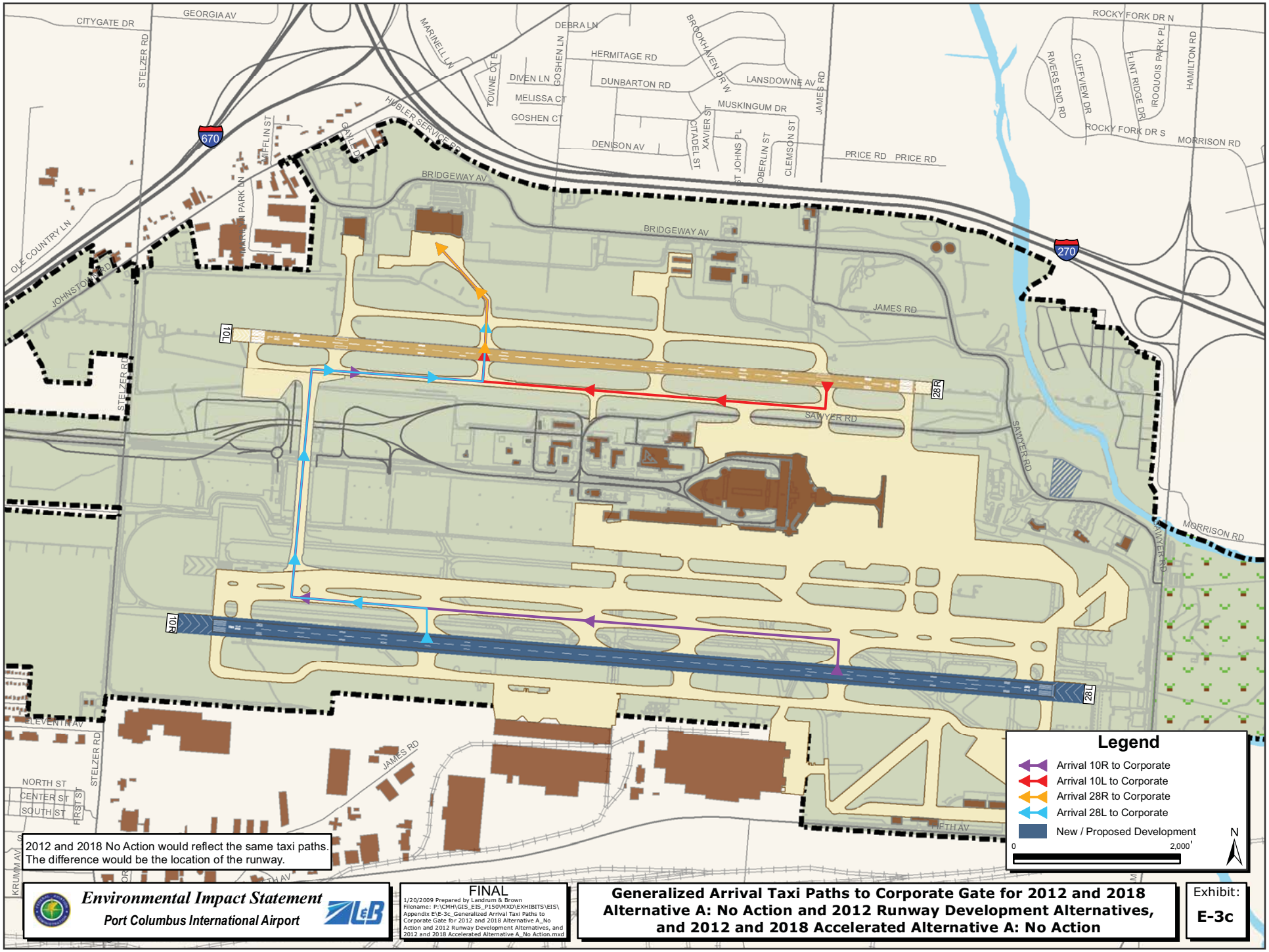
Generalized Departure Taxi Paths from General Aviation Gate for 2006 Existing Conditions

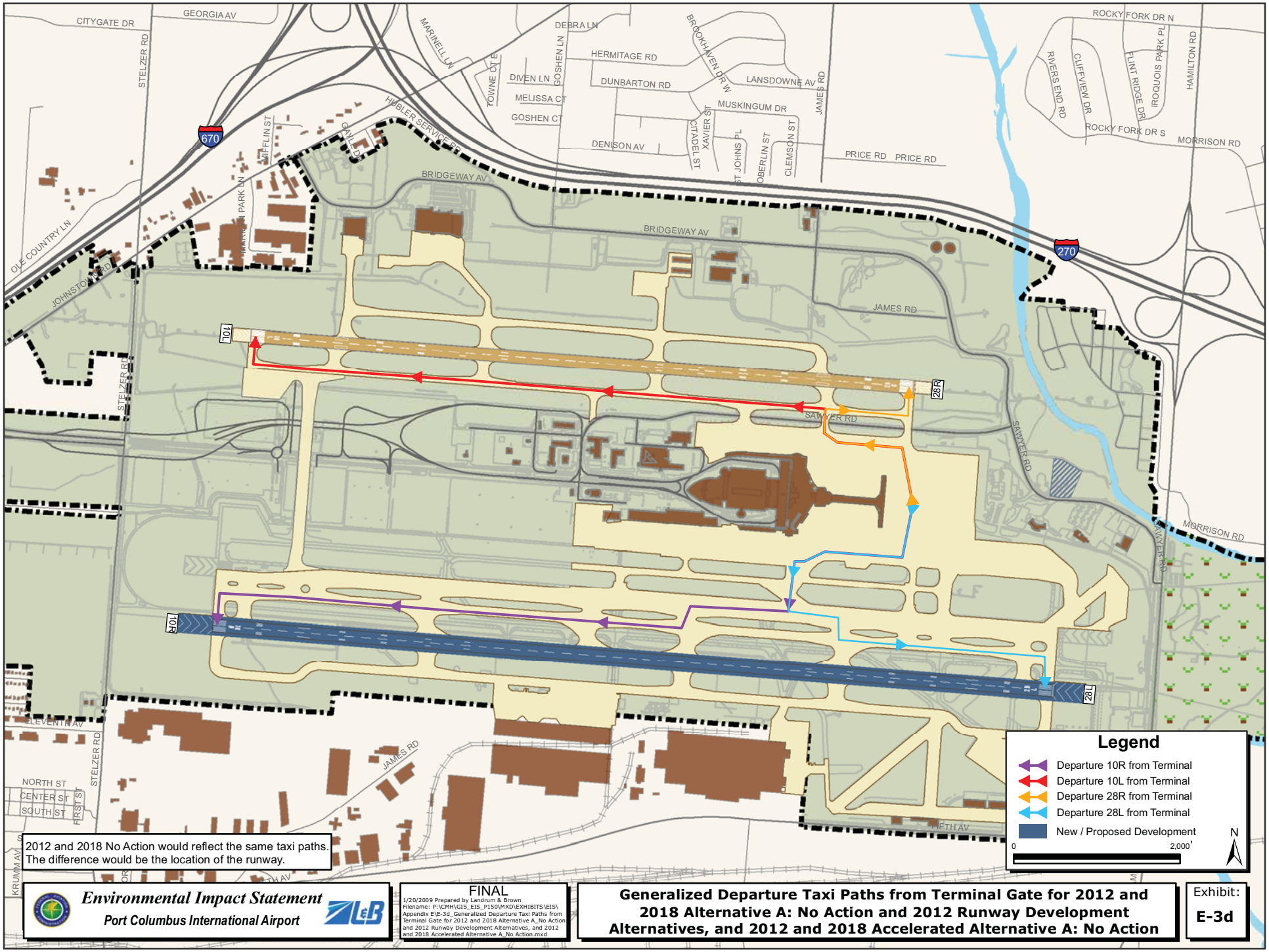
Exhibit:
E-2e


CITYGATE DR
GEORGIA AV
MARINELL LN
HERMITAGE RD
DIVEN LN
MELISSA CT
GOSHEN CT
DUNBARTON RD
BROOKHAVEN DR W
LANSDOWNE AV
JAMES RD
MUSKINGUM DR
XAVIER ST
CITADEL ST
ST JOHNS PL
OBERLIN ST
CLEMSON ST
DENISON AV
PRICE RD
ROCKY FORK DR N
RIVERS END RD
CLIFFVIEW DR
FLINT RIDGE DR
IROQUOIS PARK PL
ROCKY FORK DR S
670
270
HUBLER SERVICE RD
CAMPUS CT
MIFFLIN ST
JETWAY BLVD
JOHNSTOWN RD
AIRPORT PARK LN
BRIDGEWAY AV
BRIDGEWAY AV
JAMES RD
10L
28R
SAWYER RD
INTERNATIONAL GATEWAY
HOLIDAY AV
BRUSSELS AV
THRUWAY
CALVERT DR
BOWER DR
FASHION AV
HAMILTON RD
PIZZURO PARK DR
10R
28L
STELZER RD
SAWYER RD
HAMILTON RD
ELEVENTH AV
JAMES RD
NORTH ST
CENTER ST
SOUTH ST
FIRST ST
SEVENTH AV
SEVENTH AV
SIXTH AV
KRUMM AV
DORN AV
FIFTH AV
DARLING RD
Legend
Departure 10R from Corporate
Departure 10L from Corporate
Departure 28R from Corporate
Departure 28L from Corporate
0
2,000'
N
Environmental Impact Statement
Port Columbus International Airport
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FINAL
7/30/2008 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-2f_Generalized Departure Taxi Paths from Corporate Gate for 2006 Existing Conditions.mxd
Generalized Departure Taxi Paths from Corporate Gate for 2006 Existing Conditions
Exhibit:
E-2f


CITYGATE DR
CITYGATE DR
GEORGIA AV
STELZER RD
MARKNELL LN
DEBRA LN
GOSHEN LN
TOWNE CT E
DIVEN LN
MELISSA CT
GOSHEN CT
HERMITAGE RD
HERMITAGE RD
BROOKHAVEN DR W
DUNBARTON RD
DUNBARTON RD
LANSDOWNE AV
JAMES RD
MUSKINGUM DR
MUSKINGUM DR
CITADEL ST
XAVIER ST
ST JOHNS PL
OBERLIN ST
CLEMSON ST
JAMES RD
DENISON AV
PRICE RD
PRICE RD
ROCKY FORK DR N
RIVERS END RD
CLIFFVIEW DR
CLIFFVIEW DR
FLINT RIDGE DR
IROQUOIS PARK PL
HAMILTON RD
ROCKY FORK DR S
MORRISON RD
670
HUBLER SERVICE RD
JOHNSTOWN RD
CAVALRY
MIFFLIN ST
MIFFLIN PARK LN
BRIDGEWAY AV
BRIDGEWAY AV
JAMES RD
270
OLE COUNTRY LN
JOHNSTOWN RD
JAMES RD
10L
28R
SAWYER RD
SAWYER RD
MORRISON RD
SAWYER RD
10R
28L
STELZER RD
STELZER RD
ELEVENTH AV
JAMES RD
NORTH ST
CENTER ST
SOUTH ST
FIRST ST
FIFTH AV
FIFTH AV
KRUMM AV
2012 and 2018 No Action would reflect the same taxi paths.
The difference would be the location of the runway.
Legend
Arrival 10R to Terminal
Arrival 10L to Terminal
Arrival 28R to Terminal
Arrival 28L to Terminal
New / Proposed Development
N
0
2,000'
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-3a_Generalized Arrival Taxi Paths to Terminal Gate for 2012 and 2018 Alternative A_No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A_No Action.mxd
Generalized Arrival Taxi Paths to Terminal Gate for 2012 and 2018
Alternative A: No Action and 2012 Runway Development
Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action
Exhibit:
E-3a


CITYGATE DR
GEORGIA AV
STELZER RD
MARINELL LN
DEBRA LN
GOSHEN LN
TOWNE CT E
HERMITAGE RD
DIVEN LN
DUNBARTON RD
MELISSA CT
GOSHEN CT
BROOKHAVEN DR W
LANSDOWNE AV
JAMES RD
MUSKINGUM DR
CITADEL ST
XAVIER ST
ST JOHNS PL
OBERLIN ST
CLEMSON ST
DENISON AV
PRICE RD
PRICE RD
ROCKY FORK DR N
RIVERS END RD
CLIFFVIEW DR
FLINT RIDGE DR
IROQUOIS PARK PL
HAMILTON RD
ROCKY FORK DR S
MORRISON RD
670
270
HUBLER SERVICE RD
GAVLOR
MIFFLIN ST
MIFFLIN PARK LN
BRIDGEWAY AV
BRIDGEWAY AV
OLE COUNTRY LN
JOHNSTOWN RD
JAMES RD
10L
28R
SAWYER RD
SAWYER RD
SAWYER RD
MORRISON RD
10R
28L
STELZER RD
STELZER RD
STELZER RD
ELEVENTH AV
NORTH ST
CENTER ST
SOUTH ST
FIRST ST
JAMES RD
KRUMM AV
FIFTH AV
2012 and 2018 No Action would reflect the same taxi paths.
The difference would be the location of the runway.
Legend
Arrival 10R to Corporate
Arrival 10L to Corporate
Arrival 28R to Corporate
Arrival 28L to Corporate
New / Proposed Development
N
0
2,000'
Environmental Impact Statement
Port Columbus International Airport
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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\
Appendix E\E-3b_Generalized Arrival Taxi Paths to
General Aviation Gate for 2012 and 2018 Alternative A_No
Action and 2012 Runway Development Alternatives, and
2012 and 2018 Accelerated Alternative A_No Action.mxd
Generalized Arrival Taxi Paths to General Aviation Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action
Exhibit:
E-3b


CITYGATE DR
GEORGIA AV
STELZER RD
MARKNELL LN
DEBRA LN
GOSHEN LN
TOWNE CT E
HERMITAGE RD
DIVEN LN
DUNBARTON RD
MELISSA CT
GOSHEN CT
BROOKHAVEN DR W
LANSDOWNE AV
JAMES RD
MUSKINGUM DR
CITADEL ST
XAVIER ST
ST JOHNS PL
OBERLIN ST
CLEMSON ST
DENISON AV
PRICE RD
PRICE RD
ROCKY FORK DR N
RIVERS END RD
CLIFFVIEW DR
FLINT RIDGE DR
IROQUOIS PARK PL
HAMILTON RD
ROCKY FORK DR S
MORRISON RD
HUBLER SERVICE RD
GAVLOR
MIFFLIN ST
MIFFLIN PARK LN
BRIDGEWAY AV
BRIDGEWAY AV
OLE COUNTRY LN
JOHNSTOWN RD
670
270
JAMES RD
10L
28R
SAWYER RD
SAWYER RD
SAWYER RD
MORRISON RD
10R
28L
ELEVENTH AV
STELZER RD
JAMES RD
NORTH ST
CENTER ST
SOUTH ST
FIRST ST
KRUMM AV
FIFTH AV
2012 and 2018 No Action would reflect the same taxi paths.
The difference would be the location of the runway.
Legend
Arrival 10R to Corporate
Arrival 10L to Corporate
Arrival 28R to Corporate
Arrival 28L to Corporate
New / Proposed Development
N
0
2,000'
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\
Appendix E\E-3c_Generalized Arrival Taxi Paths to
Corporate Gate for 2012 and 2018 Alternative A_No
Action and 2012 Runway Development Alternatives, and
2012 and 2018 Accelerated Alternative A_No Action.mxd
Generalized Arrival Taxi Paths to Corporate Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action
Exhibit:
E-3c



2012 and 2018 No Action would reflect the same taxi paths. The difference would be the location of the runway.

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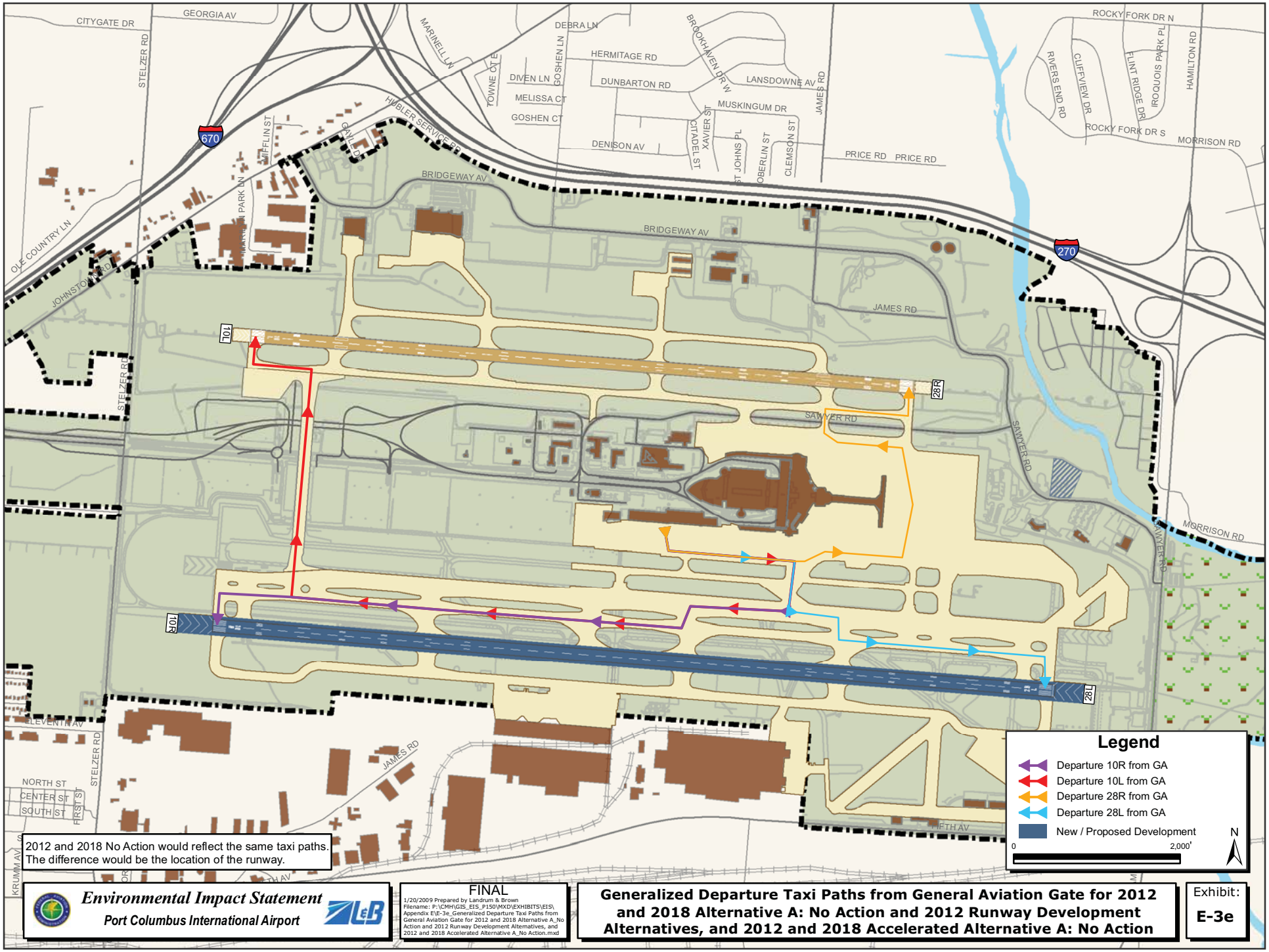
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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-3d_Generalized Departure Taxi Paths from Terminal Gate for 2012 and 2018 Alternative A_No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A_No Action.mxd

Generalized Departure Taxi Paths from Terminal Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action

Exhibit:

E-3d



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Port Columbus International Airport

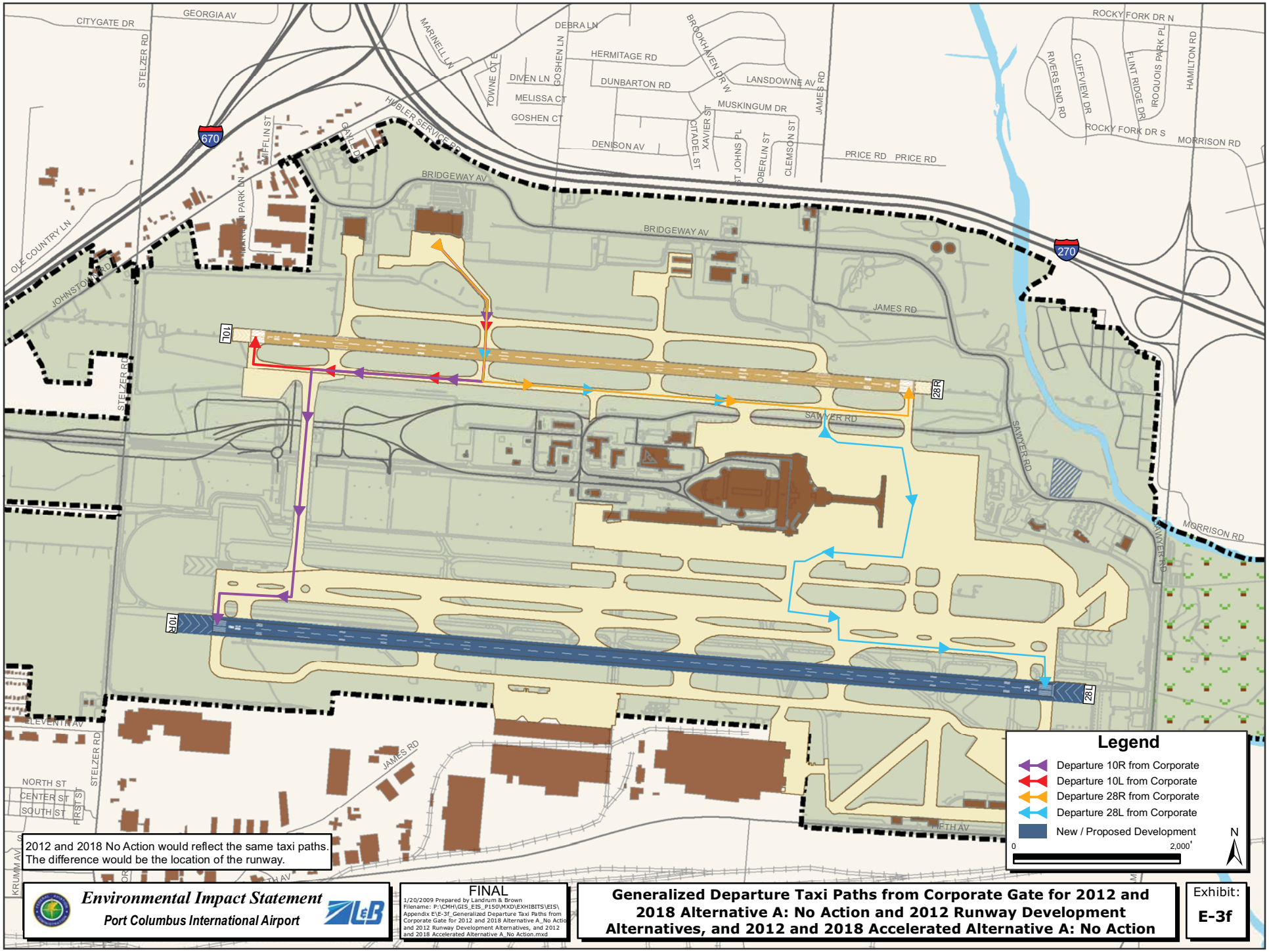
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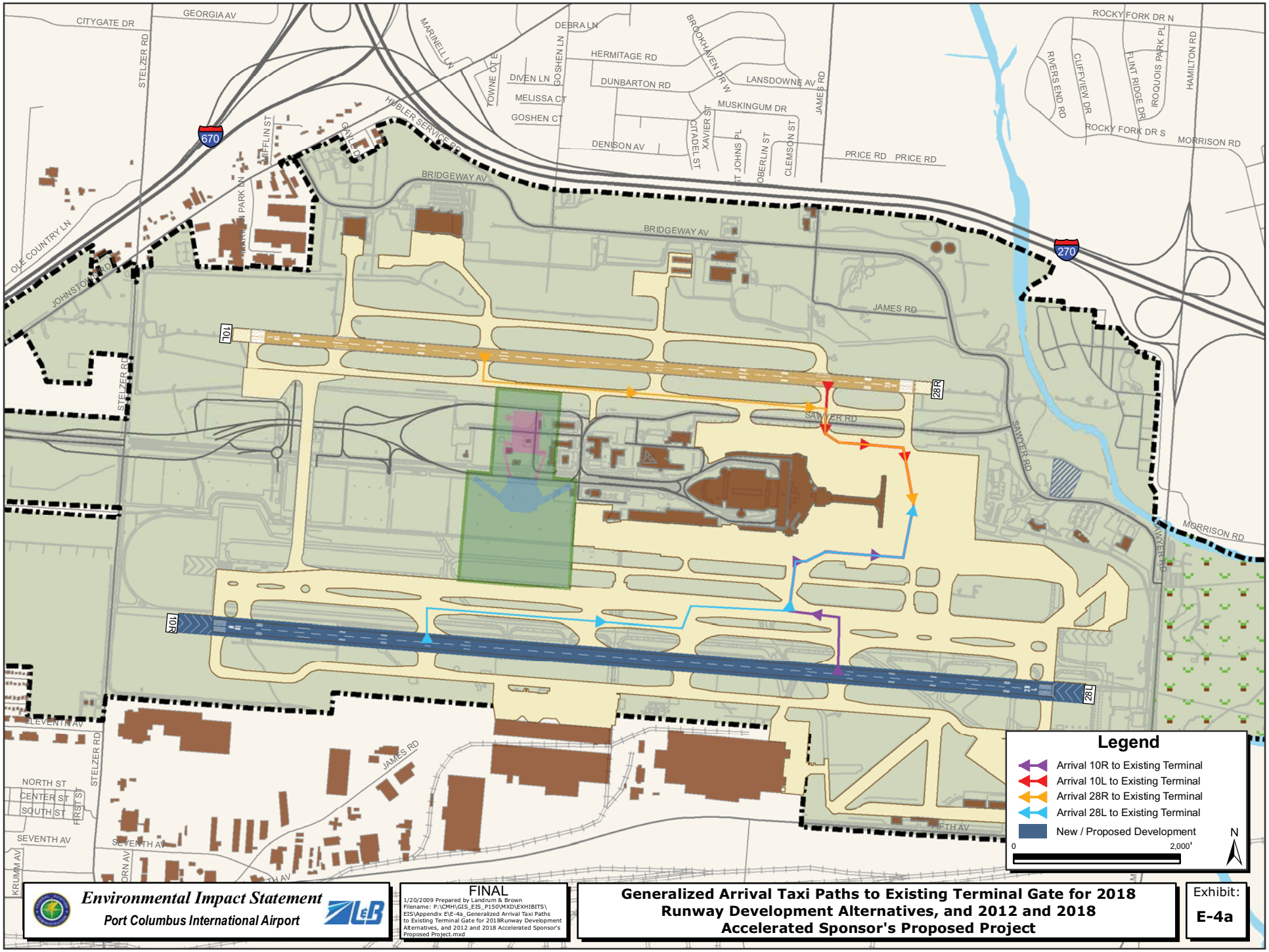
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Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-3e_Generalized Departure Taxi Paths from General Aviation Gate for 2012 and 2018 Alternative A_No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A_No Action.mxd

Generalized Departure Taxi Paths from General Aviation Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action

Exhibit:

E-3e


CITYGATE DR
GEORGIA AV
STELZER RD
MARKNELL LN
DEBRA LN
GOSHEN LN
TOWNE CT E
HERMITAGE RD
DIVEN LN
DUNBARTON RD
MELISSA CT
GOSHEN CT
BROOKHAVEN DR W
LANSDOWNE AV
JAMES RD
MUSKINGUM DR
CITADEL ST
XAVIER ST
ST JOHNS PL
OBERLIN ST
CLEMSON ST
DENISON AV
PRICE RD
PRICE RD
ROCKY FORK DR N
RIVERS END RD
CLIFFVIEW DR
FLINT RIDGE DR
IROQUOIS PARK PL
HAMILTON RD
ROCKY FORK DR S
MORRISON RD
HUBLER SERVICE RD
MIFFLIN ST
GAVLOR
MIFFLIN PARK LN
BRIDGEWAY AV
BRIDGEWAY AV
OLE COUNTRY LN
JOHNSTOWN RD
670
270
JAMES RD
10L
28R
SAWYER RD
SAWYER RD
SAWYER RD
MORRISON RD
10R
28L
ELEVENTH AV
STELZER RD
JAMES RD
NORTH ST
CENTER ST
SOUTH ST
FIRST ST
FIFTH AV
KRUMM AV
Legend
Departure 10R from Corporate
Departure 10L from Corporate
Departure 28R from Corporate
Departure 28L from Corporate
New / Proposed Development
N
0
2,000'
2012 and 2018 No Action would reflect the same taxi paths.
The difference would be the location of the runway.
Environmental Impact Statement
Port Columbus International Airport
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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\
Appendix E\E-3f_Generalized Departure Taxi Paths from
Corporate Gate for 2012 and 2018 Alternative A_No Actio
and 2012 Runway Development Alternatives, and 2012
and 2018 Accelerated Alternative A_No Action.mxd
Generalized Departure Taxi Paths from Corporate Gate for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative A: No Action
Exhibit:
E-3f



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Port Columbus International Airport

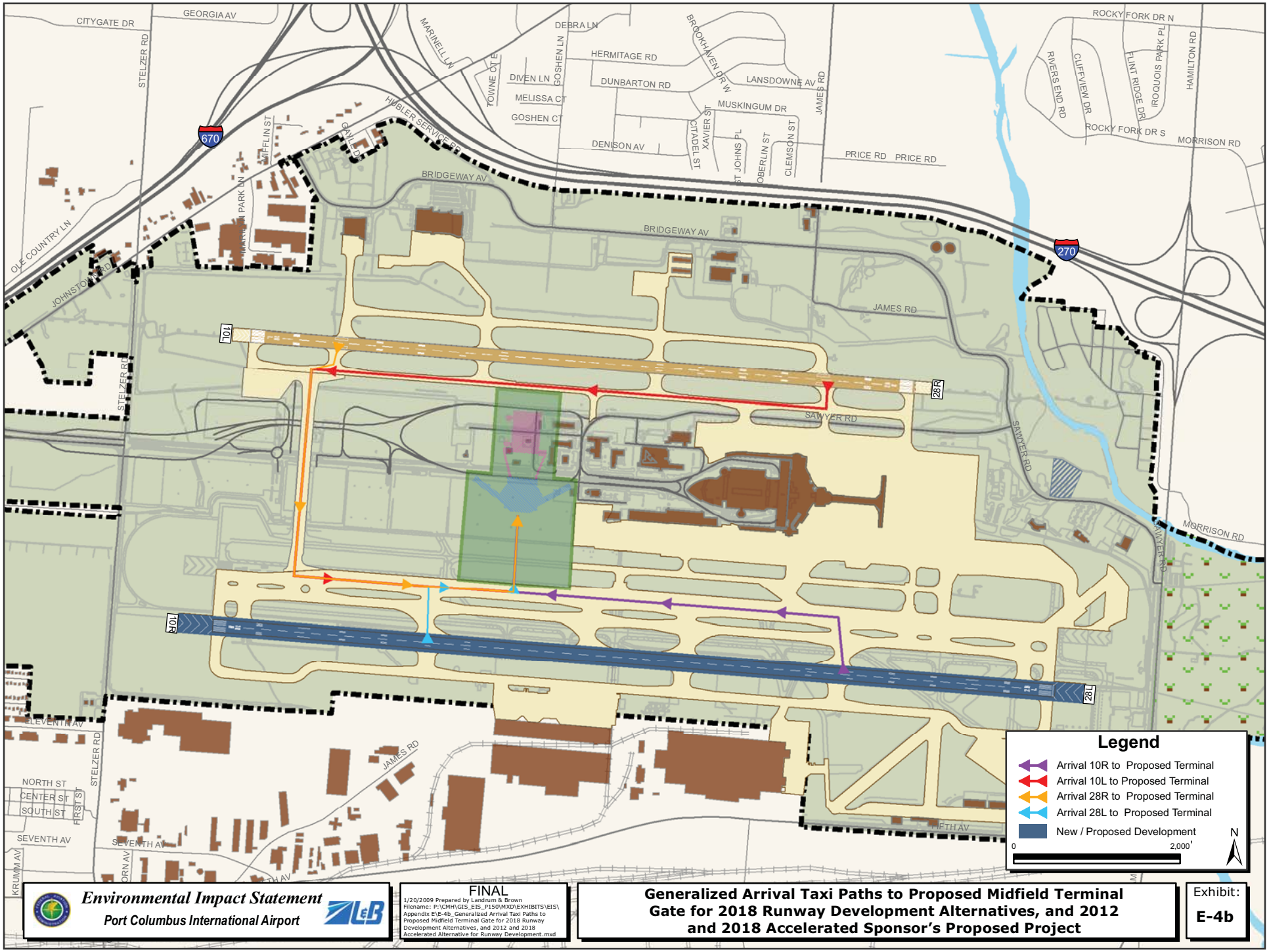
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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-4a_Generalized Arrival Taxi Paths to Existing Terminal Gate for 2018Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project.mxd

Generalized Arrival Taxi Paths to Existing Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:

E-4a



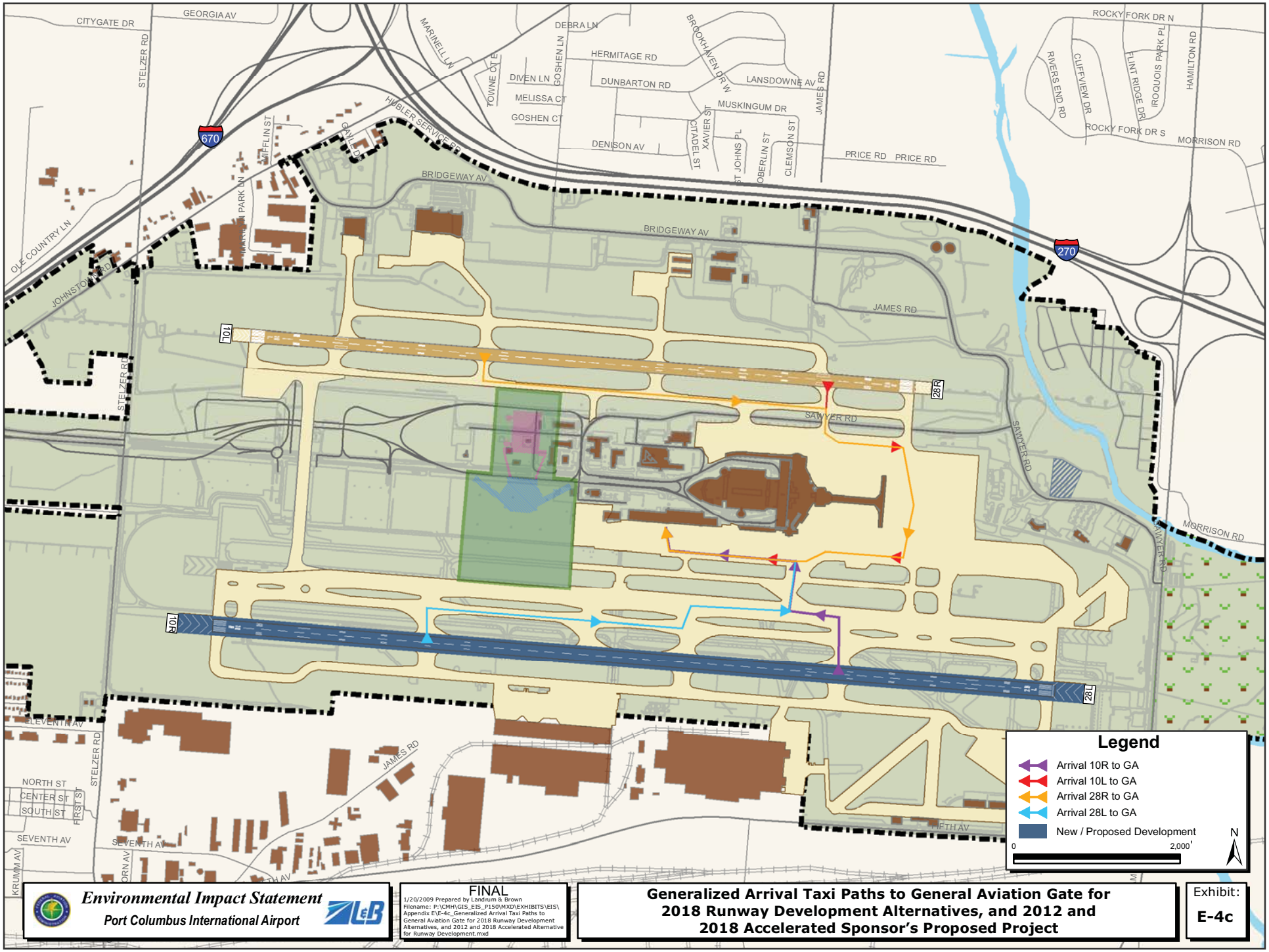
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Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-4b_Generalized Arrival Taxi Paths to Proposed Midfield Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative for Runway Development.mxd

Generalized Arrival Taxi Paths to Proposed Midfield Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:
E-4b



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Port Columbus International Airport

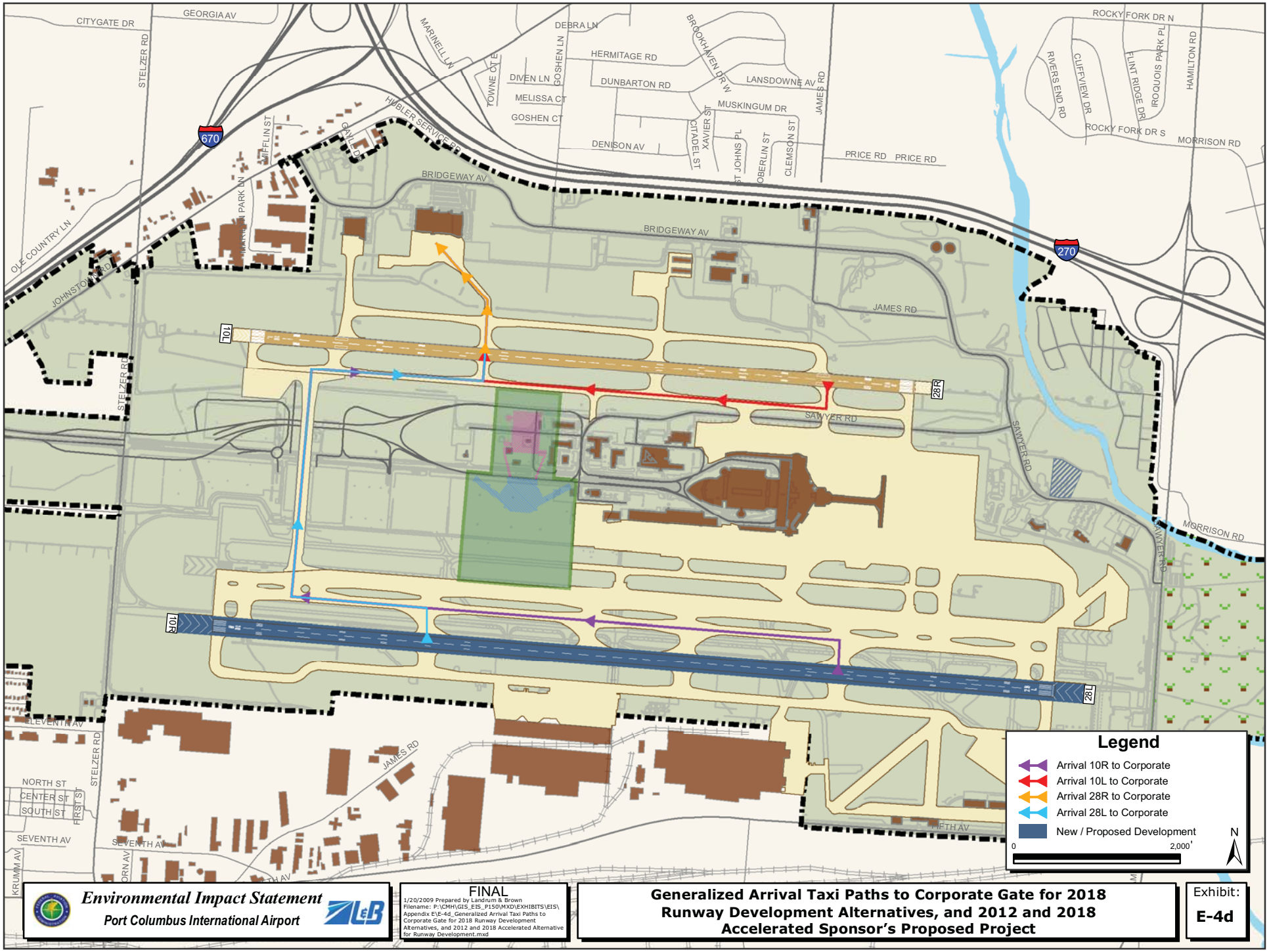
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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-4c_Generalized Arrival Taxi Paths to General Aviation Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative for Runway Development.mxd

Generalized Arrival Taxi Paths to General Aviation Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:

E-4c

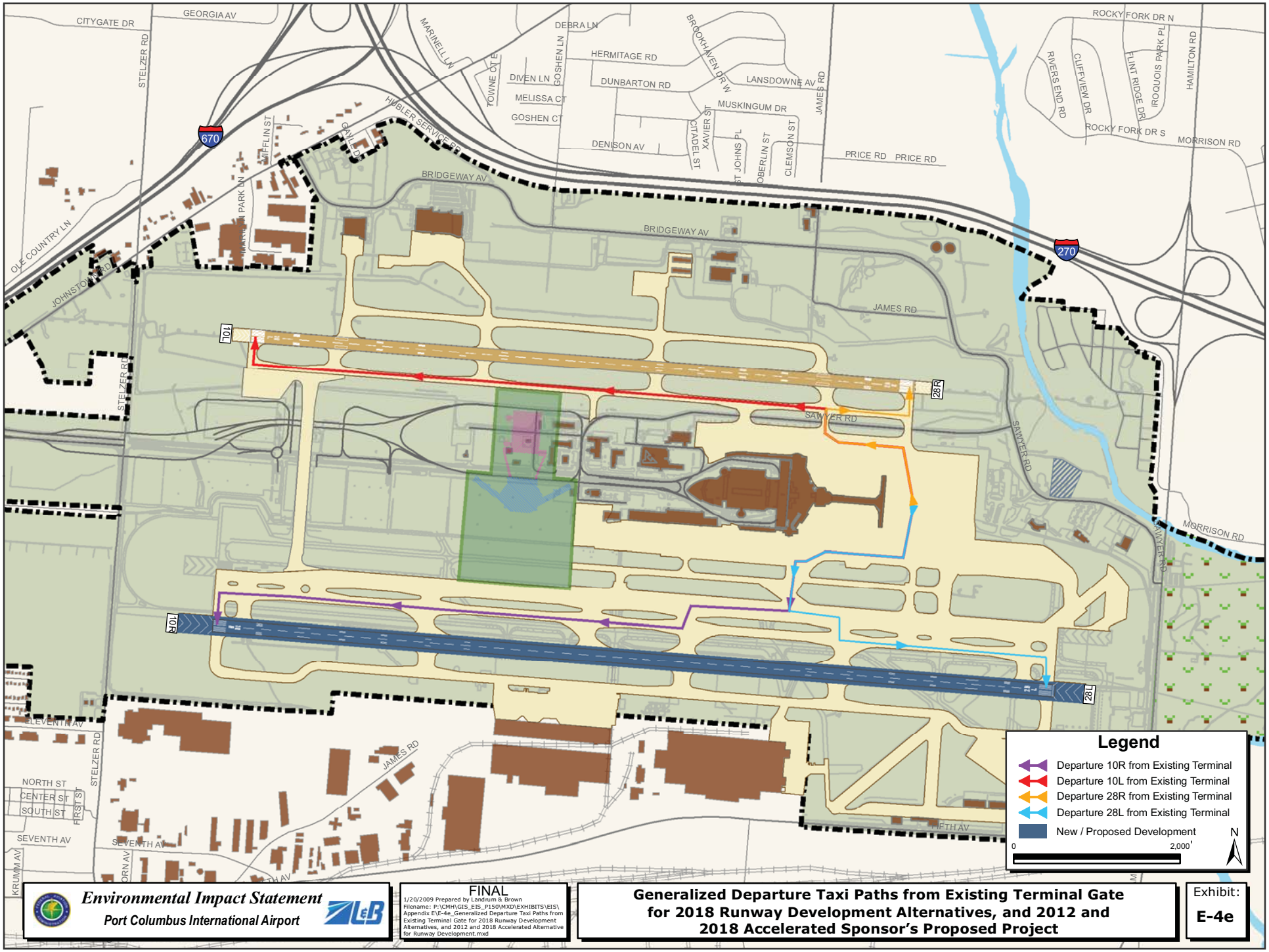


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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-4d_Generalized Arrival Taxi Paths to Corporate Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative for Runway Development.mxd

Generalized Arrival Taxi Paths to Corporate Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:
E-4d



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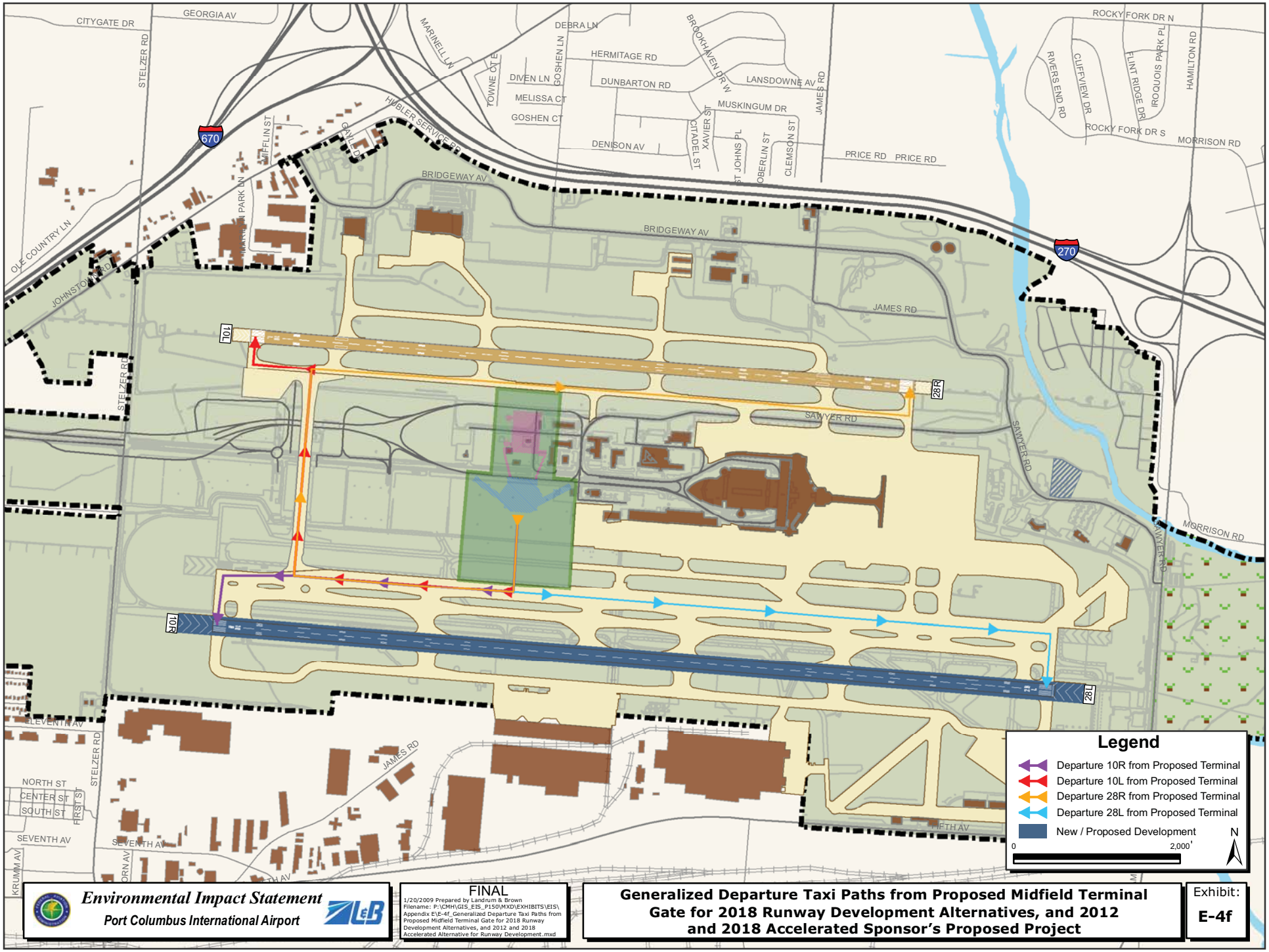
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1/20/2009 Prepared by Landrum & Brown
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Generalized Departure Taxi Paths from Existing Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:

E-4e



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Port Columbus International Airport

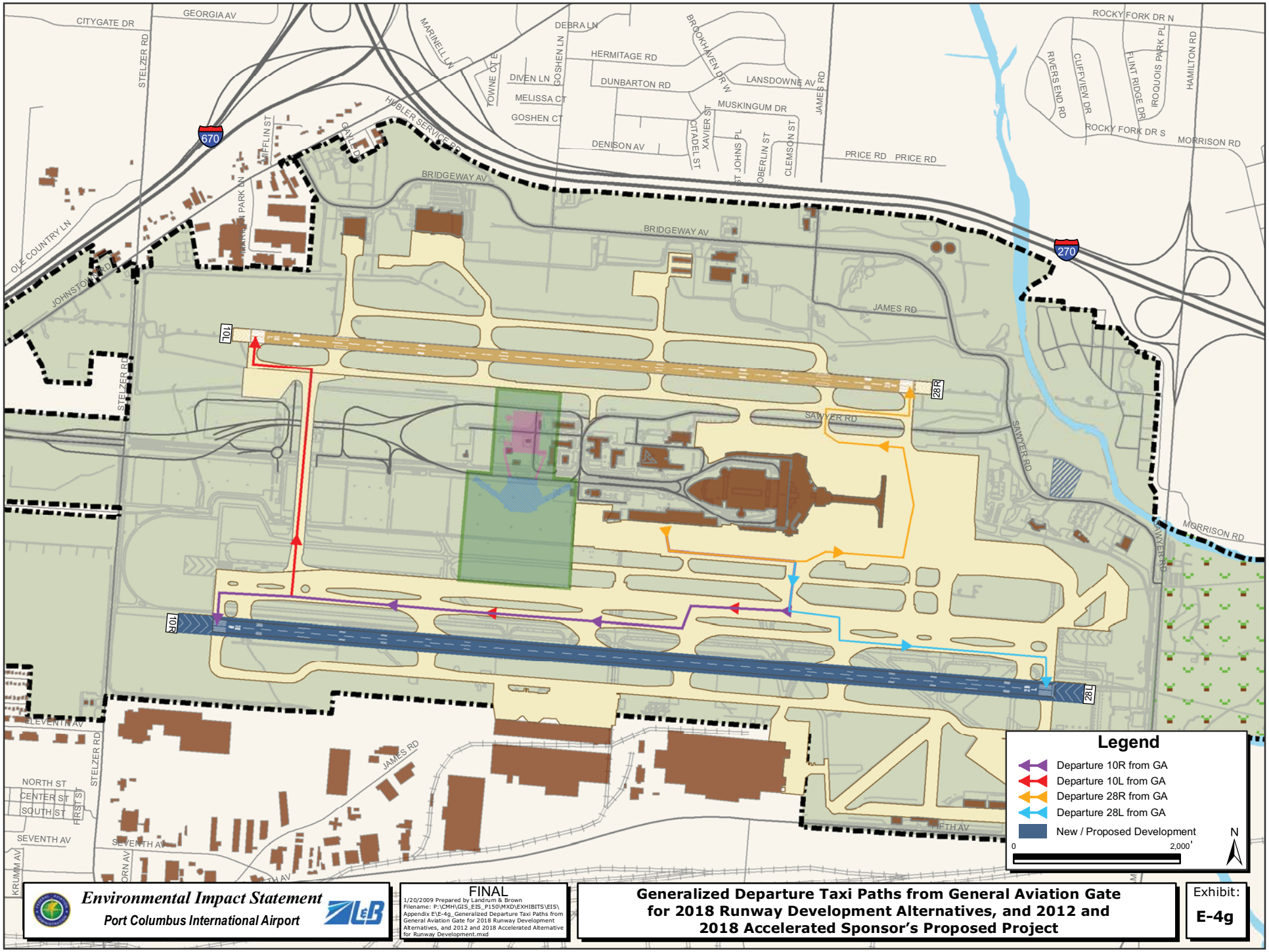
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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-4f_Generalized Departure Taxi Paths from Proposed Midfield Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative for Runway Development.mxd

Generalized Departure Taxi Paths from Proposed Midfield Terminal Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:

E-4f



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Port Columbus International Airport

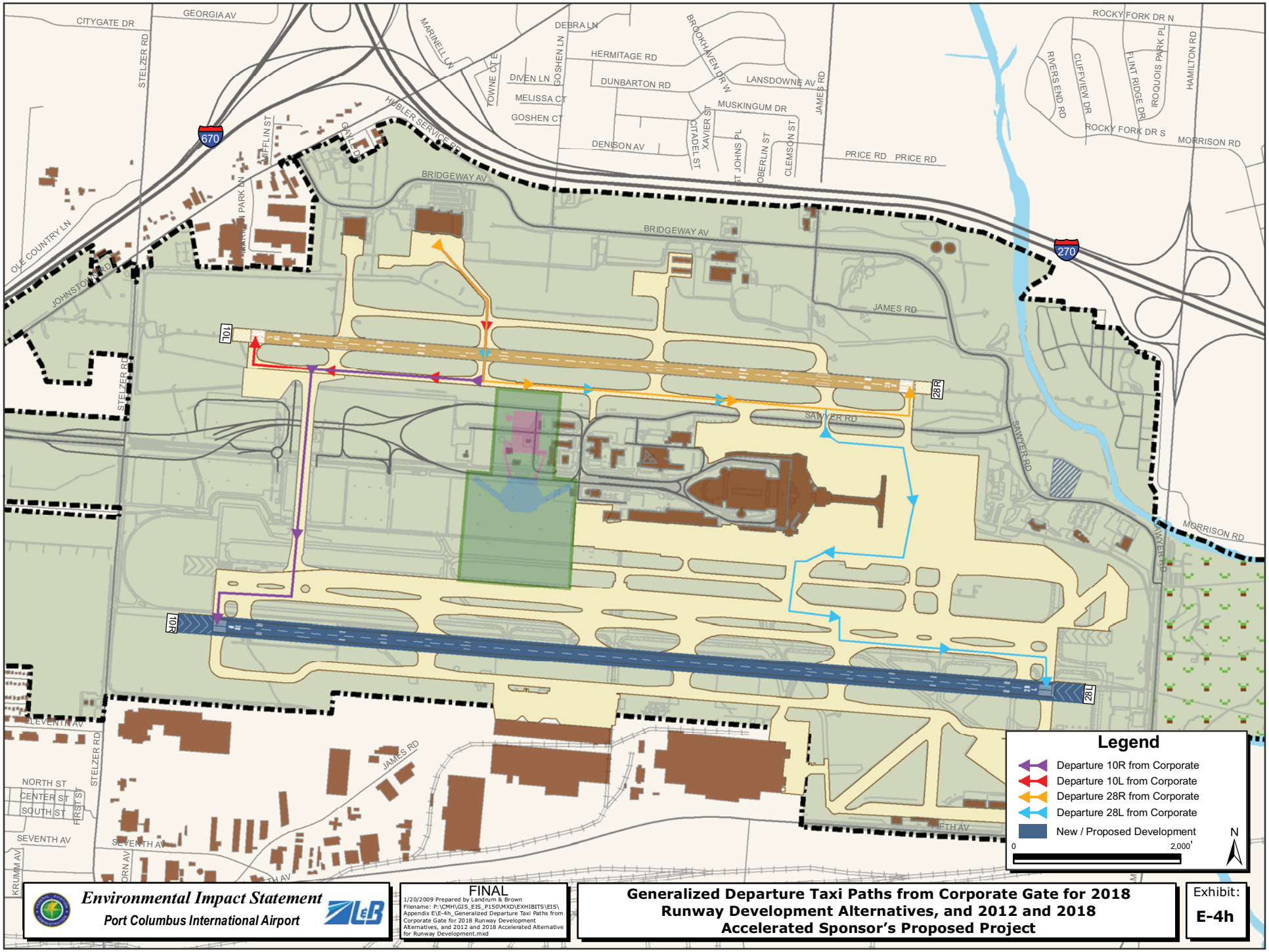
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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-4g_Generalized Departure Taxi Paths from General Aviation Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative for Runway Development.mxd

Generalized Departure Taxi Paths from General Aviation Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:

E-4g



Environmental Impact Statement

Port Columbus International Airport

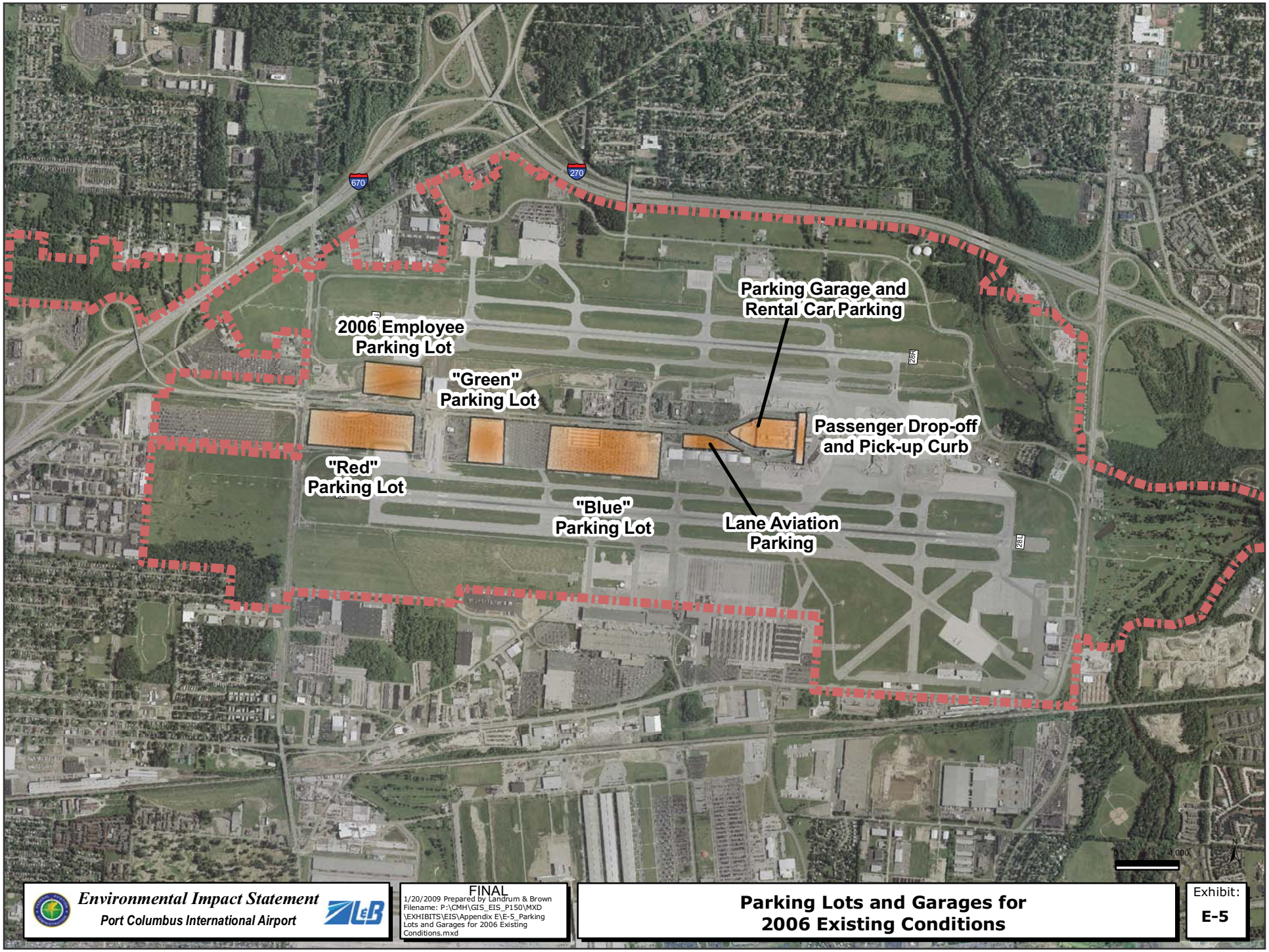
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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-4h_Generalized Departure Taxi Paths from Corporate Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative for Runway Development.mxd

Generalized Departure Taxi Paths from Corporate Gate for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:

E-4h

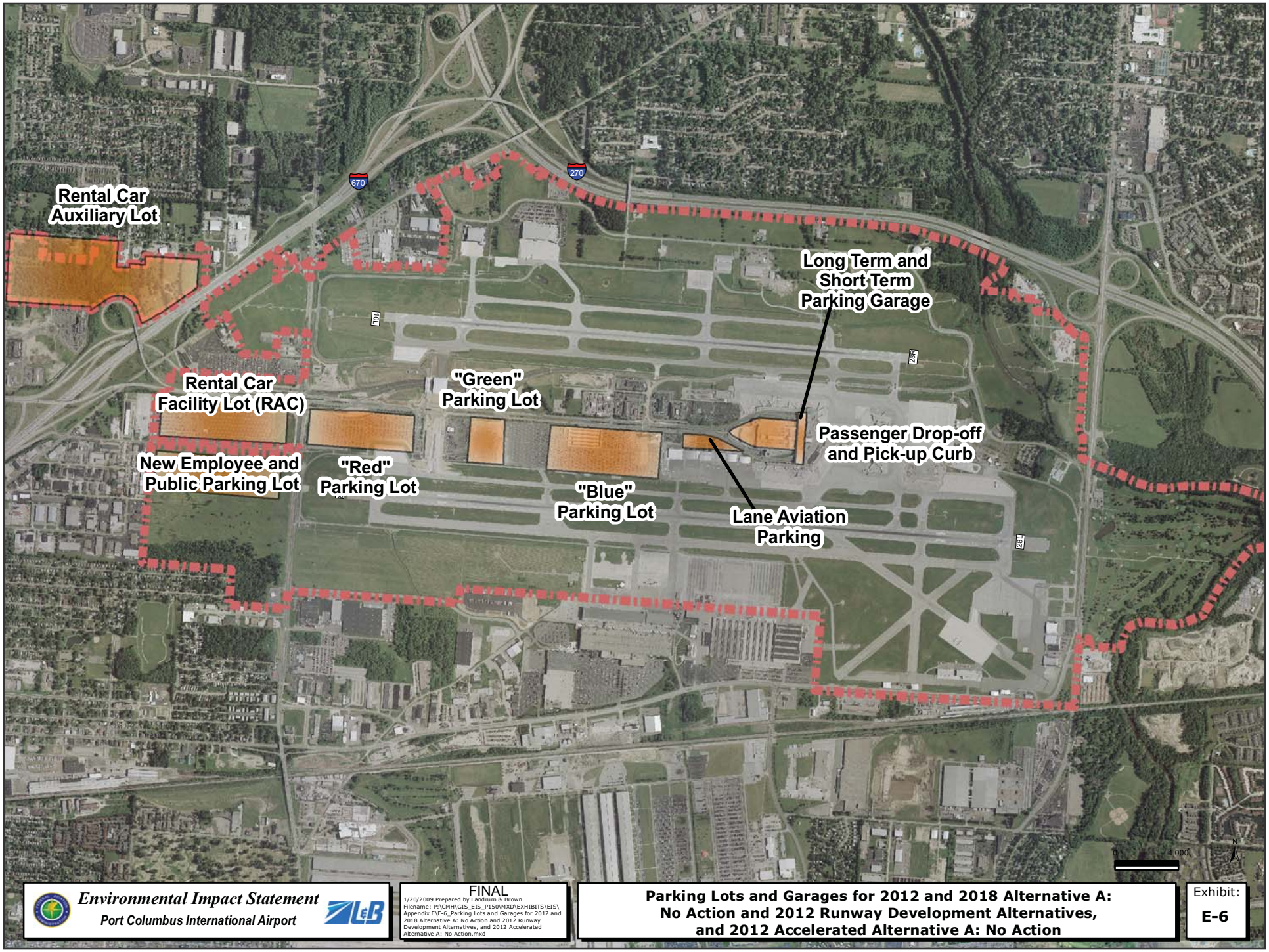


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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-5_Parking Lots and Garages for 2006 Existing Conditions.mxd

Parking Lots and Garages for 2006 Existing Conditions

Exhibit: **E-5**

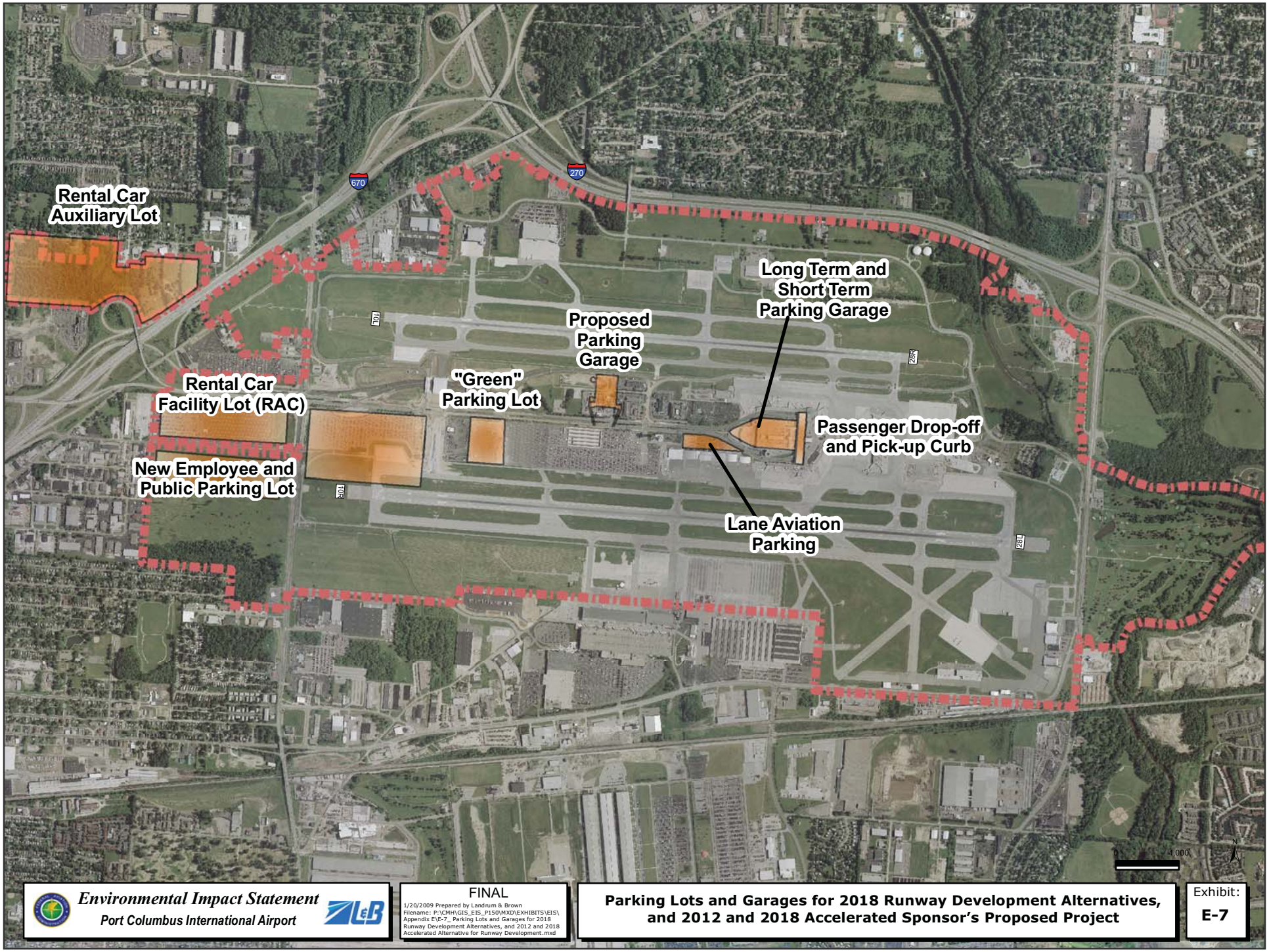


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Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-6_Parking Lots and Garages for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A: No Action.mxd

Parking Lots and Garages for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A: No Action

Exhibit:
E-6



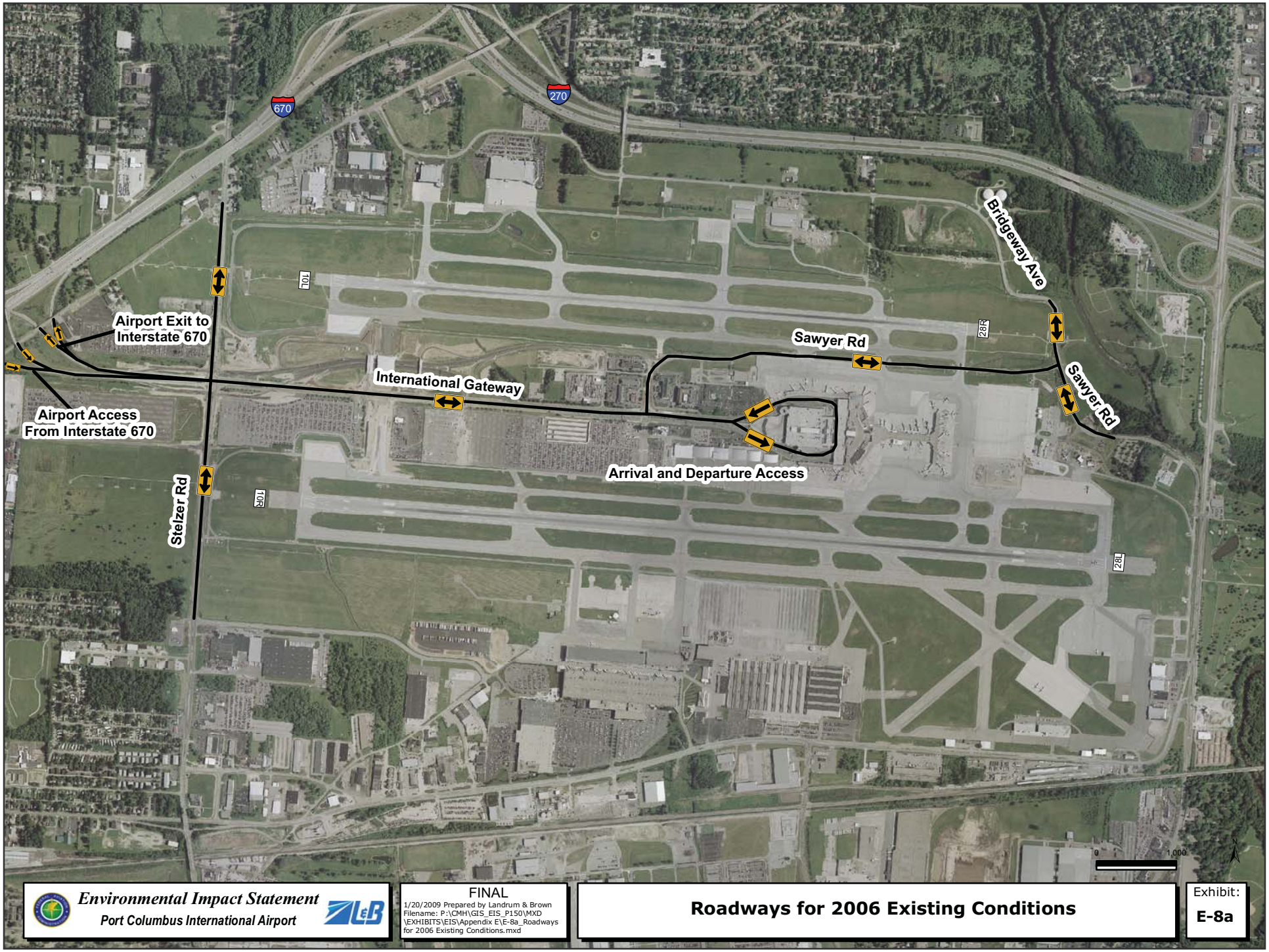
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Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-7_ Parking Lots and Garages for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Alternative for Runway Development.mxd

Parking Lots and Garages for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:
E-7

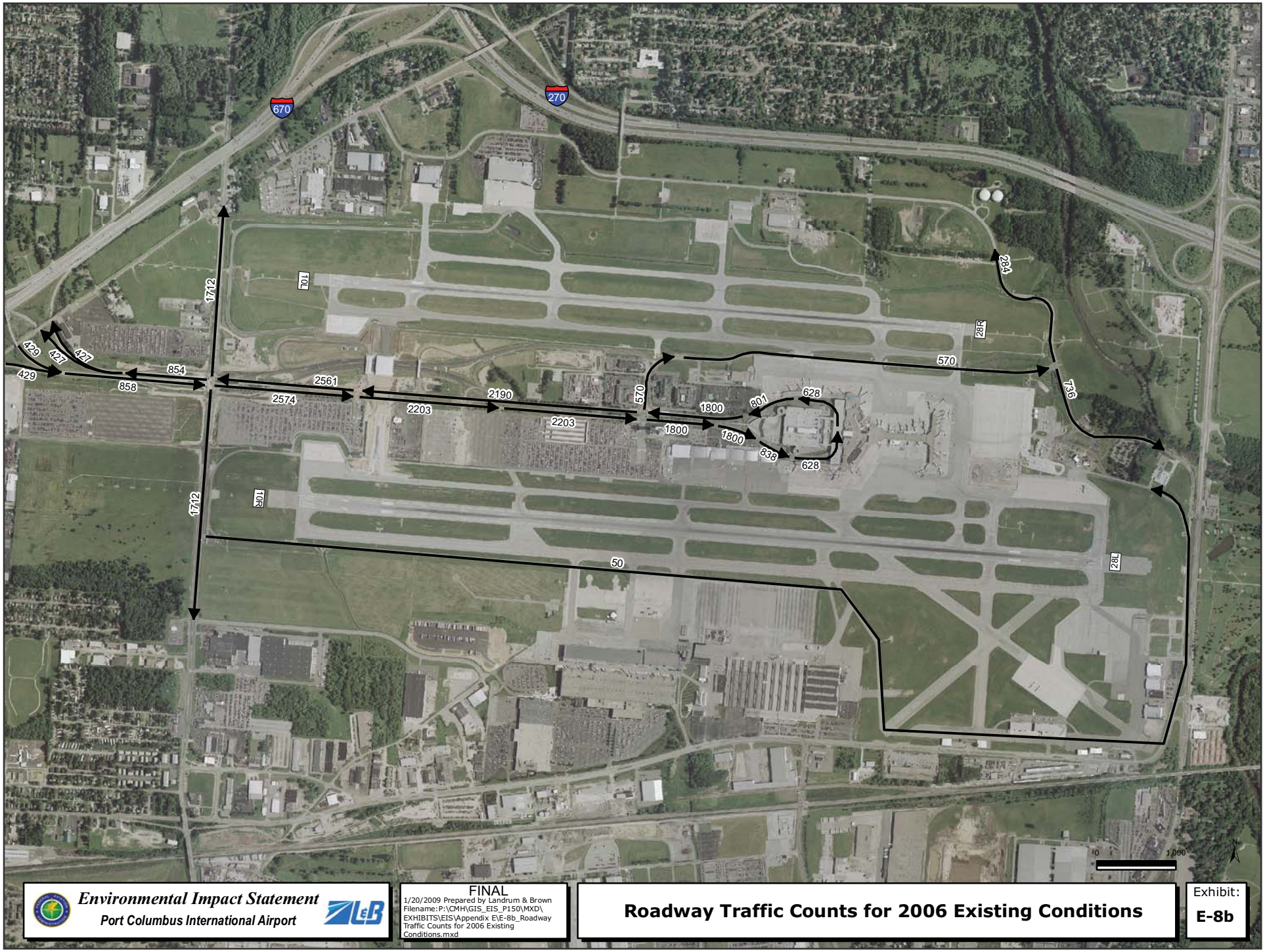


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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-8a_Roadways for 2006 Existing Conditions.mxd

Roadways for 2006 Existing Conditions

Exhibit:
E-8a

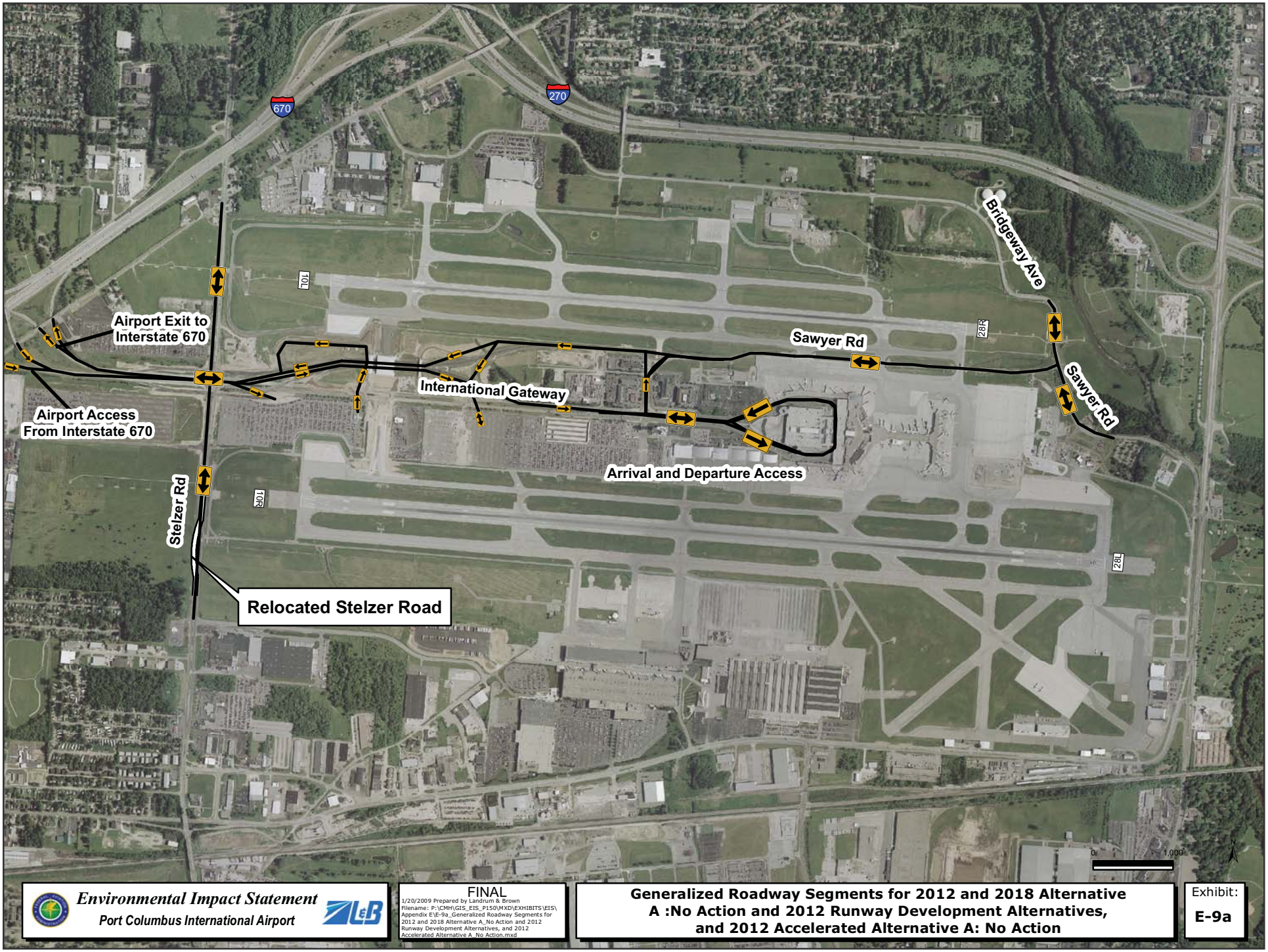


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Filename:P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-8b_Roadway Traffic Counts for 2006 Existing Conditions.mxd

Roadway Traffic Counts for 2006 Existing Conditions

Exhibit:
E-8b

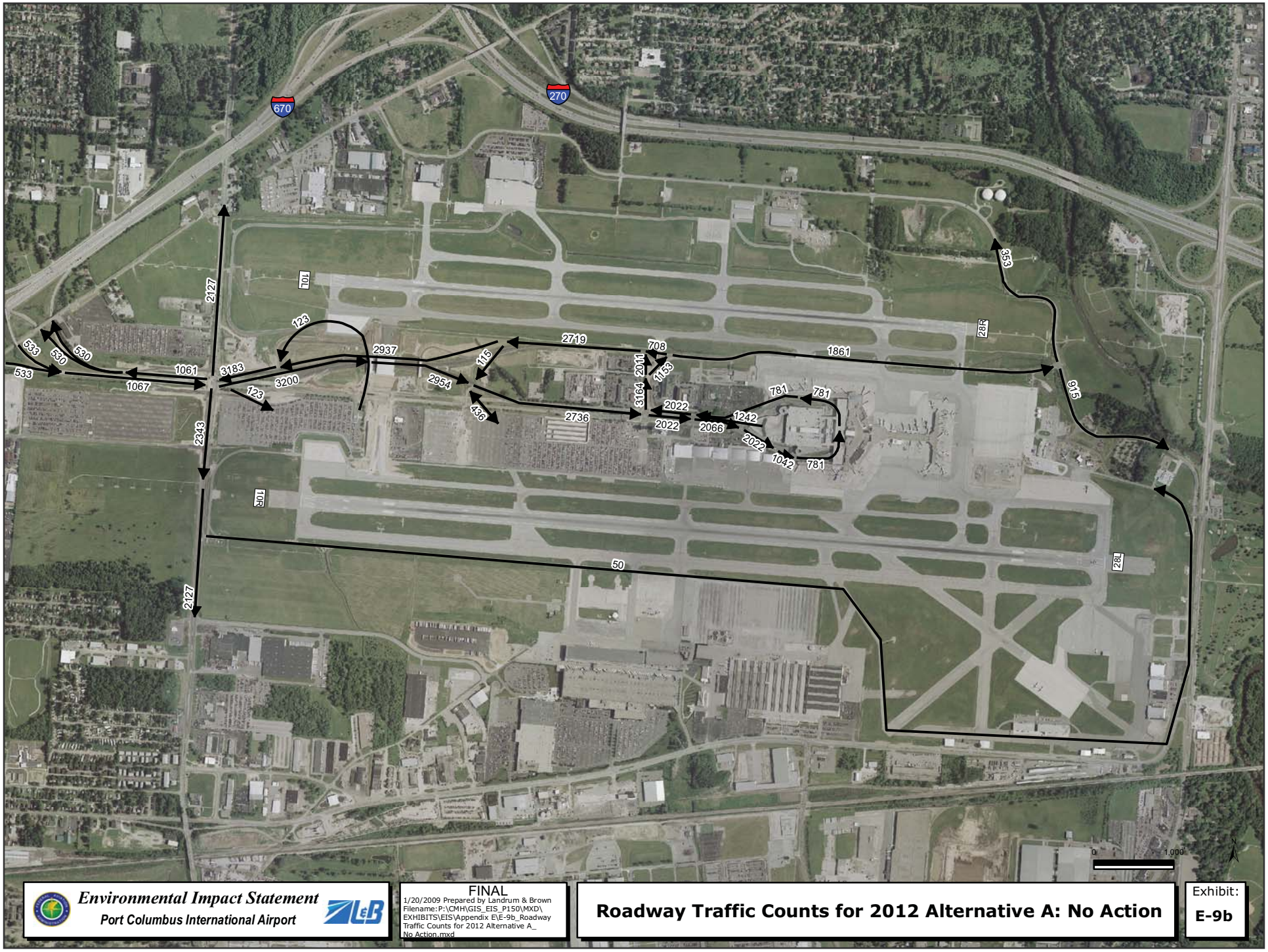


Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-9a_Generalized Roadway Segments for 2012 and 2018 Alternative A_No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A_No Action.mxd

Generalized Roadway Segments for 2012 and 2018 Alternative A :No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A: No Action

Exhibit:
E-9a



Environmental Impact Statement

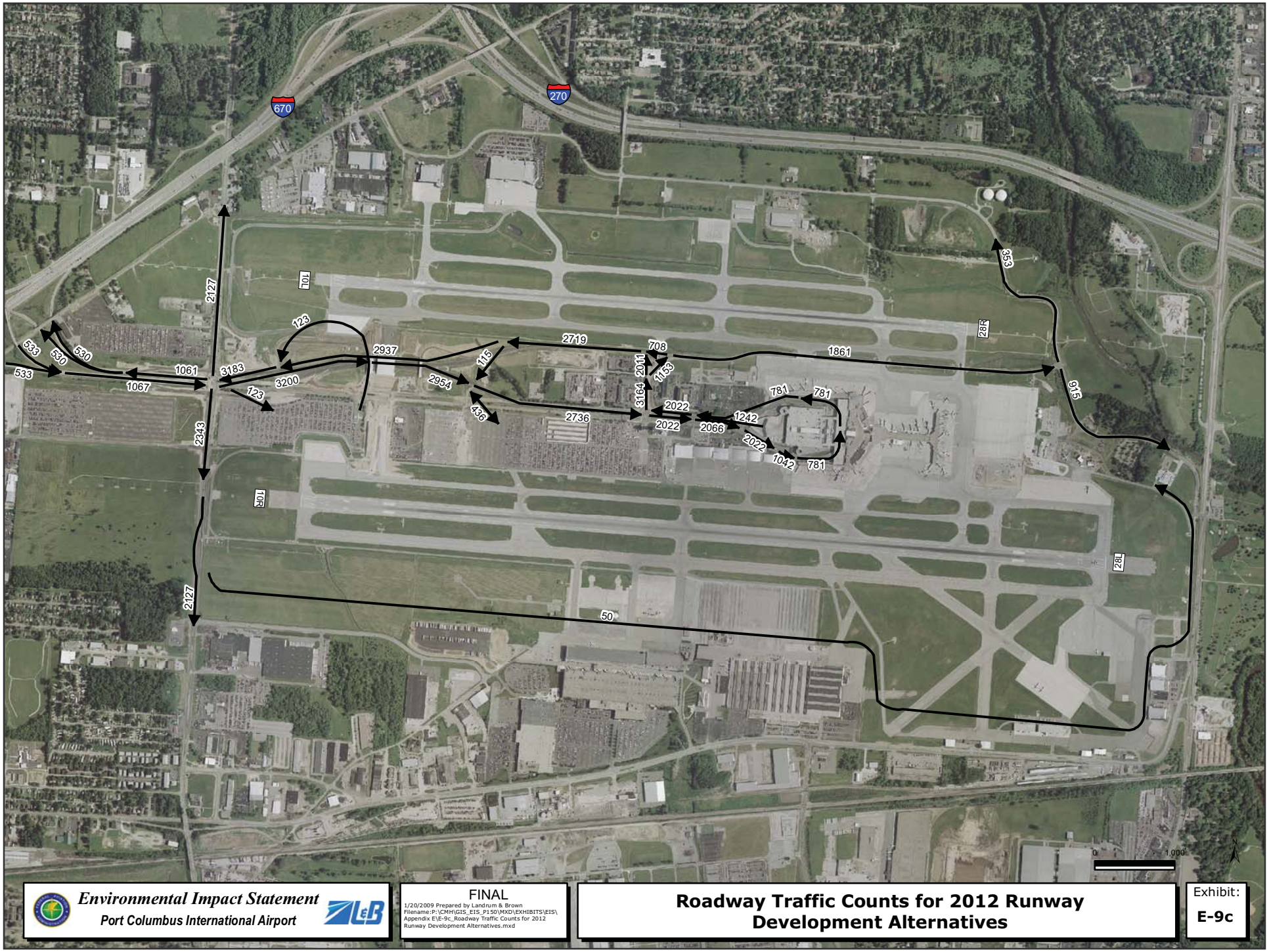
Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-9b_Roadway Traffic Counts for 2012 Alternative A_No Action.mxd

Roadway Traffic Counts for 2012 Alternative A: No Action

Exhibit: **E-9b**

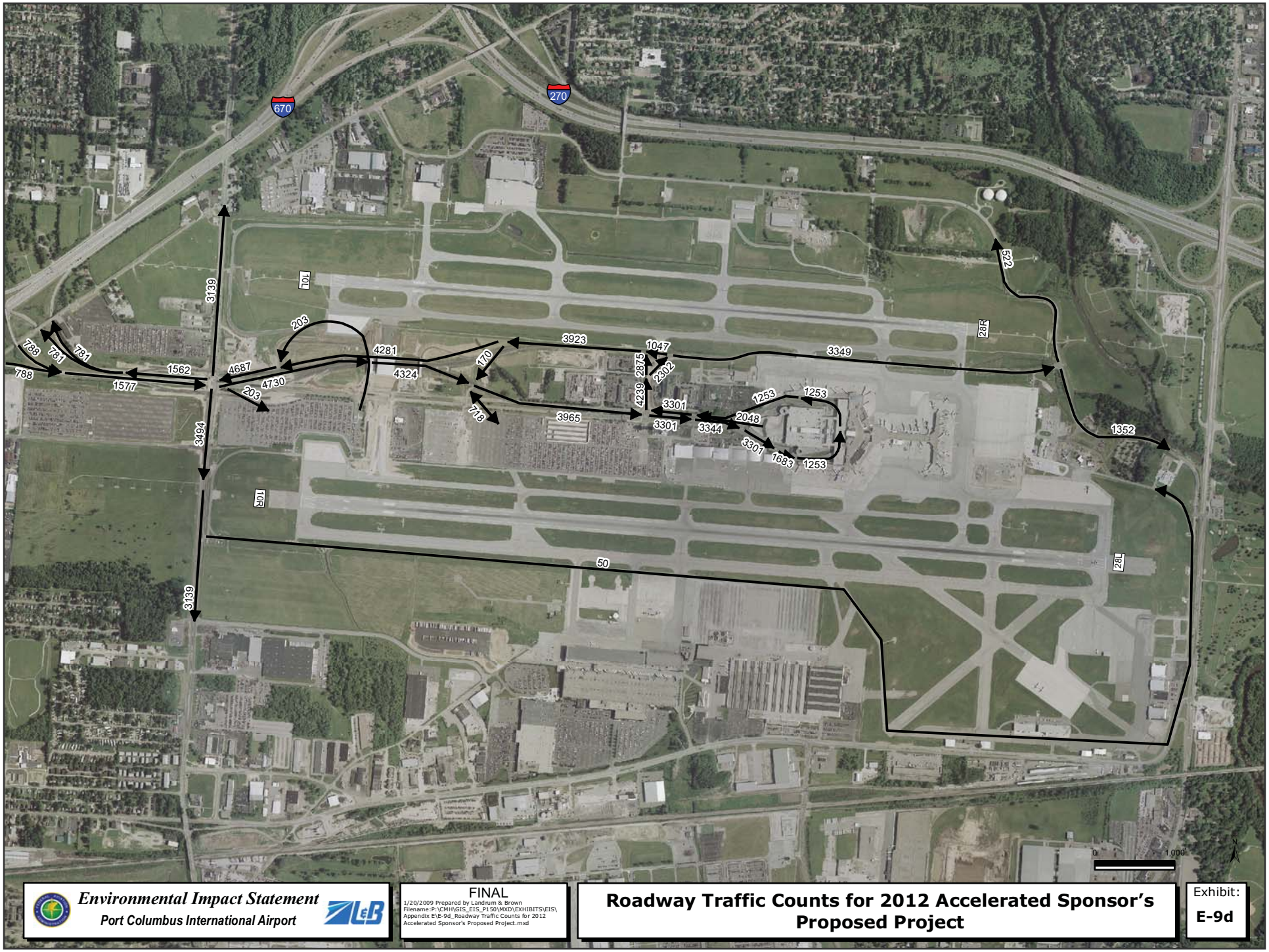


Environmental Impact Statement
Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename:P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-9c_Roadway Traffic Counts for 2012 Runway Development Alternatives.mxd

Roadway Traffic Counts for 2012 Runway Development Alternatives

Exhibit:
E-9c

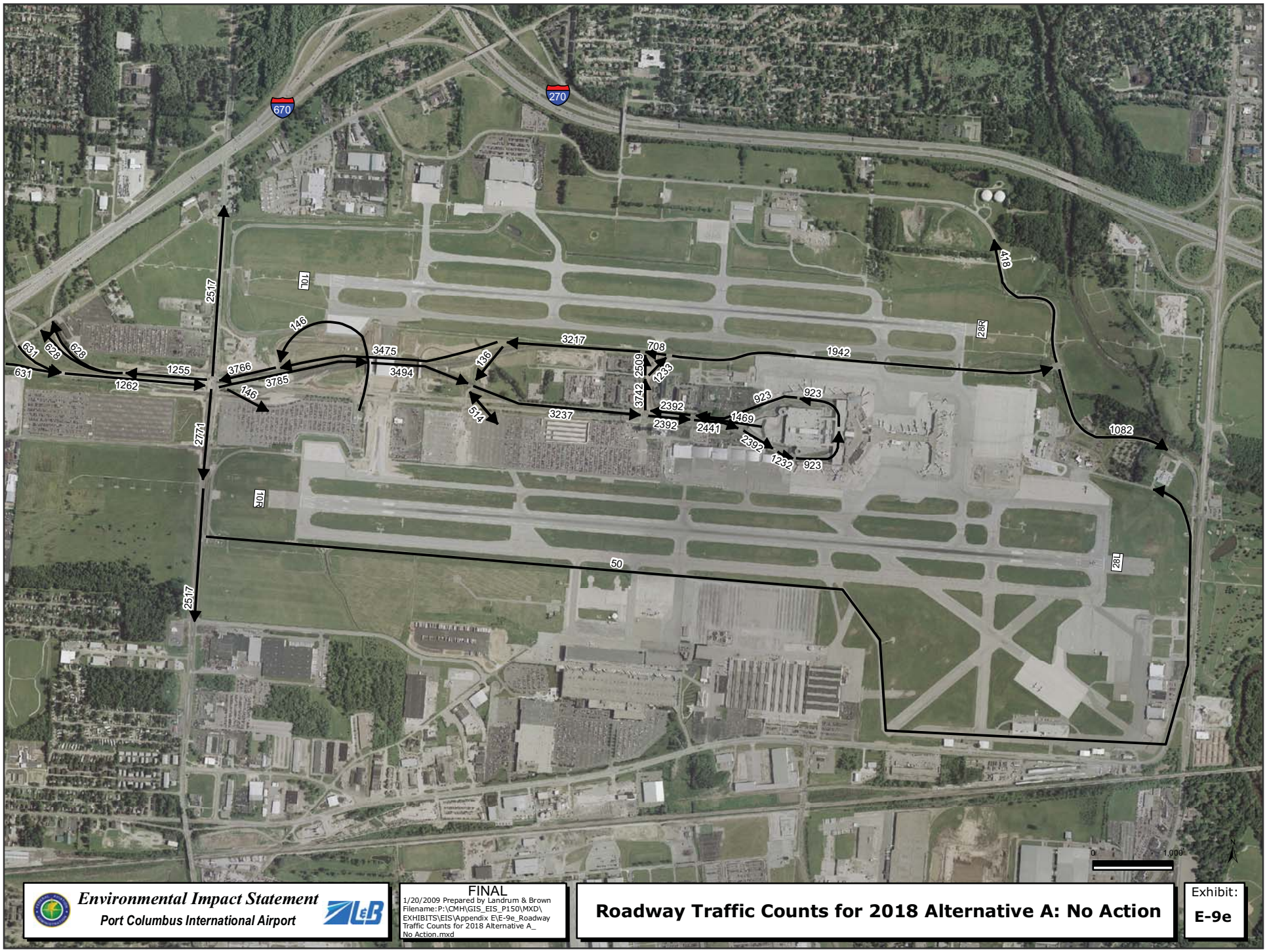


Environmental Impact Statement
Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename:P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-9d_Roadway Traffic Counts for 2012 Accelerated Sponsor's Proposed Project.mxd

Roadway Traffic Counts for 2012 Accelerated Sponsor's Proposed Project

Exhibit:
E-9d

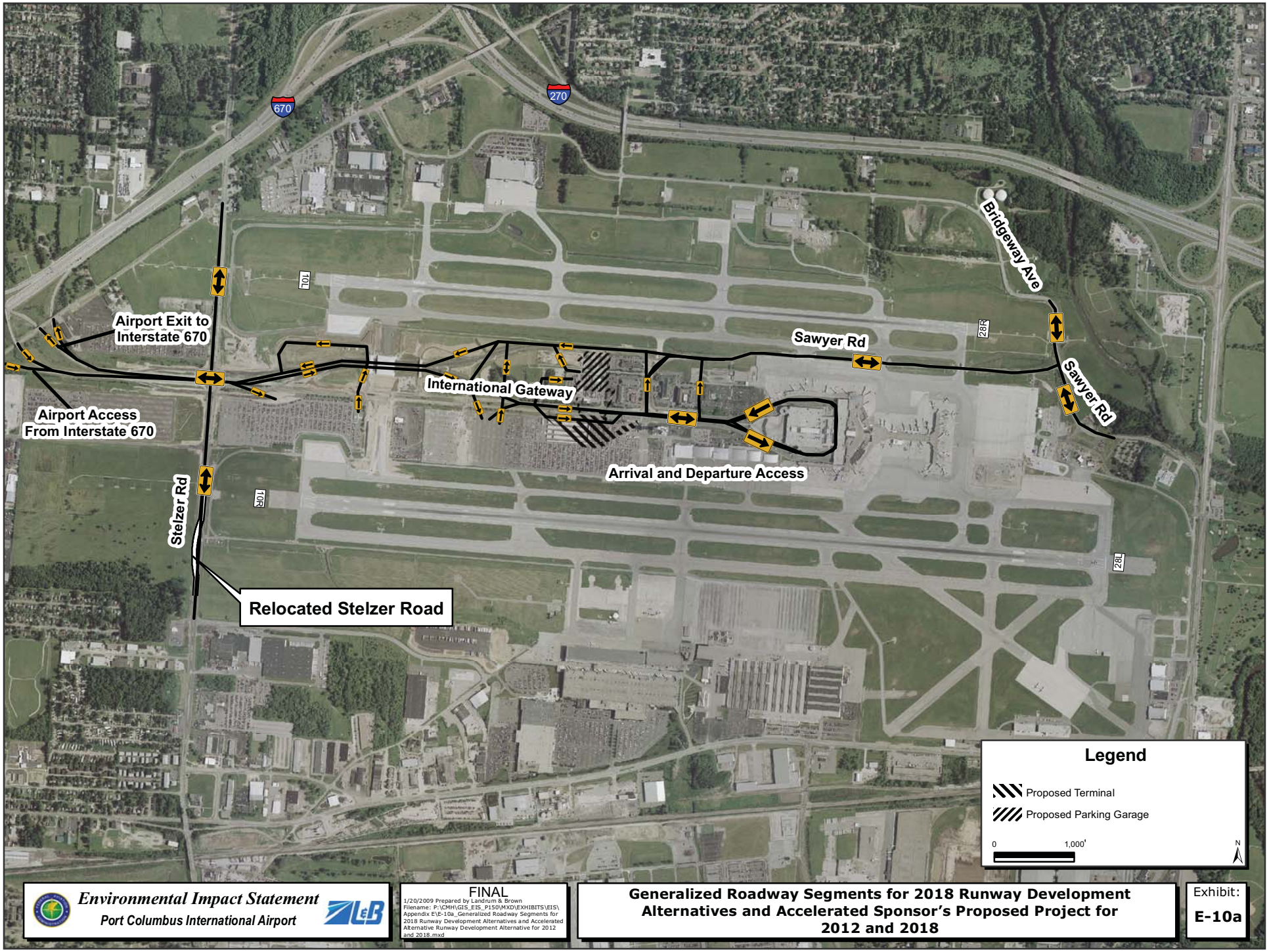


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Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename:P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-9e_Roadway Traffic Counts for 2018 Alternative A_No Action.mxd

Roadway Traffic Counts for 2018 Alternative A: No Action

Exhibit:
E-9e

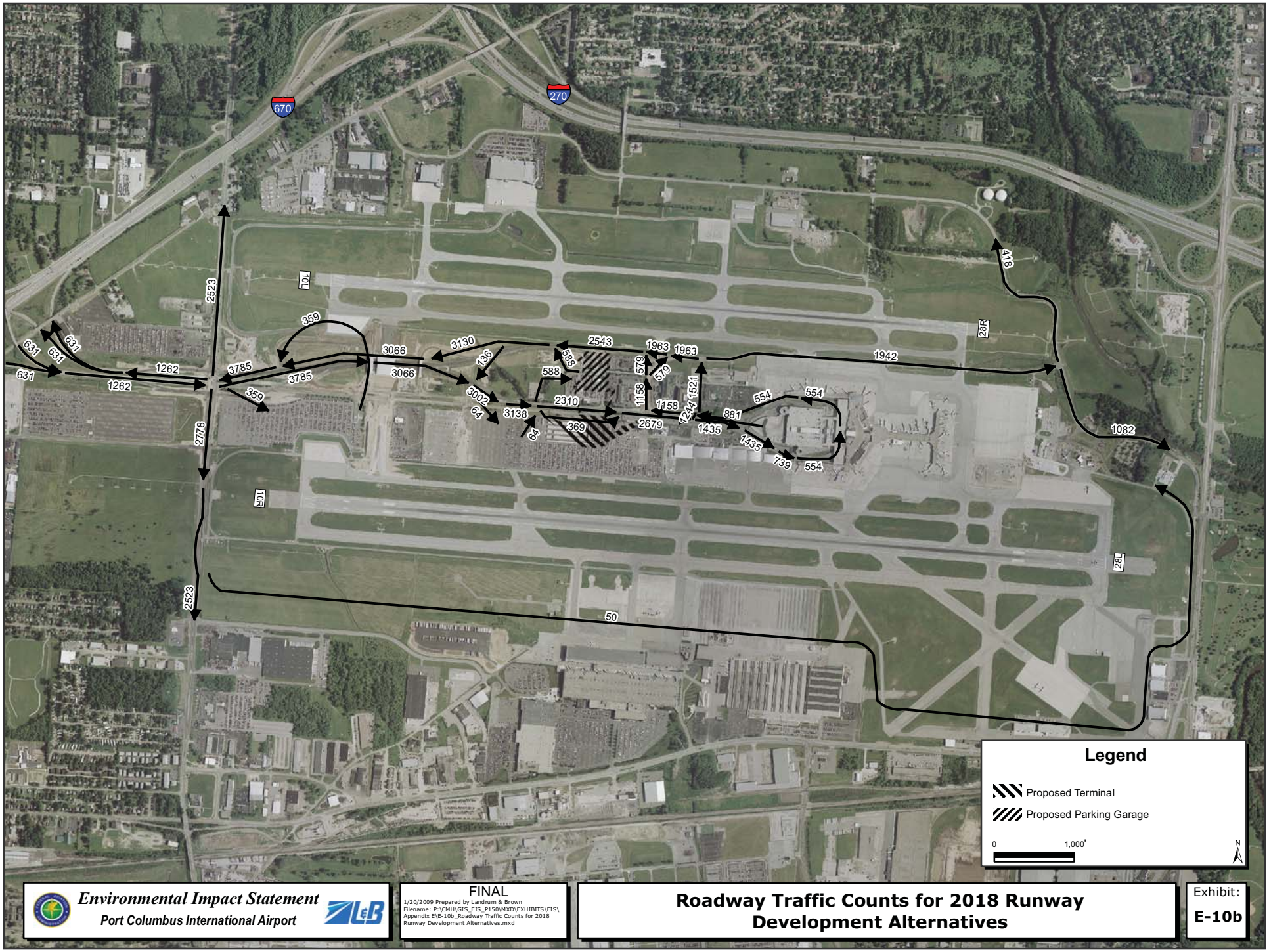


Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-10a_Generalized Roadway Segments for 2018 Runway Development Alternatives and Accelerated Alternative Runway Development Alternative for 2012 and 2018.mxd

Generalized Roadway Segments for 2018 Runway Development Alternatives and Accelerated Sponsor's Proposed Project for 2012 and 2018

Exhibit:
E-10a

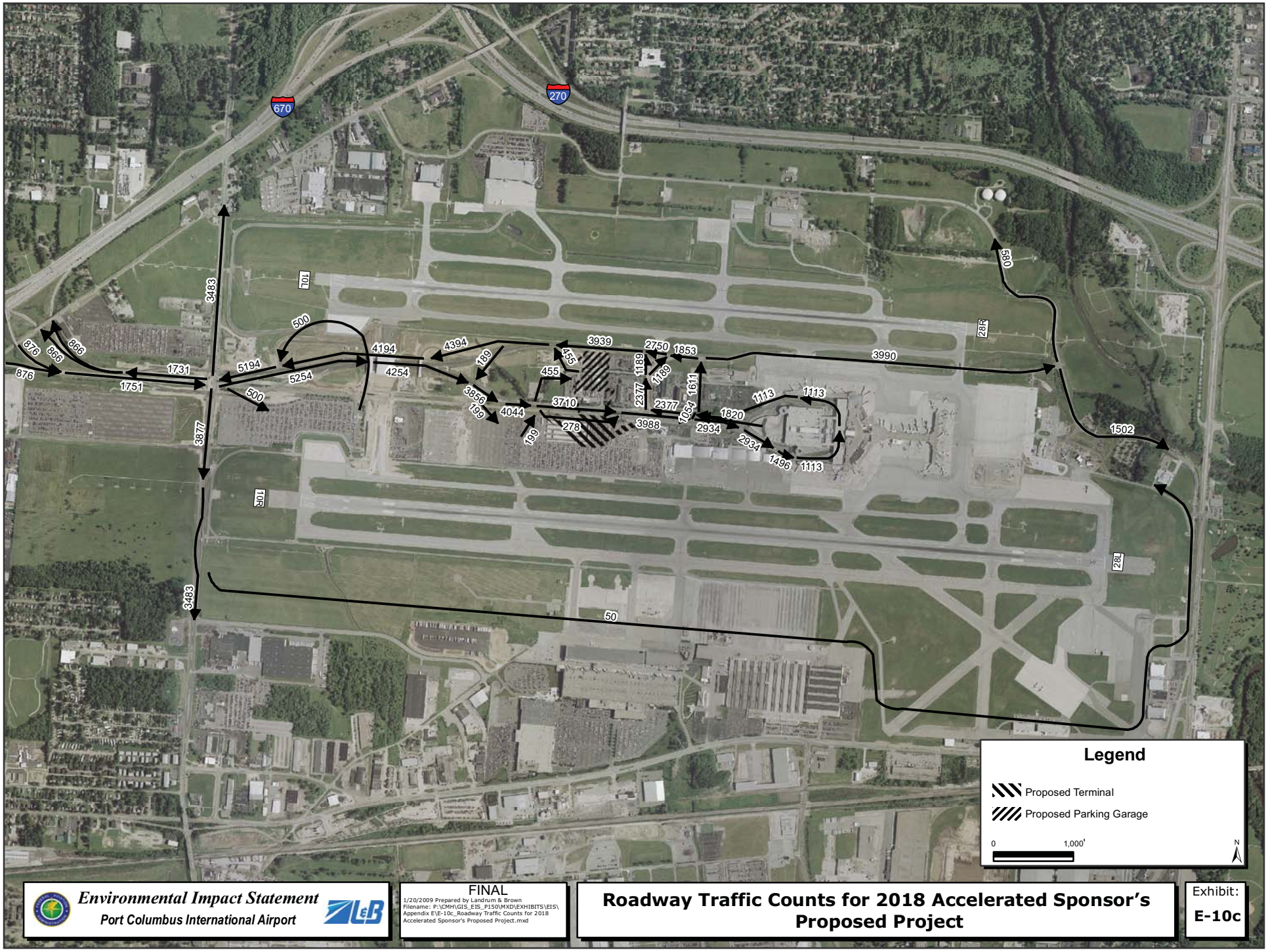


Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-10b_Roadway Traffic Counts for 2018 Runway Development Alternatives.mxd

Roadway Traffic Counts for 2018 Runway Development Alternatives

Exhibit:
E-10b



Legend

- Proposed Terminal
- Proposed Parking Garage

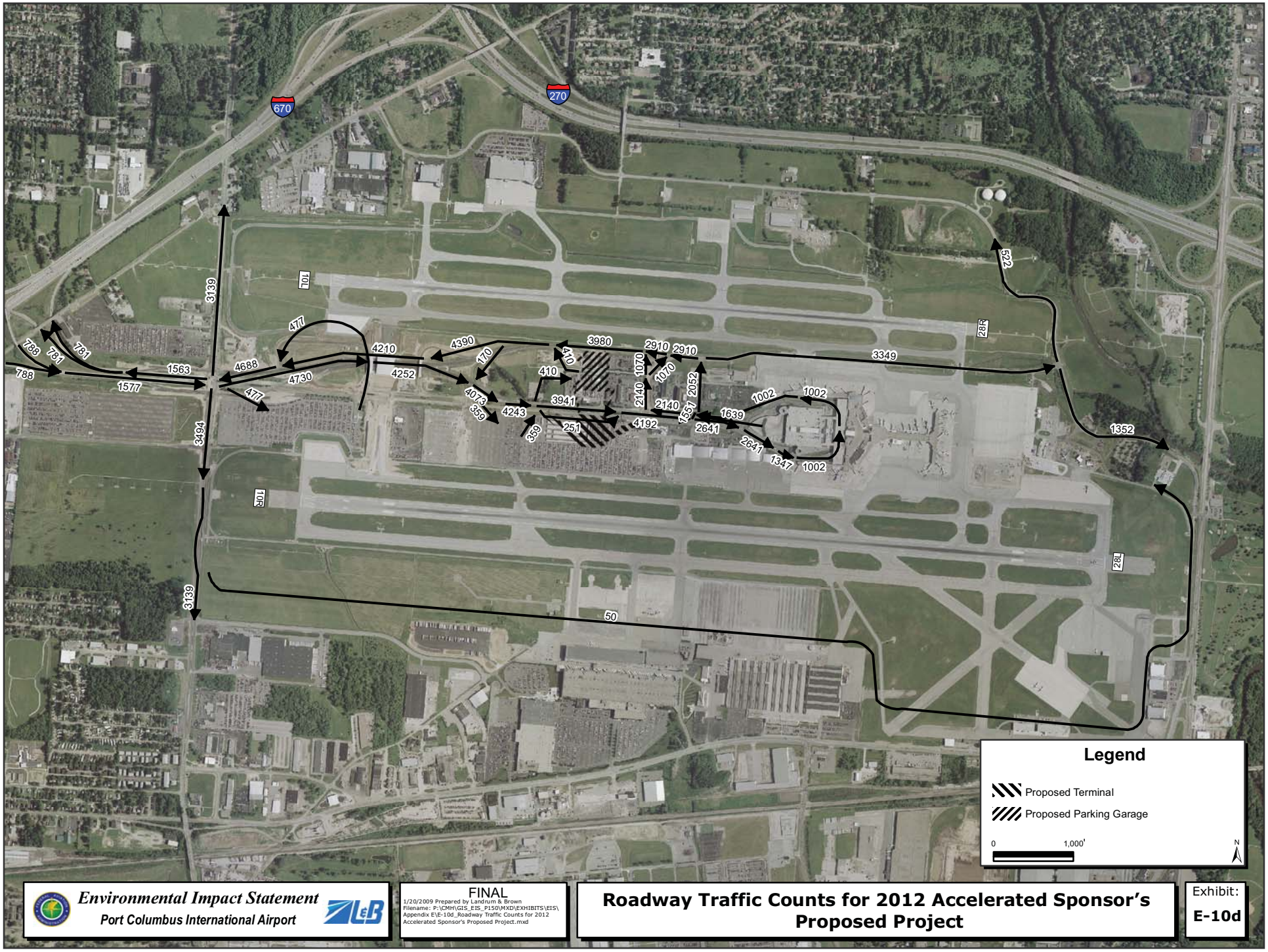
0 1,000' N

Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-10c_Roadway Traffic Counts for 2018 Accelerated Sponsor's Proposed Project.mxd

Roadway Traffic Counts for 2018 Accelerated Sponsor's Proposed Project

Exhibit: **E-10c**

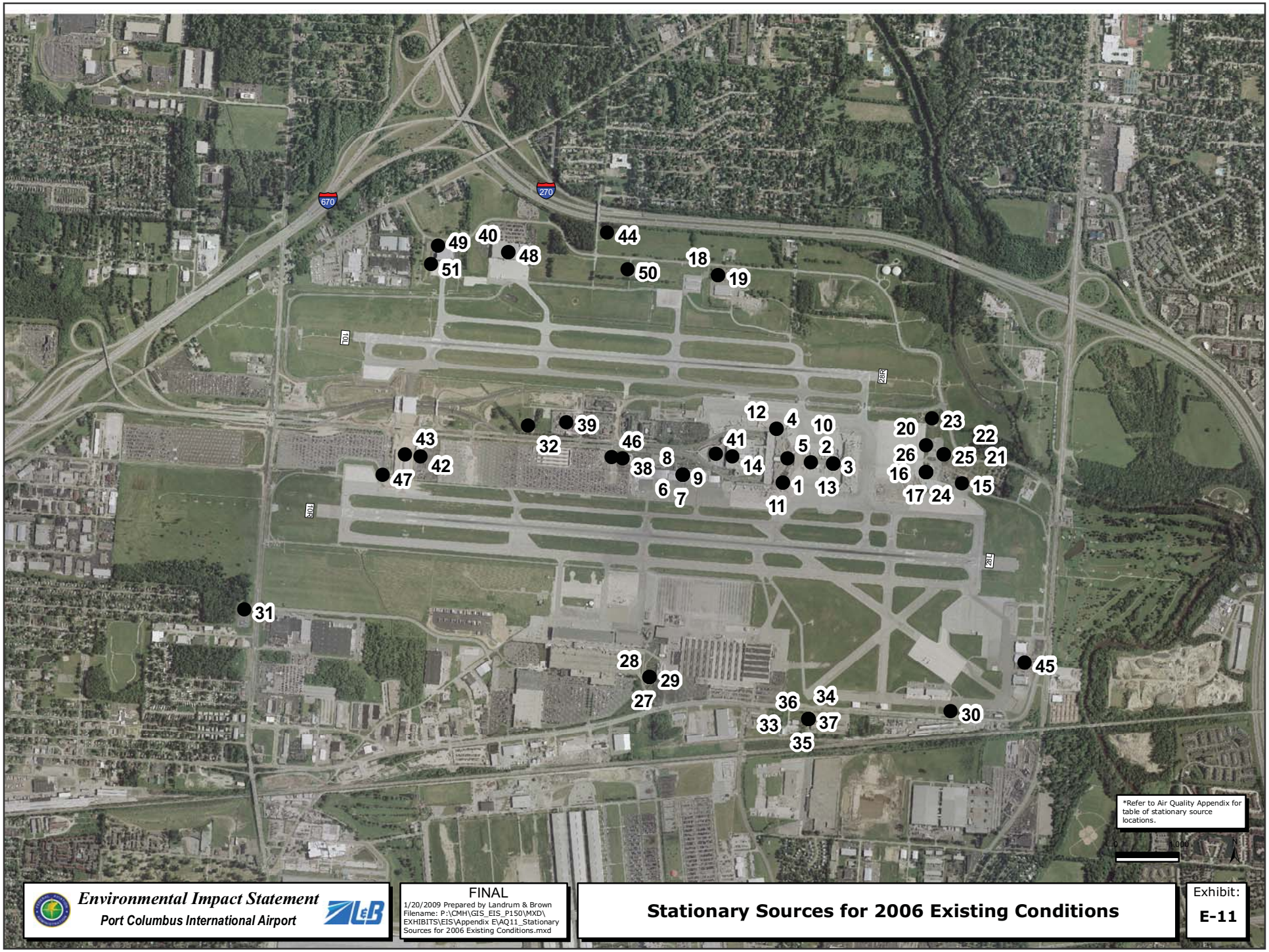


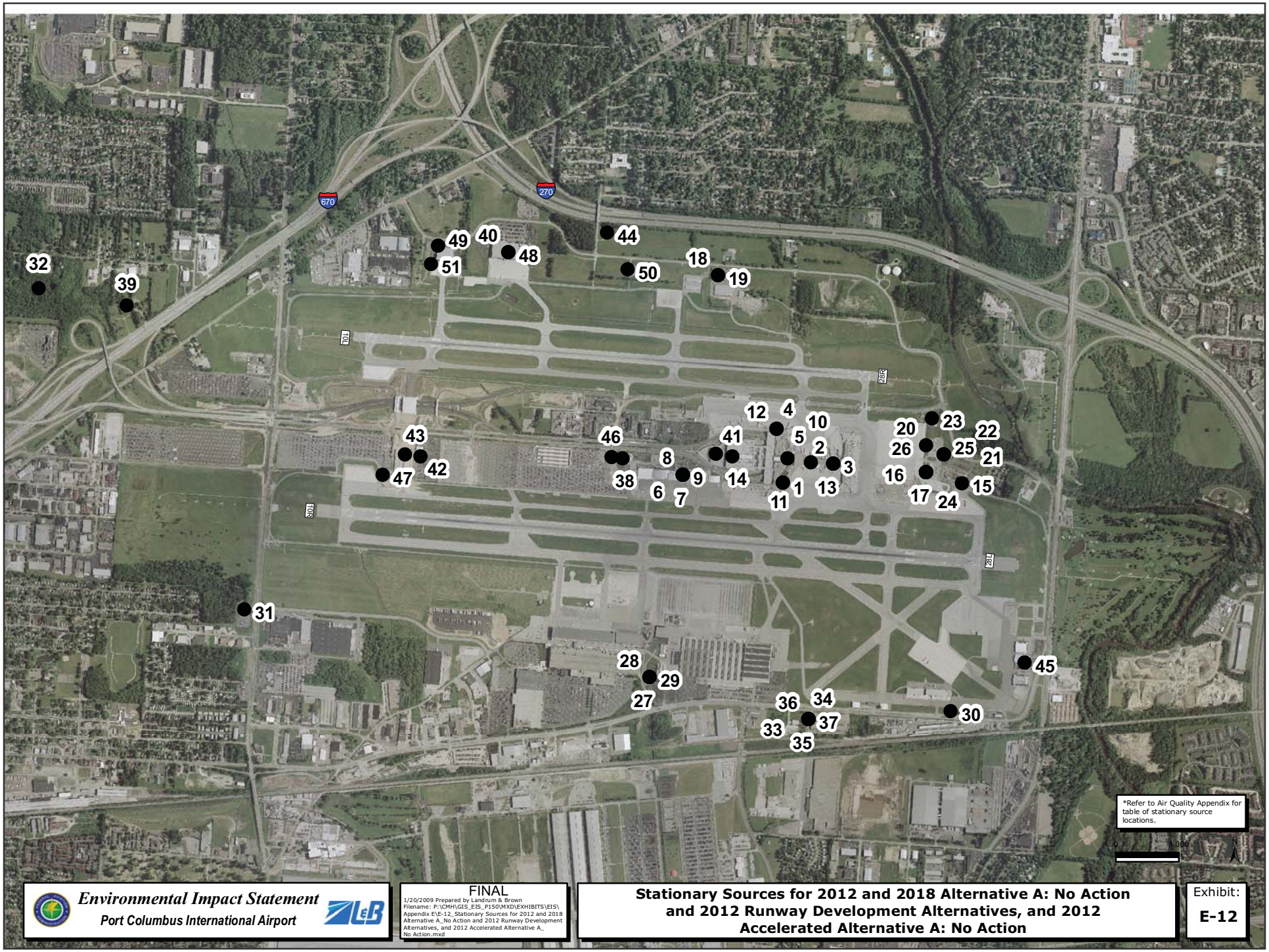
Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-10d_Roadway Traffic Counts for 2012 Accelerated Sponsor's Proposed Project.mxd

Roadway Traffic Counts for 2012 Accelerated Sponsor's Proposed Project

Exhibit:
E-10d


670
270
10L
28R
10C
28L
49
40
48
51
44
50
18
19
12
4
10
20
23
22
43
32
39
46
41
5
2
26
25
21
42
38
8
14
3
16
47
9
6
7
1
13
11
17
24
15
31
28
29
27
45
36
34
33
37
35
30
*Refer to Air Quality Appendix for table of stationary source locations.
0
1,000
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\AQ11_Stationary Sources for 2006 Existing Conditions.mxd
Stationary Sources for 2006 Existing Conditions
Exhibit:
E-11

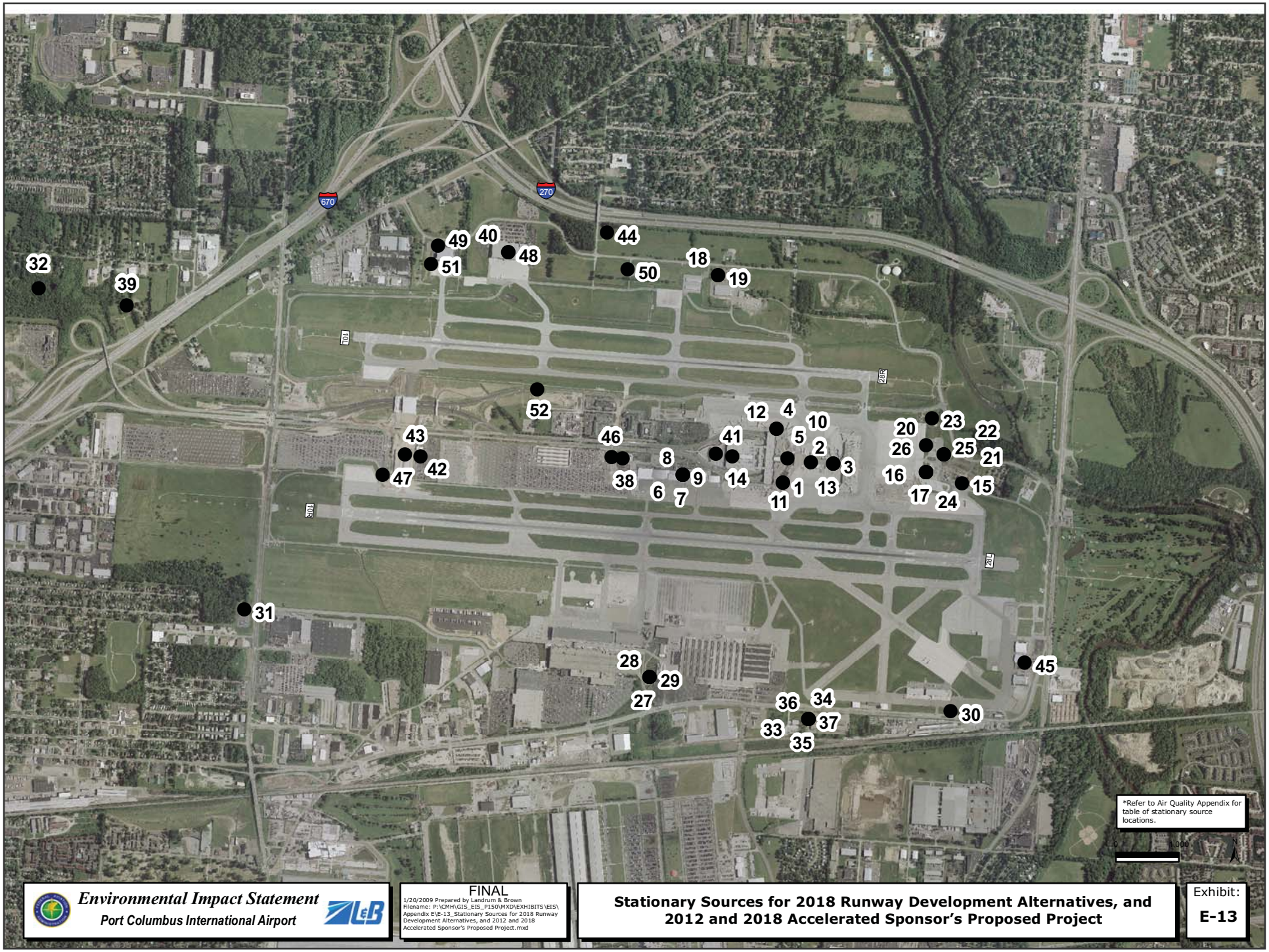


Environmental Impact Statement
Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-12_Stationary Sources for 2012 and 2018 Alternative A_No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A_ No Action.mxd

Stationary Sources for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and 2012 Accelerated Alternative A: No Action

Exhibit:
E-12

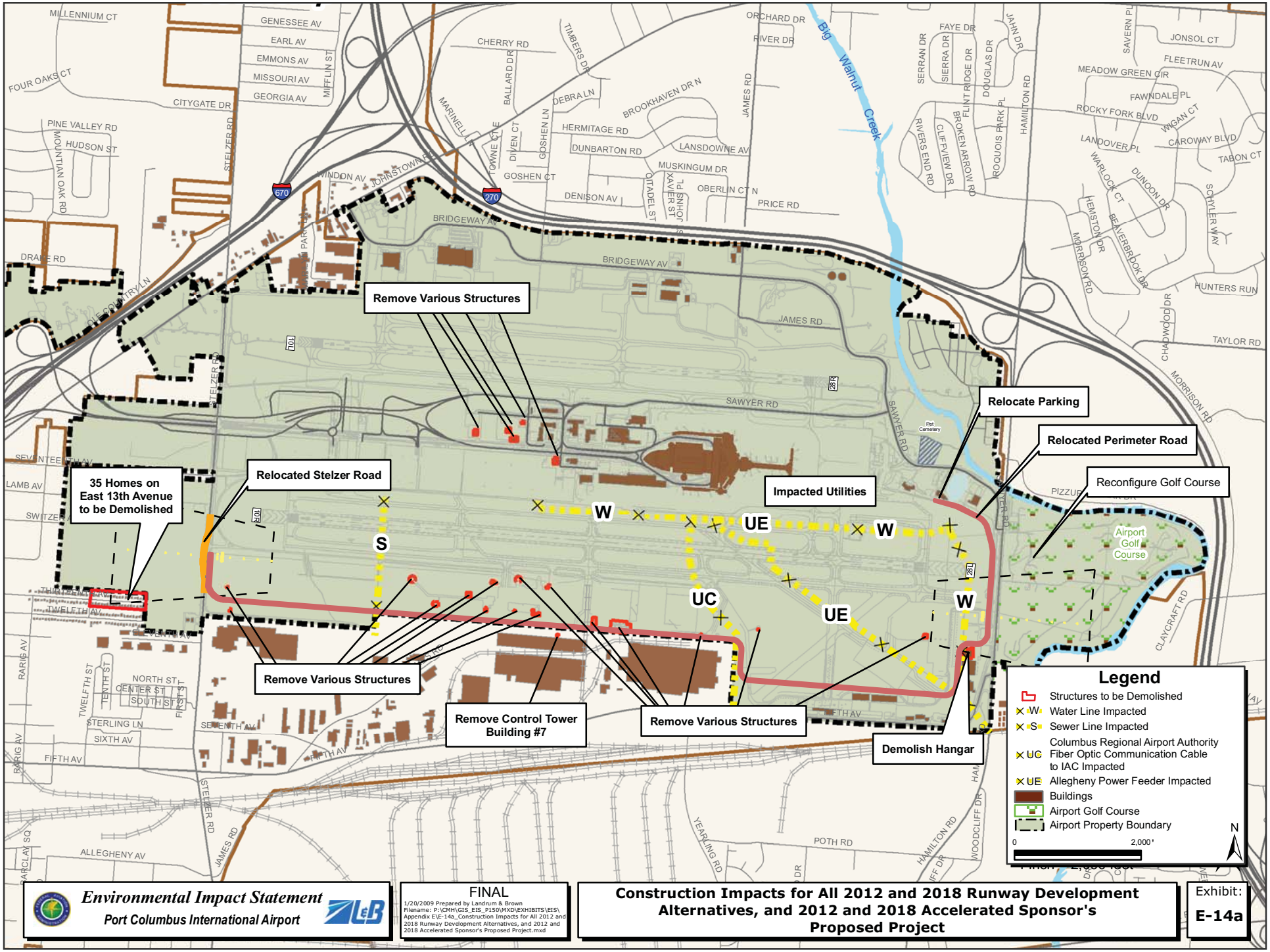


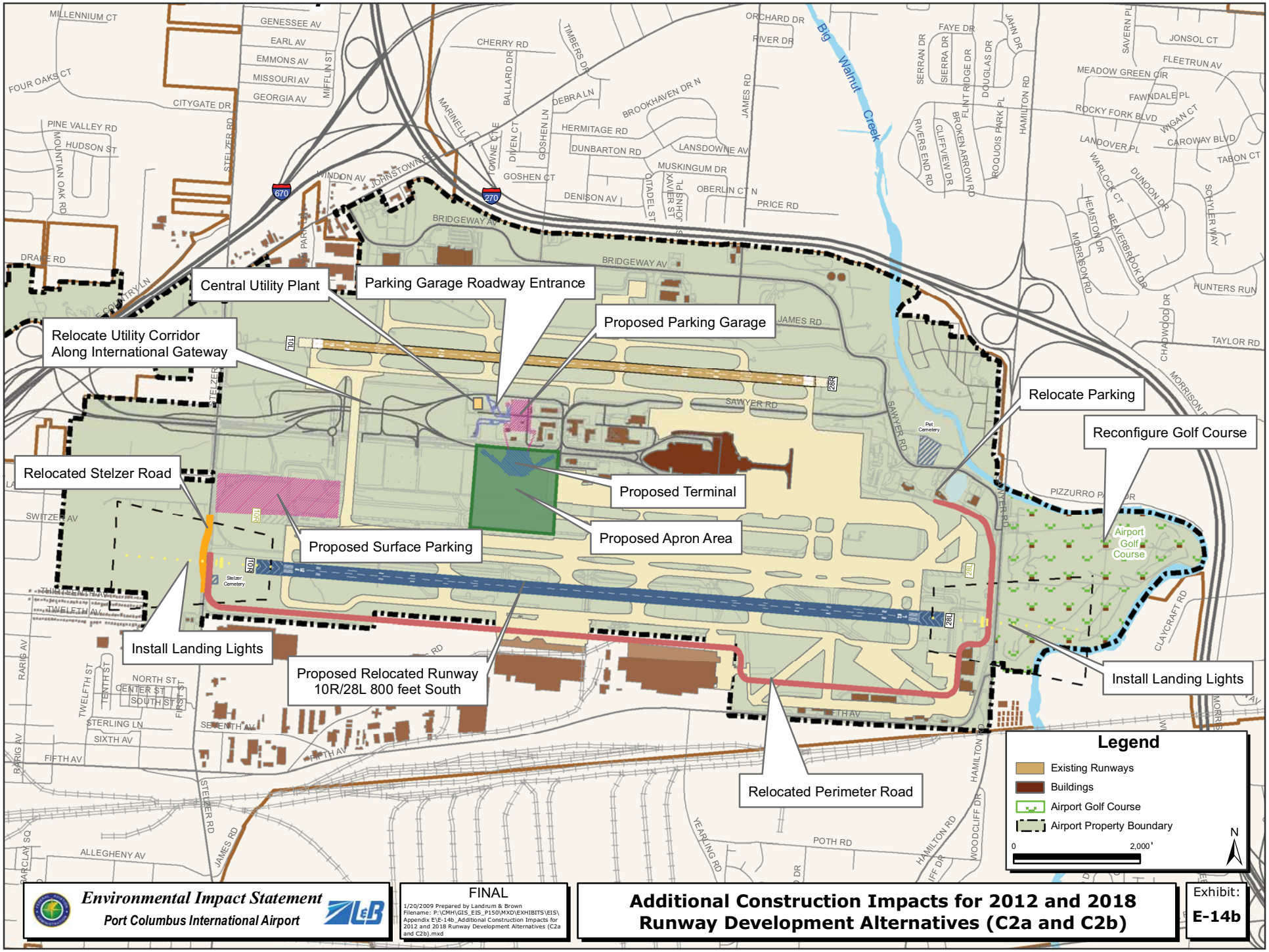
Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-13_Stationary Sources for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project.mxd

Stationary Sources for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:
E-13


Remove Various Structures
Relocate Parking
Relocated Perimeter Road
Reconfigure Golf Course
35 Homes on East 13th Avenue to be Demolished
Relocated Stelzer Road
Impacted Utilities
W
UE
W
S
UC
UE
W
Remove Various Structures
Remove Control Tower Building #7
Remove Various Structures
Demolish Hangar
Airport Golf Course
Big Walnut Creek
BRIDGEWAY AV
JAMES RD
SAWYER RD
STELZER RD
TAYLOR RD
MORRISON RD
HUNTERS RUN
CHADWOOD DR
SCHYLER WAY
DUNOON DR
BEAVERBROOK DR
HEMSTON DR
MORRISON RD
WARLOCK CT
LANDOVER PL
CAROWAY BLVD
TABON CT
ROCKY FORK BLVD
WIGAN CT
FAWNDALE PL
MEADOW GREEN CIR
FLEETRUN AV
JONSOL CT
SAVERN PL
HAMILTON RD
JAHN DR
DOUGLAS DR
FLINT RIDGE DR
SIERRA DR
SERRAN DR
IROQUOIS PARK PL
BROKEN ARROW RD
CLIFFVIEW DR
RIVERS END RD
ORCHARD DR
RIVER DR
FAYE DR
CHERRY RD
TIMBERS DR
BALLARD DR
DEBRA LN
GOSHEN LN
BROOKHAVEN DR N
HERMITAGE RD
DUNBARTON RD
LANSDOWNE AV
MUSKINGUM DR
OBERLIN CT N
PRICE RD
GOSHEN CT
DENISON AV
CITADEL ST
XAVIER PL
JOHNSTOWN RD
WINDON AV
TOWNE CT E
DIVEN CT
MARINELLI LN
MILLENNIUM CT
GENESSEE AV
EARL AV
EMMONS AV
MISSOURI AV
GEORGIA AV
MIFFLIN ST
FOUR OAKS CT
CITYGATE DR
PINE VALLEY RD
HUDSON ST
MOUNTAIN OAK RD
DRAKE RD
OLD COUNTRY LN
SEVENTEENTH AV
LAMB AV
SWITZER
THIRTEENTH AV
TWELFTH AV
RARIG AV
TWELFTH ST
TENTH ST
NORTH ST
CENTER ST
SOUTH ST
FIFTH ST
STERLING LN
SEVENTH AV
SIXTH AV
FIFTH AV
ALLEGHENY AV
JAMES RD
STELZER RD
YEARLING RD
POTH RD
HAMILTON RD
WOODCLIFF DR
CLAYCRAFT RD
PIZZUR
Pet Cemetery
670
270
70
Legend
Structures to be Demolished
W Water Line Impacted
S Sewer Line Impacted
UC Columbus Regional Airport Authority Fiber Optic Communication Cable to IAC Impacted
UE Allegheny Power Feeder Impacted
Buildings
Airport Golf Course
Airport Property Boundary
0
2,000'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-14a_Construction Impacts for All 2012 and 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project.mxd
Construction Impacts for All 2012 and 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project
Exhibit:
E-14a



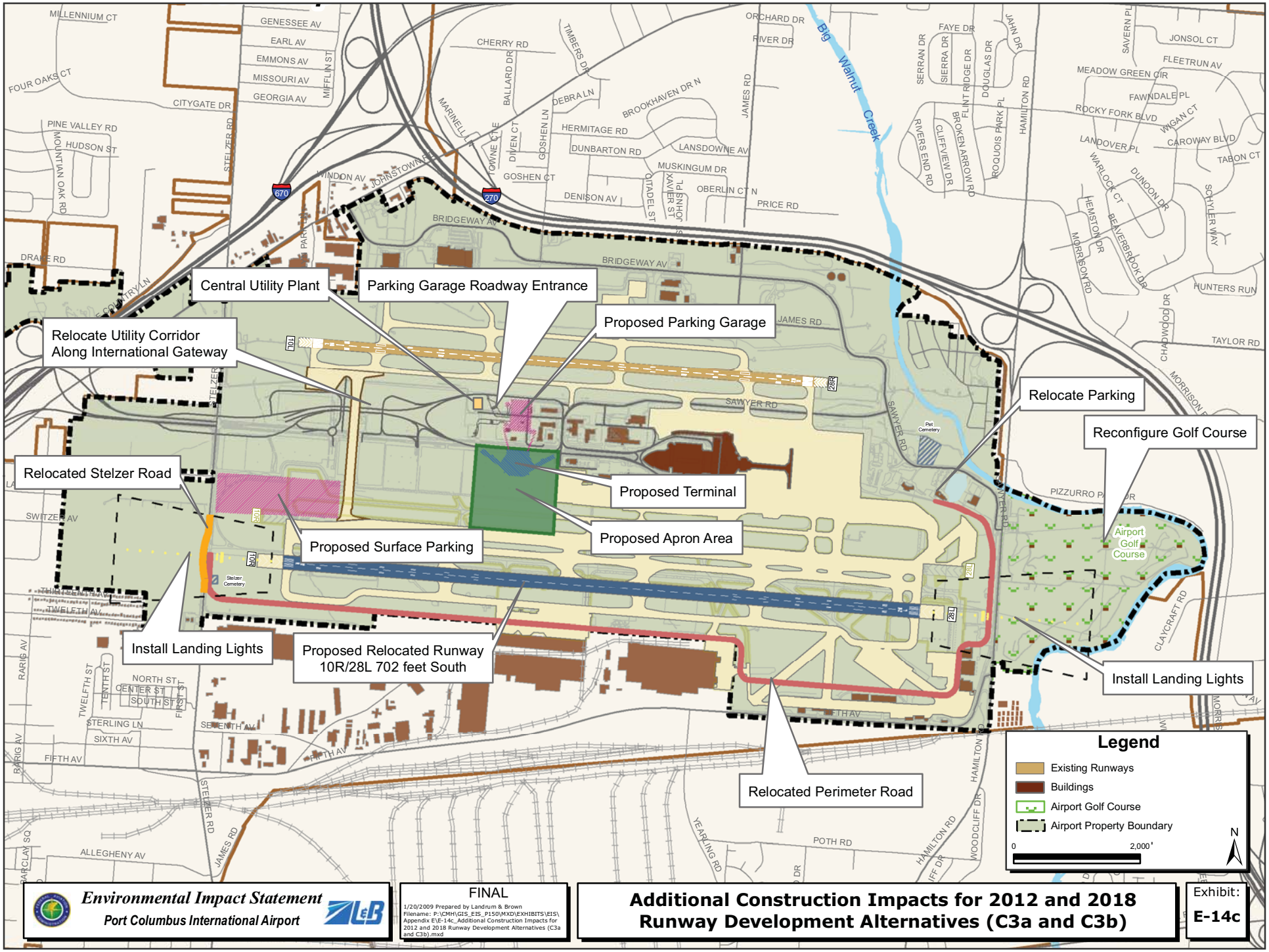
Environmental Impact Statement
Port Columbus International Airport

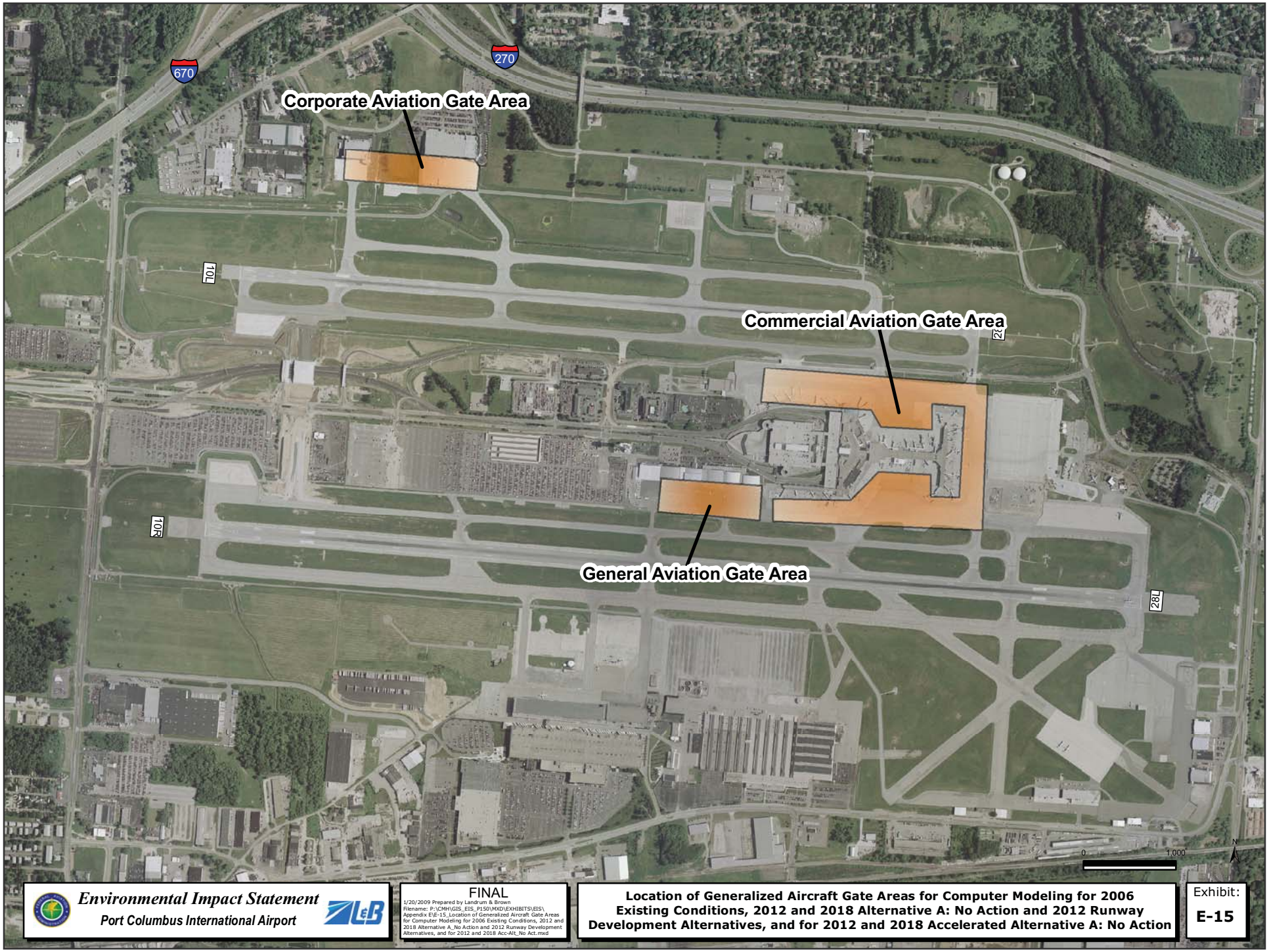
FINAL

1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-14b_Additional Construction Impacts for 2012 and 2018 Runway Development Alternatives (C2a and C2b).mxd

Additional Construction Impacts for 2012 and 2018 Runway Development Alternatives (C2a and C2b)

Exhibit: **E-14b**


Central Utility Plant
Parking Garage Roadway Entrance
Proposed Parking Garage
Relocate Utility Corridor Along International Gateway
Relocate Parking
Reconfigure Golf Course
Relocated Stelzer Road
Proposed Terminal
Proposed Apron Area
Proposed Surface Parking
Install Landing Lights
Proposed Relocated Runway 10R/28L 702 feet South
Relocated Perimeter Road
Install Landing Lights
Legend
Existing Runways
Buildings
Airport Golf Course
Airport Property Boundary
0
2,000'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-14c_Additional Construction Impacts for 2012 and 2018 Runway Development Alternatives (C3a and C3b).mxd
Additional Construction Impacts for 2012 and 2018 Runway Development Alternatives (C3a and C3b)
Exhibit:
E-14c



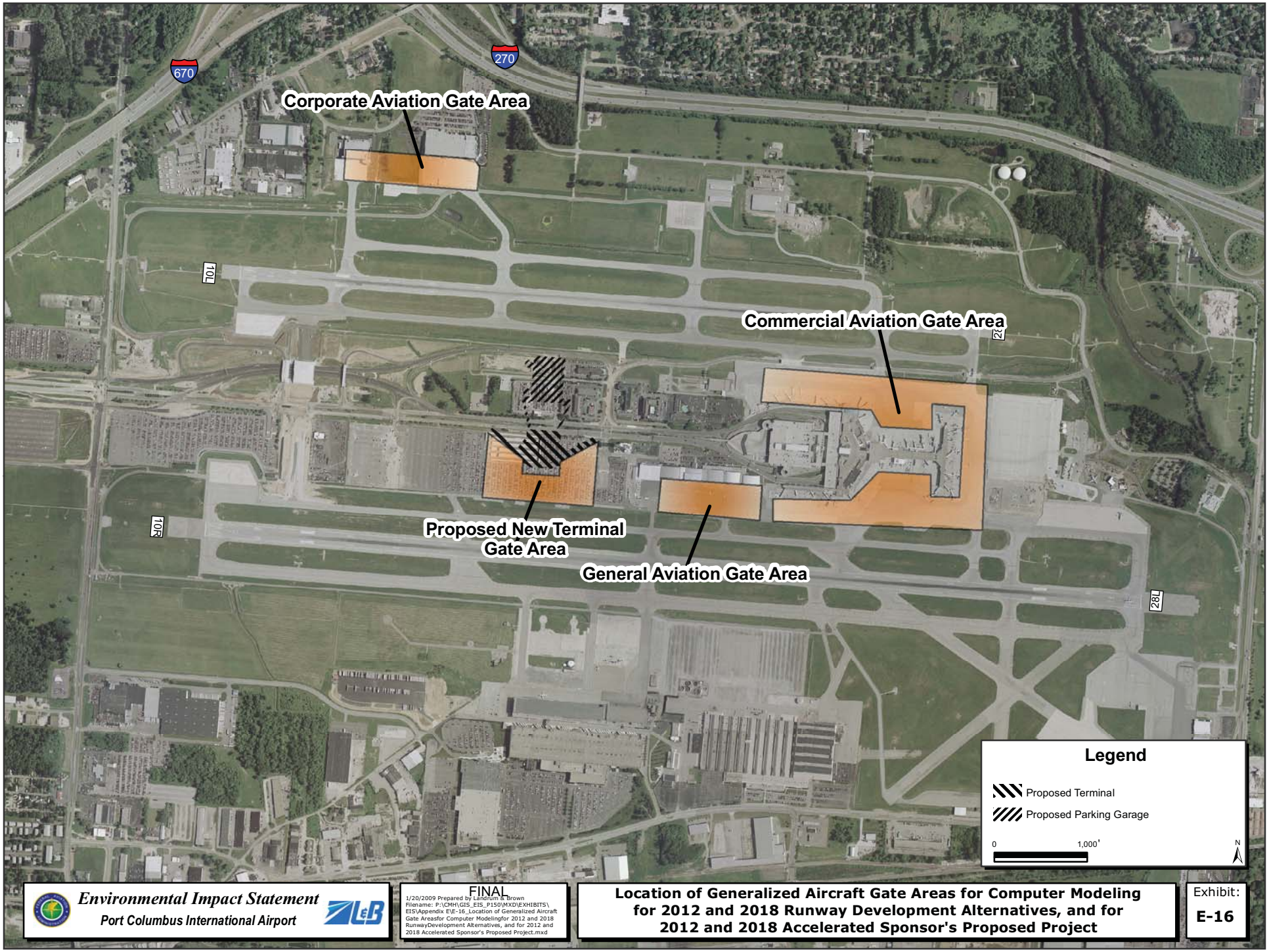
Environmental Impact Statement
Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-15_Location of Generalized Aircraft Gate Areas for Computer Modeling for 2006 Existing Conditions, 2012 and 2018 Alternative A_No Action and 2012 Runway Development Alternatives, and for 2012 and 2018 Acc-Alt_No Act.mxd

Location of Generalized Aircraft Gate Areas for Computer Modeling for 2006 Existing Conditions, 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and for 2012 and 2018 Accelerated Alternative A: No Action

Exhibit:
E-15



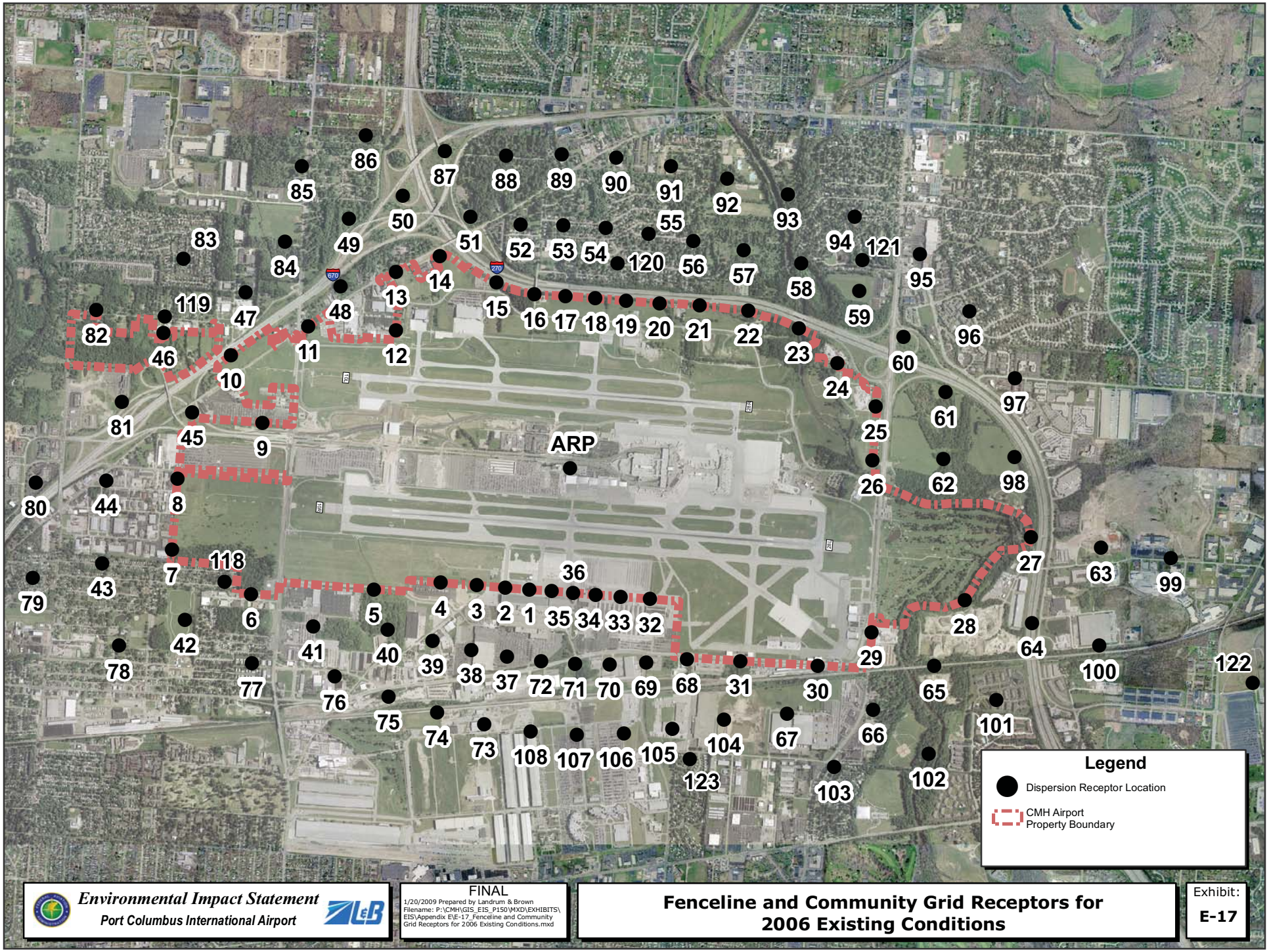
Environmental Impact Statement
Port Columbus International Airport

FINAL

1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-16_Location of Generalized Aircraft Gate Areasfor Computer Modelingfor 2012 and 2018 RunwayDevelopment Alternatives, and for 2012 and 2018 Accelerated Sponsor's Proposed Project.mxd

Location of Generalized Aircraft Gate Areas for Computer Modeling for 2012 and 2018 Runway Development Alternatives, and for 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:
E-16


ARP
Legend
Dispersion Receptor Location
CMH Airport
Property Boundary
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-17_Fenceline and Community Grid Receptors for 2006 Existing Conditions.mxd
Fenceline and Community Grid Receptors for 2006 Existing Conditions
Exhibit:
E-17

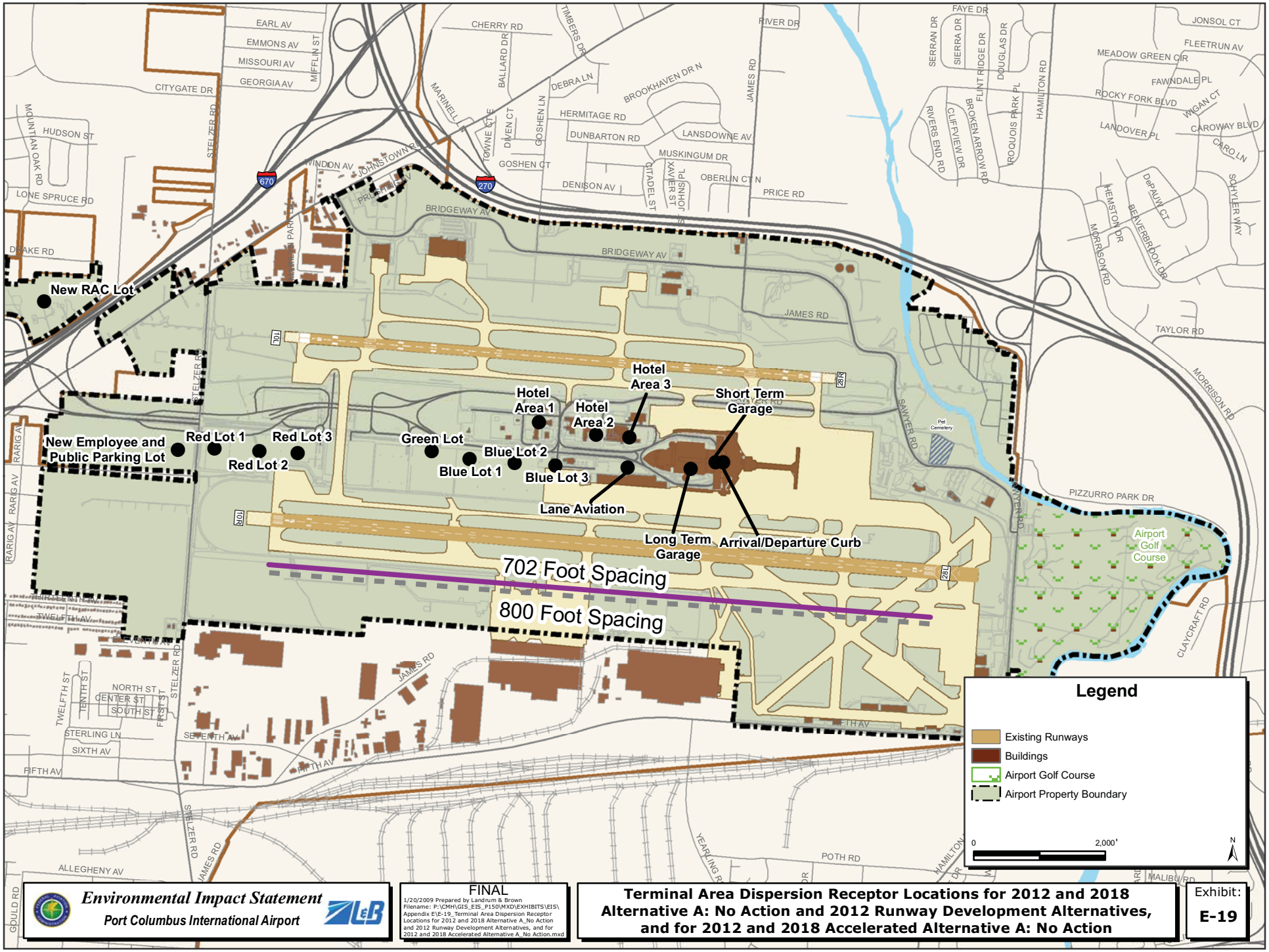


Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\Appendix E\E-18_Terminal Area Dispersion Receptor Locations for 2006 Existing Conditions.mxd

Terminal Area Dispersion Receptor Locations for 2006 Existing Conditions

Exhibit: **E-18**



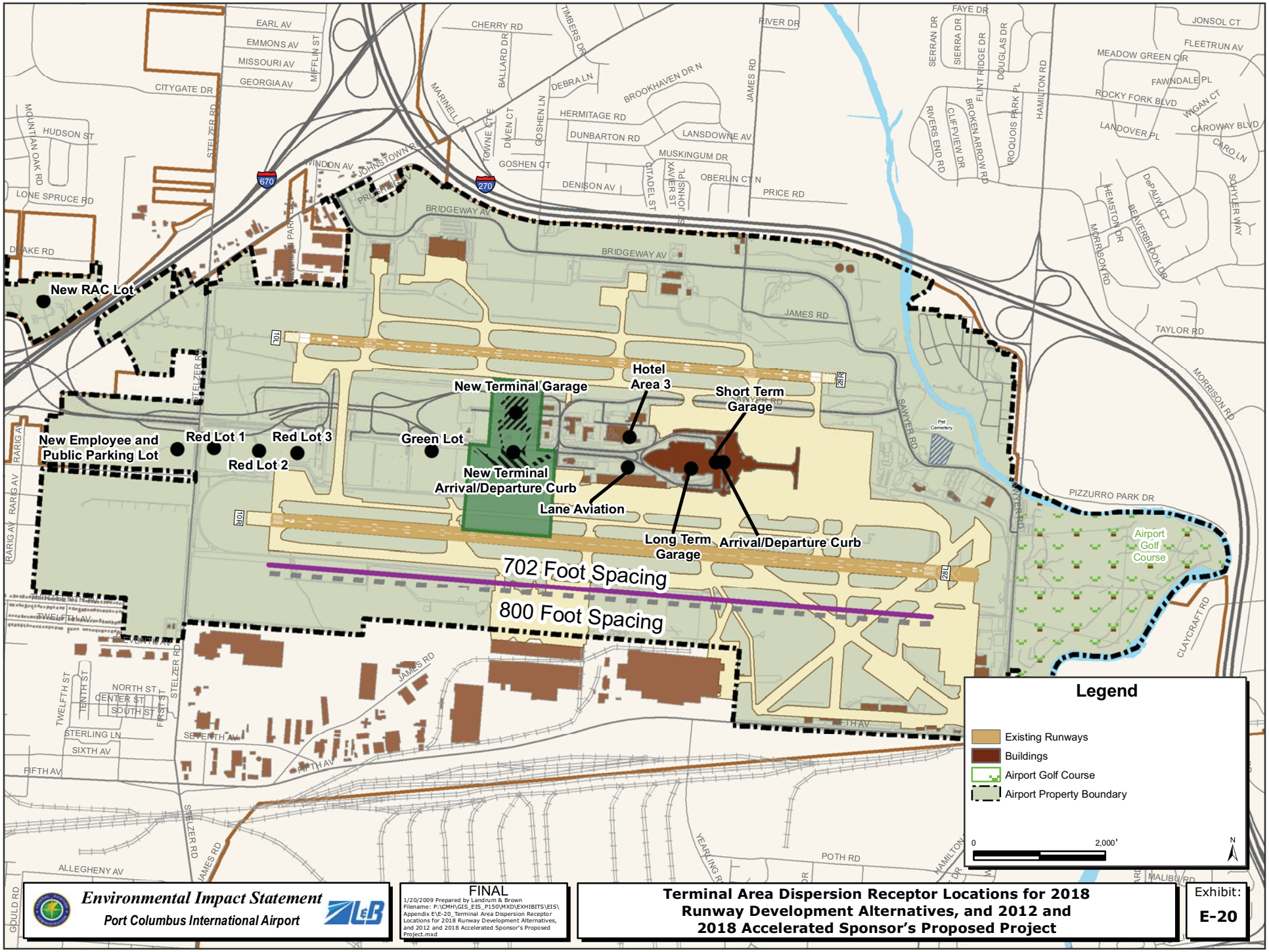
Environmental Impact Statement
Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-19_Terminal Area Dispersion Receptor Locations for 2012 and 2018 Alternative A_No Action and 2012 Runway Development Alternatives, and for 2012 and 2018 Accelerated Alternative A_No Action.mxd

Terminal Area Dispersion Receptor Locations for 2012 and 2018 Alternative A: No Action and 2012 Runway Development Alternatives, and for 2012 and 2018 Accelerated Alternative A: No Action

Exhibit:
E-19



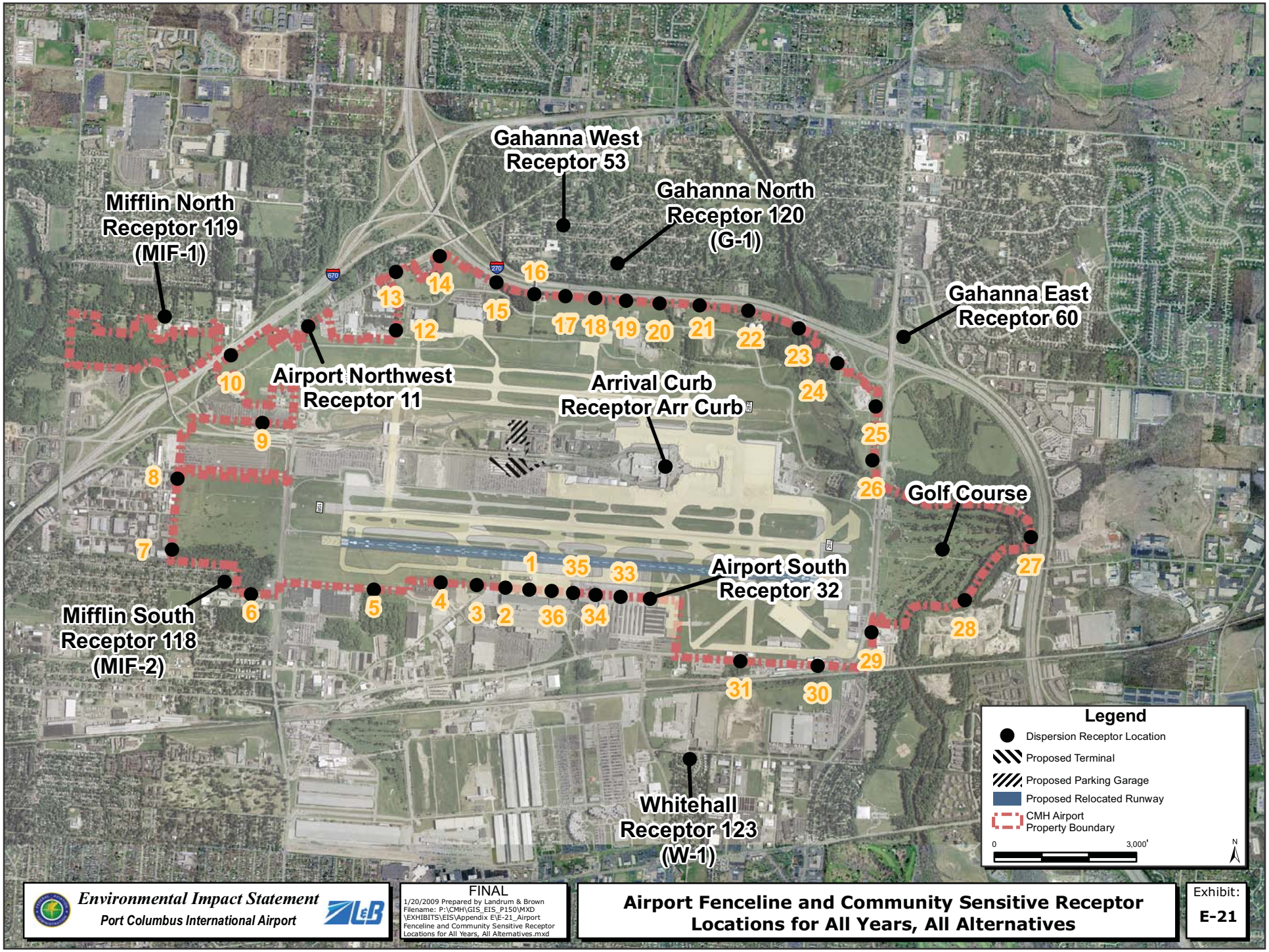
Environmental Impact Statement
Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\ Appendix E\E-20_Terminal Area Dispersion Receptor Locations for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project.mxd

Terminal Area Dispersion Receptor Locations for 2018 Runway Development Alternatives, and 2012 and 2018 Accelerated Sponsor's Proposed Project

Exhibit:
E-20



Environmental Impact Statement
Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD
\EXHIBITS\EIS\Appendix E\E-21_Airport
Fenceline and Community Sensitive Receptor
Locations for All Years, All Alternatives.mxd

Airport Fenceline and Community Sensitive Receptor Locations for All Years, All Alternatives

Exhibit:
E-21

ATTACHMENT 2
AIR QUALITY SCOPING MEETING MATERIALS

The air quality scoping process is designed to make the air quality assessment process more efficient by encouraging participation in early coordination with the Federal, State, and local air quality agencies, and other relevant agencies concerned with the thorough assessment of air quality impacts at the Airport. This attachment includes copies of agendas, meeting minutes, and handout materials distributed for the agency coordination meetings conducted with the Federal, State, and local agencies.

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AIR QUALITY SCOPING MEETING
July 19, 2006
Columbus, Ohio

Invitation
Pre Meeting Mailing
Agenda
Registration
Presentation
Post Meeting Mailing and Meeting Minutes
Comments

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-----Original Message-----
From: Katherine.S.Jones@faa.gov [mailto:Katherine.S.Jones@faa.gov]
Sent: Monday, July 10, 2006 12:37 PM
To: Kamke.Sherry@epamail.epa.gov; Morris.Patricia@epamail.epa.gov;
Leslie.Michael@epamail.epa.gov; King.Suzanne@epamail.epa.gov;
bill.spires@epa.state.oh.us; sam.macdonald@epa.state.oh.us;
sarah.hedlund@epa.state.oh.us; isaac.robinson@epa.state.oh.us;
lkoprowski@morpc.org; randy.sanders@dnr.state.oh.us;
valerie.croasmun@dot.state.oh.us; thom.slack@dot.state.oh.us; Rob Adams;
dwall@columbusairports.com; Irene.Porter@faa.gov; Chris Babb
Subject:

All:

The Federal Aviation Administration (FAA) is preparing an Environmental Impact Statement (EIS) to review the potential impacts from proposed capital improvements for the Port Columbus International Airport (CMH). The Columbus Regional Airport Authority (CRAA) proposes to replace Runway 10R/28L with a new runway of approximately the same length, relocating the new runway south of the existing runway to allow for passenger terminal expansion that will accommodate future aviation demand at the airport.

The FAA is planning a scoping meeting that will focus on the air quality assessment for the EIS. Discussion during the meeting will include the methodology for preparing an air quality analysis required by the National Environmental Policy Act (NEPA) and procedures required under the Clean Air Act (CAA) regulations. The FAA is requesting your attendance because of your unique expertise concerning the evaluation of air quality impacts and/or air quality assessments at airports. The details of the meeting are as follows:

Date: Wednesday, July 19, 2006

Time: 9:00 a.m. to 12:00 noon EDT

Place: Ohio EPA Central Office
Contact: Bill Spires
122 South Front Street
6th Floor DERR Conference Room
Columbus, Ohio 43207

Ginny Raps from Landrum & Brown, the consultant hired to perform this task will be sending out discussion material via e-mail by Wednesday July 12, 2006 for your review in advance so that we can make the best use of our time together.

Please respond to this e-mail to confirm or decline this invitation. This will help us when making arrangements for the facilities we will need for the meeting.

If you have any questions, please give me a call at any time.

Thanks you,
Katherine Jones
734-229-2958

(See attached file: CMH AQ Scoping Agenda July 19 2006 FINAL.doc)

PORT COLUMBUS INTERNATIONAL AIRPORT
ENVIRONMENTAL IMPACT STATEMENT

Federal Aviation Administration

AIR QUALITY SCOPING MEETING

Wednesday July 19, 2006
9:00 a.m. to 12:00 noon

Ohio EPA Central Office
122 South Front Street
Columbus, OH 43216

AGENDA

Welcome ..... *Katy Jones, Federal Aviation Administration*

I. Introduction ..... *Virginia Raps, Landrum & Brown*

II. Regulatory Requirements ..... *Discussion*

III. Modeling Approach ..... *Discussion*

IV. Data Requirements ..... *Discussion*

V. Conformity ..... *Discussion*

* * * * *

AGENCY CONTACT: Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174
Email: CMHEIS@FAA.GOV
Website: www.Airportsites.net/CMH-EIS

From: Ginny Raps
Sent: Thursday, July 13, 2006 7:31 AM
To: 'Kamke.Sherry@epamail.epa.gov'; 'Morris.Patricia@epamail.epa.gov'; 'Leslie.Michael@epamail.epa.gov'; 'King.Suzanne@epamail.epa.gov'; 'bill.spires@epa.state.oh.us'; 'sam.macdonald@epa.state.oh.us'; 'sarah.hedlund@epa.state.oh.us'; 'isaac.robinson@epa.state.oh.us'; 'lkoprowski@morpc.org'; 'randy.sanders@dnr.state.oh.us'; 'valerie.croasmun@dot.state.oh.us'; 'thom.slack@dot.state.oh.us'; Rob Adams; 'dwall@columbusairports.com'; 'Irene.Porter@faa.gov'; Chris Babb; Ginny Raps; 'Foster, Jill'; 'Lengel, John'; 'Katherine.S.Jones@faa.gov'
Subject: FAA Environmental Impact Statement for Columbus International Airport - Air Quality Scoping meeting, July 19

Attached is the discussion outline for the scoping meeting scheduled for Wednesday, July 19, 2006, at the offices of the Ohio EPA in Columbus, Ohio. The FAA is conducting this meeting to discuss the methodology to assess the air quality impact of the project proposed for the airport by the Columbus Regional Airport Authority (CRAA).

Please reply to this email message indicating your intention to participate in this meeting. Facilities are available to connect to this meeting through teleconferencing, if necessary.

Thank you,
Ginny

Virginia L. Raps, Project Manager
Landrum & Brown, Incorporated
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513-530-1238
Fax: 513-530-1278
Cell: 937-218-0058
Email: graps@landrum-brown.com
Web: www.landrum-brown.com

For additional company and industry information please visit our website at www.Landrum-Brown.com

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Port Columbus
International Airport
Environmental Impact Statement

Discussion Outline

Air Quality Scoping Meeting

Location: Ohio Environmental Protection Agency (OEPA)
6th Floor (DERR) Conference Room
122 South Front Street
Columbus, OH 43216

Date: Wednesday, July 19, 2006
Time: 9:00 a.m. – 12:00 noon

Prepared for:

Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Romulus, Michigan 48174

Prepared by:

Landrum & Brown, Incorporated
11279 Cornell Park Drive
Cincinnati, OH 45242

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I. INTRODUCTION

The Federal Aviation Administration (FAA) is preparing an Environmental Impact Statement for the Port Columbus International Airport (CMH EIS or airport). As the airport sponsor, the Columbus Regional Airport Authority (CRAA) proposes a Federal action to replace Runway 10R/28L with a new runway of approximately the same length. The new runway is proposed to be relocated south of the existing Runway 10R/28L to allow for passenger terminal expansion that will accommodate future aviation demand at the airport. At this time, the FAA intends to include a review of impacts to all environmental categories in the CMH EIS, including air quality, under the following cases:

- 2006/2007 Existing Conditions
- 2012 Baseline
- 2012 Project alternatives
- 2018 Baseline
- 2018 Project alternatives

The air quality scoping process begins with this meeting and will make the air quality assessment process more efficient by encouraging participation in early coordination with the Federal, State, and local air quality agencies, and other relevant agencies concerned with the thorough assessment of air quality impacts at the airport. The coordination effort will be documented in a *Draft Air Quality Approach Technical Report*, which will be included in the Draft EIS during the public comment period.

The goal of the air quality scoping process is to:

- Obtain concurrence on procedures and methodology prior to the publication of the Draft CMH EIS
- Engage in a data exchange of information necessary to complete the air quality assessment
- Determine the general and transportation conformity requirements under the Clean Air Act, including the 1990 Amendments (CAA)

During this initial air quality scoping meeting a description of airport air quality assessment procedures will be given along with a general discussion of:

- Regulatory requirements
- Modeling approach
- Data requirements

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Proposed Project

The airport currently has a set of parallel runways as shown in the photograph to the right. The shorter Runway 10L/28R, located north of the passenger terminal area, is 8,000 feet long. The longer Runway 10R/28L is located south of the terminal core and is 10,125 feet long. At this time, the FAA expects the Proposed Project to include the following elements:



- Replacement of Runway 10R/28L, to a length of 10,133 feet, to be located approximately 700 feet south of the existing Runway 10R/28L
- Construction of additional taxiways to support the replacement runway
- Installation of navigational aids (NAVAIDS)
- Terminal development
- Roadway improvements in the terminal core
- Parking facility improvements
- Development of air traffic operational procedures for the replacement runway
- Proposed Part 150 noise abatement actions to be implemented upon receipt of the Record of Approval.

Franklin County Air Quality Status

The airport is located in Franklin County, Ohio, which is included in the USEPA air quality control region defined in the Code of Federal Regulations (CFR) Title 40, Part 81 as the *Metropolitan Columbus Intrastate Air Quality Control Region* (AQCR).[1] The U.S. Environmental Protection Agency (USEPA) has determined that levels of ozone and emissions of fine particulate matter ($PM_{2.5}$) in the AQCR exceed the Federal standards defining healthful air quality while meeting the Federal standards

[1] 40 CFR Part 81, Section 200, *Metropolitan Columbus Intrastate Air Quality Control Region.*

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for emissions of carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), coarse particulate matter (PM_{10}), and lead (Pb).

Because of the air quality status of Franklin County, a proposed Federal action at CMH would require an assessment pursuant to the general conformity provisions of the CAA, which is necessary to ensure compliance to the Ohio State Implementation Plan (SIP).[2] In addition to the CAA, the impacts of the Proposed Project would require assessment under the provisions of the National Environmental Policy Act (NEPA) to determine compliance to the Federal air quality standards, referred to as the National Ambient Air[3] Quality Standards (NAAQS).[4] The analyses required under the CAA and NEPA are separate and distinct. However, the analyses may be combined where overlaps exist, and the results may be reported in a common document.

Ohio State Implementation Plan

According to provisions of the CAA, each State must provide the USEPA with a SIP that includes a strategy to improve the air quality in areas that do not meet the NAAQS, and also provide a plan that will maintain acceptable air quality in areas that are not exceeding the NAAQS. The Ohio SIP is included in the Ohio Administrative Code,[5] (OAC) Chapter 3745, which incorporates, by reference, the requirements under NEPA[6] and the provisions of the CAA.[7]

[2] The State Implementation Plan (SIP) is the State air agency document that sets forth the strategy intended to reduce air emissions in an area of poor air quality and maintain the quality of the air relevant to the Federal air quality standards.

[3] "Ambient air" is defined as that portion of the atmosphere, external to buildings, to which the general public has access. The air that is within the fenced in or guarded area of facility property is not ambient.

[4] The CMH Proposed Project is applicable under NEPA air quality provisions because the project is not defined as excluded, an advisory, or in response to an emergency as defined in Chapter 3 of FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, June 8, 2004.

[5] Ohio Administrative Code (OAC) Chapter 3745-21-02 *Ambient Air Quality Standards and Guidelines*, November 5, 2002 available on the Internet at http://onlinedocs.andersonpublishing.com/oh /lpExt.dll?f=templates&fn=main-h.htm&cp=PORC.

[6] Ohio Administrative Code (FAC), Chapter 62-204.800, *Federal Regulations Adopted by Reference*, incorporated the NAAQS into the Ohio SIP.

[7] Ohio Administrative Code (OAC) Chapter 3745-101-20 *Savings Provisions*, December 31, 2004, available on the Internet at http://onlinedocs.andersonpublishing.com/oh /lpExt.dll?f=templates&fn=main-h.htm&cp=PORC.

II. REGULATORY REQUIREMENTS

The assessment of air quality would be prepared in accordance with the guidelines provided in the FAA *Air Quality Procedures for Civilian Airports & Air Force Bases,*[8] and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, which together with the guidelines of FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, constitutes compliance to all the relevant provisions of NEPA and the CAA.

NEPA

The USEPA established a set of standards, or "criteria," for six pollutants determined to be harmful to human health and welfare.[9] The standards for the criteria pollutants are known as the National Ambient Air Quality Standards (NAAQS). Also established was the provision that a SIP will include the strategy that a state environmental agency intends to use to meet and maintain the NAAQS within a given timeframe. To ensure Federal projects will comply with the NAAQS and not interfere with the goals of the SIP, the CAA established the Transportation Conformity Rule for Federal highway and transit projects, and established the General Conformity Rule for all other general Federal actions, including airport improvement projects. The USEPA considers the following six criteria pollutants to be indicators of air quality:

- Ozone (O_3)
- Carbon monoxide (CO)
- Nitrogen dioxide (NO_2)
- Particulate matter (PM_{10} and $PM_{2.5}$)[10]
- Sulfur dioxide (SO_2)
- Lead (Pb)

For each of these pollutants, the USEPA established primary standards intended to protect public health, and secondary standards for the protection of other aspects of public welfare, such as preventing materials damage, preventing crop and vegetation damage, and assuring good visibility. Areas of the country where air pollution levels consistently exceed these standards may be designated "nonattainment" by the USEPA. The NAAQS are summarized in **Table 1**.

[8] FAA and USAF, *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997.
[9] Title 40 of the Code of Federal Regulations (40 CFR) Part 50 *National Primary and Secondary Ambient Air Quality Standards* (NAAQS).
[10] PM_{10} and $PM_{2.5}$ are airborne inhalable particles that are less than 10 micrometers and less than 2.5 micrometers in diameter, respectively. $PM_{2.5}$ is a subset of PM_{10} emissions.

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Table 1
NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

POLLUTANT	AVERAGING PERIOD	PRIMARY STANDARDS	SECONDARY STANDARDS
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean 24-Hour Average 3-Hour Average	0.03 PPM 0.14 PPM None	None None 0.50 PPM
Particulate Matter (PM_{10})	Annual Arithmetic Mean 24-Hour Average	50 $\mu g/m^3$ 150 $\mu g/m^3$	50 $\mu g/m^3$ 150 $\mu g/m^3$
Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean 24-Hour Average	15 $\mu g/m^3$ 65 $\mu g/m^3$	15 $\mu g/m^3$ 65 $\mu g/m^3$
Carbon Monoxide (CO)	8-Hour Average 1-Hour Average	9 PPM 35 PPM	None None
Ozone (O_3)	8-Hour Average 1-Hour Average	0.08 PPM 0.12 PPM	0.08 PPM 0.12 PPM
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.053 PPM	0.053 PPM
Lead (Pb) [1]	3-Month Arithmetic Mean	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$

Note: PPM is parts per million
$\mu g/m^3$ is micrograms per cubic meter

[1] Airborne lead in urban areas is primarily emitted by vehicles using leaded fuels. The chief source of lead emissions at airports would be the combustion of leaded aviation gasoline in small piston-engine general aviation aircraft. However, the USEPA and FAA have determined that an exceedance of the lead standard would be unlikely at an airport because of the use of low-lead fuel for piston-engine aircraft. Therefore, emissions of lead were not considered in this analysis.

Sources: 40 CFR Parts 50.4 through 50.12.
FAA and USAF, *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997.
Ohio Administrative Code (OAC), Chapter 3745.

Dispersion modeling for a NAAQS compliance assessment would be conducted pursuant to 40 CFR Part 93.158(b)(1 and 2):

93.158(b) The areawide and/or local air quality modeling analyses must:
(1) Meet the requirements in 40 CFR Part 93.159; and
(2) Show that the action does not:
(i) cause or contribute to any new violation of any standard in any area; or
(ii) increase the frequency or severity of any existing violation of any standard in any area.

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In 40 CFR Part 93.159, the USEPA outlines the procedures to be followed for the preparation of dispersion analyses, such as what planning assumptions the analyses should be based on, what version of motor vehicle emissions models to use, required compliance to the USEPA "Guideline on Air Quality Models", which is found in Appendix W of 40 CFR Part 51, and the future years for which an analysis should be prepared.

In FAA Order 1050.1E, the FAA and USEPA determined that an analytical assessment of compliance to the NAAQS due to a Federal airport action is not always required or necessary. Rather, the requirement is dependent upon the nature of the project and the size of the airport as evaluated through the application of screening criteria.[11] The screening criteria consider two factors: the annual number of passengers[12] and the number of combined general aviation and air taxi aircraft operations at the airport. An airport that accommodates or projects to accommodate more than 2.6 million annual passengers (or 1.3 million annual enplanements) or if the airport operates or projects to operate more than 180,000 combined general aviation and air taxi aircraft operations annually, an analysis to assess the Federal action against the NAAQS should be considered. The relationship between these two factors is incorporated into the following equation, which should be used as a guide for determining whether a NAAQS assessment should be considered for an airport project:[13]

$$3.5 - \left[(1.346 \times MAP) + (0.0194 \times GA)\right] < 0$$

Where, MAP is the millions of annual passengers, and GA denotes the combined annual general aviation and air taxi aircraft operations, given in 1,000's. When this statement is true, a NAAQS assessment is indicated; if false, and the solution is >0, then a NAAQS comparison analysis would not be required. There are approximately 184,500 combined GA and air taxi aircraft operations each year at CMH. Application of this data to the above equation, regardless of the number of enplanements, indicates that a NAAQS assessment would be required for a proposed Federal action at CMH. The NAAQS assessment would specifically examine the pollutant concentrations (in parts per million) of NO_x, SO_x, PM_{10}, $PM_{2.5}$, and CO.

[11] The requirement for a NAAQS assessment would also depend on whether the Federal action is exempt or advisory in nature. The CMH Proposed Project is neither exempt nor an advisory.
[12] Includes enplanements and deplanements, and transfer passengers, but excludes through passengers.
[13] FAA, *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997.

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Clean Air Act

The CAA Amendments of 1990 included provisions to ensure emissions from Federal actions will comply with the goals of the SIP and will not interfere with the plans to improve air quality in a nonattainment or maintenance area. Compliance to the SIP requires the sponsoring Federal agency to prepare an analytical demonstration of the potential for significant air quality impacts from Federal actions unless the action is exempt under the CAA regulations, or is a project included in the sponsoring agency's Presumed to Conform List. [14]

The USEPA promulgated the conformity regulations on November 24, 1993[15] to assist Federal agencies in complying with the SIP by specifying rules for two categories of Federal actions: transportation actions and general actions. The two rules have separate and distinct applicability and evaluation requirements. Transportation conformity applies to highway and transit projects, and general conformity regulations apply to all other Federal actions that are not transportation projects, such as airport improvement projects.

General Conformity Rule Applicability

The General Conformity Rule under the CAA establishes minimum values, referred to as the de minimis thresholds, for the criteria and precursor pollutants[16] for the purpose of:

- Identifying Federal actions with project-related emissions that are clearly negligible (de minimis),
- Avoiding unreasonable administrative burdens on the sponsoring agency, and,
- Focusing efforts on key actions that would have potential for significant air quality impacts.

Notably, there are no de minimis thresholds to account for ozone emissions. This is because ozone is not directly emitted from a source. Rather, ozone is formed through photochemical reactions involving emissions of nitrogen oxides (NO_x), volatile organic compounds (VOC), and abundant sunlight. Therefore, emissions of ozone on a project level are evaluated based on emissions of the ozone precursor pollutants, NO_x and VOC. Although $PM_{2.5}$ is sometimes emitted directly, fine particle emissions can form resulting from chemical reactions involving emissions of the $PM_{2.5}$ precursor pollutants NO_x, VOC, sulfur oxides (SO_x), and ammonium (NH_4).

[14] The Proposed Project at CMH is neither exempt nor is the project included on the FAA Presumed to Conform List.
[15] Federal Register Volume 58, p. 62188 (58 FR 62188), dated November 24, 1993.
[16] Precursor pollutants are pollutants that are involved in the chemical reactions that form the resultant pollutant. Ozone precursor pollutants are NO_x and VOC, whereas $PM_{2.5}$ precursor pollutants include NO_x, VOC, SO_x, and ammonium (NH_4).

Conformity to the de minimis thresholds is relevant only with regard to those pollutants and precursor pollutants for which the area is nonattainment or maintenance. The de minimis rates vary depending on the severity of the nonattainment area and further depend on whether the general Federal action is located inside an ozone transport region.[17] The General Conformity Rule (the Rule), published under 40 CFR Part 93,[18] applies only to general Federal actions that are:

- Federally-funded or Federally-approved,
- Not a highway or transit project,
- Not identified as an exempt project[19] under the CAA,
- Not a project identified on the approving Federal agency's Presumed to Conform list,[20] and,
- Located within a nonattainment or maintenance area.

Otherwise, the Federal action is not applicable under the Rule. When the action is applicable under the general conformity regulations, the net emissions due to the Federal action may not equal or exceed the applicable de minimis thresholds unless:

- An analytical demonstration is provided that shows the emissions would not exceed the NAAQS, or
- Net emissions are accounted for in the SIP planning emissions budget, or
- Net emissions are otherwise accounted for by applying a solution prescribed under 40 CFR Part 93.158.

The Federal de minimis thresholds, which are adopted by reference in the Ohio Administrative Code,[21] are given in **Table 2**, *Clean Air Act De Minimis Thresholds*.

[17] An ozone transport region (OTR) is a single transport region for ozone (within the meaning of Section 176A(a) of the CAA), comprised of the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia, as given at Section 184 of the CAA.

[18] USEPA, 40 CFR Part 93, Subpart B *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*, July 2006.

[19] The CMH Proposed Project is not listed as an action exempt from a conformity determination pursuant to 40 CFR Part 93.153(c). An exempt project is one that the USEPA has determined would clearly have no impact on air quality at the facility, and any net increase in emissions would be so small as to be considered negligible.

[20] The provisions of the CAA allow a Federal agency to submit a list of actions demonstrated to have low emissions that would have no potential to cause an exceedance of the NAAQS and are presumed to conform to the CAA conformity regulations. This list would be referred to as the "Presumed to Conform" list. The FAA is currently developing a Presumed to Conform list of airport projects that would not require evaluation under the general conformity regulations.

[21] Ohio Administrative Code (OAC) Chapter 3745-101-20 *Savings Provisions*, December 31, 2004, available on the Internet at http://onlinedocs.andersonpublishing.com/oh/lpExt.dll?f=templates&fn=main-h.htm&cp=PORC.

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Table 2
CLEAN AIR ACT DE MINIMIS THRESHOLDS

POLLUTANT TYPE AND VIOLATION SEVERITY	NONATTAINMENT AREA THRESHOLD EMISSIONS (tons per year)	MAINTENANCE AREA THRESHOLD EMISSIONS (tons per year)
Carbon Monoxide (CO)	100	100
Particulate Matter (PM_{10})		100
Moderate Nonattainment Area	100	
Serious Nonattainment Area	70	
Particulate Matter ($PM_{2.5}$)	100	100
Precursor pollutants SO_2, NO_x, VOC, & NH_4[1]	100	100
Sulfur Dioxide (SO_2)	100	100
Nitrogen Dioxide (NO_2)	100	100
Lead (Pb)	25	25
Ozone[2] (O_3)	VOC/NOx	VOC/NO_x
Serious Nonattainment Area	50/50	
Severe Nonattainment Area	25/25	
Extreme Nonattainment Area	10/10	
Inside an ozone transport region[3]:		50/100
Marginal Nonattainment Area	50/100	
Moderate Nonattainment Area	50/100	
Outside an ozone transport region[3]:		100/100
Marginal Nonattainment Area	100/100	
Moderate Nonattainment Area	100/100	

[1] NH_4 is the chemical formula for ammonium (ammonia), a precursor to the development of $PM_{2.5}$. Net emissions of pollutants determined by USEPA as precursors, or contributors, to $PM_{2.5}$ emissions include SO_x, NO_x, VOC, and NH_4, and are each limited to net emissions of 100 tons per year in a $PM_{2.5}$ nonattainment or maintenance area.

[2] The rate of increase of ozone emissions is not usually evaluated in an environmental review because the formation of ozone occurs on a regional level and is the result of the photochemical reaction of NO_x and VOC in the presence of abundant sunlight. Therefore, USEPA considers the rates of increase of NO_x and VOC emissions to reflect the likelihood of ozone formation on a project level.

[3] An ozone transport region (OTR) is a single transport region for ozone, comprised of the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia.

Source: 40 CFR Part 93.153(b)(1), July 2006.
CAA Title 1, Section 176A(a) and Section 184.
71 FR 17003, April 5, 2006, *$PM_{2.5}$ De Minimis Emission Levels for General Conformity Applicability*.

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Franklin County is included in a nonattainment area for both ozone and emissions of $PM_{2.5}$; further, the Proposed Project meets all the remaining criteria indicating the general conformity regulations would apply to the Proposed Project for CMH. Because Franklin County is nonattainment for ozone, project-related net emissions of the ozone precursor pollutants NO_x and VOC, would be evaluated in this air quality assessment and compared against the minimum threshold of 100 tons per year, each. Like ozone, the net emissions of $PM_{2.5}$ and the precursor pollutants[22] SO_x, NO_x, and VOC would be evaluated and compared against the minimum threshold of 100 tons per year, each. If the general conformity evaluation for this air quality assessment were to show that any of these thresholds were equaled or exceeded due to the Proposed Project, further more detailed analysis to demonstrate conformity would be required, referred to as a General Conformity Determination. If the general conformity evaluation were to show that none of the thresholds were equaled or exceeded, the Proposed Project at CMH would be assumed to conform to the Ohio SIP and no further analysis would be required under the CAA unless the project is shown to be regionally significant under the general conformity regulations.

Regional Significance Under General Conformity

A regionally significant Federal action under the CAA is one where the total direct and indirect emissions (net emissions) represent greater than ten percent of the total emissions of any pollutant in the nonattainment or maintenance area, as provided in the SIP emissions budget. According to the USEPA and the FAA, it would be unlikely that an airport improvement project would cause an increase in net emissions that is regionally significant.[23] Therefore, the Proposed Project at CMH was assumed not to be regionally significant as defined under the general conformity regulations.

Transportation Conformity Rule Applicability

Although airport improvement projects are considered under the general conformity regulations, there are elements of a proposed project alternative that may require an analysis to show transportation conformity, such as actions relating to transportation plans, programs, or projects developed, funded, or approved under Title 23 United States Code (U.S.C.) or the Federal Transit Act.[24] In such case, the sponsoring Federal agency would be required to coordinate with the Federal Highway Administration (FHWA), the State Department of Transportation (DOT), and the local metropolitan planning organization (MPO) to assist in completing a transportation conformity evaluation. As with general conformity, transportation

[22] Emissions of ammonium (NH_4) are generally associated with commercial animal agriculture, including feeding operations. Therefore, emissions of NH_4 were not included in this analysis.
[23] FAA, *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997.
[24] USEPA, 40 CFR Part 93.153, *Applicability*, July 2006.

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conformity regulations apply only to Federal actions located within a nonattainment or maintenance area.

The Proposed Project at CMH includes the realignment of a short section of Stelzer Road; however, realignment of this roadway is not a highway or transit project requiring FHWA or DOT approval.[25] Therefore, the transportation conformity regulations would not apply to the CMH Proposed Project.

Indirect Source Review

Some states require an air quality review when a Federal action has the potential to cause an increase in net emissions from indirect sources. Indirect sources cause emissions that occur later in time or are farther removed from the Federal action. Depending on the state, indirect sources may be identified as motor vehicles on highways, parking at sports and entertainment facilities, or an increase in aircraft operations. The state requirement is referred to as the Indirect Source Review (ISR) and each state requiring an ISR sets thresholds for increased operation of the indirect sources. When a Federal action has the potential to exceed these thresholds, an air quality review is required to assess the character and impact of the additional emissions, which is separate from the analyses required under NEPA or the CAA. According to FAA, *Air Quality Procedures for Airports and Air Force Bases*,[26] Ohio is not listed as one of the states requiring an ISR.

III. MODELING APPROACH

The air quality assessment will include the following analyses:

- Emissions inventory
- Construction emissions inventory
- Dispersion analysis

[25] USEPA, 40 CFR Part 51.394, *Applicability*, July 2006.
[26] FAA, *Air Quality Procedures for Civilian Airports & Air Force Bases*, Appendix J, April 1997.

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Emissions Inventory of Criteria and Precursor Pollutants

A local-area[27] inventory of all direct and indirect emissions will be prepared to disclose the air quality impact of the existing conditions and the relevant project alternatives, including the future baseline conditions, which will be compared to disclose the impact to air quality under each relevant project alternative. The emissions inventory for the Proposed Project[28] and the baseline inventory of the same future year will be compared to determine the project's compliance to the General Conformity Rule under the CAA.

The emissions inventories will present estimated emissions in tons per year for the following criteria and precursor pollutants:

- Carbon monoxide (CO)
- Volatile organic compounds (VOC)
- Nitrogen oxides (NO_x)
- Sulfur oxides (SO_x)
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Volatile organic compounds (VOC)

The emissions inventories will be estimated using the FAA Emissions and Dispersion Modeling System (EDMS) computer model Version 4.5 applying average meteorological conditions for temperature and mixing height. The FAA EDMS computer program is the FAA-required and USEPA-approved model for estimating emissions and calculating pollutant concentrations from airport-specific sources, such as aircraft engines, ground support equipment (GSE) and auxiliary power units (APUs). The model is also approved for modeling emissions from motor vehicles on roadways and in parking lots, and modeling emissions from stationary sources such as heating plants (boilers) and fuel storage tanks.

[27] A local-area inventory focuses on emissions over a relatively limited area from a single source or closely related sources, which is in contrast with a regional emissions inventory typically prepared by the metropolitan planning organization (MPO) for the regional transportation system.

[28] The project alternative relevant for evaluation under general conformity regulations would be the alternative that would ultimately be funded or approved by the FAA.

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Construction Equipment Emissions Inventory

An inventory of emissions from the use of construction equipment is a regulatory requirement because construction equipment are considered a direct source of emissions. The construction equipment emissions inventory will be prepared using USEPA-approved methodology and equipment emissions factors from either the USEPA NONROAD computer database or 40 CFR Part 89.[29] The emissions inventory from construction equipment will be prepared using the Microsoft EXCEL® spreadsheet program and will consider the use of construction equipment by type (i.e. bulldozer, backhoe), by horsepower, by load factor, and by hours of use to complete each construction phase.

Dispersion Analysis

A dispersion analysis will be conducted based on the emissions inventory of all airport sources (excluding construction), for existing conditions and for the future alternatives, including the future baseline conditions. The dispersion analysis will be conducted using the FAA Emissions and Dispersion Modeling System (EDMS) computer model and applying one full year of meteorological data (surface observations and upper air data).

For purposes of the Draft EIS, the dispersion analysis of 2006/2007 Existing Conditions would include a polar grid of receptors placed every ten degrees along the boundary of airport property as measured from the airport reference point (ARP). Two additional rings of receptors would be placed 500 feet apart beyond the property line, establishing 108 receptors. Additional receptors would be placed in typically high-concentration areas such as parking lots and along the curbfront where passengers are departing and arriving, establishing a maximum of 30 additional receptors. A maximum of five receptors would also be placed in sensitive nearby residential areas. This would establish a total of no more than 143 dispersion receptors for the 2006/2007 Existing Conditions. The dispersion analysis for just the 2006/2007 Existing Conditions would be expected to require at least 30 hours of computer time when running the EDMS. The dispersion analysis for the Draft EIS 2012 and 2018 project alternatives would be limited to 10 discrete receptors selected as a result of agency coordination and based on the results of the dispersion assessment conducted for the 2006/2007 Existing Conditions.

Dispersion analysis of all cases provided in the Final EIS would be limited to five discrete receptor locations for each case selected as a result of agency coordination and based on the results of the dispersion assessment provided in the Draft EIS.

[29] 40 CFR Part 89.112 *Oxides of nitrogen, carbon monoxide, hydrocarbon, and particulate matter exhaust emission standards.*

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IV. DATA REQUIREMENTS

Data is required for the preparation the construction equipment emissions inventory, and both the inventory and dispersion of emissions of the criteria pollutants. This data would include parameters that describe the operational characteristics of the various sources of air emissions at the airport.

Construction

Data relating to construction phasing and construction equipment schedules for the Proposed Project will be required. The phasing schedules should include the type of equipment planned for use for each construction phase/task and the monthly hours of operation of each unit of equipment. ***If this data cannot be provided in sufficient detail, the Landrum & Brown air quality team will estimate construction emissions based on similar airport improvement projects.***

Aircraft and Airport

The emissions inventory and dispersion analysis of emissions from aircraft operations utilizes data defining the aircraft fleet mix, airport operational statistics, ground support equipment (GSE), and uses the digital airport layout plan (ALP).

1. ***Aircraft Fleet:*** A table summarizing the aircraft fleet under all project years and all project alternatives would include the peak-hour operations, by specific aircraft type (Boeing 737-500, Regional Jet, etc., as opposed to categories of aircraft, i.e. jets, turboprops, commuters, etc).

2. ***Airport Operational Statistics:*** Airport operational statistics are used in air quality computer modeling to provide the most realistic description of existing airport emissions. Tables summarizing the following would be used for existing conditions and for each project alternative:

    - Average taxi time, by aircraft type
    - Average departure queue time, by aircraft type
    - Gate use, by aircraft type
    - Taxiway use, by aircraft type
    - Runway use, by aircraft type
    - Maximum departure queue time, by runway end
    - Maximum departure queue length, by runway end
    - Monthly, daily, and hourly operational profiles

3. ***Ground Support Equipment (GSE):*** Ground support equipment assignments will be identified through an on-site survey conducted and evaluated by the consulting air quality team.

Federal Aviation Administration
Environmental Impact Statement
Port Columbus International Airport

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4. ***Digital Airport Layout Diagram:*** The current approved Airport Layout Plan (ALP) in digital form will be used for identifying Cartesian coordinate gridpoints for dispersion analyses.

Surface Transportation

Existing and future traffic information would be required to assess emissions from on-airport roadways.

- USEPA MOBILE vehicle emissions factors used for local surface transportation modeling will be used in evaluating impacts from surface transportation.
- Peak-hour traffic counts for the exits and entrances to the major on-airport parking lots and parking garages would be used, particularly for those lots and garages for which modifications/relocations are proposed for the project alternatives. This data should account for the on-airport transport of rental cars including buses, taxicabs, hotel shuttle vans and buses, and cargo trucks. Also included would be any off-airport employee parking lots.
- Peak-hour traffic counts would be used for the curbfront arrival and departure areas.

Stationary Sources

A complete collection of data for stationary emissions sources that currently exist and also those that may be modified or introduced in the 2012 or 2018 project alternatives would be used for the air quality assessment. This information would be obtained through an on-site survey conducted and evaluated by the consulting air quality team. The data would relate to the following sources, to the extent possible:

- Heating plants (boilers)
- Incinerators
- Fuel storage tanks
- Solvent degreasing operations
- Surface coating operations
- Emergency generators

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Types of information with regard to these sources would include, but would not be limited to:

- Source location
- Fuel type, paint type, solvent type, etc., however applicable
- Associated equipment use (fire trucks, generators for paint application)
- Annual fuel throughput, annual paint/solvent use, etc., however applicable
- Capacity, size, or other characteristics of the source
- Frequency of use

Meteorology

Computer modeling for air quality requires meteorological data for the project site. Meteorology used for the emissions inventory and for dispersion modeling for Federal actions under NEPA should be consistent with data used in regional transportation modeling. Meteorological data will include:

- Average annual temperature
- Average annual mixing height
- One year of on-site hourly surface aviation observations
- One year of on-site, or most appropriate, upper-air observations, corresponding to the year available for surface observations

The choice of what full year of data to use for dispersion analysis would be determined through agency coordination.

Background Concentrations

A dispersion analysis must disclose the "design concentration" for each pollutant standard. The design concentration would be the sum of the concentration of each pollutant estimated by modeling at specified receptor locations, along with the existing background concentration of that pollutant as determined through USEPA monitoring. Background concentration for emissions of CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ would be used for the existing conditions. The level of future background concentrations will be estimated using historical data with the application of a regression trend calculation, which is available in the Microsoft EXCEL® spreadsheet program.

Modeling Assumptions

Default values will be used for modeling parameters that cannot be provided specific to the CMH EIS. A complete set of input data for each emissions inventory and dispersion analysis would be available for agency review of the Draft EIS and would be appended to the written report in the Final EIS.

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Environmental Impact Statement
Port Columbus International Airport

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V. NEXT STEPS

Written comments and/or questions regarding the discussion or material provided during this scoping meeting should be mailed within 30 days following the scoping meeting or no later than ***August 19, 2006***. Comments should be directed to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174

Email: CMHEIS@FAA.GOV

Website: www.Airportsites.net/CMH-EIS

This scoping document is provided as a draft and should not be considered the final authority for assessing air quality for either the Draft CMH EIS or Final CMH EIS. As the project progresses, changes in planning will require adjustments of the methodology and procedures given in this document.

PORT COLUMBUS INTERNATIONAL AIRPORT
ENVIRONMENTAL IMPACT STATEMENT

Federal Aviation Administration

AIR QUALITY SCOPING MEETING

Wednesday July 19, 2006
9:00 a.m. to 12:00 noon

Ohio EPA Central Office
122 South Front Street
Columbus, OH 43216

AGENDA

Welcome ..... Katy Jones, Federal Aviation Administration

I. Introduction ..... Virginia Raps, Landrum & Brown

II. Regulatory Requirements ..... Discussion

III. Modeling Approach ..... Discussion

IV. Data Requirements ..... Discussion

V. Conformity ..... Discussion

* * * * *

AGENCY CONTACT: Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174
Email: CMHEIS@FAA.GOV
Website: www.Airportsites.net/CMH-EIS

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AIR QUALITY SCOPING MEETING
Ohio EPA
Columbus, Ohio
Wednesday, July 19, 2006

FEDERAL AVIATION ADMINISTRATION

Port Columbus International Airport
Environmental Impact Statement

NAME (Please Print)	
TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

Since 1949 Landrum & Brown

Virginia L. Raps
Senior Consultant

11279 Cornell Park Drive
Cincinnati, Ohio 45242
Ph. 513•530•1238 Fax: 513•530•1278
Email: graps@landrum-brown.com

NAME (Please Print)	
TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

COLUMBUS REGIONAL AIRPORT AUTHORITY
PORT COLUMBUS • RICKENBACKER • BOLTON

Kelly Kaletsky
Environmental Coordinator

4600 International Gateway
Columbus, OH 43219
614-239-3015 • Fax 614-239-3183
kkaletsky@ColumbusAirports.com

NAME (Please Print)	
TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

OhioEPA
State of Ohio Environmental Protection Agency
Division Of Air Pollution Control
SIP Section
Lazarus Government Center
122 South Front Street
Columbus, Ohio 43215
www.epa.state.oh.us

Sarah Hedlund
Meteorologist
(614) 644-3632
Fax (614) 644-3681
sarah.hedlund@epa.state.oh.us

ON THE PHONE:
TIM ARNDT
JILL FOSTER
PAT MORRIS
SUZANNE KLING

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Ohio EPA
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Wednesday, July 19, 2006

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AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

Since 1949 Landrum&Brown

Rob Adams
Senior Project Manager

11279 Cornell Park Drive
Cincinnati, Ohio 45242
Ph. 513•530•1201 Fax: 513•530•1278
Email: radams@landrum-brown.com

NAME (Please Print)	
TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

Christopher Gawronski
Principal Planner

MORPC

phone: (614) 233-4166
fax: (614) 621-2401
e-mail: cgawronski@morpc.org
website: www.morpc.org

Mid-Ohio Regional Planning Commission
285 East Main Street • Columbus, OH 43215-5272

NAME (Please Print)	Tom Velalis
TITLE	Supervisor Emission Inventory unit
AGENCY / DIVISION / FIRM	ohio EPA
MAILING ADDRESS	122 South Front Street
E-MAIL ADDRESS	tom.velalis@epa.state.oh.us
TELEPHONE NUMBER	614-644-4837
FAX NUMBER	

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AIR QUALITY SCOPING MEETING
Ohio EPA
Columbus, Ohio
Wednesday, July 19, 2006

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NAME (Please Print)	Sam MacDonald
TITLE	ES 2
AGENCY / DIVISION / FIRM	Ohio EPA / DAPC
MAILING ADDRESS	Lazarus Govt CTR P.O. Box 1049 Col's OH 43216
E-MAIL ADDRESS	Sam.macdonald@epa.state.oh.us
TELEPHONE NUMBER	(614) 728-1743
FAX NUMBER	

NAME (Please Print)	Nick Nichols
TITLE	ES II
AGENCY / DIVISION / FIRM	Ohio EPA / DAPC
MAILING ADDRESS	Lazarus Govt. Ctr P.O. Box 1049, Col's, OH 43216
E-MAIL ADDRESS	William.Nichols@epa.state.oh.us
TELEPHONE NUMBER	614-644-3612
FAX NUMBER	614-728-1743

NAME (Please Print)	
TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

COLUMBUS REGIONAL AIRPORT AUTHORITY
FORT COLUMBUS • RICKENBACKER • BOLTON

Paul D. Kennedy
Supervisor
Environmental, Safety & Health

4600 International Gateway
Columbus, OH 43219
614-239-3347 • Fax 614-239-3183
pkennedy@ColumbusAirports.com

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AIR QUALITY SCOPING MEETING
Ohio EPA
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TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

OHIO ENVIRONMENTAL PROTECTION AGENCY
Division of Air Pollution Control

Street Address
Lazarus Gov. Center
122 S. Front St.
Columbus, OH 43215

Mailing Address
Lazarus Gov. Center
P.O. Box 1049
Col., OH 43216-1049

William F. Spires, C.C.M.
Meteorologist
P- (614) 644-3618
F- (614) 644-3681
bill.spires@epa.state.oh.us

NAME (Please Print)	
TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

COLUMBUS REGIONAL AIRPORT AUTHORITY
PORT COLUMBUS • RICKENBACKER • BOLTON

David E. Wall, A.A.E.
Capital Program Manager

4600 International Gateway
Columbus, OH 43219
614-239-4063 • Fax 614-238-7850
dwall@ColumbusAirports.com

NAME (Please Print)	
TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

COLUMBUS REGIONAL AIRPORT AUTHORITY
PORT COLUMBUS • RICKENBACKER • BOLTON

Bernard F. Meleski
Director, Planning & Development

4600 International Gateway
Columbus, OH 43219
614-239-4042 • Fax 614-238-7850
bmeleski@ColumbusAirports.com

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AIR QUALITY SCOPING MEETING
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Columbus, Ohio
Wednesday, July 19, 2006

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TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

Landrum & Brown
Since 1949

Sarah J. Potter
Consultant

11279 Cornell Park Drive
Cincinnati, Ohio 45242
Ph. 513•530•1271 Fax: 513•530•1278
Email: spotter@landrum-brown.com

NAME (Please Print)	Patricia Morris
TITLE	Environmental Scientist
AGENCY / DIVISION / FIRM	USEPA Region 5
MAILING ADDRESS	77 W. Jackson Blvd.
	Chicago, IL
E-MAIL ADDRESS	Morris.Patricia@epamail.epa.gov
TELEPHONE NUMBER	(312) 353-8656
FAX NUMBER	(312) 886-5824

NAME (Please Print)	Tim Arendt
TITLE	Associate
AGENCY / DIVISION / FIRM	Gresham, Smith, and Partners
MAILING ADDRESS	580 North 4th Street E
	Columbus, OH 43215
E-MAIL ADDRESS	tim-foster@gspnet.com
TELEPHONE NUMBER	(614) 221-0678
FAX NUMBER	(614) 221-7329

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AIR QUALITY SCOPING MEETING
Ohio EPA
Columbus, Ohio
Wednesday, July 19, 2006

FEDERAL AVIATION ADMINISTRATION

Port Columbus International Airport
Environmental Impact Statement

NAME (Please Print)	Jill Foster
TITLE	Associate
AGENCY / DIVISION / FIRM	Gresham, Smith, and Partners
MAILING ADDRESS	580 North 4th Street Columbus, OH 43215
E-MAIL ADDRESS	jill.foster@gspnet.com
TELEPHONE NUMBER	(614) 221-0678
FAX NUMBER	(614) 221-7329

NAME (Please Print)	Suzanne King
TITLE	USEPA Region 5
AGENCY / DIVISION / FIRM	Air; Radiation Division
MAILING ADDRESS	77 West Jackson Blvd Chicago, IL 60604
E-MAIL ADDRESS	King.Suzanne@epa.gov
TELEPHONE NUMBER	(312) 886-6054
FAX NUMBER	(312) 886-0617

NAME (Please Print)	
TITLE	
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

Air Quality

Environmental Impact Statement

Port Columbus International Airport

Presented to: Air Quality Scoping Meeting
OEPA Columbus, Ohio

By: Virginia Raps, Air Quality Manager
Chris Babb, Air Quality Consultant
LandrumBrown

Date: Wednesday, July 19, 2006

DRAFT Deliberative Material - DO NOT CITE OR QUOTE



DRAFT Deliberative Material - DO NOT CITE OR QUOTE

This scoping document is provided as a draft and should not be considered the final authority for assessing air quality for either the Draft CMH EIS or Final CMH EIS. As the project progresses, changes in planning will require adjustments of the methodology, procedures, and information given in this document.

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Fill out contact information or attach your business card. Remember to include your e-mail address!

AGENDA

I. PROPOSED PROJECT AND BACKGROUND
II. REGULATIONS AND GUIDELINES
III. AIR QUALITY COMPUTER MODELS
IV. DEVELOPMENT OF SOURCE DATA
V. EMISSIONS INVENTORY
VI. DISPERSION MODELING
VII. OUTSTANDING DATA NEEDS

I. PROPOSED PROJECT AND BACKGROUND

The Federal Aviation Administration (FAA) is preparing an Environmental Impact Statement for the Port Columbus International Airport (CMH EIS).



- Proposed replacement of Runway 10R/28L
- Terminal development
- Realignment of Stelzer Road

Analysis Years

The following scenarios would be examined :

- 2006/2007 Existing Conditions
- 2012 Baseline and Project Alternatives
- 2018 Baseline and Project Alternatives

- Year of greatest emissions (inventory only)
- SIP Attainment Year (inventory only, if necessary)
- SIP Emissions Budget Year (inventory only, if necessary)

Purpose of the Assessment

CAA Sec. 176(c)(1) must be satisfied:

(c)(1) No agency shall engage in, support, fund, or approve an action that does not conform to a state implementation plan. Conformity to an implementation plan means:

(A) Conformity to a plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards; and

(B) that the action will not:

(i) Cause or contribute to any new violation of any standard in any area

(ii) Increase the frequency or severity of any existing violation of any standard

(iii) Delay timely attainment of any standard or milestone

Goals of Scoping

Over the course of the project, there will be air quality scoping meetings scheduled to:

- Obtain concurrence with procedures/methodology
- Exchange data
- Determine the general and transportation conformity requirements

Criteria and Precursor Pollutants

- Carbon monoxide (CO)
- Coarse particulate matter (PM_{10})
- Fine particulate matter ($PM_{2.5}$)
- Sulfur oxides (SO_x)
- Nitrogen oxides (NO_x)
- Volatile organic compounds (VOC)

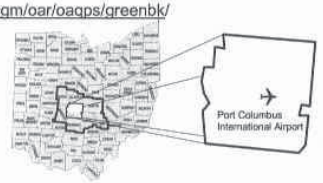
Ozone is evaluated through emissions of NO_x and VOC. Lead is not a significant pollutant at airports.

Franklin County Nonattainment

- Franklin County is nonattainment for the new ***eight-hour ozone*** standard
- Also nonattainment for the new ***fine particulate matter ($PM_{2.5}$)*** standard

http://www.epa.gov/airprogm/oar/oaqps/greenbk/

Metropolitan Columbus Intrastate Air Quality Control Region



Pollutants of Concern

For purposes of CAA conformity:

- Fine particulate matter ($PM_{2.5}$)
- Sulfur oxides (SO_x)
- Nitrogen oxides (NO_x)
- Volatile organic compounds (VOC)

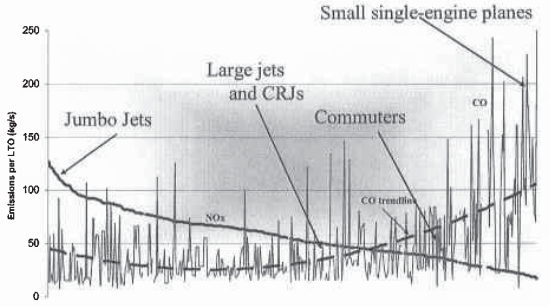
These are criteria pollutants for which Franklin County does not meet the Federal standards, as well as the precursor pollutants to ozone and fine particulate matter formation.

Relevance of Airport Projects

Pollutant/Noise Trade Offs

- Aircraft engine manufacturers developed high-bypass engines to decrease the noise levels and conserve fuel.
- High-bypass engines combust fuel at much higher temperatures.
- The higher temperatures produce a greater quantity of NO_x in the engine exhaust.

Compare NO_x to CO Engine Emissions



Ohio State Implementation Plan



Ohio Administrative Code
Chapter 3745



http://www.epa.gov/reg5oair/sips/

2005 MORPC Conformity Demonstration

MORPC Central Ohio Air Quality Analysis

The AQ conformity determination document that includes Franklin County, April 28, 2005 is available at:

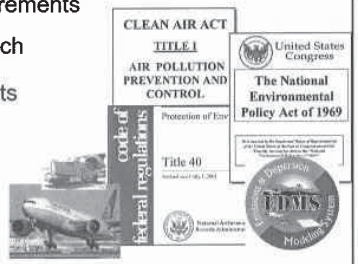
www.morpc.org/web/transportation/tplan/documents/1AQ.pdf

Ohio SIP Emissions Budget

- 2005 conformity determination includes the emissions budget year 2010.
- Budgets are published for VOC and NO_x by source type (point, area, mobile).
- No budget for $PM_{2.5}$ emissions was found.

Today's Discussion

- Regulatory requirements
- Modeling approach
- Data requirements



II. REGULATIONS AND GUIDELINES

- National Environmental Policy Act (NEPA)
- Clean Air Act (1990 Amendments) CAA Title I, including General Conformity
- Federal agency guidelines



USEPA - NEPA

- Purpose of NEPA is to disclose the impacts from the Federal Action, unless the action is ***excluded, an emergency, or an advisory***.
- Air quality assessment prepared to determine whether or not a Federal action has the potential to adversely impact air quality.
- Air quality impacts are assessed by evaluating project emissions against the National Ambient Air Quality Standards (NAAQS).

National Ambient Air Quality Standards

National ***and Ohio*** AAQS

POLLUTANT	AVERAGING PERIOD	PRIMARY STANDARDS	SECONDARY STANDARDS
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	0.030 PPM	—
	24-Hour Average	0.14 PPM	—
	3-Hour Average	—	0.50 PPM
Particulate Matter (PM_{10})	Annual Arithmetic Mean	50 $\mu g/m^3$	50 $\mu g/m^3$
	24-Hour Average	150 $\mu g/m^3$	150 $\mu g/m^3$
Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	15 $\mu g/m^3$	15 $\mu g/m^3$
	24-Hour Average	65 $\mu g/m^3$	65 $\mu g/m^3$
Carbon Monoxide (CO)	8-Hour Average	9 PPM	—
	1-Hour Average	35 PPM	—
Ozone (O_3)	8-Hour Average	0.08 PPM	0.08 PPM
	1-Hour Average	0.12 PPM	0.12 PPM
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.053 PPM	0.053 PPM
Lead (Pb)	3-Month Arithmetic Mean	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$

FAA Screening Criteria

Not every airport project requires dispersion analysis to compare project emissions to the NAAQS.

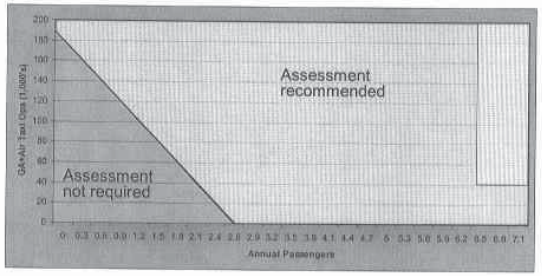
FAA bases the requirement for dispersion analysis on the combined influence of ***annual airport passengers*** and the annual number of ***GA + air taxi operations***.

Criteria: >=2.6 million annual passengers

>=180,000 GA + Air Taxi operations

FAA Screening Equation

3.5 – [(1.346 x MAP) + (0.0194 x GA/Taxi Operations)] < 0



NAAQS Comparative Assessment

Dispersion analysis would be required for the CMH Proposed Project.

To compare the project emissions to the NAAQS, analysis will be conducted for:

- 2006/2007 Existing Conditions
- 2012 Baseline and Project Alternatives
- 2018 Baseline and Project Alternatives

USEPA – CAA

Key components to Clean Air Act strategy

- Ensure Federal funding and approval are for projects that are consistent with air quality goals
- Ensure Federal projects do not worsen air quality or interfere with the purpose of the State Implementation Plan (SIP) to meet and maintain the NAAQS

CAA Connection to NEPA

- NEPA stipulates that the requirements of the CAA should be met in concert with the NEPA requirements for an EIS.
- The requirements to satisfy NEPA regulations are ***separate and distinct*** from the requirements under the CAA.
- Both analyses may be ***reported jointly*** in one document.

Compliance to CAA Title 1

- Disclose potential for significant air quality impacts from Federal actions depending on attainment status
- General Conformity Rule applies to airport projects

General Conformity Rule

Provides screening criteria (thresholds) to:

- Identify Federal actions that have no potential to cause adverse air quality impacts
- Avoid unreasonable administrative burdens
- Focus on Federal actions that have potential for significant air quality impacts

De minimis Thresholds

POLLUTANT AND VIOLATION SEVERITY	NONATTAINMENT AREA (tons per year))	MAINTENANCE AREA (tons per year)
Carbon Monoxide (CO)	100	100
Particulate Matter (PM_{10})		
Moderate Nonattainment Area	100	100
Serious Nonattainment Area	70	100
Particulate Matter ($PM_{2.5}$)	100	100
Sulfur Dioxide (SO_2)	100	100
Nitrogen Dioxide (NO_2)	100	100
Lead (Pb)	25	25
Ozone (O_3)	*VOC/NOx*	*VOC/NOx*
Serious Nonattainment Area	50/50	
Severe Nonattainment Area	25/25	
Extreme Nonattainment Area	10/10	
Inside an ozone transport region:		50/100
Marginal Nonattainment Area	50/100	
Moderate Nonattainment Area	50/100	
Outside an ozone transport region:		100/100
Marginal Nonattainment Area	**100/100**	
Moderate Nonattainment Area	100/100	

General Conformity Applicability

Federal actions are subject when the project is:

- Federally-funded or approved
- Not a highway or transit project
- Not exempt or presumed to conform
- Located within a nonattainment area

CMH Proposed Project is applicable under the General Conformity Rule.

General Conformity Evaluation

Emissions inventories will be prepared for 2012 and 2018 for:

- Baselines
- Preferred Alternatives
- Year of greatest emissions (usually construction year)
- SIP Attainment year(s) for ozone and $PM_{2.5}$, if required
- SIP emissions budget years, if required

General Conformity Determination

If net emissions equal or exceed the applicable de minimis thresholds:

- Conduct dispersion analysis for comparison to the NAAQS (not suitable for NO_x conformity)
- Show the project emissions are accounted for in the SIP
- Apply mitigation that reduces net emissions to zero
- Revise the SIP

Positive Conformity Findings

If net emissions are below the applicable de minimis thresholds:

- Proposed Project is assumed to conform to the Ohio SIP and no further analysis or reporting is required under CAA General Conformity.
- Results of the analysis are reported in the document.
- No public comment period is required unless the project is regionally significant.

Regional Significance

FAA and USEPA determined that net emissions from airport projects are not likely to exceed 10% the SIP budget.

CMH Proposed Project would not be considered regionally significant as defined under the general conformity regulations.

Indirect Source Review

The State of Ohio does not require an Indirect Source Review (ISR).

Governor's Certification

No longer required.

Transportation Conformity

The CMH Proposed Project does not include any transit or Federal highway projects requiring approval by Ohio DOT.

Transportation conformity would not apply to the CMH EIS.

USEPA Guidelines

- 40 CFR Part 93, Subpart B Federal Guidance
- 40 CFR Part 51, Subpart W State Guidance
- 40 CFR Part 51, Appendix W Guideline for Air Quality Models

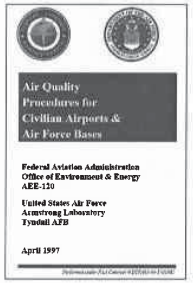


FAA Guidelines

- FAA *Air Quality Procedures for Civilian Airports & Air Force Bases*
- FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*
- FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*

FAA Air Quality Handbook

Assessment prepared pursuant to the FAA *Air Quality Procedures for Civilian Airports & Air Force Bases* will be compliant to NEPA, CAA, FAA guidelines, and USEPA guidelines.



http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/

III. AIR QUALITY COMPUTER MODELS

The air quality assessment will require the use of 3 air quality models, depending on the sources to be modeled:

- FAA EDMS
- USEPA MOBILE
- USEPA NONROAD

Model Depends on Sources at CMH

- Aircraft
- GSE and APUs
- Motor vehicles
- Boilers
- Incinerator
- Fuel Tanks
- Emergency generators
- Construction equipment



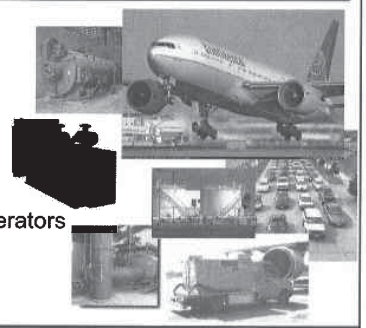
FAA EDMS

Emissions Inventory and Dispersion Model

- Version 4.5
- FAA-required for airport-specific sources
- USEPA-approved for other sources
- Criteria and precursor pollutants

Sources Modeled using EDMS

- Aircraft
- GSE and APUs
- Motor vehicles
- Boilers
- Incinerator
- Fuel tanks
- Emergency generators



MOBILE 6

MOBILE 6 vehicle emission program will provide emission factors for vehicles for use in EDMS.



MOBILE 6 – Output Files

An EIS uses the same parameters for MOBILE as regional transportation planning.

Example . . .

*Scenario Title: QUEUE on Arterial Roadway 55 MPH

*File 1, Run 1, Scenario 1

Vehicle type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	All Veh
VMT Distribution	38.92%	31.58%	13.79%	4.09%	0.04%	0.21%	11.01%	0.35%	100%
Composite Emission Factors (g/mi):									
Composite VOC	0.696	1.036	0.795	0.963	0.504	0.339	0.445	0.26	0.771
Composite CO	10.99	15.02	12.76	14.33	7.99	1.268	0.887	1.746	11.371
Composite NOX	0.74	1.145	1.201	1.162	2.795	1.229	1.368	10.941	2.144

USEPA NONROAD Model

Used to calculate emissions from nonroad diesel equipment.

NONROAD and 40 CFR Part 89 will be used to estimate emission factors for ***construction equipment***.



Additional Models

Computer spreadsheets will be used to perform the calculations for ***construction emissions***.



IV. DEVELOPMENT OF SOURCE DATA

- Data required for calculation of an emissions inventory will also be used for dispersion modeling.
- Additional data is required for dispersion modeling, such as the position of emissions sources in time and space



Aircraft Fleet

Aircraft information will be derived from the noise analysis, and will be further defined by:

- Aircraft type
- Engine type
- Runway use
- Gate assignment

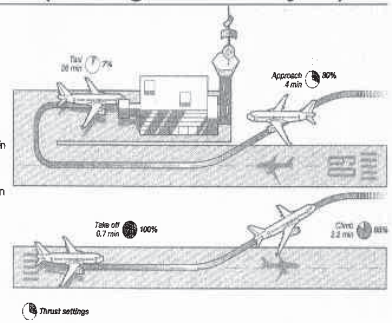


Example of aircraft queuing

Aircraft LTO (landing & takeoff cycle)

ICAO default power settings:

- take off (100% available thrust) for 0.7 min
- climb (85% available thrust) for 2.2 min
- approach (30% available thrust) for 4.0 min
- taxi (7% available thrust) for 26 min



Aircraft Taxi and Delay Statistics

- Average airport taxi time
- Average airport departure queue time
- Max departure queue time, by runway end
- Max departure queue ***length***, by runway end

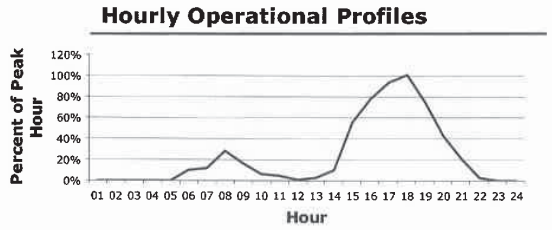


Example of aircraft queuing

Airfield Operational Statistics

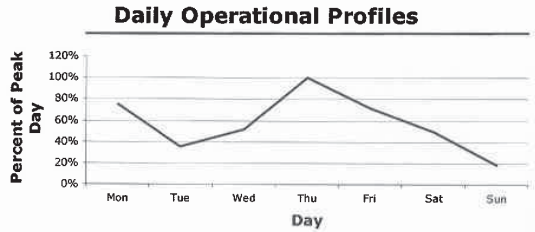
- Runway use, by aircraft type
- Gate assignment, by aircraft type
- Taxiway assignment, by aircraft type, by gate and runway assignment
- Monthly, daily, and hourly operational profiles

Operational Profiles – Hourly



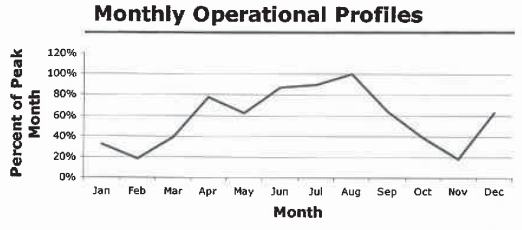
EXAMPLE airport hourly operational profile

Operational Profiles - Daily



EXAMPLE airport daily operational profile

Operational Profiles - Monthly



EXAMPLE airport monthly operational profile

Ground Support Equipment Survey

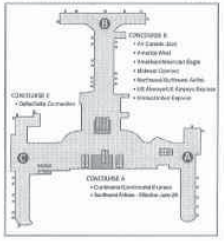
On-site survey was conducted on July 13, 2006 to determine unique assignment of GSE to aircraft at CMH.

Gates were surveyed for the availability of electrical power (400 HZ), preconditioned air, and potable water.

GSE Characteristics

CMH operates three concourses, A, B, and C, with a total of 45 gate positions.

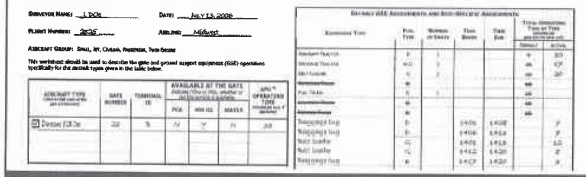
- All emissions of GSE will be assumed to originate in the gate areas.
- Most GSE use diesel fuel.
- No underground hydrant fuel system.



GSE Survey Methodology

Survey sheets showing EDMS default assignments, by aircraft type, can be compared to actual operational conditions.

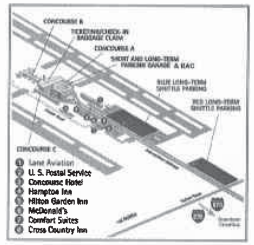
The use of APUs was also surveyed.



Motor Vehicles

Analysis will include motor vehicles that account for:

- Passenger and employee cars
- Buses, taxi cabs, cargo trucks, rental cars
- Roadways, parking lots, garages



Stationary Sources

The ***emissions inventory*** will include results from the CMH 2004 Stationary Source Inventory.

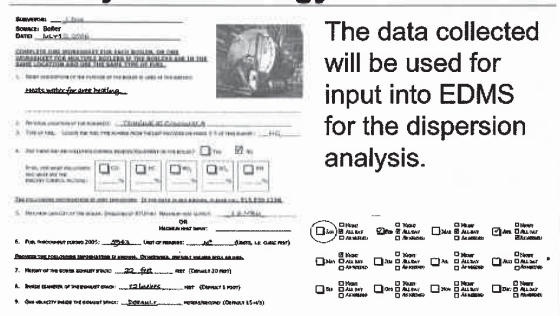
The ***dispersion analysis*** will be limited to the larger sources as defined by the 2004 Stationary Source Inventory.

Stationary Sources Survey

On-site survey was conducted on July 12, 2006 to obtain operational information on the stationary sources that will be considered in the dispersion analysis.

- Larger terminal boilers
- Backup generators
- Incinerator
- Deicing operations

Survey Methodology



The data collected will be used for input into EDMS for the dispersion analysis.

V. EMISSIONS INVENTORY

Emissions inventories will be prepared for

- 2006/2007 Existing Conditions
- 2012 Baseline and Preferred Alternative
- 2018 Baseline and Preferred Alternative
- Year of greatest project emissions
- CAA mandated attainment year, if required
- SIP emission budget year, if required

Net Emissions Evaluation

- EDMS emissions inventory requires input of the annual average temperature and the annual average mixing height.
- After all data is input, EDMS will be run for the future baseline and the Preferred Alternative of the same future year.
- Inventories will be compared to determine "net emissions" for the preferred alternative
- Construction emissions inventory will be prepared.

Emissions Inventory Meteorology

MRCC Midwestern Regional Climate Center

52.9 °F
1971-2000 NCDC Normals
WSO Columbus, Ohio

Holzworth, AP-101, 1/72

3,052 Feet
NWS Upper-Air Program
Dayton, Ohio
(this station was closed in 1995)

EDMS Emissions Inventory

Emissions Inventory - Future Baseline (no-build)
(tons per year)

EXAMPLE

	CO	HC	NOx	SOx	PM10/2.5
Aircraft	2,334.36	329.39	2,090.83	99.27	5.00
GSE/APU	1,804.24	43.33	68.69	4.26	0.06
Roadways	790.17	137.52	53.97	2.41	2.10
Parking Lots	224.60	50.95	7.10	0.27	0.22
Stationary Sources	0.99	12.94	4.99	0.03	0.15
Training Fires	35.87	1.31	0.27	0.00	9.73
TOTAL	**5,190.25**	**575.45**	**2,225.88**	**106.25**	**17.26**

Emissions Inventory - Future Preferred Project (with-project)
(tons per year)

	CO	HC	NOx	SOx	PM10/2.5
Aircraft	1,308.53	186.14	1,954.43	80.64	2.00
GSE/APU	1,804.24	43.33	68.69	4.26	0.06
Roadways	790.17	137.52	46.70	2.41	2.10
Parking Lots	224.60	50.95	6.20	0.27	0.22
Stationary Sources	0.99	12.94	4.99	0.03	0.15
Training Fires	35.87	1.31	0.27	0.00	9.71
TOTAL	**4,045.90**	**411.57**	**2,081.39**	**87.27**	**13.95**

EDMS Inventory Comparison

Net Emissions
(tons per year)

EXAMPLE

	CO	HC	NOx	SOx	PM10/2.5
Aircraft	-1,025.82	-143.25	-136.40	-18.63	-3.00
GSE/APU	0.00	0.00	0.00	0.00	0.00
Roadways	-118.52	-20.63	-8.10	-0.36	-0.32
Parking Lots	0.00	0.00	0.00	0.00	0.00
Stationary Sources	0.00	0.00	0.00	0.00	0.00
Training Fires	0.00	0.00	0.00	0.00	0.00
TOTAL	**-1,144.35**	**-163.88**	**-144.50**	**-18.99**	**-3.32**

This **example** general conformity evaluation of the preferred alternative meets the requirements of the CAA; no further analysis or reporting would be required under the conformity rules.

Construction Equipment

- Based on the construction phasing schedule
- Based on previous airport construction projects
- Tier 1, Tier 2, and Tier 3 emissions factors from 40 CFR Part 89 (defaults use NONROAD)
- EPA methodology used for the calculation, including load factors and HP
- Calculated using computer spreadsheet

Construction Emissions Inventory

Criteria and precursor pollutant emissions, **EXAMPLE** :

Construction – Year of Greatest Emissions
(tons per year)

EQUIPMENT	CO	HC	NO_X	SO_X	$PM_{2.5}$
Backhoe	3.47	0.60	3.98	1.23	1.56
Bulldozer	4.67	0.80	4.01	1.32	1.02
Grader	0.67	0.30	2.45	0.42	0.46
Loader	0.45	0.08	2.98	0.22	0.23
Roller	0.16	0.04	0.67	0.14	0.12
Off-Highway Trucks	7.23	1.56	10.56	1.55	1.50
Tractor, off-highway	9.12	1.52	8.34	0.57	1.34
TOTAL	**25.77**	**4.90**	**32.99**	**5.45**	**6.23**

VI. DISPERSION MODELING

EDMS:

- Uses one year of surface and upper-air weather data
- Based on the EDMS criteria pollutant inventory

Additional data:

- Cartesian coordinates
- Receptor locations
- Background concentrations

Dispersion Meteorology

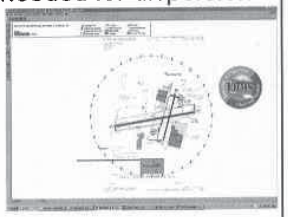


2005 Hourly Surface Aviation Hourly Observations
WSO Columbus, Ohio

2005 Radiosonde Observations
WSFO Wilmington, Ohio
(program initiated 1995)

Cartesian Coordinates

Digital file of the existing and future airport layout will be used to determine the (x,y) Cartesian coordinates needed for dispersion modeling.



Example of an airport layout in EDMS.

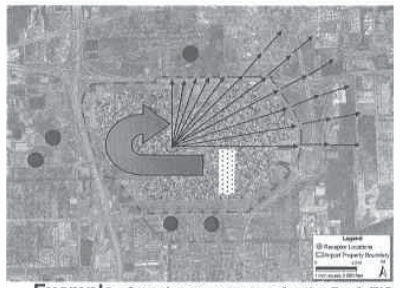
Receptor Locations

- Determined through agency coordination
- Every 10 degrees around the property line measured from the ARP
- Two additional outward rings, each 500 feet apart
- Smaller, closer points and grids as needed
- Max 143 locations for existing conditions



Example of an airport ARP.

Property-Line Receptor Locations



Example of an airport receptors for the Draft EIS.

Receptors for Draft and Final EIS

- All pollutants all receptors (max 143) will be run for 2006/2007 Existing Conditions, Draft EIS.
- Draft EIS will include analysis for 10 discrete receptors for the future baselines and alternatives based on the results of the 2006/2007 Existing Conditions results.
- Final EIS will include analysis for 5 discrete receptors for the future baselines and alternatives based on the results of the analysis completed for the Draft EIS.

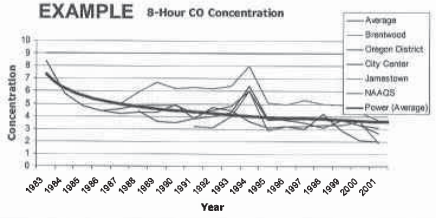
Background Concentrations

Required to include background concentrations for the "design" value that is compared to the NAAQS.

Franklin County historical background concentration data will be obtained from USEPA's AirData Web site for 2001 – 2005.

Background Concentration History

Historical data will be plotted and a regression trend line will predict future values.



Columbus AQ Monitor Data

Monitored 2006 $PM_{2.5}$ data for Franklin County

http://www.epa.gov/air/data/geosel.html

Monitor Values Report - Criteria Air Pollutants

15	100	48	46	45	39	45	0	44.4	1	1	390490024	State Fairgrounds	Columbus	Franklin Co	OH	5
16	100	52	48	45	39	45	0	44.4	1	1	390490025	1700 Ann St	Columbus	Franklin Co	OH	5
17	100	45	42	35	29	34	0	34.4	0	1	390490081	6797 Maple Canyon	Columbus	Franklin Co	OH	5
		47.33	44.67	41.67	34.33											
								15.83	AVERAGES							

Dispersion Results – EX. 8-HR CO

2005 Baseline **EXAMPLE**

	RECEPTORS				
	1	2	3	4	5
Airport Sources	7.23	2.41	3.98	1.46	2.55
Intersection	---	---	1.02	3.02	2.98
Background	3.16	3.16	3.16	3.16	3.16
Total	**10.40**	**5.57**	**8.16**	**7.64**	**8.69**

2005 Alternative

	RECEPTORS				
	1	2	3	4	5
Airport Sources	6.02	2.39	3.90	1.46	2.55
Intersection	---	---	1.00	4.02	3.43
Background	3.16	3.16	3.16	3.16	3.16
Total	**9.18**	**5.55**	**8.06**	**8.64**	**9.14**

Project Cannot Worsen Violation

8-Hour Average Carbon Monoxide (parts per million) **EPA: 9 PPM**

BASELINE	1
Airport Sources	7.23
Intersection	---
Background	3.16
Total	10.40

PROJECT	1
Airport Sources	6.02
Intersection	---
Background	3.16
Total	9.18

EXAMPLE

- Project concentration is >EPA standard of 9 PPM at the future baseline (10.40 PPM).
- Project would decrease the severity of the violation (-1.22 PPM).
- ***Example project complies at this receptor.***

DRAFT Deliberative Material - DO NOT CITE OR QUOTE

Project Can Increase Concentration

8-Hour Average Carbon Monoxide (parts per million) **EPA: 9 PPM**

BASELINE	4
Airport Sources	1.46
Intersection	3.02
Background	3.16
Total	7.64

PROJECT	4
Airport Sources	1.46
Intersection	4.02
Background	3.16
Total	8.64

EXAMPLE

- Project concentration is <EPA standard of 9 PPM at the future baseline (7.64 PPM).
- Project would increase the concentration, while not exceeding the EPA standard (+1.00 PPM).
- ***Example project complies at this receptor***

Project Cannot Create New Violation

8-Hour Average Carbon Monoxide (parts per million) **EPA: 9 PPM**

BASELINE	5
Airport Sources	2.55
Intersection	2.98
Background	3.16
Total	8.69

PROJECT	5
Airport Sources	2.55
Intersection	3.43
Background	3.16
Total	9.14

EXAMPLE

- Project concentration is <EPA standard of 9 PPM at the future baseline (8.69 PPM).
- Project would increase the concentration to >EPA standard (+0.45 PPM).
- ***Example project does not comply at this receptor***

DRAFT Deliberative Material - DO NOT CITE OR QUOTE

VII. OUTSTANDING DATA NEEDS

Data for modeling the project's impacts will come from project team members but also from the state and local air agencies.

In addition, the air agencies may offer advice and guidelines for the development of the input data.

Data Requests

- Digital airport layouts
- MOBILE 6.2 files
- Meteorology
- Background concentrations
- SIP attainment years
- SIP emissions budgets

Digital Airport layout

- A diagram, in electronic form, is required to locate the emissions sources for dispersion modeling.
- ***Diagrams are requested*** for:
  - o Existing conditions
  - o Future baseline conditions, if different from existing
  - o Future project alternative conditions

MOBILE 6.2

- MOBILE vehicle emission factors should be the same as used in regional/local transportation air quality modeling.
- Some data available in the 2005 AQ Conformity Determination
- ***Electronic files are requested*** – vehicle speeds and model years will be adjusted

Meteorology

- ***Guidance is requested*** to confirm methodology and relevance of weather data



Background Concentrations

- Some MPOs stipulate a value for future background concentrations.
- No NO_2 monitors were found for Franklin County.
- ***Guidance is requested for NO_2 background concentrations***

SIP Attainment Years & Budget

- Central Ohio 2005 Conformity Determination indicates 2010 as a budget year for ozone.
- No budget is given for $PM_{2.5}$
- ***Guidance is requested*** with regard to the emissions budget for NO_x, VOC, and $PM_{2.5}$
- ***Identification of the SIP attainment years is requested.***

Schedule for Comments and Data

- Comments requested no later than ***August 19, 2006 (30 days)***
- Data requests should be provided to the FAA by ***October 1, 2006***

Questions and comments on the CMH EIS Air Quality Assessment:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road, Suite 107
Romulus, MI 48174
E-mail: CMHEIS@FAA.GOV
Web site: www.Airportsites.net/CMH-EIS

From: Ginny Raps
Sent: Thursday, July 20, 2006 7:24 PM
To: 'kkaletsky@ColumbusAirports.com'; 'Kamke.Sherry@epamail.epa.gov'; 'Morris.Patricia@epamail.epa.gov'; 'Leslie.Michael@epamail.epa.gov'; 'King.Suzanne@epamail.epa.gov'; 'bill.spires@epa.state.oh.us'; 'sam.macdonald@epa.state.oh.us'; 'sarah.hedlund@epa.state.oh.us'; 'Isaac.robinson@epa.state.oh.us'; 'lkoprowski@morpc.org'; 'randy.sanders@dnr.state.oh.us'; 'valerie.croasmun@dot.state.oh.us'; 'thom.slack@dot.state.oh.us'; Rob Adams; 'dwall@columbusairports.com'; 'Irene.Porter@faa.gov'; Chris Babb; 'Foster, Jill'; 'Lengel, John'; 'Katherine.S.Jones@faa.gov'; 'cgawronski@morpc.org'; 'tom.velalis@epa.state.oh.us'; 'william.nichols@epa.state.oh.us'; 'pkennedy@ColumbusAirports.com'; 'bmeleski@ColumbusAirports.com'; Sarah Potter; 'tim_arendt@gspnet.com'
Subject: FAA Environmental Impact Statement for Columbus International Airport - Air Quality Scoping meeting, July 19

Attached is the summary of the meeting held yesterday, Wednesday July 19, 2006, to discuss the air quality assessment for the improvements proposed for the Port Columbus International Airport. Please review the document for accuracy and content and direct any comments to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road, Suite 107
Romulus, Michigan 48174
Email:CMHEIS@FAA.GOV.

Written comments and requests should be provided to Ms. Jones no later than August 19, 2006.

Thank you for attending our scoping meeting and for your attention to this summary.

Ginny Raps

Virginia L. Raps, Project Manager
Landrum & Brown, Incorporated
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513-530-1238
Fax: 513-530-1278
Cell: 937-218-0058
Email: graps@landrum-brown.com
Web: www.landrum-brown.com

For additional company and industry information please visit our website at www.Landrum-Brown.com

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Federal Aviation Administration

ENVIRONMENTAL IMPACT STATEMENT

FOR

REPLACEMENT RUNWAY AND TERMINAL EXPANSION

AT

PORT COLUMBUS INTERNATIONAL AIRPORT

AIR QUALITY SCOPING MEETING

MEETING SUMMARY

JULY 19, 2006

9:00 A.M. – 12:00 P.M.

An air quality scoping meeting was conducted on Wednesday, July 19, 2006, at the offices of the Ohio Environmental Protection Agency (OEPA) in Columbus, Ohio. The purpose of the meeting was to initiate contact and gather information from the U.S. Environmental Protection Agency (USEPA), OEPA, and local air quality agencies concerned with the air quality assessment that is being prepared as part of the Federal Aviation Administration (FAA) Environmental Impact Statement for the Port Columbus International Airport (CMH EIS).

Introduction

Attending the meeting were representatives of the Columbus Regional Airport Authority (CRAA), the USEPA Region 5 (Chicago), OEPA, the Mid-Ohio Regional Planning Commission (MORPC), Gresham, Smith, and Partners (consultants), and Landrum and Brown, the FAA contractor for the CMH EIS. A list of attendees is attached following the minutes of the meeting.

The meeting discussion focused on the air quality regulatory requirements, modeling approach, data requirements, and conformity issues unique to airport improvement projects. A meeting agenda and discussion outline were distributed to the meeting participants in advance of the meeting. The meeting discussion was guided through the use of a Power Point presentation, and a copy of the presentation was provided to each participant at the beginning of the meeting.

Summary Notes from the July 19, 2006 Meeting

The meeting was opened at 9:00 a.m. by Mr. Rob Adams, the Project Manager for Landrum & Brown. Following introductions of the participants, the meeting was led by Ms. Virginia Raps, the Air Quality Manager for Landrum & Brown. Ms. Raps noted that the information presented at this meeting should not be considered the final authority for assessing air quality for either the Draft CMH EIS or the Final CMH EIS as there may be changes in procedure recommended by the participants, and there may be changes in the project during the planning process.

Ms. Raps provided a brief overview of the air quality status of Franklin County, which is nonattainment for the eight-hour ozone standard and nonattainment for emissions of fine particulate matter ($PM_{2.5}$). The county is attainment for the remaining criteria pollutants. Ms. Raps explained the purpose of air quality scoping is to work toward a consensus with regard to the procedure and methodology used to prepare the air quality assessment for the CMH EIS, particularly with respect to the requirements of the Ohio State Implementation Plan (SIP).

Sponsor's Proposed Project

A brief description of the Sponsor's Proposed Project was provided, which includes the replacement of Runway 10R/28L, and relocation of the runway 702 feet south of the existing Runway 10R/28L, including the necessary associated taxiways. The project includes additional terminal development for the airport, and the possibility of the realignment of Stelzer Road at the end of Runway 10R.

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At this time, the Proposed Project also includes the installation of navigational aides. The alternatives analysis has not been completed and it is not yet known whether a preferred project alternative will be identified in the Draft EIS or the Final EIS.

National Environmental Policy Act (NEPA) Requirements

Ms. Raps explained the objective of an airport air quality assessment, which is to satisfy the requirements of Clean Air Act (CAA) Section 176(c)(1). Compliance with the CAA may include dispersion analysis to evaluate the air quality impacts under the proposed alternatives. The FAA established screening criteria to address the need for dispersion analysis for airport projects. The criteria relate the annual passengers served at the airport to the number of annual operations of general aviation (GA) and air taxi aircraft.

The criteria require an airport that services more than 2.6 million annual passengers or accommodates more than 180,000 combined GA and air taxi aircraft operations to conduct dispersion analysis for comparison to the NAAQS. Preliminary data indicate that CMH serves 6.6 million passengers each year. Consequently, regardless of the number of GA and air taxi operations, ***dispersion analysis to determine compliance to the NAAQS would be required for this project.*** Dispersion analysis would be conducted for the cases given in **Table 1**.

Table 1

YEAR	PURPOSE	REMARKS
2006/2007	Existing conditions	Supports NAAQS comparison analysis for dispersion required under NEPA
2012	Baseline conditions	Runway build-out year
2012	All EIS project alternatives	Proposed Project cases for the build-out year for the new runway
2018	Baseline conditions	Terminal build-out year
2018	All EIS project alternatives	Proposed Project cases for the build-out year for the new terminal

Note: NAAQS is National Ambient Air Quality Standards

Clean Air Act General Conformity Rule

A Federal action is applicable under the general conformity regulations when the action is:

- Federally-funded or approved, and
- Not a highway or transit project, and
- Not exempt or presumed to conform, and,
- Located within a nonattainment area.

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Ms. Raps explained that because Franklin County is located within a nonattainment area for ozone and $PM_{2.5}$, and as all the other requirements under general conformity would be met, ***the Proposed Project is subject to the General Conformity Rule.*** As such, the net emissions due to the Proposed Project may not equal or exceed the "de minimis" thresholds for the pollutants of concern in Franklin County (NO_x, VOC, SO_x, and $PM_{2.5}$), which are 100 tons per year, for each pollutant. Consequently, emissions inventories would be required for the years shown in **Table 2**.

Table 2

YEAR	REQUIRING AGENCY	PURPOSE	REMARKS
2006/2007	FAA	Existing conditions	Supports NAAQS comparison analysis for dispersion required under NEPA
2010	USEPA	General Conformity	Pursuant to 40 CFR 93.158, CAA mandated ozone attainment year
TBD	USEPA	General Conformity	Year of greatest project emissions, most likely a construction year
2012	FAA	Baseline conditions	Runway build-out year
2012	FAA	Preferred Project alternative, if declared	Build-out year for the new runway
2018	FAA	Baseline conditions	Terminal build-out year
	USEPA	General Conformity	SIP emissions budget year
2018	FAA	Proposed Project alternative, if declared	Build-out year for the new terminal
	USEPA	General Conformity	SIP emissions budget year

Note: NAAQS is National Ambient Air Quality Standards.
TBD is "to be determined."

The primary source of guidance for the air quality analysis would be Appendix W of 40 CFR Part 51, *Guideline for Air Quality Models*, and the FAA *Air Quality Handbook* (Air Quality Procedures for Civilian Airports and Air Force Bases).

Modeling Approach

It was noted that the example tables and charts given in the Power Point presentation were provided only as examples for instruction, and would not represent data specific to CMH, the CMH EIS, or to any airport in particular.

Ms. Raps described the pollutants that will be considered in the analysis and the computer models that will be used for the emissions inventories and the dispersion analyses.

- FAA Emissions and Dispersion Model (EDMS) will be used to estimate emissions of the criteria and precursor pollutants, and will be used to conduct the dispersion analysis of criteria pollutants only
- MOBILE 6 modeling will be used to calculate the emission factors used in EDMS for on-road motor vehicles

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- NONROAD emission factors will be used to supplement data not applicable for non-road diesel engines not provided in 40 CFR Part 89
- Construction equipment emissions inventory will be prepared using a computer spreadsheet

Emissions Sources

The emissions inventory and dispersion analysis will include an evaluation of aircraft engines, ground support equipment (GSE), auxiliary power units (APUs), on-road motor vehicles in parking lots/garages, and stationary sources. Each of these sources was explained in detail, including a discussion of how aircraft will be modeled, and how on-site surveys were conducted for GSE use and for operational characteristics of stationary sources.

During the presentation Ms. Raps proposed the 2004 stationary emissions inventory prepared by Gresham Smith & Partners and Environmental Quality Management (EQM) be used for the emissions inventory. The meeting participants agreed the inventory would be used in the emissions inventory analysis but data for the larger sources would be updated for inclusion in the dispersion analysis. The larger sources include terminal boilers, terminal emergency generators, the airport incinerator, and deicing equipment.

Emissions Inventory

Ms. Raps described the procedure for calculating net emissions from the emission inventories. The emissions inventory requires the input of the average annual temperature and the average annual mixing height. Preliminary research indicates that the average annual temperature at Columbus is 52.9 degrees Fahrenheit; and the average annual mixing height is 3,052 feet above ground level. The procedure for calculating the construction equipment emissions inventory was explained.

Dispersion Modeling

The dispersion analysis would be based on the criteria pollutant inventory prepared using EDMS. It was requested by Ms. Suzanne King, USEPA Region 5, that an evaluation of five years of weather data be used for the dispersion modeling instead of one year of data proposed in the presentation and in the project's scope of work. Ms. King was asked to provide this request in written form to Ms. Katherine Jones, FAA Project Manager, as this request requires a change to the EIS scope of work and requires approval from FAA.

Ms. Raps explained how receptor locations would be identified for the EDMS dispersion analysis. Receptors will be placed every 10 degrees along the airport property line, as measured from the airport reference point (ARP) given on the digital computer design drawing of the CMH existing airfield. Two additional rings of receptors, spaced 500 feet apart, will also be established. In addition, up to five receptors will be placed in sensitive neighborhoods or public areas surrounding the airport, and a closer-spaced grid of receptors will be established along the terminal curb. A maximum of 143 receptors will

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be applied to dispersion modeling under the 2006/2007 Existing Conditions. Based on the results of the baseline analysis, and following further agency coordination, 10 receptors locations will be selected for analysis for all the future baseline and project alternative analyses presented in the Draft EIS. For the Final EIS, five receptor locations will be applied to all the future baseline and project alternative analyses, following further consultation through agency coordination.

Background concentrations for the criteria pollutants are required to calculate the "design concentrations" for comparison to the NAAQS. Mr. Bill Spires indicated that Ms. Sarah Hedlund, OEPA, would provide the existing and future background concentrations necessary for the analysis.

Ms. Raps explained how the results of dispersion modeling would be interpreted for three specific scenarios, (1) when the design concentration is greater than the USEPA standard under the future baseline, decreasing with the Proposed Project to a level still exceeding the USEPA standard – this scenario would be compliant; (2) when the design concentration is less than the USEPA standard under the future baseline, increasing with the Proposed Project to a level still below the USEPA standard – this scenario would be compliant; and, (3) when the design concentration is less than the USEPA standard under the future baseline, increasing to equal or exceed the USEPA standard under the Proposed Project – this scenario would not be compliant to the NAAQS. Mr. Bill Spires, OEPA, concurred with this interpretation of dispersion results.

Mr. Spires also requested the document report the highest concentration per pollutant per case for the dispersion analysis as opposed to the "highest, second highest" value.

Data Requirements

Throughout the discussion, the participants offered contact information for the provision of specific data required to assess air quality; some of the data was supplied during the discussion. A summary of the data requirements, the assigned contact person and the date by which the data should be provided, is given in **Table 3**. All data that was requested in electronic format should be forwarded to the offices of Landrum & Brown; other data should be provided in written form through e-mail to:

Ms. Virginia Raps
Landrum & Brown Air Quality Manager
graps@landrum-brown.com
513-530-1238

All data requested at this meeting should be provided as directed above no later than October 1, 2006.

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Table 3

DATA REQUIREMENT AND COORDINATION	CONTACT PERSON/AGENCY	ANALYSIS TYPE AND YEAR	DATE REQUIRED
Digital airport layout	Rob Adams Landrum & Brown	Dispersion analysis	Landrum & Brown has these files
Mobile 6.2 files, both input and output files, in digital format	Chris Gawronski MORPC	Emissions inventory and dispersion analysis	10/01/06
Written request for the use of five years of meteorology	Suzanne King USEPA, Region 5	Dispersion analysis	Provide written comment no later than 8/19/2006
Background Concentrations for all criteria pollutants for 2006, 2012, and 2018, provided in written form	Sarah Hedlund OEPA	Dispersion analysis	10/01/06
State implementation plan milestone years	Bill Spires OEPA	General Conformity Evaluation	Provided at the meeting
State Implementation Plan Emissions Budgets	Bill Spires OEPA	General Conformity Evaluation	Provided at the meeting

Note: MORPC is Mid-Ohio Regional Planning Commissions.
TBD is "to be determined."

Next Steps

Agency comments regarding the CMH EIS, and comments or requests relating to this scoping meeting should be provided ***in writing to the FAA no later than August 19, 2006***. Comments should be directed to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road, Suite 107
Romulus, Michigan 48174
Email:CMHEIS@FAA.GOV.

Meeting Participants

The following is a list of the meeting participants, which contributed to the meeting either in person, or through teleconferencing. ***All participants should review the list and confirm the accuracy of their contact information, noting areas where information is requested.*** This information will ensure notification of follow-up coordination.

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MEETING SUMMARY

JULY 19, 2006

9:00 A.M. – 12:00 P.M.

Name:	Ms. Virginia L. Raps
Title:	Air Quality Manager
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive
	Cincinnati, OH 45242
E-mail Address:	graps@landrum-brown.com
Telephone Number:	513-530-1238
FAX Number:	513-530-1278
Name:	Mr. Kelly Kaletsky
Title:	Environmental Coordinator
Agency/Division/Firm	Columbus Regional Airport Authority (CRAA)
Mailing Address	4600 International Gateway
	Columbus, OH 43219
E-mail Address:	kkaletsky@ColumbusAirports.com
Telephone Number:	614-239-3015
FAX Number:	614-239-3183

Name:	Ms. Sarah Hedlund
Title:	Meteorologist, Division of Air Pollution Control, SIP Section
Agency/Division/Firm	OEPA
Mailing Address	122 South Front Street
	Columbus, OH 43215
E-mail Address:	sarah.hedlund@epa.state.oh.us
Telephone Number:	614-644-8682
FAX Number:	614-644-8681

Name:	Mr. Rob Adams
Title:	Senior Project Manager
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive
	Cincinnati, OH 45242
E-mail Address:	radams@landrum-brown.com
Telephone Number:	513-530-1201
FAX Number:	513-530-1278

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JULY 19, 2006

9:00 A.M. – 12:00 P.M.

Name:	Mr. Christopher Gawronski
Title:	Principal Planner
Agency/Division/Firm	Mid-Ohio Regional Planning Commission (MORPC)
Mailing Address	285 East Main Street
	Columbus, OH 43215
E-mail Address:	cgawronski@morpc.org
Telephone Number:	614-233-4166
FAX Number:	614-621-2401

Name:	Mr. Tom Velalis
Title:	Supervisor, Emission Inventory unit
Agency/Division/Firm	OEPA
Mailing Address	122 South Front Street
	Columbus, OH 43215
E-mail Address:	tom.velalis@epa.state.oh.us
Telephone Number:	614-644-4837
FAX Number:	***Please Provide Information***

Name:	Ms. Sam MacDonald
Title:	ESII - Conformity Issues
Agency/Division/Firm	OEPA Division of Air Pollution Control
Mailing Address	122 South Front Street
	Columbus, OH 43215
E-mail Address:	sam.macdonald@epa.state.oh.us
Telephone Number:	***Please provide information***
FAX Number:	614-728-1743

Name:	Mr. William Nichols
Title:	ESII
Agency/Division/Firm	OEPA Division of Air Pollution Control
Mailing Address	122 South Front Street
	Columbus, OH 43215
E-mail Address:	william.nichols@epa.state.oh.us
Telephone Number:	614-644-3612
FAX Number:	614-728-1743

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JULY 19, 2006

9:00 A.M. – 12:00 P.M.

Name:	Mr. Paul Kennedy
Title:	Supervisor, Environmental, Safety & Health
Agency/Division/Firm	Columbus Regional Airport Authority (CRAA)
Mailing Address	4600 International Gateway
	Columbus, OH 43219
E-mail Address:	pkennedy@ColumbusAirports.com
Telephone Number:	614-239-3347
FAX Number:	614-239-3183

Name:	Mr. Bill Spires, C.C.M.
Title:	Meteorologist
Agency/Division/Firm	OEPA Division of Air Pollution Control
Mailing Address	122 South Front Street
	Columbus, OH 43215
E-mail Address:	bill.spires@epa.state.oh.us
Telephone Number:	614-644-3618
FAX Number:	614-644-8681

Name:	Mr. David Wall, A.A.E.
Title:	Capital Program Manager
Agency/Division/Firm	Columbus Regional Airport Authority (CRAA)
Mailing Address	4600 International Gateway
	Columbus, OH 43219
E-mail Address:	dwall@ColumbusAirports.com
Telephone Number:	614-239-4063
FAX Number:	614-238-7850

Name:	Mr. Bernard Meleski
Title:	Director, Planning & Development
Agency/Division/Firm	Columbus Regional Airport Authority (CRAA)
Mailing Address	4600 International Gateway
	Columbus, OH 43219
E-mail Address:	bmeleski@ColumbusAirports.com
Telephone Number:	614-239-4042
FAX Number:	614-238-7850

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JULY 19, 2006

9:00 A.M. – 12:00 P.M.

Name:	Ms. Sarah Potter
Title:	Consultant
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive
	Cincinnati, OH 45242
E-mail Address:	spotter@landrum-brown.com
Telephone Number:	513-530-1271
FAX Number:	513-530-1278

Name:	Ms. Patricia Morris *(teleconference participant)*
Title:	Environmental Scientist
Agency/Division/Firm	USEPA Region 5
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	Morris.Patricia@epamail.epa.gov
Telephone Number:	312-353-8656
FAX Number:	312-886-5824

Name:	Mr. Tim Arendt *(teleconference participant)*
Title:	Associate
Agency/Division/Firm	Gresham, Smith, and Partners
Mailing Address	580 North 4th Street
	Columbus, OH 43215
E-mail Address:	tim_arendt@gspnet.com
Telephone Number:	614-221-0678
FAX Number:	614-221-7329

Name:	Ms. Jill Foster *(teleconference participant)*
Title:	Associate
Agency/Division/Firm	Gresham, Smith, and Partners
Mailing Address	580 North 4th Street
	Columbus, OH 43215
E-mail Address:	jill_foster@gspnet.com
Telephone Number:	614-221-0678
FAX Number:	614-221-7329

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JULY 19, 2006

9:00 A.M. – 12:00 P.M.

Name:	Ms. Suzanne King *(teleconference participant)*
Title:	***Please provide information***
Agency/Division/Firm	USEPA Region 5, Air Radiation Division
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	King.Suzanne@epamail.epa.gov
Telephone Number:	312-886-6054
FAX Number:	312-886-0617

Comments on the Port Columbus International Airport EIS Air Dispersion Modeling from the Ohio EPA

Landrum & Brown, contracted by the Federal Aviation Administration (FAA) for the Port Columbus International Airport EIS, has proposed to use one year of meteorological data for air dispersion modeling. Appendix W of The Code of Federal Regulations states that although only one year of site specific data is required, if more site specific data is available it also should be used in the air dispersion model input. The Ohio EPA requests that all five years of meteorological data be used in the model input to ensure that all worst case meteorological scenarios are represented.

Landrum & Brown has also proposed the idea of limiting the number of receptors to five discrete receptors placed in critical areas for the future baseline and alternative model runs. Receptors analyzed in the Final EIS will be chosen based on the results from the Existing Conditions model run. The Ohio EPA requests that the number of receptors to be included in the Final EIS not be determined until after the Existing Conditions concentrations are reviewed. The results of the dispersion assessment provided in the Draft EIS should determine how many receptors should be retained. The location of these receptors should be based on the number of hot spots, the location of any special 'sensitive' receptors and the gradient of the concentration. These locations can not be predetermined. Fenceline receptors may be included in the receptor locations the Ohio EPA requests to be further analyzed. The Ohio EPA will work in coordination with Landrum & Brown to determine the location and number of receptors that should be included in the Final EIS.

The above requests made by the Ohio EPA are similar to those made by USEPA on other airport projects in Regions III, IV, and V.

USEPA Region 5 Comments on the Port Columbus International Airport EIS Air Quality Scoping Document (July 19, 2006)

The scoping information presented to date for the Columbus Airport EIS work proposes the use of one year of meteorological data as input into the EDMS dispersion model. The purpose of the dispersion modeling is to determine compliance with EPA's National Ambient Air Quality Standards (NAAQS). The Code of Federal Regulations, Part 51, Appendix W (Guideline on Air Quality Models) provides recommended approaches for regulatory modeling conducted to demonstrate compliance with the NAAQS. Section 8.3 of the Guideline discusses the need for meteorological data to be selected on the basis of spatial and temporal representativeness and further recommends five years of meteorological data be used to reasonably ensure that worst-case meteorological conditions are adequately represented in the model results. If the only representative data available is one-year of site-specific data, or if site-specific meteorological data needs to be collected, one year is adequate. However, if more than one year, up to 5 years, is available, these data are recommended for use. Given these Guideline recommendations, EPA requests that 5-years of meteorological data be evaluated in the EIS NAAQS modeling analysis to account for year-to-year variability.

Also, the approach described for identifying and eliminating modeling receptors should be more fully discussed as the modeling progresses. The "Guideline" describes the receptor grid as being in sufficient detail to estimate the highest concentrations and possible violations of the NAAQS. The general approach of beginning with a large grid and refining it to a smaller number of receptors focused on the highest concentration areas is appropriate. However, the final number of receptors that will be needed cannot be predetermined but rather should be a function of what the large grid results show as well as the mix of future source emissions and scenarios.
(EPA Region 5 contact: Randy Robinson, 312-353-6713)

Regarding emissions from construction activity, air pollution from diesel exhaust is a public health and air quality concern. EPA lists diesel exhaust (best described by diesel PM) as a mobile source air toxic due to the cancer and noncancer health effects. A number of large construction projects (including highways and airports) recently have required diesel exhaust reduction measures in the construction specifications and we request/encourage all bidding and contract documents for the Columbus airport construction include requirements for fuel and equipment that would reduce emissions of diesel particulate matter. Diesel-powered construction equipment should be required to utilize "ultra-low sulfur diesel" (ULSD) fuel. In addition, all but the newest equipment should be retrofitted with EPA-verified technologies, e.g., oxidation catalysts or particulate filters. Contractors, subcontractors and suppliers that transport materials regularly to and from the project site should be encouraged to adopt these requirements to the best of their ability. Idling restrictions should also be built into the construction-related air quality emission reduction measures.

USEPA has case studies, listings of EPA-verified technologies, and helpful examples of contract language and specifications (including those for the O'Hare Airport

Modernization Project). Staff at the USEPA Region 5 Air & Radiation Division can provide this information or you can find it at:
http://www.epa.gov/cleandiesel/construction/ and
http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm

(EPA Region 5 contact: Suzanne King, 312-886-6054, king.suzanne@epa.gov; Julie Magee 312-886-6063, magee.julie@epa.gov))

AIR QUALITY COORDINATION MEETING
June 19, 2007
Columbus, Ohio

Agenda
Registration
Discussion Outline
Meeting Minutes
Revised Discussion Outline

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PORT COLUMBUS INTERNATIONAL AIRPORT
ENVIRONMENTAL IMPACT STATEMENT

Federal Aviation Administration

AIR QUALITY SCOPING MEETING

Tuesday June 19, 2007
9:00 a.m. to 12:00 noon EDT
6th Floor, Conference Room B

Ohio EPA Central Office
122 South Front Street
Columbus, OH 43216

AGENDA

Welcome	.....	*Rob Adams, Landrum & Brown Project Manager*
I.	*Introduction*	*Virginia Raps, Landrum & Brown*
II.	*Proposed Project*	*Discussion*
III.	*Ohio SIP for Franklin County*	*Discussion*
IV.	*Regulatory Thresholds*	*Discussion*
V.	*Meteorology*	*Discussion*
VI.	*Emission Sources*	*Discussion*
VII.	*Dispersion Analysis*	*Discussion*
VIII.	*Construction*	*Discussion*
IX.	*Outstanding Data Needs*	*Discussion*

* * * * *

AGENCY CONTACT: Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174
Email: CMHEIS@FAA.GOV
Website: www.Airportsites.net/CMH-EIS

SIGN-IN SHEET

AIR QUALITY SCOPING MEETING
Ohio EPA
Columbus, Ohio
Tuesday, June 19, 2007, 9:00 a.m. EDT

FEDERAL AVIATION ADMINISTRATION

Port Columbus International Airport
Draft Environmental Impact Statement

NAME (Please Print)	BILL SPIRES
TITLE	MGR. SIP SECTION
AGENCY / DIVISION / FIRM	OHIO EPA / DAPC
MAILING ADDRESS	50 W. TOWN ST COL OH 43215
E-MAIL ADDRESS	BILL.SPIRES @ EPA.STATE.OH.US
TELEPHONE NUMBER	614-644-3618
FAX NUMBER	614-644-3681

NAME (Please Print)	SAM MacDonald (Miss)
TITLE	Environmental Specialist 2
AGENCY / DIVISION / FIRM	Ohio EPA / DAPC
MAILING ADDRESS	50 W. Town St Columbus OH 43215
E-MAIL ADDRESS	sam.macdonald@epa.state.oh.us
TELEPHONE NUMBER	(614) 728-1743
FAX NUMBER	(614) 644-3681

NAME (Please Print)	BERNIE MELESKI
TITLE	DIRECTOR, AIRPORT PLANNING
AGENCY / DIVISION / FIRM	COLUMBUS REGIONAL AIRPORT AUTHORITY
MAILING ADDRESS	4600 INTERNATIONAL GATEWAY COLUMBUS, OH 43219
E-MAIL ADDRESS	BMELESKI@COLUMBUSAIRPORTS.COM
TELEPHONE NUMBER	(614) 239-4042
FAX NUMBER	(614) 238-7858

SIGN-IN SHEET

AIR QUALITY SCOPING MEETING
Ohio EPA
Columbus, Ohio
Tuesday, June 19, 2007, 9:00 a.m. EDT

FEDERAL AVIATION ADMINISTRATION

Port Columbus International Airport
Draft Environmental Impact Statement

NAME (Please Print)	Virginia Raps
TITLE	Air Quality Manager - CMH EIS
AGENCY / DIVISION / FIRM	Landrum-Brown
MAILING ADDRESS	11279 Cornell Park Dr. Cincinnati, OH 45242
E-MAIL ADDRESS	graps@landrum-brown.com
TELEPHONE NUMBER	513-530-1238 or 937-218-0053
FAX NUMBER	513-530-2238

NAME (Please Print)	Rob Adams
TITLE	Managing Director - L+B project mgr
AGENCY / DIVISION / FIRM	Landrum + Brown
MAILING ADDRESS	11279 Cornell Park Dr. Cincinnati, OH 45242
E-MAIL ADDRESS	radams@landrum-brown.com
TELEPHONE NUMBER	513-530-1201
FAX NUMBER	513-530-2201

NAME (Please Print)	Sarah Hedlund
TITLE	Air Quality Modeler
AGENCY / DIVISION / FIRM	OEPA
MAILING ADDRESS	50 W. Town St Ste 700 Columbus, Ohio 43215
E-MAIL ADDRESS	Sarah.hedlund@epa.state.oh.us
TELEPHONE NUMBER	614-644-3632
FAX NUMBER	614-644-3681

SIGN-IN SHEET

AIR QUALITY SCOPING MEETING
Ohio EPA
Columbus, Ohio
Tuesday, June 19, 2007, 9:00 a.m. EDT

FEDERAL AVIATION ADMINISTRATION

Port Columbus International Airport
Draft Environmental Impact Statement

NAME (Please Print)	Paul Kennedy
TITLE	ES&H Supervisor
AGENCY / DIVISION / FIRM	Columbus Regional Airport Authority
MAILING ADDRESS	4600 International Gateway Columbus OH 43219
E-MAIL ADDRESS	pkennedy@columbusairports.com
TELEPHONE NUMBER	614 239 3347
FAX NUMBER	

NAME (Please Print)	Chris Gawronski
TITLE	Principal Planner
AGENCY / DIVISION / FIRM	MORPC
MAILING ADDRESS	(same as last mtg)
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

NAME (Please Print)	Dave Wall
TITLE	Same as last
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

SIGN-IN SHEET

AIR QUALITY SCOPING MEETING
Ohio EPA
Columbus, Ohio
Tuesday, June 19, 2007, 9:00 a.m. EDT

FEDERAL AVIATION ADMINISTRATION

Port Columbus International Airport
Draft Environmental Impact Statement

NAME (Please Print)	Bernie M.
TITLE	Same as last meeting
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

NAME (Please Print)	Suzanne King
TITLE	nochg
AGENCY / DIVISION / FIRM	
MAILING ADDRESS	
E-MAIL ADDRESS	
TELEPHONE NUMBER	
FAX NUMBER	

NAME (Please Print)	Sheryl Kapke	Pat Morris
TITLE	nochg	no chg
AGENCY / DIVISION / FIRM		
MAILING ADDRESS		
E-MAIL ADDRESS		
TELEPHONE NUMBER		
FAX NUMBER		

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Port Columbus International Airport Environmental Impact Statement

Discussion Outline

Air Quality Scoping Meeting

Location: Ohio Environmental Protection Agency (OEPA)
6th Floor, Conference Room "B"
122 South Front Street
Columbus, OH 43216

Date: Tuesday, June 19, 2007
Time: 9:00 a.m. – 12:00 noon EDT

Prepared for:

Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Romulus, Michigan 48174

Prepared by:

Landrum & Brown, Incorporated
11279 Cornell Park Drive
Cincinnati, OH 45242

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I. INTRODUCTION

The Federal Aviation Administration (FAA) is preparing an Environmental Impact Statement for the Port Columbus International Airport (CMH EIS or airport). As the airport sponsor, the Columbus Regional Airport Authority (CRAA) proposes a Federal action to replace Runway 10R/28L with a new runway of approximately the same length. The new runway is proposed to be relocated south of the existing Runway 10R/28L to allow for passenger terminal expansion that will accommodate future aviation demand at the airport. At this time, the FAA intends to include a review of air quality impacts in the CMH EIS under the following cases:

- 2006 Existing Conditions
- 2009 Project for SIP eight-hour ozone attainment year, inventory only[1]
- 2010 Project for SIP one-hour ozone budget (milestone) year, inventory only[1]
- 2012 Baseline
- 2012 Project Alternatives
- 2018 Baseline
- 2018 Project Alternatives

This air quality scoping meeting continues the process of engaging the participation of the Federal, State, and local air quality agencies concerned with the thorough assessment of air quality impacts for the CMH EIS. The coordination effort will be documented in a Draft Air Quality Approach Technical Report, which will be included in the Draft EIS during the public comment period.

The goal of this air quality scoping meeting is to:

- Confirm the requirements for analysis relating to the provisions of the SIP
- Obtain concurrence on data development, procedures, and methodology planned for computer modeling
- Determine whether there are any outstanding data required for the modeling effort

[1] The first year of proposed project implementation is not until 2012. However, construction is anticipated to begin in 2009. Therefore, the 2009 and 2010 emission inventories would include estimated construction emissions.

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The objective of this air quality scoping meeting is to engage the participants in a general discussion of:

- Proposed Project
- Ohio State Implementation Plan (SIP) for Franklin County
- Applicable regulatory thresholds
- Meteorology used for the emission inventory and dispersion modeling
- Overview of emission sources
- Overview of dispersion analysis
- Procedure for the construction emissions inventory
- Identification of any outstanding data needs

II. PROPOSED PROJECT

The airport currently has a set of parallel runways as shown in the photograph in Figure 1. The shorter Runway 10L/28R, located north of the passenger terminal area, is 8,000 feet long. The longer Runway 10R/28L is located south of the terminal core and is 10,125 feet long.



FIGURE 1. Aerial photograph of CMH showing the existing runways, the approximate location of the replacement runway (dotted line), and the orientation to north.

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The proposed project includes:

- Relocation of Runway 10R/28L to the south
- Construction of additional taxiways to support the replacement runway
- Installation of navigational aids (NAVAIDS)
- Terminal development
- Roadway improvements in the terminal core
- Parking facility improvements
- Development of air traffic operational procedures for the replacement runway
- Proposed Part 150 noise abatement actions to be implemented upon receipt of the Record of Approval.

III. OHIO SIP

The Ohio SIP is included in the Ohio Administrative Code,[2] (OAC) Chapter 3745, which incorporates, by reference, the requirements under the National Environmental Policy Act (NEPA)[3] and the provisions of the Clean Air Act, including the 1990 Amendments (CAA).[4] According to the Ohio SIP, Franklin County is designated nonattainment for ozone and fine particulate matter ($PM_{2.5}$). Two documents were referenced for information regarding the expected attainment years in Franklin County, and the emission budgets for the milestone years:

- Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the Franklin, Delaware, Licking, Fairfield, Madison, and Knox County Ozone Non-Attainment Area, prepared by the Mid-Ohio Regional Planning Commission (MORPC), dated April 28, 2005, referred to in this document as the Ozone Determination.

- Central Ohio PM2.5 Air Quality Analysis: Air Quality Conformity Determination Documentation for the Franklin, Delaware, Licking, Fairfield, and Coshocton (Franklin Twp) County PM2.5 Non-Attainment Area, prepared by MORPC, dated February 9, 2006, referred to in this document as the $PM_{2.5}$ Determination.

[2] Ohio Administrative Code (OAC) Chapter 3745-21-02 *Ambient Air Quality Standards and Guidelines*, November 5, 2002 available on the Internet at http://onlinedocs.andersonpublishing.com/oh /lpExt.dll?f=templates&fn=main-h.htm&cp=PORC.

[3] Ohio Administrative Code (FAC), Chapter 62-204.800, *Federal Regulations Adopted by Reference*, incorporated the NAAQS into the Ohio SIP.

[4] Ohio Administrative Code (OAC) Chapter 3745-101-20 *Savings Provisions*, December 31, 2004, available on the Internet at http://onlinedocs.andersonpublishing.com/oh /lpExt.dll?f=templates&fn=main-h.htm&cp=PORC.

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According to the Ozone Determination, Section II, *Analysis Years*, an emission analysis is required for the eight-hour ozone attainment year, 2009, and the one-hour ozone budget (milestone) year, 2010. The budget for volatile organic compounds (VOC) and nitrogen oxides (NO_x) emissions to meet the 2010 milestone target is found in Section II, *Background*, Table 1, *Emission Inventory and SIP Budgets for the Columbus Maintenance Area*, as reproduced in Figure 2. There is no emission budget for the attainment year 2009.

Table 1: Emission Inventory and SIP Budgets for the Columbus Maintenance Area

	VOC in tons/day				NOx in tons/day			
	Point	Area	Mobile	Total	Point	Area	Mobile	Total
1990 Inventory	16.44	101.18	94.73	212.35	13.79	96.68	78.65	189.12
1996 Inventory	17.52	107.47	63.36	188.35	14.35	102.62	68.85	185.82
2005 Budget	19.33	117.30	61.38	198.01	15.27	111.82	61.24	188.33
2010 Budget	20.27	123.94	67.99	212.20	12.17	101.99	70.99	185.15
	2010 Safety Margin			0.15	2010 Safety Margin			3.97

FIGURE 2. Emission inventory SIP budget obtained from the Ozone Determination. Source: MORPC, *Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the Franklin, Delaware, Licking, Fairfield, Madison, and Knox County Ozone Non-Attainment Area*, April 28, 2005.

Also stated in the Ozone Determination, the U.S. Environmental Protection Agency (USEPA) MOBILE6.2 program was used to generate the emission factors for motor vehicles for the conformity analysis. The MOBILE6.2 input and output files, along with the reference files required to run the emission factor calculations for Franklin County, were provided to the FAA consultant by MORPC.[5]

According to the $PM_{2.5}$ Determination, Section II, *Analysis Years*, the years for analysis required for the $PM_{2.5}$ nonattainment area are 2020 and 2030. Both years are beyond the farthest planning year for the CMH EIS, which is 2018. In Section III, *Emission Projections*, of the same document, MROPC states there is "not yet a SIP with emission budgets" for emissions of $PM_{2.5}$.

[5] MOBILE6.2 files were provided to Landrum & Brown, via an e-mail transmission from Ms. Chandra Parasa, MORPC, on April 9, 2007.

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IV. REGULATORY THRESHOLDS

The assessment of air quality will be prepared in accordance with the guidelines provided in the FAA *Air Quality Procedures for Civilian Airports & Air Force Bases*,[6] and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, which together with the guidelines of FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, constitutes compliance to all the relevant provisions of NEPA, the CAA, and the Ohio SIP.

The General Conformity Rule, established under CAA, would apply to the project proposed for the CMH EIS. Therefore, ***an inventory of net emissions* will be prepared** for comparison to the relevant de minimis thresholds given under 40 CFR Part 93. Net emissions would be calculated by comparing the inventory of the "no-build" versus the "build" emissions for 2009, 2010, 2012, and 2018, in addition to the year of greatest emissions, which has not yet been determined. The relevant de minimis thresholds applicable to the project proposed in the CMH EIS are ***100 tons per year for each*** of the following criteria and precursor pollutants:

- $PM_{2.5}$
- NO_x
- VOC
- SO_x

Emissions of NO_x and VOC are considered precursors to ozone development, and emissions of sulfur oxides (SO_x), along with NO_x, are considered precursors to the development of $PM_{2.5}$ in the atmosphere.

Pursuant to NEPA guidelines and 40 CFR Part 93, ***dispersion analysis will be conducted*** for the air quality assessment of the project proposed for the CMH EIS. The computer modeling results will be added to the background concentrations of the criteria pollutants to determine the project's design concentrations. The background concentrations in Franklin County, which were provided to the FAA consultant by MORPC,[7] are summarized in **Table 1**. The associated National Ambient Air Quality Standards (NAAQS) are also provided for comparison. A map of the location of the five monitoring sites that recorded data for the development of the background concentrations in Franklin County is presented in **Exhibit 1, *Central Ohio Air Quality Monitoring Sites***.

[6] FAA and USAF, *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997.
[7] Background concentration data were provided to Landrum & Brown, via an e-mail transmission from Ms. Sarah Hedlund, Ohio EPA, during May 2007.

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TABLE 1
FRANKLIN COUNTY BACKGROUND CONCENTRATIONS

CRITERIA POLLUTANT	AVERAGING PEROD	CONCENTRATION ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
CO	1-Hour	4,796.4	40,000
	8-Hour	2,284	10,000
NO_x	Annual	39	100
PM_{10}	24-Hour	85	150
$PM_{2.5}$	24-Hour	52.1	35
	Annual	16.67	15
SO_x	24-Hour	73.36	365
	Annual	10.74	80

Source: Ohio EPA, May 2007.
40 CFR Part 50.
Landrum & Brown analysis, 2007.

V. METEOROLOGY

The emission inventory will be prepared using the FAA Emissions and Dispersion Modeling System Version 4.5 (EDMS). The inventory calculations require the average annual temperature and the average annual mixing height. The values are provided in **Table 2, *Meteorological Parameters for the Emission Inventory***.

Dispersion analysis of the criteria pollutant emissions calculated for the emission inventory will also be conducted using EDMS. The dispersion calculations require one full year of meteorological data that includes several parameters such as temperature, pressure, wind speed, and wind direction for each hour of the year. Hourly surface aviation meteorological data obtained from the National Climatic Data Center (NCDC) for the Port Columbus International Airport for 2005[8] will be used for existing conditions. The upper air data required for the analysis was also obtained from NCDC for the nearest upper-air station to the airport, which is the Wilmington National Weather Service Office. Refer to **Table 3, *Meteorological Data for Dispersion Analysis.***

[8] Year 2005 meteorological data was the most recent credible database available.

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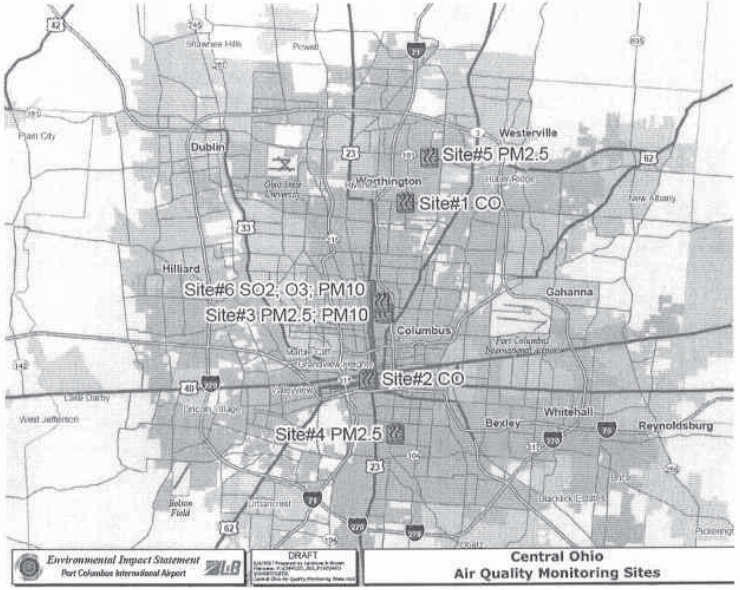


EXHIBIT 1. Central Ohio Air Quality Monitoring Sites.
Source: MORPC, http://airquality.morpc1.org/sitemap.cfm
Landrum & Brown analysis, 2007.

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TABLE 2
METEOROLOGICAL PARAMETERS FOR THE EMISSION INVENTORY
PORT COLUMBUS INTERNATIONAL AIRPORT

METEROLOGICAL PARAMETER	VALUE	SOURCE
Average Annual Temperature	52.9 Deg. F	1971-2000 NCDC Normals for Columbus WSO Airport, OH (COLUMBUS INTL AP, FRANKLIN CO.), *Historic Climate Data: Temperature Summary*, Midwestern Regional Climate Center, U.S. Cooperative Network, a cooperative program of the Illinois State Water Survey and the National Climatic Data Center (NCDC), http://mcc.sws.uiuc.edu/climate_midwest/historical/temp/oh/331786_tsum.html
Average Annual Mixing Height	3,052 feet	USEPA, Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States, AP-101, January 1972, Table B-1, *Mean Seasonal and Annual Morning and Afternoon Mixing Heights and Wind Speeds for NOP and All Cases*.

Note: WSO is Weather Service Office.
NOP refers to no precipitation.
Deg. F refers to degrees Fahrenheit.

According to the letter from Ms. Katherine Jones, FAA Community Planner, dated October 17, 2006,[9] a teleconference was held October 2, 2006, to determine the number of years of meteorological data would be applied to dispersion modeling for the CMH EIS. According to the minutes summarizing the teleconference proceedings:

> "The modeling is done with 5 years of met data for the base case. Then the worst-case year is chosen and used to evaluate the alternatives in the EIS. When the final alternative is chosen, then the alternative is run with the 5 years of met data. USEPA and the Ohio Environmental Protection Agency (OEPA) concurred with this approach."

[9] Letter from Ms. Katherine S. Jones, FAA Community Planner, to Ms. Sherry Kamke, Environmental Scientist, USEPA Region 5, dated October 17, 2006, with attached minutes summarizing the teleconference held October 2, 2006.

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TABLE 3
METEOROLOGICAL DATA FOR DISPERSION ANALYSIS
PORT COLUMBUS INTERNATIONAL AIRPORT

DATA REQUIREMENT	ANNUAL NUMBER OF OBSERVATIONS	SOURCE
Year 2005 Hourly Surface Aviation Observations	8,760	National Climatic Data Center (NCDC) for Port Columbus International Airport, collected by the National Weather Service, Columbus, Ohio.
Year 2005 Upper-Air Observations	730	National Climatic Data Center (NCDC), collected by the National Weather Service, Wilmington, Ohio.

The identification of the specific five years of meteorological data that will be applied to dispersion modeling for this project has not been determined. The FAA would request guidance from USEPA and OEPA regarding the required years of data for analysis. Further, suggestions from USEPA and OEPA for a methodology to determine the worst-case data year is requested.

VI. EMISSION SOURCES

The emission inventory will be prepared for each of the scenarios listed under Section I, *Introduction*. Several types of emission sources will be evaluated for the emission inventory; the identical sources will be analyzed through dispersion analysis. The sources include:

- Aircraft
- APUs (auxiliary power units)
- Ground support equipment (GSE)
- Motor vehicles in parking lots and parking garages
- Motor vehicles on airport access roadways
- Stationary sources, including fuel tank storage, deicing, emergency generators, boilers, an incinerator, and painting operations

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VI-1. Aircraft, APUs, and GSE

The aircraft fleet will be based on the fleet evaluated for the noise analysis except airframe and aircraft engine substitutions will be necessary to match the units available in the EDMS database. The aircraft and engine types that will be used for analysis of existing conditions are given in **Table 4**.

For the emission inventory, the computer model requires the combined average ground taxi and ground delay time. This information was obtained from the *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*.[10] The data from Table 2-11 of the planning report will be used as a basis for developing data for taxi time and delay under the existing and future baseline airfield configuration and the future proposed configuration. The data from Table 2-11 is reproduced in **Figure 3**.

TABLE 2-11
COMPARISON OF DAILY VFR AND IFR
AVERAGE ARRIVAL AND DEPARTURE TIMES
2023 BASELINE SCENARIO

Baseline Scenario		Average Arrival Time (in Minutes)			Average Departure Time (in Minutes)	
		Air Delay	Ground Delay	Ground Taxi	Ground + Queue Delay	Ground Taxi
VFR	Existing Airfield	0.6	0.0	3.8	1.3	8.6
	Proposed Airfield	0.6	0.0	3.7	1.3	8.8
IFR	Existing Airfield	0.8	0.0	3.9	7.6	9.0
	Proposed Airfield	0.7	0.0	3.8	5.9	9.2

Source: TransSolutions, Inc., 2005.

FIGURE 3. Average airport taxi and delay times.
Source: CRAA, *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*, prepared by URS, dated June 6, 2005.

The use of APUs will be made using the EDMS default assignments. Ground support equipment was assigned based on the on-site survey completed in July 2006, and is based on aircraft type, as described in **Table 5**. The results of the survey are given in **Table 6**.

[10] CRAA, *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*, prepared by URS, dated June 6, 2005.

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TABLE 4
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
550 Citation	JT15D-4 (B,C,D)	1120
550 Citation	JT15D-4 (B,C,D)	240
550 Citation	JT15D-4 (B,C,D)	876
550 Citation	JT15D-4 (B,C,D)	600
550 Citation	JT15D-4 (B,C,D)	1818
550 Citation	JT15D-4 (B,C,D)	2962
550 Citation	JT15D-4 (B,C,D)	3760
550 Citation	JT15D-4 (B,C,D)	1032
A319	V2522-A5	100
A319	V2522-A5	238
A319	V2522-A5	730
A319	V2522-A5	378
A319	V2524-A5	52
A319	V2524-A5	122
A319	V2524-A5	376
A319	V2524-A5	194
A320-200	V2500-A1	42
A320-200	V2500-A1	134
A320-200	V2500-A1	260
A320-200	V2500-A1	114
A320-200	V2527-A5	124
A320-200	V2527-A5	400
A320-200	V2527-A5	778
A320-200	V2527-A5	342
Aztec	TIO-540-J2B2	892
Aztec	TIO-540-J2B2	1212
Aztec	TIO-540-J2B2	2952
Aztec	TIO-540-J2B2	2982
B737-300	CFM56-3-B1	730
B737-300	CFM56-3-B1	2000
B737-300	CFM56-3-B1	5040
B737-300	CFM56-3-B1	2450
B737-300	CFM56-3B-2	98
B737-300	CFM56-3B-2	228
B737-300	CFM56-3B-2	746

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
B737-300	CFM56-3B-2	388
B737-300	CFM56-3C-1 (Rerated)	158
B737-300	CFM56-3C-1 (Rerated)	446
B737-300	CFM56-3C-1 (Rerated)	1072
B737-300	CFM56-3C-1 (Rerated)	514
B737-500	CFM56-3C-1	50
B737-500	CFM56-3C-1	120
B737-500	CFM56-3C-1	368
B737-500	CFM56-3C-1	190
B737-700	CFM56-7B22	626
B737-700	CFM56-7B22	1686
B737-700	CFM56-7B22	4328
B737-700	CFM56-7B22	2120
B737-800	CFM56-7B26	102
B737-800	CFM56-7B26	240
B737-800	CFM56-7B26	738
B737-800	CFM56-7B26	382
B757-300	PW2043	50
B757-300	PW2043	120
B757-300	PW2043	368
B757-300	PW2043	190
BAE146-300	LF507 SERIES	214
BAE146-300	LF507 SERIES	114
BAE146-300	LF507 SERIES	372
BAE146-300	LF507 SERIES	760
BH-1900	PT6A-67D	116
BH-1900	PT6A-67D	104
BH-1900	PT6A-67D	294
BH-1900	PT6A-67D	398
Bombardier CRJ700	CF34-8C1	1874
Bombardier CRJ700	CF34-8C1	1016
Bombardier CRJ700	CF34-8C1	3094
Bombardier CRJ700	CF34-8C1	6426
Cessna 172 Skyhawk	O-320	1086
Cessna 172 Skyhawk	O-320	1762

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
Cessna 172 Skyhawk	O-320	5050
Cessna 172 Skyhawk	O-320	3790
Cessna 441 Conquest2	TPE331-8	128
Cessna 441 Conquest2	TPE331-8	386
Cessna 441 Conquest2	TPE331-8	1192
Cessna 441 Conquest2	TPE331-8	486
Cessna T337	IO-360-B	70
Cessna T337	IO-360-B	178
Cessna T337	IO-360-B	278
Cessna T337	IO-360-B	204
CITATION I SP	JT15D-1A & 1B	74
CITATION I SP	JT15D-1A & 1B	280
CITATION I SP	JT15D-1A & 1B	818
CITATION I SP	JT15D-1A & 1B	288
CL600	ALF 502L-2	786
CL600	ALF 502L-2	440
CL600	ALF 502L-2	1234
CL600	ALF 502L-2	2652
DC9-30	JT8D-15 (old comb)	256
DC9-30	JT8D-15 (old comb)	674
DC9-30	JT8D-15 (old comb)	1816
DC9-30	JT8D-15 (old comb)	902
DC9-50	JT8D-17 (old comb)	108
DC9-50	JT8D-17 (old comb)	326
DC9-50	JT8D-17 (old comb)	702
DC9-50	JT8D-17 (old comb)	324
Embraer ERJ 135/140	AE3007A1/3 (Type 3)	2108
Embraer ERJ 135/140	AE3007A1/3 (Type 3)	1176
Embraer ERJ 135/140	AE3007A1/3 (Type 3)	3380
Embraer ERJ 135/140	AE3007A1/3 (Type 3)	7208
Embraer ERJ 135/140	AE3007A3 (Type 3)	222
Embraer ERJ 135/140	AE3007A3 (Type 3)	124
Embraer ERJ 135/140	AE3007A3 (Type 3)	356
Embraer ERJ 135/140	AE3007A3 (Type 3)	758
Embraer ERJ 145	AE3007A	110

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
Embraer ERJ 145	AE3007A	62
Embraer ERJ 145	AE3007A	178
Embraer ERJ 145	AE3007A	380
Embraer ERJ 145	AE3007A1E	222
Embraer ERJ 145	AE3007A1E	124
Embraer ERJ 145	AE3007A1E	356
Embraer ERJ 145	AE3007A1E	758
Embraer ERJ 145LR	AE3007A1/1 (Type 3)	1442
Embraer ERJ 145LR	AE3007A1/1 (Type 3)	804
Embraer ERJ 145LR	AE3007A1/1 (Type 3)	2312
Embraer ERJ 145LR	AE3007A1/1 (Type 3)	4932
Embraer ERJ 145LR	AE3007A1/3 (Type 3)	1774
Embraer ERJ 145LR	AE3007A1/3 (Type 3)	990
Embraer ERJ 145LR	AE3007A1/3 (Type 3)	2846
Embraer ERJ 145LR	AE3007A1/3 (Type 3)	6070
Embraer ERJ 145LR	AE3007A1P (Type 3)	1886
Embraer ERJ 145LR	AE3007A1P (Type 3)	1052
Embraer ERJ 145LR	AE3007A1P (Type 3)	3024
Embraer ERJ 145LR	AE3007A1P (Type 3)	6450
Embraer ERJ 170	CF34-8E5	1102
Embraer ERJ 170	CF34-8E5	598
Embraer ERJ 170	CF34-8E5	1820
Embraer ERJ 170	CF34-8E5	3780
F-27 SERIES	RDa7	440
F-27 SERIES	RDa7	514
F-27 SERIES	RDa7	1218
F-27 SERIES	RDa7	1478
Falcon 20	CF700-2D	68
Falcon 20	CF700-2D	250
Falcon 20	CF700-2D	846
Falcon 20	CF700-2D	294
Falcon 2000EX	PW308C	214
Falcon 2000EX	PW308C	348
Falcon 2000EX	PW308C	314
Falcon 2000EX	PW308C	114

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
Falcon 2000EX	PW308C	372
Falcon 2000EX	PW308C	880
Falcon 2000EX	PW308C	760
Falcon 2000EX	PW308C	1,194
Gulfstream II	SPEY MK511-8	68
Gulfstream II	SPEY MK511-8	250
Gulfstream II	SPEY MK511-8	846
Gulfstream II	SPEY MK511-8	294
Gulfstream IV	TAY Mk611-8	102
Gulfstream IV	TAY Mk611-8	386
Gulfstream IV	TAY Mk611-8	1,264
Gulfstream IV	TAY Mk611-8	436
HS 125	TFE731-3	354
HS 125	TFE731-3	180
HS 125	TFE731-3	550
HS 125	TFE731-3	1,106
KC-135R	TF33-P-5&9	102
KC-135R	TF33-P-5&9	240
KC-135R	TF33-P-5&9	738
KC-135R	TF33-P-5&9	382
Learjet 25C	CJ610-6	308
Learjet 25C	CJ610-6	1,126
Learjet 25C	CJ610-6	3,808
Learjet 25C	CJ610-6	1,328
Learjet 35/36	TFE 731-2-2B	278
Learjet 35/36	TFE 731-2-2B	1,042
Learjet 35/36	TFE 731-2-2B	3,352
Learjet 35/36	TFE 731-2-2B	1,168
MD-80-82	JT8D-217 (old comb)	50
MD-80-82	JT8D-217 (old comb)	120
MD-80-82	JT8D-217 (old comb)	368
MD-80-82	JT8D-217 (old comb)	190
MD-80-83	JT8D-219 old comb	366
MD-80-83	JT8D-219 old comb	1,000
MD-80-83	JT8D-219 old comb	2,520

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
MD-80-83	JT8D-219 old comb	1,224
Navajo	TIO-540-J2B2	814
Navajo	TIO-540-J2B2	900
Navajo	TIO-540-J2B2	2,780
Navajo	TIO-540-J2B2	2,814
Piper PA-28	O-320	84
Piper PA-28	O-320	256
Piper PA-28	O-320	794
Piper PA-28	O-320	324
SF-340-B PLUS	CT7-5	186
SF-340-B PLUS	CT7-5	168
SF-340-B PLUS	CT7-5	470
SF-340-B PLUS	CT7-5	638
UC-12J	PT6A-67B	144
UC-12J	PT6A-67B	478
UC-12J	PT6A-67B	1,078
UC-12J	PT6A-67B	490
TOTAL OPERATIONS		**197,122**

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TABLE 5
AIRCRAFT GSE SURVEYED BY TYPE AND CATEGORY
PORT COLUMBUS INTERNATIONAL AIRPORT

JET AIRCRAFT		TURBOPROP AIRCRAFT
LARGE JETS	SMALLER JETS	
MD88	Embraer Regional Jet	Dornier 328
Boeing 737		Dash 8
		Saab 340
		Beech 1900

Note: General aviation and cargo aircraft were not surveyed.

TABLE 6
AIRCRAFT GSE ASSIGNMENTS BASED ON THE SURVEY
PORT COLUMBUS INTERNATIONAL AIRPORT

GSE TYPE	AIRCRAFT TYPE (minutes per landing/takeoff cycle)		
	LARGE JETS	SMALLER JETS	TURBOPROPS
Diesel Aircraft Tractor	21	9	6
Diesel Baggage Tractor	57	12	2
Gasoline Baggage Tractor		26	20
Diesel Belt Loader	46	28	
Gasoline Belt Loader	22	21	21
Gasoline Catering Truck	15		
Diesel Fuel Truck	20	11	10
Electric GPU Hookup (400 Hz)			30

Note: EDMS default assignments were used for general aviation GSE and cargo GSE.

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VI-2. Motor Vehicles in Parking Lots and Garages

Data relating to motor vehicles utilizing the airport's parking lots and garages was obtained from the following sources:

- *International Gateway Realignment, Categorical Exclusion Reevaluation Level 4*, prepared for the Ohio Department of Transportation, District 6, dated August 2006.
- *Traffic Impact Study: 17th Avenue Parking Lot*, prepared for the CRAA, preliminary report dated October 19, 2006.
- *Traffic Impact Study: New Employee Parking Lot*, prepared for the CRAA, preliminary report dated October 19, 2006.
- *Rental Car Update & Analysis*, prepared for the CRAA, dated February 2005.

A diagram of the parking lots and garages that were considered for analysis is presented in **Exhibit 2**, ***Parking Lots and Garages – Mobile Sources***.

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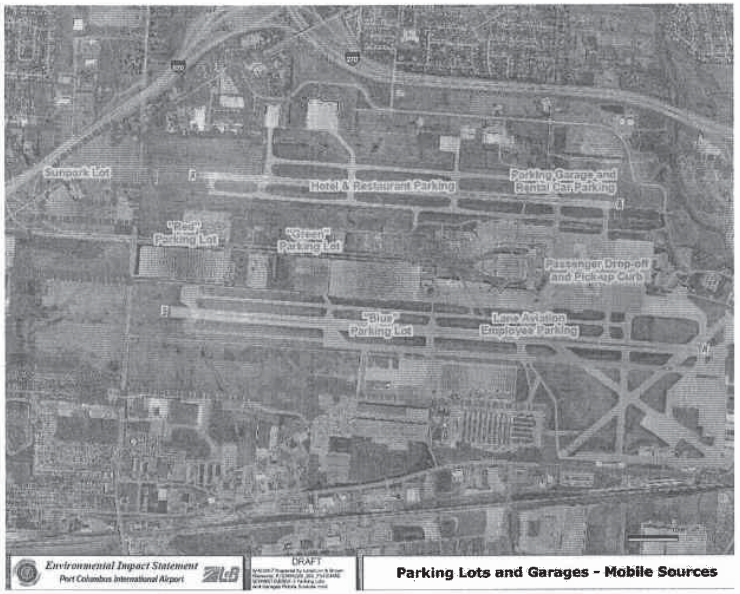


EXHIBIT 2. Location of parking lots and garages at the airport.
Source: Landrum & Brown analysis, 2007.

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VI-3. Motor Vehicles on Roadways

Data relating to motor vehicles traversing the airport's access roadways was obtained from the same sources used for parking lots and garages.

A diagram of the airport's access roadways that were considered for analysis is presented in **Exhibit 3, *Location of Roadways***. Not all the roadways will be represented in the final document if data is not available.

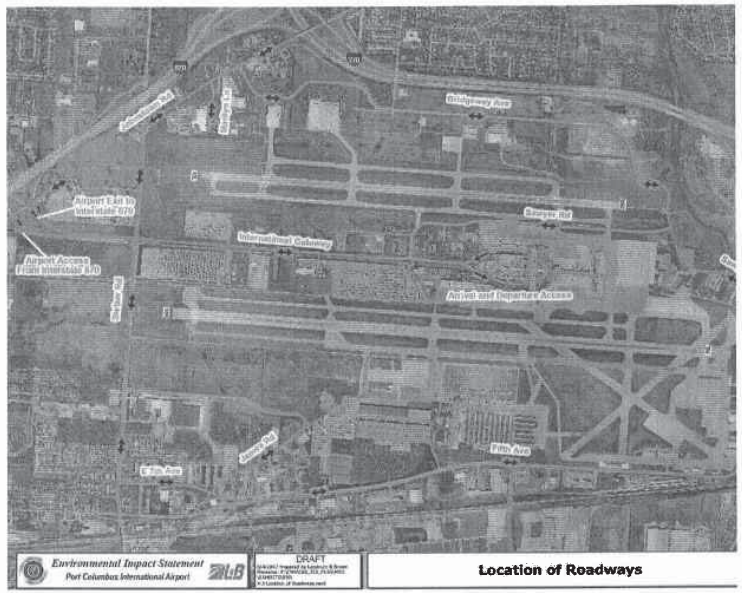


EXHIBIT 3. Location of roadways at CMH considered for inclusion in computer air quality modeling. Source: Landrum & Brown analysis, 2007.

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VI-4. Stationary Sources

Stationary sources of emissions were identified based on the on-site survey completed in July 2006. The sources identified in the survey are given in **Table 7.** The location of the stationary sources inventoried in the survey is presented in **Exhibit 4, *Location of Stationary Sources***.

TABLE 7
STATIOINARY SOURCES INVENTORY
PORT COLUMBUS INTERNATIONAL AIRPORT

MAP ID	STATIONARY SOURCE	TYPE
1	Concourse A	Emergency Generator W/ Diesel Fuel Tank
2	Concourse B Diesel	Emergency Generator W/ Diesel Fuel Tank
3	Concourse B Natural Gas	Natural Gas Boiler
4	Concourse C	Emergency Generator W/ Diesel Fuel Tank
5	PEA	Natural Gas Boiler
6	Lane Corridor A	Natural Gas Boiler
7	Lane Hangar 3	Natural Gas Boiler
8	Lane Hangar 4	Natural Gas Boiler
9	Lane Hangar 5	Natural Gas Boiler
10	Backup IT	Emergency Generator W/ Diesel Fuel Tank
11	Backup Concourse A	Natural Gas Boiler
12	Backup Concourse C	Emergency Generator W/ Diesel Fuel Tank
13	Misc. Concourse B	Emergency Generator W/ Diesel Fuel Tank
14	Backup Garage	Emergency Generator W/ Diesel Fuel Tank
15	Backup ARFF	Emergency Generator W/ Diesel Fuel Tank
16	Aircraft Deice PG TI	Deice Area
17	Aircraft Deice EG	Deice Area
18	Airfield Maintenance Gas	Gasoline Storage Tank
19	Airfield Maintenance Diesel	Diesel Fuel Storage Tank
20	Lane - Jet A	Jet A Storage Tanks
21	Lane Diesel	Diesel Fuel Storage Tank
22	Lane Gasoline	Gasoline Storage Tank
23	Incinerator	Incinerator
24	Air Deice PG TIV	Deice Area
25	Lane 100LL	Avgas Storage Tanks
26	Runway Deice KOAC	Deice Area
27	Million Air Jet A	Jet A Storage Tanks
28	Million Air Diesel	Diesel Fuel Storage Tank
29	Million Air Av Gas	Aviation gasoline (AvGas) Storage Tank

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TABLE 7 (CONTINUED)
STATIOINARY SOURCES INVENTORY
PORT COLUMBUS INTERNATIONAL AIRPORT

MAP ID	STATIONARY SOURCE	TYPE
1	Concourse A	Emergency Generator W/ Diesel Fuel Tank
30	45 Hotel Jet A	Jet A Storage Tanks
31	Alamo Gasoline (not in use)	Gasoline Storage Tank
32	Dollar Gasoline	Gasoline Storage Tank
33	Englefield Gasoline	Gasoline Storage Tank
34	Englefield Gasoline	Gasoline Storage Tank
35	Englefield Gasoline	Gasoline Storage Tank
36	Englefield Diesel (airport is not a customer)	Diesel Fuel Storage Tank
37	Englefield Kerosene (airport is not a customer)	Kerosene Storage Tank
38	FAA Control Tower	Emergency Generator W/ Diesel Fuel Tank
39	Hertz Gasoline	Gasoline Storage Tank
40	NetJets Diesel	Emergency Generator W/ Diesel Fuel Tank
41	Quick Turnaround Gasoline	Gasoline Storage Tanks
42	Avis Gasoline	Gasoline Storage Tank
43	National Gasoline	Gasoline Storage Tank
44	FAA ASR-9	Emergency Generator W/ Diesel Fuel Tank
45	Flight Safety	Emergency Generator W/ Diesel Fuel Tank
46	Lift Station	Emergency Generator W/ Diesel Fuel Tank
47	Electrical Vault	Emergency Generator W/ Diesel Fuel Tank
48	NetJets	Emergency Generator W/ Diesel Fuel Tank
49	Nationwide	Emergency Generator W/ Diesel Fuel Tank
50	North Fuel Farm	Jet A Storage Tanks

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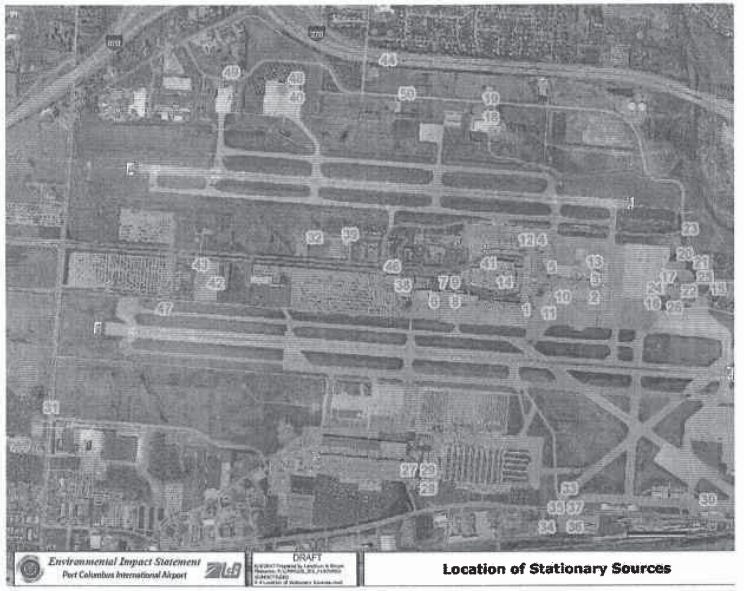


EXHIBIT 4. Location of stationary sources identified in the on-site survey.
Source: Landrum & Brown analysis, 2007.

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VII. DISPERSION ANALYSIS

The dispersion analysis will be conducted for the criteria pollutants (excluding ozone and lead, and not including VOC) using the EDMS. Dispersion modeling will be applied to all the scenarios listed in Section I, *Introduction*, except the 2009 and 2010 SIP years, which require an emission inventory and not dispersion modeling. The same sources evaluated for the emission inventory described in Section VI, *Emission Sources*, will be evaluated through dispersion modeling.

VII-1 Aircraft

Aircraft for each of the scenarios will be assigned to a gate area, grouped by runway end, and will include the taxi path to and from the runway end. Three general gate areas were identified, the terminal gates, the cargo area, and the general aviation ramp. Taxi paths will be determined by assigning the longest (worst-case) path from each runway end to and from the associated gate area. Each aircraft will be assigned to a runway end according to the runway use distribution described for the noise analysis.

VII-2 Receptors

Over 100 receptors will be assigned for dispersion modeling for the existing conditions. The receptors are shown in **Exhibit 5**, ***Airport and Parking Lot Dispersion Receptor Locations***, and **Exhibit 6**, ***Terminal Area Dispersion Receptor Locations***. Following the identification of the worst-case weather year, dispersion modeling will be applied to no more than five discrete receptors.

The first array of receptors will be located every ten degrees around the airport property line perimeter, beginning at 360 degrees, as measured from the airport reference point. Another ring of receptors will be located outward 1,500 feet, and a third ring of receptors will be located 1,500 feet further out from the property line. Additional receptors will be placed in the parking areas as shown in Exhibit 5.

A second grid of receptors will be located across International Gateway from Stelzer Road to the parking garage adjacent to the terminal. This grid is illustrated in Exhibit 6.

The identification of the discrete receptors that will be applied to the dispersion analysis of the project alternatives has not been determined. The FAA would request guidance from USEPA and OEPA for a methodology to determine the location of the discrete receptors.

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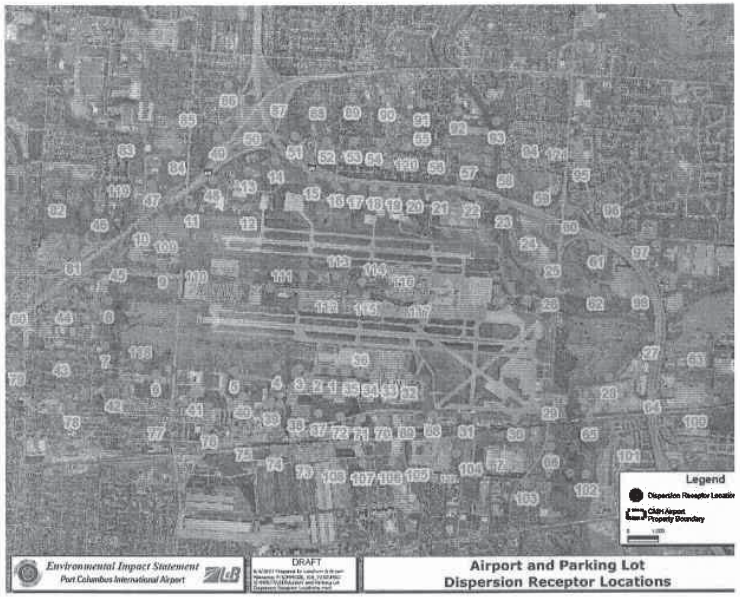


EXHIBIT 5. Location of airport and parking lot receptor locations.
Source: Landrum & Brown analysis, 2007.

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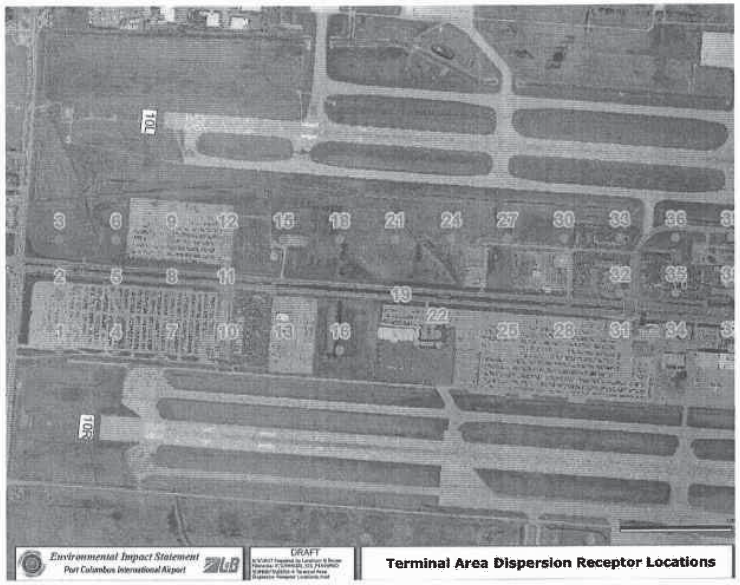


EXHIBIT 6. Location of the terminal area dispersion receptor locations.
Source: Landrum & Brown analysis, 2007.

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VIII. CONSTRUCTION EMISSIONS INVENTORY

The inventory of emissions from the use of construction equipment will be calculated using USEPA approved methodology. Emission factors for the Tier 2 and Tier 3 emission standards for nonroad diesel engines applicable for 2005 will be used for calculation of the inventory.[11] This allows the construction contractor the opportunity to use readily available tier-compliant equipment.

IX. OUTSTANDING DATA NEEDS

The identification of the ***specific five years of meteorological data*** that will be applied to dispersion modeling for this project has not been determined. The FAA would request guidance from USEPA and OEPA regarding the required years of data for analysis. Further, suggestions from USEPA and OEPA for a ***methodology to determine the worst-case data year*** is requested.

The ***identification of the five discrete*** receptors that will be applied to dispersion modeling for this project has not been determined. The FAA would request guidance from USEPA and OEPA for a methodology to determine the discrete receptors.

[11] 40 CFR Part 89.

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X. NEXT STEPS

Written comments and/or questions regarding the discussion or material provided during this scoping meeting should be mailed within 30 days following the scoping meeting or no later than ***July 19, 2007***. Comments should be directed to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174

Email: CMHEIS@FAA.GOV

Website: www.Airportsites.net/CMH-EIS

This scoping document is provided as a draft and should not be considered the final authority for assessing air quality for CMH EIS. As the project progresses, changes in planning may require adjustments of the methodology and procedures given in this document.

Federal Aviation Administration

ENVIRONMENTAL IMPACT STATEMENT

FOR

REPLACEMENT RUNWAY AND TERMINAL EXPANSION

AT

PORT COLUMBUS INTERNATIONAL AIRPORT

AIR QUALITY SCOPING MEETING SUMMARY

MEETING CONDUCTED

JUNE 19, 2007

9:00 A.M. – 12:00 P.M.

The second in a series of air quality scoping meetings was conducted on Tuesday, June 19, 2007, at the office of the Ohio Environmental Protection Agency (OEPA) in Columbus, Ohio. The purpose of the meeting was to continue coordination of the air quality assessment for the Port Columbus International Airport Environmental Impact Statement (CMH EIS). The following agencies were represented at the meeting, either in person or through teleconference:

- U.S. Environmental Protection Agency (USEPA, teleconference)
- Ohio Environmental Protection Agency (OEPA)
- Mid-Ohio Regional Planning Commission (MORPC)
- Columbus Regional Airport Authority (CRAA)
- FAA consultants, Landrum & Brown

The contact information for each of the participants is attached following the minutes of the meeting as **Attachment A**. A meeting agenda and discussion outline were distributed to the meeting participants in advance of the meeting and are attached to this document as **Attachment B**, which also includes a copy of the revised discussion outline based on comments received immediately following the meeting and prior to the distribution of the minutes of the meeting, and a copy of the letter from Ms. Katherine Jones, FAA, to USEPA regarding comments from the first air quality scoping meeting held on July 19, 2006. The meeting discussion focused on the status of the air quality assessment thus far, which included the development of data that will be used for the preparation of the emission inventories and the dispersion analysis for the project analysis.

Summary Notes from the June 19, 2007 Meeting

The meeting began at 9:00 a.m. Eastern Daylight Time, and was opened by Mr. Rob Adams, the Project Manager for Landrum & Brown, the FAA consultant and the FAA's representative for this meeting. Following introductions of the participants, the meeting was led by Ms. Virginia Raps, Landrum & Brown air quality manager for the CMH EIS.

Proposed Project

Ms. Raps provided a brief overview of the scenarios that would be evaluated in the air quality assessment, which will account for the interim State Implementation Plan (SIP) analysis years required under the Clean Air Act Amendments of 1990 (CAA), as well as the analysis years for the EIS. Mr. Bill Spires, OEPA, asked for clarification of the actual project alternatives proposed for the EIS. Mr. Adams responded that two alternatives would be considered - replacement of Runway 10R/28L at a distance 702 feet to the south of the runway's existing position and alternately to a position 800 feet to the south. In addition, each of these alternatives would be evaluated with and without the implementation of the noise compatibility program measures proposed in the EIS. The FAA preferred alternative will be determined following review of the draft EIS.

Ohio State Implementation Plan

Ms. Raps described the two documents that contain information regarding the conformity determinations for Franklin County with respect to the ozone and fine particulate matter ($PM_{2.5}$) status of Franklin County (refer to Section III, *Ohio SIP*, in the attached discussion outline) referred to as the Ozone Determination and the $PM_{2.5}$ Determination. These are the conformity demonstrations for the ozone and $PM_{2.5}$ nonattainment areas. The Ozone Determination contained the projected budget of emissions for 2009 (the eight-hour ozone attainment year) and 2010, the one-hour ozone milestone year. The CAA requires an impact analysis (emission inventory) for each of these years when the General Conformity Rule is applicable to the project, which is the case for the CMH EIS. Mr. Bill Spires, OEPA, concurred that the analysis should include an emission inventory for 2009 and 2010 for the purposes of the General Conformity evaluation.

Ms. Sherry Kamke (USEPA, attending via teleconference) asked if the budget inventory shown in Figure 2 of the discussion outline was the regional budget or would there be a budget that reflects just the airport (CMH) emissions. Mr. Spires will check on whether a CMH emission budgets exists and if so, will forward that information to Landrum & Brown for disclosure in the CMH EIS. This information was received from OPEA following the meeting.

Ms. Virginia Raps confirmed that the list of aircraft and annual aircraft operations for 2006 existing conditions used in the EIS was provided to Tom Velalis, OEPA, as a basis for his computation of aircraft emissions at CMH for inclusion in the SIP revision.

Mr. Bill Spires confirmed that no additional years of analysis would be required in the CMH EIS relevant to $PM_{2.5}$ nonattainment in Franklin County. In addition, Mr. Spires stated the $PM_{2.5}$ SIP revision will be submitted to USEPA in April 2008. The status of the SIP revision for the attainment of ozone is unclear at this time. Landrum & Brown will contact Ms. Sam MacDonald to get an update on the SIP submission prior to the release of the draft EIS.

With regard to the map showing the location of the air emission monitoring sites in Franklin County, shown in Exhibit 1 of the discussion outline, Mr. Chris Gawronski, MORPC, will verify that the map is still valid.

Regulatory Thresholds

Ms. Virginia Raps explained the CAA de minimis thresholds that apply to the EIS. The thresholds for both the criteria and precursor pollutants to ozone and $PM_{2.5}$ are required to be evaluated under the General Conformity Rule. Mr. Bill Spires confirmed that emissions of ammonia are not a constraining factor in Franklin County as a precursor pollutant to $PM_{2.5}$ and ammonia would not be required for evaluation in the EIS.

Ms. Raps explained the National Ambient Air Quality Standards (NAAQS) that will apply to the project. The information in Table 1 of the discussion outline shows that the background concentrations for $PM_{2.5}$ already exceed the NAAQS under existing conditions. Both OEPA and USEPA expect the $PM_{2.5}$ NAAQS will be exceeded under the future baseline analyses, but would likely exceed to a lesser extent under the project analyses. This is because project emissions are expected to be lower than the baseline emissions due to a reduction in aircraft departure delay time under the proposed project. Therefore, it is expected that the air quality assessment will demonstrate compliance to the NAAQS as required under the National Environmental Policy Act (NEPA).

Meteorology

Ms. Raps explained the use of meteorological parameters required for the emission inventory and dispersion analysis. There was general concurrence with the data provided in Table 2 of the discussion outline, which is the average annual temperature and average annual mixing height applicable to Columbus. Mr. Bill Spires noted that the mixing height data from the Holzworth document (USEPA Report AP-101) that will be used for the emissions inventory originated from the upper-air station located at Wright-Patterson Air Force Base in Dayton. Conversely, the upper air data that will be used for the dispersion analysis was collected at the National Weather Service Office in Wilmington, Ohio.

Both OEPA and USEPA concurred, after consulting by phone during the meeting with Mr. Randy Robinson, the Regional Meteorologist for USEPA Region 5, that the five years of meteorological data that will be used for the dispersion analysis will be 2001, 2002, 2003, 2004, and 2005.

Emission Sources

There were no objections to the procedure and methodology proposed to develop the fleet of aircraft, auxiliary power units (APUs), and ground support equipment (GSE) for existing conditions, and which will be used to develop the fleet for years 2009, 2010, 2012, and 2018.

Although an accounting of the vehicles accessing the airport is available in the four documents referenced in the discussion document, the distribution of the vehicles in parking lots, garages, and curb access is not readily apparent. Therefore, Mr. Dave Wall, CRAA, and Ms. Raps will consult at a future time to discuss vehicle distribution throughout the terminal core. Mr. Wall also informed the group that the 17th Avenue parking lot will be implemented in June 2007. Therefore, the use of the parking lot will not be included in the analysis of existing conditions but will be included in the analysis of all the future baseline and project alternatives.

Ms. Sam MacDonald will provide information for inclusion in the MOBILE6 input files used for the assessment of emissions from motor vehicles.

Dispersion Analysis

There was extended discussion of the procedure to determine the number and location of discrete receptors and the worst-case meteorological years for dispersion analysis.

The evaluation process that will determine the worst-case meteorological years and the reduced set of discrete receptors must be completed by July 19, 2007, to meet the EIS schedule for delivery to the FAA. The final number and location of discrete receptors will be determined by the FAA project manager, Ms. Katherine Jones, following consultation with OPEA, USEPA, CRAA, and MORPC. Mr. Bill Spires recommended the following procedure:

First, conduct dispersion analysis of existing conditions using the entire set of over 100 receptors, and apply all five years of meteorological data to all pollutants and averaging periods. Evaluation of the results of the analyses will reveal the "hot spots" at the airport and the location of the reduced set of receptors will be identified.

Second, the dispersion analysis conducted for the first step will be used to also determine the worst-case meteorological year for each pollutant. For pollutants requiring two averaging periods, for instance, the 24-hour and annual average concentration of $PM_{2.5}$, one averaging period will be identified as the "controlling" average and the worst-year will be identified relative to that averaging period for that pollutant. In this way, one specific year will be identified for each pollutant as the worst-case year for carbon monoxide (CO), fine particulate matter ($PM_{2.5}$), coarse particulate matter (PM_{10}), nitrogen oxides (NO_x), and sulfur oxides (SO_x). Using this methodology, only one year of meteorological data will be applied in dispersion modeling; however, the year may differ depending on the pollutant.

Third, all the future baseline and alternative analyses (2012 and 2018) will be run with the reduced set of receptors with the application of the worst-case year of meteorological data corresponding to the pollutant.

Lastly, following the review of the draft EIS, when the preferred alternative is identified by the FAA, the dispersion analysis of the preferred alternative will conducted using the entire set of over 100 receptors, and will be run for all years and all pollutants and averaging periods.

Construction

Mr. Dave Wall stated that construction will begin in 2009 for a very small portion of the proposed project and main construction projects will begin in 2011, continuing through 2012. Mr. Wall will provide information regarding timing for the construction of the runway to Landrum & Brown.

Mr. Wall stated that the crossover taxiway currently under construction will be implemented in 2009. Therefore, the use of the taxiway will not be included in the analysis of existing conditions but will be included in the future baseline and project alternative analyses. Use of the new taxiway is expected to reduce average taxi time at the airport and this reduction was accounted for in the CRAA planning study (refer to Section VI-1 of the discussion document).

Data Requirements

A summary of the outstanding data requirements is given in the table below. All data should be provided in written form through e-mail to:

Ms. Virginia Raps
Landrum & Brown Air Quality Manager
graps@landrum-brown.com
Work: 513-530-1238
Fax: 513-530-2238

All data requested at this meeting should be provided as directed above no later than July 19, 200, except where noted in the table below.

DATA REQUIREMENT AND COORDINATION	CONTACT PERSON/AGENCY	ANALYSIS TYPE AND YEAR	DATE REQUIRED
CMH Emissions Budget in the SIP	Bill Spires OEPA	Emission inventory for milestone years	July 19, 2007 **This information was provided following the meeting.**
Confirm the validity of the air quality monitoring sites, shown in Exhibit 1 of the discussion outline.	Chris Gawronski MORPC	Current monitoring sites	July 19, 2007 **This information was provided following the meeting.**
MOBILE 6 input file instructions.	Sam MacDonald, OEPA	Emission inventory and dispersion, all years, all alternatives	July 19, 2007
Determination of worst-case meteorological years and the set of discrete receptor locations	Bill Spires, OEPA, and Katy Jones, FAA	Dispersion analysis, existing conditions	As soon as possible

Next Steps

Your comments or requests relating to this scoping meeting should be provided ***in writing to the FAA no later than July 19, 2007***. Comments should be directed to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174

Email: CMHEIS@FAA.GOV

Website: www.Airportsites.net/CMH-EIS

ATTACHMENT A

MEETING PARTICIPANTS

The following is a list of the meeting participants, which attended either in person or by teleconference.

Name:	Mr. Bill Spires, C.C.M.
Title:	Manager, SIP Section
Agency/Division/Firm	OEPA Division of Air Pollution Control
Mailing Address	50 West Town Street
	Columbus, OH 43215
E-mail Address:	bill.spires@epa.state.oh.us
Telephone Number:	614-644-3618
FAX Number:	614-644-3681

Name:	Ms. Sam MacDonald
Title:	Environmental Specialist 2
Agency/Division/Firm	Ohio EPA/Division of Air Pollution Control
Mailing Address	50 W. Town St.
	Columbus, OH 43215
E-mail Address:	sam.macdonald@epa.state.oh.us
Telephone Number:	614-728-1743
FAX Number:	614-644-3681

Name:	Ms. Sarah Hedlund
Title:	Air Quality Modeler
Agency/Division/Firm	OEPA
Mailing Address	50 W. Town Street Suite 700
	Columbus, OH 43215
E-mail Address:	sarah.hedlund@epa.state.oh.us
Telephone Number:	614-644-3632
FAX Number:	614-644-3681

Name:	Mr. Christopher Gawronski
Title:	Principal Planner
Agency/Division/Firm	Mid-Ohio Regional Planning Commission (MORPC)
Mailing Address	285 East Main Street
	Columbus, OH 43215
E-mail Address:	cgawronski@morpc.org
Telephone Number:	614-233-4166
FAX Number:	614-621-2401

Name:	Mr. David Wall, A.A.E.
Title:	Capital Program Manager
Agency/Division/Firm	Columbus Regional Airport Authority (CRAA)
Mailing Address	4600 International Gateway
	Columbus, OH 43219
E-mail Address:	dwall@ColumbusAirports.com
Telephone Number:	614-239-4063
FAX Number:	614-238-7850

Name:	Mr. Bernard Meleski
Title:	Director, Planning & Development
Agency/Division/Firm	Columbus Regional Airport Authority (CRAA)
Mailing Address	4600 International Gateway
	Columbus, OH 43219
E-mail Address:	bmeleski@ColumbusAirports.com
Telephone Number:	614-239-4042
FAX Number:	614-238-7850

Name:	Mr. Paul Kennedy
Title:	Supervisor, Environmental, Safety & Health
Agency/Division/Firm	Columbus Regional Airport Authority (CRAA)
Mailing Address	4600 International Gateway
	Columbus, OH 43219
E-mail Address:	pkennedy@ColumbusAirports.com
Telephone Number:	614-239-3347
FAX Number:	614-239-3183

Name:	Ms. Patricia Morris *(teleconference participant)*
Title:	Environmental Scientist
Agency/Division/Firm	USEPA Region 5
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	Morris.Patricia@epamail.epa.gov
Telephone Number:	312-353-8656
FAX Number:	312-886-5824

Name:	Ms. Suzanne King *(teleconference participant)*
Title:	
Agency/Division/Firm	USEPA Region 5, Air Radiation Division (AT-18J)
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	sking.Suzanne@epamail.epa.gov
Telephone Number:	312-886-6054
FAX Number:	312-886-0617

Name:	Sherry A. Kamke *(teleconference participant)*
Title:	Environmental Scientist, NEPA Implementation Section Office of Science, Ecosystems, and Communities
Agency/Division/Firm	USEPA Region 5 Mailcode B-19J
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	Kamke.Sherry@epamail.epa.gov
Telephone Number:	312-353-5794
FAX Number:	312-353-5374

Name:	Mr. Rob Adams
Title:	Managing Director, Project Manager CMH EIS
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive
	Cincinnati, OH 45242
E-mail Address:	radams@landrum-brown.com
Telephone Number:	513-530-1201
FAX Number:	513-530-1278

Name:	Ms. Virginia L. Raps
Title:	Air Quality Manager – CMH EIS
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive
	Cincinnati, OH 45242
E-mail Address:	graps@landrum-brown.com
Telephone Number:	513-530-1238
FAX Number:	513-530-2238

ATTACHMENT B

ELECTRONIC FILES

The following electronic files are attached:

- Original Agenda
- Original Discussion Outline
- Revised Discussion Outline (includes comments received following the meeting and prior to the distribution of this document)
- FAA October 17, 2006 letter to USEPA in response to comments relating to the Air Quality Scoping Meeting, July 19, 2006

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Discussion Outline Revision

Air Quality Scoping Meeting

Location: Ohio Environmental Protection Agency (OEPA)
6th Floor, Conference Room "B"
122 South Front Street
Columbus, OH 43216

Date: Tuesday, June 19, 2007
Time: 9:00 a.m. – 12:00 noon EDT

Prepared for:

Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Romulus, Michigan 48174

Prepared by:

Landrum & Brown, Incorporated
11279 Cornell Park Drive
Cincinnati, OH 45242

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I. INTRODUCTION

The Federal Aviation Administration (FAA) is preparing an Environmental Impact Statement for the Port Columbus International Airport (CMH EIS or airport). As the airport sponsor, the Columbus Regional Airport Authority (CRAA) proposes a Federal action to replace Runway 10R/28L with a new runway of approximately the same length. The new runway is proposed to be relocated south of the existing Runway 10R/28L to allow for passenger terminal expansion that will accommodate future aviation demand at the airport. At this time, the FAA intends to include a review of air quality impacts in the CMH EIS under the following cases:

- 2006 Existing Conditions
- 2009 Project for SIP eight-hour ozone attainment year, inventory only[1]
- 2010 Project for SIP one-hour ozone budget (milestone) year, inventory only[1]
- 2012 Baseline
- 2012 Project Alternatives
- 2018 Baseline
- 2018 Project Alternatives

This air quality scoping meeting continues the process of engaging the participation of the Federal, State, and local air quality agencies concerned with the thorough assessment of air quality impacts for the CMH EIS. The coordination effort will be documented in a Draft Air Quality Approach Technical Report, which will be included in the Draft EIS during the public comment period.

The goal of this air quality scoping meeting is to:

- Confirm the requirements for analysis relating to the provisions of the SIP
- Obtain concurrence on data development, procedures, and methodology planned for computer modeling
- Determine whether there are any outstanding data required for the modeling effort

[1] The first year of proposed project implementation is not until 2012. However, construction is anticipated to begin in 2009. Therefore, the 2009 and 2010 emission inventories would include estimated construction emissions.

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The objective of this air quality scoping meeting is to engage the participants in a general discussion of:

- Proposed Project
- Ohio State Implementation Plan (SIP) for Franklin County
- Applicable regulatory thresholds
- Meteorology used for the emission inventory and dispersion modeling
- Overview of emission sources
- Overview of dispersion analysis
- Procedure for the construction emissions inventory
- Identification of any outstanding data needs

II. PROPOSED PROJECT

The airport currently has a set of parallel runways as shown in the photograph in Figure 1. The shorter Runway 10L/28R, located north of the passenger terminal area, is 8,000 feet long. The longer Runway 10R/28L is located south of the terminal core and is 10,125 feet long.

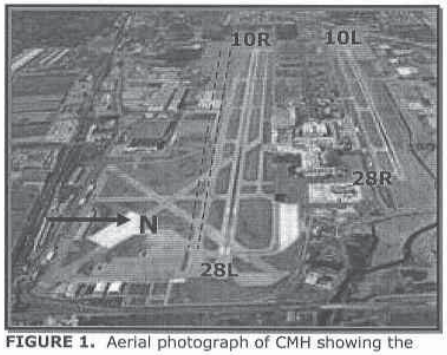


FIGURE 1. Aerial photograph of CMH showing the existing runways, the approximate location of the replacement runway (dotted line), and the orientation to north. **REVISION: Both alternatives (702-foot shift and 800-foot shift) for the proposed replacement runway are illustrated. Positions are approximate.**

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The proposed project includes:

- Relocation of Runway 10R/28L to the south
- Construction of additional taxiways to support the replacement runway
- Installation of navigational aids (NAVAIDS)
- Terminal development
- Roadway improvements in the terminal core
- Parking facility improvements
- Development of air traffic operational procedures for the replacement runway
- Proposed Part 150 noise abatement actions to be implemented upon receipt of the Record of Approval.

III. OHIO SIP

The Ohio SIP is included in the Ohio Administrative Code,[2] (OAC) Chapter 3745, which incorporates, by reference, the requirements under the National Environmental Policy Act (NEPA)[3] and the provisions of the Clean Air Act, including the 1990 Amendments (CAA).[4] According to the Ohio SIP, Franklin County is designated nonattainment for ozone and fine particulate matter ($PM_{2.5}$). Two documents were referenced for information regarding the expected attainment years in Franklin County, and the emission budgets for the milestone years:

- Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the Franklin, Delaware, Licking, Fairfield, Madison, and Knox County Ozone Non-Attainment Area, prepared by the Mid-Ohio Regional Planning Commission (MORPC), dated April 28, 2005, referred to in this document as the Ozone Determination.

- Central Ohio PM2.5 Air Quality Analysis: Air Quality Conformity Determination Documentation for the Franklin, Delaware, Licking, Fairfield, and Coshocton (Franklin Twp) County PM2.5 Non-Attainment Area, prepared by MORPC, dated February 9, 2006, referred to in this document as the $PM_{2.5}$ Determination.

[2] Ohio Administrative Code (OAC) Chapter 3745-21-02 *Ambient Air Quality Standards and Guidelines*, November 5, 2002 available on the Internet at http://onlinedocs.andersonpublishing.com/oh /lpExt.dll?f=templates&fn=main-h.htm&cp=PORC.

[3] Ohio Administrative Code (FAC), Chapter 62-204.800, *Federal Regulations Adopted by Reference*, incorporated the NAAQS into the Ohio SIP.

[4] Ohio Administrative Code (OAC) Chapter 3745-101-20 *Savings Provisions*, December 31, 2004, available on the Internet at http://onlinedocs.andersonpublishing.com/oh /lpExt.dll?f=templates&fn=main-h.htm&cp=PORC.

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According to the Ozone Determination, Section II, *Analysis Years*, an emission analysis is required for the eight-hour ozone attainment year, 2009, and the one-hour ozone budget (milestone) year, 2010. The budget for volatile organic compounds (VOC) and nitrogen oxides (NO_x) emissions to meet the 2010 milestone target is found in Section II, *Background*, Table 1, *Emission Inventory and SIP Budgets for the Columbus Maintenance Area*, as reproduced in Figure 2. There is no emission budget for the attainment year 2009. **(REVISION: Note – Since the time of the June 19 meeting, OEPA has provided FAA with the CMH emissions that were included in the 2005 SIP inventory.)**

Table 1: Emission Inventory and SIP Budgets for the Columbus Maintenance Area

	VOC in tons/day				NOx in tons/day			
	Point	Area	Mobile	Total	Point	Area	Mobile	Total
1990 Inventory	16.44	101.18	94.73	212.35	13.79	96.68	78.65	189.12
1996 Inventory	17.52	107.47	63.36	188.35	14.35	102.62	68.85	185.82
2005 Budget	19.33	117.30	61.38	198.01	15.27	111.82	61.24	188.33
2010 Budget	20.27	123.94	67.99	212.20	12.17	101.99	70.99	185.15
	2010 Safety Margin			0.15	2010 Safety Margin			3.97

FIGURE 2. Emission inventory SIP budget obtained from the Ozone Determination. Source: MORPC, *Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the Franklin, Delaware, Licking, Fairfield, Madison, and Knox County Ozone Non-Attainment Area*, April 28, 2005.

Also stated in the Ozone Determination, the U.S. Environmental Protection Agency (USEPA) MOBILE6.2 program was used to generate the emission factors for motor vehicles for the conformity analysis. The MOBILE6.2 input and output files, along with the reference files required to run the emission factor calculations for Franklin County, were provided to the FAA consultant by MORPC.[5]

According to the $PM_{2.5}$ Determination, Section II, *Analysis Years*, the years for analysis required for the $PM_{2.5}$ nonattainment area are 2020 and 2030. Both years are beyond the farthest planning year for the CMH EIS, which is 2018. In Section III, *Emission Projections*, of the same document, ~~MROPC~~ **MORPC** states there is "not yet a SIP with emission budgets" for emissions of $PM_{2.5}$.

[5] MOBILE6.2 files were provided to Landrum & Brown, via an e-mail transmission from Ms. Chandra Parasa, MORPC, on April 9, 2007.

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IV. REGULATORY THRESHOLDS

The assessment of air quality will be prepared in accordance with the guidelines provided in the FAA *Air Quality Procedures for Civilian Airports & Air Force Bases,*[6] and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, which together with the guidelines of FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, constitutes compliance to all the relevant provisions of NEPA, the CAA, and the Ohio SIP.

The General Conformity Rule, established under CAA, would apply to the project proposed for the CMH EIS. Therefore, ***an inventory of net emissions* will be prepared** for comparison to the relevant de minimis thresholds given under 40 CFR Part 93. Net emissions would be calculated by comparing the inventory of the "no-build" versus the "build" emissions for 2009, 2010, 2012, and 2018, in addition to the year of greatest emissions, which has not yet been determined. The relevant de minimis thresholds applicable to the project proposed in the CMH EIS are ***100 tons per year for each*** of the following criteria and precursor pollutants:

- $PM_{2.5}$
- NO_x
- VOC
- SO_x

Emissions of NO_x and VOC are considered precursors to ozone development, and emissions of sulfur oxides (SO_x), along with NO_x, are considered precursors to the development of $PM_{2.5}$ in the atmosphere.

Pursuant to NEPA guidelines and 40 CFR Part 93, ***dispersion analysis will be conducted*** for the air quality assessment of the project proposed for the CMH EIS. The computer modeling results will be added to the background concentrations of the criteria pollutants to determine the project's design concentrations. The background concentrations in Franklin County, which were provided to the FAA consultant by MORPC,[7] are summarized in **Table 1**. The associated National Ambient Air Quality Standards (NAAQS) are also provided for comparison. A map of the location of the five monitoring sites that recorded data for the development of the background concentrations in Franklin County is presented in **Exhibit 1, *Central Ohio Air Quality Monitoring Sites***.

[6] FAA and USAF, *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997.
[7] Background concentration data were provided to Landrum & Brown, via an e-mail transmission from Ms. Sarah Hedlund, Ohio EPA, during May 2007.

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TABLE 1
FRANKLIN COUNTY BACKGROUND CONCENTRATIONS

CRITERIA POLLUTANT	AVERAGING PEROD	CONCENTRATION ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
CO	1-Hour	4,796.4	40,000
	8-Hour	2,284	10,000
NO_x	Annual	39	100
PM_{10}	24-Hour	85	150
$PM_{2.5}$	24-Hour	52.1	35
	Annual	16.67	15
SO_x	24-Hour	73.36	365
	Annual	10.74	80

Source: Ohio EPA, May 2007.
40 CFR Part 50.
Landrum & Brown analysis, 2007.

V. METEOROLOGY

The emission inventory will be prepared using the FAA Emissions and Dispersion Modeling System Version 4.5 (EDMS). The inventory calculations require the average annual temperature and the average annual mixing height. The values are provided in **Table 2, *Meteorological Parameters for the Emission Inventory***.

Dispersion analysis of the criteria pollutant emissions calculated for the emission inventory will also be conducted using EDMS. The dispersion calculations require one full year of meteorological data that includes several parameters such as temperature, pressure, wind speed, and wind direction for each hour of the year. Hourly surface aviation meteorological data obtained from the National Climatic Data Center (NCDC) for the Port Columbus International Airport for 2005[8] will be used for existing conditions. The upper air data required for the analysis was also obtained from NCDC for the nearest upper-air station to the airport, which is the Wilmington National Weather Service Office. Refer to **Table 3, *Meteorological Data for Dispersion Analysis.***

[8] Year 2005 meteorological data was the most recent credible database available.

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EXHIBIT 1. Central Ohio Air Quality Monitoring Sites.
Source: MORPC, http://airquality.morpc1.org/sitemap.cfm
Landrum & Brown analysis, 2007.

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TABLE 2
METEOROLOGICAL PARAMETERS FOR THE EMISSION INVENTORY
PORT COLUMBUS INTERNATIONAL AIRPORT

METEOROLOGICAL PARAMETER	VALUE	SOURCE
Average Annual Temperature	52.9 Deg. F	1971-2000 NCDC Normals for Columbus WSO Airport, OH (COLUMBUS INTL AP, FRANKLIN CO.), *Historic Climate Data: Temperature Summary*, Midwestern Regional Climate Center, U.S. Cooperative Network, a cooperative program of the Illinois State Water Survey and the National Climatic Data Center (NCDC), http://mcc.sws.uiuc.edu/climate_midwest/historical/temp/oh/331786_tsum.html
Average Annual Mixing Height	3,052 feet	USEPA, Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States, AP-101, January 1972, Table B-1, *Mean Seasonal and Annual Morning and Afternoon Mixing Heights and Wind Speeds for NOP and All Cases*.

Note: WSO is Weather Service Office.
NOP refers to no precipitation.
Deg. F refers to degrees Fahrenheit.

According to the letter from Ms. Katherine Jones, FAA Community Planner, dated October 17, 2006,[9] a teleconference was held October 2, 2006, to determine the number of years of meteorological data would be applied to dispersion modeling for the CMH EIS. **(REVISION: Note - A copy of Ms. Jones October 2006 letter is attached; reference Comment #1 of the memorandum attached to the letter, which relates to meteorological data.)** According to the minutes summarizing the teleconference proceedings:

> "The modeling is done with 5 years of met data for the base case. Then the worst-case year is chosen and used to evaluate the alternatives in the EIS. When the final alternative is chosen, then the alternative is run with the 5 years of met data. USEPA and the Ohio Environmental Protection Agency (OEPA) concurred with this approach."

[9] Letter from Ms. Katherine S. Jones, FAA Community Planner, to Ms. Sherry Kamke, Environmental Scientist, USEPA Region 5, dated October 17, 2006, with attached minutes summarizing the teleconference held October 2, 2006.

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TABLE 3
METEOROLOGICAL DATA FOR DISPERSION ANALYSIS
PORT COLUMBUS INTERNATIONAL AIRPORT

DATA REQUIREMENT	ANNUAL NUMBER OF OBSERVATIONS	SOURCE
Year 2005 Hourly Surface Aviation Observations	8,760	National Climatic Data Center (NCDC) for Port Columbus International Airport, collected by the National Weather Service, Columbus, Ohio.
Year 2005 Upper-Air Observations	730	National Climatic Data Center (NCDC), collected by the National Weather Service, Wilmington, Ohio.

The identification of the specific five years of meteorological data that will be applied to dispersion modeling for this project has not been determined. The FAA would request guidance from USEPA and OEPA regarding the required years of data for analysis. Further, suggestions from USEPA and OEPA for a methodology to determine the worst-case data year is requested.

VI. EMISSION SOURCES

The emission inventory will be prepared for each of the scenarios listed under Section I, *Introduction*. Several types of emission sources will be evaluated for the emission inventory; the identical sources will be analyzed through dispersion analysis. The sources include:

- Aircraft
- APUs (auxiliary power units)
- Ground support equipment (GSE)
- Motor vehicles in parking lots and parking garages
- Motor vehicles on airport access roadways
- Stationary sources, including fuel tank storage, deicing, emergency generators, boilers, an incinerator, and painting operations

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VI-1. Aircraft, APUs, and GSE

The aircraft fleet will be based on the fleet evaluated for the noise analysis except airframe and aircraft engine substitutions will be necessary to match the units available in the EDMS database. The aircraft and engine types that will be used for analysis of existing conditions are given in **Table 4**.

For the emission inventory, the computer model requires the combined average ground taxi and ground delay time. This information was obtained from the *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*.[10] The data from Table 2-11 of the planning report will be used as a basis for developing data for taxi time and delay under the existing and future baseline airfield configuration and the future proposed configuration. The data from Table 2-11 is reproduced in **Figure 3**.

TABLE 2-11
COMPARISON OF DAILY VFR AND IFR
AVERAGE ARRIVAL AND DEPARTURE TIMES
2023 BASELINE SCENARIO

Baseline Scenario		Average Arrival Time (in Minutes)			Average Departure Time (in Minutes)	
		Air Delay	Ground Delay	Ground Taxi	Ground Queue Delay	Ground Taxi
VFR	Existing Airfield	0.6	0.0	3.8	1.3	8.6
	Proposed Airfield	0.6	0.0	3.7	1.3	8.8
IFR	Existing Airfield	0.8	0.0	3.9	7.6	9.0
	Proposed Airfield	0.7	0.0	3.8	5.9	9.2

Source: TransSolutions, Inc., 2005.

FIGURE 3. Average airport taxi and delay times.
Source: CRAA, *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*, prepared by URS, dated June 6, 2005. **REVISION: Date of final report was February 14, 2006.**

The use of APUs will be made using the EDMS default assignments. Ground support equipment was assigned based on the on-site survey completed in July 2006, and is based on aircraft type, as described in **Table 5**. The results of the survey are given in **Table 6**.

[10] CRAA, *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*, prepared by URS, dated June 6, 2005.

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TABLE 4
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
550 Citation	JT15D-4 (B,C,D)	1120
550 Citation	JT15D-4 (B,C,D)	240
550 Citation	JT15D-4 (B,C,D)	876
550 Citation	JT15D-4 (B,C,D)	600
550 Citation	JT15D-4 (B,C,D)	1818
550 Citation	JT15D-4 (B,C,D)	2962
550 Citation	JT15D-4 (B,C,D)	3760
550 Citation	JT15D-4 (B,C,D)	1032
A319	V2522-A5	100
A319	V2522-A5	238
A319	V2522-A5	730
A319	V2522-A5	378
A319	V2524-A5	52
A319	V2524-A5	122
A319	V2524-A5	376
A319	V2524-A5	194
A320-200	V2500-A1	42
A320-200	V2500-A1	134
A320-200	V2500-A1	260
A320-200	V2500-A1	114
A320-200	V2527-A5	124
A320-200	V2527-A5	400
A320-200	V2527-A5	778
A320-200	V2527-A5	342
Aztec	TIO-540-J2B2	892
Aztec	TIO-540-J2B2	1212
Aztec	TIO-540-J2B2	2952
Aztec	TIO-540-J2B2	2982
B737-300	CFM56-3-B1	730
B737-300	CFM56-3-B1	2000
B737-300	CFM56-3-B1	5040
B737-300	CFM56-3-B1	2450
B737-300	CFM56-3B-2	98
B737-300	CFM56-3B-2	228
B737-300	CFM56-3B-2	746

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
B737-300	CFM56-3B-2	388
B737-300	CFM56-3C-1 (Rerated)	158
B737-300	CFM56-3C-1 (Rerated)	446
B737-300	CFM56-3C-1 (Rerated)	1072
B737-300	CFM56-3C-1 (Rerated)	514
B737-500	CFM56-3C-1	50
B737-500	CFM56-3C-1	120
B737-500	CFM56-3C-1	368
B737-500	CFM56-3C-1	190
B737-700	CFM56-7B22	626
B737-700	CFM56-7B22	1686
B737-700	CFM56-7B22	4328
B737-700	CFM56-7B22	2120
B737-800	CFM56-7B26	102
B737-800	CFM56-7B26	240
B737-800	CFM56-7B26	738
B737-800	CFM56-7B26	382
B757-300	PW2043	50
B757-300	PW2043	120
B757-300	PW2043	368
B757-300	PW2043	190
BAE146-300	LF507 SERIES	214
BAE146-300	LF507 SERIES	114
BAE146-300	LF507 SERIES	372
BAE146-300	LF507 SERIES	760
BH-1900	PT6A-67D	116
BH-1900	PT6A-67D	104
BH-1900	PT6A-67D	294
BH-1900	PT6A-67D	398
Bombardier CRJ700	CF34-8C1	1874
Bombardier CRJ700	CF34-8C1	1016
Bombardier CRJ700	CF34-8C1	3094
Bombardier CRJ700	CF34-8C1	6426
Cessna 172 Skyhawk	O-320	1086
Cessna 172 Skyhawk	O-320	1762

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
Cessna 172 Skyhawk	O-320	5050
Cessna 172 Skyhawk	O-320	3790
Cessna 441 Conquest2	TPE331-8	128
Cessna 441 Conquest2	TPE331-8	386
Cessna 441 Conquest2	TPE331-8	1192
Cessna 441 Conquest2	TPE331-8	486
Cessna T337	IO-360-B	70
Cessna T337	IO-360-B	178
Cessna T337	IO-360-B	278
Cessna T337	IO-360-B	204
CITATION I SP	JT15D-1A & 1B	74
CITATION I SP	JT15D-1A & 1B	280
CITATION I SP	JT15D-1A & 1B	818
CITATION I SP	JT15D-1A & 1B	288
CL600	ALF 502L-2	786
CL600	ALF 502L-2	440
CL600	ALF 502L-2	1234
CL600	ALF 502L-2	2652
DC9-30	JT8D-15 (old comb)	256
DC9-30	JT8D-15 (old comb)	674
DC9-30	JT8D-15 (old comb)	1816
DC9-30	JT8D-15 (old comb)	902
DC9-50	JT8D-17 (old comb)	108
DC9-50	JT8D-17 (old comb)	326
DC9-50	JT8D-17 (old comb)	702
DC9-50	JT8D-17 (old comb)	324
Embraer ERJ 135/140	AE3007A1/3 (Type 3)	2108
Embraer ERJ 135/140	AE3007A1/3 (Type 3)	1176
Embraer ERJ 135/140	AE3007A1/3 (Type 3)	3380
Embraer ERJ 135/140	AE3007A1/3 (Type 3)	7208
Embraer ERJ 135/140	AE3007A3 (Type 3)	222
Embraer ERJ 135/140	AE3007A3 (Type 3)	124
Embraer ERJ 135/140	AE3007A3 (Type 3)	356
Embraer ERJ 135/140	AE3007A3 (Type 3)	758
Embraer ERJ 145	AE3007A	110

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
Embraer ERJ 145	AE3007A	62
Embraer ERJ 145	AE3007A	178
Embraer ERJ 145	AE3007A	380
Embraer ERJ 145	AE3007A1E	222
Embraer ERJ 145	AE3007A1E	124
Embraer ERJ 145	AE3007A1E	356
Embraer ERJ 145	AE3007A1E	758
Embraer ERJ 145LR	AE3007A1/1 (Type 3)	1442
Embraer ERJ 145LR	AE3007A1/1 (Type 3)	804
Embraer ERJ 145LR	AE3007A1/1 (Type 3)	2312
Embraer ERJ 145LR	AE3007A1/1 (Type 3)	4932
Embraer ERJ 145LR	AE3007A1/3 (Type 3)	1774
Embraer ERJ 145LR	AE3007A1/3 (Type 3)	990
Embraer ERJ 145LR	AE3007A1/3 (Type 3)	2846
Embraer ERJ 145LR	AE3007A1/3 (Type 3)	6070
Embraer ERJ 145LR	AE3007A1P (Type 3)	1886
Embraer ERJ 145LR	AE3007A1P (Type 3)	1052
Embraer ERJ 145LR	AE3007A1P (Type 3)	3024
Embraer ERJ 145LR	AE3007A1P (Type 3)	6450
Embraer ERJ 170	CF34-8E5	1102
Embraer ERJ 170	CF34-8E5	598
Embraer ERJ 170	CF34-8E5	1820
Embraer ERJ 170	CF34-8E5	3780
F-27 SERIES	RDa7	440
F-27 SERIES	RDa7	514
F-27 SERIES	RDa7	1218
F-27 SERIES	RDa7	1478
Falcon 20	CF700-2D	68
Falcon 20	CF700-2D	250
Falcon 20	CF700-2D	846
Falcon 20	CF700-2D	294
Falcon 2000EX	PW308C	214
Falcon 2000EX	PW308C	348
Falcon 2000EX	PW308C	314
Falcon 2000EX	PW308C	114

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
Falcon 2000EX	PW308C	372
Falcon 2000EX	PW308C	880
Falcon 2000EX	PW308C	760
Falcon 2000EX	PW308C	1,194
Gulfstream II	SPEY MK511-8	68
Gulfstream II	SPEY MK511-8	250
Gulfstream II	SPEY MK511-8	846
Gulfstream II	SPEY MK511-8	294
Gulfstream IV	TAY Mk611-8	102
Gulfstream IV	TAY Mk611-8	386
Gulfstream IV	TAY Mk611-8	1,264
Gulfstream IV	TAY Mk611-8	436
HS 125	TFE731-3	354
HS 125	TFE731-3	180
HS 125	TFE731-3	550
HS 125	TFE731-3	1,106
KC-135R	TF33-P-5&9	102
KC-135R	TF33-P-5&9	240
KC-135R	TF33-P-5&9	738
KC-135R	TF33-P-5&9	382
Learjet 25C	CJ610-6	308
Learjet 25C	CJ610-6	1,126
Learjet 25C	CJ610-6	3,808
Learjet 25C	CJ610-6	1,328
Learjet 35/36	TFE 731-2-2B	278
Learjet 35/36	TFE 731-2-2B	1,042
Learjet 35/36	TFE 731-2-2B	3,352
Learjet 35/36	TFE 731-2-2B	1,168
MD-80-82	JT8D-217 (old comb)	50
MD-80-82	JT8D-217 (old comb)	120
MD-80-82	JT8D-217 (old comb)	368
MD-80-82	JT8D-217 (old comb)	190
MD-80-83	JT8D-219 old comb	366
MD-80-83	JT8D-219 old comb	1,000
MD-80-83	JT8D-219 old comb	2,520

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TABLE 4 (CONTINUED)
AIRCRAFT FLEET – EXISTING CONDITIONS
PORT COLUMBUS INTERNATIONAL AIRPORT

EDMS AIRCRAFT TYPE	EDMS ENGINE TYPE	ANNUAL OPERATIONS
MD-80-83	JT8D-219 old comb	1,224
Navajo	TIO-540-J2B2	814
Navajo	TIO-540-J2B2	900
Navajo	TIO-540-J2B2	2,780
Navajo	TIO-540-J2B2	2,814
Piper PA-28	O-320	84
Piper PA-28	O-320	256
Piper PA-28	O-320	794
Piper PA-28	O-320	324
SF-340-B PLUS	CT7-5	186
SF-340-B PLUS	CT7-5	168
SF-340-B PLUS	CT7-5	470
SF-340-B PLUS	CT7-5	638
UC-12J	PT6A-67B	144
UC-12J	PT6A-67B	478
UC-12J	PT6A-67B	1,078
UC-12J	PT6A-67B	490
TOTAL OPERATIONS		**197,122**

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TABLE 5
AIRCRAFT GSE SURVEYED BY TYPE AND CATEGORY
PORT COLUMBUS INTERNATIONAL AIRPORT

JET AIRCRAFT		TURBOPROP AIRCRAFT
LARGE JETS	**SMALLER JETS**	
MD88	Embraer Regional Jet	Dornier 328
Boeing 737		Dash 8
		Saab 340
		Beech 1900

Note: General aviation and cargo aircraft were not surveyed.

TABLE 6
AIRCRAFT GSE ASSIGNMENTS BASED ON THE SURVEY
PORT COLUMBUS INTERNATIONAL AIRPORT

GSE TYPE	AIRCRAFT TYPE (minutes per landing/takeoff cycle)		
	LARGE JETS	**SMALLER JETS**	**TURBOPROPS**
Diesel Aircraft Tractor	21	9	6
Diesel Baggage Tractor	57	12	2
Gasoline Baggage Tractor		26	20
Diesel Belt Loader	46	28	
Gasoline Belt Loader	22	21	21
Gasoline Catering Truck	15		
Diesel Fuel Truck	20	11	10
Electric GPU Hookup (400 Hz)			30

Note: EDMS default assignments were used for general aviation GSE and cargo GSE.

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VI-2. Motor Vehicles in Parking Lots and Garages

Data relating to motor vehicles utilizing the airport's parking lots and garages was obtained from the following sources:

- *International Gateway Realignment, Categorical Exclusion Reevaluation Level 4*, prepared for the Ohio Department of Transportation, District 6, dated August 2006.
- *Traffic Impact Study: 17th Avenue Parking Lot*, prepared for the CRAA, preliminary report dated October 19, 2006.
- *Traffic Impact Study: New Employee Parking Lot*, prepared for the CRAA, preliminary report dated October 19, 2006.
- *Rental Car Update & Analysis*, prepared for the CRAA, dated February 2005.

A diagram of the parking lots and garages that were considered for analysis is presented in **Exhibit 2, *Parking Lots and Garages – Mobile Sources***.

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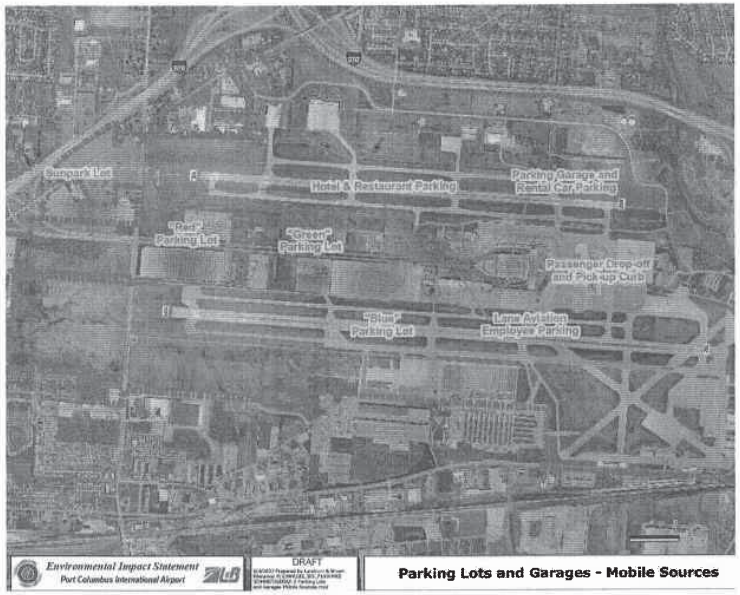


EXHIBIT 2. Location of parking lots and garages at the airport.
Source: Landrum & Brown analysis, 2007.

Revision: Correct the label shown for "Lane Aviation Employee Parking" to "Lane Aviation Parking."

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VI-3. Motor Vehicles on Roadways

Data relating to motor vehicles traversing the airport's access roadways was obtained from the same sources used for parking lots and garages.

A diagram of the airport's access roadways that were considered for analysis is presented in **Exhibit 3, *Location of Roadways***. Not all the roadways will be represented in the final document if data is not available.

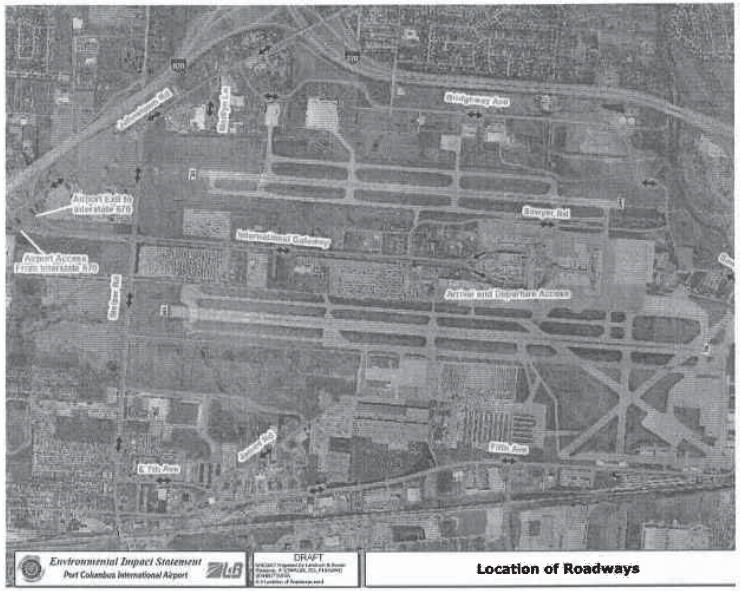


EXHIBIT 3. Location of roadways at CMH considered for inclusion in computer air quality modeling.
Source: Landrum & Brown analysis, 2007.

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VI-4. Stationary Sources

Stationary sources of emissions were identified based on the on-site survey completed in July 2006. The sources identified in the survey are given in **Table 7**. The location of the stationary sources inventoried in the survey is presented in **Exhibit 4, *Location of Stationary Sources***.

TABLE 7
STATIOINARY SOURCES INVENTORY
PORT COLUMBUS INTERNATIONAL AIRPORT

MAP ID	STATIONARY SOURCE	TYPE
1	Concourse A	Emergency Generator W/ Diesel Fuel Tank
2	Concourse B Diesel	Emergency Generator W/ Diesel Fuel Tank
3	Concourse B Natural Gas	Natural Gas Boiler
4	Concourse C	Emergency Generator W/ Diesel Fuel Tank
5	PEA	Natural Gas Boiler
6	Lane Corridor A	Natural Gas Boiler
7	Lane Hangar 3	Natural Gas Boiler
8	Lane Hangar 4	Natural Gas Boiler
9	Lane Hangar 5	Natural Gas Boiler
10	Backup IT	Emergency Generator W/ Diesel Fuel Tank
11	Backup Concourse A	Natural Gas Boiler
12	Backup Concourse C	Emergency Generator W/ Diesel Fuel Tank
13	Misc. Concourse B	Emergency Generator W/ Diesel Fuel Tank
14	Backup Garage	Emergency Generator W/ Diesel Fuel Tank
15	Backup ARFF	Emergency Generator W/ Diesel Fuel Tank
16	Aircraft Deice PG TI	Deice Area
17	Aircraft Deice EG	Deice Area
18	Airfield Maintenance Gas	Gasoline Storage Tank
19	Airfield Maintenance Diesel	Diesel Fuel Storage Tank
20	Lane - Jet A	Jet A Storage Tanks
21	Lane Diesel	Diesel Fuel Storage Tank
22	Lane Gasoline	Gasoline Storage Tank
23	Incinerator	Incinerator
24	Air Deice PG TIV	Deice Area
25	Lane 100LL	Avgas Storage Tanks
26	Runway Deice KOAC	Deice Area
27	Million Air Jet A	Jet A Storage Tanks
28	Million Air Diesel	Diesel Fuel Storage Tank
29	Million Air Av Gas	Aviation gasoline (AvGas) Storage Tank

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TABLE 7 (CONTINUED)
STATIOINARY SOURCES INVENTORY
PORT COLUMBUS INTERNATIONAL AIRPORT

MAP ID	STATIONARY SOURCE	TYPE
1	Concourse A	Emergency Generator W/ Diesel Fuel Tank
30	45 Hotel Jet A	Jet A Storage Tanks
31	Alamo Gasoline (not in use)	Gasoline Storage Tank
32	Dollar Gasoline	Gasoline Storage Tank
33	Englefield Gasoline	Gasoline Storage Tank
34	Englefield Gasoline	Gasoline Storage Tank
35	Englefield Gasoline	Gasoline Storage Tank
36	Englefield Diesel (airport is not a customer)	Diesel Fuel Storage Tank
37	Englefield Kerosene (airport is not a customer)	Kerosene Storage Tank
38	FAA Control Tower	Emergency Generator W/ Diesel Fuel Tank
39	Hertz Gasoline	Gasoline Storage Tank
40	NetJets Diesel	Emergency Generator W/ Diesel Fuel Tank
41	Quick Turnaround Gasoline	Gasoline Storage Tanks
42	Avis Gasoline	Gasoline Storage Tank
43	National Gasoline	Gasoline Storage Tank
44	FAA ASR-9	Emergency Generator W/ Diesel Fuel Tank
45	Flight Safety	Emergency Generator W/ Diesel Fuel Tank
46	Lift Station	Emergency Generator W/ Diesel Fuel Tank
47	Electrical Vault	Emergency Generator W/ Diesel Fuel Tank
48	NetJets	Emergency Generator W/ Diesel Fuel Tank
49	Nationwide	Emergency Generator W/ Diesel Fuel Tank
50	North Fuel Farm	Jet A Storage Tanks

REVISION: Add Nationwide Fuel Farm in addition to the emergency generator located at Location ID 49.

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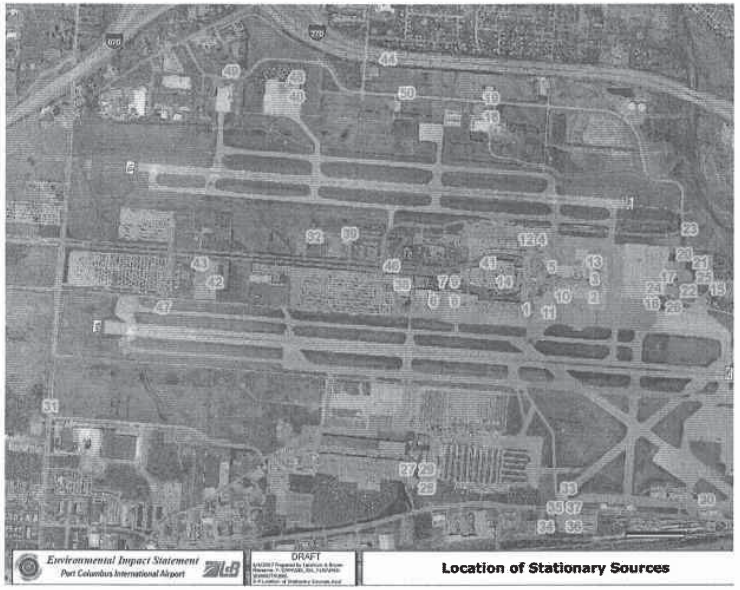


EXHIBIT 4. Location of stationary sources identified in the on-site survey.
Source: Landrum & Brown analysis, 2007.
REVISION: Add to Exhibit 4 the location of the Nationwide fuel farm as a post-2006 facility.

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VII. DISPERSION ANALYSIS

The dispersion analysis will be conducted for the criteria pollutants (excluding ozone and lead, and not including VOC) using the EDMS. Dispersion modeling will be applied to all the scenarios listed in Section I, *Introduction*, except the 2009 and 2010 SIP years, which require an emission inventory and not dispersion modeling. The same sources evaluated for the emission inventory described in Section VI, *Emission Sources*, will be evaluated through dispersion modeling.

VII-1 Aircraft

Aircraft for each of the scenarios will be assigned to a gate area, grouped by runway end, and will include the taxi path to and from the runway end. Three general gate areas were identified, the terminal gates, the cargo area, and the general aviation ramp. Taxi paths will be determined by assigning the longest (worst-case) path from each runway end to and from the associated gate area. Each aircraft will be assigned to a runway end according to the runway use distribution described for the noise analysis.

VII-2 Receptors

Over 100 receptors will be assigned for dispersion modeling for the existing conditions. The receptors are shown in **Exhibit 5, *Airport and Parking Lot Dispersion Receptor Locations***, and **Exhibit 6, *Terminal Area Dispersion Receptor Locations***. Following the identification of the worst-case weather year, dispersion modeling will be applied to no more than five discrete receptors. **(REVISION: Note - A copy of the FAA letter from Ms. Katherine Jones to USEPA, dated October 17, 2006, is attached; reference Comment #2 of the memorandum attached to the letter, which relates to discrete receptors.)**

The first array of receptors will be located every ten degrees around the airport property line perimeter, beginning at 360 degrees, as measured from the airport reference point. Another ring of receptors will be located outward 1,500 feet, and a third ring of receptors will be located 1,500 feet further out from the property line. Additional receptors will be placed in the parking areas as shown in Exhibit 5.

A second grid of receptors will be located across International Gateway from Stelzer Road to the parking garage adjacent to the terminal. This grid is illustrated in Exhibit 6.

The identification of the discrete receptors that will be applied to the dispersion analysis of the project alternatives has not been determined. The FAA would request guidance from USEPA and OEPA for a methodology to determine the location of the discrete receptors.

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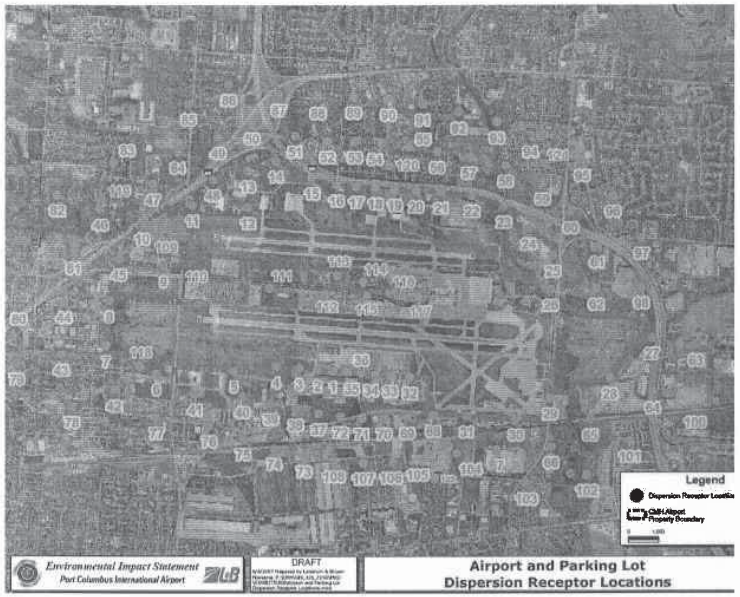


EXHIBIT 5. Location of airport and parking lot receptor locations.
Source: Landrum & Brown analysis, 2007.

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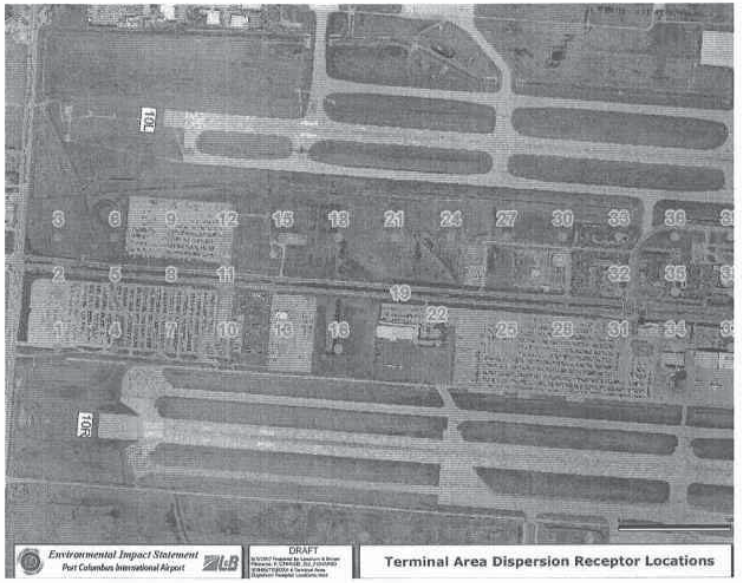


EXHIBIT 6. Location of the terminal area dispersion receptor locations.
Source: Landrum & Brown analysis, 2007.

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VIII. CONSTRUCTION EMISSIONS INVENTORY

The inventory of emissions from the use of construction equipment will be calculated using USEPA approved methodology. Emission factors for the Tier 2 and Tier 3 emission standards for nonroad diesel engines applicable for 2005 will be used for calculation of the inventory.[11] This allows the construction contractor the opportunity to use readily available tier-compliant equipment. **(REVISION: Note - A copy of the FAA letter from Ms. Katherine Jones to USEPA, dated October 17, 2006, is attached; reference Comment #3 of the memorandum attached to the letter, which relates to construction emissions. In the time since the meeting on June 19, CRAA has provided details concerning phasing of construction.)**

IX. OUTSTANDING DATA NEEDS

The identification of the ***specific five years of meteorological data*** that will be applied to dispersion modeling for this project has not been determined. The FAA would request guidance from USEPA and OEPA regarding the required years of data for analysis. Further, suggestions from USEPA and OEPA for a ***methodology to determine the worst-case data year*** is requested.

The ***identification of the five discrete*** receptors that will be applied to dispersion modeling for this project has not been determined. The FAA would request guidance from USEPA and OEPA for a methodology to determine the discrete receptors.

[11] 40 CFR Part 89.

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X. NEXT STEPS

Written comments and/or questions regarding the discussion or material provided during this scoping meeting should be mailed within 30 days following the scoping meeting or no later than ***July 19, 2007***. Comments should be directed to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174

Email: CMHEIS@FAA.GOV

Website: www.Airportsites.net/CMH-EIS

This scoping document is provided as a draft and should not be considered the final authority for assessing air quality for CMH EIS. As the project progresses, changes in planning may require adjustments of the methodology and procedures given in this document.

AIR QUALITY COORDINATION TELECONFERENCES

September 27, 2006 - October 17, 2006 - Letter to Ms. Sherry Kamke
August 8, 2007 - Meeting Minutes
August 10, 2007 - Meeting Minutes
August 22, 2007 - PowerPoint Presentation and Meeting Minutes
August 24, 2007 - OEPA Comment Letter
September 6, 2007 - FAA Letter and attachment

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U.S.Department
of Transportation
**Federal Aviation
Administration**

Detroit Airports District Office
Metro Airport Center
11677 South Wayne Road, Ste. 107
Romulus, MI 48174

October 17, 2006

Ms. Sherry A. Kamke, Environmental Scientist
NEPA Implementation Section
Office of Science, Ecosystems, and Communities
U.S. EPA Region 5
77 W. Jackson Blvd.
Mailcode: B-19J
Chicago, IL 60604-5794

Dear Ms. Kamke:

Port Columbus International Airport
Environmental Impact Statement
Air Quality Scoping Comments

This letter is in response to the comments that the U.S. Environmental Protection Agency (US EPA) submitted on August 17, 2006 for the Port Columbus International Airport Environmental Impact Statement (EIS) Air Quality Scoping.

On September 27, 2006 the Federal Aviation Administration, US EPA and Ohio EPA had a teleconference meeting to discuss the comments and work out a resolution so that the EIS could proceed. Attached are the meeting minutes that discuss the comment and the agreed to resolution of each comment.

We look forward to continuing to work with you on the EIS. Please feel free to contact me if you have any additional questions.

Sincerely,

Katherine S Jones

Katherine S. Jones
Community Planner

Enclosure

Cc: Sarah Hedlund, OEPA
Rob Adams, Landrum & Brown
AGL-610
AGL-7 – Laura Kilpatrick
Dave Wall, Columbus Regional Airport Authority
AEE-300 – Ralph Iovinelli
APP-400 – Jake Plante

Federal Aviation Administration

Memorandum

Date: October 2, 2006

From: Community Planner, Detroit Airports District Office DET ADO 606

To: CMH EIS Project File

Prepared by: Katherine S. Jones

Subject: Air Quality Comments Teleconference with USEPA and OEPA

A teleconference was held with the Federal Aviation Administration (FAA), U.S. Environmental Protection Agency (USEPA) – Region 5, and the Ohio Environmental Protection Agency (OEPA) regarding air quality scoping comments that were submitted by each agency. The three comments that were discussed were: the number of years of meteorological data to use in the EIS analysis, the number of receptors to use in the analysis, and construction recommendations at the time of project implementation. Following is a summary of the comment and the agreed to resolution:

1. Number of Years of Meteorological Data

   U.S. EPA Comment:

   The scoping information presented to date for the Columbus Airport EIS work proposes the use of one year of meteorological data as input into the EDMS dispersion model. The purpose of the dispersion modeling is to determine compliance with EPA's National Ambient Air Quality Standards (NAAQS). The Code of Federal Regulations, Part 51, Appendix W (Guideline on Air Quality Models) provides recommended approaches for regulatory modeling conducted to demonstrate compliance with the NAAQS. Section 8.3 of the Guideline discusses the need for meteorological data to be selected on the basis of spatial and temporal representativeness and further recommends five years of meteorological data be used to reasonably ensure that worst-case meteorological conditions are adequately represented in the model results. If the only representative data available is one-year of site-specific data, or if site-specific meteorological data needs to be collected, one year is adequate. However, if more than one year, up to 5 years, is available, these data are recommended for use. Given these Guideline recommendations, EPA requests that 5-years of meteorological data be evaluated in the EIS NAAQS

modeling analysis to account for year-to-year variability. (Letter dated August 17, 2006)

OEPA Comment:

Landrum & Brown, contracted by the Federal Aviation Administration (FAA) for the Port Columbus International Airport EIS, has proposed to use one year of meteorological data for air dispersion modeling. Appendix W of The Code of Federal Regulations states that although only one year of site specific data is required, if more site specific data is available it also should be used in the air dispersion model input. The Ohio EPA requests that all five years of meteorological data be used in the model input to ensure that all worst case meteorological scenarios are represented. (Letter dated August 18, 2006)

Resolution:

The basis of the comment comes from CFR Part 51, Appendix W. The USEPA explained that it was hard to figure out the worst-case year without modeling the 5 years of data. It was also pointed out that this is a problem with air quality analysis at airports across the nation.

USEPA has resolved the use of the 5 years of data on airport EIS's in other regions with the following approach. The modeling is done with 5 years of met data for the base case. Then the worst- case year is chosen and used to evaluate the alternatives in the EIS. When the final alternative is chosen, then the alternative is run with the 5 years of met data.

USEPA and OEPA concurred with this approach.

2. Number of Discrete Receptors

USEPA Comment:

Also, the approach described for identifying and eliminating modeling receptors should be more fully discussed as the modeling progresses. The "Guideline" describes the receptor grid as being in sufficient detail to estimate the highest concentrations and possible violations of the NAAQS. The general approach of beginning with a large grid and refining it to a smaller number of receptors focused on the highest concentration areas is appropriate. However, the final number of receptors that will be needed cannot be predetermined but rather should be a function of what the large grid results show as well as the mix of future source emissions and scenarios. (Letter dated August 17, 2006)

OEPA Comment:

Landrum & Brown has also proposed the idea of limiting the number of receptors to five discrete receptors placed in critical areas for the future baseline and alternative model runs. Receptors analyzed in the Final EIS will be chosen based on the results from the Existing Conditions model run. The Ohio EPA requests that the number of receptors to be included in the Final EIS not be determined until after the Existing Conditions concentrations are reviewed. The results of the dispersion assessment provided in the

Draft EIS should determine how many receptors should be retained. The location of these receptors should be based on the number of hot spots, the location of any special 'sensitive' receptors and the gradient of the concentration. These locations can not be predetermined. Fenceline receptors may be included in the receptor locations the Ohio EPA requests to be further analyzed. The Ohio EPA will work in coordination with Landrum & Brown to determine the location and number of receptors that should be included in the Final EIS. (Letter dated August 18, 2006)

Resolution:

The FAA explained that the 5 receptors were placed in the scope so that initial cost estimates could be completed. When the base case analysis is completed, the FAA and their contractor will work with USEPA and OEPA to determine the location of the receptors. If it is determined at that time that more than 5 receptors are needed for the next stage of analysis, then the FAA will amend the scope to account for additional receptors.

The USEPA and OEPA concurred with this approach.

3. Construction Recommendations

USEPA Comment:

Regarding emissions from construction activity, air pollution from diesel exhaust is a public health and air quality concern. EPA lists diesel exhaust (best described by diesel PM) as a mobile source air toxic due to the cancer and noncancer health effects. A number of large construction projects (including highways and airports) recently have required diesel exhaust reduction measures in the construction specifications and we request/encourage all bidding and contract documents for the Columbus airport construction include requirements for fuel and equipment that would reduce emissions of diesel particulate matter. Diesel-powered construction equipment should be required to utilize "ultra-low sulfur diesel" (ULSD) fuel. In addition, all but the newest equipment should be retrofitted with EPA-verified technologies, e.g., oxidation catalysts or particulate filters. Contractors, subcontractors and suppliers that transport materials regularly to and from the project site should be encouraged to adopt these requirements to the best of their ability. Idling restrictions should also be built into the construction-related air quality emission reduction measures.

USEPA has case studies, listings of EPA-verified technologies, and helpful examples of contract language and specifications (including those for the O'Hare Airport Modernization Project). Staff at the USEPA Region 5 Air & Radiation Division can provide this information or you can find it at:
http://www.epa.gov/cleandiesel/construction/ and
http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm
(Letter dated August 17, 2006)

Resolution:

The FAA will provide information related to construction recommendations to the Columbus Regional Airport Authority.

The USEPA concurred with this approach.

Action Items:

The FAA will follow-up with a letter to the USEPA and OEPA regarding the resolution of these comments.

Teleconference Participants:

Katherine Jones, FAA
Sherry Kamke, USEPA
Randy Robinson, USEPA
Mike Leslie, USEPA
Suzanne King, USEPA
Sarah Hedlund, OEPA

Federal Aviation Administration

ENVIRONMENTAL IMPACT STATEMENT

FOR

REPLACEMENT RUNWAY AND TERMINAL EXPANSION

AT

PORT COLUMBUS INTERNATIONAL AIRPORT

AIR QUALITY SCOPING TELECONFERENCE SUMMARY

TELECONFERENCE CONDUCTED

AUGUST 8, 2007

10:00 A.M. – 11:00 P.M.

The third in a series of air quality assessment scoping discussions for the Port Columbus International Airport Environmental Impact Statement (CMH EIS) was conducted on Wednesday, August 8, 2007. The web-based conference call was convened to discuss the Federal Aviation Administration's (FAA) selection of the location of the worst-case dispersion receptor at the airport under existing conditions, the location of representative community receptors, and the worst-case meteorological year, by receptor. Results from the final dispersion analysis would focus on the concentrations at the selected receptors for comparison to the National Ambient Background Concentrations (NAAQS). The following agencies were represented at the meeting:

- U.S. Environmental Protection Agency (USEPA)
- Ohio Environmental Protection Agency (OEPA)
- Columbus Regional Airport Authority (CRAA)
- FAA Detroit Airports District Office
- FAA consultants, Landrum & Brown

The contact information for each of the participants is attached following the minutes of the meeting as **Attachment A**. A computer spreadsheet summarizing the results of preliminary dispersion modeling, and including the FAA's recommendations for worst-case receptor, community receptors, and the worst-case meteorological years were distributed to the meeting participants in advance of the meeting and are attached to this document as **Attachment B**. Also included in Attachment B are the two exhibits showing the location of the modeling receptors around the airport fence line, in the surrounding communities, and also in the terminal core.

Summary Notes from the August 8, 2007 Teleconference:

The meeting began at 10:00 a.m. Eastern Daylight Time, and was opened by Ms. Virginia Raps, the Air Quality Manager for Landrum & Brown, the FAA consultant.

Methodology

Ms. Raps provided an overview of the methodology used to conduct dispersion modeling for this discussion. The purpose of the modeling was to identify the receptors at the airport that would result in the highest concentrations of the criteria pollutants, nitrogen oxides (NO_x), carbon monoxide (CO), sulfur oxides (SOx), and particulate matter (PM_{10} and $PM_{2.5}$). The analysis was conducted using the FAA Emissions and Dispersion Modeling System (EDMS) Version 4.5.

Ms. Raps explained that two analyses were conducted – the first for the entire set of 145 receptors with the application of all five years of weather data, 2001-2005, and the second focusing just on the higher receptors and possible selections for the community receptors, also with the application of all five years of weather data. The FAA selected a total of five receptor locations, as discussed during a teleconference conducted last October 2, 2006 with the USEPA and OEPA, and summarized in the FAA letter dated October 17, 2006, which is attached in Appendix B.

The results of the first analysis were discussed with the FAA and CRAA in a conference call on July 24, 2007. At that time the receptors with the higher concentrations were determined to be along the arrival and departure curbs and along International Gateway Avenue. In particular, the concentrations were highest along the arrival and departure curb areas. Possible locations for the four community receptor locations were selected north, south, northeast, and southwest of airport property.

The input data for the first EDMS dispersion scenario was modified to reflect updated traffic data, to include additional receptors in the parking garage and curb areas, and to allow relocation of the receptors along International Gateway to capture the highest possible concentrations based on the previous analysis.

The dispersion analysis was repeated using the updated scenario and included 45 receptor locations with the application of all five years of weather data. The results were extracted from the EDMS program through the concentration view screen and summarized in tables in a computer spreadsheet workbook. An image of the view screen was provided showing the $PM_{2.5}$ 24-hour concentration results.

Procedure

Ms. Raps reviewed the procedures outlined in the spreadsheet, which was provided to all participants. First, the "controlling" averaging period for each pollutant for determining the worst-case weather year would be the shortest NAAQS averaging period for the pollutant. For instance, the year resulting in the highest one-hour concentration of CO

would also be used for the eight-hour CO concentration. The analysis showed the highest concentrations occurred in the following years:

POLLUTANT	CONTROLLING AVERAGING PERIOD	WORST-CASE YEAR
CO	1-Hour	2001
NO_x	Annual	2003
SO_x	24-Hour	2005
PM_{10}	24-Hour	2002
$PM_{2.5}$	24-Hour	2002

The analysis showed the highest concentration in the terminal area would occur at the arrival curb. The analysis provided concentrations for two community receptors to the north of the airport, two to the south, two to the northeast, and two to the west, which were identified in discussions following the first analysis. The results of the second analysis showed the community receptors with the most consistent highest concentration were as follows:

RECEPTOR	DIRECTION	LOCATION
120	North	Gahanna, near Xavier Street
60	Northeast	Morrison Road and Waterbury Blvd. intersection
123	South	Whitehall
118	Southwest	Mifflin

The results of the analysis were given on the "Summary" tab in the spreadsheet.

Individual Pollutant Results

Ms. Raps reviewed the summary of results, by pollutant type, given on each of the five EXCEL spreadsheets for NO_x, $PM_{2.5}$, CO, PM_{10}, and SO_x. It was noted that the highest concentrations calculated by EDMS for each pollutant would be lower than the NAAQS even when given the addition of the background concentration, except for $PM_{2.5}$. The background concentration of $PM_{2.5}$ in Franklin County exceeds the $PM_{2.5}$ NAAQS and concentrations would exceed regardless of any contribution from the airport.

Comments

Ms. Sarah Hedlund, OEPA, expressed concern about the number of receptors rather than the specific location. While Ms. Hedlund agreed that the location of the community receptors would satisfy the public awareness concerns of the FAA for the purpose of the EIS, the OEPA believes there should be a greater number of receptors, particularly at the southern fence line because that would be the location of the proposed replacement runway. Discussion among the participants indicated that based on the results of the dispersion analysis it is unlikely that pollutant concentrations at the fence line would exceed the NAAQS; however, Ms. Hedlund said that fence-line analysis would disclose the impact of the project and OEPA would be interested in reviewing the data. Ms. Katy

Jones, FAA, and Ms. Raps explained that the dispersion analysis for the draft EIS would be limited to five receptors, as agreed during the October 2006 coordination conference call. However, Ms. Jones and Mr. Rob Adams, L&B, asked that OEPA submit a written comment explaining both the need for additional receptors and their suggested locations, and the FAA will take the suggestion under advisement.

Ms. Sherry Kamke, USEPA, asked what the airport might be doing to reduce $PM_{2.5}$ emissions in light of the already high values of the pollutant in the background ambient air. Ms. Raps explained that the relocation and consolidation of the rental car facility (RAC) to an area northwest of the I-270 interchange would likely reduce the concentration of $PM_{2.5}$ emissions, and other emissions as well. The relocation of the RAC operations away from the terminal core would occur regardless of the project proposed for the CMH EIS. Mr. Dave Wall, CRAA, confirmed that the USEPA had already suggested the use of clean-running buses for the RAC to replace the diesel-powered buses being used under current conditions. Mr. Wall will discuss this strategy with the planners at CRAA.

Next Steps

Comments or requests relating to this scoping teleconference should be provided ***in writing to the FAA no later than Friday, August 10, 2007***. Comments should be directed to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174

Email: CMHEIS@FAA.GOV

Website: www.Airportsites.net/CMH-EIS

ATTACHMENT A

MEETING PARTICIPANTS

The following is a list of the meeting participants, which attended either in person or by teleconference.

Name:	Ms. Sam MacDonald
Title:	Environmental Specialist 2
Agency/Division/Firm	Ohio EPA/Division of Air Pollution Control
Mailing Address	50 W. Town St.
	Columbus, OH 43215
E-mail Address:	sam.macdonald@epa.state.oh.us
Telephone Number:	614-728-1743
FAX Number:	614-644-3681
Name:	Ms. Sarah Hedlund
Title:	Air Quality Modeler
Agency/Division/Firm	OEPA
Mailing Address	50 W. Town Street Suite 700
	Columbus, OH 43215
E-mail Address:	sarah.hedlund@epa.state.oh.us
Telephone Number:	614-644-3632
FAX Number:	614-644-3681
Name:	Mr. David Wall, A.A.E.
Title:	Capital Program Manager
Agency/Division/Firm	Columbus Regional Airport Authority (CRAA)
Mailing Address	4600 International Gateway
	Columbus, OH 43219
E-mail Address:	dwall@ColumbusAirports.com
Telephone Number:	614-239-4063
FAX Number:	614-238-7850

Name:	Ms. Patricia Morris
Title:	Environmental Scientist
Agency/Division/Firm	USEPA Region 5
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	Morris.Patricia@epamail.epa.gov
Telephone Number:	312-353-8656
FAX Number:	312-886-5824

Name:	Sherry A. Kamke
Title:	Environmental Scientist, NEPA Implementation Section Office of Science, Ecosystems, and Communities
Agency/Division/Firm	USEPA Region 5 Mailcode B-19J
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	Kamke.Sherry@epamail.epa.gov
Telephone Number:	312-353-5794
FAX Number:	312-353-5374

Name:	Mary Portanova
Title:	Environmental Engineer
Agency/Division/Firm	USEPA Region 5 Mailcode AR-18J
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	Portanova.Mary@epamail.epa.gov
Telephone Number:	312-353-5954
FAX Number:	312-353-5824

Name:	Ms. Katherine Jones
Title:	Project Manager
Agency/Division/Firm	FAA, Detroit Airports District Office
Mailing Address	11677 South Wayne road, Suite 107
	Romulus, MI 48174
E-mail Address:	Katherine.S.Jones@faa.gov
Telephone Number:	(734) 229-2958
FAX Number:	(734) 229-2950

Name:	Mr. Rob Adams
Title:	Managing Director, Project Manager CMH EIS
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive
	Cincinnati, OH 45242
E-mail Address:	radams@landrum-brown.com
Telephone Number:	513-530-1201
FAX Number:	513-530-1278

Name:	Ms. Virginia L. Raps
Title:	Air Quality Manager – CMH EIS
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive
	Cincinnati, OH 45242
E-mail Address:	graps@landrum-brown.com
Telephone Number:	513-530-1238
FAX Number:	513-530-2238

COMPARATIVE DISPERSION RESULTS
FOR THE WORST-CASE RECEPTOR AND REPRESENTATIVE COMMUNITY RECEPTORS

August 6, 2007

NOTE: The data presented in this workbook should not be used for evaluation of compliance to the NAAQS. The study is still being evaluated for correct input.

Two dispersion analyses of 2006 Existing Conditions for the CMH EIS were run using EDMS, Version 4.5.

The first version of the 2006 Existing Conditions run was dated July 14, 2007 (the 071407 sensitivity run), and included all years (5 years) and all receptors (145 receptors).

The 071407sensitivity run showed the highest concentrations would all occur in the "terminal core," at the arrival and departure curbs, the parking garage adjacent to the terminal building, and along International Gateway.

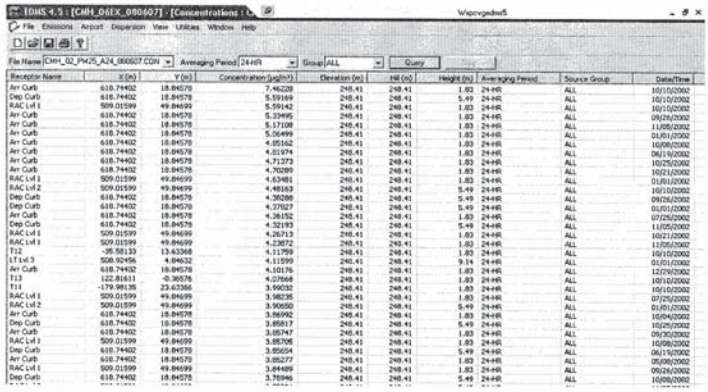
The results of the 071407 run were coordinated with FAA and CRAA and were used to determine the location of the worst-case receptor, and to determine the most representative locations for sensitive community receptors.

Based on the 071407 run, the locations of the terminal area receptors were revised to more accurately capture the concentrations at the terminal curbs and the garage, as well as Int'l Gateway.
Five additional receptors were assigned to the curb area and garage. The location of the receptors is shown in the two attachments, Exhibit 6 and Exhibit 7.
- The arrival and departure curb receptors are in the same geographical location, however, the departure curb is modeled as an elevated source to reflect the 2nd level of the structure.
- The two short term garage receptors are in the same location, however both are elevated to reflect their 4th and 5th floor location in the parking garage.
- The four long term garage receptors are in the same location, however all are elevated to reflect the 3rd through 6th floor location of the receptors.
- The two RAC garage receptors are in the same location, however the 2nd floor parking areal is elevated.

In addition, updated information was provided by CRAA that increased the traffic count on all the terminal-area roadways. The 080607 run reflects these updates.

Dispersion analysis was repeated with a reduced set of receptors (45) limited to all the receptors in the terminal core (2 at the arrival/departure curbs, 8 in the garages, 27 along International Gateway), and included all the possible community receptors suggested by the FAA and CRAA (8 receptors).
This was the run dated August 6, 2007 (the 080607 run).
Results of the 080607 runs are presented in this workbook.

The results of the 080607 run were extracted from the *.CON files generated by AERMOD using the model's view screen for sorting the data.
An example of one of the view screen images is given below:



Receptor Name	X (m)	Y (m)	Concentration (µg/m³)	Elevation (m)	Hill (m)	Height (m)	Averaging Period	Source Group	Date/Time
Arr Curb	618.74402	18.84578	7.46228	248.41	248.41	1.83	24-HR	ALL	10/10/2002
Dep Curb	618.74402	18.84578	5.59169	248.41	248.41	5.49	24-HR	ALL	10/10/2002
RAC Lvl 1	509.01599	49.84699	5.59142	248.41	248.41	1.83	24-HR	ALL	10/10/2002
Arr Curb	618.74402	18.84578	5.33495	248.41	248.41	1.83	24-HR	ALL	09/26/2002
Arr Curb	618.74402	18.84578	5.17108	248.41	248.41	1.83	24-HR	ALL	11/05/2002
Arr Curb	618.74402	18.84578	5.06499	248.41	248.41	1.83	24-HR	ALL	01/01/2002
Arr Curb	618.74402	18.84578	4.85162	248.41	248.41	1.83	24-HR	ALL	10/08/2002
Arr Curb	618.74402	18.84578	4.81974	248.41	248.41	1.83	24-HR	ALL	06/19/2002
Arr Curb	618.74402	18.84578	4.71373	248.41	248.41	1.83	24-HR	ALL	10/25/2002
Arr Curb	618.74402	18.84578	4.70289	248.41	248.41	1.83	24-HR	ALL	10/21/2002
RAC Lvl 1	509.01599	49.84699	4.63481	248.41	248.41	1.83	24-HR	ALL	01/01/2002
RAC Lvl 2	509.01599	49.84699	4.48163	248.41	248.41	5.49	24-HR	ALL	10/10/2002
Dep Curb	618.74402	18.84578	4.38288	248.41	248.41	5.49	24-HR	ALL	09/26/2002
Dep Curb	618.74402	18.84578	4.37827	248.41	248.41	5.49	24-HR	ALL	01/01/2002
Arr Curb	618.74402	18.84578	4.36152	248.41	248.41	1.83	24-HR	ALL	07/25/2002
Dep Curb	618.74402	18.84578	4.32193	248.41	248.41	5.49	24-HR	ALL	11/05/2002
RAC Lvl 1	509.01599	49.84699	4.26713	248.41	248.41	1.83	24-HR	ALL	10/21/2002
RAC Lvl 1	509.01599	49.84699	4.23672	248.41	248.41	1.83	24-HR	ALL	11/05/2002
T12	-35.58133	13.63368	4.11759	248.41	248.41	1.83	24-HR	ALL	10/10/2002
LT Lvl 3	508.92456	4.84632	4.11599	248.41	248.41	9.14	24-HR	ALL	01/01/2002
Arr Curb	618.74402	18.84578	4.10176	248.41	248.41	1.83	24-HR	ALL	12/29/2002
T13	122.81611	-0.38576	4.07668	248.41	248.41	1.83	24-HR	ALL	10/10/2002
T11	-179.98135	23.63366	3.99032	248.41	248.41	1.83	24-HR	ALL	10/10/2002
RAC Lvl 1	509.01599	49.84699	3.98235	248.41	248.41	1.83	24-HR	ALL	07/25/2002
RAC Lvl 2	509.01599	49.84699	3.90658	248.41	248.41	5.49	24-HR	ALL	01/01/2002
Arr Curb	618.74402	18.84578	3.86992	248.41	248.41	1.83	24-HR	ALL	10/04/2002
Dep Curb	618.74402	18.84578	3.85817	248.41	248.41	5.49	24-HR	ALL	10/25/2002
Arr Curb	618.74402	18.84578	3.85747	248.41	248.41	1.83	24-HR	ALL	09/30/2002
RAC Lvl 1	509.01599	49.84699	3.85706	248.41	248.41	1.83	24-HR	ALL	10/08/2002
Dep Curb	618.74402	18.84578	3.85654	248.41	248.41	5.49	24-HR	ALL	06/19/2002
Arr Curb	618.74402	18.84578	3.85277	248.41	248.41	1.83	24-HR	ALL	05/08/2002
RAC Lvl 1	509.01599	49.84699	3.84489	248.41	248.41	1.83	24-HR	ALL	09/26/2002
Dep Curb	618.74402	18.84578	3.78946	248.41	248.41	5.49	24-HR	ALL	10/08/2002

ATTACHMENT B

ELECTRONIC FILES

The following electronic files are attached:

- "Comparison for Worst Case 080607" Microsoft EXCEL file
- Exhibit 6, Airport and Community Dispersion Receptor Locations
- Exhibit 7, Terminal Area Dispersion Receptor Locations
- FAA October 17, 2006 letter to USEPA in response to comments relating to the Air Quality Scoping Meeting, July 19, 2006

Procedure:

1. Based on USEPA guidelines, the shortest NAAQS averaging period applicable to each pollutant was evaluated to determine the worst-case year:

CO	1-hr
NOx	Annual
SOx	24-hr
PM10	24-hr
PM2.5	24-hr

2. Sensitivity analyses showed the maximum concentrations would be along the arrival curb, departure curb, parking garage adjacent to the terminal, and along International Gateway Drive, near the turn-around just west of the parking garage (bowtie).

3. For each of the pollutants and averaging periods listed in #1, the five receptors with the highest concentrations were extracted from the AERMOD *.CON files. The maximum concentration occurred most consistently at the receptor located at the arrival curb. The year of the maximum concentration at the arrival curb was chosen as the worst-case year for that pollutant, and will be used for all applicable averaging periods for that pollutant.

4. The results of modeling showed the maximum concentration at the arrival curb occurred as follows:

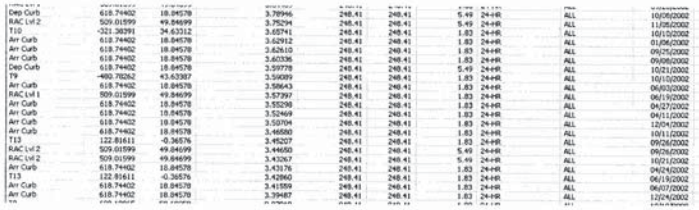
POLLUTANT	AVG. PERIOD	YEAR
CO	1-hr	2001
NOx	annual	2003
SOx	24-hr	2005
PM10	24-hr	2002
PM2.5	24-hr	2002

5. In addition to the receptor located at the arrival curb, four community receptors are recommended by FAA and CRAA:

North of the airport, Receptor 13 or Receptor 120, whichever is higher in the worst-case year, Gahanna,
Northeast of the airport, Receptor 60 or Receptor 96, whichever is higher in the worst-case year, near the interchange of I-270 and Rt. 317, and near the Morrison Road and Waterbury Blvd. intersection,
South of the airport, Receptor 103 or Receptor 123, whichever is higher in the worst-case year, Whitehall
Southwest of the airport, Receptor 118 in Mifflin, in the worst-case year, near Krum Park

6. Results of dispersion analysis for the community receptors for the worst-case year for each pollutant given in #1 above show the maximum concentrations occurred most often for the following community receptors:

Receptor 120, Gahanna, near Xavier Street
Receptor 60, near the interchange of I-270 and Rt. 317, and the Morrison Road and Waterbury Blvd intersection
Receptor 123, Whitehall, near the intersection of Poth Road and N. Yearling Road



Dep Curb	618.74402	18.84578	3.78946	248.41	248.41	5.49	24-HR	ALL	10/06/2002
RAC Lvl 2	509.01599	49.84699	3.75294	248.41	248.41	5.49	24-HR	ALL	11/05/2002
T10	-321.38291	34.63312	3.65741	248.41	248.41	1.83	24-HR	ALL	10/10/2002
Arr Curb	618.74402	18.84578	3.62912	248.41	248.41	1.83	24-HR	ALL	01/06/2002
Arr Curb	618.74402	18.84578	3.62610	248.41	248.41	1.83	24-HR	ALL	09/25/2002
Arr Curb	618.74402	18.84578	3.60336	248.41	248.41	1.83	24-HR	ALL	09/08/2002
Dep Curb	618.74402	18.84578	3.59778	248.41	248.41	5.49	24-HR	ALL	10/21/2002
T9	-460.78262	43.63387	3.59089	248.41	248.41	1.83	24-HR	ALL	10/10/2002
Arr Curb	618.74402	18.84578	3.58643	248.41	248.41	1.83	24-HR	ALL	06/03/2002
RAC Lvl 1	509.01599	49.84699	3.57397	248.41	248.41	1.83	24-HR	ALL	06/19/2002
Arr Curb	618.74402	18.84578	3.55298	248.41	248.41	1.83	24-HR	ALL	04/27/2002
Arr Curb	618.74402	18.84578	3.52469	248.41	248.41	1.83	24-HR	ALL	04/11/2002
Arr Curb	618.74402	18.84578	3.50704	248.41	248.41	1.83	24-HR	ALL	12/04/2002
Arr Curb	618.74402	18.84578	3.46580	248.41	248.41	1.83	24-HR	ALL	10/11/2002
T13	122.81611	-0.36576	3.45207	248.41	248.41	1.83	24-HR	ALL	09/26/2002
RAC Lvl 2	509.01599	49.84699	3.44650	248.41	248.41	5.49	24-HR	ALL	09/26/2002
RAC Lvl 2	509.01599	49.84699	3.43267	248.41	248.41	5.49	24-HR	ALL	10/21/2002
Arr Curb	618.74402	18.84578	3.43176	248.41	248.41	1.83	24-HR	ALL	04/24/2002
T13	122.81611	-0.36576	3.42860	248.41	248.41	1.83	24-HR	ALL	06/19/2002
Arr Curb	618.74402	18.84578	3.41559	248.41	248.41	1.83	24-HR	ALL	06/07/2002
Arr Curb	618.74402	18.84578	3.39487	248.41	248.41	1.83	24-HR	ALL	12/24/2002

Maximum Terminal-Area Receptors

NOx		PM2.5		CO		PM10		SOx	
Highest is	2003	Highest is	2002	Highest is	2001	Highest is	2002	Highest is	2005
48.40	Arr Curb	7.46	Arr Curb	12,738	Arr Curb	8.04	Arr Curb	46.16	Arr Curb
41.19	RAC LVL1	5.59	Dep Curb	10,825	RAC LVL1	6.05	RAC LVL1	36.16	Dep Curb
38.15	Dep Curb	5.59	RAC LVL1			6.01	Dep Curb	20.38	RAC LVL1
35.26	RAC LVL2	4.48	RAC LVL2					18.89	Short Term LVL4
31.90	T13								

Community Receptors - Maximum Concentration

Pollutants and Maximum Receptors					Most Representative Receptor
NOx	PM2.5	CO	PM10	SOx	
13	120	13	120	120	120
60	60	60	60	60	60
123	123	123	123	123	123
118	118	119	118	119	118

7. The final set of recommended receptors:

Arrival curb
Receptor 120, Gahanna
Receptor 60, I-270 and Rt. 317
Receptor 123, Whitehall
Receptor 118, Mifflin

Reference:

Use of Meteorological Data in Air Quality Trend Analysis
Authors: M.D. Zeldin and W.S. Meisel
USEPA, EPA-450/3-78-024
May 1978
USEPA Project Manager Neil H. Frank
Office of Air Quality Planning and Standards

No updated version of this document or more recent publication with related information was located.

Reference Implications:

"Variations in pollutant concentrations, especially on a daily basis, are primarily due to meteorology." Indicates that annual averaging periods may not be sensitive enough to show variations caused by meteorology alone." Implies that the 1-hour, 8-hour, and 24-hour averages should be sensitive to weather changes.

"Except in the case of specific point sources, where daily changes in emissions can affect air quality in a substantial manner, the general uniformity in daily emissions over most urban areas dictates that short-term changes of measured concentrations are caused by meteorological fluctuations." Short-Term is defined in USEPA ISC3 User's Guide (p. 3-9, EPA-454/B-95-003a) as a 24-hour average or less.

"The longer the period of analysis (i.e. averaging period), the greater the potential for pollutant variances to be complicated by both meteorological and emission factors." Implies the shortest averaging period possible should be used.

"Variation in annual 1-hour maximum concentrations reflects the variability in annual "worst-case" meteorology. . . . the level of an average concentration is a more stable parameter." None of the NAAQS specifies maximum concentrations, but rather average concentrations over a specified period of time. Enforces the consideration of the shortest possible averaging period to obtain the worst-case results.

PM 2.5

HIGHEST CONCENTRATIONS BY YEAR,BY AVERAGING PERIOD, BY RECEPTOR

24-HR AVERAGE

USEPA STANDARD 35 $\mu g/m^3$

-17.1 ug/m3 causes Exceedance

Worst-Case Receptor and Weather Year

2001		2002		2003		2004		2005	
Arr Curb	6.274	Arr Curb	7.462	Arr Curb	6.842	Arr Curb	4.854	Arr Curb	5.663
RAC LVL1	5.037	Dep Curb	5.592	RAC LVL1	5.567	RAC LVL1	4.477	Dep Curb	4.940
Dep Curb	4.820	RAC LVL1	5.591	Dep Curb	4.845	Dep Curb	4.013	RAC LVL1	4.129
RAC LVL2	4.286	RAC LVL2	4.482	RAC LVL2	4.261	RAC LVL2	3.856	RAC LVL2	3.687
T27	4.020	T12	4.118	T13	3.692	T13	3.242	Long Term LVL3	3.529

Highest is 2002
7.462 Arr Curb
5.592 Dep Curb
5.591 RAC LVL1
4.482 RAC LVL2

Proposed Representative Community Receptors

EXHIBIT 6 RECEPTORS	2002
13	1.226
120_G1	2.023
60	1.701
96	1.256
103	0.713
123_W1	1.208
119_MF-1	0.873
118_MF-2	2.031

North	AR	13 Airport Receptor (fenceline)
	G1	120 Gahanna, near Goshen Lane and Denison Avenue
East	AR	60 Airport Receptor (middle fenceline ring)
	AR	96 Airport Receptor (outer fenceline ring)
South	AR	103 Airport Receptor (outer fenceline ring)
	W1	123 Whitehall, near Yearling Rd.
West	MF-1	119 Mifflin near Drake Rd.
	MF-2	118 Mifflin, near Krum Park

NOX

HIGHEST CONCENTRATIONS BY YEAR,BY AVERAGING PERIOD, BY RECEPTOR

ANNUAL AVERAGE

USEPA STANDARD 100 mg/m^3

61 ug/m3 causes Exceedance

Worst-Case Receptor and Weather Year

2001		2002		2003		2004		2005	
Arr Curb	46.031	Arr Curb	45.264	Arr Curb	48.403	Arr Curb	43.367	Arr Curb	45.412
RAC LVL1	39.861	RAC LVL1	39.355	RAC LVL1	41.186	RAC LVL1	37.060	RAC LVL1	39.247
Dep Curb	35.944	Dep Curb	35.755	Dep Curb	38.151	Dep Curb	34.574	Dep Curb	36.112
RAC LVL2	33.863	RAC LVL2	33.722	RAC LVL2	35.262	RAC LVL2	32.039	RAC LVL2	33.700
T13	31.027	T13	29.737	T13	31.895	T13	29.075	T13	30.821

Highest is 2003
48.4 Arr Curb
41.2 RAC LVL1
38.2 Dep Curb
35.3 RAC LVL2
31.9 T13

Proposed Representative Community Receptors

EXHIBIT 6 RECEPTORS	2003
13	4.07
120_G1	3.95
60	1.68
96	1.16
103	1.14
123_W1	1.74
119_MF-1	2.69
118_MF-2	2.96

North	AR	13 Airport Receptor (fenceline)
	G1	120 Gahanna, near Goshen Lane and Denison Avenue
East	AR	60 Airport Receptor (middle fenceline ring)
	AR	96 Airport Receptor (outer fenceline ring)
South	AR	103 Airport Receptor (outer fenceline ring)
	W1	123 Whitehall, near Yearling Rd.
West	MF-1	119 Mifflin near Drake Rd.
	MF-2	118 Mifflin, near Krum Park

PM 10
HIGHEST CONCENTRATIONS BY YEAR,BY AVERAGING PERIOD, BY RECEPTOR

24-HR AVERAGE
USEPA STANDARD 150 μg/m³
Worst-Case Receptor and Weather Year

65 ug/m3 causes Exceedance

2001		2002		2003		2004		2005	
Arr Curb	6.561	Arr Curb	8.036	Arr Curb	7.299	Arr Curb	5.154	Arr Curb	6.380
RAC LVL1	5.373	RAC LVL1	6.046	RAC LVL1	6.031	RAC LVL1	4.773	Dep Curb	5.491
Dep Curb	5.026	Dep Curb	6.011	Dep Curb	5.163	Dep Curb	4.280	RAC LVL1	4.452
RAC LVL2	4.569	Lng Term LVL3	5.094	T13	4.307	RAC LVL2	4.111	RAC LVL2	4.082
T27	4.541	RAC LVL2	4.937	T27	4.172	T13	3.607	Long Term LVL3	3.869

Highest is 2002
8.036 Arr Curb
6.046 RAC LVL1
6.011 Dep Curb

Proposed Representative Community Receptors

EXHIBIT 6 RECEPTORS	2002
13	1.30
120_G1	2.13
60	1.81
96	1.34
103	0.75
123_W1	1.25
119_MF-1	0.96
118_MF-2	2.21

North	AR	13 Airport Receptor (fenceline)
	G1	120 Gahanna, near Goshen Lane and Denison Avenue
East	AR	60 Airport Receptor (middle fenceline ring)
	AR	96 Airport Receptor (outer fenceline ring)
South	AR	103 Airport Receptor (outer fenceline ring)
	W1	123 Whitehall, near Yearling Rd.
West	MF-1	119 Mifflin near Drake Rd.
	MF-2	118 Mifflin, near Krum Park

CARBON MONOXIDE
HIGHEST CONCENTRATIONS BY YEAR,BY AVERAGING PERIOD, BY RECEPTOR

1-HR AVERAGE
USEPA STANDARD 40,000 μg/m³
Worst-Case Receptor and Weather Year

35,204 ug/m3 causes Exceedance

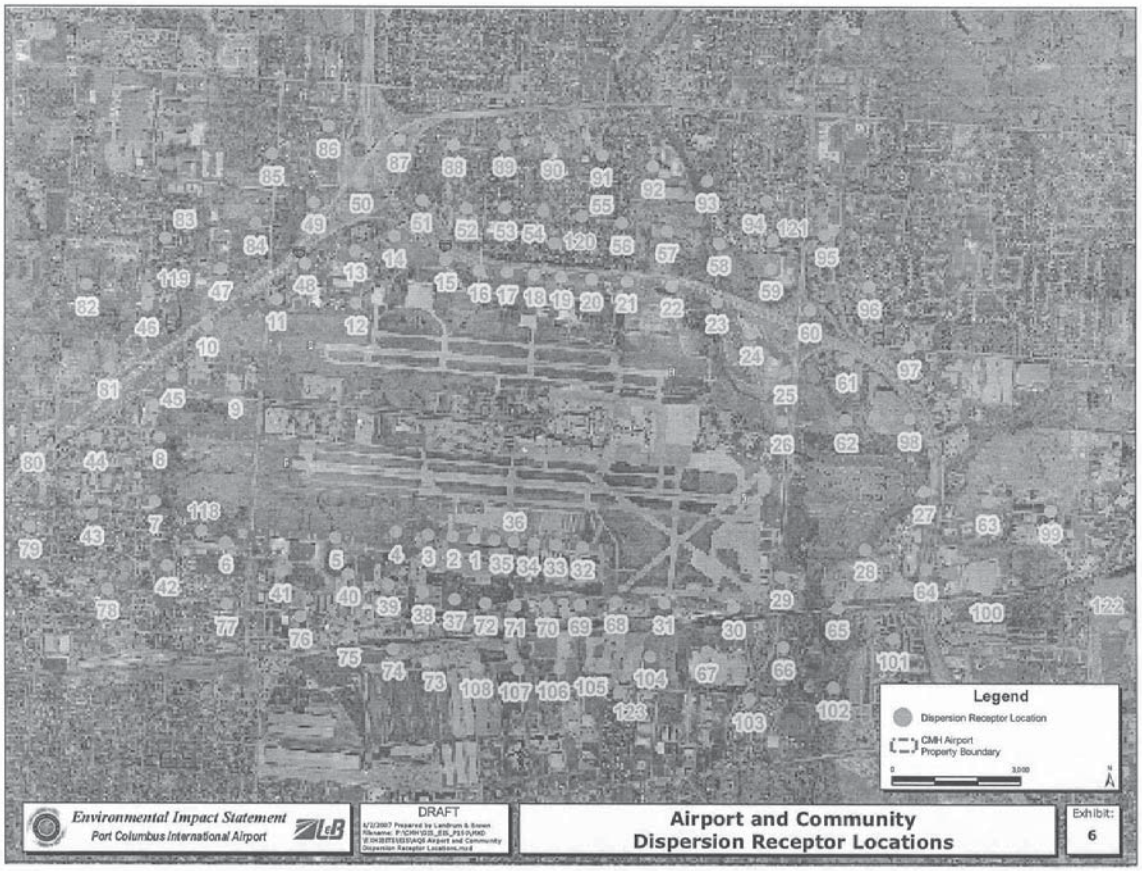
2001		2002		2003		2004		2005	
Arr Curb	12,738	Arr Curb	10,712	Arr Curb	12,176	RAC LVL1	8,489.2	Arr Curb	11237.7
RAC LVL1	10,825	RAC LVL1	8,847	T24	10,029	Arr Curb	8,105.3	RAC LVL1	9046.3
T22	9,285	T18	7,400	T23	9,902	T17	7,388.1	T16	7519.9
T23	9,151	T13	7,239	T12	9,647	T16	7,378.1	T7	7297.5
Dep Curb	9,021	T10	7,097	RAC LVL1	9,621	T13	7,282.5	T17	7196.9

Highest is 2001
12,738 Arr Curb
10,825 RAC LVL1

Proposed Representative Community Receptors

EXHIBIT 6 RECEPTORS	2001
13	4,551
120_G1	4,531
60	5,256
96	4,536
103	1,840
123_W1	3,666
119_MF-1	3,538
118_MF-2	2,430

North	AR	13 Airport Receptor (fenceline)
	G1	120 Gahanna, near Goshen Lane and Denison Avenue
East	AR	60 Airport Receptor (middle fenceline ring)
	AR	96 Airport Receptor (outer fenceline ring)
South	AR	103 Airport Receptor (outer fenceline ring)
	W1	123 Whitehall, near Yearling Rd.
West	MF-1	119 Mifflin near Drake Rd.
	MF-2	118 Mifflin, near Krum Park



SULFUR OXIDES
HIGHEST CONCENTRATIONS BY YEAR,BY AVERAGING PERIOD, BY RECEPTOR

24-HR AVERAGE
USEPA STANDARD 365 µg/m³
Worst-Case Receptor and Weather Year

291.64 ug/m3 causes Exceedance

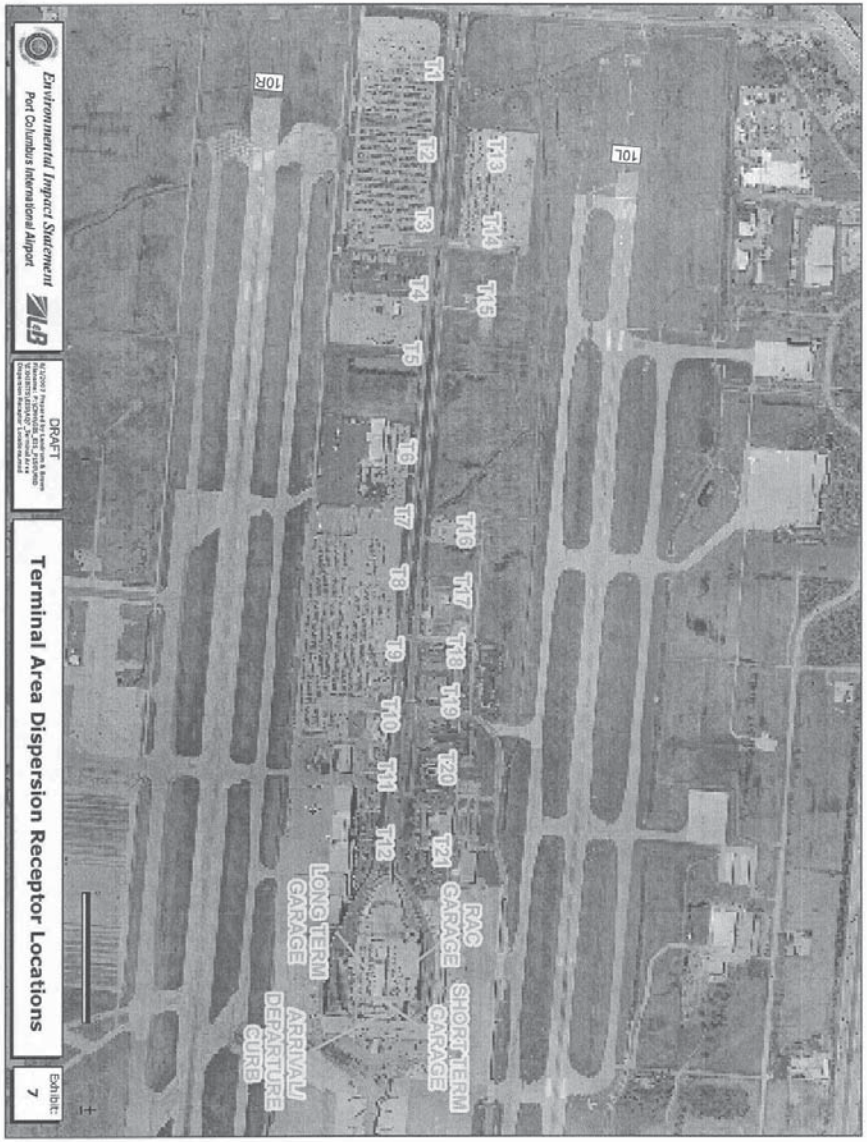
2001		2002		2003		2004		2005	
Arr Curb	32.201	Arr Curb	41.971	Arr Curb	43.747	Arr Curb	30.319	Arr Curb	46.158
Dep Curb	23.677	Dep Curb	31.358	Dep Curb	33.065	Dep curb	23.284	Dep Curb	36.158
RAC LVL2	15.289	RAC LVL 1	20.313	RAC LVL1	18.989	RAC LVL1	14.349	RAC LVL1	20.380
RAC LVL1	15.279	Short Term LVL4	17.176	RAC LVL2	18.103	Short Term LVL4	13.663	RAC LVL2	19.680
Short Term LVL4	14.295	Long Term LVL3	15.328	Short Term LVL4	16.790	RAC LVL2	12.823	Short Term LVL4	18.891

Highest is 2005
46.158 Arr Curb
36.158 Dep Curb
20.380 RAC LVL1
18.891 Short Term LVL4

Proposed Representative Community Receptors

EXHIBIT 6 RECEPTORS	2005
13	3.86
120_G1	5.70
60	3.45
96	2.13
103	2.88
123_W1	5.04
119_MF-1	2.66
118_MF-2	2.44

North	AR	13 Airport Receptor (fenceline)
	G1	120 Gahanna, near Goshen Lane and Denison Avenue
East	AR	60 Airport Receptor (middle fenceline ring)
	AR	96 Airport Receptor (outer fenceline ring)
South	AR	103 Airport Receptor (outer fenceline ring)
	W1	123 Whitehall, near Yearling Rd.
West	MF-1	119 Mifflin near Drake Rd.
	MF-2	118 Mifflin, near Krum Park



Federal Aviation Administration

ENVIRONMENTAL IMPACT STATEMENT

FOR

REPLACEMENT RUNWAY AND TERMINAL EXPANSION

AT

PORT COLUMBUS INTERNATIONAL AIRPORT

AIR QUALITY SCOPING TELECONFERENCE SUMMARY

TELECONFERENCE CONDUCTED

AUGUST 10, 2007

1:00 P.M. – 2:45 P.M.

A web-based teleconference was convened on the afternoon of Friday, August 10, 2007, to further discuss the selection of receptor locations for the dispersion analysis that will be included in the Port Columbus International Airport Environmental Impact Statement (CMH EIS). The following agencies and firms were represented at the meeting:

- Ohio Environmental Protection Agency (OEPA)
- Federal Aviation Administration (FAA) Detroit Airports District Office
- FAA consultants, Landrum & Brown (L&B)

The contact information for each of the participants is attached following the minutes of the meeting as **Attachment A**. The computer spreadsheet summarizing the results of preliminary dispersion modeling, including the FAA's recommendations for worst-case receptor, community receptors, and the worst-case meteorological years, were distributed to the participants at the meeting conducted the previous Wednesday and were also referenced during today's call. These documents are attached to as **Attachment B**. Also included in Attachment B are the two exhibits showing the location of the modeling receptors around the airport fence line and within the terminal core. In addition, graphs of a wind analysis prepared using historic weather data recorded at CMH, which was referenced during the discussion, is included in Attachment B.

Summary Notes from the August 10, 2007 Teleconference:

The meeting began at 1:00 p.m. Eastern Daylight Time, and was opened by Ms. Katherine Jones, FAA project manager for the CHM EIS. Ms. Jones explained that subsequent to OEPA's concerns discussed at the last teleconference on Wednesday, August 8, 2007, the FAA and the FAA's consultant, L&B, had discussed in more detail the selection of receptor locations necessary to fully report the impacts of the CMH EIS proposed project on air quality. FAA believes further discussion is warranted because OEPA expressed a need to see dispersion results for more receptor locations than the five presented for comment during Wednesday's teleconference. During Wednesday's call, OEPA expressed interest in results at fence line receptors, particularly near the location where the replacement runway is proposed, south of existing Runway 10R/28L. Receptors 1-5 and receptors 29-36 are located along the fence line south of Runway 10R/28L. While OEPA concurred that the receptor located at the airport arrival curb would reflect the worst-case concentration of all five pollutants and averaging periods, and agreed that the four community-located receptors would satisfy the public's need to know the impact of the proposed project on surrounding neighborhoods, OEPA expressed the opinion that additional results should be reviewed by OEPA before a recommendation could be made for the selection of receptors that would be considered for analysis in the Draft EIS.

Representatives from the USEPA were contacted for participation in this conference call but were unable to attend. Ms. Jones will update Ms. Sherry Kamke and Patricia Morris, USEPA Region 5, on Monday morning, August 13, 2007. Likewise, OEPA's air quality manager, Mr. Bill Spires, was unable to attend and will be contacted on Monday morning by Ms. Jones to review issues discussed throughout this conference call to determine whether a face-to-face meeting would be advisable next week.

Prevailing Winds

Prior to this meeting, L&B's air quality manager, Ms. Virginia Raps, reviewed results of the preliminary base-case dispersion analysis to determine the location of receptors that are impacted by emissions from aircraft operating on the south runway. These were identified as receptors located to the northeast and east of Runway 28R and Runway 28L. Ms. Raps explained that the impacted receptors were to the northeast of the runway ends because of the affect of prevailing winds at Columbus. Ms. Raps presented a diagram of prevailing winds reflecting 30 years of historical weather data plotted on a radar graph. Prevailing winds at Columbus are from the southwest through the west. Therefore, it would be expected that the receptors most impacted by aircraft operating on the proposed replacement runway, and in particular aircraft queuing up and taking off from Runway 28L, would be those receptors located east of the airport. For example, receptors 26, 62, 63, 98, and 27 (refer to Exhibit 6) were found to be the location of the highest concentration of $PM_{2.5}$ emissions from aircraft on the airport. The highest concentration of CO from aircraft would occur northeast of the airport at receptors 22 and 57; and NO_x impacts were pronounced at receptors 20 and 21. The NO_x results are caused by aircraft queuing on Runway End 28R and taxiing beside the runway. Along the

south fence line, although concentrations were much lower in this area, concentrations were highest for receptors 32, 33, 34, 3, 4, & 5, most likely due to the close proximity of the receptors to the runway during period of stagnant air and calm winds (0-5 knots). Consequently, Ms. Raps suggested that if additional receptors were analyzed to more fully reflect impacts due to aircraft operations on the south runway, perhaps information from receptors located in these two areas would be more meaningful. All results for the additional receptors were less than concentrations in the terminal core.

OEPA Requests

Ms. Sarah Hedlund and Ms. Sam MacDonald, OEPA, expressed their concern that OEPA could not make a recommendation until results of a larger group of receptors has been reviewed. By not providing this additional information, FAA is perceived to be excluding OEPA's participation in this coordination effort. Ms. Hedlund and Ms. MacDonald requested that the AERMOD files associated with the dispersion analysis be provided to OEPA for review and verification before OEPA can make recommendations for receptor selection. Specifically, Mr. Spires previously asked for the *.HRE AERMOD files associated with the report of results presented at the teleconference on Wednesday. These files would be related to the dispersion analysis of all receptors and all pollutants. The OEPA requests "tangible proof" of concentration values associated with each receptor. Ms. Hedlund suggested that a table is typically available through AERMOD output files that show the maximum concentration for every receptor. Ms. Hedlund and Ms. MacDonald stated that what the OEPA is looking for are areas where concentrations "spike" due to the project, particularly along the fence line and in the vicinity of the proposed runway; and receptors that show evidence of higher concentrations from the south runway, whether or not they are located at the fence line.

Ms. Raps showed the participants an AERMOD output file from this project. According to Ms. Hedlund, the file was not in the same format usually produced through AERMOD analysis conducted at OEPA. Ms. Raps suggested that Ms. Hedlund provide an example of such a file so that FAA could understand exactly what OEPA is familiar with. In addition, Ms. Raps suggested that she and Ms. Hedlund conduct a follow-up web-based teleconference to verify the methodology and procedure for creating AERMOD input and output files in FAA's Emissions and Dispersion Modeling System (EDMS). That meeting is tentatively planned for Tuesday, August 21, 2007 at 2:00 P.M. Katy Jones will check with Sherry Kamke and Pat Morris, USEPA Region 5, to solicit their participation in the call, which will also be attended by Ms. Jones.

Extended Comment Period

As a result of this discussion, the comment period for OEPA and USEPA to respond to the FAA recommendation was extended to Friday, August 24, 2007.

Next Steps

Ms. Katy Jones stated that she will need to consult with FAA legal representatives before any proprietary AERMOD files could be supplied to the OEPA. Ms. MacDonald suggested that perhaps a confidentiality agreement could be negotiated that would allow OEPA access to the FAA's files.

Meanwhile, Ms. Hedlund and Ms. Raps will work together to produce an AERMOD table of results showing the highest concentration, per receptor, per pollutant controlling average time, for existing conditions. If this is not possible, Ms. Raps will try to produce the table from results contained in the AERMOD *.CON files. Following receipt of this new information, OEPA would review the data and suggest a number of additional receptors OEPA believes appropriate to reflect impacts from the proposed project. The list should be prioritized with an explanation of why each receptor appears to be relative to an impact assessment. FAA will then discuss the recommendations with OEPA. Ms. Jones suggested the possibility of increasing the total number of receptors to ten based on OEPA's recommendations, which includes the five receptors already selected by FAA.

OEPA's comments relating to dispersion receptor location should be provided ***in writing to the FAA no later than Friday, August 24, 2007***. Comments should be directed to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174

Email: CMHEIS@FAA.GOV

Website: www.Airportsites.net/CMH-EIS

ATTACHMENT A

MEETING PARTICIPANTS

The following is a list of the meeting participants, which attended either in person or by teleconference.

Name:	Ms. Katherine Jones
Title:	FAA Project Manager
Agency/Division/Firm	FAA Detroit Airports District Office
Mailing Address	11677 South Wayne Road, Suite 107
	Romulus, MI 48174
E-mail Address:	Katherine.S.Jones@faa.gov
Telephone Number:	
FAX Number:	

Name:	Ms. Sam MacDonald
Title:	Environmental Specialist 2
Agency/Division/Firm	Ohio EPA/Division of Air Pollution Control
Mailing Address	50 W. Town St.
	Columbus, OH 43215
E-mail Address:	sam.macdonald@epa.state.oh.us
Telephone Number:	614-728-1743
FAX Number:	614-644-3681

Name:	Ms. Sarah Hedlund
Title:	Air Quality Modeler
Agency/Division/Firm	OEPA
Mailing Address	50 W. Town Street Suite 700
	Columbus, OH 43215
E-mail Address:	sarah.hedlund@epa.state.oh.us
Telephone Number:	614-644-3632
FAX Number:	614-644-3681

Name:	Ms. Sarah Potter
Title:	Project Coordinator, CMH EIS
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive
	Cincinnati, OH 45242
E-mail Address:	spotter@landrum-brown.com
Telephone Number:	513-530-1271
FAX Number:	513-530-2271

Name:	Ms. Virginia L. Raps
Title:	Air Quality Manager – CMH EIS
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive
	Cincinnati, OH 45242
E-mail Address:	graps@landrum-brown.com
Telephone Number:	513-530-1238
FAX Number:	513-530-2238

ATTACHMENT B

ELECTRONIC FILES

The following electronic files are attached:

- "Comparison for Worst Case 080607" Microsoft EXCEL file
- Exhibit 6, Airport and Community Dispersion Receptor Locations
- Exhibit 7, Terminal Area Dispersion Receptor Locations
- "Wind Graphs" Microsoft EXCEL file

Federal Aviation Administration

ENVIRONMENTAL IMPACT STATEMENT

FOR

REPLACEMENT RUNWAY AND TERMINAL EXPANSION

AT

PORT COLUMBUS INTERNATIONAL AIRPORT

AIR QUALITY TELECONFERENCE/WEB MEETING SUMMARY

MEETING CONDUCTED

AUGUST 22, 2007

2:00 P.M. – 4:00 P.M.

The seventh in a series of air quality scoping meetings was conducted on Wednesday, August 22, 2007. The meeting was conducted as a teleconference/web meeting for the purposes of continuing coordination of the air quality assessment for the Draft Port Columbus International Airport Environmental Impact Statement (CMH EIS). The following agencies were represented at the meeting:

- U.S. Environmental Protection Agency Region 5 (USEPA)
- Ohio Environmental Protection Agency (OEPA)
- Columbus Regional Airport Authority (CRAA)
- Federal Aviation Administration (FAA)
- FAA consultants, Landrum & Brown

The contact information for each of the participants is attached following the minutes of the meeting as **Attachment A**. A datasheet containing results of a preliminary dispersion analysis was distributed to the meeting participants in advance of the meeting and is attached to this document as **Attachment B**, which also includes a copy of the PowerPoint presentation used to facilitate the meeting discussion. The meeting discussion focused on the evaluation of the analysis conducted to support the selection of five additional receptor locations as requested in previous discussions with OEPA, which would be included in dispersion modeling for the Draft CMH EIS. **Attachment C** contains the comment letter received August 24, 2007 from OEPA and FAA's response letter dated September 6, 2007.

Summary Notes from the August 22, 2007 Meeting[1]

The meeting began at 2:00 p.m. Eastern Daylight Time, and was opened by Ms. Katherine Jones, FAA project manager for the CMH EIS. Ms. Jones provided a brief history of the coordination recently conducted concerning the selection of dispersion receptors for the DRAFT EIS. Ms. Jones explained that the objective of the air quality dispersion analysis for a NEPA document is to disclose and discuss the potential for a proposed project to cause significant adverse air quality impacts at the airport. This objective is met by reporting the results at the worst-case receptor, which FAA defines as the receptor, by pollutant, having the highest modeled concentration. This receptor has been shown to occur, for all pollutants, at the terminal arrival curb. Ms. Jones explained that in addition to the worst-case receptor, FAA selected for its analysis four additional receptors within the outlying communities to show the impact from the proposed project in neighborhoods believed to be sensitive by FAA and CRAA. Ms. Jones expressed FAA's desire to include OEPA and USEPA in the modeling effort and intends to consider their request for additional receptors, and pointed out that the written comment period has been extended to Friday, August 24, 2007. FAA would ask that OEPA and USEPA review the results of the evaluation presented at the meeting and respond with written comments on the methodology and procedure; and suggest changes to the location of the additional five receptors if OPEA and USEPA feel the locations selected by FAA would not accurately reflect the project's impact.

Mr. Rob Adams, the Project Manager for Landrum & Brown, explained that the FAA has an obligation to meet NEPA requirements in its preparation of air quality assessments, which include reporting the worst-case conditions and also meet requirements to address community concerns. To meet these obligations, FAA has chosen the receptors believed to meet these objectives. FAA desires to accommodate the suggestions from OEPA but also has an obligation to complete the EIS on time and on schedule as the additional receptors are not required to meet NEPA requirements.

The meeting was turned over to Virginia Raps, Air Quality Manager for L&B and the CMH EIS. Ms. Raps presented the evaluation of the ranked concentration data in a PowerPoint format. First, the background of the project was reviewed to emphasize the location of probable impacts from the project, which would be the result of relocating the south runway. An overview of prevailing winds at CMH showed that calmer winds, those 0-5 knots, would likely be the cause of the highest concentrations and could occur from any direction.

The objectives of the dispersion analysis were presented along with the methodology and procedures used for the FAA to make its selection of the worst-case receptor, the worst-case meteorological year for each pollutant, and the four other receptors located within sensitive neighborhoods. Ms. Raps explained that the air quality assessment must show the worst-case receptor, defined as the receptor with the highest concentration; report the project impacts at receptors located within nearby sensitive neighborhoods, and, as

[1] As this was a teleconference, there may be some comments attributed to Ms. Sarah Hedlund, OEPA, that were actually made by Ms. Mary Portanova, USEPA.

requested by OEPA, report concentrations at receptors that reflect the change in concentrations at areas near the project itself. The methodology was reviewed followed by the procedure used to select the worst-case receptor, the worst-case years, and evaluate the ranked concentration data.

The data for the 149 receptors was ranked highest to lowest for each pollutant.[2] The highest 15 receptors were plotted on a map of the airport and community receptors (see attachment of the PowerPoint slides) to show the shaded "hot spots," by pollutant. Ms. Raps reviewed each map and explained the characteristics of each pattern. Finally, the shaded areas showing the hot spots for each pollutant were shown superimposed on one map.

Ms. Raps explained the rationale in selecting the most likely location of impacts due to the project. The additional five receptors were selected as follows:

Receptor #32 – South of the airport, along the fence line, to pick up changes in emissions from the relocated runway. This receptor was highest among concentrations in this area for three of the five pollutants.

Receptor #12 - Northwest of the airport, along the fence line to pick up changes in emissions from Runway 10L. Both Receptors #11 and #12 were the highest in this area for three of the five pollutants. Receptor #12 was chosen because it was located closer to the runway end and would be more likely to capture emissions from Runway 10L.

Receptor #26 - This receptor was included in the hot spot-area to the east of the airport where most of the highest concentrations occurred. Receptor #26 was included in the group of the highest concentrations for four of the five pollutants and captures emissions from Runway 28R.

Receptor #27 - This is the location of the highest concentration of PM emissions due to aircraft and was considered important because Franklin County is nonattainment for $PM_{2.5}$. In addition, the concentration at this receptor reflected a value that was 10 percent of the concentration value at the arrival curb – higher than for any other receptor evaluated.

Receptor #28 - The concentration of CO was highest at this location, which is a pollutant of particular concern for airports. Also, as the proposed project includes relocating the runway farther south, it is likely that this receptor will pick up changes in project concentrations.

Ms. Raps then reviewed the rationale for the remaining receptors and those not included in the shaded areas, namely:

[2] Except for CO. The file was too large to open and the highest 15 values were extracted from the EDMS view screen..

Arrival Curb Receptor - The worst-case receptor for all pollutants.

Receptor #118 - Southwest of Runway 10R in Mifflin near Krum Park. This receptor was included in the shaded area.

Receptor #123 - South of the south runway in Whitehall.

Receptor #60 - East of Runway 28R near Morrison Road and Waterbury Blvd., which was selected in place of Receptor #96 in east Gahanna because the concentration was higher. This receptor was located in the shaded area.

Receptor #120 - North of Runway 10L/28R and in Gahanna. This receptor is very close to the receptors located on the north fence line where there are receptors with some of the highest concentrations of NOx, PM, and CO.

Following Ms. Raps' presentation the discussion was opened to comments. Mr. Bill Spires, OEPA, stated that the methodology used to select the worst-case year for each pollutant may not be accurate because the short-term averaging periods do not always reflect the highest concentration. Mr. Spires and Ms. Sarah Hedlund also expressed concern that the three-hour average concentration of SOx was not used in this preliminary analysis. Ms. Raps stated that an evaluation of the three-hour concentration of SOx would be included in the draft document.

Ms. Sherry Kamke asked if there was a difference in use of AERMOD that would create output files through EDMS that would not be in the same format as results obtained in other projects run in AERMOD by OEPA. Ms. Raps explained that EDMS is an interface with AERMOD and not every option is available to select the output format and content. The FAA requires the use of EDMS when calculating projected pollutant concentrations at airports for regulatory purposes and the interface is custom-designed for FAA purposes.

Mr. Spires stated that his team had conducted an evaluation similar to the one shown on the maps in the PowerPoint presentation and they would continue to evaluate the results of the ranked concentrations. OEPA considered the rationale supporting the selection of the additional five receptors sound, but stated that the location of the original five receptors would not necessarily be the correct ones. In their further evaluation of the data, Mr. Spires suggested that OEPA will select more community receptors that would represent the public in what OEPA considers to be more sensitive areas as compared to what the FAA had already chosen. Particularly, Ms. Sarah Hedlund stated that Receptor #48, which is located near a daycare center, would be a suitable candidate for consideration. She further stated that this receptor should not be considered a replacement for Receptor 118 or any other receptor selected by FAA, but should be in addition to the ten presented at this conference.

Mr. Rob Adams suggested that OEPA make suggestions in their written comments on what receptors they would like to see in the analysis. Mr. Spires stated that OEPA's suggestions should be in addition to the list provided by FAA and not replacements of any

of the ten, as the rationale for each selection was sound. Mr. Spires expressed the opinion that OEPA did not object to the five initial receptors selected by FAA to meet their NEPA requirements. However, OEPA believes that they should not be limited in the number of receptors used in this analysis.

Ms. Hedlund asked why OEPA is being limited to just five receptors, or to ten, as previously she had been told by Ms. Jones that FAA's selections were not "set in stone." Ms. Jones clarified her position by saying that FAA is making an effort to accommodate the needs of OEPA and will not disregard OEPA's comments. Ms. Jones asked that OEPA submit their suggestions for receptor locations as written comments and include the rationale for selecting the receptor locations. For instance, suggesting Receptor #48 because there is a daycare center there, or another receptor because there is a school there.

Ms. Sherry Kamke, USEPA, stated that the group needs to come to an understanding of how to proceed. She stated that there seemed to be an element of time to consider, and the selection of the receptors does not have to be decided at this meeting.

Mr. Rob Adams suggested that the time for OEPA to do a more extensive review of the data would be when the Draft EIS is released. He asked Mr. Spires if OEPA would be able to put their recommendations in writing by Friday, August 24, 2007. Mr. Spires replied that OEPA would try to do that.

Comments Received

The FAA received written comments from OEPA dated August 24, 2007, which is attached in Attachment C. FAA intends to accommodate OEPA requests as described below:

- 3hr SO2 should be carried through the modeling process.

The three-hour concentration of SOx will be reported in the EIS for all alternatives, including existing conditions.

- Absent the pollutant specific emission rates to incorporate into our evaluation of candidate receptor locations, we can not recommend alternative receptor locations by pollutant. Since all averaging times can be incorporated into a model run without computational penalties, 1, 3, 8, 24 and annual averaging times would be run.

The dispersion analysis will be conducted to calculate all five averaging periods for emissions of CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$. However, only the averaging periods for which NAAQS exist will be reported and evaluated in the EIS as follows:

CO	1-hour and 8-hour
NO_x	annual
SO_x	3-hour, 24-hour, and annual
PM_{10}	24-hour
$PM_{2.5}$	24-hour and annual

The electronic files will contain all the additional data.

- Receptor #11 YMCA Daycare) and receptor #53 (Goshen Lane Elementary School) are to be retained in future analyses. If the FAA believes that it is necessary to retain the noise complaint based receptors, they should be retained.

The FAA had considered both Receptors 11 & 12. FAA initially chose #12 because the receptor is located closer to the emission source at Runway 10L, a methodology suggested in OEPA's comment letter. However, OPEA has requested the consideration of Receptor #11, which is located farther from the source but near a daycare center. FAA will include an evaluation of impacts at Receptor #11, instead of #12 as suggested by OEPA.

Receptor #53 is in close proximity to Receptor #120, which is a receptor location initially selected by FAA. While #53 is near a school, #120 is in the same neighborhood but closer to the emission source and is more likely to pick up changes in emissions from aircraft operating on Runway 10L/28R. Therefore, FAA will include an evaluation of both Receptor #53 and Receptor #120 in the dispersion analysis.

- Currently, the documentation for the maximum receptor along International Gateway has not been provided. The choice of that receptor and the exclusion of all others should be discussed and documented in the report.

Documentation of the rationale for selecting the receptor at the arrival curb, as well as the four other initial receptor locations, was provided to OEPA, USEPA, CRAA, and MORPC on Monday, August 6, 2007, and was discussed during a teleconference on August 8, 2007. While a representative from MORPC was invited to the conference call, followed up by phone and e-mail, MORPC did not attend the conference call but received a copy of the summary of the meeting minutes. Refer to electronic file, "Comparison for Worst-Case 080607.xls," provided in advance of the meeting for documentation of methodology, procedure, and a summary of the findings indicating the maximum possible concentrations would occur at the arrival curb when compared to the over 100 other receptor locations. This documentation will be included in the EIS as part of the air quality appendix material.

- An initial set of model based receptors has been identified by FAA/L&B. The process used in the preliminary analyses included assumption on the meteorological conditions under which maximum concentrations would occur. Depending on averaging time, persistence can be as or more important than light winds. In addition, prevailing wind direction may not be as important as the direction of the closest receptor to a given source. It should also be noted that the initial grid which is being reduced is coarse to begin with and appears to be randomly placed. To perform the analysis needed to recommend the receptors which would be carried into subsequent analyses, Ohio EPA added receptors. Given that, Ohio EPA ran several days under all wind conditions and projected the maximum receptor locations for the various averaging times for individual source groups. The following are the receptors that Ohio EPA recommends be added to the previously identified model-based receptors.

The selection of a worst-case meteorological year was not based on an assumption but rather was based on an analytical evaluation of preliminary modeling results using procedures provided by OEPA during the June 19, 2007, scoping meeting. These procedures were presented to OEPA during the conference call conducted August 8, 2007. Refer to electronic file, "Comparison for Worst-Case 080607.xls," which was provided to OEPA prior to the meeting.
The FAA does not consider the grid of airport and community receptors as coarse or randomly placed. As explained in the initial scoping meeting July 19, 2006, the grid was created by establishing a receptor around the perimeter of the airport, along the property line, every 10 degrees, as measured from the Airport Reference Point. A second and third ring of receptors was included to cover the area in Franklin County well beyond the property line. The procedure was detailed in the meeting summary. No comments have been received noting any deficiency in the configuration of the larger receptor grid.

- Ohio EPA independently performed two modeling runs using a random selection of days to determine the maximum modeled concentration for each pollutant. The following receptors have been chosen by Ohio EPA to be

evaluated by FAA for the Port Columbus International Airport Environmental Impact Statement. Justification for each chosen receptor is provided.

1-hour

Receptor #119 has the highest 1-hour concentration.

The dispersion analysis will include an evaluation of impacts at Receptor #119.

3-hour

Receptor #11 has the highest 3-hour concentration. The Franklin County Mental Retardation and Developmental Disabilities facility shares a fenceline with Port Columbus Airport. The YMCA operates an all daycare for young children within the Franklin County MRDD building.

8-hour

Receptor #13 has the highest 8-hour concentration. The maximum modeled concentration is slightly higher than the modeled concentration at receptor #11. As a result, Ohio EPA is willing to accept the modeled concentration at receptor #11 as representative of the highest 8-hour concentration. Receptor #13 does not need to be evaluated in the Environmental Impact Statement.

The dispersion analysis will include an evaluation of impacts at Receptor #11, as discussed above.

24-hour

Receptor #32 has the highest 24-hour concentration. Receptor #32, located on the southern fenceline, will allow Ohio EPA to measure the impact of the project.

Receptor #12 has the highest 24 hour concentration. The maximum modeled concentration is slightly higher than the modeled concentration at receptor #11. As a result, the Ohio EPA is willing to accept the modeled concentration at receptor #11 as representative of the highest 24 hour concentration. Receptor #12 does not need to be evaluated in the Environmental Impact Statement.

Annual

Receptor #32 has the highest annual concentration. Ohio EPA considers receptor #32 to be a critical receptor to be evaluated because it has the highest modeled concentration for two averaging periods.

The FAA referred to Receptor #32 in the August 22, 2007, conference call presentation as the location where changes in emissions from the south runway would mostly likely be detected, which is where the major portion of the CMH proposed project would occur. Emissions of three of the five pollutants resulted in high emissions at #32. The dispersion analysis will include an evaluation of impacts at Receptor #32.

Additional Receptors

Receptor #53: Ohio EPA has chosen receptor #53 due to its proximity to Goshen Lane Elementary School. Although Goshen Lane Elementary may not voice noise complaints, the students are considered sensitive receptors.

Receptor (2303.55,-407.43): A receptor shall be placed on the airport golf course due to public access. The airport golf course is considered ambient air, therefore shall be evaluated.

The analysis will also include an evaluation of impacts at Receptor #53, as discussed previously.

Although the golf course is located within the airport property line, the course is within an area considered to be ambient air. Therefore, the dispersion analysis will include an evaluation of impacts at a receptor placed at 2303.55,-407.43 meters, located within the golf course, as suggested by OEPA.

The full set of receptors that will be evaluated in the EIS include:

1 - Arrival curb
2 - #60
3. - #123
4. - #118
5. - #120
6. - #32
7. - Golf course receptor
8. - #119
9. - #11
10. - #53

Next Steps

Additional comments or requests relating to this scoping meeting should be provided ***in writing to the FAA no later than September 24, 2007***. Comments should be directed to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, Michigan 48174
Email: CMHEIS@FAA.GOV
Website: www.Airportsites.net/CMH-EIS

ATTACHMENT A

MEETING PARTICIPANTS

The following is a list of the meeting participants, which attended either in person or by teleconference.

Name:	Mr. Bill Spires, C.C.M.
Title:	Manager, SIP Section
Agency/Division/Firm	OEPA Division of Air Pollution Control
Mailing Address	50 West Town Street
	Columbus, OH 43215
E-mail Address:	bill.spires@epa.state.oh.us
Telephone Number:	614-644-3618
FAX Number:	614-644-3681
Name:	Ms. Sarah Hedlund
Title:	Air Quality Modeler
Agency/Division/Firm	OEPA
Mailing Address	50 W. Town Street Suite 700
	Columbus, OH 43215
E-mail Address:	sarah.hedlund@epa.state.oh.us
Telephone Number:	614-644-3632
FAX Number:	614-644-3681
Name:	Mr. David Wall, A.A.E.
Title:	Capital Program Manager
Agency/Division/Firm	Columbus Regional Airport Authority (CRAA)
Mailing Address	4600 International Gateway
	Columbus, OH 43219
E-mail Address:	dwall@ColumbusAirports.com
Telephone Number:	614-239-4063
FAX Number:	614-238-7850
Name:	Sherry A. Kamke *(teleconference participant)*

Title:	Environmental Scientist, NEPA Implementation Section Office of Science, Ecosystems, and Communities
Agency/Division/Firm	USEPA Region 5 Mailcode B-19J
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	Kamke.Sherry@epamail.epa.gov
Telephone Number:	312-353-5794
FAX Number:	312-353-5374
Name:	Ms. Patricia Morris *(teleconference participant)*
Title:	Environmental Scientist
Agency/Division/Firm	USEPA Region 5
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	Morris.Patricia@epamail.epa.gov
Telephone Number:	312-353-8656
FAX Number:	312-886-5824
Name:	Ms. Mary Portanova
Title:	Environmental Engineer
Agency/Division/Firm	USEPA Region 5 Mailcode AR-18J
Mailing Address	77 W. Jackson Blvd.
	Chicago, IL 60604
E-mail Address:	Morris.Patricia@epamail.epa.gov
Telephone Number:	312-353-8656
FAX Number:	312-886-5824
Name:	Mr. Rob Adams

Air Quality

Environmental Impact Statement

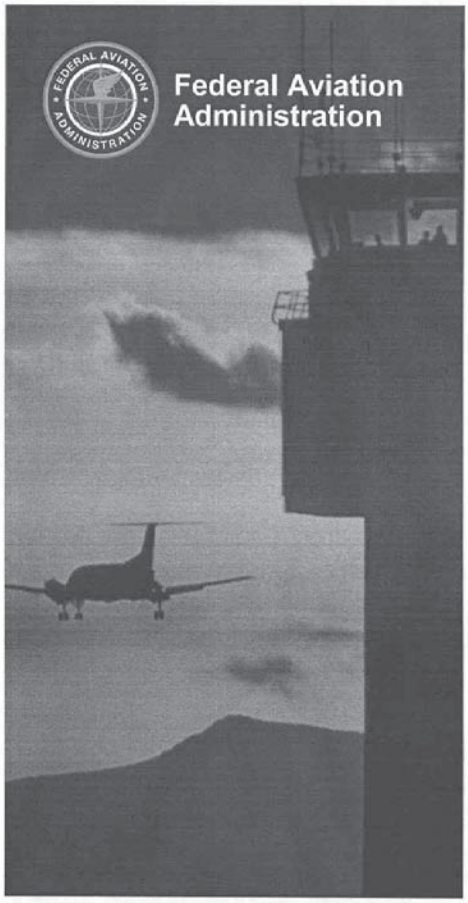
Port Columbus International Airport

Presented to: Air Quality Teleconference

By: Katherine Jones, FAA CMH Project Manger
Rob Adams, L&B CMH Project Manager
Virginia Raps, L&B CMH Air Quality Manager

Date: Wednesday, August 22, 2007

DRAFT Deliberative Material - DO NOT CITE OR QUOTE



Title:	Managing Director, Project Manager CMH EIS
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive Cincinnati, OH 45242
E-mail Address:	radams@landrum-brown.com
Telephone Number:	513-530-1201
FAX Number:	513-530-1278

Name:	Ms. Virginia L. Raps
Title:	Air Quality Manager – CMH EIS
Agency/Division/Firm	Landrum & Brown
Mailing Address	11279 Cornell Park Drive Cincinnati, OH 45242
E-mail Address:	graps@landrum-brown.com
Telephone Number:	513-530-1238
FAX Number:	513-530-2238

ATTACHMENT B

ELECTRONIC FILES

The following electronic files are attached:

- Discussion Presentation
- Datasheet of Ranked Dispersion Analysis Results

ATTACHMENT C

COORDINATION LETTER

OEPA comment letter, dated August 24, 2007, in electronic format, is attached.

FAA response to OEPA comment letter, dated September 6, 2007, in electronic format, is attached.

AGENDA

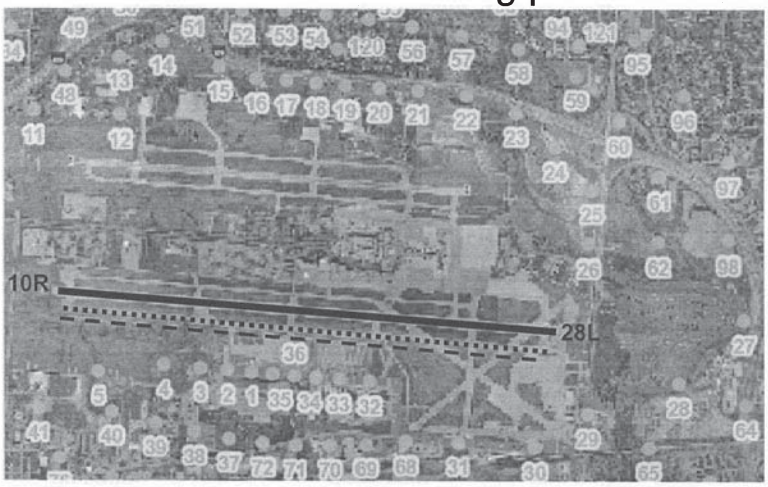
I. INTRODUCTION
II. PROJECT AIR QUALITY IMPACTS
III. OBJECTIVES
IV. METHODOLOGY
V. PROCEDURE
VI. SUMMARY

DRAFT Deliberative Material - DO NOT CITE OR QUOTE

This scoping document is provided as a draft and should not be considered the final authority for assessing air quality for either the Draft CMH EIS or Final CMH EIS. As the project progresses, changes in planning will require adjustments of the methodology, procedures, and information given in this document.

II. PROJECT AIR QUALITY IMPACTS

Main feature of the Proposed Project that will affect emission concentrations is the relocation of Runway 28L farther south than the existing position.



Changes in runway-use with the noise compatibility program will also change the distribution of aircraft on the airfield.

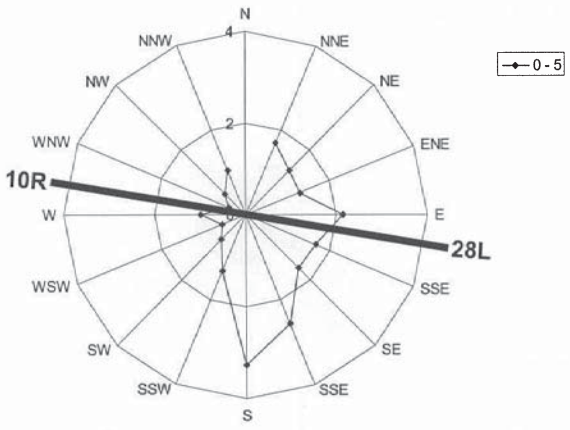
I. INTRODUCTION

Katherine Jones
Federal Aviation Administration (FAA) Project Manager
Port Columbus International Airport (CMH EIS)

Rob Adams
Landrum & Brown (L&B) Project Manager
Port Columbus International Airport (CMH EIS)

Prevailing Winds – 0 to 5 Knots (calm)

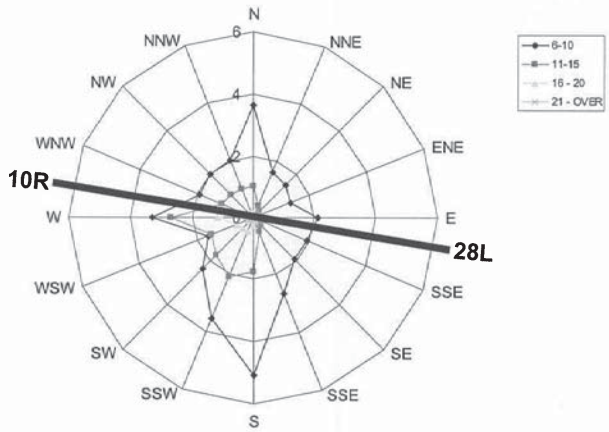
KNOTS	N	NNE	NE	ENE	E	SSE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
0 - 5	19.24	1.69	1.38	1.29	2.16	1.67	1.65	2.55	3.27	1.33	0.77	0.56	0.99	0.4	0.65	1.05	40.65
6-10	3.65	1.61	1.48	1.31	2.12	1.9	1.93	2.65	5.09	3.53	2.37	1.61	3.3	1.9	1.97	2.02	38.44
11-15	1.02	0.42	0.25	0.18	0.23	0.23	0.38	0.49	1.75	2.06	1.71	1.47	2.68	1.11	1.05	0.98	16.01
16 - 20	0.14	0.04	0.02	0	0	0.03	0.04	0.08	0.25	0.47	0.5	0.58	1.18	0.27	0.2	0.17	3.97
21 - OVER	0	0	0	0	0	0	0	0	0.03	0.06	0.13	0.23	0.41	0.04	0.02	0.01	0.93



- Nearly calm winds are from all directions.
- North wind is exaggerated.
- Expect impacts on all sides.

Prevailing Winds

KNOTS	N	NNE	NE	ENE	E	SSE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
0 - 5	19.24	1.69	1.38	1.29	2.16	1.67	1.65	2.55	3.27	1.33	0.77	0.56	0.99	0.4	0.65	1.05	40.65
6-10	3.65	1.61	1.48	1.31	2.12	1.9	1.93	2.65	5.09	3.53	2.37	1.61	3.3	1.9	1.97	2.02	38.44
11-15	1.02	0.42	0.25	0.18	0.23	0.23	0.38	0.49	1.75	2.06	1.71	1.47	2.68	1.11	1.05	0.98	16.01
16 - 20	0.14	0.04	0.02	0	0	0.03	0.04	0.08	0.25	0.47	0.5	0.58	1.18	0.27	0.2	0.17	3.97
21 - OVER	0	0	0	0	0	0	0	0	0.03	0.06	0.13	0.23	0.41	0.04	0.02	0.01	0.93



- Prevailing winds are south through west, particularly at 11-15 knots.
- These winds may be too strong to cause high concentrations.

IV. METHODOLOGY

- Locate the area with the highest concentration values for each pollutant
- Isolate the maximum receptors and apply all five years of weather data
- Select the worst-case meteorological year for each pollutant
- Select four additional receptors that will reflect the project impacts in the surrounding neighborhoods
- Select five additional receptors that will reflect the project impacts associated with the replacement runway

III. OBJECTIVES

- Report the receptor with the highest concentration for comparison to the NAAQS
- Report project impacts at receptors located within nearby sensitive neighborhoods
- Report concentrations at receptors that reflect the impact of the most affected project source group

Isolate the maximum receptors and apply all five years of weather data

- Repeated the analysis applying all five years of weather data, for each pollutant, to the receptors in the terminal core – the results were reported for the "080607" run

NOx 2003		PM2.5 2002		CO 2001		PM10 2002		SOx 2005	
Arr Curb	48.403	Arr Curb	7.462	Arr Curb	12,738	Arr Curb	8.036	Arr Curb	46.158
RAC LVL1	41.186	Dep Curb	5.592	RAC LVL1	10,825	RAC LVL1	6.046	Dep Curb	36.158
Dep Curb	38.151	RAC LVL1	5.591	T22	9,285	Dep Curb	6.011	RAC LVL1	20.380
RAC LVL2	35.262	RAC LVL2	4.482	T23	9,151	Lng Term LVL3	5.094	RAC LVL2	19.680
T13	31.895	T12	4.118	Dep Curb	9,021	RAC LVL2	4.937	Short Term LVL4	18.891

Highest concentrations were at the terminal arrival curb. Worst-case meteorological year was identified.

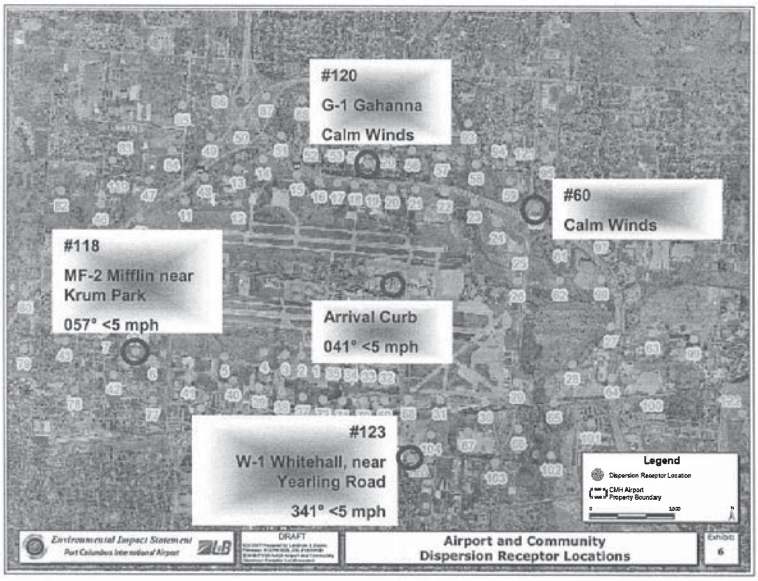
V. PROCEDURE

- Conducted preliminary dispersion analysis applying one year of weather data for each pollutant to all receptors – the year 2005 was used as the existing year, using 149 receptors, using the preliminary study for existing conditions at CMH; represented by the "071407" run.

NOX		CO		PM10		PM2.5		SOx	
2005		2005		2005		2005		2005	
TR32	58.48	Curb	24715.9	Curb	7.9	Curb	7.56	Curb	35.739
Garage	44.41	Garage	20515.4	Garage	6.2	Garage	5.79	Garage	21.197
TR32	39.9	TR32	14993.7	TR32	5.7	TR32	4.23	TR37	11.638
Curb	39.72	TR38	12159.1	AR9	3.72	TR39	3.12	TR39	11.524
TR35	34.85	TR37	11876.1	TR35	3.67	TR37	3.10	TR34	10.262

Highest concentrations were at the terminal arrival and departure curbs, the terminal garage, and along International Gateway just before the terminal garage. "Controlling" averaging periods were identified as the shortest NAAQS averaging period for each pollutant.

Location of five receptors



Wind direction and speed was extracted from the 1-hour CO concentration (AERMOD) file and cross-referenced with the AERMOD 2001 weather file.

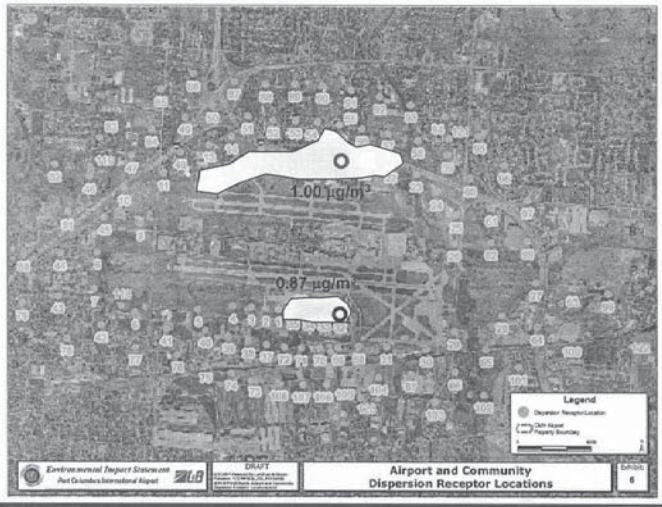
Selection of four receptors in the community

FAA and CRAA selected four receptors that would reflect the project impact in four sensitive neighborhoods around the airport.

- NORTH: Receptor 120 (G-1) in Gahanna
- NORTHEAST: Receptor 60, near the interchange of I-270 and Rt. 317
- SOUTH: Receptor 123 (W-1) in Whitehall
- SOUTHWEST: Receptor 118 (MF-2) in Mifflin near Krum Park

Patterns of highest concentrations - NOx

NOx concentrations were highest to the north, remainder were to the south. Curb concentration 48.40 μg/m^3



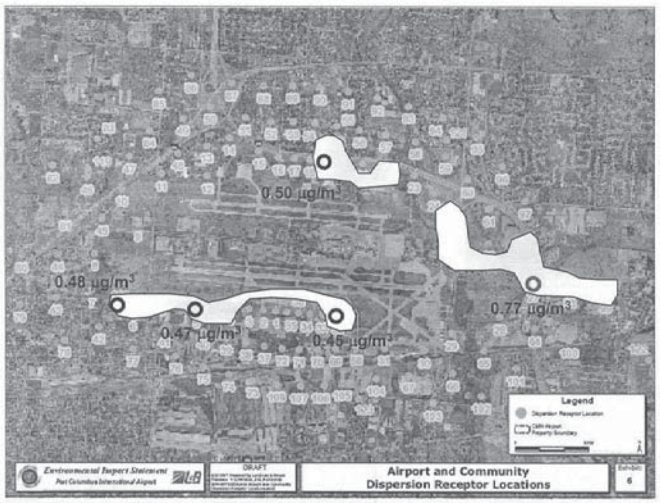
- Maximum north receptor was #20
- Highest south receptor was #32

Identify five additional receptors to capture the impact from aircraft on a relocated south runway

- The results of the "071407" run was revisited to evaluate the airport and community receptors with the highest values, by source group
- Evaluation did not consider terminal core receptors
- For each pollutant, for the associated worst-case year, results of dispersion analysis (*.CON files from AERMOD) were opened and sorted in EXCEL and ACCESS.
- CO file was too large and was sorted using EDMS.
- Concentrations were ranked highest to lowest, showing the highest concentration for each receptor.
- Top 15 receptors, where emissions were caused by aircraft alone, were plotted on the map (Exhibit 6).

Patterns of highest concentrations – PM_{10}

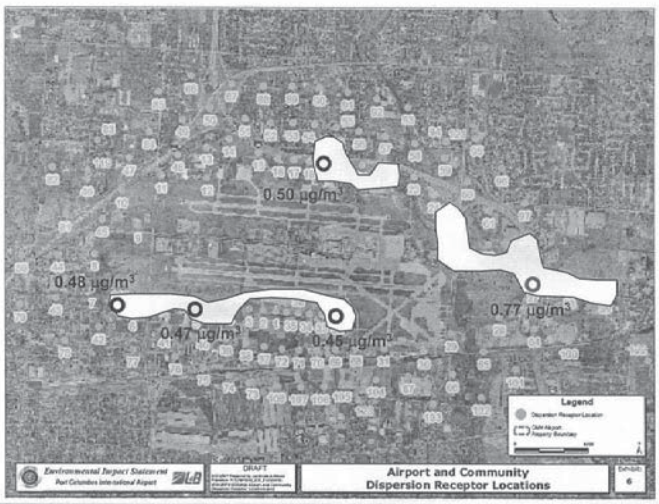
PM_{10} concentrations were highest to the east (same as for $PM_{2.5}$).
Curb concentration 8.04 μg/m³



- Maximum east receptor was #27
- Highest north receptor was #19
- Highest southwest receptor was #118 (MIF-2)
- Highest south receptor was #5

Patterns of highest concentrations – $PM_{2.5}$

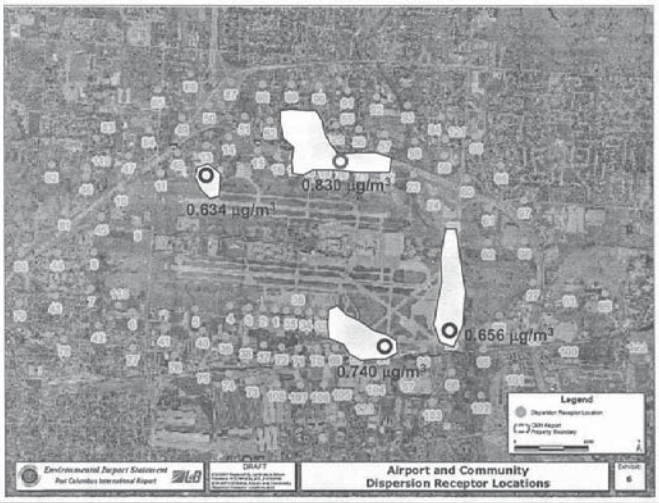
$PM_{2.5}$ concentrations were highest to the east.
Curb concentration 7.46 μg/m³



- Maximum east receptor was #27
- Highest north receptor was #19
- Highest southwest receptor was #118 (MIF-2)
- Highest south receptor was #5

Patterns of highest concentrations – SOx

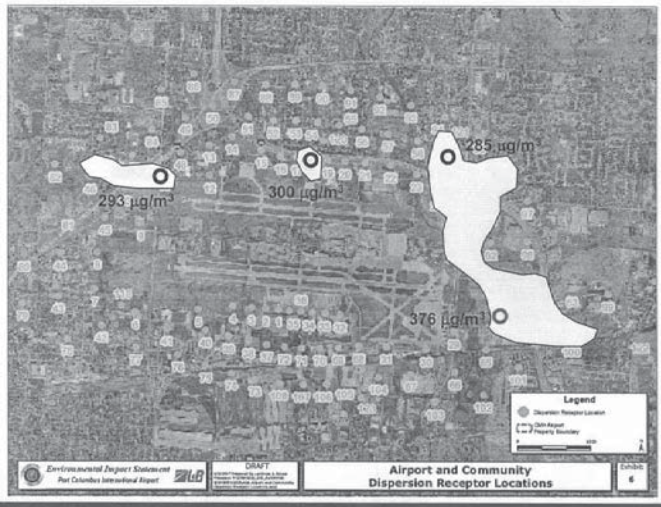
SOx concentrations were highest mostly to the north and south. Curb concentration 46.16 μg/m^3



- Maximum north receptor was #20
- Highest south receptor was #31
- Highest southeast receptor was #29
- Highest northwest receptor was #12

Patterns of highest concentrations – CO

CO concentrations were highest to the southeast, with a few located north and northwest. Curb concentration 12,738 μg/m^3



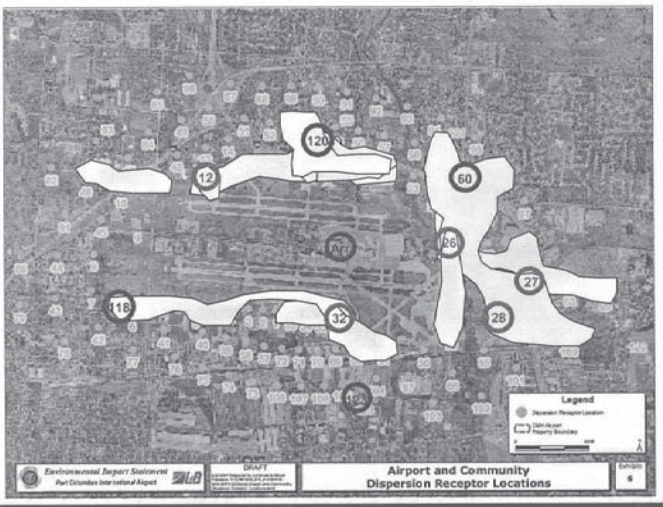
- Maximum southeast receptor was #28
- Highest north receptor was #18
- Highest northwest receptor was #11
- Highest northeast receptor was #59

Schedule for Comments and Recommendations

- Comments requested no later than ***Friday, August 24, 2007***

VI. SUMMARY

- Receptor #32 is among the higher concentrations for 3 of the 5 the pollutants and should pick up changes in the south runway.
- Receptor #11 & #12 are among the higher concentrations for 3 of the 5 pollutants. #12 is closest to the runway.



- Receptor 120 (G-1) is close enough to represent Receptors 18-21 and is one of the original 5 FAA selections.
- Receptor #118 (MIF-2) was found to have consistently higher values than #119 (MIF-1) when all years were reviewed and is one of the original 5 receptors FAA selected.
- Receptor #26 is included in the group of higher concentrations for 4 of the 5 pollutants.
- Receptor #27 concentrations are 10% of the curb value for PM.
- Receptor #28 picked up the highest CO resulting from northwest winds.

OhioEPA

State of Ohio Environmental Protection Agency

STREET ADDRESS:
Lazarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184
www.epa.state.oh.us

MAILING ADDRESS:
P.O. Box 1049
Columbus, OH 43216-1049

August 24, 2007

Katherine S. Jones
FAA, Detroit Airports DO
11677 South Wayne Rd
Romulus Michigan 48174

Re: Port Columbus runway relocation

Dear Ms. Jones:

I am writing to submit comments with respect to the current design for review of the environmental impact for the planned Port Columbus runway relocation project. Per your request, we are submitting comments regarding the unresolved modeling issues, by August 24, 2007.

I am disappointed with the effort it has taken to acknowledge and incorporate Ohio EPA staff input during their attempts to assist in the facilitation of meetings and the review of the approach for the environmental review associated with this proposed project. It has been my belief that both U.S. EPA and Ohio EPA rules not only allow our review, but require projects funded by the federal government to conform with the state implementation plan (SIP). My staff comments are directly related to compliance with the SIP and the potential impacts of the project on the community and especially the local sensitive population and I do not believe these comments can be ignored.

Though effort has been made recently by the FAA to improve the lack of consideration of Ohio EPA comments through teleconferences on August 10, 2007, August 13, 2007 and August 22, 2007, it does not change what has occurred over the last year or why we are still attempting to address the specific issues at hand.

In terms of the evaluation of the ambient impact associated with this project, it appears that the actual impact of the requested runway relocation had not previously been a consideration in the plan for evaluation of this project. Parameters for the reduced ambient impact analysis (the basis for determining receptors and meteorological data sets to be used for the remainder of the analyses) have not taken into account any evaluation of the proposed future case. The purpose of air dispersion modeling is to evaluate both the worst case impacts and the potential changes in air quality should the project be approved.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

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Questions and comments on the CMH EIS Air Quality Assessment should be directed to:

Ms. Katherine Jones
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road, Suite 107
Romulus, MI 48174
E-mail: CMHEIS@FAA.GOV
Web site: www.Airportsites.net/CMH-EIS

While Ohio EPA is concerned about the ambient air concentrations at individual homes in the area, the few selected receptors proposed by FAA and the contractor reflect locations chosen on the basis of noise complaints and do necessarily represent a majority of the population and also does not attempt to address possible locations of especially sensitive individuals who will be affected by this project. In order to provide an accurate representation of air quality, the modeling must be completed over a wider representative area with consideration for both maximum impacts due to the project and include special consideration to any sensitive populations.

A written summary of the meeting held June 19, 2006 at Ohio EPA, provided by Virginia Raps at Landrum and Brown, states "The final number and location of discrete receptors will be determined by the FAA project manager, Ms. Katherine Jones, following consultation with OPEA, USEPA, CRAA, and MORPC." Ohio EPA was not consulted by the FAA on the number or location of the receptors chosen. In addition, it is Ohio EPA's understanding that MORPC and U.S. EPA also were not consulted as agreed. Until the most recent discussions, it is apparent that this process was going forward without consideration of outside input.

During the August 8, 2007 Web conference, the FAA and Landrum and Brown mentioned two opportunities Ohio EPA had to comment on the number and location of the receptors and that no comments were received. Ohio EPA believes that the first opportunity to comment came after a teleconference discussion held on July 19, 2006. Ohio EPA did provide comments to the FAA on August 16, 2006, stating "the location of these receptors should be based on the number of hot spots, the location of any special 'sensitive' receptors and the gradient of the concentration. These locations can not be predetermined". Ohio EPA is also aware that U.S. EPA also provided written comments expressing similar concerns.

Ohio EPA believes that the second opportunity to comment came after the June 19, 2007 meeting. Ohio EPA could not advise the FAA as to which receptors would be appropriate to evaluate without the opportunity to review modeled concentrations for each pollutant. No modeling input files were supplied to Ohio EPA until after the July 19, 2007 comment deadline. Even then, only partial information was provided.

In an effort to utilize the initial modeling results to recommend an appropriate reduced receptor grid, Ohio EPA requested and received a portion of the AERMOD input files. In order to save resource of the federal government, Ohio EPA was willing to identify overall peak impact locations as well as the location of the peak impacts due to source groups and the receptor locations that would be most affected by the proposed change. The lack of complete input files, though, have prevented Ohio EPA from providing a comprehensive review based on modeling results. The attached recommendations are based on the partial information available and reflect peak project impact receptors for the various averaging periods as well as specific sensitive receptor locations.

The FAA consultant has stated that the number of model receptors used in the Columbus analysis is the minimal required and that choice had been based solely on the run time needed for the computer to complete the analysis. Ohio EPA cannot accept an inadequate analysis because the consultant to the FAA lacks adequate computational capacity. The number and location of receptors should be sufficient to answer any concerns about the impact of a proposed project, both from the vocal community and those who can not speak for themselves. We are aware that similar efforts to reduce receptors and the number of meteorological years modeled has been attempted in projects in Florida, Philadelphia and Chicago and similar comments to those expressed by Ohio EPA and U.S. EPA reviewers were expressed indicating that shortcuts in the analyses solely to save time and money are not acceptable.

We have no desire to unnecessarily delay this project, but we must insist that a minimally acceptable air quality analysis be performed. It is in both of our interests that we resolve these air quality issues as soon as possible. We are public agencies and should focus our energies in serving the needs of the public. Please contact Sarah Hedlund at (614) 644-3632 or Sam MacDonald at (614) 728-1743 as soon as possible so that we can resolve thee air quality issues at this time and avoid a more serious delay later if the FAA fails to conform to the U.S. EPA and Ohio EPA regulations.

Sincerely,

Robert Hodanbosi

Robert F. Hodanbosi
Chief, Division of Air Pollution Control

cc: Patricia Morris, U.S. EPA, Region 5

Specific Comments

- 3hr SO2 should be carried through the modeling process.

- Absent the pollutant specific emission rates to incorporate into our evaluation of candidate receptor locations, we can not recommend alternative receptor locations by pollutant. Since all averaging times can be incorporated into a model run without computational penalties, 1, 3, 8, 24 and annual averaging times would be run.

- As part of the modeling report, documentation of the process for development of the AERMET and receptor information (AERMAP) should be described and the input files for these program are to be included in the reports.

- Receptor #11 YMCA Daycare) and receptor #53 (Goshen Lane Elementary School) are to be retained in future analyses. If the FAA believes that it is necessary to retain the noise complaint based receptors, they should be retained.

- Currently, the documentation for the maximum receptor along International Gateway has not been provided. The choice of that receptor and the exclusion of all others should be discussed and documented in the report.

- An initial set of model based receptors has been identified by FAA/L&B. The process used in the preliminary analyses included assumption on the meteorological conditions under which maximum concentrations would occur. Depending on averaging time, persistence can be as or more important than light winds. In addition, prevailing wind direction may not be as important as the direction of the closest receptor to a given source. It should also be noted that the initial grid which is being reduced is coarse to begin with and appears to be randomly placed. To perform the analysis needed to recommend the receptors which would be carried into subsequent analyses, Ohio EPA added receptors. Given that, Ohio EPA ran several days under all wind conditions and projected the maximum receptor locations for the various averaging times for individual source groups. The following are the receptors that Ohio EPA recommends be added to the previously identified model-based receptors.

- Ohio EPA independently performed two modeling runs using a random selection of days to determine the maximum modeled concentration for each pollutant. The following receptors have been chosen by Ohio EPA to be evaluated by FAA for the Port Columbus International Airport Environmental Impact Statement. Justification for each chosen receptor is provided.

1-hour

Receptor #119 has the highest 1-hour concentration.

3-hour

Receptor #11 has the highest 3-hour concentration. The Franklin County Mental Retardation and Developmental Disabilities facility shares a fenceline with Port Columbus Airport. The YMCA operates an all daycare for young children within the Franklin County MRDD building.

8-hour

Receptor #13 has the highest 8-hour concentration. The maximum modeled concentration is slightly higher than the modeled concentration at receptor #11. As a result, Ohio EPA is willing to accept the modeled concentration at receptor #11 as representative of the highest 8-hour concentration. Receptor #13 does not need to be evaluated in the Environmental Impact Statement.

24-hour

Receptor #32 has the highest 24-hour concentration. Receptor #32, located on the southern fenceline, will allow Ohio EPA to measure the impact of the project.

Receptor #12 has the highest 24 hour concentration. The maximum modeled concentration is slightly higher than the modeled concentration at receptor #11. As a result, the Ohio EPA is willing to accept the modeled concentration at receptor #11 as representative of the highest 24 hour concentration. Receptor #12 does not need to be evaluated in the Environmental Impact Statement.

Annual

Receptor #32 has the highest annual concentration. Ohio EPA considers receptor #32 to be a critical receptor to be evaluated because it has the highest modeled concentration for two averaging periods.

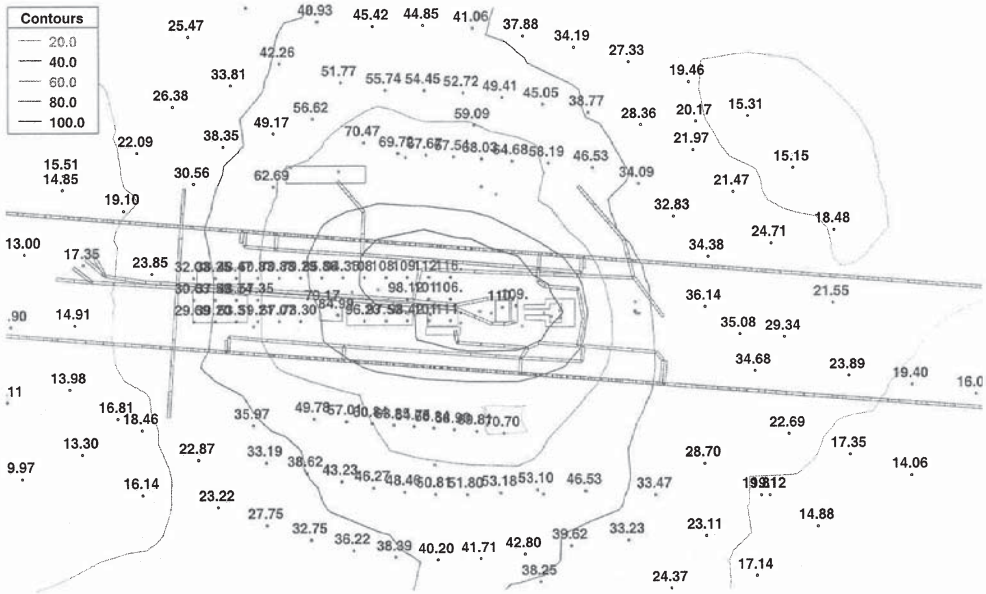
Additional Receptors

Receptor #53: Ohio EPA has chosen receptor #53 due to its proximity to Goshen Lane Elementary School. Although Goshen Lane Elementary may not voice noise complaints, the students are considered sensitive receptors.

Receptor (2303.55,-407.43): A receptor shall be placed on the airport golf course due to public access. The airport golf course is considered ambient air, therefore shall be evaluated.

CMH06PM2A24

C:\Models\Port Columbus\Draft Runs\OEPA Draft Run_01_OtherPM.GRF



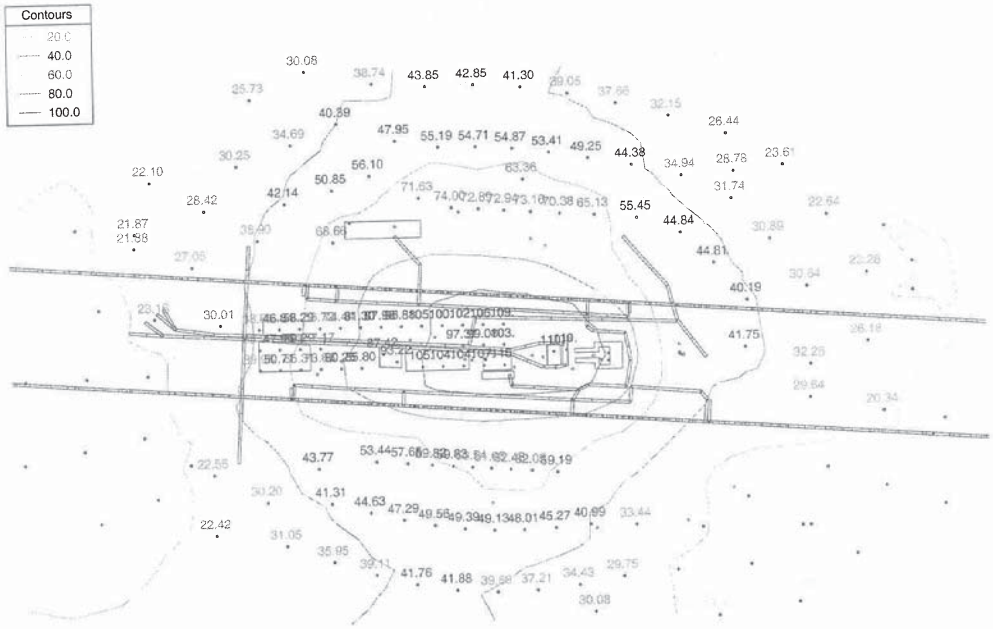
Scale: 1" = 802.1 Meters

ANNUAL VALUES FOR GROUP: AIRCRAFT

Max = 115.88161 (140.82, 262.43)

CMH06PM2A24

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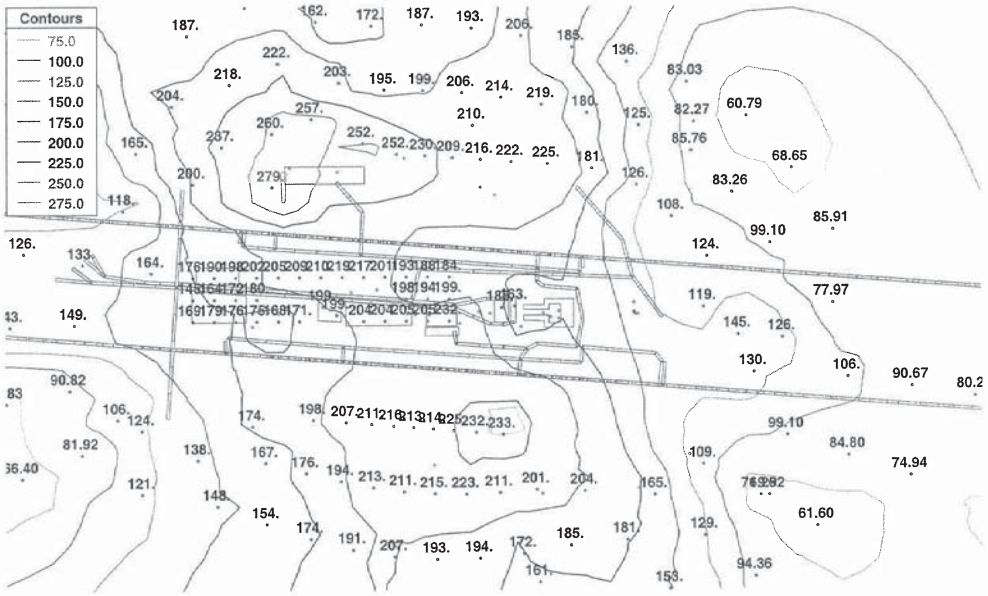
Scale: 1" = 843.7 Meters

PERIOD VALUES FOR GROUP: AIRCRAFT

Max = 114.69633 (140.82, -42.37)

CMH06PM2A24

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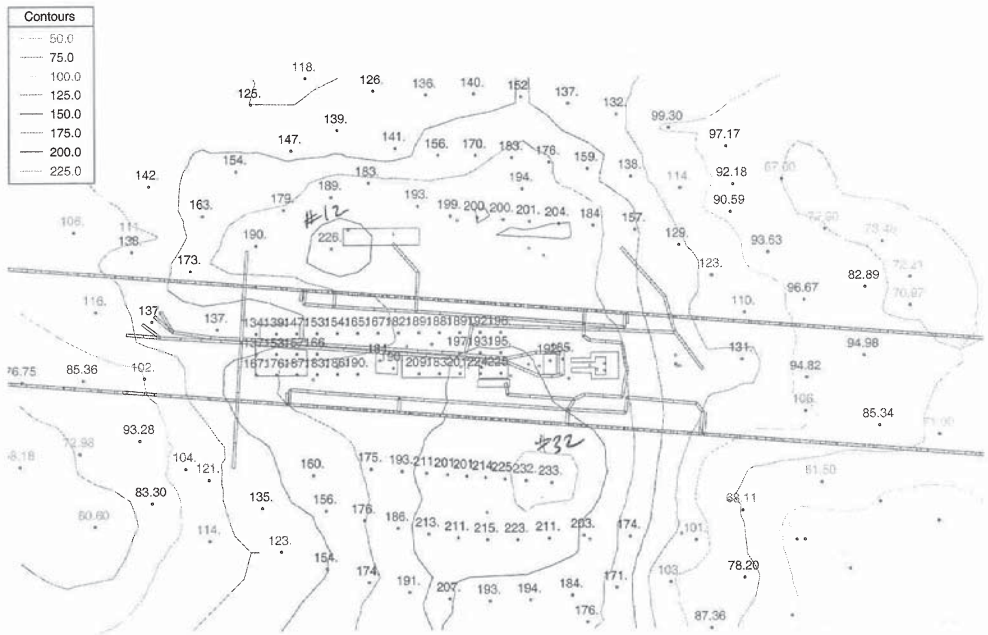
Scale: 1" = 802.1 Meters

HIGH 1ST HIGH 24-HR VALUES FOR GROUP: AIRCRAFT

Max = 279.30176 (-1120.29, 891.11)

CMH06PM2A24

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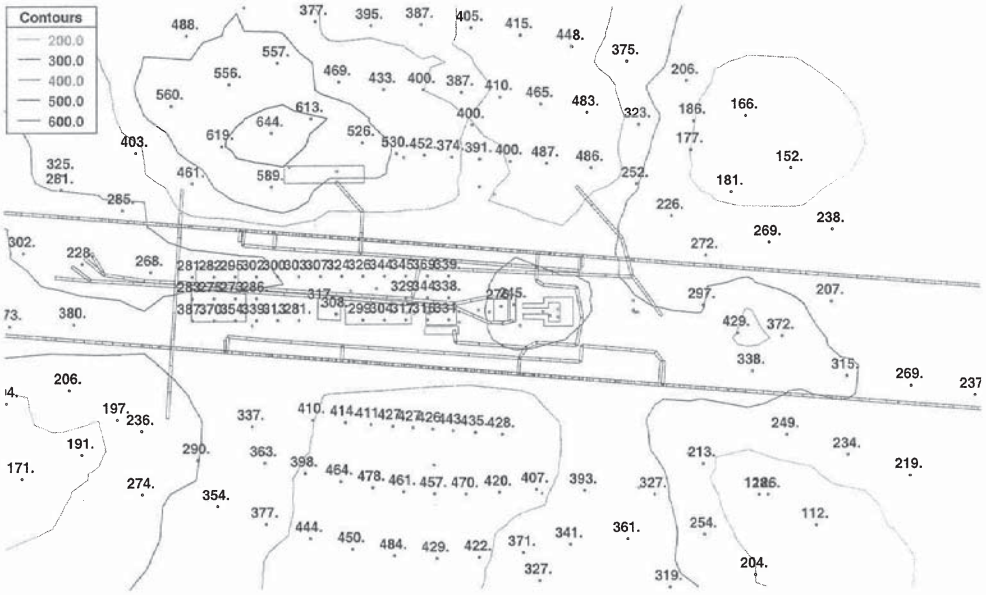
Scale: 1" = 843.7 Meters

HIGH 1ST HIGH 24-HR VALUES FOR GROUP: AIRCRAFT

Max = 233.49051 (515.42, -841.43)

CMH06PM2A24

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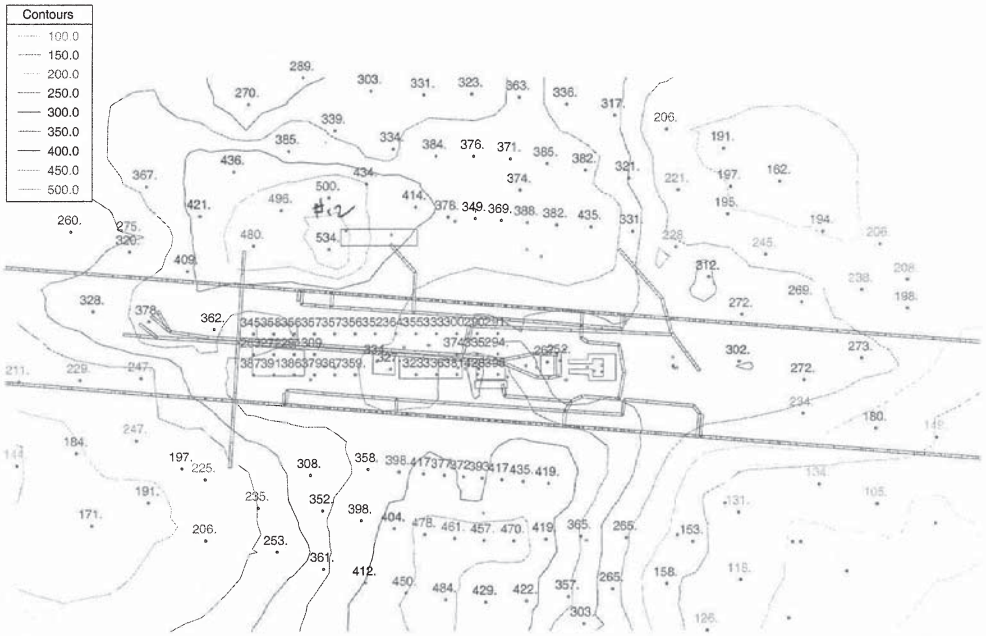
Scale: 1" = 802.1 Meters

HIGH 1ST HIGH 8-HR VALUES FOR GROUP: AIRCRAFT

Max = 644.25775 (-1120.84, 1266.9)

CMH06PM2A24

C:\BACKUP\MODELS\CMH2a_01_OtherPM.GRF

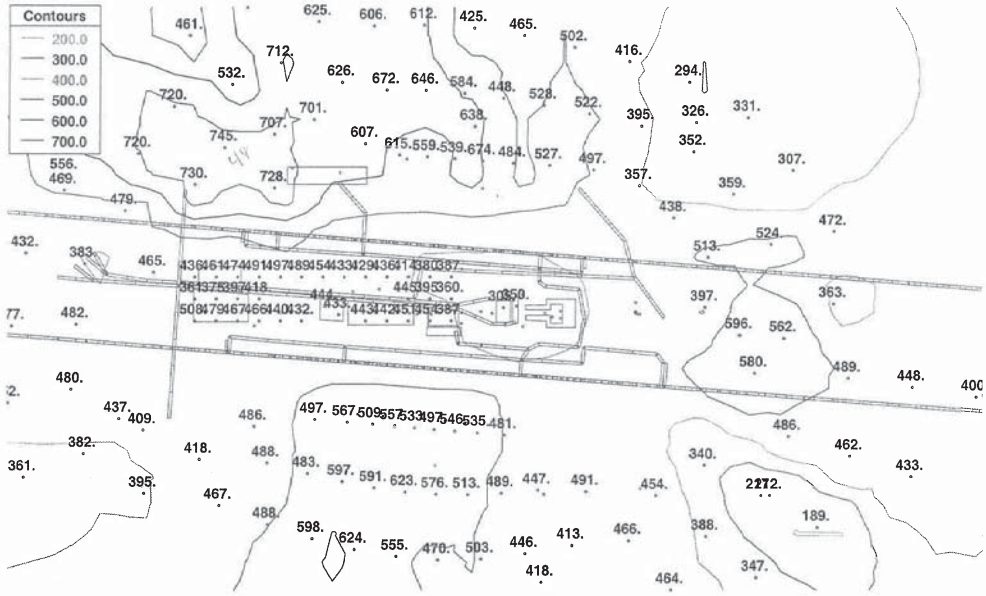


Scale: 1" = 843.7 Meters

HIGH 1ST HIGH 8-HR VALUES FOR GROUP: AIRCRAFT

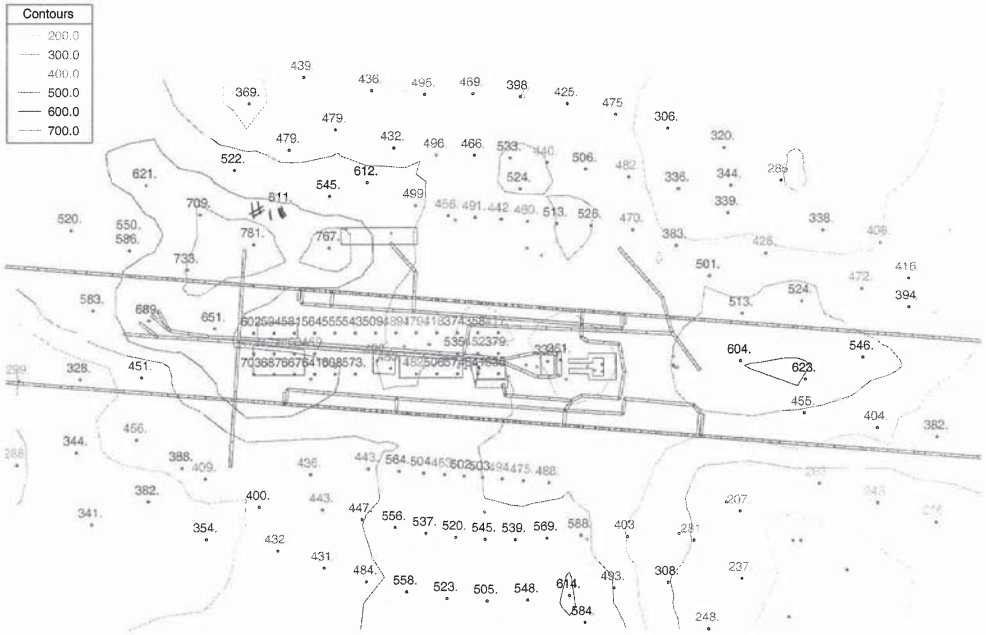
Max = 533.82727 (-1120.29, 891.11)

CMH06PM2A24 C:\Models\Port Columbus\Draft Runs\OEPA Draft Run_01_OtherPM.GRF



Scale: 1" = 802.1 Meters HIGH 1ST HIGH 3-HR VALUES FOR GROUP: AIRCRAFT Max = 745.17236 (-1478.07, 1175.74)

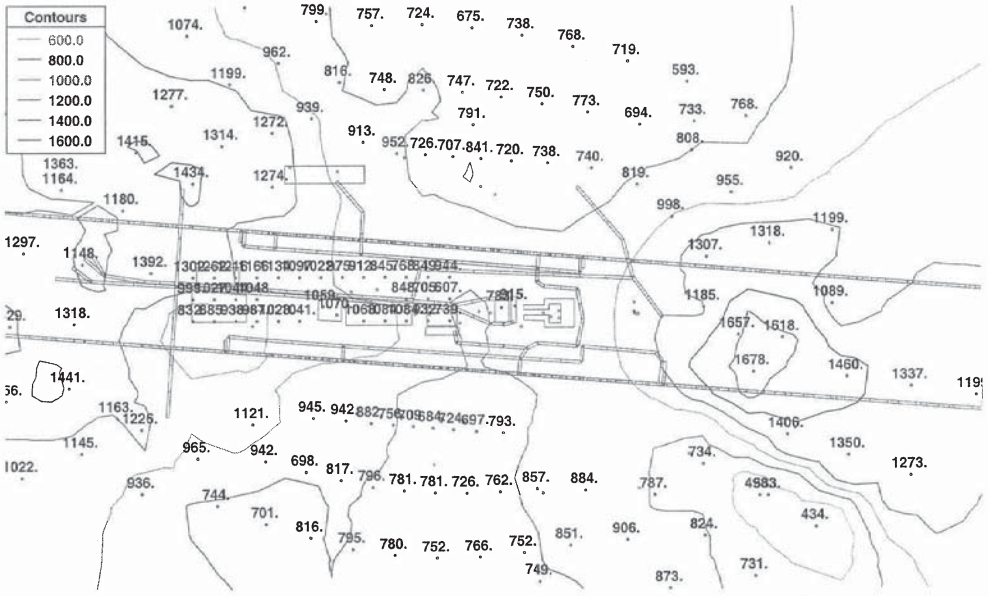
CMH06PM2A24 C:\BACKUP\MODELS\CMH2a_01_OtherPM.GRF



Scale: 1" = 843.7 Meters HIGH 1ST HIGH 3-HR VALUES FOR GROUP: AIRCRAFT Max = 780.80707 (-1687.22, 916.11)

CMH06PM2A24

C:\Models\Port Columbus\Draft Runs\OEPA Draft Run_01_OtherPM.GRF



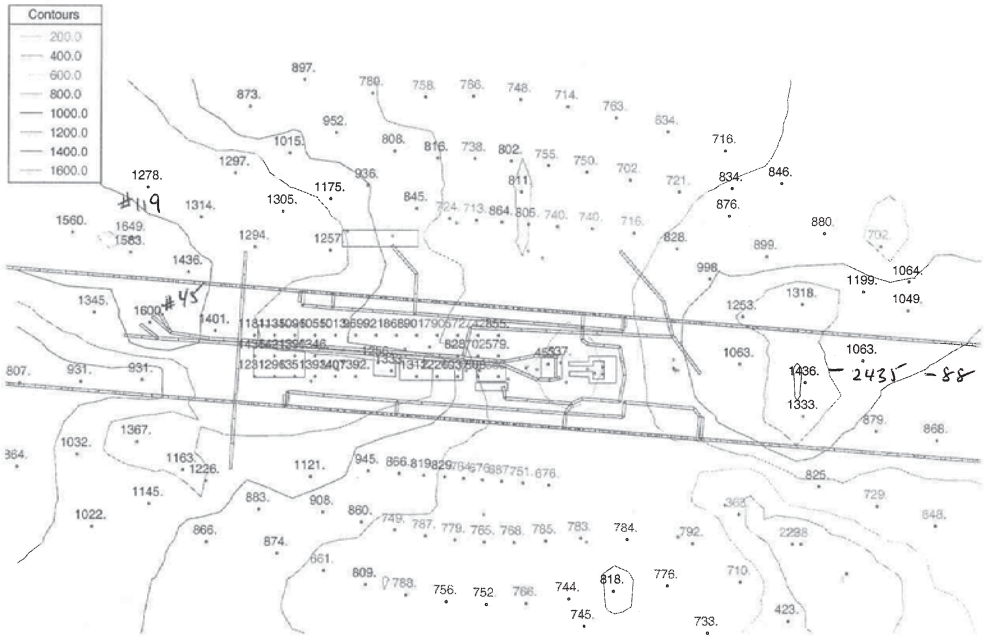
Scale: 1" = 802.1 Meters

HIGH 1ST HIGH 1-HR VALUES FOR GROUP: AIRCRAFT

Max = 1677.99963 (2303.55, -407.43)

CMH06PM2A24

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Scale: 1" = 843.7 Meters

HIGH 1ST HIGH 1-HR VALUES FOR GROUP: AIRCRAFT

Max = 1649.40454 (-2611.62, 978.07)

U.S. Department
of Transportation
**Federal Aviation
Administration**

Detroit Airports District Office
Metro Airport Center
11677 South Wayne Road, Ste. 107
Romulus, MI 48174

September 6, 2007

Mr. Robert F. Hodanbosi, Chief
Division of Air Pollution Control
Ohio Environmental Protection Agency
PO Box 1049
Columbus, OH 43216-1049

Dear Mr. Hodanbosi:

Port Columbus International Airport
Columbus, Ohio
Environmental Impact Statement

The Federal Aviation Administration (FAA) is in receipt of your comment letter and attachment "Specific Comments" dated, August 24, 2007. The FAA appreciates your comments on ways to improve the air quality analysis process for Environmental Impact Statements (EIS) and is taking those comments under review. We have prepared a response to comments for the "Specific Comments." It is attached to this letter.

Based on these comments, the FAA is taking the recommendation of the Ohio Environmental Protection Agency in the location of the additional five receptors that the FAA will evaluate as a part of the Draft EIS.

The FAA will model the following receptors for the Draft EIS.

1. Arrival Curb (FAA)
2. #60 (FAA)
3. #123 (FAA)
4. #118 (FAA)
5. #120 (FAA)
6. #32 (OEPA)
7. Golf course receptor (OEPA)
8. #119 (OEPA)
9. #11 (OEPA)
10. #53 (OEPA)

The FAA looks forward to continuing to work with your staff. If you have any additional questions, please contact Ms. Katherine Jones of my staff at (734) 229-2958.

Sincerely,

Matthew J. Thys
Manager
Detroit Airports District Office

Cc: Sherry Kamke, USEPA
Patricia Morris, USEPA
Rob Adams, L&B
FAA AGL 611.2

Summary points to answer OEPA comment letter:

- 3hr SO2 should be carried through the modeling process.

The three-hour concentration of SOx will be reported in the EIS for all alternatives, including existing conditions.

- Absent the pollutant specific emission rates to incorporate into our evaluation of candidate receptor locations, we can not recommend alternative receptor locations by pollutant. Since all averaging times can be incorporated into a model run without computational penalties, 1, 3, 8, 24 and annual averaging times would be run.

The dispersion analysis will be conducted to calculate all five averaging periods for emissions of CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$. However, only the averaging periods for which NAAQS exist will be reported and evaluated in the EIS as follows:

CO	1-hour and 8-hour
NO_x	annual
SO_x	3-hour, 24-hour, and annual
PM_{10}	24-hour
$PM_{2.5}$	24-hour and annual

The electronic files will contain all the additional data.

- Receptor #11 YMCA Daycare) and receptor #53 (Goshen Lane Elementary School) are to be retained in future analyses. If the FAA believes that it is necessary to retain the noise complaint based receptors, they should be retained.

The FAA had considered both Receptors 11 & 12. FAA initially chose #12 because the receptor is located closer to the emission source at Runway 10L, a methodology suggested in OEPA's comment letter. However, OPEA has requested the consideration of Receptor #11, which is located farther from the source but near a daycare center. FAA will include an evaluation of impacts at Receptor #11, instead of #12 as suggested by OEPA.

Receptor #53 is in close proximity to Receptor #120, which is a receptor location initially selected by FAA. While #53 is near a school, #120 is in the same neighborhood but closer to the emission source and is more likely to pick up changes in emissions from aircraft operating on Runway 10L/28R. Therefore, FAA will include an evaluation of both Receptor #53 and Receptor #120 in the dispersion analysis.

- Currently, the documentation for the maximum receptor along International Gateway has not been provided. The choice of that receptor and the exclusion of all others should be discussed and documented in the report.

Documentation of the rationale for selecting the receptor at the arrival curb, as well as the four other initial receptor locations, was provided to OEPA, USEPA, CRAA, and MORPC on Monday, August 6, 2007, and was discussed during a teleconference on August 8, 2007. While a representative from MORPC was invited to the conference call, followed up by phone and e-mail, MORPC did not attend the conference call but received a copy of the summary of the meeting minutes. Refer to electronic file, "Comparison for Worst-Case 080607.xls," provided in advance of the meeting for documentation of methodology, procedure, and a summary of the findings indicating the maximum possible concentrations would occur at the arrival curb when compared to the over 100 other receptor locations. This documentation will be included in the EIS as part of the air quality appendix material.

- An initial set of model based receptors has been identified by FAA/L&B. The process used in the preliminary analyses included assumption on the meteorological conditions under which maximum concentrations would occur. Depending on averaging time, persistence can be as or more important than light winds. In addition, prevailing wind direction may not be as important as the direction of the closest receptor to a given source. It should also be noted that the initial grid which is being reduced is coarse to begin with and appears to be randomly placed. To perform the analysis needed to recommend the receptors which would be carried into subsequent analyses, Ohio EPA added receptors. Given that, Ohio EPA ran several days under all wind conditions and projected the maximum receptor locations for the various averaging times for individual source groups. The following are the receptors that Ohio EPA recommends be added to the previously identified model-based receptors.

The selection of a worst-case meteorological year was not based on an assumption but rather was based on an analytical evaluation of preliminary modeling results using procedures provided by OEPA during the June 19, 2007, scoping meeting. These procedures were presented to OEPA during the conference call conducted August 8, 2007. Refer to electronic file, "Comparison for Worst-Case 080607.xls," which was provided to OEPA prior to the meeting.
The FAA does not consider the grid of airport and community receptors as coarse or randomly placed. As explained in the initial scoping meeting July 19, 2006, the grid was created by establishing a receptor around the perimeter of the airport, along the property line, every 10 degrees, as measured from the Airport Reference Point. A second and third ring of receptors was included to cover the area in Franklin County well beyond the property line. The procedure was detailed in the meeting summary. No comments have been received noting any deficiency in the configuration of the larger receptor grid.

- Ohio EPA independently performed two modeling runs using a random selection of days to determine the maximum modeled concentration for each pollutant. The following receptors have been chosen by Ohio EPA to be evaluated by FAA for the Port Columbus International Airport Environmental Impact Statement. Justification for each chosen receptor is provided.

1-hour

Receptor #119 has the highest 1-hour concentration.

The dispersion analysis will include an evaluation of impacts at Receptor #119.

3-hour

Receptor #11 has the highest 3-hour concentration. The Franklin County Mental Retardation and Developmental Disabilities facility shares a fenceline with Port Columbus Airport. The YMCA operates an all daycare for young children within the Franklin County MRDD building.

8-hour

Receptor #13 has the highest 8-hour concentration. The maximum modeled concentration is slightly higher than the modeled concentration at receptor #11. As a result, Ohio EPA is willing to accept the modeled concentration at receptor #11 as representative of the highest 8-hour concentration. Receptor #13 does not need to be evaluated in the Environmental Impact Statement.

The dispersion analysis will include an evaluation of impacts at Receptor #11, as discussed above.

24-hour

Receptor #32 has the highest 24-hour concentration. Receptor #32, located on the southern fenceline, will allow Ohio EPA to measure the impact of the project.

Receptor #12 has the highest 24 hour concentration. The maximum modeled concentration is slightly higher than the modeled concentration at receptor #11. As a result, the Ohio EPA is willing to accept the modeled concentration at receptor #11 as representative of the highest 24 hour concentration. Receptor #12 does not need to be evaluated in the Environmental Impact Statement.

Annual

Receptor #32 has the highest annual concentration. Ohio EPA considers receptor #32 to be a critical receptor to be evaluated because it has the highest modeled concentration for two averaging periods.

The FAA referred to Receptor #32 in the August 22, 2007, conference call presentation as the location where changes in emissions from the south runway would mostly likely be detected, which is where the major portion of the CMH proposed project would occur. Emissions of three of the five pollutants resulted in high emissions at #32. The dispersion analysis will include an evaluation of impacts at Receptor #32.

Additional Receptors

Receptor #53: Ohio EPA has chosen receptor #53 due to its proximity to Goshen Lane Elementary School. Although Goshen Lane Elementary may not voice noise complaints, the students are considered sensitive receptors.

Receptor (2303.55,-407.43): A receptor shall be placed on the airport golf course due to public access. The airport golf course is considered ambient air, therefore shall be evaluated.

The analysis will also include an evaluation of impacts at Receptor #53, as discussed previously.

Although the golf course is located within the airport property line, the course is within an area considered to be ambient air. Therefore, the dispersion analysis will include an evaluation of impacts at a receptor placed at 2303.55,-407.43 meters, located within the golf course, as suggested by OEPA.

The full set of receptors that will be evaluated in the EIS include:

1 - Arrival curb
2 - #60
3. - #123
4. - #118
5. - #120
6. - #32
7. - Golf course receptor
8. - #119
9. - #11
10. - #53

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ATTACHMENT 3
EDMS FILES BY ALTERNATIVE

The air quality analysis required extensive computer modeling using the FAA Emissions and Dispersion Modeling System (EDMS). There are many files associated with the several scenarios run in EDMS and some of the files would be hundreds of pages long to print into this attachment. Therefore, the electronic files for each scenario are available upon request. Please contact Katherine Delaney at katherine.s.delaney@faa.gov or at (734) 229-2958.

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ATTACHMENT 4
EDMS INVENTORY OUTPUT FILES BY ALTERNATIVE

The air quality analysis using the FAA Emissions and Dispersion Modeling System allows for printout of the inventory summary without including all the input data. The complete input data files are available electronically (see Attachment 3). This attachment includes the printouts of the inventory summary of each EDMS scenario included in the air quality assessment.

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Emissions Inventory Summary
(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	673.776	57.157	57.157	61.057	277.130	24.808	3.471	3.471
GSE/APU	945.092	40.517	36.910	38.455	70.540	8.833	3.086	2.986
Roadways	634.687	54.968	52.653	55.596	84.989	0.403	2.296	1.563
Parking Facilities	111.964	15.970	15.268	17.442	14.161	0.056	0.319	0.219
Stationary Sources	21.449	12.112	11.582	13.259	35.756	16.637	2.489	2.205
Total	2,386.967	180.724	173.570	185.809	482.576	50.737	11.661	10.444

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary
(Short Tons/Year)

Aircraft	Engine		CO	THC	NM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
A319	V2522-A5	TOTAL	0.136	0.002	0.002	0.002	0.356	0.028	0.003	0.003	0.000
10L		APU	0.004	0.000	0.000	0.000	0.024	0.002	0.000	0.000	0.000
		GSE	0.017	0.003	0.003	0.003	0.026	0.004	0.002	0.002	0.000
A320-200	V2500-A1	TOTAL	0.033	0.002	0.002	0.002	0.256	0.013	0.000	0.000	0.000
10L		APU	0.002	0.000	0.000	0.000	0.010	0.001	0.000	0.000	0.000
		GSE	0.007	0.001	0.001	0.001	0.011	0.002	0.001	0.001	0.000
A320-200	V2527-A5	TOTAL	0.170	0.002	0.002	0.002	0.517	0.036	0.004	0.004	0.000
10L		APU	0.007	0.000	0.000	0.000	0.030	0.003	0.000	0.000	0.000
		GSE	0.020	0.004	0.004	0.004	0.033	0.006	0.003	0.003	0.000
Aztec	TIO-540-J2B2	TOTAL	14.145	0.249	0.249	0.240	0.008	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.013	0.003	0.000	0.000	0.000
B737-300	CFM56-3-B1	TOTAL	2.180	0.134	0.134	0.147	1.707	0.172	0.002	0.002	0.000
10L		APU	0.335	0.019	0.019	0.021	0.088	0.019	0.000	0.000	0.000
		GSE	0.119	0.026	0.025	0.026	0.196	0.033	0.017	0.017	0.000
B737-300	CFM56-3B-2	TOTAL	0.270	0.014	0.014	0.017	0.270	0.025	0.001	0.001	0.000
10L		APU	0.045	0.002	0.002	0.003	0.012	0.002	0.000	0.000	0.000
		GSE	0.017	0.003	0.003	0.003	0.026	0.004	0.002	0.002	0.000
B737-500	CFM56-3C-1	TOTAL	0.130	0.007	0.007	0.007	0.172	0.014	0.000	0.000	0.000
10L		APU	0.023	0.001	0.001	0.001	0.006	0.001	0.000	0.000	0.000
		GSE	0.008	0.002	0.002	0.002	0.013	0.002	0.001	0.001	0.000
B737-700	CFM56-7B22	TOTAL	1.182	0.125	0.125	0.136	2.192	0.163	0.034	0.034	0.000
10L		APU	0.085	0.007	0.007	0.007	0.115	0.018	0.000	0.000	0.000
		GSE	0.103	0.023	0.022	0.023	0.168	0.029	0.014	0.014	0.000
B737-800	CFM56-7B26	TOTAL	0.164	0.017	0.017	0.019	0.509	0.031	0.009	0.009	0.000
10L		APU	0.013	0.001	0.001	0.001	0.019	0.003	0.000	0.000	0.000
		GSE	0.017	0.003	0.003	0.003	0.028	0.004	0.002	0.002	0.000
B757-300	PW2043	TOTAL	0.117	0.009	0.009	0.010	0.446	0.022	N/A	N/A	0.000
10L		APU	0.006	0.001	0.001	0.001	0.014	0.001	0.000	0.000	0.000
		GSE	0.008	0.002	0.002	0.002	0.013	0.002	0.001	0.001	0.000
BAE146-300	LF507 SERIES	TOTAL	0.548	0.063	0.063	0.068	0.433	0.049	0.006	0.006	0.000
10L		APU	0.022	0.002	0.002	0.002	0.015	0.003	0.000	0.000	0.000
		GSE	1.490	0.061	0.055	0.057	0.077	0.008	0.004	0.004	0.000
BH-1900	PT6A-67D	TOTAL	0.194	0.052	0.052	0.055	0.028	0.007	N/A	N/A	0.000
10L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.207	0.046	0.042	0.043	0.039	0.002	0.001	0.001	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	2.424	0.014	0.014	0.015	2.864	0.281	0.012	0.012	0.000
10L		APU	0.860	0.050	0.050	0.054	0.227	0.047	0.000	0.000	0.000
		GSE	13.054	0.529	0.480	0.497	0.671	0.069	0.037	0.035	0.000
Cessna 172 Skyhawk	O-320	TOTAL	4.092	0.066	0.066	0.064	0.008	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.001	0.001	0.001	0.017	0.003	0.000	0.000	0.000
Cessna 441 Conque...	TPE331-8	TOTAL	0.032	0.002	0.002	0.002	0.031	0.003	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.014	0.002	0.001	0.001	0.000
Cessna T337	IO-360-B	TOTAL	0.266	0.004	0.004	0.004	0.002	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.729	0.028	0.025	0.026	0.023	0.001	0.000	0.000	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.202	0.062	0.062	0.066	0.017	0.002	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.525	0.022	0.020	0.020	0.019	0.001	0.000	0.000	0.000
CL600	ALF 502L-2	TOTAL	1.243	0.171	0.171	0.181	0.631	0.043	0.008	0.008	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.057	0.337	0.305	0.317	0.532	0.062	0.021	0.020	0.000
DC9-30	JT8D-15 (old ...	TOTAL	1.133	0.324	0.324	0.355	0.874	0.086	0.062	0.062	0.000
10L		APU	0.118	0.007	0.007	0.008	0.031	0.007	0.000	0.000	0.000
		GSE	0.042	0.010	0.009	0.010	0.068	0.011	0.006	0.006	0.000
DC9-50	JT8D-17 (old ...	TOTAL	0.422	0.139	0.139	0.151	0.362	0.035	0.026	0.026	0.000
10L		APU	0.050	0.003	0.003	0.003	0.013	0.002	0.000	0.000	0.000
		GSE	0.018	0.004	0.003	0.004	0.029	0.004	0.002	0.002	0.000
Embraer ERJ 135/140	AE3007A1/3 (...	TOTAL	2.951	0.246	0.246	0.262	2.157	0.227	0.000	0.000	0.000
10L		APU	0.219	0.021	0.021	0.022	0.157	0.034	0.000	0.000	0.000
		GSE	14.683	0.595	0.539	0.560	0.755	0.078	0.042	0.040	0.000
Embraer ERJ 135/140	AE3007A3 (T...	TOTAL	0.330	0.028	0.028	0.030	0.226	0.024	0.000	0.000	0.000
10L		APU	0.023	0.002	0.002	0.002	0.017	0.003	0.000	0.000	0.000
		GSE	1.547	0.063	0.056	0.058	0.079	0.008	0.004	0.004	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
Embraer ERJ 145	AE3007A	TOTAL	0.078	0.013	0.013	0.146	0.012	0.000	0.000	0.000
10L		APU	0.011	0.001	0.001	0.008	0.002	0.000	0.000	0.000
		GSE	0.766	0.031	0.029	0.040	0.004	0.002	0.002	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.316	0.025	0.025	0.279	0.026	0.000	0.000	0.000
10L		APU	0.023	0.002	0.002	0.017	0.003	0.000	0.000	0.000
		GSE	1.547	0.063	0.056	0.079	0.008	0.004	0.004	0.000
Embraer ERJ 145LR	AE3007A1/1 (...	TOTAL	2.098	0.175	0.175	1.554	0.158	0.000	0.000	0.000
10L		APU	0.150	0.014	0.014	0.107	0.023	0.000	0.000	0.000
		GSE	10.044	0.407	0.368	0.517	0.054	0.029	0.028	0.000
Embraer ERJ 145LR	AE3007A1/3 (...	TOTAL	2.484	0.207	0.207	1.816	0.191	0.000	0.000	0.000
10L		APU	0.185	0.018	0.018	0.131	0.029	0.000	0.000	0.000
		GSE	12.357	0.500	0.453	0.636	0.066	0.035	0.034	0.000
Embraer ERJ 145LR	AE3007A1P (...	TOTAL	2.743	0.228	0.228	2.034	0.206	0.000	0.000	0.000
10L		APU	0.196	0.019	0.019	0.140	0.031	0.000	0.000	0.000
		GSE	13.136	0.532	0.482	0.676	0.069	0.037	0.036	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.114	0.011	0.011	1.778	0.171	0.017	0.017	0.000
10L		APU	0.115	0.011	0.011	0.082	0.018	0.000	0.000	0.000
		GSE	7.675	0.311	0.282	0.395	0.041	0.022	0.021	0.000
F-27 SERIES	RDa7	TOTAL	1.898	0.421	0.421	0.465	0.100	0.044	N/A	N/A	0.000
10L_GA		APU	0.119	0.014	0.014	0.015	0.012	0.003	0.000	0.000	0.000
		GSE	4.579	0.175	0.158	0.164	0.144	0.009	0.003	0.003	0.000
Falcon 20	CF700-2D	TOTAL	0.612	0.051	0.051	0.053	0.021	0.008	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.010	0.002	0.000	0.000	0.000
Falcon 2000EX	PW308C	TOTAL	0.319	0.040	0.040	0.042	0.259	0.024	0.002	0.002	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.516	0.063	0.056	0.058	0.055	0.003	0.001	0.001	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.195	0.022	0.022	0.024	0.208	0.018	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.172	0.046	0.042	0.044	0.037	0.002	0.001	0.000	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	0.205	0.034	0.034	0.036	0.169	0.019	0.011	0.011	0.000
10L_GA		APU	0.006	0.000	0.000	0.000	0.024	0.002	0.000	0.000	0.000
		GSE	1.036	0.041	0.036	0.037	0.034	0.002	0.001	0.001	0.000
HS 125	TFE731-3	TOTAL	0.397	0.064	0.064	0.071	0.192	0.011	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.684	0.141	0.127	0.132	0.117	0.008	0.002	0.002	0.000
KC-135R	CFM56-2A S...	TOTAL	0.508	0.023	0.023	0.025	0.996	0.074	0.003	0.003	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.026	0.008	0.008	0.009	0.099	0.012	0.007	0.007	0.000
Learjet 25C	CJ610-6	TOTAL	3.137	0.235	0.235	0.249	0.064	0.018	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.145	0.087	0.078	0.082	0.110	0.011	0.007	0.006	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.384	0.111	0.111	0.118	0.116	0.008	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.969	0.082	0.073	0.076	0.067	0.003	0.001	0.001	0.000
MD-80-82	JT8D-217 (ol...	TOTAL	0.085	0.026	0.026	0.029	0.251	0.018	0.004	0.004	0.000
10L		APU	0.023	0.001	0.001	0.001	0.006	0.001	0.000	0.000	0.000
		GSE	0.007	0.001	0.001	0.001	0.011	0.002	0.001	0.001	0.000
MD-80-83	JT8D-219 old...	TOTAL	0.618	0.191	0.191	0.209	1.920	0.129	0.037	0.037	0.000
10L		APU	0.168	0.010	0.010	0.011	0.044	0.009	0.000	0.000	0.000
		GSE	0.049	0.012	0.011	0.012	0.084	0.014	0.007	0.007	0.000
Navajo	TIO-540-J2B2	TOTAL	12.908	0.228	0.228	0.219	0.007	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.012	0.002	0.000	0.000	0.000
Piper PA-28	O-320	TOTAL	0.366	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
SF-340-B PLUS	CT7-5	TOTAL	0.084	0.013	0.013	0.014	0.047	0.007	N/A	N/A	0.000
10L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.936	0.074	0.067	0.069	0.062	0.004	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	0.301	0.240	0.240	0.265	0.024	0.003	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.037	0.011	0.011	0.012	0.140	0.018	0.009	0.009	0.000
550 Citation	JT15D-4 (B,C...	TOTAL	2.572	0.879	0.879	0.934	0.356	0.033	0.018	0.018	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.936	0.328	0.295	0.306	0.291	0.017	0.004	0.004	0.000
B737-300	CFM56-3C-1 ...	TOTAL	0.506	0.035	0.035	0.039	0.328	0.035	0.000	0.000	0.000
10L		APU	0.073	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	0.025	0.006	0.006	0.006	0.042	0.007	0.003	0.003	0.000
A319	V2524-A5	TOTAL	0.069	0.001	0.001	0.001	0.208	0.014	0.002	0.002	0.000
10L											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
		APU	0.002	0.000	0.000	0.000	0.012	0.001	0.000	0.000	0.000
		GSE	0.009	0.002	0.002	0.002	0.014	0.002	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.519	0.065	0.065	0.068	0.420	0.040	0.003	0.003	0.000
10L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.424	0.098	0.089	0.093	0.125	0.013	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C...	TOTAL	0.551	0.188	0.188	0.201	0.076	0.007	0.003	0.003	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.701	0.071	0.064	0.066	0.063	0.003	0.001	0.001	0.000
550 Citation	JT15D-4 (B,C...	TOTAL	2.011	0.687	0.687	0.731	0.279	0.026	0.013	0.013	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.206	0.257	0.231	0.240	0.228	0.012	0.003	0.003	0.000
550 Citation	JT15D-4 (B,C...	TOTAL	1.378	0.471	0.471	0.500	0.191	0.018	0.009	0.009	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.251	0.176	0.159	0.164	0.157	0.009	0.002	0.002	0.000
A319	V2524-A5	TOTAL	0.163	0.002	0.002	0.002	0.488	0.035	0.004	0.004	0.000
10R		APU	0.006	0.000	0.000	0.000	0.030	0.003	0.000	0.000	0.000
		GSE	0.020	0.004	0.004	0.004	0.033	0.006	0.003	0.002	0.000
A319	V2522-A5	TOTAL	0.324	0.004	0.004	0.004	0.848	0.064	0.008	0.008	0.000
10R		APU	0.012	0.001	0.001	0.001	0.057	0.006	0.000	0.000	0.000
		GSE	0.039	0.009	0.009	0.009	0.064	0.011	0.006	0.006	0.000
A320-200	V2527-A5	TOTAL	0.548	0.008	0.008	0.009	1.667	0.118	0.014	0.014	0.000
10R		APU	0.020	0.001	0.001	0.001	0.097	0.010	0.000	0.000	0.000
		GSE	0.065	0.014	0.014	0.014	0.107	0.018	0.009	0.009	0.000
A320-200	V2500-A1	TOTAL	0.107	0.007	0.007	0.007	0.817	0.041	0.001	0.001	0.000
10R		APU	0.007	0.000	0.000	0.000	0.032	0.003	0.000	0.000	0.000
		GSE	0.022	0.004	0.004	0.004	0.036	0.006	0.003	0.003	0.000
Aztec	TIO-540-J2B2	TOTAL	19.220	0.338	0.338	0.327	0.010	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.001	0.001	0.002	0.019	0.004	0.001	0.001	0.000
B737-300	CFM56-3C-1 ...	TOTAL	1.427	0.099	0.099	0.109	0.927	0.099	0.001	0.001	0.000
10R		APU	0.205	0.012	0.012	0.013	0.054	0.011	0.000	0.000	0.000
		GSE	0.073	0.017	0.015	0.017	0.120	0.020	0.010	0.010	0.000
B737-300	CFM56-3B-2	TOTAL	0.628	0.034	0.034	0.037	0.628	0.058	0.001	0.001	0.000
10R		APU	0.105	0.006	0.006	0.007	0.028	0.006	0.000	0.000	0.000
		GSE	0.037	0.009	0.008	0.009	0.062	0.010	0.006	0.006	0.000
B737-300	CFM56-3-B1	TOTAL	5.973	0.368	0.368	0.403	4.678	0.470	0.007	0.007	0.000
10R		APU	0.917	0.053	0.053	0.057	0.243	0.051	0.000	0.000	0.000
		GSE	0.326	0.073	0.069	0.074	0.537	0.090	0.046	0.044	0.000
B737-500	CFM56-3C-1	TOTAL	0.313	0.015	0.015	0.017	0.412	0.034	0.001	0.001	0.000
10R		APU	0.055	0.003	0.003	0.003	0.014	0.003	0.000	0.000	0.000
		GSE	0.020	0.004	0.004	0.004	0.032	0.006	0.003	0.002	0.000
B737-700	CFM56-7B22	TOTAL	3.182	0.334	0.334	0.366	5.905	0.441	0.093	0.093	0.000
10R		APU	0.227	0.018	0.018	0.019	0.310	0.046	0.000	0.000	0.000
		GSE	0.276	0.062	0.058	0.062	0.453	0.076	0.039	0.037	0.000
B737-800	CFM56-7B26	TOTAL	0.387	0.040	0.040	0.044	1.197	0.073	0.022	0.022	0.000
10R		APU	0.032	0.002	0.002	0.002	0.044	0.007	0.000	0.000	0.000
		GSE	0.040	0.009	0.009	0.009	0.064	0.011	0.006	0.006	0.000
B757-300	PW2043	TOTAL	0.281	0.022	0.022	0.024	1.073	0.054	N/A	N/A	0.000
10R		APU	0.014	0.001	0.001	0.001	0.033	0.003	0.000	0.000	0.000
		GSE	0.020	0.004	0.004	0.004	0.032	0.006	0.003	0.002	0.000
BAE146-300	LF507 SERIES	TOTAL	0.292	0.033	0.033	0.036	0.230	0.026	0.003	0.003	0.000
10R		APU	0.012	0.001	0.001	0.001	0.009	0.002	0.000	0.000	0.000
		GSE	0.794	0.032	0.029	0.030	0.041	0.004	0.002	0.002	0.000
BH-1900	PT6A-67D	TOTAL	0.174	0.046	0.046	0.050	0.025	0.006	N/A	N/A	0.000
10R		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.082	0.042	0.037	0.039	0.034	0.002	0.001	0.001	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	1.314	0.008	0.008	0.009	1.553	0.152	0.007	0.007	0.000
10R		APU	0.466	0.026	0.026	0.029	0.123	0.025	0.000	0.000	0.000
		GSE	7.077	0.287	0.260	0.270	0.364	0.037	0.020	0.020	0.000
Cessna 172 Skyhawk	O-320	TOTAL	6.638	0.108	0.108	0.104	0.012	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.002	0.002	0.002	0.026	0.006	0.001	0.001	0.000
Cessna 441 Conque...	TPE331-8	TOTAL	0.095	0.007	0.007	0.007	0.093	0.011	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.009	0.003	0.003	0.003	0.044	0.008	0.002	0.002	0.000
Cessna T337	IO-360-B	TOTAL	0.677	0.012	0.012	0.011	0.004	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.852	0.071	0.064	0.066	0.058	0.003	0.001	0.001	0.000
CITATION I SP	JT15D-1A_1B	TOTAL	0.762	0.236	0.236	0.250	0.063	0.008	0.004	0.004	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THCNM...	VOC	NOx	SOx	PM...PM-...	Fuel Cons...	
		GSE	1.984	0.082	0.074	0.077	0.073	0.004	0.001	0.001
CL600	ALF 502L-2	TOTAL	0.696	0.096	0.096	0.101	0.353	0.024	0.004	0.004
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.510	0.188	0.171	0.177	0.298	0.034	0.011	0.011
DC9-30	JT8D-15 (old ...	TOTAL	2.984	0.854	0.854	0.936	2.301	0.227	0.163	0.163
10R		APU	0.309	0.018	0.018	0.020	0.082	0.018	0.000	0.000
		GSE	0.110	0.024	0.023	0.025	0.181	0.031	0.015	0.015
DC9-50	JT8D-17 (old ...	TOTAL	1.276	0.418	0.418	0.457	1.092	0.107	0.078	0.078
10R		APU	0.150	0.009	0.009	0.010	0.040	0.009	0.000	0.000
		GSE	0.053	0.012	0.011	0.012	0.087	0.014	0.008	0.008
Embraer ERJ 135/140	AE3007A3 (T...	TOTAL	0.184	0.015	0.015	0.017	0.126	0.013	0.000	0.000
10R		APU	0.013	0.001	0.001	0.001	0.009	0.002	0.000	0.000
		GSE	0.864	0.035	0.032	0.033	0.044	0.004	0.002	0.002
Embraer ERJ 135/140	AE3007A1/3 (...	TOTAL	1.646	0.138	0.138	0.146	1.204	0.127	0.000	0.000
10R		APU	0.122	0.012	0.012	0.012	0.087	0.019	0.000	0.000
		GSE	8.191	0.332	0.301	0.312	0.421	0.044	0.023	0.022
Embraer ERJ 145	AE3007A1E	TOTAL	0.176	0.014	0.014	0.015	0.155	0.014	0.000	0.000
10R		APU	0.013	0.001	0.001	0.001	0.009	0.002	0.000	0.000
		GSE	0.864	0.035	0.032	0.033	0.044	0.004	0.002	0.002
Embraer ERJ 145	AE3007A	TOTAL	0.044	0.008	0.008	0.008	0.083	0.007	0.000	0.000
10R		APU	0.007	0.001	0.001	0.001	0.004	0.001	0.000	0.000
		GSE	0.432	0.018	0.015	0.017	0.022	0.002	0.001	0.001
Embraer ERJ 145LR	AE3007A1P (...	TOTAL	1.530	0.128	0.128	0.136	1.134	0.115	0.000	0.000
10R		APU	0.109	0.010	0.010	0.011	0.078	0.017	0.000	0.000
		GSE	7.327	0.297	0.269	0.279	0.377	0.039	0.021	0.020
Embraer ERJ 145LR	AE3007A1/3 (...	TOTAL	1.386	0.116	0.116	0.123	1.013	0.107	0.000	0.000
10R		APU	0.104	0.010	0.010	0.010	0.073	0.015	0.000	0.000
		GSE	6.896	0.280	0.254	0.263	0.355	0.036	0.020	0.019
Embraer ERJ 145LR	AE3007A1/1 (...	TOTAL	1.170	0.098	0.098	0.104	0.866	0.087	0.000	0.000
10R		APU	0.084	0.008	0.008	0.009	0.060	0.013	0.000	0.000
		GSE	5.600	0.227	0.205	0.214	0.288	0.030	0.015	0.015
Embraer ERJ 170	CF34-8E5	TOTAL	0.604	0.006	0.006	0.007	0.966	0.093	0.009	0.009
10R		APU	0.062	0.006	0.006	0.007	0.044	0.010	0.000	0.000
		GSE	4.166	0.169	0.153	0.159	0.214	0.022	0.012	0.011
F-27 SERIES	RDa7	TOTAL	2.218	0.493	0.493	0.543	0.117	0.052	N/A	N/A
10R_GA		APU	0.140	0.017	0.017	0.019	0.013	0.003	0.000	0.000
		GSE	5.348	0.205	0.185	0.192	0.169	0.011	0.003	0.003
Falcon 20	CF700-2D	TOTAL	2.250	0.184	0.184	0.196	0.078	0.029	N/A	N/A
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.008	0.002	0.002	0.003	0.036	0.007	0.002	0.002
Falcon 2000EX	PW308C	TOTAL	0.468	0.058	0.058	0.062	0.379	0.035	0.003	0.003
10R		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.187	0.088	0.080	0.084	0.112	0.012	0.007	0.006
Falcon 2000EX	PW308C	TOTAL	0.170	0.021	0.021	0.022	0.138	0.013	0.001	0.001
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.808	0.033	0.030	0.031	0.030	0.001	0.000	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.718	0.083	0.083	0.088	0.764	0.066	N/A	N/A
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.309	0.171	0.154	0.160	0.137	0.008	0.002	0.002
Gulfstream IV	TAY Mk611-8	TOTAL	0.777	0.128	0.128	0.137	0.637	0.073	0.043	0.043
10R_GA		APU	0.019	0.001	0.001	0.001	0.094	0.009	0.000	0.000
		GSE	3.922	0.153	0.138	0.143	0.129	0.010	0.002	0.002
HS 125	TFE731-3	TOTAL	0.202	0.033	0.033	0.036	0.098	0.006	N/A	N/A
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.873	0.072	0.065	0.067	0.060	0.003	0.001	0.001
KC-135R	CFM56-2A S...	TOTAL	1.196	0.054	0.054	0.061	2.344	0.173	0.008	0.008
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.063	0.019	0.018	0.020	0.233	0.029	0.014	0.014
Learjet 25C	CJ610-6	TOTAL	11.471	0.858	0.858	0.912	0.233	0.064	N/A	N/A
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.843	0.317	0.288	0.299	0.403	0.042	0.022	0.021
Learjet 35/36	TFE 731-2-2B	TOTAL	1.436	0.417	0.417	0.443	0.434	0.030	N/A	N/A
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.378	0.304	0.274	0.284	0.254	0.012	0.003	0.003
MD-80-82	JT8D-217 (ol...	TOTAL	0.205	0.063	0.063	0.068	0.602	0.042	0.011	0.011
10R		APU	0.055	0.003	0.003	0.003	0.014	0.003	0.000	0.000
		GSE	0.015	0.004	0.003	0.004	0.028	0.004	0.002	0.002
MD-80-83	JT8D-219 old...	TOTAL	1.689	0.522	0.522	0.572	5.247	0.354	0.104	0.104
10R		APU	0.459	0.026	0.026	0.029	0.121	0.025	0.000	0.000
		GSE	0.132	0.032	0.031	0.033	0.228	0.037	0.018	0.018

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THCNM...	VOC	NOx	SOx	PM...PM-...	Fuel Cons...	
Navajo	TIO-540-J2B2	TOTAL	14.272	0.251	0.251	0.243	0.008	0.001	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.013	0.003	0.000	0.000
Piper PA-28	O-320	TOTAL	1.114	0.018	0.018	0.018	0.002	0.000	N/A	N/A
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.004	0.001	0.000	0.000
SF-340-B PLUS	CT7-5	TOTAL	0.076	0.012	0.012	0.012	0.043	0.006	N/A	N/A
10R		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.748	0.067	0.061	0.063	0.055	0.003	0.001	0.001
UC-12J	PT6A-42	TOTAL	0.998	0.796	0.796	0.880	0.083	0.010	N/A	N/A
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.126	0.036	0.036	0.039	0.464	0.057	0.030	0.029
A319	V2522-A5	TOTAL	0.993	0.013	0.013	0.014	2.601	0.197	0.024	0.024
28L		APU	0.036	0.002	0.002	0.003	0.176	0.018	0.000	0.000
		GSE	0.119	0.026	0.025	0.026	0.196	0.033	0.017	0.017
A319	V2524-A5	TOTAL	0.502	0.007	0.007	0.008	1.506	0.107	0.013	0.013
28L		APU	0.019	0.001	0.001	0.001	0.090	0.009	0.000	0.000
		GSE	0.062	0.013	0.013	0.014	0.101	0.017	0.009	0.009
A320-200	V2500-A1	TOTAL	0.208	0.012	0.012	0.013	1.585	0.078	0.002	0.002
28L		APU	0.013	0.001	0.001	0.001	0.063	0.007	0.000	0.000
		GSE	0.043	0.010	0.009	0.010	0.069	0.012	0.006	0.006
A320-200	V2527-A5	TOTAL	1.066	0.015	0.015	0.017	3.241	0.229	0.029	0.029
28L		APU	0.039	0.003	0.003	0.003	0.188	0.019	0.000	0.000
		GSE	0.127	0.029	0.028	0.029	0.208	0.035	0.018	0.018
Aztec	TIO-540-J2B2	TOTAL	46.812	0.826	0.826	0.797	0.024	0.003	N/A	N/A
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.011	0.004	0.003	0.004	0.045	0.010	0.001	0.001
B737-300	CFM56-3-B1	TOTAL	15.052	0.928	0.928	1.015	11.788	1.184	0.018	0.018
28L		APU	2.312	0.132	0.132	0.144	0.611	0.129	0.000	0.000
		GSE	0.823	0.184	0.176	0.186	1.353	0.227	0.116	0.112
B737-300	CFM56-3B-2	TOTAL	2.057	0.111	0.111	0.122	2.055	0.190	0.004	0.004
28L		APU	0.342	0.020	0.020	0.021	0.090	0.019	0.000	0.000
		GSE	0.121	0.028	0.026	0.028	0.201	0.033	0.018	0.017
B737-300	CFM56-3C-1 ...	TOTAL	3.430	0.238	0.238	0.261	2.230	0.238	0.003	0.003
28L		APU	0.492	0.029	0.029	0.031	0.130	0.028	0.000	0.000
		GSE	0.175	0.040	0.037	0.040	0.288	0.049	0.024	0.024
B737-500	CFM56-3C-1	TOTAL	0.959	0.047	0.047	0.052	1.264	0.106	0.003	0.003
28L		APU	0.169	0.010	0.010	0.011	0.044	0.010	0.000	0.000
		GSE	0.061	0.013	0.013	0.013	0.099	0.017	0.009	0.008
B737-700	CFM56-7B22	TOTAL	8.169	0.858	0.858	0.939	15.157	1.131	0.238	0.238
28L		APU	0.583	0.044	0.044	0.049	0.794	0.119	0.000	0.000
		GSE	0.707	0.159	0.151	0.160	1.162	0.195	0.099	0.096
B737-800	CFM56-7B26	TOTAL	1.188	0.122	0.122	0.134	3.682	0.223	0.067	0.067
28L		APU	0.099	0.008	0.008	0.008	0.136	0.020	0.000	0.000
		GSE	0.120	0.028	0.025	0.028	0.198	0.033	0.017	0.017
B757-300	PW2043	TOTAL	0.863	0.068	0.068	0.074	3.289	0.165	N/A	N/A
28L		APU	0.044	0.004	0.004	0.006	0.101	0.011	0.000	0.000
		GSE	0.061	0.013	0.013	0.013	0.099	0.017	0.009	0.008
BAE146-300	LF507 SERIES	TOTAL	0.952	0.109	0.109	0.119	0.753	0.085	0.010	0.010
28L		APU	0.039	0.003	0.003	0.004	0.028	0.006	0.000	0.000
		GSE	2.592	0.105	0.095	0.099	0.133	0.014	0.008	0.007
BH-1900	PT6A-67D	TOTAL	0.493	0.132	0.132	0.140	0.071	0.015	N/A	N/A
28L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.060	0.117	0.106	0.109	0.097	0.007	0.002	0.002
Bombardier CRJ700	CF34-8C1	TOTAL	4.001	0.023	0.023	0.025	4.729	0.464	0.020	0.020
28L		APU	1.419	0.082	0.082	0.089	0.375	0.079	0.000	0.000
		GSE	21.550	0.873	0.790	0.821	1.109	0.115	0.061	0.060
CITATION I SP	JT15D-1A ,1B	TOTAL	2.226	0.688	0.688	0.732	0.185	0.023	0.013	0.013
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.796	0.240	0.216	0.224	0.213	0.012	0.003	0.003
CL600	ALF 502L-2	TOTAL	1.951	0.268	0.268	0.284	0.991	0.067	0.013	0.013
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.648	0.529	0.480	0.498	0.836	0.097	0.032	0.031
Cessna 172 Skyhawk	O-320	TOTAL	19.026	0.308	0.308	0.298	0.034	0.002	N/A	N/A
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.019	0.007	0.007	0.007	0.076	0.017	0.002	0.002
Cessna 441 Conque...	TPE331-8	TOTAL	0.294	0.020	0.020	0.021	0.284	0.035	N/A	N/A
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.028	0.010	0.010	0.011	0.137	0.023	0.008	0.008
Cessna T337	IO-360-B	TOTAL	1.057	0.019	0.019	0.018	0.007	0.000	N/A	N/A
28L_GA										

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.892	0.111	0.100	0.104	0.091	0.006	0.002	0.002	0.000
DC9-30	JT8D-15 (old ...	TOTAL	8.040	2.303	2.303	2.520	6.197	0.611	0.441	0.441	0.000
28L		APU	0.832	0.047	0.047	0.052	0.219	0.046	0.000	0.000	0.000
		GSE	0.297	0.066	0.063	0.067	0.487	0.082	0.042	0.041	0.000
DC9-50	JT8D-17 (old ...	TOTAL	2.748	0.899	0.899	0.984	2.353	0.231	0.169	0.169	0.000
28L		APU	0.322	0.019	0.019	0.020	0.085	0.018	0.000	0.000	0.000
		GSE	0.115	0.025	0.024	0.026	0.188	0.032	0.017	0.015	0.000
Embraer ERJ 135/140	AE3007A1/3 (...	TOTAL	4.731	0.395	0.395	0.420	3.458	0.364	0.000	0.000	0.000
28L		APU	0.352	0.033	0.033	0.035	0.250	0.054	0.000	0.000	0.000
		GSE	23.543	0.955	0.864	0.897	1.211	0.126	0.067	0.065	0.000
Embraer ERJ 135/140	AE3007A3 (T...	TOTAL	0.528	0.044	0.044	0.047	0.362	0.039	0.000	0.000	0.000
28L		APU	0.037	0.003	0.003	0.003	0.026	0.006	0.000	0.000	0.000
		GSE	2.480	0.100	0.091	0.095	0.128	0.013	0.007	0.007	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.127	0.021	0.021	0.022	0.236	0.021	0.000	0.000	0.000
28L		APU	0.019	0.002	0.002	0.002	0.013	0.003	0.000	0.000	0.000
		GSE	1.240	0.051	0.045	0.047	0.064	0.007	0.003	0.003	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.508	0.041	0.041	0.043	0.448	0.043	0.000	0.000	0.000
28L		APU	0.037	0.003	0.003	0.003	0.026	0.006	0.000	0.000	0.000
		GSE	2.480	0.100	0.091	0.095	0.128	0.013	0.007	0.007	0.000
Embraer ERJ 145LR	AE3007A1/1 (...	TOTAL	3.363	0.281	0.281	0.299	2.491	0.252	0.000	0.000	0.000
28L		APU	0.240	0.023	0.023	0.024	0.171	0.037	0.000	0.000	0.000
		GSE	16.104	0.653	0.591	0.614	0.829	0.086	0.045	0.044	0.000
Embraer ERJ 145LR	AE3007A1/3 (...	TOTAL	3.984	0.333	0.333	0.354	2.912	0.306	0.000	0.000	0.000
28L		APU	0.297	0.028	0.028	0.030	0.211	0.046	0.000	0.000	0.000
		GSE	19.823	0.804	0.728	0.756	1.020	0.106	0.056	0.054	0.000
Embraer ERJ 145LR	AE3007A1P (...	TOTAL	4.397	0.366	0.366	0.389	3.261	0.330	0.000	0.000	0.000
28L		APU	0.315	0.030	0.030	0.032	0.224	0.049	0.000	0.000	0.000
		GSE	21.063	0.854	0.773	0.804	1.084	0.112	0.060	0.057	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.840	0.018	0.018	0.019	2.938	0.281	0.028	0.028	0.000
28L		APU	0.190	0.018	0.018	0.020	0.134	0.030	0.000	0.000	0.000
		GSE	12.677	0.514	0.465	0.483	0.653	0.067	0.036	0.035	0.000
F-27 SERIES	RDa7	TOTAL	5.255	1.166	1.166	1.289	0.277	0.123	N/A	N/A	0.000
28L_GA		APU	0.331	0.040	0.040	0.043	0.032	0.009	0.000	0.000	0.000
		GSE	12.675	0.486	0.438	0.454	0.401	0.025	0.009	0.009	0.000
Falcon 20	CF700-2D	TOTAL	7.614	0.625	0.625	0.664	0.265	0.097	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.028	0.009	0.009	0.010	0.123	0.021	0.007	0.007	0.000
Gulfstream II	SPEY MK511-8	TOTAL	2.429	0.281	0.281	0.299	2.586	0.223	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	14.580	0.580	0.522	0.541	0.463	0.025	0.007	0.007	0.000
HS 125	TFE731-3	TOTAL	0.616	0.099	0.099	0.110	0.299	0.017	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.723	0.219	0.197	0.205	0.181	0.011	0.004	0.003	0.000
KC-135R	CFM56-2A S...	TOTAL	3.677	0.168	0.168	0.185	7.207	0.531	0.024	0.024	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.194	0.057	0.056	0.060	0.717	0.089	0.045	0.044	0.000
Learjet 25C	CJ610-6	TOTAL	38.791	2.900	2.900	3.083	0.787	0.216	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	26.524	1.075	0.973	1.011	1.365	0.141	0.075	0.073	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	4.621	1.340	1.340	1.425	1.398	0.096	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	23.732	0.979	0.882	0.914	0.817	0.040	0.010	0.010	0.000
MD-80-82	JT8D-217 (ol...	TOTAL	0.627	0.192	0.192	0.209	1.847	0.130	0.033	0.033	0.000
28L		APU	0.169	0.010	0.010	0.011	0.044	0.010	0.000	0.000	0.000
		GSE	0.049	0.012	0.011	0.012	0.084	0.014	0.007	0.007	0.000
MD-80-83	JT8D-219 old...	TOTAL	4.255	1.316	1.316	1.441	13.223	0.891	0.261	0.261	0.000
28L		APU	1.155	0.066	0.066	0.073	0.305	0.064	0.000	0.000	0.000
		GSE	0.334	0.082	0.077	0.082	0.575	0.096	0.045	0.044	0.000
Navajo	TIO-540-J2B2	TOTAL	44.084	0.777	0.777	0.751	0.023	0.003	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.010	0.003	0.003	0.004	0.042	0.009	0.001	0.001	0.000
Piper PA-28	O-320	TOTAL	3.457	0.055	0.055	0.054	0.006	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.012	0.002	0.000	0.000	0.000
SF-340-B PLUS	CT7-5	TOTAL	0.213	0.033	0.033	0.035	0.119	0.015	N/A	N/A	0.000
28L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.891	0.187	0.169	0.175	0.154	0.010	0.003	0.003	0.000
UC-12J	PT6A-42	TOTAL	2.251	1.796	1.796	1.983	0.185	0.022	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
		GSE	0.284	0.083	0.082	0.087	1.046	0.130	0.066	0.064	0.000
550 Citation	JT15D-4 (B,C...	TOTAL	4.173	1.426	1.426	1.516	0.578	0.054	0.029	0.029	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.881	0.532	0.481	0.498	0.473	0.026	0.008	0.008	0.000
Falcon 2000EX	PW308C	TOTAL	0.554	0.069	0.069	0.074	0.450	0.042	0.004	0.004	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.636	0.109	0.098	0.101	0.097	0.006	0.001	0.001	0.000
550 Citation	JT15D-4 (B,C...	TOTAL	6.800	2.324	2.324	2.470	0.941	0.088	0.046	0.046	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	20.986	0.869	0.783	0.811	0.771	0.042	0.012	0.012	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	2.545	0.420	0.420	0.446	2.084	0.237	0.140	0.140	0.000
28L_GA		APU	0.062	0.004	0.004	0.004	0.305	0.030	0.000	0.000	0.000
		GSE	12.844	0.500	0.451	0.468	0.422	0.031	0.008	0.008	0.000
Falcon 2000EX	PW308C	TOTAL	1.312	0.163	0.163	0.174	1.063	0.100	0.009	0.009	0.000
28L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.130	0.248	0.225	0.234	0.315	0.033	0.018	0.017	0.000
A319	V2522-A5	TOTAL	0.514	0.007	0.007	0.008	1.347	0.103	0.013	0.013	0.000
28R		APU	0.019	0.001	0.001	0.001	0.091	0.009	0.000	0.000	0.000
		GSE	0.062	0.014	0.013	0.014	0.101	0.017	0.009	0.009	0.000
A319	V2524-A5	TOTAL	0.259	0.003	0.003	0.004	0.777	0.055	0.007	0.007	0.000
28R		APU	0.010	0.001	0.001	0.001	0.047	0.004	0.000	0.000	0.000
		GSE	0.032	0.007	0.007	0.007	0.052	0.009	0.004	0.004	0.000
A320-200	V2500-A1	TOTAL	0.091	0.006	0.006	0.006	0.696	0.034	0.001	0.001	0.000
28R		APU	0.006	0.000	0.000	0.000	0.028	0.002	0.000	0.000	0.000
		GSE	0.019	0.004	0.004	0.004	0.031	0.006	0.002	0.002	0.000
A320-200	V2527-A5	TOTAL	0.468	0.007	0.007	0.008	1.424	0.101	0.012	0.012	0.000
28R		APU	0.017	0.001	0.001	0.001	0.083	0.008	0.000	0.000	0.000
		GSE	0.056	0.012	0.012	0.012	0.091	0.015	0.008	0.008	0.000
Aztec	TIO-540-J2B2	TOTAL	47.287	0.834	0.834	0.805	0.025	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.011	0.004	0.004	0.004	0.045	0.010	0.001	0.001	0.000
B737-300	CFM56-3-B1	TOTAL	7.317	0.451	0.451	0.494	5.730	0.575	0.009	0.009	0.000
28R		APU	1.123	0.064	0.064	0.071	0.297	0.063	0.000	0.000	0.000
		GSE	0.400	0.089	0.086	0.090	0.658	0.110	0.056	0.054	0.000
B737-300	CFM56-3B-2	TOTAL	1.069	0.058	0.058	0.064	1.068	0.098	0.002	0.002	0.000
28R		APU	0.177	0.010	0.010	0.011	0.047	0.010	0.000	0.000	0.000
		GSE	0.063	0.014	0.013	0.014	0.104	0.018	0.009	0.009	0.000
B737-300	CFM56-3C-1 ...	TOTAL	1.645	0.115	0.115	0.126	1.069	0.114	0.001	0.001	0.000
28R		APU	0.236	0.013	0.013	0.014	0.062	0.013	0.000	0.000	0.000
		GSE	0.084	0.019	0.018	0.019	0.138	0.023	0.012	0.011	0.000
B737-500	CFM56-3C-1	TOTAL	0.495	0.024	0.024	0.026	0.653	0.054	0.002	0.002	0.000
28R		APU	0.087	0.006	0.006	0.006	0.023	0.004	0.000	0.000	0.000
		GSE	0.031	0.007	0.007	0.007	0.051	0.009	0.004	0.004	0.000
B737-700	CFM56-7B22	TOTAL	4.001	0.420	0.420	0.460	7.424	0.553	0.117	0.117	0.000
28R		APU	0.285	0.022	0.022	0.024	0.389	0.058	0.000	0.000	0.000
		GSE	0.346	0.077	0.074	0.078	0.569	0.096	0.049	0.047	0.000
B737-800	CFM56-7B26	TOTAL	0.615	0.064	0.064	0.069	1.906	0.116	0.035	0.035	0.000
28R		APU	0.052	0.004	0.004	0.004	0.071	0.011	0.000	0.000	0.000
		GSE	0.063	0.014	0.013	0.014	0.103	0.018	0.009	0.009	0.000
B757-300	PW2043	TOTAL	0.445	0.035	0.035	0.039	1.699	0.086	N/A	N/A	0.000
28R		APU	0.023	0.002	0.002	0.002	0.053	0.006	0.000	0.000	0.000
		GSE	0.031	0.007	0.007	0.007	0.051	0.009	0.004	0.004	0.000
BAE146-300	LF507 SERIES	TOTAL	1.944	0.223	0.223	0.244	1.539	0.173	0.020	0.020	0.000
28R		APU	0.079	0.008	0.008	0.008	0.056	0.012	0.000	0.000	0.000
		GSE	5.293	0.215	0.194	0.202	0.272	0.029	0.015	0.014	0.000
BH-1900	PT6A-67D	TOTAL	0.667	0.179	0.179	0.190	0.096	0.021	N/A	N/A	0.000
28R		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.141	0.159	0.143	0.149	0.131	0.009	0.003	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	8.311	0.047	0.047	0.053	9.820	0.962	0.041	0.041	0.000
28R		APU	2.946	0.169	0.169	0.185	0.778	0.164	0.000	0.000	0.000
		GSE	44.759	1.814	1.642	1.706	2.303	0.238	0.127	0.122	0.000
CITATION I SP	JT15D-1A_1B	TOTAL	0.784	0.243	0.243	0.258	0.065	0.008	0.004	0.004	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.040	0.085	0.076	0.079	0.075	0.004	0.001	0.001	0.000
CL600	ALF 502L-2	TOTAL	4.193	0.575	0.575	0.612	2.129	0.146	0.028	0.028	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	27.183	1.136	1.030	1.070	1.797	0.207	0.069	0.066	0.000
Cessna 172 Skyhawk	O-320	TOTAL	14.279	0.231	0.231	0.223	0.025	0.001	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.014	0.006	0.004	0.006	0.057	0.012	0.002	0.002	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...	
Cessna 441 Conque...	TPE331-8	TOTAL	0.120	0.008	0.008	0.009	0.116	0.014	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.011	0.004	0.004	0.004	0.056	0.009	0.003	0.003	0.000
Cessna T337	IO-360-B	TOTAL	0.776	0.013	0.013	0.013	0.004	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.123	0.082	0.074	0.076	0.067	0.004	0.001	0.001	0.000
DC9-30	JT8D-15 (old ...	TOTAL	3.994	1.143	1.143	1.252	3.079	0.303	0.219	0.219	0.000
28R		APU	0.413	0.023	0.023	0.026	0.109	0.023	0.000	0.000	0.000
		GSE	0.148	0.033	0.032	0.033	0.243	0.041	0.021	0.020	0.000
DC9-50	JT8D-17 (old ...	TOTAL	1.268	0.416	0.416	0.454	1.086	0.107	0.078	0.078	0.000
28R		APU	0.149	0.009	0.009	0.009	0.040	0.008	0.000	0.000	0.000
		GSE	0.053	0.012	0.011	0.012	0.087	0.014	0.008	0.008	0.000
Embraer ERJ 135/140	AE3007A1/3 (...	TOTAL	10.089	0.842	0.842	0.895	7.376	0.775	0.000	0.000	0.000
28R		APU	0.751	0.071	0.071	0.075	0.534	0.117	0.000	0.000	0.000
		GSE	50.206	2.035	1.842	1.915	2.583	0.268	0.142	0.138	0.000
Embraer ERJ 135/140	AE3007A3 (T...	TOTAL	1.123	0.095	0.095	0.101	0.771	0.082	0.000	0.000	0.000
28R		APU	0.079	0.008	0.008	0.008	0.056	0.012	0.000	0.000	0.000
		GSE	5.280	0.214	0.194	0.202	0.271	0.029	0.015	0.014	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.272	0.044	0.044	0.047	0.504	0.044	0.000	0.000	0.000
28R		APU	0.040	0.003	0.003	0.004	0.029	0.007	0.000	0.000	0.000
		GSE	2.647	0.107	0.097	0.101	0.137	0.014	0.008	0.008	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.081	0.087	0.087	0.093	0.952	0.090	0.000	0.000	0.000
28R		APU	0.079	0.008	0.008	0.008	0.056	0.012	0.000	0.000	0.000
		GSE	5.280	0.214	0.194	0.202	0.271	0.029	0.015	0.014	0.000
Embraer ERJ 145LR	AE3007A1/1 (...	TOTAL	7.174	0.599	0.599	0.637	5.315	0.538	0.000	0.000	0.000
28R		APU	0.514	0.049	0.049	0.052	0.365	0.079	0.000	0.000	0.000
		GSE	34.354	1.392	1.261	1.310	1.767	0.183	0.097	0.094	0.000
Embraer ERJ 145LR	AE3007A1/3 (...	TOTAL	8.497	0.709	0.709	0.754	6.210	0.653	0.000	0.000	0.000
28R		APU	0.632	0.060	0.060	0.064	0.450	0.098	0.000	0.000	0.000
		GSE	42.279	1.714	1.552	1.612	2.175	0.225	0.120	0.116	0.000
Embraer ERJ 145LR	AE3007A1P (...	TOTAL	9.377	0.780	0.780	0.830	6.954	0.703	0.000	0.000	0.000
28R		APU	0.671	0.064	0.064	0.067	0.477	0.104	0.000	0.000	0.000
		GSE	44.927	1.821	1.649	1.713	2.312	0.239	0.128	0.123	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	3.822	0.036	0.036	0.040	6.100	0.584	0.058	0.058	0.000
28R		APU	0.394	0.037	0.037	0.041	0.280	0.061	0.000	0.000	0.000
		GSE	26.329	1.067	0.967	1.004	1.355	0.140	0.075	0.072	0.000
F-27 SERIES	RDa7	TOTAL	6.376	1.415	1.415	1.563	0.335	0.150	N/A	N/A	0.000
28R_GA		APU	0.401	0.047	0.047	0.053	0.040	0.011	0.000	0.000	0.000
		GSE	15.381	0.590	0.531	0.551	0.486	0.031	0.011	0.010	0.000
Falcon 20	CF700-2D	TOTAL	2.646	0.217	0.217	0.230	0.091	0.034	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.010	0.003	0.003	0.003	0.043	0.008	0.002	0.002	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.844	0.098	0.098	0.104	0.898	0.077	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.067	0.202	0.182	0.188	0.161	0.009	0.002	0.002	0.000
HS 125	TFE731-3	TOTAL	1.239	0.201	0.201	0.222	0.600	0.033	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.509	0.441	0.398	0.412	0.364	0.023	0.008	0.008	0.000
KC-135R	CFM56-2A S...	TOTAL	1.904	0.087	0.087	0.096	3.730	0.276	0.012	0.012	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.100	0.030	0.029	0.031	0.370	0.046	0.023	0.023	0.000
Learjet 25C	CJ610-6	TOTAL	13.529	1.012	1.012	1.076	0.274	0.075	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.249	0.375	0.340	0.353	0.476	0.050	0.026	0.025	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.610	0.467	0.467	0.496	0.487	0.033	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.270	0.341	0.308	0.319	0.284	0.013	0.003	0.003	0.000
MD-80-82	JT8D-217 (ol...	TOTAL	0.324	0.099	0.099	0.108	0.953	0.067	0.017	0.017	0.000
28R		APU	0.087	0.006	0.006	0.006	0.023	0.004	0.000	0.000	0.000
		GSE	0.025	0.007	0.006	0.007	0.043	0.008	0.003	0.003	0.000
MD-80-83	JT8D-219 old...	TOTAL	2.067	0.639	0.639	0.700	6.423	0.432	0.127	0.127	0.000
28R		APU	0.561	0.032	0.032	0.035	0.148	0.031	0.000	0.000	0.000
		GSE	0.162	0.040	0.037	0.040	0.279	0.046	0.022	0.021	0.000
Navajo	TIO-540-J2B2	TOTAL	44.624	0.787	0.787	0.759	0.023	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.010	0.003	0.003	0.004	0.043	0.009	0.001	0.001	0.000
Piper PA-28	O-320	TOTAL	1.411	0.023	0.023	0.022	0.002	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.004	0.001	0.000	0.000	0.000
SF-340-B PLUS	CT7-5	TOTAL	0.288	0.045	0.045	0.047	0.162	0.022	N/A	N/A	0.000
28R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...	
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.639	0.255	0.229	0.238	0.211	0.013	0.004	0.004	0.000
UC-12J	PT6A-42	TOTAL	1.023	0.816	0.816	0.902	0.084	0.010	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.129	0.037	0.037	0.040	0.476	0.060	0.030	0.030	0.000
550 Citation	JT15D-4 (B,C...	TOTAL	8.632	2.950	2.950	3.135	1.195	0.111	0.058	0.058	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	26.640	1.102	0.993	1.031	0.978	0.054	0.015	0.015	0.000
Falcon 2000EX	PW308C	TOTAL	1.133	0.141	0.141	0.150	0.918	0.086	0.008	0.008	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.385	0.223	0.201	0.208	0.197	0.011	0.003	0.003	0.000
550 Citation	JT15D-4 (B,C...	TOTAL	2.369	0.809	0.809	0.861	0.328	0.031	0.015	0.015	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.312	0.302	0.272	0.282	0.268	0.014	0.004	0.004	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	0.877	0.144	0.144	0.154	0.719	0.082	0.049	0.049	0.000
28R_GA		APU	0.021	0.001	0.001	0.002	0.106	0.010	0.000	0.000	0.000
		GSE	4.430	0.173	0.155	0.162	0.146	0.011	0.002	0.002	0.000
Falcon 2000EX	PW308C	TOTAL	1.780	0.222	0.222	0.236	1.442	0.136	0.012	0.012	0.000
28R		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.317	0.337	0.305	0.317	0.428	0.044	0.023	0.023	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
A319	V2522-A5	Approach	0.021	0.000	0.000	0.000	0.069	0.008	0.001	0.001	7.919
10L		Climb Out	0.003	0.000	0.000	0.000	0.108	0.006	0.001	0.001	5.187
		Takeoff	0.003	0.000	0.000	0.000	0.143	0.006	0.001	0.001	5.844
		Idle	0.109	0.001	0.001	0.001	0.036	0.008	0.001	0.001	8.093
A320-200	V2500-A1	Approach	0.003	0.001	0.001	0.001	0.051	0.003	0.000	0.000	3.739
10L		Climb Out	0.001	0.000	0.000	0.000	0.079	0.002	0.000	0.000	2.566
		Takeoff	0.001	0.000	0.000	0.000	0.106	0.003	0.000	0.000	2.844
		Idle	0.028	0.001	0.001	0.001	0.021	0.003	0.000	0.000	3.576
A320-200	V2527-A5	Approach	0.025	0.001	0.001	0.001	0.094	0.011	0.001	0.001	10.544
10L		Climb Out	0.004	0.000	0.000	0.000	0.161	0.008	0.001	0.001	7.217
		Takeoff	0.004	0.000	0.000	0.000	0.211	0.008	0.001	0.001	7.945
		Idle	0.136	0.001	0.001	0.001	0.051	0.011	0.001	0.001	10.896
Aztec	TIO-540-J2B2	Approach	4.896	0.052	0.052	0.051	0.006	0.000	N/A	N/A	3.887
10L_GA		Climb Out	4.093	0.046	0.046	0.044	0.001	0.000	N/A	N/A	2.782
		Takeoff	2.728	0.023	0.023	0.023	0.001	0.000	N/A	N/A	1.892
		Idle	2.427	0.128	0.128	0.123	0.001	0.000	N/A	N/A	1.876
B737-300	CFM56-3-B1	Approach	0.201	0.004	0.004	0.004	0.438	0.053	0.001	0.001	52.786
10L		Climb Out	0.025	0.001	0.001	0.001	0.421	0.028	0.000	0.000	27.150
		Takeoff	0.032	0.001	0.001	0.001	0.631	0.035	0.001	0.001	35.626
		Idle	1.921	0.128	0.128	0.139	0.218	0.056	0.001	0.001	55.866
B737-300	CFM56-3B-2	Approach	0.026	0.001	0.001	0.001	0.067	0.008	0.000	0.000	7.673
10L		Climb Out	0.003	0.000	0.000	0.000	0.067	0.004	0.000	0.000	4.040
		Takeoff	0.004	0.000	0.000	0.000	0.104	0.006	0.000	0.000	5.338
		Idle	0.236	0.013	0.013	0.015	0.032	0.008	0.000	0.000	7.829
B737-500	CFM56-3C-1	Approach	0.013	0.000	0.000	0.000	0.039	0.004	0.000	0.000	4.278
10L		Climb Out	0.002	0.000	0.000	0.000	0.045	0.002	0.000	0.000	2.555
		Takeoff	0.003	0.000	0.000	0.000	0.069	0.003	0.000	0.000	3.359
		Idle	0.111	0.006	0.006	0.007	0.018	0.004	0.000	0.000	4.167
B737-700	CFM56-7B22	Approach	0.120	0.004	0.004	0.006	0.483	0.049	0.010	0.010	48.242
10L		Climb Out	0.018	0.003	0.003	0.003	0.551	0.029	0.007	0.007	29.004
		Takeoff	0.021	0.004	0.004	0.004	0.957	0.042	0.009	0.009	41.427
		Idle	1.023	0.112	0.112	0.122	0.202	0.045	0.010	0.010	44.864
B737-800	CFM56-7B26	Approach	0.014	0.001	0.001	0.001	0.094	0.009	0.002	0.002	8.642
10L		Climb Out	0.003	0.001	0.001	0.001	0.134	0.006	0.002	0.002	5.998
		Takeoff	0.002	0.001	0.001	0.001	0.245	0.009	0.002	0.002	8.484
		Idle	0.146	0.014	0.014	0.017	0.036	0.008	0.002	0.002	7.723
B757-300	PW2043	Approach	0.009	0.001	0.001	0.001	0.071	0.007	N/A	N/A	6.561
10L		Climb Out	0.002	0.000	0.000	0.000	0.125	0.004	N/A	N/A	4.452
		Takeoff	0.002	0.000	0.000	0.000	0.228	0.006	N/A	N/A	6.048
		Idle	0.105	0.009	0.009	0.009	0.024	0.006	N/A	N/A	5.438
BAE146-300	LF507 SERIES	Approach	0.052	0.001	0.001	0.001	0.075	0.012	0.001	0.001	11.649
10L		Climb Out	0.004	0.000	0.000	0.000	0.157	0.013	0.002	0.002	12.992
		Takeoff	0.002	0.000	0.000	0.000	0.160	0.011	0.002	0.002	11.040
		Idle	0.489	0.061	0.061	0.067	0.043	0.013	0.001	0.001	12.951
BH-1900	PT6A-67D	Approach	0.057	0.009	0.009	0.010	0.013	0.003	N/A	N/A	2.911
10L		Climb Out	0.004	0.000	0.000	0.000	0.004	0.001	N/A	N/A	0.697
		Takeoff	0.002	0.000	0.000	0.000	0.004	0.001	N/A	N/A	0.558
		Idle	0.130	0.043	0.043	0.045	0.006	0.002	N/A	N/A	1.939
Bombardier CRJ7...	CF34-8C1	Approach	0.234	0.004	0.004	0.006	0.890	0.080	0.004	0.004	80.167
10L		Climb Out	0.021	0.001	0.001	0.001	0.549	0.043	0.000	0.000	42.860
		Takeoff	0.030	0.001	0.001	0.001	1.055	0.072	0.003	0.003	71.892
		Idle	2.140	0.007	0.007	0.008	0.370	0.086	0.004	0.004	85.863
Cessna 172 Skyh...	O-320	Approach	1.866	0.030	0.030	0.029	0.001	0.000	N/A	N/A	1.530
10L_GA		Climb Out	1.006	0.012	0.012	0.012	0.004	0.000	N/A	N/A	1.016
		Takeoff	0.761	0.009	0.009	0.008	0.001	0.000	N/A	N/A	0.704
		Idle	0.459	0.015	0.015	0.015	0.000	0.000	N/A	N/A	0.424
Cessna 441 Conq...	TPE331-8	Approach	0.008	0.000	0.000	0.000	0.017	0.002	N/A	N/A	1.765
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.374
		Takeoff	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.431
		Idle	0.023	0.002	0.002	0.002	0.006	0.001	N/A	N/A	1.208
Cessna T337	IO-360-B	Approach	0.078	0.001	0.001	0.001	0.001	0.000	N/A	N/A	0.112
10L_GA		Climb Out	0.075	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.076
		Takeoff	0.071	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.058
		Idle	0.043	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.047
CITATION I SP	JT15D-1A _1B	Approach	0.047	0.006	0.006	0.006	0.004	0.001	0.000	0.000	1.178
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.704

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
		Takeoff	0.002	0.000	0.000	0.000	0.006	0.000	0.000	0.783
		Idle	0.149	0.057	0.057	0.061	0.002	0.001	0.000	1.129
CL600	ALF 502L-2	Approach	0.097	0.004	0.004	0.004	0.159	0.013	0.003	0.003	24.492
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.154	0.007	0.003	0.003	12.785
		Takeoff	0.007	0.000	0.000	0.000	0.235	0.010	0.002	0.002	17.463
		Idle	1.135	0.165	0.165	0.176	0.084	0.013	0.000	0.000	24.871
DC9-30	JT8D-15 (old...	Approach	0.207	0.035	0.035	0.039	0.127	0.022	0.015	0.015	21.549
10L		Climb Out	0.019	0.004	0.004	0.006	0.285	0.019	0.013	0.013	19.040
		Takeoff	0.014	0.006	0.006	0.006	0.385	0.020	0.014	0.014	20.145
		Idle	0.894	0.279	0.279	0.305	0.076	0.025	0.019	0.019	25.383
DC9-50	JT8D-17 (old...	Approach	0.078	0.018	0.018	0.020	0.056	0.009	0.007	0.007	9.179
10L		Climb Out	0.008	0.007	0.007	0.007	0.117	0.008	0.006	0.006	7.691
		Takeoff	0.006	0.006	0.006	0.006	0.153	0.008	0.006	0.006	8.004
		Idle	0.331	0.109	0.109	0.119	0.035	0.011	0.008	0.008	10.668
Embraer ERJ 135...	AE3007A1/3 ...	Approach	0.462	0.002	0.002	0.002	0.420	0.061	0.000	0.000	60.662
10L		Climb Out	0.031	0.002	0.002	0.002	0.818	0.061	0.000	0.000	60.627
		Takeoff	0.021	0.001	0.001	0.001	0.648	0.042	0.000	0.000	42.032
		Idle	2.437	0.241	0.241	0.257	0.270	0.063	0.000	0.000	63.351
Embraer ERJ 135...	AE3007A3 (...	Approach	0.049	0.000	0.000	0.000	0.044	0.007	0.000	0.000	6.382
10L		Climb Out	0.003	0.000	0.000	0.000	0.086	0.007	0.000	0.000	6.377
		Takeoff	0.002	0.000	0.000	0.000	0.068	0.004	0.000	0.000	4.419
		Idle	0.274	0.028	0.028	0.029	0.028	0.007	0.000	0.000	6.657
Embraer ERJ 145	AE3007A	Approach	0.011	0.002	0.002	0.002	0.026	0.003	0.000	0.000	3.439
10L		Climb Out	0.003	0.001	0.001	0.001	0.058	0.003	0.000	0.000	3.323
		Takeoff	0.002	0.001	0.001	0.001	0.047	0.002	0.000	0.000	2.304
		Idle	0.063	0.009	0.009	0.010	0.014	0.003	0.000	0.000	3.608
Embraer ERJ 145	AE3007A1E	Approach	0.040	0.000	0.000	0.000	0.053	0.007	0.000	0.000	7.119
10L		Climb Out	0.004	0.000	0.000	0.000	0.109	0.008	0.000	0.000	7.292
		Takeoff	0.004	0.000	0.000	0.000	0.087	0.006	0.000	0.000	5.084
		Idle	0.268	0.025	0.025	0.026	0.030	0.007	0.000	0.000	7.058
Embraer ERJ 145...	AE3007A1/1 ...	Approach	0.278	0.001	0.001	0.001	0.291	0.041	0.000	0.000	40.879
10L		Climb Out	0.021	0.001	0.001	0.001	0.541	0.039	0.000	0.000	38.613
		Takeoff	0.024	0.001	0.001	0.001	0.538	0.033	0.000	0.000	33.386
		Idle	1.774	0.172	0.172	0.183	0.184	0.044	0.000	0.000	44.258
Embraer ERJ 145...	AE3007A1/3 ...	Approach	0.389	0.001	0.001	0.001	0.354	0.051	0.000	0.000	51.051
10L		Climb Out	0.025	0.001	0.001	0.001	0.688	0.051	0.000	0.000	51.022
		Takeoff	0.018	0.001	0.001	0.001	0.546	0.035	0.000	0.000	35.372
		Idle	2.051	0.203	0.203	0.216	0.228	0.053	0.000	0.000	53.313
Embraer ERJ 145...	AE3007A1P ...	Approach	0.364	0.001	0.001	0.002	0.381	0.054	0.000	0.000	53.513
10L		Climb Out	0.028	0.001	0.001	0.001	0.708	0.051	0.000	0.000	50.501
		Takeoff	0.032	0.001	0.001	0.001	0.703	0.044	0.000	0.000	43.677
		Idle	2.318	0.224	0.224	0.238	0.241	0.058	0.000	0.000	58.010
Embraer ERJ 170	CF34-8E5	Approach	0.214	0.003	0.003	0.003	0.543	0.051	0.006	0.006	50.509
10L		Climb Out	0.015	0.000	0.000	0.001	0.344	0.028	0.000	0.000	27.173
		Takeoff	0.029	0.001	0.001	0.001	0.674	0.045	0.006	0.006	45.606
		Idle	0.855	0.007	0.007	0.007	0.217	0.047	0.006	0.006	47.126
F-27 SERIES	RDa7	Approach	0.454	0.041	0.041	0.045	0.012	0.013	N/A	N/A	13.625
10L_GA		Climb Out	0.033	0.010	0.010	0.011	0.043	0.010	N/A	N/A	9.503
		Takeoff	0.020	0.007	0.007	0.007	0.034	0.007	N/A	N/A	6.112
		Idle	1.391	0.364	0.364	0.402	0.011	0.015	N/A	N/A	15.226
Falcon 20	CF700-2D	Approach	0.141	0.003	0.003	0.003	0.004	0.002	N/A	N/A	2.275
10L_GA		Climb Out	0.032	0.000	0.000	0.000	0.006	0.001	N/A	N/A	1.263
		Takeoff	0.037	0.000	0.000	0.000	0.010	0.002	N/A	N/A	1.684
		Idle	0.402	0.046	0.046	0.050	0.002	0.002	N/A	N/A	2.596
Falcon 2000EX	PW308C	Approach	0.042	0.001	0.001	0.001	0.063	0.008	0.001	0.001	8.053
10L_Corp		Climb Out	0.004	0.000	0.000	0.000	0.069	0.004	0.000	0.000	4.312
		Takeoff	0.004	0.000	0.000	0.000	0.104	0.006	0.000	0.000	5.609
		Idle	0.268	0.037	0.037	0.040	0.023	0.007	0.001	0.001	6.340
Gulfstream II	SPEY MK51...	Approach	0.012	0.001	0.001	0.001	0.033	0.004	N/A	N/A	4.538
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.061	0.003	N/A	N/A	3.526
		Takeoff	0.000	0.000	0.000	0.000	0.094	0.004	N/A	N/A	4.127
		Idle	0.181	0.021	0.021	0.022	0.021	0.006	N/A	N/A	5.684
Gulfstream IV	TAY Mk611-8	Approach	0.022	0.006	0.006	0.006	0.032	0.006	0.003	0.003	5.648
10L_GA		Climb Out	0.002	0.001	0.001	0.001	0.043	0.002	0.001	0.001	2.550
		Takeoff	0.002	0.003	0.003	0.003	0.075	0.003	0.002	0.002	3.537
		Idle	0.179	0.025	0.025	0.026	0.019	0.008	0.004	0.004	7.421
HS 125	TFE731-3	Approach	0.098	0.009	0.009	0.010	0.044	0.003	N/A	N/A	6.338
10L_Corp		Climb Out	0.004	0.000	0.000	0.000	0.044	0.001	N/A	N/A	2.744
		Takeoff	0.004	0.000	0.000	0.000	0.082	0.002	N/A	N/A	4.267
		Idle	0.289	0.055	0.055	0.061	0.022	0.003	N/A	N/A	6.051

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
KC-135R	CFM56-2A S...	Approach	0.046	0.001	0.001	0.119	0.013	0.000	0.000	13.687
10L_GA		Climb Out	0.015	0.001	0.001	0.293	0.017	0.000	0.000	16.962
		Takeoff	0.022	0.001	0.001	0.506	0.024	0.002	0.002	24.800
		Idle	0.424	0.021	0.021	0.077	0.018	0.000	0.000	18.048
Learjet 25C	CJ610-6	Approach	0.870	0.000	0.000	0.014	0.006	N/A	N/A	9.881
10L_GA		Climb Out	0.104	0.001	0.001	0.013	0.002	N/A	N/A	3.696
		Takeoff	0.155	0.001	0.001	0.024	0.003	N/A	N/A	5.775
		Idle	2.008	0.234	0.234	0.012	0.007	N/A	N/A	12.959
Learjet 35/36	TFE 731-2-2B	Approach	0.116	0.022	0.022	0.031	0.003	N/A	N/A	5.174
10L_GA		Climb Out	0.004	0.000	0.000	0.031	0.001	N/A	N/A	2.323
		Takeoff	0.004	0.000	0.000	0.043	0.001	N/A	N/A	2.789
		Idle	0.259	0.088	0.094	0.012	0.002	N/A	N/A	4.417
MD-80-82	JT8D-217 (ol...	Approach	0.020	0.008	0.008	0.044	0.004	0.001	0.001	4.868
10L		Climb Out	0.004	0.002	0.002	0.080	0.004	0.001	0.001	3.921
		Takeoff	0.003	0.001	0.001	0.109	0.004	0.001	0.001	4.234
		Idle	0.056	0.015	0.015	0.018	0.004	0.001	0.001	4.623
MD-80-83	JT8D-219 ol...	Approach	0.140	0.054	0.054	0.060	0.313	0.034	0.010	0.010	34.280
10L		Climb Out	0.035	0.012	0.012	0.013	0.612	0.030	0.009	0.009	29.416
		Takeoff	0.023	0.009	0.009	0.010	0.876	0.032	0.009	0.009	32.449
		Idle	0.420	0.116	0.116	0.127	0.119	0.033	0.010	0.010	33.217
Navajo	TIO-540-J2B2	Approach	4.469	0.047	0.047	0.046	0.004	0.000	N/A	N/A	3.546
10L_GA		Climb Out	3.735	0.042	0.042	0.041	0.001	0.000	N/A	N/A	2.539
		Takeoff	2.489	0.021	0.021	0.021	0.001	0.000	N/A	N/A	1.726
		Idle	2.216	0.117	0.117	0.112	0.001	0.000	N/A	N/A	1.712
Piper PA-28	O-320	Approach	0.183	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.150
10L_GA		Climb Out	0.088	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.089
		Takeoff	0.060	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.055
		Idle	0.035	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.033
SF-340-B PLUS	CT7-5	Approach	0.013	0.003	0.003	0.004	0.018	0.002	N/A	N/A	2.497
10L		Climb Out	0.003	0.001	0.001	0.001	0.014	0.001	N/A	N/A	1.076
		Takeoff	0.002	0.001	0.001	0.001	0.012	0.001	N/A	N/A	0.844
		Idle	0.066	0.008	0.008	0.008	0.004	0.002	N/A	N/A	1.858
UC-12J	PT6A-42	Approach	0.094	0.062	0.062	0.067	0.012	0.001	N/A	N/A	2.696
10L_GA		Climb Out	0.004	0.001	0.001	0.001	0.004	0.000	N/A	N/A	0.642
		Takeoff	0.002	0.001	0.001	0.001	0.004	0.000	N/A	N/A	0.503
		Idle	0.201	0.176	0.176	0.195	0.003	0.001	N/A	N/A	1.739
550 Citation	JT15D-4 (B,...	Approach	0.639	0.103	0.103	0.109	0.106	0.011	0.006	0.006	19.973
10L_Corp		Climb Out	0.034	0.002	0.002	0.002	0.091	0.006	0.003	0.003	10.699
		Takeoff	0.024	0.001	0.001	0.001	0.108	0.007	0.003	0.003	11.691
		Idle	1.874	0.773	0.773	0.821	0.051	0.010	0.006	0.006	19.315
B737-300	CFM56-3C-1...	Approach	0.045	0.001	0.001	0.001	0.086	0.011	0.000	0.000	10.755
10L		Climb Out	0.006	0.000	0.000	0.000	0.079	0.006	0.000	0.000	5.431
		Takeoff	0.007	0.000	0.000	0.000	0.118	0.007	0.000	0.000	7.108
		Idle	0.449	0.034	0.034	0.036	0.045	0.012	0.000	0.000	11.774
A319	V2524-A5	Approach	0.010	0.000	0.000	0.000	0.039	0.004	0.000	0.000	4.343
10L		Climb Out	0.002	0.000	0.000	0.000	0.063	0.003	0.000	0.000	2.866
		Takeoff	0.002	0.000	0.000	0.000	0.086	0.003	0.000	0.000	3.261
		Idle	0.055	0.000	0.000	0.000	0.021	0.004	0.000	0.000	4.387
Falcon 2000EX	PW308C	Approach	0.068	0.002	0.002	0.002	0.103	0.013	0.001	0.001	13.097
10L		Climb Out	0.007	0.001	0.001	0.001	0.112	0.007	0.001	0.001	7.013
		Takeoff	0.008	0.001	0.001	0.001	0.169	0.009	0.001	0.001	9.121
		Idle	0.437	0.062	0.062	0.065	0.037	0.010	0.001	0.001	10.311
550 Citation	JT15D-4 (B,...	Approach	0.137	0.022	0.022	0.023	0.023	0.002	0.001	0.001	4.280
10L_GA		Climb Out	0.008	0.000	0.000	0.000	0.020	0.001	0.001	0.001	2.293
		Takeoff	0.006	0.000	0.000	0.000	0.023	0.001	0.001	0.001	2.506
		Idle	0.401	0.165	0.165	0.176	0.011	0.002	0.001	0.001	4.139
550 Citation	JT15D-4 (B,...	Approach	0.499	0.080	0.080	0.086	0.083	0.009	0.004	0.004	15.622
10R_GA		Climb Out	0.026	0.001	0.001	0.002	0.072	0.004	0.002	0.002	8.368
		Takeoff	0.019	0.001	0.001	0.001	0.085	0.004	0.002	0.002	9.144
		Idle	1.465	0.604	0.604	0.643	0.040	0.008	0.004	0.004	15.106
550 Citation	JT15D-4 (B,...	Approach	0.343	0.055	0.055	0.058	0.056	0.006	0.003	0.003	10.700
10R_Corp		Climb Out	0.019	0.001	0.001	0.001	0.050	0.003	0.001	0.001	5.731
		Takeoff	0.013	0.001	0.001	0.001	0.057	0.003	0.002	0.002	6.263
		Idle	1.004	0.413	0.413	0.440	0.028	0.006	0.003	0.003	10.347
A319	V2524-A5	Approach	0.024	0.001	0.001	0.001	0.091	0.010	0.001	0.001	10.190
10R		Climb Out	0.004	0.000	0.000	0.000	0.148	0.007	0.001	0.001	6.724
		Takeoff	0.004	0.000	0.000	0.000	0.201	0.008	0.001	0.001	7.651
		Idle	0.130	0.001	0.001	0.001	0.049	0.010	0.001	0.001	10.292
A319	V2522-A5	Approach	0.049	0.001	0.001	0.001	0.164	0.019	0.002	0.002	18.847
10R		Climb Out	0.009	0.000	0.000	0.001	0.257	0.012	0.001	0.001	12.346

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
		Takeoff	0.008	0.001	0.001	0.341	0.014	0.002	0.002	13.909
		Idle	0.258	0.002	0.002	0.087	0.019	0.002	0.002	19.262
A320-200	V2527-A5	Approach	0.083	0.002	0.002	0.303	0.034	0.004	0.004	34.011
10R		Climb Out	0.014	0.001	0.001	0.519	0.023	0.003	0.003	23.281
		Takeoff	0.013	0.001	0.001	0.679	0.025	0.003	0.003	25.629
		Idle	0.437	0.003	0.003	0.165	0.035	0.004	0.004	35.149
A320-200	V2500-A1	Approach	0.009	0.002	0.002	0.161	0.012	0.000	0.000	11.929
10R		Climb Out	0.004	0.001	0.001	0.252	0.008	0.000	0.000	8.189
		Takeoff	0.006	0.001	0.001	0.337	0.009	0.000	0.000	9.075
		Idle	0.088	0.002	0.002	0.067	0.011	0.000	0.000	11.407
Aztec	TIO-540-J2B2	Approach	6.654	0.071	0.071	0.068	0.008	0.001	N/A	N/A	5.280
10R_GA		Climb Out	5.561	0.063	0.063	0.061	0.001	0.000	N/A	N/A	3.780
		Takeoff	3.706	0.032	0.032	0.031	0.001	0.000	N/A	N/A	2.571
		Idle	3.298	0.173	0.173	0.168	0.001	0.000	N/A	N/A	2.550
B737-300	CFM56-3C-1...	Approach	0.128	0.002	0.002	0.002	0.243	0.031	0.000	0.000	30.360
10R		Climb Out	0.015	0.001	0.001	0.001	0.225	0.015	0.000	0.000	15.331
		Takeoff	0.018	0.001	0.001	0.001	0.333	0.020	0.000	0.000	20.063
		Idle	1.267	0.095	0.095	0.104	0.127	0.033	0.000	0.000	33.234
B737-300	CFM56-3B-2	Approach	0.061	0.001	0.001	0.001	0.155	0.018	0.000	0.000	17.851
10R		Climb Out	0.009	0.000	0.000	0.000	0.157	0.010	0.000	0.000	9.401
		Takeoff	0.011	0.000	0.000	0.000	0.241	0.012	0.001	0.001	12.421
		Idle	0.548	0.032	0.032	0.035	0.075	0.019	0.000	0.000	18.213
B737-300	CFM56-3-B1	Approach	0.550	0.011	0.011	0.012	1.200	0.144	0.002	0.002	144.619
10R		Climb Out	0.071	0.003	0.003	0.004	1.153	0.074	0.001	0.001	74.382
		Takeoff	0.088	0.004	0.004	0.004	1.727	0.098	0.003	0.003	97.605
		Idle	5.266	0.349	0.349	0.383	0.597	0.153	0.001	0.001	153.058
B737-500	CFM56-3C-1	Approach	0.032	0.001	0.001	0.001	0.094	0.010	0.000	0.000	10.267
10R		Climb Out	0.006	0.000	0.000	0.000	0.109	0.007	0.000	0.000	6.133
		Takeoff	0.008	0.000	0.000	0.000	0.166	0.008	0.001	0.001	8.060
		Idle	0.268	0.014	0.014	0.015	0.043	0.010	0.000	0.000	9.999
B737-700	CFM56-7B22	Approach	0.325	0.013	0.013	0.014	1.300	0.130	0.028	0.028	129.929
10R		Climb Out	0.047	0.008	0.008	0.009	1.484	0.078	0.017	0.017	78.115
		Takeoff	0.056	0.011	0.011	0.012	2.577	0.111	0.023	0.023	111.575
		Idle	2.755	0.302	0.302	0.331	0.543	0.121	0.025	0.025	120.832
B737-800	CFM56-7B26	Approach	0.033	0.002	0.002	0.002	0.219	0.020	0.007	0.007	20.334
10R		Climb Out	0.009	0.001	0.001	0.001	0.317	0.014	0.004	0.004	14.113
		Takeoff	0.004	0.002	0.002	0.002	0.575	0.020	0.006	0.006	19.963
		Idle	0.342	0.034	0.034	0.037	0.085	0.018	0.006	0.006	18.170
B757-300	PW2043	Approach	0.021	0.001	0.001	0.001	0.169	0.015	N/A	N/A	15.745
10R		Climb Out	0.004	0.000	0.000	0.000	0.298	0.011	N/A	N/A	10.686
		Takeoff	0.004	0.000	0.000	0.000	0.548	0.014	N/A	N/A	14.516
		Idle	0.252	0.020	0.020	0.022	0.057	0.013	N/A	N/A	13.050
BAE146-300	LF507 SERIES	Approach	0.028	0.001	0.001	0.001	0.040	0.007	0.000	0.000	6.206
10R		Climb Out	0.002	0.000	0.000	0.000	0.083	0.007	0.001	0.001	6.921
		Takeoff	0.001	0.000	0.000	0.000	0.085	0.006	0.001	0.001	5.881
		Idle	0.261	0.033	0.033	0.035	0.023	0.007	0.000	0.000	6.899
BH-1900	PT6A-67D	Approach	0.052	0.008	0.008	0.009	0.012	0.002	N/A	N/A	2.609
10R		Climb Out	0.003	0.000	0.000	0.000	0.004	0.001	N/A	N/A	0.624
		Takeoff	0.002	0.000	0.000	0.000	0.003	0.000	N/A	N/A	0.500
		Idle	0.117	0.039	0.039	0.041	0.004	0.002	N/A	N/A	1.738
Bombardier CRJ7...	CF34-8C1	Approach	0.127	0.002	0.002	0.003	0.483	0.043	0.002	0.002	43.463
10R		Climb Out	0.012	0.000	0.000	0.000	0.298	0.023	0.000	0.000	23.237
		Takeoff	0.015	0.001	0.001	0.001	0.572	0.039	0.002	0.002	38.977
		Idle	1.160	0.003	0.003	0.004	0.201	0.046	0.002	0.002	46.552
Cessna 172 Skyh...	O-320	Approach	3.028	0.049	0.049	0.046	0.002	0.000	N/A	N/A	2.482
10R_GA		Climb Out	1.633	0.021	0.021	0.020	0.007	0.000	N/A	N/A	1.649
		Takeoff	1.233	0.013	0.013	0.013	0.002	0.000	N/A	N/A	1.142
		Idle	0.744	0.025	0.025	0.024	0.000	0.000	N/A	N/A	0.689
Cessna 441 Conq...	TPE331-8	Approach	0.023	0.001	0.001	0.001	0.051	0.006	N/A	N/A	5.322
10R_GA		Climb Out	0.002	0.000	0.000	0.000	0.012	0.001	N/A	N/A	1.128
		Takeoff	0.002	0.000	0.000	0.000	0.014	0.001	N/A	N/A	1.301
		Idle	0.068	0.006	0.006	0.006	0.015	0.003	N/A	N/A	3.643
Cessna T337	IO-360-B	Approach	0.197	0.003	0.003	0.002	0.003	0.000	N/A	N/A	0.285
10R_GA		Climb Out	0.191	0.001	0.001	0.001	0.001	0.000	N/A	N/A	0.194
		Takeoff	0.180	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.150
		Idle	0.108	0.006	0.006	0.006	0.000	0.000	N/A	N/A	0.121
CITATION I SP	JT15D-1A_1B	Approach	0.181	0.020	0.020	0.021	0.015	0.002	0.001	0.001	4.458
10R_GA		Climb Out	0.009	0.000	0.000	0.000	0.018	0.001	0.001	0.001	2.664
		Takeoff	0.008	0.000	0.000	0.000	0.022	0.001	0.001	0.001	2.960
		Idle	0.564	0.216	0.216	0.229	0.008	0.002	0.001	0.001	4.273

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
CL600	ALF 502L-2	Approach	0.054	0.002	0.002	0.088	0.008	0.001	0.001	13.711
10R_GA		Climb Out	0.002	0.000	0.000	0.086	0.004	0.002	0.002	7.157
		Takeoff	0.004	0.000	0.000	0.131	0.006	0.001	0.001	9.775
		Idle	0.635	0.093	0.093	0.047	0.008	0.000	0.000	13.923
DC9-30	JT8D-15 (old...	Approach	0.545	0.094	0.094	0.335	0.056	0.041	0.041	56.735
10R		Climb Out	0.050	0.012	0.012	0.752	0.050	0.036	0.036	50.130
		Takeoff	0.037	0.013	0.013	1.013	0.053	0.039	0.039	53.038
		Idle	2.352	0.735	0.735	0.201	0.067	0.049	0.049	66.829
DC9-50	JT8D-17 (old...	Approach	0.237	0.054	0.054	0.169	0.028	0.020	0.020	27.707
10R		Climb Out	0.023	0.019	0.019	0.354	0.023	0.017	0.017	23.216
		Takeoff	0.018	0.017	0.017	0.464	0.024	0.018	0.018	24.159
		Idle	0.999	0.328	0.328	0.106	0.032	0.023	0.023	32.202
Embraer ERJ 135...	AE3007A3 (...	Approach	0.028	0.000	0.000	0.024	0.003	0.000	0.000	3.565
10R		Climb Out	0.002	0.000	0.000	0.049	0.003	0.000	0.000	3.562
		Takeoff	0.001	0.000	0.000	0.037	0.002	0.000	0.000	2.468
		Idle	0.153	0.015	0.015	0.017	0.015	0.003	0.000	3.718
Embraer ERJ 135...	AE3007A1/3 ...	Approach	0.258	0.001	0.001	0.001	0.235	0.034	0.000	0.000	33.842
10R		Climb Out	0.017	0.001	0.001	0.001	0.456	0.034	0.000	0.000	33.822
		Takeoff	0.012	0.001	0.001	0.001	0.362	0.023	0.000	0.000	23.448
		Idle	1.359	0.134	0.134	0.143	0.151	0.035	0.000	0.000	35.342
Embraer ERJ 145	AE3007A1E	Approach	0.022	0.000	0.000	0.000	0.030	0.004	0.000	0.000	3.976
10R		Climb Out	0.002	0.000	0.000	0.000	0.061	0.004	0.000	0.000	4.073
		Takeoff	0.002	0.000	0.000	0.000	0.049	0.003	0.000	0.000	2.840
		Idle	0.150	0.014	0.014	0.014	0.017	0.004	0.000	0.000	3.942
Embraer ERJ 145	AE3007A	Approach	0.007	0.001	0.001	0.001	0.015	0.002	0.000	0.000	1.938
10R		Climb Out	0.002	0.000	0.000	0.001	0.033	0.002	0.000	0.000	1.873
		Takeoff	0.001	0.000	0.000	0.000	0.026	0.001	0.000	0.000	1.299
		Idle	0.035	0.006	0.006	0.006	0.008	0.002	0.000	0.000	2.034
Embraer ERJ 145...	AE3007A1P ...	Approach	0.203	0.001	0.001	0.001	0.213	0.030	0.000	0.000	29.849
10R		Climb Out	0.015	0.001	0.001	0.001	0.395	0.029	0.000	0.000	28.170
		Takeoff	0.018	0.001	0.001	0.001	0.392	0.024	0.000	0.000	24.363
		Idle	1.293	0.125	0.125	0.132	0.134	0.032	0.000	0.000	32.358
Embraer ERJ 145...	AE3007A1/3 ...	Approach	0.217	0.001	0.001	0.001	0.197	0.029	0.000	0.000	28.489
10R		Climb Out	0.014	0.001	0.001	0.001	0.384	0.029	0.000	0.000	28.473
		Takeoff	0.010	0.001	0.001	0.001	0.304	0.020	0.000	0.000	19.740
		Idle	1.144	0.114	0.114	0.120	0.127	0.030	0.000	0.000	29.752
Embraer ERJ 145...	AE3007A1/1 ...	Approach	0.155	0.001	0.001	0.001	0.162	0.023	0.000	0.000	22.792
10R		Climb Out	0.012	0.001	0.001	0.001	0.302	0.022	0.000	0.000	21.529
		Takeoff	0.013	0.001	0.001	0.001	0.300	0.019	0.000	0.000	18.615
		Idle	0.989	0.096	0.096	0.101	0.103	0.024	0.000	0.000	24.676
Embraer ERJ 170	CF34-8E5	Approach	0.116	0.001	0.001	0.002	0.295	0.028	0.003	0.003	27.409
10R		Climb Out	0.009	0.000	0.000	0.000	0.186	0.014	0.000	0.000	14.746
		Takeoff	0.015	0.000	0.000	0.000	0.366	0.024	0.003	0.003	24.748
		Idle	0.464	0.003	0.003	0.003	0.118	0.025	0.003	0.003	25.573
F-27 SERIES	RDa7	Approach	0.530	0.047	0.047	0.053	0.014	0.015	N/A	N/A	15.915
10R_GA		Climb Out	0.039	0.012	0.012	0.013	0.050	0.011	N/A	N/A	11.101
		Takeoff	0.023	0.007	0.007	0.008	0.040	0.007	N/A	N/A	7.141
		Idle	1.626	0.425	0.425	0.470	0.012	0.018	N/A	N/A	17.787
Falcon 20	CF700-2D	Approach	0.518	0.012	0.012	0.012	0.015	0.009	N/A	N/A	8.362
10R_GA		Climb Out	0.116	0.000	0.000	0.000	0.020	0.004	N/A	N/A	4.644
		Takeoff	0.137	0.001	0.001	0.001	0.034	0.007	N/A	N/A	6.192
		Idle	1.479	0.172	0.172	0.183	0.009	0.010	N/A	N/A	9.543
Falcon 2000EX	PW308C	Approach	0.062	0.002	0.002	0.002	0.093	0.012	0.001	0.001	11.817
10R		Climb Out	0.007	0.001	0.001	0.001	0.101	0.007	0.001	0.001	6.328
		Takeoff	0.007	0.001	0.001	0.001	0.152	0.008	0.001	0.001	8.229
		Idle	0.394	0.055	0.055	0.058	0.034	0.009	0.001	0.001	9.304
Falcon 2000EX	PW308C	Approach	0.022	0.001	0.001	0.001	0.033	0.004	0.000	0.000	4.290
10R_Corp		Climb Out	0.002	0.000	0.000	0.000	0.036	0.002	0.000	0.000	2.297
		Takeoff	0.002	0.000	0.000	0.000	0.055	0.003	0.000	0.000	2.987
		Idle	0.143	0.020	0.020	0.021	0.012	0.003	0.000	0.000	3.377
Gulfstream II	SPEY MK51...	Approach	0.044	0.003	0.003	0.003	0.120	0.017	N/A	N/A	16.686
10R_GA		Climb Out	0.008	0.001	0.001	0.002	0.224	0.013	N/A	N/A	12.964
		Takeoff	0.002	0.001	0.001	0.001	0.344	0.015	N/A	N/A	15.174
		Idle	0.664	0.077	0.077	0.082	0.075	0.021	N/A	N/A	20.894
Gulfstream IV	TAY Mk611-8	Approach	0.084	0.019	0.019	0.021	0.122	0.021	0.012	0.012	21.374
10R_GA		Climb Out	0.008	0.003	0.003	0.003	0.162	0.010	0.006	0.006	9.650
		Takeoff	0.010	0.011	0.011	0.011	0.282	0.013	0.008	0.008	13.388
		Idle	0.677	0.096	0.096	0.101	0.071	0.028	0.017	0.017	28.082
HS 125	TFE731-3	Approach	0.050	0.004	0.004	0.006	0.022	0.002	N/A	N/A	3.223
10R_Corp		Climb Out	0.002	0.000	0.000	0.000	0.022	0.001	N/A	N/A	1.396

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
		Takeoff	0.002	0.000	0.000	0.000	0.042	0.001	N/A	N/A	2.169
		Idle	0.147	0.028	0.028	0.031	0.011	0.002	N/A	N/A	3.077
KC-135R	CFM56-2A S...	Approach	0.109	0.002	0.002	0.003	0.280	0.032	0.000	0.000	32.204
10R_GA		Climb Out	0.036	0.001	0.001	0.002	0.690	0.040	0.001	0.001	39.911
		Takeoff	0.053	0.002	0.002	0.002	1.190	0.058	0.006	0.006	58.353
		Idle	0.998	0.049	0.049	0.053	0.183	0.043	0.000	0.000	42.468
Learjet 25C	CJ610-6	Approach	3.179	0.000	0.000	0.000	0.054	0.020	N/A	N/A	36.122
10R_GA		Climb Out	0.378	0.002	0.002	0.003	0.047	0.008	N/A	N/A	13.512
		Takeoff	0.570	0.002	0.002	0.002	0.088	0.011	N/A	N/A	21.113
		Idle	7.344	0.853	0.853	0.906	0.043	0.025	N/A	N/A	47.376
Learjet 35/36	TFE 731-2-2B	Approach	0.434	0.083	0.083	0.088	0.115	0.011	N/A	N/A	19.393
10R_GA		Climb Out	0.018	0.001	0.001	0.001	0.114	0.004	N/A	N/A	8.704
		Takeoff	0.014	0.001	0.001	0.001	0.160	0.006	N/A	N/A	10.454
		Idle	0.970	0.332	0.332	0.353	0.046	0.009	N/A	N/A	16.557
MD-80-82	JT8D-217 (ol...	Approach	0.049	0.019	0.019	0.021	0.106	0.012	0.003	0.003	11.681
10R		Climb Out	0.012	0.004	0.004	0.004	0.194	0.010	0.002	0.002	9.412
		Takeoff	0.008	0.003	0.003	0.003	0.261	0.010	0.002	0.002	10.162
		Idle	0.137	0.037	0.037	0.041	0.041	0.011	0.003	0.003	11.096
MD-80-83	JT8D-219 ol...	Approach	0.381	0.149	0.149	0.163	0.855	0.094	0.028	0.028	93.659
10R		Climb Out	0.096	0.034	0.034	0.037	1.672	0.080	0.024	0.024	80.372
		Takeoff	0.065	0.024	0.024	0.026	2.394	0.088	0.025	0.025	88.657
		Idle	1.146	0.316	0.316	0.346	0.326	0.090	0.026	0.026	90.757
Navajo	TIO-540-J2B2	Approach	4.941	0.053	0.053	0.051	0.006	0.000	N/A	N/A	3.921
10R_GA		Climb Out	4.129	0.046	0.046	0.045	0.001	0.000	N/A	N/A	2.808
		Takeoff	2.752	0.023	0.023	0.023	0.001	0.000	N/A	N/A	1.909
		Idle	2.449	0.129	0.129	0.125	0.001	0.000	N/A	N/A	1.893
Piper PA-28	O-320	Approach	0.558	0.009	0.009	0.009	0.000	0.000	N/A	N/A	0.456
10R_GA		Climb Out	0.268	0.003	0.003	0.003	0.001	0.000	N/A	N/A	0.271
		Takeoff	0.181	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.168
		Idle	0.108	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.099
SF-340-B PLUS	CT7-5	Approach	0.012	0.003	0.003	0.003	0.015	0.002	N/A	N/A	2.255
10R		Climb Out	0.002	0.001	0.001	0.001	0.013	0.001	N/A	N/A	0.971
		Takeoff	0.002	0.001	0.001	0.001	0.011	0.001	N/A	N/A	0.763
		Idle	0.060	0.007	0.007	0.007	0.003	0.002	N/A	N/A	1.679
UC-12J	PT6A-42	Approach	0.311	0.203	0.203	0.225	0.042	0.004	N/A	N/A	8.951
10R_GA		Climb Out	0.014	0.004	0.004	0.004	0.017	0.001	N/A	N/A	2.130
		Takeoff	0.009	0.003	0.003	0.003	0.013	0.001	N/A	N/A	1.667
		Idle	0.665	0.585	0.585	0.647	0.011	0.003	N/A	N/A	5.773
A319	V2522-A5	Approach	0.150	0.003	0.003	0.004	0.503	0.057	0.008	0.008	57.810
28L		Climb Out	0.025	0.001	0.001	0.002	0.788	0.037	0.004	0.004	37.868
		Takeoff	0.024	0.002	0.002	0.002	1.045	0.043	0.006	0.006	42.662
		Idle	0.793	0.007	0.007	0.007	0.266	0.060	0.008	0.008	59.079
A319	V2524-A5	Approach	0.075	0.002	0.002	0.002	0.282	0.031	0.004	0.004	31.404
28L		Climb Out	0.013	0.001	0.001	0.001	0.456	0.021	0.002	0.002	20.722
		Takeoff	0.013	0.001	0.001	0.001	0.617	0.023	0.003	0.003	23.581
		Idle	0.401	0.003	0.003	0.003	0.149	0.032	0.004	0.004	31.720
A320-200	V2500-A1	Approach	0.018	0.003	0.003	0.003	0.311	0.023	0.000	0.000	23.146
28L		Climb Out	0.009	0.002	0.002	0.002	0.489	0.015	0.000	0.000	15.889
		Takeoff	0.010	0.002	0.002	0.002	0.654	0.018	0.000	0.000	17.608
		Idle	0.172	0.004	0.004	0.006	0.131	0.022	0.000	0.000	22.133
A320-200	V2527-A5	Approach	0.161	0.004	0.004	0.004	0.589	0.066	0.009	0.009	66.150
28L		Climb Out	0.028	0.002	0.002	0.002	1.010	0.045	0.006	0.006	45.281
		Takeoff	0.026	0.002	0.002	0.002	1.321	0.050	0.007	0.007	49.849
		Idle	0.850	0.008	0.008	0.008	0.321	0.068	0.009	0.009	68.366
Aztec	TIO-540-J2B2	Approach	16.205	0.172	0.172	0.166	0.018	0.001	N/A	N/A	12.862
28L_GA		Climb Out	13.544	0.153	0.153	0.148	0.002	0.001	N/A	N/A	9.208
		Takeoff	9.028	0.077	0.077	0.075	0.002	0.001	N/A	N/A	6.260
		Idle	8.035	0.422	0.422	0.408	0.002	0.001	N/A	N/A	6.209
B737-300	CFM56-3-B1	Approach	1.385	0.029	0.029	0.032	3.025	0.365	0.004	0.004	364.440
28L		Climb Out	0.179	0.010	0.010	0.010	2.906	0.187	0.002	0.002	187.444
		Takeoff	0.222	0.010	0.010	0.011	4.353	0.246	0.007	0.007	245.964
		Idle	13.269	0.880	0.880	0.962	1.505	0.386	0.003	0.003	385.706
B737-300	CFM56-3B-2	Approach	0.198	0.004	0.004	0.004	0.508	0.058	0.001	0.001	58.407
28L		Climb Out	0.028	0.001	0.001	0.001	0.514	0.031	0.000	0.000	30.757
		Takeoff	0.036	0.001	0.001	0.001	0.788	0.041	0.002	0.002	40.640
		Idle	1.793	0.105	0.105	0.115	0.245	0.060	0.001	0.001	59.594
B737-300	CFM56-3C-1...	Approach	0.306	0.006	0.006	0.007	0.584	0.073	0.001	0.001	72.972
28L		Climb Out	0.036	0.002	0.002	0.002	0.541	0.036	0.000	0.000	36.848
		Takeoff	0.043	0.002	0.002	0.002	0.800	0.049	0.001	0.001	48.224
		Idle	3.043	0.228	0.228	0.250	0.303	0.079	0.001	0.001	79.880

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
B737-500	CFM56-3C-1	Approach	0.098	0.002	0.002	0.002	0.287	0.032	0.000	0.000	31.485
28L		Climb Out	0.017	0.001	0.001	0.001	0.335	0.019	0.000	0.000	18.808
		Takeoff	0.022	0.001	0.001	0.001	0.511	0.024	0.002	0.002	24.717
		Idle	0.822	0.044	0.044	0.047	0.132	0.031	0.000	0.000	30.663
B737-700	CFM56-7B22	Approach	0.833	0.033	0.033	0.036	3.336	0.334	0.071	0.071	333.531
28L		Climb Out	0.120	0.020	0.020	0.022	3.810	0.201	0.042	0.042	200.523
		Takeoff	0.143	0.029	0.029	0.031	6.616	0.287	0.061	0.061	286.415
		Idle	7.072	0.775	0.775	0.849	1.396	0.310	0.065	0.065	310.178
B737-800	CFM56-7B26	Approach	0.100	0.007	0.007	0.007	0.676	0.063	0.019	0.019	62.528
28L		Climb Out	0.026	0.004	0.004	0.004	0.977	0.043	0.013	0.013	43.398
		Takeoff	0.012	0.007	0.007	0.007	1.768	0.062	0.019	0.019	61.386
		Idle	1.051	0.106	0.106	0.116	0.262	0.056	0.017	0.017	55.873
B757-300	PW2043	Approach	0.064	0.004	0.004	0.004	0.517	0.049	N/A	N/A	48.287
28L		Climb Out	0.013	0.001	0.001	0.001	0.914	0.033	N/A	N/A	32.771
		Takeoff	0.013	0.000	0.000	0.000	1.681	0.044	N/A	N/A	44.516
		Idle	0.773	0.063	0.063	0.068	0.177	0.040	N/A	N/A	40.021
BAE146-300	LF507 SERIES	Approach	0.089	0.002	0.002	0.002	0.129	0.020	0.001	0.001	20.251
28L		Climb Out	0.007	0.000	0.000	0.000	0.271	0.022	0.003	0.003	22.584
		Takeoff	0.003	0.000	0.000	0.000	0.279	0.019	0.003	0.003	19.191
		Idle	0.852	0.106	0.106	0.117	0.074	0.022	0.002	0.002	22.514
BH-1900	PT6A-67D	Approach	0.147	0.022	0.022	0.024	0.034	0.008	N/A	N/A	7.378
28L		Climb Out	0.010	0.000	0.000	0.000	0.012	0.002	N/A	N/A	1.765
		Takeoff	0.007	0.000	0.000	0.000	0.010	0.001	N/A	N/A	1.414
		Idle	0.330	0.109	0.109	0.116	0.013	0.004	N/A	N/A	4.913
Bombardier CRJ7...	CF34-8C1	Approach	0.385	0.008	0.008	0.009	1.469	0.132	0.007	0.007	132.357
28L		Climb Out	0.035	0.001	0.001	0.001	0.907	0.071	0.000	0.000	70.762
		Takeoff	0.049	0.002	0.002	0.002	1.742	0.119	0.006	0.006	118.694
		Idle	3.533	0.011	0.011	0.012	0.611	0.142	0.007	0.007	141.762
CITATION I SP	JT15D-1A ,1B	Approach	0.527	0.057	0.057	0.062	0.045	0.007	0.004	0.004	13.024
28L_GA		Climb Out	0.028	0.000	0.000	0.000	0.053	0.004	0.002	0.002	7.782
		Takeoff	0.023	0.000	0.000	0.000	0.066	0.004	0.002	0.002	8.648
		Idle	1.648	0.631	0.631	0.670	0.022	0.007	0.004	0.004	12.480
CL600	ALF 502L-2	Approach	0.152	0.007	0.007	0.008	0.249	0.021	0.004	0.004	38.453
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.241	0.011	0.004	0.004	20.072
		Takeoff	0.011	0.000	0.000	0.001	0.368	0.014	0.003	0.003	27.416
		Idle	1.781	0.260	0.260	0.276	0.132	0.021	0.001	0.001	39.047
Cessna 172 Skyh...	O-320	Approach	8.680	0.138	0.138	0.133	0.007	0.001	N/A	N/A	7.114
28L_GA		Climb Out	4.680	0.058	0.058	0.056	0.019	0.000	N/A	N/A	4.728
		Takeoff	3.535	0.039	0.039	0.037	0.008	0.000	N/A	N/A	3.273
		Idle	2.131	0.073	0.073	0.071	0.001	0.000	N/A	N/A	1.973
Cessna 441 Conq...	TPE331-8	Approach	0.072	0.003	0.003	0.003	0.157	0.017	N/A	N/A	16.437
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.037	0.003	N/A	N/A	3.481
		Takeoff	0.006	0.000	0.000	0.000	0.044	0.004	N/A	N/A	4.016
		Idle	0.212	0.017	0.017	0.018	0.046	0.011	N/A	N/A	11.250
Cessna T337	IO-360-B	Approach	0.309	0.004	0.004	0.004	0.004	0.000	N/A	N/A	0.446
28L_GA		Climb Out	0.299	0.002	0.002	0.002	0.001	0.000	N/A	N/A	0.304
		Takeoff	0.280	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.234
		Idle	0.170	0.009	0.009	0.009	0.000	0.000	N/A	N/A	0.188
DC9-30	JT8D-15 (old...	Approach	1.467	0.252	0.252	0.276	0.902	0.153	0.110	0.110	152.864
28L		Climb Out	0.136	0.034	0.034	0.037	2.026	0.136	0.097	0.097	135.067
		Takeoff	0.100	0.035	0.035	0.039	2.729	0.143	0.103	0.103	142.901
		Idle	6.338	1.981	1.981	2.168	0.540	0.180	0.130	0.130	180.060
DC9-50	JT8D-17 (old...	Approach	0.509	0.117	0.117	0.128	0.364	0.060	0.044	0.044	59.663
28L		Climb Out	0.050	0.040	0.040	0.043	0.762	0.050	0.036	0.036	49.993
		Takeoff	0.039	0.036	0.036	0.040	0.999	0.052	0.039	0.039	52.024
		Idle	2.150	0.708	0.708	0.774	0.229	0.069	0.051	0.051	69.343
Embraer ERJ 135...	AE3007A1/3 ...	Approach	0.741	0.003	0.003	0.003	0.675	0.097	0.000	0.000	97.268
28L		Climb Out	0.049	0.003	0.003	0.003	1.312	0.097	0.000	0.000	97.212
		Takeoff	0.034	0.002	0.002	0.002	1.039	0.067	0.000	0.000	67.394
		Idle	3.908	0.387	0.387	0.411	0.433	0.101	0.000	0.000	101.578
Embraer ERJ 135...	AE3007A3 (...	Approach	0.078	0.000	0.000	0.000	0.071	0.010	0.000	0.000	10.235
28L		Climb Out	0.006	0.000	0.000	0.000	0.138	0.010	0.000	0.000	10.225
		Takeoff	0.003	0.000	0.000	0.000	0.109	0.007	0.000	0.000	7.087
		Idle	0.441	0.044	0.044	0.046	0.044	0.011	0.000	0.000	10.675
Embraer ERJ 145	AE3007A	Approach	0.019	0.003	0.003	0.003	0.043	0.006	0.000	0.000	5.564
28L		Climb Out	0.004	0.001	0.001	0.002	0.094	0.006	0.000	0.000	5.377
		Takeoff	0.003	0.001	0.001	0.001	0.076	0.003	0.000	0.000	3.728
		Idle	0.101	0.014	0.014	0.015	0.022	0.006	0.000	0.000	5.838
Embraer ERJ 145	AE3007A1E	Approach	0.064	0.000	0.000	0.000	0.085	0.011	0.000	0.000	11.414
28L		Climb Out	0.008	0.000	0.000	0.000	0.174	0.012	0.000	0.000	11.693

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
		Takeoff	0.007	0.000	0.000	0.000	0.140	0.008	0.000	0.000	8.153
		Idle	0.430	0.040	0.040	0.042	0.049	0.011	0.000	0.000	11.319
Embraer ERJ 145...	AE3007A1/1 ...	Approach	0.445	0.002	0.002	0.002	0.466	0.065	0.000	0.000	65.542
28L		Climb Out	0.034	0.002	0.002	0.002	0.868	0.062	0.000	0.000	61.909
		Takeoff	0.040	0.001	0.001	0.002	0.862	0.054	0.000	0.000	53.528
		Idle	2.843	0.276	0.276	0.293	0.295	0.071	0.000	0.000	70.959
Embraer ERJ 145...	AE3007A1/3 ...	Approach	0.624	0.002	0.002	0.002	0.568	0.082	0.000	0.000	81.901
28L		Climb Out	0.041	0.002	0.002	0.002	1.105	0.082	0.000	0.000	81.853
		Takeoff	0.029	0.002	0.002	0.002	0.875	0.056	0.000	0.000	56.747
		Idle	3.290	0.326	0.326	0.346	0.365	0.086	0.000	0.000	85.529
Embraer ERJ 145...	AE3007A1P ...	Approach	0.583	0.002	0.002	0.002	0.611	0.086	0.000	0.000	85.803
28L		Climb Out	0.044	0.002	0.002	0.002	1.134	0.080	0.000	0.000	80.975
		Takeoff	0.052	0.002	0.002	0.002	1.128	0.071	0.000	0.000	70.032
		Idle	3.718	0.359	0.359	0.381	0.388	0.093	0.000	0.000	93.013
Embraer ERJ 170	CF34-8E5	Approach	0.353	0.006	0.006	0.006	0.898	0.084	0.010	0.010	83.419
28L		Climb Out	0.025	0.001	0.001	0.001	0.568	0.045	0.001	0.001	44.877
		Takeoff	0.049	0.001	0.001	0.001	1.112	0.075	0.009	0.009	75.320
		Idle	1.413	0.010	0.010	0.011	0.358	0.078	0.009	0.009	77.830
F-27 SERIES	RDa7	Approach	1.256	0.114	0.114	0.125	0.034	0.037	N/A	N/A	37.713
28L_GA		Climb Out	0.093	0.029	0.029	0.032	0.118	0.026	N/A	N/A	26.307
		Takeoff	0.054	0.017	0.017	0.019	0.095	0.017	N/A	N/A	16.920
		Idle	3.853	1.008	1.008	1.112	0.030	0.042	N/A	N/A	42.148
Falcon 20	CF700-2D	Approach	1.755	0.040	0.040	0.042	0.051	0.029	N/A	N/A	28.299
28L_GA		Climb Out	0.392	0.001	0.001	0.002	0.067	0.015	N/A	N/A	15.717
		Takeoff	0.461	0.002	0.002	0.002	0.117	0.021	N/A	N/A	20.954
		Idle	5.006	0.581	0.581	0.618	0.029	0.032	N/A	N/A	32.291
Gulfstream II	SPEY MK51...	Approach	0.150	0.010	0.010	0.011	0.407	0.056	N/A	N/A	56.465
28L_GA		Climb Out	0.028	0.006	0.006	0.006	0.759	0.044	N/A	N/A	43.872
		Takeoff	0.007	0.004	0.004	0.004	1.165	0.052	N/A	N/A	51.350
		Idle	2.247	0.261	0.261	0.278	0.255	0.071	N/A	N/A	70.706
HS 125	TFE731-3	Approach	0.153	0.014	0.014	0.015	0.068	0.006	N/A	N/A	9.848
28L_Corp		Climb Out	0.007	0.000	0.000	0.000	0.068	0.002	N/A	N/A	4.263
		Takeoff	0.008	0.000	0.000	0.000	0.127	0.003	N/A	N/A	6.629
		Idle	0.449	0.085	0.085	0.094	0.035	0.006	N/A	N/A	9.402
KC-135R	CFM56-2A S...	Approach	0.336	0.008	0.008	0.009	0.862	0.099	0.001	0.001	99.028
28L_GA		Climb Out	0.110	0.004	0.004	0.006	2.123	0.122	0.004	0.004	122.727
		Takeoff	0.162	0.008	0.008	0.008	3.661	0.180	0.018	0.018	179.436
		Idle	3.069	0.148	0.148	0.163	0.561	0.130	0.001	0.001	130.588
Learjet 25C	CJ610-6	Approach	10.750	0.000	0.000	0.000	0.183	0.066	N/A	N/A	122.160
28L_GA		Climb Out	1.280	0.009	0.009	0.010	0.160	0.024	N/A	N/A	45.696
		Takeoff	1.928	0.007	0.007	0.008	0.300	0.039	N/A	N/A	71.401
		Idle	24.834	2.884	2.884	3.066	0.144	0.086	N/A	N/A	160.221
Learjet 35/36	TFE 731-2-2B	Approach	1.397	0.266	0.266	0.282	0.368	0.034	N/A	N/A	62.385
28L_GA		Climb Out	0.057	0.003	0.003	0.003	0.366	0.015	N/A	N/A	27.998
		Takeoff	0.047	0.003	0.003	0.004	0.513	0.018	N/A	N/A	33.632
		Idle	3.121	1.067	1.067	1.134	0.150	0.029	N/A	N/A	53.260
MD-80-82	JT8D-217 (ol...	Approach	0.150	0.057	0.057	0.063	0.326	0.035	0.009	0.009	35.824
28L		Climb Out	0.035	0.012	0.012	0.013	0.594	0.029	0.008	0.008	28.861
		Takeoff	0.025	0.009	0.009	0.010	0.801	0.031	0.008	0.008	31.163
		Idle	0.418	0.114	0.114	0.125	0.126	0.034	0.009	0.009	34.027
MD-80-83	JT8D-219 ol...	Approach	0.960	0.375	0.375	0.411	2.155	0.236	0.069	0.069	236.021
28L		Climb Out	0.243	0.085	0.085	0.093	4.213	0.203	0.060	0.060	202.536
		Takeoff	0.163	0.061	0.061	0.066	6.032	0.224	0.064	0.064	223.414
		Idle	2.888	0.796	0.796	0.871	0.823	0.228	0.067	0.067	228.708
Navajo	TIO-540-J2B2	Approach	15.262	0.162	0.162	0.157	0.017	0.001	N/A	N/A	12.112
28L_GA		Climb Out	12.755	0.144	0.144	0.139	0.002	0.001	N/A	N/A	8.671
		Takeoff	8.502	0.073	0.073	0.071	0.002	0.001	N/A	N/A	5.896
		Idle	7.566	0.398	0.398	0.384	0.002	0.001	N/A	N/A	5.847
Piper PA-28	O-320	Approach	1.728	0.028	0.028	0.026	0.001	0.000	N/A	N/A	1.418
28L_GA		Climb Out	0.832	0.010	0.010	0.010	0.003	0.000	N/A	N/A	0.840
		Takeoff	0.562	0.007	0.007	0.006	0.001	0.000	N/A	N/A	0.520
		Idle	0.334	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.309
SF-340-B PLUS	CT7-5	Approach	0.033	0.010	0.010	0.010	0.043	0.007	N/A	N/A	6.309
28L		Climb Out	0.008	0.002	0.002	0.003	0.036	0.002	N/A	N/A	2.717
		Takeoff	0.006	0.002	0.002	0.002	0.030	0.002	N/A	N/A	2.135
		Idle	0.166	0.019	0.019	0.020	0.010	0.004	N/A	N/A	4.696
UC-12J	PT6A-42	Approach	0.702	0.457	0.457	0.506	0.094	0.011	N/A	N/A	20.186
28L_GA		Climb Out	0.031	0.010	0.010	0.011	0.036	0.002	N/A	N/A	4.802
		Takeoff	0.019	0.007	0.007	0.008	0.030	0.002	N/A	N/A	3.759
		Idle	1.499	1.321	1.321	1.459	0.025	0.007	N/A	N/A	13.018

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
550 Citation	JT15D-4 (B,...	Approach	1.037	0.166	0.166	0.177	0.172	0.018	0.009	0.009	32.420
28L_Corp		Climb Out	0.055	0.003	0.003	0.003	0.149	0.010	0.004	0.004	17.366
		Takeoff	0.040	0.002	0.002	0.002	0.175	0.010	0.006	0.006	18.976
		Idle	3.041	1.254	1.254	1.333	0.083	0.017	0.009	0.009	31.351
Falcon 2000EX	PW308C	Approach	0.073	0.002	0.002	0.002	0.109	0.014	0.001	0.001	14.000
28L_Corp		Climb Out	0.008	0.001	0.001	0.001	0.120	0.008	0.001	0.001	7.497
		Takeoff	0.008	0.001	0.001	0.001	0.180	0.010	0.001	0.001	9.749
		Idle	0.466	0.065	0.065	0.069	0.040	0.011	0.001	0.001	11.022
550 Citation	JT15D-4 (B,...	Approach	1.690	0.272	0.272	0.289	0.279	0.029	0.014	0.014	52.822
28L_GA		Climb Out	0.090	0.006	0.006	0.006	0.243	0.015	0.008	0.008	28.294
		Takeoff	0.065	0.003	0.003	0.003	0.285	0.017	0.009	0.009	30.918
		Idle	4.955	2.044	2.044	2.172	0.134	0.028	0.014	0.014	51.080
Gulfstream IV	TAY Mk611-8	Approach	0.273	0.063	0.063	0.067	0.399	0.069	0.041	0.041	69.989
28L_GA		Climb Out	0.025	0.010	0.010	0.010	0.531	0.032	0.019	0.019	31.601
		Takeoff	0.031	0.035	0.035	0.037	0.925	0.044	0.025	0.025	43.839
		Idle	2.217	0.313	0.313	0.333	0.230	0.091	0.054	0.054	91.959
Falcon 2000EX	PW308C	Approach	0.173	0.004	0.004	0.004	0.259	0.033	0.003	0.003	33.118
28L		Climb Out	0.018	0.002	0.002	0.002	0.283	0.018	0.001	0.001	17.734
		Takeoff	0.019	0.002	0.002	0.002	0.425	0.023	0.002	0.002	23.063
		Idle	1.103	0.155	0.155	0.164	0.095	0.026	0.002	0.002	26.074
A319	V2522-A5	Approach	0.078	0.002	0.002	0.002	0.260	0.030	0.003	0.003	29.934
28R		Climb Out	0.013	0.001	0.001	0.001	0.408	0.020	0.002	0.002	19.608
		Takeoff	0.012	0.001	0.001	0.001	0.541	0.022	0.003	0.003	22.090
		Idle	0.410	0.003	0.003	0.003	0.138	0.031	0.003	0.003	30.592
A319	V2524-A5	Approach	0.039	0.001	0.001	0.001	0.146	0.017	0.002	0.002	16.203
28R		Climb Out	0.007	0.000	0.000	0.000	0.235	0.011	0.001	0.001	10.691
		Takeoff	0.007	0.000	0.000	0.001	0.319	0.012	0.001	0.001	12.166
		Idle	0.207	0.001	0.001	0.002	0.077	0.017	0.002	0.002	16.366
A320-200	V2500-A1	Approach	0.008	0.001	0.001	0.002	0.137	0.010	0.000	0.000	10.149
28R		Climb Out	0.003	0.001	0.001	0.001	0.215	0.007	0.000	0.000	6.967
		Takeoff	0.004	0.001	0.001	0.001	0.287	0.008	0.000	0.000	7.721
		Idle	0.075	0.002	0.002	0.002	0.057	0.010	0.000	0.000	9.705
A320-200	V2527-A5	Approach	0.071	0.002	0.002	0.002	0.259	0.029	0.003	0.003	29.079
28R		Climb Out	0.012	0.001	0.001	0.001	0.444	0.020	0.002	0.002	19.906
		Takeoff	0.012	0.001	0.001	0.001	0.581	0.022	0.002	0.002	21.913
		Idle	0.374	0.003	0.003	0.003	0.141	0.030	0.003	0.003	30.053
Aztec	TIO-540-J2B2	Approach	16.370	0.174	0.174	0.168	0.018	0.001	N/A	N/A	12.992
28R_GA		Climb Out	13.682	0.154	0.154	0.149	0.002	0.001	N/A	N/A	9.301
		Takeoff	9.119	0.078	0.078	0.076	0.002	0.001	N/A	N/A	6.324
		Idle	8.116	0.427	0.427	0.412	0.002	0.001	N/A	N/A	6.272
B737-300	CFM56-3-B1	Approach	0.674	0.014	0.014	0.015	1.470	0.177	0.002	0.002	177.158
28R		Climb Out	0.087	0.004	0.004	0.006	1.412	0.091	0.001	0.001	91.118
		Takeoff	0.108	0.004	0.004	0.006	2.116	0.119	0.003	0.003	119.566
		Idle	6.450	0.428	0.428	0.468	0.731	0.187	0.002	0.002	187.497
B737-300	CFM56-3B-2	Approach	0.104	0.002	0.002	0.002	0.265	0.031	0.000	0.000	30.377
28R		Climb Out	0.014	0.001	0.001	0.001	0.267	0.017	0.000	0.000	15.997
		Takeoff	0.019	0.001	0.001	0.001	0.410	0.021	0.001	0.001	21.137
		Idle	0.933	0.054	0.054	0.060	0.127	0.031	0.000	0.000	30.996
B737-300	CFM56-3C-1...	Approach	0.147	0.003	0.003	0.003	0.280	0.035	0.000	0.000	34.988
28R		Climb Out	0.018	0.001	0.001	0.001	0.260	0.018	0.000	0.000	17.668
		Takeoff	0.021	0.001	0.001	0.001	0.384	0.023	0.000	0.000	23.122
		Idle	1.459	0.109	0.109	0.120	0.146	0.039	0.000	0.000	38.301
B737-500	CFM56-3C-1	Approach	0.051	0.001	0.001	0.001	0.148	0.017	0.000	0.000	16.256
28R		Climb Out	0.009	0.000	0.000	0.000	0.173	0.010	0.000	0.000	9.710
		Takeoff	0.011	0.000	0.000	0.000	0.265	0.013	0.001	0.001	12.761
		Idle	0.424	0.022	0.022	0.024	0.068	0.015	0.000	0.000	15.831
B737-700	CFM56-7B22	Approach	0.409	0.017	0.017	0.018	1.634	0.163	0.034	0.034	163.375
28R		Climb Out	0.058	0.010	0.010	0.011	1.866	0.098	0.021	0.021	98.223
		Takeoff	0.071	0.014	0.014	0.015	3.241	0.140	0.030	0.030	140.296
		Idle	3.465	0.380	0.380	0.416	0.683	0.152	0.032	0.032	151.936
B737-800	CFM56-7B26	Approach	0.052	0.003	0.003	0.003	0.349	0.032	0.010	0.010	32.365
28R		Climb Out	0.013	0.002	0.002	0.002	0.506	0.022	0.007	0.007	22.463
		Takeoff	0.007	0.003	0.003	0.003	0.915	0.032	0.010	0.010	31.774
		Idle	0.543	0.055	0.055	0.061	0.136	0.029	0.009	0.009	28.920
B757-300	PW2043	Approach	0.033	0.002	0.002	0.002	0.267	0.025	N/A	N/A	24.930
28R		Climb Out	0.007	0.000	0.000	0.000	0.472	0.017	N/A	N/A	16.919
		Takeoff	0.007	0.000	0.000	0.000	0.869	0.023	N/A	N/A	22.984
		Idle	0.399	0.032	0.032	0.035	0.091	0.021	N/A	N/A	20.663
BAE146-300	LF507 SERIES	Approach	0.183	0.006	0.006	0.006	0.265	0.042	0.003	0.003	41.372
28R		Climb Out	0.014	0.000	0.000	0.000	0.554	0.046	0.008	0.008	46.139

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
		Takeoff	0.008	0.000	0.000	0.000	0.569	0.040	0.007	0.007	39.207
		Idle	1.741	0.217	0.217	0.238	0.151	0.046	0.003	0.003	45.996
BH-1900	PT6A-67D	Approach	0.197	0.031	0.031	0.032	0.047	0.010	N/A	N/A	9.987
28R		Climb Out	0.014	0.001	0.001	0.001	0.017	0.002	N/A	N/A	2.389
		Takeoff	0.008	0.000	0.000	0.000	0.014	0.002	N/A	N/A	1.915
		Idle	0.446	0.148	0.148	0.157	0.019	0.007	N/A	N/A	6.651
Bombardier CRJ7...	CF34-8C1	Approach	0.800	0.017	0.017	0.018	3.051	0.274	0.013	0.013	274.894
28R		Climb Out	0.074	0.003	0.003	0.003	1.884	0.147	0.001	0.001	146.968
		Takeoff	0.101	0.004	0.004	0.006	3.617	0.247	0.012	0.012	246.518
		Idle	7.337	0.023	0.023	0.025	1.269	0.294	0.014	0.014	294.428
CITATION I SP	JT15D-1A_1B	Approach	0.185	0.020	0.020	0.022	0.015	0.002	0.001	0.001	4.586
28R_GA		Climb Out	0.010	0.000	0.000	0.000	0.019	0.001	0.001	0.001	2.740
		Takeoff	0.008	0.000	0.000	0.000	0.023	0.001	0.001	0.001	3.045
		Idle	0.580	0.222	0.222	0.236	0.008	0.002	0.001	0.001	4.394
CL600	ALF 502L-2	Approach	0.328	0.015	0.015	0.017	0.535	0.044	0.010	0.010	82.638
28R_GA		Climb Out	0.013	0.001	0.001	0.001	0.519	0.023	0.010	0.010	43.137
		Takeoff	0.023	0.001	0.001	0.001	0.791	0.032	0.007	0.007	58.920
		Idle	3.829	0.558	0.558	0.593	0.283	0.045	0.001	0.001	83.917
Cessna 172 Skyh...	O-320	Approach	6.515	0.104	0.104	0.100	0.006	0.001	N/A	N/A	5.340
28R_GA		Climb Out	3.512	0.044	0.044	0.043	0.014	0.000	N/A	N/A	3.548
		Takeoff	2.653	0.029	0.029	0.028	0.006	0.000	N/A	N/A	2.457
		Idle	1.599	0.055	0.055	0.053	0.001	0.000	N/A	N/A	1.482
Cessna 441 Conq...	TPE331-8	Approach	0.029	0.001	0.001	0.001	0.064	0.007	N/A	N/A	6.701
28R_GA		Climb Out	0.002	0.000	0.000	0.000	0.015	0.001	N/A	N/A	1.420
		Takeoff	0.002	0.000	0.000	0.000	0.018	0.001	N/A	N/A	1.637
		Idle	0.086	0.007	0.007	0.008	0.019	0.004	N/A	N/A	4.587
Cessna T337	IO-360-B	Approach	0.226	0.003	0.003	0.003	0.003	0.000	N/A	N/A	0.327
28R_GA		Climb Out	0.219	0.002	0.002	0.002	0.001	0.000	N/A	N/A	0.223
		Takeoff	0.206	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.172
		Idle	0.125	0.007	0.007	0.007	0.000	0.000	N/A	N/A	0.139
DC9-30	JT8D-15 (old...	Approach	0.729	0.126	0.126	0.137	0.448	0.076	0.055	0.055	75.927
28R		Climb Out	0.067	0.017	0.017	0.019	1.006	0.067	0.049	0.049	67.088
		Takeoff	0.050	0.018	0.018	0.020	1.356	0.071	0.051	0.051	70.979
		Idle	3.148	0.983	0.983	1.077	0.268	0.089	0.065	0.065	89.435
DC9-50	JT8D-17 (old...	Approach	0.235	0.054	0.054	0.060	0.168	0.028	0.020	0.020	27.537
28R		Climb Out	0.023	0.019	0.019	0.020	0.352	0.023	0.017	0.017	23.074
		Takeoff	0.018	0.017	0.017	0.018	0.461	0.024	0.018	0.018	24.012
		Idle	0.992	0.326	0.326	0.357	0.106	0.032	0.023	0.023	32.005
Embraer ERJ 135...	AE3007A1/3 ...	Approach	1.581	0.007	0.007	0.007	1.437	0.207	0.000	0.000	207.429
28R		Climb Out	0.104	0.007	0.007	0.007	2.797	0.207	0.000	0.000	207.307
		Takeoff	0.072	0.004	0.004	0.004	2.216	0.143	0.000	0.000	143.722
		Idle	8.333	0.826	0.826	0.877	0.925	0.217	0.000	0.000	216.620
Embraer ERJ 135...	AE3007A3 (...	Approach	0.166	0.001	0.001	0.001	0.151	0.022	0.000	0.000	21.793
28R		Climb Out	0.011	0.001	0.001	0.001	0.293	0.022	0.000	0.000	21.772
		Takeoff	0.008	0.000	0.000	0.000	0.233	0.015	0.000	0.000	15.088
		Idle	0.938	0.094	0.094	0.099	0.094	0.023	0.000	0.000	22.730
Embraer ERJ 145	AE3007A	Approach	0.039	0.008	0.008	0.008	0.093	0.012	0.000	0.000	11.880
28R		Climb Out	0.011	0.003	0.003	0.003	0.201	0.011	0.000	0.000	11.479
		Takeoff	0.006	0.002	0.002	0.002	0.163	0.008	0.000	0.000	7.959
		Idle	0.216	0.031	0.031	0.033	0.047	0.012	0.000	0.000	12.463
Embraer ERJ 145	AE3007A1E	Approach	0.137	0.001	0.001	0.001	0.181	0.024	0.000	0.000	24.305
28R		Climb Out	0.015	0.001	0.001	0.001	0.371	0.025	0.000	0.000	24.898
		Takeoff	0.013	0.000	0.000	0.001	0.298	0.018	0.000	0.000	17.358
		Idle	0.915	0.085	0.085	0.090	0.103	0.024	0.000	0.000	24.099
Embraer ERJ 145...	AE3007A1/1 ...	Approach	0.951	0.004	0.004	0.004	0.995	0.140	0.000	0.000	139.816
28R		Climb Out	0.073	0.004	0.004	0.004	1.851	0.132	0.000	0.000	132.065
		Takeoff	0.085	0.003	0.003	0.003	1.839	0.115	0.000	0.000	114.188
		Idle	6.065	0.588	0.588	0.624	0.632	0.151	0.000	0.000	151.370
Embraer ERJ 145...	AE3007A1/3 ...	Approach	1.332	0.006	0.006	0.006	1.210	0.174	0.000	0.000	174.679
28R		Climb Out	0.087	0.006	0.006	0.006	2.355	0.174	0.000	0.000	174.577
		Takeoff	0.061	0.003	0.003	0.004	1.866	0.121	0.000	0.000	121.032
		Idle	7.017	0.696	0.696	0.739	0.779	0.182	0.000	0.000	182.419
Embraer ERJ 145...	AE3007A1P ...	Approach	1.242	0.006	0.006	0.006	1.303	0.183	0.000	0.000	183.011
28R		Climb Out	0.095	0.006	0.006	0.006	2.420	0.173	0.000	0.000	172.712
		Takeoff	0.110	0.004	0.004	0.004	2.405	0.150	0.000	0.000	149.373
		Idle	7.930	0.766	0.766	0.815	0.828	0.198	0.000	0.000	198.392
Embraer ERJ 170	CF34-8E5	Approach	0.733	0.010	0.010	0.011	1.866	0.173	0.020	0.020	173.252
28R		Climb Out	0.053	0.002	0.002	0.002	1.179	0.094	0.001	0.001	93.207
		Takeoff	0.100	0.003	0.003	0.003	2.310	0.157	0.018	0.018	156.435
		Idle	2.935	0.021	0.021	0.023	0.745	0.162	0.019	0.019	161.646

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
F-27 SERIES	RDa7	Approach	1.524	0.138	0.138	0.152	0.041	0.046	N/A	N/A	45.765
28R_GA		Climb Out	0.111	0.035	0.035	0.039	0.143	0.032	N/A	N/A	31.922
		Takeoff	0.066	0.021	0.021	0.023	0.115	0.021	N/A	N/A	20.532
		Idle	4.675	1.222	1.222	1.350	0.035	0.051	N/A	N/A	51.145
Falcon 20	CF700-2D	Approach	0.610	0.013	0.013	0.014	0.018	0.010	N/A	N/A	9.835
28R_GA		Climb Out	0.137	0.000	0.000	0.001	0.023	0.006	N/A	N/A	5.462
		Takeoff	0.160	0.001	0.001	0.001	0.041	0.008	N/A	N/A	7.282
		Idle	1.739	0.202	0.202	0.215	0.010	0.011	N/A	N/A	11.222
Gulfstream II	SPEY MK51...	Approach	0.052	0.003	0.003	0.003	0.141	0.020	N/A	N/A	19.622
28R_GA		Climb Out	0.010	0.002	0.002	0.002	0.263	0.015	N/A	N/A	15.246
		Takeoff	0.002	0.001	0.001	0.002	0.405	0.018	N/A	N/A	17.845
		Idle	0.780	0.090	0.090	0.096	0.088	0.024	N/A	N/A	24.572
HS 125	TFE731-3	Approach	0.309	0.028	0.028	0.031	0.137	0.011	N/A	N/A	19.803
28R_Corp		Climb Out	0.014	0.001	0.001	0.001	0.138	0.004	N/A	N/A	8.572
		Takeoff	0.015	0.001	0.001	0.001	0.256	0.008	N/A	N/A	13.331
		Idle	0.902	0.171	0.171	0.188	0.071	0.010	N/A	N/A	18.905
KC-135R	CFM56-2A S...	Approach	0.174	0.004	0.004	0.004	0.446	0.052	0.001	0.001	51.259
28R_GA		Climb Out	0.057	0.002	0.002	0.003	1.099	0.064	0.002	0.002	63.525
		Takeoff	0.084	0.003	0.003	0.004	1.895	0.093	0.009	0.009	92.880
		Idle	1.588	0.076	0.076	0.085	0.291	0.067	0.001	0.001	67.594
Learjet 25C	CJ610-6	Approach	3.749	0.000	0.000	0.000	0.064	0.023	N/A	N/A	42.602
28R_GA		Climb Out	0.446	0.003	0.003	0.003	0.056	0.009	N/A	N/A	15.936
		Takeoff	0.672	0.002	0.002	0.002	0.105	0.013	N/A	N/A	24.900
		Idle	8.661	1.005	1.005	1.069	0.051	0.030	N/A	N/A	55.875
Learjet 35/36	TFE 731-2-2B	Approach	0.486	0.093	0.093	0.098	0.128	0.012	N/A	N/A	21.739
28R_GA		Climb Out	0.020	0.001	0.001	0.001	0.128	0.006	N/A	N/A	9.755
		Takeoff	0.017	0.001	0.001	0.001	0.179	0.007	N/A	N/A	11.719
		Idle	1.088	0.371	0.371	0.396	0.052	0.010	N/A	N/A	18.559
MD-80-82	JT8D-217 (ol...	Approach	0.077	0.030	0.030	0.032	0.169	0.019	0.004	0.004	18.496
28R		Climb Out	0.019	0.007	0.007	0.007	0.306	0.015	0.003	0.003	14.901
		Takeoff	0.013	0.004	0.004	0.004	0.413	0.017	0.004	0.004	16.090
		Idle	0.216	0.058	0.058	0.064	0.065	0.018	0.004	0.004	17.569
MD-80-83	JT8D-219 ol...	Approach	0.466	0.182	0.182	0.200	1.047	0.115	0.034	0.034	114.639
28R		Climb Out	0.118	0.041	0.041	0.045	2.046	0.098	0.029	0.029	98.375
		Takeoff	0.079	0.030	0.030	0.032	2.930	0.108	0.031	0.031	108.515
		Idle	1.403	0.387	0.387	0.423	0.400	0.111	0.033	0.033	111.087
Navajo	TIO-540-J2B2	Approach	15.448	0.164	0.164	0.159	0.017	0.001	N/A	N/A	12.260
28R_GA		Climb Out	12.911	0.146	0.146	0.141	0.002	0.001	N/A	N/A	8.777
		Takeoff	8.606	0.074	0.074	0.072	0.002	0.001	N/A	N/A	5.968
		Idle	7.659	0.403	0.403	0.389	0.002	0.001	N/A	N/A	5.918
Piper PA-28	O-320	Approach	0.705	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.579
28R_GA		Climb Out	0.340	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.343
		Takeoff	0.229	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.213
		Idle	0.137	0.004	0.004	0.004	0.000	0.000	N/A	N/A	0.126
SF-340-B PLUS	CT7-5	Approach	0.045	0.013	0.013	0.013	0.060	0.009	N/A	N/A	8.564
28R		Climb Out	0.010	0.003	0.003	0.004	0.049	0.003	N/A	N/A	3.688
		Takeoff	0.008	0.003	0.003	0.003	0.040	0.003	N/A	N/A	2.898
		Idle	0.226	0.025	0.025	0.028	0.014	0.007	N/A	N/A	6.374
UC-12J	PT6A-42	Approach	0.319	0.208	0.208	0.230	0.043	0.004	N/A	N/A	9.175
28R_GA		Climb Out	0.014	0.004	0.004	0.004	0.017	0.001	N/A	N/A	2.183
		Takeoff	0.009	0.003	0.003	0.003	0.013	0.001	N/A	N/A	1.709
		Idle	0.681	0.601	0.601	0.664	0.012	0.003	N/A	N/A	5.917
550 Citation	JT15D-4 (B,...	Approach	2.146	0.345	0.345	0.367	0.355	0.036	0.019	0.019	67.052
28R_Corp		Climb Out	0.115	0.007	0.007	0.008	0.308	0.020	0.010	0.010	35.917
		Takeoff	0.083	0.003	0.003	0.003	0.363	0.021	0.011	0.011	39.247
		Idle	6.290	2.594	2.594	2.757	0.171	0.035	0.019	0.019	64.841
Falcon 2000EX	PW308C	Approach	0.150	0.004	0.004	0.004	0.224	0.029	0.002	0.002	28.602
28R_Corp		Climb Out	0.014	0.001	0.001	0.001	0.245	0.015	0.001	0.001	15.316
		Takeoff	0.017	0.002	0.002	0.002	0.367	0.020	0.002	0.002	19.918
		Idle	0.952	0.133	0.133	0.142	0.082	0.022	0.002	0.002	22.519
550 Citation	JT15D-4 (B,...	Approach	0.589	0.095	0.095	0.100	0.097	0.010	0.006	0.006	18.403
28R_GA		Climb Out	0.031	0.002	0.002	0.002	0.085	0.006	0.003	0.003	9.858
		Takeoff	0.023	0.001	0.001	0.001	0.099	0.006	0.003	0.003	10.772
		Idle	1.726	0.712	0.712	0.757	0.046	0.010	0.006	0.006	17.797
Gulfstream IV	TAY Mk611-8	Approach	0.094	0.022	0.022	0.023	0.138	0.024	0.014	0.014	24.142
28R_GA		Climb Out	0.009	0.003	0.003	0.003	0.183	0.011	0.007	0.007	10.900
		Takeoff	0.011	0.012	0.012	0.013	0.319	0.015	0.009	0.009	15.122
		Idle	0.765	0.108	0.108	0.115	0.079	0.032	0.019	0.019	31.720
Falcon 2000EX	PW308C	Approach	0.235	0.007	0.007	0.007	0.352	0.045	0.004	0.004	44.936
28R		Climb Out	0.023	0.002	0.002	0.002	0.385	0.024	0.002	0.002	24.062

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THCNM...	VOC	NOx	SOx	PM...	PM-...	Fuel Cons...
		Takeoff	0.025	0.003	0.003	0.003	0.578	0.031	0.003	0.003	31.291
		Idle	1.497	0.211	0.211	0.224	0.129	0.035	0.003	0.003	35.379

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-...
Arr Curb FF	Roadway	0.432	0.052	0.050	0.053	0.061	0.000	0.001	0.001
Arr Curb Pick Up	Roadway	3.748	0.832	0.805	0.999	0.292	0.001	0.004	0.003
Blue Ent_Exit	Roadway	1.608	0.175	0.168	0.179	0.230	0.001	0.007	0.004
Bowtie	Roadway	0.463	0.046	0.044	0.046	0.065	0.000	0.002	0.001
Bowtie to Merge	Roadway	7.276	0.618	0.592	0.622	0.974	0.004	0.026	0.018
Brdgwy N of Sawyr 1	Roadway	2.909	0.247	0.237	0.248	0.389	0.002	0.011	0.008
Brdgwy N of Sawyr 2	Roadway	5.329	0.453	0.433	0.455	0.713	0.003	0.020	0.013
Curb Exit to RAC Ex	Roadway	1.576	0.172	0.164	0.175	0.226	0.001	0.007	0.004
Dep Curb Drop Off	Roadway	4.887	1.086	1.049	1.302	0.381	0.001	0.006	0.004
Dep Curb FF	Roadway	0.560	0.067	0.064	0.069	0.078	0.000	0.002	0.001
Emp_Park_Ent_Exit	Roadway	0.729	0.079	0.076	0.080	0.105	0.000	0.003	0.002
Ent from 670	Roadway	20.656	1.631	1.564	1.635	2.783	0.013	0.073	0.050
Ent from 670NB	Roadway	4.449	0.352	0.337	0.352	0.600	0.002	0.015	0.011
Ent from 670SB	Roadway	2.994	0.237	0.227	0.237	0.403	0.002	0.011	0.007
Exit Comm Gar	Roadway	9.285	0.917	0.877	0.926	1.293	0.007	0.037	0.025
Exit to 670 1	Roadway	9.909	0.783	0.751	0.784	1.335	0.007	0.035	0.023
Exit to 670 2	Roadway	7.954	0.628	0.602	0.629	1.071	0.004	0.028	0.019
Exit to 670NB	Roadway	3.061	0.241	0.231	0.243	0.412	0.002	0.011	0.008
Exit to 670SB	Roadway	3.158	0.249	0.239	0.250	0.425	0.002	0.011	0.008
Green Ent_Exit	Roadway	0.313	0.034	0.033	0.035	0.045	0.000	0.001	0.001
IntGate Blue to Lane	Roadway	41.825	3.554	3.403	3.571	5.600	0.026	0.153	0.105
IntGate Emp to Stlzr	Roadway	42.454	3.608	3.454	3.624	5.684	0.028	0.155	0.106
IntGate Green to Blu	Roadway	23.599	2.005	1.920	2.015	3.159	0.015	0.086	0.058
IntGate Lane to RAC	Roadway	19.362	1.914	1.830	1.932	2.696	0.013	0.077	0.053
IntGate Red to Green	Roadway	57.673	4.901	4.691	4.924	7.722	0.037	0.212	0.143
IntGate Swyr to Emp	Roadway	105.558	8.970	8.587	9.012	14.132	0.067	0.387	0.263
IntGate to Red	Roadway	42.256	3.590	3.438	3.608	5.657	0.028	0.154	0.106
Lane_Aviation_Ent_Ex	Roadway	0.241	0.026	0.025	0.026	0.034	0.000	0.001	0.001
Merge to Sawyer	Roadway	11.442	0.972	0.930	0.977	1.532	0.008	0.042	0.029
Perimeter Road 1	Roadway	9.211	0.911	0.871	0.919	1.283	0.007	0.036	0.025
Perimeter Road 2	Roadway	1.197	0.118	0.114	0.119	0.166	0.001	0.004	0.003
Perimeter Road 3	Roadway	0.521	0.052	0.050	0.052	0.073	0.000	0.002	0.001
Perimeter Road 4	Roadway	2.618	0.259	0.247	0.261	0.365	0.002	0.010	0.007
Perimeter Road 5	Roadway	0.345	0.034	0.033	0.034	0.049	0.000	0.001	0.001
Perimeter Road 6	Roadway	1.319	0.130	0.125	0.131	0.184	0.001	0.006	0.003
Perimeter Road 7	Roadway	0.574	0.057	0.054	0.057	0.080	0.000	0.002	0.001
RAC Ex to Bowtie 1	Roadway	2.929	0.290	0.277	0.292	0.408	0.002	0.012	0.008
RAC Ex to Bowtie 2	Roadway	3.519	0.347	0.333	0.352	0.489	0.002	0.014	0.010
RAC to ST	Roadway	1.376	0.136	0.130	0.138	0.192	0.001	0.006	0.003
Red Ent_Exit	Roadway	0.377	0.041	0.040	0.042	0.054	0.000	0.001	0.001
ST to Curb	Roadway	1.323	0.144	0.138	0.147	0.190	0.001	0.006	0.003
Sawyer S of Brdgwy	Roadway	9.947	0.845	0.809	0.850	1.332	0.007	0.036	0.024
Sawyer to Brdgwy 1	Roadway	4.925	0.419	0.400	0.420	0.659	0.003	0.018	0.012
Sawyer to Brdgwy 2	Roadway	32.945	2.800	2.680	2.813	4.410	0.021	0.120	0.083
Stelzer N	Roadway	44.250	3.497	3.351	3.502	5.961	0.028	0.155	0.106
Stelzer S	Roadway	81.603	6.447	6.181	6.457	10.994	0.051	0.287	0.195
Red	Parking	16.858	2.258	2.154	2.422	2.222	0.009	0.051	0.035
Lane Avtn	Parking	1.938	0.282	0.270	0.310	0.241	0.001	0.006	0.003
Blue	Parking	28.691	3.851	3.675	4.133	3.777	0.015	0.087	0.060
Green	Parking	6.530	0.995	0.955	1.108	0.786	0.003	0.018	0.012
Employee Parking	Parking	9.857	1.391	1.329	1.515	1.256	0.004	0.029	0.020
ShortTerm Pkg Lvl 4	Parking	4.169	0.632	0.605	0.700	0.505	0.002	0.011	0.008
RAC Gar Lvl 1	Parking	3.360	0.509	0.487	0.564	0.407	0.001	0.009	0.007
Long Term Pkg Lvl 3	Parking	10.372	1.542	1.476	1.704	1.273	0.006	0.028	0.019
ShortTerm Pkg Lvl 5	Parking	3.937	0.596	0.571	0.661	0.477	0.002	0.010	0.007
Long Term Pkg Lvl 4	Parking	5.143	0.765	0.732	0.845	0.632	0.002	0.014	0.010
Long Term Pkg Lvl 5	Parking	10.624	1.580	1.512	1.745	1.304	0.006	0.029	0.020
Long Term Pkg Lvl 6	Parking	7.125	1.059	1.014	1.171	0.875	0.003	0.020	0.013
RAC Gar Lvl 2	Parking	3.360	0.509	0.487	0.564	0.407	0.001	0.009	0.007

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.083	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.739	0.739	0.739	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.109	0.109	0.109	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.567	1.567	1.567	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.010	0.003	0.003	0.003	0.003	0.002	0.007	0.002
Paint_Access Roads	Stationary Source	0.000	0.333	0.333	0.333	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.660	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.831	0.831	0.831	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	1.636	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.409	0.409	0.409	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.237	0.237	0.237	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.704	0.704	0.704	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.751	0.751	0.751	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	1.829	1.829	1.829	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.777	0.777	0.777	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.748	0.748	0.748	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary
(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	741.344	61.769	61.769	65.941	300.943	27.101	3.715	3.715
GSE/APU	1,097.090	45.668	41.511	43.219	69.387	9.270	3.142	3.034
Roadways	690.992	41.514	39.461	48.419	68.030	0.530	2.216	1.293
Parking Facilities	170.878	11.263	10.623	25.326	22.179	0.084	0.349	0.203
Stationary Sources	21.450	12.421	11.891	14.114	35.756	16.638	2.490	2.205
Total	2,721.753	172.635	165.254	197.019	496.295	53.624	11.912	10.449

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary
(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	139.173	2.460	2.460	2.373	0.074	0.011	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.023	0.009	0.009	0.010	0.086	0.026	0.013	0.012	0.000
B737-300	CFM56-3C-1 (Rera...	TOTAL	9.401	0.654	0.654	0.717	6.078	0.649	0.008	0.008	0.000
10R		APU	1.339	0.077	0.077	0.084	0.354	0.075	0.000	0.000	0.000
		GSE	0.452	0.083	0.079	0.084	0.645	0.130	0.064	0.062	0.000
B737-300	CFM56-3B-2	TOTAL	5.059	0.274	0.274	0.300	5.028	0.464	0.011	0.011	0.000
10R		APU	0.837	0.047	0.047	0.053	0.220	0.046	0.000	0.000	0.000
		GSE	0.282	0.052	0.050	0.052	0.402	0.082	0.040	0.039	0.000
B737-300	CFM56-3-B1	TOTAL	31.803	1.961	1.961	2.147	24.777	2.491	0.037	0.037	0.000
10R		APU	4.853	0.278	0.278	0.304	1.282	0.270	0.000	0.000	0.000
		GSE	1.639	0.301	0.287	0.304	2.337	0.472	0.233	0.225	0.000
B737-500	CFM56-3C-1	TOTAL	4.774	0.236	0.236	0.258	6.267	0.525	0.018	0.018	0.000
10R		APU	0.836	0.047	0.047	0.053	0.220	0.046	0.000	0.000	0.000
		GSE	0.282	0.052	0.050	0.052	0.402	0.082	0.040	0.039	0.000
B737-700	CFM56-7B22	TOTAL	20.095	2.110	2.110	2.309	37.089	2.770	0.582	0.582	0.000
10R		APU	1.426	0.108	0.108	0.118	1.941	0.292	0.000	0.000	0.000
		GSE	1.639	0.301	0.287	0.304	2.337	0.472	0.233	0.225	0.000
B737-800	CFM56-7B26	TOTAL	4.732	0.489	0.489	0.536	14.577	0.884	0.268	0.268	0.000
10R		APU	0.394	0.030	0.030	0.033	0.536	0.080	0.000	0.000	0.000
		GSE	0.452	0.083	0.079	0.084	0.645	0.130	0.064	0.062	0.000
B757-300	PW2043	TOTAL	1.717	0.136	0.136	0.148	6.509	0.328	N/A	N/A	0.000
10R		APU	0.087	0.009	0.009	0.010	0.201	0.021	0.000	0.000	0.000
		GSE	0.112	0.021	0.020	0.021	0.161	0.032	0.015	0.015	0.000
BAE146-300	LF507 SERIES	TOTAL	2.818	0.323	0.323	0.354	2.217	0.249	0.029	0.029	0.000
10R		APU	0.114	0.011	0.011	0.012	0.080	0.018	0.000	0.000	0.000
		GSE	7.615	0.304	0.276	0.285	0.359	0.041	0.020	0.020	0.000
BH-1900	PT6A-67D	TOTAL	0.767	0.206	0.206	0.219	0.109	0.024	N/A	N/A	0.000
10R		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.744	0.181	0.163	0.170	0.140	0.010	0.003	0.003	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	22.800	0.131	0.131	0.143	26.799	2.630	0.110	0.110	0.000
10R		APU	8.035	0.460	0.460	0.504	2.121	0.446	0.000	0.000	0.000
		GSE	121.954	4.877	4.410	4.579	5.755	0.645	0.325	0.314	0.000
Cessna 172 Skyha...	O-320	TOTAL	45.443	0.736	0.736	0.711	0.080	0.004	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.032	0.013	0.012	0.013	0.118	0.035	0.018	0.017	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.543	0.037	0.037	0.040	0.524	0.065	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	22.807	0.871	0.785	0.814	0.675	0.045	0.018	0.017	0.000
Cessna T337	IO-360-B	TOTAL	1.386	0.024	0.024	0.023	0.009	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.788	0.144	0.130	0.136	0.112	0.008	0.003	0.003	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	3.991	1.236	1.236	1.314	0.331	0.041	0.023	0.023	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.340	0.427	0.385	0.399	0.359	0.020	0.009	0.009	0.000
CL600	ALF 502L-2	TOTAL	8.135	1.117	1.117	1.187	4.107	0.280	0.053	0.053	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	52.348	2.144	1.941	2.016	2.922	0.394	0.157	0.151	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	17.870	5.119	5.119	5.604	13.707	1.353	0.976	0.976	0.000
10R		APU	1.841	0.106	0.106	0.116	0.486	0.103	0.000	0.000	0.000
		GSE	0.622	0.115	0.109	0.116	0.886	0.179	0.088	0.085	0.000
DC9-50	JT8D-17 (old comb)	TOTAL	2.873	0.940	0.940	1.030	2.448	0.240	0.176	0.176	0.000
10R		APU	0.335	0.019	0.019	0.021	0.088	0.019	0.000	0.000	0.000
		GSE	0.114	0.021	0.020	0.021	0.161	0.032	0.017	0.015	0.000
Embraer ERJ 135/...	AE3007A3 (Type 3)	TOTAL	1.088	0.093	0.093	0.098	0.743	0.078	0.000	0.000	0.000
10R		APU	0.076	0.008	0.008	0.008	0.054	0.012	0.000	0.000	0.000
		GSE	5.082	0.203	0.184	0.191	0.240	0.026	0.013	0.013	0.000
Embraer ERJ 135/...	AE3007A1/3 (Type...	TOTAL	24.666	2.061	2.061	2.191	17.945	1.888	0.000	0.000	0.000
10R		APU	1.824	0.172	0.172	0.183	1.297	0.283	0.000	0.000	0.000
		GSE	121.969	4.878	4.410	4.580	5.756	0.645	0.325	0.314	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	3.142	0.252	0.252	0.269	2.754	0.262	0.000	0.000	0.000
10R		APU	0.228	0.022	0.022	0.023	0.162	0.035	0.000	0.000	0.000
		GSE	15.244	0.610	0.551	0.572	0.720	0.080	0.041	0.040	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.788	0.128	0.128	0.137	1.455	0.127	0.000	0.000	0.000
10R		APU	0.115	0.011	0.011	0.011	0.082	0.018	0.000	0.000	0.000
		GSE	7.629	0.305	0.276	0.287	0.360	0.041	0.020	0.020	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...VOC		NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 145LR 10R	AE3007A1P (Type ...	TOTAL	12.814	1.068	1.068	1.135	9.456	0.958	0.000	0.000	0.000
		APU	0.913	0.086	0.086	0.091	0.648	0.141	0.000	0.000	0.000
		GSE	60.991	2.439	2.206	2.291	2.878	0.322	0.163	0.158	0.000
Embraer ERJ 145LR 10R	AE3007A1/3 (Type...	TOTAL	20.554	1.717	1.717	1.825	14.952	1.573	0.000	0.000	0.000
		APU	1.520	0.143	0.143	0.153	1.081	0.236	0.000	0.000	0.000
		GSE	101.629	4.064	3.675	3.816	4.796	0.537	0.271	0.262	0.000
Embraer ERJ 145LR 10R	AE3007A1/1 (Type...	TOTAL	17.087	1.427	1.427	1.518	12.598	1.275	0.000	0.000	0.000
		APU	1.216	0.115	0.115	0.122	0.864	0.188	0.000	0.000	0.000
		GSE	81.303	3.252	2.940	3.053	3.837	0.430	0.217	0.209	0.000
Embraer ERJ 170 10R	CF34-8E5	TOTAL	4.452	0.042	0.042	0.046	7.075	0.679	0.067	0.067	0.000
		APU	0.456	0.043	0.043	0.047	0.324	0.071	0.000	0.000	0.000
		GSE	30.489	1.219	1.102	1.145	1.439	0.161	0.082	0.078	0.000
F-27 SERIES 10R_GA	RDa7	TOTAL	11.083	2.463	2.463	2.719	0.581	0.259	N/A	N/A	0.000
		APU	0.693	0.083	0.083	0.091	0.068	0.019	0.000	0.000	0.000
		GSE	26.594	1.015	0.915	0.949	0.787	0.053	0.021	0.020	0.000
Falcon 20 10R_GA	CF700-2D	TOTAL	13.181	1.084	1.084	1.152	0.456	0.168	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.041	0.013	0.012	0.013	0.162	0.035	0.014	0.014	0.000
Falcon 2000EX 10R	PW308C	TOTAL	3.693	0.460	0.460	0.489	2.976	0.280	0.025	0.025	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	17.436	0.720	0.648	0.672	0.606	0.034	0.014	0.014	0.000
Falcon 2000EX 10R_Corp	PW308C	TOTAL	1.095	0.137	0.137	0.146	0.882	0.083	0.008	0.008	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.170	0.214	0.192	0.200	0.180	0.010	0.004	0.004	0.000
Gulfstream II 10R_GA	SPEY MK511-8	TOTAL	4.214	0.487	0.487	0.518	4.459	0.384	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	25.118	0.996	0.898	0.931	0.754	0.041	0.019	0.018	0.000
Gulfstream IV 10R_GA	TAY Mk611-8	TOTAL	2.220	0.366	0.366	0.389	1.809	0.206	0.122	0.122	0.000
		APU	0.054	0.004	0.004	0.004	0.265	0.026	0.000	0.000	0.000
		GSE	11.130	0.432	0.389	0.405	0.333	0.025	0.012	0.012	0.000
HS 125 10R_Corp	TFE731-3	TOTAL	5.753	0.930	0.930	1.028	2.775	0.151	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	53.168	2.030	1.830	1.897	1.573	0.106	0.042	0.040	0.000
KC-135R 10R_GA	CFM56-2A SERIES	TOTAL	5.493	0.250	0.250	0.277	10.708	0.791	0.035	0.035	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.230	0.067	0.067	0.072	0.885	0.132	0.061	0.060	0.000
Learjet 25C 10R_GA	CJ610-6	TOTAL	56.035	4.200	4.200	4.465	1.133	0.311	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	38.118	1.524	1.378	1.432	1.799	0.202	0.101	0.098	0.000
Learjet 35/36 10R_GA	TFE 731-2-2B	TOTAL	8.596	2.496	2.496	2.653	2.589	0.177	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	43.925	1.809	1.629	1.689	1.446	0.069	0.031	0.029	0.000
MD-80-82 10R	JT8D-217 (old comb)	TOTAL	0.623	0.191	0.191	0.208	1.828	0.129	0.032	0.032	0.000
		APU	0.166	0.010	0.010	0.010	0.044	0.009	0.000	0.000	0.000
		GSE	0.045	0.009	0.009	0.009	0.067	0.013	0.007	0.007	0.000
MD-80-83 10R	JT8D-219 old comb	TOTAL	6.813	2.107	2.107	2.306	21.082	1.422	0.418	0.418	0.000
		APU	1.842	0.106	0.106	0.116	0.486	0.103	0.000	0.000	0.000
		GSE	0.500	0.101	0.097	0.103	0.747	0.150	0.072	0.069	0.000
Navajo 10R_GA	TIO-540-J2B2	TOTAL	116.026	2.051	2.051	1.979	0.062	0.010	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.020	0.008	0.008	0.008	0.072	0.022	0.011	0.010	0.000
Piper PA-28 10R_GA	O-320	TOTAL	6.352	0.103	0.103	0.098	0.011	0.001	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.001	0.001	0.001	0.014	0.004	0.002	0.002	0.000
SF-340-B PLUS 10R	CT7-5	TOTAL	0.333	0.052	0.052	0.055	0.186	0.024	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.616	0.291	0.262	0.272	0.225	0.015	0.006	0.006	0.000
UC-12J 10R_GA	PT6A-42	TOTAL	4.594	3.666	3.666	4.050	0.377	0.046	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	22.786	0.870	0.784	0.814	0.675	0.045	0.018	0.017	0.000
550 Citation #1	JT15D-4 (B,C,D)	TOTAL	11.791	4.033	4.033	4.287	1.626	0.152	0.079	0.079	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	36.190	1.495	1.346	1.396	1.259	0.071	0.031	0.029	0.000
550 Citation #2	JT15D-4 (B,C,D)	TOTAL	20.209	6.911	6.911	7.348	2.787	0.261	0.136	0.136	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	62.026	2.561	2.307	2.392	2.158	0.120	0.052	0.050	0.000
A319 #1	V2522-A5	TOTAL	0.988	0.013	0.013	0.014	2.575	0.195	0.024	0.024	0.000
		APU	0.035	0.002	0.002	0.003	0.174	0.018	0.000	0.000	0.000
		GSE	14.349	0.560	0.506	0.525	0.530	0.057	0.030	0.029	0.000
A319 #1	V2524-A5	TOTAL	0.498	0.007	0.007	0.008	1.490	0.107	0.013	0.013	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...VOC		NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.019	0.001	0.001	0.001	0.090	0.009	0.000	0.000	0.000
		GSE	7.393	0.289	0.260	0.270	0.273	0.030	0.015	0.015	0.000
A320-200 #1	V2500-A1	TOTAL	0.515	0.030	0.030	0.032	3.905	0.194	0.004	0.004	0.000
		APU	0.031	0.002	0.002	0.002	0.154	0.015	0.000	0.000	0.000
		GSE	12.720	0.496	0.448	0.465	0.470	0.051	0.026	0.025	0.000
A320-200 #1	V2527-A5	TOTAL	1.634	0.023	0.023	0.025	4.944	0.351	0.044	0.044	0.000
		APU	0.058	0.004	0.004	0.004	0.287	0.029	0.000	0.000	0.000
		GSE	23.571	0.920	0.830	0.862	0.871	0.095	0.050	0.047	0.000
Embraer ERJ 170 #1	CF34-8E5A1	TOTAL	4.393	0.044	0.044	0.049	7.765	0.709	0.161	0.161	0.000
		APU	0.456	0.043	0.043	0.047	0.324	0.071	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gulfstream IV Copy of 10...	TAY Mk611-8	TOTAL	4.432	0.731	0.731	0.777	3.611	0.412	0.244	0.244	0.000
		APU	0.107	0.008	0.008	0.009	0.529	0.053	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HS 748 2A SERIES #1	RDa7	TOTAL	3.174	0.705	0.705	0.779	0.166	0.074	N/A	N/A	0.000
		APU	0.036	0.002	0.002	0.003	0.177	0.018	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bombardier CRJ900 #1	CF34-8C5	TOTAL	0.744	0.007	0.007	0.008	1.170	0.112	0.011	0.011	0.000
		APU	0.335	0.019	0.019	0.021	0.088	0.019	0.000	0.000	0.000
		GSE	5.082	0.203	0.184	0.191	0.240	0.026	0.013	0.013	0.000
Citation VII #1	TFE 731-2-2B	TOTAL	1.543	0.444	0.444	0.472	0.529	0.034	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Learjet 25B #1	CJ610-6	TOTAL	37.350	2.800	2.800	2.976	0.755	0.207	N/A	N/A	0.000
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	V...	NOx	SOx	P...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	48.123	0.511	0.511	0.494	0.053	0.004	N/A	N/A	38.193
10R_GA		Climb Out	40.219	0.454	0.454	0.438	0.007	0.003	N/A	N/A	27.342
		Takeoff	26.808	0.230	0.230	0.223	0.007	0.002	N/A	N/A	18.590
		Idle	24.024	1.264	1.264	1.219	0.008	0.002	N/A	N/A	18.565
B737-300	CFM56-3C-1 (Rer...	Approach	0.834	0.015	0.015	0.018	1.591	0.198	0.002	0.002	198.767
10R		Climb Out	0.100	0.006	0.006	0.006	1.476	0.100	0.001	0.001	100.371
		Takeoff	0.118	0.007	0.007	0.008	2.180	0.131	0.002	0.002	131.356
		Idle	8.347	0.626	0.626	0.686	0.832	0.219	0.002	0.002	219.084
B737-300	CFM56-3B-2	Approach	0.485	0.010	0.010	0.011	1.242	0.143	0.002	0.002	142.808
10R		Climb Out	0.067	0.003	0.003	0.004	1.256	0.075	0.001	0.001	75.203
		Takeoff	0.089	0.003	0.003	0.004	1.928	0.099	0.006	0.006	99.367
		Idle	4.416	0.257	0.257	0.281	0.602	0.147	0.001	0.001	146.717
B737-300	CFM56-3-B1	Approach	2.908	0.062	0.062	0.067	6.353	0.765	0.010	0.010	765.323
10R		Climb Out	0.374	0.020	0.020	0.022	6.101	0.394	0.004	0.004	393.631
		Takeoff	0.465	0.021	0.021	0.023	9.143	0.517	0.015	0.015	516.524
		Idle	28.056	1.860	1.860	2.036	3.181	0.816	0.008	0.008	815.569
B737-500	CFM56-3C-1	Approach	0.483	0.011	0.011	0.012	1.419	0.155	0.002	0.002	155.884
10R		Climb Out	0.084	0.003	0.003	0.004	1.658	0.093	0.002	0.002	93.119
		Takeoff	0.110	0.003	0.003	0.004	2.533	0.122	0.012	0.012	122.375
		Idle	4.096	0.217	0.217	0.238	0.657	0.153	0.001	0.001	152.863
B737-700	CFM56-7B22	Approach	2.039	0.082	0.082	0.089	8.156	0.816	0.172	0.172	815.640
10R		Climb Out	0.294	0.049	0.049	0.054	9.317	0.491	0.104	0.104	490.372
		Takeoff	0.351	0.071	0.071	0.077	16.180	0.700	0.148	0.148	700.417
		Idle	17.412	1.909	1.909	2.090	3.437	0.764	0.161	0.161	763.678
B737-800	CFM56-7B26	Approach	0.396	0.024	0.024	0.028	2.672	0.247	0.075	0.075	247.397
10R		Climb Out	0.103	0.018	0.018	0.019	3.864	0.172	0.052	0.052	171.709
		Takeoff	0.049	0.024	0.024	0.026	6.995	0.243	0.074	0.074	242.880
		Idle	4.184	0.423	0.423	0.463	1.046	0.223	0.067	0.067	222.596
B757-300	PW2043	Approach	0.126	0.009	0.009	0.010	1.022	0.096	N/A	N/A	95.523
10R		Climb Out	0.025	0.001	0.001	0.001	1.808	0.065	N/A	N/A	64.828
		Takeoff	0.026	0.001	0.001	0.001	3.326	0.088	N/A	N/A	88.065
		Idle	1.539	0.125	0.125	0.137	0.353	0.079	N/A	N/A	79.717
BAE146-300	LF507 SERIES	Approach	0.263	0.007	0.007	0.008	0.380	0.060	0.004	0.004	59.555
10R		Climb Out	0.020	0.001	0.001	0.001	0.798	0.066	0.010	0.010	66.416
		Takeoff	0.011	0.001	0.001	0.001	0.819	0.056	0.009	0.009	56.437
		Idle	2.522	0.314	0.314	0.345	0.218	0.066	0.006	0.006	66.669
BH-1900	PT6A-67D	Approach	0.227	0.035	0.035	0.037	0.054	0.011	N/A	N/A	11.442
10R		Climb Out	0.017	0.001	0.001	0.001	0.019	0.002	N/A	N/A	2.737
		Takeoff	0.010	0.000	0.000	0.000	0.015	0.002	N/A	N/A	2.194
		Idle	0.515	0.170	0.170	0.181	0.021	0.008	N/A	N/A	7.674
Bombardier CRJ700	CF34-8C1	Approach	2.181	0.045	0.045	0.050	8.319	0.750	0.036	0.036	749.479
10R		Climb Out	0.201	0.008	0.008	0.009	5.137	0.401	0.002	0.002	400.696
		Takeoff	0.276	0.013	0.013	0.014	9.860	0.672	0.033	0.033	672.112
		Idle	20.144	0.065	0.065	0.071	3.484	0.808	0.040	0.040	808.333
Cessna 172 Skyha...	O-320	Approach	20.715	0.330	0.330	0.317	0.017	0.002	N/A	N/A	16.979
10R_GA		Climb Out	11.170	0.140	0.140	0.134	0.045	0.001	N/A	N/A	11.282
		Takeoff	8.437	0.093	0.093	0.089	0.018	0.001	N/A	N/A	7.812
		Idle	5.122	0.175	0.175	0.169	0.002	0.000	N/A	N/A	4.743
Cessna 441 Conq...	TPE331-8	Approach	0.131	0.006	0.006	0.007	0.287	0.030	N/A	N/A	30.224
10R_GA		Climb Out	0.010	0.000	0.000	0.000	0.069	0.007	N/A	N/A	6.401
		Takeoff	0.010	0.000	0.000	0.000	0.082	0.008	N/A	N/A	7.385
		Idle	0.391	0.031	0.031	0.033	0.086	0.021	N/A	N/A	20.835
Cessna T337	IO-360-B	Approach	0.405	0.006	0.006	0.006	0.006	0.000	N/A	N/A	0.585
10R_GA		Climb Out	0.391	0.003	0.003	0.003	0.002	0.000	N/A	N/A	0.398
		Takeoff	0.367	0.003	0.003	0.003	0.001	0.000	N/A	N/A	0.306
		Idle	0.224	0.012	0.012	0.012	0.000	0.000	N/A	N/A	0.249
CITATION I SP	JT15D-1A ,1B	Approach	0.941	0.103	0.103	0.109	0.080	0.012	0.008	0.008	23.244
10R_GA		Climb Out	0.049	0.000	0.000	0.000	0.094	0.008	0.004	0.004	13.889
		Takeoff	0.041	0.000	0.000	0.000	0.117	0.009	0.004	0.004	15.435
		Idle	2.961	1.133	1.133	1.204	0.040	0.012	0.007	0.007	22.431
CL600	ALF 502L-2	Approach	0.633	0.029	0.029	0.031	1.031	0.086	0.019	0.019	159.294
10R_GA		Climb Out	0.025	0.002	0.002	0.002	1.000	0.045	0.020	0.020	83.151
		Takeoff	0.045	0.002	0.002	0.002	1.526	0.062	0.012	0.012	113.573
		Idle	7.433	1.084	1.084	1.152	0.550	0.088	0.002	0.002	162.886
DC9-30	JT8D-15 (old comb)	Approach	3.244	0.558	0.558	0.611	1.993	0.338	0.244	0.244	337.883
10R		Climb Out	0.299	0.075	0.075	0.082	4.479	0.299	0.215	0.215	298.547

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	V...	NOx	SOx	P...	PM...	Fuel Con...
		Takeoff	0.222	0.079	0.079	0.086	6.033	0.316	0.228	0.228	315.864
		Idle	14.106	4.408	4.408	4.826	1.203	0.401	0.289	0.289	400.742
DC9-50	JT8D-17 (old comb)	Approach	0.530	0.121	0.121	0.133	0.378	0.062	0.045	0.045	62.042
10R		Climb Out	0.052	0.041	0.041	0.045	0.791	0.052	0.039	0.039	51.987
		Takeoff	0.040	0.037	0.037	0.041	1.038	0.054	0.040	0.040	54.099
		Idle	2.251	0.741	0.741	0.810	0.239	0.073	0.053	0.053	72.606
Embraer ERJ 135/...	AE3007A3 (Type 3)	Approach	0.161	0.001	0.001	0.001	0.146	0.021	0.000	0.000	20.988
10R		Climb Out	0.011	0.001	0.001	0.001	0.282	0.021	0.000	0.000	20.967
		Takeoff	0.008	0.000	0.000	0.000	0.224	0.014	0.000	0.000	14.532
		Idle	0.911	0.090	0.090	0.096	0.090	0.022	0.000	0.000	22.041
Embraer ERJ 135/...	AE3007A1/3 (Type...	Approach	3.843	0.015	0.015	0.017	3.494	0.504	0.000	0.000	504.239
10R		Climb Out	0.252	0.015	0.015	0.017	6.798	0.504	0.000	0.000	503.946
		Takeoff	0.174	0.011	0.011	0.011	5.387	0.349	0.000	0.000	349.375
		Idle	20.398	2.021	2.021	2.147	2.264	0.530	0.000	0.000	530.224
Embraer ERJ 145	AE3007A1E	Approach	0.396	0.002	0.002	0.002	0.521	0.071	0.000	0.000	70.221
10R		Climb Out	0.046	0.002	0.002	0.002	1.073	0.072	0.000	0.000	71.934
		Takeoff	0.039	0.001	0.001	0.001	0.861	0.050	0.000	0.000	50.152
		Idle	2.662	0.247	0.247	0.262	0.299	0.071	0.000	0.000	70.108
Embraer ERJ 145	AE3007A	Approach	0.112	0.022	0.022	0.023	0.267	0.034	0.000	0.000	34.263
10R		Climb Out	0.031	0.010	0.010	0.010	0.579	0.033	0.000	0.000	33.109
		Takeoff	0.018	0.006	0.006	0.007	0.472	0.023	0.000	0.000	22.956
		Idle	0.628	0.090	0.090	0.097	0.139	0.036	0.000	0.000	36.194
Embraer ERJ 145LR	AE3007A1P (Type...	Approach	1.688	0.008	0.008	0.008	1.770	0.249	0.000	0.000	248.612
10R		Climb Out	0.129	0.007	0.007	0.008	3.287	0.235	0.000	0.000	234.621
		Takeoff	0.150	0.007	0.007	0.007	3.267	0.203	0.000	0.000	202.916
		Idle	10.847	1.047	1.047	1.113	1.132	0.271	0.000	0.000	271.371
Embraer ERJ 145LR	AE3007A1/3 (Type...	Approach	3.201	0.012	0.012	0.013	2.911	0.420	0.000	0.000	420.151
10R		Climb Out	0.209	0.012	0.012	0.013	5.665	0.420	0.000	0.000	419.907
		Takeoff	0.146	0.009	0.009	0.009	4.489	0.291	0.000	0.000	291.113
		Idle	16.997	1.683	1.683	1.789	1.886	0.442	0.000	0.000	441.803
Embraer ERJ 145LR	AE3007A1/1 (Type...	Approach	2.252	0.010	0.010	0.011	2.358	0.331	0.000	0.000	331.112
10R		Climb Out	0.172	0.010	0.010	0.010	4.382	0.313	0.000	0.000	312.758
		Takeoff	0.201	0.008	0.008	0.009	4.354	0.270	0.000	0.000	270.421
		Idle	14.463	1.401	1.401	1.489	1.505	0.360	0.000	0.000	360.960
Embraer ERJ 170	CF34-8E5	Approach	0.849	0.012	0.012	0.013	2.162	0.201	0.023	0.023	200.753
10R		Climb Out	0.062	0.002	0.002	0.002	1.366	0.108	0.001	0.001	108.001
		Takeoff	0.116	0.003	0.003	0.004	2.678	0.181	0.021	0.021	181.265
		Idle	3.425	0.024	0.024	0.026	0.870	0.188	0.022	0.022	188.611
F-27 SERIES	RDa7	Approach	2.636	0.237	0.237	0.262	0.072	0.079	N/A	N/A	79.144
10R_GA		Climb Out	0.193	0.061	0.061	0.067	0.248	0.055	N/A	N/A	55.205
		Takeoff	0.114	0.035	0.035	0.040	0.198	0.035	N/A	N/A	35.508
		Idle	8.141	2.129	2.129	2.351	0.063	0.089	N/A	N/A	89.060
Falcon 20	CF700-2D	Approach	3.024	0.068	0.068	0.073	0.088	0.049	N/A	N/A	48.771
10R_GA		Climb Out	0.677	0.002	0.002	0.003	0.117	0.028	N/A	N/A	27.087
		Takeoff	0.795	0.003	0.003	0.003	0.202	0.036	N/A	N/A	36.112
		Idle	8.686	1.009	1.009	1.073	0.050	0.056	N/A	N/A	56.042
Falcon 2000EX	PW308C	Approach	0.485	0.013	0.013	0.014	0.725	0.093	0.009	0.009	92.656
10R		Climb Out	0.049	0.006	0.006	0.006	0.794	0.050	0.004	0.004	49.615
		Takeoff	0.052	0.006	0.006	0.007	1.190	0.065	0.006	0.006	64.523
		Idle	3.107	0.437	0.437	0.464	0.267	0.074	0.007	0.007	73.460
Falcon 2000EX	PW308C	Approach	0.143	0.003	0.003	0.004	0.215	0.028	0.002	0.002	27.473
10R_Corp		Climb Out	0.014	0.001	0.001	0.001	0.235	0.014	0.001	0.001	14.711
		Takeoff	0.015	0.002	0.002	0.002	0.353	0.019	0.002	0.002	19.132
		Idle	0.922	0.129	0.129	0.138	0.079	0.022	0.002	0.002	21.782
Gulfstream II	SPEY MK511-8	Approach	0.258	0.018	0.018	0.019	0.701	0.097	N/A	N/A	97.312
10R_GA		Climb Out	0.047	0.009	0.009	0.010	1.308	0.076	N/A	N/A	75.609
		Takeoff	0.011	0.008	0.008	0.009	2.008	0.088	N/A	N/A	88.497
		Idle	3.899	0.453	0.453	0.482	0.442	0.122	N/A	N/A	122.711
Gulfstream IV	TAY Mk611-8	Approach	0.237	0.055	0.055	0.058	0.346	0.061	0.036	0.036	60.687
10R_GA		Climb Out	0.022	0.008	0.008	0.009	0.461	0.028	0.017	0.017	27.400
		Takeoff	0.026	0.031	0.031	0.032	0.802	0.037	0.022	0.022	38.013
		Idle	1.936	0.273	0.273	0.290	0.201	0.080	0.047	0.047	80.295
HS 125	TFE731-3	Approach	1.424	0.129	0.129	0.142	0.633	0.050	N/A	N/A	91.495
10R_Corp		Climb Out	0.064	0.003	0.003	0.003	0.635	0.021	N/A	N/A	39.603
		Takeoff	0.069	0.003	0.003	0.004	1.179	0.033	N/A	N/A	61.595
		Idle	4.195	0.795	0.795	0.879	0.327	0.047	N/A	N/A	87.960
KC-135R	CFM56-2A SERIES	Approach	0.500	0.012	0.012	0.013	1.280	0.147	0.002	0.002	147.067
10R_GA		Climb Out	0.164	0.008	0.008	0.008	3.153	0.182	0.006	0.006	182.261
		Takeoff	0.240	0.011	0.011	0.012	5.437	0.267	0.026	0.026	266.480
		Idle	4.589	0.220	0.220	0.244	0.840	0.195	0.001	0.001	195.254

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	V...	NOx	SOx	P...	PM...	Fuel Con...
Learjet 25C 10R_GA	CJ610-6	Approach	15.459	0.000	0.000	0.000	0.263	0.095	N/A	N/A	175.670
		Climb Out	1.840	0.013	0.013	0.014	0.230	0.035	N/A	N/A	65.713
		Takeoff	2.772	0.010	0.010	0.011	0.431	0.055	N/A	N/A	102.677
		Idle	35.964	4.177	4.177	4.440	0.208	0.126	N/A	N/A	232.024
Learjet 35/36 10R_GA	TFE 731-2-2B	Approach	2.585	0.492	0.492	0.524	0.681	0.063	N/A	N/A	115.502
		Climb Out	0.105	0.007	0.007	0.007	0.678	0.028	N/A	N/A	51.836
		Takeoff	0.087	0.007	0.007	0.008	0.949	0.034	N/A	N/A	62.266
		Idle	5.819	1.990	1.990	2.115	0.280	0.054	N/A	N/A	99.297
MD-80-82 10R	JT8D-217 (old co...	Approach	0.148	0.056	0.056	0.062	0.323	0.035	0.009	0.009	35.435
		Climb Out	0.035	0.012	0.012	0.013	0.588	0.029	0.008	0.008	28.548
		Takeoff	0.024	0.009	0.009	0.010	0.793	0.031	0.008	0.008	30.825
		Idle	0.416	0.112	0.112	0.123	0.126	0.034	0.009	0.009	33.889
MD-80-83 10R	JT8D-219 old comb	Approach	1.531	0.599	0.599	0.655	3.434	0.376	0.111	0.111	376.136
		Climb Out	0.387	0.136	0.136	0.149	6.714	0.323	0.096	0.096	322.773
		Takeoff	0.260	0.096	0.096	0.105	9.613	0.356	0.103	0.103	356.043
		Idle	4.635	1.278	1.278	1.398	1.322	0.367	0.108	0.108	366.979
Navajo 10R_GA	TIO-540-J2B2	Approach	40.119	0.427	0.427	0.411	0.044	0.003	N/A	N/A	31.840
		Climb Out	33.530	0.378	0.378	0.365	0.006	0.002	N/A	N/A	22.794
		Takeoff	22.349	0.192	0.192	0.185	0.006	0.002	N/A	N/A	15.498
		Idle	20.028	1.054	1.054	1.016	0.006	0.002	N/A	N/A	15.478
Piper PA-28 10R_GA	O-320	Approach	3.175	0.051	0.051	0.049	0.002	0.000	N/A	N/A	2.603
		Climb Out	1.528	0.019	0.019	0.019	0.007	0.000	N/A	N/A	1.543
		Takeoff	1.032	0.011	0.011	0.011	0.002	0.000	N/A	N/A	0.956
		Idle	0.617	0.021	0.021	0.020	0.000	0.000	N/A	N/A	0.571
SF-340-B PLUS 10R	CT7-5	Approach	0.052	0.014	0.014	0.015	0.068	0.010	N/A	N/A	9.826
		Climb Out	0.011	0.004	0.004	0.004	0.056	0.004	N/A	N/A	4.232
		Takeoff	0.009	0.003	0.003	0.003	0.046	0.003	N/A	N/A	3.325
		Idle	0.260	0.030	0.030	0.031	0.017	0.008	N/A	N/A	7.363
UC-12J 10R_GA	PT6A-42	Approach	1.425	0.930	0.930	1.027	0.191	0.022	N/A	N/A	41.007
		Climb Out	0.063	0.020	0.020	0.022	0.074	0.006	N/A	N/A	9.755
		Takeoff	0.039	0.013	0.013	0.014	0.061	0.004	N/A	N/A	7.637
		Idle	3.067	2.703	2.703	2.985	0.052	0.014	N/A	N/A	26.635
550 Citation #1	JT15D-4 (B,C,D)	Approach	2.916	0.470	0.470	0.499	0.482	0.050	0.025	0.025	91.127
		Climb Out	0.155	0.009	0.009	0.010	0.418	0.026	0.013	0.013	48.813
		Takeoff	0.112	0.004	0.004	0.006	0.493	0.029	0.015	0.015	53.339
		Idle	8.608	3.549	3.549	3.773	0.234	0.047	0.025	0.025	88.739
550 Citation #2	JT15D-4 (B,C,D)	Approach	4.998	0.805	0.805	0.855	0.827	0.085	0.044	0.044	156.181
		Climb Out	0.266	0.015	0.015	0.017	0.717	0.045	0.023	0.023	83.660
		Takeoff	0.192	0.008	0.008	0.009	0.843	0.050	0.025	0.025	91.417
		Idle	14.752	6.084	6.084	6.467	0.400	0.083	0.043	0.043	152.089
A319 #1	V2522-A5	Approach	0.149	0.003	0.003	0.004	0.497	0.057	0.007	0.007	57.176
		Climb Out	0.025	0.001	0.001	0.002	0.779	0.037	0.004	0.004	37.453
		Takeoff	0.024	0.002	0.002	0.002	1.034	0.042	0.006	0.006	42.194
		Idle	0.789	0.006	0.006	0.007	0.265	0.058	0.008	0.008	58.827
A319 #1	V2524-A5	Approach	0.074	0.002	0.002	0.002	0.280	0.031	0.004	0.004	31.070
		Climb Out	0.013	0.001	0.001	0.001	0.451	0.021	0.002	0.002	20.502
		Takeoff	0.012	0.001	0.001	0.001	0.612	0.023	0.003	0.003	23.329
		Idle	0.399	0.003	0.003	0.003	0.149	0.032	0.004	0.004	31.594
A320-200 #1	V2500-A1	Approach	0.044	0.009	0.009	0.009	0.766	0.057	0.001	0.001	56.975
		Climb Out	0.022	0.004	0.004	0.004	1.206	0.039	0.001	0.001	39.112
		Takeoff	0.024	0.004	0.004	0.004	1.609	0.043	0.001	0.001	43.343
		Idle	0.425	0.012	0.012	0.013	0.324	0.055	0.001	0.001	54.850
A320-200 #1	V2527-A5	Approach	0.246	0.007	0.007	0.007	0.897	0.100	0.012	0.012	100.841
		Climb Out	0.043	0.003	0.003	0.003	1.539	0.069	0.009	0.009	69.028
		Takeoff	0.041	0.003	0.003	0.003	2.014	0.076	0.010	0.010	75.990
		Idle	1.304	0.011	0.011	0.012	0.493	0.105	0.013	0.013	104.922
Embraer ERJ 170 #1	CF34-8E5A1	Approach	0.848	0.012	0.012	0.013	2.314	0.209	0.055	0.055	209.230
		Climb Out	0.065	0.002	0.002	0.002	1.501	0.115	0.003	0.003	114.206
		Takeoff	0.137	0.003	0.003	0.004	3.040	0.192	0.051	0.051	192.278
		Idle	3.344	0.025	0.025	0.028	0.908	0.193	0.051	0.051	193.297
Gulfstream IV Copy of 10...	TAY Mk611-8	Approach	0.473	0.109	0.109	0.116	0.690	0.121	0.072	0.072	121.153
		Climb Out	0.044	0.017	0.017	0.018	0.919	0.055	0.032	0.032	54.701
		Takeoff	0.053	0.061	0.061	0.065	1.602	0.076	0.045	0.045	75.886
		Idle	3.864	0.545	0.545	0.580	0.401	0.160	0.095	0.095	160.297
HS 748 2A SERIES #1	RDa7	Approach	0.755	0.068	0.068	0.075	0.021	0.023	N/A	N/A	22.666
		Climb Out	0.055	0.018	0.018	0.019	0.072	0.015	N/A	N/A	15.810
		Takeoff	0.033	0.010	0.010	0.011	0.057	0.010	N/A	N/A	10.169
		Idle	2.331	0.610	0.610	0.674	0.018	0.025	N/A	N/A	25.505
Bombardier CRJ900 #1	CF34-8C5	Approach	0.141	0.002	0.002	0.002	0.358	0.033	0.003	0.003	33.328
		Climb Out	0.010	0.000	0.000	0.000	0.226	0.018	0.000	0.000	17.903

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	V...	NOx	SOx	P...	PM...	Fuel Con...
		Takeoff	0.019	0.001	0.001	0.001	0.441	0.030	0.003	0.003	30.039
		Idle	0.573	0.004	0.004	0.004	0.144	0.031	0.003	0.003	31.386
Citation VII #1	TFE 731-2-2B	Approach	0.480	0.091	0.091	0.097	0.127	0.011	N/A	N/A	21.428
		Climb Out	0.022	0.001	0.001	0.001	0.141	0.006	N/A	N/A	10.765
		Takeoff	0.020	0.001	0.001	0.002	0.213	0.008	N/A	N/A	13.943
		Idle	1.023	0.349	0.349	0.371	0.050	0.010	N/A	N/A	17.452
Learjet 25B #1	CJ610-6	Approach	10.304	0.000	0.000	0.000	0.175	0.063	N/A	N/A	117.092
		Climb Out	1.227	0.009	0.009	0.009	0.153	0.023	N/A	N/A	43.800
		Takeoff	1.847	0.007	0.007	0.008	0.288	0.037	N/A	N/A	68.438
		Idle	23.972	2.783	2.783	2.960	0.139	0.084	N/A	N/A	154.654

*** PM data for some aircraft in the study is unavailable.

EDMS 4.5 Emissions Inventory Report

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Arr Curb FF	Roadway	0.428	0.032	0.030	0.040	0.043	0.000	0.001	0.001
Arr Curb Pick Up	Roadway	3.659	0.435	0.414	0.659	0.211	0.001	0.003	0.002
Blue Ent_Exit	Roadway	0.774	0.055	0.052	0.065	0.080	0.001	0.002	0.001
Bowtie	Roadway	0.453	0.030	0.029	0.035	0.046	0.000	0.001	0.001
Brdgwy N of Sawyr 1	Roadway	2.628	0.173	0.164	0.203	0.268	0.002	0.009	0.006
Brdgwy N of Sawyr 2	Roadway	4.814	0.317	0.302	0.371	0.489	0.004	0.017	0.010
Crb Exit to IntlGat1	Roadway	1.553	0.111	0.105	0.131	0.162	0.001	0.006	0.003
Curb Exit to IntlGa2	Roadway	12.016	0.858	0.811	1.017	1.250	0.010	0.041	0.024
Dep Curb Drop Off	Roadway	4.782	0.569	0.541	0.862	0.276	0.001	0.004	0.003
Dep Curb FF	Roadway	0.560	0.042	0.040	0.052	0.057	0.000	0.001	0.001
Ent from 670 NB	Roadway	4.294	0.233	0.222	0.267	0.420	0.003	0.013	0.008
Ent from 670 SB	Roadway	2.840	0.154	0.147	0.176	0.278	0.002	0.009	0.006
Ent from 670_1	Roadway	5.967	0.323	0.308	0.370	0.583	0.004	0.019	0.011
Ent from 670_2	Roadway	14.564	0.789	0.752	0.905	1.424	0.011	0.044	0.026
Ent_Exit_Employee	Roadway	0.381	0.025	0.024	0.030	0.039	0.000	0.001	0.001
Exit Comm Gar	Roadway	9.416	0.622	0.590	0.728	0.958	0.008	0.033	0.019
Exit Red 1	Roadway	1.387	0.091	0.087	0.107	0.141	0.001	0.004	0.003
Exit Red 2	Roadway	0.429	0.029	0.026	0.033	0.044	0.000	0.001	0.001
Exit Red 3	Roadway	1.920	0.127	0.120	0.149	0.195	0.001	0.007	0.004
Exit Red 4	Roadway	0.748	0.050	0.047	0.057	0.076	0.001	0.002	0.001
Exit to 670 NB	Roadway	3.007	0.163	0.155	0.186	0.294	0.002	0.009	0.006
Exit to 670 SB	Roadway	3.505	0.190	0.181	0.218	0.343	0.002	0.011	0.007
Exit to 670_1	Roadway	12.432	0.674	0.642	0.773	1.216	0.009	0.039	0.022
Exit to 670_2	Roadway	5.124	0.278	0.265	0.319	0.500	0.003	0.015	0.009
Green Lot Ent_Exit	Roadway	0.674	0.049	0.045	0.057	0.071	0.000	0.002	0.001
Int West to Stlz_2	Roadway	26.361	1.523	1.448	1.756	2.577	0.020	0.085	0.049
Intl Blue to Lane 1	Roadway	11.085	0.640	0.608	0.739	1.084	0.009	0.035	0.021
Intl Blue to Lane 2	Roadway	15.618	0.903	0.858	1.041	1.527	0.012	0.050	0.029
Intl East Bowtie_1	Roadway	7.054	0.408	0.388	0.470	0.690	0.006	0.022	0.013
Intl East Bowtie_2	Roadway	10.869	0.628	0.597	0.724	1.063	0.009	0.035	0.020
Intl East at Red	Roadway	43.258	2.500	2.377	2.881	4.228	0.033	0.139	0.080
Intl East at Tunnel	Roadway	21.449	1.239	1.178	1.429	2.097	0.017	0.068	0.040
Intl Exit at Tunnel	Roadway	29.904	1.728	1.642	1.992	2.923	0.023	0.096	0.055
Intl Green to Blue 1	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 2	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 3	Roadway	36.466	2.108	2.003	2.429	3.565	0.028	0.117	0.068
Intl Lane to LT	Roadway	11.895	0.849	0.802	1.008	1.238	0.010	0.041	0.023
Intl West to Stlz_1	Roadway	30.189	1.745	1.658	2.011	2.951	0.023	0.097	0.056
Intl from Sawyer	Roadway	10.803	0.624	0.593	0.720	1.056	0.008	0.034	0.020
Intll East frm Stzr	Roadway	12.943	0.748	0.711	0.862	1.265	0.010	0.042	0.024
LT to ST	Roadway	1.383	0.099	0.094	0.117	0.144	0.001	0.004	0.002
Lane Ent	Roadway	0.030	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Lane Exit	Roadway	0.033	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Merge to Sawyer	Roadway	10.355	0.683	0.649	0.800	1.054	0.009	0.036	0.021
New Bowtie	Roadway	0.833	0.055	0.052	0.064	0.085	0.001	0.003	0.002
New Stelzer	Roadway	69.947	3.790	3.610	4.346	6.839	0.051	0.215	0.125
Perimeter Road 1	Roadway	7.277	0.481	0.456	0.562	0.741	0.006	0.025	0.014
Perimeter Road 2	Roadway	0.946	0.063	0.060	0.073	0.096	0.001	0.003	0.002
Perimeter Road 3	Roadway	0.411	0.028	0.025	0.032	0.042	0.000	0.001	0.001
Perimeter Road 4	Roadway	2.069	0.137	0.130	0.160	0.211	0.002	0.008	0.004
Perimeter Road 5	Roadway	0.273	0.018	0.018	0.021	0.028	0.000	0.001	0.001
Perimeter Road 6	Roadway	1.042	0.068	0.065	0.080	0.106	0.001	0.003	0.002
Perimeter Road 7	Roadway	0.454	0.030	0.029	0.035	0.046	0.000	0.001	0.001
ST to Curb	Roadway	1.303	0.093	0.088	0.110	0.136	0.001	0.004	0.002
Sawyer East Fork	Roadway	4.457	0.294	0.279	0.344	0.454	0.003	0.015	0.009
Sawyer Forks	Roadway	3.008	0.198	0.188	0.233	0.306	0.002	0.011	0.007
Sawyer S of Brdgwy	Roadway	8.953	0.591	0.561	0.692	0.912	0.008	0.031	0.018
Sawyer West Fork	Roadway	3.686	0.244	0.231	0.284	0.375	0.003	0.013	0.008
Sawyer off Intl	Roadway	11.604	0.766	0.728	0.897	1.182	0.010	0.041	0.023
Sawyer to Brdgwy 1	Roadway	13.741	0.906	0.861	1.062	1.399	0.011	0.047	0.028
Sawyer to Brdgwy 2	Roadway	60.838	4.014	3.813	4.701	6.193	0.051	0.212	0.123
Sawyer to Intl 1	Roadway	28.034	1.620	1.540	1.867	2.740	0.021	0.089	0.052
Sawyer to Intl 2	Roadway	21.142	1.221	1.162	1.409	2.067	0.017	0.067	0.040
Stelzer N	Roadway	46.396	2.514	2.395	2.883	4.536	0.034	0.142	0.083
Stelzer S	Roadway	7.090	0.385	0.366	0.441	0.693	0.006	0.022	0.012
To Red 1	Roadway	1.150	0.076	0.072	0.089	0.117	0.001	0.004	0.002

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
To Red 2	Roadway	1.475	0.097	0.093	0.114	0.150	0.001	0.006	0.003
To Red 3	Roadway	0.682	0.045	0.043	0.053	0.069	0.001	0.002	0.001
Red	Parking	23.057	1.486	1.400	3.269	3.057	0.011	0.049	0.029
Lane Avtn	Parking	4.688	0.322	0.304	0.750	0.584	0.002	0.009	0.006
Blue	Parking	39.259	2.533	2.388	5.582	5.199	0.020	0.083	0.047
Green	Parking	8.750	0.613	0.580	1.455	1.066	0.004	0.017	0.010
Employee Parking	Parking	13.297	0.886	0.836	2.012	1.709	0.007	0.026	0.015
ShortTerm Pkg Lvl 4	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
Long Term Pkg Lvl 1	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 3	Parking	13.690	0.946	0.893	2.216	1.695	0.007	0.026	0.015
ShortTerm Pkg Lvl 5	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
Long Term Pkg Lvl 4	Parking	6.800	0.470	0.443	1.101	0.842	0.003	0.013	0.008
Long Term Pkg Lvl 5	Parking	14.003	0.968	0.914	2.266	1.734	0.007	0.026	0.015
Long Term Pkg Lvl 2	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New RAC	Parking	36.748	2.297	2.163	4.906	5.006	0.019	0.080	0.046

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.101	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.744	0.744	0.744	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.132	0.132	0.132	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.581	1.581	1.581	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.011	0.003	0.003	0.003	0.003	0.003	0.008	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.811	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.843	0.843	0.843	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.012	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.420	0.420	0.420	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.251	0.251	0.251	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.759	0.759	0.759	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.005	2.005	2.005	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.790	0.790	0.790	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.757	0.757	0.757	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary

(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	765.835	63.560	63.560	67.841	309.041	27.914	3.805	3.805
GSE/APU	1,111.583	46.313	42.103	43.828	70.859	9.502	3.196	3.090
Roadways	690.992	41.514	39.461	48.419	68.030	0.530	2.216	1.293
Parking Facilities	170.878	11.263	10.623	25.326	22.179	0.084	0.349	0.203
Stationary Sources	21.450	12.421	11.891	14.114	35.756	16.638	2.490	2.205
Total	2,760.738	175.071	167.637	199.527	505.864	54.668	12.056	10.595

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary

(Short Tons/Year)

Aircraft	Engine		CO	THC	N...VOC	NOx	SOxPM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	143.218	2.538	2.538 2.448	0.076	0.012	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.024	0.010	0.010 0.010	0.088	0.026	0.013	0.013 0.000
B737-300	CFM56-3C-1 (Rera...	TOTAL	10.248	0.713	0.713 0.780	6.593	0.705	0.009	0.009 0.000
10R		APU	1.451	0.083	0.083 0.090	0.384	0.080	0.000	0.000 0.000
		GSE	0.489	0.090	0.086 0.090	0.699	0.141	0.069	0.067 0.000
B737-300	CFM56-3B-2	TOTAL	5.430	0.294	0.294 0.322	5.368	0.496	0.011	0.011 0.000
10R		APU	0.893	0.051	0.051 0.056	0.236	0.050	0.000	0.000 0.000
		GSE	0.301	0.055	0.053 0.056	0.430	0.087	0.043	0.042 0.000
B737-300	CFM56-3-B1	TOTAL	32.364	1.996	1.996 2.186	25.084	2.525	0.039	0.039 0.000
10R		APU	4.910	0.281	0.281 0.308	1.296	0.273	0.000	0.000 0.000
		GSE	1.658	0.304	0.290 0.308	2.364	0.477	0.235	0.228 0.000
B737-500	CFM56-3C-1	TOTAL	5.766	0.284	0.284 0.311	7.531	0.631	0.021	0.021 0.000
10R		APU	1.003	0.057	0.057 0.063	0.265	0.056	0.000	0.000 0.000
		GSE	0.338	0.062	0.060 0.063	0.483	0.097	0.049	0.046 0.000
B737-700	CFM56-7B22	TOTAL	21.377	2.245	2.245 2.458	39.252	2.935	0.617	0.617 0.000
10R		APU	1.509	0.115	0.115 0.126	2.054	0.310	0.000	0.000 0.000
		GSE	1.733	0.319	0.303 0.321	2.471	0.498	0.246	0.238 0.000
B737-800	CFM56-7B26	TOTAL	5.553	0.574	0.574 0.628	17.011	1.034	0.313	0.313 0.000
10R		APU	0.460	0.035	0.035 0.039	0.625	0.094	0.000	0.000 0.000
		GSE	0.527	0.097	0.093 0.098	0.752	0.152	0.075	0.073 0.000
B757-300	PW2043	TOTAL	1.727	0.136	0.136 0.149	6.511	0.328	N/A	N/A 0.000
10R		APU	0.087	0.009	0.009 0.010	0.201	0.021	0.000	0.000 0.000
		GSE	0.112	0.021	0.020 0.021	0.161	0.032	0.015	0.015 0.000
BAE146-300	LF507 SERIES	TOTAL	2.523	0.290	0.290 0.317	1.975	0.223	0.026	0.026 0.000
10R		APU	0.101	0.010	0.010 0.011	0.072	0.015	0.000	0.000 0.000
		GSE	6.780	0.271	0.245 0.255	0.320	0.035	0.018	0.018 0.000
BH-1900	PT6A-67D	TOTAL	0.514	0.138	0.138 0.147	0.073	0.017	N/A	N/A 0.000
10R		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	3.163	0.121	0.109 0.112	0.094	0.007	0.002	0.002 0.000
Bombardier CRJ700	CF34-8C1	TOTAL	25.171	0.144	0.144 0.158	29.433	2.892	0.122	0.122 0.000
10R		APU	8.816	0.505	0.505 0.552	2.328	0.491	0.000	0.000 0.000
		GSE	133.816	5.352	4.839 5.025	6.315	0.707	0.357	0.345 0.000
Cessna 172 Skyha...	O-320	TOTAL	45.939	0.745	0.745 0.719	0.082	0.004	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.033	0.013	0.013 0.013	0.119	0.036	0.018	0.018 0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.546	0.037	0.037 0.040	0.525	0.065	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	22.807	0.871	0.785 0.814	0.675	0.045	0.018	0.017 0.000
Cessna T337	IO-360-B	TOTAL	0.930	0.017	0.017 0.015	0.006	0.000	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	2.539	0.097	0.087 0.090	0.075	0.006	0.002	0.002 0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	4.012	1.243	1.243 1.323	0.331	0.041	0.023	0.023 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	10.340	0.427	0.385 0.399	0.359	0.020	0.009	0.009 0.000
CL600	ALF 502L-2	TOTAL	8.187	1.124	1.124 1.195	4.111	0.281	0.053	0.053 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	52.348	2.144	1.941 2.016	2.922	0.394	0.157	0.151 0.000
DC9-30	JT8D-15 (old comb)	TOTAL	18.512	5.305	5.305 5.808	14.132	1.397	1.008	1.008 0.000
10R		APU	1.897	0.109	0.109 0.119	0.500	0.106	0.000	0.000 0.000
		GSE	0.640	0.118	0.112 0.119	0.914	0.184	0.090	0.088 0.000
DC9-50	JT8D-17 (old comb)	TOTAL	1.922	0.629	0.629 0.689	1.631	0.161	0.118	0.118 0.000
10R		APU	0.223	0.013	0.013 0.014	0.058	0.012	0.000	0.000 0.000
		GSE	0.075	0.014	0.013 0.014	0.107	0.022	0.011	0.010 0.000
Embraer ERJ 135/...	AE3007A3 (Type 3)	TOTAL	0.729	0.062	0.062 0.066	0.495	0.053	0.000	0.000 0.000
10R		APU	0.051	0.004	0.004 0.006	0.036	0.008	0.000	0.000 0.000
		GSE	3.383	0.136	0.122 0.127	0.160	0.018	0.009	0.009 0.000
Embraer ERJ 135/...	AE3007A1/3 (Type...	TOTAL	26.528	2.219	2.219 2.359	19.206	2.023	0.000	0.000 0.000
10R		APU	1.951	0.184	0.184 0.196	1.387	0.302	0.000	0.000 0.000
		GSE	130.433	5.216	4.717 4.898	6.155	0.689	0.348	0.336 0.000
Embraer ERJ 145	AE3007A1E	TOTAL	3.512	0.282	0.282 0.301	3.062	0.292	0.000	0.000 0.000
10R		APU	0.254	0.024	0.024 0.025	0.180	0.040	0.000	0.000 0.000
		GSE	16.943	0.678	0.613 0.636	0.799	0.089	0.045	0.044 0.000
Embraer ERJ 145	AE3007A	TOTAL	0.880	0.143	0.143 0.152	1.616	0.141	0.000	0.000 0.000
10R		APU	0.127	0.012	0.012 0.013	0.090	0.020	0.000	0.000 0.000
		GSE	8.465	0.338	0.306 0.317	0.399	0.045	0.022	0.022 0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...VOC	NOx	SOxPM...	PM...	Fuel Con...
Embraer ERJ 145LR	AE3007A1P (Type ...	TOTAL	11.097	0.926	0.926 0.984	8.148	0.826	0.000	0.000 0.000
10R		APU	0.786	0.074	0.074 0.079	0.559	0.121	0.000	0.000 0.000
		GSE	52.513	2.100	1.899 1.972	2.478	0.278	0.140	0.136 0.000
Embraer ERJ 145LR	AE3007A1/3 (Type...	TOTAL	22.048	1.844	1.844 1.961	15.963	1.681	0.000	0.000 0.000
10R		APU	1.621	0.153	0.153 0.163	1.153	0.251	0.000	0.000 0.000
		GSE	108.409	4.335	3.920 4.071	5.116	0.573	0.289	0.279 0.000
Embraer ERJ 145LR	AE3007A1/1 (Type...	TOTAL	18.261	1.528	1.528 1.624	13.396	1.358	0.000	0.000 0.000
10R		APU	1.292	0.122	0.122 0.130	0.918	0.201	0.000	0.000 0.000
		GSE	86.385	3.455	3.124 3.244	4.076	0.456	0.230	0.223 0.000
Embraer ERJ 170	CF34-8E5	TOTAL	3.482	0.033	0.033 0.036	5.509	0.529	0.053	0.053 0.000
10R		APU	0.355	0.033	0.033 0.036	0.252	0.055	0.000	0.000 0.000
		GSE	23.723	0.949	0.858 0.891	1.120	0.126	0.063	0.061 0.000
F-27 SERIES	RDa7	TOTAL	9.544	2.122	2.122 2.345	0.498	0.223	N/A	N/A 0.000
10R_GA		APU	0.594	0.071	0.071 0.078	0.058	0.017	0.000	0.000 0.000
		GSE	22.786	0.870	0.784 0.814	0.675	0.045	0.018	0.017 0.000
Falcon 20	CF700-2D	TOTAL	13.242	1.090	1.090 1.160	0.456	0.169	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.041	0.013	0.012 0.013	0.162	0.035	0.014	0.014 0.000
Falcon 2000EX	PW308C	TOTAL	3.575	0.445	0.445 0.474	2.866	0.270	0.025	0.025 0.000
10R		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	16.785	0.693	0.624 0.647	0.584	0.032	0.014	0.013 0.000
Falcon 2000EX	PW308C	TOTAL	0.733	0.091	0.091 0.097	0.588	0.055	0.006	0.006 0.000
10R_Corp		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	3.441	0.142	0.128 0.132	0.120	0.007	0.003	0.003 0.000
Gulfstream II	SPEY MK511-8	TOTAL	4.242	0.491	0.491 0.521	4.462	0.385	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	25.118	0.996	0.898 0.931	0.754	0.041	0.019	0.018 0.000
Gulfstream IV	TAY Mk611-8	TOTAL	2.975	0.491	0.491 0.521	2.412	0.276	0.163	0.163 0.000
10R_GA		APU	0.072	0.006	0.006 0.006	0.353	0.035	0.000	0.000 0.000
		GSE	14.826	0.575	0.519 0.538	0.443	0.034	0.017	0.015 0.000
HS 125	TFE731-3	TOTAL	6.883	1.114	1.114 1.231	3.305	0.181	N/A	N/A 0.000
10R_Corp		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	63.281	2.416	2.178 2.259	1.872	0.126	0.050	0.047 0.000
KC-135R	CFM56-2A SERIES	TOTAL	4.899	0.224	0.224 0.247	9.502	0.703	0.032	0.032 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.204	0.061	0.060 0.063	0.785	0.118	0.054	0.052 0.000
Learjet 25C	CJ610-6	TOTAL	52.524	3.947	3.947 4.195	1.059	0.291	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	35.570	1.422	1.286 1.336	1.679	0.188	0.095	0.091 0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	8.806	2.558	2.558 2.721	2.642	0.182	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	44.789	1.844	1.661 1.722	1.475	0.071	0.031	0.030 0.000
MD-80-82	JT8D-217 (old comb)	TOTAL	0.420	0.128	0.128 0.140	1.226	0.086	0.022	0.022 0.000
10R		APU	0.112	0.007	0.007 0.007	0.030	0.007	0.000	0.000 0.000
		GSE	0.031	0.007	0.006 0.007	0.045	0.009	0.004	0.004 0.000
MD-80-83	JT8D-219 old comb	TOTAL	6.220	1.922	1.922 2.104	19.169	1.294	0.380	0.380 0.000
10R		APU	1.673	0.096	0.096 0.105	0.442	0.093	0.000	0.000 0.000
		GSE	0.454	0.093	0.088 0.093	0.679	0.137	0.065	0.063 0.000
Navajo	TIO-540-J2B2	TOTAL	116.164	2.058	2.058 1.986	0.062	0.010	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.020	0.008	0.008 0.008	0.072	0.022	0.011	0.010 0.000
Piper PA-28	O-320	TOTAL	6.356	0.103	0.103 0.098	0.011	0.001	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.004	0.001	0.001 0.001	0.014	0.004	0.002	0.002 0.000
SF-340-B PLUS	CT7-5	TOTAL	0.223	0.034	0.034 0.036	0.123	0.017	N/A	N/A 0.000
10R		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	5.077	0.194	0.175 0.181	0.150	0.010	0.004	0.003 0.000
UC-12J	PT6A-42	TOTAL	4.615	3.685	3.685 4.071	0.377	0.046	N/A	N/A 0.000
10R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	22.786	0.870	0.784 0.814	0.675	0.045	0.018	0.017 0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	11.851	4.058	4.058 4.313	1.627	0.152	0.079	0.079 0.000
#1		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	36.190	1.495	1.346 1.396	1.259	0.071	0.031	0.029 0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	21.443	7.341	7.341 7.805	2.944	0.277	0.143	0.143 0.000
#2		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	65.482	2.704	2.436 2.525	2.278	0.127	0.055	0.053 0.000
A319	V2522-A5	TOTAL	0.662	0.009	0.009 0.010	1.721	0.131	0.017	0.017 0.000
#1		APU	0.023	0.002	0.002 0.002	0.117	0.011	0.000	0.000 0.000
		GSE	9.579	0.374	0.337 0.351	0.354	0.039	0.020	0.020 0.000
A319	V2524-A5	TOTAL	0.334	0.004	0.004 0.006	0.994	0.072	0.009	0.009 0.000
#1									

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.012	0.001	0.001	0.001	0.060	0.006	0.000	0.000	0.000
		GSE	4.928	0.193	0.174	0.180	0.182	0.020	0.010	0.010	0.000
A320-200	V2500-A1	TOTAL	0.542	0.031	0.031	0.033	4.091	0.204	0.004	0.004	0.000
#1		APU	0.033	0.002	0.002	0.002	0.162	0.017	0.000	0.000	0.000
		GSE	13.316	0.519	0.470	0.487	0.492	0.054	0.028	0.028	0.000
A320-200	V2527-A5	TOTAL	1.432	0.020	0.020	0.022	4.313	0.306	0.039	0.039	0.000
#1		APU	0.051	0.003	0.003	0.004	0.250	0.024	0.000	0.000	0.000
		GSE	20.550	0.802	0.724	0.752	0.759	0.083	0.043	0.042	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	5.889	0.058	0.058	0.064	10.361	0.947	0.215	0.215	0.000
#1		APU	0.608	0.057	0.057	0.063	0.432	0.095	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	4.459	0.735	0.735	0.782	3.614	0.413	0.244	0.244	0.000
Copy of 10...		APU	0.107	0.008	0.008	0.009	0.529	0.053	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HS 748 2A SERIES	RDa7	TOTAL	4.244	0.944	0.944	1.043	0.222	0.099	N/A	N/A	0.000
#1		APU	0.047	0.003	0.003	0.004	0.236	0.023	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.998	0.010	0.010	0.010	1.562	0.151	0.014	0.014	0.000
#1		APU	0.446	0.025	0.025	0.028	0.118	0.025	0.000	0.000	0.000
		GSE	6.780	0.271	0.245	0.255	0.320	0.035	0.018	0.018	0.000
Citation VII	TFE 731-2-2B	TOTAL	2.067	0.595	0.595	0.633	0.705	0.046	N/A	N/A	0.000
#1		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Learjet 25B	CJ610-6	TOTAL	50.016	3.759	3.759	3.996	1.009	0.277	N/A	N/A	0.000
#1		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	V...	NOx	SOx	P...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	49.462	0.526	0.526	0.507	0.055	0.004	N/A	N/A	39.256
10R_GA		Climb Out	41.339	0.466	0.466	0.450	0.007	0.003	N/A	N/A	28.102
		Takeoff	27.554	0.237	0.237	0.228	0.007	0.002	N/A	N/A	19.109
		Idle	24.863	1.308	1.308	1.262	0.008	0.002	N/A	N/A	19.214
B737-300	CFM56-3C-1 (Rer...	Approach	0.905	0.018	0.018	0.019	1.723	0.215	0.002	0.002	215.375
10R		Climb Out	0.109	0.006	0.006	0.006	1.598	0.109	0.001	0.001	108.758
		Takeoff	0.128	0.007	0.007	0.008	2.362	0.142	0.002	0.002	142.333
		Idle	9.106	0.683	0.683	0.748	0.908	0.239	0.002	0.002	239.017
B737-300	CFM56-3B-2	Approach	0.518	0.011	0.011	0.012	1.325	0.152	0.002	0.002	152.359
10R		Climb Out	0.073	0.003	0.003	0.004	1.340	0.080	0.001	0.001	80.233
		Takeoff	0.096	0.003	0.003	0.004	2.057	0.106	0.007	0.007	106.013
		Idle	4.744	0.276	0.276	0.302	0.646	0.158	0.001	0.001	157.602
B737-300	CFM56-3-B1	Approach	2.942	0.062	0.062	0.068	6.425	0.774	0.010	0.010	774.144
10R		Climb Out	0.378	0.020	0.020	0.022	6.172	0.398	0.006	0.006	398.168
		Takeoff	0.471	0.021	0.021	0.023	9.248	0.522	0.015	0.015	522.479
		Idle	28.573	1.894	1.894	2.073	3.240	0.831	0.008	0.008	830.621
B737-500	CFM56-3C-1	Approach	0.580	0.013	0.013	0.014	1.703	0.187	0.002	0.002	187.199
10R		Climb Out	0.100	0.004	0.004	0.004	1.991	0.111	0.003	0.003	111.824
		Takeoff	0.132	0.004	0.004	0.004	3.042	0.147	0.014	0.014	146.957
		Idle	4.954	0.262	0.262	0.288	0.795	0.185	0.002	0.002	184.826
B737-700	CFM56-7B22	Approach	2.156	0.086	0.086	0.095	8.627	0.863	0.182	0.182	862.648
10R		Climb Out	0.311	0.052	0.052	0.057	9.854	0.518	0.109	0.109	518.634
		Takeoff	0.370	0.074	0.074	0.082	17.112	0.741	0.155	0.155	740.786
		Idle	18.540	2.033	2.033	2.226	3.659	0.814	0.171	0.171	813.133
B737-800	CFM56-7B26	Approach	0.462	0.029	0.029	0.032	3.116	0.289	0.087	0.087	288.573
10R		Climb Out	0.120	0.020	0.020	0.022	4.506	0.201	0.061	0.061	200.289
		Takeoff	0.056	0.029	0.029	0.031	8.159	0.283	0.086	0.086	283.304
		Idle	4.915	0.497	0.497	0.543	1.229	0.261	0.079	0.079	261.426
B757-300	PW2043	Approach	0.126	0.009	0.009	0.010	1.022	0.096	N/A	N/A	95.523
10R		Climb Out	0.025	0.001	0.001	0.001	1.808	0.065	N/A	N/A	64.828
		Takeoff	0.026	0.001	0.001	0.001	3.326	0.088	N/A	N/A	88.065
		Idle	1.550	0.126	0.126	0.137	0.356	0.080	N/A	N/A	80.264
BAE146-300	LF507 SERIES	Approach	0.235	0.007	0.007	0.007	0.338	0.053	0.004	0.004	53.022
10R		Climb Out	0.018	0.001	0.001	0.001	0.711	0.060	0.009	0.009	59.131
		Takeoff	0.010	0.000	0.000	0.000	0.730	0.051	0.008	0.008	50.247
		Idle	2.261	0.282	0.282	0.309	0.196	0.060	0.004	0.004	59.764
BH-1900	PT6A-67D	Approach	0.151	0.023	0.023	0.024	0.036	0.008	N/A	N/A	7.628
10R		Climb Out	0.011	0.000	0.000	0.000	0.012	0.002	N/A	N/A	1.824
		Takeoff	0.007	0.000	0.000	0.000	0.011	0.001	N/A	N/A	1.463
		Idle	0.346	0.115	0.115	0.121	0.014	0.006	N/A	N/A	5.152
Bombardier CRJ700	CF34-8C1	Approach	2.393	0.050	0.050	0.054	9.128	0.822	0.040	0.040	822.374
10R		Climb Out	0.219	0.009	0.009	0.010	5.636	0.440	0.002	0.002	439.668
		Takeoff	0.302	0.014	0.014	0.017	10.819	0.737	0.036	0.036	737.482
		Idle	22.256	0.072	0.072	0.078	3.849	0.893	0.044	0.044	893.092
Cessna 172 Skyha...	O-320	Approach	20.924	0.333	0.333	0.321	0.017	0.002	N/A	N/A	17.151
10R_GA		Climb Out	11.282	0.141	0.141	0.137	0.045	0.001	N/A	N/A	11.397
		Takeoff	8.522	0.093	0.093	0.090	0.018	0.001	N/A	N/A	7.890
		Idle	5.211	0.177	0.177	0.172	0.002	0.000	N/A	N/A	4.825
Cessna 441 Conq...	TPE331-8	Approach	0.131	0.006	0.006	0.007	0.287	0.030	N/A	N/A	30.224
10R_GA		Climb Out	0.010	0.000	0.000	0.000	0.069	0.007	N/A	N/A	6.401
		Takeoff	0.010	0.000	0.000	0.000	0.082	0.008	N/A	N/A	7.385
		Idle	0.395	0.031	0.031	0.033	0.087	0.021	N/A	N/A	20.981
Cessna T337	IO-360-B	Approach	0.271	0.003	0.003	0.003	0.004	0.000	N/A	N/A	0.392
10R_GA		Climb Out	0.262	0.002	0.002	0.002	0.001	0.000	N/A	N/A	0.267
		Takeoff	0.246	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.205
		Idle	0.151	0.009	0.009	0.008	0.000	0.000	N/A	N/A	0.168
CITATION I SP	JT15D-1A _1B	Approach	0.941	0.103	0.103	0.109	0.080	0.012	0.008	0.008	23.244
10R_GA		Climb Out	0.049	0.000	0.000	0.000	0.094	0.008	0.004	0.004	13.889
		Takeoff	0.041	0.000	0.000	0.000	0.117	0.009	0.004	0.004	15.435
		Idle	2.982	1.141	1.141	1.213	0.040	0.012	0.007	0.007	22.587
CL600	ALF 502L-2	Approach	0.633	0.029	0.029	0.031	1.031	0.086	0.019	0.019	159.294
10R_GA		Climb Out	0.025	0.002	0.002	0.002	1.000	0.045	0.020	0.020	83.151
		Takeoff	0.045	0.002	0.002	0.002	1.526	0.062	0.012	0.012	113.573
		Idle	7.484	1.090	1.090	1.160	0.554	0.088	0.002	0.002	164.016
DC9-30	JT8D-15 (old comb)	Approach	3.342	0.574	0.574	0.628	2.054	0.348	0.251	0.251	348.153
10R		Climb Out	0.308	0.077	0.077	0.084	4.614	0.308	0.222	0.222	307.620

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	V...	NOx	SOx	P...	PM...	Fuel Con...
		Takeoff	0.228	0.082	0.082	0.089	6.216	0.325	0.235	0.235	325.464
		Idle	14.634	4.573	4.573	5.007	1.247	0.416	0.300	0.300	415.750
DC9-50	JT8D-17 (old comb)	Approach	0.353	0.080	0.080	0.088	0.252	0.041	0.030	0.030	41.305
10R		Climb Out	0.034	0.028	0.028	0.030	0.527	0.034	0.025	0.025	34.610
		Takeoff	0.026	0.025	0.025	0.028	0.691	0.036	0.026	0.026	36.017
		Idle	1.509	0.496	0.496	0.543	0.161	0.049	0.035	0.035	48.668
Embraer ERJ 135/...	AE3007A3 (Type 3)	Approach	0.107	0.000	0.000	0.000	0.097	0.014	0.000	0.000	13.973
10R		Climb Out	0.007	0.000	0.000	0.000	0.188	0.014	0.000	0.000	13.959
		Takeoff	0.004	0.000	0.000	0.000	0.149	0.010	0.000	0.000	9.674
		Idle	0.610	0.061	0.061	0.064	0.061	0.014	0.000	0.000	14.774
Embraer ERJ 135/...	AE3007A1/3 (Type...	Approach	4.109	0.017	0.017	0.018	3.737	0.539	0.000	0.000	539.232
10R		Climb Out	0.269	0.017	0.017	0.018	7.270	0.539	0.000	0.000	538.919
		Takeoff	0.186	0.011	0.011	0.012	5.762	0.374	0.000	0.000	373.621
		Idle	21.964	2.175	2.175	2.313	2.438	0.571	0.000	0.000	570.917
Embraer ERJ 145	AE3007A1E	Approach	0.440	0.002	0.002	0.002	0.579	0.078	0.000	0.000	78.044
10R		Climb Out	0.051	0.002	0.002	0.002	1.192	0.080	0.000	0.000	79.947
		Takeoff	0.043	0.002	0.002	0.002	0.957	0.056	0.000	0.000	55.739
		Idle	2.978	0.277	0.277	0.293	0.334	0.078	0.000	0.000	78.455
Embraer ERJ 145	AE3007A	Approach	0.125	0.024	0.024	0.025	0.297	0.037	0.000	0.000	38.015
10R		Climb Out	0.034	0.011	0.011	0.011	0.642	0.036	0.000	0.000	36.733
		Takeoff	0.019	0.007	0.007	0.007	0.524	0.025	0.000	0.000	25.469
		Idle	0.701	0.101	0.101	0.108	0.154	0.041	0.000	0.000	40.433
Embraer ERJ 145LR	AE3007A1P (Type...	Approach	1.454	0.007	0.007	0.007	1.524	0.214	0.000	0.000	214.052
10R		Climb Out	0.111	0.006	0.006	0.007	2.830	0.202	0.000	0.000	202.007
		Takeoff	0.129	0.006	0.006	0.006	2.813	0.174	0.000	0.000	174.709
		Idle	9.403	0.908	0.908	0.966	0.981	0.235	0.000	0.000	235.255
Embraer ERJ 145LR	AE3007A1/3 (Type...	Approach	3.415	0.013	0.013	0.014	3.106	0.449	0.000	0.000	448.180
10R		Climb Out	0.224	0.013	0.013	0.014	6.043	0.448	0.000	0.000	447.920
		Takeoff	0.155	0.009	0.009	0.010	4.788	0.311	0.000	0.000	310.533
		Idle	18.254	1.808	1.808	1.922	2.026	0.474	0.000	0.000	474.514
Embraer ERJ 145LR	AE3007A1/1 (Type...	Approach	2.392	0.011	0.011	0.011	2.504	0.352	0.000	0.000	351.807
10R		Climb Out	0.183	0.010	0.010	0.011	4.655	0.332	0.000	0.000	332.305
		Takeoff	0.213	0.009	0.009	0.009	4.626	0.288	0.000	0.000	287.323
		Idle	15.473	1.498	1.498	1.593	1.610	0.386	0.000	0.000	386.157
Embraer ERJ 170	CF34-8E5	Approach	0.660	0.010	0.010	0.010	1.682	0.157	0.018	0.018	156.203
10R		Climb Out	0.047	0.002	0.002	0.002	1.063	0.084	0.001	0.001	84.034
		Takeoff	0.090	0.003	0.003	0.003	2.083	0.141	0.017	0.017	141.040
		Idle	2.683	0.019	0.019	0.021	0.681	0.148	0.018	0.018	147.770
F-27 SERIES	RDa7	Approach	2.259	0.204	0.204	0.225	0.061	0.068	N/A	N/A	67.811
10R_GA		Climb Out	0.165	0.052	0.052	0.057	0.213	0.047	N/A	N/A	47.300
		Takeoff	0.097	0.031	0.031	0.033	0.171	0.031	N/A	N/A	30.423
		Idle	7.023	1.836	1.836	2.028	0.054	0.077	N/A	N/A	76.831
Falcon 20	CF700-2D	Approach	3.024	0.068	0.068	0.073	0.088	0.049	N/A	N/A	48.771
10R_GA		Climb Out	0.677	0.002	0.002	0.003	0.117	0.028	N/A	N/A	27.087
		Takeoff	0.795	0.003	0.003	0.003	0.202	0.036	N/A	N/A	36.112
		Idle	8.747	1.016	1.016	1.080	0.051	0.056	N/A	N/A	56.433
Falcon 2000EX	PW308C	Approach	0.466	0.012	0.012	0.013	0.699	0.089	0.008	0.008	89.194
10R		Climb Out	0.046	0.004	0.004	0.006	0.764	0.047	0.004	0.004	47.761
		Takeoff	0.051	0.006	0.006	0.006	1.146	0.062	0.006	0.006	62.112
		Idle	3.012	0.423	0.423	0.450	0.258	0.072	0.007	0.007	71.206
Falcon 2000EX	PW308C	Approach	0.096	0.002	0.002	0.002	0.143	0.019	0.002	0.002	18.291
10R_Corp		Climb Out	0.010	0.001	0.001	0.001	0.157	0.010	0.001	0.001	9.794
		Takeoff	0.010	0.001	0.001	0.001	0.235	0.013	0.001	0.001	12.737
		Idle	0.617	0.087	0.087	0.093	0.053	0.014	0.001	0.001	14.602
Gulfstream II	SPEY MK511-8	Approach	0.258	0.018	0.018	0.019	0.701	0.097	N/A	N/A	97.312
10R_GA		Climb Out	0.047	0.009	0.009	0.010	1.308	0.076	N/A	N/A	75.609
		Takeoff	0.011	0.008	0.008	0.009	2.008	0.088	N/A	N/A	88.497
		Idle	3.925	0.456	0.456	0.485	0.445	0.123	N/A	N/A	123.568
Gulfstream IV	TAY Mk611-8	Approach	0.315	0.073	0.073	0.077	0.461	0.080	0.047	0.047	80.842
10R_GA		Climb Out	0.029	0.011	0.011	0.012	0.613	0.036	0.022	0.022	36.501
		Takeoff	0.035	0.041	0.041	0.043	1.068	0.051	0.030	0.030	50.637
		Idle	2.596	0.366	0.366	0.389	0.269	0.108	0.064	0.064	107.706
HS 125	TFE731-3	Approach	1.694	0.153	0.153	0.170	0.754	0.058	N/A	N/A	108.898
10R_Corp		Climb Out	0.076	0.003	0.003	0.003	0.755	0.025	N/A	N/A	47.136
		Takeoff	0.083	0.004	0.004	0.006	1.404	0.040	N/A	N/A	73.311
		Idle	5.029	0.953	0.953	1.053	0.392	0.057	N/A	N/A	105.423
KC-135R	CFM56-2A SERIES	Approach	0.443	0.010	0.010	0.011	1.134	0.130	0.001	0.001	130.428
10R_GA		Climb Out	0.146	0.007	0.007	0.007	2.797	0.162	0.006	0.006	161.640
		Takeoff	0.213	0.010	0.010	0.010	4.822	0.236	0.023	0.023	236.331
		Idle	4.097	0.197	0.197	0.217	0.750	0.174	0.001	0.001	174.333

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	V...	NOx	SOx	P...	PM...	Fuel Con...
Learjet 25C	CJ610-6	Approach	14.426	0.000	0.000	0.000	0.246	0.088	N/A	N/A	163.928
10R_GA		Climb Out	1.717	0.012	0.012	0.013	0.215	0.033	N/A	N/A	61.322
		Takeoff	2.587	0.010	0.010	0.010	0.402	0.052	N/A	N/A	95.814
		Idle	33.795	3.924	3.924	4.172	0.196	0.118	N/A	N/A	218.031
Learjet 35/36	TFE 731-2-2B	Approach	2.636	0.502	0.502	0.534	0.694	0.064	N/A	N/A	117.773
10R_GA		Climb Out	0.107	0.007	0.007	0.008	0.691	0.029	N/A	N/A	52.856
		Takeoff	0.088	0.008	0.008	0.008	0.968	0.034	N/A	N/A	63.490
		Idle	5.975	2.044	2.044	2.172	0.288	0.055	N/A	N/A	101.953
MD-80-82	JT8D-217 (old co...	Approach	0.099	0.037	0.037	0.042	0.216	0.024	0.006	0.006	23.753
10R		Climb Out	0.023	0.008	0.008	0.009	0.395	0.019	0.004	0.004	19.136
		Takeoff	0.017	0.006	0.006	0.007	0.531	0.021	0.006	0.006	20.663
		Idle	0.281	0.076	0.076	0.084	0.085	0.023	0.006	0.006	22.872
MD-80-83	JT8D-219 old comb	Approach	1.391	0.543	0.543	0.595	3.121	0.342	0.101	0.101	341.856
10R		Climb Out	0.352	0.123	0.123	0.134	6.101	0.293	0.087	0.087	293.357
		Takeoff	0.236	0.087	0.087	0.096	8.737	0.324	0.094	0.094	323.596
		Idle	4.242	1.168	1.168	1.280	1.209	0.336	0.099	0.099	335.806
Navajo	TIO-540-J2B2	Approach	40.119	0.427	0.427	0.411	0.044	0.003	N/A	N/A	31.840
10R_GA		Climb Out	33.530	0.378	0.378	0.365	0.006	0.002	N/A	N/A	22.794
		Takeoff	22.349	0.192	0.192	0.185	0.006	0.002	N/A	N/A	15.498
		Idle	20.167	1.062	1.062	1.024	0.007	0.002	N/A	N/A	15.584
Piper PA-28	O-320	Approach	3.175	0.051	0.051	0.049	0.002	0.000	N/A	N/A	2.603
10R_GA		Climb Out	1.528	0.019	0.019	0.019	0.007	0.000	N/A	N/A	1.543
		Takeoff	1.032	0.011	0.011	0.011	0.002	0.000	N/A	N/A	0.956
		Idle	0.622	0.021	0.021	0.021	0.000	0.000	N/A	N/A	0.575
SF-340-B PLUS	CT7-5	Approach	0.034	0.010	0.010	0.010	0.045	0.007	N/A	N/A	6.550
10R		Climb Out	0.008	0.003	0.003	0.003	0.037	0.003	N/A	N/A	2.822
		Takeoff	0.006	0.002	0.002	0.002	0.031	0.002	N/A	N/A	2.217
		Idle	0.175	0.020	0.020	0.021	0.011	0.004	N/A	N/A	4.943
UC-12J	PT6A-42	Approach	1.425	0.930	0.930	1.027	0.191	0.022	N/A	N/A	41.007
10R_GA		Climb Out	0.063	0.020	0.020	0.022	0.074	0.006	N/A	N/A	9.755
		Takeoff	0.039	0.013	0.013	0.014	0.061	0.004	N/A	N/A	7.637
		Idle	3.088	2.722	2.722	3.006	0.053	0.014	N/A	N/A	26.823
550 Citation	JT15D-4 (B,C,D)	Approach	2.916	0.470	0.470	0.499	0.482	0.050	0.025	0.025	91.127
#1		Climb Out	0.155	0.009	0.009	0.010	0.418	0.026	0.013	0.013	48.813
		Takeoff	0.112	0.004	0.004	0.006	0.493	0.029	0.015	0.015	53.339
		Idle	8.667	3.575	3.575	3.800	0.235	0.049	0.025	0.025	89.357
550 Citation	JT15D-4 (B,C,D)	Approach	5.277	0.849	0.849	0.903	0.872	0.089	0.046	0.046	164.884
#2		Climb Out	0.281	0.017	0.017	0.018	0.756	0.047	0.025	0.025	88.322
		Takeoff	0.203	0.009	0.009	0.009	0.891	0.052	0.028	0.028	96.511
		Idle	15.683	6.467	6.467	6.875	0.425	0.087	0.045	0.045	161.682
A319	V2522-A5	Approach	0.099	0.002	0.002	0.002	0.332	0.039	0.004	0.004	38.170
#1		Climb Out	0.017	0.001	0.001	0.001	0.520	0.025	0.003	0.003	25.004
		Takeoff	0.017	0.001	0.001	0.001	0.690	0.029	0.003	0.003	28.168
		Idle	0.530	0.004	0.004	0.004	0.177	0.040	0.004	0.004	39.535
A319	V2524-A5	Approach	0.050	0.001	0.001	0.001	0.186	0.021	0.002	0.002	20.712
#1		Climb Out	0.009	0.001	0.001	0.001	0.301	0.013	0.002	0.002	13.668
		Takeoff	0.009	0.001	0.001	0.001	0.408	0.015	0.002	0.002	15.554
		Idle	0.268	0.002	0.002	0.002	0.099	0.021	0.002	0.002	21.204
A320-200	V2500-A1	Approach	0.046	0.009	0.009	0.010	0.802	0.060	0.001	0.001	59.646
#1		Climb Out	0.022	0.004	0.004	0.004	1.262	0.041	0.001	0.001	40.945
		Takeoff	0.025	0.004	0.004	0.006	1.684	0.045	0.001	0.001	45.374
		Idle	0.449	0.013	0.013	0.014	0.342	0.057	0.001	0.001	57.805
A320-200	V2527-A5	Approach	0.215	0.006	0.006	0.006	0.783	0.088	0.011	0.011	87.917
#1		Climb Out	0.037	0.002	0.002	0.002	1.342	0.061	0.008	0.008	60.181
		Takeoff	0.035	0.002	0.002	0.003	1.756	0.066	0.009	0.009	66.251
		Idle	1.144	0.010	0.010	0.011	0.433	0.093	0.011	0.011	92.088
Embraer ERJ 170	CF34-8E5A1	Approach	1.130	0.017	0.017	0.019	3.085	0.279	0.074	0.074	278.973
#1		Climb Out	0.087	0.003	0.003	0.003	2.003	0.152	0.004	0.004	152.275
		Takeoff	0.182	0.006	0.006	0.006	4.053	0.257	0.068	0.068	256.371
		Idle	4.490	0.034	0.034	0.037	1.220	0.259	0.068	0.068	259.514
Gulfstream IV	TAY Mk611-8	Approach	0.473	0.109	0.109	0.116	0.690	0.121	0.072	0.072	121.153
Copy of 10...		Climb Out	0.044	0.017	0.017	0.018	0.919	0.055	0.032	0.032	54.701
		Takeoff	0.053	0.061	0.061	0.065	1.602	0.076	0.045	0.045	75.886
		Idle	3.890	0.549	0.549	0.583	0.403	0.161	0.095	0.095	161.411
HS 748 2A SERIES	RDa7	Approach	1.004	0.090	0.090	0.100	0.028	0.030	N/A	N/A	30.159
#1		Climb Out	0.074	0.023	0.023	0.025	0.095	0.021	N/A	N/A	21.037
		Takeoff	0.043	0.013	0.013	0.015	0.076	0.013	N/A	N/A	13.531
		Idle	3.123	0.817	0.817	0.902	0.024	0.034	N/A	N/A	34.171
Bombardier CRJ900	CF34-8C5	Approach	0.188	0.002	0.002	0.003	0.478	0.044	0.004	0.004	44.468
#1		Climb Out	0.013	0.000	0.000	0.000	0.301	0.024	0.000	0.000	23.886

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	V...	NOx	SOx	P...	PM...	Fuel Con...
		Takeoff	0.025	0.001	0.001	0.001	0.589	0.040	0.004	0.004	40.080
		Idle	0.769	0.006	0.006	0.006	0.194	0.042	0.004	0.004	42.167
Citation VII #1	TFE 731-2-2B	Approach	0.639	0.121	0.121	0.129	0.169	0.015	N/A	N/A	28.556
		Climb Out	0.029	0.002	0.002	0.002	0.187	0.008	N/A	N/A	14.347
		Takeoff	0.025	0.002	0.002	0.002	0.283	0.010	N/A	N/A	18.582
		Idle	1.372	0.470	0.470	0.499	0.066	0.012	N/A	N/A	23.421
Learjet 25B #1	CJ610-6	Approach	13.737	0.000	0.000	0.000	0.234	0.084	N/A	N/A	156.101
		Climb Out	1.635	0.012	0.012	0.012	0.204	0.032	N/A	N/A	58.393
		Takeoff	2.464	0.009	0.009	0.010	0.384	0.050	N/A	N/A	91.239
		Idle	32.181	3.737	3.737	3.973	0.187	0.112	N/A	N/A	207.619

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Arr Curb FF	Roadway	0.428	0.032	0.030	0.040	0.043	0.000	0.001	0.001
Arr Curb Pick Up	Roadway	3.659	0.435	0.414	0.659	0.211	0.001	0.003	0.002
Blue Ent_Exit	Roadway	0.774	0.055	0.052	0.065	0.080	0.001	0.002	0.001
Bowtie	Roadway	0.453	0.030	0.029	0.035	0.046	0.000	0.001	0.001
Brdgwy N of Sawyr 1	Roadway	2.628	0.173	0.164	0.203	0.268	0.002	0.009	0.006
Brdgwy N of Sawyr 2	Roadway	4.814	0.317	0.302	0.371	0.489	0.004	0.017	0.010
Crb Exit to IntlGat1	Roadway	1.553	0.111	0.105	0.131	0.162	0.001	0.006	0.003
Curb Exit to IntlGa2	Roadway	12.016	0.858	0.811	1.017	1.250	0.010	0.041	0.024
Dep Curb Drop Off	Roadway	4.782	0.569	0.541	0.862	0.276	0.001	0.004	0.003
Dep Curb FF	Roadway	0.560	0.042	0.040	0.052	0.057	0.000	0.001	0.001
Ent from 670 NB	Roadway	4.294	0.233	0.222	0.267	0.420	0.003	0.013	0.008
Ent from 670 SB	Roadway	2.840	0.154	0.147	0.176	0.278	0.002	0.009	0.006
Ent from 670_1	Roadway	5.967	0.323	0.308	0.370	0.583	0.004	0.019	0.011
Ent from 670_2	Roadway	14.564	0.789	0.752	0.905	1.424	0.011	0.044	0.026
Ent_Exit_Employee	Roadway	0.381	0.025	0.024	0.030	0.039	0.000	0.001	0.001
Exit Comm Gar	Roadway	9.416	0.622	0.590	0.728	0.958	0.008	0.033	0.019
Exit Red 1	Roadway	1.387	0.091	0.087	0.107	0.141	0.001	0.004	0.003
Exit Red 2	Roadway	0.429	0.029	0.026	0.033	0.044	0.000	0.001	0.001
Exit Red 3	Roadway	1.920	0.127	0.120	0.149	0.195	0.001	0.007	0.004
Exit Red 4	Roadway	0.748	0.050	0.047	0.057	0.076	0.001	0.002	0.001
Exit to 670 NB	Roadway	3.007	0.163	0.155	0.186	0.294	0.002	0.009	0.006
Exit to 670 SB	Roadway	3.505	0.190	0.181	0.218	0.343	0.002	0.011	0.007
Exit to 670_1	Roadway	12.432	0.674	0.642	0.773	1.216	0.009	0.039	0.022
Exit to 670_2	Roadway	5.124	0.278	0.265	0.319	0.500	0.003	0.015	0.009
Green Lot Ent_Exit	Roadway	0.674	0.049	0.045	0.057	0.071	0.000	0.002	0.001
Int West to Stlz_2	Roadway	26.361	1.523	1.448	1.756	2.577	0.020	0.085	0.049
Intl Blue to Lane 1	Roadway	11.085	0.640	0.608	0.739	1.084	0.009	0.035	0.021
Intl Blue to Lane 2	Roadway	15.618	0.903	0.858	1.041	1.527	0.012	0.050	0.029
Intl East Bowtie_1	Roadway	7.054	0.408	0.388	0.470	0.690	0.006	0.022	0.013
Intl East Bowtie_2	Roadway	10.869	0.628	0.597	0.724	1.063	0.009	0.035	0.020
Intl East at Red	Roadway	43.258	2.500	2.377	2.881	4.228	0.033	0.139	0.080
Intl East at Tunnel	Roadway	21.449	1.239	1.178	1.429	2.097	0.017	0.068	0.040
Intl Exit at Tunnel	Roadway	29.904	1.728	1.642	1.992	2.923	0.023	0.096	0.055
Intl Green to Blue 1	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 2	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 3	Roadway	36.466	2.108	2.003	2.429	3.565	0.028	0.117	0.068
Intl Lane to LT	Roadway	11.895	0.849	0.802	1.008	1.238	0.010	0.041	0.023
Intl West to Stlz_1	Roadway	30.189	1.745	1.658	2.011	2.951	0.023	0.097	0.056
Intl from Sawyer	Roadway	10.803	0.624	0.593	0.720	1.056	0.008	0.034	0.020
Intll East frm Stzr	Roadway	12.943	0.748	0.711	0.862	1.265	0.010	0.042	0.024
LT to ST	Roadway	1.383	0.099	0.094	0.117	0.144	0.001	0.004	0.002
Lane Ent	Roadway	0.030	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Lane Exit	Roadway	0.033	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Merge to Sawyer	Roadway	10.355	0.683	0.649	0.800	1.054	0.009	0.036	0.021
New Bowtie	Roadway	0.833	0.055	0.052	0.064	0.085	0.001	0.003	0.002
New Stelzer	Roadway	69.947	3.790	3.610	4.346	6.839	0.051	0.215	0.125
Perimeter Road 1	Roadway	7.277	0.481	0.456	0.562	0.741	0.006	0.025	0.014
Perimeter Road 2	Roadway	0.946	0.063	0.060	0.073	0.096	0.001	0.003	0.002
Perimeter Road 3	Roadway	0.411	0.028	0.025	0.032	0.042	0.000	0.001	0.001
Perimeter Road 4	Roadway	2.069	0.137	0.130	0.160	0.211	0.002	0.008	0.004
Perimeter Road 5	Roadway	0.273	0.018	0.018	0.021	0.028	0.000	0.001	0.001
Perimeter Road 6	Roadway	1.042	0.068	0.065	0.080	0.106	0.001	0.003	0.002
Perimeter Road 7	Roadway	0.454	0.030	0.029	0.035	0.046	0.000	0.001	0.001
ST to Curb	Roadway	1.303	0.093	0.088	0.110	0.136	0.001	0.004	0.002
Sawyer East Fork	Roadway	4.457	0.294	0.279	0.344	0.454	0.003	0.015	0.009
Sawyer Forks	Roadway	3.008	0.198	0.188	0.233	0.306	0.002	0.011	0.007
Sawyer S of Brdgwy	Roadway	8.953	0.591	0.561	0.692	0.912	0.008	0.031	0.018
Sawyer West Fork	Roadway	3.686	0.244	0.231	0.284	0.375	0.003	0.013	0.008
Sawyer off Intl	Roadway	11.604	0.766	0.728	0.897	1.182	0.010	0.041	0.023
Sawyer to Brdgwy 1	Roadway	13.741	0.906	0.861	1.062	1.399	0.011	0.047	0.028
Sawyer to Brdgwy 2	Roadway	60.838	4.014	3.813	4.701	6.193	0.051	0.212	0.123
Sawyer to Intl 1	Roadway	28.034	1.620	1.540	1.867	2.740	0.021	0.089	0.052
Sawyer to Intl 2	Roadway	21.142	1.221	1.162	1.409	2.067	0.017	0.067	0.040
Stelzer N	Roadway	46.396	2.514	2.395	2.883	4.536	0.034	0.142	0.083
Stelzer S	Roadway	7.090	0.385	0.366	0.441	0.693	0.006	0.022	0.012
To Red 1	Roadway	1.150	0.076	0.072	0.089	0.117	0.001	0.004	0.002

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
To Red 2	Roadway	1.475	0.097	0.093	0.114	0.150	0.001	0.006	0.003
To Red 3	Roadway	0.682	0.045	0.043	0.053	0.069	0.001	0.002	0.001
Red	Parking	23.057	1.486	1.400	3.269	3.057	0.011	0.049	0.029
Lane Avtn	Parking	4.688	0.322	0.304	0.750	0.584	0.002	0.009	0.006
Blue	Parking	39.259	2.533	2.388	5.582	5.199	0.020	0.083	0.047
Green	Parking	8.750	0.613	0.580	1.455	1.066	0.004	0.017	0.010
Employee Parking	Parking	13.297	0.886	0.836	2.012	1.709	0.007	0.026	0.015
ShortTerm Pkg Lvl 4	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
Long Term Pkg Lvl 1	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 3	Parking	13.690	0.946	0.893	2.216	1.695	0.007	0.026	0.015
ShortTerm Pkg Lvl 5	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
Long Term Pkg Lvl 4	Parking	6.800	0.470	0.443	1.101	0.842	0.003	0.013	0.008
Long Term Pkg Lvl 5	Parking	14.003	0.968	0.914	2.266	1.734	0.007	0.026	0.015
Long Term Pkg Lvl 2	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New RAC	Parking	36.748	2.297	2.163	4.906	5.006	0.019	0.080	0.046

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.101	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.744	0.744	0.744	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.132	0.132	0.132	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.581	1.581	1.581	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.011	0.003	0.003	0.003	0.003	0.003	0.008	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.811	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.843	0.843	0.843	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.012	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.420	0.420	0.420	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.251	0.251	0.251	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.759	0.759	0.759	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.005	2.005	2.005	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.790	0.790	0.790	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.757	0.757	0.757	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary
(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	824.262	68.397	68.397	72.981	324.531	29.633	3.831	3.831
GSE/APU	1,279.948	52.519	47.674	49.598	73.790	10.597	3.909	3.781
Roadways	690.992	41.514	39.461	48.419	68.030	0.530	2.216	1.293
Parking Facilities	170.878	11.263	10.623	25.326	22.179	0.084	0.349	0.203
Stationary Sources	21.450	12.421	11.891	14.114	35.756	16.638	2.490	2.205
Total	2,987.529	186.114	178.045	210.438	524.286	57.482	12.795	11.312

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary
(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	15.601	0.280	0.280	0.270	0.008	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
B737-300	CFM56-3-B1	TOTAL	2.418	0.150	0.150	0.163	1.831	0.185	0.003	0.003	0.000
10L		APU	0.357	0.021	0.021	0.022	0.094	0.020	0.000	0.000	0.000
		GSE	0.118	0.017	0.015	0.017	0.137	0.034	0.018	0.018	0.000
B737-300	CFM56-3B-2	TOTAL	0.437	0.023	0.023	0.026	0.421	0.040	0.001	0.001	0.000
10L		APU	0.069	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	0.023	0.003	0.003	0.003	0.026	0.007	0.003	0.003	0.000
B737-500	CFM56-3C-1	TOTAL	0.558	0.028	0.028	0.030	0.711	0.060	0.002	0.002	0.000
10L		APU	0.095	0.006	0.006	0.006	0.025	0.006	0.000	0.000	0.000
		GSE	0.031	0.004	0.004	0.004	0.036	0.009	0.004	0.004	0.000
B737-700	CFM56-7B22	TOTAL	1.711	0.180	0.180	0.197	3.067	0.230	0.049	0.049	0.000
10L		APU	0.118	0.009	0.009	0.010	0.160	0.024	0.000	0.000	0.000
		GSE	0.132	0.019	0.018	0.019	0.153	0.039	0.020	0.020	0.000
B737-800	CFM56-7B26	TOTAL	0.520	0.054	0.054	0.058	1.552	0.095	0.029	0.029	0.000
10L		APU	0.042	0.003	0.003	0.003	0.057	0.009	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.054	0.013	0.007	0.007	0.000
B757-300	PW2043	TOTAL	0.127	0.010	0.010	0.011	0.466	0.023	N/A	N/A	0.000
10L		APU	0.007	0.001	0.001	0.001	0.014	0.001	0.000	0.000	0.000
		GSE	0.008	0.001	0.001	0.001	0.009	0.002	0.001	0.001	0.000
BAE146-300	LF507 SERIES	TOTAL	0.282	0.032	0.032	0.035	0.216	0.024	0.003	0.003	0.000
10L		APU	0.011	0.001	0.001	0.001	0.008	0.002	0.000	0.000	0.000
		GSE	0.737	0.029	0.026	0.028	0.032	0.004	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	4.517	0.025	0.025	0.028	5.157	0.509	0.022	0.022	0.000
10L		APU	1.538	0.088	0.088	0.096	0.406	0.086	0.000	0.000	0.000
		GSE	23.343	0.922	0.832	0.863	1.003	0.122	0.064	0.062	0.000
Cessna 172 Skyhawk	O-320	TOTAL	4.333	0.071	0.071	0.068	0.008	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.006	0.003	0.002	0.002	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.033	0.002	0.002	0.002	0.031	0.003	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.332	0.051	0.046	0.047	0.039	0.003	0.002	0.002	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.208	0.065	0.065	0.069	0.017	0.002	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.524	0.022	0.020	0.020	0.018	0.001	0.001	0.000	0.000
CL600	ALF 502L-2	TOTAL	1.296	0.179	0.179	0.190	0.635	0.044	0.008	0.008	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.045	0.324	0.293	0.304	0.390	0.060	0.028	0.028	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	1.413	0.406	0.406	0.444	1.055	0.105	0.076	0.076	0.000
10L		APU	0.141	0.008	0.008	0.009	0.037	0.008	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.054	0.013	0.007	0.007	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	0.890	0.075	0.075	0.079	0.629	0.066	0.000	0.000	0.000
10L		APU	0.064	0.006	0.006	0.007	0.045	0.010	0.000	0.000	0.000
		GSE	4.259	0.168	0.152	0.158	0.183	0.022	0.012	0.011	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.246	0.040	0.040	0.042	0.442	0.039	0.000	0.000	0.000
10L		APU	0.034	0.003	0.003	0.003	0.024	0.006	0.000	0.000	0.000
		GSE	2.310	0.091	0.083	0.086	0.099	0.012	0.007	0.007	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.904	0.073	0.073	0.077	0.771	0.074	0.000	0.000	0.000
10L		APU	0.064	0.006	0.006	0.007	0.045	0.010	0.000	0.000	0.000
		GSE	4.245	0.168	0.151	0.157	0.182	0.022	0.012	0.011	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	4.441	0.373	0.373	0.397	3.183	0.324	0.000	0.000	0.000
10L		APU	0.305	0.029	0.029	0.031	0.217	0.047	0.000	0.000	0.000
		GSE	20.447	0.807	0.729	0.756	0.879	0.107	0.056	0.054	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	5.480	0.461	0.461	0.489	3.880	0.411	0.000	0.000	0.000
10L		APU	0.392	0.037	0.037	0.040	0.279	0.061	0.000	0.000	0.000
		GSE	26.237	1.035	0.935	0.971	1.128	0.138	0.072	0.069	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.674	0.140	0.140	0.149	1.202	0.122	0.000	0.000	0.000
10L		APU	0.116	0.011	0.011	0.012	0.082	0.018	0.000	0.000	0.000
		GSE	7.711	0.304	0.274	0.285	0.332	0.041	0.021	0.020	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.359	0.013	0.013	0.014	2.107	0.203	0.020	0.020	0.000
10L		APU	0.136	0.013	0.013	0.014	0.096	0.021	0.000	0.000	0.000
		GSE	9.033	0.356	0.322	0.334	0.388	0.047	0.024	0.024	0.000
F-27 SERIES	RDa7	TOTAL	0.723	0.161	0.161	0.179	0.037	0.017	N/A	N/A	0.000
10L		APU	0.044	0.006	0.006	0.006	0.004	0.001	0.000	0.000	0.000
		GSE	1.685	0.064	0.058	0.061	0.049	0.004	0.002	0.002	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Falcon 20	CF700-2D	TOTAL	0.631	0.053	0.053	0.056	0.021	0.008	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.006	0.001	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.499	0.063	0.063	0.066	0.390	0.037	0.003	0.003	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.255	0.091	0.083	0.086	0.138	0.022	0.010	0.010	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.204	0.023	0.023	0.025	0.208	0.018	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.171	0.046	0.042	0.043	0.033	0.002	0.001	0.001	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	0.855	0.140	0.140	0.149	0.677	0.078	0.046	0.046	0.000
10L_GA		APU	0.020	0.001	0.001	0.001	0.099	0.010	0.000	0.000	0.000
		GSE	4.141	0.161	0.144	0.150	0.115	0.009	0.007	0.006	0.000
HS 125	TFE731-3	TOTAL	1.383	0.225	0.225	0.248	0.651	0.036	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.426	0.475	0.428	0.444	0.360	0.031	0.017	0.015	0.000
KC-135R	CFM56-2B-1	TOTAL	0.324	0.018	0.018	0.020	0.409	0.034	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.009	0.002	0.002	0.002	0.033	0.006	0.002	0.002	0.000
Learjet 25C	CJ610-6	TOTAL	7.431	0.564	0.564	0.601	0.148	0.041	N/A	N/A	0.000
10L_GA		APU	0.074	0.007	0.007	0.008	0.053	0.011	0.000	0.000	0.000
		GSE	4.927	0.194	0.175	0.182	0.212	0.025	0.013	0.013	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.457	0.133	0.133	0.142	0.134	0.009	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.278	0.094	0.085	0.087	0.072	0.003	0.002	0.002	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.369	0.114	0.114	0.125	1.116	0.076	0.022	0.022	0.000
10L		APU	0.097	0.006	0.006	0.007	0.025	0.006	0.000	0.000	0.000
		GSE	0.025	0.004	0.003	0.004	0.031	0.008	0.004	0.003	0.000
Navajo	TIO-540-J2B2	TOTAL	13.012	0.233	0.233	0.225	0.007	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	0.367	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.310	0.248	0.248	0.274	0.025	0.003	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.499	0.057	0.052	0.054	0.043	0.003	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	3.609	1.241	1.241	1.319	0.486	0.046	0.024	0.024	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.762	0.443	0.399	0.414	0.357	0.020	0.012	0.011	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.866	0.061	0.061	0.066	0.545	0.058	0.001	0.001	0.000
10L		APU	0.119	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	0.040	0.006	0.006	0.006	0.045	0.011	0.006	0.006	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	0.570	0.196	0.196	0.208	0.077	0.008	0.003	0.003	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.700	0.071	0.063	0.065	0.056	0.003	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.080	0.715	0.715	0.761	0.280	0.026	0.013	0.013	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.203	0.256	0.230	0.239	0.206	0.011	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.023	0.696	0.696	0.740	0.272	0.025	0.013	0.013	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.032	0.249	0.224	0.233	0.200	0.011	0.007	0.007	0.000
Aztec	TIO-540-J2B2	TOTAL	23.465	0.420	0.420	0.406	0.012	0.002	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.008	0.004	0.003	0.003	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.285	0.160	0.160	0.174	1.435	0.154	0.002	0.002	0.000
10R		APU	0.314	0.018	0.018	0.020	0.083	0.018	0.000	0.000	0.000
		GSE	0.105	0.014	0.014	0.014	0.120	0.030	0.015	0.015	0.000
B737-300	CFM56-3B-2	TOTAL	1.033	0.056	0.056	0.062	0.996	0.093	0.002	0.002	0.000
10R		APU	0.165	0.010	0.010	0.010	0.044	0.009	0.000	0.000	0.000
		GSE	0.055	0.008	0.008	0.008	0.063	0.015	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	6.559	0.406	0.406	0.444	4.964	0.503	0.008	0.008	0.000
10R		APU	0.968	0.055	0.055	0.061	0.256	0.054	0.000	0.000	0.000
		GSE	0.321	0.045	0.043	0.045	0.371	0.093	0.049	0.046	0.000
B737-500	CFM56-3C-1	TOTAL	1.506	0.075	0.075	0.082	1.920	0.162	0.006	0.006	0.000
10R		APU	0.255	0.014	0.014	0.015	0.067	0.014	0.000	0.000	0.000
		GSE	0.085	0.012	0.011	0.012	0.098	0.024	0.013	0.012	0.000
B737-700	CFM56-7B22	TOTAL	4.442	0.467	0.467	0.511	7.962	0.599	0.126	0.126	0.000
10R		APU	0.305	0.023	0.023	0.025	0.416	0.063	0.000	0.000	0.000
		GSE	0.344	0.047	0.045	0.049	0.398	0.100	0.052	0.050	0.000
B737-800	CFM56-7B26	TOTAL	1.348	0.139	0.139	0.152	4.025	0.246	0.075	0.075	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.108	0.008	0.008	0.009	0.148	0.022	0.000	0.000	0.000
		GSE	0.122	0.017	0.017	0.018	0.141	0.035	0.019	0.018	0.000
B757-300	PW2043	TOTAL	0.293	0.023	0.023	0.025	1.075	0.055	N/A	N/A	0.000
10R		APU	0.014	0.001	0.001	0.001	0.033	0.003	0.000	0.000	0.000
		GSE	0.019	0.002	0.002	0.002	0.021	0.006	0.002	0.002	0.000
BAE146-300	LF507 SERIES	TOTAL	0.154	0.018	0.018	0.020	0.118	0.013	0.001	0.001	0.000
10R		APU	0.006	0.001	0.001	0.001	0.004	0.001	0.000	0.000	0.000
		GSE	0.403	0.015	0.014	0.015	0.018	0.002	0.001	0.001	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	2.470	0.014	0.014	0.015	2.820	0.279	0.012	0.012	0.000
10R		APU	0.841	0.049	0.049	0.053	0.222	0.046	0.000	0.000	0.000
		GSE	12.764	0.504	0.455	0.472	0.549	0.067	0.035	0.034	0.000
Cessna 172 Skyhawk	O-320	TOTAL	7.507	0.122	0.122	0.118	0.013	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.002	0.001	0.002	0.010	0.006	0.004	0.004	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.098	0.007	0.007	0.008	0.093	0.011	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.017	0.153	0.139	0.143	0.117	0.010	0.006	0.006	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.788	0.246	0.246	0.261	0.064	0.008	0.004	0.004	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.982	0.082	0.074	0.076	0.066	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	0.725	0.100	0.100	0.106	0.355	0.024	0.004	0.004	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.503	0.182	0.164	0.171	0.218	0.033	0.015	0.015	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	3.644	1.047	1.047	1.146	2.721	0.271	0.195	0.195	0.000
10R		APU	0.364	0.021	0.021	0.023	0.096	0.020	0.000	0.000	0.000
		GSE	0.121	0.017	0.017	0.017	0.140	0.035	0.018	0.018	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	0.532	0.045	0.045	0.047	0.377	0.040	0.000	0.000	0.000
10R		APU	0.039	0.003	0.003	0.003	0.028	0.006	0.000	0.000	0.000
		GSE	2.547	0.100	0.090	0.094	0.109	0.013	0.007	0.007	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.502	0.041	0.041	0.043	0.427	0.041	0.000	0.000	0.000
10R		APU	0.035	0.003	0.003	0.003	0.025	0.006	0.000	0.000	0.000
		GSE	2.352	0.093	0.084	0.087	0.101	0.012	0.007	0.007	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.137	0.022	0.022	0.023	0.245	0.021	0.000	0.000	0.000
10R		APU	0.019	0.002	0.002	0.002	0.013	0.003	0.000	0.000	0.000
		GSE	1.281	0.051	0.045	0.047	0.055	0.007	0.003	0.003	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	0.928	0.078	0.078	0.083	0.666	0.068	0.000	0.000	0.000
10R		APU	0.064	0.006	0.006	0.007	0.045	0.010	0.000	0.000	0.000
		GSE	4.273	0.169	0.152	0.158	0.184	0.022	0.012	0.011	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	3.038	0.256	0.256	0.271	2.151	0.228	0.000	0.000	0.000
10R		APU	0.217	0.021	0.021	0.022	0.154	0.034	0.000	0.000	0.000
		GSE	14.545	0.574	0.518	0.538	0.625	0.076	0.040	0.039	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	2.461	0.207	0.207	0.219	1.764	0.180	0.000	0.000	0.000
10R		APU	0.170	0.017	0.017	0.017	0.120	0.026	0.000	0.000	0.000
		GSE	11.330	0.448	0.403	0.419	0.487	0.060	0.031	0.030	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	0.744	0.007	0.007	0.008	1.152	0.111	0.011	0.011	0.000
10R		APU	0.074	0.007	0.007	0.008	0.053	0.011	0.000	0.000	0.000
		GSE	4.942	0.195	0.176	0.183	0.213	0.026	0.013	0.013	0.000
F-27 SERIES	RDa7	TOTAL	1.168	0.261	0.261	0.288	0.060	0.026	N/A	N/A	0.000
10R		APU	0.071	0.009	0.009	0.009	0.007	0.002	0.000	0.000	0.000
		GSE	2.727	0.105	0.094	0.097	0.079	0.007	0.003	0.003	0.000
Falcon 20	CF700-2D	TOTAL	2.319	0.193	0.193	0.205	0.078	0.029	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.002	0.002	0.002	0.021	0.006	0.003	0.003	0.000
Falcon 2000EX	PW308C	TOTAL	0.267	0.033	0.033	0.035	0.208	0.020	0.002	0.002	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.205	0.049	0.044	0.046	0.074	0.012	0.006	0.006	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.750	0.087	0.087	0.093	0.767	0.067	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.306	0.171	0.153	0.160	0.123	0.007	0.004	0.004	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.195	0.196	0.196	0.208	0.945	0.109	0.064	0.064	0.000
10R_GA		APU	0.028	0.002	0.002	0.002	0.138	0.013	0.000	0.000	0.000
		GSE	5.786	0.224	0.202	0.209	0.160	0.012	0.009	0.009	0.000
HS 125	TFE731-3	TOTAL	0.753	0.122	0.122	0.136	0.355	0.020	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.765	0.259	0.233	0.241	0.196	0.017	0.009	0.009	0.000
KC-135R	CFM56-2B-1	TOTAL	0.777	0.043	0.043	0.047	0.981	0.082	0.002	0.002	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.020	0.006	0.006	0.007	0.079	0.014	0.007	0.006	0.000
Learjet 25C	CJ610-6	TOTAL	3.779	0.287	0.287	0.305	0.075	0.021	N/A	N/A	0.000
10R_GA		APU	0.037	0.003	0.003	0.003	0.026	0.006	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	2.506	0.099	0.089	0.093	0.108	0.013	0.007	0.007	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.760	0.514	0.514	0.546	0.519	0.036	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.760	0.360	0.324	0.336	0.277	0.013	0.008	0.008	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.118	0.345	0.345	0.377	3.379	0.229	0.067	0.067	0.000
10R		APU	0.294	0.017	0.017	0.019	0.078	0.017	0.000	0.000	0.000
		GSE	0.078	0.012	0.011	0.012	0.095	0.023	0.012	0.012	0.000
Navajo	TIO-540-J2B2	TOTAL	14.354	0.257	0.257	0.248	0.008	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	1.120	0.018	0.018	0.018	0.002	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.030	0.823	0.823	0.911	0.083	0.010	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.975	0.191	0.171	0.177	0.144	0.012	0.007	0.007	0.000
Aztec	TIO-540-J2B2	TOTAL	59.847	1.073	1.073	1.034	0.032	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.019	0.010	0.009	0.009	0.000
B737-300	CFM56-3-B1	TOTAL	16.836	1.041	1.041	1.140	12.743	1.291	0.020	0.020	0.000
28L		APU	2.484	0.142	0.142	0.155	0.656	0.138	0.000	0.000	0.000
		GSE	0.823	0.115	0.109	0.116	0.952	0.239	0.123	0.120	0.000
B737-300	CFM56-3B-2	TOTAL	3.172	0.172	0.172	0.188	3.063	0.284	0.007	0.007	0.000
28L		APU	0.507	0.029	0.029	0.032	0.133	0.029	0.000	0.000	0.000
		GSE	0.169	0.023	0.022	0.023	0.195	0.049	0.025	0.024	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	6.023	0.420	0.420	0.460	3.784	0.408	0.004	0.004	0.000
28L		APU	0.829	0.047	0.047	0.052	0.219	0.046	0.000	0.000	0.000
		GSE	0.276	0.039	0.036	0.039	0.319	0.079	0.041	0.040	0.000
B737-500	CFM56-3C-1	TOTAL	3.921	0.194	0.194	0.212	5.001	0.421	0.014	0.014	0.000
28L		APU	0.664	0.037	0.037	0.042	0.175	0.036	0.000	0.000	0.000
		GSE	0.220	0.031	0.030	0.031	0.255	0.064	0.033	0.032	0.000
B737-700	CFM56-7B22	TOTAL	12.141	1.276	1.276	1.398	21.762	1.637	0.344	0.344	0.000
28L		APU	0.834	0.063	0.063	0.069	1.135	0.171	0.000	0.000	0.000
		GSE	0.941	0.131	0.125	0.132	1.089	0.272	0.141	0.137	0.000
B737-800	CFM56-7B26	TOTAL	3.652	0.377	0.377	0.413	10.903	0.666	0.202	0.202	0.000
28L		APU	0.293	0.022	0.022	0.024	0.399	0.061	0.000	0.000	0.000
		GSE	0.332	0.046	0.044	0.046	0.384	0.096	0.050	0.049	0.000
B757-300	PW2043	TOTAL	0.898	0.071	0.071	0.077	3.297	0.168	N/A	N/A	0.000
28L		APU	0.044	0.004	0.004	0.006	0.101	0.011	0.000	0.000	0.000
		GSE	0.056	0.008	0.008	0.008	0.065	0.017	0.009	0.008	0.000
BAE146-300	LF507 SERIES	TOTAL	0.496	0.057	0.057	0.063	0.378	0.043	0.006	0.006	0.000
28L		APU	0.020	0.002	0.002	0.002	0.013	0.003	0.000	0.000	0.000
		GSE	1.294	0.051	0.046	0.047	0.055	0.007	0.003	0.003	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	7.626	0.043	0.043	0.047	8.706	0.861	0.036	0.036	0.000
28L		APU	2.597	0.149	0.149	0.163	0.686	0.144	0.000	0.000	0.000
		GSE	39.404	1.555	1.404	1.458	1.693	0.207	0.108	0.105	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	2.303	0.718	0.718	0.763	0.186	0.023	0.013	0.013	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.792	0.239	0.215	0.223	0.192	0.011	0.007	0.006	0.000
CL600	ALF 502L-2	TOTAL	2.035	0.280	0.280	0.298	0.996	0.068	0.013	0.013	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.630	0.509	0.460	0.477	0.612	0.094	0.044	0.043	0.000
Cessna 172 Skyhawk	O-320	TOTAL	20.188	0.328	0.328	0.317	0.035	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.010	0.004	0.004	0.004	0.028	0.014	0.012	0.012	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.304	0.021	0.021	0.022	0.287	0.035	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.405	0.474	0.428	0.443	0.360	0.031	0.017	0.015	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	10.032	2.881	2.881	3.155	7.490	0.745	0.538	0.538	0.000
28L		APU	1.002	0.057	0.057	0.063	0.265	0.056	0.000	0.000	0.000
		GSE	0.333	0.046	0.044	0.046	0.385	0.096	0.050	0.049	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.547	0.130	0.130	0.138	1.095	0.116	0.000	0.000	0.000
28L		APU	0.110	0.011	0.011	0.011	0.078	0.018	0.000	0.000	0.000
		GSE	7.405	0.292	0.263	0.274	0.319	0.039	0.020	0.020	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.398	0.064	0.064	0.068	0.714	0.063	0.000	0.000	0.000
28L		APU	0.056	0.006	0.006	0.006	0.040	0.009	0.000	0.000	0.000
		GSE	3.730	0.148	0.133	0.138	0.160	0.020	0.010	0.010	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.456	0.118	0.118	0.125	1.240	0.119	0.000	0.000	0.000
28L		APU	0.103	0.010	0.010	0.010	0.073	0.015	0.000	0.000	0.000
		GSE	6.834	0.270	0.244	0.252	0.293	0.036	0.019	0.018	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	7.160	0.602	0.602	0.639	5.132	0.522	0.000	0.000	0.000
28L		APU	0.493	0.046	0.046	0.050	0.351	0.076	0.000	0.000	0.000
		GSE	32.960	1.301	1.175	1.219	1.416	0.173	0.090	0.087	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	8.832	0.742	0.742	0.789	6.253	0.661	0.000	0.000	0.000
28L		APU	0.633	0.060	0.060	0.064	0.450	0.098	0.000	0.000	0.000
		GSE	42.286	1.669	1.507	1.564	1.817	0.222	0.116	0.111	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.698	0.226	0.226	0.240	1.937	0.197	0.000	0.000	0.000
28L		APU	0.186	0.018	0.018	0.019	0.132	0.029	0.000	0.000	0.000
		GSE	12.430	0.491	0.443	0.460	0.535	0.065	0.034	0.033	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	2.296	0.022	0.022	0.024	3.558	0.343	0.034	0.034	0.000
28L		APU	0.228	0.022	0.022	0.023	0.162	0.035	0.000	0.000	0.000
		GSE	15.255	0.602	0.543	0.564	0.656	0.080	0.042	0.041	0.000
F-27 SERIES	RDa7	TOTAL	2.293	0.511	0.511	0.565	0.117	0.053	N/A	N/A	0.000
28L		APU	0.140	0.017	0.017	0.019	0.013	0.003	0.000	0.000	0.000
		GSE	5.350	0.205	0.184	0.191	0.155	0.013	0.007	0.007	0.000
Falcon 20	CF700-2D	TOTAL	7.850	0.651	0.651	0.693	0.266	0.099	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.022	0.006	0.006	0.007	0.072	0.020	0.010	0.010	0.000
Gulfstream II	SPEY MK511-8	TOTAL	2.535	0.293	0.293	0.312	2.598	0.226	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	14.570	0.578	0.520	0.539	0.418	0.023	0.014	0.014	0.000
HS 125	TFE731-3	TOTAL	2.331	0.379	0.379	0.419	1.098	0.061	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	20.940	0.800	0.722	0.748	0.608	0.052	0.028	0.026	0.000
KC-135R	CFM56-2B-1	TOTAL	2.382	0.132	0.132	0.147	3.008	0.249	0.007	0.007	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.062	0.018	0.018	0.019	0.245	0.044	0.019	0.019	0.000
Learjet 25C	CJ610-6	TOTAL	11.545	0.877	0.877	0.933	0.229	0.064	N/A	N/A	0.000
28L_GA		APU	0.115	0.011	0.011	0.011	0.082	0.018	0.000	0.000	0.000
		GSE	7.656	0.302	0.273	0.283	0.328	0.040	0.021	0.020	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	5.282	1.541	1.541	1.638	1.556	0.108	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	26.280	1.080	0.973	1.009	0.830	0.040	0.024	0.023	0.000
MD-80-83	JT8D-219 old comb	TOTAL	2.463	0.759	0.759	0.831	7.441	0.506	0.149	0.149	0.000
28L		APU	0.648	0.037	0.037	0.041	0.171	0.036	0.000	0.000	0.000
		GSE	0.172	0.026	0.025	0.026	0.207	0.052	0.026	0.025	0.000
Navajo	TIO-540-J2B2	TOTAL	44.406	0.796	0.796	0.767	0.023	0.003	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.002	0.002	0.002	0.014	0.008	0.007	0.007	0.000
Piper PA-28	O-320	TOTAL	3.472	0.056	0.056	0.054	0.006	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
UC-12J	PT6A-42	TOTAL	2.323	1.858	1.858	2.053	0.186	0.023	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.219	0.429	0.387	0.401	0.326	0.028	0.015	0.014	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	5.960	2.050	2.050	2.179	0.804	0.076	0.040	0.040	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	17.771	0.732	0.660	0.685	0.590	0.033	0.019	0.019	0.000
Falcon 2000EX	PW308C	TOTAL	0.865	0.108	0.108	0.115	0.677	0.064	0.006	0.006	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.909	0.159	0.143	0.150	0.238	0.037	0.018	0.017	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	7.033	2.420	2.420	2.572	0.948	0.089	0.046	0.046	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	20.971	0.864	0.778	0.807	0.696	0.039	0.022	0.022	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.764	0.618	0.618	0.657	2.977	0.344	0.203	0.203	0.000
28L_GA		APU	0.088	0.007	0.007	0.007	0.434	0.043	0.000	0.000	0.000
		GSE	18.230	0.707	0.636	0.660	0.504	0.039	0.028	0.026	0.000
Aztec	TIO-540-J2B2	TOTAL	52.813	0.946	0.946	0.913	0.028	0.004	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.003	0.002	0.003	0.017	0.009	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	8.225	0.508	0.508	0.557	6.225	0.631	0.010	0.010	0.000
28R		APU	1.214	0.069	0.069	0.076	0.321	0.067	0.000	0.000	0.000
		GSE	0.402	0.056	0.053	0.056	0.465	0.117	0.061	0.058	0.000
B737-300	CFM56-3B-2	TOTAL	1.640	0.089	0.089	0.098	1.584	0.148	0.003	0.003	0.000
28R		APU	0.262	0.015	0.015	0.017	0.069	0.014	0.000	0.000	0.000
		GSE	0.087	0.012	0.011	0.012	0.100	0.025	0.013	0.012	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.985	0.208	0.208	0.228	1.875	0.202	0.002	0.002	0.000
28R		APU	0.411	0.023	0.023	0.025	0.108	0.023	0.000	0.000	0.000
		GSE	0.137	0.019	0.018	0.019	0.158	0.040	0.021	0.020	0.000
B737-500	CFM56-3C-1	TOTAL	1.922	0.095	0.095	0.104	2.452	0.206	0.007	0.007	0.000
28R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.325	0.019	0.019	0.021	0.086	0.018	0.000	0.000	0.000
		GSE	0.108	0.015	0.014	0.015	0.125	0.031	0.017	0.015	0.000
B737-700	CFM56-7B22	TOTAL	6.055	0.637	0.637	0.697	10.853	0.816	0.172	0.172	0.000
28R		APU	0.416	0.032	0.032	0.034	0.567	0.085	0.000	0.000	0.000
		GSE	0.470	0.065	0.062	0.066	0.543	0.136	0.071	0.068	0.000
B737-800	CFM56-7B26	TOTAL	1.821	0.188	0.188	0.206	5.437	0.332	0.100	0.100	0.000
28R		APU	0.147	0.011	0.011	0.012	0.200	0.030	0.000	0.000	0.000
		GSE	0.165	0.023	0.022	0.023	0.191	0.047	0.024	0.024	0.000
B757-300	PW2043	TOTAL	0.468	0.036	0.036	0.041	1.721	0.087	N/A	N/A	0.000
28R		APU	0.023	0.002	0.002	0.002	0.053	0.006	0.000	0.000	0.000
		GSE	0.029	0.004	0.004	0.004	0.034	0.009	0.004	0.004	0.000
BAE146-300	LF507 SERIES	TOTAL	1.013	0.117	0.117	0.128	0.773	0.087	0.010	0.010	0.000
28R		APU	0.040	0.003	0.003	0.004	0.029	0.007	0.000	0.000	0.000
		GSE	2.644	0.105	0.095	0.098	0.114	0.014	0.008	0.007	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	15.867	0.090	0.090	0.098	18.112	1.790	0.076	0.076	0.000
28R		APU	5.402	0.310	0.310	0.338	1.426	0.300	0.000	0.000	0.000
		GSE	81.982	3.235	2.922	3.034	3.523	0.430	0.225	0.217	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.816	0.255	0.255	0.270	0.066	0.008	0.004	0.004	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.054	0.085	0.076	0.079	0.068	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	4.373	0.602	0.602	0.639	2.142	0.148	0.028	0.028	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	27.143	1.093	0.989	1.026	1.316	0.201	0.095	0.091	0.000
Cessna 172 Skyhawk	O-320	TOTAL	14.976	0.244	0.244	0.236	0.026	0.001	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.020	0.011	0.009	0.009	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.123	0.009	0.009	0.009	0.117	0.014	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.057	0.193	0.174	0.181	0.147	0.012	0.007	0.007	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	5.011	1.440	1.440	1.576	3.741	0.373	0.269	0.269	0.000
28R		APU	0.500	0.029	0.029	0.031	0.132	0.028	0.000	0.000	0.000
		GSE	0.166	0.023	0.022	0.023	0.192	0.049	0.025	0.024	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.398	0.285	0.285	0.303	2.406	0.255	0.000	0.000	0.000
28R		APU	0.244	0.023	0.023	0.024	0.173	0.037	0.000	0.000	0.000
		GSE	16.271	0.643	0.580	0.602	0.699	0.085	0.044	0.043	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.842	0.137	0.137	0.146	1.515	0.132	0.000	0.000	0.000
28R		APU	0.118	0.011	0.011	0.012	0.084	0.019	0.000	0.000	0.000
		GSE	7.906	0.312	0.282	0.292	0.340	0.042	0.022	0.021	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	3.090	0.249	0.249	0.266	2.631	0.252	0.000	0.000	0.000
28R		APU	0.217	0.021	0.021	0.022	0.154	0.034	0.000	0.000	0.000
		GSE	14.503	0.572	0.517	0.537	0.623	0.076	0.040	0.039	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	15.180	1.275	1.275	1.356	10.882	1.109	0.000	0.000	0.000
28R		APU	1.045	0.099	0.099	0.105	0.743	0.162	0.000	0.000	0.000
		GSE	69.887	2.758	2.491	2.586	3.003	0.367	0.192	0.185	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	18.729	1.574	1.574	1.673	13.262	1.403	0.000	0.000	0.000
28R		APU	1.342	0.127	0.127	0.134	0.953	0.208	0.000	0.000	0.000
		GSE	89.680	3.540	3.197	3.318	3.854	0.471	0.246	0.237	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	5.727	0.480	0.480	0.510	4.109	0.419	0.000	0.000	0.000
28R		APU	0.395	0.037	0.037	0.040	0.281	0.061	0.000	0.000	0.000
		GSE	26.376	1.041	0.940	0.976	1.133	0.139	0.073	0.069	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	4.776	0.045	0.045	0.050	7.402	0.714	0.072	0.072	0.000
28R		APU	0.475	0.045	0.045	0.050	0.337	0.074	0.000	0.000	0.000
		GSE	31.736	1.252	1.131	1.174	1.364	0.166	0.087	0.084	0.000
F-27 SERIES	RDa7	TOTAL	2.328	0.520	0.520	0.574	0.119	0.054	N/A	N/A	0.000
28R		APU	0.141	0.017	0.017	0.019	0.014	0.004	0.000	0.000	0.000
		GSE	5.432	0.207	0.187	0.194	0.158	0.013	0.008	0.007	0.000
Falcon 20	CF700-2D	TOTAL	2.728	0.227	0.227	0.241	0.093	0.034	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.008	0.002	0.002	0.002	0.025	0.007	0.003	0.003	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.875	0.101	0.101	0.108	0.896	0.078	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.029	0.200	0.180	0.186	0.144	0.008	0.006	0.004	0.000
HS 125	TFE731-3	TOTAL	4.834	0.786	0.786	0.869	2.276	0.126	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	43.419	1.660	1.496	1.552	1.261	0.108	0.058	0.056	0.000
KC-135R	CFM56-2B-1	TOTAL	1.230	0.068	0.068	0.076	1.553	0.129	0.003	0.003	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.032	0.010	0.009	0.010	0.127	0.023	0.010	0.010	0.000
Learjet 25C	CJ610-6	TOTAL	23.216	1.764	1.764	1.875	0.461	0.128	N/A	N/A	0.000
28R_GA		APU	0.230	0.022	0.022	0.023	0.164	0.035	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	15.394	0.607	0.549	0.570	0.661	0.080	0.042	0.041	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.846	0.539	0.539	0.572	0.543	0.037	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.184	0.378	0.341	0.353	0.290	0.013	0.009	0.009	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.135	0.351	0.351	0.384	3.431	0.234	0.068	0.068	0.000
28R		APU	0.299	0.018	0.018	0.019	0.079	0.017	0.000	0.000	0.000
		GSE	0.079	0.012	0.012	0.012	0.096	0.024	0.012	0.012	0.000
Navajo	TIO-540-J2B2	TOTAL	44.917	0.805	0.805	0.776	0.023	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.002	0.002	0.002	0.014	0.008	0.007	0.007	0.000
Piper PA-28	O-320	TOTAL	1.416	0.023	0.023	0.022	0.002	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.056	0.844	0.844	0.933	0.085	0.010	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.099	0.195	0.175	0.182	0.148	0.012	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	12.674	4.361	4.361	4.635	1.707	0.161	0.084	0.084	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	37.794	1.558	1.403	1.455	1.253	0.071	0.041	0.039	0.000
Falcon 2000EX	PW308C	TOTAL	1.767	0.222	0.222	0.235	1.383	0.131	0.012	0.012	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.986	0.324	0.294	0.305	0.487	0.077	0.035	0.034	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.450	0.843	0.843	0.896	0.331	0.031	0.017	0.017	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.306	0.301	0.271	0.281	0.243	0.013	0.008	0.008	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.366	0.552	0.552	0.588	2.662	0.308	0.182	0.182	0.000
28R_GA		APU	0.079	0.006	0.006	0.007	0.388	0.039	0.000	0.000	0.000
		GSE	16.301	0.632	0.569	0.590	0.451	0.035	0.024	0.023	0.000
A320-200	V2527-A5	TOTAL	0.083	0.001	0.001	0.001	0.243	0.018	0.002	0.002	0.000
10L		APU	0.003	0.000	0.000	0.000	0.014	0.001	0.000	0.000	0.000
		GSE	0.009	0.001	0.001	0.001	0.010	0.002	0.001	0.001	0.000
A320-200	V2527-A5	TOTAL	0.292	0.004	0.004	0.004	0.862	0.062	0.008	0.008	0.000
10R		APU	0.010	0.001	0.001	0.001	0.050	0.004	0.000	0.000	0.000
		GSE	0.031	0.004	0.004	0.004	0.036	0.009	0.004	0.004	0.000
A320-200	V2527-A5	TOTAL	0.474	0.007	0.007	0.008	1.398	0.100	0.012	0.012	0.000
28L		APU	0.017	0.001	0.001	0.001	0.080	0.008	0.000	0.000	0.000
		GSE	0.051	0.007	0.007	0.007	0.058	0.014	0.008	0.008	0.000
A320-200	V2527-A5	TOTAL	0.187	0.002	0.002	0.003	0.552	0.040	0.004	0.004	0.000
28R		APU	0.007	0.000	0.000	0.000	0.032	0.003	0.000	0.000	0.000
		GSE	0.020	0.003	0.002	0.003	0.023	0.006	0.003	0.003	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.466	0.134	0.134	0.143	0.157	0.010	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.280	0.094	0.085	0.088	0.076	0.004	0.002	0.002	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.249	0.072	0.072	0.076	0.084	0.006	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.218	0.051	0.045	0.047	0.041	0.002	0.001	0.001	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.808	0.234	0.234	0.248	0.271	0.018	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.951	0.163	0.147	0.152	0.131	0.008	0.004	0.004	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.651	0.477	0.477	0.507	0.553	0.036	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.071	0.333	0.300	0.311	0.268	0.015	0.009	0.009	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.830	0.185	0.185	0.205	0.043	0.019	N/A	N/A	0.000
10L_GA		APU	0.009	0.001	0.001	0.001	0.045	0.004	0.000	0.000	0.000
		GSE	2.285	0.090	0.082	0.084	0.065	0.006	0.004	0.004	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.750	0.168	0.168	0.185	0.039	0.018	N/A	N/A	0.000
10R_GA		APU	0.008	0.001	0.001	0.001	0.041	0.004	0.000	0.000	0.000
		GSE	2.064	0.082	0.073	0.076	0.058	0.006	0.004	0.004	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.097	0.468	0.468	0.517	0.107	0.049	N/A	N/A	0.000
28L_GA		APU	0.023	0.002	0.002	0.002	0.114	0.011	0.000	0.000	0.000
		GSE	5.774	0.227	0.205	0.213	0.163	0.014	0.012	0.012	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.846	0.635	0.635	0.702	0.146	0.065	N/A	N/A	0.000
28R_GA		APU	0.031	0.002	0.002	0.002	0.154	0.015	0.000	0.000	0.000
		GSE	7.837	0.309	0.278	0.289	0.223	0.020	0.017	0.015	0.000
Learjet 25B	CJ610-6	TOTAL	3.589	0.272	0.272	0.290	0.072	0.020	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.420	0.099	0.089	0.093	0.076	0.003	0.002	0.002	0.000
Learjet 25B	CJ610-6	TOTAL	13.245	1.006	1.006	1.070	0.263	0.073	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.930	0.367	0.331	0.343	0.282	0.013	0.009	0.008	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 25B	CJ610-6	TOTAL	44.353	3.370	3.370	3.583	0.881	0.244	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	29.904	1.230	1.108	1.149	0.945	0.045	0.029	0.026	0.000
Learjet 25B	CJ610-6	TOTAL	15.428	1.173	1.173	1.247	0.306	0.085	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.401	0.428	0.385	0.399	0.328	0.015	0.010	0.010	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.227	0.002	0.002	0.002	0.347	0.034	0.003	0.003	0.000
10L		APU	0.099	0.006	0.006	0.007	0.026	0.006	0.000	0.000	0.000
		GSE	1.504	0.060	0.054	0.055	0.065	0.008	0.004	0.004	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.123	0.001	0.001	0.001	0.190	0.019	0.002	0.002	0.000
10R		APU	0.054	0.003	0.003	0.003	0.014	0.003	0.000	0.000	0.000
		GSE	0.821	0.032	0.030	0.031	0.035	0.004	0.002	0.002	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.384	0.003	0.003	0.004	0.590	0.057	0.006	0.006	0.000
28L		APU	0.168	0.010	0.010	0.011	0.044	0.009	0.000	0.000	0.000
		GSE	2.547	0.100	0.090	0.094	0.109	0.013	0.007	0.007	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.798	0.008	0.008	0.008	1.224	0.119	0.011	0.011	0.000
28R		APU	0.348	0.020	0.020	0.022	0.091	0.020	0.000	0.000	0.000
		GSE	5.289	0.208	0.188	0.196	0.227	0.028	0.014	0.014	0.000
A320-200	V2500-A1	TOTAL	0.049	0.002	0.002	0.003	0.355	0.018	0.000	0.000	0.000
10L		APU	0.003	0.000	0.000	0.000	0.014	0.001	0.000	0.000	0.000
		GSE	0.009	0.001	0.001	0.001	0.010	0.002	0.001	0.001	0.000
A320-200	V2500-A1	TOTAL	0.171	0.010	0.010	0.010	1.261	0.063	0.001	0.001	0.000
10R		APU	0.010	0.001	0.001	0.001	0.050	0.004	0.000	0.000	0.000
		GSE	0.031	0.004	0.004	0.004	0.036	0.009	0.004	0.004	0.000
A320-200	V2500-A1	TOTAL	0.277	0.015	0.015	0.017	2.045	0.103	0.002	0.002	0.000
28L		APU	0.017	0.001	0.001	0.001	0.080	0.008	0.000	0.000	0.000
		GSE	0.051	0.007	0.007	0.007	0.058	0.014	0.008	0.008	0.000
A320-200	V2500-A1	TOTAL	0.109	0.007	0.007	0.007	0.808	0.041	0.001	0.001	0.000
28R		APU	0.007	0.000	0.000	0.000	0.032	0.003	0.000	0.000	0.000
		GSE	0.020	0.003	0.002	0.003	0.023	0.006	0.003	0.003	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.223	0.002	0.002	0.002	0.385	0.035	0.008	0.008	0.000
10L		APU	0.022	0.002	0.002	0.002	0.017	0.003	0.000	0.000	0.000
		GSE	1.504	0.060	0.054	0.055	0.065	0.008	0.004	0.004	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.122	0.001	0.001	0.001	0.211	0.020	0.004	0.004	0.000
10R		APU	0.012	0.001	0.001	0.001	0.009	0.002	0.000	0.000	0.000
		GSE	0.821	0.032	0.030	0.031	0.035	0.004	0.002	0.002	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.378	0.003	0.003	0.004	0.651	0.060	0.013	0.013	0.000
28L		APU	0.039	0.003	0.003	0.004	0.028	0.006	0.000	0.000	0.000
		GSE	2.547	0.100	0.090	0.094	0.109	0.013	0.007	0.007	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.785	0.008	0.008	0.009	1.354	0.125	0.029	0.029	0.000
28R		APU	0.079	0.008	0.008	0.008	0.056	0.012	0.000	0.000	0.000
		GSE	5.289	0.208	0.188	0.196	0.227	0.028	0.014	0.014	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	5.358	0.057	0.057	0.055	0.006	0.000	N/A	N/A	4.253
10L_GA		Climb Out	4.478	0.051	0.051	0.049	0.001	0.000	N/A	N/A	3.045
		Takeoff	2.985	0.025	0.025	0.024	0.001	0.000	N/A	N/A	2.070
		Idle	2.780	0.147	0.147	0.141	0.001	0.000	N/A	N/A	2.148
B737-300	CFM56-3-B1	Approach	0.214	0.004	0.004	0.004	0.467	0.056	0.001	0.001	56.256
10L		Climb Out	0.028	0.001	0.001	0.001	0.449	0.029	0.000	0.000	28.935
		Takeoff	0.034	0.001	0.001	0.002	0.672	0.037	0.001	0.001	37.968
		Idle	2.143	0.142	0.142	0.155	0.243	0.063	0.001	0.001	62.297
B737-300	CFM56-3B-2	Approach	0.041	0.001	0.001	0.001	0.104	0.012	0.000	0.000	11.901
10L		Climb Out	0.006	0.000	0.000	0.000	0.105	0.007	0.000	0.000	6.267
		Takeoff	0.008	0.000	0.000	0.000	0.161	0.009	0.000	0.000	8.281
		Idle	0.383	0.022	0.022	0.024	0.052	0.013	0.000	0.000	12.705
B737-500	CFM56-3C-1	Approach	0.055	0.001	0.001	0.001	0.160	0.018	0.000	0.000	17.625
10L		Climb Out	0.010	0.000	0.000	0.000	0.187	0.011	0.000	0.000	10.528
		Takeoff	0.012	0.000	0.000	0.000	0.287	0.014	0.001	0.001	13.836
		Idle	0.482	0.025	0.025	0.028	0.077	0.018	0.000	0.000	17.959
B737-700	CFM56-7B22	Approach	0.168	0.007	0.007	0.008	0.672	0.067	0.014	0.014	67.199
10L		Climb Out	0.024	0.004	0.004	0.004	0.767	0.041	0.009	0.009	40.401
		Takeoff	0.029	0.006	0.006	0.007	1.333	0.057	0.012	0.012	57.706
		Idle	1.489	0.163	0.163	0.179	0.294	0.065	0.013	0.013	65.341
B737-800	CFM56-7B26	Approach	0.042	0.002	0.002	0.003	0.283	0.026	0.008	0.008	26.265
10L		Climb Out	0.011	0.002	0.002	0.002	0.410	0.019	0.006	0.006	18.229
		Takeoff	0.006	0.002	0.002	0.003	0.743	0.025	0.008	0.008	25.785
		Idle	0.462	0.046	0.046	0.051	0.116	0.024	0.008	0.008	24.558
B757-300	PW2043	Approach	0.009	0.001	0.001	0.001	0.073	0.007	N/A	N/A	6.823
10L		Climb Out	0.002	0.000	0.000	0.000	0.129	0.004	N/A	N/A	4.631
		Takeoff	0.002	0.000	0.000	0.000	0.238	0.007	N/A	N/A	6.290
		Idle	0.115	0.009	0.009	0.010	0.026	0.006	N/A	N/A	5.917
BAE146-300	LF507 SERIES	Approach	0.025	0.001	0.001	0.001	0.036	0.006	0.000	0.000	5.771
10L		Climb Out	0.002	0.000	0.000	0.000	0.077	0.007	0.001	0.001	6.435
		Takeoff	0.001	0.000	0.000	0.000	0.079	0.006	0.001	0.001	5.469
		Idle	0.254	0.032	0.032	0.034	0.022	0.007	0.000	0.000	6.714
Bombardier CRJ700	CF34-8C1	Approach	0.418	0.009	0.009	0.010	1.593	0.143	0.007	0.007	143.479
10L		Climb Out	0.039	0.001	0.001	0.002	0.983	0.077	0.000	0.000	76.709
		Takeoff	0.053	0.002	0.002	0.003	1.887	0.129	0.007	0.007	128.668
		Idle	4.009	0.013	0.013	0.014	0.693	0.161	0.008	0.008	160.868
Cessna 172 Skyhawk	O-320	Approach	1.967	0.031	0.031	0.030	0.001	0.000	N/A	N/A	1.612
10L_GA		Climb Out	1.060	0.013	0.013	0.013	0.004	0.000	N/A	N/A	1.071
		Takeoff	0.800	0.009	0.009	0.009	0.001	0.000	N/A	N/A	0.742
		Idle	0.506	0.018	0.018	0.017	0.000	0.000	N/A	N/A	0.468
Cessna 441 Conqu...	TPE331-8	Approach	0.008	0.000	0.000	0.000	0.017	0.002	N/A	N/A	1.765
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.374
		Takeoff	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.431
		Idle	0.024	0.002	0.002	0.002	0.006	0.001	N/A	N/A	1.265
CITATION I SP	JT15D-1A ,1B	Approach	0.047	0.006	0.006	0.006	0.004	0.001	0.000	0.000	1.178
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.704
		Takeoff	0.002	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.783
		Idle	0.157	0.060	0.060	0.064	0.002	0.001	0.000	0.000	1.182
CL600	ALF 502L-2	Approach	0.097	0.004	0.004	0.004	0.159	0.013	0.003	0.003	24.492
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.154	0.007	0.003	0.003	12.785
		Takeoff	0.007	0.000	0.000	0.000	0.235	0.010	0.002	0.002	17.463
		Idle	1.188	0.173	0.173	0.184	0.088	0.014	0.000	0.000	26.037
DC9-30	JT8D-15 (old ...	Approach	0.249	0.043	0.043	0.046	0.153	0.026	0.019	0.019	25.926
10L		Climb Out	0.023	0.006	0.006	0.007	0.344	0.023	0.017	0.017	22.908
		Takeoff	0.017	0.006	0.006	0.007	0.463	0.024	0.018	0.018	24.237
		Idle	1.124	0.352	0.352	0.385	0.096	0.032	0.023	0.023	31.953
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.134	0.000	0.000	0.001	0.122	0.018	0.000	0.000	17.612
10L		Climb Out	0.009	0.000	0.000	0.001	0.237	0.018	0.000	0.000	17.602
		Takeoff	0.007	0.000	0.000	0.000	0.188	0.012	0.000	0.000	12.203
		Idle	0.741	0.074	0.074	0.078	0.083	0.019	0.000	0.000	19.246
Embraer ERJ 145	AE3007A	Approach	0.034	0.007	0.007	0.007	0.080	0.010	0.000	0.000	10.379
10L		Climb Out	0.009	0.003	0.003	0.003	0.175	0.010	0.000	0.000	10.029
		Takeoff	0.006	0.002	0.002	0.002	0.143	0.007	0.000	0.000	6.953
		Idle	0.197	0.029	0.029	0.031	0.044	0.011	0.000	0.000	11.395
Embraer ERJ 145	AE3007A1E	Approach	0.110	0.001	0.001	0.001	0.146	0.020	0.000	0.000	19.559
10L		Climb Out	0.013	0.001	0.001	0.001	0.299	0.020	0.000	0.000	20.036

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.011	0.000	0.000	0.000	0.240	0.014	0.000	0.000	13.970
		Idle	0.771	0.072	0.072	0.076	0.086	0.020	0.000	0.000	20.295
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.567	0.002	0.002	0.002	0.593	0.084	0.000	0.000	83.288
10L		Climb Out	0.043	0.002	0.002	0.002	1.102	0.078	0.000	0.000	78.671
		Takeoff	0.051	0.002	0.002	0.002	1.096	0.068	0.000	0.000	68.023
		Idle	3.781	0.366	0.366	0.389	0.394	0.095	0.000	0.000	94.363
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	0.827	0.003	0.003	0.003	0.752	0.108	0.000	0.000	108.491
10L		Climb Out	0.054	0.003	0.003	0.003	1.463	0.108	0.000	0.000	108.428
		Takeoff	0.037	0.002	0.002	0.002	1.160	0.075	0.000	0.000	75.171
		Idle	4.561	0.452	0.452	0.481	0.506	0.119	0.000	0.000	118.560
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.214	0.001	0.001	0.001	0.224	0.032	0.000	0.000	31.438
10L		Climb Out	0.017	0.001	0.001	0.001	0.416	0.030	0.000	0.000	29.669
		Takeoff	0.019	0.001	0.001	0.001	0.413	0.025	0.000	0.000	25.660
		Idle	1.425	0.138	0.138	0.147	0.149	0.035	0.000	0.000	35.664
Embraer ERJ 170	CF34-8E5	Approach	0.251	0.003	0.003	0.004	0.640	0.060	0.007	0.007	59.493
10L		Climb Out	0.019	0.001	0.001	0.001	0.405	0.032	0.000	0.000	32.006
		Takeoff	0.034	0.001	0.001	0.001	0.794	0.054	0.007	0.007	53.718
		Idle	1.055	0.008	0.008	0.009	0.268	0.058	0.007	0.007	58.106
F-27 SERIES	RDa7	Approach	0.168	0.015	0.015	0.017	0.004	0.006	N/A	N/A	5.017
10L		Climb Out	0.012	0.003	0.003	0.004	0.015	0.003	N/A	N/A	3.499
		Takeoff	0.008	0.002	0.002	0.002	0.012	0.002	N/A	N/A	2.251
		Idle	0.536	0.140	0.140	0.154	0.004	0.006	N/A	N/A	5.867
Falcon 20	CF700-2D	Approach	0.141	0.003	0.003	0.003	0.004	0.002	N/A	N/A	2.275
10L_GA		Climb Out	0.032	0.000	0.000	0.000	0.006	0.001	N/A	N/A	1.263
		Takeoff	0.037	0.000	0.000	0.000	0.010	0.002	N/A	N/A	1.684
		Idle	0.421	0.049	0.049	0.052	0.002	0.002	N/A	N/A	2.718
Falcon 2000EX	PW308C	Approach	0.063	0.002	0.002	0.002	0.095	0.012	0.001	0.001	12.118
10L_Corp		Climb Out	0.007	0.001	0.001	0.001	0.104	0.007	0.001	0.001	6.489
		Takeoff	0.007	0.001	0.001	0.001	0.155	0.009	0.001	0.001	8.439
		Idle	0.422	0.060	0.060	0.063	0.036	0.010	0.001	0.001	9.989
Gulfstream II	SPEY MK511-8	Approach	0.012	0.001	0.001	0.001	0.033	0.004	N/A	N/A	4.538
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.061	0.003	N/A	N/A	3.526
		Takeoff	0.000	0.000	0.000	0.000	0.094	0.004	N/A	N/A	4.127
		Idle	0.190	0.022	0.022	0.023	0.021	0.006	N/A	N/A	5.951
Gulfstream IV	TAY Mk611-8	Approach	0.088	0.020	0.020	0.022	0.129	0.022	0.013	0.013	22.592
10L_GA		Climb Out	0.008	0.003	0.003	0.003	0.171	0.010	0.006	0.006	10.200
		Takeoff	0.010	0.011	0.011	0.012	0.299	0.014	0.009	0.009	14.150
		Idle	0.748	0.106	0.106	0.112	0.077	0.031	0.019	0.019	31.079
HS 125	TFE731-3	Approach	0.333	0.030	0.030	0.033	0.148	0.011	N/A	N/A	21.378
10L_Corp		Climb Out	0.015	0.001	0.001	0.001	0.148	0.006	N/A	N/A	9.254
		Takeoff	0.017	0.001	0.001	0.001	0.276	0.008	N/A	N/A	14.392
		Idle	1.020	0.193	0.193	0.214	0.079	0.011	N/A	N/A	21.374
KC-135R	CFM56-2B-1	Approach	0.028	0.000	0.000	0.001	0.054	0.007	0.000	0.000	6.562
10L_GA		Climb Out	0.007	0.000	0.000	0.000	0.120	0.008	0.000	0.000	7.475
		Takeoff	0.010	0.000	0.000	0.000	0.198	0.011	0.001	0.001	10.750
		Idle	0.280	0.017	0.017	0.019	0.036	0.009	0.000	0.000	9.110
Learjet 25C	CJ610-6	Approach	1.998	0.000	0.000	0.000	0.034	0.012	N/A	N/A	22.712
10L_GA		Climb Out	0.238	0.002	0.002	0.002	0.030	0.004	N/A	N/A	8.497
		Takeoff	0.358	0.001	0.001	0.001	0.056	0.008	N/A	N/A	13.275
		Idle	4.836	0.561	0.561	0.597	0.028	0.017	N/A	N/A	31.198
Learjet 35/36	TFE 731-2-2B	Approach	0.134	0.025	0.025	0.028	0.035	0.003	N/A	N/A	5.993
10L_GA		Climb Out	0.006	0.000	0.000	0.000	0.035	0.001	N/A	N/A	2.690
		Takeoff	0.004	0.000	0.000	0.000	0.050	0.002	N/A	N/A	3.231
		Idle	0.314	0.107	0.107	0.115	0.015	0.003	N/A	N/A	5.356
MD-80-83	JT8D-219 old...	Approach	0.080	0.032	0.032	0.034	0.181	0.020	0.006	0.006	19.856
10L		Climb Out	0.021	0.007	0.007	0.008	0.355	0.017	0.006	0.006	17.038
		Takeoff	0.013	0.006	0.006	0.006	0.507	0.019	0.006	0.006	18.796
		Idle	0.255	0.071	0.071	0.077	0.073	0.020	0.006	0.006	20.126
Navajo	TIO-540-J2B2	Approach	4.469	0.047	0.047	0.046	0.004	0.000	N/A	N/A	3.546
10L_GA		Climb Out	3.735	0.042	0.042	0.041	0.001	0.000	N/A	N/A	2.539
		Takeoff	2.489	0.021	0.021	0.021	0.001	0.000	N/A	N/A	1.726
		Idle	2.319	0.122	0.122	0.118	0.001	0.000	N/A	N/A	1.792
Piper PA-28	O-320	Approach	0.183	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.150
10L_GA		Climb Out	0.088	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.089
		Takeoff	0.060	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.055
		Idle	0.037	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.034
UC-12J	PT6A-42	Approach	0.094	0.062	0.062	0.067	0.012	0.001	N/A	N/A	2.696
10L_GA		Climb Out	0.004	0.001	0.001	0.001	0.004	0.000	N/A	N/A	0.642
		Takeoff	0.002	0.001	0.001	0.001	0.004	0.000	N/A	N/A	0.503
		Idle	0.209	0.185	0.185	0.204	0.003	0.001	N/A	N/A	1.822

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation	JT15D-4 (B,C...	Approach	0.868	0.140	0.140	0.149	0.143	0.014	0.008	0.008	27.106
10L_Corp		Climb Out	0.046	0.003	0.003	0.003	0.125	0.008	0.004	0.004	14.520
		Takeoff	0.033	0.001	0.001	0.001	0.147	0.009	0.004	0.004	15.866
		Idle	2.662	1.098	1.098	1.167	0.072	0.014	0.008	0.008	27.445
B737-300	CFM56-3C-1 ...	Approach	0.074	0.001	0.001	0.001	0.141	0.018	0.000	0.000	17.699
10L		Climb Out	0.009	0.000	0.000	0.000	0.131	0.009	0.000	0.000	8.938
		Takeoff	0.011	0.001	0.001	0.001	0.194	0.012	0.000	0.000	11.696
		Idle	0.773	0.058	0.058	0.064	0.077	0.020	0.000	0.000	20.272
550 Citation	JT15D-4 (B,C...	Approach	0.137	0.022	0.022	0.023	0.023	0.002	0.001	0.001	4.280
10L_GA		Climb Out	0.008	0.000	0.000	0.000	0.020	0.001	0.001	0.001	2.293
		Takeoff	0.006	0.000	0.000	0.000	0.023	0.001	0.001	0.001	2.506
		Idle	0.420	0.173	0.173	0.184	0.011	0.002	0.001	0.001	4.333
550 Citation	JT15D-4 (B,C...	Approach	0.499	0.080	0.080	0.086	0.083	0.009	0.004	0.004	15.622
10R_GA		Climb Out	0.026	0.001	0.001	0.002	0.072	0.004	0.002	0.002	8.368
		Takeoff	0.019	0.001	0.001	0.001	0.085	0.004	0.002	0.002	9.144
		Idle	1.534	0.633	0.633	0.672	0.042	0.009	0.004	0.004	15.817
550 Citation	JT15D-4 (B,C...	Approach	0.486	0.078	0.078	0.083	0.080	0.008	0.004	0.004	15.193
10R_Corp		Climb Out	0.025	0.001	0.001	0.001	0.069	0.004	0.002	0.002	8.138
		Takeoff	0.019	0.001	0.001	0.001	0.082	0.004	0.002	0.002	8.893
		Idle	1.493	0.615	0.615	0.654	0.041	0.009	0.004	0.004	15.384
Aztec	TIO-540-J2B2	Approach	8.059	0.086	0.086	0.083	0.009	0.001	N/A	N/A	6.396
10R_GA		Climb Out	6.735	0.076	0.076	0.074	0.001	0.000	N/A	N/A	4.579
		Takeoff	4.490	0.039	0.039	0.037	0.001	0.000	N/A	N/A	3.113
		Idle	4.182	0.220	0.220	0.213	0.001	0.000	N/A	N/A	3.232
B737-300	CFM56-3C-1 ...	Approach	0.196	0.003	0.003	0.004	0.374	0.046	0.001	0.001	46.696
10R		Climb Out	0.023	0.001	0.001	0.001	0.346	0.023	0.000	0.000	23.581
		Takeoff	0.028	0.001	0.001	0.002	0.513	0.031	0.000	0.000	30.859
		Idle	2.038	0.153	0.153	0.168	0.203	0.054	0.000	0.000	53.484
B737-300	CFM56-3B-2	Approach	0.096	0.002	0.002	0.002	0.245	0.029	0.000	0.000	28.186
10R		Climb Out	0.013	0.001	0.001	0.001	0.248	0.014	0.000	0.000	14.843
		Takeoff	0.018	0.001	0.001	0.001	0.380	0.020	0.001	0.001	19.611
		Idle	0.906	0.053	0.053	0.057	0.123	0.030	0.000	0.000	30.091
B737-300	CFM56-3-B1	Approach	0.580	0.012	0.012	0.013	1.267	0.152	0.002	0.002	152.573
10R		Climb Out	0.075	0.004	0.004	0.004	1.216	0.078	0.001	0.001	78.474
		Takeoff	0.093	0.004	0.004	0.004	1.822	0.103	0.003	0.003	102.974
		Idle	5.812	0.385	0.385	0.422	0.659	0.169	0.002	0.002	168.953
B737-500	CFM56-3C-1	Approach	0.148	0.003	0.003	0.003	0.433	0.047	0.001	0.001	47.569
10R		Climb Out	0.025	0.001	0.001	0.001	0.506	0.029	0.001	0.001	28.416
		Takeoff	0.033	0.001	0.001	0.001	0.773	0.037	0.003	0.003	37.344
		Idle	1.299	0.068	0.068	0.075	0.208	0.049	0.000	0.000	48.471
B737-700	CFM56-7B22	Approach	0.437	0.018	0.018	0.019	1.745	0.174	0.036	0.036	174.472
10R		Climb Out	0.063	0.011	0.011	0.011	1.993	0.105	0.022	0.022	104.895
		Takeoff	0.075	0.015	0.015	0.017	3.461	0.150	0.032	0.032	149.825
		Idle	3.868	0.424	0.424	0.464	0.764	0.170	0.035	0.035	169.646
B737-800	CFM56-7B26	Approach	0.109	0.007	0.007	0.008	0.735	0.068	0.021	0.021	68.118
10R		Climb Out	0.029	0.004	0.004	0.006	1.064	0.047	0.014	0.014	47.279
		Takeoff	0.013	0.007	0.007	0.008	1.926	0.067	0.020	0.020	66.875
		Idle	1.197	0.121	0.121	0.132	0.300	0.064	0.020	0.020	63.694
B757-300	PW2043	Approach	0.021	0.001	0.001	0.001	0.169	0.015	N/A	N/A	15.745
10R		Climb Out	0.004	0.000	0.000	0.000	0.298	0.011	N/A	N/A	10.686
		Takeoff	0.004	0.000	0.000	0.000	0.548	0.014	N/A	N/A	14.516
		Idle	0.263	0.021	0.021	0.023	0.061	0.013	N/A	N/A	13.654
BAE146-300	LF507 SERIES	Approach	0.014	0.000	0.000	0.000	0.020	0.003	0.000	0.000	3.157
10R		Climb Out	0.001	0.000	0.000	0.000	0.042	0.003	0.001	0.001	3.521
		Takeoff	0.001	0.000	0.000	0.000	0.043	0.003	0.000	0.000	2.992
		Idle	0.139	0.018	0.018	0.019	0.012	0.003	0.000	0.000	3.674
Bombardier CRJ700	CF34-8C1	Approach	0.228	0.004	0.004	0.006	0.871	0.078	0.003	0.003	78.456
10R		Climb Out	0.021	0.001	0.001	0.001	0.538	0.042	0.000	0.000	41.945
		Takeoff	0.029	0.001	0.001	0.001	1.032	0.071	0.003	0.003	70.357
		Idle	2.192	0.007	0.007	0.008	0.379	0.088	0.004	0.004	87.964
Cessna 172 Skyhawk	O-320	Approach	3.406	0.054	0.054	0.052	0.002	0.000	N/A	N/A	2.792
10R_GA		Climb Out	1.836	0.023	0.023	0.022	0.008	0.000	N/A	N/A	1.855
		Takeoff	1.388	0.015	0.015	0.014	0.003	0.000	N/A	N/A	1.284
		Idle	0.876	0.030	0.030	0.029	0.000	0.000	N/A	N/A	0.811
Cessna 441 Conqu...	TPE331-8	Approach	0.023	0.001	0.001	0.001	0.051	0.006	N/A	N/A	5.322
10R_GA		Climb Out	0.002	0.000	0.000	0.000	0.012	0.001	N/A	N/A	1.128
		Takeoff	0.002	0.000	0.000	0.000	0.014	0.001	N/A	N/A	1.301
		Idle	0.072	0.006	0.006	0.006	0.015	0.003	N/A	N/A	3.816
CITATION I SP	JT15D-1A ,1B	Approach	0.181	0.020	0.020	0.021	0.015	0.002	0.001	0.001	4.458
10R_GA		Climb Out	0.009	0.000	0.000	0.000	0.018	0.001	0.001	0.001	2.664

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.008	0.000	0.000	0.000	0.022	0.001	0.001	0.001	2.960
		Idle	0.591	0.226	0.226	0.240	0.008	0.002	0.001	0.001	4.472
CL600	ALF 502L-2	Approach	0.054	0.002	0.002	0.002	0.088	0.008	0.001	0.001	13.711
10R_GA		Climb Out	0.002	0.000	0.000	0.000	0.086	0.004	0.002	0.002	7.157
		Takeoff	0.004	0.000	0.000	0.000	0.131	0.006	0.001	0.001	9.775
		Idle	0.665	0.097	0.097	0.103	0.050	0.008	0.000	0.000	14.575
DC9-30	JT8D-15 (old ...	Approach	0.642	0.110	0.110	0.121	0.395	0.067	0.049	0.049	66.835
10R		Climb Out	0.060	0.014	0.014	0.017	0.886	0.060	0.043	0.043	59.055
		Takeoff	0.044	0.015	0.015	0.018	1.194	0.063	0.045	0.045	62.480
		Idle	2.899	0.906	0.906	0.992	0.247	0.083	0.060	0.060	82.372
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.080	0.000	0.000	0.000	0.073	0.011	0.000	0.000	10.533
10R		Climb Out	0.006	0.000	0.000	0.000	0.142	0.011	0.000	0.000	10.526
		Takeoff	0.003	0.000	0.000	0.000	0.112	0.008	0.000	0.000	7.297
		Idle	0.443	0.044	0.044	0.046	0.050	0.011	0.000	0.000	11.510
Embraer ERJ 145	AE3007A1E	Approach	0.061	0.000	0.000	0.000	0.080	0.011	0.000	0.000	10.838
10R		Climb Out	0.007	0.000	0.000	0.000	0.165	0.011	0.000	0.000	11.102
		Takeoff	0.006	0.000	0.000	0.000	0.133	0.008	0.000	0.000	7.740
		Idle	0.427	0.040	0.040	0.042	0.047	0.011	0.000	0.000	11.245
Embraer ERJ 145	AE3007A	Approach	0.019	0.003	0.003	0.004	0.045	0.006	0.000	0.000	5.752
10R		Climb Out	0.006	0.001	0.001	0.002	0.097	0.006	0.000	0.000	5.559
		Takeoff	0.003	0.001	0.001	0.001	0.079	0.003	0.000	0.000	3.854
		Idle	0.109	0.015	0.015	0.017	0.024	0.007	0.000	0.000	6.315
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.118	0.000	0.000	0.001	0.125	0.018	0.000	0.000	17.422
10R		Climb Out	0.009	0.000	0.000	0.000	0.230	0.017	0.000	0.000	16.441
		Takeoff	0.011	0.000	0.000	0.000	0.229	0.014	0.000	0.000	14.220
		Idle	0.790	0.076	0.076	0.082	0.083	0.020	0.000	0.000	19.763
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	0.459	0.002	0.002	0.002	0.417	0.061	0.000	0.000	60.145
10R		Climb Out	0.030	0.002	0.002	0.002	0.811	0.061	0.000	0.000	60.110
		Takeoff	0.021	0.001	0.001	0.001	0.643	0.042	0.000	0.000	41.673
		Idle	2.529	0.250	0.250	0.267	0.281	0.066	0.000	0.000	65.728
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.314	0.001	0.001	0.001	0.328	0.046	0.000	0.000	46.152
10R		Climb Out	0.024	0.001	0.001	0.001	0.611	0.044	0.000	0.000	43.593
		Takeoff	0.028	0.001	0.001	0.001	0.607	0.037	0.000	0.000	37.692
		Idle	2.095	0.203	0.203	0.216	0.218	0.052	0.000	0.000	52.289
Embraer ERJ 170	CF34-8E5	Approach	0.138	0.002	0.002	0.002	0.351	0.033	0.003	0.003	32.542
10R		Climb Out	0.010	0.000	0.000	0.000	0.222	0.018	0.000	0.000	17.507
		Takeoff	0.019	0.001	0.001	0.001	0.434	0.030	0.003	0.003	29.383
		Idle	0.578	0.004	0.004	0.004	0.147	0.032	0.003	0.003	31.784
F-27 SERIES	RDa7	Approach	0.270	0.024	0.024	0.026	0.008	0.008	N/A	N/A	8.113
10R		Climb Out	0.020	0.007	0.007	0.007	0.025	0.006	N/A	N/A	5.659
		Takeoff	0.012	0.003	0.003	0.004	0.020	0.003	N/A	N/A	3.640
		Idle	0.868	0.227	0.227	0.250	0.007	0.010	N/A	N/A	9.488
Falcon 20	CF700-2D	Approach	0.518	0.012	0.012	0.012	0.015	0.009	N/A	N/A	8.362
10R_GA		Climb Out	0.116	0.000	0.000	0.000	0.020	0.004	N/A	N/A	4.644
		Takeoff	0.137	0.001	0.001	0.001	0.034	0.007	N/A	N/A	6.192
		Idle	1.549	0.180	0.180	0.191	0.009	0.010	N/A	N/A	9.992
Falcon 2000EX	PW308C	Approach	0.034	0.001	0.001	0.001	0.051	0.007	0.001	0.001	6.473
10R_Corp		Climb Out	0.003	0.000	0.000	0.000	0.055	0.003	0.000	0.000	3.467
		Takeoff	0.003	0.000	0.000	0.000	0.083	0.004	0.000	0.000	4.507
		Idle	0.226	0.032	0.032	0.034	0.020	0.006	0.000	0.000	5.336
Gulfstream II	SPEY MK511-8	Approach	0.044	0.003	0.003	0.003	0.120	0.017	N/A	N/A	16.686
10R_GA		Climb Out	0.008	0.001	0.001	0.002	0.224	0.013	N/A	N/A	12.964
		Takeoff	0.002	0.001	0.001	0.001	0.344	0.015	N/A	N/A	15.174
		Idle	0.696	0.080	0.080	0.086	0.078	0.022	N/A	N/A	21.881
Gulfstream IV	TAY Mk611-8	Approach	0.123	0.029	0.029	0.030	0.180	0.032	0.019	0.019	31.561
10R_GA		Climb Out	0.011	0.004	0.004	0.004	0.239	0.014	0.009	0.009	14.251
		Takeoff	0.014	0.015	0.015	0.017	0.417	0.020	0.012	0.012	19.769
		Idle	1.046	0.148	0.148	0.157	0.108	0.043	0.025	0.025	43.418
HS 125	TFE731-3	Approach	0.181	0.017	0.017	0.018	0.080	0.007	N/A	N/A	11.638
10R_Corp		Climb Out	0.008	0.000	0.000	0.000	0.080	0.002	N/A	N/A	5.038
		Takeoff	0.009	0.000	0.000	0.000	0.150	0.004	N/A	N/A	7.835
		Idle	0.556	0.105	0.105	0.116	0.043	0.007	N/A	N/A	11.636
KC-135R	CFM56-2B-1	Approach	0.066	0.001	0.001	0.001	0.129	0.015	0.000	0.000	15.748
10R_GA		Climb Out	0.017	0.001	0.001	0.001	0.287	0.018	0.000	0.000	17.940
		Takeoff	0.023	0.001	0.001	0.001	0.477	0.025	0.001	0.001	25.798
		Idle	0.671	0.040	0.040	0.044	0.087	0.022	0.000	0.000	21.862
Learjet 25C	CJ610-6	Approach	1.016	0.000	0.000	0.000	0.018	0.007	N/A	N/A	11.549
10R_GA		Climb Out	0.121	0.001	0.001	0.001	0.015	0.002	N/A	N/A	4.320
		Takeoff	0.182	0.001	0.001	0.001	0.029	0.003	N/A	N/A	6.751
		Idle	2.459	0.285	0.285	0.303	0.014	0.009	N/A	N/A	15.863

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36	TFE 731-2-2B	Approach	0.516	0.098	0.098	0.105	0.136	0.012	N/A	N/A	23.041
10R_GA		Climb Out	0.021	0.001	0.001	0.001	0.136	0.006	N/A	N/A	10.341
		Takeoff	0.018	0.001	0.001	0.001	0.190	0.007	N/A	N/A	12.421
		Idle	1.207	0.412	0.412	0.439	0.058	0.011	N/A	N/A	20.594
MD-80-83	JT8D-219 old...	Approach	0.245	0.096	0.096	0.105	0.549	0.061	0.018	0.018	60.129
10R		Climb Out	0.062	0.022	0.022	0.024	1.074	0.052	0.015	0.015	51.599
		Takeoff	0.042	0.015	0.015	0.017	1.537	0.057	0.017	0.017	56.918
		Idle	0.769	0.212	0.212	0.233	0.219	0.061	0.018	0.018	60.948
Navajo	TIO-540-J2B2	Approach	4.930	0.053	0.053	0.051	0.006	0.000	N/A	N/A	3.912
10R_GA		Climb Out	4.120	0.046	0.046	0.045	0.001	0.000	N/A	N/A	2.801
		Takeoff	2.746	0.023	0.023	0.023	0.001	0.000	N/A	N/A	1.905
		Idle	2.558	0.134	0.134	0.130	0.001	0.000	N/A	N/A	1.976
Piper PA-28	O-320	Approach	0.558	0.009	0.009	0.009	0.000	0.000	N/A	N/A	0.456
10R_GA		Climb Out	0.268	0.003	0.003	0.003	0.001	0.000	N/A	N/A	0.271
		Takeoff	0.181	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.168
		Idle	0.112	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.105
UC-12J	PT6A-42	Approach	0.311	0.203	0.203	0.225	0.042	0.004	N/A	N/A	8.951
10R_GA		Climb Out	0.014	0.004	0.004	0.004	0.017	0.001	N/A	N/A	2.130
		Takeoff	0.009	0.003	0.003	0.003	0.013	0.001	N/A	N/A	1.667
		Idle	0.697	0.614	0.614	0.678	0.012	0.003	N/A	N/A	6.047
Aztec	TIO-540-J2B2	Approach	20.554	0.218	0.218	0.211	0.023	0.002	N/A	N/A	16.312
28L_GA		Climb Out	17.178	0.194	0.194	0.187	0.002	0.001	N/A	N/A	11.678
		Takeoff	11.450	0.098	0.098	0.095	0.003	0.001	N/A	N/A	7.940
		Idle	10.666	0.561	0.561	0.541	0.003	0.001	N/A	N/A	8.242
B737-300	CFM56-3-B1	Approach	1.488	0.031	0.031	0.034	3.251	0.391	0.004	0.004	391.628
28L		Climb Out	0.192	0.010	0.010	0.011	3.122	0.202	0.002	0.002	201.428
		Takeoff	0.238	0.011	0.011	0.011	4.678	0.265	0.008	0.008	264.313
		Idle	14.919	0.989	0.989	1.082	1.691	0.433	0.004	0.004	433.675
B737-300	CFM56-3B-2	Approach	0.294	0.007	0.007	0.007	0.753	0.087	0.001	0.001	86.593
28L		Climb Out	0.041	0.002	0.002	0.002	0.762	0.045	0.001	0.001	45.599
		Takeoff	0.054	0.002	0.002	0.002	1.168	0.061	0.003	0.003	60.251
		Idle	2.782	0.162	0.162	0.177	0.379	0.093	0.001	0.001	92.444
B737-300	CFM56-3C-1 ...	Approach	0.517	0.010	0.010	0.011	0.984	0.123	0.001	0.001	123.072
28L		Climb Out	0.062	0.003	0.003	0.003	0.914	0.062	0.001	0.001	62.147
		Takeoff	0.073	0.004	0.004	0.004	1.350	0.082	0.001	0.001	81.333
		Idle	5.370	0.403	0.403	0.441	0.536	0.141	0.001	0.001	140.961
B737-500	CFM56-3C-1	Approach	0.384	0.009	0.009	0.010	1.128	0.123	0.001	0.001	123.887
28L		Climb Out	0.066	0.003	0.003	0.003	1.317	0.074	0.002	0.002	74.005
		Takeoff	0.087	0.003	0.003	0.003	2.013	0.097	0.009	0.009	97.255
		Idle	3.383	0.180	0.180	0.196	0.542	0.127	0.001	0.001	126.234
B737-700	CFM56-7B22	Approach	1.193	0.047	0.047	0.052	4.769	0.477	0.100	0.100	476.869
28L		Climb Out	0.172	0.029	0.029	0.031	5.448	0.287	0.061	0.061	286.699
		Takeoff	0.205	0.041	0.041	0.045	9.460	0.409	0.086	0.086	409.503
		Idle	10.572	1.160	1.160	1.269	2.087	0.464	0.097	0.097	463.678
B737-800	CFM56-7B26	Approach	0.295	0.019	0.019	0.020	1.993	0.184	0.056	0.056	184.531
28L		Climb Out	0.077	0.013	0.013	0.014	2.881	0.128	0.039	0.039	128.076
		Takeoff	0.036	0.018	0.018	0.020	5.217	0.181	0.055	0.055	181.162
		Idle	3.244	0.327	0.327	0.359	0.811	0.173	0.052	0.052	172.544
B757-300	PW2043	Approach	0.064	0.004	0.004	0.004	0.517	0.049	N/A	N/A	48.287
28L		Climb Out	0.013	0.001	0.001	0.001	0.914	0.033	N/A	N/A	32.771
		Takeoff	0.013	0.000	0.000	0.000	1.681	0.044	N/A	N/A	44.516
		Idle	0.809	0.065	0.065	0.072	0.185	0.042	N/A	N/A	41.873
BAE146-300	LF507 SERIES	Approach	0.045	0.001	0.001	0.001	0.065	0.010	0.001	0.001	10.126
28L		Climb Out	0.003	0.000	0.000	0.000	0.136	0.011	0.002	0.002	11.292
		Takeoff	0.002	0.000	0.000	0.000	0.139	0.010	0.001	0.001	9.596
		Idle	0.445	0.055	0.055	0.061	0.039	0.012	0.001	0.001	11.780
Bombardier CRJ700	CF34-8C1	Approach	0.704	0.014	0.014	0.015	2.689	0.243	0.012	0.012	242.212
28L		Climb Out	0.065	0.002	0.002	0.003	1.660	0.129	0.001	0.001	129.494
		Takeoff	0.089	0.004	0.004	0.004	3.187	0.217	0.011	0.011	217.208
		Idle	6.767	0.022	0.022	0.024	1.171	0.271	0.013	0.013	271.568
CITATION I SP	JT15D-1A ,1B	Approach	0.527	0.057	0.057	0.062	0.045	0.007	0.004	0.004	13.024
28L_GA		Climb Out	0.028	0.000	0.000	0.000	0.053	0.004	0.002	0.002	7.782
		Takeoff	0.023	0.000	0.000	0.000	0.066	0.004	0.002	0.002	8.648
		Idle	1.725	0.660	0.660	0.701	0.023	0.007	0.004	0.004	13.066
CL600	ALF 502L-2	Approach	0.152	0.007	0.007	0.008	0.249	0.021	0.004	0.004	38.453
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.241	0.011	0.004	0.004	20.072
		Takeoff	0.011	0.000	0.000	0.001	0.368	0.014	0.003	0.003	27.416
		Idle	1.865	0.272	0.272	0.289	0.138	0.022	0.001	0.001	40.877
Cessna 172 Skyhawk	O-320	Approach	9.161	0.146	0.146	0.141	0.007	0.001	N/A	N/A	7.509
28L_GA		Climb Out	4.939	0.062	0.062	0.060	0.020	0.000	N/A	N/A	4.989

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	3.731	0.041	0.041	0.040	0.008	0.000	N/A	N/A	3.455
		Idle	2.356	0.080	0.080	0.077	0.001	0.000	N/A	N/A	2.181
Cessna 441 Conqu...	TPE331-8	Approach	0.072	0.003	0.003	0.003	0.157	0.017	N/A	N/A	16.437
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.037	0.003	N/A	N/A	3.481
		Takeoff	0.006	0.000	0.000	0.000	0.044	0.004	N/A	N/A	4.016
		Idle	0.222	0.018	0.018	0.019	0.049	0.012	N/A	N/A	11.784
DC9-30	JT8D-15 (old ...	Approach	1.767	0.303	0.303	0.333	1.086	0.184	0.132	0.132	184.009
28L		Climb Out	0.162	0.041	0.041	0.044	2.438	0.162	0.117	0.117	162.587
		Takeoff	0.120	0.043	0.043	0.047	3.286	0.172	0.125	0.125	172.018
		Idle	7.983	2.495	2.495	2.730	0.680	0.227	0.163	0.163	226.783
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.234	0.001	0.001	0.001	0.212	0.031	0.000	0.000	30.619
28L		Climb Out	0.015	0.001	0.001	0.001	0.412	0.031	0.000	0.000	30.601
		Takeoff	0.011	0.001	0.001	0.001	0.327	0.021	0.000	0.000	21.215
		Idle	1.287	0.128	0.128	0.136	0.143	0.033	0.000	0.000	33.461
Embraer ERJ 145	AE3007A	Approach	0.055	0.011	0.011	0.011	0.130	0.017	0.000	0.000	16.756
28L		Climb Out	0.015	0.004	0.004	0.006	0.283	0.017	0.000	0.000	16.192
		Takeoff	0.009	0.003	0.003	0.003	0.230	0.011	0.000	0.000	11.226
		Idle	0.320	0.046	0.046	0.050	0.071	0.019	0.000	0.000	18.395
Embraer ERJ 145	AE3007A1E	Approach	0.177	0.001	0.001	0.001	0.234	0.032	0.000	0.000	31.486
28L		Climb Out	0.021	0.001	0.001	0.001	0.481	0.032	0.000	0.000	32.255
		Takeoff	0.018	0.001	0.001	0.001	0.386	0.022	0.000	0.000	22.488
		Idle	1.240	0.115	0.115	0.122	0.139	0.033	0.000	0.000	32.670
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.913	0.004	0.004	0.004	0.956	0.134	0.000	0.000	134.259
28L		Climb Out	0.069	0.003	0.003	0.004	1.777	0.127	0.000	0.000	126.817
		Takeoff	0.082	0.003	0.003	0.003	1.766	0.109	0.000	0.000	109.650
		Idle	6.095	0.590	0.590	0.627	0.634	0.152	0.000	0.000	152.112
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	1.333	0.006	0.006	0.006	1.211	0.175	0.000	0.000	174.852
28L		Climb Out	0.087	0.006	0.006	0.006	2.358	0.175	0.000	0.000	174.751
		Takeoff	0.061	0.003	0.003	0.004	1.868	0.121	0.000	0.000	121.151
		Idle	7.351	0.728	0.728	0.774	0.816	0.191	0.000	0.000	191.080
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.344	0.001	0.001	0.001	0.360	0.051	0.000	0.000	50.675
28L		Climb Out	0.026	0.001	0.001	0.001	0.670	0.047	0.000	0.000	47.824
		Takeoff	0.031	0.001	0.001	0.001	0.666	0.042	0.000	0.000	41.361
		Idle	2.298	0.222	0.222	0.236	0.239	0.057	0.000	0.000	57.489
Embraer ERJ 170	CF34-8E5	Approach	0.425	0.006	0.006	0.007	1.082	0.100	0.012	0.012	100.468
28L		Climb Out	0.031	0.001	0.001	0.001	0.683	0.054	0.001	0.001	54.050
		Takeoff	0.058	0.002	0.002	0.002	1.340	0.090	0.011	0.011	90.716
		Idle	1.782	0.013	0.013	0.014	0.452	0.098	0.011	0.011	98.127
F-27 SERIES	RDa7	Approach	0.530	0.047	0.047	0.053	0.014	0.015	N/A	N/A	15.915
28L		Climb Out	0.039	0.012	0.012	0.013	0.050	0.011	N/A	N/A	11.101
		Takeoff	0.023	0.007	0.007	0.008	0.040	0.007	N/A	N/A	7.141
		Idle	1.701	0.445	0.445	0.492	0.013	0.019	N/A	N/A	18.613
Falcon 20	CF700-2D	Approach	1.755	0.040	0.040	0.042	0.051	0.029	N/A	N/A	28.299
28L_GA		Climb Out	0.392	0.001	0.001	0.002	0.067	0.015	N/A	N/A	15.717
		Takeoff	0.461	0.002	0.002	0.002	0.117	0.021	N/A	N/A	20.954
		Idle	5.241	0.608	0.608	0.647	0.030	0.034	N/A	N/A	33.816
Gulfstream II	SPEY MK511-8	Approach	0.150	0.010	0.010	0.011	0.407	0.056	N/A	N/A	56.465
28L_GA		Climb Out	0.028	0.006	0.006	0.006	0.759	0.044	N/A	N/A	43.872
		Takeoff	0.007	0.004	0.004	0.004	1.165	0.052	N/A	N/A	51.350
		Idle	2.352	0.273	0.273	0.291	0.267	0.074	N/A	N/A	74.046
HS 125	TFE731-3	Approach	0.561	0.051	0.051	0.056	0.249	0.020	N/A	N/A	36.025
28L_Corp		Climb Out	0.025	0.001	0.001	0.001	0.250	0.009	N/A	N/A	15.593
		Takeoff	0.028	0.001	0.001	0.002	0.464	0.013	N/A	N/A	24.252
		Idle	1.719	0.325	0.325	0.359	0.134	0.020	N/A	N/A	36.017
KC-135R	CFM56-2B-1	Approach	0.203	0.004	0.004	0.004	0.396	0.049	0.001	0.001	48.293
28L_GA		Climb Out	0.050	0.002	0.002	0.003	0.881	0.055	0.001	0.001	55.017
		Takeoff	0.072	0.003	0.003	0.003	1.464	0.079	0.004	0.004	79.114
		Idle	2.058	0.122	0.122	0.136	0.268	0.067	0.001	0.001	67.044
Learjet 25C	CJ610-6	Approach	3.105	0.000	0.000	0.000	0.053	0.019	N/A	N/A	35.288
28L_GA		Climb Out	0.369	0.002	0.002	0.003	0.046	0.007	N/A	N/A	13.200
		Takeoff	0.557	0.002	0.002	0.002	0.087	0.011	N/A	N/A	20.625
		Idle	7.513	0.872	0.872	0.927	0.044	0.026	N/A	N/A	48.471
Learjet 35/36	TFE 731-2-2B	Approach	1.547	0.294	0.294	0.313	0.408	0.037	N/A	N/A	69.123
28L_GA		Climb Out	0.063	0.004	0.004	0.004	0.406	0.017	N/A	N/A	31.021
		Takeoff	0.052	0.004	0.004	0.004	0.569	0.020	N/A	N/A	37.264
		Idle	3.620	1.238	1.238	1.316	0.174	0.033	N/A	N/A	61.783
MD-80-83	JT8D-219 old...	Approach	0.539	0.211	0.211	0.230	1.209	0.132	0.040	0.040	132.435
28L		Climb Out	0.137	0.047	0.047	0.052	2.363	0.114	0.033	0.033	113.646
		Takeoff	0.091	0.034	0.034	0.037	3.385	0.126	0.036	0.036	125.360
		Idle	1.695	0.467	0.467	0.511	0.483	0.134	0.040	0.040	134.238

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Navajo	TIO-540-J2B2	Approach	15.250	0.162	0.162	0.157	0.017	0.001	N/A	N/A	12.103
28L_GA		Climb Out	12.746	0.143	0.143	0.139	0.002	0.001	N/A	N/A	8.664
		Takeoff	8.496	0.073	0.073	0.071	0.002	0.001	N/A	N/A	5.892
		Idle	7.913	0.417	0.417	0.401	0.002	0.001	N/A	N/A	6.116
Piper PA-28	O-320	Approach	1.728	0.028	0.028	0.026	0.001	0.000	N/A	N/A	1.418
28L_GA		Climb Out	0.832	0.010	0.010	0.010	0.003	0.000	N/A	N/A	0.840
		Takeoff	0.562	0.007	0.007	0.006	0.001	0.000	N/A	N/A	0.520
		Idle	0.349	0.012	0.012	0.011	0.000	0.000	N/A	N/A	0.324
UC-12J	PT6A-42	Approach	0.702	0.457	0.457	0.506	0.094	0.011	N/A	N/A	20.186
28L_GA		Climb Out	0.031	0.010	0.010	0.011	0.036	0.002	N/A	N/A	4.802
		Takeoff	0.019	0.007	0.007	0.008	0.030	0.002	N/A	N/A	3.759
		Idle	1.570	1.383	1.383	1.529	0.026	0.008	N/A	N/A	13.639
550 Citation	JT15D-4 (B,C...	Approach	1.432	0.230	0.230	0.245	0.237	0.024	0.012	0.012	44.760
28L_Corp		Climb Out	0.076	0.004	0.004	0.004	0.205	0.013	0.007	0.007	23.976
		Takeoff	0.055	0.002	0.002	0.002	0.241	0.014	0.008	0.008	26.200
		Idle	4.396	1.813	1.813	1.927	0.119	0.024	0.013	0.013	45.322
Falcon 2000EX	PW308C	Approach	0.110	0.003	0.003	0.003	0.164	0.021	0.002	0.002	21.000
28L_Corp		Climb Out	0.011	0.001	0.001	0.001	0.180	0.011	0.001	0.001	11.245
		Takeoff	0.012	0.001	0.001	0.001	0.270	0.014	0.001	0.001	14.624
		Idle	0.732	0.103	0.103	0.109	0.063	0.018	0.001	0.001	17.311
550 Citation	JT15D-4 (B,C...	Approach	1.690	0.272	0.272	0.289	0.279	0.029	0.014	0.014	52.822
28L_GA		Climb Out	0.090	0.006	0.006	0.006	0.243	0.015	0.008	0.008	28.294
		Takeoff	0.065	0.003	0.003	0.003	0.285	0.017	0.009	0.009	30.918
		Idle	5.187	2.140	2.140	2.274	0.141	0.029	0.015	0.015	53.483
Gulfstream IV	TAY Mk611-8	Approach	0.388	0.089	0.089	0.095	0.567	0.099	0.058	0.058	99.447
28L_GA		Climb Out	0.036	0.013	0.013	0.014	0.754	0.045	0.026	0.026	44.900
		Takeoff	0.044	0.050	0.050	0.053	1.314	0.063	0.036	0.036	62.291
		Idle	3.297	0.465	0.465	0.495	0.342	0.137	0.080	0.080	136.805
Aztec	TIO-540-J2B2	Approach	18.137	0.193	0.193	0.186	0.020	0.001	N/A	N/A	14.395
28R_GA		Climb Out	15.159	0.171	0.171	0.165	0.002	0.001	N/A	N/A	10.306
		Takeoff	10.104	0.087	0.087	0.084	0.002	0.001	N/A	N/A	7.007
		Idle	9.412	0.495	0.495	0.477	0.003	0.001	N/A	N/A	7.273
B737-300	CFM56-3-B1	Approach	0.728	0.015	0.015	0.017	1.588	0.192	0.002	0.002	191.330
28R		Climb Out	0.094	0.004	0.004	0.006	1.526	0.098	0.001	0.001	98.408
		Takeoff	0.116	0.006	0.006	0.006	2.285	0.129	0.003	0.003	129.131
		Idle	7.288	0.483	0.483	0.529	0.827	0.212	0.002	0.002	211.873
B737-300	CFM56-3B-2	Approach	0.152	0.003	0.003	0.003	0.389	0.045	0.001	0.001	44.784
28R		Climb Out	0.021	0.001	0.001	0.001	0.394	0.023	0.000	0.000	23.583
		Takeoff	0.028	0.001	0.001	0.001	0.604	0.031	0.002	0.002	31.161
		Idle	1.440	0.084	0.084	0.091	0.196	0.047	0.000	0.000	47.811
B737-300	CFM56-3C-1 ...	Approach	0.256	0.004	0.004	0.006	0.488	0.061	0.001	0.001	60.991
28R		Climb Out	0.031	0.001	0.001	0.002	0.453	0.031	0.000	0.000	30.799
		Takeoff	0.036	0.002	0.002	0.002	0.669	0.041	0.001	0.001	40.306
		Idle	2.662	0.200	0.200	0.218	0.266	0.069	0.001	0.001	69.857
B737-500	CFM56-3C-1	Approach	0.188	0.004	0.004	0.004	0.552	0.061	0.001	0.001	60.745
28R		Climb Out	0.033	0.001	0.001	0.001	0.646	0.036	0.001	0.001	36.287
		Takeoff	0.043	0.001	0.001	0.001	0.988	0.047	0.004	0.004	47.687
		Idle	1.659	0.088	0.088	0.096	0.266	0.062	0.001	0.001	61.897
B737-700	CFM56-7B22	Approach	0.594	0.024	0.024	0.026	2.378	0.238	0.050	0.050	237.818
28R		Climb Out	0.086	0.014	0.014	0.015	2.716	0.143	0.030	0.030	142.979
		Takeoff	0.103	0.021	0.021	0.022	4.718	0.204	0.043	0.043	204.222
		Idle	5.272	0.578	0.578	0.633	1.041	0.231	0.049	0.049	231.240
B737-800	CFM56-7B26	Approach	0.148	0.009	0.009	0.010	0.993	0.091	0.028	0.028	92.011
28R		Climb Out	0.039	0.007	0.007	0.007	1.437	0.064	0.020	0.020	63.861
		Takeoff	0.018	0.009	0.009	0.010	2.601	0.090	0.028	0.028	90.331
		Idle	1.617	0.163	0.163	0.179	0.405	0.086	0.026	0.026	86.034
B757-300	PW2043	Approach	0.033	0.002	0.002	0.002	0.270	0.025	N/A	N/A	25.193
28R		Climb Out	0.007	0.000	0.000	0.000	0.477	0.018	N/A	N/A	17.098
		Takeoff	0.007	0.000	0.000	0.000	0.877	0.023	N/A	N/A	23.226
		Idle	0.422	0.034	0.034	0.037	0.097	0.022	N/A	N/A	21.847
BAE146-300	LF507 SERIES	Approach	0.091	0.002	0.002	0.002	0.132	0.021	0.001	0.001	20.686
28R		Climb Out	0.007	0.000	0.000	0.000	0.278	0.023	0.003	0.003	23.069
		Takeoff	0.004	0.000	0.000	0.000	0.284	0.020	0.003	0.003	19.604
		Idle	0.911	0.114	0.114	0.125	0.079	0.024	0.002	0.002	24.068
Bombardier CRJ700	CF34-8C1	Approach	1.466	0.030	0.030	0.033	5.593	0.504	0.024	0.024	503.930
28R		Climb Out	0.134	0.006	0.006	0.006	3.454	0.269	0.001	0.001	269.417
		Takeoff	0.185	0.009	0.009	0.010	6.629	0.452	0.022	0.022	451.911
		Idle	14.080	0.045	0.045	0.050	2.435	0.565	0.028	0.028	565.005
CITATION I SP	JT15D-1A ,1B	Approach	0.187	0.021	0.021	0.022	0.015	0.002	0.001	0.001	4.618
28R_GA		Climb Out	0.010	0.000	0.000	0.000	0.019	0.001	0.001	0.001	2.759

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.008	0.000	0.000	0.000	0.023	0.002	0.001	0.001	3.066
		Idle	0.612	0.234	0.234	0.249	0.008	0.002	0.001	0.001	4.632
CL600	ALF 502L-2	Approach	0.328	0.015	0.015	0.017	0.535	0.044	0.010	0.010	82.638
28R_GA		Climb Out	0.013	0.001	0.001	0.001	0.519	0.023	0.010	0.010	43.137
		Takeoff	0.023	0.001	0.001	0.001	0.791	0.032	0.007	0.007	58.920
		Idle	4.008	0.584	0.584	0.621	0.297	0.047	0.001	0.001	87.849
Cessna 172 Skyhawk	O-320	Approach	6.796	0.108	0.108	0.105	0.006	0.001	N/A	N/A	5.570
28R_GA		Climb Out	3.664	0.046	0.046	0.044	0.014	0.000	N/A	N/A	3.702
		Takeoff	2.768	0.030	0.030	0.029	0.006	0.000	N/A	N/A	2.563
		Idle	1.747	0.060	0.060	0.057	0.001	0.000	N/A	N/A	1.618
Cessna 441 Conqu...	TPE331-8	Approach	0.029	0.001	0.001	0.001	0.064	0.007	N/A	N/A	6.701
28R_GA		Climb Out	0.002	0.000	0.000	0.000	0.015	0.001	N/A	N/A	1.420
		Takeoff	0.002	0.000	0.000	0.000	0.018	0.001	N/A	N/A	1.637
		Idle	0.090	0.007	0.007	0.008	0.020	0.004	N/A	N/A	4.805
DC9-30	JT8D-15 (old ...	Approach	0.883	0.152	0.152	0.166	0.542	0.091	0.066	0.066	91.921
28R		Climb Out	0.082	0.020	0.020	0.022	1.218	0.082	0.058	0.058	81.219
		Takeoff	0.061	0.021	0.021	0.023	1.641	0.086	0.062	0.062	85.930
		Idle	3.988	1.247	1.247	1.365	0.340	0.114	0.082	0.082	113.288
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.513	0.002	0.002	0.002	0.466	0.067	0.000	0.000	67.282
28R		Climb Out	0.034	0.002	0.002	0.002	0.907	0.067	0.000	0.000	67.242
		Takeoff	0.023	0.001	0.001	0.001	0.719	0.046	0.000	0.000	46.618
		Idle	2.829	0.280	0.280	0.298	0.314	0.074	0.000	0.000	73.526
Embraer ERJ 145	AE3007A	Approach	0.117	0.023	0.023	0.024	0.277	0.035	0.000	0.000	35.514
28R		Climb Out	0.032	0.010	0.010	0.011	0.600	0.034	0.000	0.000	34.317
		Takeoff	0.018	0.006	0.006	0.007	0.488	0.024	0.000	0.000	23.793
		Idle	0.677	0.098	0.098	0.104	0.149	0.039	0.000	0.000	38.988
Embraer ERJ 145	AE3007A1E	Approach	0.376	0.002	0.002	0.002	0.496	0.067	0.000	0.000	66.821
28R		Climb Out	0.044	0.002	0.002	0.002	1.021	0.068	0.000	0.000	68.451
		Takeoff	0.036	0.001	0.001	0.001	0.819	0.047	0.000	0.000	47.725
		Idle	2.632	0.244	0.244	0.259	0.295	0.069	0.000	0.000	69.333
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	1.936	0.009	0.009	0.009	2.027	0.284	0.000	0.000	284.677
28R		Climb Out	0.148	0.008	0.008	0.009	3.768	0.269	0.000	0.000	268.897
		Takeoff	0.172	0.007	0.007	0.008	3.743	0.233	0.000	0.000	232.497
		Idle	12.923	1.251	1.251	1.330	1.345	0.323	0.000	0.000	322.533
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	2.825	0.011	0.011	0.012	2.569	0.370	0.000	0.000	370.826
28R		Climb Out	0.185	0.011	0.011	0.012	5.000	0.370	0.000	0.000	370.610
		Takeoff	0.129	0.008	0.008	0.008	3.962	0.257	0.000	0.000	256.937
		Idle	15.590	1.544	1.544	1.641	1.731	0.406	0.000	0.000	405.244
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.730	0.003	0.003	0.003	0.766	0.108	0.000	0.000	107.537
28R		Climb Out	0.056	0.003	0.003	0.003	1.422	0.101	0.000	0.000	101.485
		Takeoff	0.065	0.002	0.002	0.003	1.413	0.088	0.000	0.000	87.772
		Idle	4.877	0.471	0.471	0.500	0.508	0.122	0.000	0.000	121.994
Embraer ERJ 170	CF34-8E5	Approach	0.884	0.012	0.012	0.013	2.251	0.209	0.024	0.024	209.004
28R		Climb Out	0.064	0.002	0.002	0.002	1.422	0.112	0.001	0.001	112.440
		Takeoff	0.121	0.003	0.003	0.004	2.788	0.188	0.022	0.022	188.715
		Idle	3.707	0.026	0.026	0.029	0.941	0.204	0.024	0.024	204.132
F-27 SERIES	RDa7	Approach	0.538	0.049	0.049	0.054	0.014	0.017	N/A	N/A	16.163
28R		Climb Out	0.040	0.012	0.012	0.013	0.051	0.011	N/A	N/A	11.274
		Takeoff	0.023	0.008	0.008	0.008	0.041	0.008	N/A	N/A	7.251
		Idle	1.727	0.452	0.452	0.499	0.013	0.019	N/A	N/A	18.902
Falcon 20	CF700-2D	Approach	0.610	0.013	0.013	0.014	0.018	0.010	N/A	N/A	9.835
28R_GA		Climb Out	0.137	0.000	0.000	0.001	0.023	0.006	N/A	N/A	5.462
		Takeoff	0.160	0.001	0.001	0.001	0.041	0.008	N/A	N/A	7.282
		Idle	1.821	0.212	0.212	0.225	0.010	0.012	N/A	N/A	11.752
Gulfstream II	SPEY MK511-8	Approach	0.052	0.003	0.003	0.003	0.140	0.020	N/A	N/A	19.489
28R_GA		Climb Out	0.010	0.002	0.002	0.002	0.262	0.015	N/A	N/A	15.142
		Takeoff	0.002	0.001	0.001	0.002	0.402	0.018	N/A	N/A	17.724
		Idle	0.812	0.095	0.095	0.100	0.091	0.025	N/A	N/A	25.557
HS 125	TFE731-3	Approach	1.162	0.106	0.106	0.117	0.517	0.041	N/A	N/A	74.700
28R_Corp		Climb Out	0.053	0.002	0.002	0.002	0.518	0.018	N/A	N/A	32.333
		Takeoff	0.057	0.003	0.003	0.003	0.963	0.028	N/A	N/A	50.289
		Idle	3.563	0.675	0.675	0.746	0.278	0.041	N/A	N/A	74.684
KC-135R	CFM56-2B-1	Approach	0.105	0.002	0.002	0.002	0.204	0.025	0.000	0.000	24.934
28R_GA		Climb Out	0.025	0.001	0.001	0.001	0.454	0.029	0.000	0.000	28.405
		Takeoff	0.036	0.001	0.001	0.002	0.756	0.041	0.002	0.002	40.847
		Idle	1.063	0.063	0.063	0.069	0.139	0.034	0.000	0.000	34.615
Learjet 25C	CJ610-6	Approach	6.245	0.000	0.000	0.000	0.107	0.039	N/A	N/A	70.961
28R_GA		Climb Out	0.743	0.006	0.006	0.006	0.093	0.014	N/A	N/A	26.545
		Takeoff	1.120	0.004	0.004	0.004	0.174	0.022	N/A	N/A	41.476
		Idle	15.108	1.755	1.755	1.865	0.088	0.053	N/A	N/A	97.470

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36	TFE 731-2-2B	Approach	0.540	0.103	0.103	0.109	0.142	0.013	N/A	N/A	24.157
28R_GA		Climb Out	0.022	0.001	0.001	0.001	0.142	0.006	N/A	N/A	10.841
		Takeoff	0.018	0.001	0.001	0.001	0.198	0.007	N/A	N/A	13.023
		Idle	1.265	0.433	0.433	0.460	0.061	0.012	N/A	N/A	21.592
MD-80-83	JT8D-219 old...	Approach	0.248	0.097	0.097	0.106	0.558	0.061	0.018	0.018	61.066
28R		Climb Out	0.063	0.022	0.022	0.024	1.090	0.053	0.015	0.015	52.403
		Takeoff	0.042	0.015	0.015	0.017	1.561	0.057	0.017	0.017	57.804
		Idle	0.782	0.215	0.215	0.236	0.223	0.062	0.019	0.019	61.898
Navajo	TIO-540-J2B2	Approach	15.426	0.164	0.164	0.159	0.017	0.001	N/A	N/A	12.243
28R_GA		Climb Out	12.893	0.146	0.146	0.140	0.002	0.001	N/A	N/A	8.764
		Takeoff	8.594	0.074	0.074	0.072	0.002	0.001	N/A	N/A	5.959
		Idle	8.005	0.421	0.421	0.407	0.002	0.001	N/A	N/A	6.186
Piper PA-28	O-320	Approach	0.705	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.579
28R_GA		Climb Out	0.340	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.343
		Takeoff	0.229	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.213
		Idle	0.142	0.004	0.004	0.004	0.000	0.000	N/A	N/A	0.132
UC-12J	PT6A-42	Approach	0.319	0.208	0.208	0.230	0.043	0.004	N/A	N/A	9.175
28R_GA		Climb Out	0.014	0.004	0.004	0.004	0.017	0.001	N/A	N/A	2.183
		Takeoff	0.009	0.003	0.003	0.003	0.013	0.001	N/A	N/A	1.709
		Idle	0.713	0.629	0.629	0.694	0.012	0.003	N/A	N/A	6.199
550 Citation	JT15D-4 (B,C...	Approach	3.046	0.491	0.491	0.521	0.504	0.052	0.026	0.026	95.192
28R_Corp		Climb Out	0.162	0.010	0.010	0.010	0.437	0.028	0.014	0.014	50.991
		Takeoff	0.117	0.006	0.006	0.006	0.515	0.030	0.015	0.015	55.719
		Idle	9.350	3.856	3.856	4.098	0.254	0.052	0.028	0.028	96.384
Falcon 2000EX	PW308C	Approach	0.225	0.006	0.006	0.007	0.336	0.043	0.004	0.004	42.903
28R_Corp		Climb Out	0.022	0.002	0.002	0.002	0.367	0.023	0.002	0.002	22.973
		Takeoff	0.024	0.002	0.002	0.003	0.551	0.030	0.003	0.003	29.877
		Idle	1.496	0.211	0.211	0.224	0.128	0.035	0.003	0.003	35.365
550 Citation	JT15D-4 (B,C...	Approach	0.589	0.095	0.095	0.100	0.097	0.010	0.006	0.006	18.403
28R_GA		Climb Out	0.031	0.002	0.002	0.002	0.085	0.006	0.003	0.003	9.858
		Takeoff	0.023	0.001	0.001	0.001	0.099	0.006	0.003	0.003	10.772
		Idle	1.808	0.745	0.745	0.793	0.049	0.010	0.006	0.006	18.635
Gulfstream IV	TAY Mk611-8	Approach	0.347	0.080	0.080	0.085	0.507	0.089	0.053	0.053	88.927
28R_GA		Climb Out	0.032	0.012	0.012	0.013	0.675	0.040	0.024	0.024	40.151
		Takeoff	0.039	0.044	0.044	0.047	1.175	0.056	0.033	0.033	55.701
		Idle	2.949	0.416	0.416	0.442	0.305	0.122	0.073	0.073	122.332
A320-200	V2527-A5	Approach	0.012	0.000	0.000	0.000	0.044	0.004	0.001	0.001	4.932
10L		Climb Out	0.002	0.000	0.000	0.000	0.075	0.003	0.000	0.000	3.375
		Takeoff	0.002	0.000	0.000	0.000	0.098	0.003	0.000	0.000	3.716
		Idle	0.066	0.001	0.001	0.001	0.025	0.006	0.001	0.001	5.327
A320-200	V2527-A5	Approach	0.043	0.001	0.001	0.001	0.155	0.018	0.002	0.002	17.516
10R		Climb Out	0.008	0.000	0.000	0.000	0.268	0.012	0.001	0.001	11.990
		Takeoff	0.007	0.000	0.000	0.001	0.349	0.013	0.001	0.001	13.199
		Idle	0.235	0.002	0.002	0.002	0.089	0.019	0.002	0.002	18.922
A320-200	V2527-A5	Approach	0.069	0.002	0.002	0.002	0.252	0.029	0.003	0.003	28.399
28L		Climb Out	0.012	0.001	0.001	0.001	0.433	0.020	0.002	0.002	19.439
		Takeoff	0.011	0.001	0.001	0.001	0.567	0.021	0.002	0.002	21.400
		Idle	0.381	0.003	0.003	0.003	0.144	0.031	0.003	0.003	30.680
A320-200	V2527-A5	Approach	0.028	0.001	0.001	0.001	0.100	0.011	0.001	0.001	11.224
28R		Climb Out	0.004	0.000	0.000	0.000	0.171	0.008	0.001	0.001	7.683
		Takeoff	0.004	0.000	0.000	0.000	0.224	0.009	0.001	0.001	8.458
		Idle	0.151	0.001	0.001	0.001	0.057	0.012	0.001	0.001	12.124
Citation VII	TFE 731-2-2B	Approach	0.141	0.026	0.026	0.029	0.037	0.003	N/A	N/A	6.306
10L_GA		Climb Out	0.007	0.000	0.000	0.000	0.042	0.002	N/A	N/A	3.168
		Takeoff	0.006	0.000	0.000	0.000	0.063	0.002	N/A	N/A	4.104
		Idle	0.313	0.107	0.107	0.114	0.015	0.003	N/A	N/A	5.341
Citation VII	TFE 731-2-2B	Approach	0.075	0.014	0.014	0.015	0.020	0.002	N/A	N/A	3.369
10R_GA		Climb Out	0.003	0.000	0.000	0.000	0.022	0.001	N/A	N/A	1.692
		Takeoff	0.003	0.000	0.000	0.000	0.033	0.001	N/A	N/A	2.192
		Idle	0.168	0.057	0.057	0.061	0.008	0.001	N/A	N/A	2.853
Citation VII	TFE 731-2-2B	Approach	0.245	0.046	0.046	0.050	0.064	0.006	N/A	N/A	10.929
28L_GA		Climb Out	0.011	0.001	0.001	0.001	0.072	0.003	N/A	N/A	5.491
		Takeoff	0.010	0.001	0.001	0.001	0.108	0.003	N/A	N/A	7.112
		Idle	0.542	0.185	0.185	0.197	0.026	0.006	N/A	N/A	9.256
Citation VII	TFE 731-2-2B	Approach	0.499	0.095	0.095	0.101	0.132	0.012	N/A	N/A	22.328
28R_GA		Climb Out	0.023	0.001	0.001	0.001	0.147	0.006	N/A	N/A	11.218
		Takeoff	0.020	0.002	0.002	0.002	0.222	0.008	N/A	N/A	14.530
		Idle	1.108	0.379	0.379	0.402	0.053	0.010	N/A	N/A	18.910
HS 748 2A SERIES	RDa7	Approach	0.192	0.018	0.018	0.019	0.006	0.006	N/A	N/A	5.760
10L_GA		Climb Out	0.014	0.004	0.004	0.004	0.018	0.004	N/A	N/A	4.017

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Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.009	0.002	0.002	0.003	0.014	0.002	N/A	N/A	2.584
		Idle	0.615	0.161	0.161	0.177	0.004	0.007	N/A	N/A	6.735
HS 748 2A SERIES 10R_GA	RDa7	Approach	0.173	0.015	0.015	0.018	0.004	0.006	N/A	N/A	5.202
		Climb Out	0.013	0.004	0.004	0.004	0.017	0.003	N/A	N/A	3.629
		Takeoff	0.008	0.002	0.002	0.002	0.013	0.002	N/A	N/A	2.334
		Idle	0.556	0.146	0.146	0.161	0.004	0.007	N/A	N/A	6.084
HS 748 2A SERIES 28L_GA	RDa7	Approach	0.485	0.044	0.044	0.049	0.013	0.014	N/A	N/A	14.553
		Climb Out	0.035	0.011	0.011	0.012	0.045	0.010	N/A	N/A	10.151
		Takeoff	0.021	0.007	0.007	0.008	0.036	0.007	N/A	N/A	6.529
		Idle	1.555	0.407	0.407	0.450	0.012	0.017	N/A	N/A	17.020
HS 748 2A SERIES 28R_GA	RDa7	Approach	0.658	0.060	0.060	0.065	0.018	0.020	N/A	N/A	19.755
		Climb Out	0.049	0.015	0.015	0.017	0.062	0.014	N/A	N/A	13.780
		Takeoff	0.029	0.009	0.009	0.010	0.050	0.009	N/A	N/A	8.863
		Idle	2.112	0.552	0.552	0.610	0.017	0.023	N/A	N/A	23.102
Learjet 25B 10L_GA	CJ610-6	Approach	0.966	0.000	0.000	0.000	0.017	0.006	N/A	N/A	10.971
		Climb Out	0.115	0.001	0.001	0.001	0.014	0.002	N/A	N/A	4.104
		Takeoff	0.173	0.001	0.001	0.001	0.026	0.003	N/A	N/A	6.412
		Idle	2.336	0.271	0.271	0.289	0.013	0.008	N/A	N/A	15.070
Learjet 25B 10R_GA	CJ610-6	Approach	3.563	0.000	0.000	0.000	0.061	0.022	N/A	N/A	40.485
		Climb Out	0.424	0.003	0.003	0.003	0.053	0.008	N/A	N/A	15.145
		Takeoff	0.639	0.002	0.002	0.002	0.099	0.013	N/A	N/A	23.663
		Idle	8.619	1.001	1.001	1.064	0.050	0.030	N/A	N/A	55.609
Learjet 25B 28L_GA	CJ610-6	Approach	11.930	0.000	0.000	0.000	0.203	0.073	N/A	N/A	135.570
		Climb Out	1.420	0.010	0.010	0.011	0.177	0.028	N/A	N/A	50.713
		Takeoff	2.140	0.008	0.008	0.009	0.333	0.043	N/A	N/A	79.239
		Idle	28.863	3.352	3.352	3.564	0.168	0.100	N/A	N/A	186.216
Learjet 25B 28R_GA	CJ610-6	Approach	4.150	0.000	0.000	0.000	0.071	0.025	N/A	N/A	47.158
		Climb Out	0.494	0.003	0.003	0.003	0.062	0.010	N/A	N/A	17.640
		Takeoff	0.744	0.003	0.003	0.003	0.116	0.015	N/A	N/A	27.563
		Idle	10.040	1.166	1.166	1.239	0.058	0.035	N/A	N/A	64.774
Bombardier CRJ900 10L	CF34-8C5	Approach	0.042	0.001	0.001	0.001	0.106	0.010	0.001	0.001	9.861
		Climb Out	0.003	0.000	0.000	0.000	0.067	0.006	0.000	0.000	5.297
		Takeoff	0.006	0.000	0.000	0.000	0.130	0.009	0.001	0.001	8.888
		Idle	0.176	0.001	0.001	0.001	0.044	0.010	0.001	0.001	9.654
Bombardier CRJ900 10R	CF34-8C5	Approach	0.023	0.000	0.000	0.000	0.058	0.006	0.001	0.001	5.387
		Climb Out	0.001	0.000	0.000	0.000	0.036	0.003	0.000	0.000	2.894
		Takeoff	0.003	0.000	0.000	0.000	0.072	0.004	0.000	0.000	4.856
		Idle	0.096	0.001	0.001	0.001	0.024	0.006	0.001	0.001	5.275
Bombardier CRJ900 28L	CF34-8C5	Approach	0.071	0.001	0.001	0.001	0.180	0.017	0.002	0.002	16.710
		Climb Out	0.006	0.000	0.000	0.000	0.114	0.009	0.000	0.000	8.976
		Takeoff	0.010	0.000	0.000	0.000	0.222	0.015	0.001	0.001	15.061
		Idle	0.299	0.002	0.002	0.002	0.075	0.017	0.002	0.002	16.358
Bombardier CRJ900 28R	CF34-8C5	Approach	0.147	0.002	0.002	0.002	0.373	0.034	0.003	0.003	34.699
		Climb Out	0.011	0.000	0.000	0.000	0.235	0.019	0.000	0.000	18.638
		Takeoff	0.020	0.001	0.001	0.001	0.460	0.031	0.003	0.003	31.274
		Idle	0.619	0.004	0.004	0.004	0.157	0.034	0.003	0.003	33.969
A320-200 10L	V2500-A1	Approach	0.004	0.001	0.001	0.001	0.069	0.006	0.000	0.000	5.163
		Climb Out	0.002	0.000	0.000	0.000	0.109	0.003	0.000	0.000	3.545
		Takeoff	0.002	0.000	0.000	0.000	0.146	0.004	0.000	0.000	3.928
		Idle	0.040	0.001	0.001	0.001	0.031	0.006	0.000	0.000	5.161
A320-200 10R	V2500-A1	Approach	0.014	0.002	0.002	0.003	0.247	0.019	0.000	0.000	18.339
		Climb Out	0.007	0.001	0.001	0.001	0.388	0.012	0.000	0.000	12.589
		Takeoff	0.008	0.001	0.001	0.001	0.518	0.014	0.000	0.000	13.951
		Idle	0.142	0.004	0.004	0.004	0.108	0.019	0.000	0.000	18.330
A320-200 28L	V2500-A1	Approach	0.023	0.004	0.004	0.004	0.400	0.030	0.001	0.001	29.734
		Climb Out	0.011	0.002	0.002	0.002	0.629	0.021	0.000	0.000	20.411
		Takeoff	0.012	0.002	0.002	0.002	0.840	0.023	0.000	0.000	22.619
		Idle	0.230	0.007	0.007	0.007	0.175	0.030	0.001	0.001	29.721
A320-200 28R	V2500-A1	Approach	0.009	0.002	0.002	0.002	0.158	0.012	0.000	0.000	11.751
		Climb Out	0.004	0.001	0.001	0.001	0.249	0.008	0.000	0.000	8.067
		Takeoff	0.004	0.001	0.001	0.001	0.332	0.009	0.000	0.000	8.940
		Idle	0.091	0.002	0.002	0.003	0.069	0.012	0.000	0.000	11.746
Embraer ERJ 170 10L	CF34-8E5A1	Approach	0.042	0.001	0.001	0.001	0.115	0.010	0.002	0.002	10.318
		Climb Out	0.003	0.000	0.000	0.000	0.074	0.006	0.000	0.000	5.632
		Takeoff	0.007	0.000	0.000	0.000	0.150	0.010	0.002	0.002	9.482
		Idle	0.172	0.001	0.001	0.001	0.046	0.010	0.002	0.002	9.910
Embraer ERJ 170 10R	CF34-8E5A1	Approach	0.023	0.000	0.000	0.000	0.063	0.006	0.001	0.001	5.637
		Climb Out	0.002	0.000	0.000	0.000	0.041	0.003	0.000	0.000	3.077
		Takeoff	0.003	0.000	0.000	0.000	0.082	0.006	0.001	0.001	5.180
		Idle	0.094	0.001	0.001	0.001	0.025	0.006	0.001	0.001	5.413

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 170 28L	CF34-8E5A1	Approach	0.071	0.001	0.001	0.001	0.193	0.018	0.004	0.004	17.484
		Climb Out	0.006	0.000	0.000	0.000	0.126	0.010	0.000	0.000	9.544
		Takeoff	0.011	0.000	0.000	0.000	0.254	0.017	0.004	0.004	16.067
		Idle	0.291	0.002	0.002	0.002	0.079	0.017	0.004	0.004	16.792
Embraer ERJ 170 28R	CF34-8E5A1	Approach	0.147	0.002	0.002	0.002	0.401	0.036	0.010	0.010	36.305
		Climb Out	0.011	0.000	0.000	0.000	0.260	0.020	0.000	0.000	19.816
		Takeoff	0.023	0.001	0.001	0.001	0.528	0.033	0.009	0.009	33.364
		Idle	0.603	0.004	0.004	0.006	0.164	0.035	0.009	0.009	34.867

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Arr Curb FF	Roadway	0.428	0.032	0.030	0.040	0.043	0.000	0.001	0.001
Arr Curb Pick Up	Roadway	3.659	0.435	0.414	0.659	0.211	0.001	0.003	0.002
Blue Ent_Exit	Roadway	0.774	0.055	0.052	0.065	0.080	0.001	0.002	0.001
Bowtie	Roadway	0.453	0.030	0.029	0.035	0.046	0.000	0.001	0.001
Brdgwy N of Sawyr 1	Roadway	2.628	0.173	0.164	0.203	0.268	0.002	0.009	0.006
Brdgwy N of Sawyr 2	Roadway	4.814	0.317	0.302	0.371	0.489	0.004	0.017	0.010
Crb Exit to IntlGat1	Roadway	1.553	0.111	0.105	0.131	0.162	0.001	0.006	0.003
Curb Exit to IntlGa2	Roadway	12.016	0.858	0.811	1.017	1.250	0.010	0.041	0.024
Dep Curb Drop Off	Roadway	4.782	0.569	0.541	0.862	0.276	0.001	0.004	0.003
Dep Curb FF	Roadway	0.560	0.042	0.040	0.052	0.057	0.000	0.001	0.001
Ent from 670 NB	Roadway	4.294	0.233	0.222	0.267	0.420	0.003	0.013	0.008
Ent from 670 SB	Roadway	2.840	0.154	0.147	0.176	0.278	0.002	0.009	0.006
Ent from 670_1	Roadway	5.967	0.323	0.308	0.370	0.583	0.004	0.019	0.011
Ent from 670_2	Roadway	14.564	0.789	0.752	0.905	1.424	0.011	0.044	0.026
Ent_Exit_Employee	Roadway	0.381	0.025	0.024	0.030	0.039	0.000	0.001	0.001
Exit Comm Gar	Roadway	9.416	0.622	0.590	0.728	0.958	0.008	0.033	0.019
Exit Red 1	Roadway	1.387	0.091	0.087	0.107	0.141	0.001	0.004	0.003
Exit Red 2	Roadway	0.429	0.029	0.026	0.033	0.044	0.000	0.001	0.001
Exit Red 3	Roadway	1.920	0.127	0.120	0.149	0.195	0.001	0.007	0.004
Exit Red 4	Roadway	0.748	0.050	0.047	0.057	0.076	0.001	0.002	0.001
Exit to 670 NB	Roadway	3.007	0.163	0.155	0.186	0.294	0.002	0.009	0.006
Exit to 670 SB	Roadway	3.505	0.190	0.181	0.218	0.343	0.002	0.011	0.007
Exit to 670_1	Roadway	12.432	0.674	0.642	0.773	1.216	0.009	0.039	0.022
Exit to 670_2	Roadway	5.124	0.278	0.265	0.319	0.500	0.003	0.015	0.009
Green Lot Ent_Exit	Roadway	0.674	0.049	0.045	0.057	0.071	0.000	0.002	0.001
Int West to Stlz_2	Roadway	26.361	1.523	1.448	1.756	2.577	0.020	0.085	0.049
Intl Blue to Lane 1	Roadway	11.085	0.640	0.608	0.739	1.084	0.009	0.035	0.021
Intl Blue to Lane 2	Roadway	15.618	0.903	0.858	1.041	1.527	0.012	0.050	0.029
Intl East Bowtie_1	Roadway	7.054	0.408	0.388	0.470	0.690	0.006	0.022	0.013
Intl East Bowtie_2	Roadway	10.869	0.628	0.597	0.724	1.063	0.009	0.035	0.020
Intl East at Red	Roadway	43.258	2.500	2.377	2.881	4.228	0.033	0.139	0.080
Intl East at Tunnel	Roadway	21.449	1.239	1.178	1.429	2.097	0.017	0.068	0.040
Intl Exit at Tunnel	Roadway	29.904	1.728	1.642	1.992	2.923	0.023	0.096	0.055
Intl Green to Blue 1	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 2	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 3	Roadway	36.466	2.108	2.003	2.429	3.565	0.028	0.117	0.068
Intl Lane to LT	Roadway	11.895	0.849	0.802	1.008	1.238	0.010	0.041	0.023
Intl West to Stlz_1	Roadway	30.189	1.745	1.658	2.011	2.951	0.023	0.097	0.056
Intl from Sawyer	Roadway	10.803	0.624	0.593	0.720	1.056	0.008	0.034	0.020
Intll East frm Stzr	Roadway	12.943	0.748	0.711	0.862	1.265	0.010	0.042	0.024
LT to ST	Roadway	1.383	0.099	0.094	0.117	0.144	0.001	0.004	0.002
Lane Ent	Roadway	0.030	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Lane Exit	Roadway	0.033	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Merge to Sawyer	Roadway	10.355	0.683	0.649	0.800	1.054	0.009	0.036	0.021
New Bowtie	Roadway	0.833	0.055	0.052	0.064	0.085	0.001	0.003	0.002
New Stelzer	Roadway	69.947	3.790	3.610	4.346	6.839	0.051	0.215	0.125
Perimeter Road 1	Roadway	7.277	0.481	0.456	0.562	0.741	0.006	0.025	0.014
Perimeter Road 2	Roadway	0.946	0.063	0.060	0.073	0.096	0.001	0.003	0.002
Perimeter Road 3	Roadway	0.411	0.028	0.025	0.032	0.042	0.000	0.001	0.001
Perimeter Road 4	Roadway	2.069	0.137	0.130	0.160	0.211	0.002	0.008	0.004
Perimeter Road 5	Roadway	0.273	0.018	0.018	0.021	0.028	0.000	0.001	0.001
Perimeter Road 6	Roadway	1.042	0.068	0.065	0.080	0.106	0.001	0.003	0.002
Perimeter Road 7	Roadway	0.454	0.030	0.029	0.035	0.046	0.000	0.001	0.001
ST to Curb	Roadway	1.303	0.093	0.088	0.110	0.136	0.001	0.004	0.002
Sawyer East Fork	Roadway	4.457	0.294	0.279	0.344	0.454	0.003	0.015	0.009
Sawyer Forks	Roadway	3.008	0.198	0.188	0.233	0.306	0.002	0.011	0.007
Sawyer S of Brdgwy	Roadway	8.953	0.591	0.561	0.692	0.912	0.008	0.031	0.018
Sawyer West Fork	Roadway	3.686	0.244	0.231	0.284	0.375	0.003	0.013	0.008
Sawyer off Intl	Roadway	11.604	0.766	0.728	0.897	1.182	0.010	0.041	0.023
Sawyer to Brdgwy 1	Roadway	13.741	0.906	0.861	1.062	1.399	0.011	0.047	0.028
Sawyer to Brdgwy 2	Roadway	60.838	4.014	3.813	4.701	6.193	0.051	0.212	0.123
Sawyer to Intl 1	Roadway	28.034	1.620	1.540	1.867	2.740	0.021	0.089	0.052
Sawyer to Intl 2	Roadway	21.142	1.221	1.162	1.409	2.067	0.017	0.067	0.040
Stelzer N	Roadway	46.396	2.514	2.395	2.883	4.536	0.034	0.142	0.083
Stelzer S	Roadway	7.090	0.385	0.366	0.441	0.693	0.006	0.022	0.012
To Red 1	Roadway	1.150	0.076	0.072	0.089	0.117	0.001	0.004	0.002

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
To Red 2	Roadway	1.475	0.097	0.093	0.114	0.150	0.001	0.006	0.003
To Red 3	Roadway	0.682	0.045	0.043	0.053	0.069	0.001	0.002	0.001
Blue	Parking	39.259	2.533	2.388	5.582	5.199	0.020	0.083	0.047
Employee Parking	Parking	13.297	0.886	0.836	2.012	1.709	0.007	0.026	0.015
Green	Parking	8.750	0.613	0.580	1.455	1.066	0.004	0.017	0.010
Lane Avtn	Parking	4.688	0.322	0.304	0.750	0.584	0.002	0.009	0.006
Long Term Pkg Lvl 1	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 2	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 3	Parking	13.690	0.946	0.893	2.216	1.695	0.007	0.026	0.015
Long Term Pkg Lvl 4	Parking	6.800	0.470	0.443	1.101	0.842	0.003	0.013	0.008
Long Term Pkg Lvl 5	Parking	14.003	0.968	0.914	2.266	1.734	0.007	0.026	0.015
New RAC	Parking	36.748	2.297	2.163	4.906	5.006	0.019	0.080	0.046
Red	Parking	23.057	1.486	1.400	3.269	3.057	0.011	0.049	0.029
ShortTerm Pkg Lvl 4	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
ShortTerm Pkg Lvl 5	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.101	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.744	0.744	0.744	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.132	0.132	0.132	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.581	1.581	1.581	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.011	0.003	0.003	0.003	0.003	0.003	0.008	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.811	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.843	0.843	0.843	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.012	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.420	0.420	0.420	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.251	0.251	0.251	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.759	0.759	0.759	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.005	2.005	2.005	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.790	0.790	0.790	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.757	0.757	0.757	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary

(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	828.477	68.950	68.950	73.577	324.847	29.721	3.837	3.837
GSE/APU	1,280.027	52.504	47.671	49.601	73.798	10.617	3.907	3.774
Roadways	690.992	41.514	39.461	48.419	68.030	0.530	2.216	1.293
Parking Facilities	170.878	11.263	10.623	25.326	22.179	0.084	0.349	0.203
Stationary Sources	21.450	12.421	11.891	14.114	35.756	16.638	2.490	2.205
Total	2,991.824	186.652	178.594	211.036	524.609	57.590	12.799	11.312

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary

(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	17.164	0.309	0.309	0.298	0.009	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.006	0.003	0.002	0.002	0.000
B737-300	CFM56-3-B1	TOTAL	3.047	0.188	0.188	0.206	2.290	0.233	0.003	0.003	0.000
10L		APU	0.445	0.025	0.025	0.028	0.118	0.024	0.000	0.000	0.000
		GSE	0.148	0.021	0.020	0.021	0.171	0.043	0.022	0.022	0.000
B737-300	CFM56-3B-2	TOTAL	0.561	0.031	0.031	0.033	0.538	0.050	0.001	0.001	0.000
10L		APU	0.089	0.006	0.006	0.006	0.023	0.004	0.000	0.000	0.000
		GSE	0.030	0.004	0.004	0.004	0.034	0.009	0.004	0.004	0.000
B737-500	CFM56-3C-1	TOTAL	0.710	0.035	0.035	0.039	0.898	0.076	0.002	0.002	0.000
10L		APU	0.119	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	0.040	0.006	0.006	0.006	0.045	0.011	0.006	0.006	0.000
B737-700	CFM56-7B22	TOTAL	2.176	0.229	0.229	0.250	3.872	0.292	0.062	0.062	0.000
10L		APU	0.149	0.011	0.011	0.012	0.202	0.031	0.000	0.000	0.000
		GSE	0.168	0.023	0.022	0.023	0.194	0.049	0.025	0.024	0.000
B737-800	CFM56-7B26	TOTAL	0.656	0.067	0.067	0.074	1.943	0.119	0.036	0.036	0.000
10L		APU	0.052	0.004	0.004	0.004	0.072	0.011	0.000	0.000	0.000
		GSE	0.060	0.008	0.008	0.009	0.068	0.018	0.009	0.009	0.000
B757-300	PW2043	TOTAL	0.158	0.012	0.012	0.013	0.574	0.029	N/A	N/A	0.000
10L		APU	0.008	0.001	0.001	0.001	0.018	0.002	0.000	0.000	0.000
		GSE	0.010	0.001	0.001	0.001	0.011	0.003	0.001	0.001	0.000
BAE146-300	LF507 SERIES	TOTAL	0.381	0.044	0.044	0.049	0.289	0.033	0.003	0.003	0.000
10L		APU	0.014	0.001	0.001	0.001	0.011	0.002	0.000	0.000	0.000
		GSE	0.989	0.039	0.035	0.036	0.043	0.006	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	5.971	0.034	0.034	0.036	6.768	0.670	0.029	0.029	0.000
10L		APU	2.016	0.116	0.116	0.127	0.532	0.112	0.000	0.000	0.000
		GSE	30.594	1.207	1.090	1.132	1.315	0.161	0.084	0.080	0.000
Cessna 172 Skyhawk	O-320	TOTAL	4.884	0.079	0.079	0.077	0.009	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.007	0.003	0.003	0.003	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.042	0.003	0.003	0.003	0.039	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.685	0.064	0.058	0.061	0.049	0.004	0.002	0.002	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.261	0.082	0.082	0.087	0.021	0.002	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.651	0.026	0.024	0.025	0.022	0.001	0.001	0.001	0.000
CL600	ALF 502L-2	TOTAL	1.650	0.227	0.227	0.241	0.802	0.055	0.010	0.010	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.153	0.409	0.369	0.384	0.492	0.075	0.035	0.034	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	1.793	0.516	0.516	0.564	1.330	0.132	0.096	0.096	0.000
10L		APU	0.177	0.010	0.010	0.011	0.047	0.010	0.000	0.000	0.000
		GSE	0.060	0.008	0.008	0.009	0.068	0.018	0.009	0.009	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.198	0.100	0.100	0.107	0.843	0.089	0.000	0.000	0.000
10L		APU	0.085	0.008	0.008	0.009	0.061	0.013	0.000	0.000	0.000
		GSE	5.692	0.225	0.203	0.211	0.245	0.030	0.015	0.015	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.319	0.052	0.052	0.055	0.569	0.050	0.000	0.000	0.000
10L		APU	0.044	0.004	0.004	0.004	0.032	0.007	0.000	0.000	0.000
		GSE	2.965	0.117	0.106	0.110	0.128	0.015	0.008	0.008	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.165	0.095	0.095	0.100	0.985	0.095	0.000	0.000	0.000
10L		APU	0.082	0.008	0.008	0.008	0.057	0.012	0.000	0.000	0.000
		GSE	5.429	0.214	0.194	0.201	0.234	0.029	0.014	0.014	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	5.730	0.482	0.482	0.513	4.080	0.417	0.000	0.000	0.000
10L		APU	0.391	0.037	0.037	0.040	0.279	0.061	0.000	0.000	0.000
		GSE	26.168	1.033	0.933	0.968	1.124	0.138	0.072	0.069	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	7.067	0.594	0.594	0.633	4.970	0.527	0.000	0.000	0.000
10L		APU	0.503	0.047	0.047	0.051	0.357	0.078	0.000	0.000	0.000
		GSE	33.572	1.325	1.197	1.242	1.443	0.176	0.091	0.089	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.159	0.181	0.181	0.193	1.539	0.158	0.000	0.000	0.000
10L		APU	0.148	0.014	0.014	0.014	0.105	0.023	0.000	0.000	0.000
		GSE	9.869	0.389	0.352	0.365	0.424	0.052	0.028	0.026	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.796	0.017	0.017	0.019	2.766	0.268	0.026	0.026	0.000
10L		APU	0.177	0.017	0.017	0.019	0.126	0.028	0.000	0.000	0.000
		GSE	11.845	0.467	0.422	0.439	0.509	0.062	0.032	0.031	0.000
F-27 SERIES	RDa7	TOTAL	0.844	0.188	0.188	0.208	0.043	0.020	N/A	N/A	0.000
10L		APU	0.051	0.006	0.006	0.007	0.006	0.001	0.000	0.000	0.000
		GSE	1.957	0.075	0.067	0.069	0.057	0.004	0.002	0.002	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Falcon 20	CF700-2D	TOTAL	0.877	0.073	0.073	0.077	0.030	0.011	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.008	0.002	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.669	0.084	0.084	0.089	0.519	0.050	0.004	0.004	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.998	0.121	0.110	0.115	0.183	0.029	0.013	0.013	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.284	0.033	0.033	0.035	0.289	0.025	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.619	0.064	0.057	0.060	0.046	0.002	0.001	0.001	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.159	0.190	0.190	0.202	0.909	0.105	0.062	0.062	0.000
10L_GA		APU	0.026	0.002	0.002	0.002	0.132	0.013	0.000	0.000	0.000
		GSE	5.562	0.215	0.194	0.202	0.153	0.012	0.009	0.008	0.000
HS 125	TFE731-3	TOTAL	1.825	0.297	0.297	0.328	0.854	0.047	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	16.277	0.623	0.561	0.582	0.473	0.041	0.022	0.021	0.000
KC-135R	CFM56-2B-1	TOTAL	0.418	0.023	0.023	0.025	0.524	0.043	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.011	0.003	0.003	0.003	0.043	0.008	0.003	0.003	0.000
Learjet 25C	CJ610-6	TOTAL	9.356	0.713	0.713	0.758	0.185	0.052	N/A	N/A	0.000
10L_GA		APU	0.093	0.009	0.009	0.009	0.066	0.014	0.000	0.000	0.000
		GSE	6.166	0.244	0.219	0.228	0.265	0.032	0.017	0.017	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.590	0.172	0.172	0.183	0.173	0.012	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.916	0.120	0.108	0.112	0.093	0.004	0.002	0.002	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.455	0.140	0.140	0.153	1.369	0.094	0.028	0.028	0.000
10L		APU	0.119	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	0.032	0.004	0.004	0.004	0.039	0.010	0.004	0.004	0.000
Navajo	TIO-540-J2B2	TOTAL	14.347	0.258	0.258	0.249	0.008	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	0.473	0.008	0.008	0.008	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.364	0.292	0.292	0.322	0.029	0.003	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.748	0.067	0.061	0.063	0.051	0.004	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	4.710	1.623	1.623	1.725	0.632	0.060	0.031	0.031	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.948	0.575	0.518	0.537	0.463	0.026	0.015	0.014	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	1.088	0.076	0.076	0.083	0.679	0.073	0.001	0.001	0.000
10L		APU	0.149	0.009	0.009	0.009	0.040	0.008	0.000	0.000	0.000
		GSE	0.050	0.007	0.007	0.007	0.057	0.014	0.008	0.008	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	0.789	0.272	0.272	0.289	0.106	0.010	0.006	0.006	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.337	0.096	0.087	0.090	0.077	0.004	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.879	0.992	0.992	1.055	0.386	0.036	0.019	0.019	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.524	0.352	0.316	0.328	0.282	0.015	0.009	0.009	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.697	0.929	0.929	0.988	0.362	0.034	0.018	0.018	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.986	0.330	0.297	0.308	0.265	0.014	0.009	0.008	0.000
Aztec	TIO-540-J2B2	TOTAL	28.404	0.510	0.510	0.493	0.015	0.002	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.009	0.004	0.004	0.004	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.842	0.198	0.198	0.217	1.773	0.192	0.002	0.002	0.000
10R		APU	0.388	0.022	0.022	0.024	0.103	0.022	0.000	0.000	0.000
		GSE	0.129	0.018	0.017	0.018	0.149	0.037	0.020	0.019	0.000
B737-300	CFM56-3B-2	TOTAL	1.336	0.073	0.073	0.079	1.281	0.119	0.002	0.002	0.000
10R		APU	0.212	0.012	0.012	0.013	0.056	0.012	0.000	0.000	0.000
		GSE	0.071	0.010	0.009	0.010	0.082	0.020	0.011	0.010	0.000
B737-300	CFM56-3-B1	TOTAL	8.187	0.506	0.506	0.554	6.153	0.625	0.010	0.010	0.000
10R		APU	1.198	0.068	0.068	0.075	0.316	0.066	0.000	0.000	0.000
		GSE	0.397	0.055	0.053	0.056	0.460	0.115	0.060	0.057	0.000
B737-500	CFM56-3C-1	TOTAL	1.889	0.094	0.094	0.103	2.392	0.202	0.007	0.007	0.000
10R		APU	0.317	0.018	0.018	0.020	0.084	0.018	0.000	0.000	0.000
		GSE	0.106	0.014	0.014	0.014	0.121	0.031	0.015	0.015	0.000
B737-700	CFM56-7B22	TOTAL	5.628	0.592	0.592	0.648	10.018	0.755	0.159	0.159	0.000
10R		APU	0.384	0.029	0.029	0.032	0.522	0.078	0.000	0.000	0.000
		GSE	0.433	0.061	0.057	0.061	0.500	0.126	0.065	0.063	0.000
B737-800	CFM56-7B26	TOTAL	1.691	0.174	0.174	0.191	5.010	0.306	0.093	0.093	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.134	0.010	0.010	0.011	0.183	0.028	0.000	0.000	0.000
		GSE	0.152	0.021	0.020	0.021	0.176	0.044	0.023	0.022	0.000
B757-300	PW2043	TOTAL	0.379	0.030	0.030	0.033	1.381	0.071	N/A	N/A	0.000
10R		APU	0.019	0.002	0.002	0.002	0.043	0.004	0.000	0.000	0.000
		GSE	0.023	0.003	0.003	0.003	0.028	0.007	0.003	0.003	0.000
BAE146-300	LF507 SERIES	TOTAL	0.204	0.023	0.023	0.025	0.154	0.018	0.002	0.002	0.000
10R		APU	0.008	0.001	0.001	0.001	0.006	0.001	0.000	0.000	0.000
		GSE	0.529	0.021	0.019	0.020	0.023	0.003	0.001	0.001	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	3.309	0.019	0.019	0.021	3.750	0.371	0.015	0.015	0.000
10R		APU	1.117	0.064	0.064	0.071	0.295	0.062	0.000	0.000	0.000
		GSE	16.954	0.669	0.604	0.627	0.729	0.089	0.046	0.045	0.000
Cessna 172 Skyhawk	O-320	TOTAL	9.230	0.151	0.151	0.146	0.017	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.002	0.002	0.002	0.012	0.007	0.006	0.006	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.127	0.009	0.009	0.009	0.119	0.014	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.141	0.196	0.177	0.184	0.149	0.013	0.007	0.007	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.998	0.312	0.312	0.331	0.080	0.010	0.006	0.006	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.492	0.103	0.093	0.096	0.083	0.004	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	0.955	0.131	0.131	0.140	0.464	0.032	0.006	0.006	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.875	0.237	0.214	0.223	0.284	0.043	0.021	0.020	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	4.624	1.329	1.329	1.455	3.429	0.342	0.247	0.247	0.000
10R		APU	0.459	0.026	0.026	0.029	0.121	0.025	0.000	0.000	0.000
		GSE	0.152	0.021	0.020	0.021	0.176	0.044	0.023	0.022	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	0.726	0.061	0.061	0.065	0.511	0.054	0.000	0.000	0.000
10R		APU	0.052	0.004	0.004	0.006	0.036	0.008	0.000	0.000	0.000
		GSE	3.452	0.137	0.123	0.128	0.149	0.018	0.010	0.009	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.664	0.054	0.054	0.057	0.561	0.054	0.000	0.000	0.000
10R		APU	0.046	0.004	0.004	0.004	0.033	0.008	0.000	0.000	0.000
		GSE	3.090	0.122	0.110	0.115	0.132	0.017	0.009	0.008	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.181	0.030	0.030	0.031	0.323	0.029	0.000	0.000	0.000
10R		APU	0.025	0.002	0.002	0.002	0.018	0.004	0.000	0.000	0.000
		GSE	1.684	0.066	0.060	0.063	0.073	0.009	0.004	0.004	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.228	0.103	0.103	0.109	0.875	0.089	0.000	0.000	0.000
10R		APU	0.084	0.008	0.008	0.009	0.060	0.013	0.000	0.000	0.000
		GSE	5.610	0.222	0.200	0.207	0.241	0.030	0.015	0.014	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	4.014	0.337	0.337	0.359	2.823	0.299	0.000	0.000	0.000
10R		APU	0.285	0.026	0.026	0.029	0.203	0.044	0.000	0.000	0.000
		GSE	19.069	0.753	0.680	0.705	0.819	0.100	0.052	0.051	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	3.255	0.273	0.273	0.291	2.317	0.237	0.000	0.000	0.000
10R		APU	0.223	0.021	0.021	0.022	0.158	0.034	0.000	0.000	0.000
		GSE	14.866	0.586	0.530	0.550	0.638	0.078	0.041	0.040	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	0.996	0.010	0.010	0.010	1.534	0.149	0.014	0.014	0.000
10R		APU	0.098	0.009	0.009	0.010	0.069	0.015	0.000	0.000	0.000
		GSE	6.570	0.259	0.234	0.244	0.282	0.034	0.018	0.018	0.000
F-27 SERIES	RDa7	TOTAL	1.329	0.298	0.298	0.328	0.067	0.031	N/A	N/A	0.000
10R		APU	0.080	0.010	0.010	0.011	0.008	0.002	0.000	0.000	0.000
		GSE	3.081	0.118	0.106	0.110	0.089	0.008	0.004	0.004	0.000
Falcon 20	CF700-2D	TOTAL	3.212	0.268	0.268	0.284	0.108	0.041	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.009	0.002	0.002	0.002	0.030	0.008	0.004	0.004	0.000
Falcon 2000EX	PW308C	TOTAL	0.359	0.045	0.045	0.047	0.279	0.026	0.002	0.002	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.612	0.065	0.060	0.062	0.098	0.015	0.008	0.007	0.000
Gulfstream II	SPEY MK511-8	TOTAL	1.041	0.120	0.120	0.128	1.057	0.093	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.925	0.235	0.212	0.219	0.170	0.009	0.006	0.006	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.619	0.266	0.266	0.282	1.271	0.147	0.087	0.087	0.000
10R_GA		APU	0.037	0.002	0.002	0.003	0.185	0.019	0.000	0.000	0.000
		GSE	7.776	0.301	0.271	0.281	0.215	0.017	0.012	0.011	0.000
HS 125	TFE731-3	TOTAL	1.005	0.164	0.164	0.181	0.471	0.026	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.971	0.343	0.309	0.321	0.260	0.022	0.012	0.011	0.000
KC-135R	CFM56-2B-1	TOTAL	1.004	0.056	0.056	0.062	1.260	0.105	0.003	0.003	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.026	0.008	0.008	0.008	0.103	0.019	0.008	0.008	0.000
Learjet 25C	CJ610-6	TOTAL	4.858	0.370	0.370	0.394	0.096	0.026	N/A	N/A	0.000
10R_GA		APU	0.047	0.004	0.004	0.004	0.034	0.008	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	3.201	0.127	0.115	0.118	0.138	0.017	0.009	0.009	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	2.259	0.659	0.659	0.701	0.661	0.046	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.166	0.460	0.413	0.429	0.353	0.017	0.011	0.010	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.343	0.413	0.413	0.453	4.033	0.274	0.080	0.080	0.000
10R		APU	0.352	0.020	0.020	0.022	0.093	0.020	0.000	0.000	0.000
		GSE	0.094	0.014	0.014	0.014	0.112	0.029	0.014	0.014	0.000
Navajo	TIO-540-J2B2	TOTAL	18.445	0.332	0.332	0.320	0.010	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.006	0.003	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	1.445	0.023	0.023	0.022	0.002	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.210	0.969	0.969	1.070	0.097	0.012	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.807	0.222	0.201	0.207	0.169	0.014	0.008	0.008	0.000
Aztec	TIO-540-J2B2	TOTAL	55.400	0.995	0.995	0.961	0.029	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.018	0.009	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	15.528	0.960	0.960	1.052	11.670	1.185	0.018	0.018	0.000
28L		APU	2.272	0.130	0.130	0.142	0.600	0.127	0.000	0.000	0.000
		GSE	0.754	0.105	0.100	0.106	0.872	0.218	0.114	0.109	0.000
B737-300	CFM56-3B-2	TOTAL	2.921	0.159	0.159	0.174	2.800	0.261	0.006	0.006	0.000
28L		APU	0.463	0.026	0.026	0.029	0.122	0.025	0.000	0.000	0.000
		GSE	0.153	0.021	0.020	0.022	0.177	0.044	0.023	0.022	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	5.577	0.389	0.389	0.427	3.479	0.376	0.004	0.004	0.000
28L		APU	0.762	0.044	0.044	0.047	0.201	0.042	0.000	0.000	0.000
		GSE	0.252	0.035	0.033	0.035	0.292	0.073	0.037	0.036	0.000
B737-500	CFM56-3C-1	TOTAL	3.609	0.179	0.179	0.195	4.570	0.386	0.013	0.013	0.000
28L		APU	0.606	0.034	0.034	0.037	0.160	0.034	0.000	0.000	0.000
		GSE	0.201	0.028	0.026	0.029	0.233	0.058	0.030	0.030	0.000
B737-700	CFM56-7B22	TOTAL	11.171	1.175	1.175	1.286	19.880	1.498	0.315	0.315	0.000
28L		APU	0.762	0.057	0.057	0.063	1.036	0.157	0.000	0.000	0.000
		GSE	0.860	0.119	0.114	0.120	0.993	0.249	0.129	0.125	0.000
B737-800	CFM56-7B26	TOTAL	3.375	0.348	0.348	0.381	9.999	0.612	0.185	0.185	0.000
28L		APU	0.269	0.021	0.021	0.022	0.366	0.055	0.000	0.000	0.000
		GSE	0.303	0.042	0.041	0.043	0.352	0.088	0.045	0.044	0.000
B757-300	PW2043	TOTAL	0.827	0.065	0.065	0.072	3.013	0.153	N/A	N/A	0.000
28L		APU	0.041	0.004	0.004	0.004	0.093	0.010	0.000	0.000	0.000
		GSE	0.051	0.007	0.007	0.008	0.060	0.014	0.008	0.008	0.000
BAE146-300	LF507 SERIES	TOTAL	0.452	0.052	0.052	0.057	0.342	0.039	0.004	0.004	0.000
28L		APU	0.018	0.002	0.002	0.002	0.012	0.002	0.000	0.000	0.000
		GSE	1.170	0.046	0.042	0.043	0.051	0.007	0.003	0.003	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	6.954	0.040	0.040	0.043	7.883	0.780	0.033	0.033	0.000
28L		APU	2.348	0.134	0.134	0.147	0.619	0.130	0.000	0.000	0.000
		GSE	35.632	1.407	1.270	1.318	1.531	0.187	0.097	0.094	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	2.126	0.664	0.664	0.705	0.171	0.021	0.012	0.012	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.310	0.219	0.197	0.204	0.176	0.010	0.006	0.006	0.000
CL600	ALF 502L-2	TOTAL	1.870	0.257	0.257	0.273	0.909	0.063	0.012	0.012	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.504	0.463	0.419	0.435	0.558	0.085	0.040	0.039	0.000
Cessna 172 Skyhawk	O-320	TOTAL	18.626	0.304	0.304	0.293	0.033	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.009	0.004	0.004	0.004	0.025	0.013	0.011	0.011	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.280	0.019	0.019	0.021	0.262	0.033	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.344	0.433	0.391	0.406	0.330	0.029	0.015	0.014	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	9.229	2.653	2.653	2.905	6.845	0.682	0.493	0.493	0.000
28L		APU	0.915	0.053	0.053	0.057	0.241	0.051	0.000	0.000	0.000
		GSE	0.303	0.042	0.041	0.043	0.352	0.088	0.045	0.044	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.403	0.118	0.118	0.126	0.988	0.105	0.000	0.000	0.000
28L		APU	0.099	0.010	0.010	0.010	0.071	0.015	0.000	0.000	0.000
		GSE	6.667	0.263	0.238	0.247	0.287	0.035	0.019	0.018	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.365	0.060	0.060	0.063	0.651	0.057	0.000	0.000	0.000
28L		APU	0.051	0.004	0.004	0.006	0.036	0.008	0.000	0.000	0.000
		GSE	3.396	0.134	0.121	0.126	0.146	0.018	0.009	0.009	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.336	0.108	0.108	0.115	1.130	0.108	0.000	0.000	0.000
28L		APU	0.093	0.009	0.009	0.009	0.066	0.014	0.000	0.000	0.000
		GSE	6.221	0.246	0.222	0.230	0.268	0.033	0.017	0.017	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	6.559	0.551	0.551	0.586	4.669	0.476	0.000	0.000	0.000
28L		APU	0.449	0.042	0.042	0.045	0.319	0.069	0.000	0.000	0.000
		GSE	29.953	1.182	1.068	1.108	1.287	0.158	0.082	0.079	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	8.089	0.681	0.681	0.724	5.690	0.603	0.000	0.000	0.000
28L		APU	0.575	0.054	0.054	0.057	0.409	0.089	0.000	0.000	0.000
		GSE	38.430	1.517	1.370	1.422	1.651	0.202	0.105	0.101	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.474	0.207	0.207	0.220	1.763	0.180	0.000	0.000	0.000
28L		APU	0.169	0.017	0.017	0.017	0.120	0.026	0.000	0.000	0.000
		GSE	11.302	0.446	0.402	0.418	0.486	0.060	0.031	0.030	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	2.091	0.020	0.020	0.022	3.221	0.311	0.031	0.031	0.000
28L		APU	0.206	0.020	0.020	0.021	0.147	0.032	0.000	0.000	0.000
		GSE	13.793	0.545	0.492	0.510	0.593	0.073	0.037	0.036	0.000
F-27 SERIES	RDa7	TOTAL	2.184	0.488	0.488	0.539	0.111	0.050	N/A	N/A	0.000
28L		APU	0.132	0.015	0.015	0.018	0.013	0.003	0.000	0.000	0.000
		GSE	5.057	0.193	0.174	0.181	0.147	0.012	0.007	0.007	0.000
Falcon 20	CF700-2D	TOTAL	7.078	0.590	0.590	0.626	0.238	0.089	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.020	0.006	0.006	0.006	0.064	0.018	0.009	0.009	0.000
Gulfstream II	SPEY MK511-8	TOTAL	2.293	0.266	0.266	0.282	2.330	0.203	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.055	0.517	0.466	0.483	0.375	0.021	0.013	0.012	0.000
HS 125	TFE731-3	TOTAL	2.126	0.346	0.346	0.383	0.995	0.055	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	18.962	0.725	0.654	0.678	0.550	0.047	0.025	0.024	0.000
KC-135R	CFM56-2B-1	TOTAL	2.192	0.122	0.122	0.134	2.749	0.228	0.007	0.007	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.057	0.017	0.017	0.018	0.224	0.041	0.018	0.017	0.000
Learjet 25C	CJ610-6	TOTAL	10.624	0.810	0.810	0.861	0.211	0.058	N/A	N/A	0.000
28L_GA		APU	0.105	0.010	0.010	0.011	0.075	0.017	0.000	0.000	0.000
		GSE	7.001	0.277	0.249	0.259	0.301	0.036	0.019	0.019	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	4.856	1.418	1.418	1.508	1.423	0.098	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	24.002	0.987	0.888	0.922	0.758	0.036	0.023	0.022	0.000
MD-80-83	JT8D-219 old comb	TOTAL	2.278	0.702	0.702	0.768	6.845	0.466	0.137	0.137	0.000
28L		APU	0.596	0.034	0.034	0.037	0.158	0.033	0.000	0.000	0.000
		GSE	0.159	0.024	0.023	0.024	0.191	0.049	0.024	0.023	0.000
Navajo	TIO-540-J2B2	TOTAL	40.670	0.731	0.731	0.705	0.021	0.003	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.002	0.002	0.002	0.013	0.007	0.006	0.006	0.000
Piper PA-28	O-320	TOTAL	3.178	0.052	0.052	0.050	0.006	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.003	0.002	0.002	0.001	0.000
UC-12J	PT6A-42	TOTAL	2.181	1.746	1.746	1.929	0.174	0.021	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.470	0.400	0.360	0.374	0.304	0.026	0.014	0.013	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	5.438	1.873	1.873	1.992	0.729	0.068	0.036	0.036	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	16.100	0.664	0.597	0.619	0.534	0.030	0.018	0.017	0.000
Falcon 2000EX	PW308C	TOTAL	0.787	0.098	0.098	0.105	0.612	0.058	0.006	0.006	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.531	0.143	0.130	0.134	0.215	0.034	0.015	0.015	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	6.342	2.185	2.185	2.323	0.850	0.080	0.042	0.042	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	18.777	0.774	0.697	0.723	0.623	0.035	0.020	0.020	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.419	0.561	0.561	0.596	2.685	0.311	0.183	0.183	0.000
28L_GA		APU	0.079	0.006	0.006	0.007	0.391	0.039	0.000	0.000	0.000
		GSE	16.423	0.636	0.573	0.594	0.454	0.035	0.024	0.023	0.000
Aztec	TIO-540-J2B2	TOTAL	50.981	0.916	0.916	0.884	0.026	0.004	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.002	0.002	0.003	0.017	0.009	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	7.561	0.467	0.467	0.511	5.681	0.577	0.009	0.009	0.000
28R		APU	1.106	0.063	0.063	0.069	0.292	0.062	0.000	0.000	0.000
		GSE	0.367	0.051	0.049	0.052	0.424	0.106	0.055	0.053	0.000
B737-300	CFM56-3B-2	TOTAL	1.516	0.083	0.083	0.090	1.453	0.136	0.003	0.003	0.000
28R		APU	0.240	0.013	0.013	0.015	0.064	0.013	0.000	0.000	0.000
		GSE	0.079	0.011	0.011	0.011	0.093	0.023	0.012	0.012	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.755	0.192	0.192	0.211	1.719	0.185	0.002	0.002	0.000
28R		APU	0.376	0.022	0.022	0.023	0.099	0.021	0.000	0.000	0.000
		GSE	0.125	0.018	0.017	0.018	0.144	0.036	0.019	0.018	0.000
B737-500	CFM56-3C-1	TOTAL	1.769	0.087	0.087	0.096	2.240	0.190	0.007	0.007	0.000
28R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.298	0.017	0.017	0.019	0.078	0.017	0.000	0.000	0.000
		GSE	0.098	0.013	0.013	0.014	0.114	0.029	0.014	0.014	0.000
B737-700	CFM56-7B22	TOTAL	5.566	0.585	0.585	0.640	9.905	0.746	0.157	0.157	0.000
28R		APU	0.379	0.029	0.029	0.032	0.516	0.078	0.000	0.000	0.000
		GSE	0.428	0.060	0.057	0.061	0.495	0.125	0.064	0.062	0.000
B737-800	CFM56-7B26	TOTAL	1.681	0.173	0.173	0.190	4.979	0.305	0.093	0.093	0.000
28R		APU	0.134	0.010	0.010	0.011	0.182	0.028	0.000	0.000	0.000
		GSE	0.151	0.021	0.020	0.021	0.175	0.044	0.023	0.022	0.000
B757-300	PW2043	TOTAL	0.429	0.034	0.034	0.037	1.560	0.079	N/A	N/A	0.000
28R		APU	0.021	0.002	0.002	0.002	0.049	0.006	0.000	0.000	0.000
		GSE	0.026	0.003	0.003	0.003	0.031	0.008	0.004	0.003	0.000
BAE146-300	LF507 SERIES	TOTAL	0.925	0.107	0.107	0.117	0.700	0.079	0.009	0.009	0.000
28R		APU	0.035	0.003	0.003	0.003	0.025	0.006	0.000	0.000	0.000
		GSE	2.394	0.095	0.085	0.088	0.103	0.012	0.007	0.007	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	14.503	0.082	0.082	0.089	16.439	1.628	0.068	0.068	0.000
28R		APU	4.896	0.280	0.280	0.306	1.293	0.272	0.000	0.000	0.000
		GSE	74.313	2.933	2.649	2.749	3.193	0.390	0.204	0.196	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.754	0.236	0.236	0.250	0.061	0.008	0.004	0.004	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.884	0.077	0.069	0.073	0.063	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	4.026	0.554	0.554	0.589	1.957	0.134	0.025	0.025	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	24.769	0.998	0.902	0.937	1.200	0.183	0.086	0.084	0.000
Cessna 172 Skyhawk	O-320	TOTAL	14.318	0.234	0.234	0.225	0.025	0.001	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.019	0.010	0.009	0.009	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.114	0.008	0.008	0.009	0.107	0.013	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.621	0.176	0.159	0.165	0.134	0.011	0.007	0.006	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	4.605	1.324	1.324	1.450	3.416	0.341	0.246	0.246	0.000
28R		APU	0.456	0.026	0.026	0.029	0.120	0.025	0.000	0.000	0.000
		GSE	0.151	0.021	0.020	0.021	0.175	0.044	0.023	0.022	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.088	0.260	0.260	0.277	2.173	0.230	0.000	0.000	0.000
28R		APU	0.219	0.021	0.021	0.022	0.157	0.034	0.000	0.000	0.000
		GSE	14.671	0.579	0.522	0.542	0.631	0.077	0.040	0.039	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.774	0.126	0.126	0.133	1.382	0.121	0.000	0.000	0.000
28R		APU	0.108	0.010	0.010	0.011	0.077	0.017	0.000	0.000	0.000
		GSE	7.210	0.284	0.257	0.267	0.310	0.037	0.020	0.019	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	2.836	0.229	0.229	0.244	2.399	0.230	0.000	0.000	0.000
28R		APU	0.197	0.019	0.019	0.020	0.140	0.031	0.000	0.000	0.000
		GSE	13.209	0.521	0.471	0.488	0.568	0.069	0.036	0.035	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	13.937	1.172	1.172	1.246	9.923	1.012	0.000	0.000	0.000
28R		APU	0.952	0.090	0.090	0.096	0.677	0.148	0.000	0.000	0.000
		GSE	63.651	2.512	2.269	2.355	2.735	0.334	0.174	0.169	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	17.188	1.446	1.446	1.538	12.091	1.282	0.000	0.000	0.000
28R		APU	1.221	0.116	0.116	0.122	0.869	0.190	0.000	0.000	0.000
		GSE	81.663	3.223	2.911	3.021	3.509	0.429	0.224	0.216	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	5.258	0.441	0.441	0.468	3.747	0.383	0.000	0.000	0.000
28R		APU	0.359	0.034	0.034	0.036	0.256	0.056	0.000	0.000	0.000
		GSE	24.024	0.948	0.856	0.888	1.032	0.126	0.066	0.064	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	4.362	0.041	0.041	0.045	6.719	0.649	0.065	0.065	0.000
28R		APU	0.430	0.041	0.041	0.044	0.306	0.067	0.000	0.000	0.000
		GSE	28.770	1.135	1.025	1.065	1.236	0.151	0.078	0.076	0.000
F-27 SERIES	RDa7	TOTAL	2.201	0.492	0.492	0.543	0.112	0.051	N/A	N/A	0.000
28R		APU	0.133	0.015	0.015	0.018	0.013	0.003	0.000	0.000	0.000
		GSE	5.099	0.195	0.175	0.182	0.148	0.012	0.007	0.007	0.000
Falcon 20	CF700-2D	TOTAL	2.465	0.205	0.205	0.218	0.083	0.031	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.002	0.002	0.002	0.022	0.007	0.003	0.003	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.798	0.093	0.093	0.098	0.811	0.071	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.547	0.180	0.162	0.169	0.130	0.007	0.004	0.004	0.000
HS 125	TFE731-3	TOTAL	4.416	0.719	0.719	0.794	2.067	0.114	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	39.381	1.506	1.357	1.408	1.143	0.098	0.053	0.051	0.000
KC-135R	CFM56-2B-1	TOTAL	1.135	0.063	0.063	0.069	1.423	0.118	0.003	0.003	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.030	0.009	0.009	0.009	0.116	0.021	0.009	0.009	0.000
Learjet 25C	CJ610-6	TOTAL	21.418	1.633	1.633	1.736	0.423	0.118	N/A	N/A	0.000
28R_GA		APU	0.212	0.020	0.020	0.021	0.150	0.033	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	14.114	0.557	0.503	0.522	0.606	0.074	0.039	0.037	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.701	0.497	0.497	0.528	0.498	0.034	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.406	0.346	0.311	0.323	0.266	0.012	0.008	0.008	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.041	0.321	0.321	0.352	3.127	0.213	0.063	0.063	0.000
28R		APU	0.272	0.015	0.015	0.017	0.072	0.015	0.000	0.000	0.000
		GSE	0.073	0.011	0.011	0.011	0.087	0.022	0.011	0.011	0.000
Navajo	TIO-540-J2B2	TOTAL	43.423	0.780	0.780	0.753	0.023	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.002	0.002	0.002	0.013	0.008	0.007	0.007	0.000
Piper PA-28	O-320	TOTAL	1.296	0.021	0.021	0.020	0.002	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	0.993	0.795	0.795	0.879	0.079	0.010	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.766	0.182	0.164	0.171	0.139	0.012	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	11.587	3.991	3.991	4.244	1.553	0.147	0.076	0.076	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	34.311	1.414	1.274	1.321	1.138	0.064	0.037	0.035	0.000
Falcon 2000EX	PW308C	TOTAL	1.609	0.202	0.202	0.214	1.250	0.119	0.011	0.011	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.216	0.293	0.266	0.276	0.440	0.069	0.032	0.031	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.209	0.761	0.761	0.809	0.297	0.028	0.014	0.014	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.542	0.270	0.243	0.251	0.217	0.012	0.007	0.007	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.060	0.502	0.502	0.534	2.403	0.278	0.164	0.164	0.000
28R_GA		APU	0.071	0.006	0.006	0.006	0.351	0.034	0.000	0.000	0.000
		GSE	14.698	0.569	0.513	0.532	0.407	0.032	0.022	0.021	0.000
A320-200	V2527-A5	TOTAL	0.091	0.001	0.001	0.001	0.268	0.019	0.002	0.002	0.000
10L		APU	0.003	0.000	0.000	0.000	0.015	0.001	0.000	0.000	0.000
		GSE	0.010	0.001	0.001	0.001	0.011	0.003	0.001	0.001	0.000
A320-200	V2527-A5	TOTAL	0.326	0.004	0.004	0.006	0.955	0.068	0.009	0.009	0.000
10R		APU	0.011	0.001	0.001	0.001	0.055	0.006	0.000	0.000	0.000
		GSE	0.034	0.004	0.004	0.004	0.040	0.010	0.006	0.006	0.000
A320-200	V2527-A5	TOTAL	0.449	0.007	0.007	0.007	1.315	0.094	0.012	0.012	0.000
28L		APU	0.015	0.001	0.001	0.001	0.076	0.008	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.055	0.014	0.008	0.007	0.000
A320-200	V2527-A5	TOTAL	0.174	0.002	0.002	0.002	0.511	0.036	0.004	0.004	0.000
28R		APU	0.006	0.000	0.000	0.000	0.030	0.003	0.000	0.000	0.000
		GSE	0.019	0.002	0.002	0.002	0.021	0.006	0.003	0.002	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.624	0.181	0.181	0.192	0.208	0.013	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.030	0.125	0.112	0.117	0.100	0.006	0.003	0.003	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.335	0.097	0.097	0.104	0.111	0.008	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.628	0.067	0.061	0.063	0.054	0.003	0.002	0.002	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.734	0.213	0.213	0.226	0.245	0.017	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.568	0.147	0.132	0.138	0.118	0.007	0.003	0.003	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.501	0.434	0.434	0.462	0.500	0.033	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.293	0.301	0.271	0.281	0.241	0.013	0.008	0.008	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.033	0.231	0.231	0.255	0.053	0.023	N/A	N/A	0.000
10L_GA		APU	0.011	0.001	0.001	0.001	0.055	0.006	0.000	0.000	0.000
		GSE	2.825	0.111	0.100	0.104	0.080	0.007	0.006	0.006	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.950	0.435	0.435	0.482	0.099	0.045	N/A	N/A	0.000
28L_GA		APU	0.021	0.001	0.001	0.002	0.105	0.010	0.000	0.000	0.000
		GSE	5.332	0.209	0.190	0.196	0.151	0.013	0.011	0.011	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.641	0.591	0.591	0.653	0.134	0.061	N/A	N/A	0.000
28R_GA		APU	0.029	0.002	0.002	0.002	0.142	0.014	0.000	0.000	0.000
		GSE	7.223	0.284	0.256	0.266	0.205	0.018	0.015	0.014	0.000
Learjet 25B	CJ610-6	TOTAL	4.943	0.377	0.377	0.400	0.098	0.028	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.311	0.137	0.122	0.127	0.105	0.004	0.003	0.003	0.000
Learjet 25B	CJ610-6	TOTAL	18.186	1.387	1.387	1.474	0.359	0.100	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.185	0.502	0.451	0.467	0.385	0.019	0.011	0.011	0.000
Learjet 25B	CJ610-6	TOTAL	40.047	3.053	3.053	3.245	0.793	0.219	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	26.832	1.103	0.993	1.031	0.848	0.040	0.025	0.024	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 25B	CJ610-6	TOTAL	13.919	1.062	1.062	1.128	0.276	0.076	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.327	0.384	0.345	0.358	0.294	0.014	0.009	0.009	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.300	0.003	0.003	0.003	0.457	0.044	0.004	0.004	0.000
10L		APU	0.130	0.008	0.008	0.008	0.034	0.008	0.000	0.000	0.000
		GSE	1.976	0.078	0.071	0.073	0.085	0.010	0.006	0.006	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.168	0.001	0.001	0.002	0.255	0.024	0.002	0.002	0.000
10R		APU	0.073	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	1.100	0.043	0.040	0.041	0.047	0.006	0.003	0.003	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.349	0.003	0.003	0.003	0.532	0.052	0.004	0.004	0.000
28L		APU	0.151	0.009	0.009	0.010	0.040	0.009	0.000	0.000	0.000
		GSE	2.296	0.090	0.082	0.085	0.099	0.012	0.007	0.007	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.728	0.007	0.007	0.008	1.109	0.108	0.010	0.010	0.000
28R		APU	0.315	0.018	0.018	0.020	0.084	0.018	0.000	0.000	0.000
		GSE	4.788	0.188	0.171	0.177	0.206	0.025	0.013	0.012	0.000
A320-200	V2500-A1	TOTAL	0.054	0.003	0.003	0.003	0.392	0.020	0.000	0.000	0.000
10L		APU	0.003	0.000	0.000	0.000	0.015	0.001	0.000	0.000	0.000
		GSE	0.010	0.001	0.001	0.001	0.011	0.003	0.001	0.001	0.000
A320-200	V2500-A1	TOTAL	0.191	0.011	0.011	0.012	1.397	0.071	0.001	0.001	0.000
10R		APU	0.011	0.001	0.001	0.001	0.055	0.006	0.000	0.000	0.000
		GSE	0.034	0.004	0.004	0.004	0.040	0.010	0.006	0.006	0.000
A320-200	V2500-A1	TOTAL	0.262	0.014	0.014	0.017	1.924	0.097	0.002	0.002	0.000
28L		APU	0.015	0.001	0.001	0.001	0.076	0.008	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.055	0.014	0.008	0.007	0.000
A320-200	V2500-A1	TOTAL	0.103	0.006	0.006	0.007	0.747	0.037	0.001	0.001	0.000
28R		APU	0.006	0.000	0.000	0.000	0.030	0.003	0.000	0.000	0.000
		GSE	0.019	0.002	0.002	0.002	0.021	0.006	0.003	0.002	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.295	0.003	0.003	0.003	0.506	0.046	0.011	0.011	0.000
10L		APU	0.030	0.003	0.003	0.003	0.021	0.004	0.000	0.000	0.000
		GSE	1.976	0.078	0.071	0.073	0.085	0.010	0.006	0.006	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.164	0.001	0.001	0.002	0.282	0.026	0.006	0.006	0.000
10R		APU	0.017	0.001	0.001	0.002	0.012	0.002	0.000	0.000	0.000
		GSE	1.100	0.043	0.040	0.041	0.047	0.006	0.003	0.003	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.344	0.003	0.003	0.003	0.589	0.054	0.012	0.012	0.000
28L		APU	0.034	0.003	0.003	0.003	0.024	0.006	0.000	0.000	0.000
		GSE	2.296	0.090	0.082	0.085	0.099	0.012	0.007	0.007	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.717	0.007	0.007	0.008	1.227	0.112	0.025	0.025	0.000
28R		APU	0.072	0.007	0.007	0.008	0.051	0.011	0.000	0.000	0.000
		GSE	4.788	0.188	0.171	0.177	0.206	0.025	0.013	0.012	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.935	0.208	0.208	0.230	0.047	0.021	N/A	N/A	0.000
10R_GA		APU	0.010	0.001	0.001	0.001	0.051	0.006	0.000	0.000	0.000
		GSE	2.555	0.100	0.090	0.094	0.073	0.007	0.006	0.006	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	5.885	0.063	0.063	0.061	0.007	0.000	N/A	N/A	4.670
10L_GA		Climb Out	4.919	0.055	0.055	0.054	0.001	0.000	N/A	N/A	3.343
		Takeoff	3.278	0.029	0.029	0.028	0.001	0.000	N/A	N/A	2.273
		Idle	3.083	0.162	0.162	0.157	0.001	0.000	N/A	N/A	2.382
B737-300	CFM56-3-B1	Approach	0.267	0.006	0.006	0.007	0.583	0.071	0.001	0.001	70.284
10L		Climb Out	0.034	0.002	0.002	0.002	0.560	0.036	0.000	0.000	36.150
		Takeoff	0.043	0.002	0.002	0.002	0.840	0.047	0.001	0.001	47.436
		Idle	2.703	0.179	0.179	0.196	0.306	0.078	0.001	0.001	78.564
B737-300	CFM56-3B-2	Approach	0.052	0.001	0.001	0.001	0.132	0.015	0.000	0.000	15.189
10L		Climb Out	0.008	0.000	0.000	0.000	0.133	0.008	0.000	0.000	7.998
		Takeoff	0.010	0.000	0.000	0.000	0.205	0.011	0.001	0.001	10.569
		Idle	0.493	0.029	0.029	0.031	0.067	0.017	0.000	0.000	16.368
B737-500	CFM56-3C-1	Approach	0.069	0.001	0.001	0.002	0.203	0.022	0.000	0.000	22.245
10L		Climb Out	0.012	0.000	0.000	0.001	0.237	0.013	0.000	0.000	13.288
		Takeoff	0.015	0.000	0.000	0.001	0.362	0.018	0.001	0.001	17.463
		Idle	0.613	0.032	0.032	0.035	0.098	0.023	0.000	0.000	22.880
B737-700	CFM56-7B22	Approach	0.212	0.009	0.009	0.009	0.848	0.085	0.018	0.018	84.770
10L		Climb Out	0.031	0.006	0.006	0.006	0.968	0.051	0.011	0.011	50.964
		Takeoff	0.036	0.008	0.008	0.008	1.681	0.073	0.015	0.015	72.794
		Idle	1.897	0.208	0.208	0.228	0.375	0.083	0.018	0.018	83.189
B737-800	CFM56-7B26	Approach	0.053	0.003	0.003	0.003	0.355	0.033	0.010	0.010	32.873
10L		Climb Out	0.013	0.002	0.002	0.002	0.514	0.023	0.007	0.007	22.816
		Takeoff	0.007	0.003	0.003	0.003	0.929	0.032	0.010	0.010	32.273
		Idle	0.583	0.058	0.058	0.065	0.146	0.031	0.010	0.010	31.028
B757-300	PW2043	Approach	0.011	0.001	0.001	0.001	0.090	0.009	N/A	N/A	8.397
10L		Climb Out	0.002	0.000	0.000	0.000	0.159	0.006	N/A	N/A	5.699
		Takeoff	0.002	0.000	0.000	0.000	0.292	0.008	N/A	N/A	7.742
		Idle	0.142	0.011	0.011	0.012	0.033	0.008	N/A	N/A	7.351
BAE146-300	LF507 SERIES	Approach	0.034	0.001	0.001	0.001	0.050	0.008	0.001	0.001	7.731
10L		Climb Out	0.002	0.000	0.000	0.000	0.104	0.009	0.001	0.001	8.621
		Takeoff	0.001	0.000	0.000	0.000	0.106	0.008	0.001	0.001	7.326
		Idle	0.344	0.043	0.043	0.047	0.030	0.009	0.001	0.001	9.079
Bombardier CRJ700	CF34-8C1	Approach	0.547	0.011	0.011	0.012	2.088	0.188	0.009	0.009	188.054
10L		Climb Out	0.051	0.002	0.002	0.002	1.289	0.100	0.000	0.000	100.540
		Takeoff	0.069	0.003	0.003	0.003	2.474	0.169	0.008	0.008	168.642
		Idle	5.304	0.017	0.017	0.019	0.917	0.213	0.010	0.010	212.852
Cessna 172 Skyhawk	O-320	Approach	2.213	0.035	0.035	0.034	0.002	0.000	N/A	N/A	1.814
10L_GA		Climb Out	1.194	0.015	0.015	0.014	0.004	0.000	N/A	N/A	1.206
		Takeoff	0.902	0.010	0.010	0.010	0.002	0.000	N/A	N/A	0.834
		Idle	0.574	0.020	0.020	0.019	0.000	0.000	N/A	N/A	0.532
Cessna 441 Conqu...	TPE331-8	Approach	0.010	0.000	0.000	0.000	0.021	0.002	N/A	N/A	2.233
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.006	0.000	N/A	N/A	0.473
		Takeoff	0.001	0.000	0.000	0.000	0.006	0.000	N/A	N/A	0.546
		Idle	0.031	0.002	0.002	0.002	0.007	0.001	N/A	N/A	1.617
CITATION I SP	JT15D-1A _1B	Approach	0.060	0.007	0.007	0.007	0.006	0.001	0.000	0.000	1.465
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.875
		Takeoff	0.002	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.972
		Idle	0.196	0.075	0.075	0.079	0.002	0.001	0.000	0.000	1.484
CL600	ALF 502L-2	Approach	0.122	0.006	0.006	0.006	0.200	0.017	0.003	0.003	30.911
10L_GA		Climb Out	0.004	0.000	0.000	0.000	0.194	0.009	0.003	0.003	16.136
		Takeoff	0.009	0.000	0.000	0.000	0.297	0.012	0.002	0.002	22.040
		Idle	1.513	0.220	0.220	0.235	0.112	0.018	0.000	0.000	33.174
DC9-30	JT8D-15 (old ...	Approach	0.313	0.054	0.054	0.060	0.193	0.033	0.023	0.023	32.660
10L		Climb Out	0.029	0.008	0.008	0.008	0.433	0.029	0.021	0.021	28.859
		Takeoff	0.021	0.008	0.008	0.009	0.583	0.031	0.022	0.022	30.532
		Idle	1.430	0.446	0.446	0.489	0.122	0.041	0.030	0.030	40.631
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.180	0.001	0.001	0.001	0.163	0.023	0.000	0.000	23.540
10L		Climb Out	0.012	0.001	0.001	0.001	0.317	0.023	0.000	0.000	23.527
		Takeoff	0.008	0.000	0.000	0.000	0.251	0.017	0.000	0.000	16.310
		Idle	0.999	0.099	0.099	0.105	0.111	0.026	0.000	0.000	25.967
Embraer ERJ 145	AE3007A	Approach	0.044	0.009	0.009	0.009	0.104	0.013	0.000	0.000	13.318
10L		Climb Out	0.012	0.003	0.003	0.004	0.225	0.013	0.000	0.000	12.869
		Takeoff	0.007	0.002	0.002	0.002	0.183	0.009	0.000	0.000	8.922
		Idle	0.256	0.037	0.037	0.040	0.056	0.014	0.000	0.000	14.759
Embraer ERJ 145	AE3007A1E	Approach	0.141	0.001	0.001	0.001	0.185	0.025	0.000	0.000	25.010
10L		Climb Out	0.017	0.001	0.001	0.001	0.383	0.025	0.000	0.000	25.620

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.013	0.000	0.000	0.001	0.306	0.018	0.000	0.000	17.862
		Idle	0.994	0.093	0.093	0.098	0.111	0.026	0.000	0.000	26.195
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.725	0.003	0.003	0.003	0.758	0.107	0.000	0.000	106.591
10L		Climb Out	0.055	0.003	0.003	0.003	1.411	0.100	0.000	0.000	100.682
		Takeoff	0.064	0.002	0.002	0.003	1.401	0.087	0.000	0.000	87.054
		Idle	4.884	0.473	0.473	0.503	0.508	0.122	0.000	0.000	121.907
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	1.058	0.004	0.004	0.004	0.962	0.139	0.000	0.000	138.823
10L		Climb Out	0.069	0.004	0.004	0.004	1.872	0.139	0.000	0.000	138.741
		Takeoff	0.049	0.003	0.003	0.003	1.484	0.096	0.000	0.000	96.187
		Idle	5.891	0.583	0.583	0.621	0.654	0.153	0.000	0.000	153.140
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.273	0.001	0.001	0.001	0.287	0.040	0.000	0.000	40.234
10L		Climb Out	0.021	0.001	0.001	0.001	0.532	0.037	0.000	0.000	37.970
		Takeoff	0.024	0.001	0.001	0.001	0.529	0.033	0.000	0.000	32.839
		Idle	1.842	0.177	0.177	0.190	0.192	0.046	0.000	0.000	46.074
Embraer ERJ 170	CF34-8E5	Approach	0.330	0.004	0.004	0.006	0.840	0.078	0.009	0.009	78.009
10L		Climb Out	0.024	0.001	0.001	0.001	0.531	0.042	0.001	0.001	41.967
		Takeoff	0.045	0.001	0.001	0.001	1.041	0.071	0.008	0.008	70.437
		Idle	1.397	0.010	0.010	0.011	0.355	0.077	0.009	0.009	76.916
F-27 SERIES	RDa7	Approach	0.194	0.018	0.018	0.019	0.006	0.006	N/A	N/A	5.821
10L		Climb Out	0.014	0.004	0.004	0.004	0.019	0.004	N/A	N/A	4.061
		Takeoff	0.009	0.002	0.002	0.003	0.014	0.002	N/A	N/A	2.611
		Idle	0.628	0.164	0.164	0.182	0.004	0.007	N/A	N/A	6.872
Falcon 20	CF700-2D	Approach	0.195	0.004	0.004	0.004	0.006	0.003	N/A	N/A	3.144
10L_GA		Climb Out	0.044	0.000	0.000	0.000	0.008	0.002	N/A	N/A	1.746
		Takeoff	0.051	0.000	0.000	0.000	0.013	0.002	N/A	N/A	2.328
		Idle	0.588	0.068	0.068	0.073	0.003	0.003	N/A	N/A	3.793
Falcon 2000EX	PW308C	Approach	0.084	0.002	0.002	0.002	0.126	0.017	0.001	0.001	16.107
10L_Corp		Climb Out	0.009	0.001	0.001	0.001	0.138	0.009	0.001	0.001	8.626
		Takeoff	0.009	0.001	0.001	0.001	0.207	0.011	0.001	0.001	11.217
		Idle	0.567	0.079	0.079	0.085	0.049	0.013	0.001	0.001	13.404
Gulfstream II	SPEY MK511-8	Approach	0.017	0.001	0.001	0.001	0.045	0.007	N/A	N/A	6.274
10L_GA		Climb Out	0.003	0.001	0.001	0.001	0.085	0.004	N/A	N/A	4.874
		Takeoff	0.001	0.000	0.000	0.000	0.129	0.006	N/A	N/A	5.706
		Idle	0.263	0.031	0.031	0.033	0.030	0.009	N/A	N/A	8.306
Gulfstream IV	TAY Mk611-8	Approach	0.118	0.028	0.028	0.029	0.173	0.031	0.018	0.018	30.343
10L_GA		Climb Out	0.011	0.004	0.004	0.004	0.230	0.013	0.008	0.008	13.701
		Takeoff	0.013	0.015	0.015	0.017	0.401	0.019	0.011	0.011	19.006
		Idle	1.015	0.143	0.143	0.152	0.106	0.042	0.025	0.025	42.141
HS 125	TFE731-3	Approach	0.435	0.040	0.040	0.044	0.194	0.015	N/A	N/A	28.003
10L_Corp		Climb Out	0.020	0.001	0.001	0.001	0.194	0.007	N/A	N/A	12.121
		Takeoff	0.021	0.001	0.001	0.001	0.362	0.010	N/A	N/A	18.852
		Idle	1.348	0.256	0.256	0.282	0.105	0.015	N/A	N/A	28.267
KC-135R	CFM56-2B-1	Approach	0.035	0.001	0.001	0.001	0.068	0.009	0.000	0.000	8.399
10L_GA		Climb Out	0.009	0.000	0.000	0.000	0.153	0.010	0.000	0.000	9.568
		Takeoff	0.012	0.000	0.000	0.001	0.255	0.013	0.001	0.001	13.759
		Idle	0.362	0.022	0.022	0.024	0.047	0.012	0.000	0.000	11.768
Learjet 25C	CJ610-6	Approach	2.501	0.000	0.000	0.000	0.043	0.015	N/A	N/A	28.423
10L_GA		Climb Out	0.298	0.002	0.002	0.002	0.037	0.006	N/A	N/A	10.632
		Takeoff	0.449	0.002	0.002	0.002	0.069	0.009	N/A	N/A	16.613
		Idle	6.109	0.710	0.710	0.754	0.035	0.021	N/A	N/A	39.416
Learjet 35/36	TFE 731-2-2B	Approach	0.172	0.033	0.033	0.035	0.045	0.004	N/A	N/A	7.668
10L_GA		Climb Out	0.007	0.000	0.000	0.000	0.045	0.002	N/A	N/A	3.441
		Takeoff	0.006	0.000	0.000	0.000	0.063	0.002	N/A	N/A	4.134
		Idle	0.406	0.139	0.139	0.148	0.020	0.003	N/A	N/A	6.919
MD-80-83	JT8D-219 old...	Approach	0.099	0.039	0.039	0.042	0.223	0.024	0.008	0.008	24.351
10L		Climb Out	0.025	0.009	0.009	0.010	0.434	0.021	0.007	0.007	20.897
		Takeoff	0.017	0.007	0.007	0.007	0.623	0.023	0.007	0.007	23.050
		Idle	0.314	0.087	0.087	0.095	0.089	0.025	0.008	0.008	24.914
Navajo	TIO-540-J2B2	Approach	4.919	0.052	0.052	0.051	0.006	0.000	N/A	N/A	3.903
10L_GA		Climb Out	4.111	0.046	0.046	0.045	0.001	0.000	N/A	N/A	2.794
		Takeoff	2.740	0.023	0.023	0.023	0.001	0.000	N/A	N/A	1.900
		Idle	2.576	0.136	0.136	0.131	0.001	0.000	N/A	N/A	1.991
Piper PA-28	O-320	Approach	0.235	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.193
10L_GA		Climb Out	0.114	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.115
		Takeoff	0.076	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.071
		Idle	0.049	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.044
UC-12J	PT6A-42	Approach	0.109	0.072	0.072	0.079	0.014	0.002	N/A	N/A	3.146
10L_GA		Climb Out	0.004	0.001	0.001	0.002	0.006	0.000	N/A	N/A	0.748
		Takeoff	0.003	0.001	0.001	0.001	0.004	0.000	N/A	N/A	0.585
		Idle	0.247	0.218	0.218	0.240	0.004	0.001	N/A	N/A	2.146

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation 10L_Corp	JT15D-4 (B,C...	Approach	1.124	0.181	0.181	0.192	0.186	0.019	0.010	0.010	35.131
		Climb Out	0.060	0.003	0.003	0.003	0.161	0.010	0.006	0.006	18.819
		Takeoff	0.043	0.002	0.002	0.002	0.190	0.011	0.006	0.006	20.563
		Idle	3.483	1.436	1.436	1.527	0.095	0.020	0.010	0.010	35.911
B737-300 10L	CFM56-3C-1 ...	Approach	0.093	0.002	0.002	0.002	0.176	0.022	0.000	0.000	22.055
		Climb Out	0.011	0.001	0.001	0.001	0.164	0.011	0.000	0.000	11.137
		Takeoff	0.013	0.001	0.001	0.001	0.241	0.014	0.000	0.000	14.575
		Idle	0.971	0.073	0.073	0.079	0.097	0.025	0.000	0.000	25.499
550 Citation 10L_GA	JT15D-4 (B,C...	Approach	0.188	0.030	0.030	0.032	0.031	0.003	0.002	0.002	5.885
		Climb Out	0.010	0.001	0.001	0.001	0.026	0.002	0.001	0.001	3.153
		Takeoff	0.008	0.000	0.000	0.000	0.032	0.002	0.001	0.001	3.445
		Idle	0.583	0.240	0.240	0.256	0.015	0.003	0.002	0.002	6.015
550 Citation 10R_GA	JT15D-4 (B,C...	Approach	0.687	0.110	0.110	0.118	0.114	0.012	0.006	0.006	21.471
		Climb Out	0.036	0.002	0.002	0.002	0.098	0.007	0.003	0.003	11.502
		Takeoff	0.026	0.001	0.001	0.001	0.116	0.007	0.003	0.003	12.567
		Idle	2.129	0.877	0.877	0.934	0.057	0.012	0.007	0.007	21.947
550 Citation 10R_Corp	JT15D-4 (B,C...	Approach	0.644	0.104	0.104	0.110	0.107	0.011	0.006	0.006	20.116
		Climb Out	0.034	0.002	0.002	0.002	0.093	0.006	0.003	0.003	10.775
		Takeoff	0.024	0.001	0.001	0.001	0.109	0.007	0.003	0.003	11.774
		Idle	1.994	0.822	0.822	0.874	0.054	0.011	0.006	0.006	20.563
Aztec 10R_GA	TIO-540-J2B2	Approach	9.739	0.104	0.104	0.100	0.011	0.001	N/A	N/A	7.729
		Climb Out	8.139	0.091	0.091	0.088	0.001	0.001	N/A	N/A	5.534
		Takeoff	5.426	0.046	0.046	0.045	0.001	0.000	N/A	N/A	3.762
		Idle	5.101	0.268	0.268	0.259	0.001	0.000	N/A	N/A	3.943
B737-300 10R	CFM56-3C-1 ...	Approach	0.241	0.004	0.004	0.006	0.461	0.057	0.001	0.001	57.588
		Climb Out	0.029	0.001	0.001	0.001	0.428	0.029	0.000	0.000	29.080
		Takeoff	0.034	0.002	0.002	0.002	0.632	0.039	0.001	0.001	38.057
		Idle	2.536	0.191	0.191	0.208	0.254	0.066	0.001	0.001	66.580
B737-300 10R	CFM56-3B-2	Approach	0.123	0.002	0.002	0.003	0.314	0.036	0.000	0.000	36.171
		Climb Out	0.018	0.001	0.001	0.001	0.319	0.019	0.000	0.000	19.048
		Takeoff	0.023	0.001	0.001	0.001	0.488	0.025	0.001	0.001	25.168
		Idle	1.173	0.068	0.068	0.075	0.160	0.039	0.000	0.000	38.980
B737-300 10R	CFM56-3-B1	Approach	0.718	0.015	0.015	0.017	1.567	0.188	0.002	0.002	188.872
		Climb Out	0.093	0.004	0.004	0.006	1.506	0.097	0.001	0.001	97.143
		Takeoff	0.115	0.006	0.006	0.006	2.256	0.128	0.003	0.003	127.472
		Idle	7.262	0.482	0.482	0.527	0.823	0.212	0.002	0.002	211.119
B737-500 10R	CFM56-3C-1	Approach	0.184	0.004	0.004	0.004	0.539	0.060	0.001	0.001	59.205
		Climb Out	0.032	0.001	0.001	0.001	0.629	0.035	0.001	0.001	35.367
		Takeoff	0.042	0.001	0.001	0.001	0.962	0.046	0.004	0.004	46.478
		Idle	1.633	0.086	0.086	0.095	0.262	0.061	0.001	0.001	60.895
B737-700 10R	CFM56-7B22	Approach	0.548	0.022	0.022	0.024	2.194	0.219	0.046	0.046	219.322
		Climb Out	0.079	0.013	0.013	0.014	2.506	0.132	0.028	0.028	131.860
		Takeoff	0.094	0.019	0.019	0.021	4.351	0.188	0.040	0.040	188.340
		Idle	4.907	0.538	0.538	0.589	0.969	0.215	0.045	0.045	215.233
B737-800 10R	CFM56-7B26	Approach	0.136	0.009	0.009	0.009	0.915	0.085	0.025	0.025	84.725
		Climb Out	0.035	0.006	0.006	0.007	1.323	0.058	0.018	0.018	58.805
		Takeoff	0.017	0.009	0.009	0.009	2.395	0.083	0.025	0.025	83.178
		Idle	1.504	0.152	0.152	0.166	0.376	0.080	0.024	0.024	79.968
B757-300 10R	PW2043	Approach	0.026	0.002	0.002	0.002	0.216	0.020	N/A	N/A	20.206
		Climb Out	0.006	0.000	0.000	0.000	0.383	0.013	N/A	N/A	13.714
		Takeoff	0.006	0.000	0.000	0.000	0.703	0.019	N/A	N/A	18.629
		Idle	0.342	0.028	0.028	0.030	0.078	0.018	N/A	N/A	17.689
BAE146-300 10R	LF507 SERIES	Approach	0.019	0.000	0.000	0.000	0.026	0.004	0.000	0.000	4.137
		Climb Out	0.001	0.000	0.000	0.000	0.055	0.004	0.001	0.001	4.614
		Takeoff	0.001	0.000	0.000	0.000	0.057	0.004	0.001	0.001	3.921
		Idle	0.184	0.023	0.023	0.025	0.015	0.004	0.000	0.000	4.859
Bombardier CRJ700 10R	CF34-8C1	Approach	0.303	0.007	0.007	0.007	1.156	0.105	0.006	0.006	104.208
		Climb Out	0.028	0.001	0.001	0.001	0.714	0.056	0.000	0.000	55.713
		Takeoff	0.039	0.002	0.002	0.002	1.371	0.094	0.004	0.004	93.451
		Idle	2.939	0.010	0.010	0.010	0.508	0.118	0.006	0.006	117.950
Cessna 172 Skyhawk 10R_GA	O-320	Approach	4.183	0.066	0.066	0.064	0.003	0.000	N/A	N/A	3.429
		Climb Out	2.255	0.029	0.029	0.028	0.009	0.000	N/A	N/A	2.278
		Takeoff	1.704	0.019	0.019	0.018	0.003	0.000	N/A	N/A	1.577
		Idle	1.086	0.037	0.037	0.035	0.000	0.000	N/A	N/A	1.005
Cessna 441 Conqu... 10R_GA	TPE331-8	Approach	0.030	0.001	0.001	0.001	0.065	0.007	N/A	N/A	6.811
		Climb Out	0.002	0.000	0.000	0.000	0.015	0.001	N/A	N/A	1.443
		Takeoff	0.002	0.000	0.000	0.000	0.019	0.002	N/A	N/A	1.664
		Idle	0.093	0.008	0.008	0.008	0.020	0.004	N/A	N/A	4.931
CITATION I SP 10R_GA	JT15D-1A _1B	Approach	0.227	0.025	0.025	0.026	0.019	0.003	0.002	0.002	5.604
		Climb Out	0.012	0.000	0.000	0.000	0.023	0.002	0.001	0.001	3.349

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.010	0.000	0.000	0.000	0.029	0.002	0.001	0.001	3.721
		Idle	0.750	0.287	0.287	0.304	0.010	0.003	0.002	0.002	5.676
CL600 10R_GA	ALF 502L-2	Approach	0.071	0.003	0.003	0.003	0.116	0.010	0.002	0.002	17.886
		Climb Out	0.003	0.000	0.000	0.000	0.112	0.006	0.002	0.002	9.337
		Takeoff	0.006	0.000	0.000	0.000	0.171	0.007	0.001	0.001	12.753
		Idle	0.876	0.128	0.128	0.136	0.065	0.010	0.000	0.000	19.196
DC9-30 10R	JT8D-15 (old ...	Approach	0.808	0.139	0.139	0.152	0.497	0.084	0.061	0.061	84.176
		Climb Out	0.074	0.019	0.019	0.020	1.116	0.074	0.054	0.054	74.376
		Takeoff	0.055	0.020	0.020	0.022	1.502	0.078	0.056	0.056	78.691
		Idle	3.686	1.152	1.152	1.261	0.314	0.105	0.076	0.076	104.721
Embraer ERJ 135/140 10R	AE3007A1/3 ...	Approach	0.109	0.000	0.000	0.000	0.099	0.014	0.000	0.000	14.274
		Climb Out	0.007	0.000	0.000	0.000	0.193	0.014	0.000	0.000	14.265
		Takeoff	0.004	0.000	0.000	0.000	0.152	0.010	0.000	0.000	9.890
		Idle	0.606	0.060	0.060	0.064	0.067	0.015	0.000	0.000	15.745
Embraer ERJ 145 10R	AE3007A1E	Approach	0.080	0.000	0.000	0.000	0.106	0.014	0.000	0.000	14.236
		Climb Out	0.009	0.000	0.000	0.000	0.217	0.014	0.000	0.000	14.584
		Takeoff	0.008	0.000	0.000	0.000	0.174	0.010	0.000	0.000	10.168
		Idle	0.567	0.053	0.053	0.056	0.064	0.015	0.000	0.000	14.911
Embraer ERJ 145 10R	AE3007A	Approach	0.025	0.004	0.004	0.006	0.058	0.008	0.000	0.000	7.565
		Climb Out	0.007	0.002	0.002	0.002	0.128	0.008	0.000	0.000	7.311
		Takeoff	0.003	0.001	0.001	0.001	0.104	0.006	0.000	0.000	5.068
		Idle	0.146	0.021	0.021	0.022	0.032	0.009	0.000	0.000	8.384
Embraer ERJ 145LR 10R	AE3007A1P (...	Approach	0.155	0.001	0.001	0.001	0.163	0.023	0.000	0.000	22.870
		Climb Out	0.012	0.001	0.001	0.001	0.302	0.022	0.000	0.000	21.582
		Takeoff	0.014	0.001	0.001	0.001	0.301	0.019	0.000	0.000	18.665
		Idle	1.047	0.101	0.101	0.107	0.109	0.026	0.000	0.000	26.189
Embraer ERJ 145LR 10R	AE3007A1/3 ...	Approach	0.601	0.002	0.002	0.002	0.547	0.079	0.000	0.000	78.851
		Climb Out	0.040	0.002	0.002	0.002	1.063	0.078	0.000	0.000	78.804
		Takeoff	0.028	0.001	0.001	0.002	0.842	0.055	0.000	0.000	54.634
		Idle	3.347	0.332	0.332	0.353	0.371	0.087	0.000	0.000	86.982
Embraer ERJ 145LR 10R	AE3007A1/1 ...	Approach	0.412	0.002	0.002	0.002	0.431	0.061	0.000	0.000	60.553
		Climb Out	0.032	0.002	0.002	0.002	0.801	0.057	0.000	0.000	57.196
		Takeoff	0.036	0.001	0.001	0.001	0.796	0.050	0.000	0.000	49.454
		Idle	2.775	0.269	0.269	0.285	0.289	0.069	0.000	0.000	69.254
Embraer ERJ 170 10R	CF34-8E5	Approach	0.183	0.002	0.002	0.003	0.466	0.043	0.006	0.006	43.268
		Climb Out	0.013	0.000	0.000	0.000	0.294	0.023	0.000	0.000	23.278
		Takeoff	0.025	0.001	0.001	0.001	0.577	0.039	0.004	0.004	39.067
		Idle	0.775	0.006	0.006	0.007	0.196	0.043	0.004	0.004	42.661
F-27 SERIES 10R	RDa7	Approach	0.305	0.028	0.028	0.031	0.008	0.009	N/A	N/A	9.166
		Climb Out	0.022	0.007	0.007	0.008	0.029	0.007	N/A	N/A	6.393
		Takeoff	0.013	0.004	0.004	0.004	0.023	0.004	N/A	N/A	4.112
		Idle	0.989	0.259	0.259	0.285	0.008	0.011	N/A	N/A	10.819
Falcon 20 10R_GA	CF700-2D	Approach	0.713	0.017	0.017	0.018	0.021	0.011	N/A	N/A	11.507
		Climb Out	0.160	0.001	0.001	0.001	0.028	0.007	N/A	N/A	6.391
		Takeoff	0.187	0.001	0.001	0.001	0.047	0.009	N/A	N/A	8.520
		Idle	2.152	0.250	0.250	0.266	0.012	0.014	N/A	N/A	13.883
Falcon 2000EX 10R_Corp	PW308C	Approach	0.045	0.001	0.001	0.001	0.067	0.009	0.001	0.001	8.655
		Climb Out	0.004	0.000	0.000	0.000	0.074	0.004	0.000	0.000	4.635
		Takeoff	0.004	0.000	0.000	0.001	0.111	0.006	0.001	0.001	6.027
		Idle	0.304	0.043	0.043	0.045	0.026	0.008	0.001	0.001	7.204
Gulfstream II 10R_GA	SPEY MK511-8	Approach	0.061	0.004	0.004	0.004	0.165	0.023	N/A	N/A	22.960
		Climb Out	0.011	0.002	0.002	0.002	0.309	0.018	N/A	N/A	17.839
		Takeoff	0.002	0.002	0.002	0.002	0.474	0.021	N/A	N/A	20.880
		Idle	0.966	0.112	0.112	0.119	0.109	0.031	N/A	N/A	30.397
Gulfstream IV 10R_GA	TAY Mk611-8	Approach	0.165	0.039	0.039	0.041	0.241	0.042	0.025	0.025	42.415
		Climb Out	0.015	0.006	0.006	0.007	0.322	0.019	0.011	0.011	19.150
		Takeoff	0.019	0.021	0.021	0.022	0.561	0.026	0.015	0.015	26.567
		Idle	1.420	0.201	0.201	0.213	0.148	0.058	0.035	0.035	58.905
HS 125 10R_Corp	TFE731-3	Approach	0.240	0.022	0.022	0.024	0.107	0.009	N/A	N/A	15.435
		Climb Out	0.011	0.000	0.000	0.000	0.107	0.003	N/A	N/A	6.681
		Takeoff	0.012	0.001	0.001	0.001	0.200	0.006	N/A	N/A	10.390
		Idle	0.743	0.141	0.141	0.155	0.058	0.009	N/A	N/A	15.579
KC-135R 10R_GA	CFM56-2B-1	Approach	0.085	0.001	0.001	0.002	0.165	0.020	0.000	0.000	20.210
		Climb Out	0.021	0.001	0.001	0.001	0.368	0.023	0.000	0.000	23.023
		Takeoff	0.030	0.001	0.001	0.001	0.613	0.033	0.002	0.002	33.108
		Idle	0.870	0.052	0.052	0.057	0.114	0.029	0.000	0.000	28.317
Learjet 25C 10R_GA	CJ610-6	Approach	1.299	0.000	0.000	0.000	0.022	0.008	N/A	N/A	14.757
		Climb Out	0.154	0.001	0.001	0.001	0.020	0.003	N/A	N/A	5.520
		Takeoff	0.233	0.001	0.001	0.001	0.036	0.004	N/A	N/A	8.626
		Idle	3.172	0.368	0.368	0.391	0.019	0.011	N/A	N/A	20.464

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36	TFE 731-2-2B	Approach	0.657	0.125	0.125	0.133	0.173	0.015	N/A	N/A	29.369
10R_GA		Climb Out	0.026	0.002	0.002	0.002	0.172	0.007	N/A	N/A	13.180
		Takeoff	0.022	0.002	0.002	0.002	0.241	0.009	N/A	N/A	15.832
		Idle	1.553	0.531	0.531	0.564	0.075	0.014	N/A	N/A	26.501
MD-80-83	JT8D-219 old...	Approach	0.292	0.114	0.114	0.125	0.655	0.072	0.021	0.021	71.743
10R		Climb Out	0.074	0.025	0.025	0.029	1.281	0.062	0.019	0.019	61.565
		Takeoff	0.050	0.019	0.019	0.020	1.833	0.068	0.020	0.020	67.911
		Idle	0.927	0.256	0.256	0.280	0.265	0.074	0.022	0.022	73.401
Navajo	TIO-540-J2B2	Approach	6.324	0.067	0.067	0.065	0.007	0.001	N/A	N/A	5.019
10R_GA		Climb Out	5.286	0.060	0.060	0.057	0.001	0.000	N/A	N/A	3.594
		Takeoff	3.523	0.030	0.030	0.030	0.001	0.000	N/A	N/A	2.443
		Idle	3.312	0.174	0.174	0.169	0.001	0.000	N/A	N/A	2.561
Piper PA-28	O-320	Approach	0.719	0.011	0.011	0.011	0.001	0.000	N/A	N/A	0.589
10R_GA		Climb Out	0.346	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.349
		Takeoff	0.234	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.216
		Idle	0.147	0.006	0.006	0.004	0.000	0.000	N/A	N/A	0.136
UC-12J	PT6A-42	Approach	0.364	0.237	0.237	0.262	0.049	0.006	N/A	N/A	10.449
10R_GA		Climb Out	0.017	0.006	0.006	0.006	0.019	0.001	N/A	N/A	2.486
		Takeoff	0.010	0.003	0.003	0.003	0.015	0.001	N/A	N/A	1.946
		Idle	0.820	0.723	0.723	0.799	0.014	0.003	N/A	N/A	7.128
Aztec	TIO-540-J2B2	Approach	18.994	0.202	0.202	0.195	0.021	0.002	N/A	N/A	15.075
28L_GA		Climb Out	15.874	0.180	0.180	0.173	0.002	0.001	N/A	N/A	10.792
		Takeoff	10.581	0.091	0.091	0.088	0.002	0.001	N/A	N/A	7.338
		Idle	9.949	0.524	0.524	0.505	0.003	0.001	N/A	N/A	7.690
B737-300	CFM56-3-B1	Approach	1.361	0.029	0.029	0.031	2.973	0.358	0.004	0.004	358.220
28L		Climb Out	0.175	0.009	0.009	0.010	2.856	0.184	0.002	0.002	184.245
		Takeoff	0.217	0.010	0.010	0.011	4.279	0.241	0.007	0.007	241.767
		Idle	13.774	0.913	0.913	1.000	1.562	0.400	0.004	0.004	400.416
B737-300	CFM56-3B-2	Approach	0.269	0.006	0.006	0.007	0.688	0.079	0.001	0.001	79.077
28L		Climb Out	0.037	0.002	0.002	0.002	0.696	0.042	0.001	0.001	41.642
		Takeoff	0.050	0.002	0.002	0.002	1.067	0.055	0.003	0.003	55.022
		Idle	2.565	0.149	0.149	0.163	0.349	0.085	0.001	0.001	85.215
B737-300	CFM56-3C-1 ...	Approach	0.475	0.009	0.009	0.010	0.904	0.114	0.001	0.001	112.997
28L		Climb Out	0.057	0.003	0.003	0.003	0.839	0.057	0.001	0.001	57.060
		Takeoff	0.067	0.003	0.003	0.004	1.240	0.075	0.001	0.001	74.675
		Idle	4.977	0.374	0.374	0.409	0.496	0.131	0.001	0.001	130.642
B737-500	CFM56-3C-1	Approach	0.351	0.008	0.008	0.009	1.030	0.114	0.001	0.001	113.106
28L		Climb Out	0.061	0.002	0.002	0.003	1.203	0.067	0.002	0.002	67.565
		Takeoff	0.079	0.002	0.002	0.003	1.838	0.089	0.009	0.009	88.792
		Idle	3.117	0.165	0.165	0.181	0.500	0.117	0.001	0.001	116.335
B737-700	CFM56-7B22	Approach	1.088	0.043	0.043	0.047	4.353	0.435	0.091	0.091	435.254
28L		Climb Out	0.157	0.026	0.026	0.029	4.971	0.261	0.055	0.055	261.680
		Takeoff	0.187	0.037	0.037	0.041	8.634	0.374	0.078	0.078	373.768
		Idle	9.739	1.068	1.068	1.168	1.922	0.427	0.089	0.089	427.137
B737-800	CFM56-7B26	Approach	0.270	0.017	0.017	0.019	1.827	0.169	0.051	0.051	169.111
28L		Climb Out	0.071	0.012	0.012	0.013	2.641	0.117	0.035	0.035	117.374
		Takeoff	0.033	0.017	0.017	0.018	4.782	0.166	0.051	0.051	166.024
		Idle	3.000	0.303	0.303	0.332	0.751	0.160	0.049	0.049	159.617
B757-300	PW2043	Approach	0.058	0.004	0.004	0.004	0.472	0.044	N/A	N/A	44.087
28L		Climb Out	0.012	0.001	0.001	0.001	0.834	0.030	N/A	N/A	29.920
		Takeoff	0.012	0.000	0.000	0.000	1.536	0.041	N/A	N/A	40.646
		Idle	0.745	0.061	0.061	0.066	0.171	0.039	N/A	N/A	38.593
BAE146-300	LF507 SERIES	Approach	0.041	0.001	0.001	0.001	0.058	0.009	0.001	0.001	9.146
28L		Climb Out	0.003	0.000	0.000	0.000	0.122	0.010	0.001	0.001	10.200
		Takeoff	0.002	0.000	0.000	0.000	0.126	0.009	0.001	0.001	8.666
		Idle	0.407	0.051	0.051	0.055	0.035	0.011	0.001	0.001	10.741
Bombardier CRJ700	CF34-8C1	Approach	0.637	0.013	0.013	0.014	2.432	0.219	0.011	0.011	219.026
28L		Climb Out	0.058	0.002	0.002	0.002	1.501	0.117	0.001	0.001	117.099
		Takeoff	0.080	0.004	0.004	0.004	2.881	0.196	0.010	0.010	196.416
		Idle	6.177	0.020	0.020	0.022	1.068	0.248	0.012	0.012	247.908
CITATION I SP	JT15D-1A _1B	Approach	0.484	0.053	0.053	0.056	0.041	0.007	0.003	0.003	11.940
28L_GA		Climb Out	0.025	0.000	0.000	0.000	0.049	0.003	0.002	0.002	7.135
		Takeoff	0.021	0.000	0.000	0.000	0.061	0.004	0.002	0.002	7.929
		Idle	1.596	0.611	0.611	0.649	0.021	0.007	0.003	0.003	12.093
CL600	ALF 502L-2	Approach	0.139	0.007	0.007	0.007	0.227	0.019	0.004	0.004	35.025
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.220	0.010	0.004	0.004	18.283
		Takeoff	0.010	0.000	0.000	0.000	0.335	0.013	0.002	0.002	24.972
		Idle	1.715	0.250	0.250	0.266	0.127	0.020	0.001	0.001	37.588
Cessna 172 Skyhawk	O-320	Approach	8.443	0.134	0.134	0.130	0.007	0.001	N/A	N/A	6.920
28L_GA		Climb Out	4.553	0.057	0.057	0.055	0.019	0.000	N/A	N/A	4.598

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	3.438	0.037	0.037	0.036	0.007	0.000	N/A	N/A	3.183
		Idle	2.192	0.075	0.075	0.073	0.001	0.000	N/A	N/A	2.029
Cessna 441 Conqu...	TPE331-8	Approach	0.065	0.003	0.003	0.003	0.142	0.015	N/A	N/A	15.030
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.034	0.003	N/A	N/A	3.183
		Takeoff	0.006	0.000	0.000	0.000	0.041	0.003	N/A	N/A	3.672
		Idle	0.205	0.017	0.017	0.018	0.045	0.011	N/A	N/A	10.880
DC9-30	JT8D-15 (old ...	Approach	1.613	0.277	0.277	0.303	0.991	0.168	0.121	0.121	168.015
28L		Climb Out	0.149	0.037	0.037	0.041	2.227	0.149	0.107	0.107	148.455
		Takeoff	0.110	0.040	0.040	0.043	3.000	0.157	0.114	0.114	157.066
		Idle	7.358	2.299	2.299	2.517	0.627	0.209	0.151	0.151	209.021
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.211	0.001	0.001	0.001	0.191	0.028	0.000	0.000	27.569
28L		Climb Out	0.013	0.001	0.001	0.001	0.371	0.028	0.000	0.000	27.552
		Takeoff	0.010	0.001	0.001	0.001	0.294	0.019	0.000	0.000	19.102
		Idle	1.170	0.116	0.123	0.130	0.031	0.000	0.000	0.000	30.412
Embraer ERJ 145	AE3007A	Approach	0.050	0.010	0.010	0.010	0.119	0.015	0.000	0.000	15.256
28L		Climb Out	0.013	0.004	0.004	0.004	0.258	0.014	0.000	0.000	14.742
		Takeoff	0.008	0.002	0.002	0.002	0.209	0.010	0.000	0.000	10.221
		Idle	0.293	0.042	0.042	0.045	0.065	0.017	0.000	0.000	16.906
Embraer ERJ 145	AE3007A1E	Approach	0.161	0.001	0.001	0.001	0.213	0.029	0.000	0.000	28.666
28L		Climb Out	0.019	0.001	0.001	0.001	0.438	0.030	0.000	0.000	29.364
		Takeoff	0.015	0.001	0.001	0.001	0.352	0.021	0.000	0.000	20.473
		Idle	1.140	0.106	0.106	0.112	0.128	0.030	0.000	0.000	30.024
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.830	0.003	0.003	0.004	0.869	0.122	0.000	0.000	122.013
28L		Climb Out	0.064	0.003	0.003	0.003	1.615	0.116	0.000	0.000	115.249
		Takeoff	0.074	0.003	0.003	0.003	1.604	0.099	0.000	0.000	99.648
		Idle	5.592	0.541	0.541	0.575	0.582	0.140	0.000	0.000	139.544
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	1.210	0.004	0.004	0.006	1.101	0.159	0.000	0.000	158.909
28L		Climb Out	0.079	0.004	0.004	0.006	2.143	0.159	0.000	0.000	158.817
		Takeoff	0.055	0.003	0.003	0.003	1.698	0.110	0.000	0.000	110.104
		Idle	6.744	0.668	0.668	0.710	0.748	0.175	0.000	0.000	175.297
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.313	0.001	0.001	0.001	0.328	0.046	0.000	0.000	46.079
28L		Climb Out	0.024	0.001	0.001	0.001	0.610	0.043	0.000	0.000	43.486
		Takeoff	0.028	0.001	0.001	0.001	0.605	0.037	0.000	0.000	37.610
		Idle	2.109	0.204	0.204	0.216	0.220	0.053	0.000	0.000	52.768
Embraer ERJ 170	CF34-8E5	Approach	0.385	0.006	0.006	0.006	0.979	0.090	0.011	0.011	90.844
28L		Climb Out	0.028	0.001	0.001	0.001	0.618	0.049	0.001	0.001	48.872
		Takeoff	0.053	0.001	0.001	0.002	1.211	0.082	0.010	0.010	82.025
		Idle	1.627	0.012	0.012	0.013	0.413	0.089	0.010	0.010	89.569
F-27 SERIES	RDa7	Approach	0.502	0.045	0.045	0.050	0.013	0.015	N/A	N/A	15.049
28L		Climb Out	0.036	0.011	0.011	0.013	0.047	0.011	N/A	N/A	10.496
		Takeoff	0.022	0.007	0.007	0.008	0.037	0.007	N/A	N/A	6.752
		Idle	1.624	0.424	0.424	0.468	0.012	0.018	N/A	N/A	17.765
Falcon 20	CF700-2D	Approach	1.572	0.035	0.035	0.037	0.045	0.025	N/A	N/A	25.355
28L_GA		Climb Out	0.352	0.001	0.001	0.001	0.061	0.014	N/A	N/A	14.082
		Takeoff	0.413	0.002	0.002	0.002	0.105	0.019	N/A	N/A	18.775
		Idle	4.741	0.551	0.551	0.585	0.028	0.031	N/A	N/A	30.589
Gulfstream II	SPEY MK511-8	Approach	0.134	0.009	0.009	0.010	0.364	0.051	N/A	N/A	50.592
28L_GA		Climb Out	0.024	0.004	0.004	0.006	0.680	0.040	N/A	N/A	39.308
		Takeoff	0.006	0.004	0.004	0.004	1.044	0.046	N/A	N/A	46.008
		Idle	2.127	0.247	0.247	0.262	0.241	0.067	N/A	N/A	66.980
HS 125	TFE731-3	Approach	0.507	0.046	0.046	0.051	0.226	0.018	N/A	N/A	32.623
28L_Corp		Climb Out	0.023	0.001	0.001	0.001	0.226	0.008	N/A	N/A	14.121
		Takeoff	0.025	0.001	0.001	0.001	0.421	0.012	N/A	N/A	21.962
		Idle	1.571	0.298	0.298	0.328	0.122	0.018	N/A	N/A	32.929
KC-135R	CFM56-2B-1	Approach	0.185	0.003	0.003	0.004	0.362	0.044	0.001	0.001	44.094
28L_GA		Climb Out	0.045	0.002	0.002	0.003	0.804	0.051	0.001	0.001	50.232
		Takeoff	0.065	0.003	0.003	0.003	1.336	0.073	0.004	0.004	72.234
		Idle	1.897	0.114	0.114	0.125	0.247	0.062	0.001	0.001	61.782
Learjet 25C	CJ610-6	Approach	2.840	0.000	0.000	0.000	0.049	0.018	N/A	N/A	32.272
28L_GA		Climb Out	0.338	0.002	0.002	0.002	0.042	0.007	N/A	N/A	12.073
		Takeoff	0.509	0.002	0.002	0.002	0.079	0.010	N/A	N/A	18.863
		Idle	6.937	0.806	0.806	0.856	0.041	0.024	N/A	N/A	44.755
Learjet 35/36	TFE 731-2-2B	Approach	1.413	0.269	0.269	0.285	0.373	0.034	N/A	N/A	63.130
28L_GA		Climb Out	0.057	0.003	0.003	0.003	0.370	0.015	N/A	N/A	28.333
		Takeoff	0.047	0.004	0.004	0.004	0.519	0.019	N/A	N/A	34.033
		Idle	3.338	1.142	1.142	1.214	0.161	0.031	N/A	N/A	56.965
MD-80-83	JT8D-219 old...	Approach	0.496	0.194	0.194	0.212	1.111	0.121	0.036	0.036	121.757
28L		Climb Out	0.126	0.044	0.044	0.049	2.174	0.105	0.031	0.031	104.484
		Takeoff	0.084	0.031	0.031	0.034	3.112	0.116	0.033	0.033	115.253
		Idle	1.573	0.433	0.433	0.475	0.449	0.125	0.036	0.036	124.571

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Navajo	TIO-540-J2B2	Approach	13.944	0.149	0.149	0.143	0.015	0.001	N/A	N/A	11.066
28L_GA		Climb Out	11.654	0.131	0.131	0.127	0.002	0.001	N/A	N/A	7.922
		Takeoff	7.768	0.067	0.067	0.064	0.002	0.001	N/A	N/A	5.387
		Idle	7.304	0.385	0.385	0.370	0.002	0.001	N/A	N/A	5.645
Piper PA-28	O-320	Approach	1.581	0.025	0.025	0.024	0.001	0.000	N/A	N/A	1.295
28L_GA		Climb Out	0.761	0.010	0.010	0.009	0.003	0.000	N/A	N/A	0.768
		Takeoff	0.514	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.476
		Idle	0.323	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.299
UC-12J	PT6A-42	Approach	0.655	0.428	0.428	0.472	0.087	0.010	N/A	N/A	18.837
28L_GA		Climb Out	0.029	0.009	0.009	0.010	0.034	0.002	N/A	N/A	4.481
		Takeoff	0.018	0.007	0.007	0.007	0.028	0.002	N/A	N/A	3.509
		Idle	1.479	1.304	1.304	1.441	0.025	0.007	N/A	N/A	12.851
550 Citation	JT15D-4 (B,C...	Approach	1.297	0.208	0.208	0.222	0.215	0.022	0.011	0.011	40.552
28L_Corp		Climb Out	0.069	0.004	0.004	0.004	0.186	0.012	0.007	0.007	21.722
		Takeoff	0.050	0.002	0.002	0.002	0.219	0.013	0.007	0.007	23.736
		Idle	4.021	1.658	1.658	1.763	0.109	0.022	0.012	0.012	41.452
Falcon 2000EX	PW308C	Approach	0.099	0.002	0.002	0.003	0.149	0.019	0.002	0.002	18.967
28L_Corp		Climb Out	0.010	0.001	0.001	0.001	0.162	0.010	0.001	0.001	10.157
		Takeoff	0.011	0.001	0.001	0.001	0.244	0.013	0.001	0.001	13.209
		Idle	0.668	0.094	0.094	0.099	0.057	0.015	0.001	0.001	15.785
550 Citation	JT15D-4 (B,C...	Approach	1.513	0.244	0.244	0.259	0.250	0.025	0.013	0.013	47.294
28L_GA		Climb Out	0.080	0.004	0.004	0.006	0.217	0.013	0.007	0.007	25.333
		Takeoff	0.058	0.002	0.002	0.002	0.256	0.015	0.008	0.008	27.681
		Idle	4.689	1.933	1.933	2.056	0.127	0.026	0.013	0.013	48.343
Gulfstream IV	TAY Mk611-8	Approach	0.349	0.080	0.080	0.086	0.510	0.089	0.053	0.053	89.590
28L_GA		Climb Out	0.032	0.012	0.012	0.013	0.679	0.041	0.024	0.024	40.450
		Takeoff	0.040	0.045	0.045	0.047	1.184	0.056	0.033	0.033	56.118
		Idle	2.998	0.423	0.423	0.450	0.311	0.125	0.074	0.074	124.423
Aztec	TIO-540-J2B2	Approach	17.479	0.186	0.186	0.180	0.019	0.001	N/A	N/A	13.873
28R_GA		Climb Out	14.609	0.165	0.165	0.159	0.002	0.001	N/A	N/A	9.931
		Takeoff	9.737	0.084	0.084	0.080	0.002	0.001	N/A	N/A	6.753
		Idle	9.156	0.482	0.482	0.465	0.003	0.001	N/A	N/A	7.076
B737-300	CFM56-3-B1	Approach	0.662	0.014	0.014	0.015	1.447	0.174	0.002	0.002	174.410
28R		Climb Out	0.085	0.004	0.004	0.004	1.390	0.089	0.001	0.001	89.705
		Takeoff	0.106	0.004	0.004	0.006	2.083	0.118	0.003	0.003	117.711
		Idle	6.706	0.444	0.444	0.486	0.761	0.195	0.002	0.002	194.954
B737-300	CFM56-3B-2	Approach	0.140	0.003	0.003	0.003	0.357	0.041	0.000	0.000	41.026
28R		Climb Out	0.020	0.001	0.001	0.001	0.360	0.022	0.000	0.000	21.604
		Takeoff	0.025	0.001	0.001	0.001	0.553	0.029	0.002	0.002	28.545
		Idle	1.330	0.077	0.077	0.085	0.181	0.044	0.000	0.000	44.210
B737-300	CFM56-3C-1 ...	Approach	0.235	0.004	0.004	0.004	0.446	0.056	0.001	0.001	55.818
28R		Climb Out	0.029	0.001	0.001	0.001	0.414	0.029	0.000	0.000	28.186
		Takeoff	0.033	0.002	0.002	0.002	0.613	0.036	0.001	0.001	36.888
		Idle	2.459	0.184	0.184	0.202	0.245	0.065	0.001	0.001	64.534
B737-500	CFM56-3C-1	Approach	0.172	0.004	0.004	0.004	0.505	0.055	0.001	0.001	55.441
28R		Climb Out	0.030	0.001	0.001	0.001	0.590	0.033	0.001	0.001	33.118
		Takeoff	0.040	0.001	0.001	0.001	0.901	0.043	0.004	0.004	43.523
		Idle	1.528	0.080	0.080	0.088	0.245	0.057	0.001	0.001	57.024
B737-700	CFM56-7B22	Approach	0.542	0.022	0.022	0.024	2.168	0.217	0.045	0.045	216.857
28R		Climb Out	0.078	0.013	0.013	0.014	2.477	0.130	0.028	0.028	130.377
		Takeoff	0.093	0.019	0.019	0.020	4.301	0.186	0.040	0.040	186.222
		Idle	4.852	0.532	0.532	0.582	0.958	0.213	0.045	0.045	212.812
B737-800	CFM56-7B26	Approach	0.134	0.009	0.009	0.009	0.909	0.084	0.025	0.025	84.217
28R		Climb Out	0.035	0.006	0.006	0.007	1.315	0.058	0.018	0.018	58.452
		Takeoff	0.017	0.009	0.009	0.009	2.381	0.083	0.025	0.025	82.679
		Idle	1.495	0.151	0.151	0.165	0.374	0.079	0.024	0.024	79.489
B757-300	PW2043	Approach	0.030	0.002	0.002	0.002	0.245	0.023	N/A	N/A	22.831
28R		Climb Out	0.006	0.000	0.000	0.000	0.432	0.015	N/A	N/A	15.494
		Takeoff	0.007	0.000	0.000	0.000	0.795	0.021	N/A	N/A	21.049
		Idle	0.386	0.031	0.031	0.034	0.088	0.020	N/A	N/A	19.986
BAE146-300	LF507 SERIES	Approach	0.083	0.002	0.002	0.002	0.120	0.019	0.001	0.001	18.726
28R		Climb Out	0.007	0.000	0.000	0.000	0.251	0.021	0.003	0.003	20.884
		Takeoff	0.003	0.000	0.000	0.000	0.258	0.018	0.003	0.003	17.746
		Idle	0.832	0.104	0.104	0.114	0.072	0.022	0.002	0.002	21.994
Bombardier CRJ700	CF34-8C1	Approach	1.329	0.028	0.028	0.030	5.071	0.456	0.022	0.022	456.789
28R		Climb Out	0.122	0.004	0.004	0.006	3.131	0.245	0.001	0.001	244.214
		Takeoff	0.168	0.008	0.008	0.009	6.010	0.410	0.020	0.020	409.635
		Idle	12.884	0.042	0.042	0.045	2.229	0.517	0.025	0.025	517.023
CITATION I SP	JT15D-1A _1B	Approach	0.172	0.019	0.019	0.020	0.014	0.002	0.001	0.001	4.235
28R_GA		Climb Out	0.009	0.000	0.000	0.000	0.018	0.001	0.001	0.001	2.531

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.008	0.000	0.000	0.000	0.021	0.001	0.001	0.001	2.812
		Idle	0.567	0.216	0.216	0.230	0.008	0.002	0.001	0.001	4.289
CL600	ALF 502L-2	Approach	0.300	0.014	0.014	0.014	0.488	0.041	0.009	0.009	75.409
28R_GA		Climb Out	0.012	0.001	0.001	0.001	0.474	0.021	0.009	0.009	39.364
		Takeoff	0.022	0.001	0.001	0.001	0.722	0.029	0.006	0.006	53.765
		Idle	3.693	0.538	0.538	0.572	0.273	0.044	0.001	0.001	80.927
Cessna 172 Skyhawk	O-320	Approach	6.490	0.104	0.104	0.099	0.006	0.001	N/A	N/A	5.320
28R_GA		Climb Out	3.500	0.044	0.044	0.042	0.014	0.000	N/A	N/A	3.535
		Takeoff	2.643	0.029	0.029	0.028	0.006	0.000	N/A	N/A	2.447
		Idle	1.685	0.057	0.057	0.055	0.001	0.000	N/A	N/A	1.560
Cessna 441 Conqu...	TPE331-8	Approach	0.026	0.001	0.001	0.001	0.058	0.007	N/A	N/A	6.122
28R_GA		Climb Out	0.002	0.000	0.000	0.000	0.014	0.001	N/A	N/A	1.296
		Takeoff	0.002	0.000	0.000	0.000	0.017	0.001	N/A	N/A	1.496
		Idle	0.084	0.007	0.007	0.007	0.019	0.004	N/A	N/A	4.431
DC9-30	JT8D-15 (old ...	Approach	0.805	0.138	0.138	0.151	0.495	0.084	0.061	0.061	83.840
28R		Climb Out	0.074	0.019	0.019	0.020	1.111	0.074	0.053	0.053	74.079
		Takeoff	0.055	0.020	0.020	0.021	1.497	0.078	0.056	0.056	78.375
		Idle	3.672	1.148	1.148	1.256	0.313	0.105	0.075	0.075	104.302
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.462	0.002	0.002	0.002	0.420	0.061	0.000	0.000	60.662
28R		Climb Out	0.031	0.002	0.002	0.002	0.818	0.061	0.000	0.000	60.627
		Takeoff	0.021	0.001	0.001	0.001	0.648	0.042	0.000	0.000	42.032
		Idle	2.574	0.255	0.255	0.271	0.285	0.067	0.000	0.000	66.919
Embraer ERJ 145	AE3007A	Approach	0.106	0.021	0.021	0.022	0.252	0.032	0.000	0.000	32.388
28R		Climb Out	0.029	0.009	0.009	0.010	0.547	0.031	0.000	0.000	31.297
		Takeoff	0.017	0.006	0.006	0.006	0.445	0.022	0.000	0.000	21.699
		Idle	0.623	0.090	0.090	0.096	0.138	0.036	0.000	0.000	35.891
Embraer ERJ 145	AE3007A1E	Approach	0.343	0.002	0.002	0.002	0.452	0.061	0.000	0.000	60.858
28R		Climb Out	0.040	0.002	0.002	0.002	0.929	0.063	0.000	0.000	62.342
		Takeoff	0.033	0.001	0.001	0.001	0.746	0.043	0.000	0.000	43.465
		Idle	2.421	0.225	0.225	0.238	0.271	0.064	0.000	0.000	63.741
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	1.763	0.008	0.008	0.009	1.846	0.259	0.000	0.000	259.277
28R		Climb Out	0.134	0.008	0.008	0.008	3.431	0.245	0.000	0.000	244.904
		Takeoff	0.157	0.007	0.007	0.007	3.409	0.212	0.000	0.000	211.753
		Idle	11.882	1.151	1.151	1.224	1.237	0.297	0.000	0.000	296.532
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	2.573	0.010	0.010	0.011	2.340	0.337	0.000	0.000	337.674
28R		Climb Out	0.169	0.010	0.010	0.011	4.553	0.337	0.000	0.000	337.478
		Takeoff	0.117	0.007	0.007	0.008	3.608	0.234	0.000	0.000	233.967
		Idle	14.330	1.419	1.419	1.509	1.591	0.373	0.000	0.000	372.500
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.665	0.003	0.003	0.003	0.698	0.098	0.000	0.000	97.947
28R		Climb Out	0.051	0.003	0.003	0.003	1.295	0.093	0.000	0.000	92.434
		Takeoff	0.060	0.002	0.002	0.002	1.287	0.080	0.000	0.000	79.943
		Idle	4.483	0.433	0.433	0.461	0.467	0.112	0.000	0.000	112.165
Embraer ERJ 170	CF34-8E5	Approach	0.801	0.011	0.011	0.012	2.040	0.190	0.022	0.022	189.478
28R		Climb Out	0.058	0.002	0.002	0.002	1.290	0.101	0.001	0.001	101.935
		Takeoff	0.109	0.003	0.003	0.003	2.526	0.171	0.020	0.020	171.085
		Idle	3.393	0.024	0.024	0.026	0.861	0.186	0.022	0.022	186.822
F-27 SERIES	RDa7	Approach	0.505	0.045	0.045	0.051	0.013	0.015	N/A	N/A	15.172
28R		Climb Out	0.037	0.012	0.012	0.013	0.047	0.011	N/A	N/A	10.583
		Takeoff	0.022	0.007	0.007	0.008	0.039	0.007	N/A	N/A	6.807
		Idle	1.637	0.428	0.428	0.473	0.012	0.018	N/A	N/A	17.911
Falcon 20	CF700-2D	Approach	0.548	0.012	0.012	0.013	0.015	0.009	N/A	N/A	8.831
28R_GA		Climb Out	0.122	0.000	0.000	0.000	0.021	0.004	N/A	N/A	4.904
		Takeoff	0.144	0.001	0.001	0.001	0.036	0.007	N/A	N/A	6.539
		Idle	1.651	0.192	0.192	0.204	0.010	0.011	N/A	N/A	10.654
Gulfstream II	SPEY MK511-8	Approach	0.046	0.003	0.003	0.003	0.127	0.018	N/A	N/A	17.620
28R_GA		Climb Out	0.009	0.001	0.001	0.002	0.237	0.013	N/A	N/A	13.691
		Takeoff	0.002	0.001	0.001	0.001	0.364	0.017	N/A	N/A	16.024
		Idle	0.741	0.086	0.086	0.091	0.084	0.023	N/A	N/A	23.328
HS 125	TFE731-3	Approach	1.054	0.096	0.096	0.106	0.468	0.036	N/A	N/A	67.752
28R_Corp		Climb Out	0.047	0.002	0.002	0.002	0.470	0.015	N/A	N/A	29.327
		Takeoff	0.052	0.003	0.003	0.003	0.873	0.024	N/A	N/A	45.611
		Idle	3.262	0.618	0.618	0.683	0.255	0.037	N/A	N/A	68.388
KC-135R	CFM56-2B-1	Approach	0.096	0.002	0.002	0.002	0.187	0.023	0.000	0.000	22.834
28R_GA		Climb Out	0.023	0.001	0.001	0.001	0.417	0.026	0.000	0.000	26.013
		Takeoff	0.034	0.001	0.001	0.001	0.692	0.037	0.002	0.002	37.407
		Idle	0.982	0.058	0.058	0.065	0.128	0.032	0.000	0.000	31.995
Learjet 25C	CJ610-6	Approach	5.725	0.000	0.000	0.000	0.098	0.035	N/A	N/A	65.058
28R_GA		Climb Out	0.681	0.004	0.004	0.006	0.085	0.013	N/A	N/A	24.337
		Takeoff	1.026	0.003	0.003	0.004	0.160	0.021	N/A	N/A	38.025
		Idle	13.984	1.624	1.624	1.726	0.082	0.049	N/A	N/A	90.221

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36	TFE 731-2-2B	Approach	0.495	0.094	0.094	0.100	0.130	0.012	N/A	N/A	22.110
28R_GA		Climb Out	0.020	0.001	0.001	0.001	0.130	0.006	N/A	N/A	9.923
		Takeoff	0.017	0.001	0.001	0.001	0.182	0.007	N/A	N/A	11.919
		Idle	1.170	0.400	0.400	0.425	0.056	0.011	N/A	N/A	19.951
MD-80-83	JT8D-219 old...	Approach	0.226	0.088	0.088	0.097	0.508	0.055	0.017	0.017	55.634
28R		Climb Out	0.057	0.020	0.020	0.022	0.993	0.047	0.014	0.014	47.741
		Takeoff	0.039	0.014	0.014	0.015	1.422	0.053	0.015	0.015	52.662
		Idle	0.719	0.198	0.198	0.217	0.205	0.057	0.017	0.017	56.919
Navajo	TIO-540-J2B2	Approach	14.888	0.159	0.159	0.153	0.017	0.001	N/A	N/A	11.816
28R_GA		Climb Out	12.443	0.140	0.140	0.136	0.002	0.001	N/A	N/A	8.459
		Takeoff	8.294	0.072	0.072	0.068	0.002	0.001	N/A	N/A	5.752
		Idle	7.799	0.410	0.410	0.396	0.002	0.001	N/A	N/A	6.027
Piper PA-28	O-320	Approach	0.645	0.010	0.010	0.010	0.000	0.000	N/A	N/A	0.528
28R_GA		Climb Out	0.310	0.004	0.004	0.003	0.001	0.000	N/A	N/A	0.313
		Takeoff	0.209	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.194
		Idle	0.131	0.004	0.004	0.004	0.000	0.000	N/A	N/A	0.122
UC-12J	PT6A-42	Approach	0.299	0.195	0.195	0.215	0.040	0.004	N/A	N/A	8.576
28R_GA		Climb Out	0.013	0.004	0.004	0.004	0.015	0.001	N/A	N/A	2.040
		Takeoff	0.008	0.003	0.003	0.003	0.013	0.001	N/A	N/A	1.597
		Idle	0.674	0.593	0.593	0.656	0.011	0.003	N/A	N/A	5.850
550 Citation	JT15D-4 (B,C...	Approach	2.766	0.445	0.445	0.473	0.457	0.046	0.024	0.024	86.419
28R_Corp		Climb Out	0.148	0.009	0.009	0.009	0.396	0.025	0.013	0.013	46.290
		Takeoff	0.106	0.004	0.004	0.004	0.467	0.028	0.014	0.014	50.583
		Idle	8.568	3.534	3.534	3.757	0.233	0.047	0.025	0.025	88.337
Falcon 2000EX	PW308C	Approach	0.203	0.006	0.006	0.006	0.303	0.039	0.003	0.003	38.763
28R_Corp		Climb Out	0.020	0.002	0.002	0.002	0.332	0.021	0.002	0.002	20.757
		Takeoff	0.022	0.002	0.002	0.002	0.498	0.026	0.002	0.002	26.993
		Idle	1.365	0.192	0.192	0.204	0.117	0.032	0.003	0.003	32.259
550 Citation	JT15D-4 (B,C...	Approach	0.527	0.085	0.085	0.090	0.087	0.009	0.004	0.004	16.477
28R_GA		Climb Out	0.028	0.002	0.002	0.002	0.076	0.004	0.002	0.002	8.826
		Takeoff	0.020	0.001	0.001	0.001	0.089	0.006	0.002	0.002	9.645
		Idle	1.634	0.674	0.674	0.717	0.044	0.009	0.004	0.004	16.843
Gulfstream IV	TAY Mk611-8	Approach	0.313	0.072	0.072	0.077	0.457	0.080	0.047	0.047	80.178
28R_GA		Climb Out	0.029	0.011	0.011	0.011	0.608	0.036	0.021	0.021	36.201
		Takeoff	0.035	0.040	0.040	0.043	1.059	0.051	0.030	0.030	50.221
		Idle	2.683	0.378	0.378	0.402	0.279	0.111	0.066	0.066	111.350
A320-200	V2527-A5	Approach	0.013	0.000	0.000	0.000	0.049	0.006	0.001	0.001	5.442
10L		Climb Out	0.002	0.000	0.000	0.000	0.083	0.003	0.000	0.000	3.725
		Takeoff	0.002	0.000	0.000	0.000	0.109	0.004	0.000	0.000	4.101
		Idle	0.074	0.001	0.001	0.001	0.028	0.006	0.001	0.001	5.933
A320-200	V2527-A5	Approach	0.047	0.001	0.001	0.001	0.173	0.020	0.002	0.002	19.386
10R		Climb Out	0.008	0.000	0.000	0.001	0.295	0.013	0.002	0.002	13.270
		Takeoff	0.008	0.001	0.001	0.001	0.387	0.014	0.002	0.002	14.609
		Idle	0.262	0.002	0.002	0.002	0.099	0.021	0.002	0.002	21.136
A320-200	V2527-A5	Approach	0.065	0.001	0.001	0.002	0.238	0.026	0.003	0.003	26.698
28L		Climb Out	0.011	0.001	0.001	0.001	0.408	0.019	0.002	0.002	18.275
		Takeoff	0.011	0.001	0.001	0.001	0.534	0.020	0.002	0.002	20.118
		Idle	0.362	0.003	0.003	0.003	0.137	0.029	0.003	0.003	29.108
A320-200	V2527-A5	Approach	0.025	0.001	0.001	0.001	0.093	0.010	0.001	0.001	10.373
28R		Climb Out	0.004	0.000	0.000	0.000	0.159	0.007	0.001	0.001	7.101
		Takeoff	0.004	0.000	0.000	0.000	0.207	0.008	0.001	0.001	7.816
		Idle	0.141	0.001	0.001	0.001	0.053	0.011	0.001	0.001	11.310
Citation VII	TFE 731-2-2B	Approach	0.187	0.035	0.035	0.037	0.050	0.004	N/A	N/A	8.383
10L_GA		Climb Out	0.009	0.000	0.000	0.001	0.055	0.002	N/A	N/A	4.212
		Takeoff	0.008	0.001	0.001	0.001	0.083	0.003	N/A	N/A	5.455
		Idle	0.420	0.143	0.143	0.153	0.020	0.004	N/A	N/A	7.167
Citation VII	TFE 731-2-2B	Approach	0.100	0.019	0.019	0.021	0.026	0.002	N/A	N/A	4.505
10R_GA		Climb Out	0.004	0.000	0.000	0.000	0.030	0.001	N/A	N/A	2.263
		Takeoff	0.004	0.000	0.000	0.000	0.045	0.001	N/A	N/A	2.931
		Idle	0.226	0.077	0.077	0.082	0.011	0.002	N/A	N/A	3.851
Citation VII	TFE 731-2-2B	Approach	0.220	0.042	0.042	0.045	0.058	0.006	N/A	N/A	9.871
28L_GA		Climb Out	0.010	0.001	0.001	0.001	0.065	0.002	N/A	N/A	4.959
		Takeoff	0.009	0.001	0.001	0.001	0.098	0.003	N/A	N/A	6.423
		Idle	0.495	0.169	0.169	0.180	0.024	0.004	N/A	N/A	8.440
Citation VII	TFE 731-2-2B	Approach	0.452	0.086	0.086	0.091	0.119	0.011	N/A	N/A	20.173
28R_GA		Climb Out	0.021	0.001	0.001	0.001	0.132	0.006	N/A	N/A	10.136
		Takeoff	0.019	0.001	0.001	0.001	0.201	0.007	N/A	N/A	13.127
		Idle	1.011	0.346	0.346	0.367	0.049	0.009	N/A	N/A	17.249
HS 748 2A SERIES	RDa7	Approach	0.237	0.021	0.021	0.023	0.007	0.007	N/A	N/A	7.122
10L_GA		Climb Out	0.018	0.006	0.006	0.006	0.022	0.006	N/A	N/A	4.968

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Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.010	0.003	0.003	0.003	0.018	0.003	N/A	N/A	3.196
		Idle	0.768	0.201	0.201	0.222	0.006	0.009	N/A	N/A	8.407
HS 748 2A SERIES	RDa7	Approach	0.448	0.041	0.041	0.044	0.012	0.013	N/A	N/A	13.438
28L_GA		Climb Out	0.033	0.010	0.010	0.011	0.042	0.010	N/A	N/A	9.374
		Takeoff	0.020	0.006	0.006	0.007	0.034	0.006	N/A	N/A	6.029
		Idle	1.450	0.379	0.379	0.419	0.011	0.015	N/A	N/A	15.864
HS 748 2A SERIES	RDa7	Approach	0.606	0.055	0.055	0.061	0.017	0.019	N/A	N/A	18.207
28R_GA		Climb Out	0.044	0.014	0.014	0.015	0.057	0.013	N/A	N/A	12.700
		Takeoff	0.026	0.008	0.008	0.009	0.045	0.008	N/A	N/A	8.168
		Idle	1.964	0.514	0.514	0.568	0.015	0.021	N/A	N/A	21.493
Learjet 25B	CJ610-6	Approach	1.322	0.000	0.000	0.000	0.022	0.008	N/A	N/A	15.013
10L_GA		Climb Out	0.158	0.001	0.001	0.001	0.020	0.003	N/A	N/A	5.616
		Takeoff	0.237	0.001	0.001	0.001	0.036	0.004	N/A	N/A	8.776
		Idle	3.228	0.375	0.375	0.398	0.019	0.011	N/A	N/A	20.820
Learjet 25B	CJ610-6	Approach	4.861	0.000	0.000	0.000	0.083	0.030	N/A	N/A	55.241
10R_GA		Climb Out	0.579	0.004	0.004	0.004	0.073	0.011	N/A	N/A	20.664
		Takeoff	0.872	0.003	0.003	0.003	0.136	0.018	N/A	N/A	32.288
		Idle	11.874	1.379	1.379	1.466	0.069	0.042	N/A	N/A	76.607
Learjet 25B	CJ610-6	Approach	10.705	0.000	0.000	0.000	0.183	0.066	N/A	N/A	121.647
28L_GA		Climb Out	1.274	0.009	0.009	0.010	0.159	0.024	N/A	N/A	45.505
		Takeoff	1.920	0.007	0.007	0.008	0.299	0.039	N/A	N/A	71.101
		Idle	26.148	3.037	3.037	3.229	0.152	0.091	N/A	N/A	168.697
Learjet 25B	CJ610-6	Approach	3.720	0.000	0.000	0.000	0.064	0.023	N/A	N/A	42.281
28R_GA		Climb Out	0.443	0.003	0.003	0.003	0.055	0.009	N/A	N/A	15.816
		Takeoff	0.667	0.002	0.002	0.002	0.104	0.013	N/A	N/A	24.713
		Idle	9.089	1.055	1.055	1.122	0.053	0.032	N/A	N/A	58.634
Bombardier CRJ900	CF34-8C5	Approach	0.055	0.001	0.001	0.001	0.139	0.013	0.001	0.001	12.966
10L		Climb Out	0.004	0.000	0.000	0.000	0.088	0.007	0.000	0.000	6.964
		Takeoff	0.008	0.000	0.000	0.000	0.172	0.012	0.001	0.001	11.687
		Idle	0.234	0.002	0.002	0.002	0.058	0.013	0.001	0.001	12.814
Bombardier CRJ900	CF34-8C5	Approach	0.031	0.000	0.000	0.000	0.077	0.008	0.001	0.001	7.214
10R		Climb Out	0.002	0.000	0.000	0.000	0.049	0.004	0.000	0.000	3.875
		Takeoff	0.004	0.000	0.000	0.000	0.096	0.007	0.001	0.001	6.501
		Idle	0.130	0.001	0.001	0.001	0.033	0.007	0.001	0.001	7.129
Bombardier CRJ900	CF34-8C5	Approach	0.064	0.001	0.001	0.001	0.162	0.015	0.001	0.001	15.066
28L		Climb Out	0.004	0.000	0.000	0.000	0.103	0.008	0.000	0.000	8.093
		Takeoff	0.009	0.000	0.000	0.000	0.200	0.013	0.001	0.001	13.579
		Idle	0.272	0.002	0.002	0.002	0.068	0.015	0.001	0.001	14.890
Bombardier CRJ900	CF34-8C5	Approach	0.133	0.002	0.002	0.002	0.337	0.031	0.003	0.003	31.411
28R		Climb Out	0.010	0.000	0.000	0.000	0.213	0.017	0.000	0.000	16.872
		Takeoff	0.018	0.001	0.001	0.001	0.416	0.029	0.003	0.003	28.311
		Idle	0.567	0.004	0.004	0.004	0.143	0.031	0.003	0.003	31.043
A320-200	V2500-A1	Approach	0.004	0.001	0.001	0.001	0.077	0.006	0.000	0.000	5.698
10L		Climb Out	0.002	0.000	0.000	0.000	0.120	0.004	0.000	0.000	3.911
		Takeoff	0.002	0.000	0.000	0.000	0.161	0.004	0.000	0.000	4.334
		Idle	0.044	0.001	0.001	0.001	0.034	0.006	0.000	0.000	5.747
A320-200	V2500-A1	Approach	0.015	0.003	0.003	0.003	0.273	0.020	0.000	0.000	20.298
10R		Climb Out	0.008	0.001	0.001	0.002	0.430	0.014	0.000	0.000	13.933
		Takeoff	0.009	0.001	0.001	0.002	0.573	0.015	0.000	0.000	15.441
		Idle	0.159	0.004	0.004	0.004	0.121	0.021	0.000	0.000	20.475
A320-200	V2500-A1	Approach	0.022	0.004	0.004	0.004	0.376	0.028	0.001	0.001	27.954
28L		Climb Out	0.011	0.002	0.002	0.002	0.592	0.019	0.000	0.000	19.189
		Takeoff	0.012	0.002	0.002	0.002	0.789	0.021	0.000	0.000	21.265
		Idle	0.219	0.007	0.007	0.007	0.166	0.029	0.001	0.001	28.198
A320-200	V2500-A1	Approach	0.009	0.001	0.001	0.002	0.147	0.011	0.000	0.000	10.861
28R		Climb Out	0.004	0.001	0.001	0.001	0.229	0.008	0.000	0.000	7.456
		Takeoff	0.004	0.001	0.001	0.001	0.306	0.008	0.000	0.000	8.262
		Idle	0.085	0.002	0.002	0.002	0.065	0.011	0.000	0.000	10.956
Embraer ERJ 170	CF34-8E5A1	Approach	0.055	0.001	0.001	0.001	0.150	0.013	0.003	0.003	13.566
10L		Climb Out	0.004	0.000	0.000	0.000	0.097	0.008	0.000	0.000	7.405
		Takeoff	0.009	0.000	0.000	0.000	0.197	0.012	0.003	0.003	12.467
		Idle	0.227	0.002	0.002	0.002	0.062	0.013	0.003	0.003	13.153
Embraer ERJ 170	CF34-8E5A1	Approach	0.031	0.000	0.000	0.000	0.084	0.008	0.002	0.002	7.548
10R		Climb Out	0.002	0.000	0.000	0.000	0.054	0.004	0.000	0.000	4.119
		Takeoff	0.004	0.000	0.000	0.000	0.109	0.007	0.002	0.002	6.936
		Idle	0.127	0.001	0.001	0.001	0.034	0.008	0.002	0.002	7.317
Embraer ERJ 170	CF34-8E5A1	Approach	0.064	0.001	0.001	0.001	0.174	0.015	0.004	0.004	15.764
28L		Climb Out	0.004	0.000	0.000	0.000	0.114	0.009	0.000	0.000	8.605
		Takeoff	0.010	0.000	0.000	0.000	0.229	0.014	0.003	0.003	14.487
		Idle	0.265	0.002	0.002	0.002	0.072	0.015	0.004	0.004	15.284

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 170 28R	CF34-8E5A1	Approach	0.133	0.002	0.002	0.002	0.364	0.033	0.009	0.009	32.865
		Climb Out	0.010	0.000	0.000	0.000	0.236	0.018	0.000	0.000	17.939
		Takeoff	0.021	0.001	0.001	0.001	0.477	0.030	0.008	0.008	30.202
		Idle	0.551	0.004	0.004	0.004	0.150	0.032	0.009	0.009	31.865
HS 748 2A SERIES 10R_GA	RDa7	Approach	0.215	0.020	0.020	0.021	0.006	0.007	N/A	N/A	6.441
		Climb Out	0.015	0.004	0.004	0.006	0.020	0.004	N/A	N/A	4.492
		Takeoff	0.009	0.003	0.003	0.003	0.017	0.003	N/A	N/A	2.889
		Idle	0.694	0.182	0.182	0.201	0.006	0.008	N/A	N/A	7.603

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Arr Curb FF	Roadway	0.428	0.032	0.030	0.040	0.043	0.000	0.001	0.001
Arr Curb Pick Up	Roadway	3.659	0.435	0.414	0.659	0.211	0.001	0.003	0.002
Blue Ent_Exit	Roadway	0.774	0.055	0.052	0.065	0.080	0.001	0.002	0.001
Bowtie	Roadway	0.453	0.030	0.029	0.035	0.046	0.000	0.001	0.001
Brdgwy N of Sawyr 1	Roadway	2.628	0.173	0.164	0.203	0.268	0.002	0.009	0.006
Brdgwy N of Sawyr 2	Roadway	4.814	0.317	0.302	0.371	0.489	0.004	0.017	0.010
Crb Exit to IntlGat1	Roadway	1.553	0.111	0.105	0.131	0.162	0.001	0.006	0.003
Curb Exit to IntlGa2	Roadway	12.016	0.858	0.811	1.017	1.250	0.010	0.041	0.024
Dep Curb Drop Off	Roadway	4.782	0.569	0.541	0.862	0.276	0.001	0.004	0.003
Dep Curb FF	Roadway	0.560	0.042	0.040	0.052	0.057	0.000	0.001	0.001
Ent from 670 NB	Roadway	4.294	0.233	0.222	0.267	0.420	0.003	0.013	0.008
Ent from 670 SB	Roadway	2.840	0.154	0.147	0.176	0.278	0.002	0.009	0.006
Ent from 670_1	Roadway	5.967	0.323	0.308	0.370	0.583	0.004	0.019	0.011
Ent from 670_2	Roadway	14.564	0.789	0.752	0.905	1.424	0.011	0.044	0.026
Ent_Exit_Employee	Roadway	0.381	0.025	0.024	0.030	0.039	0.000	0.001	0.001
Exit Comm Gar	Roadway	9.416	0.622	0.590	0.728	0.958	0.008	0.033	0.019
Exit Red 1	Roadway	1.387	0.091	0.087	0.107	0.141	0.001	0.004	0.003
Exit Red 2	Roadway	0.429	0.029	0.026	0.033	0.044	0.000	0.001	0.001
Exit Red 3	Roadway	1.920	0.127	0.120	0.149	0.195	0.001	0.007	0.004
Exit Red 4	Roadway	0.748	0.050	0.047	0.057	0.076	0.001	0.002	0.001
Exit to 670 NB	Roadway	3.007	0.163	0.155	0.186	0.294	0.002	0.009	0.006
Exit to 670 SB	Roadway	3.505	0.190	0.181	0.218	0.343	0.002	0.011	0.007
Exit to 670_1	Roadway	12.432	0.674	0.642	0.773	1.216	0.009	0.039	0.022
Exit to 670_2	Roadway	5.124	0.278	0.265	0.319	0.500	0.003	0.015	0.009
Green Lot Ent_Exit	Roadway	0.674	0.049	0.045	0.057	0.071	0.000	0.002	0.001
Int West to Stlz_2	Roadway	26.361	1.523	1.448	1.756	2.577	0.020	0.085	0.049
Intl Blue to Lane 1	Roadway	11.085	0.640	0.608	0.739	1.084	0.009	0.035	0.021
Intl Blue to Lane 2	Roadway	15.618	0.903	0.858	1.041	1.527	0.012	0.050	0.029
Intl East Bowtie_1	Roadway	7.054	0.408	0.388	0.470	0.690	0.006	0.022	0.013
Intl East Bowtie_2	Roadway	10.869	0.628	0.597	0.724	1.063	0.009	0.035	0.020
Intl East at Red	Roadway	43.258	2.500	2.377	2.881	4.228	0.033	0.139	0.080
Intl East at Tunnel	Roadway	21.449	1.239	1.178	1.429	2.097	0.017	0.068	0.040
Intl Exit at Tunnel	Roadway	29.904	1.728	1.642	1.992	2.923	0.023	0.096	0.055
Intl Green to Blue 1	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 2	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 3	Roadway	36.466	2.108	2.003	2.429	3.565	0.028	0.117	0.068
Intl Lane to LT	Roadway	11.895	0.849	0.802	1.008	1.238	0.010	0.041	0.023
Intl West to Stlz_1	Roadway	30.189	1.745	1.658	2.011	2.951	0.023	0.097	0.056
Intl from Sawyer	Roadway	10.803	0.624	0.593	0.720	1.056	0.008	0.034	0.020
Intll East frm Stzr	Roadway	12.943	0.748	0.711	0.862	1.265	0.010	0.042	0.024
LT to ST	Roadway	1.383	0.099	0.094	0.117	0.144	0.001	0.004	0.002
Lane Ent	Roadway	0.030	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Lane Exit	Roadway	0.033	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Merge to Sawyer	Roadway	10.355	0.683	0.649	0.800	1.054	0.009	0.036	0.021
New Bowtie	Roadway	0.833	0.055	0.052	0.064	0.085	0.001	0.003	0.002
New Stelzer	Roadway	69.947	3.790	3.610	4.346	6.839	0.051	0.215	0.125
Perimeter Road 1	Roadway	7.277	0.481	0.456	0.562	0.741	0.006	0.025	0.014
Perimeter Road 2	Roadway	0.946	0.063	0.060	0.073	0.096	0.001	0.003	0.002
Perimeter Road 3	Roadway	0.411	0.028	0.025	0.032	0.042	0.000	0.001	0.001
Perimeter Road 4	Roadway	2.069	0.137	0.130	0.160	0.211	0.002	0.008	0.004
Perimeter Road 5	Roadway	0.273	0.018	0.018	0.021	0.028	0.000	0.001	0.001
Perimeter Road 6	Roadway	1.042	0.068	0.065	0.080	0.106	0.001	0.003	0.002
Perimeter Road 7	Roadway	0.454	0.030	0.029	0.035	0.046	0.000	0.001	0.001
ST to Curb	Roadway	1.303	0.093	0.088	0.110	0.136	0.001	0.004	0.002
Sawyer East Fork	Roadway	4.457	0.294	0.279	0.344	0.454	0.003	0.015	0.009
Sawyer Forks	Roadway	3.008	0.198	0.188	0.233	0.306	0.002	0.011	0.007
Sawyer S of Brdgwy	Roadway	8.953	0.591	0.561	0.692	0.912	0.008	0.031	0.018
Sawyer West Fork	Roadway	3.686	0.244	0.231	0.284	0.375	0.003	0.013	0.008
Sawyer off Intl	Roadway	11.604	0.766	0.728	0.897	1.182	0.010	0.041	0.023
Sawyer to Brdgwy 1	Roadway	13.741	0.906	0.861	1.062	1.399	0.011	0.047	0.028
Sawyer to Brdgwy 2	Roadway	60.838	4.014	3.813	4.701	6.193	0.051	0.212	0.123
Sawyer to Intl 1	Roadway	28.034	1.620	1.540	1.867	2.740	0.021	0.089	0.052
Sawyer to Intl 2	Roadway	21.142	1.221	1.162	1.409	2.067	0.017	0.067	0.040
Stelzer N	Roadway	46.396	2.514	2.395	2.883	4.536	0.034	0.142	0.083
Stelzer S	Roadway	7.090	0.385	0.366	0.441	0.693	0.006	0.022	0.012
To Red 1	Roadway	1.150	0.076	0.072	0.089	0.117	0.001	0.004	0.002

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
To Red 2	Roadway	1.475	0.097	0.093	0.114	0.150	0.001	0.006	0.003
To Red 3	Roadway	0.682	0.045	0.043	0.053	0.069	0.001	0.002	0.001
Blue	Parking	39.259	2.533	2.388	5.582	5.199	0.020	0.083	0.047
Employee Parking	Parking	13.297	0.886	0.836	2.012	1.709	0.007	0.026	0.015
Green	Parking	8.750	0.613	0.580	1.455	1.066	0.004	0.017	0.010
Lane Avtn	Parking	4.688	0.322	0.304	0.750	0.584	0.002	0.009	0.006
Long Term Pkg Lvl 1	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 2	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 3	Parking	13.690	0.946	0.893	2.216	1.695	0.007	0.026	0.015
Long Term Pkg Lvl 4	Parking	6.800	0.470	0.443	1.101	0.842	0.003	0.013	0.008
Long Term Pkg Lvl 5	Parking	14.003	0.968	0.914	2.266	1.734	0.007	0.026	0.015
New RAC	Parking	36.748	2.297	2.163	4.906	5.006	0.019	0.080	0.046
Red	Parking	23.057	1.486	1.400	3.269	3.057	0.011	0.049	0.029
ShortTerm Pkg Lvl 4	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
ShortTerm Pkg Lvl 5	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.101	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.744	0.744	0.744	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.132	0.132	0.132	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.581	1.581	1.581	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.011	0.003	0.003	0.003	0.003	0.003	0.008	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.811	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.843	0.843	0.843	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.012	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.420	0.420	0.420	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.251	0.251	0.251	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.759	0.759	0.759	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.005	2.005	2.005	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.790	0.790	0.790	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.757	0.757	0.757	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary
(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	821.289	67.647	67.647	72.177	324.638	29.583	3.824	3.824
GSE/APU	1,279.948	52.519	47.674	49.598	73.790	10.597	3.909	3.781
Roadways	690.992	41.514	39.461	48.419	68.030	0.530	2.216	1.293
Parking Facilities	170.878	11.263	10.623	25.326	22.179	0.084	0.349	0.203
Stationary Sources	21.450	12.421	11.891	14.114	35.756	16.638	2.490	2.205
Total	2,984.556	185.364	177.295	209.634	524.393	57.432	12.788	11.305

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary
(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	15.586	0.279	0.279	0.269	0.008	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
B737-300	CFM56-3-B1	TOTAL	2.406	0.149	0.149	0.163	1.829	0.185	0.003	0.003	0.000
10L		APU	0.357	0.021	0.021	0.022	0.094	0.020	0.000	0.000	0.000
		GSE	0.118	0.017	0.015	0.017	0.137	0.034	0.018	0.018	0.000
B737-300	CFM56-3B-2	TOTAL	0.434	0.023	0.023	0.025	0.421	0.039	0.001	0.001	0.000
10L		APU	0.069	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	0.023	0.003	0.003	0.003	0.026	0.007	0.003	0.003	0.000
B737-500	CFM56-3C-1	TOTAL	0.556	0.028	0.028	0.030	0.711	0.060	0.002	0.002	0.000
10L		APU	0.095	0.006	0.006	0.006	0.025	0.006	0.000	0.000	0.000
		GSE	0.031	0.004	0.004	0.004	0.036	0.009	0.004	0.004	0.000
B737-700	CFM56-7B22	TOTAL	1.703	0.179	0.179	0.196	3.066	0.230	0.049	0.049	0.000
10L		APU	0.118	0.009	0.009	0.010	0.160	0.024	0.000	0.000	0.000
		GSE	0.132	0.019	0.018	0.019	0.153	0.039	0.020	0.020	0.000
B737-800	CFM56-7B26	TOTAL	0.517	0.053	0.053	0.058	1.551	0.095	0.029	0.029	0.000
10L		APU	0.042	0.003	0.003	0.003	0.057	0.009	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.054	0.013	0.007	0.007	0.000
B757-300	PW2043	TOTAL	0.127	0.010	0.010	0.011	0.466	0.023	N/A	N/A	0.000
10L		APU	0.007	0.001	0.001	0.001	0.014	0.001	0.000	0.000	0.000
		GSE	0.008	0.001	0.001	0.001	0.009	0.002	0.001	0.001	0.000
BAE146-300	LF507 SERIES	TOTAL	0.281	0.032	0.032	0.035	0.216	0.024	0.003	0.003	0.000
10L		APU	0.011	0.001	0.001	0.001	0.008	0.002	0.000	0.000	0.000
		GSE	0.737	0.029	0.026	0.028	0.032	0.004	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	4.494	0.025	0.025	0.028	5.153	0.509	0.021	0.021	0.000
10L		APU	1.538	0.088	0.088	0.096	0.406	0.086	0.000	0.000	0.000
		GSE	23.343	0.922	0.832	0.863	1.003	0.122	0.064	0.062	0.000
Cessna 172 Skyhawk	O-320	TOTAL	4.330	0.071	0.071	0.068	0.008	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.006	0.003	0.002	0.002	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.032	0.002	0.002	0.002	0.031	0.003	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.332	0.051	0.046	0.047	0.039	0.003	0.002	0.002	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.207	0.065	0.065	0.068	0.017	0.002	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.524	0.022	0.020	0.020	0.018	0.001	0.001	0.000	0.000
CL600	ALF 502L-2	TOTAL	1.290	0.177	0.177	0.188	0.634	0.043	0.008	0.008	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.045	0.324	0.293	0.304	0.390	0.060	0.028	0.028	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	1.408	0.405	0.405	0.442	1.055	0.105	0.076	0.076	0.000
10L		APU	0.141	0.008	0.008	0.009	0.037	0.008	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.054	0.013	0.007	0.007	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	0.885	0.074	0.074	0.079	0.629	0.066	0.000	0.000	0.000
10L		APU	0.064	0.006	0.006	0.007	0.045	0.010	0.000	0.000	0.000
		GSE	4.259	0.168	0.152	0.158	0.183	0.022	0.012	0.011	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.245	0.040	0.040	0.042	0.442	0.039	0.000	0.000	0.000
10L		APU	0.034	0.003	0.003	0.003	0.024	0.006	0.000	0.000	0.000
		GSE	2.310	0.091	0.083	0.086	0.099	0.012	0.007	0.007	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.899	0.073	0.073	0.077	0.769	0.074	0.000	0.000	0.000
10L		APU	0.064	0.006	0.006	0.007	0.045	0.010	0.000	0.000	0.000
		GSE	4.245	0.168	0.151	0.157	0.182	0.022	0.012	0.011	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	4.419	0.371	0.371	0.395	3.181	0.324	0.000	0.000	0.000
10L		APU	0.305	0.029	0.029	0.031	0.217	0.047	0.000	0.000	0.000
		GSE	20.447	0.807	0.729	0.756	0.879	0.107	0.056	0.054	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	5.453	0.457	0.457	0.487	3.877	0.410	0.000	0.000	0.000
10L		APU	0.392	0.037	0.037	0.040	0.279	0.061	0.000	0.000	0.000
		GSE	26.237	1.035	0.935	0.971	1.128	0.138	0.072	0.069	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.667	0.140	0.140	0.149	1.200	0.122	0.000	0.000	0.000
10L		APU	0.116	0.011	0.011	0.012	0.082	0.018	0.000	0.000	0.000
		GSE	7.711	0.304	0.274	0.285	0.332	0.041	0.021	0.020	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.354	0.013	0.013	0.014	2.105	0.203	0.020	0.020	0.000
10L		APU	0.136	0.013	0.013	0.014	0.096	0.021	0.000	0.000	0.000
		GSE	9.033	0.356	0.322	0.334	0.388	0.047	0.024	0.024	0.000
F-27 SERIES	RDa7	TOTAL	0.720	0.161	0.161	0.177	0.037	0.017	N/A	N/A	0.000
10L		APU	0.044	0.006	0.006	0.006	0.004	0.001	0.000	0.000	0.000
		GSE	1.685	0.064	0.058	0.061	0.049	0.004	0.002	0.002	0.000

*** PM data for some aircraft in the study is unavailable.

EDMS 4.5 Emissions Inventory Report

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Falcon 20	CF700-2D	TOTAL	0.628	0.052	0.052	0.055	0.021	0.008	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.006	0.001	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.497	0.062	0.062	0.066	0.390	0.037	0.003	0.003	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.255	0.091	0.083	0.086	0.138	0.022	0.010	0.010	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.203	0.023	0.023	0.025	0.208	0.018	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.171	0.046	0.042	0.043	0.033	0.002	0.001	0.001	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	0.851	0.140	0.140	0.149	0.676	0.078	0.046	0.046	0.000
10L_GA		APU	0.020	0.001	0.001	0.001	0.099	0.010	0.000	0.000	0.000
		GSE	4.141	0.161	0.144	0.150	0.115	0.009	0.007	0.006	0.000
HS 125	TFE731-3	TOTAL	1.378	0.224	0.224	0.247	0.650	0.035	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.426	0.475	0.428	0.444	0.360	0.031	0.017	0.015	0.000
KC-135R	CFM56-2B-1	TOTAL	0.322	0.018	0.018	0.020	0.409	0.034	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.009	0.002	0.002	0.002	0.033	0.006	0.002	0.002	0.000
Learjet 25C	CJ610-6	TOTAL	7.403	0.561	0.561	0.596	0.148	0.041	N/A	N/A	0.000
10L_GA		APU	0.074	0.007	0.007	0.008	0.053	0.011	0.000	0.000	0.000
		GSE	4.927	0.194	0.175	0.182	0.212	0.025	0.013	0.013	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.456	0.133	0.133	0.141	0.134	0.009	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.278	0.094	0.085	0.087	0.072	0.003	0.002	0.002	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.368	0.114	0.114	0.125	1.116	0.076	0.022	0.022	0.000
10L		APU	0.097	0.006	0.006	0.007	0.025	0.006	0.000	0.000	0.000
		GSE	0.025	0.004	0.003	0.004	0.031	0.008	0.004	0.003	0.000
Navajo	TIO-540-J2B2	TOTAL	12.998	0.233	0.233	0.224	0.007	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	0.367	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.309	0.247	0.247	0.273	0.025	0.003	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.499	0.057	0.052	0.054	0.043	0.003	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	3.594	1.236	1.236	1.313	0.486	0.046	0.024	0.024	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.762	0.443	0.399	0.414	0.357	0.020	0.012	0.011	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.862	0.061	0.061	0.066	0.543	0.058	0.001	0.001	0.000
10L		APU	0.119	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	0.040	0.006	0.006	0.006	0.045	0.011	0.006	0.006	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	0.568	0.195	0.195	0.207	0.077	0.008	0.003	0.003	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.700	0.071	0.063	0.065	0.056	0.003	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.071	0.712	0.712	0.757	0.280	0.026	0.013	0.013	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.203	0.256	0.230	0.239	0.206	0.011	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.014	0.692	0.692	0.736	0.272	0.025	0.013	0.013	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.032	0.249	0.224	0.233	0.200	0.011	0.007	0.007	0.000
Aztec	TIO-540-J2B2	TOTAL	23.442	0.419	0.419	0.405	0.012	0.002	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.008	0.004	0.003	0.003	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.274	0.159	0.159	0.173	1.434	0.154	0.002	0.002	0.000
10R		APU	0.314	0.018	0.018	0.020	0.083	0.018	0.000	0.000	0.000
		GSE	0.105	0.014	0.014	0.014	0.120	0.030	0.015	0.015	0.000
B737-300	CFM56-3B-2	TOTAL	1.027	0.056	0.056	0.061	0.996	0.093	0.002	0.002	0.000
10R		APU	0.165	0.010	0.010	0.010	0.044	0.009	0.000	0.000	0.000
		GSE	0.055	0.008	0.008	0.008	0.063	0.015	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	6.526	0.403	0.403	0.442	4.960	0.502	0.008	0.008	0.000
10R		APU	0.968	0.055	0.055	0.061	0.256	0.054	0.000	0.000	0.000
		GSE	0.321	0.045	0.043	0.045	0.371	0.093	0.049	0.046	0.000
B737-500	CFM56-3C-1	TOTAL	1.498	0.074	0.074	0.082	1.919	0.162	0.006	0.006	0.000
10R		APU	0.255	0.014	0.014	0.015	0.067	0.014	0.000	0.000	0.000
		GSE	0.085	0.012	0.011	0.012	0.098	0.024	0.013	0.012	0.000
B737-700	CFM56-7B22	TOTAL	4.420	0.465	0.465	0.508	7.958	0.597	0.126	0.126	0.000
10R		APU	0.305	0.023	0.023	0.025	0.416	0.063	0.000	0.000	0.000
		GSE	0.344	0.047	0.045	0.049	0.398	0.100	0.052	0.050	0.000
B737-800	CFM56-7B26	TOTAL	1.342	0.139	0.139	0.152	4.023	0.246	0.075	0.075	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.108	0.008	0.008	0.009	0.148	0.022	0.000	0.000	0.000
		GSE	0.122	0.017	0.017	0.018	0.141	0.035	0.019	0.018	0.000
B757-300	PW2043	TOTAL	0.291	0.023	0.023	0.025	1.075	0.054	N/A	N/A	0.000
10R		APU	0.014	0.001	0.001	0.001	0.033	0.003	0.000	0.000	0.000
		GSE	0.019	0.002	0.002	0.002	0.021	0.006	0.002	0.002	0.000
BAE146-300	LF507 SERIES	TOTAL	0.154	0.018	0.018	0.020	0.118	0.013	0.001	0.001	0.000
10R		APU	0.006	0.001	0.001	0.001	0.004	0.001	0.000	0.000	0.000
		GSE	0.403	0.015	0.014	0.015	0.018	0.002	0.001	0.001	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	2.458	0.014	0.014	0.015	2.818	0.278	0.012	0.012	0.000
10R		APU	0.841	0.049	0.049	0.053	0.222	0.046	0.000	0.000	0.000
		GSE	12.764	0.504	0.455	0.472	0.549	0.067	0.035	0.034	0.000
Cessna 172 Skyhawk	O-320	TOTAL	7.502	0.122	0.122	0.118	0.013	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.002	0.001	0.002	0.010	0.006	0.004	0.004	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.098	0.007	0.007	0.007	0.093	0.011	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.017	0.153	0.139	0.143	0.117	0.010	0.006	0.006	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.785	0.245	0.245	0.260	0.064	0.008	0.004	0.004	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.982	0.082	0.074	0.076	0.066	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	0.722	0.099	0.099	0.106	0.355	0.024	0.004	0.004	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.503	0.182	0.164	0.171	0.218	0.033	0.015	0.015	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	3.628	1.042	1.042	1.140	2.719	0.270	0.195	0.195	0.000
10R		APU	0.364	0.021	0.021	0.023	0.096	0.020	0.000	0.000	0.000
		GSE	0.121	0.017	0.017	0.017	0.140	0.035	0.018	0.018	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	0.529	0.044	0.044	0.047	0.376	0.040	0.000	0.000	0.000
10R		APU	0.039	0.003	0.003	0.003	0.028	0.006	0.000	0.000	0.000
		GSE	2.547	0.100	0.090	0.094	0.109	0.013	0.007	0.007	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.498	0.041	0.041	0.043	0.427	0.041	0.000	0.000	0.000
10R		APU	0.035	0.003	0.003	0.003	0.025	0.006	0.000	0.000	0.000
		GSE	2.352	0.093	0.084	0.087	0.101	0.012	0.007	0.007	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.136	0.022	0.022	0.023	0.245	0.021	0.000	0.000	0.000
10R		APU	0.019	0.002	0.002	0.002	0.013	0.003	0.000	0.000	0.000
		GSE	1.281	0.051	0.045	0.047	0.055	0.007	0.003	0.003	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	0.924	0.077	0.077	0.083	0.666	0.067	0.000	0.000	0.000
10R		APU	0.064	0.006	0.006	0.007	0.045	0.010	0.000	0.000	0.000
		GSE	4.273	0.169	0.152	0.158	0.184	0.022	0.012	0.011	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	3.024	0.254	0.254	0.270	2.150	0.227	0.000	0.000	0.000
10R		APU	0.217	0.021	0.021	0.022	0.154	0.034	0.000	0.000	0.000
		GSE	14.545	0.574	0.518	0.538	0.625	0.076	0.040	0.039	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	2.449	0.205	0.205	0.218	1.763	0.180	0.000	0.000	0.000
10R		APU	0.170	0.017	0.017	0.017	0.120	0.026	0.000	0.000	0.000
		GSE	11.330	0.448	0.403	0.419	0.487	0.060	0.031	0.030	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	0.741	0.007	0.007	0.008	1.152	0.111	0.011	0.011	0.000
10R		APU	0.074	0.007	0.007	0.008	0.053	0.011	0.000	0.000	0.000
		GSE	4.942	0.195	0.176	0.183	0.213	0.026	0.013	0.013	0.000
F-27 SERIES	RDa7	TOTAL	1.164	0.260	0.260	0.287	0.060	0.026	N/A	N/A	0.000
10R		APU	0.071	0.009	0.009	0.009	0.007	0.002	0.000	0.000	0.000
		GSE	2.727	0.105	0.094	0.097	0.079	0.007	0.003	0.003	0.000
Falcon 20	CF700-2D	TOTAL	2.310	0.192	0.192	0.204	0.078	0.029	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.002	0.002	0.002	0.021	0.006	0.003	0.003	0.000
Falcon 2000EX	PW308C	TOTAL	0.266	0.033	0.033	0.035	0.208	0.020	0.002	0.002	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.205	0.049	0.044	0.046	0.074	0.012	0.006	0.006	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.745	0.086	0.086	0.091	0.767	0.066	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.306	0.171	0.153	0.160	0.123	0.007	0.004	0.004	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.188	0.195	0.195	0.207	0.945	0.109	0.064	0.064	0.000
10R_GA		APU	0.028	0.002	0.002	0.002	0.138	0.013	0.000	0.000	0.000
		GSE	5.786	0.224	0.202	0.209	0.160	0.012	0.009	0.009	0.000
HS 125	TFE731-3	TOTAL	0.750	0.122	0.122	0.134	0.354	0.020	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.765	0.259	0.233	0.241	0.196	0.017	0.009	0.009	0.000
KC-135R	CFM56-2B-1	TOTAL	0.773	0.043	0.043	0.047	0.980	0.082	0.002	0.002	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.020	0.006	0.006	0.007	0.079	0.014	0.007	0.006	0.000
Learjet 25C	CJ610-6	TOTAL	3.764	0.285	0.285	0.303	0.075	0.021	N/A	N/A	0.000
10R_GA		APU	0.037	0.003	0.003	0.003	0.026	0.006	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	2.506	0.099	0.089	0.093	0.108	0.013	0.007	0.007	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.754	0.511	0.511	0.543	0.518	0.035	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.760	0.360	0.324	0.336	0.277	0.013	0.008	0.008	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.113	0.344	0.344	0.376	3.377	0.229	0.067	0.067	0.000
10R		APU	0.294	0.017	0.017	0.019	0.078	0.017	0.000	0.000	0.000
		GSE	0.078	0.012	0.011	0.012	0.095	0.023	0.012	0.012	0.000
Navajo	TIO-540-J2B2	TOTAL	14.340	0.257	0.257	0.247	0.008	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	1.119	0.018	0.018	0.018	0.002	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.025	0.820	0.820	0.906	0.083	0.010	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.975	0.191	0.171	0.177	0.144	0.012	0.007	0.007	0.000
Aztec	TIO-540-J2B2	TOTAL	59.786	1.069	1.069	1.032	0.032	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.019	0.010	0.009	0.009	0.000
B737-300	CFM56-3-B1	TOTAL	16.752	1.035	1.035	1.133	12.733	1.289	0.020	0.020	0.000
28L		APU	2.484	0.142	0.142	0.155	0.656	0.138	0.000	0.000	0.000
		GSE	0.823	0.115	0.109	0.116	0.952	0.239	0.123	0.120	0.000
B737-300	CFM56-3B-2	TOTAL	3.157	0.172	0.172	0.187	3.061	0.284	0.007	0.007	0.000
28L		APU	0.507	0.029	0.029	0.032	0.133	0.029	0.000	0.000	0.000
		GSE	0.169	0.023	0.022	0.023	0.195	0.049	0.025	0.024	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	5.992	0.418	0.418	0.457	3.781	0.407	0.004	0.004	0.000
28L		APU	0.829	0.047	0.047	0.052	0.219	0.046	0.000	0.000	0.000
		GSE	0.276	0.039	0.036	0.039	0.319	0.079	0.041	0.040	0.000
B737-500	CFM56-3C-1	TOTAL	3.902	0.193	0.193	0.211	4.998	0.421	0.014	0.014	0.000
28L		APU	0.664	0.037	0.037	0.042	0.175	0.036	0.000	0.000	0.000
		GSE	0.220	0.031	0.030	0.031	0.255	0.064	0.033	0.032	0.000
B737-700	CFM56-7B22	TOTAL	12.082	1.270	1.270	1.390	21.751	1.634	0.344	0.344	0.000
28L		APU	0.834	0.063	0.063	0.069	1.135	0.171	0.000	0.000	0.000
		GSE	0.941	0.131	0.125	0.132	1.089	0.272	0.141	0.137	0.000
B737-800	CFM56-7B26	TOTAL	3.634	0.376	0.376	0.411	10.899	0.666	0.202	0.202	0.000
28L		APU	0.293	0.022	0.022	0.024	0.399	0.061	0.000	0.000	0.000
		GSE	0.332	0.046	0.044	0.046	0.384	0.096	0.050	0.049	0.000
B757-300	PW2043	TOTAL	0.894	0.071	0.071	0.077	3.296	0.168	N/A	N/A	0.000
28L		APU	0.044	0.004	0.004	0.006	0.101	0.011	0.000	0.000	0.000
		GSE	0.056	0.008	0.008	0.008	0.065	0.017	0.009	0.008	0.000
BAE146-300	LF507 SERIES	TOTAL	0.494	0.056	0.056	0.062	0.378	0.043	0.006	0.006	0.000
28L		APU	0.020	0.002	0.002	0.002	0.013	0.003	0.000	0.000	0.000
		GSE	1.294	0.051	0.046	0.047	0.055	0.007	0.003	0.003	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	7.587	0.043	0.043	0.047	8.699	0.859	0.036	0.036	0.000
28L		APU	2.597	0.149	0.149	0.163	0.686	0.144	0.000	0.000	0.000
		GSE	39.404	1.555	1.404	1.458	1.693	0.207	0.108	0.105	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	2.293	0.714	0.714	0.759	0.186	0.023	0.013	0.013	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.792	0.239	0.215	0.223	0.192	0.011	0.007	0.006	0.000
CL600	ALF 502L-2	TOTAL	2.024	0.278	0.278	0.295	0.995	0.068	0.013	0.013	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.630	0.509	0.460	0.477	0.612	0.094	0.044	0.043	0.000
Cessna 172 Skyhawk	O-320	TOTAL	20.175	0.328	0.328	0.316	0.035	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.010	0.004	0.004	0.004	0.028	0.014	0.012	0.012	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.303	0.021	0.021	0.022	0.287	0.035	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.405	0.474	0.428	0.443	0.360	0.031	0.017	0.015	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	9.987	2.868	2.868	3.139	7.487	0.744	0.537	0.537	0.000
28L		APU	1.002	0.057	0.057	0.063	0.265	0.056	0.000	0.000	0.000
		GSE	0.333	0.046	0.044	0.046	0.385	0.096	0.050	0.049	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.539	0.129	0.129	0.138	1.095	0.116	0.000	0.000	0.000
28L		APU	0.110	0.011	0.011	0.011	0.078	0.018	0.000	0.000	0.000
		GSE	7.405	0.292	0.263	0.274	0.319	0.039	0.020	0.020	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.396	0.064	0.064	0.068	0.714	0.063	0.000	0.000	0.000
28L		APU	0.056	0.006	0.006	0.006	0.040	0.009	0.000	0.000	0.000
		GSE	3.730	0.148	0.133	0.138	0.160	0.020	0.010	0.010	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.448	0.117	0.117	0.125	1.239	0.119	0.000	0.000	0.000
28L		APU	0.103	0.010	0.010	0.010	0.073	0.015	0.000	0.000	0.000
		GSE	6.834	0.270	0.244	0.252	0.293	0.036	0.019	0.018	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	7.124	0.597	0.597	0.636	5.129	0.522	0.000	0.000	0.000
28L		APU	0.493	0.046	0.046	0.050	0.351	0.076	0.000	0.000	0.000
		GSE	32.960	1.301	1.175	1.219	1.416	0.173	0.090	0.087	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	8.790	0.739	0.739	0.785	6.249	0.660	0.000	0.000	0.000
28L		APU	0.633	0.060	0.060	0.064	0.450	0.098	0.000	0.000	0.000
		GSE	42.286	1.669	1.507	1.564	1.817	0.222	0.116	0.111	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.685	0.225	0.225	0.239	1.936	0.197	0.000	0.000	0.000
28L		APU	0.186	0.018	0.018	0.019	0.132	0.029	0.000	0.000	0.000
		GSE	12.430	0.491	0.443	0.460	0.535	0.065	0.034	0.033	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	2.286	0.022	0.022	0.023	3.555	0.343	0.034	0.034	0.000
28L		APU	0.228	0.022	0.022	0.023	0.162	0.035	0.000	0.000	0.000
		GSE	15.255	0.602	0.543	0.564	0.656	0.080	0.042	0.041	0.000
F-27 SERIES	RDa7	TOTAL	2.283	0.509	0.509	0.562	0.117	0.053	N/A	N/A	0.000
28L		APU	0.140	0.017	0.017	0.019	0.013	0.003	0.000	0.000	0.000
		GSE	5.350	0.205	0.184	0.191	0.155	0.013	0.007	0.007	0.000
Falcon 20	CF700-2D	TOTAL	7.820	0.648	0.648	0.689	0.266	0.098	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.022	0.006	0.006	0.007	0.072	0.020	0.010	0.010	0.000
Gulfstream II	SPEY MK511-8	TOTAL	2.522	0.292	0.292	0.310	2.596	0.225	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	14.570	0.578	0.520	0.539	0.418	0.023	0.014	0.014	0.000
HS 125	TFE731-3	TOTAL	2.321	0.377	0.377	0.417	1.097	0.061	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	20.940	0.800	0.722	0.748	0.608	0.052	0.028	0.026	0.000
KC-135R	CFM56-2B-1	TOTAL	2.370	0.132	0.132	0.146	3.007	0.249	0.007	0.007	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.062	0.018	0.018	0.019	0.245	0.044	0.019	0.019	0.000
Learjet 25C	CJ610-6	TOTAL	11.502	0.872	0.872	0.927	0.229	0.063	N/A	N/A	0.000
28L_GA		APU	0.115	0.011	0.011	0.011	0.082	0.018	0.000	0.000	0.000
		GSE	7.656	0.302	0.273	0.283	0.328	0.040	0.021	0.020	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	5.261	1.533	1.533	1.630	1.555	0.107	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	26.280	1.080	0.973	1.009	0.830	0.040	0.024	0.023	0.000
MD-80-83	JT8D-219 old comb	TOTAL	2.453	0.756	0.756	0.828	7.438	0.505	0.149	0.149	0.000
28L		APU	0.648	0.037	0.037	0.041	0.171	0.036	0.000	0.000	0.000
		GSE	0.172	0.026	0.025	0.026	0.207	0.052	0.026	0.025	0.000
Navajo	TIO-540-J2B2	TOTAL	44.360	0.793	0.793	0.765	0.023	0.003	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.002	0.002	0.002	0.014	0.008	0.007	0.007	0.000
Piper PA-28	O-320	TOTAL	3.470	0.056	0.056	0.054	0.006	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
UC-12J	PT6A-42	TOTAL	2.313	1.850	1.850	2.044	0.186	0.023	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.219	0.429	0.387	0.401	0.326	0.028	0.015	0.014	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	5.935	2.040	2.040	2.168	0.802	0.076	0.040	0.040	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	17.771	0.732	0.660	0.685	0.590	0.033	0.019	0.019	0.000
Falcon 2000EX	PW308C	TOTAL	0.861	0.108	0.108	0.115	0.677	0.064	0.006	0.006	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.909	0.159	0.143	0.150	0.238	0.037	0.018	0.017	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	7.003	2.407	2.407	2.560	0.947	0.089	0.046	0.046	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	20.971	0.864	0.778	0.807	0.696	0.039	0.022	0.022	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.746	0.615	0.615	0.654	2.975	0.343	0.203	0.203	0.000
28L_GA		APU	0.088	0.007	0.007	0.007	0.434	0.043	0.000	0.000	0.000
		GSE	18.230	0.707	0.636	0.660	0.504	0.039	0.028	0.026	0.000
Aztec	TIO-540-J2B2	TOTAL	52.760	0.944	0.944	0.911	0.028	0.004	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.003	0.002	0.003	0.017	0.009	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	8.184	0.506	0.506	0.553	6.220	0.629	0.010	0.010	0.000
28R		APU	1.214	0.069	0.069	0.076	0.321	0.067	0.000	0.000	0.000
		GSE	0.402	0.056	0.053	0.056	0.465	0.117	0.061	0.058	0.000
B737-300	CFM56-3B-2	TOTAL	1.633	0.088	0.088	0.097	1.583	0.147	0.003	0.003	0.000
28R		APU	0.262	0.015	0.015	0.017	0.069	0.014	0.000	0.000	0.000
		GSE	0.087	0.012	0.011	0.012	0.100	0.025	0.013	0.012	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.970	0.207	0.207	0.227	1.874	0.202	0.002	0.002	0.000
28R		APU	0.411	0.023	0.023	0.025	0.108	0.023	0.000	0.000	0.000
		GSE	0.137	0.019	0.018	0.019	0.158	0.040	0.021	0.020	0.000
B737-500	CFM56-3C-1	TOTAL	1.914	0.095	0.095	0.104	2.450	0.206	0.007	0.007	0.000
28R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.325	0.019	0.019	0.021	0.086	0.018	0.000	0.000	0.000
		GSE	0.108	0.015	0.014	0.015	0.125	0.031	0.017	0.015	0.000
B737-700	CFM56-7B22	TOTAL	6.025	0.634	0.634	0.693	10.847	0.815	0.171	0.171	0.000
28R		APU	0.416	0.032	0.032	0.034	0.567	0.085	0.000	0.000	0.000
		GSE	0.470	0.065	0.062	0.066	0.543	0.136	0.071	0.068	0.000
B737-800	CFM56-7B26	TOTAL	1.812	0.187	0.187	0.205	5.434	0.332	0.100	0.100	0.000
28R		APU	0.147	0.011	0.011	0.012	0.200	0.030	0.000	0.000	0.000
		GSE	0.165	0.023	0.022	0.023	0.191	0.047	0.024	0.024	0.000
B757-300	PW2043	TOTAL	0.466	0.036	0.036	0.040	1.720	0.087	N/A	N/A	0.000
28R		APU	0.023	0.002	0.002	0.002	0.053	0.006	0.000	0.000	0.000
		GSE	0.029	0.004	0.004	0.004	0.034	0.009	0.004	0.004	0.000
BAE146-300	LF507 SERIES	TOTAL	1.008	0.116	0.116	0.127	0.773	0.087	0.010	0.010	0.000
28R		APU	0.040	0.003	0.003	0.004	0.029	0.007	0.000	0.000	0.000
		GSE	2.644	0.105	0.095	0.098	0.114	0.014	0.008	0.007	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	15.786	0.089	0.089	0.098	18.099	1.787	0.075	0.075	0.000
28R		APU	5.402	0.310	0.310	0.338	1.426	0.300	0.000	0.000	0.000
		GSE	81.982	3.235	2.922	3.034	3.523	0.430	0.225	0.217	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.812	0.254	0.254	0.269	0.066	0.008	0.004	0.004	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.054	0.085	0.076	0.079	0.068	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	4.350	0.599	0.599	0.636	2.140	0.147	0.028	0.028	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	27.143	1.093	0.989	1.026	1.316	0.201	0.095	0.091	0.000
Cessna 172 Skyhawk	O-320	TOTAL	14.966	0.244	0.244	0.235	0.026	0.001	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.020	0.011	0.009	0.009	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.123	0.009	0.009	0.009	0.117	0.014	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.057	0.193	0.174	0.181	0.147	0.012	0.007	0.007	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	4.989	1.433	1.433	1.569	3.740	0.371	0.268	0.268	0.000
28R		APU	0.500	0.029	0.029	0.031	0.132	0.028	0.000	0.000	0.000
		GSE	0.166	0.023	0.022	0.023	0.192	0.049	0.025	0.024	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.382	0.284	0.284	0.302	2.404	0.255	0.000	0.000	0.000
28R		APU	0.244	0.023	0.023	0.024	0.173	0.037	0.000	0.000	0.000
		GSE	16.271	0.643	0.580	0.602	0.699	0.085	0.044	0.043	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.839	0.136	0.136	0.144	1.513	0.132	0.000	0.000	0.000
28R		APU	0.118	0.011	0.011	0.012	0.084	0.019	0.000	0.000	0.000
		GSE	7.906	0.312	0.282	0.292	0.340	0.042	0.022	0.021	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	3.074	0.248	0.248	0.263	2.629	0.252	0.000	0.000	0.000
28R		APU	0.217	0.021	0.021	0.022	0.154	0.034	0.000	0.000	0.000
		GSE	14.503	0.572	0.517	0.537	0.623	0.076	0.040	0.039	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	15.106	1.268	1.268	1.348	10.874	1.107	0.000	0.000	0.000
28R		APU	1.045	0.099	0.099	0.105	0.743	0.162	0.000	0.000	0.000
		GSE	69.887	2.758	2.491	2.586	3.003	0.367	0.192	0.185	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	18.641	1.565	1.565	1.664	13.252	1.401	0.000	0.000	0.000
28R		APU	1.342	0.127	0.127	0.134	0.953	0.208	0.000	0.000	0.000
		GSE	89.680	3.540	3.197	3.318	3.854	0.471	0.246	0.237	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	5.699	0.477	0.477	0.507	4.106	0.418	0.000	0.000	0.000
28R		APU	0.395	0.037	0.037	0.040	0.281	0.061	0.000	0.000	0.000
		GSE	26.376	1.041	0.940	0.976	1.133	0.139	0.073	0.069	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	4.754	0.045	0.045	0.050	7.397	0.713	0.072	0.072	0.000
28R		APU	0.475	0.045	0.045	0.050	0.337	0.074	0.000	0.000	0.000
		GSE	31.736	1.252	1.131	1.174	1.364	0.166	0.087	0.084	0.000
F-27 SERIES	RDa7	TOTAL	2.319	0.517	0.517	0.571	0.119	0.054	N/A	N/A	0.000
28R		APU	0.141	0.017	0.017	0.019	0.014	0.004	0.000	0.000	0.000
		GSE	5.432	0.207	0.187	0.194	0.158	0.013	0.008	0.007	0.000
Falcon 20	CF700-2D	TOTAL	2.717	0.225	0.225	0.239	0.093	0.034	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.008	0.002	0.002	0.002	0.025	0.007	0.003	0.003	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.871	0.100	0.100	0.107	0.896	0.078	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.029	0.200	0.180	0.186	0.144	0.008	0.006	0.004	0.000
HS 125	TFE731-3	TOTAL	4.814	0.782	0.782	0.864	2.274	0.125	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	43.419	1.660	1.496	1.552	1.261	0.108	0.058	0.056	0.000
KC-135R	CFM56-2B-1	TOTAL	1.224	0.068	0.068	0.075	1.552	0.129	0.003	0.003	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.032	0.010	0.009	0.010	0.127	0.023	0.010	0.010	0.000
Learjet 25C	CJ610-6	TOTAL	23.129	1.754	1.754	1.865	0.461	0.128	N/A	N/A	0.000
28R_GA		APU	0.230	0.022	0.022	0.023	0.164	0.035	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	15.394	0.607	0.549	0.570	0.661	0.080	0.042	0.041	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.839	0.536	0.536	0.570	0.543	0.037	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.184	0.378	0.341	0.353	0.290	0.013	0.009	0.009	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.131	0.349	0.349	0.381	3.429	0.233	0.068	0.068	0.000
28R		APU	0.299	0.018	0.018	0.019	0.079	0.017	0.000	0.000	0.000
		GSE	0.079	0.012	0.012	0.012	0.096	0.024	0.012	0.012	0.000
Navajo	TIO-540-J2B2	TOTAL	44.871	0.802	0.802	0.774	0.023	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.002	0.002	0.002	0.014	0.008	0.007	0.007	0.000
Piper PA-28	O-320	TOTAL	1.416	0.023	0.023	0.022	0.002	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.052	0.841	0.841	0.929	0.085	0.010	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.099	0.195	0.175	0.182	0.148	0.012	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	12.621	4.339	4.339	4.612	1.706	0.161	0.084	0.084	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	37.794	1.558	1.403	1.455	1.253	0.071	0.041	0.039	0.000
Falcon 2000EX	PW308C	TOTAL	1.758	0.219	0.219	0.234	1.382	0.131	0.012	0.012	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.986	0.324	0.294	0.305	0.487	0.077	0.035	0.034	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.441	0.839	0.839	0.892	0.330	0.031	0.017	0.017	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.306	0.301	0.271	0.281	0.243	0.013	0.008	0.008	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.349	0.550	0.550	0.585	2.661	0.306	0.181	0.181	0.000
28R_GA		APU	0.079	0.006	0.006	0.007	0.388	0.039	0.000	0.000	0.000
		GSE	16.301	0.632	0.569	0.590	0.451	0.035	0.024	0.023	0.000
A320-200	V2527-A5	TOTAL	0.082	0.001	0.001	0.001	0.243	0.018	0.002	0.002	0.000
10L		APU	0.003	0.000	0.000	0.000	0.014	0.001	0.000	0.000	0.000
		GSE	0.009	0.001	0.001	0.001	0.010	0.002	0.001	0.001	0.000
A320-200	V2527-A5	TOTAL	0.291	0.004	0.004	0.004	0.862	0.062	0.008	0.008	0.000
10R		APU	0.010	0.001	0.001	0.001	0.050	0.004	0.000	0.000	0.000
		GSE	0.031	0.004	0.004	0.004	0.036	0.009	0.004	0.004	0.000
A320-200	V2527-A5	TOTAL	0.472	0.007	0.007	0.008	1.397	0.099	0.012	0.012	0.000
28L		APU	0.017	0.001	0.001	0.001	0.080	0.008	0.000	0.000	0.000
		GSE	0.051	0.007	0.007	0.007	0.058	0.014	0.008	0.008	0.000
A320-200	V2527-A5	TOTAL	0.186	0.002	0.002	0.003	0.552	0.040	0.004	0.004	0.000
28R		APU	0.007	0.000	0.000	0.000	0.032	0.003	0.000	0.000	0.000
		GSE	0.020	0.003	0.002	0.003	0.023	0.006	0.003	0.003	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.464	0.134	0.134	0.142	0.157	0.010	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.280	0.094	0.085	0.088	0.076	0.004	0.002	0.002	0.000
Citation VII	TFE731-3	TOTAL	0.208	0.033	0.033	0.035	0.111	0.006	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.218	0.051	0.045	0.047	0.041	0.002	0.001	0.001	0.000
Citation VII	TFE731-3	TOTAL	0.677	0.108	0.108	0.115	0.363	0.019	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.951	0.163	0.147	0.152	0.131	0.008	0.004	0.004	0.000
Citation VII	TFE731-3	TOTAL	1.382	0.219	0.219	0.234	0.741	0.039	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.071	0.333	0.300	0.311	0.268	0.015	0.009	0.009	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.827	0.184	0.184	0.204	0.042	0.019	N/A	N/A	0.000
10L_GA		APU	0.009	0.001	0.001	0.001	0.045	0.004	0.000	0.000	0.000
		GSE	2.285	0.090	0.082	0.084	0.065	0.006	0.004	0.004	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.746	0.166	0.166	0.184	0.039	0.018	N/A	N/A	0.000
10R_GA		APU	0.008	0.001	0.001	0.001	0.041	0.004	0.000	0.000	0.000
		GSE	2.064	0.082	0.073	0.076	0.058	0.006	0.004	0.004	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.088	0.466	0.466	0.515	0.107	0.049	N/A	N/A	0.000
28L_GA		APU	0.023	0.002	0.002	0.002	0.114	0.011	0.000	0.000	0.000
		GSE	5.774	0.227	0.205	0.213	0.163	0.014	0.012	0.012	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.834	0.633	0.633	0.699	0.146	0.065	N/A	N/A	0.000
28R_GA		APU	0.031	0.002	0.002	0.002	0.154	0.015	0.000	0.000	0.000
		GSE	7.837	0.309	0.278	0.289	0.223	0.020	0.017	0.015	0.000
Learjet 25B	CJ610-6	TOTAL	3.576	0.271	0.271	0.289	0.072	0.020	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.420	0.099	0.089	0.093	0.076	0.003	0.002	0.002	0.000
Learjet 25B	CJ610-6	TOTAL	13.196	1.001	1.001	1.064	0.262	0.073	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.930	0.367	0.331	0.343	0.282	0.013	0.009	0.008	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 25B	CJ610-6	TOTAL	44.186	3.351	3.351	3.563	0.881	0.244	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	29.904	1.230	1.108	1.149	0.945	0.045	0.029	0.026	0.000
Learjet 25B	CJ610-6	TOTAL	15.371	1.165	1.165	1.239	0.306	0.085	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.401	0.428	0.385	0.399	0.328	0.015	0.010	0.010	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.226	0.002	0.002	0.002	0.347	0.034	0.003	0.003	0.000
10L		APU	0.099	0.006	0.006	0.007	0.026	0.006	0.000	0.000	0.000
		GSE	1.504	0.060	0.054	0.055	0.065	0.008	0.004	0.004	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.123	0.001	0.001	0.001	0.190	0.019	0.002	0.002	0.000
10R		APU	0.054	0.003	0.003	0.003	0.014	0.003	0.000	0.000	0.000
		GSE	0.821	0.032	0.030	0.031	0.035	0.004	0.002	0.002	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.383	0.003	0.003	0.004	0.589	0.057	0.006	0.006	0.000
28L		APU	0.168	0.010	0.010	0.011	0.044	0.009	0.000	0.000	0.000
		GSE	2.547	0.100	0.090	0.094	0.109	0.013	0.007	0.007	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.794	0.008	0.008	0.008	1.222	0.118	0.011	0.011	0.000
28R		APU	0.348	0.020	0.020	0.022	0.091	0.020	0.000	0.000	0.000
		GSE	5.289	0.208	0.188	0.196	0.227	0.028	0.014	0.014	0.000
A320-200	V2500-A1	TOTAL	0.047	0.002	0.002	0.003	0.355	0.018	0.000	0.000	0.000
10L		APU	0.003	0.000	0.000	0.000	0.014	0.001	0.000	0.000	0.000
		GSE	0.009	0.001	0.001	0.001	0.010	0.002	0.001	0.001	0.000
A320-200	V2500-A1	TOTAL	0.170	0.010	0.010	0.010	1.260	0.063	0.001	0.001	0.000
10R		APU	0.010	0.001	0.001	0.001	0.050	0.004	0.000	0.000	0.000
		GSE	0.031	0.004	0.004	0.004	0.036	0.009	0.004	0.004	0.000
A320-200	V2500-A1	TOTAL	0.276	0.015	0.015	0.017	2.044	0.103	0.002	0.002	0.000
28L		APU	0.017	0.001	0.001	0.001	0.080	0.008	0.000	0.000	0.000
		GSE	0.051	0.007	0.007	0.007	0.058	0.014	0.008	0.008	0.000
A320-200	V2500-A1	TOTAL	0.109	0.007	0.007	0.007	0.808	0.041	0.001	0.001	0.000
28R		APU	0.007	0.000	0.000	0.000	0.032	0.003	0.000	0.000	0.000
		GSE	0.020	0.003	0.002	0.003	0.023	0.006	0.003	0.003	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.223	0.002	0.002	0.002	0.385	0.035	0.008	0.008	0.000
10L		APU	0.022	0.002	0.002	0.002	0.017	0.003	0.000	0.000	0.000
		GSE	1.504	0.060	0.054	0.055	0.065	0.008	0.004	0.004	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.121	0.001	0.001	0.001	0.211	0.019	0.004	0.004	0.000
10R		APU	0.012	0.001	0.001	0.001	0.009	0.002	0.000	0.000	0.000
		GSE	0.821	0.032	0.030	0.031	0.035	0.004	0.002	0.002	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.377	0.003	0.003	0.004	0.651	0.060	0.013	0.013	0.000
28L		APU	0.039	0.003	0.003	0.004	0.028	0.006	0.000	0.000	0.000
		GSE	2.547	0.100	0.090	0.094	0.109	0.013	0.007	0.007	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.782	0.008	0.008	0.009	1.353	0.125	0.029	0.029	0.000
28R		APU	0.079	0.008	0.008	0.008	0.056	0.012	0.000	0.000	0.000
		GSE	5.289	0.208	0.188	0.196	0.227	0.028	0.014	0.014	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	5.358	0.057	0.057	0.055	0.006	0.000	N/A	N/A	4.253
10L_GA		Climb Out	4.478	0.051	0.051	0.049	0.001	0.000	N/A	N/A	3.045
		Takeoff	2.985	0.025	0.025	0.024	0.001	0.000	N/A	N/A	2.070
		Idle	2.765	0.146	0.146	0.140	0.001	0.000	N/A	N/A	2.136
B737-300	CFM56-3-B1	Approach	0.214	0.004	0.004	0.004	0.467	0.056	0.001	0.001	56.256
10L		Climb Out	0.028	0.001	0.001	0.001	0.449	0.029	0.000	0.000	28.935
		Takeoff	0.034	0.001	0.001	0.002	0.672	0.037	0.001	0.001	37.968
		Idle	2.131	0.141	0.141	0.154	0.241	0.062	0.001	0.001	61.944
B737-300	CFM56-3B-2	Approach	0.041	0.001	0.001	0.001	0.104	0.012	0.000	0.000	11.901
10L		Climb Out	0.006	0.000	0.000	0.000	0.105	0.007	0.000	0.000	6.267
		Takeoff	0.008	0.000	0.000	0.000	0.161	0.009	0.000	0.000	8.281
		Idle	0.380	0.022	0.022	0.024	0.052	0.012	0.000	0.000	12.634
B737-500	CFM56-3C-1	Approach	0.055	0.001	0.001	0.001	0.160	0.018	0.000	0.000	17.625
10L		Climb Out	0.010	0.000	0.000	0.000	0.187	0.011	0.000	0.000	10.528
		Takeoff	0.012	0.000	0.000	0.000	0.287	0.014	0.001	0.001	13.836
		Idle	0.478	0.025	0.025	0.028	0.077	0.018	0.000	0.000	17.857
B737-700	CFM56-7B22	Approach	0.168	0.007	0.007	0.008	0.672	0.067	0.014	0.014	67.199
10L		Climb Out	0.024	0.004	0.004	0.004	0.767	0.041	0.009	0.009	40.401
		Takeoff	0.029	0.006	0.006	0.007	1.333	0.057	0.012	0.012	57.706
		Idle	1.482	0.162	0.162	0.177	0.292	0.065	0.013	0.013	64.977
B737-800	CFM56-7B26	Approach	0.042	0.002	0.002	0.003	0.283	0.026	0.008	0.008	26.265
10L		Climb Out	0.011	0.002	0.002	0.002	0.410	0.019	0.006	0.006	18.229
		Takeoff	0.006	0.002	0.002	0.003	0.743	0.025	0.008	0.008	25.785
		Idle	0.459	0.046	0.046	0.051	0.115	0.024	0.008	0.008	24.420
B757-300	PW2043	Approach	0.009	0.001	0.001	0.001	0.073	0.007	N/A	N/A	6.823
10L		Climb Out	0.002	0.000	0.000	0.000	0.129	0.004	N/A	N/A	4.631
		Takeoff	0.002	0.000	0.000	0.000	0.238	0.007	N/A	N/A	6.290
		Idle	0.114	0.009	0.009	0.010	0.026	0.006	N/A	N/A	5.883
BAE146-300	LF507 SERIES	Approach	0.025	0.001	0.001	0.001	0.036	0.006	0.000	0.000	5.771
10L		Climb Out	0.002	0.000	0.000	0.000	0.077	0.007	0.001	0.001	6.435
		Takeoff	0.001	0.000	0.000	0.000	0.079	0.006	0.001	0.001	5.469
		Idle	0.252	0.032	0.032	0.034	0.022	0.007	0.000	0.000	6.676
Bombardier CRJ700	CF34-8C1	Approach	0.418	0.009	0.009	0.010	1.593	0.143	0.007	0.007	143.479
10L		Climb Out	0.039	0.001	0.001	0.002	0.983	0.077	0.000	0.000	76.709
		Takeoff	0.053	0.002	0.002	0.003	1.887	0.129	0.007	0.007	128.668
		Idle	3.986	0.013	0.013	0.014	0.689	0.160	0.008	0.008	159.950
Cessna 172 Skyhawk	O-320	Approach	1.967	0.031	0.031	0.030	0.001	0.000	N/A	N/A	1.612
10L_GA		Climb Out	1.060	0.013	0.013	0.013	0.004	0.000	N/A	N/A	1.071
		Takeoff	0.800	0.009	0.009	0.009	0.001	0.000	N/A	N/A	0.742
		Idle	0.503	0.018	0.018	0.017	0.000	0.000	N/A	N/A	0.465
Cessna 441 Conqu...	TPE331-8	Approach	0.008	0.000	0.000	0.000	0.017	0.002	N/A	N/A	1.765
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.374
		Takeoff	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.431
		Idle	0.023	0.002	0.002	0.002	0.006	0.001	N/A	N/A	1.258
CITATION I SP	JT15D-1A ,1B	Approach	0.047	0.006	0.006	0.006	0.004	0.001	0.000	0.000	1.178
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.704
		Takeoff	0.002	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.783
		Idle	0.155	0.060	0.060	0.063	0.002	0.001	0.000	0.000	1.175
CL600	ALF 502L-2	Approach	0.097	0.004	0.004	0.004	0.159	0.013	0.003	0.003	24.492
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.154	0.007	0.003	0.003	12.785
		Takeoff	0.007	0.000	0.000	0.000	0.235	0.010	0.002	0.002	17.463
		Idle	1.182	0.172	0.172	0.183	0.087	0.014	0.000	0.000	25.888
DC9-30	JT8D-15 (old ...	Approach	0.249	0.043	0.043	0.046	0.153	0.026	0.019	0.019	25.926
10L		Climb Out	0.023	0.006	0.006	0.007	0.344	0.023	0.017	0.017	22.908
		Takeoff	0.017	0.006	0.006	0.007	0.463	0.024	0.018	0.018	24.237
		Idle	1.119	0.349	0.349	0.383	0.095	0.032	0.023	0.023	31.772
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.134	0.000	0.000	0.001	0.122	0.018	0.000	0.000	17.612
10L		Climb Out	0.009	0.000	0.000	0.001	0.237	0.018	0.000	0.000	17.602
		Takeoff	0.007	0.000	0.000	0.000	0.188	0.012	0.000	0.000	12.203
		Idle	0.736	0.073	0.073	0.077	0.082	0.019	0.000	0.000	19.137
Embraer ERJ 145	AE3007A	Approach	0.034	0.007	0.007	0.007	0.080	0.010	0.000	0.000	10.379
10L		Climb Out	0.009	0.003	0.003	0.003	0.175	0.010	0.000	0.000	10.029
		Takeoff	0.006	0.002	0.002	0.002	0.143	0.007	0.000	0.000	6.953
		Idle	0.196	0.029	0.029	0.030	0.043	0.011	0.000	0.000	11.330
Embraer ERJ 145	AE3007A1E	Approach	0.110	0.001	0.001	0.001	0.146	0.020	0.000	0.000	19.559
10L		Climb Out	0.013	0.001	0.001	0.001	0.299	0.020	0.000	0.000	20.036

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.011	0.000	0.000	0.000	0.240	0.014	0.000	0.000	13.970
		Idle	0.766	0.071	0.071	0.076	0.086	0.020	0.000	0.000	20.179
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.567	0.002	0.002	0.002	0.593	0.084	0.000	0.000	83.288
10L		Climb Out	0.043	0.002	0.002	0.002	1.102	0.078	0.000	0.000	78.671
		Takeoff	0.051	0.002	0.002	0.002	1.096	0.068	0.000	0.000	68.023
		Idle	3.760	0.364	0.364	0.387	0.391	0.094	0.000	0.000	93.829
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	0.827	0.003	0.003	0.003	0.752	0.108	0.000	0.000	108.491
10L		Climb Out	0.054	0.003	0.003	0.003	1.463	0.108	0.000	0.000	108.428
		Takeoff	0.037	0.002	0.002	0.002	1.160	0.075	0.000	0.000	75.171
		Idle	4.535	0.449	0.449	0.477	0.504	0.118	0.000	0.000	117.889
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.214	0.001	0.001	0.001	0.224	0.032	0.000	0.000	31.438
10L		Climb Out	0.017	0.001	0.001	0.001	0.416	0.030	0.000	0.000	29.669
		Takeoff	0.019	0.001	0.001	0.001	0.413	0.025	0.000	0.000	25.660
		Idle	1.418	0.137	0.137	0.146	0.148	0.035	0.000	0.000	35.462
Embraer ERJ 170	CF34-8E5	Approach	0.251	0.003	0.003	0.004	0.640	0.060	0.007	0.007	59.493
10L		Climb Out	0.019	0.001	0.001	0.001	0.405	0.032	0.000	0.000	32.006
		Takeoff	0.034	0.001	0.001	0.001	0.794	0.054	0.007	0.007	53.718
		Idle	1.049	0.008	0.008	0.008	0.267	0.057	0.007	0.007	57.774
F-27 SERIES	RDa7	Approach	0.168	0.015	0.015	0.017	0.004	0.006	N/A	N/A	5.017
10L		Climb Out	0.012	0.003	0.003	0.004	0.015	0.003	N/A	N/A	3.499
		Takeoff	0.008	0.002	0.002	0.002	0.012	0.002	N/A	N/A	2.251
		Idle	0.534	0.139	0.139	0.154	0.004	0.006	N/A	N/A	5.833
Falcon 20	CF700-2D	Approach	0.141	0.003	0.003	0.003	0.004	0.002	N/A	N/A	2.275
10L_GA		Climb Out	0.032	0.000	0.000	0.000	0.006	0.001	N/A	N/A	1.263
		Takeoff	0.037	0.000	0.000	0.000	0.010	0.002	N/A	N/A	1.684
		Idle	0.419	0.049	0.049	0.052	0.002	0.002	N/A	N/A	2.703
Falcon 2000EX	PW308C	Approach	0.063	0.002	0.002	0.002	0.095	0.012	0.001	0.001	12.118
10L_Corp		Climb Out	0.007	0.001	0.001	0.001	0.104	0.007	0.001	0.001	6.489
		Takeoff	0.007	0.001	0.001	0.001	0.155	0.009	0.001	0.001	8.439
		Idle	0.420	0.060	0.060	0.063	0.036	0.010	0.001	0.001	9.932
Gulfstream II	SPEY MK511-8	Approach	0.012	0.001	0.001	0.001	0.033	0.004	N/A	N/A	4.538
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.061	0.003	N/A	N/A	3.526
		Takeoff	0.000	0.000	0.000	0.000	0.094	0.004	N/A	N/A	4.127
		Idle	0.188	0.022	0.022	0.023	0.021	0.006	N/A	N/A	5.917
Gulfstream IV	TAY Mk611-8	Approach	0.088	0.020	0.020	0.022	0.129	0.022	0.013	0.013	22.592
10L_GA		Climb Out	0.008	0.003	0.003	0.003	0.171	0.010	0.006	0.006	10.200
		Takeoff	0.010	0.011	0.011	0.012	0.299	0.014	0.009	0.009	14.150
		Idle	0.745	0.105	0.105	0.111	0.077	0.031	0.019	0.019	30.900
HS 125	TFE731-3	Approach	0.333	0.030	0.030	0.033	0.148	0.011	N/A	N/A	21.378
10L_Corp		Climb Out	0.015	0.001	0.001	0.001	0.148	0.006	N/A	N/A	9.254
		Takeoff	0.017	0.001	0.001	0.001	0.276	0.008	N/A	N/A	14.392
		Idle	1.014	0.192	0.192	0.213	0.079	0.011	N/A	N/A	21.250
KC-135R	CFM56-2B-1	Approach	0.028	0.000	0.000	0.001	0.054	0.007	0.000	0.000	6.562
10L_GA		Climb Out	0.007	0.000	0.000	0.000	0.120	0.008	0.000	0.000	7.475
		Takeoff	0.010	0.000	0.000	0.000	0.198	0.011	0.001	0.001	10.750
		Idle	0.278	0.017	0.017	0.019	0.036	0.009	0.000	0.000	9.059
Learjet 25C	CJ610-6	Approach	1.998	0.000	0.000	0.000	0.034	0.012	N/A	N/A	22.712
10L_GA		Climb Out	0.238	0.002	0.002	0.002	0.030	0.004	N/A	N/A	8.497
		Takeoff	0.358	0.001	0.001	0.001	0.056	0.008	N/A	N/A	13.275
		Idle	4.808	0.558	0.558	0.593	0.028	0.017	N/A	N/A	31.018
Learjet 35/36	TFE 731-2-2B	Approach	0.134	0.025	0.025	0.028	0.035	0.003	N/A	N/A	5.993
10L_GA		Climb Out	0.006	0.000	0.000	0.000	0.035	0.001	N/A	N/A	2.690
		Takeoff	0.004	0.000	0.000	0.000	0.050	0.002	N/A	N/A	3.231
		Idle	0.312	0.107	0.107	0.114	0.015	0.003	N/A	N/A	5.326
MD-80-83	JT8D-219 old...	Approach	0.080	0.032	0.032	0.034	0.181	0.020	0.006	0.006	19.856
10L		Climb Out	0.021	0.007	0.007	0.008	0.355	0.017	0.006	0.006	17.038
		Takeoff	0.013	0.006	0.006	0.006	0.507	0.019	0.006	0.006	18.796
		Idle	0.252	0.069	0.069	0.076	0.072	0.020	0.006	0.006	20.014
Navajo	TIO-540-J2B2	Approach	4.469	0.047	0.047	0.046	0.004	0.000	N/A	N/A	3.546
10L_GA		Climb Out	3.735	0.042	0.042	0.041	0.001	0.000	N/A	N/A	2.539
		Takeoff	2.489	0.021	0.021	0.021	0.001	0.000	N/A	N/A	1.726
		Idle	2.306	0.121	0.121	0.117	0.001	0.000	N/A	N/A	1.781
Piper PA-28	O-320	Approach	0.183	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.150
10L_GA		Climb Out	0.088	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.089
		Takeoff	0.060	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.055
		Idle	0.036	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.034
UC-12J	PT6A-42	Approach	0.094	0.062	0.062	0.067	0.012	0.001	N/A	N/A	2.696
10L_GA		Climb Out	0.004	0.001	0.001	0.001	0.004	0.000	N/A	N/A	0.642
		Takeoff	0.002	0.001	0.001	0.001	0.004	0.000	N/A	N/A	0.503
		Idle	0.208	0.184	0.184	0.203	0.003	0.001	N/A	N/A	1.811

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation	JT15D-4 (B,C...	Approach	0.868	0.140	0.140	0.149	0.143	0.014	0.008	0.008	27.106
10L_Corp		Climb Out	0.046	0.003	0.003	0.003	0.125	0.008	0.004	0.004	14.520
		Takeoff	0.033	0.001	0.001	0.001	0.147	0.009	0.004	0.004	15.866
		Idle	2.647	1.091	1.091	1.161	0.072	0.014	0.008	0.008	27.288
B737-300	CFM56-3C-1 ...	Approach	0.074	0.001	0.001	0.001	0.141	0.018	0.000	0.000	17.699
10L		Climb Out	0.009	0.000	0.000	0.000	0.131	0.009	0.000	0.000	8.938
		Takeoff	0.011	0.001	0.001	0.001	0.194	0.012	0.000	0.000	11.696
		Idle	0.768	0.057	0.057	0.063	0.076	0.020	0.000	0.000	20.157
550 Citation	JT15D-4 (B,C...	Approach	0.137	0.022	0.022	0.023	0.023	0.002	0.001	0.001	4.280
10L_GA		Climb Out	0.008	0.000	0.000	0.000	0.020	0.001	0.001	0.001	2.293
		Takeoff	0.006	0.000	0.000	0.000	0.023	0.001	0.001	0.001	2.506
		Idle	0.418	0.172	0.172	0.183	0.011	0.002	0.001	0.001	4.309
550 Citation	JT15D-4 (B,C...	Approach	0.499	0.080	0.080	0.086	0.083	0.009	0.004	0.004	15.622
10R_GA		Climb Out	0.026	0.001	0.001	0.002	0.072	0.004	0.002	0.002	8.368
		Takeoff	0.019	0.001	0.001	0.001	0.085	0.004	0.002	0.002	9.144
		Idle	1.526	0.629	0.629	0.669	0.042	0.009	0.004	0.004	15.727
550 Citation	JT15D-4 (B,C...	Approach	0.486	0.078	0.078	0.083	0.080	0.008	0.004	0.004	15.193
10R_Corp		Climb Out	0.025	0.001	0.001	0.001	0.069	0.004	0.002	0.002	8.138
		Takeoff	0.019	0.001	0.001	0.001	0.082	0.004	0.002	0.002	8.893
		Idle	1.484	0.612	0.612	0.650	0.040	0.008	0.004	0.004	15.296
Aztec	TIO-540-J2B2	Approach	8.059	0.086	0.086	0.083	0.009	0.001	N/A	N/A	6.396
10R_GA		Climb Out	6.735	0.076	0.076	0.074	0.001	0.000	N/A	N/A	4.579
		Takeoff	4.490	0.039	0.039	0.037	0.001	0.000	N/A	N/A	3.113
		Idle	4.158	0.218	0.218	0.211	0.001	0.000	N/A	N/A	3.213
B737-300	CFM56-3C-1 ...	Approach	0.196	0.003	0.003	0.004	0.374	0.046	0.001	0.001	46.696
10R		Climb Out	0.023	0.001	0.001	0.001	0.346	0.023	0.000	0.000	23.581
		Takeoff	0.028	0.001	0.001	0.002	0.513	0.031	0.000	0.000	30.859
		Idle	2.026	0.152	0.152	0.166	0.202	0.053	0.000	0.000	53.182
B737-300	CFM56-3B-2	Approach	0.096	0.002	0.002	0.002	0.245	0.029	0.000	0.000	28.186
10R		Climb Out	0.013	0.001	0.001	0.001	0.248	0.014	0.000	0.000	14.843
		Takeoff	0.018	0.001	0.001	0.001	0.380	0.020	0.001	0.001	19.611
		Idle	0.901	0.053	0.053	0.057	0.122	0.030	0.000	0.000	29.920
B737-300	CFM56-3-B1	Approach	0.580	0.012	0.012	0.013	1.267	0.152	0.002	0.002	152.573
10R		Climb Out	0.075	0.004	0.004	0.004	1.216	0.078	0.001	0.001	78.474
		Takeoff	0.093	0.004	0.004	0.004	1.822	0.103	0.003	0.003	102.974
		Idle	5.779	0.383	0.383	0.419	0.655	0.168	0.002	0.002	167.999
B737-500	CFM56-3C-1	Approach	0.148	0.003	0.003	0.003	0.433	0.047	0.001	0.001	47.569
10R		Climb Out	0.025	0.001	0.001	0.001	0.506	0.029	0.001	0.001	28.416
		Takeoff	0.033	0.001	0.001	0.001	0.773	0.037	0.003	0.003	37.344
		Idle	1.292	0.068	0.068	0.075	0.207	0.049	0.000	0.000	48.197
B737-700	CFM56-7B22	Approach	0.437	0.018	0.018	0.019	1.745	0.174	0.036	0.036	174.472
10R		Climb Out	0.063	0.011	0.011	0.011	1.993	0.105	0.022	0.022	104.895
		Takeoff	0.075	0.015	0.015	0.017	3.461	0.150	0.032	0.032	149.825
		Idle	3.846	0.422	0.422	0.462	0.759	0.169	0.035	0.035	168.702
B737-800	CFM56-7B26	Approach	0.109	0.007	0.007	0.008	0.735	0.068	0.021	0.021	68.118
10R		Climb Out	0.029	0.004	0.004	0.006	1.064	0.047	0.014	0.014	47.279
		Takeoff	0.013	0.007	0.007	0.008	1.926	0.067	0.020	0.020	66.875
		Idle	1.190	0.120	0.120	0.132	0.298	0.063	0.019	0.019	63.333
B757-300	PW2043	Approach	0.021	0.001	0.001	0.001	0.169	0.015	N/A	N/A	15.745
10R		Climb Out	0.004	0.000	0.000	0.000	0.298	0.011	N/A	N/A	10.686
		Takeoff	0.004	0.000	0.000	0.000	0.548	0.014	N/A	N/A	14.516
		Idle	0.262	0.021	0.021	0.023	0.061	0.013	N/A	N/A	13.577
BAE146-300	LF507 SERIES	Approach	0.014	0.000	0.000	0.000	0.020	0.003	0.000	0.000	3.157
10R		Climb Out	0.001	0.000	0.000	0.000	0.042	0.003	0.001	0.001	3.521
		Takeoff	0.001	0.000	0.000	0.000	0.043	0.003	0.000	0.000	2.992
		Idle	0.138	0.018	0.018	0.019	0.012	0.003	0.000	0.000	3.653
Bombardier CRJ700	CF34-8C1	Approach	0.228	0.004	0.004	0.006	0.871	0.078	0.003	0.003	78.456
10R		Climb Out	0.021	0.001	0.001	0.001	0.538	0.042	0.000	0.000	41.945
		Takeoff	0.029	0.001	0.001	0.001	1.032	0.071	0.003	0.003	70.357
		Idle	2.179	0.007	0.007	0.008	0.377	0.087	0.004	0.004	87.462
Cessna 172 Skyhawk	O-320	Approach	3.406	0.054	0.054	0.052	0.002	0.000	N/A	N/A	2.792
10R_GA		Climb Out	1.836	0.023	0.023	0.022	0.008	0.000	N/A	N/A	1.855
		Takeoff	1.388	0.015	0.015	0.014	0.003	0.000	N/A	N/A	1.284
		Idle	0.871	0.030	0.030	0.029	0.000	0.000	N/A	N/A	0.807
Cessna 441 Conqu...	TPE331-8	Approach	0.023	0.001	0.001	0.001	0.051	0.006	N/A	N/A	5.322
10R_GA		Climb Out	0.002	0.000	0.000	0.000	0.012	0.001	N/A	N/A	1.128
		Takeoff	0.002	0.000	0.000	0.000	0.014	0.001	N/A	N/A	1.301
		Idle	0.072	0.006	0.006	0.006	0.015	0.003	N/A	N/A	3.794
CITATION I SP	JT15D-1A ,1B	Approach	0.181	0.020	0.020	0.021	0.015	0.002	0.001	0.001	4.458
10R_GA		Climb Out	0.009	0.000	0.000	0.000	0.018	0.001	0.001	0.001	2.664

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.008	0.000	0.000	0.000	0.022	0.001	0.001	0.001	2.960
		Idle	0.586	0.225	0.225	0.239	0.008	0.002	0.001	0.001	4.447
CL600	ALF 502L-2	Approach	0.054	0.002	0.002	0.002	0.088	0.008	0.001	0.001	13.711
10R_GA		Climb Out	0.002	0.000	0.000	0.000	0.086	0.004	0.002	0.002	7.157
		Takeoff	0.004	0.000	0.000	0.000	0.131	0.006	0.001	0.001	9.775
		Idle	0.661	0.096	0.096	0.103	0.049	0.008	0.000	0.000	14.492
DC9-30	JT8D-15 (old ...	Approach	0.642	0.110	0.110	0.121	0.395	0.067	0.049	0.049	66.835
10R		Climb Out	0.060	0.014	0.014	0.017	0.886	0.060	0.043	0.043	59.055
		Takeoff	0.044	0.015	0.015	0.018	1.194	0.063	0.045	0.045	62.480
		Idle	2.884	0.901	0.901	0.987	0.246	0.082	0.060	0.060	81.907
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.080	0.000	0.000	0.000	0.073	0.011	0.000	0.000	10.533
10R		Climb Out	0.006	0.000	0.000	0.000	0.142	0.011	0.000	0.000	10.526
		Takeoff	0.003	0.000	0.000	0.000	0.112	0.008	0.000	0.000	7.297
		Idle	0.440	0.044	0.044	0.046	0.049	0.011	0.000	0.000	11.445
Embraer ERJ 145	AE3007A1E	Approach	0.061	0.000	0.000	0.000	0.080	0.011	0.000	0.000	10.838
10R		Climb Out	0.007	0.000	0.000	0.000	0.165	0.011	0.000	0.000	11.102
		Takeoff	0.006	0.000	0.000	0.000	0.133	0.008	0.000	0.000	7.740
		Idle	0.424	0.040	0.040	0.042	0.047	0.011	0.000	0.000	11.182
Embraer ERJ 145	AE3007A	Approach	0.019	0.003	0.003	0.004	0.045	0.006	0.000	0.000	5.752
10R		Climb Out	0.006	0.001	0.001	0.002	0.097	0.006	0.000	0.000	5.559
		Takeoff	0.003	0.001	0.001	0.001	0.079	0.003	0.000	0.000	3.854
		Idle	0.109	0.015	0.015	0.017	0.024	0.007	0.000	0.000	6.279
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.118	0.000	0.000	0.001	0.125	0.018	0.000	0.000	17.422
10R		Climb Out	0.009	0.000	0.000	0.000	0.230	0.017	0.000	0.000	16.441
		Takeoff	0.011	0.000	0.000	0.000	0.229	0.014	0.000	0.000	14.220
		Idle	0.786	0.076	0.076	0.080	0.082	0.020	0.000	0.000	19.652
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	0.459	0.002	0.002	0.002	0.417	0.061	0.000	0.000	60.145
10R		Climb Out	0.030	0.002	0.002	0.002	0.811	0.061	0.000	0.000	60.110
		Takeoff	0.021	0.001	0.001	0.001	0.643	0.042	0.000	0.000	41.673
		Idle	2.514	0.249	0.249	0.265	0.279	0.065	0.000	0.000	65.355
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.314	0.001	0.001	0.001	0.328	0.046	0.000	0.000	46.152
10R		Climb Out	0.024	0.001	0.001	0.001	0.611	0.044	0.000	0.000	43.593
		Takeoff	0.028	0.001	0.001	0.001	0.607	0.037	0.000	0.000	37.692
		Idle	2.083	0.202	0.202	0.215	0.217	0.052	0.000	0.000	51.993
Embraer ERJ 170	CF34-8E5	Approach	0.138	0.002	0.002	0.002	0.351	0.033	0.003	0.003	32.542
10R		Climb Out	0.010	0.000	0.000	0.000	0.222	0.018	0.000	0.000	17.507
		Takeoff	0.019	0.001	0.001	0.001	0.434	0.030	0.003	0.003	29.383
		Idle	0.574	0.004	0.004	0.004	0.146	0.032	0.003	0.003	31.602
F-27 SERIES	RDa7	Approach	0.270	0.024	0.024	0.026	0.008	0.008	N/A	N/A	8.113
10R		Climb Out	0.020	0.007	0.007	0.007	0.025	0.006	N/A	N/A	5.659
		Takeoff	0.012	0.003	0.003	0.004	0.020	0.003	N/A	N/A	3.640
		Idle	0.862	0.226	0.226	0.249	0.007	0.010	N/A	N/A	9.434
Falcon 20	CF700-2D	Approach	0.518	0.012	0.012	0.012	0.015	0.009	N/A	N/A	8.362
10R_GA		Climb Out	0.116	0.000	0.000	0.000	0.020	0.004	N/A	N/A	4.644
		Takeoff	0.137	0.001	0.001	0.001	0.034	0.007	N/A	N/A	6.192
		Idle	1.540	0.179	0.179	0.190	0.009	0.010	N/A	N/A	9.935
Falcon 2000EX	PW308C	Approach	0.034	0.001	0.001	0.001	0.051	0.007	0.001	0.001	6.473
10R_Corp		Climb Out	0.003	0.000	0.000	0.000	0.055	0.003	0.000	0.000	3.467
		Takeoff	0.003	0.000	0.000	0.000	0.083	0.004	0.000	0.000	4.507
		Idle	0.225	0.032	0.032	0.033	0.019	0.006	0.000	0.000	5.305
Gulfstream II	SPEY MK511-8	Approach	0.044	0.003	0.003	0.003	0.120	0.017	N/A	N/A	16.686
10R_GA		Climb Out	0.008	0.001	0.001	0.002	0.224	0.013	N/A	N/A	12.964
		Takeoff	0.002	0.001	0.001	0.001	0.344	0.015	N/A	N/A	15.174
		Idle	0.691	0.080	0.080	0.085	0.078	0.022	N/A	N/A	21.755
Gulfstream IV	TAY Mk611-8	Approach	0.123	0.029	0.029	0.030	0.180	0.032	0.019	0.019	31.561
10R_GA		Climb Out	0.011	0.004	0.004	0.004	0.239	0.014	0.009	0.009	14.251
		Takeoff	0.014	0.015	0.015	0.017	0.417	0.020	0.012	0.012	19.769
		Idle	1.041	0.147	0.147	0.157	0.108	0.043	0.025	0.025	43.169
HS 125	TFE731-3	Approach	0.181	0.017	0.017	0.018	0.080	0.007	N/A	N/A	11.638
10R_Corp		Climb Out	0.008	0.000	0.000	0.000	0.080	0.002	N/A	N/A	5.038
		Takeoff	0.009	0.000	0.000	0.000	0.150	0.004	N/A	N/A	7.835
		Idle	0.552	0.105	0.105	0.116	0.043	0.007	N/A	N/A	11.569
KC-135R	CFM56-2B-1	Approach	0.066	0.001	0.001	0.001	0.129	0.015	0.000	0.000	15.748
10R_GA		Climb Out	0.017	0.001	0.001	0.001	0.287	0.018	0.000	0.000	17.940
		Takeoff	0.023	0.001	0.001	0.001	0.477	0.025	0.001	0.001	25.798
		Idle	0.667	0.040	0.040	0.044	0.087	0.022	0.000	0.000	21.740
Learjet 25C	CJ610-6	Approach	1.016	0.000	0.000	0.000	0.018	0.007	N/A	N/A	11.549
10R_GA		Climb Out	0.121	0.001	0.001	0.001	0.015	0.002	N/A	N/A	4.320
		Takeoff	0.182	0.001	0.001	0.001	0.029	0.003	N/A	N/A	6.751
		Idle	2.445	0.284	0.284	0.302	0.014	0.009	N/A	N/A	15.772

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36	TFE 731-2-2B	Approach	0.516	0.098	0.098	0.105	0.136	0.012	N/A	N/A	23.041
10R_GA		Climb Out	0.021	0.001	0.001	0.001	0.136	0.006	N/A	N/A	10.341
		Takeoff	0.018	0.001	0.001	0.001	0.190	0.007	N/A	N/A	12.421
		Idle	1.200	0.410	0.410	0.437	0.057	0.011	N/A	N/A	20.477
MD-80-83	JT8D-219 old...	Approach	0.245	0.096	0.096	0.105	0.549	0.061	0.018	0.018	60.129
10R		Climb Out	0.062	0.022	0.022	0.024	1.074	0.052	0.015	0.015	51.599
		Takeoff	0.042	0.015	0.015	0.017	1.537	0.057	0.017	0.017	56.918
		Idle	0.765	0.211	0.211	0.230	0.218	0.061	0.018	0.018	60.606
Navajo	TIO-540-J2B2	Approach	4.930	0.053	0.053	0.051	0.006	0.000	N/A	N/A	3.912
10R_GA		Climb Out	4.120	0.046	0.046	0.045	0.001	0.000	N/A	N/A	2.801
		Takeoff	2.746	0.023	0.023	0.023	0.001	0.000	N/A	N/A	1.905
		Idle	2.543	0.133	0.133	0.129	0.001	0.000	N/A	N/A	1.965
Piper PA-28	O-320	Approach	0.558	0.009	0.009	0.009	0.000	0.000	N/A	N/A	0.456
10R_GA		Climb Out	0.268	0.003	0.003	0.003	0.001	0.000	N/A	N/A	0.271
		Takeoff	0.181	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.168
		Idle	0.112	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.104
UC-12J	PT6A-42	Approach	0.311	0.203	0.203	0.225	0.042	0.004	N/A	N/A	8.951
10R_GA		Climb Out	0.014	0.004	0.004	0.004	0.017	0.001	N/A	N/A	2.130
		Takeoff	0.009	0.003	0.003	0.003	0.013	0.001	N/A	N/A	1.667
		Idle	0.692	0.610	0.610	0.674	0.012	0.003	N/A	N/A	6.012
Aztec	TIO-540-J2B2	Approach	20.554	0.218	0.218	0.211	0.023	0.002	N/A	N/A	16.312
28L_GA		Climb Out	17.178	0.194	0.194	0.187	0.002	0.001	N/A	N/A	11.678
		Takeoff	11.450	0.098	0.098	0.095	0.003	0.001	N/A	N/A	7.940
		Idle	10.604	0.558	0.558	0.538	0.003	0.001	N/A	N/A	8.196
B737-300	CFM56-3-B1	Approach	1.488	0.031	0.031	0.034	3.251	0.391	0.004	0.004	391.628
28L		Climb Out	0.192	0.010	0.010	0.011	3.122	0.202	0.002	0.002	201.428
		Takeoff	0.238	0.011	0.011	0.011	4.678	0.265	0.008	0.008	264.313
		Idle	14.834	0.983	0.983	1.076	1.682	0.431	0.004	0.004	431.224
B737-300	CFM56-3B-2	Approach	0.294	0.007	0.007	0.007	0.753	0.087	0.001	0.001	86.593
28L		Climb Out	0.041	0.002	0.002	0.002	0.762	0.045	0.001	0.001	45.599
		Takeoff	0.054	0.002	0.002	0.002	1.168	0.061	0.003	0.003	60.251
		Idle	2.767	0.161	0.161	0.176	0.377	0.091	0.001	0.001	91.923
B737-300	CFM56-3C-1 ...	Approach	0.517	0.010	0.010	0.011	0.984	0.123	0.001	0.001	123.072
28L		Climb Out	0.062	0.003	0.003	0.003	0.914	0.062	0.001	0.001	62.147
		Takeoff	0.073	0.004	0.004	0.004	1.350	0.082	0.001	0.001	81.333
		Idle	5.341	0.401	0.401	0.439	0.532	0.140	0.001	0.001	140.165
B737-500	CFM56-3C-1	Approach	0.384	0.009	0.009	0.010	1.128	0.123	0.001	0.001	123.887
28L		Climb Out	0.066	0.003	0.003	0.003	1.317	0.074	0.002	0.002	74.005
		Takeoff	0.087	0.003	0.003	0.003	2.013	0.097	0.009	0.009	97.255
		Idle	3.364	0.179	0.179	0.195	0.540	0.126	0.001	0.001	125.522
B737-700	CFM56-7B22	Approach	1.193	0.047	0.047	0.052	4.769	0.477	0.100	0.100	476.869
28L		Climb Out	0.172	0.029	0.029	0.031	5.448	0.287	0.061	0.061	286.699
		Takeoff	0.205	0.041	0.041	0.045	9.460	0.409	0.086	0.086	409.503
		Idle	10.513	1.153	1.153	1.262	2.075	0.461	0.097	0.097	461.100
B737-800	CFM56-7B26	Approach	0.295	0.019	0.019	0.020	1.993	0.184	0.056	0.056	184.531
28L		Climb Out	0.077	0.013	0.013	0.014	2.881	0.128	0.039	0.039	128.076
		Takeoff	0.036	0.018	0.018	0.020	5.217	0.181	0.055	0.055	181.162
		Idle	3.225	0.326	0.326	0.357	0.807	0.172	0.052	0.052	171.566
B757-300	PW2043	Approach	0.064	0.004	0.004	0.004	0.517	0.049	N/A	N/A	48.287
28L		Climb Out	0.013	0.001	0.001	0.001	0.914	0.033	N/A	N/A	32.771
		Takeoff	0.013	0.000	0.000	0.000	1.681	0.044	N/A	N/A	44.516
		Idle	0.804	0.065	0.065	0.072	0.184	0.042	N/A	N/A	41.638
BAE146-300	LF507 SERIES	Approach	0.045	0.001	0.001	0.001	0.065	0.010	0.001	0.001	10.126
28L		Climb Out	0.003	0.000	0.000	0.000	0.136	0.011	0.002	0.002	11.292
		Takeoff	0.002	0.000	0.000	0.000	0.139	0.010	0.001	0.001	9.596
		Idle	0.443	0.055	0.055	0.061	0.039	0.012	0.001	0.001	11.714
Bombardier CRJ700	CF34-8C1	Approach	0.704	0.014	0.014	0.015	2.689	0.243	0.012	0.012	242.212
28L		Climb Out	0.065	0.002	0.002	0.003	1.660	0.129	0.001	0.001	129.494
		Takeoff	0.089	0.004	0.004	0.004	3.187	0.217	0.011	0.011	217.208
		Idle	6.729	0.022	0.022	0.023	1.164	0.270	0.013	0.013	270.017
CITATION I SP	JT15D-1A ,1B	Approach	0.527	0.057	0.057	0.062	0.045	0.007	0.004	0.004	13.024
28L_GA		Climb Out	0.028	0.000	0.000	0.000	0.053	0.004	0.002	0.002	7.782
		Takeoff	0.023	0.000	0.000	0.000	0.066	0.004	0.002	0.002	8.648
		Idle	1.715	0.656	0.656	0.698	0.023	0.007	0.004	0.004	12.991
CL600	ALF 502L-2	Approach	0.152	0.007	0.007	0.008	0.249	0.021	0.004	0.004	38.453
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.241	0.011	0.004	0.004	20.072
		Takeoff	0.011	0.000	0.000	0.001	0.368	0.014	0.003	0.003	27.416
		Idle	1.854	0.270	0.270	0.288	0.138	0.022	0.001	0.001	40.643
Cessna 172 Skyhawk	O-320	Approach	9.161	0.146	0.146	0.141	0.007	0.001	N/A	N/A	7.509
28L_GA		Climb Out	4.939	0.062	0.062	0.060	0.020	0.000	N/A	N/A	4.989

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	3.731	0.041	0.041	0.040	0.008	0.000	N/A	N/A	3.455
		Idle	2.342	0.080	0.080	0.077	0.001	0.000	N/A	N/A	2.169
Cessna 441 Conqu...	TPE331-8	Approach	0.072	0.003	0.003	0.003	0.157	0.017	N/A	N/A	16.437
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.037	0.003	N/A	N/A	3.481
		Takeoff	0.006	0.000	0.000	0.000	0.044	0.004	N/A	N/A	4.016
		Idle	0.220	0.018	0.018	0.019	0.049	0.012	N/A	N/A	11.715
DC9-30	JT8D-15 (old ...	Approach	1.767	0.303	0.303	0.333	1.086	0.184	0.132	0.132	184.009
28L		Climb Out	0.162	0.041	0.041	0.044	2.438	0.162	0.117	0.117	162.587
		Takeoff	0.120	0.043	0.043	0.047	3.286	0.172	0.125	0.125	172.018
		Idle	7.938	2.480	2.480	2.715	0.677	0.226	0.163	0.163	225.502
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.234	0.001	0.001	0.001	0.212	0.031	0.000	0.000	30.619
28L		Climb Out	0.015	0.001	0.001	0.001	0.412	0.031	0.000	0.000	30.601
		Takeoff	0.011	0.001	0.001	0.001	0.327	0.021	0.000	0.000	21.215
		Idle	1.280	0.127	0.127	0.134	0.142	0.033	0.000	0.000	33.271
Embraer ERJ 145	AE3007A	Approach	0.055	0.011	0.011	0.011	0.130	0.017	0.000	0.000	16.756
28L		Climb Out	0.015	0.004	0.004	0.006	0.283	0.017	0.000	0.000	16.192
		Takeoff	0.009	0.003	0.003	0.003	0.230	0.011	0.000	0.000	11.226
		Idle	0.317	0.046	0.046	0.049	0.071	0.019	0.000	0.000	18.292
Embraer ERJ 145	AE3007A1E	Approach	0.177	0.001	0.001	0.001	0.234	0.032	0.000	0.000	31.486
28L		Climb Out	0.021	0.001	0.001	0.001	0.481	0.032	0.000	0.000	32.255
		Takeoff	0.018	0.001	0.001	0.001	0.386	0.022	0.000	0.000	22.488
		Idle	1.233	0.115	0.115	0.121	0.139	0.032	0.000	0.000	32.485
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.913	0.004	0.004	0.004	0.956	0.134	0.000	0.000	134.259
28L		Climb Out	0.069	0.003	0.003	0.004	1.777	0.127	0.000	0.000	126.817
		Takeoff	0.082	0.003	0.003	0.003	1.766	0.109	0.000	0.000	109.650
		Idle	6.061	0.586	0.586	0.624	0.631	0.151	0.000	0.000	151.250
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	1.333	0.006	0.006	0.006	1.211	0.175	0.000	0.000	174.852
28L		Climb Out	0.087	0.006	0.006	0.006	2.358	0.175	0.000	0.000	174.751
		Takeoff	0.061	0.003	0.003	0.004	1.868	0.121	0.000	0.000	121.151
		Idle	7.309	0.724	0.724	0.769	0.811	0.190	0.000	0.000	189.998
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.344	0.001	0.001	0.001	0.360	0.051	0.000	0.000	50.675
28L		Climb Out	0.026	0.001	0.001	0.001	0.670	0.047	0.000	0.000	47.824
		Takeoff	0.031	0.001	0.001	0.001	0.666	0.042	0.000	0.000	41.361
		Idle	2.285	0.220	0.220	0.235	0.238	0.057	0.000	0.000	57.163
Embraer ERJ 170	CF34-8E5	Approach	0.425	0.006	0.006	0.007	1.082	0.100	0.012	0.012	100.468
28L		Climb Out	0.031	0.001	0.001	0.001	0.683	0.054	0.001	0.001	54.050
		Takeoff	0.058	0.002	0.002	0.002	1.340	0.090	0.011	0.011	90.716
		Idle	1.771	0.013	0.013	0.014	0.450	0.098	0.011	0.011	97.566
F-27 SERIES	RDa7	Approach	0.530	0.047	0.047	0.053	0.014	0.015	N/A	N/A	15.915
28L		Climb Out	0.039	0.012	0.012	0.013	0.050	0.011	N/A	N/A	11.101
		Takeoff	0.023	0.007	0.007	0.008	0.040	0.007	N/A	N/A	7.141
		Idle	1.692	0.442	0.442	0.488	0.013	0.019	N/A	N/A	18.507
Falcon 20	CF700-2D	Approach	1.755	0.040	0.040	0.042	0.051	0.029	N/A	N/A	28.299
28L_GA		Climb Out	0.392	0.001	0.001	0.002	0.067	0.015	N/A	N/A	15.717
		Takeoff	0.461	0.002	0.002	0.002	0.117	0.021	N/A	N/A	20.954
		Idle	5.212	0.605	0.605	0.644	0.030	0.034	N/A	N/A	33.622
Gulfstream II	SPEY MK511-8	Approach	0.150	0.010	0.010	0.011	0.407	0.056	N/A	N/A	56.465
28L_GA		Climb Out	0.028	0.006	0.006	0.006	0.759	0.044	N/A	N/A	43.872
		Takeoff	0.007	0.004	0.004	0.004	1.165	0.052	N/A	N/A	51.350
		Idle	2.339	0.271	0.271	0.289	0.265	0.074	N/A	N/A	73.619
HS 125	TFE731-3	Approach	0.561	0.051	0.051	0.056	0.249	0.020	N/A	N/A	36.025
28L_Corp		Climb Out	0.025	0.001	0.001	0.001	0.250	0.009	N/A	N/A	15.593
		Takeoff	0.028	0.001	0.001	0.002	0.464	0.013	N/A	N/A	24.252
		Idle	1.709	0.324	0.324	0.357	0.133	0.020	N/A	N/A	35.810
KC-135R	CFM56-2B-1	Approach	0.203	0.004	0.004	0.004	0.396	0.049	0.001	0.001	48.293
28L_GA		Climb Out	0.050	0.002	0.002	0.003	0.881	0.055	0.001	0.001	55.017
		Takeoff	0.072	0.003	0.003	0.003	1.464	0.079	0.004	0.004	79.114
		Idle	2.047	0.122	0.122	0.134	0.267	0.066	0.001	0.001	66.670
Learjet 25C	CJ610-6	Approach	3.105	0.000	0.000	0.000	0.053	0.019	N/A	N/A	35.288
28L_GA		Climb Out	0.369	0.002	0.002	0.003	0.046	0.007	N/A	N/A	13.200
		Takeoff	0.557	0.002	0.002	0.002	0.087	0.011	N/A	N/A	20.625
		Idle	7.469	0.868	0.868	0.923	0.043	0.026	N/A	N/A	48.191
Learjet 35/36	TFE 731-2-2B	Approach	1.547	0.294	0.294	0.313	0.408	0.037	N/A	N/A	69.123
28L_GA		Climb Out	0.063	0.004	0.004	0.004	0.406	0.017	N/A	N/A	31.021
		Takeoff	0.052	0.004	0.004	0.004	0.569	0.020	N/A	N/A	37.264
		Idle	3.600	1.231	1.231	1.308	0.173	0.033	N/A	N/A	61.430
MD-80-83	JT8D-219 old...	Approach	0.539	0.211	0.211	0.230	1.209	0.132	0.040	0.040	132.435
28L		Climb Out	0.137	0.047	0.047	0.052	2.363	0.114	0.033	0.033	113.646
		Takeoff	0.091	0.034	0.034	0.037	3.385	0.126	0.036	0.036	125.360
		Idle	1.685	0.464	0.464	0.508	0.481	0.133	0.040	0.040	133.484

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Navajo	TIO-540-J2B2	Approach	15.250	0.162	0.162	0.157	0.017	0.001	N/A	N/A	12.103
28L_GA		Climb Out	12.746	0.143	0.143	0.139	0.002	0.001	N/A	N/A	8.664
		Takeoff	8.496	0.073	0.073	0.071	0.002	0.001	N/A	N/A	5.892
		Idle	7.868	0.414	0.414	0.399	0.002	0.001	N/A	N/A	6.080
Piper PA-28	O-320	Approach	1.728	0.028	0.028	0.026	0.001	0.000	N/A	N/A	1.418
28L_GA		Climb Out	0.832	0.010	0.010	0.010	0.003	0.000	N/A	N/A	0.840
		Takeoff	0.562	0.007	0.007	0.006	0.001	0.000	N/A	N/A	0.520
		Idle	0.347	0.012	0.012	0.011	0.000	0.000	N/A	N/A	0.322
UC-12J	PT6A-42	Approach	0.702	0.457	0.457	0.506	0.094	0.011	N/A	N/A	20.186
28L_GA		Climb Out	0.031	0.010	0.010	0.011	0.036	0.002	N/A	N/A	4.802
		Takeoff	0.019	0.007	0.007	0.008	0.030	0.002	N/A	N/A	3.759
		Idle	1.561	1.376	1.376	1.520	0.026	0.008	N/A	N/A	13.560
550 Citation	JT15D-4 (B,C...	Approach	1.432	0.230	0.230	0.245	0.237	0.024	0.012	0.012	44.760
28L_Corp		Climb Out	0.076	0.004	0.004	0.004	0.205	0.013	0.007	0.007	23.976
		Takeoff	0.055	0.002	0.002	0.002	0.241	0.014	0.008	0.008	26.200
		Idle	4.371	1.802	1.802	1.916	0.119	0.024	0.012	0.012	45.061
Falcon 2000EX	PW308C	Approach	0.110	0.003	0.003	0.003	0.164	0.021	0.002	0.002	21.000
28L_Corp		Climb Out	0.011	0.001	0.001	0.001	0.180	0.011	0.001	0.001	11.245
		Takeoff	0.012	0.001	0.001	0.001	0.270	0.014	0.001	0.001	14.624
		Idle	0.728	0.103	0.103	0.109	0.063	0.018	0.001	0.001	17.211
550 Citation	JT15D-4 (B,C...	Approach	1.690	0.272	0.272	0.289	0.279	0.029	0.014	0.014	52.822
28L_GA		Climb Out	0.090	0.006	0.006	0.006	0.243	0.015	0.008	0.008	28.294
		Takeoff	0.065	0.003	0.003	0.003	0.285	0.017	0.009	0.009	30.918
		Idle	5.158	2.127	2.127	2.261	0.140	0.029	0.015	0.015	53.175
Gulfstream IV	TAY Mk611-8	Approach	0.388	0.089	0.089	0.095	0.567	0.099	0.058	0.058	99.447
28L_GA		Climb Out	0.036	0.013	0.013	0.014	0.754	0.045	0.026	0.026	44.900
		Takeoff	0.044	0.050	0.050	0.053	1.314	0.063	0.036	0.036	62.291
		Idle	3.278	0.463	0.463	0.492	0.340	0.136	0.080	0.080	136.021
Aztec	TIO-540-J2B2	Approach	18.137	0.193	0.193	0.186	0.020	0.001	N/A	N/A	14.395
28R_GA		Climb Out	15.159	0.171	0.171	0.165	0.002	0.001	N/A	N/A	10.306
		Takeoff	10.104	0.087	0.087	0.084	0.002	0.001	N/A	N/A	7.007
		Idle	9.359	0.493	0.493	0.475	0.003	0.001	N/A	N/A	7.232
B737-300	CFM56-3-B1	Approach	0.728	0.015	0.015	0.017	1.588	0.192	0.002	0.002	191.330
28R		Climb Out	0.094	0.004	0.004	0.006	1.526	0.098	0.001	0.001	98.408
		Takeoff	0.116	0.006	0.006	0.006	2.285	0.129	0.003	0.003	129.131
		Idle	7.248	0.481	0.481	0.526	0.821	0.211	0.002	0.002	210.676
B737-300	CFM56-3B-2	Approach	0.152	0.003	0.003	0.003	0.389	0.045	0.001	0.001	44.784
28R		Climb Out	0.021	0.001	0.001	0.001	0.394	0.023	0.000	0.000	23.583
		Takeoff	0.028	0.001	0.001	0.001	0.604	0.031	0.002	0.002	31.161
		Idle	1.431	0.083	0.083	0.091	0.195	0.047	0.000	0.000	47.540
B737-300	CFM56-3C-1 ...	Approach	0.256	0.004	0.004	0.006	0.488	0.061	0.001	0.001	60.991
28R		Climb Out	0.031	0.001	0.001	0.002	0.453	0.031	0.000	0.000	30.799
		Takeoff	0.036	0.002	0.002	0.002	0.669	0.041	0.001	0.001	40.306
		Idle	2.647	0.198	0.198	0.217	0.263	0.069	0.001	0.001	69.462
B737-500	CFM56-3C-1	Approach	0.188	0.004	0.004	0.004	0.552	0.061	0.001	0.001	60.745
28R		Climb Out	0.033	0.001	0.001	0.001	0.646	0.036	0.001	0.001	36.287
		Takeoff	0.043	0.001	0.001	0.001	0.988	0.047	0.004	0.004	47.687
		Idle	1.649	0.087	0.087	0.096	0.265	0.062	0.001	0.001	61.548
B737-700	CFM56-7B22	Approach	0.594	0.024	0.024	0.026	2.378	0.238	0.050	0.050	237.818
28R		Climb Out	0.086	0.014	0.014	0.015	2.716	0.143	0.030	0.030	142.979
		Takeoff	0.103	0.021	0.021	0.022	4.718	0.204	0.043	0.043	204.222
		Idle	5.243	0.575	0.575	0.629	1.035	0.230	0.049	0.049	229.954
B737-800	CFM56-7B26	Approach	0.148	0.009	0.009	0.010	0.993	0.091	0.028	0.028	92.011
28R		Climb Out	0.039	0.007	0.007	0.007	1.437	0.064	0.020	0.020	63.861
		Takeoff	0.018	0.009	0.009	0.010	2.601	0.090	0.028	0.028	90.331
		Idle	1.608	0.162	0.162	0.177	0.402	0.086	0.026	0.026	85.547
B757-300	PW2043	Approach	0.033	0.002	0.002	0.002	0.270	0.025	N/A	N/A	25.193
28R		Climb Out	0.007	0.000	0.000	0.000	0.477	0.018	N/A	N/A	17.098
		Takeoff	0.007	0.000	0.000	0.000	0.877	0.023	N/A	N/A	23.226
		Idle	0.420	0.034	0.034	0.037	0.096	0.022	N/A	N/A	21.723
BAE146-300	LF507 SERIES	Approach	0.091	0.002	0.002	0.002	0.132	0.021	0.001	0.001	20.686
28R		Climb Out	0.007	0.000	0.000	0.000	0.278	0.023	0.003	0.003	23.069
		Takeoff	0.004	0.000	0.000	0.000	0.284	0.020	0.003	0.003	19.604
		Idle	0.905	0.112	0.112	0.123	0.078	0.024	0.002	0.002	23.931
Bombardier CRJ700	CF34-8C1	Approach	1.466	0.030	0.030	0.033	5.593	0.504	0.024	0.024	503.930
28R		Climb Out	0.134	0.006	0.006	0.006	3.454	0.269	0.001	0.001	269.417
		Takeoff	0.185	0.009	0.009	0.010	6.629	0.452	0.022	0.022	451.911
		Idle	13.999	0.045	0.045	0.050	2.422	0.562	0.028	0.028	561.780
CITATION I SP	JT15D-1A ,1B	Approach	0.187	0.021	0.021	0.022	0.015	0.002	0.001	0.001	4.618
28R_GA		Climb Out	0.010	0.000	0.000	0.000	0.019	0.001	0.001	0.001	2.759

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.008	0.000	0.000	0.000	0.023	0.002	0.001	0.001	3.066
		Idle	0.608	0.233	0.233	0.247	0.008	0.002	0.001	0.001	4.605
CL600	ALF 502L-2	Approach	0.328	0.015	0.015	0.017	0.535	0.044	0.010	0.010	82.638
28R_GA		Climb Out	0.013	0.001	0.001	0.001	0.519	0.023	0.010	0.010	43.137
		Takeoff	0.023	0.001	0.001	0.001	0.791	0.032	0.007	0.007	58.920
		Idle	3.986	0.581	0.581	0.617	0.295	0.047	0.001	0.001	87.347
Cessna 172 Skyhawk	O-320	Approach	6.796	0.108	0.108	0.105	0.006	0.001	N/A	N/A	5.570
28R_GA		Climb Out	3.664	0.046	0.046	0.044	0.014	0.000	N/A	N/A	3.702
		Takeoff	2.768	0.030	0.030	0.029	0.006	0.000	N/A	N/A	2.563
		Idle	1.737	0.060	0.060	0.057	0.001	0.000	N/A	N/A	1.609
Cessna 441 Conqu...	TPE331-8	Approach	0.029	0.001	0.001	0.001	0.064	0.007	N/A	N/A	6.701
28R_GA		Climb Out	0.002	0.000	0.000	0.000	0.015	0.001	N/A	N/A	1.420
		Takeoff	0.002	0.000	0.000	0.000	0.018	0.001	N/A	N/A	1.637
		Idle	0.089	0.007	0.007	0.008	0.020	0.004	N/A	N/A	4.776
DC9-30	JT8D-15 (old ...	Approach	0.883	0.152	0.152	0.166	0.542	0.091	0.066	0.066	91.921
28R		Climb Out	0.082	0.020	0.020	0.022	1.218	0.082	0.058	0.058	81.219
		Takeoff	0.061	0.021	0.021	0.023	1.641	0.086	0.062	0.062	85.930
		Idle	3.965	1.239	1.239	1.357	0.338	0.112	0.082	0.082	112.647
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.513	0.002	0.002	0.002	0.466	0.067	0.000	0.000	67.282
28R		Climb Out	0.034	0.002	0.002	0.002	0.907	0.067	0.000	0.000	67.242
		Takeoff	0.023	0.001	0.001	0.001	0.719	0.046	0.000	0.000	46.618
		Idle	2.812	0.279	0.279	0.297	0.312	0.073	0.000	0.000	73.110
Embraer ERJ 145	AE3007A	Approach	0.117	0.023	0.023	0.024	0.277	0.035	0.000	0.000	35.514
28R		Climb Out	0.032	0.010	0.010	0.011	0.600	0.034	0.000	0.000	34.317
		Takeoff	0.018	0.006	0.006	0.007	0.488	0.024	0.000	0.000	23.793
		Idle	0.672	0.097	0.097	0.104	0.149	0.039	0.000	0.000	38.767
Embraer ERJ 145	AE3007A1E	Approach	0.376	0.002	0.002	0.002	0.496	0.067	0.000	0.000	66.821
28R		Climb Out	0.044	0.002	0.002	0.002	1.021	0.068	0.000	0.000	68.451
		Takeoff	0.036	0.001	0.001	0.001	0.819	0.047	0.000	0.000	47.725
		Idle	2.618	0.243	0.243	0.258	0.293	0.069	0.000	0.000	68.941
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	1.936	0.009	0.009	0.009	2.027	0.284	0.000	0.000	284.677
28R		Climb Out	0.148	0.008	0.008	0.009	3.768	0.269	0.000	0.000	268.897
		Takeoff	0.172	0.007	0.007	0.008	3.743	0.233	0.000	0.000	232.497
		Idle	12.851	1.245	1.245	1.323	1.337	0.321	0.000	0.000	320.704
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	2.825	0.011	0.011	0.012	2.569	0.370	0.000	0.000	370.826
28R		Climb Out	0.185	0.011	0.011	0.012	5.000	0.370	0.000	0.000	370.610
		Takeoff	0.129	0.008	0.008	0.008	3.962	0.257	0.000	0.000	256.937
		Idle	15.502	1.536	1.536	1.633	1.721	0.403	0.000	0.000	402.948
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.730	0.003	0.003	0.003	0.766	0.108	0.000	0.000	107.537
28R		Climb Out	0.056	0.003	0.003	0.003	1.422	0.101	0.000	0.000	101.485
		Takeoff	0.065	0.002	0.002	0.003	1.413	0.088	0.000	0.000	87.772
		Idle	4.848	0.468	0.468	0.498	0.506	0.121	0.000	0.000	121.302
Embraer ERJ 170	CF34-8E5	Approach	0.884	0.012	0.012	0.013	2.251	0.209	0.024	0.024	209.004
28R		Climb Out	0.064	0.002	0.002	0.002	1.422	0.112	0.001	0.001	112.440
		Takeoff	0.121	0.003	0.003	0.004	2.788	0.188	0.022	0.022	188.715
		Idle	3.686	0.026	0.026	0.029	0.936	0.203	0.023	0.023	202.965
F-27 SERIES	RDa7	Approach	0.538	0.049	0.049	0.054	0.014	0.017	N/A	N/A	16.163
28R		Climb Out	0.040	0.012	0.012	0.013	0.051	0.011	N/A	N/A	11.274
		Takeoff	0.023	0.008	0.008	0.008	0.041	0.008	N/A	N/A	7.251
		Idle	1.717	0.450	0.450	0.496	0.013	0.019	N/A	N/A	18.796
Falcon 20	CF700-2D	Approach	0.610	0.013	0.013	0.014	0.018	0.010	N/A	N/A	9.835
28R_GA		Climb Out	0.137	0.000	0.000	0.001	0.023	0.006	N/A	N/A	5.462
		Takeoff	0.160	0.001	0.001	0.001	0.041	0.008	N/A	N/A	7.282
		Idle	1.811	0.211	0.211	0.224	0.010	0.012	N/A	N/A	11.684
Gulfstream II	SPEY MK511-8	Approach	0.052	0.003	0.003	0.003	0.140	0.020	N/A	N/A	19.489
28R_GA		Climb Out	0.010	0.002	0.002	0.002	0.262	0.015	N/A	N/A	15.142
		Takeoff	0.002	0.001	0.001	0.002	0.402	0.018	N/A	N/A	17.724
		Idle	0.807	0.094	0.094	0.099	0.091	0.025	N/A	N/A	25.409
HS 125	TFE731-3	Approach	1.162	0.106	0.106	0.117	0.517	0.041	N/A	N/A	74.700
28R_Corp		Climb Out	0.053	0.002	0.002	0.002	0.518	0.018	N/A	N/A	32.333
		Takeoff	0.057	0.003	0.003	0.003	0.963	0.028	N/A	N/A	50.289
		Idle	3.542	0.671	0.671	0.742	0.277	0.040	N/A	N/A	74.253
KC-135R	CFM56-2B-1	Approach	0.105	0.002	0.002	0.002	0.204	0.025	0.000	0.000	24.934
28R_GA		Climb Out	0.025	0.001	0.001	0.001	0.454	0.029	0.000	0.000	28.405
		Takeoff	0.036	0.001	0.001	0.002	0.756	0.041	0.002	0.002	40.847
		Idle	1.057	0.063	0.063	0.069	0.138	0.034	0.000	0.000	34.422
Learjet 25C	CJ610-6	Approach	6.245	0.000	0.000	0.000	0.107	0.039	N/A	N/A	70.961
28R_GA		Climb Out	0.743	0.006	0.006	0.006	0.093	0.014	N/A	N/A	26.545
		Takeoff	1.120	0.004	0.004	0.004	0.174	0.022	N/A	N/A	41.476
		Idle	15.021	1.744	1.744	1.854	0.087	0.052	N/A	N/A	96.909

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36	TFE 731-2-2B	Approach	0.540	0.103	0.103	0.109	0.142	0.013	N/A	N/A	24.157
28R_GA		Climb Out	0.022	0.001	0.001	0.001	0.142	0.006	N/A	N/A	10.841
		Takeoff	0.018	0.001	0.001	0.001	0.198	0.007	N/A	N/A	13.023
		Idle	1.258	0.430	0.430	0.457	0.061	0.012	N/A	N/A	21.469
MD-80-83	JT8D-219 old...	Approach	0.248	0.097	0.097	0.106	0.558	0.061	0.018	0.018	61.066
28R		Climb Out	0.063	0.022	0.022	0.024	1.090	0.053	0.015	0.015	52.403
		Takeoff	0.042	0.015	0.015	0.017	1.561	0.057	0.017	0.017	57.804
		Idle	0.777	0.214	0.214	0.235	0.222	0.062	0.019	0.019	61.550
Navajo	TIO-540-J2B2	Approach	15.426	0.164	0.164	0.159	0.017	0.001	N/A	N/A	12.243
28R_GA		Climb Out	12.893	0.146	0.146	0.140	0.002	0.001	N/A	N/A	8.764
		Takeoff	8.594	0.074	0.074	0.072	0.002	0.001	N/A	N/A	5.959
		Idle	7.959	0.419	0.419	0.405	0.002	0.001	N/A	N/A	6.151
Piper PA-28	O-320	Approach	0.705	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.579
28R_GA		Climb Out	0.340	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.343
		Takeoff	0.229	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.213
		Idle	0.142	0.004	0.004	0.004	0.000	0.000	N/A	N/A	0.131
UC-12J	PT6A-42	Approach	0.319	0.208	0.208	0.230	0.043	0.004	N/A	N/A	9.175
28R_GA		Climb Out	0.014	0.004	0.004	0.004	0.017	0.001	N/A	N/A	2.183
		Takeoff	0.009	0.003	0.003	0.003	0.013	0.001	N/A	N/A	1.709
		Idle	0.710	0.625	0.625	0.691	0.012	0.003	N/A	N/A	6.163
550 Citation	JT15D-4 (B,C...	Approach	3.046	0.491	0.491	0.521	0.504	0.052	0.026	0.026	95.192
28R_Corp		Climb Out	0.162	0.010	0.010	0.010	0.437	0.028	0.014	0.014	50.991
		Takeoff	0.117	0.006	0.006	0.006	0.515	0.030	0.015	0.015	55.719
		Idle	9.296	3.833	3.833	4.075	0.252	0.052	0.026	0.026	95.832
Falcon 2000EX	PW308C	Approach	0.225	0.006	0.006	0.007	0.336	0.043	0.004	0.004	42.903
28R_Corp		Climb Out	0.022	0.002	0.002	0.002	0.367	0.023	0.002	0.002	22.973
		Takeoff	0.024	0.002	0.002	0.003	0.551	0.030	0.003	0.003	29.877
		Idle	1.487	0.208	0.208	0.222	0.128	0.035	0.003	0.003	35.164
550 Citation	JT15D-4 (B,C...	Approach	0.589	0.095	0.095	0.100	0.097	0.010	0.006	0.006	18.403
28R_GA		Climb Out	0.031	0.002	0.002	0.002	0.085	0.006	0.003	0.003	9.858
		Takeoff	0.023	0.001	0.001	0.001	0.099	0.006	0.003	0.003	10.772
		Idle	1.797	0.741	0.741	0.788	0.049	0.010	0.006	0.006	18.528
Gulfstream IV	TAY Mk611-8	Approach	0.347	0.080	0.080	0.085	0.507	0.089	0.053	0.053	88.927
28R_GA		Climb Out	0.032	0.012	0.012	0.013	0.675	0.040	0.024	0.024	40.151
		Takeoff	0.039	0.044	0.044	0.047	1.175	0.056	0.033	0.033	55.701
		Idle	2.931	0.413	0.413	0.440	0.304	0.121	0.072	0.072	121.631
A320-200	V2527-A5	Approach	0.012	0.000	0.000	0.000	0.044	0.004	0.001	0.001	4.932
10L		Climb Out	0.002	0.000	0.000	0.000	0.075	0.003	0.000	0.000	3.375
		Takeoff	0.002	0.000	0.000	0.000	0.098	0.003	0.000	0.000	3.716
		Idle	0.066	0.001	0.001	0.001	0.025	0.006	0.001	0.001	5.298
A320-200	V2527-A5	Approach	0.043	0.001	0.001	0.001	0.155	0.018	0.002	0.002	17.516
10R		Climb Out	0.008	0.000	0.000	0.000	0.268	0.012	0.001	0.001	11.990
		Takeoff	0.007	0.000	0.000	0.001	0.349	0.013	0.001	0.001	13.199
		Idle	0.234	0.002	0.002	0.002	0.088	0.019	0.002	0.002	18.818
A320-200	V2527-A5	Approach	0.069	0.002	0.002	0.002	0.252	0.029	0.003	0.003	28.399
28L		Climb Out	0.012	0.001	0.001	0.001	0.433	0.020	0.002	0.002	19.439
		Takeoff	0.011	0.001	0.001	0.001	0.567	0.021	0.002	0.002	21.400
		Idle	0.379	0.003	0.003	0.003	0.143	0.031	0.003	0.003	30.510
A320-200	V2527-A5	Approach	0.028	0.001	0.001	0.001	0.100	0.011	0.001	0.001	11.224
28R		Climb Out	0.004	0.000	0.000	0.000	0.171	0.008	0.001	0.001	7.683
		Takeoff	0.004	0.000	0.000	0.000	0.224	0.009	0.001	0.001	8.458
		Idle	0.150	0.001	0.001	0.001	0.056	0.012	0.001	0.001	12.057
Citation VII	TFE 731-2-2B	Approach	0.141	0.026	0.026	0.029	0.037	0.003	N/A	N/A	6.306
10L_GA		Climb Out	0.007	0.000	0.000	0.000	0.042	0.002	N/A	N/A	3.168
		Takeoff	0.006	0.000	0.000	0.000	0.063	0.002	N/A	N/A	4.104
		Idle	0.311	0.107	0.107	0.114	0.015	0.003	N/A	N/A	5.311
Citation VII	TFE731-3	Approach	0.056	0.006	0.006	0.006	0.025	0.002	N/A	N/A	3.620
10R_GA		Climb Out	0.003	0.000	0.000	0.000	0.029	0.001	N/A	N/A	1.820
		Takeoff	0.002	0.000	0.000	0.000	0.046	0.001	N/A	N/A	2.406
		Idle	0.147	0.028	0.028	0.030	0.011	0.002	N/A	N/A	3.073
Citation VII	TFE731-3	Approach	0.183	0.017	0.017	0.018	0.082	0.007	N/A	N/A	11.745
28L_GA		Climb Out	0.010	0.000	0.000	0.000	0.095	0.003	N/A	N/A	5.903
		Takeoff	0.009	0.000	0.000	0.000	0.150	0.004	N/A	N/A	7.805
		Idle	0.475	0.090	0.090	0.096	0.037	0.006	N/A	N/A	9.969
Citation VII	TFE731-3	Approach	0.374	0.034	0.034	0.036	0.166	0.013	N/A	N/A	23.995
28R_GA		Climb Out	0.020	0.001	0.001	0.001	0.193	0.007	N/A	N/A	12.060
		Takeoff	0.018	0.001	0.001	0.001	0.305	0.009	N/A	N/A	15.947
		Idle	0.971	0.184	0.184	0.196	0.076	0.011	N/A	N/A	20.369
HS 748 2A SERIES	RDa7	Approach	0.192	0.018	0.018	0.019	0.006	0.006	N/A	N/A	5.760
10L_GA		Climb Out	0.014	0.004	0.004	0.004	0.018	0.004	N/A	N/A	4.017

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Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.009	0.002	0.002	0.003	0.014	0.002	N/A	N/A	2.584
		Idle	0.612	0.160	0.160	0.176	0.004	0.007	N/A	N/A	6.698
HS 748 2A SERIES 10R_GA	RDa7	Approach	0.173	0.015	0.015	0.018	0.004	0.006	N/A	N/A	5.202
		Climb Out	0.013	0.004	0.004	0.004	0.017	0.003	N/A	N/A	3.629
		Takeoff	0.008	0.002	0.002	0.002	0.013	0.002	N/A	N/A	2.334
		Idle	0.553	0.144	0.144	0.160	0.004	0.006	N/A	N/A	6.049
HS 748 2A SERIES 28L_GA	RDa7	Approach	0.485	0.044	0.044	0.049	0.013	0.014	N/A	N/A	14.553
		Climb Out	0.035	0.011	0.011	0.012	0.045	0.010	N/A	N/A	10.151
		Takeoff	0.021	0.007	0.007	0.008	0.036	0.007	N/A	N/A	6.529
		Idle	1.547	0.405	0.405	0.446	0.012	0.017	N/A	N/A	16.923
HS 748 2A SERIES 28R_GA	RDa7	Approach	0.658	0.060	0.060	0.065	0.018	0.020	N/A	N/A	19.755
		Climb Out	0.049	0.015	0.015	0.017	0.062	0.014	N/A	N/A	13.780
		Takeoff	0.029	0.009	0.009	0.010	0.050	0.009	N/A	N/A	8.863
		Idle	2.100	0.549	0.549	0.606	0.017	0.023	N/A	N/A	22.972
Learjet 25B 10L_GA	CJ610-6	Approach	0.966	0.000	0.000	0.000	0.017	0.006	N/A	N/A	10.971
		Climb Out	0.115	0.001	0.001	0.001	0.014	0.002	N/A	N/A	4.104
		Takeoff	0.173	0.001	0.001	0.001	0.026	0.003	N/A	N/A	6.412
		Idle	2.323	0.270	0.270	0.287	0.013	0.008	N/A	N/A	14.983
Learjet 25B 10R_GA	CJ610-6	Approach	3.563	0.000	0.000	0.000	0.061	0.022	N/A	N/A	40.485
		Climb Out	0.424	0.003	0.003	0.003	0.053	0.008	N/A	N/A	15.145
		Takeoff	0.639	0.002	0.002	0.002	0.099	0.013	N/A	N/A	23.663
		Idle	8.569	0.995	0.995	1.058	0.050	0.030	N/A	N/A	55.289
Learjet 25B 28L_GA	CJ610-6	Approach	11.930	0.000	0.000	0.000	0.203	0.073	N/A	N/A	135.570
		Climb Out	1.420	0.010	0.010	0.011	0.177	0.028	N/A	N/A	50.713
		Takeoff	2.140	0.008	0.008	0.009	0.333	0.043	N/A	N/A	79.239
		Idle	28.698	3.332	3.332	3.543	0.166	0.100	N/A	N/A	185.142
Learjet 25B 28R_GA	CJ610-6	Approach	4.150	0.000	0.000	0.000	0.071	0.025	N/A	N/A	47.158
		Climb Out	0.494	0.003	0.003	0.003	0.062	0.010	N/A	N/A	17.640
		Takeoff	0.744	0.003	0.003	0.003	0.116	0.015	N/A	N/A	27.563
		Idle	9.983	1.160	1.160	1.232	0.058	0.035	N/A	N/A	64.401
Bombardier CRJ900 10L	CF34-8C5	Approach	0.042	0.001	0.001	0.001	0.106	0.010	0.001	0.001	9.861
		Climb Out	0.003	0.000	0.000	0.000	0.067	0.006	0.000	0.000	5.297
		Takeoff	0.006	0.000	0.000	0.000	0.130	0.009	0.001	0.001	8.888
		Idle	0.175	0.001	0.001	0.001	0.044	0.010	0.001	0.001	9.599
Bombardier CRJ900 10R	CF34-8C5	Approach	0.023	0.000	0.000	0.000	0.058	0.006	0.001	0.001	5.387
		Climb Out	0.001	0.000	0.000	0.000	0.036	0.003	0.000	0.000	2.894
		Takeoff	0.003	0.000	0.000	0.000	0.072	0.004	0.000	0.000	4.856
		Idle	0.096	0.001	0.001	0.001	0.024	0.006	0.001	0.001	5.244
Bombardier CRJ900 28L	CF34-8C5	Approach	0.071	0.001	0.001	0.001	0.180	0.017	0.002	0.002	16.710
		Climb Out	0.006	0.000	0.000	0.000	0.114	0.009	0.000	0.000	8.976
		Takeoff	0.010	0.000	0.000	0.000	0.222	0.015	0.001	0.001	15.061
		Idle	0.297	0.002	0.002	0.002	0.075	0.017	0.002	0.002	16.266
Bombardier CRJ900 28R	CF34-8C5	Approach	0.147	0.002	0.002	0.002	0.373	0.034	0.003	0.003	34.699
		Climb Out	0.011	0.000	0.000	0.000	0.235	0.019	0.000	0.000	18.638
		Takeoff	0.020	0.001	0.001	0.001	0.460	0.031	0.003	0.003	31.274
		Idle	0.616	0.004	0.004	0.004	0.155	0.034	0.003	0.003	33.775
A320-200 10L	V2500-A1	Approach	0.004	0.001	0.001	0.001	0.069	0.006	0.000	0.000	5.163
		Climb Out	0.002	0.000	0.000	0.000	0.109	0.003	0.000	0.000	3.545
		Takeoff	0.002	0.000	0.000	0.000	0.146	0.004	0.000	0.000	3.928
		Idle	0.040	0.001	0.001	0.001	0.031	0.006	0.000	0.000	5.132
A320-200 10R	V2500-A1	Approach	0.014	0.002	0.002	0.003	0.247	0.019	0.000	0.000	18.339
		Climb Out	0.007	0.001	0.001	0.001	0.388	0.012	0.000	0.000	12.589
		Takeoff	0.008	0.001	0.001	0.001	0.518	0.014	0.000	0.000	13.951
		Idle	0.141	0.004	0.004	0.004	0.108	0.019	0.000	0.000	18.229
A320-200 28L	V2500-A1	Approach	0.023	0.004	0.004	0.004	0.400	0.030	0.001	0.001	29.734
		Climb Out	0.011	0.002	0.002	0.002	0.629	0.021	0.000	0.000	20.411
		Takeoff	0.012	0.002	0.002	0.002	0.840	0.023	0.000	0.000	22.619
		Idle	0.229	0.007	0.007	0.007	0.174	0.030	0.001	0.001	29.556
A320-200 28R	V2500-A1	Approach	0.009	0.002	0.002	0.002	0.158	0.012	0.000	0.000	11.751
		Climb Out	0.004	0.001	0.001	0.001	0.249	0.008	0.000	0.000	8.067
		Takeoff	0.004	0.001	0.001	0.001	0.332	0.009	0.000	0.000	8.940
		Idle	0.090	0.002	0.002	0.003	0.069	0.012	0.000	0.000	11.681
Embraer ERJ 170 10L	CF34-8E5A1	Approach	0.042	0.001	0.001	0.001	0.115	0.010	0.002	0.002	10.318
		Climb Out	0.003	0.000	0.000	0.000	0.074	0.006	0.000	0.000	5.632
		Takeoff	0.007	0.000	0.000	0.000	0.150	0.010	0.002	0.002	9.482
		Idle	0.171	0.001	0.001	0.001	0.046	0.010	0.002	0.002	9.854
Embraer ERJ 170 10R	CF34-8E5A1	Approach	0.023	0.000	0.000	0.000	0.063	0.006	0.001	0.001	5.637
		Climb Out	0.002	0.000	0.000	0.000	0.041	0.003	0.000	0.000	3.077
		Takeoff	0.003	0.000	0.000	0.000	0.082	0.006	0.001	0.001	5.180
		Idle	0.093	0.001	0.001	0.001	0.025	0.006	0.001	0.001	5.383

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 170 28L	CF34-8E5A1	Approach	0.071	0.001	0.001	0.001	0.193	0.018	0.004	0.004	17.484
		Climb Out	0.006	0.000	0.000	0.000	0.126	0.010	0.000	0.000	9.544
		Takeoff	0.011	0.000	0.000	0.000	0.254	0.017	0.004	0.004	16.067
		Idle	0.289	0.002	0.002	0.002	0.078	0.017	0.004	0.004	16.696
Embraer ERJ 170 28R	CF34-8E5A1	Approach	0.147	0.002	0.002	0.002	0.401	0.036	0.010	0.010	36.305
		Climb Out	0.011	0.000	0.000	0.000	0.260	0.020	0.000	0.000	19.816
		Takeoff	0.023	0.001	0.001	0.001	0.528	0.033	0.009	0.009	33.364
		Idle	0.600	0.004	0.004	0.004	0.163	0.034	0.009	0.009	34.668

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Arr Curb FF	Roadway	0.428	0.032	0.030	0.040	0.043	0.000	0.001	0.001
Arr Curb Pick Up	Roadway	3.659	0.435	0.414	0.659	0.211	0.001	0.003	0.002
Blue Ent_Exit	Roadway	0.774	0.055	0.052	0.065	0.080	0.001	0.002	0.001
Bowtie	Roadway	0.453	0.030	0.029	0.035	0.046	0.000	0.001	0.001
Brdgwy N of Sawyr 1	Roadway	2.628	0.173	0.164	0.203	0.268	0.002	0.009	0.006
Brdgwy N of Sawyr 2	Roadway	4.814	0.317	0.302	0.371	0.489	0.004	0.017	0.010
Crb Exit to IntlGat1	Roadway	1.553	0.111	0.105	0.131	0.162	0.001	0.006	0.003
Curb Exit to IntlGa2	Roadway	12.016	0.858	0.811	1.017	1.250	0.010	0.041	0.024
Dep Curb Drop Off	Roadway	4.782	0.569	0.541	0.862	0.276	0.001	0.004	0.003
Dep Curb FF	Roadway	0.560	0.042	0.040	0.052	0.057	0.000	0.001	0.001
Ent from 670 NB	Roadway	4.294	0.233	0.222	0.267	0.420	0.003	0.013	0.008
Ent from 670 SB	Roadway	2.840	0.154	0.147	0.176	0.278	0.002	0.009	0.006
Ent from 670_1	Roadway	5.967	0.323	0.308	0.370	0.583	0.004	0.019	0.011
Ent from 670_2	Roadway	14.564	0.789	0.752	0.905	1.424	0.011	0.044	0.026
Ent_Exit_Employee	Roadway	0.381	0.025	0.024	0.030	0.039	0.000	0.001	0.001
Exit Comm Gar	Roadway	9.416	0.622	0.590	0.728	0.958	0.008	0.033	0.019
Exit Red 1	Roadway	1.387	0.091	0.087	0.107	0.141	0.001	0.004	0.003
Exit Red 2	Roadway	0.429	0.029	0.026	0.033	0.044	0.000	0.001	0.001
Exit Red 3	Roadway	1.920	0.127	0.120	0.149	0.195	0.001	0.007	0.004
Exit Red 4	Roadway	0.748	0.050	0.047	0.057	0.076	0.001	0.002	0.001
Exit to 670 NB	Roadway	3.007	0.163	0.155	0.186	0.294	0.002	0.009	0.006
Exit to 670 SB	Roadway	3.505	0.190	0.181	0.218	0.343	0.002	0.011	0.007
Exit to 670_1	Roadway	12.432	0.674	0.642	0.773	1.216	0.009	0.039	0.022
Exit to 670_2	Roadway	5.124	0.278	0.265	0.319	0.500	0.003	0.015	0.009
Green Lot Ent_Exit	Roadway	0.674	0.049	0.045	0.057	0.071	0.000	0.002	0.001
Int West to Stlz_2	Roadway	26.361	1.523	1.448	1.756	2.577	0.020	0.085	0.049
Intl Blue to Lane 1	Roadway	11.085	0.640	0.608	0.739	1.084	0.009	0.035	0.021
Intl Blue to Lane 2	Roadway	15.618	0.903	0.858	1.041	1.527	0.012	0.050	0.029
Intl East Bowtie_1	Roadway	7.054	0.408	0.388	0.470	0.690	0.006	0.022	0.013
Intl East Bowtie_2	Roadway	10.869	0.628	0.597	0.724	1.063	0.009	0.035	0.020
Intl East at Red	Roadway	43.258	2.500	2.377	2.881	4.228	0.033	0.139	0.080
Intl East at Tunnel	Roadway	21.449	1.239	1.178	1.429	2.097	0.017	0.068	0.040
Intl Exit at Tunnel	Roadway	29.904	1.728	1.642	1.992	2.923	0.023	0.096	0.055
Intl Green to Blue 1	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 2	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 3	Roadway	36.466	2.108	2.003	2.429	3.565	0.028	0.117	0.068
Intl Lane to LT	Roadway	11.895	0.849	0.802	1.008	1.238	0.010	0.041	0.023
Intl West to Stlz_1	Roadway	30.189	1.745	1.658	2.011	2.951	0.023	0.097	0.056
Intl from Sawyer	Roadway	10.803	0.624	0.593	0.720	1.056	0.008	0.034	0.020
Intll East frm Stzr	Roadway	12.943	0.748	0.711	0.862	1.265	0.010	0.042	0.024
LT to ST	Roadway	1.383	0.099	0.094	0.117	0.144	0.001	0.004	0.002
Lane Ent	Roadway	0.030	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Lane Exit	Roadway	0.033	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Merge to Sawyer	Roadway	10.355	0.683	0.649	0.800	1.054	0.009	0.036	0.021
New Bowtie	Roadway	0.833	0.055	0.052	0.064	0.085	0.001	0.003	0.002
New Stelzer	Roadway	69.947	3.790	3.610	4.346	6.839	0.051	0.215	0.125
Perimeter Road 1	Roadway	7.277	0.481	0.456	0.562	0.741	0.006	0.025	0.014
Perimeter Road 2	Roadway	0.946	0.063	0.060	0.073	0.096	0.001	0.003	0.002
Perimeter Road 3	Roadway	0.411	0.028	0.025	0.032	0.042	0.000	0.001	0.001
Perimeter Road 4	Roadway	2.069	0.137	0.130	0.160	0.211	0.002	0.008	0.004
Perimeter Road 5	Roadway	0.273	0.018	0.018	0.021	0.028	0.000	0.001	0.001
Perimeter Road 6	Roadway	1.042	0.068	0.065	0.080	0.106	0.001	0.003	0.002
Perimeter Road 7	Roadway	0.454	0.030	0.029	0.035	0.046	0.000	0.001	0.001
ST to Curb	Roadway	1.303	0.093	0.088	0.110	0.136	0.001	0.004	0.002
Sawyer East Fork	Roadway	4.457	0.294	0.279	0.344	0.454	0.003	0.015	0.009
Sawyer Forks	Roadway	3.008	0.198	0.188	0.233	0.306	0.002	0.011	0.007
Sawyer S of Brdgwy	Roadway	8.953	0.591	0.561	0.692	0.912	0.008	0.031	0.018
Sawyer West Fork	Roadway	3.686	0.244	0.231	0.284	0.375	0.003	0.013	0.008
Sawyer off Intl	Roadway	11.604	0.766	0.728	0.897	1.182	0.010	0.041	0.023
Sawyer to Brdgwy 1	Roadway	13.741	0.906	0.861	1.062	1.399	0.011	0.047	0.028
Sawyer to Brdgwy 2	Roadway	60.838	4.014	3.813	4.701	6.193	0.051	0.212	0.123
Sawyer to Intl 1	Roadway	28.034	1.620	1.540	1.867	2.740	0.021	0.089	0.052
Sawyer to Intl 2	Roadway	21.142	1.221	1.162	1.409	2.067	0.017	0.067	0.040
Stelzer N	Roadway	46.396	2.514	2.395	2.883	4.536	0.034	0.142	0.083
Stelzer S	Roadway	7.090	0.385	0.366	0.441	0.693	0.006	0.022	0.012
To Red 1	Roadway	1.150	0.076	0.072	0.089	0.117	0.001	0.004	0.002

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
To Red 2	Roadway	1.475	0.097	0.093	0.114	0.150	0.001	0.006	0.003
To Red 3	Roadway	0.682	0.045	0.043	0.053	0.069	0.001	0.002	0.001
Blue	Parking	39.259	2.533	2.388	5.582	5.199	0.020	0.083	0.047
Employee Parking	Parking	13.297	0.886	0.836	2.012	1.709	0.007	0.026	0.015
Green	Parking	8.750	0.613	0.580	1.455	1.066	0.004	0.017	0.010
Lane Avtn	Parking	4.688	0.322	0.304	0.750	0.584	0.002	0.009	0.006
Long Term Pkg Lvl 1	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 2	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 3	Parking	13.690	0.946	0.893	2.216	1.695	0.007	0.026	0.015
Long Term Pkg Lvl 4	Parking	6.800	0.470	0.443	1.101	0.842	0.003	0.013	0.008
Long Term Pkg Lvl 5	Parking	14.003	0.968	0.914	2.266	1.734	0.007	0.026	0.015
New RAC	Parking	36.748	2.297	2.163	4.906	5.006	0.019	0.080	0.046
Red	Parking	23.057	1.486	1.400	3.269	3.057	0.011	0.049	0.029
ShortTerm Pkg Lvl 4	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
ShortTerm Pkg Lvl 5	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.101	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.744	0.744	0.744	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.132	0.132	0.132	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.581	1.581	1.581	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.011	0.003	0.003	0.003	0.003	0.003	0.008	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.811	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.843	0.843	0.843	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.012	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.420	0.420	0.420	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.251	0.251	0.251	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.759	0.759	0.759	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.005	2.005	2.005	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.790	0.790	0.790	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.757	0.757	0.757	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary

(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	825.930	68.616	68.616	73.212	324.644	29.665	3.831	3.831
GSE/APU	1,280.027	52.504	47.671	49.601	73.798	10.617	3.907	3.774
Roadways	690.992	41.514	39.461	48.419	68.030	0.530	2.216	1.293
Parking Facilities	170.878	11.263	10.623	25.326	22.179	0.084	0.349	0.203
Stationary Sources	21.450	12.421	11.891	14.114	35.756	16.638	2.490	2.205
Total	2,989.276	186.318	178.260	210.672	524.406	57.535	12.792	11.305

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary

(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	17.148	0.308	0.308	0.297	0.009	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.006	0.003	0.002	0.002	0.000
B737-300	CFM56-3-B1	TOTAL	3.031	0.187	0.187	0.205	2.288	0.231	0.003	0.003	0.000
10L		APU	0.445	0.025	0.025	0.028	0.118	0.024	0.000	0.000	0.000
		GSE	0.148	0.021	0.020	0.021	0.171	0.043	0.022	0.022	0.000
B737-300	CFM56-3B-2	TOTAL	0.558	0.031	0.031	0.033	0.538	0.050	0.001	0.001	0.000
10L		APU	0.089	0.006	0.006	0.006	0.023	0.004	0.000	0.000	0.000
		GSE	0.030	0.004	0.004	0.004	0.034	0.009	0.004	0.004	0.000
B737-500	CFM56-3C-1	TOTAL	0.707	0.035	0.035	0.039	0.898	0.076	0.002	0.002	0.000
10L		APU	0.119	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	0.040	0.006	0.006	0.006	0.045	0.011	0.006	0.006	0.000
B737-700	CFM56-7B22	TOTAL	2.165	0.228	0.228	0.249	3.870	0.291	0.062	0.062	0.000
10L		APU	0.149	0.011	0.011	0.012	0.202	0.031	0.000	0.000	0.000
		GSE	0.168	0.023	0.022	0.023	0.194	0.049	0.025	0.024	0.000
B737-800	CFM56-7B26	TOTAL	0.653	0.067	0.067	0.074	1.943	0.119	0.036	0.036	0.000
10L		APU	0.052	0.004	0.004	0.004	0.072	0.011	0.000	0.000	0.000
		GSE	0.060	0.008	0.008	0.009	0.068	0.018	0.009	0.009	0.000
B757-300	PW2043	TOTAL	0.157	0.012	0.012	0.013	0.573	0.029	N/A	N/A	0.000
10L		APU	0.008	0.001	0.001	0.001	0.018	0.002	0.000	0.000	0.000
		GSE	0.010	0.001	0.001	0.001	0.011	0.003	0.001	0.001	0.000
BAE146-300	LF507 SERIES	TOTAL	0.380	0.044	0.044	0.047	0.289	0.033	0.003	0.003	0.000
10L		APU	0.014	0.001	0.001	0.001	0.011	0.002	0.000	0.000	0.000
		GSE	0.989	0.039	0.035	0.036	0.043	0.006	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	5.941	0.033	0.033	0.036	6.763	0.669	0.029	0.029	0.000
10L		APU	2.016	0.116	0.116	0.127	0.532	0.112	0.000	0.000	0.000
		GSE	30.594	1.207	1.090	1.132	1.315	0.161	0.084	0.080	0.000
Cessna 172 Skyhawk	O-320	TOTAL	4.881	0.079	0.079	0.077	0.009	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.007	0.003	0.003	0.003	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.042	0.003	0.003	0.003	0.039	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.685	0.064	0.058	0.061	0.049	0.004	0.002	0.002	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.260	0.080	0.080	0.086	0.021	0.002	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.651	0.026	0.024	0.025	0.022	0.001	0.001	0.001	0.000
CL600	ALF 502L-2	TOTAL	1.641	0.226	0.226	0.240	0.801	0.055	0.010	0.010	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.153	0.409	0.369	0.384	0.492	0.075	0.035	0.034	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	1.786	0.514	0.514	0.562	1.329	0.132	0.096	0.096	0.000
10L		APU	0.177	0.010	0.010	0.011	0.047	0.010	0.000	0.000	0.000
		GSE	0.060	0.008	0.008	0.009	0.068	0.018	0.009	0.009	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.193	0.100	0.100	0.107	0.842	0.089	0.000	0.000	0.000
10L		APU	0.085	0.008	0.008	0.009	0.061	0.013	0.000	0.000	0.000
		GSE	5.692	0.225	0.203	0.211	0.245	0.030	0.015	0.015	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.316	0.052	0.052	0.054	0.568	0.050	0.000	0.000	0.000
10L		APU	0.044	0.004	0.004	0.004	0.032	0.007	0.000	0.000	0.000
		GSE	2.965	0.117	0.106	0.110	0.128	0.015	0.008	0.008	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.160	0.094	0.094	0.099	0.985	0.095	0.000	0.000	0.000
10L		APU	0.082	0.008	0.008	0.008	0.057	0.012	0.000	0.000	0.000
		GSE	5.429	0.214	0.194	0.201	0.234	0.029	0.014	0.014	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	5.702	0.480	0.480	0.509	4.076	0.416	0.000	0.000	0.000
10L		APU	0.391	0.037	0.037	0.040	0.279	0.061	0.000	0.000	0.000
		GSE	26.168	1.033	0.933	0.968	1.124	0.138	0.072	0.069	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	7.034	0.592	0.592	0.628	4.967	0.526	0.000	0.000	0.000
10L		APU	0.503	0.047	0.047	0.051	0.357	0.078	0.000	0.000	0.000
		GSE	33.572	1.325	1.197	1.242	1.443	0.176	0.091	0.089	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.150	0.180	0.180	0.192	1.538	0.157	0.000	0.000	0.000
10L		APU	0.148	0.014	0.014	0.014	0.105	0.023	0.000	0.000	0.000
		GSE	9.869	0.389	0.352	0.365	0.424	0.052	0.028	0.026	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.788	0.017	0.017	0.019	2.763	0.267	0.026	0.026	0.000
10L		APU	0.177	0.017	0.017	0.019	0.126	0.028	0.000	0.000	0.000
		GSE	11.845	0.467	0.422	0.439	0.509	0.062	0.032	0.031	0.000
F-27 SERIES	RDa7	TOTAL	0.841	0.187	0.187	0.207	0.043	0.020	N/A	N/A	0.000
10L		APU	0.051	0.006	0.006	0.007	0.006	0.001	0.000	0.000	0.000
		GSE	1.957	0.075	0.067	0.069	0.057	0.004	0.002	0.002	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Falcon 20	CF700-2D	TOTAL	0.874	0.073	0.073	0.077	0.030	0.011	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.008	0.002	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.666	0.084	0.084	0.088	0.519	0.050	0.004	0.004	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.998	0.121	0.110	0.115	0.183	0.029	0.013	0.013	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.283	0.033	0.033	0.035	0.289	0.025	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.619	0.064	0.057	0.060	0.046	0.002	0.001	0.001	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.152	0.190	0.190	0.201	0.909	0.105	0.062	0.062	0.000
10L_GA		APU	0.026	0.002	0.002	0.002	0.132	0.013	0.000	0.000	0.000
		GSE	5.562	0.215	0.194	0.202	0.153	0.012	0.009	0.008	0.000
HS 125	TFE731-3	TOTAL	1.818	0.295	0.295	0.326	0.853	0.047	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	16.277	0.623	0.561	0.582	0.473	0.041	0.022	0.021	0.000
KC-135R	CFM56-2B-1	TOTAL	0.416	0.023	0.023	0.025	0.524	0.043	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.011	0.003	0.003	0.003	0.043	0.008	0.003	0.003	0.000
Learjet 25C	CJ610-6	TOTAL	9.322	0.709	0.709	0.754	0.185	0.051	N/A	N/A	0.000
10L_GA		APU	0.093	0.009	0.009	0.009	0.066	0.014	0.000	0.000	0.000
		GSE	6.166	0.244	0.219	0.228	0.265	0.032	0.017	0.017	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.588	0.172	0.172	0.182	0.173	0.012	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.916	0.120	0.108	0.112	0.093	0.004	0.002	0.002	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.454	0.140	0.140	0.153	1.369	0.093	0.028	0.028	0.000
10L		APU	0.119	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	0.032	0.004	0.004	0.004	0.039	0.010	0.004	0.004	0.000
Navajo	TIO-540-J2B2	TOTAL	14.332	0.257	0.257	0.248	0.008	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	0.473	0.008	0.008	0.008	0.008	0.001	0.000	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.363	0.290	0.290	0.321	0.029	0.003	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.748	0.067	0.061	0.063	0.051	0.004	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	4.690	1.615	1.615	1.716	0.631	0.060	0.031	0.031	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.948	0.575	0.518	0.537	0.463	0.026	0.015	0.014	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	1.082	0.076	0.076	0.083	0.678	0.073	0.001	0.001	0.000
10L		APU	0.149	0.009	0.009	0.009	0.040	0.008	0.000	0.000	0.000
		GSE	0.050	0.007	0.007	0.007	0.057	0.014	0.008	0.008	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	0.786	0.270	0.270	0.288	0.106	0.010	0.006	0.006	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.337	0.096	0.087	0.090	0.077	0.004	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.867	0.987	0.987	1.049	0.386	0.036	0.019	0.019	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.524	0.352	0.316	0.328	0.282	0.015	0.009	0.009	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.686	0.925	0.925	0.983	0.362	0.034	0.018	0.018	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.986	0.330	0.297	0.308	0.265	0.014	0.009	0.008	0.000
Aztec	TIO-540-J2B2	TOTAL	28.376	0.509	0.509	0.492	0.015	0.002	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.009	0.004	0.004	0.004	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.827	0.197	0.197	0.216	1.771	0.191	0.002	0.002	0.000
10R		APU	0.388	0.022	0.022	0.024	0.103	0.022	0.000	0.000	0.000
		GSE	0.129	0.018	0.017	0.018	0.149	0.037	0.020	0.019	0.000
B737-300	CFM56-3B-2	TOTAL	1.329	0.073	0.073	0.079	1.280	0.119	0.002	0.002	0.000
10R		APU	0.212	0.012	0.012	0.013	0.056	0.012	0.000	0.000	0.000
		GSE	0.071	0.010	0.009	0.010	0.082	0.020	0.011	0.010	0.000
B737-300	CFM56-3-B1	TOTAL	8.146	0.504	0.504	0.551	6.149	0.624	0.009	0.009	0.000
10R		APU	1.198	0.068	0.068	0.075	0.316	0.066	0.000	0.000	0.000
		GSE	0.397	0.055	0.053	0.056	0.460	0.115	0.060	0.057	0.000
B737-500	CFM56-3C-1	TOTAL	1.881	0.093	0.093	0.101	2.391	0.202	0.007	0.007	0.000
10R		APU	0.317	0.018	0.018	0.020	0.084	0.018	0.000	0.000	0.000
		GSE	0.106	0.014	0.014	0.014	0.121	0.031	0.015	0.015	0.000
B737-700	CFM56-7B22	TOTAL	5.602	0.589	0.589	0.645	10.012	0.754	0.159	0.159	0.000
10R		APU	0.384	0.029	0.029	0.032	0.522	0.078	0.000	0.000	0.000
		GSE	0.433	0.061	0.057	0.061	0.500	0.126	0.065	0.063	0.000
B737-800	CFM56-7B26	TOTAL	1.682	0.174	0.174	0.191	5.008	0.306	0.093	0.093	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.134	0.010	0.010	0.011	0.183	0.028	0.000	0.000	0.000
		GSE	0.152	0.021	0.020	0.021	0.176	0.044	0.023	0.022	0.000
B757-300	PW2043	TOTAL	0.377	0.030	0.030	0.033	1.380	0.071	N/A	N/A	0.000
10R		APU	0.019	0.002	0.002	0.002	0.043	0.004	0.000	0.000	0.000
		GSE	0.023	0.003	0.003	0.003	0.028	0.007	0.003	0.003	0.000
BAE146-300	LF507 SERIES	TOTAL	0.203	0.023	0.023	0.025	0.154	0.018	0.002	0.002	0.000
10R		APU	0.008	0.001	0.001	0.001	0.006	0.001	0.000	0.000	0.000
		GSE	0.529	0.021	0.019	0.020	0.023	0.003	0.001	0.001	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	3.293	0.019	0.019	0.020	3.748	0.370	0.015	0.015	0.000
10R		APU	1.117	0.064	0.064	0.071	0.295	0.062	0.000	0.000	0.000
		GSE	16.954	0.669	0.604	0.627	0.729	0.089	0.046	0.045	0.000
Cessna 172 Skyhawk	O-320	TOTAL	9.223	0.150	0.150	0.146	0.017	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.002	0.002	0.002	0.012	0.007	0.006	0.006	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.127	0.009	0.009	0.009	0.119	0.014	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.141	0.196	0.177	0.184	0.149	0.013	0.007	0.007	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.993	0.310	0.310	0.330	0.080	0.010	0.006	0.006	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.492	0.103	0.093	0.096	0.083	0.004	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	0.950	0.131	0.131	0.139	0.464	0.032	0.006	0.006	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.875	0.237	0.214	0.223	0.284	0.043	0.021	0.020	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	4.603	1.323	1.323	1.448	3.428	0.342	0.246	0.246	0.000
10R		APU	0.459	0.026	0.026	0.029	0.121	0.025	0.000	0.000	0.000
		GSE	0.152	0.021	0.020	0.021	0.176	0.044	0.023	0.022	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	0.723	0.061	0.061	0.065	0.510	0.054	0.000	0.000	0.000
10R		APU	0.052	0.004	0.004	0.006	0.036	0.008	0.000	0.000	0.000
		GSE	3.452	0.137	0.123	0.128	0.149	0.018	0.010	0.009	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.660	0.053	0.053	0.056	0.561	0.054	0.000	0.000	0.000
10R		APU	0.046	0.004	0.004	0.004	0.033	0.008	0.000	0.000	0.000
		GSE	3.090	0.122	0.110	0.115	0.132	0.017	0.009	0.008	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.180	0.029	0.029	0.031	0.323	0.029	0.000	0.000	0.000
10R		APU	0.025	0.002	0.002	0.002	0.018	0.004	0.000	0.000	0.000
		GSE	1.684	0.066	0.060	0.063	0.073	0.009	0.004	0.004	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.221	0.103	0.103	0.109	0.874	0.089	0.000	0.000	0.000
10R		APU	0.084	0.008	0.008	0.009	0.060	0.013	0.000	0.000	0.000
		GSE	5.610	0.222	0.200	0.207	0.241	0.030	0.015	0.014	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	3.995	0.336	0.336	0.357	2.821	0.299	0.000	0.000	0.000
10R		APU	0.285	0.026	0.026	0.029	0.203	0.044	0.000	0.000	0.000
		GSE	19.069	0.753	0.680	0.705	0.819	0.100	0.052	0.051	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	3.240	0.272	0.272	0.290	2.316	0.236	0.000	0.000	0.000
10R		APU	0.223	0.021	0.021	0.022	0.158	0.034	0.000	0.000	0.000
		GSE	14.866	0.586	0.530	0.550	0.638	0.078	0.041	0.040	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	0.992	0.009	0.009	0.010	1.533	0.148	0.014	0.014	0.000
10R		APU	0.098	0.009	0.009	0.010	0.069	0.015	0.000	0.000	0.000
		GSE	6.570	0.259	0.234	0.244	0.282	0.034	0.018	0.018	0.000
F-27 SERIES	RDa7	TOTAL	1.324	0.295	0.295	0.326	0.067	0.031	N/A	N/A	0.000
10R		APU	0.080	0.010	0.010	0.011	0.008	0.002	0.000	0.000	0.000
		GSE	3.081	0.118	0.106	0.110	0.089	0.008	0.004	0.004	0.000
Falcon 20	CF700-2D	TOTAL	3.200	0.266	0.266	0.283	0.108	0.040	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.009	0.002	0.002	0.002	0.030	0.008	0.004	0.004	0.000
Falcon 2000EX	PW308C	TOTAL	0.357	0.045	0.045	0.047	0.279	0.026	0.002	0.002	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.612	0.065	0.060	0.062	0.098	0.015	0.008	0.007	0.000
Gulfstream II	SPEY MK511-8	TOTAL	1.035	0.120	0.120	0.127	1.057	0.091	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.925	0.235	0.212	0.219	0.170	0.009	0.006	0.006	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.610	0.265	0.265	0.281	1.271	0.147	0.087	0.087	0.000
10R_GA		APU	0.037	0.002	0.002	0.003	0.185	0.019	0.000	0.000	0.000
		GSE	7.776	0.301	0.271	0.281	0.215	0.017	0.012	0.011	0.000
HS 125	TFE731-3	TOTAL	1.002	0.163	0.163	0.180	0.471	0.026	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.971	0.343	0.309	0.321	0.260	0.022	0.012	0.011	0.000
KC-135R	CFM56-2B-1	TOTAL	1.000	0.055	0.055	0.062	1.259	0.105	0.003	0.003	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.026	0.008	0.008	0.008	0.103	0.019	0.008	0.008	0.000
Learjet 25C	CJ610-6	TOTAL	4.840	0.368	0.368	0.391	0.096	0.026	N/A	N/A	0.000
10R_GA		APU	0.047	0.004	0.004	0.004	0.034	0.008	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	3.201	0.127	0.115	0.118	0.138	0.017	0.009	0.009	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	2.250	0.657	0.657	0.698	0.661	0.046	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.166	0.460	0.413	0.429	0.353	0.017	0.011	0.010	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.337	0.412	0.412	0.451	4.032	0.274	0.080	0.080	0.000
10R		APU	0.352	0.020	0.020	0.022	0.093	0.020	0.000	0.000	0.000
		GSE	0.094	0.014	0.014	0.014	0.112	0.029	0.014	0.014	0.000
Navajo	TIO-540-J2B2	TOTAL	18.426	0.331	0.331	0.319	0.010	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.006	0.003	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	1.444	0.023	0.023	0.022	0.002	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.205	0.965	0.965	1.066	0.097	0.012	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.807	0.222	0.201	0.207	0.169	0.014	0.008	0.008	0.000
Aztec	TIO-540-J2B2	TOTAL	55.344	0.993	0.993	0.958	0.029	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.018	0.009	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	15.451	0.956	0.956	1.046	11.661	1.183	0.018	0.018	0.000
28L		APU	2.272	0.130	0.130	0.142	0.600	0.127	0.000	0.000	0.000
		GSE	0.754	0.105	0.100	0.106	0.872	0.218	0.114	0.109	0.000
B737-300	CFM56-3B-2	TOTAL	2.907	0.158	0.158	0.173	2.799	0.260	0.006	0.006	0.000
28L		APU	0.463	0.026	0.026	0.029	0.122	0.025	0.000	0.000	0.000
		GSE	0.153	0.021	0.020	0.022	0.177	0.044	0.023	0.022	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	5.548	0.387	0.387	0.423	3.476	0.375	0.004	0.004	0.000
28L		APU	0.762	0.044	0.044	0.047	0.201	0.042	0.000	0.000	0.000
		GSE	0.252	0.035	0.033	0.035	0.292	0.073	0.037	0.036	0.000
B737-500	CFM56-3C-1	TOTAL	3.591	0.177	0.177	0.194	4.567	0.385	0.013	0.013	0.000
28L		APU	0.606	0.034	0.034	0.037	0.160	0.034	0.000	0.000	0.000
		GSE	0.201	0.028	0.026	0.029	0.233	0.058	0.030	0.030	0.000
B737-700	CFM56-7B22	TOTAL	11.117	1.170	1.170	1.280	19.870	1.496	0.314	0.314	0.000
28L		APU	0.762	0.057	0.057	0.063	1.036	0.157	0.000	0.000	0.000
		GSE	0.860	0.119	0.114	0.120	0.993	0.249	0.129	0.125	0.000
B737-800	CFM56-7B26	TOTAL	3.358	0.347	0.347	0.379	9.995	0.611	0.185	0.185	0.000
28L		APU	0.269	0.021	0.021	0.022	0.366	0.055	0.000	0.000	0.000
		GSE	0.303	0.042	0.041	0.043	0.352	0.088	0.045	0.044	0.000
B757-300	PW2043	TOTAL	0.823	0.065	0.065	0.071	3.012	0.153	N/A	N/A	0.000
28L		APU	0.041	0.004	0.004	0.004	0.093	0.010	0.000	0.000	0.000
		GSE	0.051	0.007	0.007	0.008	0.060	0.014	0.008	0.008	0.000
BAE146-300	LF507 SERIES	TOTAL	0.450	0.052	0.052	0.056	0.342	0.039	0.004	0.004	0.000
28L		APU	0.018	0.002	0.002	0.002	0.012	0.002	0.000	0.000	0.000
		GSE	1.170	0.046	0.042	0.043	0.051	0.007	0.003	0.003	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	6.919	0.040	0.040	0.043	7.876	0.779	0.033	0.033	0.000
28L		APU	2.348	0.134	0.134	0.147	0.619	0.130	0.000	0.000	0.000
		GSE	35.632	1.407	1.270	1.318	1.531	0.187	0.097	0.094	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	2.116	0.660	0.660	0.702	0.171	0.021	0.012	0.012	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.310	0.219	0.197	0.204	0.176	0.010	0.006	0.006	0.000
CL600	ALF 502L-2	TOTAL	1.860	0.256	0.256	0.272	0.908	0.063	0.012	0.012	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.504	0.463	0.419	0.435	0.558	0.085	0.040	0.039	0.000
Cessna 172 Skyhawk	O-320	TOTAL	18.613	0.303	0.303	0.292	0.033	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.009	0.004	0.004	0.004	0.025	0.013	0.011	0.011	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.279	0.019	0.019	0.020	0.262	0.033	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.344	0.433	0.391	0.406	0.330	0.029	0.015	0.014	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	9.188	2.640	2.640	2.890	6.842	0.681	0.492	0.492	0.000
28L		APU	0.915	0.053	0.053	0.057	0.241	0.051	0.000	0.000	0.000
		GSE	0.303	0.042	0.041	0.043	0.352	0.088	0.045	0.044	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.397	0.118	0.118	0.125	0.987	0.105	0.000	0.000	0.000
28L		APU	0.099	0.010	0.010	0.010	0.071	0.015	0.000	0.000	0.000
		GSE	6.667	0.263	0.238	0.247	0.287	0.035	0.019	0.018	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.363	0.058	0.058	0.063	0.650	0.057	0.000	0.000	0.000
28L		APU	0.051	0.004	0.004	0.006	0.036	0.008	0.000	0.000	0.000
		GSE	3.396	0.134	0.121	0.126	0.146	0.018	0.009	0.009	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.329	0.107	0.107	0.115	1.129	0.108	0.000	0.000	0.000
28L		APU	0.093	0.009	0.009	0.009	0.066	0.014	0.000	0.000	0.000
		GSE	6.221	0.246	0.222	0.230	0.268	0.033	0.017	0.017	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	6.527	0.549	0.549	0.583	4.666	0.476	0.000	0.000	0.000
28L		APU	0.449	0.042	0.042	0.045	0.319	0.069	0.000	0.000	0.000
		GSE	29.953	1.182	1.068	1.108	1.287	0.158	0.082	0.079	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	8.051	0.677	0.677	0.720	5.686	0.602	0.000	0.000	0.000
28L		APU	0.575	0.054	0.054	0.057	0.409	0.089	0.000	0.000	0.000
		GSE	38.430	1.517	1.370	1.422	1.651	0.202	0.105	0.101	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.461	0.206	0.206	0.219	1.761	0.180	0.000	0.000	0.000
28L		APU	0.169	0.017	0.017	0.017	0.120	0.026	0.000	0.000	0.000
		GSE	11.302	0.446	0.402	0.418	0.486	0.060	0.031	0.030	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	2.082	0.020	0.020	0.022	3.219	0.311	0.031	0.031	0.000
28L		APU	0.206	0.020	0.020	0.021	0.147	0.032	0.000	0.000	0.000
		GSE	13.793	0.545	0.492	0.510	0.593	0.073	0.037	0.036	0.000
F-27 SERIES	RDa7	TOTAL	2.174	0.486	0.486	0.537	0.111	0.050	N/A	N/A	0.000
28L		APU	0.132	0.015	0.015	0.018	0.013	0.003	0.000	0.000	0.000
		GSE	5.057	0.193	0.174	0.181	0.147	0.012	0.007	0.007	0.000
Falcon 20	CF700-2D	TOTAL	7.051	0.586	0.586	0.623	0.238	0.088	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.020	0.006	0.006	0.006	0.064	0.018	0.009	0.009	0.000
Gulfstream II	SPEY MK511-8	TOTAL	2.281	0.263	0.263	0.280	2.328	0.203	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.055	0.517	0.466	0.483	0.375	0.021	0.013	0.012	0.000
HS 125	TFE731-3	TOTAL	2.118	0.344	0.344	0.380	0.994	0.055	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	18.962	0.725	0.654	0.678	0.550	0.047	0.025	0.024	0.000
KC-135R	CFM56-2B-1	TOTAL	2.181	0.121	0.121	0.134	2.747	0.228	0.007	0.007	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.057	0.017	0.017	0.018	0.224	0.041	0.018	0.017	0.000
Learjet 25C	CJ610-6	TOTAL	10.584	0.806	0.806	0.856	0.209	0.058	N/A	N/A	0.000
28L_GA		APU	0.105	0.010	0.010	0.011	0.075	0.017	0.000	0.000	0.000
		GSE	7.001	0.277	0.249	0.259	0.301	0.036	0.019	0.019	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	4.837	1.412	1.412	1.500	1.422	0.098	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	24.002	0.987	0.888	0.922	0.758	0.036	0.023	0.022	0.000
MD-80-83	JT8D-219 old comb	TOTAL	2.270	0.700	0.700	0.766	6.843	0.465	0.137	0.137	0.000
28L		APU	0.596	0.034	0.034	0.037	0.158	0.033	0.000	0.000	0.000
		GSE	0.159	0.024	0.023	0.024	0.191	0.049	0.024	0.023	0.000
Navajo	TIO-540-J2B2	TOTAL	40.628	0.729	0.729	0.703	0.021	0.003	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.002	0.002	0.002	0.013	0.007	0.006	0.006	0.000
Piper PA-28	O-320	TOTAL	3.177	0.051	0.051	0.050	0.006	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.003	0.002	0.002	0.001	0.000
UC-12J	PT6A-42	TOTAL	2.173	1.739	1.739	1.921	0.174	0.021	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.470	0.400	0.360	0.374	0.304	0.026	0.014	0.013	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	5.415	1.864	1.864	1.981	0.728	0.068	0.035	0.035	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	16.100	0.664	0.597	0.619	0.534	0.030	0.018	0.017	0.000
Falcon 2000EX	PW308C	TOTAL	0.784	0.098	0.098	0.105	0.612	0.058	0.006	0.006	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.531	0.143	0.130	0.134	0.215	0.034	0.015	0.015	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	6.315	2.174	2.174	2.310	0.849	0.080	0.042	0.042	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	18.777	0.774	0.697	0.723	0.623	0.035	0.020	0.020	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.403	0.558	0.558	0.593	2.684	0.310	0.183	0.183	0.000
28L_GA		APU	0.079	0.006	0.006	0.007	0.391	0.039	0.000	0.000	0.000
		GSE	16.423	0.636	0.573	0.594	0.454	0.035	0.024	0.023	0.000
Aztec	TIO-540-J2B2	TOTAL	50.929	0.914	0.914	0.882	0.026	0.004	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.002	0.002	0.003	0.017	0.009	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	7.523	0.465	0.465	0.509	5.678	0.575	0.009	0.009	0.000
28R		APU	1.106	0.063	0.063	0.069	0.292	0.062	0.000	0.000	0.000
		GSE	0.367	0.051	0.049	0.052	0.424	0.106	0.055	0.053	0.000
B737-300	CFM56-3B-2	TOTAL	1.508	0.082	0.082	0.089	1.452	0.136	0.003	0.003	0.000
28R		APU	0.240	0.013	0.013	0.015	0.064	0.013	0.000	0.000	0.000
		GSE	0.079	0.011	0.011	0.011	0.093	0.023	0.012	0.012	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.740	0.192	0.192	0.209	1.717	0.185	0.002	0.002	0.000
28R		APU	0.376	0.022	0.022	0.023	0.099	0.021	0.000	0.000	0.000
		GSE	0.125	0.018	0.017	0.018	0.144	0.036	0.019	0.018	0.000
B737-500	CFM56-3C-1	TOTAL	1.760	0.087	0.087	0.095	2.239	0.188	0.007	0.007	0.000
28R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.298	0.017	0.017	0.019	0.078	0.017	0.000	0.000	0.000
		GSE	0.098	0.013	0.013	0.014	0.114	0.029	0.014	0.014	0.000
B737-700	CFM56-7B22	TOTAL	5.539	0.582	0.582	0.637	9.900	0.745	0.157	0.157	0.000
28R		APU	0.379	0.029	0.029	0.032	0.516	0.078	0.000	0.000	0.000
		GSE	0.428	0.060	0.057	0.061	0.495	0.125	0.064	0.062	0.000
B737-800	CFM56-7B26	TOTAL	1.672	0.173	0.173	0.190	4.977	0.304	0.093	0.093	0.000
28R		APU	0.134	0.010	0.010	0.011	0.182	0.028	0.000	0.000	0.000
		GSE	0.151	0.021	0.020	0.021	0.175	0.044	0.023	0.022	0.000
B757-300	PW2043	TOTAL	0.427	0.033	0.033	0.036	1.560	0.079	N/A	N/A	0.000
28R		APU	0.021	0.002	0.002	0.002	0.049	0.006	0.000	0.000	0.000
		GSE	0.026	0.003	0.003	0.003	0.031	0.008	0.004	0.003	0.000
BAE146-300	LF507 SERIES	TOTAL	0.920	0.106	0.106	0.116	0.700	0.079	0.009	0.009	0.000
28R		APU	0.035	0.003	0.003	0.003	0.025	0.006	0.000	0.000	0.000
		GSE	2.394	0.095	0.085	0.088	0.103	0.012	0.007	0.007	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	14.430	0.082	0.082	0.089	16.427	1.625	0.068	0.068	0.000
28R		APU	4.896	0.280	0.280	0.306	1.293	0.272	0.000	0.000	0.000
		GSE	74.313	2.933	2.649	2.749	3.193	0.390	0.204	0.196	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.751	0.234	0.234	0.249	0.061	0.008	0.004	0.004	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.884	0.077	0.069	0.073	0.063	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	4.005	0.551	0.551	0.585	1.956	0.134	0.025	0.025	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	24.769	0.998	0.902	0.937	1.200	0.183	0.086	0.084	0.000
Cessna 172 Skyhawk	O-320	TOTAL	14.308	0.234	0.234	0.225	0.025	0.001	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.019	0.010	0.009	0.009	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.114	0.008	0.008	0.009	0.107	0.013	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.621	0.176	0.159	0.165	0.134	0.011	0.007	0.006	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	4.585	1.317	1.317	1.442	3.414	0.340	0.245	0.245	0.000
28R		APU	0.456	0.026	0.026	0.029	0.120	0.025	0.000	0.000	0.000
		GSE	0.151	0.021	0.020	0.021	0.175	0.044	0.023	0.022	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.073	0.258	0.258	0.274	2.170	0.230	0.000	0.000	0.000
28R		APU	0.219	0.021	0.021	0.022	0.157	0.034	0.000	0.000	0.000
		GSE	14.671	0.579	0.522	0.542	0.631	0.077	0.040	0.039	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.771	0.125	0.125	0.132	1.381	0.121	0.000	0.000	0.000
28R		APU	0.108	0.010	0.010	0.011	0.077	0.017	0.000	0.000	0.000
		GSE	7.210	0.284	0.257	0.267	0.310	0.037	0.020	0.019	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	2.823	0.228	0.228	0.243	2.398	0.230	0.000	0.000	0.000
28R		APU	0.197	0.019	0.019	0.020	0.140	0.031	0.000	0.000	0.000
		GSE	13.209	0.521	0.471	0.488	0.568	0.069	0.036	0.035	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	13.869	1.165	1.165	1.239	9.916	1.011	0.000	0.000	0.000
28R		APU	0.952	0.090	0.090	0.096	0.677	0.148	0.000	0.000	0.000
		GSE	63.651	2.512	2.269	2.355	2.735	0.334	0.174	0.169	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	17.109	1.439	1.439	1.529	12.082	1.280	0.000	0.000	0.000
28R		APU	1.221	0.116	0.116	0.122	0.869	0.190	0.000	0.000	0.000
		GSE	81.663	3.223	2.911	3.021	3.509	0.429	0.224	0.216	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	5.233	0.439	0.439	0.466	3.745	0.381	0.000	0.000	0.000
28R		APU	0.359	0.034	0.034	0.036	0.256	0.056	0.000	0.000	0.000
		GSE	24.024	0.948	0.856	0.888	1.032	0.126	0.066	0.064	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	4.343	0.041	0.041	0.045	6.713	0.648	0.065	0.065	0.000
28R		APU	0.430	0.041	0.041	0.044	0.306	0.067	0.000	0.000	0.000
		GSE	28.770	1.135	1.025	1.065	1.236	0.151	0.078	0.076	0.000
F-27 SERIES	RDa7	TOTAL	2.191	0.489	0.489	0.541	0.111	0.051	N/A	N/A	0.000
28R		APU	0.133	0.015	0.015	0.018	0.013	0.003	0.000	0.000	0.000
		GSE	5.099	0.195	0.175	0.182	0.148	0.012	0.007	0.007	0.000
Falcon 20	CF700-2D	TOTAL	2.456	0.204	0.204	0.217	0.083	0.031	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.002	0.002	0.002	0.022	0.007	0.003	0.003	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.794	0.091	0.091	0.098	0.811	0.071	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.547	0.180	0.162	0.169	0.130	0.007	0.004	0.004	0.000
HS 125	TFE731-3	TOTAL	4.397	0.715	0.715	0.790	2.065	0.114	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	39.381	1.506	1.357	1.408	1.143	0.098	0.053	0.051	0.000
KC-135R	CFM56-2B-1	TOTAL	1.130	0.063	0.063	0.069	1.423	0.118	0.003	0.003	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.030	0.009	0.009	0.009	0.116	0.021	0.009	0.009	0.000
Learjet 25C	CJ610-6	TOTAL	21.337	1.624	1.624	1.726	0.423	0.117	N/A	N/A	0.000
28R_GA		APU	0.212	0.020	0.020	0.021	0.150	0.033	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	14.114	0.557	0.503	0.522	0.606	0.074	0.039	0.037	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.694	0.494	0.494	0.526	0.498	0.034	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.406	0.346	0.311	0.323	0.266	0.012	0.008	0.008	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.037	0.320	0.320	0.349	3.126	0.213	0.063	0.063	0.000
28R		APU	0.272	0.015	0.015	0.017	0.072	0.015	0.000	0.000	0.000
		GSE	0.073	0.011	0.011	0.011	0.087	0.022	0.011	0.011	0.000
Navajo	TIO-540-J2B2	TOTAL	43.379	0.778	0.778	0.751	0.023	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.002	0.002	0.002	0.013	0.008	0.007	0.007	0.000
Piper PA-28	O-320	TOTAL	1.295	0.021	0.021	0.020	0.002	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	0.989	0.791	0.791	0.874	0.079	0.010	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.766	0.182	0.164	0.171	0.139	0.012	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	11.539	3.972	3.972	4.223	1.551	0.147	0.076	0.076	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	34.311	1.414	1.274	1.321	1.138	0.064	0.037	0.035	0.000
Falcon 2000EX	PW308C	TOTAL	1.602	0.201	0.201	0.213	1.250	0.119	0.011	0.011	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.216	0.293	0.266	0.276	0.440	0.069	0.032	0.031	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.200	0.757	0.757	0.805	0.295	0.028	0.014	0.014	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.542	0.270	0.243	0.251	0.217	0.012	0.007	0.007	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.045	0.499	0.499	0.531	2.402	0.278	0.164	0.164	0.000
28R_GA		APU	0.071	0.006	0.006	0.006	0.351	0.034	0.000	0.000	0.000
		GSE	14.698	0.569	0.513	0.532	0.407	0.032	0.022	0.021	0.000
A320-200	V2527-A5	TOTAL	0.091	0.001	0.001	0.001	0.268	0.019	0.002	0.002	0.000
10L		APU	0.003	0.000	0.000	0.000	0.015	0.001	0.000	0.000	0.000
		GSE	0.010	0.001	0.001	0.001	0.011	0.003	0.001	0.001	0.000
A320-200	V2527-A5	TOTAL	0.324	0.004	0.004	0.006	0.955	0.068	0.009	0.009	0.000
10R		APU	0.011	0.001	0.001	0.001	0.055	0.006	0.000	0.000	0.000
		GSE	0.034	0.004	0.004	0.004	0.040	0.010	0.006	0.006	0.000
A320-200	V2527-A5	TOTAL	0.446	0.007	0.007	0.007	1.314	0.094	0.012	0.012	0.000
28L		APU	0.015	0.001	0.001	0.001	0.076	0.008	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.055	0.014	0.008	0.007	0.000
A320-200	V2527-A5	TOTAL	0.174	0.002	0.002	0.002	0.510	0.036	0.004	0.004	0.000
28R		APU	0.006	0.000	0.000	0.000	0.030	0.003	0.000	0.000	0.000
		GSE	0.019	0.002	0.002	0.002	0.021	0.006	0.003	0.002	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.622	0.180	0.180	0.191	0.208	0.013	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.030	0.125	0.112	0.117	0.100	0.006	0.003	0.003	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.334	0.097	0.097	0.103	0.111	0.008	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.628	0.067	0.061	0.063	0.054	0.003	0.002	0.002	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.732	0.212	0.212	0.225	0.245	0.017	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.568	0.147	0.132	0.138	0.118	0.007	0.003	0.003	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.496	0.432	0.432	0.460	0.500	0.033	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.293	0.301	0.271	0.281	0.241	0.013	0.008	0.008	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.028	0.229	0.229	0.254	0.053	0.023	N/A	N/A	0.000
10L_GA		APU	0.011	0.001	0.001	0.001	0.055	0.006	0.000	0.000	0.000
		GSE	2.825	0.111	0.100	0.104	0.080	0.007	0.006	0.006	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.941	0.433	0.433	0.480	0.099	0.044	N/A	N/A	0.000
28L_GA		APU	0.021	0.001	0.001	0.002	0.105	0.010	0.000	0.000	0.000
		GSE	5.332	0.209	0.190	0.196	0.151	0.013	0.011	0.011	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.630	0.588	0.588	0.649	0.134	0.061	N/A	N/A	0.000
28R_GA		APU	0.029	0.002	0.002	0.002	0.142	0.014	0.000	0.000	0.000
		GSE	7.223	0.284	0.256	0.266	0.205	0.018	0.015	0.014	0.000
Learjet 25B	CJ610-6	TOTAL	4.924	0.375	0.375	0.398	0.098	0.028	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.311	0.137	0.122	0.127	0.105	0.004	0.003	0.003	0.000
Learjet 25B	CJ610-6	TOTAL	18.118	1.379	1.379	1.466	0.359	0.099	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.185	0.502	0.451	0.467	0.385	0.019	0.011	0.011	0.000
Learjet 25B	CJ610-6	TOTAL	39.897	3.036	3.036	3.228	0.791	0.219	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	26.832	1.103	0.993	1.031	0.848	0.040	0.025	0.024	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 25B	CJ610-6	TOTAL	13.867	1.055	1.055	1.122	0.276	0.076	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.327	0.384	0.345	0.358	0.294	0.014	0.009	0.009	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.299	0.003	0.003	0.003	0.457	0.044	0.004	0.004	0.000
10L		APU	0.130	0.008	0.008	0.008	0.034	0.008	0.000	0.000	0.000
		GSE	1.976	0.078	0.071	0.073	0.085	0.010	0.006	0.006	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.166	0.001	0.001	0.002	0.255	0.024	0.002	0.002	0.000
10R		APU	0.073	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	1.100	0.043	0.040	0.041	0.047	0.006	0.003	0.003	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.347	0.003	0.003	0.003	0.531	0.052	0.004	0.004	0.000
28L		APU	0.151	0.009	0.009	0.010	0.040	0.009	0.000	0.000	0.000
		GSE	2.296	0.090	0.082	0.085	0.099	0.012	0.007	0.007	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.724	0.007	0.007	0.008	1.108	0.107	0.010	0.010	0.000
28R		APU	0.315	0.018	0.018	0.020	0.084	0.018	0.000	0.000	0.000
		GSE	4.788	0.188	0.171	0.177	0.206	0.025	0.013	0.012	0.000
A320-200	V2500-A1	TOTAL	0.053	0.003	0.003	0.003	0.392	0.020	0.000	0.000	0.000
10L		APU	0.003	0.000	0.000	0.000	0.015	0.001	0.000	0.000	0.000
		GSE	0.010	0.001	0.001	0.001	0.011	0.003	0.001	0.001	0.000
A320-200	V2500-A1	TOTAL	0.190	0.011	0.011	0.012	1.397	0.071	0.001	0.001	0.000
10R		APU	0.011	0.001	0.001	0.001	0.055	0.006	0.000	0.000	0.000
		GSE	0.034	0.004	0.004	0.004	0.040	0.010	0.006	0.006	0.000
A320-200	V2500-A1	TOTAL	0.261	0.014	0.014	0.015	1.922	0.096	0.002	0.002	0.000
28L		APU	0.015	0.001	0.001	0.001	0.076	0.008	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.055	0.014	0.008	0.007	0.000
A320-200	V2500-A1	TOTAL	0.101	0.006	0.006	0.007	0.747	0.037	0.001	0.001	0.000
28R		APU	0.006	0.000	0.000	0.000	0.030	0.003	0.000	0.000	0.000
		GSE	0.019	0.002	0.002	0.002	0.021	0.006	0.003	0.002	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.294	0.003	0.003	0.003	0.506	0.046	0.011	0.011	0.000
10L		APU	0.030	0.003	0.003	0.003	0.021	0.004	0.000	0.000	0.000
		GSE	1.976	0.078	0.071	0.073	0.085	0.010	0.006	0.006	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.164	0.001	0.001	0.002	0.281	0.025	0.006	0.006	0.000
10R		APU	0.017	0.001	0.001	0.002	0.012	0.002	0.000	0.000	0.000
		GSE	1.100	0.043	0.040	0.041	0.047	0.006	0.003	0.003	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.342	0.003	0.003	0.003	0.588	0.054	0.012	0.012	0.000
28L		APU	0.034	0.003	0.003	0.003	0.024	0.006	0.000	0.000	0.000
		GSE	2.296	0.090	0.082	0.085	0.099	0.012	0.007	0.007	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.713	0.007	0.007	0.008	1.226	0.112	0.025	0.025	0.000
28R		APU	0.072	0.007	0.007	0.008	0.051	0.011	0.000	0.000	0.000
		GSE	4.788	0.188	0.171	0.177	0.206	0.025	0.013	0.012	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.930	0.208	0.208	0.229	0.047	0.021	N/A	N/A	0.000
10R_GA		APU	0.010	0.001	0.001	0.001	0.051	0.006	0.000	0.000	0.000
		GSE	2.555	0.100	0.090	0.094	0.073	0.007	0.006	0.006	0.000

*** PM data for some aircraft in the study is unavailable.

EDMS 4.5 Emissions Inventory Report

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	5.885	0.063	0.063	0.061	0.007	0.000	N/A	N/A	4.670
10L_GA		Climb Out	4.919	0.055	0.055	0.054	0.001	0.000	N/A	N/A	3.343
		Takeoff	3.278	0.029	0.029	0.028	0.001	0.000	N/A	N/A	2.273
		Idle	3.066	0.161	0.161	0.155	0.001	0.000	N/A	N/A	2.369
B737-300	CFM56-3-B1	Approach	0.267	0.006	0.006	0.007	0.583	0.071	0.001	0.001	70.284
10L		Climb Out	0.034	0.002	0.002	0.002	0.560	0.036	0.000	0.000	36.150
		Takeoff	0.043	0.002	0.002	0.002	0.840	0.047	0.001	0.001	47.436
		Idle	2.687	0.179	0.179	0.195	0.304	0.078	0.001	0.001	78.124
B737-300	CFM56-3B-2	Approach	0.052	0.001	0.001	0.001	0.132	0.015	0.000	0.000	15.189
10L		Climb Out	0.008	0.000	0.000	0.000	0.133	0.008	0.000	0.000	7.998
		Takeoff	0.010	0.000	0.000	0.000	0.205	0.011	0.001	0.001	10.569
		Idle	0.489	0.029	0.029	0.031	0.067	0.017	0.000	0.000	16.277
B737-500	CFM56-3C-1	Approach	0.069	0.001	0.001	0.002	0.203	0.022	0.000	0.000	22.245
10L		Climb Out	0.012	0.000	0.000	0.001	0.237	0.013	0.000	0.000	13.288
		Takeoff	0.015	0.000	0.000	0.001	0.362	0.018	0.001	0.001	17.463
		Idle	0.610	0.032	0.032	0.035	0.098	0.023	0.000	0.000	22.752
B737-700	CFM56-7B22	Approach	0.212	0.009	0.009	0.009	0.848	0.085	0.018	0.018	84.770
10L		Climb Out	0.031	0.006	0.006	0.006	0.968	0.051	0.011	0.011	50.964
		Takeoff	0.036	0.008	0.008	0.008	1.681	0.073	0.015	0.015	72.794
		Idle	1.886	0.207	0.207	0.226	0.373	0.083	0.018	0.018	82.731
B737-800	CFM56-7B26	Approach	0.053	0.003	0.003	0.003	0.355	0.033	0.010	0.010	32.873
10L		Climb Out	0.013	0.002	0.002	0.002	0.514	0.023	0.007	0.007	22.816
		Takeoff	0.007	0.003	0.003	0.003	0.929	0.032	0.010	0.010	32.273
		Idle	0.580	0.058	0.058	0.064	0.146	0.031	0.009	0.009	30.854
B757-300	PW2043	Approach	0.011	0.001	0.001	0.001	0.090	0.009	N/A	N/A	8.397
10L		Climb Out	0.002	0.000	0.000	0.000	0.159	0.006	N/A	N/A	5.699
		Takeoff	0.002	0.000	0.000	0.000	0.292	0.008	N/A	N/A	7.742
		Idle	0.141	0.011	0.011	0.012	0.032	0.008	N/A	N/A	7.309
BAE146-300	LF507 SERIES	Approach	0.034	0.001	0.001	0.001	0.050	0.008	0.001	0.001	7.731
10L		Climb Out	0.002	0.000	0.000	0.000	0.104	0.009	0.001	0.001	8.621
		Takeoff	0.001	0.000	0.000	0.000	0.106	0.008	0.001	0.001	7.326
		Idle	0.342	0.043	0.043	0.046	0.030	0.009	0.001	0.001	9.028
Bombardier CRJ700	CF34-8C1	Approach	0.547	0.011	0.011	0.012	2.088	0.188	0.009	0.009	188.054
10L		Climb Out	0.051	0.002	0.002	0.002	1.289	0.100	0.000	0.000	100.540
		Takeoff	0.069	0.003	0.003	0.003	2.474	0.169	0.008	0.008	168.642
		Idle	5.275	0.017	0.017	0.019	0.913	0.212	0.010	0.010	211.648
Cessna 172 Skyhawk	O-320	Approach	2.213	0.035	0.035	0.034	0.002	0.000	N/A	N/A	1.814
10L_GA		Climb Out	1.194	0.015	0.015	0.014	0.004	0.000	N/A	N/A	1.206
		Takeoff	0.902	0.010	0.010	0.010	0.002	0.000	N/A	N/A	0.834
		Idle	0.571	0.020	0.020	0.019	0.000	0.000	N/A	N/A	0.529
Cessna 441 Conqu...	TPE331-8	Approach	0.010	0.000	0.000	0.000	0.021	0.002	N/A	N/A	2.233
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.006	0.000	N/A	N/A	0.473
		Takeoff	0.001	0.000	0.000	0.000	0.006	0.000	N/A	N/A	0.546
		Idle	0.030	0.002	0.002	0.002	0.007	0.001	N/A	N/A	1.607
CITATION I SP	JT15D-1A ,1B	Approach	0.060	0.007	0.007	0.007	0.006	0.001	0.000	0.000	1.465
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.875
		Takeoff	0.002	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.972
		Idle	0.195	0.075	0.075	0.079	0.002	0.001	0.000	0.000	1.475
CL600	ALF 502L-2	Approach	0.122	0.006	0.006	0.006	0.200	0.017	0.003	0.003	30.911
10L_GA		Climb Out	0.004	0.000	0.000	0.000	0.194	0.009	0.003	0.003	16.136
		Takeoff	0.009	0.000	0.000	0.000	0.297	0.012	0.002	0.002	22.040
		Idle	1.505	0.219	0.219	0.234	0.111	0.018	0.000	0.000	32.986
DC9-30	JT8D-15 (old ...	Approach	0.313	0.054	0.054	0.060	0.193	0.033	0.023	0.023	32.660
10L		Climb Out	0.029	0.008	0.008	0.008	0.433	0.029	0.021	0.021	28.859
		Takeoff	0.021	0.008	0.008	0.009	0.583	0.031	0.022	0.022	30.532
		Idle	1.422	0.444	0.444	0.486	0.121	0.041	0.029	0.029	40.404
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.180	0.001	0.001	0.001	0.163	0.023	0.000	0.000	23.540
10L		Climb Out	0.012	0.001	0.001	0.001	0.317	0.023	0.000	0.000	23.527
		Takeoff	0.008	0.000	0.000	0.000	0.251	0.017	0.000	0.000	16.310
		Idle	0.993	0.098	0.098	0.105	0.110	0.025	0.000	0.000	25.822
Embraer ERJ 145	AE3007A	Approach	0.044	0.009	0.009	0.009	0.104	0.013	0.000	0.000	13.318
10L		Climb Out	0.012	0.003	0.003	0.004	0.225	0.013	0.000	0.000	12.869
		Takeoff	0.007	0.002	0.002	0.002	0.183	0.009	0.000	0.000	8.922
		Idle	0.255	0.036	0.036	0.040	0.056	0.014	0.000	0.000	14.675
Embraer ERJ 145	AE3007A1E	Approach	0.141	0.001	0.001	0.001	0.185	0.025	0.000	0.000	25.010
10L		Climb Out	0.017	0.001	0.001	0.001	0.383	0.025	0.000	0.000	25.620

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.013	0.000	0.000	0.001	0.306	0.018	0.000	0.000	17.862
		Idle	0.989	0.091	0.091	0.097	0.111	0.026	0.000	0.000	26.048
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.725	0.003	0.003	0.003	0.758	0.107	0.000	0.000	106.591
10L		Climb Out	0.055	0.003	0.003	0.003	1.411	0.100	0.000	0.000	100.682
		Takeoff	0.064	0.002	0.002	0.003	1.401	0.087	0.000	0.000	87.054
		Idle	4.858	0.471	0.471	0.500	0.506	0.121	0.000	0.000	121.222
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	1.058	0.004	0.004	0.004	0.962	0.139	0.000	0.000	138.823
10L		Climb Out	0.069	0.004	0.004	0.004	1.872	0.139	0.000	0.000	138.741
		Takeoff	0.049	0.003	0.003	0.003	1.484	0.096	0.000	0.000	96.187
		Idle	5.858	0.580	0.580	0.617	0.650	0.152	0.000	0.000	152.280
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.273	0.001	0.001	0.001	0.287	0.040	0.000	0.000	40.234
10L		Climb Out	0.021	0.001	0.001	0.001	0.532	0.037	0.000	0.000	37.970
		Takeoff	0.024	0.001	0.001	0.001	0.529	0.033	0.000	0.000	32.839
		Idle	1.831	0.176	0.176	0.188	0.191	0.046	0.000	0.000	45.815
Embraer ERJ 170	CF34-8E5	Approach	0.330	0.004	0.004	0.006	0.840	0.078	0.009	0.009	78.009
10L		Climb Out	0.024	0.001	0.001	0.001	0.531	0.042	0.001	0.001	41.967
		Takeoff	0.045	0.001	0.001	0.001	1.041	0.071	0.008	0.008	70.437
		Idle	1.389	0.010	0.010	0.011	0.353	0.076	0.009	0.009	76.481
F-27 SERIES	RDa7	Approach	0.194	0.018	0.018	0.019	0.006	0.006	N/A	N/A	5.821
10L		Climb Out	0.014	0.004	0.004	0.004	0.019	0.004	N/A	N/A	4.061
		Takeoff	0.009	0.002	0.002	0.003	0.014	0.002	N/A	N/A	2.611
		Idle	0.625	0.163	0.163	0.181	0.004	0.007	N/A	N/A	6.833
Falcon 20	CF700-2D	Approach	0.195	0.004	0.004	0.004	0.006	0.003	N/A	N/A	3.144
10L_GA		Climb Out	0.044	0.000	0.000	0.000	0.008	0.002	N/A	N/A	1.746
		Takeoff	0.051	0.000	0.000	0.000	0.013	0.002	N/A	N/A	2.328
		Idle	0.584	0.068	0.068	0.072	0.003	0.003	N/A	N/A	3.772
Falcon 2000EX	PW308C	Approach	0.084	0.002	0.002	0.002	0.126	0.017	0.001	0.001	16.107
10L_Corp		Climb Out	0.009	0.001	0.001	0.001	0.138	0.009	0.001	0.001	8.626
		Takeoff	0.009	0.001	0.001	0.001	0.207	0.011	0.001	0.001	11.217
		Idle	0.563	0.079	0.079	0.084	0.049	0.013	0.001	0.001	13.328
Gulfstream II	SPEY MK511-8	Approach	0.017	0.001	0.001	0.001	0.045	0.007	N/A	N/A	6.274
10L_GA		Climb Out	0.003	0.001	0.001	0.001	0.085	0.004	N/A	N/A	4.874
		Takeoff	0.001	0.000	0.000	0.000	0.129	0.006	N/A	N/A	5.706
		Idle	0.262	0.031	0.031	0.032	0.030	0.008	N/A	N/A	8.259
Gulfstream IV	TAY Mk611-8	Approach	0.118	0.028	0.028	0.029	0.173	0.031	0.018	0.018	30.343
10L_GA		Climb Out	0.011	0.004	0.004	0.004	0.230	0.013	0.008	0.008	13.701
		Takeoff	0.013	0.015	0.015	0.017	0.401	0.019	0.011	0.011	19.006
		Idle	1.010	0.142	0.142	0.151	0.105	0.042	0.024	0.024	41.902
HS 125	TFE731-3	Approach	0.435	0.040	0.040	0.044	0.194	0.015	N/A	N/A	28.003
10L_Corp		Climb Out	0.020	0.001	0.001	0.001	0.194	0.007	N/A	N/A	12.121
		Takeoff	0.021	0.001	0.001	0.001	0.362	0.010	N/A	N/A	18.852
		Idle	1.340	0.254	0.254	0.281	0.105	0.015	N/A	N/A	28.105
KC-135R	CFM56-2B-1	Approach	0.035	0.001	0.001	0.001	0.068	0.009	0.000	0.000	8.399
10L_GA		Climb Out	0.009	0.000	0.000	0.000	0.153	0.010	0.000	0.000	9.568
		Takeoff	0.012	0.000	0.000	0.001	0.255	0.013	0.001	0.001	13.759
		Idle	0.359	0.021	0.021	0.023	0.046	0.012	0.000	0.000	11.703
Learjet 25C	CJ610-6	Approach	2.501	0.000	0.000	0.000	0.043	0.015	N/A	N/A	28.423
10L_GA		Climb Out	0.298	0.002	0.002	0.002	0.037	0.006	N/A	N/A	10.632
		Takeoff	0.449	0.002	0.002	0.002	0.069	0.009	N/A	N/A	16.613
		Idle	6.075	0.705	0.705	0.750	0.035	0.021	N/A	N/A	39.190
Learjet 35/36	TFE 731-2-2B	Approach	0.172	0.033	0.033	0.035	0.045	0.004	N/A	N/A	7.668
10L_GA		Climb Out	0.007	0.000	0.000	0.000	0.045	0.002	N/A	N/A	3.441
		Takeoff	0.006	0.000	0.000	0.000	0.063	0.002	N/A	N/A	4.134
		Idle	0.403	0.138	0.138	0.147	0.020	0.003	N/A	N/A	6.880
MD-80-83	JT8D-219 old...	Approach	0.099	0.039	0.039	0.042	0.223	0.024	0.008	0.008	24.351
10L		Climb Out	0.025	0.009	0.009	0.010	0.434	0.021	0.007	0.007	20.897
		Takeoff	0.017	0.007	0.007	0.007	0.623	0.023	0.007	0.007	23.050
		Idle	0.313	0.086	0.086	0.095	0.089	0.024	0.008	0.008	24.776
Navajo	TIO-540-J2B2	Approach	4.919	0.052	0.052	0.051	0.006	0.000	N/A	N/A	3.903
10L_GA		Climb Out	4.111	0.046	0.046	0.045	0.001	0.000	N/A	N/A	2.794
		Takeoff	2.740	0.023	0.023	0.023	0.001	0.000	N/A	N/A	1.900
		Idle	2.562	0.134	0.134	0.130	0.001	0.000	N/A	N/A	1.980
Piper PA-28	O-320	Approach	0.235	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.193
10L_GA		Climb Out	0.114	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.115
		Takeoff	0.076	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.071
		Idle	0.047	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.044
UC-12J	PT6A-42	Approach	0.109	0.072	0.072	0.079	0.014	0.002	N/A	N/A	3.146
10L_GA		Climb Out	0.004	0.001	0.001	0.002	0.006	0.000	N/A	N/A	0.748
		Takeoff	0.003	0.001	0.001	0.001	0.004	0.000	N/A	N/A	0.585
		Idle	0.246	0.216	0.216	0.239	0.004	0.001	N/A	N/A	2.134

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation 10L_Corp	JT15D-4 (B,C...	Approach	1.124	0.181	0.181	0.192	0.186	0.019	0.010	0.010	35.131
		Climb Out	0.060	0.003	0.003	0.003	0.161	0.010	0.006	0.006	18.819
		Takeoff	0.043	0.002	0.002	0.002	0.190	0.011	0.006	0.006	20.563
		Idle	3.463	1.429	1.429	1.518	0.094	0.019	0.010	0.010	35.707
B737-300 10L	CFM56-3C-1 ...	Approach	0.093	0.002	0.002	0.002	0.176	0.022	0.000	0.000	22.055
		Climb Out	0.011	0.001	0.001	0.001	0.164	0.011	0.000	0.000	11.137
		Takeoff	0.013	0.001	0.001	0.001	0.241	0.014	0.000	0.000	14.575
		Idle	0.966	0.073	0.073	0.079	0.096	0.025	0.000	0.000	25.356
550 Citation 10L_GA	JT15D-4 (B,C...	Approach	0.188	0.030	0.030	0.032	0.031	0.003	0.002	0.002	5.885
		Climb Out	0.010	0.001	0.001	0.001	0.026	0.002	0.001	0.001	3.153
		Takeoff	0.008	0.000	0.000	0.000	0.032	0.002	0.001	0.001	3.445
		Idle	0.580	0.239	0.239	0.255	0.015	0.003	0.002	0.002	5.981
550 Citation 10R_GA	JT15D-4 (B,C...	Approach	0.687	0.110	0.110	0.118	0.114	0.012	0.006	0.006	21.471
		Climb Out	0.036	0.002	0.002	0.002	0.098	0.007	0.003	0.003	11.502
		Takeoff	0.026	0.001	0.001	0.001	0.116	0.007	0.003	0.003	12.567
		Idle	2.116	0.873	0.873	0.928	0.057	0.012	0.007	0.007	21.822
550 Citation 10R_Corp	JT15D-4 (B,C...	Approach	0.644	0.104	0.104	0.110	0.107	0.011	0.006	0.006	20.116
		Climb Out	0.034	0.002	0.002	0.002	0.093	0.006	0.003	0.003	10.775
		Takeoff	0.024	0.001	0.001	0.001	0.109	0.007	0.003	0.003	11.774
		Idle	1.983	0.818	0.818	0.870	0.054	0.011	0.006	0.006	20.446
Aztec 10R_GA	TIO-540-J2B2	Approach	9.739	0.104	0.104	0.100	0.011	0.001	N/A	N/A	7.729
		Climb Out	8.139	0.091	0.091	0.088	0.001	0.001	N/A	N/A	5.534
		Takeoff	5.426	0.046	0.046	0.045	0.001	0.000	N/A	N/A	3.762
		Idle	5.073	0.267	0.267	0.258	0.001	0.000	N/A	N/A	3.920
B737-300 10R	CFM56-3C-1 ...	Approach	0.241	0.004	0.004	0.006	0.461	0.057	0.001	0.001	57.588
		Climb Out	0.029	0.001	0.001	0.001	0.428	0.029	0.000	0.000	29.080
		Takeoff	0.034	0.002	0.002	0.002	0.632	0.039	0.001	0.001	38.057
		Idle	2.522	0.190	0.190	0.207	0.251	0.066	0.001	0.001	66.207
B737-300 10R	CFM56-3B-2	Approach	0.123	0.002	0.002	0.003	0.314	0.036	0.000	0.000	36.171
		Climb Out	0.018	0.001	0.001	0.001	0.319	0.019	0.000	0.000	19.048
		Takeoff	0.023	0.001	0.001	0.001	0.488	0.025	0.001	0.001	25.168
		Idle	1.166	0.068	0.068	0.074	0.159	0.039	0.000	0.000	38.762
B737-300 10R	CFM56-3-B1	Approach	0.718	0.015	0.015	0.017	1.567	0.188	0.002	0.002	188.872
		Climb Out	0.093	0.004	0.004	0.006	1.506	0.097	0.001	0.001	97.143
		Takeoff	0.115	0.006	0.006	0.006	2.256	0.128	0.003	0.003	127.472
		Idle	7.222	0.478	0.478	0.524	0.819	0.209	0.002	0.002	209.937
B737-500 10R	CFM56-3C-1	Approach	0.184	0.004	0.004	0.004	0.539	0.060	0.001	0.001	59.205
		Climb Out	0.032	0.001	0.001	0.001	0.629	0.035	0.001	0.001	35.367
		Takeoff	0.042	0.001	0.001	0.001	0.962	0.046	0.004	0.004	46.478
		Idle	1.623	0.086	0.086	0.094	0.260	0.061	0.001	0.001	60.554
B737-700 10R	CFM56-7B22	Approach	0.548	0.022	0.022	0.024	2.194	0.219	0.046	0.046	219.322
		Climb Out	0.079	0.013	0.013	0.014	2.506	0.132	0.028	0.028	131.860
		Takeoff	0.094	0.019	0.019	0.021	4.351	0.188	0.040	0.040	188.340
		Idle	4.880	0.535	0.535	0.585	0.963	0.214	0.045	0.045	214.047
B737-800 10R	CFM56-7B26	Approach	0.136	0.009	0.009	0.009	0.915	0.085	0.025	0.025	84.725
		Climb Out	0.035	0.006	0.006	0.007	1.323	0.058	0.018	0.018	58.805
		Takeoff	0.017	0.009	0.009	0.009	2.395	0.083	0.025	0.025	83.178
		Idle	1.495	0.151	0.151	0.165	0.374	0.079	0.024	0.024	79.520
B757-300 10R	PW2043	Approach	0.026	0.002	0.002	0.002	0.216	0.020	N/A	N/A	20.206
		Climb Out	0.006	0.000	0.000	0.000	0.383	0.013	N/A	N/A	13.714
		Takeoff	0.006	0.000	0.000	0.000	0.703	0.019	N/A	N/A	18.629
		Idle	0.340	0.028	0.028	0.030	0.078	0.018	N/A	N/A	17.590
BAE146-300 10R	LF507 SERIES	Approach	0.019	0.000	0.000	0.000	0.026	0.004	0.000	0.000	4.137
		Climb Out	0.001	0.000	0.000	0.000	0.055	0.004	0.001	0.001	4.614
		Takeoff	0.001	0.000	0.000	0.000	0.057	0.004	0.001	0.001	3.921
		Idle	0.183	0.023	0.023	0.025	0.015	0.004	0.000	0.000	4.831
Bombardier CRJ700 10R	CF34-8C1	Approach	0.303	0.007	0.007	0.007	1.156	0.105	0.006	0.006	104.208
		Climb Out	0.028	0.001	0.001	0.001	0.714	0.056	0.000	0.000	55.713
		Takeoff	0.039	0.002	0.002	0.002	1.371	0.094	0.004	0.004	93.451
		Idle	2.922	0.010	0.010	0.010	0.506	0.117	0.006	0.006	117.283
Cessna 172 Skyhawk 10R_GA	O-320	Approach	4.183	0.066	0.066	0.064	0.003	0.000	N/A	N/A	3.429
		Climb Out	2.255	0.029	0.029	0.028	0.009	0.000	N/A	N/A	2.278
		Takeoff	1.704	0.019	0.019	0.018	0.003	0.000	N/A	N/A	1.577
		Idle	1.080	0.036	0.036	0.035	0.000	0.000	N/A	N/A	1.000
Cessna 441 Conqu... 10R_GA	TPE331-8	Approach	0.030	0.001	0.001	0.001	0.065	0.007	N/A	N/A	6.811
		Climb Out	0.002	0.000	0.000	0.000	0.015	0.001	N/A	N/A	1.443
		Takeoff	0.002	0.000	0.000	0.000	0.019	0.002	N/A	N/A	1.664
		Idle	0.093	0.008	0.008	0.008	0.020	0.004	N/A	N/A	4.902
CITATION I SP 10R_GA	JT15D-1A _1B	Approach	0.227	0.025	0.025	0.026	0.019	0.003	0.002	0.002	5.604
		Climb Out	0.012	0.000	0.000	0.000	0.023	0.002	0.001	0.001	3.349

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.010	0.000	0.000	0.000	0.029	0.002	0.001	0.001	3.721
		Idle	0.745	0.285	0.285	0.303	0.010	0.003	0.002	0.002	5.644
CL600 10R_GA	ALF 502L-2	Approach	0.071	0.003	0.003	0.003	0.116	0.010	0.002	0.002	17.886
		Climb Out	0.003	0.000	0.000	0.000	0.112	0.006	0.002	0.002	9.337
		Takeoff	0.006	0.000	0.000	0.000	0.171	0.007	0.001	0.001	12.753
		Idle	0.871	0.127	0.127	0.134	0.065	0.010	0.000	0.000	19.087
DC9-30 10R	JT8D-15 (old ...	Approach	0.808	0.139	0.139	0.152	0.497	0.084	0.061	0.061	84.176
		Climb Out	0.074	0.019	0.019	0.020	1.116	0.074	0.054	0.054	74.376
		Takeoff	0.055	0.020	0.020	0.022	1.502	0.078	0.056	0.056	78.691
		Idle	3.665	1.145	1.145	1.254	0.312	0.104	0.075	0.075	104.134
Embraer ERJ 135/140 10R	AE3007A1/3 ...	Approach	0.109	0.000	0.000	0.000	0.099	0.014	0.000	0.000	14.274
		Climb Out	0.007	0.000	0.000	0.000	0.193	0.014	0.000	0.000	14.265
		Takeoff	0.004	0.000	0.000	0.000	0.152	0.010	0.000	0.000	9.890
		Idle	0.602	0.060	0.060	0.064	0.067	0.015	0.000	0.000	15.657
Embraer ERJ 145 10R	AE3007A1E	Approach	0.080	0.000	0.000	0.000	0.106	0.014	0.000	0.000	14.236
		Climb Out	0.009	0.000	0.000	0.000	0.217	0.014	0.000	0.000	14.584
		Takeoff	0.008	0.000	0.000	0.000	0.174	0.010	0.000	0.000	10.168
		Idle	0.563	0.052	0.052	0.055	0.063	0.014	0.000	0.000	14.827
Embraer ERJ 145 10R	AE3007A	Approach	0.025	0.004	0.004	0.006	0.058	0.008	0.000	0.000	7.565
		Climb Out	0.007	0.002	0.002	0.002	0.128	0.008	0.000	0.000	7.311
		Takeoff	0.003	0.001	0.001	0.001	0.104	0.006	0.000	0.000	5.068
		Idle	0.144	0.021	0.021	0.022	0.032	0.009	0.000	0.000	8.337
Embraer ERJ 145LR 10R	AE3007A1P (...	Approach	0.155	0.001	0.001	0.001	0.163	0.023	0.000	0.000	22.870
		Climb Out	0.012	0.001	0.001	0.001	0.302	0.022	0.000	0.000	21.582
		Takeoff	0.014	0.001	0.001	0.001	0.301	0.019	0.000	0.000	18.665
		Idle	1.041	0.100	0.100	0.107	0.109	0.026	0.000	0.000	26.042
Embraer ERJ 145LR 10R	AE3007A1/3 ...	Approach	0.601	0.002	0.002	0.002	0.547	0.079	0.000	0.000	78.851
		Climb Out	0.040	0.002	0.002	0.002	1.063	0.078	0.000	0.000	78.804
		Takeoff	0.028	0.001	0.001	0.002	0.842	0.055	0.000	0.000	54.634
		Idle	3.328	0.330	0.330	0.351	0.369	0.086	0.000	0.000	86.494
Embraer ERJ 145LR 10R	AE3007A1/1 ...	Approach	0.412	0.002	0.002	0.002	0.431	0.061	0.000	0.000	60.553
		Climb Out	0.032	0.002	0.002	0.002	0.801	0.057	0.000	0.000	57.196
		Takeoff	0.036	0.001	0.001	0.001	0.796	0.050	0.000	0.000	49.454
		Idle	2.759	0.267	0.267	0.284	0.288	0.068	0.000	0.000	68.865
Embraer ERJ 170 10R	CF34-8E5	Approach	0.183	0.002	0.002	0.003	0.466	0.043	0.006	0.006	43.268
		Climb Out	0.013	0.000	0.000	0.000	0.294	0.023	0.000	0.000	23.278
		Takeoff	0.025	0.001	0.001	0.001	0.577	0.039	0.004	0.004	39.067
		Idle	0.771	0.006	0.006	0.006	0.195	0.042	0.004	0.004	42.419
F-27 SERIES 10R	RDa7	Approach	0.305	0.028	0.028	0.031	0.008	0.009	N/A	N/A	9.166
		Climb Out	0.022	0.007	0.007	0.008	0.029	0.007	N/A	N/A	6.393
		Takeoff	0.013	0.004	0.004	0.004	0.023	0.004	N/A	N/A	4.112
		Idle	0.983	0.257	0.257	0.284	0.008	0.011	N/A	N/A	10.759
Falcon 20 10R_GA	CF700-2D	Approach	0.713	0.017	0.017	0.018	0.021	0.011	N/A	N/A	11.507
		Climb Out	0.160	0.001	0.001	0.001	0.028	0.007	N/A	N/A	6.391
		Takeoff	0.187	0.001	0.001	0.001	0.047	0.009	N/A	N/A	8.520
		Idle	2.140	0.248	0.248	0.265	0.012	0.014	N/A	N/A	13.803
Falcon 2000EX 10R_Corp	PW308C	Approach	0.045	0.001	0.001	0.001	0.067	0.009	0.001	0.001	8.655
		Climb Out	0.004	0.000	0.000	0.000	0.074	0.004	0.000	0.000	4.635
		Takeoff	0.004	0.000	0.000	0.001	0.111	0.006	0.001	0.001	6.027
		Idle	0.303	0.043	0.043	0.045	0.026	0.007	0.001	0.001	7.163
Gulfstream II 10R_GA	SPEY MK511-8	Approach	0.061	0.004	0.004	0.004	0.165	0.023	N/A	N/A	22.960
		Climb Out	0.011	0.002	0.002	0.002	0.309	0.018	N/A	N/A	17.839
		Takeoff	0.002	0.002	0.002	0.002	0.474	0.021	N/A	N/A	20.880
		Idle	0.960	0.111	0.111	0.119	0.109	0.030	N/A	N/A	30.224
Gulfstream IV 10R_GA	TAY Mk611-8	Approach	0.165	0.039	0.039	0.041	0.241	0.042	0.025	0.025	42.415
		Climb Out	0.015	0.006	0.006	0.007	0.322	0.019	0.011	0.011	19.150
		Takeoff	0.019	0.021	0.021	0.022	0.561	0.026	0.015	0.015	26.567
		Idle	1.412	0.200	0.200	0.212	0.147	0.058	0.034	0.034	58.570
HS 125 10R_Corp	TFE731-3	Approach	0.240	0.022	0.022	0.024	0.107	0.009	N/A	N/A	15.435
		Climb Out	0.011	0.000	0.000	0.000	0.107	0.003	N/A	N/A	6.681
		Takeoff	0.012	0.001	0.001	0.001	0.200	0.006	N/A	N/A	10.390
		Idle	0.739	0.140	0.140	0.154	0.057	0.009	N/A	N/A	15.490
KC-135R 10R_GA	CFM56-2B-1	Approach	0.085	0.001	0.001	0.002	0.165	0.020	0.000	0.000	20.210
		Climb Out	0.021	0.001	0.001	0.001	0.368	0.023	0.000	0.000	23.023
		Takeoff	0.030	0.001	0.001	0.001	0.613	0.033	0.002	0.002	33.108
		Idle	0.864	0.052	0.052	0.057	0.112	0.029	0.000	0.000	28.161
Learjet 25C 10R_GA	CJ610-6	Approach	1.299	0.000	0.000	0.000	0.022	0.008	N/A	N/A	14.757
		Climb Out	0.154	0.001	0.001	0.001	0.020	0.003	N/A	N/A	5.520
		Takeoff	0.233	0.001	0.001	0.001	0.036	0.004	N/A	N/A	8.626
		Idle	3.154	0.366	0.366	0.389	0.019	0.011	N/A	N/A	20.348

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36 10R_GA	TFE 731-2-2B	Approach	0.657	0.125	0.125	0.133	0.173	0.015	N/A	N/A	29.369
		Climb Out	0.026	0.002	0.002	0.002	0.172	0.007	N/A	N/A	13.180
		Takeoff	0.022	0.002	0.002	0.002	0.241	0.009	N/A	N/A	15.832
		Idle	1.544	0.528	0.528	0.561	0.074	0.014	N/A	N/A	26.351
MD-80-83 10R	JT8D-219 old...	Approach	0.292	0.114	0.114	0.125	0.655	0.072	0.021	0.021	71.743
		Climb Out	0.074	0.025	0.025	0.029	1.281	0.062	0.019	0.019	61.565
		Takeoff	0.050	0.019	0.019	0.020	1.833	0.068	0.020	0.020	67.911
		Idle	0.922	0.254	0.254	0.278	0.262	0.073	0.022	0.022	72.993
Navajo 10R_GA	TIO-540-J2B2	Approach	6.324	0.067	0.067	0.065	0.007	0.001	N/A	N/A	5.019
		Climb Out	5.286	0.060	0.060	0.057	0.001	0.000	N/A	N/A	3.594
		Takeoff	3.523	0.030	0.030	0.030	0.001	0.000	N/A	N/A	2.443
		Idle	3.294	0.173	0.173	0.168	0.001	0.000	N/A	N/A	2.545
Piper PA-28 10R_GA	O-320	Approach	0.719	0.011	0.011	0.011	0.001	0.000	N/A	N/A	0.589
		Climb Out	0.346	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.349
		Takeoff	0.234	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.216
		Idle	0.146	0.006	0.006	0.004	0.000	0.000	N/A	N/A	0.136
UC-12J 10R_GA	PT6A-42	Approach	0.364	0.237	0.237	0.262	0.049	0.006	N/A	N/A	10.449
		Climb Out	0.017	0.006	0.006	0.006	0.019	0.001	N/A	N/A	2.486
		Takeoff	0.010	0.003	0.003	0.003	0.015	0.001	N/A	N/A	1.946
		Idle	0.816	0.719	0.719	0.795	0.014	0.003	N/A	N/A	7.087
Aztec 28L_GA	TIO-540-J2B2	Approach	18.994	0.202	0.202	0.195	0.021	0.002	N/A	N/A	15.075
		Climb Out	15.874	0.180	0.180	0.173	0.002	0.001	N/A	N/A	10.792
		Takeoff	10.581	0.091	0.091	0.088	0.002	0.001	N/A	N/A	7.338
		Idle	9.894	0.520	0.520	0.503	0.003	0.001	N/A	N/A	7.646
B737-300 28L	CFM56-3-B1	Approach	1.361	0.029	0.029	0.031	2.973	0.358	0.004	0.004	358.220
		Climb Out	0.175	0.009	0.009	0.010	2.856	0.184	0.002	0.002	184.245
		Takeoff	0.217	0.010	0.010	0.011	4.279	0.241	0.007	0.007	241.767
		Idle	13.697	0.908	0.908	0.994	1.553	0.398	0.004	0.004	398.175
B737-300 28L	CFM56-3B-2	Approach	0.269	0.006	0.006	0.007	0.688	0.079	0.001	0.001	79.077
		Climb Out	0.037	0.002	0.002	0.002	0.696	0.042	0.001	0.001	41.642
		Takeoff	0.050	0.002	0.002	0.002	1.067	0.055	0.003	0.003	55.022
		Idle	2.551	0.149	0.149	0.162	0.347	0.085	0.001	0.001	84.739
B737-300 28L	CFM56-3C-1 ...	Approach	0.475	0.009	0.009	0.010	0.904	0.114	0.001	0.001	112.997
		Climb Out	0.057	0.003	0.003	0.003	0.839	0.057	0.001	0.001	57.060
		Takeoff	0.067	0.003	0.003	0.004	1.240	0.075	0.001	0.001	74.675
		Idle	4.949	0.371	0.371	0.407	0.494	0.130	0.001	0.001	129.911
B737-500 28L	CFM56-3C-1	Approach	0.351	0.008	0.008	0.009	1.030	0.114	0.001	0.001	113.106
		Climb Out	0.061	0.002	0.002	0.003	1.203	0.067	0.002	0.002	67.565
		Takeoff	0.079	0.002	0.002	0.003	1.838	0.089	0.009	0.009	88.792
		Idle	3.101	0.164	0.164	0.180	0.497	0.116	0.001	0.001	115.684
B737-700 28L	CFM56-7B22	Approach	1.088	0.043	0.043	0.047	4.353	0.435	0.091	0.091	435.254
		Climb Out	0.157	0.026	0.026	0.029	4.971	0.261	0.055	0.055	261.680
		Takeoff	0.187	0.037	0.037	0.041	8.634	0.374	0.078	0.078	373.768
		Idle	9.685	1.062	1.062	1.163	1.911	0.424	0.089	0.089	424.783
B737-800 28L	CFM56-7B26	Approach	0.270	0.017	0.017	0.019	1.827	0.169	0.051	0.051	169.111
		Climb Out	0.071	0.012	0.012	0.013	2.641	0.117	0.035	0.035	117.374
		Takeoff	0.033	0.017	0.017	0.018	4.782	0.166	0.051	0.051	166.024
		Idle	2.984	0.302	0.302	0.330	0.746	0.159	0.049	0.049	158.722
B757-300 28L	PW2043	Approach	0.058	0.004	0.004	0.004	0.472	0.044	N/A	N/A	44.087
		Climb Out	0.012	0.001	0.001	0.001	0.834	0.030	N/A	N/A	29.920
		Takeoff	0.012	0.000	0.000	0.000	1.536	0.041	N/A	N/A	40.646
		Idle	0.741	0.060	0.060	0.065	0.170	0.039	N/A	N/A	38.377
BAE146-300 28L	LF507 SERIES	Approach	0.041	0.001	0.001	0.001	0.058	0.009	0.001	0.001	9.146
		Climb Out	0.003	0.000	0.000	0.000	0.122	0.010	0.001	0.001	10.200
		Takeoff	0.002	0.000	0.000	0.000	0.126	0.009	0.001	0.001	8.666
		Idle	0.405	0.051	0.051	0.055	0.035	0.011	0.001	0.001	10.681
Bombardier CRJ700 28L	CF34-8C1	Approach	0.637	0.013	0.013	0.014	2.432	0.219	0.011	0.011	219.026
		Climb Out	0.058	0.002	0.002	0.002	1.501	0.117	0.001	0.001	117.099
		Takeoff	0.080	0.004	0.004	0.004	2.881	0.196	0.010	0.010	196.416
		Idle	6.143	0.020	0.020	0.022	1.063	0.247	0.012	0.012	246.505
CITATION I SP 28L_GA	JT15D-1A _1B	Approach	0.484	0.053	0.053	0.056	0.041	0.007	0.003	0.003	11.940
		Climb Out	0.025	0.000	0.000	0.000	0.049	0.003	0.002	0.002	7.135
		Takeoff	0.021	0.000	0.000	0.000	0.061	0.004	0.002	0.002	7.929
		Idle	1.587	0.607	0.607	0.646	0.021	0.007	0.003	0.003	12.025
CL600 28L_GA	ALF 502L-2	Approach	0.139	0.007	0.007	0.007	0.227	0.019	0.004	0.004	35.025
		Climb Out	0.006	0.000	0.000	0.000	0.220	0.010	0.004	0.004	18.283
		Takeoff	0.010	0.000	0.000	0.000	0.335	0.013	0.002	0.002	24.972
		Idle	1.705	0.248	0.248	0.265	0.127	0.020	0.001	0.001	37.375
Cessna 172 Skyhawk 28L_GA	O-320	Approach	8.443	0.134	0.134	0.130	0.007	0.001	N/A	N/A	6.920
		Climb Out	4.553	0.057	0.057	0.055	0.019	0.000	N/A	N/A	4.598

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	3.438	0.037	0.037	0.036	0.007	0.000	N/A	N/A	3.183
		Idle	2.179	0.075	0.075	0.072	0.001	0.000	N/A	N/A	2.018
Cessna 441 Conqu... 28L_GA	TPE331-8	Approach	0.065	0.003	0.003	0.003	0.142	0.015	N/A	N/A	15.030
		Climb Out	0.006	0.000	0.000	0.000	0.034	0.003	N/A	N/A	3.183
		Takeoff	0.006	0.000	0.000	0.000	0.041	0.003	N/A	N/A	3.672
		Idle	0.203	0.017	0.017	0.017	0.045	0.011	N/A	N/A	10.817
DC9-30 28L	JT8D-15 (old ...	Approach	1.613	0.277	0.277	0.303	0.991	0.168	0.121	0.121	168.015
		Climb Out	0.149	0.037	0.037	0.041	2.227	0.149	0.107	0.107	148.455
		Takeoff	0.110	0.040	0.040	0.043	3.000	0.157	0.114	0.114	157.066
		Idle	7.316	2.286	2.286	2.503	0.624	0.208	0.150	0.150	207.852
Embraer ERJ 135/140 28L	AE3007A1/3 ...	Approach	0.211	0.001	0.001	0.001	0.191	0.028	0.000	0.000	27.569
		Climb Out	0.013	0.001	0.001	0.001	0.371	0.028	0.000	0.000	27.552
		Takeoff	0.010	0.001	0.001	0.001	0.294	0.019	0.000	0.000	19.102
		Idle	1.163	0.116	0.116	0.122	0.129	0.030	0.000	0.000	30.241
Embraer ERJ 145 28L	AE3007A	Approach	0.050	0.010	0.010	0.010	0.119	0.015	0.000	0.000	15.256
		Climb Out	0.013	0.004	0.004	0.004	0.258	0.014	0.000	0.000	14.742
		Takeoff	0.008	0.002	0.002	0.002	0.209	0.010	0.000	0.000	10.221
		Idle	0.292	0.042	0.042	0.045	0.064	0.017	0.000	0.000	16.811
Embraer ERJ 145 28L	AE3007A1E	Approach	0.161	0.001	0.001	0.001	0.213	0.029	0.000	0.000	28.666
		Climb Out	0.019	0.001	0.001	0.001	0.438	0.030	0.000	0.000	29.364
		Takeoff	0.015	0.001	0.001	0.001	0.352	0.021	0.000	0.000	20.473
		Idle	1.133	0.105	0.105	0.111	0.127	0.030	0.000	0.000	29.855
Embraer ERJ 145LR 28L	AE3007A1/1 ...	Approach	0.830	0.003	0.003	0.004	0.869	0.122	0.000	0.000	122.013
		Climb Out	0.064	0.003	0.003	0.003	1.615	0.116	0.000	0.000	115.249
		Takeoff	0.074	0.003	0.003	0.003	1.604	0.099	0.000	0.000	99.648
		Idle	5.560	0.538	0.538	0.572	0.579	0.139	0.000	0.000	138.760
Embraer ERJ 145LR 28L	AE3007A1/3 ...	Approach	1.210	0.004	0.004	0.006	1.101	0.159	0.000	0.000	158.909
		Climb Out	0.079	0.004	0.004	0.006	2.143	0.159	0.000	0.000	158.817
		Takeoff	0.055	0.003	0.003	0.003	1.698	0.110	0.000	0.000	110.104
		Idle	6.705	0.664	0.664	0.707	0.744	0.174	0.000	0.000	174.314
Embraer ERJ 145LR 28L	AE3007A1P (...	Approach	0.313	0.001	0.001	0.001	0.328	0.046	0.000	0.000	46.079
		Climb Out	0.024	0.001	0.001	0.001	0.610	0.043	0.000	0.000	43.486
		Takeoff	0.028	0.001	0.001	0.001	0.605	0.037	0.000	0.000	37.610
		Idle	2.098	0.203	0.203	0.215	0.218	0.053	0.000	0.000	52.471
Embraer ERJ 170 28L	CF34-8E5	Approach	0.385	0.006	0.006	0.006	0.979	0.090	0.011	0.011	90.844
		Climb Out	0.028	0.001	0.001	0.001	0.618	0.049	0.001	0.001	48.872
		Takeoff	0.053	0.001	0.001	0.002	1.211	0.082	0.010	0.010	82.025
		Idle	1.617	0.012	0.012	0.012	0.410	0.089	0.010	0.010	89.063
F-27 SERIES 28L	RDa7	Approach	0.502	0.045	0.045	0.050	0.013	0.015	N/A	N/A	15.049
		Climb Out	0.036	0.011	0.011	0.013	0.047	0.011	N/A	N/A	10.496
		Takeoff	0.022	0.007	0.007	0.008	0.037	0.007	N/A	N/A	6.752
		Idle	1.615	0.422	0.422	0.466	0.012	0.018	N/A	N/A	17.665
Falcon 20 28L_GA	CF700-2D	Approach	1.572	0.035	0.035	0.037	0.045	0.025	N/A	N/A	25.355
		Climb Out	0.352	0.001	0.001	0.001	0.061	0.014	N/A	N/A	14.082
		Takeoff	0.413	0.002	0.002	0.002	0.105	0.019	N/A	N/A	18.775
		Idle	4.715	0.548	0.548	0.582	0.028	0.031	N/A	N/A	30.415
Gulfstream II 28L_GA	SPEY MK511-8	Approach	0.134	0.009	0.009	0.010	0.364	0.051	N/A	N/A	50.592
		Climb Out	0.024	0.004	0.004	0.006	0.680	0.040	N/A	N/A	39.308
		Takeoff	0.006	0.004	0.004	0.004	1.044	0.046	N/A	N/A	46.008
		Idle	2.115	0.246	0.246	0.261	0.239	0.066	N/A	N/A	66.598
HS 125 28L_Corp	TFE731-3	Approach	0.507	0.046	0.046	0.051	0.226	0.018	N/A	N/A	32.623
		Climb Out	0.023	0.001	0.001	0.001	0.226	0.008	N/A	N/A	14.121
		Takeoff	0.025	0.001	0.001	0.001	0.421	0.012	N/A	N/A	21.962
		Idle	1.562	0.297	0.297	0.327	0.121	0.018	N/A	N/A	32.741
KC-135R 28L_GA	CFM56-2B-1	Approach	0.185	0.003	0.003	0.004	0.362	0.044	0.001	0.001	44.094
		Climb Out	0.045	0.002	0.002	0.003	0.804	0.051	0.001	0.001	50.232
		Takeoff	0.065	0.003	0.003	0.003	1.336	0.073	0.004	0.004	72.234
		Idle	1.886	0.112	0.112	0.125	0.246	0.062	0.001	0.001	61.441
Learjet 25C 28L_GA	CJ610-6	Approach	2.840	0.000	0.000	0.000	0.049	0.018	N/A	N/A	32.272
		Climb Out	0.338	0.002	0.002	0.002	0.042	0.007	N/A	N/A	12.073
		Takeoff	0.509	0.002	0.002	0.002	0.079	0.010	N/A	N/A	18.863
		Idle	6.897	0.801	0.801	0.851	0.040	0.024	N/A	N/A	44.499
Learjet 35/36 28L_GA	TFE 731-2-2B	Approach	1.413	0.269	0.269	0.285	0.373	0.034	N/A	N/A	63.130
		Climb Out	0.057	0.003	0.003	0.003	0.370	0.015	N/A	N/A	28.333
		Takeoff	0.047	0.004	0.004	0.004	0.519	0.019	N/A	N/A	34.033
		Idle	3.319	1.135	1.135	1.207	0.160	0.031	N/A	N/A	56.642
MD-80-83 28L	JT8D-219 old...	Approach	0.496	0.194	0.194	0.212	1.111	0.121	0.036	0.036	121.757
		Climb Out	0.126	0.044	0.044	0.049	2.174	0.105	0.031	0.031	104.484
		Takeoff	0.084	0.031	0.031	0.034	3.112	0.116	0.033	0.033	115.253
		Idle	1.564	0.431	0.431	0.472	0.446	0.123	0.036	0.036	123.878

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Navajo	TIO-540-J2B2	Approach	13.944	0.149	0.149	0.143	0.015	0.001	N/A	N/A	11.066
28L_GA		Climb Out	11.654	0.131	0.131	0.127	0.002	0.001	N/A	N/A	7.922
		Takeoff	7.768	0.067	0.067	0.064	0.002	0.001	N/A	N/A	5.387
		Idle	7.263	0.383	0.383	0.368	0.002	0.001	N/A	N/A	5.613
Piper PA-28	O-320	Approach	1.581	0.025	0.025	0.024	0.001	0.000	N/A	N/A	1.295
28L_GA		Climb Out	0.761	0.010	0.010	0.009	0.003	0.000	N/A	N/A	0.768
		Takeoff	0.514	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.476
		Idle	0.321	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.298
UC-12J	PT6A-42	Approach	0.655	0.428	0.428	0.472	0.087	0.010	N/A	N/A	18.837
28L_GA		Climb Out	0.029	0.009	0.009	0.010	0.034	0.002	N/A	N/A	4.481
		Takeoff	0.018	0.007	0.007	0.007	0.028	0.002	N/A	N/A	3.509
		Idle	1.470	1.296	1.296	1.432	0.025	0.007	N/A	N/A	12.777
550 Citation	JT15D-4 (B,C...	Approach	1.297	0.208	0.208	0.222	0.215	0.022	0.011	0.011	40.552
28L_Corp		Climb Out	0.069	0.004	0.004	0.004	0.186	0.012	0.007	0.007	21.722
		Takeoff	0.050	0.002	0.002	0.002	0.219	0.013	0.007	0.007	23.736
		Idle	3.998	1.649	1.649	1.753	0.108	0.022	0.012	0.012	41.217
Falcon 2000EX	PW308C	Approach	0.099	0.002	0.002	0.003	0.149	0.019	0.002	0.002	18.967
28L_Corp		Climb Out	0.010	0.001	0.001	0.001	0.162	0.010	0.001	0.001	10.157
		Takeoff	0.011	0.001	0.001	0.001	0.244	0.013	0.001	0.001	13.209
		Idle	0.664	0.094	0.094	0.099	0.057	0.015	0.001	0.001	15.695
550 Citation	JT15D-4 (B,C...	Approach	1.513	0.244	0.244	0.259	0.250	0.025	0.013	0.013	47.294
28L_GA		Climb Out	0.080	0.004	0.004	0.006	0.217	0.013	0.007	0.007	25.333
		Takeoff	0.058	0.002	0.002	0.002	0.256	0.015	0.008	0.008	27.681
		Idle	4.663	1.922	1.922	2.044	0.127	0.026	0.013	0.013	48.068
Gulfstream IV	TAY Mk611-8	Approach	0.349	0.080	0.080	0.086	0.510	0.089	0.053	0.053	89.590
28L_GA		Climb Out	0.032	0.012	0.012	0.013	0.679	0.041	0.024	0.024	40.450
		Takeoff	0.040	0.045	0.045	0.047	1.184	0.056	0.033	0.033	56.118
		Idle	2.982	0.421	0.421	0.448	0.310	0.123	0.073	0.073	123.717
Aztec	TIO-540-J2B2	Approach	17.479	0.186	0.186	0.180	0.019	0.001	N/A	N/A	13.873
28R_GA		Climb Out	14.609	0.165	0.165	0.159	0.002	0.001	N/A	N/A	9.931
		Takeoff	9.737	0.084	0.084	0.080	0.002	0.001	N/A	N/A	6.753
		Idle	9.105	0.480	0.480	0.462	0.002	0.001	N/A	N/A	7.036
B737-300	CFM56-3-B1	Approach	0.662	0.014	0.014	0.015	1.447	0.174	0.002	0.002	174.410
28R		Climb Out	0.085	0.004	0.004	0.004	1.390	0.089	0.001	0.001	89.705
		Takeoff	0.106	0.004	0.004	0.006	2.083	0.118	0.003	0.003	117.711
		Idle	6.669	0.442	0.442	0.484	0.756	0.194	0.002	0.002	193.863
B737-300	CFM56-3B-2	Approach	0.140	0.003	0.003	0.003	0.357	0.041	0.000	0.000	41.026
28R		Climb Out	0.020	0.001	0.001	0.001	0.360	0.022	0.000	0.000	21.604
		Takeoff	0.025	0.001	0.001	0.001	0.553	0.029	0.002	0.002	28.545
		Idle	1.323	0.077	0.077	0.084	0.181	0.044	0.000	0.000	43.963
B737-300	CFM56-3C-1 ...	Approach	0.235	0.004	0.004	0.004	0.446	0.056	0.001	0.001	55.818
28R		Climb Out	0.029	0.001	0.001	0.001	0.414	0.029	0.000	0.000	28.186
		Takeoff	0.033	0.002	0.002	0.002	0.613	0.036	0.001	0.001	36.888
		Idle	2.445	0.183	0.183	0.201	0.244	0.064	0.001	0.001	64.172
B737-500	CFM56-3C-1	Approach	0.172	0.004	0.004	0.004	0.505	0.055	0.001	0.001	55.441
28R		Climb Out	0.030	0.001	0.001	0.001	0.590	0.033	0.001	0.001	33.118
		Takeoff	0.040	0.001	0.001	0.001	0.901	0.043	0.004	0.004	43.523
		Idle	1.520	0.080	0.080	0.088	0.244	0.056	0.001	0.001	56.704
B737-700	CFM56-7B22	Approach	0.542	0.022	0.022	0.024	2.168	0.217	0.045	0.045	216.857
28R		Climb Out	0.078	0.013	0.013	0.014	2.477	0.130	0.028	0.028	130.377
		Takeoff	0.093	0.019	0.019	0.020	4.301	0.186	0.040	0.040	186.222
		Idle	4.826	0.529	0.529	0.579	0.952	0.212	0.044	0.044	211.639
B737-800	CFM56-7B26	Approach	0.134	0.009	0.009	0.009	0.909	0.084	0.025	0.025	84.217
28R		Climb Out	0.035	0.006	0.006	0.007	1.315	0.058	0.018	0.018	58.452
		Takeoff	0.017	0.009	0.009	0.009	2.381	0.083	0.025	0.025	82.679
		Idle	1.486	0.150	0.150	0.164	0.371	0.079	0.024	0.024	79.042
B757-300	PW2043	Approach	0.030	0.002	0.002	0.002	0.245	0.023	N/A	N/A	22.831
28R		Climb Out	0.006	0.000	0.000	0.000	0.432	0.015	N/A	N/A	15.494
		Takeoff	0.007	0.000	0.000	0.000	0.795	0.021	N/A	N/A	21.049
		Idle	0.384	0.031	0.031	0.034	0.088	0.020	N/A	N/A	19.874
BAE146-300	LF507 SERIES	Approach	0.083	0.002	0.002	0.002	0.120	0.019	0.001	0.001	18.726
28R		Climb Out	0.007	0.000	0.000	0.000	0.251	0.021	0.003	0.003	20.884
		Takeoff	0.003	0.000	0.000	0.000	0.258	0.018	0.003	0.003	17.746
		Idle	0.828	0.104	0.104	0.114	0.072	0.022	0.002	0.002	21.871
Bombardier CRJ700	CF34-8C1	Approach	1.329	0.028	0.028	0.030	5.071	0.456	0.022	0.022	456.789
28R		Climb Out	0.122	0.004	0.004	0.006	3.131	0.245	0.001	0.001	244.214
		Takeoff	0.168	0.008	0.008	0.009	6.010	0.410	0.020	0.020	409.635
		Idle	12.811	0.041	0.041	0.045	2.216	0.514	0.025	0.025	514.099
CITATION I SP	JT15D-1A _1B	Approach	0.172	0.019	0.019	0.020	0.014	0.002	0.001	0.001	4.235
28R_GA		Climb Out	0.009	0.000	0.000	0.000	0.018	0.001	0.001	0.001	2.531

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.008	0.000	0.000	0.000	0.021	0.001	0.001	0.001	2.812
		Idle	0.563	0.215	0.215	0.229	0.008	0.002	0.001	0.001	4.265
CL600	ALF 502L-2	Approach	0.300	0.014	0.014	0.014	0.488	0.041	0.009	0.009	75.409
28R_GA		Climb Out	0.012	0.001	0.001	0.001	0.474	0.021	0.009	0.009	39.364
		Takeoff	0.022	0.001	0.001	0.001	0.722	0.029	0.006	0.006	53.765
		Idle	3.672	0.535	0.535	0.569	0.272	0.043	0.001	0.001	80.469
Cessna 172 Skyhawk	O-320	Approach	6.490	0.104	0.104	0.099	0.006	0.001	N/A	N/A	5.320
28R_GA		Climb Out	3.500	0.044	0.044	0.042	0.014	0.000	N/A	N/A	3.535
		Takeoff	2.643	0.029	0.029	0.028	0.006	0.000	N/A	N/A	2.447
		Idle	1.676	0.057	0.057	0.055	0.001	0.000	N/A	N/A	1.551
Cessna 441 Conqu...	TPE331-8	Approach	0.026	0.001	0.001	0.001	0.058	0.007	N/A	N/A	6.122
28R_GA		Climb Out	0.002	0.000	0.000	0.000	0.014	0.001	N/A	N/A	1.296
		Takeoff	0.002	0.000	0.000	0.000	0.017	0.001	N/A	N/A	1.496
		Idle	0.083	0.007	0.007	0.007	0.019	0.004	N/A	N/A	4.406
DC9-30	JT8D-15 (old ...	Approach	0.805	0.138	0.138	0.151	0.495	0.084	0.061	0.061	83.840
28R		Climb Out	0.074	0.019	0.019	0.020	1.111	0.074	0.053	0.053	74.079
		Takeoff	0.055	0.020	0.020	0.021	1.497	0.078	0.056	0.056	78.375
		Idle	3.651	1.141	1.141	1.249	0.311	0.104	0.075	0.075	103.718
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.462	0.002	0.002	0.002	0.420	0.061	0.000	0.000	60.662
28R		Climb Out	0.031	0.002	0.002	0.002	0.818	0.061	0.000	0.000	60.627
		Takeoff	0.021	0.001	0.001	0.001	0.648	0.042	0.000	0.000	42.032
		Idle	2.560	0.254	0.254	0.270	0.284	0.066	0.000	0.000	66.543
Embraer ERJ 145	AE3007A	Approach	0.106	0.021	0.021	0.022	0.252	0.032	0.000	0.000	32.388
28R		Climb Out	0.029	0.009	0.009	0.010	0.547	0.031	0.000	0.000	31.297
		Takeoff	0.017	0.006	0.006	0.006	0.445	0.022	0.000	0.000	21.699
		Idle	0.619	0.089	0.089	0.095	0.137	0.035	0.000	0.000	35.690
Embraer ERJ 145	AE3007A1E	Approach	0.343	0.002	0.002	0.002	0.452	0.061	0.000	0.000	60.858
28R		Climb Out	0.040	0.002	0.002	0.002	0.929	0.063	0.000	0.000	62.342
		Takeoff	0.033	0.001	0.001	0.001	0.746	0.043	0.000	0.000	43.465
		Idle	2.406	0.223	0.223	0.237	0.270	0.064	0.000	0.000	63.384
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	1.763	0.008	0.008	0.009	1.846	0.259	0.000	0.000	259.277
28R		Climb Out	0.134	0.008	0.008	0.008	3.431	0.245	0.000	0.000	244.904
		Takeoff	0.157	0.007	0.007	0.007	3.409	0.212	0.000	0.000	211.753
		Idle	11.816	1.144	1.144	1.216	1.229	0.294	0.000	0.000	294.865
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	2.573	0.010	0.010	0.011	2.340	0.337	0.000	0.000	337.674
28R		Climb Out	0.169	0.010	0.010	0.011	4.553	0.337	0.000	0.000	337.478
		Takeoff	0.117	0.007	0.007	0.008	3.608	0.234	0.000	0.000	233.967
		Idle	14.250	1.411	1.411	1.500	1.582	0.370	0.000	0.000	370.409
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.665	0.003	0.003	0.003	0.698	0.098	0.000	0.000	97.947
28R		Climb Out	0.051	0.003	0.003	0.003	1.295	0.093	0.000	0.000	92.434
		Takeoff	0.060	0.002	0.002	0.002	1.287	0.080	0.000	0.000	79.943
		Idle	4.458	0.431	0.431	0.457	0.465	0.111	0.000	0.000	111.534
Embraer ERJ 170	CF34-8E5	Approach	0.801	0.011	0.011	0.012	2.040	0.190	0.022	0.022	189.478
28R		Climb Out	0.058	0.002	0.002	0.002	1.290	0.101	0.001	0.001	101.935
		Takeoff	0.109	0.003	0.003	0.003	2.526	0.171	0.020	0.020	171.085
		Idle	3.373	0.024	0.024	0.026	0.856	0.186	0.022	0.022	185.765
F-27 SERIES	RDa7	Approach	0.505	0.045	0.045	0.051	0.013	0.015	N/A	N/A	15.172
28R		Climb Out	0.037	0.012	0.012	0.013	0.047	0.011	N/A	N/A	10.583
		Takeoff	0.022	0.007	0.007	0.008	0.039	0.007	N/A	N/A	6.807
		Idle	1.628	0.425	0.425	0.471	0.012	0.018	N/A	N/A	17.810
Falcon 20	CF700-2D	Approach	0.548	0.012	0.012	0.013	0.015	0.009	N/A	N/A	8.831
28R_GA		Climb Out	0.122	0.000	0.000	0.000	0.021	0.004	N/A	N/A	4.904
		Takeoff	0.144	0.001	0.001	0.001	0.036	0.007	N/A	N/A	6.539
		Idle	1.642	0.191	0.191	0.203	0.010	0.011	N/A	N/A	10.593
Gulfstream II	SPEY MK511-8	Approach	0.046	0.003	0.003	0.003	0.127	0.018	N/A	N/A	17.620
28R_GA		Climb Out	0.009	0.001	0.001	0.002	0.237	0.013	N/A	N/A	13.691
		Takeoff	0.002	0.001	0.001	0.001	0.364	0.017	N/A	N/A	16.024
		Idle	0.737	0.086	0.086	0.091	0.084	0.023	N/A	N/A	23.195
HS 125	TFE731-3	Approach	1.054	0.096	0.096	0.106	0.468	0.036	N/A	N/A	67.752
28R_Corp		Climb Out	0.047	0.002	0.002	0.002	0.470	0.015	N/A	N/A	29.327
		Takeoff	0.052	0.003	0.003	0.003	0.873	0.024	N/A	N/A	45.611
		Idle	3.243	0.615	0.615	0.679	0.252	0.036	N/A	N/A	67.998
KC-135R	CFM56-2B-1	Approach	0.096	0.002	0.002	0.002	0.187	0.023	0.000	0.000	22.834
28R_GA		Climb Out	0.023	0.001	0.001	0.001	0.417	0.026	0.000	0.000	26.013
		Takeoff	0.034	0.001	0.001	0.001	0.692	0.037	0.002	0.002	37.407
		Idle	0.977	0.058	0.058	0.064	0.127	0.032	0.000	0.000	31.818
Learjet 25C	CJ610-6	Approach	5.725	0.000	0.000	0.000	0.098	0.035	N/A	N/A	65.058
28R_GA		Climb Out	0.681	0.004	0.004	0.006	0.085	0.013	N/A	N/A	24.337
		Takeoff	1.026	0.003	0.003	0.004	0.160	0.021	N/A	N/A	38.025
		Idle	13.905	1.615	1.615	1.716	0.080	0.049	N/A	N/A	89.706

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36	TFE 731-2-2B	Approach	0.495	0.094	0.094	0.100	0.130	0.012	N/A	N/A	22.110
28R_GA		Climb Out	0.020	0.001	0.001	0.001	0.130	0.006	N/A	N/A	9.923
		Takeoff	0.017	0.001	0.001	0.001	0.182	0.007	N/A	N/A	11.919
		Idle	1.163	0.398	0.398	0.422	0.056	0.011	N/A	N/A	19.838
MD-80-83	JT8D-219 old...	Approach	0.226	0.088	0.088	0.097	0.508	0.055	0.017	0.017	55.634
28R		Climb Out	0.057	0.020	0.020	0.022	0.993	0.047	0.014	0.014	47.741
		Takeoff	0.039	0.014	0.014	0.015	1.422	0.053	0.015	0.015	52.662
		Idle	0.715	0.197	0.197	0.216	0.204	0.056	0.017	0.017	56.603
Navajo	TIO-540-J2B2	Approach	14.888	0.159	0.159	0.153	0.017	0.001	N/A	N/A	11.816
28R_GA		Climb Out	12.443	0.140	0.140	0.136	0.002	0.001	N/A	N/A	8.459
		Takeoff	8.294	0.072	0.072	0.068	0.002	0.001	N/A	N/A	5.752
		Idle	7.755	0.408	0.408	0.394	0.002	0.001	N/A	N/A	5.993
Piper PA-28	O-320	Approach	0.645	0.010	0.010	0.010	0.000	0.000	N/A	N/A	0.528
28R_GA		Climb Out	0.310	0.004	0.004	0.003	0.001	0.000	N/A	N/A	0.313
		Takeoff	0.209	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.194
		Idle	0.131	0.004	0.004	0.004	0.000	0.000	N/A	N/A	0.121
UC-12J	PT6A-42	Approach	0.299	0.195	0.195	0.215	0.040	0.004	N/A	N/A	8.576
28R_GA		Climb Out	0.013	0.004	0.004	0.004	0.015	0.001	N/A	N/A	2.040
		Takeoff	0.008	0.003	0.003	0.003	0.013	0.001	N/A	N/A	1.597
		Idle	0.669	0.590	0.590	0.651	0.011	0.003	N/A	N/A	5.817
550 Citation	JT15D-4 (B,C...	Approach	2.766	0.445	0.445	0.473	0.457	0.046	0.024	0.024	86.419
28R_Corp		Climb Out	0.148	0.009	0.009	0.009	0.396	0.025	0.013	0.013	46.290
		Takeoff	0.106	0.004	0.004	0.004	0.467	0.028	0.014	0.014	50.583
		Idle	8.520	3.513	3.513	3.735	0.231	0.047	0.024	0.024	87.835
Falcon 2000EX	PW308C	Approach	0.203	0.006	0.006	0.006	0.303	0.039	0.003	0.003	38.763
28R_Corp		Climb Out	0.020	0.002	0.002	0.002	0.332	0.021	0.002	0.002	20.757
		Takeoff	0.022	0.002	0.002	0.002	0.498	0.026	0.002	0.002	26.993
		Idle	1.357	0.191	0.191	0.203	0.117	0.032	0.003	0.003	32.075
550 Citation	JT15D-4 (B,C...	Approach	0.527	0.085	0.085	0.090	0.087	0.009	0.004	0.004	16.477
28R_GA		Climb Out	0.028	0.002	0.002	0.002	0.076	0.004	0.002	0.002	8.826
		Takeoff	0.020	0.001	0.001	0.001	0.089	0.006	0.002	0.002	9.645
		Idle	1.625	0.670	0.670	0.712	0.044	0.009	0.004	0.004	16.747
Gulfstream IV	TAY Mk611-8	Approach	0.313	0.072	0.072	0.077	0.457	0.080	0.047	0.047	80.178
28R_GA		Climb Out	0.029	0.011	0.011	0.011	0.608	0.036	0.021	0.021	36.201
		Takeoff	0.035	0.040	0.040	0.043	1.059	0.051	0.030	0.030	50.221
		Idle	2.669	0.377	0.377	0.400	0.277	0.110	0.065	0.065	110.718
A320-200	V2527-A5	Approach	0.013	0.000	0.000	0.000	0.049	0.006	0.001	0.001	5.442
10L		Climb Out	0.002	0.000	0.000	0.000	0.083	0.003	0.000	0.000	3.725
		Takeoff	0.002	0.000	0.000	0.000	0.109	0.004	0.000	0.000	4.101
		Idle	0.074	0.001	0.001	0.001	0.028	0.006	0.001	0.001	5.901
A320-200	V2527-A5	Approach	0.047	0.001	0.001	0.001	0.173	0.020	0.002	0.002	19.386
10R		Climb Out	0.008	0.000	0.000	0.001	0.295	0.013	0.002	0.002	13.270
		Takeoff	0.008	0.001	0.001	0.001	0.387	0.014	0.002	0.002	14.609
		Idle	0.261	0.002	0.002	0.002	0.099	0.021	0.002	0.002	21.020
A320-200	V2527-A5	Approach	0.065	0.001	0.001	0.002	0.238	0.026	0.003	0.003	26.698
28L		Climb Out	0.011	0.001	0.001	0.001	0.408	0.019	0.002	0.002	18.275
		Takeoff	0.011	0.001	0.001	0.001	0.534	0.020	0.002	0.002	20.118
		Idle	0.359	0.003	0.003	0.003	0.136	0.029	0.003	0.003	28.948
A320-200	V2527-A5	Approach	0.025	0.001	0.001	0.001	0.093	0.010	0.001	0.001	10.373
28R		Climb Out	0.004	0.000	0.000	0.000	0.159	0.007	0.001	0.001	7.101
		Takeoff	0.004	0.000	0.000	0.000	0.207	0.008	0.001	0.001	7.816
		Idle	0.140	0.001	0.001	0.001	0.053	0.011	0.001	0.001	11.247
Citation VII	TFE 731-2-2B	Approach	0.187	0.035	0.035	0.037	0.050	0.004	N/A	N/A	8.383
10L_GA		Climb Out	0.009	0.000	0.000	0.001	0.055	0.002	N/A	N/A	4.212
		Takeoff	0.008	0.001	0.001	0.001	0.083	0.003	N/A	N/A	5.455
		Idle	0.418	0.143	0.143	0.152	0.020	0.003	N/A	N/A	7.126
Citation VII	TFE 731-2-2B	Approach	0.100	0.019	0.019	0.021	0.026	0.002	N/A	N/A	4.505
10R_GA		Climb Out	0.004	0.000	0.000	0.000	0.030	0.001	N/A	N/A	2.263
		Takeoff	0.004	0.000	0.000	0.000	0.045	0.001	N/A	N/A	2.931
		Idle	0.225	0.077	0.077	0.082	0.011	0.002	N/A	N/A	3.829
Citation VII	TFE 731-2-2B	Approach	0.220	0.042	0.042	0.045	0.058	0.006	N/A	N/A	9.871
28L_GA		Climb Out	0.010	0.001	0.001	0.001	0.065	0.002	N/A	N/A	4.959
		Takeoff	0.009	0.001	0.001	0.001	0.098	0.003	N/A	N/A	6.423
		Idle	0.492	0.169	0.169	0.179	0.023	0.004	N/A	N/A	8.392
Citation VII	TFE 731-2-2B	Approach	0.452	0.086	0.086	0.091	0.119	0.011	N/A	N/A	20.173
28R_GA		Climb Out	0.021	0.001	0.001	0.001	0.132	0.006	N/A	N/A	10.136
		Takeoff	0.019	0.001	0.001	0.001	0.201	0.007	N/A	N/A	13.127
		Idle	1.005	0.344	0.344	0.365	0.049	0.009	N/A	N/A	17.151
HS 748 2A SERIES	RDa7	Approach	0.237	0.021	0.021	0.023	0.007	0.007	N/A	N/A	7.122
10L_GA		Climb Out	0.018	0.006	0.006	0.006	0.022	0.006	N/A	N/A	4.968

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.010	0.003	0.003	0.003	0.018	0.003	N/A	N/A	3.196
		Idle	0.764	0.200	0.200	0.220	0.006	0.009	N/A	N/A	8.360
HS 748 2A SERIES	RDa7	Approach	0.448	0.041	0.041	0.044	0.012	0.013	N/A	N/A	13.438
28L_GA		Climb Out	0.033	0.010	0.010	0.011	0.042	0.010	N/A	N/A	9.374
		Takeoff	0.020	0.006	0.006	0.007	0.034	0.006	N/A	N/A	6.029
		Idle	1.442	0.377	0.377	0.417	0.011	0.015	N/A	N/A	15.775
HS 748 2A SERIES	RDa7	Approach	0.606	0.055	0.055	0.061	0.017	0.019	N/A	N/A	18.207
28R_GA		Climb Out	0.044	0.014	0.014	0.015	0.057	0.013	N/A	N/A	12.700
		Takeoff	0.026	0.008	0.008	0.009	0.045	0.008	N/A	N/A	8.168
		Idle	1.953	0.510	0.510	0.564	0.015	0.021	N/A	N/A	21.373
Learjet 25B	CJ610-6	Approach	1.322	0.000	0.000	0.000	0.022	0.008	N/A	N/A	15.013
10L_GA		Climb Out	0.158	0.001	0.001	0.001	0.020	0.003	N/A	N/A	5.616
		Takeoff	0.237	0.001	0.001	0.001	0.036	0.004	N/A	N/A	8.776
		Idle	3.209	0.373	0.373	0.396	0.019	0.011	N/A	N/A	20.701
Learjet 25B	CJ610-6	Approach	4.861	0.000	0.000	0.000	0.083	0.030	N/A	N/A	55.241
10R_GA		Climb Out	0.579	0.004	0.004	0.004	0.073	0.011	N/A	N/A	20.664
		Takeoff	0.872	0.003	0.003	0.003	0.136	0.018	N/A	N/A	32.288
		Idle	11.807	1.371	1.371	1.457	0.068	0.041	N/A	N/A	76.170
Learjet 25B	CJ610-6	Approach	10.705	0.000	0.000	0.000	0.183	0.066	N/A	N/A	121.647
28L_GA		Climb Out	1.274	0.009	0.009	0.010	0.159	0.024	N/A	N/A	45.505
		Takeoff	1.920	0.007	0.007	0.008	0.299	0.039	N/A	N/A	71.101
		Idle	25.999	3.019	3.019	3.210	0.151	0.090	N/A	N/A	167.733
Learjet 25B	CJ610-6	Approach	3.720	0.000	0.000	0.000	0.064	0.023	N/A	N/A	42.281
28R_GA		Climb Out	0.443	0.003	0.003	0.003	0.055	0.009	N/A	N/A	15.816
		Takeoff	0.667	0.002	0.002	0.002	0.104	0.013	N/A	N/A	24.713
		Idle	9.037	1.049	1.049	1.116	0.053	0.032	N/A	N/A	58.300
Bombardier CRJ900	CF34-8C5	Approach	0.055	0.001	0.001	0.001	0.139	0.013	0.001	0.001	12.966
10L		Climb Out	0.004	0.000	0.000	0.000	0.088	0.007	0.000	0.000	6.964
		Takeoff	0.008	0.000	0.000	0.000	0.172	0.012	0.001	0.001	11.687
		Idle	0.233	0.002	0.002	0.002	0.058	0.013	0.001	0.001	12.742
Bombardier CRJ900	CF34-8C5	Approach	0.031	0.000	0.000	0.000	0.077	0.008	0.001	0.001	7.214
10R		Climb Out	0.002	0.000	0.000	0.000	0.049	0.004	0.000	0.000	3.875
		Takeoff	0.004	0.000	0.000	0.000	0.096	0.007	0.001	0.001	6.501
		Idle	0.129	0.001	0.001	0.001	0.033	0.007	0.001	0.001	7.089
Bombardier CRJ900	CF34-8C5	Approach	0.064	0.001	0.001	0.001	0.162	0.015	0.001	0.001	15.066
28L		Climb Out	0.004	0.000	0.000	0.000	0.103	0.008	0.000	0.000	8.093
		Takeoff	0.009	0.000	0.000	0.000	0.200	0.013	0.001	0.001	13.579
		Idle	0.270	0.002	0.002	0.002	0.068	0.014	0.001	0.001	14.806
Bombardier CRJ900	CF34-8C5	Approach	0.133	0.002	0.002	0.002	0.337	0.031	0.003	0.003	31.411
28R		Climb Out	0.010	0.000	0.000	0.000	0.213	0.017	0.000	0.000	16.872
		Takeoff	0.018	0.001	0.001	0.001	0.416	0.029	0.003	0.003	28.311
		Idle	0.563	0.004	0.004	0.004	0.142	0.031	0.003	0.003	30.868
A320-200	V2500-A1	Approach	0.004	0.001	0.001	0.001	0.077	0.006	0.000	0.000	5.698
10L		Climb Out	0.002	0.000	0.000	0.000	0.120	0.004	0.000	0.000	3.911
		Takeoff	0.002	0.000	0.000	0.000	0.161	0.004	0.000	0.000	4.334
		Idle	0.044	0.001	0.001	0.001	0.034	0.006	0.000	0.000	5.715
A320-200	V2500-A1	Approach	0.015	0.003	0.003	0.003	0.273	0.020	0.000	0.000	20.298
10R		Climb Out	0.008	0.001	0.001	0.002	0.430	0.014	0.000	0.000	13.933
		Takeoff	0.009	0.001	0.001	0.002	0.573	0.015	0.000	0.000	15.441
		Idle	0.158	0.004	0.004	0.004	0.120	0.020	0.000	0.000	20.363
A320-200	V2500-A1	Approach	0.022	0.004	0.004	0.004	0.376	0.028	0.001	0.001	27.954
28L		Climb Out	0.011	0.002	0.002	0.002	0.592	0.019	0.000	0.000	19.189
		Takeoff	0.012	0.002	0.002	0.002	0.789	0.021	0.000	0.000	21.265
		Idle	0.217	0.007	0.007	0.007	0.165	0.028	0.001	0.001	28.044
A320-200	V2500-A1	Approach	0.009	0.001	0.001	0.002	0.147	0.011	0.000	0.000	10.861
28R		Climb Out	0.004	0.001	0.001	0.001	0.229	0.008	0.000	0.000	7.456
		Takeoff	0.004	0.001	0.001	0.001	0.306	0.008	0.000	0.000	8.262
		Idle	0.085	0.002	0.002	0.002	0.064	0.011	0.000	0.000	10.896
Embraer ERJ 170	CF34-8E5A1	Approach	0.055	0.001	0.001	0.001	0.150	0.013	0.003	0.003	13.566
10L		Climb Out	0.004	0.000	0.000	0.000	0.097	0.008	0.000	0.000	7.405
		Takeoff	0.009	0.000	0.000	0.000	0.197	0.012	0.003	0.003	12.467
		Idle	0.226	0.002	0.002	0.002	0.062	0.013	0.003	0.003	13.079
Embraer ERJ 170	CF34-8E5A1	Approach	0.031	0.000	0.000	0.000	0.084	0.008	0.002	0.002	7.548
10R		Climb Out	0.002	0.000	0.000	0.000	0.054	0.004	0.000	0.000	4.119
		Takeoff	0.004	0.000	0.000	0.000	0.109	0.007	0.002	0.002	6.936
		Idle	0.126	0.001	0.001	0.001	0.034	0.008	0.002	0.002	7.276
Embraer ERJ 170	CF34-8E5A1	Approach	0.064	0.001	0.001	0.001	0.174	0.015	0.004	0.004	15.764
28L		Climb Out	0.004	0.000	0.000	0.000	0.114	0.009	0.000	0.000	8.605
		Takeoff	0.010	0.000	0.000	0.000	0.229	0.014	0.003	0.003	14.487
		Idle	0.263	0.002	0.002	0.002	0.072	0.015	0.004	0.004	15.198

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 170 28R	CF34-8E5A1	Approach	0.133	0.002	0.002	0.002	0.364	0.033	0.009	0.009	32.865
		Climb Out	0.010	0.000	0.000	0.000	0.236	0.018	0.000	0.000	17.939
		Takeoff	0.021	0.001	0.001	0.001	0.477	0.030	0.008	0.008	30.202
		Idle	0.548	0.004	0.004	0.004	0.149	0.032	0.009	0.009	31.684
HS 748 2A SERIES 10R_GA	RDa7	Approach	0.215	0.020	0.020	0.021	0.006	0.007	N/A	N/A	6.441
		Climb Out	0.015	0.004	0.004	0.006	0.020	0.004	N/A	N/A	4.492
		Takeoff	0.009	0.003	0.003	0.003	0.017	0.003	N/A	N/A	2.889
		Idle	0.691	0.181	0.181	0.200	0.006	0.008	N/A	N/A	7.561

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Arr Curb FF	Roadway	0.428	0.032	0.030	0.040	0.043	0.000	0.001	0.001
Arr Curb Pick Up	Roadway	3.659	0.435	0.414	0.659	0.211	0.001	0.003	0.002
Blue Ent_Exit	Roadway	0.774	0.055	0.052	0.065	0.080	0.001	0.002	0.001
Bowtie	Roadway	0.453	0.030	0.029	0.035	0.046	0.000	0.001	0.001
Brdgwy N of Sawyr 1	Roadway	2.628	0.173	0.164	0.203	0.268	0.002	0.009	0.006
Brdgwy N of Sawyr 2	Roadway	4.814	0.317	0.302	0.371	0.489	0.004	0.017	0.010
Crb Exit to IntlGat1	Roadway	1.553	0.111	0.105	0.131	0.162	0.001	0.006	0.003
Curb Exit to IntlGa2	Roadway	12.016	0.858	0.811	1.017	1.250	0.010	0.041	0.024
Dep Curb Drop Off	Roadway	4.782	0.569	0.541	0.862	0.276	0.001	0.004	0.003
Dep Curb FF	Roadway	0.560	0.042	0.040	0.052	0.057	0.000	0.001	0.001
Ent from 670 NB	Roadway	4.294	0.233	0.222	0.267	0.420	0.003	0.013	0.008
Ent from 670 SB	Roadway	2.840	0.154	0.147	0.176	0.278	0.002	0.009	0.006
Ent from 670_1	Roadway	5.967	0.323	0.308	0.370	0.583	0.004	0.019	0.011
Ent from 670_2	Roadway	14.564	0.789	0.752	0.905	1.424	0.011	0.044	0.026
Ent_Exit_Employee	Roadway	0.381	0.025	0.024	0.030	0.039	0.000	0.001	0.001
Exit Comm Gar	Roadway	9.416	0.622	0.590	0.728	0.958	0.008	0.033	0.019
Exit Red 1	Roadway	1.387	0.091	0.087	0.107	0.141	0.001	0.004	0.003
Exit Red 2	Roadway	0.429	0.029	0.026	0.033	0.044	0.000	0.001	0.001
Exit Red 3	Roadway	1.920	0.127	0.120	0.149	0.195	0.001	0.007	0.004
Exit Red 4	Roadway	0.748	0.050	0.047	0.057	0.076	0.001	0.002	0.001
Exit to 670 NB	Roadway	3.007	0.163	0.155	0.186	0.294	0.002	0.009	0.006
Exit to 670 SB	Roadway	3.505	0.190	0.181	0.218	0.343	0.002	0.011	0.007
Exit to 670_1	Roadway	12.432	0.674	0.642	0.773	1.216	0.009	0.039	0.022
Exit to 670_2	Roadway	5.124	0.278	0.265	0.319	0.500	0.003	0.015	0.009
Green Lot Ent_Exit	Roadway	0.674	0.049	0.045	0.057	0.071	0.000	0.002	0.001
Int West to Stlz_2	Roadway	26.361	1.523	1.448	1.756	2.577	0.020	0.085	0.049
Intl Blue to Lane 1	Roadway	11.085	0.640	0.608	0.739	1.084	0.009	0.035	0.021
Intl Blue to Lane 2	Roadway	15.618	0.903	0.858	1.041	1.527	0.012	0.050	0.029
Intl East Bowtie_1	Roadway	7.054	0.408	0.388	0.470	0.690	0.006	0.022	0.013
Intl East Bowtie_2	Roadway	10.869	0.628	0.597	0.724	1.063	0.009	0.035	0.020
Intl East at Red	Roadway	43.258	2.500	2.377	2.881	4.228	0.033	0.139	0.080
Intl East at Tunnel	Roadway	21.449	1.239	1.178	1.429	2.097	0.017	0.068	0.040
Intl Exit at Tunnel	Roadway	29.904	1.728	1.642	1.992	2.923	0.023	0.096	0.055
Intl Green to Blue 1	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 2	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 3	Roadway	36.466	2.108	2.003	2.429	3.565	0.028	0.117	0.068
Intl Lane to LT	Roadway	11.895	0.849	0.802	1.008	1.238	0.010	0.041	0.023
Intl West to Stlz_1	Roadway	30.189	1.745	1.658	2.011	2.951	0.023	0.097	0.056
Intl from Sawyer	Roadway	10.803	0.624	0.593	0.720	1.056	0.008	0.034	0.020
Intll East frm Stzr	Roadway	12.943	0.748	0.711	0.862	1.265	0.010	0.042	0.024
LT to ST	Roadway	1.383	0.099	0.094	0.117	0.144	0.001	0.004	0.002
Lane Ent	Roadway	0.030	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Lane Exit	Roadway	0.033	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Merge to Sawyer	Roadway	10.355	0.683	0.649	0.800	1.054	0.009	0.036	0.021
New Bowtie	Roadway	0.833	0.055	0.052	0.064	0.085	0.001	0.003	0.002
New Stelzer	Roadway	69.947	3.790	3.610	4.346	6.839	0.051	0.215	0.125
Perimeter Road 1	Roadway	7.277	0.481	0.456	0.562	0.741	0.006	0.025	0.014
Perimeter Road 2	Roadway	0.946	0.063	0.060	0.073	0.096	0.001	0.003	0.002
Perimeter Road 3	Roadway	0.411	0.028	0.025	0.032	0.042	0.000	0.001	0.001
Perimeter Road 4	Roadway	2.069	0.137	0.130	0.160	0.211	0.002	0.008	0.004
Perimeter Road 5	Roadway	0.273	0.018	0.018	0.021	0.028	0.000	0.001	0.001
Perimeter Road 6	Roadway	1.042	0.068	0.065	0.080	0.106	0.001	0.003	0.002
Perimeter Road 7	Roadway	0.454	0.030	0.029	0.035	0.046	0.000	0.001	0.001
ST to Curb	Roadway	1.303	0.093	0.088	0.110	0.136	0.001	0.004	0.002
Sawyer East Fork	Roadway	4.457	0.294	0.279	0.344	0.454	0.003	0.015	0.009
Sawyer Forks	Roadway	3.008	0.198	0.188	0.233	0.306	0.002	0.011	0.007
Sawyer S of Brdgwy	Roadway	8.953	0.591	0.561	0.692	0.912	0.008	0.031	0.018
Sawyer West Fork	Roadway	3.686	0.244	0.231	0.284	0.375	0.003	0.013	0.008
Sawyer off Intl	Roadway	11.604	0.766	0.728	0.897	1.182	0.010	0.041	0.023
Sawyer to Brdgwy 1	Roadway	13.741	0.906	0.861	1.062	1.399	0.011	0.047	0.028
Sawyer to Brdgwy 2	Roadway	60.838	4.014	3.813	4.701	6.193	0.051	0.212	0.123
Sawyer to Intl 1	Roadway	28.034	1.620	1.540	1.867	2.740	0.021	0.089	0.052
Sawyer to Intl 2	Roadway	21.142	1.221	1.162	1.409	2.067	0.017	0.067	0.040
Stelzer N	Roadway	46.396	2.514	2.395	2.883	4.536	0.034	0.142	0.083
Stelzer S	Roadway	7.090	0.385	0.366	0.441	0.693	0.006	0.022	0.012
To Red 1	Roadway	1.150	0.076	0.072	0.089	0.117	0.001	0.004	0.002

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
To Red 2	Roadway	1.475	0.097	0.093	0.114	0.150	0.001	0.006	0.003
To Red 3	Roadway	0.682	0.045	0.043	0.053	0.069	0.001	0.002	0.001
Blue	Parking	39.259	2.533	2.388	5.582	5.199	0.020	0.083	0.047
Employee Parking	Parking	13.297	0.886	0.836	2.012	1.709	0.007	0.026	0.015
Green	Parking	8.750	0.613	0.580	1.455	1.066	0.004	0.017	0.010
Lane Avtn	Parking	4.688	0.322	0.304	0.750	0.584	0.002	0.009	0.006
Long Term Pkg Lvl 1	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 2	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 3	Parking	13.690	0.946	0.893	2.216	1.695	0.007	0.026	0.015
Long Term Pkg Lvl 4	Parking	6.800	0.470	0.443	1.101	0.842	0.003	0.013	0.008
Long Term Pkg Lvl 5	Parking	14.003	0.968	0.914	2.266	1.734	0.007	0.026	0.015
New RAC	Parking	36.748	2.297	2.163	4.906	5.006	0.019	0.080	0.046
Red	Parking	23.057	1.486	1.400	3.269	3.057	0.011	0.049	0.029
ShortTerm Pkg Lvl 4	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
ShortTerm Pkg Lvl 5	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.101	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.744	0.744	0.744	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.132	0.132	0.132	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.581	1.581	1.581	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.011	0.003	0.003	0.003	0.003	0.003	0.008	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.811	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.843	0.843	0.843	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.012	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.420	0.420	0.420	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.251	0.251	0.251	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.759	0.759	0.759	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.005	2.005	2.005	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.790	0.790	0.790	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.757	0.757	0.757	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary
(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	812.855	66.887	66.887	71.366	323.639	29.401	3.803	3.803
GSE/APU	1,279.880	52.511	47.669	49.607	73.791	10.616	3.905	3.773
Roadways	690.992	41.514	39.461	48.419	68.030	0.530	2.216	1.293
Parking Facilities	170.878	11.263	10.623	25.326	22.179	0.084	0.349	0.203
Stationary Sources	21.450	12.421	11.891	14.114	35.756	16.638	2.490	2.205
Total	2,976.055	184.596	176.531	208.832	523.394	57.269	12.764	11.277

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary
(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	18.998	0.337	0.337	0.325	0.010	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.006	0.003	0.003	0.002	0.000
B737-300	CFM56-3-B1	TOTAL	3.361	0.207	0.207	0.227	2.594	0.261	0.004	0.004	0.000
10L		APU	0.507	0.029	0.029	0.032	0.133	0.029	0.000	0.000	0.000
		GSE	0.169	0.023	0.022	0.023	0.195	0.049	0.025	0.024	0.000
B737-300	CFM56-3B-2	TOTAL	0.612	0.033	0.033	0.036	0.602	0.056	0.001	0.001	0.000
10L		APU	0.100	0.006	0.006	0.007	0.026	0.006	0.000	0.000	0.000
		GSE	0.033	0.004	0.004	0.004	0.039	0.010	0.006	0.004	0.000
B737-500	CFM56-3C-1	TOTAL	0.778	0.039	0.039	0.042	1.013	0.085	0.003	0.003	0.000
10L		APU	0.134	0.008	0.008	0.009	0.035	0.008	0.000	0.000	0.000
		GSE	0.045	0.007	0.006	0.007	0.052	0.013	0.007	0.007	0.000
B737-700	CFM56-7B22	TOTAL	2.388	0.251	0.251	0.274	4.364	0.326	0.068	0.068	0.000
10L		APU	0.168	0.013	0.013	0.014	0.228	0.034	0.000	0.000	0.000
		GSE	0.190	0.026	0.025	0.026	0.219	0.055	0.029	0.028	0.000
B737-800	CFM56-7B26	TOTAL	0.724	0.075	0.075	0.082	2.208	0.134	0.041	0.041	0.000
10L		APU	0.060	0.004	0.004	0.004	0.082	0.012	0.000	0.000	0.000
		GSE	0.067	0.009	0.009	0.010	0.078	0.020	0.010	0.010	0.000
B757-300	PW2043	TOTAL	0.172	0.013	0.013	0.014	0.644	0.033	N/A	N/A	0.000
10L		APU	0.009	0.001	0.001	0.001	0.020	0.002	0.000	0.000	0.000
		GSE	0.011	0.001	0.001	0.001	0.012	0.003	0.001	0.001	0.000
BAE146-300	LF507 SERIES	TOTAL	0.338	0.039	0.039	0.043	0.263	0.030	0.003	0.003	0.000
10L		APU	0.013	0.001	0.001	0.001	0.010	0.002	0.000	0.000	0.000
		GSE	0.905	0.035	0.032	0.033	0.039	0.004	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	5.307	0.031	0.031	0.033	6.178	0.607	0.025	0.025	0.000
10L		APU	1.849	0.106	0.106	0.116	0.488	0.103	0.000	0.000	0.000
		GSE	28.060	1.108	1.000	1.038	1.206	0.148	0.077	0.074	0.000
Cessna 172 Skyhawk	O-320	TOTAL	5.483	0.089	0.089	0.086	0.010	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.008	0.004	0.003	0.003	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.049	0.003	0.003	0.003	0.046	0.006	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.998	0.076	0.068	0.072	0.058	0.004	0.002	0.002	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.320	0.099	0.099	0.106	0.026	0.003	0.002	0.002	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.821	0.034	0.031	0.032	0.028	0.001	0.001	0.001	0.000
CL600	ALF 502L-2	TOTAL	1.510	0.207	0.207	0.220	0.755	0.052	0.010	0.010	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.600	0.387	0.349	0.363	0.465	0.071	0.033	0.032	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	1.979	0.568	0.568	0.621	1.505	0.149	0.107	0.107	0.000
10L		APU	0.202	0.011	0.011	0.012	0.053	0.011	0.000	0.000	0.000
		GSE	0.067	0.009	0.009	0.010	0.077	0.020	0.010	0.010	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.058	0.088	0.088	0.094	0.763	0.080	0.000	0.000	0.000
10L		APU	0.077	0.008	0.008	0.008	0.055	0.012	0.000	0.000	0.000
		GSE	5.178	0.204	0.184	0.192	0.223	0.028	0.014	0.013	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.289	0.047	0.047	0.050	0.529	0.046	0.000	0.000	0.000
10L		APU	0.042	0.004	0.004	0.004	0.030	0.007	0.000	0.000	0.000
		GSE	2.770	0.109	0.099	0.103	0.119	0.014	0.008	0.008	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.058	0.085	0.085	0.090	0.919	0.088	0.000	0.000	0.000
10L		APU	0.076	0.008	0.008	0.008	0.054	0.012	0.000	0.000	0.000
		GSE	5.081	0.201	0.181	0.188	0.218	0.026	0.014	0.013	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	5.202	0.435	0.435	0.463	3.801	0.386	0.000	0.000	0.000
10L		APU	0.366	0.034	0.034	0.036	0.260	0.057	0.000	0.000	0.000
		GSE	24.483	0.967	0.873	0.906	1.052	0.129	0.067	0.065	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	6.422	0.538	0.538	0.571	4.630	0.488	0.000	0.000	0.000
10L		APU	0.470	0.044	0.044	0.047	0.334	0.073	0.000	0.000	0.000
		GSE	31.415	1.240	1.120	1.162	1.350	0.164	0.086	0.083	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.963	0.164	0.164	0.174	1.435	0.146	0.000	0.000	0.000
10L		APU	0.138	0.013	0.013	0.014	0.098	0.021	0.000	0.000	0.000
		GSE	9.242	0.365	0.330	0.342	0.397	0.049	0.025	0.024	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.604	0.015	0.015	0.017	2.528	0.243	0.024	0.024	0.000
10L		APU	0.163	0.015	0.015	0.017	0.116	0.025	0.000	0.000	0.000
		GSE	10.871	0.429	0.388	0.402	0.467	0.057	0.030	0.029	0.000
F-27 SERIES	RDa7	TOTAL	0.902	0.201	0.201	0.222	0.047	0.021	N/A	N/A	0.000
10L_GA		APU	0.056	0.007	0.007	0.008	0.006	0.001	0.000	0.000	0.000
		GSE	2.144	0.082	0.074	0.077	0.062	0.006	0.003	0.002	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Falcon 20	CF700-2D	TOTAL	1.021	0.084	0.084	0.089	0.035	0.013	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.010	0.002	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.585	0.073	0.073	0.077	0.467	0.044	0.004	0.004	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.704	0.110	0.099	0.104	0.165	0.026	0.012	0.012	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.327	0.037	0.037	0.041	0.343	0.030	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.929	0.076	0.068	0.072	0.055	0.003	0.002	0.002	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.107	0.182	0.182	0.194	0.893	0.103	0.061	0.061	0.000
10L_GA		APU	0.026	0.002	0.002	0.002	0.130	0.013	0.000	0.000	0.000
		GSE	5.481	0.213	0.192	0.198	0.151	0.012	0.008	0.008	0.000
HS 125	TFE731-3	TOTAL	1.633	0.265	0.265	0.292	0.780	0.043	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	14.945	0.571	0.515	0.535	0.434	0.037	0.020	0.019	0.000
KC-135R	CFM56-2B-1	TOTAL	0.456	0.025	0.025	0.028	0.588	0.049	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.012	0.003	0.003	0.003	0.047	0.009	0.003	0.003	0.000
Learjet 25C	CJ610-6	TOTAL	8.647	0.651	0.651	0.692	0.174	0.047	N/A	N/A	0.000
10L_GA		APU	0.087	0.008	0.008	0.009	0.062	0.013	0.000	0.000	0.000
		GSE	5.832	0.230	0.208	0.216	0.250	0.031	0.015	0.015	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.724	0.211	0.211	0.224	0.216	0.015	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.665	0.151	0.136	0.141	0.116	0.006	0.003	0.003	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.514	0.159	0.159	0.173	1.576	0.107	0.031	0.031	0.000
10L		APU	0.138	0.008	0.008	0.009	0.036	0.008	0.000	0.000	0.000
		GSE	0.036	0.006	0.006	0.006	0.044	0.011	0.006	0.006	0.000
Navajo	TIO-540-J2B2	TOTAL	15.371	0.273	0.273	0.263	0.008	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.004	0.002	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	0.559	0.009	0.009	0.009	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.444	0.355	0.355	0.392	0.036	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.186	0.084	0.075	0.078	0.064	0.006	0.003	0.003	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	4.253	1.457	1.457	1.550	0.582	0.055	0.029	0.029	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.928	0.532	0.480	0.498	0.429	0.024	0.014	0.013	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	1.205	0.084	0.084	0.091	0.772	0.083	0.001	0.001	0.000
10L		APU	0.170	0.010	0.010	0.011	0.045	0.010	0.000	0.000	0.000
		GSE	0.056	0.008	0.008	0.008	0.065	0.017	0.009	0.008	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	0.918	0.314	0.314	0.334	0.126	0.012	0.007	0.007	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.790	0.115	0.104	0.107	0.093	0.006	0.003	0.003	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	1.687	0.578	0.578	0.614	0.230	0.022	0.011	0.011	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.126	0.212	0.191	0.197	0.170	0.010	0.006	0.006	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	1.272	0.435	0.435	0.463	0.174	0.017	0.009	0.009	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.866	0.160	0.143	0.149	0.128	0.008	0.004	0.004	0.000
Aztec	TIO-540-J2B2	TOTAL	19.889	0.353	0.353	0.341	0.011	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.007	0.003	0.003	0.003	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	1.875	0.130	0.130	0.143	1.202	0.129	0.001	0.001	0.000
10R		APU	0.265	0.015	0.015	0.017	0.069	0.014	0.000	0.000	0.000
		GSE	0.087	0.012	0.012	0.012	0.101	0.025	0.013	0.013	0.000
B737-300	CFM56-3B-2	TOTAL	0.825	0.045	0.045	0.049	0.811	0.075	0.002	0.002	0.000
10R		APU	0.134	0.008	0.008	0.009	0.035	0.008	0.000	0.000	0.000
		GSE	0.045	0.007	0.006	0.007	0.052	0.013	0.007	0.007	0.000
B737-300	CFM56-3-B1	TOTAL	5.415	0.334	0.334	0.366	4.179	0.421	0.007	0.007	0.000
10R		APU	0.817	0.046	0.046	0.051	0.216	0.045	0.000	0.000	0.000
		GSE	0.271	0.037	0.036	0.039	0.313	0.078	0.041	0.040	0.000
B737-500	CFM56-3C-1	TOTAL	1.240	0.061	0.061	0.067	1.612	0.136	0.004	0.004	0.000
10R		APU	0.215	0.012	0.012	0.013	0.056	0.012	0.000	0.000	0.000
		GSE	0.072	0.010	0.010	0.010	0.083	0.021	0.011	0.010	0.000
B737-700	CFM56-7B22	TOTAL	3.631	0.381	0.381	0.418	6.638	0.497	0.105	0.105	0.000
10R		APU	0.255	0.020	0.020	0.021	0.347	0.052	0.000	0.000	0.000
		GSE	0.288	0.040	0.039	0.041	0.333	0.084	0.043	0.042	0.000
B737-800	CFM56-7B26	TOTAL	1.105	0.115	0.115	0.125	3.368	0.205	0.062	0.062	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.090	0.007	0.007	0.008	0.123	0.019	0.000	0.000	0.000
		GSE	0.103	0.014	0.013	0.014	0.119	0.030	0.015	0.015	0.000
B757-300	PW2043	TOTAL	0.234	0.019	0.019	0.020	0.876	0.044	N/A	N/A	0.000
10R		APU	0.012	0.001	0.001	0.001	0.028	0.003	0.000	0.000	0.000
		GSE	0.015	0.002	0.002	0.002	0.018	0.004	0.002	0.002	0.000
BAE146-300	LF507 SERIES	TOTAL	0.094	0.011	0.011	0.012	0.073	0.008	0.001	0.001	0.000
10R		APU	0.003	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
		GSE	0.250	0.010	0.009	0.009	0.011	0.001	0.001	0.001	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	1.521	0.009	0.009	0.010	1.771	0.174	0.008	0.008	0.000
10R		APU	0.530	0.031	0.031	0.033	0.140	0.030	0.000	0.000	0.000
		GSE	8.045	0.317	0.287	0.298	0.346	0.042	0.022	0.021	0.000
Cessna 172 Skyhawk	O-320	TOTAL	6.328	0.103	0.103	0.099	0.011	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.009	0.004	0.004	0.003	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.080	0.006	0.006	0.006	0.077	0.010	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.330	0.128	0.115	0.119	0.097	0.008	0.004	0.004	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.651	0.202	0.202	0.215	0.054	0.007	0.003	0.003	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.671	0.068	0.062	0.064	0.055	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	0.461	0.063	0.063	0.067	0.230	0.015	0.003	0.003	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.928	0.118	0.107	0.110	0.142	0.022	0.010	0.010	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	2.976	0.853	0.853	0.935	2.263	0.224	0.162	0.162	0.000
10R		APU	0.303	0.018	0.018	0.019	0.080	0.017	0.000	0.000	0.000
		GSE	0.100	0.014	0.013	0.014	0.117	0.029	0.015	0.014	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	0.333	0.028	0.028	0.030	0.240	0.025	0.000	0.000	0.000
10R		APU	0.024	0.002	0.002	0.002	0.018	0.003	0.000	0.000	0.000
		GSE	1.628	0.064	0.058	0.061	0.069	0.009	0.004	0.004	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.316	0.025	0.025	0.028	0.274	0.026	0.000	0.000	0.000
10R		APU	0.023	0.002	0.002	0.002	0.017	0.003	0.000	0.000	0.000
		GSE	1.517	0.060	0.054	0.056	0.065	0.008	0.004	0.004	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.086	0.014	0.014	0.014	0.157	0.013	0.000	0.000	0.000
10R		APU	0.012	0.001	0.001	0.001	0.009	0.002	0.000	0.000	0.000
		GSE	0.821	0.032	0.030	0.031	0.035	0.004	0.002	0.002	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	0.585	0.049	0.049	0.052	0.428	0.043	0.000	0.000	0.000
10R		APU	0.041	0.004	0.004	0.004	0.030	0.007	0.000	0.000	0.000
		GSE	2.756	0.109	0.098	0.103	0.118	0.014	0.008	0.008	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	1.915	0.160	0.160	0.171	1.380	0.146	0.000	0.000	0.000
10R		APU	0.140	0.013	0.013	0.014	0.099	0.022	0.000	0.000	0.000
		GSE	9.367	0.369	0.334	0.346	0.402	0.050	0.025	0.024	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	1.550	0.130	0.130	0.138	1.132	0.115	0.000	0.000	0.000
10R		APU	0.109	0.010	0.010	0.011	0.077	0.017	0.000	0.000	0.000
		GSE	7.294	0.288	0.260	0.270	0.313	0.039	0.020	0.019	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	0.460	0.004	0.004	0.004	0.725	0.069	0.007	0.007	0.000
10R		APU	0.046	0.004	0.004	0.004	0.033	0.008	0.000	0.000	0.000
		GSE	3.117	0.123	0.111	0.116	0.134	0.017	0.009	0.008	0.000
F-27 SERIES	RDa7	TOTAL	0.955	0.213	0.213	0.235	0.050	0.022	N/A	N/A	0.000
10R_GA		APU	0.060	0.007	0.007	0.008	0.006	0.001	0.000	0.000	0.000
		GSE	2.269	0.087	0.078	0.082	0.066	0.006	0.003	0.003	0.000
Falcon 20	CF700-2D	TOTAL	1.878	0.155	0.155	0.164	0.065	0.024	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.001	0.001	0.001	0.018	0.004	0.002	0.002	0.000
Falcon 2000EX	PW308C	TOTAL	0.161	0.020	0.020	0.021	0.128	0.012	0.001	0.001	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.743	0.030	0.028	0.029	0.045	0.007	0.003	0.003	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.603	0.069	0.069	0.074	0.631	0.054	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.548	0.141	0.127	0.131	0.101	0.006	0.003	0.003	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	0.897	0.148	0.148	0.158	0.724	0.083	0.049	0.049	0.000
10R_GA		APU	0.022	0.001	0.001	0.002	0.106	0.011	0.000	0.000	0.000
		GSE	4.446	0.172	0.155	0.161	0.122	0.010	0.007	0.007	0.000
HS 125	TFE731-3	TOTAL	0.464	0.075	0.075	0.083	0.222	0.012	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.246	0.162	0.147	0.152	0.123	0.011	0.006	0.006	0.000
KC-135R	CFM56-2B-1	TOTAL	0.621	0.034	0.034	0.039	0.799	0.066	0.002	0.002	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.017	0.004	0.004	0.006	0.065	0.012	0.006	0.004	0.000
Learjet 25C	CJ610-6	TOTAL	2.373	0.179	0.179	0.190	0.047	0.013	N/A	N/A	0.000
10R_GA		APU	0.024	0.002	0.002	0.002	0.017	0.003	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	1.601	0.063	0.057	0.060	0.068	0.009	0.004	0.004	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.453	0.422	0.422	0.449	0.434	0.030	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.359	0.303	0.272	0.282	0.233	0.011	0.007	0.007	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.948	0.293	0.293	0.321	2.910	0.197	0.057	0.057	0.000
10R		APU	0.254	0.014	0.014	0.015	0.067	0.014	0.000	0.000	0.000
		GSE	0.067	0.011	0.010	0.011	0.082	0.021	0.010	0.010	0.000
Navajo	TIO-540-J2B2	TOTAL	11.870	0.211	0.211	0.203	0.007	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.003	0.002	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	0.934	0.015	0.015	0.014	0.001	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.872	0.697	0.697	0.769	0.071	0.009	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.288	0.164	0.148	0.153	0.125	0.011	0.006	0.006	0.000
Aztec	TIO-540-J2B2	TOTAL	56.072	0.995	0.995	0.960	0.030	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.018	0.010	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	9.037	0.558	0.558	0.611	6.973	0.703	0.011	0.011	0.000
28L		APU	1.364	0.078	0.078	0.086	0.360	0.076	0.000	0.000	0.000
		GSE	0.452	0.063	0.060	0.064	0.524	0.131	0.068	0.066	0.000
B737-300	CFM56-3B-2	TOTAL	1.789	0.097	0.097	0.106	1.761	0.163	0.003	0.003	0.000
28L		APU	0.292	0.017	0.017	0.019	0.077	0.017	0.000	0.000	0.000
		GSE	0.097	0.013	0.013	0.013	0.112	0.029	0.014	0.014	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	3.275	0.228	0.228	0.250	2.098	0.225	0.002	0.002	0.000
28L		APU	0.462	0.026	0.026	0.029	0.122	0.025	0.000	0.000	0.000
		GSE	0.153	0.021	0.020	0.021	0.177	0.044	0.023	0.022	0.000
B737-500	CFM56-3C-1	TOTAL	2.113	0.105	0.105	0.115	2.748	0.230	0.008	0.008	0.000
28L		APU	0.366	0.021	0.021	0.023	0.097	0.020	0.000	0.000	0.000
		GSE	0.121	0.017	0.017	0.017	0.140	0.035	0.019	0.018	0.000
B737-700	CFM56-7B22	TOTAL	6.640	0.698	0.698	0.764	12.139	0.908	0.191	0.191	0.000
28L		APU	0.466	0.035	0.035	0.039	0.635	0.096	0.000	0.000	0.000
		GSE	0.527	0.073	0.069	0.074	0.608	0.152	0.079	0.076	0.000
B737-800	CFM56-7B26	TOTAL	1.996	0.206	0.206	0.226	6.086	0.370	0.112	0.112	0.000
28L		APU	0.164	0.012	0.012	0.013	0.224	0.034	0.000	0.000	0.000
		GSE	0.185	0.025	0.024	0.026	0.214	0.054	0.028	0.026	0.000
B757-300	PW2043	TOTAL	0.510	0.040	0.040	0.044	1.915	0.097	N/A	N/A	0.000
28L		APU	0.025	0.002	0.002	0.003	0.060	0.007	0.000	0.000	0.000
		GSE	0.033	0.004	0.004	0.004	0.037	0.010	0.004	0.004	0.000
BAE146-300	LF507 SERIES	TOTAL	1.047	0.120	0.120	0.131	0.816	0.091	0.011	0.011	0.000
28L		APU	0.042	0.004	0.004	0.004	0.030	0.007	0.000	0.000	0.000
		GSE	2.798	0.110	0.099	0.104	0.120	0.014	0.008	0.008	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	16.397	0.094	0.094	0.103	19.089	1.878	0.079	0.079	0.000
28L		APU	5.713	0.327	0.327	0.358	1.508	0.317	0.000	0.000	0.000
		GSE	86.701	3.422	3.091	3.208	3.726	0.455	0.237	0.229	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.916	0.284	0.284	0.302	0.075	0.009	0.006	0.006	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.350	0.097	0.087	0.090	0.078	0.004	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	4.515	0.621	0.621	0.659	2.256	0.154	0.029	0.029	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	28.699	1.156	1.045	1.086	1.391	0.213	0.100	0.097	0.000
Cessna 172 Skyhawk	O-320	TOTAL	16.086	0.261	0.261	0.252	0.029	0.001	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.008	0.003	0.003	0.003	0.022	0.011	0.010	0.010	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.138	0.010	0.010	0.010	0.132	0.017	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.745	0.219	0.198	0.205	0.166	0.014	0.008	0.008	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	5.504	1.579	1.579	1.727	4.184	0.414	0.299	0.299	0.000
28L		APU	0.561	0.032	0.032	0.035	0.148	0.031	0.000	0.000	0.000
		GSE	0.186	0.026	0.024	0.026	0.215	0.054	0.028	0.028	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.514	0.294	0.294	0.313	2.533	0.267	0.000	0.000	0.000
28L		APU	0.257	0.024	0.024	0.025	0.183	0.040	0.000	0.000	0.000
		GSE	17.189	0.678	0.613	0.636	0.739	0.090	0.047	0.045	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.873	0.142	0.142	0.151	1.598	0.139	0.000	0.000	0.000
28L		APU	0.126	0.012	0.012	0.012	0.089	0.020	0.000	0.000	0.000
		GSE	8.365	0.331	0.298	0.310	0.359	0.044	0.023	0.022	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	3.197	0.257	0.257	0.273	2.775	0.265	0.000	0.000	0.000
28L		APU	0.229	0.022	0.022	0.023	0.163	0.035	0.000	0.000	0.000
		GSE	15.339	0.605	0.547	0.568	0.659	0.080	0.042	0.041	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	15.710	1.315	1.315	1.398	11.476	1.164	0.000	0.000	0.000
28L		APU	1.106	0.105	0.105	0.111	0.787	0.172	0.000	0.000	0.000
		GSE	73.938	2.918	2.636	2.736	3.177	0.388	0.203	0.195	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	19.390	1.624	1.624	1.725	13.981	1.474	0.000	0.000	0.000
28L		APU	1.419	0.134	0.134	0.142	1.009	0.220	0.000	0.000	0.000
		GSE	94.857	3.743	3.381	3.510	4.076	0.497	0.260	0.251	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	5.925	0.495	0.495	0.526	4.332	0.440	0.000	0.000	0.000
28L		APU	0.418	0.040	0.040	0.042	0.297	0.065	0.000	0.000	0.000
		GSE	27.894	1.101	0.994	1.032	1.198	0.147	0.076	0.074	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	4.949	0.047	0.047	0.052	7.801	0.750	0.075	0.075	0.000
28L		APU	0.502	0.047	0.047	0.052	0.357	0.078	0.000	0.000	0.000
		GSE	33.559	1.325	1.196	1.241	1.442	0.176	0.091	0.089	0.000
F-27 SERIES	RDa7	TOTAL	2.477	0.551	0.551	0.608	0.129	0.057	N/A	N/A	0.000
28L_GA		APU	0.153	0.019	0.019	0.020	0.015	0.004	0.000	0.000	0.000
		GSE	5.891	0.225	0.203	0.211	0.171	0.014	0.008	0.008	0.000
Falcon 20	CF700-2D	TOTAL	3.082	0.255	0.255	0.270	0.106	0.039	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.009	0.002	0.002	0.002	0.029	0.008	0.004	0.004	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.989	0.115	0.115	0.121	1.035	0.089	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.821	0.230	0.207	0.215	0.166	0.009	0.006	0.006	0.000
HS 125	TFE731-3	TOTAL	5.017	0.814	0.814	0.898	2.400	0.131	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	45.938	1.756	1.583	1.641	1.334	0.114	0.062	0.060	0.000
KC-135R	CFM56-2B-1	TOTAL	1.343	0.075	0.075	0.083	1.730	0.142	0.004	0.004	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.036	0.010	0.010	0.011	0.141	0.025	0.011	0.011	0.000
Learjet 25C	CJ610-6	TOTAL	24.165	1.820	1.820	1.935	0.486	0.133	N/A	N/A	0.000
28L_GA		APU	0.244	0.023	0.023	0.024	0.173	0.037	0.000	0.000	0.000
		GSE	16.299	0.644	0.581	0.603	0.700	0.086	0.044	0.043	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	2.088	0.607	0.607	0.645	0.624	0.043	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.571	0.434	0.391	0.406	0.334	0.015	0.010	0.010	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.267	0.391	0.391	0.428	3.888	0.262	0.077	0.077	0.000
28L		APU	0.340	0.020	0.020	0.021	0.089	0.019	0.000	0.000	0.000
		GSE	0.090	0.014	0.013	0.014	0.109	0.028	0.014	0.013	0.000
Navajo	TIO-540-J2B2	TOTAL	47.162	0.838	0.838	0.808	0.025	0.003	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.002	0.002	0.002	0.015	0.008	0.007	0.007	0.000
Piper PA-28	O-320	TOTAL	1.605	0.025	0.025	0.025	0.003	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.176	0.939	0.939	1.038	0.096	0.012	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.786	0.222	0.200	0.207	0.168	0.014	0.008	0.008	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	13.151	4.506	4.506	4.791	1.799	0.169	0.088	0.088	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	39.974	1.648	1.484	1.539	1.326	0.075	0.043	0.041	0.000
Falcon 2000EX	PW308C	TOTAL	1.825	0.228	0.228	0.243	1.457	0.138	0.013	0.013	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.435	0.343	0.310	0.323	0.514	0.082	0.037	0.036	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.762	0.947	0.947	1.006	0.378	0.035	0.019	0.019	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.397	0.346	0.312	0.323	0.279	0.015	0.009	0.009	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.560	0.586	0.586	0.624	2.873	0.328	0.194	0.194	0.000
28L_GA		APU	0.085	0.007	0.007	0.007	0.420	0.042	0.000	0.000	0.000
		GSE	17.641	0.683	0.616	0.638	0.487	0.037	0.026	0.025	0.000
Aztec	TIO-540-J2B2	TOTAL	56.072	0.995	0.995	0.960	0.030	0.004	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.003	0.003	0.003	0.018	0.010	0.008	0.008	0.000
B737-300	CFM56-3-B1	TOTAL	15.460	0.955	0.955	1.045	11.930	1.203	0.018	0.018	0.000
28R		APU	2.334	0.133	0.133	0.147	0.616	0.130	0.000	0.000	0.000
		GSE	0.774	0.108	0.103	0.109	0.895	0.224	0.116	0.112	0.000
B737-300	CFM56-3B-2	TOTAL	2.917	0.159	0.159	0.173	2.870	0.266	0.006	0.006	0.000
28R		APU	0.477	0.028	0.028	0.030	0.126	0.026	0.000	0.000	0.000
		GSE	0.159	0.022	0.021	0.022	0.183	0.046	0.024	0.023	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	5.535	0.386	0.386	0.422	3.545	0.380	0.004	0.004	0.000
28R		APU	0.779	0.044	0.044	0.049	0.206	0.043	0.000	0.000	0.000
		GSE	0.259	0.036	0.034	0.036	0.299	0.075	0.039	0.037	0.000
B737-500	CFM56-3C-1	TOTAL	3.608	0.177	0.177	0.195	4.690	0.394	0.013	0.013	0.000
28R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.625	0.035	0.035	0.040	0.165	0.034	0.000	0.000	0.000
		GSE	0.207	0.029	0.028	0.029	0.239	0.060	0.031	0.030	0.000
B737-700	CFM56-7B22	TOTAL	11.162	1.173	1.173	1.283	20.405	1.528	0.321	0.321	0.000
28R		APU	0.784	0.060	0.060	0.065	1.067	0.161	0.000	0.000	0.000
		GSE	0.885	0.123	0.117	0.125	1.023	0.257	0.132	0.129	0.000
B737-800	CFM56-7B26	TOTAL	3.353	0.346	0.346	0.379	10.223	0.622	0.188	0.188	0.000
28R		APU	0.276	0.021	0.021	0.023	0.375	0.056	0.000	0.000	0.000
		GSE	0.311	0.043	0.041	0.044	0.360	0.090	0.046	0.045	0.000
B757-300	PW2043	TOTAL	0.830	0.065	0.065	0.072	3.114	0.158	N/A	N/A	0.000
28R		APU	0.042	0.004	0.004	0.004	0.096	0.010	0.000	0.000	0.000
		GSE	0.053	0.008	0.007	0.008	0.062	0.015	0.008	0.008	0.000
BAE146-300	LF507 SERIES	TOTAL	0.427	0.049	0.049	0.054	0.333	0.037	0.004	0.004	0.000
28R		APU	0.017	0.001	0.001	0.002	0.012	0.002	0.000	0.000	0.000
		GSE	1.141	0.045	0.041	0.042	0.049	0.006	0.003	0.003	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	6.558	0.037	0.037	0.041	7.634	0.751	0.032	0.032	0.000
28R		APU	2.285	0.131	0.131	0.143	0.603	0.127	0.000	0.000	0.000
		GSE	34.672	1.368	1.236	1.283	1.490	0.182	0.095	0.091	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	2.136	0.662	0.662	0.704	0.175	0.022	0.012	0.012	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.480	0.226	0.204	0.211	0.182	0.010	0.006	0.006	0.000
CL600	ALF 502L-2	TOTAL	1.739	0.239	0.239	0.254	0.869	0.060	0.011	0.011	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.054	0.445	0.402	0.418	0.536	0.082	0.039	0.037	0.000
Cessna 172 Skyhawk	O-320	TOTAL	18.971	0.308	0.308	0.298	0.033	0.002	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.009	0.004	0.004	0.004	0.025	0.013	0.012	0.011	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.282	0.019	0.019	0.021	0.270	0.033	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.719	0.448	0.403	0.419	0.341	0.029	0.015	0.015	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	9.236	2.648	2.648	2.899	7.022	0.694	0.502	0.502	0.000
28R		APU	0.942	0.054	0.054	0.060	0.249	0.052	0.000	0.000	0.000
		GSE	0.312	0.043	0.042	0.044	0.362	0.090	0.047	0.045	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.326	0.111	0.111	0.118	0.956	0.100	0.000	0.000	0.000
28R		APU	0.097	0.009	0.009	0.010	0.069	0.015	0.000	0.000	0.000
		GSE	6.486	0.256	0.231	0.240	0.279	0.034	0.018	0.018	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.342	0.055	0.055	0.058	0.625	0.054	0.000	0.000	0.000
28R		APU	0.049	0.004	0.004	0.004	0.035	0.008	0.000	0.000	0.000
		GSE	3.271	0.129	0.117	0.121	0.141	0.018	0.009	0.009	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.250	0.100	0.100	0.107	1.086	0.104	0.000	0.000	0.000
28R		APU	0.089	0.009	0.009	0.009	0.064	0.014	0.000	0.000	0.000
		GSE	5.999	0.237	0.214	0.222	0.258	0.032	0.017	0.015	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	6.143	0.514	0.514	0.547	4.488	0.455	0.000	0.000	0.000
28R		APU	0.432	0.041	0.041	0.043	0.308	0.067	0.000	0.000	0.000
		GSE	28.909	1.141	1.031	1.069	1.242	0.152	0.079	0.076	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	7.583	0.635	0.635	0.675	5.467	0.577	0.000	0.000	0.000
28R		APU	0.554	0.053	0.053	0.056	0.395	0.086	0.000	0.000	0.000
		GSE	37.094	1.464	1.322	1.372	1.594	0.195	0.101	0.098	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.318	0.194	0.194	0.206	1.694	0.172	0.000	0.000	0.000
28R		APU	0.163	0.015	0.015	0.017	0.116	0.025	0.000	0.000	0.000
		GSE	10.913	0.431	0.389	0.403	0.468	0.057	0.030	0.029	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.979	0.019	0.019	0.021	3.120	0.300	0.030	0.030	0.000
28R		APU	0.201	0.019	0.019	0.021	0.142	0.031	0.000	0.000	0.000
		GSE	13.417	0.529	0.478	0.496	0.577	0.071	0.036	0.035	0.000
F-27 SERIES	RDa7	TOTAL	2.057	0.457	0.457	0.506	0.107	0.047	N/A	N/A	0.000
28R_GA		APU	0.128	0.015	0.015	0.017	0.012	0.003	0.000	0.000	0.000
		GSE	4.891	0.187	0.169	0.175	0.142	0.012	0.007	0.007	0.000
Falcon 20	CF700-2D	TOTAL	7.313	0.603	0.603	0.642	0.251	0.093	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.021	0.006	0.006	0.006	0.068	0.019	0.010	0.009	0.000
Gulfstream II	SPEY MK511-8	TOTAL	2.346	0.271	0.271	0.289	2.456	0.212	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.813	0.548	0.493	0.511	0.396	0.022	0.014	0.013	0.000
HS 125	TFE731-3	TOTAL	2.014	0.326	0.326	0.360	0.963	0.053	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	18.442	0.705	0.635	0.659	0.536	0.045	0.024	0.023	0.000
KC-135R	CFM56-2B-1	TOTAL	2.190	0.121	0.121	0.134	2.822	0.233	0.007	0.007	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.058	0.017	0.017	0.018	0.230	0.042	0.018	0.018	0.000
Learjet 25C	CJ610-6	TOTAL	10.009	0.754	0.754	0.801	0.202	0.055	N/A	N/A	0.000
28R_GA		APU	0.101	0.010	0.010	0.010	0.072	0.015	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	6.751	0.267	0.240	0.250	0.290	0.035	0.019	0.018	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	4.913	1.429	1.429	1.519	1.469	0.101	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	24.879	1.023	0.922	0.956	0.786	0.037	0.023	0.022	0.000
MD-80-83	JT8D-219 old comb	TOTAL	2.269	0.701	0.701	0.767	6.967	0.471	0.139	0.139	0.000
28R		APU	0.608	0.035	0.035	0.039	0.161	0.034	0.000	0.000	0.000
		GSE	0.161	0.025	0.024	0.025	0.195	0.049	0.024	0.024	0.000
Navajo	TIO-540-J2B2	TOTAL	41.752	0.741	0.741	0.715	0.022	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.002	0.002	0.002	0.013	0.007	0.007	0.006	0.000
Piper PA-28	O-320	TOTAL	3.272	0.053	0.053	0.051	0.006	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.003	0.002	0.002	0.002	0.000
UC-12J	PT6A-42	TOTAL	2.142	1.711	1.711	1.889	0.174	0.021	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.533	0.402	0.363	0.376	0.305	0.026	0.014	0.013	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	5.133	1.759	1.759	1.871	0.702	0.066	0.034	0.034	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	15.604	0.643	0.580	0.601	0.517	0.029	0.017	0.017	0.000
Falcon 2000EX	PW308C	TOTAL	0.746	0.093	0.093	0.099	0.595	0.056	0.006	0.006	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.447	0.140	0.127	0.132	0.211	0.033	0.015	0.015	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	6.540	2.241	2.241	2.383	0.895	0.084	0.044	0.044	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	19.881	0.819	0.739	0.765	0.659	0.037	0.021	0.021	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.409	0.561	0.561	0.596	2.750	0.315	0.186	0.186	0.000
28R_GA		APU	0.082	0.006	0.006	0.007	0.402	0.040	0.000	0.000	0.000
		GSE	16.891	0.654	0.590	0.612	0.466	0.036	0.025	0.024	0.000
A320-200	V2527-A5	TOTAL	0.111	0.001	0.001	0.002	0.334	0.024	0.003	0.003	0.000
10L		APU	0.004	0.000	0.000	0.000	0.020	0.002	0.000	0.000	0.000
		GSE	0.012	0.002	0.001	0.002	0.014	0.003	0.002	0.002	0.000
A320-200	V2527-A5	TOTAL	0.256	0.003	0.003	0.004	0.768	0.055	0.007	0.007	0.000
10R		APU	0.009	0.001	0.001	0.001	0.044	0.004	0.000	0.000	0.000
		GSE	0.028	0.004	0.003	0.004	0.032	0.008	0.004	0.004	0.000
A320-200	V2527-A5	TOTAL	0.214	0.003	0.003	0.003	0.643	0.045	0.006	0.006	0.000
28L		APU	0.008	0.001	0.001	0.001	0.037	0.003	0.000	0.000	0.000
		GSE	0.023	0.003	0.003	0.003	0.028	0.007	0.003	0.003	0.000
A320-200	V2527-A5	TOTAL	0.434	0.007	0.007	0.007	1.302	0.093	0.012	0.012	0.000
28R		APU	0.015	0.001	0.001	0.001	0.075	0.008	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.055	0.013	0.007	0.007	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.549	0.159	0.159	0.169	0.187	0.012	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.733	0.112	0.101	0.105	0.090	0.006	0.003	0.003	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.151	0.043	0.043	0.046	0.052	0.003	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.751	0.031	0.028	0.029	0.025	0.001	0.001	0.001	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.713	0.494	0.494	0.525	0.583	0.037	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.524	0.352	0.316	0.328	0.282	0.015	0.009	0.009	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.703	0.203	0.203	0.215	0.239	0.015	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.498	0.144	0.130	0.134	0.116	0.007	0.003	0.003	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.006	0.224	0.224	0.247	0.052	0.023	N/A	N/A	0.000
10L_GA		APU	0.011	0.001	0.001	0.001	0.055	0.006	0.000	0.000	0.000
		GSE	2.825	0.111	0.100	0.104	0.080	0.007	0.006	0.006	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.542	0.121	0.121	0.133	0.029	0.012	N/A	N/A	0.000
10R_GA		APU	0.007	0.000	0.000	0.000	0.030	0.003	0.000	0.000	0.000
		GSE	1.523	0.060	0.054	0.056	0.043	0.003	0.003	0.003	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.985	0.665	0.665	0.734	0.155	0.069	N/A	N/A	0.000
28L_GA		APU	0.033	0.002	0.002	0.002	0.165	0.017	0.000	0.000	0.000
		GSE	8.379	0.330	0.298	0.309	0.237	0.021	0.018	0.017	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.864	0.414	0.414	0.459	0.097	0.043	N/A	N/A	0.000
28R_GA		APU	0.021	0.001	0.001	0.002	0.103	0.010	0.000	0.000	0.000
		GSE	5.234	0.206	0.185	0.193	0.149	0.013	0.011	0.011	0.000
Learjet 25B	CJ610-6	TOTAL	5.799	0.437	0.437	0.464	0.117	0.032	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.977	0.163	0.148	0.153	0.126	0.006	0.003	0.003	0.000
Learjet 25B	CJ610-6	TOTAL	10.772	0.811	0.811	0.862	0.217	0.060	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.388	0.304	0.273	0.283	0.234	0.011	0.007	0.007	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 25B	CJ610-6	TOTAL	17.417	1.312	1.312	1.394	0.351	0.096	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.945	0.492	0.442	0.459	0.377	0.018	0.011	0.011	0.000
Learjet 25B	CJ610-6	TOTAL	41.334	3.113	3.113	3.309	0.831	0.229	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	28.347	1.166	1.049	1.088	0.896	0.042	0.026	0.025	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.268	0.002	0.002	0.003	0.417	0.041	0.003	0.003	0.000
10L		APU	0.119	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	1.810	0.072	0.065	0.067	0.078	0.010	0.004	0.004	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.076	0.001	0.001	0.001	0.119	0.011	0.001	0.001	0.000
10R		APU	0.034	0.002	0.002	0.002	0.009	0.002	0.000	0.000	0.000
		GSE	0.515	0.020	0.019	0.019	0.022	0.002	0.001	0.001	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.827	0.008	0.008	0.009	1.290	0.125	0.012	0.012	0.000
28L		APU	0.368	0.021	0.021	0.023	0.097	0.021	0.000	0.000	0.000
		GSE	5.595	0.220	0.200	0.207	0.240	0.030	0.015	0.014	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.331	0.003	0.003	0.003	0.517	0.050	0.004	0.004	0.000
28R		APU	0.148	0.009	0.009	0.009	0.039	0.008	0.000	0.000	0.000
		GSE	2.241	0.088	0.079	0.083	0.096	0.012	0.007	0.006	0.000
A320-200	V2500-A1	TOTAL	0.065	0.003	0.003	0.004	0.488	0.024	0.001	0.001	0.000
10L		APU	0.004	0.000	0.000	0.000	0.020	0.002	0.000	0.000	0.000
		GSE	0.012	0.002	0.001	0.002	0.014	0.003	0.002	0.002	0.000
A320-200	V2500-A1	TOTAL	0.150	0.009	0.009	0.009	1.124	0.056	0.001	0.001	0.000
10R		APU	0.009	0.001	0.001	0.001	0.044	0.004	0.000	0.000	0.000
		GSE	0.028	0.004	0.003	0.004	0.032	0.008	0.004	0.004	0.000
A320-200	V2500-A1	TOTAL	0.126	0.007	0.007	0.008	0.940	0.047	0.001	0.001	0.000
28L		APU	0.008	0.001	0.001	0.001	0.037	0.003	0.000	0.000	0.000
		GSE	0.023	0.003	0.003	0.003	0.028	0.007	0.003	0.003	0.000
A320-200	V2500-A1	TOTAL	0.254	0.014	0.014	0.015	1.906	0.095	0.002	0.002	0.000
28R		APU	0.015	0.001	0.001	0.001	0.075	0.008	0.000	0.000	0.000
		GSE	0.047	0.007	0.007	0.007	0.055	0.013	0.007	0.007	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.263	0.002	0.002	0.003	0.462	0.042	0.010	0.010	0.000
10L		APU	0.028	0.002	0.002	0.003	0.019	0.004	0.000	0.000	0.000
		GSE	1.810	0.072	0.065	0.067	0.078	0.010	0.004	0.004	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.075	0.001	0.001	0.001	0.131	0.012	0.002	0.002	0.000
10R		APU	0.008	0.001	0.001	0.001	0.006	0.001	0.000	0.000	0.000
		GSE	0.515	0.020	0.019	0.019	0.022	0.002	0.001	0.001	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.815	0.008	0.008	0.009	1.427	0.130	0.030	0.030	0.000
28L		APU	0.084	0.008	0.008	0.009	0.060	0.013	0.000	0.000	0.000
		GSE	5.595	0.220	0.200	0.207	0.240	0.030	0.015	0.014	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.326	0.003	0.003	0.003	0.572	0.052	0.012	0.012	0.000
28R		APU	0.033	0.003	0.003	0.003	0.024	0.006	0.000	0.000	0.000
		GSE	2.241	0.088	0.079	0.083	0.096	0.012	0.007	0.006	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	6.554	0.069	0.069	0.067	0.008	0.001	N/A	N/A	5.202
10L_GA		Climb Out	5.478	0.062	0.062	0.060	0.001	0.000	N/A	N/A	3.724
		Takeoff	3.652	0.031	0.031	0.030	0.001	0.000	N/A	N/A	2.532
		Idle	3.315	0.174	0.174	0.169	0.001	0.000	N/A	N/A	2.561
B737-300	CFM56-3-B1	Approach	0.304	0.007	0.007	0.007	0.664	0.080	0.001	0.001	79.974
10L		Climb Out	0.039	0.002	0.002	0.002	0.637	0.041	0.000	0.000	41.134
		Takeoff	0.049	0.002	0.002	0.002	0.956	0.054	0.001	0.001	53.976
		Idle	2.969	0.197	0.197	0.215	0.336	0.086	0.001	0.001	86.309
B737-300	CFM56-3B-2	Approach	0.058	0.001	0.001	0.001	0.149	0.017	0.000	0.000	17.068
10L		Climb Out	0.008	0.000	0.000	0.000	0.150	0.009	0.000	0.000	8.988
		Takeoff	0.011	0.000	0.000	0.000	0.230	0.012	0.001	0.001	11.876
		Idle	0.535	0.031	0.031	0.034	0.073	0.018	0.000	0.000	17.758
B737-500	CFM56-3C-1	Approach	0.078	0.002	0.002	0.002	0.229	0.025	0.000	0.000	25.154
10L		Climb Out	0.013	0.001	0.001	0.001	0.268	0.015	0.000	0.000	15.026
		Takeoff	0.018	0.001	0.001	0.001	0.409	0.020	0.002	0.002	19.747
		Idle	0.669	0.035	0.035	0.039	0.107	0.025	0.000	0.000	24.979
B737-700	CFM56-7B22	Approach	0.239	0.010	0.010	0.011	0.959	0.096	0.020	0.020	95.867
10L		Climb Out	0.034	0.006	0.006	0.007	1.095	0.057	0.012	0.012	57.637
		Takeoff	0.041	0.008	0.008	0.009	1.901	0.083	0.018	0.018	82.324
		Idle	2.072	0.227	0.227	0.249	0.409	0.090	0.019	0.019	90.882
B737-800	CFM56-7B26	Approach	0.060	0.003	0.003	0.004	0.405	0.037	0.011	0.011	37.449
10L		Climb Out	0.015	0.002	0.002	0.003	0.585	0.026	0.008	0.008	25.991
		Takeoff	0.008	0.003	0.003	0.004	1.059	0.036	0.011	0.011	36.764
		Idle	0.642	0.065	0.065	0.071	0.160	0.034	0.010	0.010	34.124
B757-300	PW2043	Approach	0.012	0.001	0.001	0.001	0.101	0.010	N/A	N/A	9.447
10L		Climb Out	0.002	0.000	0.000	0.000	0.179	0.007	N/A	N/A	6.411
		Takeoff	0.002	0.000	0.000	0.000	0.328	0.009	N/A	N/A	8.709
		Idle	0.154	0.012	0.012	0.013	0.035	0.008	N/A	N/A	7.984
BAE146-300	LF507 SERIES	Approach	0.031	0.001	0.001	0.001	0.045	0.007	0.000	0.000	7.077
10L		Climb Out	0.002	0.000	0.000	0.000	0.095	0.008	0.001	0.001	7.893
		Takeoff	0.001	0.000	0.000	0.000	0.097	0.007	0.001	0.001	6.706
		Idle	0.303	0.037	0.037	0.042	0.026	0.008	0.001	0.001	8.024
Bombardier CRJ700	CF34-8C1	Approach	0.502	0.010	0.010	0.011	1.915	0.172	0.009	0.009	172.483
10L		Climb Out	0.046	0.002	0.002	0.002	1.182	0.093	0.000	0.000	92.215
		Takeoff	0.064	0.003	0.003	0.003	2.270	0.154	0.008	0.008	154.677
		Idle	4.696	0.015	0.015	0.017	0.812	0.188	0.009	0.009	188.419
Cessna 172 Skyhawk	O-320	Approach	2.496	0.040	0.040	0.039	0.002	0.000	N/A	N/A	2.046
10L_GA		Climb Out	1.346	0.017	0.017	0.017	0.006	0.000	N/A	N/A	1.359
		Takeoff	1.016	0.011	0.011	0.011	0.002	0.000	N/A	N/A	0.941
		Idle	0.625	0.021	0.021	0.021	0.000	0.000	N/A	N/A	0.579
Cessna 441 Conqu...	TPE331-8	Approach	0.011	0.000	0.000	0.000	0.025	0.002	N/A	N/A	2.648
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.006	0.001	N/A	N/A	0.561
		Takeoff	0.001	0.000	0.000	0.000	0.008	0.001	N/A	N/A	0.647
		Idle	0.035	0.002	0.002	0.003	0.008	0.002	N/A	N/A	1.849
CITATION I SP	JT15D-1A ,1B	Approach	0.075	0.008	0.008	0.009	0.007	0.001	0.001	0.001	1.846
10L_GA		Climb Out	0.004	0.000	0.000	0.000	0.008	0.001	0.000	0.000	1.103
		Takeoff	0.003	0.000	0.000	0.000	0.009	0.001	0.000	0.000	1.226
		Idle	0.238	0.091	0.091	0.097	0.003	0.001	0.001	0.001	1.806
CL600	ALF 502L-2	Approach	0.116	0.006	0.006	0.006	0.190	0.015	0.003	0.003	29.229
10L_GA		Climb Out	0.004	0.000	0.000	0.000	0.184	0.008	0.003	0.003	15.257
		Takeoff	0.009	0.000	0.000	0.000	0.280	0.011	0.002	0.002	20.839
		Idle	1.381	0.202	0.202	0.214	0.103	0.017	0.000	0.000	30.273
DC9-30	JT8D-15 (old ...	Approach	0.356	0.061	0.061	0.067	0.218	0.037	0.026	0.026	37.038
10L		Climb Out	0.033	0.008	0.008	0.009	0.491	0.033	0.023	0.023	32.725
		Takeoff	0.024	0.009	0.009	0.010	0.661	0.034	0.025	0.025	34.624
		Idle	1.566	0.489	0.489	0.536	0.133	0.044	0.032	0.032	44.487
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.163	0.001	0.001	0.001	0.149	0.021	0.000	0.000	21.410
10L		Climb Out	0.011	0.001	0.001	0.001	0.289	0.021	0.000	0.000	21.398
		Takeoff	0.008	0.000	0.000	0.000	0.229	0.014	0.000	0.000	14.835
		Idle	0.877	0.087	0.087	0.093	0.097	0.023	0.000	0.000	22.801
Embraer ERJ 145	AE3007A	Approach	0.041	0.008	0.008	0.009	0.097	0.012	0.000	0.000	12.443
10L		Climb Out	0.011	0.003	0.003	0.003	0.211	0.012	0.000	0.000	12.023
		Takeoff	0.007	0.002	0.002	0.002	0.171	0.009	0.000	0.000	8.336
		Idle	0.231	0.033	0.033	0.035	0.051	0.013	0.000	0.000	13.312
Embraer ERJ 145	AE3007A1E	Approach	0.132	0.001	0.001	0.001	0.174	0.023	0.000	0.000	23.406
10L		Climb Out	0.015	0.001	0.001	0.001	0.357	0.024	0.000	0.000	23.977

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.013	0.000	0.000	0.000	0.287	0.017	0.000	0.000	16.718
		Idle	0.898	0.084	0.084	0.088	0.100	0.023	0.000	0.000	23.668
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.678	0.003	0.003	0.003	0.710	0.099	0.000	0.000	99.731
10L		Climb Out	0.052	0.003	0.003	0.003	1.319	0.094	0.000	0.000	94.202
		Takeoff	0.061	0.002	0.002	0.002	1.312	0.082	0.000	0.000	81.451
		Idle	4.413	0.428	0.428	0.454	0.460	0.110	0.000	0.000	110.109
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	0.990	0.004	0.004	0.004	0.901	0.130	0.000	0.000	129.902
10L		Climb Out	0.065	0.004	0.004	0.004	1.752	0.130	0.000	0.000	129.826
		Takeoff	0.045	0.002	0.002	0.003	1.388	0.090	0.000	0.000	90.006
		Idle	5.322	0.527	0.527	0.560	0.591	0.138	0.000	0.000	138.339
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.256	0.001	0.001	0.001	0.268	0.037	0.000	0.000	37.680
10L		Climb Out	0.020	0.001	0.001	0.001	0.498	0.035	0.000	0.000	35.561
		Takeoff	0.023	0.001	0.001	0.001	0.495	0.031	0.000	0.000	30.754
		Idle	1.664	0.161	0.161	0.171	0.174	0.042	0.000	0.000	41.655
Embraer ERJ 170	CF34-8E5	Approach	0.303	0.004	0.004	0.004	0.771	0.072	0.009	0.009	71.593
10L		Climb Out	0.022	0.001	0.001	0.001	0.487	0.039	0.000	0.000	38.516
		Takeoff	0.042	0.001	0.001	0.001	0.955	0.065	0.008	0.008	64.643
		Idle	1.237	0.009	0.009	0.010	0.314	0.068	0.008	0.008	68.127
F-27 SERIES	RDa7	Approach	0.213	0.019	0.019	0.021	0.006	0.007	N/A	N/A	6.379
10L_GA		Climb Out	0.015	0.004	0.004	0.006	0.020	0.004	N/A	N/A	4.449
		Takeoff	0.009	0.003	0.003	0.003	0.017	0.003	N/A	N/A	2.862
		Idle	0.665	0.174	0.174	0.192	0.006	0.008	N/A	N/A	7.270
Falcon 20	CF700-2D	Approach	0.233	0.006	0.006	0.006	0.007	0.003	N/A	N/A	3.747
10L_GA		Climb Out	0.052	0.000	0.000	0.000	0.009	0.002	N/A	N/A	2.081
		Takeoff	0.061	0.000	0.000	0.000	0.015	0.003	N/A	N/A	2.775
		Idle	0.676	0.078	0.078	0.084	0.004	0.004	N/A	N/A	4.361
Falcon 2000EX	PW308C	Approach	0.076	0.002	0.002	0.002	0.114	0.014	0.001	0.001	14.527
10L_Corp		Climb Out	0.008	0.001	0.001	0.001	0.125	0.008	0.001	0.001	7.779
		Takeoff	0.008	0.001	0.001	0.001	0.186	0.010	0.001	0.001	10.116
		Idle	0.494	0.069	0.069	0.074	0.042	0.012	0.001	0.001	11.666
Gulfstream II	SPEY MK511-8	Approach	0.020	0.001	0.001	0.001	0.054	0.008	N/A	N/A	7.475
10L_GA		Climb Out	0.003	0.001	0.001	0.001	0.100	0.006	N/A	N/A	5.808
		Takeoff	0.001	0.001	0.001	0.001	0.154	0.007	N/A	N/A	6.798
		Idle	0.303	0.035	0.035	0.037	0.034	0.010	N/A	N/A	9.548
Gulfstream IV	TAY Mk611-8	Approach	0.117	0.026	0.026	0.029	0.171	0.030	0.018	0.018	29.900
10L_GA		Climb Out	0.011	0.004	0.004	0.004	0.227	0.013	0.008	0.008	13.500
		Takeoff	0.013	0.015	0.015	0.015	0.396	0.019	0.011	0.011	18.729
		Idle	0.966	0.137	0.137	0.144	0.100	0.040	0.023	0.023	40.072
HS 125	TFE731-3	Approach	0.400	0.036	0.036	0.040	0.177	0.014	N/A	N/A	25.711
10L_Corp		Climb Out	0.018	0.001	0.001	0.001	0.179	0.006	N/A	N/A	11.129
		Takeoff	0.020	0.001	0.001	0.001	0.332	0.009	N/A	N/A	17.310
		Idle	1.195	0.226	0.226	0.250	0.094	0.013	N/A	N/A	25.039
KC-135R	CFM56-2B-1	Approach	0.040	0.001	0.001	0.001	0.077	0.010	0.000	0.000	9.449
10L_GA		Climb Out	0.010	0.000	0.000	0.001	0.172	0.011	0.000	0.000	10.764
		Takeoff	0.014	0.001	0.001	0.001	0.287	0.015	0.001	0.001	15.479
		Idle	0.392	0.023	0.023	0.025	0.051	0.013	0.000	0.000	12.788
Learjet 25C	CJ610-6	Approach	2.366	0.000	0.000	0.000	0.041	0.014	N/A	N/A	26.883
10L_GA		Climb Out	0.281	0.002	0.002	0.002	0.035	0.006	N/A	N/A	10.056
		Takeoff	0.424	0.001	0.001	0.002	0.066	0.009	N/A	N/A	15.712
		Idle	5.575	0.647	0.647	0.688	0.032	0.020	N/A	N/A	35.968
Learjet 35/36	TFE 731-2-2B	Approach	0.216	0.041	0.041	0.044	0.057	0.006	N/A	N/A	9.641
10L_GA		Climb Out	0.009	0.001	0.001	0.001	0.056	0.002	N/A	N/A	4.327
		Takeoff	0.008	0.001	0.001	0.001	0.079	0.003	N/A	N/A	5.197
		Idle	0.492	0.169	0.169	0.179	0.023	0.004	N/A	N/A	8.395
MD-80-83	JT8D-219 old...	Approach	0.115	0.045	0.045	0.049	0.257	0.028	0.009	0.009	28.098
10L		Climb Out	0.029	0.010	0.010	0.011	0.502	0.024	0.007	0.007	24.112
		Takeoff	0.020	0.008	0.008	0.008	0.718	0.026	0.008	0.008	26.597
		Idle	0.351	0.097	0.097	0.106	0.100	0.028	0.008	0.008	27.761
Navajo	TIO-540-J2B2	Approach	5.303	0.056	0.056	0.054	0.006	0.000	N/A	N/A	4.209
10L_GA		Climb Out	4.432	0.050	0.050	0.049	0.001	0.000	N/A	N/A	3.013
		Takeoff	2.954	0.025	0.025	0.024	0.001	0.000	N/A	N/A	2.049
		Idle	2.681	0.141	0.141	0.136	0.001	0.000	N/A	N/A	2.072
Piper PA-28	O-320	Approach	0.279	0.004	0.004	0.004	0.000	0.000	N/A	N/A	0.228
10L_GA		Climb Out	0.134	0.002	0.002	0.001	0.000	0.000	N/A	N/A	0.136
		Takeoff	0.090	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.084
		Idle	0.055	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.051
UC-12J	PT6A-42	Approach	0.137	0.089	0.089	0.098	0.019	0.002	N/A	N/A	3.932
10L_GA		Climb Out	0.006	0.002	0.002	0.002	0.007	0.000	N/A	N/A	0.936
		Takeoff	0.003	0.001	0.001	0.001	0.006	0.000	N/A	N/A	0.732
		Idle	0.298	0.262	0.262	0.290	0.006	0.001	N/A	N/A	2.587

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation	JT15D-4 (B,C...	Approach	1.042	0.168	0.168	0.179	0.172	0.018	0.009	0.009	32.563
10L_Corp		Climb Out	0.055	0.003	0.003	0.003	0.149	0.010	0.004	0.004	17.443
		Takeoff	0.040	0.002	0.002	0.002	0.176	0.010	0.006	0.006	19.060
		Idle	3.115	1.285	1.285	1.366	0.085	0.018	0.009	0.009	32.119
B737-300	CFM56-3C-1 ...	Approach	0.106	0.002	0.002	0.002	0.202	0.025	0.000	0.000	25.186
10L		Climb Out	0.013	0.001	0.001	0.001	0.187	0.013	0.000	0.000	12.718
		Takeoff	0.015	0.001	0.001	0.001	0.277	0.017	0.000	0.000	16.645
		Idle	1.071	0.080	0.080	0.088	0.107	0.029	0.000	0.000	28.113
550 Citation	JT15D-4 (B,C...	Approach	0.225	0.036	0.036	0.039	0.037	0.003	0.002	0.002	7.026
10L_GA		Climb Out	0.012	0.001	0.001	0.001	0.032	0.002	0.001	0.001	3.763
		Takeoff	0.009	0.000	0.000	0.000	0.037	0.002	0.001	0.001	4.113
		Idle	0.672	0.277	0.277	0.294	0.019	0.003	0.002	0.002	6.930
550 Citation	JT15D-4 (B,C...	Approach	0.413	0.066	0.066	0.071	0.068	0.007	0.003	0.003	12.911
10R_GA		Climb Out	0.022	0.001	0.001	0.001	0.060	0.003	0.002	0.002	6.916
		Takeoff	0.015	0.001	0.001	0.001	0.069	0.004	0.002	0.002	7.557
		Idle	1.236	0.509	0.509	0.541	0.033	0.007	0.003	0.003	12.735
550 Citation	JT15D-4 (B,C...	Approach	0.312	0.050	0.050	0.053	0.052	0.006	0.002	0.002	9.737
10R_Corp		Climb Out	0.017	0.001	0.001	0.001	0.045	0.003	0.001	0.001	5.216
		Takeoff	0.012	0.000	0.000	0.000	0.053	0.003	0.001	0.001	5.699
		Idle	0.931	0.385	0.385	0.409	0.025	0.006	0.002	0.002	9.604
Aztec	TIO-540-J2B2	Approach	6.862	0.073	0.073	0.071	0.008	0.001	N/A	N/A	5.447
10R_GA		Climb Out	5.735	0.065	0.065	0.063	0.001	0.000	N/A	N/A	3.899
		Takeoff	3.823	0.033	0.033	0.032	0.001	0.000	N/A	N/A	2.651
		Idle	3.470	0.183	0.183	0.176	0.001	0.000	N/A	N/A	2.681
B737-300	CFM56-3C-1 ...	Approach	0.164	0.003	0.003	0.003	0.314	0.040	0.000	0.000	39.208
10R		Climb Out	0.020	0.001	0.001	0.001	0.291	0.020	0.000	0.000	19.800
		Takeoff	0.023	0.001	0.001	0.001	0.430	0.026	0.000	0.000	25.911
		Idle	1.668	0.126	0.126	0.137	0.166	0.044	0.000	0.000	43.766
B737-300	CFM56-3B-2	Approach	0.078	0.002	0.002	0.002	0.201	0.023	0.000	0.000	23.018
10R		Climb Out	0.011	0.001	0.001	0.001	0.203	0.012	0.000	0.000	12.121
		Takeoff	0.014	0.001	0.001	0.001	0.311	0.017	0.001	0.001	16.017
		Idle	0.721	0.042	0.042	0.046	0.098	0.024	0.000	0.000	23.949
B737-300	CFM56-3-B1	Approach	0.489	0.010	0.010	0.011	1.069	0.129	0.001	0.001	128.856
10R		Climb Out	0.063	0.003	0.003	0.003	1.027	0.066	0.001	0.001	66.274
		Takeoff	0.078	0.003	0.003	0.003	1.539	0.087	0.002	0.002	86.966
		Idle	4.784	0.317	0.317	0.347	0.542	0.139	0.001	0.001	139.062
B737-500	CFM56-3C-1	Approach	0.125	0.003	0.003	0.003	0.365	0.040	0.000	0.000	40.040
10R		Climb Out	0.022	0.001	0.001	0.001	0.425	0.024	0.001	0.001	23.919
		Takeoff	0.029	0.001	0.001	0.001	0.650	0.032	0.003	0.003	31.434
		Idle	1.066	0.056	0.056	0.062	0.171	0.040	0.000	0.000	39.764
B737-700	CFM56-7B22	Approach	0.365	0.014	0.014	0.015	1.458	0.146	0.031	0.031	145.804
10R		Climb Out	0.053	0.009	0.009	0.010	1.666	0.088	0.019	0.019	87.659
		Takeoff	0.063	0.012	0.012	0.013	2.892	0.126	0.026	0.026	125.207
		Idle	3.152	0.345	0.345	0.378	0.622	0.138	0.029	0.029	138.223
B737-800	CFM56-7B26	Approach	0.091	0.006	0.006	0.007	0.616	0.057	0.018	0.018	57.104
10R		Climb Out	0.024	0.004	0.004	0.004	0.892	0.040	0.012	0.012	39.635
		Takeoff	0.011	0.006	0.006	0.007	1.615	0.056	0.017	0.017	56.062
		Idle	0.978	0.099	0.099	0.108	0.245	0.052	0.015	0.015	52.035
B757-300	PW2043	Approach	0.017	0.001	0.001	0.001	0.138	0.013	N/A	N/A	12.858
10R		Climb Out	0.003	0.000	0.000	0.000	0.244	0.009	N/A	N/A	8.727
		Takeoff	0.003	0.000	0.000	0.000	0.448	0.012	N/A	N/A	11.855
		Idle	0.209	0.017	0.017	0.019	0.049	0.011	N/A	N/A	10.868
BAE146-300	LF507 SERIES	Approach	0.009	0.000	0.000	0.000	0.012	0.002	0.000	0.000	1.960
10R		Climb Out	0.001	0.000	0.000	0.000	0.026	0.002	0.000	0.000	2.186
		Takeoff	0.000	0.000	0.000	0.000	0.026	0.002	0.000	0.000	1.857
		Idle	0.084	0.011	0.011	0.011	0.008	0.002	0.000	0.000	2.222
Bombardier CRJ700	CF34-8C1	Approach	0.144	0.003	0.003	0.003	0.549	0.050	0.002	0.002	49.452
10R		Climb Out	0.013	0.000	0.000	0.001	0.338	0.026	0.000	0.000	26.439
		Takeoff	0.018	0.001	0.001	0.001	0.650	0.044	0.002	0.002	44.347
		Idle	1.346	0.004	0.004	0.004	0.233	0.054	0.002	0.002	54.021
Cessna 172 Skyhawk	O-320	Approach	2.880	0.046	0.046	0.044	0.002	0.000	N/A	N/A	2.361
10R_GA		Climb Out	1.553	0.020	0.020	0.019	0.007	0.000	N/A	N/A	1.569
		Takeoff	1.173	0.013	0.013	0.012	0.002	0.000	N/A	N/A	1.086
		Idle	0.722	0.024	0.024	0.024	0.000	0.000	N/A	N/A	0.668
Cessna 441 Conqu...	TPE331-8	Approach	0.019	0.001	0.001	0.001	0.042	0.004	N/A	N/A	4.413
10R_GA		Climb Out	0.001	0.000	0.000	0.000	0.010	0.001	N/A	N/A	0.935
		Takeoff	0.001	0.000	0.000	0.000	0.012	0.001	N/A	N/A	1.078
		Idle	0.058	0.004	0.004	0.004	0.013	0.003	N/A	N/A	3.081
CITATION I SP	JT15D-1A ,1B	Approach	0.152	0.017	0.017	0.018	0.013	0.002	0.001	0.001	3.758
10R_GA		Climb Out	0.008	0.000	0.000	0.000	0.015	0.001	0.001	0.001	2.245

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.007	0.000	0.000	0.000	0.019	0.001	0.001	0.001	2.495
		Idle	0.485	0.185	0.185	0.197	0.007	0.002	0.001	0.001	3.673
CL600	ALF 502L-2	Approach	0.035	0.001	0.001	0.002	0.057	0.004	0.001	0.001	8.912
10R_GA		Climb Out	0.001	0.000	0.000	0.000	0.056	0.002	0.001	0.001	4.652
		Takeoff	0.002	0.000	0.000	0.000	0.085	0.003	0.001	0.001	6.354
		Idle	0.421	0.062	0.062	0.065	0.031	0.006	0.000	0.000	9.231
DC9-30	JT8D-15 (old ...	Approach	0.535	0.091	0.091	0.100	0.328	0.056	0.040	0.040	55.725
10R		Climb Out	0.050	0.012	0.012	0.013	0.739	0.050	0.035	0.035	49.237
		Takeoff	0.036	0.013	0.013	0.014	0.995	0.052	0.037	0.037	52.093
		Idle	2.356	0.736	0.736	0.806	0.201	0.067	0.049	0.049	66.932
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.052	0.000	0.000	0.000	0.046	0.007	0.000	0.000	6.734
10R		Climb Out	0.003	0.000	0.000	0.000	0.090	0.007	0.000	0.000	6.730
		Takeoff	0.002	0.000	0.000	0.000	0.072	0.004	0.000	0.000	4.666
		Idle	0.276	0.028	0.028	0.029	0.031	0.008	0.000	0.000	7.172
Embraer ERJ 145	AE3007A1E	Approach	0.040	0.000	0.000	0.000	0.052	0.007	0.000	0.000	6.990
10R		Climb Out	0.004	0.000	0.000	0.000	0.107	0.007	0.000	0.000	7.161
		Takeoff	0.003	0.000	0.000	0.000	0.086	0.006	0.000	0.000	4.992
		Idle	0.268	0.025	0.025	0.026	0.030	0.007	0.000	0.000	7.068
Embraer ERJ 145	AE3007A	Approach	0.012	0.002	0.002	0.002	0.029	0.003	0.000	0.000	3.689
10R		Climb Out	0.003	0.001	0.001	0.001	0.062	0.003	0.000	0.000	3.565
		Takeoff	0.002	0.001	0.001	0.001	0.051	0.002	0.000	0.000	2.471
		Idle	0.068	0.010	0.010	0.011	0.015	0.004	0.000	0.000	3.946
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.076	0.000	0.000	0.000	0.080	0.011	0.000	0.000	11.236
10R		Climb Out	0.006	0.000	0.000	0.000	0.149	0.011	0.000	0.000	10.604
		Takeoff	0.007	0.000	0.000	0.000	0.148	0.009	0.000	0.000	9.171
		Idle	0.496	0.047	0.047	0.051	0.052	0.012	0.000	0.000	12.421
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	0.295	0.001	0.001	0.001	0.269	0.039	0.000	0.000	38.734
10R		Climb Out	0.020	0.001	0.001	0.001	0.522	0.039	0.000	0.000	38.712
		Takeoff	0.013	0.001	0.001	0.001	0.413	0.026	0.000	0.000	26.838
		Idle	1.587	0.158	0.158	0.168	0.176	0.041	0.000	0.000	41.251
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.202	0.001	0.001	0.001	0.212	0.030	0.000	0.000	29.709
10R		Climb Out	0.015	0.001	0.001	0.001	0.394	0.028	0.000	0.000	28.063
		Takeoff	0.018	0.001	0.001	0.001	0.390	0.024	0.000	0.000	24.264
		Idle	1.314	0.127	0.127	0.136	0.137	0.033	0.000	0.000	32.801
Embraer ERJ 170	CF34-8E5	Approach	0.087	0.001	0.001	0.001	0.222	0.021	0.002	0.002	20.534
10R		Climb Out	0.007	0.000	0.000	0.000	0.140	0.011	0.000	0.000	11.046
		Takeoff	0.012	0.000	0.000	0.000	0.273	0.019	0.002	0.002	18.541
		Idle	0.355	0.002	0.002	0.003	0.090	0.020	0.002	0.002	19.540
F-27 SERIES	RDa7	Approach	0.225	0.020	0.020	0.022	0.007	0.007	N/A	N/A	6.751
10R_GA		Climb Out	0.017	0.006	0.006	0.006	0.021	0.004	N/A	N/A	4.708
		Takeoff	0.010	0.003	0.003	0.003	0.017	0.003	N/A	N/A	3.028
		Idle	0.703	0.184	0.184	0.203	0.006	0.008	N/A	N/A	7.693
Falcon 20	CF700-2D	Approach	0.428	0.010	0.010	0.010	0.012	0.007	N/A	N/A	6.891
10R_GA		Climb Out	0.096	0.000	0.000	0.000	0.017	0.003	N/A	N/A	3.827
		Takeoff	0.112	0.000	0.000	0.000	0.029	0.006	N/A	N/A	5.103
		Idle	1.243	0.144	0.144	0.153	0.007	0.008	N/A	N/A	8.020
Falcon 2000EX	PW308C	Approach	0.021	0.001	0.001	0.001	0.031	0.004	0.000	0.000	3.989
10R_Corp		Climb Out	0.002	0.000	0.000	0.000	0.034	0.002	0.000	0.000	2.136
		Takeoff	0.002	0.000	0.000	0.000	0.051	0.003	0.000	0.000	2.778
		Idle	0.136	0.019	0.019	0.020	0.012	0.003	0.000	0.000	3.203
Gulfstream II	SPEY MK511-8	Approach	0.036	0.002	0.002	0.002	0.099	0.013	N/A	N/A	13.749
10R_GA		Climb Out	0.007	0.001	0.001	0.001	0.185	0.011	N/A	N/A	10.682
		Takeoff	0.001	0.001	0.001	0.001	0.283	0.012	N/A	N/A	12.504
		Idle	0.558	0.065	0.065	0.069	0.063	0.018	N/A	N/A	17.563
Gulfstream IV	TAY Mk611-8	Approach	0.095	0.022	0.022	0.023	0.138	0.024	0.014	0.014	24.253
10R_GA		Climb Out	0.009	0.003	0.003	0.003	0.184	0.011	0.007	0.007	10.950
		Takeoff	0.011	0.012	0.012	0.013	0.321	0.015	0.009	0.009	15.191
		Idle	0.784	0.110	0.110	0.118	0.082	0.032	0.019	0.019	32.503
HS 125	TFE731-3	Approach	0.114	0.010	0.010	0.011	0.051	0.004	N/A	N/A	7.305
10R_Corp		Climb Out	0.006	0.000	0.000	0.000	0.051	0.002	N/A	N/A	3.163
		Takeoff	0.006	0.000	0.000	0.000	0.094	0.002	N/A	N/A	4.917
		Idle	0.340	0.064	0.064	0.071	0.026	0.003	N/A	N/A	7.114
KC-135R	CFM56-2B-1	Approach	0.054	0.001	0.001	0.001	0.106	0.013	0.000	0.000	12.861
10R_GA		Climb Out	0.013	0.001	0.001	0.001	0.235	0.014	0.000	0.000	14.651
		Takeoff	0.019	0.001	0.001	0.001	0.390	0.021	0.001	0.001	21.068
		Idle	0.535	0.032	0.032	0.035	0.069	0.018	0.000	0.000	17.405
Learjet 25C	CJ610-6	Approach	0.649	0.000	0.000	0.000	0.011	0.004	N/A	N/A	7.379
10R_GA		Climb Out	0.077	0.001	0.001	0.001	0.010	0.001	N/A	N/A	2.760
		Takeoff	0.117	0.000	0.000	0.000	0.018	0.002	N/A	N/A	4.312
		Idle	1.530	0.177	0.177	0.188	0.009	0.006	N/A	N/A	9.872

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36	TFE 731-2-2B	Approach	0.433	0.083	0.083	0.088	0.115	0.010	N/A	N/A	19.355
10R_GA		Climb Out	0.018	0.001	0.001	0.001	0.114	0.004	N/A	N/A	8.686
		Takeoff	0.014	0.001	0.001	0.001	0.159	0.006	N/A	N/A	10.434
		Idle	0.988	0.337	0.337	0.359	0.047	0.009	N/A	N/A	16.854
MD-80-83	JT8D-219 old...	Approach	0.212	0.083	0.083	0.090	0.474	0.052	0.015	0.015	51.887
10R		Climb Out	0.053	0.019	0.019	0.021	0.926	0.044	0.013	0.013	44.526
		Takeoff	0.036	0.013	0.013	0.014	1.326	0.050	0.014	0.014	49.116
		Idle	0.647	0.179	0.179	0.195	0.184	0.052	0.015	0.015	51.264
Navajo	TIO-540-J2B2	Approach	4.095	0.044	0.044	0.042	0.004	0.000	N/A	N/A	3.251
10R_GA		Climb Out	3.423	0.039	0.039	0.037	0.000	0.000	N/A	N/A	2.327
		Takeoff	2.282	0.020	0.020	0.019	0.001	0.000	N/A	N/A	1.582
		Idle	2.070	0.109	0.109	0.105	0.001	0.000	N/A	N/A	1.601
Piper PA-28	O-320	Approach	0.466	0.008	0.008	0.007	0.000	0.000	N/A	N/A	0.381
10R_GA		Climb Out	0.224	0.003	0.003	0.002	0.001	0.000	N/A	N/A	0.226
		Takeoff	0.151	0.002	0.002	0.001	0.000	0.000	N/A	N/A	0.140
		Idle	0.091	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.085
UC-12J	PT6A-42	Approach	0.268	0.175	0.175	0.193	0.035	0.004	N/A	N/A	7.715
10R_GA		Climb Out	0.012	0.003	0.003	0.004	0.014	0.001	N/A	N/A	1.835
		Takeoff	0.008	0.002	0.002	0.003	0.011	0.001	N/A	N/A	1.436
		Idle	0.584	0.515	0.515	0.569	0.010	0.002	N/A	N/A	5.076
Aztec	TIO-540-J2B2	Approach	19.346	0.206	0.206	0.198	0.021	0.002	N/A	N/A	15.354
28L_GA		Climb Out	16.169	0.183	0.183	0.176	0.002	0.001	N/A	N/A	10.991
		Takeoff	10.777	0.093	0.093	0.089	0.002	0.001	N/A	N/A	7.474
		Idle	9.782	0.515	0.515	0.496	0.003	0.001	N/A	N/A	7.560
B737-300	CFM56-3-B1	Approach	0.817	0.018	0.018	0.019	1.785	0.215	0.002	0.002	215.048
28L		Climb Out	0.105	0.006	0.006	0.006	1.714	0.110	0.001	0.001	110.606
		Takeoff	0.131	0.006	0.006	0.007	2.569	0.146	0.004	0.004	145.138
		Idle	7.984	0.529	0.529	0.579	0.905	0.233	0.002	0.002	232.082
B737-300	CFM56-3B-2	Approach	0.170	0.003	0.003	0.004	0.434	0.050	0.001	0.001	49.951
28L		Climb Out	0.023	0.001	0.001	0.001	0.440	0.026	0.000	0.000	26.304
		Takeoff	0.031	0.001	0.001	0.001	0.675	0.035	0.002	0.002	34.756
		Idle	1.564	0.091	0.091	0.099	0.213	0.052	0.000	0.000	51.972
B737-300	CFM56-3C-1 ...	Approach	0.288	0.006	0.006	0.006	0.548	0.068	0.001	0.001	68.479
28L		Climb Out	0.034	0.002	0.002	0.002	0.508	0.034	0.000	0.000	34.580
		Takeoff	0.041	0.002	0.002	0.002	0.752	0.045	0.001	0.001	45.254
		Idle	2.912	0.218	0.218	0.239	0.291	0.076	0.001	0.001	76.440
B737-500	CFM56-3C-1	Approach	0.212	0.004	0.004	0.006	0.622	0.068	0.001	0.001	68.275
28L		Climb Out	0.036	0.001	0.001	0.002	0.726	0.041	0.001	0.001	40.784
		Takeoff	0.049	0.001	0.001	0.002	1.109	0.054	0.006	0.006	53.598
		Idle	1.817	0.096	0.096	0.106	0.291	0.068	0.001	0.001	67.802
B737-700	CFM56-7B22	Approach	0.667	0.026	0.026	0.029	2.666	0.267	0.056	0.056	266.639
28L		Climb Out	0.096	0.017	0.017	0.018	3.046	0.160	0.034	0.034	160.307
		Takeoff	0.115	0.023	0.023	0.025	5.289	0.229	0.049	0.049	228.972
		Idle	5.763	0.632	0.632	0.692	1.138	0.252	0.053	0.053	252.777
B737-800	CFM56-7B26	Approach	0.165	0.010	0.010	0.011	1.114	0.104	0.031	0.031	103.195
28L		Climb Out	0.043	0.007	0.007	0.008	1.612	0.072	0.022	0.022	71.624
		Takeoff	0.020	0.010	0.010	0.011	2.918	0.101	0.031	0.031	101.311
		Idle	1.768	0.179	0.179	0.195	0.442	0.094	0.029	0.029	94.034
B757-300	PW2043	Approach	0.037	0.002	0.002	0.003	0.301	0.028	N/A	N/A	28.079
28L		Climb Out	0.008	0.000	0.000	0.000	0.531	0.019	N/A	N/A	19.057
		Takeoff	0.008	0.000	0.000	0.000	0.978	0.025	N/A	N/A	25.887
		Idle	0.459	0.037	0.037	0.041	0.105	0.024	N/A	N/A	23.732
BAE146-300	LF507 SERIES	Approach	0.097	0.002	0.002	0.003	0.140	0.022	0.002	0.002	21.884
28L		Climb Out	0.008	0.000	0.000	0.000	0.293	0.024	0.003	0.003	24.405
		Takeoff	0.004	0.000	0.000	0.000	0.301	0.021	0.003	0.003	20.739
		Idle	0.938	0.117	0.117	0.128	0.082	0.025	0.002	0.002	24.811
Bombardier CRJ700	CF34-8C1	Approach	1.551	0.032	0.032	0.035	5.916	0.532	0.026	0.026	532.934
28L		Climb Out	0.142	0.006	0.006	0.007	3.653	0.284	0.001	0.001	284.924
		Takeoff	0.196	0.010	0.010	0.010	7.011	0.478	0.023	0.023	477.920
		Idle	14.508	0.046	0.046	0.051	2.509	0.582	0.029	0.029	582.174
CITATION I SP	JT15D-1A ,1B	Approach	0.214	0.023	0.023	0.025	0.018	0.003	0.002	0.002	5.286
28L_GA		Climb Out	0.011	0.000	0.000	0.000	0.021	0.002	0.001	0.001	3.158
		Takeoff	0.009	0.000	0.000	0.000	0.026	0.002	0.001	0.001	3.510
		Idle	0.682	0.261	0.261	0.278	0.009	0.003	0.001	0.001	5.167
CL600	ALF 502L-2	Approach	0.347	0.017	0.017	0.017	0.565	0.047	0.010	0.010	87.375
28L_GA		Climb Out	0.013	0.001	0.001	0.001	0.549	0.024	0.011	0.011	45.609
		Takeoff	0.025	0.001	0.001	0.001	0.837	0.034	0.007	0.007	62.297
		Idle	4.129	0.602	0.602	0.639	0.305	0.049	0.001	0.001	90.495
Cessna 172 Skyhawk	O-320	Approach	7.322	0.117	0.117	0.112	0.006	0.001	N/A	N/A	6.002
28L_GA		Climb Out	3.948	0.050	0.050	0.047	0.015	0.000	N/A	N/A	3.988

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	2.982	0.033	0.033	0.032	0.006	0.000	N/A	N/A	2.761
		Idle	1.834	0.063	0.063	0.061	0.001	0.000	N/A	N/A	1.699
Cessna 441 Conqu...	TPE331-8	Approach	0.033	0.001	0.001	0.001	0.073	0.008	N/A	N/A	7.611
28L_GA		Climb Out	0.002	0.000	0.000	0.000	0.018	0.001	N/A	N/A	1.612
		Takeoff	0.002	0.000	0.000	0.000	0.021	0.002	N/A	N/A	1.860
		Idle	0.100	0.008	0.008	0.009	0.022	0.006	N/A	N/A	5.315
DC9-30	JT8D-15 (old ...	Approach	0.989	0.170	0.170	0.186	0.607	0.103	0.074	0.074	103.032
28L		Climb Out	0.091	0.023	0.023	0.025	1.366	0.091	0.066	0.066	91.037
		Takeoff	0.067	0.024	0.024	0.026	1.840	0.096	0.069	0.069	96.317
		Idle	4.356	1.361	1.361	1.490	0.371	0.123	0.089	0.089	123.753
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.541	0.002	0.002	0.002	0.493	0.071	0.000	0.000	71.080
28L		Climb Out	0.035	0.002	0.002	0.002	0.958	0.071	0.000	0.000	71.040
		Takeoff	0.024	0.001	0.001	0.001	0.759	0.050	0.000	0.000	49.250
		Idle	2.912	0.289	0.289	0.306	0.323	0.076	0.000	0.000	75.697
Embraer ERJ 145	AE3007A	Approach	0.123	0.024	0.024	0.025	0.293	0.037	0.000	0.000	37.578
28L		Climb Out	0.033	0.011	0.011	0.011	0.634	0.036	0.000	0.000	36.311
		Takeoff	0.019	0.007	0.007	0.007	0.517	0.025	0.000	0.000	25.176
		Idle	0.698	0.101	0.101	0.107	0.154	0.040	0.000	0.000	40.201
Embraer ERJ 145	AE3007A1E	Approach	0.398	0.002	0.002	0.002	0.525	0.071	0.000	0.000	70.669
28L		Climb Out	0.046	0.002	0.002	0.002	1.079	0.073	0.000	0.000	72.393
		Takeoff	0.039	0.001	0.001	0.001	0.866	0.051	0.000	0.000	50.473
		Idle	2.713	0.251	0.251	0.268	0.304	0.072	0.000	0.000	71.456
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	2.048	0.009	0.009	0.010	2.144	0.301	0.000	0.000	301.177
28L		Climb Out	0.157	0.009	0.009	0.009	3.986	0.284	0.000	0.000	284.481
		Takeoff	0.182	0.008	0.008	0.008	3.961	0.246	0.000	0.000	245.972
		Idle	13.324	1.290	1.290	1.371	1.387	0.333	0.000	0.000	332.518
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	2.988	0.012	0.012	0.012	2.718	0.392	0.000	0.000	392.237
28L		Climb Out	0.196	0.012	0.012	0.012	5.288	0.392	0.000	0.000	392.008
		Takeoff	0.136	0.008	0.008	0.009	4.191	0.272	0.000	0.000	271.772
		Idle	16.069	1.592	1.592	1.692	1.784	0.418	0.000	0.000	417.712
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.773	0.003	0.003	0.003	0.810	0.114	0.000	0.000	113.722
28L		Climb Out	0.060	0.003	0.003	0.003	1.504	0.107	0.000	0.000	107.323
		Takeoff	0.068	0.003	0.003	0.003	1.495	0.093	0.000	0.000	92.820
		Idle	5.025	0.485	0.485	0.516	0.525	0.126	0.000	0.000	125.719
Embraer ERJ 170	CF34-8E5	Approach	0.935	0.013	0.013	0.014	2.380	0.220	0.025	0.025	221.012
28L		Climb Out	0.067	0.002	0.002	0.002	1.504	0.119	0.001	0.001	118.900
		Takeoff	0.128	0.004	0.004	0.004	2.948	0.200	0.023	0.023	199.558
		Idle	3.820	0.028	0.028	0.030	0.970	0.211	0.024	0.024	210.314
F-27 SERIES	RDa7	Approach	0.583	0.053	0.053	0.058	0.015	0.018	N/A	N/A	17.526
28L_GA		Climb Out	0.043	0.013	0.013	0.014	0.055	0.012	N/A	N/A	12.225
		Takeoff	0.025	0.008	0.008	0.009	0.044	0.008	N/A	N/A	7.863
		Idle	1.825	0.477	0.477	0.527	0.014	0.020	N/A	N/A	19.973
Falcon 20	CF700-2D	Approach	0.701	0.015	0.015	0.017	0.020	0.011	N/A	N/A	11.306
28L_GA		Climb Out	0.157	0.001	0.001	0.001	0.026	0.007	N/A	N/A	6.280
		Takeoff	0.184	0.001	0.001	0.001	0.047	0.009	N/A	N/A	8.372
		Idle	2.040	0.237	0.237	0.251	0.012	0.013	N/A	N/A	13.160
Gulfstream II	SPEY MK511-8	Approach	0.060	0.004	0.004	0.004	0.162	0.022	N/A	N/A	22.559
28L_GA		Climb Out	0.011	0.002	0.002	0.002	0.303	0.018	N/A	N/A	17.528
		Takeoff	0.002	0.002	0.002	0.002	0.465	0.021	N/A	N/A	20.516
		Idle	0.916	0.106	0.106	0.114	0.104	0.029	N/A	N/A	28.817
HS 125	TFE731-3	Approach	1.230	0.111	0.111	0.123	0.547	0.043	N/A	N/A	79.032
28L_Corp		Climb Out	0.055	0.002	0.002	0.002	0.548	0.019	N/A	N/A	34.209
		Takeoff	0.061	0.003	0.003	0.003	1.019	0.029	N/A	N/A	53.205
		Idle	3.672	0.696	0.696	0.768	0.287	0.042	N/A	N/A	76.966
KC-135R	CFM56-2B-1	Approach	0.117	0.002	0.002	0.002	0.228	0.028	0.000	0.000	27.821
28L_GA		Climb Out	0.029	0.001	0.001	0.002	0.507	0.032	0.000	0.000	31.695
		Takeoff	0.041	0.002	0.002	0.002	0.843	0.045	0.002	0.002	45.576
		Idle	1.156	0.069	0.069	0.076	0.151	0.037	0.000	0.000	37.654
Learjet 25C	CJ610-6	Approach	6.612	0.000	0.000	0.000	0.112	0.041	N/A	N/A	75.131
28L_GA		Climb Out	0.787	0.006	0.006	0.006	0.098	0.015	N/A	N/A	28.105
		Takeoff	1.186	0.004	0.004	0.004	0.184	0.024	N/A	N/A	43.913
		Idle	15.581	1.809	1.809	1.924	0.090	0.054	N/A	N/A	100.522
Learjet 35/36	TFE 731-2-2B	Approach	0.623	0.118	0.118	0.126	0.164	0.015	N/A	N/A	27.806
28L_GA		Climb Out	0.025	0.001	0.001	0.002	0.163	0.007	N/A	N/A	12.479
		Takeoff	0.021	0.002	0.002	0.002	0.228	0.008	N/A	N/A	14.989
		Idle	1.419	0.485	0.485	0.516	0.068	0.013	N/A	N/A	24.212
MD-80-83	JT8D-219 old...	Approach	0.282	0.110	0.110	0.120	0.633	0.069	0.021	0.021	69.308
28L		Climb Out	0.072	0.025	0.025	0.028	1.237	0.060	0.018	0.018	59.475
		Takeoff	0.047	0.018	0.018	0.020	1.771	0.066	0.019	0.019	65.605
		Idle	0.865	0.238	0.238	0.261	0.247	0.068	0.020	0.020	68.476

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Navajo	TIO-540-J2B2	Approach	16.271	0.173	0.173	0.166	0.018	0.001	N/A	N/A	12.914
28L_GA		Climb Out	13.599	0.153	0.153	0.148	0.002	0.001	N/A	N/A	9.245
		Takeoff	9.064	0.078	0.078	0.075	0.002	0.001	N/A	N/A	6.286
		Idle	8.228	0.433	0.433	0.418	0.002	0.001	N/A	N/A	6.358
Piper PA-28	O-320	Approach	0.801	0.013	0.013	0.012	0.001	0.000	N/A	N/A	0.657
28L_GA		Climb Out	0.386	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.389
		Takeoff	0.260	0.003	0.003	0.002	0.000	0.000	N/A	N/A	0.241
		Idle	0.158	0.006	0.006	0.006	0.000	0.000	N/A	N/A	0.147
UC-12J	PT6A-42	Approach	0.362	0.236	0.236	0.261	0.049	0.006	N/A	N/A	10.411
28L_GA		Climb Out	0.017	0.006	0.006	0.006	0.019	0.001	N/A	N/A	2.477
		Takeoff	0.010	0.003	0.003	0.003	0.015	0.001	N/A	N/A	1.939
		Idle	0.788	0.696	0.696	0.768	0.013	0.003	N/A	N/A	6.851
550 Citation	JT15D-4 (B,C...	Approach	3.222	0.518	0.518	0.551	0.532	0.054	0.029	0.029	100.685
28L_Corp		Climb Out	0.172	0.010	0.010	0.011	0.462	0.029	0.015	0.015	53.933
		Takeoff	0.123	0.006	0.006	0.006	0.543	0.032	0.017	0.017	58.933
		Idle	9.633	3.973	3.973	4.223	0.261	0.054	0.028	0.028	99.314
Falcon 2000EX	PW308C	Approach	0.237	0.007	0.007	0.007	0.355	0.045	0.004	0.004	45.312
28L_Corp		Climb Out	0.023	0.002	0.002	0.002	0.388	0.024	0.002	0.002	24.264
		Takeoff	0.025	0.003	0.003	0.003	0.582	0.032	0.003	0.003	31.554
		Idle	1.539	0.216	0.216	0.229	0.132	0.036	0.003	0.003	36.388
550 Citation	JT15D-4 (B,C...	Approach	0.677	0.109	0.109	0.116	0.111	0.011	0.006	0.006	21.150
28L_GA		Climb Out	0.036	0.002	0.002	0.002	0.097	0.007	0.003	0.003	11.330
		Takeoff	0.026	0.001	0.001	0.001	0.115	0.007	0.003	0.003	12.380
		Idle	2.024	0.834	0.834	0.887	0.055	0.011	0.006	0.006	20.862
Gulfstream IV	TAY Mk611-8	Approach	0.375	0.087	0.087	0.093	0.549	0.096	0.057	0.057	96.235
28L_GA		Climb Out	0.035	0.013	0.013	0.014	0.730	0.043	0.025	0.025	43.451
		Takeoff	0.042	0.049	0.049	0.052	1.272	0.061	0.035	0.035	60.279
		Idle	3.109	0.439	0.439	0.466	0.323	0.129	0.076	0.076	128.973
Aztec	TIO-540-J2B2	Approach	19.346	0.206	0.206	0.198	0.021	0.002	N/A	N/A	15.354
28R_GA		Climb Out	16.169	0.183	0.183	0.176	0.002	0.001	N/A	N/A	10.991
		Takeoff	10.777	0.093	0.093	0.089	0.002	0.001	N/A	N/A	7.474
		Idle	9.782	0.515	0.515	0.496	0.003	0.001	N/A	N/A	7.560
B737-300	CFM56-3-B1	Approach	1.398	0.030	0.030	0.032	3.053	0.368	0.004	0.004	367.911
28R		Climb Out	0.180	0.010	0.010	0.010	2.933	0.190	0.002	0.002	189.228
		Takeoff	0.224	0.010	0.010	0.011	4.395	0.248	0.008	0.008	248.307
		Idle	13.659	0.905	0.905	0.991	1.549	0.397	0.004	0.004	397.053
B737-300	CFM56-3B-2	Approach	0.277	0.006	0.006	0.007	0.709	0.082	0.001	0.001	81.426
28R		Climb Out	0.039	0.002	0.002	0.002	0.717	0.043	0.001	0.001	42.879
		Takeoff	0.051	0.002	0.002	0.002	1.099	0.056	0.003	0.003	56.657
		Idle	2.550	0.148	0.148	0.162	0.347	0.085	0.001	0.001	84.718
B737-300	CFM56-3C-1 ...	Approach	0.486	0.009	0.009	0.010	0.926	0.116	0.001	0.001	115.720
28R		Climb Out	0.058	0.003	0.003	0.003	0.859	0.058	0.001	0.001	58.435
		Takeoff	0.068	0.003	0.003	0.004	1.270	0.076	0.001	0.001	76.474
		Idle	4.922	0.369	0.369	0.405	0.491	0.129	0.001	0.001	129.172
B737-500	CFM56-3C-1	Approach	0.362	0.008	0.008	0.009	1.060	0.117	0.001	0.001	116.529
28R		Climb Out	0.063	0.003	0.003	0.003	1.239	0.069	0.002	0.002	69.609
		Takeoff	0.083	0.002	0.002	0.003	1.894	0.091	0.009	0.009	91.479
		Idle	3.101	0.164	0.164	0.180	0.497	0.116	0.001	0.001	115.722
B737-700	CFM56-7B22	Approach	1.121	0.045	0.045	0.050	4.482	0.449	0.094	0.094	448.201
28R		Climb Out	0.162	0.026	0.026	0.030	5.120	0.269	0.056	0.056	269.463
		Takeoff	0.193	0.039	0.039	0.042	8.891	0.385	0.080	0.080	384.885
		Idle	9.688	1.063	1.063	1.163	1.913	0.424	0.089	0.089	424.898
B737-800	CFM56-7B26	Approach	0.278	0.018	0.018	0.019	1.872	0.173	0.053	0.053	173.347
28R		Climb Out	0.072	0.012	0.012	0.013	2.707	0.120	0.036	0.036	120.314
		Takeoff	0.034	0.017	0.017	0.019	4.901	0.170	0.052	0.052	170.183
		Idle	2.970	0.300	0.300	0.328	0.742	0.158	0.047	0.047	157.958
B757-300	PW2043	Approach	0.061	0.004	0.004	0.004	0.488	0.045	N/A	N/A	45.662
28R		Climb Out	0.012	0.001	0.001	0.001	0.864	0.031	N/A	N/A	30.989
		Takeoff	0.012	0.000	0.000	0.000	1.590	0.042	N/A	N/A	42.097
		Idle	0.745	0.061	0.061	0.066	0.171	0.039	N/A	N/A	38.591
BAE146-300	LF507 SERIES	Approach	0.040	0.001	0.001	0.001	0.057	0.009	0.001	0.001	8.928
28R		Climb Out	0.003	0.000	0.000	0.000	0.120	0.010	0.001	0.001	9.956
		Takeoff	0.002	0.000	0.000	0.000	0.122	0.009	0.001	0.001	8.460
		Idle	0.383	0.047	0.047	0.052	0.033	0.010	0.001	0.001	10.121
Bombardier CRJ700	CF34-8C1	Approach	0.621	0.013	0.013	0.014	2.366	0.213	0.010	0.010	213.122
28R		Climb Out	0.057	0.002	0.002	0.002	1.461	0.114	0.001	0.001	113.943
		Takeoff	0.078	0.003	0.003	0.004	2.804	0.191	0.009	0.009	191.122
		Idle	5.801	0.019	0.019	0.020	1.003	0.233	0.011	0.011	232.814
CITATION I SP	JT15D-1A ,1B	Approach	0.499	0.055	0.055	0.058	0.042	0.007	0.004	0.004	12.323
28R_GA		Climb Out	0.025	0.000	0.000	0.000	0.050	0.004	0.002	0.002	7.363

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.022	0.000	0.000	0.000	0.062	0.004	0.002	0.002	8.182
		Idle	1.590	0.608	0.608	0.647	0.021	0.007	0.003	0.003	12.045
CL600	ALF 502L-2	Approach	0.133	0.007	0.007	0.007	0.218	0.018	0.004	0.004	33.654
28R_GA		Climb Out	0.006	0.000	0.000	0.000	0.212	0.010	0.004	0.004	17.568
		Takeoff	0.010	0.000	0.000	0.000	0.322	0.013	0.002	0.002	23.994
		Idle	1.591	0.231	0.231	0.247	0.118	0.019	0.001	0.001	34.856
Cessna 172 Skyhawk	O-320	Approach	8.636	0.138	0.138	0.132	0.007	0.001	N/A	N/A	7.078
28R_GA		Climb Out	4.656	0.058	0.058	0.056	0.019	0.000	N/A	N/A	4.704
		Takeoff	3.516	0.039	0.039	0.037	0.007	0.000	N/A	N/A	3.256
		Idle	2.163	0.074	0.074	0.072	0.001	0.000	N/A	N/A	2.003
Cessna 441 Conqu...	TPE331-8	Approach	0.067	0.003	0.003	0.003	0.148	0.015	N/A	N/A	15.526
28R_GA		Climb Out	0.006	0.000	0.000	0.000	0.035	0.003	N/A	N/A	3.288
		Takeoff	0.006	0.000	0.000	0.000	0.042	0.003	N/A	N/A	3.794
		Idle	0.204	0.017	0.017	0.017	0.045	0.011	N/A	N/A	10.842
DC9-30	JT8D-15 (old ...	Approach	1.660	0.285	0.285	0.312	1.020	0.173	0.125	0.125	172.898
28R		Climb Out	0.153	0.039	0.039	0.042	2.292	0.153	0.110	0.110	152.769
		Takeoff	0.114	0.041	0.041	0.044	3.088	0.162	0.117	0.117	161.630
		Idle	7.311	2.284	2.284	2.501	0.623	0.207	0.150	0.150	207.671
Embraer ERJ 135/140	AE3007A1/3 ...	Approach	0.204	0.001	0.001	0.001	0.186	0.026	0.000	0.000	26.820
28R		Climb Out	0.013	0.001	0.001	0.001	0.362	0.026	0.000	0.000	26.805
		Takeoff	0.009	0.001	0.001	0.001	0.287	0.019	0.000	0.000	18.584
		Idle	1.099	0.109	0.109	0.116	0.122	0.029	0.000	0.000	28.563
Embraer ERJ 145	AE3007A	Approach	0.049	0.010	0.010	0.010	0.115	0.014	0.000	0.000	14.694
28R		Climb Out	0.013	0.004	0.004	0.004	0.248	0.014	0.000	0.000	14.198
		Takeoff	0.008	0.002	0.002	0.002	0.202	0.010	0.000	0.000	9.844
		Idle	0.272	0.040	0.040	0.042	0.061	0.015	0.000	0.000	15.719
Embraer ERJ 145	AE3007A1E	Approach	0.155	0.001	0.001	0.001	0.205	0.028	0.000	0.000	27.639
28R		Climb Out	0.018	0.001	0.001	0.001	0.422	0.029	0.000	0.000	28.313
		Takeoff	0.015	0.001	0.001	0.001	0.338	0.020	0.000	0.000	19.740
		Idle	1.062	0.098	0.098	0.105	0.119	0.028	0.000	0.000	27.947
Embraer ERJ 145LR	AE3007A1/1 ...	Approach	0.800	0.003	0.003	0.003	0.839	0.118	0.000	0.000	117.760
28R		Climb Out	0.061	0.003	0.003	0.003	1.559	0.111	0.000	0.000	111.232
		Takeoff	0.072	0.003	0.003	0.003	1.549	0.096	0.000	0.000	96.176
		Idle	5.210	0.505	0.505	0.537	0.542	0.130	0.000	0.000	130.015
Embraer ERJ 145LR	AE3007A1/3 ...	Approach	1.168	0.004	0.004	0.004	1.063	0.153	0.000	0.000	153.384
28R		Climb Out	0.077	0.004	0.004	0.004	2.068	0.153	0.000	0.000	153.295
		Takeoff	0.053	0.003	0.003	0.003	1.639	0.106	0.000	0.000	106.276
		Idle	6.284	0.623	0.623	0.661	0.698	0.163	0.000	0.000	163.346
Embraer ERJ 145LR	AE3007A1P (...	Approach	0.302	0.001	0.001	0.001	0.316	0.044	0.000	0.000	44.490
28R		Climb Out	0.023	0.001	0.001	0.001	0.589	0.042	0.000	0.000	41.987
		Takeoff	0.026	0.001	0.001	0.001	0.584	0.036	0.000	0.000	36.312
		Idle	1.965	0.190	0.190	0.202	0.205	0.050	0.000	0.000	49.183
Embraer ERJ 170	CF34-8E5	Approach	0.374	0.006	0.006	0.006	0.951	0.088	0.010	0.010	88.368
28R		Climb Out	0.028	0.001	0.001	0.001	0.602	0.047	0.001	0.001	47.540
		Takeoff	0.051	0.001	0.001	0.002	1.178	0.079	0.009	0.009	79.790
		Idle	1.527	0.011	0.011	0.012	0.388	0.084	0.010	0.010	84.091
F-27 SERIES	RDa7	Approach	0.485	0.044	0.044	0.049	0.013	0.014	N/A	N/A	14.553
28R_GA		Climb Out	0.035	0.011	0.011	0.012	0.045	0.010	N/A	N/A	10.151
		Takeoff	0.021	0.007	0.007	0.008	0.036	0.007	N/A	N/A	6.529
		Idle	1.516	0.397	0.397	0.438	0.012	0.017	N/A	N/A	16.585
Falcon 20	CF700-2D	Approach	1.663	0.037	0.037	0.040	0.049	0.026	N/A	N/A	26.827
28R_GA		Climb Out	0.373	0.001	0.001	0.001	0.064	0.015	N/A	N/A	14.900
		Takeoff	0.437	0.002	0.002	0.002	0.111	0.020	N/A	N/A	19.864
		Idle	4.840	0.562	0.562	0.597	0.028	0.031	N/A	N/A	31.226
Gulfstream II	SPEY MK511-8	Approach	0.142	0.010	0.010	0.010	0.386	0.054	N/A	N/A	53.528
28R_GA		Climb Out	0.026	0.006	0.006	0.006	0.720	0.042	N/A	N/A	41.590
		Takeoff	0.006	0.004	0.004	0.004	1.105	0.049	N/A	N/A	48.679
		Idle	2.173	0.252	0.252	0.268	0.246	0.068	N/A	N/A	68.375
HS 125	TFE731-3	Approach	0.494	0.045	0.045	0.050	0.219	0.018	N/A	N/A	31.728
28R_Corp		Climb Out	0.022	0.001	0.001	0.001	0.220	0.008	N/A	N/A	13.734
		Takeoff	0.024	0.001	0.001	0.001	0.409	0.011	N/A	N/A	21.359
		Idle	1.474	0.279	0.279	0.309	0.115	0.017	N/A	N/A	30.898
KC-135R	CFM56-2B-1	Approach	0.191	0.003	0.003	0.004	0.373	0.045	0.001	0.001	45.406
28R_GA		Climb Out	0.046	0.002	0.002	0.003	0.828	0.052	0.001	0.001	51.728
		Takeoff	0.067	0.003	0.003	0.003	1.376	0.074	0.004	0.004	74.384
		Idle	1.887	0.112	0.112	0.125	0.246	0.062	0.001	0.001	61.454
Learjet 25C	CJ610-6	Approach	2.738	0.000	0.000	0.000	0.046	0.017	N/A	N/A	31.117
28R_GA		Climb Out	0.326	0.002	0.002	0.002	0.041	0.007	N/A	N/A	11.640
		Takeoff	0.491	0.002	0.002	0.002	0.076	0.010	N/A	N/A	18.188
		Idle	6.453	0.750	0.750	0.797	0.037	0.022	N/A	N/A	41.633

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Learjet 35/36	TFE 731-2-2B	Approach	1.465	0.279	0.279	0.297	0.386	0.035	N/A	N/A	65.438
28R_GA		Climb Out	0.060	0.003	0.003	0.004	0.384	0.015	N/A	N/A	29.368
		Takeoff	0.050	0.004	0.004	0.004	0.538	0.019	N/A	N/A	35.277
		Idle	3.339	1.142	1.142	1.214	0.161	0.031	N/A	N/A	56.983
MD-80-83	JT8D-219 old...	Approach	0.506	0.197	0.197	0.216	1.134	0.125	0.036	0.036	124.192
28R		Climb Out	0.128	0.045	0.045	0.049	2.217	0.107	0.032	0.032	106.573
		Takeoff	0.086	0.032	0.032	0.035	3.174	0.118	0.034	0.034	117.558
		Idle	1.550	0.427	0.427	0.467	0.442	0.122	0.036	0.036	122.702
Navajo	TIO-540-J2B2	Approach	14.405	0.153	0.153	0.148	0.015	0.001	N/A	N/A	11.432
28R_GA		Climb Out	12.039	0.136	0.136	0.131	0.002	0.001	N/A	N/A	8.185
		Takeoff	8.025	0.069	0.069	0.066	0.002	0.001	N/A	N/A	5.564
		Idle	7.283	0.384	0.384	0.369	0.002	0.001	N/A	N/A	5.628
Piper PA-28	O-320	Approach	1.633	0.026	0.026	0.025	0.001	0.000	N/A	N/A	1.338
28R_GA		Climb Out	0.786	0.010	0.010	0.010	0.003	0.000	N/A	N/A	0.794
		Takeoff	0.531	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.492
		Idle	0.322	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.298
UC-12J	PT6A-42	Approach	0.659	0.430	0.430	0.475	0.088	0.010	N/A	N/A	18.950
28R_GA		Climb Out	0.029	0.009	0.009	0.010	0.034	0.002	N/A	N/A	4.507
		Takeoff	0.018	0.007	0.007	0.007	0.029	0.002	N/A	N/A	3.530
		Idle	1.435	1.265	1.265	1.398	0.024	0.007	N/A	N/A	12.469
550 Citation	JT15D-4 (B,C...	Approach	1.258	0.203	0.203	0.215	0.208	0.021	0.011	0.011	39.304
28R_Corp		Climb Out	0.067	0.004	0.004	0.004	0.180	0.011	0.006	0.006	21.053
		Takeoff	0.049	0.002	0.002	0.002	0.213	0.012	0.007	0.007	23.005
		Idle	3.761	1.551	1.551	1.649	0.101	0.021	0.011	0.011	38.768
Falcon 2000EX	PW308C	Approach	0.097	0.002	0.002	0.003	0.146	0.019	0.002	0.002	18.516
28R_Corp		Climb Out	0.010	0.001	0.001	0.001	0.159	0.010	0.001	0.001	9.915
		Takeoff	0.010	0.001	0.001	0.001	0.238	0.013	0.001	0.001	12.894
		Idle	0.629	0.088	0.088	0.094	0.054	0.014	0.001	0.001	14.869
550 Citation	JT15D-4 (B,C...	Approach	1.603	0.258	0.258	0.274	0.265	0.028	0.014	0.014	50.075
28R_GA		Climb Out	0.085	0.006	0.006	0.006	0.229	0.014	0.008	0.008	26.824
		Takeoff	0.062	0.002	0.002	0.003	0.270	0.015	0.008	0.008	29.310
		Idle	4.791	1.975	1.975	2.100	0.130	0.026	0.014	0.014	49.393
Gulfstream IV	TAY Mk611-8	Approach	0.359	0.083	0.083	0.088	0.525	0.093	0.054	0.054	92.138
28R_GA		Climb Out	0.033	0.012	0.012	0.013	0.699	0.042	0.024	0.024	41.601
		Takeoff	0.041	0.046	0.046	0.050	1.218	0.057	0.034	0.034	57.713
		Idle	2.976	0.420	0.420	0.446	0.309	0.123	0.073	0.073	123.481
A320-200	V2527-A5	Approach	0.017	0.000	0.000	0.000	0.061	0.007	0.001	0.001	6.802
10L		Climb Out	0.003	0.000	0.000	0.000	0.104	0.004	0.001	0.001	4.656
		Takeoff	0.002	0.000	0.000	0.000	0.136	0.006	0.001	0.001	5.126
		Idle	0.089	0.001	0.001	0.001	0.034	0.008	0.001	0.001	7.165
A320-200	V2527-A5	Approach	0.039	0.001	0.001	0.001	0.139	0.015	0.002	0.002	15.645
10R		Climb Out	0.007	0.000	0.000	0.000	0.239	0.011	0.001	0.001	10.709
		Takeoff	0.007	0.000	0.000	0.000	0.312	0.012	0.001	0.001	11.789
		Idle	0.205	0.002	0.002	0.002	0.077	0.017	0.002	0.002	16.481
A320-200	V2527-A5	Approach	0.032	0.001	0.001	0.001	0.117	0.013	0.001	0.001	13.094
28L		Climb Out	0.006	0.000	0.000	0.000	0.200	0.009	0.001	0.001	8.963
		Takeoff	0.006	0.000	0.000	0.000	0.261	0.010	0.001	0.001	9.867
		Idle	0.172	0.001	0.001	0.001	0.065	0.014	0.002	0.002	13.793
A320-200	V2527-A5	Approach	0.065	0.001	0.001	0.002	0.236	0.026	0.003	0.003	26.528
28R		Climb Out	0.011	0.001	0.001	0.001	0.405	0.018	0.002	0.002	18.159
		Takeoff	0.011	0.001	0.001	0.001	0.530	0.020	0.002	0.002	19.990
		Idle	0.347	0.003	0.003	0.003	0.131	0.028	0.003	0.003	27.945
Citation VII	TFE 731-2-2B	Approach	0.169	0.032	0.032	0.034	0.044	0.004	N/A	N/A	7.561
10L_GA		Climb Out	0.008	0.000	0.000	0.000	0.050	0.002	N/A	N/A	3.799
		Takeoff	0.007	0.001	0.001	0.001	0.075	0.002	N/A	N/A	4.920
		Idle	0.366	0.125	0.125	0.133	0.018	0.003	N/A	N/A	6.237
Citation VII	TFE 731-2-2B	Approach	0.046	0.009	0.009	0.010	0.012	0.001	N/A	N/A	2.076
10R_GA		Climb Out	0.002	0.000	0.000	0.000	0.013	0.001	N/A	N/A	1.043
		Takeoff	0.002	0.000	0.000	0.000	0.021	0.001	N/A	N/A	1.351
		Idle	0.100	0.034	0.034	0.036	0.004	0.001	N/A	N/A	1.713
Citation VII	TFE 731-2-2B	Approach	0.528	0.100	0.100	0.107	0.139	0.013	N/A	N/A	23.582
28L_GA		Climb Out	0.024	0.001	0.001	0.001	0.155	0.007	N/A	N/A	11.848
		Takeoff	0.021	0.002	0.002	0.002	0.234	0.009	N/A	N/A	15.345
		Idle	1.140	0.390	0.390	0.414	0.055	0.011	N/A	N/A	19.456
Citation VII	TFE 731-2-2B	Approach	0.216	0.041	0.041	0.044	0.057	0.006	N/A	N/A	9.676
28R_GA		Climb Out	0.010	0.001	0.001	0.001	0.064	0.002	N/A	N/A	4.861
		Takeoff	0.009	0.001	0.001	0.001	0.096	0.003	N/A	N/A	6.296
		Idle	0.467	0.160	0.160	0.170	0.022	0.004	N/A	N/A	7.983
HS 748 2A SERIES	RDa7	Approach	0.237	0.021	0.021	0.023	0.007	0.007	N/A	N/A	7.122
10L_GA		Climb Out	0.018	0.006	0.006	0.006	0.022	0.006	N/A	N/A	4.968

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.010	0.003	0.003	0.003	0.018	0.003	N/A	N/A	3.196
		Idle	0.742	0.194	0.194	0.214	0.006	0.008	N/A	N/A	8.116
HS 748 2A SERIES 10R_GA	RDa7	Approach	0.128	0.011	0.011	0.013	0.003	0.003	N/A	N/A	3.839
		Climb Out	0.010	0.003	0.003	0.003	0.012	0.002	N/A	N/A	2.679
		Takeoff	0.006	0.002	0.002	0.002	0.010	0.002	N/A	N/A	1.723
		Idle	0.400	0.105	0.105	0.116	0.003	0.004	N/A	N/A	4.376
HS 748 2A SERIES 28L_GA	RDa7	Approach	0.703	0.063	0.063	0.069	0.019	0.021	N/A	N/A	21.117
		Climb Out	0.052	0.017	0.017	0.018	0.066	0.014	N/A	N/A	14.730
		Takeoff	0.031	0.010	0.010	0.010	0.053	0.010	N/A	N/A	9.474
		Idle	2.200	0.575	0.575	0.635	0.017	0.024	N/A	N/A	24.067
HS 748 2A SERIES 28R_GA	RDa7	Approach	0.439	0.040	0.040	0.044	0.012	0.013	N/A	N/A	13.190
		Climb Out	0.032	0.010	0.010	0.011	0.042	0.009	N/A	N/A	9.201
		Takeoff	0.019	0.006	0.006	0.007	0.033	0.006	N/A	N/A	5.918
		Idle	1.373	0.359	0.359	0.397	0.011	0.015	N/A	N/A	15.032
Learjet 25B 10L_GA	CJ610-6	Approach	1.586	0.000	0.000	0.000	0.028	0.010	N/A	N/A	18.029
		Climb Out	0.188	0.001	0.001	0.001	0.023	0.003	N/A	N/A	6.744
		Takeoff	0.284	0.001	0.001	0.001	0.044	0.006	N/A	N/A	10.538
		Idle	3.739	0.434	0.434	0.462	0.022	0.013	N/A	N/A	24.122
Learjet 25B 10R_GA	CJ610-6	Approach	2.948	0.000	0.000	0.000	0.051	0.018	N/A	N/A	33.492
		Climb Out	0.351	0.002	0.002	0.002	0.044	0.007	N/A	N/A	12.528
		Takeoff	0.528	0.002	0.002	0.002	0.083	0.011	N/A	N/A	19.575
		Idle	6.946	0.807	0.807	0.858	0.041	0.024	N/A	N/A	44.810
Learjet 25B 28L_GA	CJ610-6	Approach	4.765	0.000	0.000	0.000	0.082	0.030	N/A	N/A	54.151
		Climb Out	0.568	0.004	0.004	0.004	0.071	0.011	N/A	N/A	20.256
		Takeoff	0.854	0.003	0.003	0.003	0.133	0.018	N/A	N/A	31.651
		Idle	11.230	1.304	1.304	1.387	0.065	0.039	N/A	N/A	72.452
Learjet 25B 28R_GA	CJ610-6	Approach	11.309	0.000	0.000	0.000	0.193	0.069	N/A	N/A	128.512
		Climb Out	1.346	0.010	0.010	0.010	0.169	0.026	N/A	N/A	48.073
		Takeoff	2.028	0.008	0.008	0.008	0.315	0.041	N/A	N/A	75.114
		Idle	26.652	3.095	3.095	3.290	0.154	0.093	N/A	N/A	171.943
Bombardier CRJ900 10L	CF34-8C5	Approach	0.051	0.001	0.001	0.001	0.128	0.012	0.001	0.001	11.871
		Climb Out	0.003	0.000	0.000	0.000	0.080	0.007	0.000	0.000	6.376
		Takeoff	0.007	0.000	0.000	0.000	0.158	0.011	0.001	0.001	10.699
		Idle	0.206	0.001	0.001	0.001	0.052	0.011	0.001	0.001	11.323
Bombardier CRJ900 10R	CF34-8C5	Approach	0.014	0.000	0.000	0.000	0.036	0.003	0.000	0.000	3.379
		Climb Out	0.001	0.000	0.000	0.000	0.023	0.002	0.000	0.000	1.814
		Takeoff	0.002	0.000	0.000	0.000	0.045	0.003	0.000	0.000	3.045
		Idle	0.058	0.000	0.000	0.000	0.014	0.003	0.000	0.000	3.222
Bombardier CRJ900 28L	CF34-8C5	Approach	0.155	0.002	0.002	0.002	0.395	0.036	0.004	0.004	36.707
		Climb Out	0.011	0.000	0.000	0.000	0.248	0.020	0.000	0.000	19.717
		Takeoff	0.021	0.001	0.001	0.001	0.486	0.033	0.003	0.003	33.085
		Idle	0.639	0.004	0.004	0.006	0.161	0.035	0.003	0.003	35.013
Bombardier CRJ900 28R	CF34-8C5	Approach	0.063	0.001	0.001	0.001	0.158	0.014	0.001	0.001	14.702
		Climb Out	0.004	0.000	0.000	0.000	0.099	0.008	0.000	0.000	7.897
		Takeoff	0.009	0.000	0.000	0.000	0.195	0.013	0.001	0.001	13.250
		Idle	0.256	0.002	0.002	0.002	0.065	0.014	0.001	0.001	14.023
A320-200 10L	V2500-A1	Approach	0.006	0.001	0.001	0.001	0.096	0.007	0.000	0.000	7.122
		Climb Out	0.002	0.000	0.000	0.001	0.151	0.004	0.000	0.000	4.889
		Takeoff	0.003	0.000	0.000	0.001	0.201	0.006	0.000	0.000	5.418
		Idle	0.054	0.001	0.001	0.002	0.041	0.007	0.000	0.000	6.941
A320-200 10R	V2500-A1	Approach	0.012	0.002	0.002	0.002	0.220	0.017	0.000	0.000	16.380
		Climb Out	0.007	0.001	0.001	0.001	0.346	0.011	0.000	0.000	11.245
		Takeoff	0.007	0.001	0.001	0.001	0.463	0.012	0.000	0.000	12.462
		Idle	0.123	0.003	0.003	0.003	0.095	0.015	0.000	0.000	15.966
A320-200 28L	V2500-A1	Approach	0.011	0.002	0.002	0.002	0.184	0.013	0.000	0.000	13.709
		Climb Out	0.006	0.001	0.001	0.001	0.290	0.010	0.000	0.000	9.412
		Takeoff	0.006	0.001	0.001	0.001	0.387	0.010	0.000	0.000	10.429
		Idle	0.104	0.003	0.003	0.003	0.079	0.013	0.000	0.000	13.362
A320-200 28R	V2500-A1	Approach	0.021	0.004	0.004	0.004	0.374	0.028	0.001	0.001	27.775
		Climb Out	0.011	0.002	0.002	0.002	0.588	0.019	0.000	0.000	19.067
		Takeoff	0.012	0.002	0.002	0.002	0.785	0.021	0.000	0.000	21.130
		Idle	0.211	0.006	0.006	0.007	0.160	0.028	0.001	0.001	27.072
Embraer ERJ 170 10L	CF34-8E5A1	Approach	0.051	0.001	0.001	0.001	0.138	0.012	0.003	0.003	12.420
		Climb Out	0.004	0.000	0.000	0.000	0.089	0.007	0.000	0.000	6.779
		Takeoff	0.008	0.000	0.000	0.000	0.181	0.011	0.003	0.003	11.413
		Idle	0.201	0.001	0.001	0.002	0.055	0.012	0.003	0.003	11.622
Embraer ERJ 170 10R	CF34-8E5A1	Approach	0.014	0.000	0.000	0.000	0.039	0.003	0.001	0.001	3.535
		Climb Out	0.001	0.000	0.000	0.000	0.025	0.002	0.000	0.000	1.929
		Takeoff	0.002	0.000	0.000	0.000	0.052	0.003	0.001	0.001	3.249
		Idle	0.057	0.000	0.000	0.000	0.015	0.003	0.001	0.001	3.308

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 170 28L	CF34-8E5A1	Approach	0.155	0.002	0.002	0.002	0.424	0.039	0.010	0.010	38.407
		Climb Out	0.012	0.000	0.000	0.000	0.276	0.021	0.001	0.001	20.964
		Takeoff	0.025	0.001	0.001	0.001	0.558	0.035	0.009	0.009	35.295
		Idle	0.622	0.004	0.004	0.006	0.169	0.036	0.010	0.010	35.939
Embraer ERJ 170 28R	CF34-8E5A1	Approach	0.063	0.001	0.001	0.001	0.170	0.015	0.004	0.004	15.382
		Climb Out	0.004	0.000	0.000	0.000	0.110	0.009	0.000	0.000	8.396
		Takeoff	0.010	0.000	0.000	0.000	0.224	0.014	0.003	0.003	14.136
		Idle	0.249	0.002	0.002	0.002	0.067	0.014	0.003	0.003	14.393

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Arr Curb FF	Roadway	0.428	0.032	0.030	0.040	0.043	0.000	0.001	0.001
Arr Curb Pick Up	Roadway	3.659	0.435	0.414	0.659	0.211	0.001	0.003	0.002
Blue Ent_Exit	Roadway	0.774	0.055	0.052	0.065	0.080	0.001	0.002	0.001
Bowtie	Roadway	0.453	0.030	0.029	0.035	0.046	0.000	0.001	0.001
Brdgwy N of Sawyr 1	Roadway	2.628	0.173	0.164	0.203	0.268	0.002	0.009	0.006
Brdgwy N of Sawyr 2	Roadway	4.814	0.317	0.302	0.371	0.489	0.004	0.017	0.010
Crb Exit to IntlGat1	Roadway	1.553	0.111	0.105	0.131	0.162	0.001	0.006	0.003
Curb Exit to IntlGa2	Roadway	12.016	0.858	0.811	1.017	1.250	0.010	0.041	0.024
Dep Curb Drop Off	Roadway	4.782	0.569	0.541	0.862	0.276	0.001	0.004	0.003
Dep Curb FF	Roadway	0.560	0.042	0.040	0.052	0.057	0.000	0.001	0.001
Ent from 670 NB	Roadway	4.294	0.233	0.222	0.267	0.420	0.003	0.013	0.008
Ent from 670 SB	Roadway	2.840	0.154	0.147	0.176	0.278	0.002	0.009	0.006
Ent from 670_1	Roadway	5.967	0.323	0.308	0.370	0.583	0.004	0.019	0.011
Ent from 670_2	Roadway	14.564	0.789	0.752	0.905	1.424	0.011	0.044	0.026
Ent_Exit_Employee	Roadway	0.381	0.025	0.024	0.030	0.039	0.000	0.001	0.001
Exit Comm Gar	Roadway	9.416	0.622	0.590	0.728	0.958	0.008	0.033	0.019
Exit Red 1	Roadway	1.387	0.091	0.087	0.107	0.141	0.001	0.004	0.003
Exit Red 2	Roadway	0.429	0.029	0.026	0.033	0.044	0.000	0.001	0.001
Exit Red 3	Roadway	1.920	0.127	0.120	0.149	0.195	0.001	0.007	0.004
Exit Red 4	Roadway	0.748	0.050	0.047	0.057	0.076	0.001	0.002	0.001
Exit to 670 NB	Roadway	3.007	0.163	0.155	0.186	0.294	0.002	0.009	0.006
Exit to 670 SB	Roadway	3.505	0.190	0.181	0.218	0.343	0.002	0.011	0.007
Exit to 670_1	Roadway	12.432	0.674	0.642	0.773	1.216	0.009	0.039	0.022
Exit to 670_2	Roadway	5.124	0.278	0.265	0.319	0.500	0.003	0.015	0.009
Green Lot Ent_Exit	Roadway	0.674	0.049	0.045	0.057	0.071	0.000	0.002	0.001
Int West to Stlz_2	Roadway	26.361	1.523	1.448	1.756	2.577	0.020	0.085	0.049
Intl Blue to Lane 1	Roadway	11.085	0.640	0.608	0.739	1.084	0.009	0.035	0.021
Intl Blue to Lane 2	Roadway	15.618	0.903	0.858	1.041	1.527	0.012	0.050	0.029
Intl East Bowtie_1	Roadway	7.054	0.408	0.388	0.470	0.690	0.006	0.022	0.013
Intl East Bowtie_2	Roadway	10.869	0.628	0.597	0.724	1.063	0.009	0.035	0.020
Intl East at Red	Roadway	43.258	2.500	2.377	2.881	4.228	0.033	0.139	0.080
Intl East at Tunnel	Roadway	21.449	1.239	1.178	1.429	2.097	0.017	0.068	0.040
Intl Exit at Tunnel	Roadway	29.904	1.728	1.642	1.992	2.923	0.023	0.096	0.055
Intl Green to Blue 1	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 2	Roadway	8.067	0.466	0.443	0.537	0.788	0.007	0.025	0.015
Intl Green to Blue 3	Roadway	36.466	2.108	2.003	2.429	3.565	0.028	0.117	0.068
Intl Lane to LT	Roadway	11.895	0.849	0.802	1.008	1.238	0.010	0.041	0.023
Intl West to Stlz_1	Roadway	30.189	1.745	1.658	2.011	2.951	0.023	0.097	0.056
Intl from Sawyer	Roadway	10.803	0.624	0.593	0.720	1.056	0.008	0.034	0.020
Intll East frm Stzr	Roadway	12.943	0.748	0.711	0.862	1.265	0.010	0.042	0.024
LT to ST	Roadway	1.383	0.099	0.094	0.117	0.144	0.001	0.004	0.002
Lane Ent	Roadway	0.030	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Lane Exit	Roadway	0.033	0.002	0.002	0.002	0.003	0.000	0.000	0.000
Merge to Sawyer	Roadway	10.355	0.683	0.649	0.800	1.054	0.009	0.036	0.021
New Bowtie	Roadway	0.833	0.055	0.052	0.064	0.085	0.001	0.003	0.002
New Stelzer	Roadway	69.947	3.790	3.610	4.346	6.839	0.051	0.215	0.125
Perimeter Road 1	Roadway	7.277	0.481	0.456	0.562	0.741	0.006	0.025	0.014
Perimeter Road 2	Roadway	0.946	0.063	0.060	0.073	0.096	0.001	0.003	0.002
Perimeter Road 3	Roadway	0.411	0.028	0.025	0.032	0.042	0.000	0.001	0.001
Perimeter Road 4	Roadway	2.069	0.137	0.130	0.160	0.211	0.002	0.008	0.004
Perimeter Road 5	Roadway	0.273	0.018	0.018	0.021	0.028	0.000	0.001	0.001
Perimeter Road 6	Roadway	1.042	0.068	0.065	0.080	0.106	0.001	0.003	0.002
Perimeter Road 7	Roadway	0.454	0.030	0.029	0.035	0.046	0.000	0.001	0.001
ST to Curb	Roadway	1.303	0.093	0.088	0.110	0.136	0.001	0.004	0.002
Sawyer East Fork	Roadway	4.457	0.294	0.279	0.344	0.454	0.003	0.015	0.009
Sawyer Forks	Roadway	3.008	0.198	0.188	0.233	0.306	0.002	0.011	0.007
Sawyer S of Brdgwy	Roadway	8.953	0.591	0.561	0.692	0.912	0.008	0.031	0.018
Sawyer West Fork	Roadway	3.686	0.244	0.231	0.284	0.375	0.003	0.013	0.008
Sawyer off Intl	Roadway	11.604	0.766	0.728	0.897	1.182	0.010	0.041	0.023
Sawyer to Brdgwy 1	Roadway	13.741	0.906	0.861	1.062	1.399	0.011	0.047	0.028
Sawyer to Brdgwy 2	Roadway	60.838	4.014	3.813	4.701	6.193	0.051	0.212	0.123
Sawyer to Intl 1	Roadway	28.034	1.620	1.540	1.867	2.740	0.021	0.089	0.052
Sawyer to Intl 2	Roadway	21.142	1.221	1.162	1.409	2.067	0.017	0.067	0.040
Stelzer N	Roadway	46.396	2.514	2.395	2.883	4.536	0.034	0.142	0.083
Stelzer S	Roadway	7.090	0.385	0.366	0.441	0.693	0.006	0.022	0.012
To Red 1	Roadway	1.150	0.076	0.072	0.089	0.117	0.001	0.004	0.002

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
To Red 2	Roadway	1.475	0.097	0.093	0.114	0.150	0.001	0.006	0.003
To Red 3	Roadway	0.682	0.045	0.043	0.053	0.069	0.001	0.002	0.001
Red	Parking	23.057	1.486	1.400	3.269	3.057	0.011	0.049	0.029
Lane Avtn	Parking	4.688	0.322	0.304	0.750	0.584	0.002	0.009	0.006
Blue	Parking	39.259	2.533	2.388	5.582	5.199	0.020	0.083	0.047
Green	Parking	8.750	0.613	0.580	1.455	1.066	0.004	0.017	0.010
Employee Parking	Parking	13.297	0.886	0.836	2.012	1.709	0.007	0.026	0.015
ShortTerm Pkg Lvl 4	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
Long Term Pkg Lvl 1	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 3	Parking	13.690	0.946	0.893	2.216	1.695	0.007	0.026	0.015
ShortTerm Pkg Lvl 5	Parking	5.293	0.371	0.352	0.884	0.644	0.002	0.010	0.006
Long Term Pkg Lvl 4	Parking	6.800	0.470	0.443	1.101	0.842	0.003	0.013	0.008
Long Term Pkg Lvl 5	Parking	14.003	0.968	0.914	2.266	1.734	0.007	0.026	0.015
Long Term Pkg Lvl 2	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New RAC	Parking	36.748	2.297	2.163	4.906	5.006	0.019	0.080	0.046

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.101	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.744	0.744	0.744	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.132	0.132	0.132	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.581	1.581	1.581	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.011	0.003	0.003	0.003	0.003	0.003	0.008	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.811	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.843	0.843	0.843	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.012	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.420	0.420	0.420	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.251	0.251	0.251	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.759	0.759	0.759	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.005	2.005	2.005	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.790	0.790	0.790	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.757	0.757	0.757	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary

(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	854.669	71.381	71.381	76.137	379.086	34.483	3.856	3.856
GSE/APU	1,491.122	60.328	54.719	56.907	80.004	12.165	5.013	4.841
Roadways	653.003	35.180	33.352	36.434	42.159	0.613	2.026	1.012
Parking Facilities	218.551	10.552	9.913	32.385	28.370	0.107	0.358	0.179
Stationary Sources	21.453	12.612	12.081	14.665	35.757	16.638	2.492	2.205
Total	3,238.798	190.054	181.446	216.527	565.375	64.006	13.746	12.092

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary

(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	14.973	0.271	0.271	0.261	0.008	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.001	0.001	0.002	0.003	0.003	0.000
B737-300	CFM56-3-B1	TOTAL	1.274	0.079	0.079	0.086	0.945	0.096	0.001	0.001	0.000
10L		APU	0.183	0.011	0.011	0.011	0.049	0.010	0.000	0.000	0.000
		GSE	0.061	0.006	0.006	0.007	0.055	0.018	0.010	0.010	0.000
B737-300	CFM56-3B-2	TOTAL	0.217	0.012	0.012	0.013	0.206	0.019	0.000	0.000	0.000
10L		APU	0.034	0.002	0.002	0.002	0.009	0.002	0.000	0.000	0.000
		GSE	0.011	0.001	0.001	0.001	0.010	0.003	0.002	0.002	0.000
B737-500	CFM56-3C-1	TOTAL	0.144	0.007	0.007	0.008	0.180	0.015	0.000	0.000	0.000
10L		APU	0.024	0.001	0.001	0.001	0.007	0.001	0.000	0.000	0.000
		GSE	0.008	0.001	0.001	0.001	0.007	0.002	0.001	0.001	0.000
B737-700	CFM56-7B22	TOTAL	0.948	0.100	0.100	0.109	1.664	0.126	0.026	0.026	0.000
10L		APU	0.064	0.004	0.004	0.006	0.087	0.013	0.000	0.000	0.000
		GSE	0.072	0.007	0.007	0.007	0.065	0.021	0.012	0.012	0.000
B737-800	CFM56-7B26	TOTAL	0.003	0.000	0.000	0.000	0.010	0.001	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
B757-300	PW2043	TOTAL	0.050	0.004	0.004	0.004	0.180	0.009	N/A	N/A	0.000
10L		APU	0.002	0.000	0.000	0.000	0.006	0.001	0.000	0.000	0.000
		GSE	0.003	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.110	0.001	0.001	0.001	0.123	0.012	0.000	0.000	0.000
10L		APU	0.036	0.002	0.002	0.002	0.010	0.002	0.000	0.000	0.000
		GSE	0.557	0.022	0.020	0.020	0.022	0.003	0.002	0.001	0.000
Cessna 172 Skyhawk	O-320	TOTAL	6.826	0.111	0.111	0.108	0.012	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.004	0.007	0.006	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.033	0.002	0.002	0.002	0.031	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.332	0.051	0.045	0.047	0.036	0.002	0.001	0.001	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.213	0.066	0.066	0.071	0.017	0.002	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.524	0.022	0.020	0.020	0.017	0.001	0.001	0.001	0.000
CL600	ALF 502L-2	TOTAL	1.100	0.151	0.151	0.161	0.527	0.036	0.007	0.007	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.650	0.265	0.239	0.248	0.290	0.049	0.026	0.025	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	0.150	0.043	0.043	0.047	0.110	0.011	0.008	0.008	0.000
10L		APU	0.014	0.001	0.001	0.001	0.004	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.056	0.089	0.089	0.095	0.733	0.078	0.000	0.000	0.000
10L		APU	0.074	0.007	0.007	0.008	0.053	0.011	0.000	0.000	0.000
		GSE	4.941	0.193	0.174	0.181	0.195	0.025	0.014	0.014	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.149	0.024	0.024	0.025	0.262	0.023	0.000	0.000	0.000
10L		APU	0.021	0.002	0.002	0.002	0.014	0.003	0.000	0.000	0.000
		GSE	1.364	0.053	0.049	0.050	0.054	0.007	0.004	0.004	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.595	0.049	0.049	0.052	0.496	0.047	0.000	0.000	0.000
10L		APU	0.041	0.004	0.004	0.004	0.029	0.007	0.000	0.000	0.000
		GSE	2.728	0.107	0.096	0.099	0.108	0.014	0.008	0.008	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	2.905	0.245	0.245	0.260	2.040	0.208	0.000	0.000	0.000
10L		APU	0.195	0.019	0.019	0.020	0.139	0.030	0.000	0.000	0.000
		GSE	13.055	0.509	0.460	0.477	0.515	0.068	0.040	0.037	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	3.607	0.304	0.304	0.323	2.503	0.266	0.000	0.000	0.000
10L		APU	0.252	0.024	0.024	0.025	0.180	0.039	0.000	0.000	0.000
		GSE	16.869	0.658	0.594	0.616	0.666	0.088	0.051	0.049	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.089	0.091	0.091	0.097	0.766	0.078	0.000	0.000	0.000
10L		APU	0.073	0.007	0.007	0.008	0.052	0.011	0.000	0.000	0.000
		GSE	4.899	0.191	0.173	0.179	0.193	0.025	0.014	0.014	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.593	0.015	0.015	0.017	2.424	0.235	0.023	0.023	0.000
10L		APU	0.155	0.014	0.014	0.017	0.110	0.024	0.000	0.000	0.000
		GSE	10.355	0.405	0.365	0.378	0.409	0.054	0.031	0.030	0.000
Falcon 20	CF700-2D	TOTAL	0.643	0.054	0.054	0.057	0.021	0.008	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.505	0.063	0.063	0.067	0.387	0.036	0.003	0.003	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.227	0.089	0.080	0.084	0.119	0.021	0.011	0.010	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	0.209	0.024	0.024	0.025	0.209	0.019	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.171	0.046	0.042	0.043	0.032	0.002	0.001	0.001	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	0.967	0.158	0.158	0.169	0.748	0.087	0.052	0.052	0.000
10L_GA		APU	0.022	0.001	0.001	0.002	0.109	0.011	0.000	0.000	0.000
		GSE	4.566	0.176	0.159	0.164	0.117	0.009	0.009	0.009	0.000
HS 125	TFE731-3	TOTAL	1.181	0.193	0.193	0.213	0.547	0.030	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.382	0.395	0.355	0.368	0.281	0.020	0.011	0.010	0.000
KC-135R	CFM56-2B-1	TOTAL	0.146	0.008	0.008	0.009	0.181	0.015	0.000	0.000	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.011	0.002	0.001	0.001	0.000
Learjet 25C	CJ610-6	TOTAL	6.180	0.474	0.474	0.504	0.121	0.034	N/A	N/A	0.000
10L_GA		APU	0.061	0.006	0.006	0.006	0.043	0.009	0.000	0.000	0.000
		GSE	4.022	0.157	0.142	0.147	0.159	0.021	0.012	0.012	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.516	0.151	0.151	0.161	0.150	0.010	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.519	0.104	0.093	0.097	0.077	0.003	0.003	0.003	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	22.750	0.411	0.411	0.397	0.012	0.002	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.004	0.004	0.000
Piper PA-28	O-320	TOTAL	0.368	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.409	0.327	0.327	0.362	0.032	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.935	0.074	0.066	0.068	0.052	0.003	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	3.341	1.154	1.154	1.227	0.443	0.042	0.022	0.022	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.753	0.401	0.362	0.375	0.310	0.018	0.013	0.013	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.143	0.010	0.010	0.011	0.088	0.010	0.000	0.000	0.000
10L		APU	0.019	0.001	0.001	0.001	0.006	0.001	0.000	0.000	0.000
		GSE	0.007	0.001	0.001	0.001	0.006	0.002	0.001	0.001	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	0.665	0.229	0.229	0.244	0.088	0.009	0.004	0.004	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.939	0.079	0.072	0.075	0.062	0.003	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.429	0.839	0.839	0.892	0.322	0.031	0.015	0.015	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.092	0.292	0.262	0.272	0.225	0.012	0.010	0.009	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	5.460	1.886	1.886	2.005	0.723	0.068	0.035	0.035	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	15.939	0.656	0.591	0.612	0.506	0.029	0.022	0.021	0.000
Aztec	TIO-540-J2B2	TOTAL	21.528	0.389	0.389	0.376	0.011	0.002	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.001	0.003	0.004	0.004	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	1.305	0.091	0.091	0.100	0.802	0.087	0.001	0.001	0.000
10R		APU	0.175	0.010	0.010	0.011	0.046	0.010	0.000	0.000	0.000
		GSE	0.057	0.006	0.006	0.006	0.053	0.017	0.010	0.010	0.000
B737-300	CFM56-3B-2	TOTAL	2.492	0.136	0.136	0.149	2.357	0.220	0.004	0.004	0.000
10R		APU	0.389	0.022	0.022	0.024	0.103	0.022	0.000	0.000	0.000
		GSE	0.128	0.013	0.012	0.013	0.117	0.036	0.022	0.021	0.000
B737-300	CFM56-3-B1	TOTAL	14.873	0.922	0.922	1.009	11.023	1.123	0.017	0.017	0.000
10R		APU	2.141	0.122	0.122	0.134	0.565	0.119	0.000	0.000	0.000
		GSE	0.703	0.071	0.067	0.071	0.640	0.203	0.119	0.116	0.000
B737-500	CFM56-3C-1	TOTAL	1.798	0.089	0.089	0.097	2.244	0.191	0.007	0.007	0.000
10R		APU	0.298	0.017	0.017	0.019	0.078	0.017	0.000	0.000	0.000
		GSE	0.098	0.010	0.009	0.010	0.089	0.029	0.017	0.017	0.000
B737-700	CFM56-7B22	TOTAL	9.581	1.009	1.009	1.103	16.812	1.271	0.267	0.267	0.000
10R		APU	0.643	0.049	0.049	0.053	0.874	0.131	0.000	0.000	0.000
		GSE	0.719	0.072	0.068	0.073	0.655	0.207	0.121	0.118	0.000
B737-800	CFM56-7B26	TOTAL	0.049	0.006	0.006	0.006	0.140	0.009	0.002	0.002	0.000
10R		APU	0.003	0.000	0.000	0.000	0.006	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.003	0.001	0.001	0.001	0.000
B757-300	PW2043	TOTAL	0.476	0.037	0.037	0.041	1.705	0.087	N/A	N/A	0.000
10R		APU	0.023	0.002	0.002	0.002	0.053	0.006	0.000	0.000	0.000
		GSE	0.029	0.003	0.002	0.003	0.026	0.009	0.004	0.004	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.187	0.001	0.001	0.001	0.209	0.021	0.001	0.001	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.063	0.003	0.003	0.004	0.017	0.003	0.000	0.000	0.000
		GSE	0.947	0.037	0.033	0.034	0.037	0.004	0.003	0.002	0.000
Cessna 172 Skyhawk	O-320	TOTAL	6.476	0.106	0.106	0.103	0.011	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.004	0.006	0.006	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.100	0.007	0.007	0.008	0.094	0.012	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.016	0.152	0.138	0.142	0.109	0.008	0.004	0.004	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.805	0.252	0.252	0.268	0.064	0.008	0.004	0.004	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.982	0.082	0.074	0.076	0.063	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	1.831	0.252	0.252	0.268	0.877	0.061	0.011	0.011	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.071	0.441	0.399	0.413	0.482	0.080	0.044	0.043	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	2.196	0.632	0.632	0.692	1.607	0.161	0.116	0.116	0.000
10R		APU	0.215	0.012	0.012	0.013	0.056	0.012	0.000	0.000	0.000
		GSE	0.071	0.007	0.007	0.007	0.064	0.020	0.012	0.011	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.774	0.150	0.150	0.159	1.231	0.131	0.000	0.000	0.000
10R		APU	0.125	0.012	0.012	0.012	0.088	0.019	0.000	0.000	0.000
		GSE	8.295	0.324	0.292	0.303	0.327	0.043	0.025	0.024	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.002	0.082	0.082	0.086	0.836	0.080	0.000	0.000	0.000
10R		APU	0.068	0.007	0.007	0.007	0.049	0.011	0.000	0.000	0.000
		GSE	4.593	0.180	0.162	0.168	0.181	0.024	0.014	0.013	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.250	0.041	0.041	0.043	0.441	0.039	0.000	0.000	0.000
10R		APU	0.034	0.003	0.003	0.003	0.024	0.006	0.000	0.000	0.000
		GSE	2.296	0.089	0.080	0.084	0.090	0.012	0.007	0.007	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.842	0.154	0.154	0.164	1.295	0.132	0.000	0.000	0.000
10R		APU	0.123	0.012	0.012	0.012	0.088	0.019	0.000	0.000	0.000
		GSE	8.282	0.323	0.292	0.303	0.326	0.043	0.025	0.024	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	6.097	0.515	0.515	0.547	4.233	0.450	0.000	0.000	0.000
10R		APU	0.427	0.041	0.041	0.043	0.303	0.066	0.000	0.000	0.000
		GSE	28.518	1.113	1.004	1.042	1.125	0.148	0.086	0.083	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	4.911	0.414	0.414	0.440	3.449	0.353	0.000	0.000	0.000
10R		APU	0.331	0.031	0.031	0.033	0.235	0.051	0.000	0.000	0.000
		GSE	22.074	0.862	0.777	0.807	0.871	0.115	0.066	0.064	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	2.715	0.025	0.025	0.028	4.131	0.400	0.040	0.040	0.000
10R		APU	0.265	0.025	0.025	0.028	0.187	0.041	0.000	0.000	0.000
		GSE	17.648	0.689	0.622	0.645	0.697	0.091	0.053	0.052	0.000
Falcon 20	CF700-2D	TOTAL	2.364	0.197	0.197	0.211	0.079	0.030	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.001	0.001	0.001	0.017	0.006	0.003	0.003	0.000
Falcon 2000EX	PW308C	TOTAL	0.844	0.106	0.106	0.112	0.647	0.062	0.006	0.006	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.726	0.149	0.134	0.140	0.198	0.035	0.018	0.018	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.769	0.089	0.089	0.095	0.769	0.067	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.305	0.170	0.153	0.159	0.118	0.007	0.006	0.006	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	2.329	0.381	0.381	0.405	1.803	0.209	0.123	0.123	0.000
10R_GA		APU	0.053	0.004	0.004	0.004	0.262	0.026	0.000	0.000	0.000
		GSE	10.998	0.424	0.383	0.397	0.281	0.022	0.022	0.021	0.000
HS 125	TFE731-3	TOTAL	1.993	0.325	0.325	0.359	0.922	0.051	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	17.518	0.666	0.600	0.622	0.474	0.034	0.018	0.018	0.000
KC-135R	CFM56-2B-1	TOTAL	1.259	0.071	0.071	0.077	1.556	0.130	0.003	0.003	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.029	0.007	0.007	0.008	0.094	0.023	0.010	0.009	0.000
Learjet 25C	CJ610-6	TOTAL	9.773	0.750	0.750	0.797	0.192	0.053	N/A	N/A	0.000
10R_GA		APU	0.095	0.009	0.009	0.010	0.067	0.014	0.000	0.000	0.000
		GSE	6.360	0.248	0.224	0.233	0.251	0.033	0.019	0.019	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.975	0.578	0.578	0.614	0.572	0.040	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.634	0.396	0.356	0.369	0.294	0.013	0.012	0.011	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.018	0.006	0.006	0.006	0.053	0.003	0.001	0.001	0.000
10R		APU	0.004	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	8.225	0.149	0.149	0.143	0.004	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	1.123	0.018	0.018	0.018	0.002	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.330	1.067	1.067	1.178	0.106	0.013	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.304	0.239	0.216	0.224	0.171	0.012	0.007	0.007	0.000
Aztec	TIO-540-J2B2	TOTAL	53.755	0.972	0.972	0.938	0.029	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.004	0.008	0.011	0.011	0.000
B737-300	CFM56-3-B1	TOTAL	30.245	1.873	1.873	2.050	22.416	2.284	0.034	0.034	0.000
28L		APU	4.353	0.249	0.249	0.272	1.150	0.243	0.000	0.000	0.000
		GSE	1.430	0.142	0.136	0.144	1.303	0.413	0.241	0.235	0.000
B737-300	CFM56-3B-2	TOTAL	5.067	0.276	0.276	0.302	4.791	0.449	0.010	0.010	0.000
28L		APU	0.790	0.045	0.045	0.050	0.208	0.044	0.000	0.000	0.000
		GSE	0.260	0.026	0.024	0.026	0.237	0.075	0.044	0.043	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.998	0.209	0.209	0.229	1.845	0.200	0.002	0.002	0.000
28L		APU	0.402	0.023	0.023	0.025	0.106	0.022	0.000	0.000	0.000
		GSE	0.132	0.013	0.012	0.013	0.120	0.039	0.022	0.022	0.000
B737-500	CFM56-3C-1	TOTAL	3.584	0.177	0.177	0.194	4.475	0.379	0.012	0.012	0.000
28L		APU	0.592	0.034	0.034	0.037	0.157	0.033	0.000	0.000	0.000
		GSE	0.195	0.020	0.019	0.020	0.177	0.056	0.033	0.032	0.000
B737-700	CFM56-7B22	TOTAL	21.079	2.219	2.219	2.428	36.990	2.797	0.588	0.588	0.000
28L		APU	1.414	0.107	0.107	0.117	1.925	0.290	0.000	0.000	0.000
		GSE	1.581	0.158	0.150	0.159	1.440	0.456	0.267	0.259	0.000
B737-800	CFM56-7B26	TOTAL	0.107	0.011	0.011	0.012	0.311	0.019	0.006	0.006	0.000
28L		APU	0.009	0.001	0.001	0.001	0.011	0.002	0.000	0.000	0.000
		GSE	0.009	0.001	0.001	0.001	0.009	0.002	0.001	0.001	0.000
B757-300	PW2043	TOTAL	1.101	0.087	0.087	0.095	3.948	0.202	N/A	N/A	0.000
28L		APU	0.053	0.006	0.006	0.006	0.121	0.013	0.000	0.000	0.000
		GSE	0.066	0.007	0.007	0.007	0.061	0.019	0.011	0.011	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.365	0.002	0.002	0.002	0.408	0.041	0.002	0.002	0.000
28L		APU	0.121	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	1.838	0.072	0.065	0.067	0.073	0.010	0.006	0.006	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	2.351	0.736	0.736	0.783	0.186	0.023	0.013	0.013	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.789	0.238	0.215	0.223	0.184	0.010	0.008	0.008	0.000
CL600	ALF 502L-2	TOTAL	3.304	0.455	0.455	0.484	1.583	0.109	0.020	0.020	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	19.971	0.796	0.719	0.746	0.869	0.146	0.080	0.077	0.000
Cessna 172 Skyhawk	O-320	TOTAL	17.360	0.283	0.283	0.273	0.031	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.002	0.002	0.002	0.006	0.011	0.015	0.015	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.311	0.021	0.021	0.023	0.288	0.036	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.400	0.471	0.424	0.440	0.335	0.024	0.012	0.012	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	3.961	1.140	1.140	1.248	2.899	0.290	0.209	0.209	0.000
28L		APU	0.387	0.022	0.022	0.024	0.103	0.022	0.000	0.000	0.000
		GSE	0.127	0.013	0.012	0.013	0.116	0.036	0.022	0.021	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.339	0.282	0.282	0.300	2.318	0.247	0.000	0.000	0.000
28L		APU	0.234	0.022	0.022	0.023	0.166	0.036	0.000	0.000	0.000
		GSE	15.616	0.610	0.550	0.571	0.616	0.082	0.047	0.045	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.473	0.076	0.076	0.082	0.834	0.074	0.000	0.000	0.000
28L		APU	0.065	0.007	0.007	0.007	0.046	0.010	0.000	0.000	0.000
		GSE	4.342	0.170	0.153	0.159	0.171	0.022	0.013	0.012	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.895	0.153	0.153	0.163	1.581	0.152	0.000	0.000	0.000
28L		APU	0.130	0.012	0.012	0.013	0.093	0.020	0.000	0.000	0.000
		GSE	8.685	0.340	0.305	0.317	0.343	0.045	0.026	0.025	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	9.270	0.782	0.782	0.831	6.511	0.667	0.000	0.000	0.000
28L		APU	0.624	0.058	0.058	0.063	0.443	0.097	0.000	0.000	0.000
		GSE	41.671	1.627	1.467	1.522	1.645	0.216	0.126	0.121	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	11.506	0.971	0.971	1.032	7.988	0.849	0.000	0.000	0.000
28L		APU	0.805	0.076	0.076	0.080	0.572	0.125	0.000	0.000	0.000
		GSE	53.821	2.101	1.896	1.967	2.123	0.280	0.162	0.157	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	3.476	0.292	0.292	0.311	2.444	0.250	0.000	0.000	0.000
28L		APU	0.234	0.022	0.022	0.023	0.166	0.036	0.000	0.000	0.000
		GSE	15.630	0.610	0.550	0.571	0.616	0.082	0.047	0.045	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	5.287	0.050	0.050	0.054	8.045	0.779	0.078	0.078	0.000
28L		APU	0.514	0.049	0.049	0.053	0.366	0.079	0.000	0.000	0.000
		GSE	34.363	1.342	1.210	1.256	1.356	0.179	0.104	0.100	0.000
Falcon 20	CF700-2D	TOTAL	8.001	0.669	0.669	0.712	0.267	0.100	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.020	0.004	0.004	0.004	0.056	0.020	0.012	0.012	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	2.604	0.301	0.301	0.320	2.606	0.228	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	14.566	0.577	0.519	0.538	0.400	0.022	0.019	0.018	0.000
HS 125	TFE731-3	TOTAL	3.912	0.638	0.638	0.705	1.810	0.100	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	34.391	1.307	1.177	1.220	0.930	0.066	0.035	0.033	0.000
KC-135R	CFM56-2B-1	TOTAL	2.917	0.162	0.162	0.180	3.606	0.301	0.009	0.009	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.067	0.017	0.015	0.017	0.218	0.053	0.022	0.021	0.000
Learjet 25C	CJ610-6	TOTAL	19.053	1.462	1.462	1.554	0.374	0.104	N/A	N/A	0.000
28L_GA		APU	0.185	0.018	0.018	0.019	0.132	0.029	0.000	0.000	0.000
		GSE	12.401	0.484	0.437	0.453	0.489	0.064	0.037	0.036	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	5.998	1.755	1.755	1.866	1.738	0.121	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	29.258	1.202	1.081	1.121	0.893	0.041	0.036	0.035	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.032	0.010	0.010	0.011	0.095	0.007	0.002	0.002	0.000
28L		APU	0.008	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	25.512	0.462	0.462	0.445	0.013	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.006	0.006	0.000
Piper PA-28	O-320	TOTAL	3.482	0.056	0.056	0.054	0.006	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.002	0.002	0.002	0.000
UC-12J	PT6A-42	TOTAL	3.242	2.599	2.599	2.870	0.257	0.032	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	15.354	0.583	0.526	0.545	0.416	0.030	0.015	0.015	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	10.300	3.558	3.558	3.782	1.365	0.129	0.067	0.067	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	30.066	1.237	1.113	1.154	0.955	0.053	0.041	0.040	0.000
Falcon 2000EX	PW308C	TOTAL	1.577	0.198	0.198	0.211	1.209	0.116	0.011	0.011	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.961	0.278	0.251	0.261	0.370	0.066	0.033	0.032	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	8.205	2.834	2.834	3.013	1.087	0.103	0.054	0.054	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	23.951	0.985	0.887	0.919	0.761	0.042	0.033	0.032	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	5.642	0.923	0.923	0.981	4.367	0.508	0.300	0.300	0.000
28L_GA		APU	0.129	0.010	0.010	0.010	0.635	0.063	0.000	0.000	0.000
		GSE	26.641	1.028	0.927	0.961	0.681	0.053	0.052	0.051	0.000
Aztec	TIO-540-J2B2	TOTAL	50.478	0.913	0.913	0.881	0.026	0.004	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.004	0.008	0.011	0.010	0.000
B737-300	CFM56-3-B1	TOTAL	4.780	0.297	0.297	0.324	3.543	0.360	0.006	0.006	0.000
28R		APU	0.688	0.040	0.040	0.043	0.182	0.039	0.000	0.000	0.000
		GSE	0.226	0.022	0.022	0.023	0.206	0.065	0.039	0.037	0.000
B737-300	CFM56-3B-2	TOTAL	0.806	0.044	0.044	0.049	0.762	0.072	0.001	0.001	0.000
28R		APU	0.126	0.008	0.008	0.008	0.033	0.007	0.000	0.000	0.000
		GSE	0.041	0.004	0.004	0.004	0.037	0.012	0.007	0.007	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.540	0.037	0.037	0.041	0.332	0.036	0.000	0.000	0.000
28R		APU	0.073	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	0.024	0.002	0.002	0.002	0.022	0.007	0.004	0.004	0.000
B737-500	CFM56-3C-1	TOTAL	0.549	0.028	0.028	0.030	0.686	0.058	0.002	0.002	0.000
28R		APU	0.090	0.006	0.006	0.006	0.024	0.006	0.000	0.000	0.000
		GSE	0.030	0.003	0.003	0.003	0.028	0.009	0.006	0.004	0.000
B737-700	CFM56-7B22	TOTAL	3.597	0.378	0.378	0.414	6.312	0.477	0.100	0.100	0.000
28R		APU	0.241	0.019	0.019	0.020	0.328	0.050	0.000	0.000	0.000
		GSE	0.270	0.026	0.025	0.028	0.246	0.078	0.045	0.044	0.000
B737-800	CFM56-7B26	TOTAL	0.018	0.002	0.002	0.002	0.051	0.003	0.001	0.001	0.000
28R		APU	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
B757-300	PW2043	TOTAL	0.195	0.015	0.015	0.017	0.700	0.035	N/A	N/A	0.000
28R		APU	0.009	0.001	0.001	0.001	0.022	0.002	0.000	0.000	0.000
		GSE	0.012	0.001	0.001	0.001	0.011	0.003	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.389	0.002	0.002	0.002	0.435	0.043	0.002	0.002	0.000
28R		APU	0.129	0.008	0.008	0.008	0.034	0.008	0.000	0.000	0.000
		GSE	1.962	0.076	0.069	0.072	0.077	0.010	0.006	0.006	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.828	0.259	0.259	0.276	0.066	0.008	0.004	0.004	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.038	0.084	0.075	0.078	0.065	0.003	0.003	0.002	0.000
CL600	ALF 502L-2	TOTAL	3.649	0.503	0.503	0.535	1.748	0.121	0.022	0.022	0.000
28R_GA											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	22.058	0.880	0.794	0.825	0.960	0.161	0.088	0.086	0.000
Cessna 172 Skyhawk	O-320	TOTAL	13.727	0.225	0.225	0.216	0.024	0.001	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.004	0.009	0.012	0.012	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.127	0.009	0.009	0.009	0.118	0.014	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.055	0.192	0.173	0.180	0.137	0.010	0.006	0.004	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	0.545	0.157	0.157	0.172	0.399	0.040	0.029	0.029	0.000
28R		APU	0.053	0.003	0.003	0.003	0.014	0.003	0.000	0.000	0.000
		GSE	0.018	0.002	0.002	0.002	0.015	0.006	0.003	0.003	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.609	0.304	0.304	0.324	2.506	0.267	0.000	0.000	0.000
28R		APU	0.252	0.024	0.024	0.025	0.180	0.040	0.000	0.000	0.000
		GSE	16.883	0.659	0.594	0.617	0.666	0.088	0.051	0.050	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.513	0.083	0.083	0.088	0.904	0.079	0.000	0.000	0.000
28R		APU	0.071	0.007	0.007	0.007	0.050	0.011	0.000	0.000	0.000
		GSE	4.705	0.184	0.165	0.172	0.185	0.024	0.014	0.013	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	2.049	0.166	0.166	0.176	1.710	0.164	0.000	0.000	0.000
28R		APU	0.141	0.013	0.013	0.014	0.100	0.022	0.000	0.000	0.000
		GSE	9.395	0.367	0.331	0.343	0.370	0.049	0.029	0.028	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	10.038	0.847	0.847	0.899	7.051	0.722	0.000	0.000	0.000
28R		APU	0.675	0.064	0.064	0.068	0.480	0.105	0.000	0.000	0.000
		GSE	45.122	1.761	1.590	1.649	1.780	0.235	0.136	0.131	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	12.458	1.052	1.052	1.118	8.650	0.919	0.000	0.000	0.000
28R		APU	0.872	0.083	0.083	0.088	0.619	0.136	0.000	0.000	0.000
		GSE	58.275	2.275	2.053	2.130	2.299	0.303	0.175	0.170	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	3.763	0.316	0.316	0.336	2.647	0.271	0.000	0.000	0.000
28R		APU	0.254	0.024	0.024	0.025	0.180	0.040	0.000	0.000	0.000
		GSE	16.924	0.660	0.596	0.618	0.668	0.088	0.051	0.050	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	5.644	0.053	0.053	0.058	8.588	0.832	0.084	0.084	0.000
28R		APU	0.549	0.052	0.052	0.057	0.390	0.085	0.000	0.000	0.000
		GSE	36.688	1.432	1.292	1.340	1.447	0.191	0.110	0.107	0.000
Falcon 20	CF700-2D	TOTAL	2.780	0.233	0.233	0.247	0.093	0.034	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.001	0.001	0.002	0.020	0.007	0.004	0.004	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.905	0.105	0.105	0.111	0.905	0.079	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.062	0.201	0.181	0.187	0.139	0.008	0.007	0.007	0.000
HS 125	TFE731-3	TOTAL	4.144	0.676	0.676	0.746	1.917	0.106	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	36.430	1.385	1.247	1.293	0.985	0.071	0.037	0.035	0.000
KC-135R	CFM56-2B-1	TOTAL	0.517	0.029	0.029	0.032	0.639	0.053	0.001	0.001	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.012	0.003	0.003	0.003	0.039	0.010	0.004	0.003	0.000
Learjet 25C	CJ610-6	TOTAL	19.631	1.506	1.506	1.602	0.385	0.107	N/A	N/A	0.000
28R_GA		APU	0.191	0.018	0.018	0.019	0.136	0.030	0.000	0.000	0.000
		GSE	12.777	0.498	0.450	0.467	0.504	0.066	0.039	0.037	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	2.097	0.614	0.614	0.653	0.607	0.042	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.228	0.420	0.378	0.392	0.312	0.014	0.013	0.012	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.003	0.001	0.001	0.001	0.011	0.001	0.000	0.000	0.000
28R		APU	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	37.336	0.676	0.676	0.651	0.020	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.003	0.006	0.008	0.008	0.000
Piper PA-28	O-320	TOTAL	1.421	0.023	0.023	0.022	0.002	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.432	1.149	1.149	1.268	0.114	0.014	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.783	0.258	0.233	0.240	0.183	0.013	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	10.989	3.796	3.796	4.036	1.456	0.138	0.072	0.072	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	32.076	1.319	1.188	1.232	1.019	0.057	0.044	0.042	0.000
Falcon 2000EX	PW308C	TOTAL	1.711	0.215	0.215	0.228	1.311	0.125	0.011	0.011	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.549	0.301	0.272	0.283	0.402	0.072	0.036	0.035	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.862	0.989	0.989	1.051	0.379	0.036	0.019	0.019	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	8.352	0.344	0.310	0.321	0.266	0.014	0.011	0.011	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.610	0.591	0.591	0.627	2.794	0.325	0.192	0.192	0.000
28R_GA		APU	0.083	0.006	0.006	0.007	0.407	0.040	0.000	0.000	0.000
		GSE	17.044	0.658	0.593	0.615	0.435	0.034	0.033	0.032	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.482	0.140	0.140	0.149	0.159	0.010	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.307	0.095	0.086	0.088	0.073	0.004	0.003	0.003	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.767	0.223	0.223	0.237	0.254	0.017	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.681	0.151	0.137	0.141	0.117	0.007	0.006	0.004	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.506	0.437	0.437	0.464	0.496	0.033	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.219	0.297	0.268	0.278	0.229	0.013	0.010	0.010	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.555	0.451	0.451	0.480	0.513	0.034	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.459	0.306	0.277	0.287	0.237	0.013	0.010	0.010	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.547	0.122	0.122	0.136	0.028	0.012	N/A	N/A	0.000
10L_GA		APU	0.006	0.000	0.000	0.000	0.029	0.003	0.000	0.000	0.000
		GSE	1.474	0.057	0.052	0.054	0.039	0.003	0.003	0.003	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.412	0.316	0.316	0.349	0.071	0.032	N/A	N/A	0.000
10R_GA		APU	0.015	0.001	0.001	0.001	0.075	0.008	0.000	0.000	0.000
		GSE	3.806	0.150	0.134	0.140	0.101	0.009	0.010	0.009	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.778	0.623	0.623	0.688	0.140	0.063	N/A	N/A	0.000
28L_GA		APU	0.030	0.002	0.002	0.002	0.148	0.014	0.000	0.000	0.000
		GSE	7.490	0.294	0.265	0.274	0.198	0.018	0.019	0.019	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.904	0.427	0.427	0.471	0.096	0.043	N/A	N/A	0.000
28R_GA		APU	0.021	0.001	0.001	0.002	0.101	0.010	0.000	0.000	0.000
		GSE	5.132	0.202	0.182	0.188	0.136	0.012	0.013	0.012	0.000
Learjet 25B	CJ610-6	TOTAL	4.020	0.309	0.309	0.327	0.079	0.022	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.660	0.109	0.098	0.101	0.082	0.003	0.003	0.003	0.000
Learjet 25B	CJ610-6	TOTAL	14.840	1.139	1.139	1.210	0.291	0.082	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.818	0.403	0.363	0.376	0.300	0.014	0.012	0.012	0.000
Learjet 25B	CJ610-6	TOTAL	49.697	3.813	3.813	4.053	0.974	0.271	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	32.879	1.350	1.216	1.260	1.003	0.046	0.041	0.040	0.000
Learjet 25B	CJ610-6	TOTAL	17.279	1.326	1.326	1.410	0.338	0.095	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.431	0.470	0.422	0.438	0.349	0.017	0.014	0.013	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.288	0.002	0.002	0.003	0.433	0.042	0.004	0.004	0.000
10L		APU	0.122	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	1.865	0.073	0.066	0.068	0.074	0.010	0.006	0.006	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.489	0.004	0.004	0.006	0.736	0.072	0.007	0.007	0.000
10R		APU	0.209	0.012	0.012	0.013	0.055	0.012	0.000	0.000	0.000
		GSE	3.174	0.123	0.111	0.116	0.126	0.017	0.010	0.009	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.950	0.009	0.009	0.010	1.432	0.139	0.013	0.013	0.000
28L		APU	0.407	0.023	0.023	0.025	0.107	0.022	0.000	0.000	0.000
		GSE	6.165	0.240	0.217	0.225	0.244	0.032	0.019	0.018	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	1.015	0.010	0.010	0.010	1.529	0.149	0.014	0.014	0.000
28R		APU	0.434	0.025	0.025	0.028	0.115	0.024	0.000	0.000	0.000
		GSE	6.583	0.257	0.231	0.240	0.260	0.034	0.020	0.019	0.000
A320-200	V2500-A1	TOTAL	0.009	0.000	0.000	0.000	0.062	0.003	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
A320-200	V2500-A1	TOTAL	0.236	0.013	0.013	0.014	1.705	0.086	0.002	0.002	0.000
10R		APU	0.013	0.001	0.001	0.001	0.067	0.007	0.000	0.000	0.000
		GSE	0.042	0.004	0.004	0.004	0.039	0.012	0.007	0.007	0.000
A320-200	V2500-A1	TOTAL	0.343	0.019	0.019	0.021	2.479	0.125	0.003	0.003	0.000
28L		APU	0.020	0.001	0.001	0.001	0.098	0.010	0.000	0.000	0.000
		GSE	0.061	0.007	0.006	0.007	0.055	0.018	0.010	0.010	0.000
A320-200	V2500-A1	TOTAL	0.032	0.002	0.002	0.002	0.234	0.012	0.000	0.000	0.000
28R		APU	0.002	0.000	0.000	0.000	0.009	0.001	0.000	0.000	0.000
		GSE	0.006	0.001	0.000	0.001	0.006	0.002	0.001	0.001	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.283	0.003	0.003	0.003	0.478	0.044	0.010	0.010	0.000
10L		APU	0.028	0.002	0.002	0.003	0.020	0.004	0.000	0.000	0.000
		GSE	1.865	0.073	0.066	0.068	0.074	0.010	0.006	0.006	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.482	0.004	0.004	0.006	0.815	0.075	0.018	0.018	0.000
10R		APU	0.047	0.004	0.004	0.004	0.034	0.008	0.000	0.000	0.000
		GSE	3.174	0.123	0.111	0.116	0.126	0.017	0.010	0.009	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.936	0.009	0.009	0.010	1.583	0.147	0.033	0.033	0.000
28L		APU	0.093	0.009	0.009	0.010	0.066	0.014	0.000	0.000	0.000
		GSE	6.165	0.240	0.217	0.225	0.244	0.032	0.019	0.018	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.999	0.010	0.010	0.011	1.691	0.157	0.035	0.035	0.000
28R		APU	0.098	0.009	0.009	0.010	0.071	0.015	0.000	0.000	0.000
		GSE	6.583	0.257	0.231	0.240	0.260	0.034	0.020	0.019	0.000
B757-200	PW2037	TOTAL	0.088	0.008	0.008	0.008	0.204	0.013	0.002	0.002	0.000
10L		APU	0.003	0.000	0.000	0.000	0.009	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
B757-200	PW2037	TOTAL	1.291	0.107	0.107	0.117	2.989	0.192	0.032	0.032	0.000
10R		APU	0.056	0.006	0.006	0.007	0.129	0.013	0.000	0.000	0.000
		GSE	0.071	0.007	0.007	0.007	0.064	0.020	0.012	0.011	0.000
B757-200	PW2037	TOTAL	2.327	0.193	0.193	0.211	5.390	0.346	0.057	0.057	0.000
28L		APU	0.101	0.011	0.011	0.011	0.233	0.024	0.000	0.000	0.000
		GSE	0.127	0.013	0.012	0.013	0.116	0.036	0.022	0.021	0.000
B757-200	PW2037	TOTAL	0.320	0.026	0.026	0.029	0.741	0.047	0.008	0.008	0.000
28R		APU	0.014	0.001	0.001	0.001	0.032	0.003	0.000	0.000	0.000
		GSE	0.018	0.002	0.002	0.002	0.015	0.006	0.003	0.003	0.000
B737-800	CFM56-7B26	TOTAL	0.230	0.024	0.024	0.026	0.672	0.041	0.012	0.012	0.000
10L_New T...		APU	0.018	0.001	0.001	0.001	0.024	0.003	0.000	0.000	0.000
		GSE	0.020	0.002	0.002	0.002	0.019	0.006	0.003	0.003	0.000
B737-800	CFM56-7B26	TOTAL	2.393	0.247	0.247	0.270	6.983	0.429	0.130	0.130	0.000
8_New Term		APU	0.187	0.014	0.014	0.015	0.256	0.039	0.000	0.000	0.000
		GSE	0.209	0.021	0.020	0.021	0.191	0.061	0.035	0.034	0.000
B737-800	CFM56-7B26	TOTAL	5.122	0.529	0.529	0.579	14.950	0.918	0.278	0.278	0.000
26_New Te...		APU	0.401	0.031	0.031	0.033	0.547	0.083	0.000	0.000	0.000
		GSE	0.449	0.045	0.043	0.045	0.409	0.130	0.076	0.074	0.000
B737-800	CFM56-7B26	TOTAL	0.860	0.088	0.088	0.097	2.508	0.154	0.046	0.046	0.000
28R_New ...		APU	0.067	0.006	0.006	0.006	0.091	0.014	0.000	0.000	0.000
		GSE	0.075	0.008	0.008	0.008	0.068	0.022	0.013	0.012	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	5.270	0.030	0.030	0.032	5.890	0.585	0.024	0.024	0.000
10L_New T...		APU	1.750	0.100	0.100	0.109	0.462	0.097	0.000	0.000	0.000
		GSE	26.556	1.036	0.935	0.970	1.048	0.138	0.079	0.077	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	8.974	0.051	0.051	0.055	10.029	0.996	0.042	0.042	0.000
8_New Term		APU	2.980	0.171	0.171	0.186	0.787	0.165	0.000	0.000	0.000
		GSE	45.220	1.765	1.593	1.652	1.785	0.235	0.136	0.131	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	17.469	0.098	0.098	0.107	19.524	1.940	0.082	0.082	0.000
26_New Te...		APU	5.801	0.332	0.332	0.364	1.532	0.323	0.000	0.000	0.000
		GSE	88.032	3.436	3.101	3.217	3.473	0.457	0.265	0.256	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	18.654	0.105	0.105	0.115	20.849	2.071	0.087	0.087	0.000
28R_New ...		APU	6.195	0.355	0.355	0.388	1.636	0.344	0.000	0.000	0.000
		GSE	94.002	3.670	3.310	3.435	3.709	0.488	0.283	0.273	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.209	0.064	0.064	0.071	0.622	0.043	0.012	0.012	0.000
28R_New ...		APU	0.054	0.003	0.003	0.003	0.014	0.003	0.000	0.000	0.000
		GSE	0.014	0.001	0.001	0.001	0.013	0.004	0.002	0.002	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.480	0.455	0.455	0.498	4.397	0.301	0.088	0.088	0.000
26_New Te...		APU	0.383	0.022	0.022	0.024	0.101	0.021	0.000	0.000	0.000
		GSE	0.100	0.011	0.011	0.011	0.094	0.030	0.018	0.017	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.795	0.245	0.245	0.268	2.362	0.161	0.047	0.047	0.000
8_New Term		APU	0.205	0.012	0.012	0.013	0.054	0.011	0.000	0.000	0.000
		GSE	0.054	0.006	0.006	0.006	0.051	0.017	0.010	0.009	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.053	0.017	0.017	0.018	0.158	0.011	0.003	0.003	0.000
10L_New T...		APU	0.013	0.001	0.001	0.001	0.003	0.001	0.000	0.000	0.000
		GSE	0.003	0.000	0.000	0.000	0.003	0.001	0.001	0.001	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	5.116	0.054	0.054	0.053	0.006	0.000	N/A	N/A	4.061
10L_GA		Climb Out	4.276	0.049	0.049	0.046	0.001	0.000	N/A	N/A	2.907
		Takeoff	2.851	0.024	0.024	0.023	0.001	0.000	N/A	N/A	1.976
		Idle	2.730	0.143	0.143	0.139	0.001	0.000	N/A	N/A	2.110
B737-300	CFM56-3-B1	Approach	0.110	0.002	0.002	0.002	0.240	0.029	0.000	0.000	28.924
10L		Climb Out	0.014	0.001	0.001	0.001	0.230	0.014	0.000	0.000	14.877
		Takeoff	0.018	0.001	0.001	0.001	0.345	0.020	0.001	0.001	19.521
		Idle	1.133	0.075	0.075	0.083	0.129	0.033	0.000	0.000	32.934
B737-300	CFM56-3B-2	Approach	0.020	0.000	0.000	0.000	0.051	0.006	0.000	0.000	5.794
10L		Climb Out	0.002	0.000	0.000	0.000	0.051	0.003	0.000	0.000	3.051
		Takeoff	0.003	0.000	0.000	0.000	0.078	0.004	0.000	0.000	4.031
		Idle	0.192	0.011	0.011	0.012	0.026	0.007	0.000	0.000	6.360
B737-500	CFM56-3C-1	Approach	0.014	0.000	0.000	0.000	0.041	0.004	0.000	0.000	4.449
10L		Climb Out	0.002	0.000	0.000	0.000	0.047	0.002	0.000	0.000	2.658
		Takeoff	0.003	0.000	0.000	0.000	0.073	0.003	0.000	0.000	3.492
		Idle	0.125	0.007	0.007	0.008	0.020	0.004	0.000	0.000	4.662
B737-700	CFM56-7B22	Approach	0.090	0.003	0.003	0.004	0.364	0.036	0.008	0.008	36.374
10L		Climb Out	0.013	0.002	0.002	0.002	0.416	0.022	0.004	0.004	21.869
		Takeoff	0.015	0.003	0.003	0.003	0.722	0.031	0.007	0.007	31.235
		Idle	0.829	0.090	0.090	0.099	0.163	0.036	0.008	0.008	36.351
B737-800	CFM56-7B26	Approach	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.170
10L		Climb Out	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.118
		Takeoff	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.166
		Idle	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.163
B757-300	PW2043	Approach	0.003	0.000	0.000	0.000	0.028	0.002	N/A	N/A	2.625
10L		Climb Out	0.001	0.000	0.000	0.000	0.050	0.002	N/A	N/A	1.781
		Takeoff	0.001	0.000	0.000	0.000	0.091	0.002	N/A	N/A	2.420
		Idle	0.045	0.003	0.003	0.004	0.010	0.002	N/A	N/A	2.340
Bombardier CRJ700	CF34-8C1	Approach	0.010	0.000	0.000	0.000	0.037	0.003	0.000	0.000	3.423
10L		Climb Out	0.001	0.000	0.000	0.000	0.023	0.002	0.000	0.000	1.830
		Takeoff	0.001	0.000	0.000	0.000	0.045	0.003	0.000	0.000	3.069
		Idle	0.098	0.000	0.000	0.000	0.017	0.004	0.000	0.000	3.946
Cessna 172 Skyhawk	O-320	Approach	3.086	0.050	0.050	0.047	0.002	0.000	N/A	N/A	2.530
10L_GA		Climb Out	1.664	0.021	0.021	0.020	0.007	0.000	N/A	N/A	1.681
		Takeoff	1.258	0.013	0.013	0.013	0.002	0.000	N/A	N/A	1.164
		Idle	0.817	0.028	0.028	0.026	0.000	0.000	N/A	N/A	0.756
Cessna 441 Conqu...	TPE331-8	Approach	0.008	0.000	0.000	0.000	0.017	0.002	N/A	N/A	1.765
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.374
		Takeoff	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.431
		Idle	0.024	0.002	0.002	0.002	0.006	0.001	N/A	N/A	1.302
CITATION I SP	JT15D-1A ,1B	Approach	0.047	0.006	0.006	0.006	0.004	0.001	0.000	0.000	1.178
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.704
		Takeoff	0.002	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.783
		Idle	0.161	0.062	0.062	0.065	0.002	0.001	0.000	0.000	1.216
CL600	ALF 502L-2	Approach	0.080	0.003	0.003	0.004	0.131	0.011	0.002	0.002	20.255
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.127	0.006	0.002	0.002	10.573
		Takeoff	0.006	0.000	0.000	0.000	0.194	0.008	0.001	0.001	14.441
		Idle	1.011	0.148	0.148	0.157	0.075	0.012	0.000	0.000	22.147
DC9-30	JT8D-15 (old co...	Approach	0.025	0.004	0.004	0.004	0.015	0.002	0.002	0.002	2.694
10L		Climb Out	0.002	0.001	0.001	0.001	0.035	0.002	0.002	0.002	2.380
		Takeoff	0.002	0.001	0.001	0.001	0.049	0.002	0.002	0.002	2.518
		Idle	0.120	0.037	0.037	0.041	0.010	0.003	0.002	0.002	3.414
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.155	0.001	0.001	0.001	0.141	0.021	0.000	0.000	20.432
10L		Climb Out	0.010	0.001	0.001	0.001	0.276	0.021	0.000	0.000	20.420
		Takeoff	0.007	0.000	0.000	0.000	0.218	0.014	0.000	0.000	14.157
		Idle	0.883	0.087	0.087	0.093	0.098	0.023	0.000	0.000	22.961
Embraer ERJ 145	AE3007A	Approach	0.020	0.004	0.004	0.004	0.047	0.007	0.000	0.000	6.128
10L		Climb Out	0.006	0.002	0.002	0.002	0.104	0.006	0.000	0.000	5.921
		Takeoff	0.003	0.001	0.001	0.001	0.084	0.004	0.000	0.000	4.105
		Idle	0.120	0.018	0.018	0.019	0.026	0.007	0.000	0.000	6.917
Embraer ERJ 145	AE3007A1E	Approach	0.071	0.000	0.000	0.000	0.094	0.012	0.000	0.000	12.569
10L		Climb Out	0.008	0.000	0.000	0.000	0.192	0.013	0.000	0.000	12.876
		Takeoff	0.007	0.000	0.000	0.000	0.154	0.009	0.000	0.000	8.977
		Idle	0.509	0.047	0.047	0.051	0.057	0.013	0.000	0.000	13.411
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	0.362	0.001	0.001	0.002	0.379	0.053	0.000	0.000	53.182
10L		Climb Out	0.028	0.001	0.001	0.001	0.703	0.051	0.000	0.000	50.233

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.032	0.001	0.001	0.001	0.699	0.043	0.000	0.000	43.434
		Idle	2.482	0.240	0.240	0.256	0.258	0.062	0.000	0.000	61.963
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	0.531	0.002	0.002	0.002	0.484	0.069	0.000	0.000	69.756
10L		Climb Out	0.035	0.002	0.002	0.002	0.940	0.069	0.000	0.000	69.716
		Takeoff	0.024	0.001	0.001	0.001	0.745	0.049	0.000	0.000	48.333
		Idle	3.016	0.299	0.299	0.317	0.335	0.078	0.000	0.000	78.390
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.136	0.001	0.001	0.001	0.142	0.020	0.000	0.000	19.975
10L		Climb Out	0.010	0.001	0.001	0.001	0.265	0.019	0.000	0.000	18.851
		Takeoff	0.012	0.000	0.000	0.000	0.262	0.017	0.000	0.000	16.303
		Idle	0.931	0.090	0.090	0.096	0.097	0.023	0.000	0.000	23.303
Embraer ERJ 170	CF34-8E5	Approach	0.289	0.004	0.004	0.004	0.734	0.068	0.008	0.008	68.201
10L		Climb Out	0.021	0.001	0.001	0.001	0.464	0.036	0.000	0.000	36.690
		Takeoff	0.040	0.001	0.001	0.001	0.909	0.062	0.007	0.007	61.581
		Idle	1.245	0.009	0.009	0.010	0.316	0.068	0.008	0.008	68.513
Falcon 20	CF700-2D	Approach	0.141	0.003	0.003	0.003	0.004	0.002	N/A	N/A	2.275
10L_GA		Climb Out	0.032	0.000	0.000	0.000	0.006	0.001	N/A	N/A	1.263
		Takeoff	0.037	0.000	0.000	0.000	0.010	0.002	N/A	N/A	1.684
		Idle	0.433	0.051	0.051	0.054	0.002	0.003	N/A	N/A	2.797
Falcon 2000EX	PW308C	Approach	0.063	0.002	0.002	0.002	0.094	0.012	0.001	0.001	11.968
10L_Corp		Climb Out	0.007	0.001	0.001	0.001	0.103	0.007	0.001	0.001	6.409
		Takeoff	0.007	0.001	0.001	0.001	0.153	0.009	0.001	0.001	8.333
		Idle	0.429	0.061	0.061	0.064	0.036	0.010	0.001	0.001	10.148
Gulfstream II	SPEY MK511-8	Approach	0.012	0.001	0.001	0.001	0.033	0.004	N/A	N/A	4.538
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.061	0.003	N/A	N/A	3.526
		Takeoff	0.000	0.000	0.000	0.000	0.094	0.004	N/A	N/A	4.127
		Idle	0.194	0.022	0.022	0.024	0.022	0.007	N/A	N/A	6.123
Gulfstream IV	TAY Mk611-8	Approach	0.097	0.022	0.022	0.024	0.142	0.025	0.014	0.014	24.917
10L_GA		Climb Out	0.009	0.003	0.003	0.003	0.188	0.011	0.007	0.007	11.250
		Takeoff	0.011	0.012	0.012	0.013	0.330	0.015	0.009	0.009	15.608
		Idle	0.850	0.120	0.120	0.128	0.088	0.035	0.021	0.021	35.260
HS 125	TFE731-3	Approach	0.278	0.025	0.025	0.028	0.123	0.010	N/A	N/A	17.870
10L_Corp		Climb Out	0.012	0.001	0.001	0.001	0.123	0.004	N/A	N/A	7.735
		Takeoff	0.013	0.001	0.001	0.001	0.230	0.007	N/A	N/A	12.030
		Idle	0.876	0.166	0.166	0.184	0.068	0.010	N/A	N/A	18.380
KC-135R	CFM56-2B-1	Approach	0.012	0.000	0.000	0.000	0.023	0.003	0.000	0.000	2.887
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.053	0.003	0.000	0.000	3.289
		Takeoff	0.004	0.000	0.000	0.000	0.087	0.004	0.000	0.000	4.730
		Idle	0.127	0.008	0.008	0.009	0.017	0.004	0.000	0.000	4.119
Learjet 25C	CJ610-6	Approach	1.631	0.000	0.000	0.000	0.028	0.010	N/A	N/A	18.542
10L_GA		Climb Out	0.194	0.001	0.001	0.001	0.024	0.003	N/A	N/A	6.936
		Takeoff	0.292	0.001	0.001	0.001	0.045	0.006	N/A	N/A	10.838
		Idle	4.062	0.472	0.472	0.502	0.023	0.014	N/A	N/A	26.203
Learjet 35/36	TFE 731-2-2B	Approach	0.149	0.029	0.029	0.030	0.039	0.003	N/A	N/A	6.626
10L_GA		Climb Out	0.006	0.000	0.000	0.000	0.039	0.001	N/A	N/A	2.974
		Takeoff	0.006	0.000	0.000	0.000	0.054	0.002	N/A	N/A	3.571
		Idle	0.357	0.122	0.122	0.130	0.018	0.003	N/A	N/A	6.091
MD-80-83	JT8D-219 old co...	Approach	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10L		Climb Out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Takeoff	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Idle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	Approach	7.773	0.083	0.083	0.079	0.009	0.001	N/A	N/A	6.170
10L_GA		Climb Out	6.497	0.074	0.074	0.071	0.001	0.000	N/A	N/A	4.417
		Takeoff	4.330	0.037	0.037	0.036	0.001	0.000	N/A	N/A	3.003
		Idle	4.148	0.218	0.218	0.211	0.001	0.000	N/A	N/A	3.206
Piper PA-28	O-320	Approach	0.183	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.150
10L_GA		Climb Out	0.088	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.089
		Takeoff	0.060	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.055
		Idle	0.039	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.035
UC-12J	PT6A-42	Approach	0.121	0.079	0.079	0.087	0.017	0.002	N/A	N/A	3.483
10L_GA		Climb Out	0.006	0.002	0.002	0.002	0.007	0.000	N/A	N/A	0.829
		Takeoff	0.003	0.001	0.001	0.001	0.006	0.000	N/A	N/A	0.648
		Idle	0.279	0.246	0.246	0.271	0.004	0.001	N/A	N/A	2.422
550 Citation	JT15D-4 (B,C,D)	Approach	0.786	0.127	0.127	0.134	0.130	0.013	0.007	0.007	24.574
10L_Corp		Climb Out	0.042	0.002	0.002	0.002	0.112	0.007	0.003	0.003	13.163
		Takeoff	0.030	0.001	0.001	0.001	0.132	0.008	0.004	0.004	14.384
		Idle	2.482	1.024	1.024	1.088	0.067	0.014	0.008	0.008	25.596
B737-300	CFM56-3C-1 (Re...	Approach	0.012	0.000	0.000	0.000	0.023	0.003	0.000	0.000	2.859
10L		Climb Out	0.001	0.000	0.000	0.000	0.021	0.001	0.000	0.000	1.444
		Takeoff	0.002	0.000	0.000	0.000	0.031	0.002	0.000	0.000	1.889
		Idle	0.128	0.010	0.010	0.011	0.013	0.003	0.000	0.000	3.368

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation 10L_GA	JT15D-4 (B,C,D)	Approach	0.157	0.025	0.025	0.026	0.025	0.002	0.001	0.001	4.887
		Climb Out	0.009	0.000	0.000	0.000	0.022	0.001	0.001	0.001	2.617
		Takeoff	0.006	0.000	0.000	0.000	0.026	0.001	0.001	0.001	2.860
		Idle	0.494	0.204	0.204	0.216	0.013	0.002	0.001	0.001	5.089
550 Citation 10R_GA	JT15D-4 (B,C,D)	Approach	0.572	0.091	0.091	0.098	0.095	0.010	0.006	0.006	17.868
		Climb Out	0.031	0.002	0.002	0.002	0.082	0.006	0.002	0.002	9.571
		Takeoff	0.022	0.001	0.001	0.001	0.097	0.006	0.003	0.003	10.459
		Idle	1.806	0.744	0.744	0.791	0.049	0.010	0.006	0.006	18.611
550 Citation 10R_Corp	JT15D-4 (B,C,D)	Approach	1.285	0.207	0.207	0.219	0.213	0.022	0.011	0.011	40.159
		Climb Out	0.068	0.004	0.004	0.004	0.184	0.012	0.006	0.006	21.512
		Takeoff	0.050	0.002	0.002	0.002	0.217	0.013	0.007	0.007	23.507
		Idle	4.058	1.673	1.673	1.779	0.110	0.022	0.012	0.012	41.829
Aztec 10R_GA	TIO-540-J2B2	Approach	7.356	0.078	0.078	0.075	0.008	0.001	N/A	N/A	5.838
		Climb Out	6.148	0.069	0.069	0.067	0.001	0.000	N/A	N/A	4.180
		Takeoff	4.098	0.035	0.035	0.034	0.001	0.000	N/A	N/A	2.842
		Idle	3.925	0.206	0.206	0.200	0.001	0.000	N/A	N/A	3.034
B737-300 10R	CFM56-3C-1 (Re...	Approach	0.109	0.002	0.002	0.002	0.208	0.026	0.000	0.000	26.002
		Climb Out	0.013	0.001	0.001	0.001	0.193	0.013	0.000	0.000	13.131
		Takeoff	0.015	0.001	0.001	0.001	0.285	0.018	0.000	0.000	17.184
		Idle	1.166	0.087	0.087	0.096	0.117	0.031	0.000	0.000	30.624
B737-300 10R	CFM56-3B-2	Approach	0.226	0.004	0.004	0.006	0.578	0.066	0.001	0.001	66.393
		Climb Out	0.032	0.001	0.001	0.002	0.584	0.035	0.001	0.001	34.963
		Takeoff	0.042	0.002	0.002	0.002	0.896	0.046	0.003	0.003	46.197
		Idle	2.194	0.128	0.128	0.140	0.299	0.073	0.001	0.001	72.883
B737-300 10R	CFM56-3-B1	Approach	1.283	0.026	0.026	0.030	2.802	0.337	0.004	0.004	337.540
		Climb Out	0.165	0.009	0.009	0.010	2.691	0.173	0.002	0.002	173.609
		Takeoff	0.205	0.009	0.009	0.010	4.032	0.228	0.007	0.007	227.809
		Idle	13.221	0.876	0.876	0.959	1.499	0.385	0.003	0.003	384.338
B737-500 10R	CFM56-3C-1	Approach	0.172	0.004	0.004	0.004	0.505	0.055	0.001	0.001	55.441
		Climb Out	0.030	0.001	0.001	0.001	0.590	0.033	0.001	0.001	33.118
		Takeoff	0.040	0.001	0.001	0.001	0.901	0.043	0.004	0.004	43.523
		Idle	1.556	0.083	0.083	0.090	0.250	0.058	0.001	0.001	58.086
B737-700 10R	CFM56-7B22	Approach	0.918	0.036	0.036	0.040	3.674	0.367	0.077	0.077	367.439
		Climb Out	0.132	0.022	0.022	0.024	4.198	0.220	0.046	0.046	220.909
		Takeoff	0.158	0.032	0.032	0.034	7.288	0.315	0.066	0.066	315.532
		Idle	8.372	0.918	0.918	1.005	1.652	0.367	0.077	0.077	367.209
B737-800 10R	CFM56-7B26	Approach	0.003	0.000	0.000	0.000	0.025	0.002	0.001	0.001	2.372
		Climb Out	0.001	0.000	0.000	0.000	0.037	0.001	0.000	0.000	1.647
		Takeoff	0.000	0.000	0.000	0.000	0.067	0.002	0.001	0.001	2.329
		Idle	0.043	0.004	0.004	0.004	0.011	0.002	0.001	0.001	2.281
B757-300 10R	PW2043	Approach	0.033	0.002	0.002	0.002	0.267	0.025	N/A	N/A	24.930
		Climb Out	0.007	0.000	0.000	0.000	0.472	0.017	N/A	N/A	16.919
		Takeoff	0.007	0.000	0.000	0.000	0.869	0.023	N/A	N/A	22.984
		Idle	0.429	0.034	0.034	0.037	0.098	0.022	N/A	N/A	22.230
Bombardier CRJ700 10R	CF34-8C1	Approach	0.017	0.000	0.000	0.000	0.065	0.006	0.000	0.000	5.818
		Climb Out	0.001	0.000	0.000	0.000	0.040	0.003	0.000	0.000	3.111
		Takeoff	0.002	0.000	0.000	0.000	0.076	0.006	0.000	0.000	5.217
		Idle	0.168	0.000	0.000	0.001	0.029	0.007	0.000	0.000	6.709
Cessna 172 Skyhawk 10R_GA	O-320	Approach	2.929	0.046	0.046	0.045	0.002	0.000	N/A	N/A	2.401
		Climb Out	1.580	0.020	0.020	0.019	0.007	0.000	N/A	N/A	1.595
		Takeoff	1.193	0.013	0.013	0.012	0.002	0.000	N/A	N/A	1.105
		Idle	0.775	0.026	0.026	0.025	0.000	0.000	N/A	N/A	0.718
Cessna 441 Conqu... 10R_GA	TPE331-8	Approach	0.023	0.001	0.001	0.001	0.051	0.006	N/A	N/A	5.322
		Climb Out	0.002	0.000	0.000	0.000	0.012	0.001	N/A	N/A	1.128
		Takeoff	0.002	0.000	0.000	0.000	0.014	0.001	N/A	N/A	1.301
		Idle	0.074	0.006	0.006	0.007	0.017	0.004	N/A	N/A	3.926
CITATION I SP 10R_GA	JT15D-1A _1B	Approach	0.181	0.020	0.020	0.021	0.015	0.002	0.001	0.001	4.458
		Climb Out	0.009	0.000	0.000	0.000	0.018	0.001	0.001	0.001	2.664
		Takeoff	0.008	0.000	0.000	0.000	0.022	0.001	0.001	0.001	2.960
		Idle	0.607	0.233	0.233	0.247	0.008	0.002	0.001	0.001	4.600
CL600 10R_GA	ALF 502L-2	Approach	0.133	0.007	0.007	0.007	0.218	0.019	0.004	0.004	33.716
		Climb Out	0.006	0.000	0.000	0.000	0.212	0.010	0.004	0.004	17.600
		Takeoff	0.010	0.000	0.000	0.000	0.323	0.013	0.002	0.002	24.039
		Idle	1.682	0.245	0.245	0.260	0.125	0.020	0.001	0.001	36.866
DC9-30 10R	JT8D-15 (old co...	Approach	0.378	0.065	0.065	0.072	0.233	0.040	0.029	0.029	39.394
		Climb Out	0.035	0.009	0.009	0.010	0.522	0.035	0.025	0.025	34.808
		Takeoff	0.025	0.009	0.009	0.010	0.703	0.036	0.026	0.026	36.827
		Idle	1.757	0.549	0.549	0.601	0.150	0.050	0.036	0.036	49.924
Embraer ERJ 135/1... 10R	AE3007A1/3 (Ty...	Approach	0.261	0.001	0.001	0.001	0.238	0.034	0.000	0.000	34.303
		Climb Out	0.018	0.001	0.001	0.001	0.463	0.034	0.000	0.000	34.283

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.012	0.001	0.001	0.001	0.366	0.024	0.000	0.000	23.768
		Idle	1.483	0.147	0.147	0.157	0.164	0.039	0.000	0.000	38.548
Embraer ERJ 145 10R	AE3007A1E	Approach	0.119	0.001	0.001	0.001	0.157	0.021	0.000	0.000	21.162
		Climb Out	0.014	0.001	0.001	0.001	0.323	0.022	0.000	0.000	21.678
		Takeoff	0.012	0.000	0.000	0.000	0.259	0.015	0.000	0.000	15.114
		Idle	0.858	0.079	0.079	0.085	0.096	0.022	0.000	0.000	22.580
Embraer ERJ 145 10R	AE3007A	Approach	0.034	0.007	0.007	0.007	0.080	0.010	0.000	0.000	10.317
		Climb Out	0.009	0.003	0.003	0.003	0.174	0.010	0.000	0.000	9.969
		Takeoff	0.006	0.002	0.002	0.002	0.142	0.007	0.000	0.000	6.911
		Idle	0.202	0.030	0.030	0.031	0.044	0.012	0.000	0.000	11.646
Embraer ERJ 145LR 10R	AE3007A1P (Typ...	Approach	0.229	0.001	0.001	0.001	0.240	0.034	0.000	0.000	33.765
		Climb Out	0.018	0.001	0.001	0.001	0.446	0.032	0.000	0.000	31.865
		Takeoff	0.021	0.001	0.001	0.001	0.444	0.028	0.000	0.000	27.559
		Idle	1.574	0.152	0.152	0.162	0.164	0.040	0.000	0.000	39.390
Embraer ERJ 145LR 10R	AE3007A1/3 (Ty...	Approach	0.898	0.003	0.003	0.003	0.817	0.118	0.000	0.000	117.930
		Climb Out	0.058	0.003	0.003	0.003	1.590	0.118	0.000	0.000	117.861
		Takeoff	0.041	0.002	0.002	0.002	1.260	0.082	0.000	0.000	81.711
		Idle	5.098	0.505	0.505	0.537	0.565	0.132	0.000	0.000	132.526
Embraer ERJ 145LR 10R	AE3007A1/1 (Ty...	Approach	0.612	0.002	0.002	0.003	0.640	0.090	0.000	0.000	89.922
		Climb Out	0.046	0.002	0.002	0.002	1.190	0.085	0.000	0.000	84.937
		Takeoff	0.054	0.002	0.002	0.002	1.183	0.074	0.000	0.000	73.439
		Idle	4.198	0.407	0.407	0.432	0.437	0.105	0.000	0.000	104.768
Embraer ERJ 170 10R	CF34-8E5	Approach	0.492	0.007	0.007	0.008	1.252	0.116	0.013	0.013	116.235
		Climb Out	0.035	0.001	0.001	0.001	0.791	0.063	0.001	0.001	62.532
		Takeoff	0.067	0.002	0.002	0.002	1.550	0.105	0.012	0.012	104.952
		Idle	2.121	0.015	0.015	0.017	0.538	0.117	0.013	0.013	116.766
Falcon 20 10R_GA	CF700-2D	Approach	0.518	0.012	0.012	0.012	0.015	0.009	N/A	N/A	8.362
		Climb Out	0.116	0.000	0.000	0.000	0.020	0.004	N/A	N/A	4.644
		Takeoff	0.137	0.001	0.001	0.001	0.034	0.007	N/A	N/A	6.192
		Idle	1.594	0.185	0.185	0.196	0.009	0.010	N/A	N/A	10.280
Falcon 2000EX 10R_Corp	PW308C	Approach	0.105	0.003	0.003	0.003	0.157	0.020	0.002	0.002	20.021
		Climb Out	0.010	0.001	0.001	0.001	0.172	0.011	0.001	0.001	10.721
		Takeoff	0.011	0.001	0.001	0.001	0.257	0.014	0.001	0.001	13.942
		Idle	0.718	0.100	0.100	0.107	0.062	0.017	0.001	0.001	16.977
Gulfstream II 10R_GA	SPEY MK511-8	Approach	0.044	0.003	0.003	0.003	0.120	0.017	N/A	N/A	16.686
		Climb Out	0.008	0.001	0.001	0.002	0.224	0.013	N/A	N/A	12.964
		Takeoff	0.002	0.001	0.001	0.001	0.344	0.015	N/A	N/A	15.174
		Idle	0.715	0.083	0.083	0.088	0.082	0.022	N/A	N/A	22.511
Gulfstream IV 10R_GA	TAY Mk611-8	Approach	0.234	0.054	0.054	0.057	0.342	0.060	0.035	0.035	60.022
		Climb Out	0.022	0.008	0.008	0.009	0.455	0.028	0.017	0.017	27.100
		Takeoff	0.026	0.030	0.030	0.032	0.794	0.037	0.022	0.022	37.597
		Idle	2.047	0.289	0.289	0.308	0.213	0.085	0.051	0.051	84.936
HS 125 10R_Corp	TFE731-3	Approach	0.470	0.043	0.043	0.047	0.208	0.017	N/A	N/A	30.153
		Climb Out	0.021	0.001	0.001	0.001	0.209	0.007	N/A	N/A	13.051
		Takeoff	0.023	0.001	0.001	0.001	0.389	0.011	N/A	N/A	20.299
		Idle	1.479	0.280	0.280	0.310	0.116	0.017	N/A	N/A	31.015
KC-135R 10R_GA	CFM56-2B-1	Approach	0.105	0.002	0.002	0.002	0.204	0.025	0.000	0.000	24.934
		Climb Out	0.025	0.001	0.001	0.001	0.454	0.029	0.000	0.000	28.405
		Takeoff	0.036	0.001	0.001	0.002	0.756	0.041	0.002	0.002	40.847
		Idle	1.092	0.065	0.065	0.072	0.142	0.035	0.000	0.000	35.580
Learjet 25C 10R_GA	CJ610-6	Approach	2.581	0.000	0.000	0.000	0.044	0.015	N/A	N/A	29.321
		Climb Out	0.308	0.002	0.002	0.002	0.039	0.006	N/A	N/A	10.968
		Takeoff	0.463	0.002	0.002	0.002	0.072	0.009	N/A	N/A	17.138
		Idle	6.422	0.746	0.746	0.793	0.037	0.022	N/A	N/A	41.436
Learjet 35/36 10R_GA	TFE 731-2-2B	Approach	0.568	0.108	0.108	0.115	0.150	0.013	N/A	N/A	25.349
		Climb Out	0.023	0.001	0.001	0.001	0.149	0.007	N/A	N/A	11.376
		Takeoff	0.019	0.001	0.001	0.002	0.208	0.008	N/A	N/A	13.665
		Idle	1.366	0.467	0.467	0.496	0.066	0.012	N/A	N/A	23.306
MD-80-83 10R	JT8D-219 old co...	Approach	0.003	0.001	0.001	0.001	0.009	0.001	0.000	0.000	0.937
		Climb Out	0.001	0.000	0.000	0.000	0.017	0.001	0.000	0.000	0.804
		Takeoff	0.001	0.000	0.000	0.000	0.024	0.001	0.000	0.000	0.886
		Idle	0.012	0.003	0.003	0.003	0.003	0.001	0.000	0.000	0.976
Navajo 10R_GA	TIO-540-J2B2	Approach	2.811	0.030	0.030	0.029	0.003	0.000	N/A	N/A	2.231
		Climb Out	2.349	0.026	0.026	0.025	0.000	0.000	N/A	N/A	1.597
		Takeoff	1.565	0.013	0.013	0.013	0.000	0.000	N/A	N/A	1.086
		Idle	1.500	0.079	0.079	0.076	0.000	0.000	N/A	N/A	1.160
Piper PA-28 10R_GA	O-320	Approach	0.558	0.009	0.009	0.009	0.000	0.000	N/A	N/A	0.456
		Climb Out	0.268	0.003	0.003	0.003	0.001	0.000	N/A	N/A	0.271
		Takeoff	0.181	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.168
		Idle	0.116	0.004	0.004	0.003	0.000	0.000	N/A	N/A	0.107

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
UC-12J	PT6A-42	Approach	0.395	0.258	0.258	0.284	0.053	0.007	N/A	N/A	11.347
10R_GA		Climb Out	0.018	0.006	0.006	0.006	0.020	0.001	N/A	N/A	2.700
		Takeoff	0.011	0.003	0.003	0.004	0.017	0.001	N/A	N/A	2.113
		Idle	0.908	0.800	0.800	0.884	0.015	0.004	N/A	N/A	7.889
Aztec	TIO-540-J2B2	Approach	18.369	0.195	0.195	0.188	0.020	0.001	N/A	N/A	14.578
28L_GA		Climb Out	15.352	0.173	0.173	0.168	0.002	0.001	N/A	N/A	10.437
		Takeoff	10.233	0.088	0.088	0.085	0.002	0.001	N/A	N/A	7.096
		Idle	9.803	0.516	0.516	0.497	0.003	0.001	N/A	N/A	7.576
B737-300	CFM56-3-B1	Approach	2.608	0.055	0.055	0.061	5.697	0.687	0.009	0.009	686.361
28L		Climb Out	0.335	0.018	0.018	0.020	5.472	0.353	0.004	0.004	353.017
		Takeoff	0.417	0.019	0.019	0.020	8.199	0.463	0.013	0.013	463.232
		Idle	26.884	1.781	1.781	1.951	3.048	0.782	0.008	0.008	781.521
B737-300	CFM56-3B-2	Approach	0.459	0.010	0.010	0.011	1.174	0.134	0.002	0.002	134.978
28L		Climb Out	0.064	0.003	0.003	0.003	1.187	0.071	0.001	0.001	71.079
		Takeoff	0.085	0.003	0.003	0.003	1.822	0.094	0.006	0.006	93.918
		Idle	4.460	0.259	0.259	0.284	0.607	0.148	0.001	0.001	148.170
B737-300	CFM56-3C-1 (Re...	Approach	0.251	0.004	0.004	0.006	0.478	0.060	0.001	0.001	59.766
28L		Climb Out	0.030	0.001	0.001	0.001	0.443	0.030	0.000	0.000	30.180
		Takeoff	0.035	0.002	0.002	0.002	0.656	0.040	0.001	0.001	39.497
		Idle	2.682	0.202	0.202	0.220	0.268	0.071	0.001	0.001	70.387
B737-500	CFM56-3C-1	Approach	0.343	0.008	0.008	0.009	1.006	0.110	0.001	0.001	110.540
28L		Climb Out	0.060	0.002	0.002	0.003	1.175	0.066	0.002	0.002	66.032
		Takeoff	0.078	0.002	0.002	0.003	1.797	0.087	0.008	0.008	86.777
		Idle	3.104	0.164	0.164	0.180	0.498	0.116	0.001	0.001	115.813
B737-700	CFM56-7B22	Approach	2.021	0.080	0.080	0.088	8.084	0.808	0.170	0.170	808.395
28L		Climb Out	0.292	0.049	0.049	0.053	9.234	0.486	0.103	0.103	486.017
		Takeoff	0.347	0.069	0.069	0.076	16.036	0.694	0.146	0.146	694.197
		Idle	18.420	2.019	2.019	2.211	3.635	0.808	0.170	0.170	807.889
B737-800	CFM56-7B26	Approach	0.009	0.000	0.000	0.000	0.056	0.006	0.001	0.001	5.253
28L		Climb Out	0.002	0.000	0.000	0.000	0.082	0.003	0.001	0.001	3.645
		Takeoff	0.001	0.000	0.000	0.001	0.149	0.006	0.001	0.001	5.157
		Idle	0.095	0.010	0.010	0.011	0.024	0.006	0.001	0.001	5.051
B757-300	PW2043	Approach	0.076	0.006	0.006	0.006	0.617	0.057	N/A	N/A	57.734
28L		Climb Out	0.015	0.001	0.001	0.001	1.092	0.040	N/A	N/A	39.182
		Takeoff	0.015	0.000	0.000	0.001	2.011	0.053	N/A	N/A	53.226
		Idle	0.994	0.080	0.080	0.088	0.228	0.052	N/A	N/A	51.481
Bombardier CRJ700	CF34-8C1	Approach	0.033	0.001	0.001	0.001	0.126	0.011	0.000	0.000	11.293
28L		Climb Out	0.003	0.000	0.000	0.000	0.077	0.006	0.000	0.000	6.037
		Takeoff	0.004	0.000	0.000	0.000	0.149	0.010	0.000	0.000	10.128
		Idle	0.324	0.001	0.001	0.001	0.056	0.013	0.001	0.001	13.024
CITATION I SP	JT15D-1A ,1B	Approach	0.527	0.057	0.057	0.062	0.045	0.007	0.004	0.004	13.024
28L_GA		Climb Out	0.028	0.000	0.000	0.000	0.053	0.004	0.002	0.002	7.782
		Takeoff	0.023	0.000	0.000	0.000	0.066	0.004	0.002	0.002	8.648
		Idle	1.774	0.679	0.679	0.722	0.023	0.008	0.004	0.004	13.438
CL600	ALF 502L-2	Approach	0.241	0.011	0.011	0.012	0.394	0.033	0.008	0.008	60.826
28L_GA		Climb Out	0.010	0.001	0.001	0.001	0.383	0.018	0.008	0.008	31.751
		Takeoff	0.018	0.001	0.001	0.001	0.582	0.023	0.004	0.004	43.367
		Idle	3.035	0.442	0.442	0.471	0.225	0.036	0.001	0.001	66.509
Cessna 172 Skyhawk	O-320	Approach	7.852	0.125	0.125	0.120	0.007	0.001	N/A	N/A	6.435
28L_GA		Climb Out	4.234	0.053	0.053	0.051	0.017	0.000	N/A	N/A	4.276
		Takeoff	3.198	0.035	0.035	0.034	0.007	0.000	N/A	N/A	2.961
		Idle	2.078	0.071	0.071	0.068	0.001	0.000	N/A	N/A	1.924
Cessna 441 Conqu...	TPE331-8	Approach	0.072	0.003	0.003	0.003	0.157	0.017	N/A	N/A	16.437
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.037	0.003	N/A	N/A	3.481
		Takeoff	0.006	0.000	0.000	0.000	0.044	0.004	N/A	N/A	4.016
		Idle	0.228	0.018	0.018	0.019	0.050	0.012	N/A	N/A	12.124
DC9-30	JT8D-15 (old co...	Approach	0.682	0.117	0.117	0.128	0.419	0.071	0.051	0.051	71.045
28L		Climb Out	0.063	0.015	0.015	0.018	0.941	0.063	0.045	0.045	62.773
		Takeoff	0.046	0.017	0.017	0.018	1.269	0.066	0.047	0.047	66.414
		Idle	3.169	0.990	0.990	1.085	0.270	0.090	0.065	0.065	90.032
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.492	0.002	0.002	0.002	0.448	0.065	0.000	0.000	64.577
28L		Climb Out	0.032	0.002	0.002	0.002	0.871	0.065	0.000	0.000	64.539
		Takeoff	0.022	0.001	0.001	0.001	0.690	0.045	0.000	0.000	44.744
		Idle	2.792	0.277	0.277	0.294	0.310	0.073	0.000	0.000	72.570
Embraer ERJ 145	AE3007A	Approach	0.064	0.012	0.012	0.013	0.152	0.020	0.000	0.000	19.508
28L		Climb Out	0.018	0.006	0.006	0.006	0.330	0.019	0.000	0.000	18.851
		Takeoff	0.010	0.003	0.003	0.003	0.269	0.013	0.000	0.000	13.069
		Idle	0.383	0.055	0.055	0.058	0.085	0.022	0.000	0.000	22.022
Embraer ERJ 145	AE3007A1E	Approach	0.225	0.001	0.001	0.001	0.297	0.040	0.000	0.000	40.016
28L		Climb Out	0.026	0.001	0.001	0.001	0.611	0.041	0.000	0.000	40.992

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.022	0.001	0.001	0.001	0.491	0.029	0.000	0.000	28.580
		Idle	1.621	0.150	0.150	0.160	0.182	0.043	0.000	0.000	42.697
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	1.154	0.006	0.006	0.006	1.208	0.170	0.000	0.000	169.752
28L		Climb Out	0.088	0.004	0.004	0.006	2.247	0.160	0.000	0.000	160.342
		Takeoff	0.103	0.004	0.004	0.004	2.232	0.139	0.000	0.000	138.638
		Idle	7.925	0.767	0.767	0.816	0.825	0.197	0.000	0.000	197.779
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	1.696	0.007	0.007	0.007	1.542	0.223	0.000	0.000	222.565
28L		Climb Out	0.111	0.007	0.007	0.007	3.000	0.223	0.000	0.000	222.435
		Takeoff	0.077	0.004	0.004	0.004	2.378	0.154	0.000	0.000	154.210
		Idle	9.622	0.952	0.952	1.013	1.068	0.250	0.000	0.000	250.111
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.433	0.002	0.002	0.002	0.454	0.064	0.000	0.000	63.728
28L		Climb Out	0.033	0.002	0.002	0.002	0.842	0.061	0.000	0.000	60.141
		Takeoff	0.039	0.001	0.001	0.002	0.838	0.052	0.000	0.000	52.014
		Idle	2.972	0.287	0.287	0.305	0.310	0.074	0.000	0.000	74.345
Embraer ERJ 170	CF34-8E5	Approach	0.958	0.013	0.013	0.014	2.437	0.226	0.026	0.026	226.329
28L		Climb Out	0.069	0.002	0.002	0.002	1.540	0.121	0.002	0.002	121.760
		Takeoff	0.131	0.004	0.004	0.004	3.018	0.204	0.024	0.024	204.359
		Idle	4.129	0.030	0.030	0.032	1.048	0.227	0.026	0.026	227.362
Falcon 20	CF700-2D	Approach	1.755	0.040	0.040	0.042	0.051	0.029	N/A	N/A	28.299
28L_GA		Climb Out	0.392	0.001	0.001	0.002	0.067	0.015	N/A	N/A	15.717
		Takeoff	0.461	0.002	0.002	0.002	0.117	0.021	N/A	N/A	20.954
		Idle	5.393	0.626	0.626	0.666	0.031	0.035	N/A	N/A	34.790
Gulfstream II	SPEY MK511-8	Approach	0.150	0.010	0.010	0.011	0.407	0.056	N/A	N/A	56.465
28L_GA		Climb Out	0.028	0.006	0.006	0.006	0.759	0.044	N/A	N/A	43.872
		Takeoff	0.007	0.004	0.004	0.004	1.165	0.052	N/A	N/A	51.350
		Idle	2.421	0.281	0.281	0.299	0.274	0.076	N/A	N/A	76.177
HS 125	TFE731-3	Approach	0.922	0.084	0.084	0.093	0.410	0.032	N/A	N/A	59.194
28L_Corp		Climb Out	0.042	0.002	0.002	0.002	0.410	0.014	N/A	N/A	25.622
		Takeoff	0.045	0.002	0.002	0.002	0.763	0.022	N/A	N/A	39.850
		Idle	2.905	0.550	0.550	0.608	0.226	0.033	N/A	N/A	60.886
KC-135R	CFM56-2B-1	Approach	0.243	0.004	0.004	0.006	0.474	0.057	0.001	0.001	57.741
28L_GA		Climb Out	0.060	0.003	0.003	0.003	1.053	0.066	0.001	0.001	65.782
		Takeoff	0.085	0.003	0.003	0.004	1.750	0.095	0.006	0.006	94.593
		Idle	2.530	0.151	0.151	0.166	0.330	0.083	0.001	0.001	82.396
Learjet 25C	CJ610-6	Approach	5.031	0.000	0.000	0.000	0.086	0.031	N/A	N/A	57.166
28L_GA		Climb Out	0.599	0.004	0.004	0.004	0.075	0.011	N/A	N/A	21.385
		Takeoff	0.902	0.003	0.003	0.003	0.140	0.018	N/A	N/A	33.413
		Idle	12.522	1.454	1.454	1.545	0.073	0.044	N/A	N/A	80.785
Learjet 35/36	TFE 731-2-2B	Approach	1.723	0.327	0.327	0.348	0.454	0.042	N/A	N/A	76.977
28L_GA		Climb Out	0.071	0.004	0.004	0.004	0.452	0.019	N/A	N/A	34.546
		Takeoff	0.057	0.004	0.004	0.006	0.633	0.022	N/A	N/A	41.498
		Idle	4.147	1.419	1.419	1.508	0.200	0.039	N/A	N/A	70.773
MD-80-83	JT8D-219 old co...	Approach	0.007	0.002	0.002	0.003	0.015	0.002	0.000	0.000	1.685
28L		Climb Out	0.002	0.001	0.001	0.001	0.030	0.001	0.000	0.000	1.446
		Takeoff	0.001	0.000	0.000	0.000	0.043	0.001	0.000	0.000	1.596
		Idle	0.022	0.007	0.007	0.007	0.007	0.002	0.000	0.000	1.757
Navajo	TIO-540-J2B2	Approach	8.717	0.093	0.093	0.089	0.010	0.001	N/A	N/A	6.919
28L_GA		Climb Out	7.286	0.083	0.083	0.079	0.001	0.000	N/A	N/A	4.953
		Takeoff	4.857	0.042	0.042	0.041	0.001	0.000	N/A	N/A	3.368
		Idle	4.653	0.245	0.245	0.236	0.001	0.000	N/A	N/A	3.596
Piper PA-28	O-320	Approach	1.728	0.028	0.028	0.026	0.001	0.000	N/A	N/A	1.418
28L_GA		Climb Out	0.832	0.010	0.010	0.010	0.003	0.000	N/A	N/A	0.840
		Takeoff	0.562	0.007	0.007	0.006	0.001	0.000	N/A	N/A	0.520
		Idle	0.359	0.012	0.012	0.012	0.000	0.000	N/A	N/A	0.333
UC-12J	PT6A-42	Approach	0.961	0.627	0.627	0.692	0.128	0.015	N/A	N/A	27.637
28L_GA		Climb Out	0.043	0.013	0.013	0.014	0.050	0.003	N/A	N/A	6.574
		Takeoff	0.026	0.009	0.009	0.010	0.041	0.003	N/A	N/A	5.147
		Idle	2.212	1.950	1.950	2.154	0.037	0.010	N/A	N/A	19.215
550 Citation	JT15D-4 (B,C,D)	Approach	2.424	0.390	0.390	0.414	0.401	0.041	0.021	0.021	75.754
28L_Corp		Climb Out	0.129	0.008	0.008	0.008	0.347	0.022	0.011	0.011	40.578
		Takeoff	0.093	0.004	0.004	0.004	0.409	0.024	0.012	0.012	44.340
		Idle	7.653	3.156	3.156	3.355	0.207	0.043	0.022	0.022	78.902
Falcon 2000EX	PW308C	Approach	0.195	0.006	0.006	0.006	0.293	0.037	0.003	0.003	37.408
28L_Corp		Climb Out	0.020	0.002	0.002	0.002	0.321	0.020	0.002	0.002	20.031
		Takeoff	0.021	0.002	0.002	0.002	0.481	0.026	0.002	0.002	26.050
		Idle	1.342	0.188	0.188	0.201	0.115	0.032	0.003	0.003	31.720
550 Citation	JT15D-4 (B,C,D)	Approach	1.931	0.311	0.311	0.331	0.320	0.033	0.017	0.017	60.347
28L_GA		Climb Out	0.103	0.007	0.007	0.007	0.277	0.018	0.009	0.009	32.325
		Takeoff	0.074	0.003	0.003	0.003	0.326	0.019	0.010	0.010	35.322
		Idle	6.097	2.514	2.514	2.673	0.165	0.034	0.018	0.018	62.855

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV	TAY Mk611-8	Approach	0.567	0.131	0.131	0.139	0.829	0.146	0.086	0.086	145.405
28L_GA		Climb Out	0.053	0.020	0.020	0.021	1.103	0.066	0.039	0.039	65.651
		Takeoff	0.064	0.073	0.073	0.077	1.921	0.091	0.054	0.054	91.077
		Idle	4.959	0.700	0.700	0.744	0.515	0.206	0.121	0.121	205.759
Aztec	TIO-540-J2B2	Approach	17.249	0.183	0.183	0.177	0.019	0.001	N/A	N/A	13.690
28R_GA		Climb Out	14.416	0.163	0.163	0.157	0.002	0.001	N/A	N/A	9.800
		Takeoff	9.609	0.083	0.083	0.079	0.002	0.001	N/A	N/A	6.663
		Idle	9.205	0.484	0.484	0.467	0.003	0.001	N/A	N/A	7.114
B737-300	CFM56-3-B1	Approach	0.412	0.009	0.009	0.010	0.901	0.108	0.001	0.001	108.464
28R		Climb Out	0.053	0.003	0.003	0.003	0.864	0.056	0.001	0.001	55.787
		Takeoff	0.066	0.003	0.003	0.003	1.295	0.073	0.002	0.002	73.203
		Idle	4.248	0.281	0.281	0.309	0.482	0.123	0.001	0.001	123.502
B737-300	CFM56-3B-2	Approach	0.073	0.001	0.001	0.002	0.186	0.021	0.000	0.000	21.452
28R		Climb Out	0.010	0.000	0.000	0.001	0.188	0.011	0.000	0.000	11.296
		Takeoff	0.013	0.000	0.000	0.001	0.290	0.015	0.001	0.001	14.926
		Idle	0.709	0.041	0.041	0.045	0.097	0.023	0.000	0.000	23.549
B737-300	CFM56-3C-1 (Re...	Approach	0.045	0.001	0.001	0.001	0.086	0.011	0.000	0.000	10.755
28R		Climb Out	0.006	0.000	0.000	0.000	0.079	0.006	0.000	0.000	5.431
		Takeoff	0.007	0.000	0.000	0.000	0.118	0.007	0.000	0.000	7.108
		Idle	0.483	0.036	0.036	0.040	0.049	0.012	0.000	0.000	12.667
B737-500	CFM56-3C-1	Approach	0.053	0.001	0.001	0.001	0.154	0.017	0.000	0.000	16.940
28R		Climb Out	0.009	0.000	0.000	0.000	0.180	0.010	0.000	0.000	10.119
		Takeoff	0.012	0.000	0.000	0.000	0.276	0.013	0.001	0.001	13.298
		Idle	0.476	0.025	0.025	0.028	0.076	0.018	0.000	0.000	17.748
B737-700	CFM56-7B22	Approach	0.345	0.014	0.014	0.015	1.379	0.138	0.029	0.029	137.943
28R		Climb Out	0.050	0.009	0.009	0.009	1.575	0.083	0.018	0.018	82.933
		Takeoff	0.060	0.012	0.012	0.013	2.736	0.118	0.025	0.025	118.457
		Idle	3.143	0.345	0.345	0.377	0.621	0.138	0.029	0.029	137.857
B737-800	CFM56-7B26	Approach	0.001	0.000	0.000	0.000	0.009	0.001	0.000	0.000	0.848
28R		Climb Out	0.000	0.000	0.000	0.000	0.013	0.001	0.000	0.000	0.588
		Takeoff	0.000	0.000	0.000	0.000	0.024	0.001	0.000	0.000	0.832
		Idle	0.015	0.001	0.001	0.002	0.003	0.001	0.000	0.000	0.815
B757-300	PW2043	Approach	0.013	0.001	0.001	0.001	0.109	0.010	N/A	N/A	10.235
28R		Climb Out	0.002	0.000	0.000	0.000	0.194	0.007	N/A	N/A	6.946
		Takeoff	0.003	0.000	0.000	0.000	0.356	0.010	N/A	N/A	9.436
		Idle	0.176	0.014	0.014	0.015	0.041	0.009	N/A	N/A	9.126
Bombardier CRJ700	CF34-8C1	Approach	0.035	0.001	0.001	0.001	0.133	0.012	0.001	0.001	12.064
28R		Climb Out	0.003	0.000	0.000	0.000	0.083	0.007	0.000	0.000	6.450
		Takeoff	0.004	0.000	0.000	0.000	0.159	0.011	0.000	0.000	10.818
		Idle	0.347	0.001	0.001	0.001	0.060	0.014	0.001	0.001	13.911
CITATION I SP	JT15D-1A _1B	Approach	0.185	0.020	0.020	0.022	0.015	0.002	0.001	0.001	4.586
28R_GA		Climb Out	0.010	0.000	0.000	0.000	0.019	0.001	0.001	0.001	2.740
		Takeoff	0.008	0.000	0.000	0.000	0.023	0.001	0.001	0.001	3.045
		Idle	0.625	0.239	0.239	0.254	0.009	0.002	0.001	0.001	4.731
CL600	ALF 502L-2	Approach	0.267	0.012	0.012	0.013	0.434	0.036	0.008	0.008	67.183
28R_GA		Climb Out	0.011	0.001	0.001	0.001	0.422	0.019	0.008	0.008	35.069
		Takeoff	0.019	0.001	0.001	0.001	0.644	0.025	0.006	0.006	47.900
		Idle	3.352	0.488	0.488	0.519	0.248	0.040	0.001	0.001	73.459
Cessna 172 Skyhawk	O-320	Approach	6.208	0.099	0.099	0.095	0.004	0.001	N/A	N/A	5.088
28R_GA		Climb Out	3.348	0.042	0.042	0.041	0.013	0.000	N/A	N/A	3.381
		Takeoff	2.529	0.028	0.028	0.026	0.006	0.000	N/A	N/A	2.341
		Idle	1.642	0.056	0.056	0.054	0.001	0.000	N/A	N/A	1.521
Cessna 441 Conqu...	TPE331-8	Approach	0.029	0.001	0.001	0.001	0.064	0.007	N/A	N/A	6.701
28R_GA		Climb Out	0.002	0.000	0.000	0.000	0.015	0.001	N/A	N/A	1.420
		Takeoff	0.002	0.000	0.000	0.000	0.018	0.001	N/A	N/A	1.637
		Idle	0.093	0.008	0.008	0.008	0.021	0.004	N/A	N/A	4.944
DC9-30	JT8D-15 (old co...	Approach	0.094	0.017	0.017	0.018	0.057	0.010	0.007	0.007	9.764
28R		Climb Out	0.009	0.002	0.002	0.002	0.129	0.009	0.007	0.007	8.628
		Takeoff	0.007	0.002	0.002	0.002	0.174	0.009	0.007	0.007	9.128
		Idle	0.435	0.136	0.136	0.149	0.037	0.012	0.009	0.009	12.375
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.532	0.002	0.002	0.002	0.484	0.069	0.000	0.000	69.814
28R		Climb Out	0.035	0.002	0.002	0.002	0.941	0.069	0.000	0.000	69.773
		Takeoff	0.024	0.001	0.001	0.001	0.746	0.049	0.000	0.000	48.373
		Idle	3.018	0.299	0.299	0.317	0.335	0.078	0.000	0.000	78.455
Embraer ERJ 145	AE3007A	Approach	0.069	0.013	0.013	0.014	0.164	0.021	0.000	0.000	21.134
28R		Climb Out	0.019	0.006	0.006	0.007	0.357	0.021	0.000	0.000	20.421
		Takeoff	0.011	0.003	0.003	0.003	0.291	0.014	0.000	0.000	14.159
		Idle	0.414	0.060	0.060	0.064	0.091	0.024	0.000	0.000	23.857
Embraer ERJ 145	AE3007A1E	Approach	0.244	0.001	0.001	0.001	0.321	0.043	0.000	0.000	43.287
28R		Climb Out	0.029	0.001	0.001	0.001	0.661	0.044	0.000	0.000	44.343

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Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.024	0.001	0.001	0.001	0.531	0.031	0.000	0.000	30.915
		Idle	1.754	0.162	0.162	0.173	0.196	0.046	0.000	0.000	46.186
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	1.250	0.006	0.006	0.006	1.308	0.184	0.000	0.000	183.813
28R		Climb Out	0.096	0.006	0.006	0.006	2.433	0.174	0.000	0.000	173.623
		Takeoff	0.111	0.004	0.004	0.004	2.417	0.150	0.000	0.000	150.120
		Idle	8.581	0.831	0.831	0.883	0.893	0.214	0.000	0.000	214.160
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	1.836	0.008	0.008	0.008	1.670	0.241	0.000	0.000	240.983
28R		Climb Out	0.120	0.008	0.008	0.008	3.249	0.240	0.000	0.000	240.843
		Takeoff	0.084	0.006	0.006	0.006	2.575	0.166	0.000	0.000	166.972
		Idle	10.418	1.032	1.032	1.097	1.156	0.271	0.000	0.000	270.809
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.468	0.002	0.002	0.002	0.492	0.069	0.000	0.000	69.006
28R		Climb Out	0.035	0.002	0.002	0.002	0.913	0.065	0.000	0.000	65.122
		Takeoff	0.042	0.002	0.002	0.002	0.907	0.056	0.000	0.000	56.321
		Idle	3.218	0.311	0.311	0.331	0.336	0.080	0.000	0.000	80.502
Embraer ERJ 170	CF34-8E5	Approach	1.022	0.014	0.014	0.015	2.603	0.241	0.028	0.028	241.638
28R		Climb Out	0.074	0.002	0.002	0.003	1.645	0.130	0.002	0.002	129.996
		Takeoff	0.140	0.004	0.004	0.004	3.222	0.218	0.025	0.025	218.180
		Idle	4.408	0.032	0.032	0.034	1.119	0.243	0.029	0.029	242.741
Falcon 20	CF700-2D	Approach	0.610	0.013	0.013	0.014	0.018	0.010	N/A	N/A	9.835
28R_GA		Climb Out	0.137	0.000	0.000	0.001	0.023	0.006	N/A	N/A	5.462
		Takeoff	0.160	0.001	0.001	0.001	0.041	0.008	N/A	N/A	7.282
		Idle	1.874	0.217	0.217	0.231	0.011	0.012	N/A	N/A	12.090
Gulfstream II	SPEY MK511-8	Approach	0.052	0.003	0.003	0.003	0.141	0.020	N/A	N/A	19.622
28R_GA		Climb Out	0.010	0.002	0.002	0.002	0.263	0.015	N/A	N/A	15.246
		Takeoff	0.002	0.001	0.001	0.002	0.405	0.018	N/A	N/A	17.845
		Idle	0.841	0.098	0.098	0.104	0.095	0.026	N/A	N/A	26.473
HS 125	TFE731-3	Approach	0.976	0.088	0.088	0.098	0.434	0.034	N/A	N/A	62.704
28R_Corp		Climb Out	0.044	0.002	0.002	0.002	0.434	0.014	N/A	N/A	27.141
		Takeoff	0.047	0.002	0.002	0.003	0.808	0.023	N/A	N/A	42.212
		Idle	3.077	0.583	0.583	0.644	0.240	0.035	N/A	N/A	64.496
KC-135R	CFM56-2B-1	Approach	0.043	0.001	0.001	0.001	0.084	0.010	0.000	0.000	10.236
28R_GA		Climb Out	0.011	0.001	0.001	0.001	0.186	0.012	0.000	0.000	11.661
		Takeoff	0.015	0.001	0.001	0.001	0.310	0.017	0.001	0.001	16.768
		Idle	0.449	0.026	0.026	0.030	0.058	0.014	0.000	0.000	14.607
Learjet 25C	CJ610-6	Approach	5.183	0.000	0.000	0.000	0.088	0.032	N/A	N/A	58.899
28R_GA		Climb Out	0.617	0.004	0.004	0.004	0.077	0.012	N/A	N/A	22.032
		Takeoff	0.929	0.003	0.003	0.003	0.144	0.019	N/A	N/A	34.425
		Idle	12.901	1.498	1.498	1.593	0.075	0.045	N/A	N/A	83.233
Learjet 35/36	TFE 731-2-2B	Approach	0.602	0.115	0.115	0.122	0.159	0.014	N/A	N/A	26.912
28R_GA		Climb Out	0.024	0.001	0.001	0.001	0.158	0.007	N/A	N/A	12.078
		Takeoff	0.020	0.002	0.002	0.002	0.222	0.008	N/A	N/A	14.508
		Idle	1.450	0.496	0.496	0.527	0.069	0.013	N/A	N/A	24.744
MD-80-83	JT8D-219 old co...	Approach	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.187
28R		Climb Out	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.161
		Takeoff	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.177
		Idle	0.002	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.195
Navajo	TIO-540-J2B2	Approach	12.758	0.136	0.136	0.131	0.014	0.001	N/A	N/A	10.126
28R_GA		Climb Out	10.663	0.120	0.120	0.116	0.002	0.001	N/A	N/A	7.249
		Takeoff	7.108	0.061	0.061	0.058	0.002	0.000	N/A	N/A	4.928
		Idle	6.809	0.358	0.358	0.346	0.002	0.001	N/A	N/A	5.261
Piper PA-28	O-320	Approach	0.705	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.579
28R_GA		Climb Out	0.340	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.343
		Takeoff	0.229	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.213
		Idle	0.147	0.006	0.006	0.004	0.000	0.000	N/A	N/A	0.136
UC-12J	PT6A-42	Approach	0.424	0.277	0.277	0.306	0.056	0.007	N/A	N/A	12.208
28R_GA		Climb Out	0.019	0.006	0.006	0.007	0.022	0.001	N/A	N/A	2.905
		Takeoff	0.012	0.004	0.004	0.004	0.018	0.001	N/A	N/A	2.274
		Idle	0.977	0.861	0.861	0.951	0.017	0.004	N/A	N/A	8.488
550 Citation	JT15D-4 (B,C,D)	Approach	2.586	0.417	0.417	0.442	0.428	0.044	0.023	0.023	80.819
28R_Corp		Climb Out	0.138	0.008	0.008	0.009	0.370	0.023	0.012	0.012	43.291
		Takeoff	0.099	0.004	0.004	0.004	0.437	0.025	0.013	0.013	47.306
		Idle	8.165	3.368	3.368	3.579	0.222	0.045	0.023	0.023	84.178
Falcon 2000EX	PW308C	Approach	0.212	0.006	0.006	0.006	0.317	0.041	0.003	0.003	40.569
28R_Corp		Climb Out	0.021	0.002	0.002	0.002	0.347	0.022	0.002	0.002	21.724
		Takeoff	0.023	0.002	0.002	0.002	0.521	0.029	0.002	0.002	28.252
		Idle	1.455	0.204	0.204	0.217	0.125	0.034	0.003	0.003	34.401
550 Citation	JT15D-4 (B,C,D)	Approach	0.674	0.108	0.108	0.116	0.111	0.011	0.006	0.006	21.043
28R_GA		Climb Out	0.036	0.002	0.002	0.002	0.097	0.007	0.003	0.003	11.272
		Takeoff	0.025	0.001	0.001	0.001	0.114	0.007	0.003	0.003	12.317
		Idle	2.126	0.876	0.876	0.933	0.057	0.012	0.007	0.007	21.917

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV	TAY Mk611-8	Approach	0.363	0.084	0.084	0.089	0.530	0.093	0.055	0.055	93.024
28R_GA		Climb Out	0.033	0.012	0.012	0.013	0.705	0.042	0.025	0.025	42.000
		Takeoff	0.041	0.046	0.046	0.050	1.229	0.058	0.034	0.034	58.268
		Idle	3.172	0.448	0.448	0.476	0.330	0.131	0.078	0.078	131.636
Citation VII	TFE 731-2-2B	Approach	0.143	0.028	0.028	0.029	0.037	0.003	N/A	N/A	6.385
10L_GA		Climb Out	0.007	0.000	0.000	0.000	0.042	0.002	N/A	N/A	3.208
		Takeoff	0.006	0.000	0.000	0.000	0.063	0.002	N/A	N/A	4.155
		Idle	0.326	0.111	0.111	0.119	0.015	0.003	N/A	N/A	5.562
Citation VII	TFE 731-2-2B	Approach	0.228	0.043	0.043	0.046	0.061	0.006	N/A	N/A	10.185
10R_GA		Climb Out	0.010	0.001	0.001	0.001	0.067	0.003	N/A	N/A	5.117
		Takeoff	0.009	0.001	0.001	0.001	0.101	0.003	N/A	N/A	6.627
		Idle	0.520	0.177	0.177	0.188	0.025	0.004	N/A	N/A	8.874
Citation VII	TFE 731-2-2B	Approach	0.448	0.085	0.085	0.090	0.118	0.011	N/A	N/A	19.978
28L_GA		Climb Out	0.020	0.001	0.001	0.001	0.131	0.006	N/A	N/A	10.037
		Takeoff	0.018	0.001	0.001	0.001	0.198	0.007	N/A	N/A	13.000
		Idle	1.020	0.348	0.348	0.370	0.050	0.010	N/A	N/A	17.405
Citation VII	TFE 731-2-2B	Approach	0.462	0.088	0.088	0.094	0.121	0.011	N/A	N/A	20.644
28R_GA		Climb Out	0.021	0.001	0.001	0.001	0.136	0.006	N/A	N/A	10.372
		Takeoff	0.019	0.001	0.001	0.001	0.205	0.008	N/A	N/A	13.433
		Idle	1.054	0.360	0.360	0.384	0.051	0.010	N/A	N/A	17.985
HS 748 2A SERIES	RDa7	Approach	0.123	0.011	0.011	0.012	0.003	0.003	N/A	N/A	3.716
10L_GA		Climb Out	0.009	0.003	0.003	0.003	0.012	0.002	N/A	N/A	2.592
		Takeoff	0.006	0.002	0.002	0.002	0.009	0.002	N/A	N/A	1.667
		Idle	0.409	0.107	0.107	0.118	0.003	0.004	N/A	N/A	4.469
HS 748 2A SERIES	RDa7	Approach	0.320	0.029	0.029	0.032	0.009	0.010	N/A	N/A	9.599
10R_GA		Climb Out	0.023	0.008	0.008	0.008	0.030	0.007	N/A	N/A	6.695
		Takeoff	0.014	0.004	0.004	0.004	0.024	0.004	N/A	N/A	4.307
		Idle	1.055	0.276	0.276	0.304	0.008	0.011	N/A	N/A	11.543
HS 748 2A SERIES	RDa7	Approach	0.629	0.056	0.056	0.063	0.017	0.019	N/A	N/A	18.888
28L_GA		Climb Out	0.046	0.014	0.014	0.017	0.060	0.013	N/A	N/A	13.175
		Takeoff	0.028	0.009	0.009	0.009	0.047	0.009	N/A	N/A	8.473
		Idle	2.076	0.542	0.542	0.600	0.015	0.023	N/A	N/A	22.714
HS 748 2A SERIES	RDa7	Approach	0.431	0.039	0.039	0.043	0.012	0.013	N/A	N/A	12.943
28R_GA		Climb Out	0.032	0.010	0.010	0.011	0.041	0.009	N/A	N/A	9.028
		Takeoff	0.019	0.006	0.006	0.007	0.032	0.006	N/A	N/A	5.807
		Idle	1.423	0.371	0.371	0.411	0.011	0.015	N/A	N/A	15.565
Learjet 25B	CJ610-6	Approach	1.062	0.000	0.000	0.000	0.018	0.007	N/A	N/A	12.063
10L_GA		Climb Out	0.127	0.001	0.001	0.001	0.015	0.002	N/A	N/A	4.512
		Takeoff	0.191	0.001	0.001	0.001	0.030	0.003	N/A	N/A	7.050
		Idle	2.642	0.306	0.306	0.326	0.015	0.009	N/A	N/A	17.046
Learjet 25B	CJ610-6	Approach	3.919	0.000	0.000	0.000	0.067	0.024	N/A	N/A	44.527
10R_GA		Climb Out	0.466	0.003	0.003	0.003	0.058	0.009	N/A	N/A	16.656
		Takeoff	0.702	0.002	0.002	0.003	0.109	0.014	N/A	N/A	26.026
		Idle	9.753	1.133	1.133	1.204	0.056	0.034	N/A	N/A	62.923
Learjet 25B	CJ610-6	Approach	13.122	0.000	0.000	0.000	0.224	0.080	N/A	N/A	149.107
28L_GA		Climb Out	1.562	0.011	0.011	0.012	0.195	0.030	N/A	N/A	55.777
		Takeoff	2.353	0.009	0.009	0.009	0.366	0.047	N/A	N/A	87.151
		Idle	32.660	3.793	3.793	4.032	0.190	0.114	N/A	N/A	210.713
Learjet 25B	CJ610-6	Approach	4.562	0.000	0.000	0.000	0.078	0.028	N/A	N/A	51.841
28R_GA		Climb Out	0.543	0.004	0.004	0.004	0.068	0.010	N/A	N/A	19.392
		Takeoff	0.818	0.003	0.003	0.003	0.127	0.017	N/A	N/A	30.300
		Idle	11.355	1.318	1.318	1.402	0.066	0.040	N/A	N/A	73.260
Bombardier CRJ900	CF34-8C5	Approach	0.052	0.001	0.001	0.001	0.131	0.012	0.001	0.001	12.236
10L		Climb Out	0.003	0.000	0.000	0.000	0.083	0.007	0.000	0.000	6.572
		Takeoff	0.007	0.000	0.000	0.000	0.162	0.011	0.001	0.001	11.029
		Idle	0.225	0.001	0.001	0.002	0.056	0.012	0.001	0.001	12.321
Bombardier CRJ900	CF34-8C5	Approach	0.088	0.001	0.001	0.001	0.224	0.021	0.002	0.002	20.819
10R		Climb Out	0.007	0.000	0.000	0.000	0.141	0.011	0.000	0.000	11.183
		Takeoff	0.012	0.000	0.000	0.000	0.276	0.019	0.002	0.002	18.765
		Idle	0.383	0.002	0.002	0.003	0.096	0.021	0.002	0.002	20.963
Bombardier CRJ900	CF34-8C5	Approach	0.172	0.002	0.002	0.002	0.434	0.041	0.004	0.004	40.452
28L		Climb Out	0.012	0.000	0.000	0.000	0.273	0.022	0.000	0.000	21.728
		Takeoff	0.023	0.001	0.001	0.001	0.536	0.036	0.004	0.004	36.459
		Idle	0.743	0.006	0.006	0.006	0.187	0.041	0.004	0.004	40.732
Bombardier CRJ900	CF34-8C5	Approach	0.183	0.002	0.002	0.003	0.464	0.043	0.004	0.004	43.191
28R		Climb Out	0.013	0.000	0.000	0.000	0.292	0.023	0.000	0.000	23.199
		Takeoff	0.025	0.001	0.001	0.001	0.572	0.039	0.004	0.004	38.928
		Idle	0.794	0.006	0.006	0.007	0.200	0.043	0.004	0.004	43.489
A320-200	V2500-A1	Approach	0.001	0.000	0.000	0.000	0.012	0.001	0.000	0.000	0.891
10L		Climb Out	0.000	0.000	0.000	0.000	0.019	0.001	0.000	0.000	0.611

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.000	0.000	0.000	0.000	0.025	0.001	0.000	0.000	0.677
		Idle	0.007	0.000	0.000	0.000	0.006	0.001	0.000	0.000	0.915
A320-200	V2500-A1	Approach	0.019	0.003	0.003	0.004	0.333	0.024	0.001	0.001	24.749
10R		Climb Out	0.009	0.002	0.002	0.002	0.524	0.017	0.000	0.000	16.989
		Takeoff	0.010	0.002	0.002	0.002	0.699	0.019	0.000	0.000	18.827
		Idle	0.197	0.006	0.006	0.007	0.150	0.025	0.001	0.001	25.422
A320-200	V2500-A1	Approach	0.028	0.006	0.006	0.006	0.484	0.036	0.001	0.001	35.966
28L		Climb Out	0.013	0.002	0.002	0.003	0.761	0.024	0.001	0.001	24.690
		Takeoff	0.015	0.002	0.002	0.003	1.016	0.028	0.001	0.001	27.360
		Idle	0.287	0.008	0.008	0.009	0.218	0.037	0.001	0.001	36.943
A320-200	V2500-A1	Approach	0.002	0.000	0.000	0.001	0.045	0.003	0.000	0.000	3.383
28R		Climb Out	0.001	0.000	0.000	0.000	0.072	0.002	0.000	0.000	2.323
		Takeoff	0.001	0.000	0.000	0.000	0.096	0.002	0.000	0.000	2.574
		Idle	0.026	0.001	0.001	0.001	0.021	0.003	0.000	0.000	3.474
Embraer ERJ 170	CF34-8E5A1	Approach	0.052	0.001	0.001	0.001	0.141	0.013	0.003	0.003	12.802
10L		Climb Out	0.004	0.000	0.000	0.000	0.091	0.007	0.000	0.000	6.988
		Takeoff	0.009	0.000	0.000	0.000	0.186	0.012	0.003	0.003	11.765
		Idle	0.218	0.001	0.001	0.002	0.060	0.012	0.003	0.003	12.646
Embraer ERJ 170	CF34-8E5A1	Approach	0.088	0.001	0.001	0.001	0.241	0.022	0.006	0.006	21.783
10R		Climb Out	0.007	0.000	0.000	0.000	0.157	0.012	0.000	0.000	11.890
		Takeoff	0.014	0.000	0.000	0.000	0.316	0.020	0.006	0.006	20.018
		Idle	0.373	0.003	0.003	0.003	0.101	0.022	0.006	0.006	21.517
Embraer ERJ 170	CF34-8E5A1	Approach	0.172	0.002	0.002	0.003	0.468	0.042	0.011	0.011	42.323
28L		Climb Out	0.013	0.000	0.000	0.000	0.304	0.023	0.001	0.001	23.102
		Takeoff	0.028	0.001	0.001	0.001	0.615	0.039	0.010	0.010	38.895
		Idle	0.723	0.006	0.006	0.006	0.196	0.042	0.011	0.011	41.808
Embraer ERJ 170	CF34-8E5A1	Approach	0.183	0.002	0.002	0.003	0.499	0.045	0.012	0.012	45.189
28R		Climb Out	0.014	0.000	0.000	0.000	0.324	0.024	0.001	0.001	24.666
		Takeoff	0.030	0.001	0.001	0.001	0.657	0.042	0.011	0.011	41.528
		Idle	0.773	0.006	0.006	0.007	0.209	0.044	0.012	0.012	44.639
B757-200	PW2037	Approach	0.008	0.000	0.000	0.000	0.037	0.004	0.001	0.001	3.877
10L		Climb Out	0.001	0.000	0.000	0.000	0.069	0.003	0.000	0.000	2.877
		Takeoff	0.001	0.000	0.000	0.000	0.083	0.003	0.000	0.000	2.826
		Idle	0.078	0.007	0.007	0.008	0.014	0.003	0.001	0.001	3.523
B757-200	PW2037	Approach	0.110	0.007	0.007	0.007	0.554	0.056	0.010	0.010	56.706
10R		Climb Out	0.014	0.001	0.001	0.001	1.009	0.042	0.007	0.007	42.074
		Takeoff	0.013	0.001	0.001	0.001	1.216	0.041	0.007	0.007	41.333
		Idle	1.152	0.099	0.099	0.108	0.212	0.052	0.009	0.009	51.518
B757-200	PW2037	Approach	0.200	0.011	0.011	0.012	0.999	0.103	0.017	0.017	102.264
28L		Climb Out	0.025	0.001	0.001	0.002	1.818	0.076	0.012	0.012	75.876
		Takeoff	0.024	0.001	0.001	0.001	2.192	0.075	0.012	0.012	74.540
		Idle	2.078	0.179	0.179	0.195	0.381	0.093	0.015	0.015	92.908
B757-200	PW2037	Approach	0.028	0.001	0.001	0.002	0.138	0.014	0.002	0.002	14.056
28R		Climb Out	0.003	0.000	0.000	0.000	0.250	0.010	0.002	0.002	10.429
		Takeoff	0.003	0.000	0.000	0.000	0.301	0.010	0.002	0.002	10.245
		Idle	0.285	0.024	0.024	0.026	0.052	0.013	0.002	0.002	12.769
B737-800	CFM56-7B26	Approach	0.018	0.001	0.001	0.001	0.122	0.011	0.003	0.003	11.353
10L_New T...		Climb Out	0.004	0.001	0.001	0.001	0.177	0.008	0.002	0.002	7.879
		Takeoff	0.002	0.001	0.001	0.001	0.321	0.011	0.003	0.003	11.145
		Idle	0.205	0.021	0.021	0.023	0.052	0.011	0.003	0.003	10.916
B737-800	CFM56-7B26	Approach	0.188	0.012	0.012	0.013	1.274	0.118	0.035	0.035	117.937
8_New Term		Climb Out	0.050	0.008	0.008	0.009	1.842	0.082	0.024	0.024	81.855
		Takeoff	0.023	0.012	0.012	0.012	3.334	0.116	0.035	0.035	115.783
		Idle	2.132	0.215	0.215	0.236	0.532	0.114	0.034	0.034	113.397
B737-800	CFM56-7B26	Approach	0.403	0.025	0.025	0.028	2.727	0.252	0.076	0.076	252.480
26_New Te...		Climb Out	0.105	0.018	0.018	0.019	3.943	0.175	0.053	0.053	175.238
		Takeoff	0.050	0.024	0.024	0.028	7.139	0.248	0.075	0.075	247.870
		Idle	4.564	0.461	0.461	0.505	1.141	0.243	0.074	0.074	242.760
B737-800	CFM56-7B26	Approach	0.067	0.004	0.004	0.004	0.457	0.042	0.013	0.013	42.363
28R_New ...		Climb Out	0.018	0.003	0.003	0.003	0.661	0.030	0.009	0.009	29.402
		Takeoff	0.009	0.004	0.004	0.004	1.198	0.042	0.012	0.012	41.589
		Idle	0.766	0.077	0.077	0.085	0.192	0.041	0.012	0.012	40.732
Bombardier CRJ700	CF34-8C1	Approach	0.475	0.010	0.010	0.011	1.812	0.163	0.008	0.008	163.242
10L_New T...		Climb Out	0.044	0.002	0.002	0.002	1.119	0.087	0.000	0.000	87.274
		Takeoff	0.060	0.003	0.003	0.003	2.147	0.147	0.007	0.007	146.391
		Idle	4.691	0.015	0.015	0.017	0.811	0.188	0.009	0.009	188.252
Bombardier CRJ700	CF34-8C1	Approach	0.809	0.017	0.017	0.019	3.085	0.278	0.013	0.013	277.974
8_New Term		Climb Out	0.074	0.003	0.003	0.003	1.905	0.149	0.001	0.001	148.615
		Takeoff	0.103	0.006	0.006	0.006	3.657	0.249	0.012	0.012	249.280
		Idle	7.988	0.025	0.025	0.028	1.381	0.321	0.015	0.015	320.561

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Bombardier CRJ700 26_New Te...	CF34-8C1	Approach	1.575	0.032	0.032	0.035	6.006	0.541	0.026	0.026	541.148
		Climb Out	0.144	0.006	0.006	0.007	3.709	0.289	0.001	0.001	289.315
		Takeoff	0.200	0.010	0.010	0.011	7.119	0.485	0.023	0.023	485.286
		Idle	15.551	0.050	0.050	0.055	2.690	0.624	0.031	0.031	624.053
Bombardier CRJ700 28R_New ...	CF34-8C1	Approach	1.681	0.034	0.034	0.037	6.414	0.578	0.029	0.029	577.851
		Climb Out	0.154	0.007	0.007	0.007	3.961	0.309	0.001	0.001	308.938
		Takeoff	0.213	0.010	0.010	0.011	7.602	0.518	0.025	0.025	518.201
		Idle	16.606	0.053	0.053	0.058	2.873	0.667	0.032	0.032	666.379
MD-80-83 28R_New ...	JT8D-219 old co...	Approach	0.045	0.018	0.018	0.019	0.101	0.011	0.003	0.003	11.052
		Climb Out	0.011	0.004	0.004	0.004	0.197	0.010	0.003	0.003	9.484
		Takeoff	0.008	0.003	0.003	0.003	0.282	0.010	0.003	0.003	10.461
		Idle	0.146	0.040	0.040	0.044	0.042	0.011	0.003	0.003	11.517
MD-80-83 26_New Te...	JT8D-219 old co...	Approach	0.317	0.125	0.125	0.136	0.713	0.078	0.023	0.023	78.112
		Climb Out	0.080	0.029	0.029	0.031	1.394	0.067	0.020	0.020	67.030
		Takeoff	0.054	0.020	0.020	0.022	1.996	0.074	0.021	0.021	73.940
		Idle	1.028	0.283	0.283	0.310	0.293	0.082	0.024	0.024	81.400
MD-80-83 8_New Term	JT8D-219 old co...	Approach	0.171	0.067	0.067	0.073	0.384	0.042	0.012	0.012	41.959
		Climb Out	0.043	0.015	0.015	0.017	0.748	0.036	0.011	0.011	36.007
		Takeoff	0.029	0.011	0.011	0.012	1.073	0.040	0.011	0.011	39.718
		Idle	0.552	0.152	0.152	0.166	0.158	0.044	0.013	0.013	43.725
MD-80-83 10L_New T...	JT8D-219 old co...	Approach	0.011	0.004	0.004	0.004	0.025	0.003	0.001	0.001	2.810
		Climb Out	0.003	0.001	0.001	0.001	0.050	0.002	0.001	0.001	2.411
		Takeoff	0.002	0.001	0.001	0.001	0.072	0.002	0.001	0.001	2.660
		Idle	0.037	0.010	0.010	0.011	0.011	0.003	0.001	0.001	2.928

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-...
Bowtie	Roadway	0.450	0.025	0.024	0.026	0.030	0.000	0.001	0.001
Bowtie to Merge	Roadway	3.038	0.153	0.146	0.154	0.195	0.003	0.009	0.004
Bowtie to New Term 1	Roadway	7.078	0.357	0.338	0.358	0.454	0.007	0.022	0.011
Bowtie to New Term 2	Roadway	7.078	0.357	0.338	0.358	0.454	0.007	0.022	0.011
Brdgwy N of Sawyr 1	Roadway	2.606	0.149	0.141	0.155	0.173	0.002	0.009	0.004
Brdgwy N of Sawyr 2	Roadway	4.773	0.273	0.259	0.284	0.316	0.004	0.015	0.008
Connect to Sawyer	Roadway	9.100	0.521	0.494	0.541	0.603	0.009	0.031	0.015
Curb Exit to Intl	Roadway	0.933	0.057	0.054	0.060	0.063	0.001	0.003	0.001
Curb Through Traffic	Roadway	24.141	1.382	1.308	1.436	1.598	0.024	0.080	0.040
Curb to Bowtie 1	Roadway	1.343	0.077	0.073	0.079	0.089	0.001	0.004	0.002
Curb to Bowtie 2	Roadway	1.613	0.093	0.087	0.096	0.107	0.001	0.006	0.002
Empl Prkg Ent_Exit	Roadway	0.196	0.012	0.011	0.012	0.013	0.000	0.001	0.000
Ent 670 NB	Roadway	4.230	0.201	0.191	0.202	0.272	0.003	0.012	0.007
Ent 670 SB	Roadway	2.798	0.132	0.126	0.133	0.181	0.002	0.008	0.004
Ent Green frm EB 1	Roadway	3.230	0.185	0.175	0.192	0.214	0.003	0.011	0.006
Ent Green frm EB 2	Roadway	1.098	0.063	0.060	0.065	0.073	0.001	0.003	0.002
Ent Green frm WB 1	Roadway	1.134	0.065	0.062	0.067	0.075	0.001	0.003	0.002
Ent Green frm WB 2	Roadway	2.955	0.169	0.160	0.175	0.196	0.003	0.010	0.004
Ent New Gar 1	Roadway	1.400	0.086	0.082	0.090	0.095	0.001	0.004	0.002
Ent New Gar 2	Roadway	1.911	0.118	0.111	0.122	0.129	0.002	0.007	0.003
Ent from 670 1	Roadway	6.006	0.284	0.270	0.285	0.387	0.006	0.018	0.009
Ent from 670 2	Roadway	14.398	0.682	0.648	0.686	0.928	0.013	0.042	0.021
Ent to Lane	Roadway	0.039	0.002	0.002	0.002	0.002	0.000	0.000	0.000
Ex Arr Curb FF	Roadway	0.260	0.017	0.015	0.019	0.017	0.000	0.001	0.000
Ex Arr Curb Pick Up	Roadway	2.143	0.218	0.207	0.299	0.082	0.001	0.002	0.001
Ex Dep Curb Drop Off	Roadway	2.810	0.287	0.271	0.391	0.107	0.001	0.003	0.001
Exit 670 NB	Roadway	2.975	0.141	0.134	0.142	0.192	0.002	0.009	0.004
Exit 670 SB	Roadway	3.469	0.164	0.157	0.165	0.224	0.003	0.010	0.006
Exit Comm Gar	Roadway	5.052	0.289	0.273	0.301	0.334	0.006	0.017	0.009
Exit New Gar 1	Roadway	0.872	0.050	0.047	0.052	0.057	0.001	0.003	0.001
Exit New Gar 2	Roadway	1.479	0.091	0.086	0.095	0.100	0.001	0.004	0.002
Exit Red 1	Roadway	3.398	0.194	0.184	0.202	0.225	0.003	0.011	0.006
Exit Red 2	Roadway	1.052	0.061	0.057	0.063	0.069	0.001	0.003	0.002
Exit Red 3	Roadway	4.706	0.269	0.255	0.280	0.312	0.004	0.015	0.008
Exit Red 4	Roadway	1.834	0.105	0.099	0.109	0.121	0.002	0.007	0.003
Exit frm Green	Roadway	2.258	0.129	0.122	0.134	0.150	0.002	0.008	0.003
Exit from Lane	Roadway	0.037	0.002	0.002	0.002	0.002	0.000	0.000	0.000
Exit to 670 1	Roadway	10.874	0.623	0.590	0.647	0.720	0.011	0.036	0.018
Exit to 670 2	Roadway	4.937	0.234	0.223	0.235	0.319	0.004	0.014	0.008
Green Exit to Sawyer	Roadway	1.219	0.069	0.066	0.073	0.080	0.001	0.004	0.002
Int Grn to New Bow 2	Roadway	13.876	0.700	0.665	0.703	0.890	0.013	0.043	0.021
Int W frm new Bow	Roadway	10.403	0.525	0.498	0.527	0.667	0.010	0.032	0.015
IntGate E at Red	Roadway	34.433	1.971	1.866	2.048	2.280	0.035	0.115	0.057
IntGate E at Tunnel	Roadway	18.622	0.940	0.892	0.944	1.194	0.018	0.057	0.029
IntGate Exit fm Tunl	Roadway	25.968	1.311	1.243	1.316	1.664	0.024	0.079	0.040
IntGate Lane to LT	Roadway	10.248	0.586	0.556	0.610	0.679	0.010	0.034	0.017
IntGate W at Tunnel	Roadway	25.968	1.311	1.243	1.316	1.664	0.024	0.079	0.040
Intl East frm Stlzr	Roadway	12.810	0.646	0.613	0.649	0.821	0.012	0.040	0.020
Intl West to Stelzer	Roadway	25.791	1.302	1.235	1.307	1.653	0.024	0.079	0.040
LT to ST	Roadway	0.806	0.046	0.044	0.047	0.053	0.001	0.002	0.001
Lane Exit to Lane En	Roadway	5.678	0.287	0.272	0.288	0.364	0.006	0.018	0.009
Merge to Sawyer	Roadway	5.698	0.326	0.309	0.338	0.377	0.006	0.019	0.010
New Bowtie	Roadway	0.828	0.047	0.045	0.050	0.055	0.001	0.003	0.001
New Gar Distance	Roadway	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New Gar Ex W	Roadway	21.977	1.109	1.053	1.113	1.409	0.021	0.067	0.034
New Perimeter Road 1	Roadway	0.381	0.022	0.021	0.023	0.025	0.000	0.001	0.001
New Perimeter Road 2	Roadway	0.261	0.015	0.014	0.015	0.018	0.000	0.001	0.000
New Perimeter Road 3	Roadway	5.741	0.328	0.311	0.342	0.380	0.006	0.019	0.010
New Perimeter Road 4	Roadway	0.120	0.007	0.007	0.007	0.008	0.000	0.000	0.000
New Perimeter Road 5	Roadway	0.371	0.021	0.020	0.022	0.024	0.000	0.001	0.001
New Perimeter Road 6	Roadway	2.368	0.136	0.128	0.141	0.157	0.002	0.008	0.004
New Perimeter Road 7	Roadway	0.376	0.022	0.020	0.022	0.025	0.000	0.001	0.001
New Perimeter Road 8	Roadway	0.130	0.008	0.007	0.008	0.009	0.000	0.000	0.000
New Perimeter Road 9	Roadway	0.109	0.007	0.006	0.007	0.008	0.000	0.000	0.000
New Perimeter Road10	Roadway	0.158	0.009	0.009	0.010	0.010	0.000	0.000	0.000
New Stelzer Middle	Roadway	18.403	0.873	0.829	0.876	1.187	0.017	0.054	0.028

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-...
New Stelzer Realgn 1	Roadway	7.918	0.376	0.357	0.377	0.510	0.007	0.023	0.012
New Stelzer Realgn 2	Roadway	9.416	0.446	0.424	0.449	0.607	0.009	0.028	0.014
New Stelzer Realgn 3	Roadway	11.235	0.532	0.506	0.535	0.724	0.010	0.033	0.017
New Stelzer Realgn 4	Roadway	21.988	1.043	0.990	1.047	1.418	0.020	0.065	0.032
New Term Arr FF	Roadway	0.488	0.032	0.030	0.035	0.032	0.000	0.001	0.001
New Term Arr Pick Up	Roadway	3.848	0.392	0.371	0.536	0.147	0.001	0.003	0.002
Ex Term Dep FF	Roadway	0.338	0.022	0.021	0.024	0.022	0.000	0.001	0.000
New Term Dep FF	Roadway	0.660	0.043	0.040	0.047	0.043	0.000	0.002	0.001
New Term E to Lane	Roadway	13.510	0.682	0.647	0.685	0.866	0.012	0.042	0.021
New TermDep Drop Off	Roadway	5.462	0.557	0.528	0.761	0.208	0.001	0.006	0.002
Red Distance	Roadway	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ST to Curb	Roadway	0.783	0.049	0.045	0.051	0.053	0.001	0.002	0.001
Sawyer Fork E	Roadway	1.885	0.108	0.103	0.112	0.125	0.002	0.007	0.003
Sawyer Fork W	Roadway	0.893	0.051	0.049	0.053	0.060	0.001	0.003	0.001
Sawyer N of Fork	Roadway	7.893	0.452	0.428	0.470	0.522	0.008	0.026	0.013
Sawyer S of Brdgwy	Roadway	8.900	0.509	0.483	0.529	0.590	0.009	0.030	0.014
Sawyer from IntlGate	Roadway	3.871	0.195	0.185	0.196	0.248	0.003	0.012	0.006
Sawyer to Brdgwy 1	Roadway	8.389	0.481	0.455	0.499	0.556	0.009	0.028	0.014
Sawyer to Brdgwy 2	Roadway	68.237	3.905	3.699	4.059	4.518	0.069	0.227	0.114
Saywer W to Fork	Roadway	4.113	0.236	0.223	0.245	0.272	0.004	0.013	0.007
Stelzer N	Roadway	43.280	2.053	1.949	2.061	2.791	0.039	0.128	0.064
Stelzer S	Roadway	7.126	0.338	0.321	0.340	0.460	0.007	0.021	0.010
To Red 1	Roadway	2.858	0.163	0.155	0.170	0.190	0.003	0.010	0.004
To Red 2	Roadway	3.613	0.207	0.196	0.215	0.239	0.003	0.012	0.006
To Red 3	Roadway	1.672	0.096	0.090	0.099	0.110	0.002	0.006	0.003
WB from Sawyer	Roadway	22.180	1.270	1.203	1.319	1.468	0.022	0.074	0.036
Employee Parking	Parking	16.868	0.818	0.768	2.520	2.181	0.008	0.028	0.013
Green	Parking	10.993	0.559	0.526	1.800	1.354	0.006	0.017	0.008
Lane Avtn	Parking	5.199	0.261	0.246	0.831	0.648	0.002	0.008	0.004
Long Term Pkg Lvl 3	Parking	13.629	0.685	0.644	2.179	1.700	0.007	0.021	0.011
Long Term Pkg Lvl 4	Parking	6.791	0.341	0.321	1.086	0.847	0.003	0.011	0.006
Long Term Pkg Lvl 5	Parking	13.960	0.701	0.659	2.232	1.741	0.007	0.022	0.011
Long Term Pkg Lvl 6	Parking	9.385	0.472	0.443	1.500	1.171	0.004	0.014	0.008
New Gar Level 1	Parking	0.855	0.047	0.044	0.161	0.096	0.000	0.001	0.001
New Gar Level 2	Parking	0.801	0.044	0.042	0.151	0.090	0.000	0.001	0.000
New Gar Level 3	Parking	1.924	0.106	0.099	0.362	0.216	0.001	0.002	0.001
New Gar Level 4	Parking	0.961	0.053	0.050	0.181	0.108	0.000	0.001	0.001
New Gar Level 5	Parking	1.976	0.108	0.103	0.371	0.223	0.001	0.002	0.001
New Gar Level 6	Parking	1.336	0.073	0.069	0.251	0.150	0.000	0.002	0.001
New RAC	Parking	43.413	1.991	1.867	5.796	5.914	0.023	0.076	0.037
Red	Parking	81.109	3.811	3.577	11.384	10.805	0.041	0.139	0.068
ShortTerm Pkg Lvl 4	Parking	4.807	0.249	0.234	0.812	0.580	0.002	0.007	0.003
ShortTerm Pkg Lvl 5	Parking	4.543	0.235	0.222	0.767	0.548	0.002	0.007	0.003

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.115	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.748	0.748	0.748	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.149	0.149	0.149	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.590	1.590	1.590	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.014	0.004	0.004	0.004	0.004	0.003	0.010	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.911	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.850	0.850	0.850	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.260	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.427	0.427	0.427	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.261	0.261	0.261	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.765	0.765	0.765	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.122	2.122	2.122	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.800	0.800	0.800	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.762	0.762	0.762	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary
(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	857.923	71.790	71.790	76.582	379.408	34.543	3.872	3.872
GSE/APU	1,491.067	60.316	54.702	56.910	79.985	12.164	5.008	4.848
Roadways	653.003	35.180	33.352	36.434	42.159	0.613	2.026	1.012
Parking Facilities	218.551	10.552	9.913	32.385	28.370	0.107	0.358	0.179
Stationary Sources	21.453	12.612	12.081	14.665	35.757	16.638	2.492	2.205
Total	3,241.997	190.451	181.838	216.976	565.679	64.065	13.757	12.116

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary
(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	16.374	0.297	0.297	0.287	0.009	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.001	0.002	0.003	0.003	0.000
B737-300	CFM56-3-B1	TOTAL	1.628	0.100	0.100	0.110	1.200	0.122	0.002	0.002	0.000
10L		APU	0.233	0.013	0.013	0.014	0.062	0.013	0.000	0.000	0.000
		GSE	0.076	0.008	0.008	0.008	0.069	0.022	0.013	0.012	0.000
B737-300	CFM56-3B-2	TOTAL	0.278	0.015	0.015	0.017	0.261	0.024	0.000	0.000	0.000
10L		APU	0.043	0.002	0.002	0.002	0.011	0.002	0.000	0.000	0.000
		GSE	0.014	0.001	0.001	0.001	0.013	0.004	0.002	0.002	0.000
B737-500	CFM56-3C-1	TOTAL	0.190	0.010	0.010	0.010	0.236	0.020	0.001	0.001	0.000
10L		APU	0.031	0.002	0.002	0.002	0.008	0.002	0.000	0.000	0.000
		GSE	0.010	0.001	0.001	0.001	0.009	0.003	0.002	0.002	0.000
B737-700	CFM56-7B22	TOTAL	1.216	0.128	0.128	0.140	2.124	0.161	0.034	0.034	0.000
10L		APU	0.082	0.007	0.007	0.007	0.110	0.017	0.000	0.000	0.000
		GSE	0.090	0.009	0.009	0.009	0.083	0.026	0.015	0.014	0.000
B737-800	CFM56-7B26	TOTAL	0.007	0.001	0.001	0.001	0.020	0.001	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
B757-300	PW2043	TOTAL	0.065	0.006	0.006	0.006	0.234	0.012	N/A	N/A	0.000
10L		APU	0.003	0.000	0.000	0.000	0.008	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.003	0.001	0.001	0.001	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.144	0.001	0.001	0.001	0.161	0.015	0.001	0.001	0.000
10L		APU	0.047	0.002	0.002	0.003	0.012	0.002	0.000	0.000	0.000
		GSE	0.724	0.029	0.025	0.026	0.029	0.003	0.002	0.002	0.000
Cessna 172 Skyhawk	O-320	TOTAL	7.303	0.119	0.119	0.116	0.013	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.004	0.007	0.007	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.042	0.003	0.003	0.003	0.040	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.685	0.064	0.057	0.060	0.045	0.003	0.002	0.001	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.266	0.084	0.084	0.088	0.021	0.002	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.651	0.026	0.024	0.025	0.021	0.001	0.001	0.001	0.000
CL600	ALF 502L-2	TOTAL	1.369	0.188	0.188	0.201	0.653	0.045	0.009	0.009	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.225	0.327	0.297	0.308	0.358	0.060	0.033	0.032	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	0.188	0.054	0.054	0.060	0.138	0.014	0.010	0.010	0.000
10L		APU	0.019	0.001	0.001	0.001	0.004	0.001	0.000	0.000	0.000
		GSE	0.006	0.001	0.001	0.001	0.006	0.002	0.001	0.001	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.355	0.115	0.115	0.121	0.937	0.099	0.000	0.000	0.000
10L		APU	0.095	0.009	0.009	0.010	0.067	0.014	0.000	0.000	0.000
		GSE	6.305	0.246	0.222	0.230	0.249	0.033	0.019	0.019	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.191	0.031	0.031	0.033	0.334	0.030	0.000	0.000	0.000
10L		APU	0.026	0.002	0.002	0.002	0.019	0.004	0.000	0.000	0.000
		GSE	1.739	0.068	0.062	0.064	0.068	0.009	0.006	0.006	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.766	0.062	0.062	0.066	0.636	0.062	0.000	0.000	0.000
10L		APU	0.052	0.004	0.004	0.006	0.037	0.008	0.000	0.000	0.000
		GSE	3.493	0.137	0.123	0.128	0.138	0.018	0.011	0.010	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	3.748	0.316	0.316	0.336	2.621	0.269	0.000	0.000	0.000
10L		APU	0.250	0.024	0.024	0.025	0.179	0.039	0.000	0.000	0.000
		GSE	16.757	0.654	0.590	0.613	0.661	0.087	0.051	0.049	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	4.652	0.392	0.392	0.418	3.215	0.342	0.000	0.000	0.000
10L		APU	0.324	0.031	0.031	0.033	0.230	0.051	0.000	0.000	0.000
		GSE	21.643	0.844	0.762	0.791	0.854	0.112	0.065	0.063	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.407	0.118	0.118	0.126	0.984	0.101	0.000	0.000	0.000
10L		APU	0.094	0.009	0.009	0.010	0.067	0.014	0.000	0.000	0.000
		GSE	6.291	0.246	0.222	0.230	0.248	0.033	0.019	0.019	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	2.102	0.020	0.020	0.022	3.186	0.309	0.031	0.031	0.000
10L		APU	0.204	0.019	0.019	0.021	0.144	0.032	0.000	0.000	0.000
		GSE	13.598	0.531	0.478	0.497	0.537	0.071	0.041	0.040	0.000
Falcon 20	CF700-2D	TOTAL	0.893	0.075	0.075	0.079	0.030	0.011	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.007	0.002	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.642	0.080	0.080	0.086	0.489	0.046	0.004	0.004	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.815	0.112	0.101	0.106	0.150	0.026	0.013	0.013	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	0.291	0.034	0.034	0.035	0.290	0.025	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.618	0.064	0.057	0.060	0.044	0.002	0.002	0.002	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.240	0.203	0.203	0.216	0.956	0.111	0.066	0.066	0.000
10L_GA		APU	0.029	0.002	0.002	0.002	0.139	0.013	0.000	0.000	0.000
		GSE	5.824	0.225	0.203	0.211	0.149	0.012	0.011	0.011	0.000
HS 125	TFE731-3	TOTAL	1.558	0.255	0.255	0.281	0.718	0.040	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.628	0.518	0.466	0.484	0.368	0.026	0.014	0.013	0.000
KC-135R	CFM56-2B-1	TOTAL	0.173	0.010	0.010	0.011	0.213	0.018	0.000	0.000	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.001	0.001	0.001	0.013	0.003	0.001	0.001	0.000
Learjet 25C	CJ610-6	TOTAL	7.818	0.601	0.601	0.639	0.153	0.043	N/A	N/A	0.000
10L_GA		APU	0.076	0.008	0.008	0.008	0.054	0.012	0.000	0.000	0.000
		GSE	5.066	0.197	0.179	0.185	0.200	0.026	0.015	0.014	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.670	0.196	0.196	0.208	0.194	0.013	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.254	0.133	0.120	0.125	0.099	0.004	0.004	0.004	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	23.516	0.427	0.427	0.411	0.012	0.002	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.006	0.004	0.000
Piper PA-28	O-320	TOTAL	0.474	0.008	0.008	0.008	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.494	0.397	0.397	0.438	0.039	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.330	0.088	0.079	0.083	0.063	0.004	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	4.225	1.461	1.461	1.553	0.558	0.053	0.028	0.028	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.273	0.505	0.454	0.472	0.389	0.022	0.017	0.017	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.185	0.013	0.013	0.014	0.114	0.012	0.000	0.000	0.000
10L		APU	0.024	0.001	0.001	0.001	0.007	0.001	0.000	0.000	0.000
		GSE	0.008	0.001	0.001	0.001	0.008	0.002	0.001	0.001	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	0.916	0.316	0.316	0.336	0.121	0.011	0.006	0.006	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.661	0.109	0.098	0.103	0.085	0.004	0.003	0.003	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	3.352	1.160	1.160	1.232	0.442	0.042	0.022	0.022	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.739	0.400	0.360	0.374	0.309	0.018	0.013	0.013	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	6.242	2.158	2.158	2.294	0.825	0.078	0.041	0.041	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	18.133	0.746	0.671	0.697	0.575	0.032	0.025	0.024	0.000
Aztec	TIO-540-J2B2	TOTAL	25.864	0.468	0.468	0.452	0.013	0.002	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.006	0.006	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	1.545	0.108	0.108	0.118	0.947	0.103	0.001	0.001	0.000
10R		APU	0.206	0.012	0.012	0.013	0.054	0.011	0.000	0.000	0.000
		GSE	0.068	0.007	0.007	0.007	0.062	0.020	0.011	0.011	0.000
B737-300	CFM56-3B-2	TOTAL	2.885	0.158	0.158	0.172	2.714	0.255	0.006	0.006	0.000
10R		APU	0.448	0.025	0.025	0.028	0.118	0.025	0.000	0.000	0.000
		GSE	0.147	0.014	0.014	0.014	0.134	0.043	0.025	0.024	0.000
B737-300	CFM56-3-B1	TOTAL	17.304	1.073	1.073	1.174	12.764	1.302	0.020	0.020	0.000
10R		APU	2.477	0.142	0.142	0.155	0.654	0.138	0.000	0.000	0.000
		GSE	0.814	0.082	0.077	0.082	0.742	0.235	0.138	0.133	0.000
B737-500	CFM56-3C-1	TOTAL	2.092	0.104	0.104	0.114	2.600	0.220	0.008	0.008	0.000
10R		APU	0.344	0.020	0.020	0.022	0.090	0.019	0.000	0.000	0.000
		GSE	0.114	0.011	0.011	0.011	0.103	0.033	0.019	0.019	0.000
B737-700	CFM56-7B22	TOTAL	11.368	1.197	1.197	1.310	19.850	1.502	0.316	0.316	0.000
10R		APU	0.758	0.057	0.057	0.063	1.032	0.155	0.000	0.000	0.000
		GSE	0.848	0.085	0.080	0.085	0.773	0.245	0.143	0.139	0.000
B737-800	CFM56-7B26	TOTAL	0.058	0.007	0.007	0.007	0.171	0.011	0.003	0.003	0.000
10R		APU	0.004	0.000	0.000	0.000	0.007	0.001	0.000	0.000	0.000
		GSE	0.006	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
B757-300	PW2043	TOTAL	0.569	0.045	0.045	0.050	2.029	0.104	N/A	N/A	0.000
10R		APU	0.028	0.003	0.003	0.003	0.063	0.007	0.000	0.000	0.000
		GSE	0.034	0.003	0.003	0.003	0.031	0.010	0.006	0.006	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.217	0.001	0.001	0.001	0.241	0.024	0.001	0.001	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.072	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	1.086	0.042	0.039	0.040	0.043	0.006	0.003	0.003	0.000
Cessna 172 Skyhawk	O-320	TOTAL	7.964	0.130	0.130	0.126	0.014	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.006	0.007	0.007	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.129	0.009	0.009	0.010	0.119	0.015	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.139	0.195	0.176	0.182	0.139	0.010	0.006	0.006	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	1.016	0.319	0.319	0.338	0.080	0.010	0.006	0.006	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.491	0.103	0.093	0.096	0.079	0.004	0.003	0.003	0.000
CL600	ALF 502L-2	TOTAL	2.101	0.290	0.290	0.308	1.002	0.069	0.013	0.013	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.625	0.503	0.454	0.472	0.549	0.091	0.051	0.050	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	2.471	0.712	0.712	0.779	1.801	0.181	0.130	0.130	0.000
10R		APU	0.240	0.013	0.013	0.015	0.064	0.013	0.000	0.000	0.000
		GSE	0.079	0.008	0.008	0.008	0.072	0.023	0.013	0.013	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	2.040	0.172	0.172	0.183	1.410	0.150	0.000	0.000	0.000
10R		APU	0.142	0.013	0.013	0.014	0.101	0.022	0.000	0.000	0.000
		GSE	9.492	0.370	0.334	0.347	0.375	0.050	0.029	0.028	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.157	0.094	0.094	0.100	0.961	0.093	0.000	0.000	0.000
10R		APU	0.079	0.008	0.008	0.008	0.056	0.012	0.000	0.000	0.000
		GSE	5.275	0.206	0.186	0.193	0.208	0.028	0.015	0.015	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.288	0.046	0.046	0.050	0.506	0.044	0.000	0.000	0.000
10R		APU	0.040	0.003	0.003	0.004	0.028	0.007	0.000	0.000	0.000
		GSE	2.630	0.103	0.093	0.096	0.104	0.013	0.008	0.008	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.123	0.179	0.179	0.190	1.485	0.152	0.000	0.000	0.000
10R		APU	0.142	0.013	0.013	0.014	0.101	0.022	0.000	0.000	0.000
		GSE	9.492	0.370	0.334	0.347	0.375	0.050	0.029	0.028	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	7.024	0.593	0.593	0.631	4.855	0.517	0.000	0.000	0.000
10R		APU	0.489	0.046	0.046	0.050	0.347	0.076	0.000	0.000	0.000
		GSE	32.679	1.275	1.151	1.194	1.290	0.170	0.098	0.095	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	5.660	0.477	0.477	0.508	3.957	0.406	0.000	0.000	0.000
10R		APU	0.378	0.035	0.035	0.039	0.269	0.058	0.000	0.000	0.000
		GSE	25.302	0.988	0.891	0.925	0.999	0.131	0.076	0.074	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	3.137	0.030	0.030	0.032	4.754	0.462	0.046	0.046	0.000
10R		APU	0.303	0.029	0.029	0.032	0.216	0.047	0.000	0.000	0.000
		GSE	20.292	0.793	0.714	0.742	0.800	0.106	0.061	0.060	0.000
Falcon 20	CF700-2D	TOTAL	3.267	0.273	0.273	0.291	0.109	0.041	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.008	0.002	0.002	0.002	0.023	0.008	0.004	0.004	0.000
Falcon 2000EX	PW308C	TOTAL	0.970	0.122	0.122	0.130	0.740	0.071	0.007	0.007	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.257	0.170	0.153	0.160	0.227	0.041	0.021	0.020	0.000
Gulfstream II	SPEY MK511-8	TOTAL	1.065	0.123	0.123	0.131	1.060	0.093	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.923	0.235	0.211	0.218	0.163	0.009	0.008	0.008	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	2.860	0.467	0.467	0.497	2.204	0.257	0.152	0.152	0.000
10R_GA		APU	0.065	0.004	0.004	0.006	0.320	0.032	0.000	0.000	0.000
		GSE	13.432	0.518	0.467	0.484	0.343	0.026	0.026	0.025	0.000
HS 125	TFE731-3	TOTAL	2.302	0.376	0.376	0.416	1.060	0.058	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	20.139	0.765	0.689	0.714	0.545	0.039	0.021	0.020	0.000
KC-135R	CFM56-2B-1	TOTAL	1.506	0.084	0.084	0.093	1.853	0.154	0.004	0.004	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.034	0.008	0.008	0.009	0.112	0.028	0.011	0.011	0.000
Learjet 25C	CJ610-6	TOTAL	11.082	0.852	0.852	0.906	0.217	0.061	N/A	N/A	0.000
10R_GA		APU	0.107	0.010	0.010	0.011	0.076	0.017	0.000	0.000	0.000
		GSE	7.182	0.280	0.252	0.262	0.283	0.037	0.022	0.021	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	2.550	0.746	0.746	0.794	0.736	0.051	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.379	0.508	0.457	0.474	0.378	0.018	0.015	0.014	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.018	0.006	0.006	0.006	0.053	0.003	0.001	0.001	0.000
10R		APU	0.004	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	10.583	0.192	0.192	0.185	0.006	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	1.448	0.023	0.023	0.023	0.002	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.593	1.278	1.278	1.411	0.126	0.015	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.511	0.285	0.257	0.267	0.203	0.014	0.008	0.008	0.000
Aztec	TIO-540-J2B2	TOTAL	49.830	0.904	0.904	0.872	0.026	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.003	0.008	0.011	0.010	0.000
B737-300	CFM56-3-B1	TOTAL	28.251	1.750	1.750	1.916	20.837	2.126	0.032	0.032	0.000
28L		APU	4.043	0.231	0.231	0.254	1.067	0.225	0.000	0.000	0.000
		GSE	1.328	0.132	0.127	0.133	1.210	0.384	0.225	0.217	0.000
B737-300	CFM56-3B-2	TOTAL	4.748	0.259	0.259	0.283	4.467	0.419	0.010	0.010	0.000
28L		APU	0.736	0.042	0.042	0.046	0.194	0.041	0.000	0.000	0.000
		GSE	0.243	0.024	0.023	0.024	0.220	0.069	0.041	0.040	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.795	0.195	0.195	0.214	1.712	0.185	0.002	0.002	0.000
28L		APU	0.374	0.021	0.021	0.023	0.098	0.021	0.000	0.000	0.000
		GSE	0.122	0.012	0.012	0.012	0.111	0.035	0.021	0.020	0.000
B737-500	CFM56-3C-1	TOTAL	3.342	0.165	0.165	0.181	4.152	0.353	0.012	0.012	0.000
28L		APU	0.549	0.032	0.032	0.034	0.146	0.031	0.000	0.000	0.000
		GSE	0.181	0.018	0.018	0.018	0.164	0.052	0.031	0.030	0.000
B737-700	CFM56-7B22	TOTAL	19.596	2.062	2.062	2.259	34.218	2.590	0.545	0.545	0.000
28L		APU	1.307	0.099	0.099	0.108	1.779	0.268	0.000	0.000	0.000
		GSE	1.462	0.146	0.139	0.147	1.332	0.422	0.247	0.239	0.000
B737-800	CFM56-7B26	TOTAL	0.100	0.010	0.010	0.011	0.291	0.018	0.006	0.006	0.000
28L		APU	0.008	0.001	0.001	0.001	0.011	0.001	0.000	0.000	0.000
		GSE	0.009	0.001	0.001	0.001	0.008	0.002	0.001	0.001	0.000
B757-300	PW2043	TOTAL	1.027	0.080	0.080	0.088	3.663	0.187	N/A	N/A	0.000
28L		APU	0.049	0.006	0.006	0.006	0.112	0.012	0.000	0.000	0.000
		GSE	0.062	0.007	0.006	0.007	0.056	0.018	0.010	0.010	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.342	0.002	0.002	0.002	0.380	0.037	0.001	0.001	0.000
28L		APU	0.112	0.007	0.007	0.007	0.030	0.007	0.000	0.000	0.000
		GSE	1.712	0.067	0.061	0.063	0.067	0.009	0.006	0.006	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	2.166	0.679	0.679	0.722	0.171	0.021	0.012	0.012	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.309	0.218	0.196	0.204	0.169	0.010	0.008	0.007	0.000
CL600	ALF 502L-2	TOTAL	3.118	0.430	0.430	0.456	1.487	0.103	0.019	0.019	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	18.744	0.747	0.675	0.700	0.816	0.137	0.075	0.073	0.000
Cessna 172 Skyhawk	O-320	TOTAL	15.997	0.261	0.261	0.252	0.029	0.001	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.002	0.002	0.002	0.006	0.010	0.014	0.014	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.285	0.020	0.020	0.021	0.263	0.033	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.338	0.431	0.388	0.402	0.306	0.022	0.011	0.011	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	3.736	1.076	1.076	1.177	2.723	0.273	0.197	0.197	0.000
28L		APU	0.363	0.021	0.021	0.023	0.096	0.020	0.000	0.000	0.000
		GSE	0.119	0.012	0.011	0.012	0.109	0.034	0.020	0.020	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.138	0.265	0.265	0.282	2.169	0.230	0.000	0.000	0.000
28L		APU	0.218	0.021	0.021	0.022	0.155	0.034	0.000	0.000	0.000
		GSE	14.600	0.570	0.514	0.534	0.577	0.076	0.044	0.043	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.443	0.072	0.072	0.076	0.778	0.068	0.000	0.000	0.000
28L		APU	0.061	0.006	0.006	0.007	0.043	0.010	0.000	0.000	0.000
		GSE	4.050	0.158	0.142	0.148	0.160	0.021	0.012	0.012	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.780	0.144	0.144	0.153	1.478	0.142	0.000	0.000	0.000
28L		APU	0.121	0.011	0.011	0.012	0.086	0.019	0.000	0.000	0.000
		GSE	8.114	0.316	0.285	0.297	0.320	0.042	0.024	0.023	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	8.708	0.734	0.734	0.782	6.088	0.624	0.000	0.000	0.000
28L		APU	0.582	0.055	0.055	0.058	0.414	0.090	0.000	0.000	0.000
		GSE	38.929	1.520	1.371	1.423	1.536	0.203	0.117	0.114	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	10.805	0.913	0.913	0.970	7.468	0.795	0.000	0.000	0.000
28L		APU	0.752	0.072	0.072	0.076	0.535	0.117	0.000	0.000	0.000
		GSE	50.272	1.962	1.770	1.838	1.983	0.261	0.151	0.147	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	3.265	0.274	0.274	0.292	2.285	0.234	0.000	0.000	0.000
28L		APU	0.218	0.021	0.021	0.022	0.155	0.034	0.000	0.000	0.000
		GSE	14.600	0.570	0.514	0.534	0.577	0.076	0.044	0.043	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	4.947	0.046	0.046	0.051	7.497	0.728	0.073	0.073	0.000
28L		APU	0.478	0.045	0.045	0.050	0.341	0.074	0.000	0.000	0.000
		GSE	31.998	1.249	1.127	1.170	1.262	0.166	0.096	0.093	0.000
Falcon 20	CF700-2D	TOTAL	7.200	0.603	0.603	0.642	0.239	0.089	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.018	0.004	0.004	0.004	0.050	0.018	0.011	0.011	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	2.347	0.271	0.271	0.289	2.336	0.205	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.051	0.516	0.465	0.482	0.358	0.020	0.017	0.015	0.000
HS 125	TFE731-3	TOTAL	3.660	0.597	0.597	0.660	1.687	0.094	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	32.019	1.217	1.096	1.136	0.866	0.062	0.033	0.031	0.000
KC-135R	CFM56-2B-1	TOTAL	2.719	0.151	0.151	0.168	3.346	0.279	0.008	0.008	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.062	0.015	0.014	0.015	0.202	0.050	0.020	0.020	0.000
Learjet 25C	CJ610-6	TOTAL	17.932	1.379	1.379	1.466	0.351	0.098	N/A	N/A	0.000
28L_GA		APU	0.174	0.017	0.017	0.018	0.123	0.026	0.000	0.000	0.000
		GSE	11.622	0.454	0.409	0.424	0.459	0.061	0.035	0.034	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	5.492	1.608	1.608	1.710	1.586	0.110	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	26.668	1.095	0.985	1.022	0.814	0.037	0.033	0.032	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.029	0.009	0.009	0.010	0.085	0.006	0.002	0.002	0.000
28L		APU	0.008	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	23.355	0.423	0.423	0.409	0.012	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.004	0.004	0.000
Piper PA-28	O-320	TOTAL	3.187	0.052	0.052	0.050	0.006	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.002	0.002	0.002	0.000
UC-12J	PT6A-42	TOTAL	3.018	2.421	2.421	2.674	0.238	0.030	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	14.231	0.541	0.487	0.505	0.385	0.028	0.014	0.014	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	9.697	3.353	3.353	3.564	1.280	0.121	0.063	0.063	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	28.170	1.159	1.043	1.081	0.894	0.050	0.039	0.037	0.000
Falcon 2000EX	PW308C	TOTAL	1.485	0.186	0.186	0.198	1.132	0.108	0.010	0.010	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.512	0.260	0.235	0.244	0.346	0.062	0.031	0.031	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	7.382	2.553	2.553	2.714	0.974	0.093	0.049	0.049	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	21.445	0.882	0.795	0.823	0.681	0.037	0.030	0.029	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	5.216	0.853	0.853	0.906	4.018	0.468	0.277	0.277	0.000
28L_GA		APU	0.118	0.009	0.009	0.009	0.584	0.057	0.000	0.000	0.000
		GSE	24.490	0.946	0.852	0.883	0.626	0.050	0.049	0.046	0.000
Aztec	TIO-540-J2B2	TOTAL	48.832	0.885	0.885	0.854	0.025	0.004	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.003	0.008	0.010	0.010	0.000
B737-300	CFM56-3-B1	TOTAL	4.281	0.266	0.266	0.290	3.158	0.322	0.004	0.004	0.000
28R		APU	0.613	0.035	0.035	0.039	0.162	0.034	0.000	0.000	0.000
		GSE	0.202	0.020	0.019	0.020	0.183	0.058	0.034	0.033	0.000
B737-300	CFM56-3B-2	TOTAL	0.728	0.040	0.040	0.043	0.685	0.064	0.001	0.001	0.000
28R		APU	0.112	0.007	0.007	0.007	0.030	0.007	0.000	0.000	0.000
		GSE	0.037	0.003	0.003	0.003	0.034	0.011	0.007	0.007	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.487	0.034	0.034	0.037	0.299	0.032	0.000	0.000	0.000
28R		APU	0.065	0.003	0.003	0.004	0.018	0.003	0.000	0.000	0.000
		GSE	0.021	0.002	0.002	0.002	0.020	0.007	0.003	0.003	0.000
B737-500	CFM56-3C-1	TOTAL	0.491	0.024	0.024	0.026	0.610	0.052	0.002	0.002	0.000
28R		APU	0.080	0.004	0.004	0.006	0.021	0.004	0.000	0.000	0.000
		GSE	0.026	0.002	0.002	0.002	0.024	0.008	0.004	0.004	0.000
B737-700	CFM56-7B22	TOTAL	3.221	0.340	0.340	0.371	5.624	0.425	0.089	0.089	0.000
28R		APU	0.215	0.017	0.017	0.018	0.292	0.044	0.000	0.000	0.000
		GSE	0.240	0.024	0.023	0.024	0.219	0.069	0.041	0.040	0.000
B737-800	CFM56-7B26	TOTAL	0.018	0.002	0.002	0.002	0.051	0.003	0.001	0.001	0.000
28R		APU	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
B757-300	PW2043	TOTAL	0.176	0.014	0.014	0.015	0.628	0.032	N/A	N/A	0.000
28R		APU	0.009	0.001	0.001	0.001	0.020	0.002	0.000	0.000	0.000
		GSE	0.011	0.001	0.001	0.001	0.010	0.003	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.353	0.002	0.002	0.002	0.392	0.039	0.001	0.001	0.000
28R		APU	0.117	0.007	0.007	0.008	0.031	0.007	0.000	0.000	0.000
		GSE	1.768	0.069	0.062	0.065	0.069	0.009	0.006	0.006	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.768	0.241	0.241	0.256	0.061	0.008	0.004	0.004	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.883	0.077	0.069	0.073	0.060	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	3.350	0.462	0.462	0.491	1.597	0.110	0.021	0.021	0.000
28R_GA											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	20.135	0.802	0.725	0.753	0.876	0.147	0.080	0.078	0.000
Cessna 172 Skyhawk	O-320	TOTAL	13.159	0.215	0.215	0.207	0.023	0.001	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.004	0.008	0.012	0.011	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.116	0.008	0.008	0.009	0.108	0.013	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.619	0.175	0.158	0.164	0.125	0.009	0.004	0.004	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	0.491	0.141	0.141	0.154	0.357	0.036	0.025	0.025	0.000
28R		APU	0.047	0.002	0.002	0.003	0.012	0.002	0.000	0.000	0.000
		GSE	0.015	0.001	0.001	0.001	0.014	0.004	0.002	0.002	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.297	0.279	0.279	0.297	2.278	0.243	0.000	0.000	0.000
28R		APU	0.229	0.022	0.022	0.023	0.163	0.035	0.000	0.000	0.000
		GSE	15.338	0.599	0.540	0.560	0.605	0.079	0.046	0.044	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.466	0.075	0.075	0.080	0.819	0.072	0.000	0.000	0.000
28R		APU	0.064	0.006	0.006	0.007	0.045	0.010	0.000	0.000	0.000
		GSE	4.259	0.166	0.150	0.155	0.168	0.022	0.013	0.012	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.872	0.152	0.152	0.161	1.554	0.150	0.000	0.000	0.000
28R		APU	0.128	0.012	0.012	0.013	0.090	0.020	0.000	0.000	0.000
		GSE	8.532	0.333	0.301	0.312	0.336	0.044	0.025	0.025	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	9.156	0.773	0.773	0.821	6.402	0.656	0.000	0.000	0.000
28R		APU	0.613	0.058	0.058	0.062	0.435	0.095	0.000	0.000	0.000
		GSE	40.933	1.598	1.442	1.496	1.615	0.213	0.123	0.119	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	11.365	0.960	0.960	1.021	7.855	0.836	0.000	0.000	0.000
28R		APU	0.791	0.075	0.075	0.079	0.562	0.122	0.000	0.000	0.000
		GSE	52.875	2.064	1.862	1.932	2.087	0.274	0.159	0.153	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	3.433	0.289	0.289	0.308	2.402	0.246	0.000	0.000	0.000
28R		APU	0.229	0.022	0.022	0.023	0.163	0.035	0.000	0.000	0.000
		GSE	15.352	0.600	0.540	0.561	0.605	0.079	0.046	0.044	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	5.128	0.049	0.049	0.053	7.770	0.754	0.076	0.076	0.000
28R		APU	0.496	0.047	0.047	0.052	0.353	0.077	0.000	0.000	0.000
		GSE	33.166	1.295	1.168	1.213	1.308	0.172	0.100	0.096	0.000
Falcon 20	CF700-2D	TOTAL	2.508	0.211	0.211	0.224	0.084	0.031	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.001	0.001	0.001	0.018	0.007	0.003	0.003	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.818	0.095	0.095	0.100	0.814	0.072	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.546	0.180	0.162	0.168	0.125	0.007	0.006	0.006	0.000
HS 125	TFE731-3	TOTAL	3.767	0.615	0.615	0.679	1.735	0.096	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	32.956	1.252	1.128	1.170	0.891	0.064	0.033	0.032	0.000
KC-135R	CFM56-2B-1	TOTAL	0.466	0.026	0.026	0.029	0.574	0.047	0.001	0.001	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.011	0.002	0.002	0.002	0.034	0.009	0.003	0.003	0.000
Learjet 25C	CJ610-6	TOTAL	18.018	1.386	1.386	1.473	0.353	0.098	N/A	N/A	0.000
28R_GA		APU	0.174	0.017	0.017	0.018	0.125	0.028	0.000	0.000	0.000
		GSE	11.677	0.456	0.411	0.427	0.461	0.061	0.035	0.034	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.922	0.563	0.563	0.599	0.556	0.039	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.338	0.384	0.345	0.358	0.285	0.013	0.012	0.011	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.003	0.001	0.001	0.001	0.011	0.001	0.000	0.000	0.000
28R		APU	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	36.480	0.661	0.661	0.638	0.019	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.003	0.006	0.008	0.008	0.000
Piper PA-28	O-320	TOTAL	1.300	0.021	0.021	0.020	0.002	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.337	1.073	1.073	1.185	0.106	0.013	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.304	0.239	0.216	0.224	0.171	0.012	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	10.067	3.481	3.481	3.700	1.329	0.126	0.066	0.066	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	29.245	1.203	1.084	1.123	0.928	0.052	0.040	0.039	0.000
Falcon 2000EX	PW308C	TOTAL	1.564	0.196	0.196	0.208	1.193	0.114	0.011	0.011	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.863	0.273	0.248	0.257	0.365	0.065	0.033	0.032	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.577	0.892	0.892	0.948	0.341	0.032	0.017	0.017	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	7.488	0.308	0.278	0.288	0.238	0.013	0.010	0.010	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.297	0.539	0.539	0.573	2.540	0.295	0.175	0.175	0.000
28R_GA		APU	0.075	0.006	0.006	0.006	0.369	0.036	0.000	0.000	0.000
		GSE	15.482	0.597	0.538	0.559	0.396	0.031	0.031	0.030	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.614	0.179	0.179	0.190	0.202	0.013	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.930	0.120	0.108	0.112	0.093	0.006	0.004	0.004	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.875	0.254	0.254	0.270	0.288	0.019	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.176	0.172	0.154	0.160	0.132	0.008	0.006	0.006	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.414	0.410	0.410	0.437	0.465	0.031	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.752	0.278	0.250	0.259	0.214	0.012	0.009	0.009	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.426	0.414	0.414	0.440	0.468	0.031	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.809	0.280	0.252	0.261	0.216	0.012	0.009	0.009	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.687	0.154	0.154	0.170	0.034	0.015	N/A	N/A	0.000
10L_GA		APU	0.008	0.000	0.000	0.001	0.036	0.003	0.000	0.000	0.000
		GSE	1.842	0.073	0.065	0.067	0.049	0.004	0.004	0.004	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.602	0.359	0.359	0.397	0.080	0.036	N/A	N/A	0.000
10R_GA		APU	0.018	0.001	0.001	0.001	0.085	0.009	0.000	0.000	0.000
		GSE	4.298	0.169	0.152	0.158	0.114	0.010	0.011	0.010	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.636	0.591	0.591	0.653	0.132	0.060	N/A	N/A	0.000
28L_GA		APU	0.029	0.002	0.002	0.002	0.139	0.014	0.000	0.000	0.000
		GSE	7.072	0.278	0.250	0.259	0.187	0.017	0.018	0.018	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.757	0.394	0.394	0.435	0.088	0.040	N/A	N/A	0.000
28R_GA		APU	0.019	0.001	0.001	0.001	0.093	0.009	0.000	0.000	0.000
		GSE	4.716	0.185	0.166	0.173	0.125	0.011	0.012	0.011	0.000
Learjet 25B	CJ610-6	TOTAL	5.541	0.427	0.427	0.453	0.108	0.030	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.650	0.150	0.134	0.140	0.111	0.006	0.004	0.004	0.000
Learjet 25B	CJ610-6	TOTAL	20.338	1.564	1.564	1.662	0.398	0.111	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.397	0.550	0.495	0.514	0.409	0.019	0.017	0.017	0.000
Learjet 25B	CJ610-6	TOTAL	44.777	3.444	3.444	3.661	0.875	0.245	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	29.498	1.211	1.090	1.131	0.901	0.042	0.036	0.035	0.000
Learjet 25B	CJ610-6	TOTAL	15.570	1.197	1.197	1.273	0.304	0.085	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.257	0.421	0.379	0.394	0.313	0.014	0.013	0.012	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.377	0.003	0.003	0.003	0.565	0.055	0.006	0.006	0.000
10L		APU	0.161	0.009	0.009	0.010	0.042	0.009	0.000	0.000	0.000
		GSE	2.436	0.095	0.086	0.089	0.096	0.012	0.008	0.007	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.565	0.006	0.006	0.006	0.848	0.083	0.008	0.008	0.000
10R		APU	0.240	0.013	0.013	0.015	0.064	0.013	0.000	0.000	0.000
		GSE	3.646	0.142	0.129	0.133	0.144	0.019	0.011	0.011	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.891	0.009	0.009	0.009	1.336	0.130	0.012	0.012	0.000
28L		APU	0.379	0.022	0.022	0.024	0.100	0.021	0.000	0.000	0.000
		GSE	5.749	0.225	0.203	0.211	0.227	0.030	0.018	0.017	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.923	0.009	0.009	0.010	1.385	0.134	0.012	0.012	0.000
28R		APU	0.392	0.022	0.022	0.024	0.104	0.022	0.000	0.000	0.000
		GSE	5.957	0.233	0.209	0.217	0.235	0.031	0.018	0.018	0.000
A320-200	V2500-A1	TOTAL	0.012	0.001	0.001	0.001	0.086	0.004	0.000	0.000	0.000
10L		APU	0.001	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
A320-200	V2500-A1	TOTAL	0.256	0.014	0.014	0.015	1.842	0.093	0.002	0.002	0.000
10R		APU	0.014	0.001	0.001	0.001	0.073	0.008	0.000	0.000	0.000
		GSE	0.045	0.004	0.004	0.004	0.041	0.013	0.008	0.008	0.000
A320-200	V2500-A1	TOTAL	0.327	0.018	0.018	0.020	2.358	0.119	0.002	0.002	0.000
28L		APU	0.019	0.001	0.001	0.001	0.093	0.009	0.000	0.000	0.000
		GSE	0.057	0.006	0.006	0.006	0.053	0.017	0.010	0.010	0.000
A320-200	V2500-A1	TOTAL	0.028	0.001	0.001	0.001	0.196	0.010	0.000	0.000	0.000
28R		APU	0.001	0.000	0.000	0.000	0.008	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.371	0.003	0.003	0.004	0.626	0.057	0.013	0.013	0.000
10L		APU	0.036	0.003	0.003	0.003	0.026	0.006	0.000	0.000	0.000
		GSE	2.436	0.095	0.086	0.089	0.096	0.012	0.008	0.007	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.556	0.006	0.006	0.006	0.937	0.087	0.020	0.020	0.000
10R		APU	0.054	0.006	0.006	0.006	0.039	0.009	0.000	0.000	0.000
		GSE	3.646	0.142	0.129	0.133	0.144	0.019	0.011	0.011	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.876	0.009	0.009	0.010	1.477	0.137	0.031	0.031	0.000
28L		APU	0.086	0.008	0.008	0.009	0.061	0.013	0.000	0.000	0.000
		GSE	5.749	0.225	0.203	0.211	0.227	0.030	0.018	0.017	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.908	0.009	0.009	0.010	1.531	0.141	0.032	0.032	0.000
28R		APU	0.089	0.009	0.009	0.009	0.063	0.014	0.000	0.000	0.000
		GSE	5.957	0.233	0.209	0.217	0.235	0.031	0.018	0.018	0.000
B757-200	PW2037	TOTAL	0.111	0.009	0.009	0.010	0.256	0.017	0.002	0.002	0.000
10L		APU	0.004	0.000	0.000	0.000	0.011	0.001	0.000	0.000	0.000
		GSE	0.006	0.001	0.001	0.001	0.006	0.002	0.001	0.001	0.000
B757-200	PW2037	TOTAL	1.453	0.120	0.120	0.131	3.348	0.215	0.035	0.035	0.000
10R		APU	0.063	0.007	0.007	0.007	0.144	0.015	0.000	0.000	0.000
		GSE	0.079	0.008	0.008	0.008	0.072	0.023	0.013	0.013	0.000
B757-200	PW2037	TOTAL	2.196	0.182	0.182	0.200	5.061	0.325	0.054	0.054	0.000
28L		APU	0.095	0.010	0.010	0.011	0.218	0.023	0.000	0.000	0.000
		GSE	0.119	0.012	0.011	0.012	0.109	0.034	0.020	0.020	0.000
B757-200	PW2037	TOTAL	0.289	0.024	0.024	0.026	0.665	0.043	0.007	0.007	0.000
28R		APU	0.012	0.001	0.001	0.001	0.029	0.003	0.000	0.000	0.000
		GSE	0.015	0.001	0.001	0.001	0.014	0.004	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	6.956	0.039	0.039	0.043	7.736	0.769	0.032	0.032	0.000
10L_New T...		APU	2.296	0.131	0.131	0.144	0.606	0.128	0.000	0.000	0.000
		GSE	34.851	1.360	1.227	1.273	1.375	0.181	0.105	0.101	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	10.378	0.058	0.058	0.064	11.543	1.149	0.049	0.049	0.000
8_New Term		APU	3.427	0.196	0.196	0.215	0.905	0.191	0.000	0.000	0.000
		GSE	51.998	2.029	1.831	1.900	2.051	0.270	0.157	0.151	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	16.359	0.091	0.091	0.100	18.195	1.810	0.076	0.076	0.000
26_New Te...		APU	5.401	0.310	0.310	0.338	1.426	0.300	0.000	0.000	0.000
		GSE	81.963	3.200	2.887	2.995	3.234	0.425	0.247	0.238	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	16.962	0.095	0.095	0.104	18.865	1.876	0.079	0.079	0.000
28R_New ...		APU	5.600	0.321	0.321	0.351	1.478	0.311	0.000	0.000	0.000
		GSE	84.984	3.317	2.993	3.105	3.353	0.442	0.256	0.247	0.000
B737-800	CFM56-7B26	TOTAL	0.294	0.031	0.031	0.033	0.853	0.053	0.015	0.015	0.000
10L_New T...		APU	0.023	0.002	0.002	0.002	0.031	0.004	0.000	0.000	0.000
		GSE	0.025	0.002	0.002	0.002	0.023	0.008	0.004	0.004	0.000
B737-800	CFM56-7B26	TOTAL	2.798	0.289	0.289	0.316	8.121	0.499	0.151	0.151	0.000
8_New Term		APU	0.218	0.017	0.017	0.018	0.297	0.045	0.000	0.000	0.000
		GSE	0.244	0.024	0.023	0.024	0.223	0.071	0.041	0.040	0.000
B737-800	CFM56-7B26	TOTAL	4.788	0.494	0.494	0.541	13.902	0.855	0.259	0.259	0.000
26_New Te...		APU	0.374	0.029	0.029	0.031	0.508	0.076	0.000	0.000	0.000
		GSE	0.418	0.042	0.040	0.042	0.380	0.120	0.071	0.068	0.000
B737-800	CFM56-7B26	TOTAL	0.775	0.080	0.080	0.087	2.249	0.138	0.042	0.042	0.000
28R_New ...		APU	0.061	0.004	0.004	0.006	0.083	0.012	0.000	0.000	0.000
		GSE	0.067	0.007	0.007	0.007	0.062	0.020	0.011	0.011	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.072	0.022	0.022	0.024	0.211	0.014	0.004	0.004	0.000
10L_New T...		APU	0.019	0.001	0.001	0.001	0.004	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.916	0.282	0.282	0.309	2.711	0.185	0.054	0.054	0.000
8_New Term		APU	0.236	0.013	0.013	0.014	0.062	0.013	0.000	0.000	0.000
		GSE	0.062	0.007	0.007	0.007	0.057	0.019	0.011	0.011	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.380	0.424	0.424	0.465	4.082	0.279	0.082	0.082	0.000
26_New Te...		APU	0.355	0.020	0.020	0.022	0.094	0.020	0.000	0.000	0.000
		GSE	0.093	0.010	0.010	0.010	0.087	0.029	0.017	0.015	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.182	0.056	0.056	0.062	0.538	0.036	0.011	0.011	0.000
28R_New ...		APU	0.046	0.002	0.002	0.003	0.012	0.002	0.000	0.000	0.000
		GSE	0.012	0.001	0.001	0.001	0.011	0.003	0.002	0.002	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	5.589	0.060	0.060	0.057	0.007	0.000	N/A	N/A	4.436
10L_GA		Climb Out	4.670	0.053	0.053	0.051	0.001	0.000	N/A	N/A	3.175
		Takeoff	3.113	0.026	0.026	0.025	0.001	0.000	N/A	N/A	2.159
		Idle	3.002	0.158	0.158	0.152	0.001	0.000	N/A	N/A	2.319
B737-300	CFM56-3-B1	Approach	0.140	0.003	0.003	0.003	0.305	0.036	0.000	0.000	36.733
10L		Climb Out	0.018	0.001	0.001	0.001	0.293	0.019	0.000	0.000	18.894
		Takeoff	0.022	0.001	0.001	0.001	0.439	0.024	0.001	0.001	24.792
		Idle	1.448	0.096	0.096	0.105	0.164	0.042	0.000	0.000	42.094
B737-300	CFM56-3B-2	Approach	0.025	0.000	0.000	0.001	0.064	0.008	0.000	0.000	7.360
10L		Climb Out	0.003	0.000	0.000	0.000	0.065	0.004	0.000	0.000	3.876
		Takeoff	0.004	0.000	0.000	0.000	0.099	0.006	0.000	0.000	5.121
		Idle	0.245	0.014	0.014	0.015	0.033	0.008	0.000	0.000	8.131
B737-500	CFM56-3C-1	Approach	0.018	0.000	0.000	0.000	0.053	0.006	0.000	0.000	5.818
10L		Climb Out	0.003	0.000	0.000	0.000	0.062	0.003	0.000	0.000	3.476
		Takeoff	0.004	0.000	0.000	0.000	0.095	0.004	0.000	0.000	4.567
		Idle	0.164	0.009	0.009	0.010	0.026	0.007	0.000	0.000	6.134
B737-700	CFM56-7B22	Approach	0.116	0.004	0.004	0.006	0.464	0.046	0.010	0.010	46.392
10L		Climb Out	0.017	0.003	0.003	0.003	0.530	0.028	0.006	0.006	27.892
		Takeoff	0.020	0.004	0.004	0.004	0.920	0.040	0.009	0.009	39.839
		Idle	1.064	0.117	0.117	0.128	0.209	0.046	0.010	0.010	46.655
B737-800	CFM56-7B26	Approach	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.338
10L		Climb Out	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.235
		Takeoff	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.333
		Idle	0.007	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.328
B757-300	PW2043	Approach	0.004	0.000	0.000	0.000	0.036	0.003	N/A	N/A	3.412
10L		Climb Out	0.001	0.000	0.000	0.000	0.065	0.002	N/A	N/A	2.315
		Takeoff	0.001	0.000	0.000	0.000	0.119	0.003	N/A	N/A	3.145
		Idle	0.060	0.004	0.004	0.006	0.013	0.003	N/A	N/A	3.061
Bombardier CRJ700	CF34-8C1	Approach	0.013	0.000	0.000	0.000	0.050	0.004	0.000	0.000	4.449
10L		Climb Out	0.001	0.000	0.000	0.000	0.031	0.002	0.000	0.000	2.379
		Takeoff	0.001	0.000	0.000	0.000	0.058	0.004	0.000	0.000	3.989
		Idle	0.129	0.000	0.000	0.000	0.022	0.006	0.000	0.000	5.163
Cessna 172 Skyhawk	O-320	Approach	3.300	0.053	0.053	0.051	0.002	0.000	N/A	N/A	2.705
10L_GA		Climb Out	1.779	0.022	0.022	0.022	0.007	0.000	N/A	N/A	1.798
		Takeoff	1.344	0.014	0.014	0.014	0.002	0.000	N/A	N/A	1.245
		Idle	0.879	0.030	0.030	0.029	0.000	0.000	N/A	N/A	0.814
Cessna 441 Conqu...	TPE331-8	Approach	0.010	0.000	0.000	0.000	0.021	0.002	N/A	N/A	2.233
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.006	0.000	N/A	N/A	0.473
		Takeoff	0.001	0.000	0.000	0.000	0.006	0.000	N/A	N/A	0.546
		Idle	0.031	0.002	0.002	0.002	0.007	0.002	N/A	N/A	1.659
CITATION I SP	JT15D-1A _1B	Approach	0.060	0.007	0.007	0.007	0.006	0.001	0.000	0.000	1.465
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.875
		Takeoff	0.002	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.972
		Idle	0.201	0.077	0.077	0.082	0.002	0.001	0.000	0.000	1.521
CL600	ALF 502L-2	Approach	0.099	0.004	0.004	0.004	0.162	0.013	0.003	0.003	25.053
10L_GA		Climb Out	0.004	0.000	0.000	0.000	0.158	0.007	0.003	0.003	13.078
		Takeoff	0.007	0.000	0.000	0.000	0.240	0.010	0.002	0.002	17.863
		Idle	1.258	0.183	0.183	0.195	0.094	0.015	0.000	0.000	27.571
DC9-30	JT8D-15 (old co...	Approach	0.032	0.006	0.006	0.007	0.020	0.003	0.002	0.002	3.368
10L		Climb Out	0.003	0.001	0.001	0.001	0.044	0.003	0.002	0.002	2.975
		Takeoff	0.002	0.001	0.001	0.001	0.061	0.003	0.002	0.002	3.147
		Idle	0.151	0.047	0.047	0.052	0.013	0.004	0.003	0.003	4.295
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.198	0.001	0.001	0.001	0.181	0.026	0.000	0.000	26.072
10L		Climb Out	0.013	0.001	0.001	0.001	0.352	0.026	0.000	0.000	26.058
		Takeoff	0.009	0.000	0.000	0.001	0.279	0.018	0.000	0.000	18.065
		Idle	1.134	0.112	0.112	0.119	0.126	0.030	0.000	0.000	29.488
Embraer ERJ 145	AE3007A	Approach	0.025	0.006	0.006	0.006	0.061	0.008	0.000	0.000	7.815
10L		Climb Out	0.007	0.002	0.002	0.002	0.132	0.008	0.000	0.000	7.552
		Takeoff	0.004	0.001	0.001	0.001	0.108	0.006	0.000	0.000	5.236
		Idle	0.154	0.022	0.022	0.023	0.034	0.009	0.000	0.000	8.880
Embraer ERJ 145	AE3007A1E	Approach	0.090	0.000	0.000	0.000	0.119	0.017	0.000	0.000	16.096
10L		Climb Out	0.011	0.000	0.000	0.000	0.246	0.017	0.000	0.000	16.488
		Takeoff	0.009	0.000	0.000	0.000	0.197	0.011	0.000	0.000	11.496
		Idle	0.656	0.061	0.061	0.065	0.074	0.018	0.000	0.000	17.284
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	0.464	0.002	0.002	0.002	0.486	0.068	0.000	0.000	68.264
10L		Climb Out	0.035	0.002	0.002	0.002	0.904	0.064	0.000	0.000	64.480

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.041	0.002	0.002	0.002	0.897	0.056	0.000	0.000	55.752
		Idle	3.208	0.311	0.311	0.331	0.334	0.080	0.000	0.000	80.045
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	0.682	0.002	0.002	0.003	0.621	0.089	0.000	0.000	89.498
10L		Climb Out	0.045	0.002	0.002	0.003	1.207	0.089	0.000	0.000	89.446
		Takeoff	0.031	0.002	0.002	0.002	0.956	0.062	0.000	0.000	62.011
		Idle	3.894	0.386	0.386	0.410	0.432	0.101	0.000	0.000	101.222
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.174	0.001	0.001	0.001	0.183	0.025	0.000	0.000	25.650
10L		Climb Out	0.013	0.001	0.001	0.001	0.340	0.024	0.000	0.000	24.207
		Takeoff	0.015	0.001	0.001	0.001	0.337	0.021	0.000	0.000	20.935
		Idle	1.204	0.116	0.116	0.123	0.126	0.030	0.000	0.000	30.116
Embraer ERJ 170	CF34-8E5	Approach	0.379	0.006	0.006	0.006	0.965	0.089	0.010	0.010	89.559
10L		Climb Out	0.028	0.001	0.001	0.001	0.610	0.049	0.001	0.001	48.181
		Takeoff	0.052	0.001	0.001	0.002	1.195	0.080	0.010	0.010	80.866
		Idle	1.645	0.012	0.012	0.013	0.418	0.090	0.011	0.011	90.552
Falcon 20	CF700-2D	Approach	0.195	0.004	0.004	0.004	0.006	0.003	N/A	N/A	3.144
10L_GA		Climb Out	0.044	0.000	0.000	0.000	0.008	0.002	N/A	N/A	1.746
		Takeoff	0.051	0.000	0.000	0.000	0.013	0.002	N/A	N/A	2.328
		Idle	0.603	0.071	0.071	0.075	0.003	0.004	N/A	N/A	3.891
Falcon 2000EX	PW308C	Approach	0.079	0.002	0.002	0.002	0.118	0.015	0.001	0.001	15.129
10L_Corp		Climb Out	0.008	0.001	0.001	0.001	0.130	0.008	0.001	0.001	8.101
		Takeoff	0.009	0.001	0.001	0.001	0.194	0.011	0.001	0.001	10.536
		Idle	0.546	0.077	0.077	0.082	0.047	0.013	0.001	0.001	12.911
Gulfstream II	SPEY MK511-8	Approach	0.017	0.001	0.001	0.001	0.045	0.007	N/A	N/A	6.274
10L_GA		Climb Out	0.003	0.001	0.001	0.001	0.085	0.004	N/A	N/A	4.874
		Takeoff	0.001	0.000	0.000	0.000	0.129	0.006	N/A	N/A	5.706
		Idle	0.271	0.032	0.032	0.033	0.031	0.009	N/A	N/A	8.520
Gulfstream IV	TAY Mk611-8	Approach	0.123	0.029	0.029	0.031	0.181	0.032	0.019	0.019	31.783
10L_GA		Climb Out	0.011	0.004	0.004	0.004	0.241	0.014	0.009	0.009	14.350
		Takeoff	0.014	0.015	0.015	0.017	0.420	0.020	0.012	0.012	19.908
		Idle	1.091	0.154	0.154	0.163	0.114	0.045	0.026	0.026	45.268
HS 125	TFE731-3	Approach	0.365	0.033	0.033	0.036	0.162	0.012	N/A	N/A	23.456
10L_Corp		Climb Out	0.017	0.001	0.001	0.001	0.163	0.006	N/A	N/A	10.152
		Takeoff	0.018	0.001	0.001	0.001	0.302	0.009	N/A	N/A	15.791
		Idle	1.159	0.219	0.219	0.243	0.090	0.013	N/A	N/A	24.284
KC-135R	CFM56-2B-1	Approach	0.014	0.000	0.000	0.000	0.028	0.003	0.000	0.000	3.412
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.062	0.004	0.000	0.000	3.887
		Takeoff	0.006	0.000	0.000	0.000	0.104	0.006	0.000	0.000	5.590
		Idle	0.150	0.009	0.009	0.010	0.020	0.004	0.000	0.000	4.900
Learjet 25C	CJ610-6	Approach	2.055	0.000	0.000	0.000	0.035	0.012	N/A	N/A	23.355
10L_GA		Climb Out	0.245	0.002	0.002	0.002	0.031	0.004	N/A	N/A	8.736
		Takeoff	0.368	0.001	0.001	0.001	0.057	0.008	N/A	N/A	13.650
		Idle	5.149	0.597	0.597	0.636	0.030	0.018	N/A	N/A	33.219
Learjet 35/36	TFE 731-2-2B	Approach	0.192	0.036	0.036	0.039	0.051	0.004	N/A	N/A	8.562
10L_GA		Climb Out	0.008	0.000	0.000	0.000	0.051	0.002	N/A	N/A	3.843
		Takeoff	0.007	0.000	0.000	0.001	0.071	0.002	N/A	N/A	4.615
		Idle	0.464	0.159	0.159	0.169	0.022	0.004	N/A	N/A	7.922
MD-80-83	JT8D-219 old co...	Approach	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10L		Climb Out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Takeoff	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Idle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	Approach	8.026	0.085	0.085	0.083	0.009	0.001	N/A	N/A	6.370
10L_GA		Climb Out	6.708	0.076	0.076	0.073	0.001	0.000	N/A	N/A	4.560
		Takeoff	4.471	0.039	0.039	0.037	0.001	0.000	N/A	N/A	3.101
		Idle	4.311	0.227	0.227	0.219	0.001	0.000	N/A	N/A	3.331
Piper PA-28	O-320	Approach	0.235	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.193
10L_GA		Climb Out	0.114	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.115
		Takeoff	0.076	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.071
		Idle	0.050	0.002	0.002	0.001	0.000	0.000	N/A	N/A	0.045
UC-12J	PT6A-42	Approach	0.146	0.095	0.095	0.105	0.020	0.002	N/A	N/A	4.194
10L_GA		Climb Out	0.007	0.002	0.002	0.002	0.008	0.000	N/A	N/A	0.998
		Takeoff	0.004	0.001	0.001	0.001	0.007	0.000	N/A	N/A	0.782
		Idle	0.338	0.298	0.298	0.328	0.006	0.001	N/A	N/A	2.935
550 Citation	JT15D-4 (B,C,D)	Approach	0.990	0.159	0.159	0.170	0.163	0.017	0.009	0.009	30.922
10L_Corp		Climb Out	0.053	0.003	0.003	0.003	0.142	0.009	0.004	0.004	16.563
		Takeoff	0.037	0.001	0.001	0.002	0.168	0.010	0.006	0.006	18.100
		Idle	3.145	1.296	1.296	1.379	0.085	0.018	0.009	0.009	32.417
B737-300	CFM56-3C-1 (Re...	Approach	0.015	0.000	0.000	0.000	0.030	0.003	0.000	0.000	3.676
10L		Climb Out	0.002	0.000	0.000	0.000	0.028	0.002	0.000	0.000	1.856
		Takeoff	0.002	0.000	0.000	0.000	0.041	0.002	0.000	0.000	2.429
		Idle	0.166	0.012	0.012	0.013	0.017	0.004	0.000	0.000	4.356

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation	JT15D-4 (B,C,D)	Approach	0.215	0.034	0.034	0.036	0.035	0.003	0.002	0.002	6.705
10L_GA		Climb Out	0.011	0.001	0.001	0.001	0.031	0.002	0.001	0.001	3.591
		Takeoff	0.008	0.000	0.000	0.000	0.036	0.002	0.001	0.001	3.924
		Idle	0.682	0.281	0.281	0.299	0.019	0.003	0.002	0.002	7.029
550 Citation	JT15D-4 (B,C,D)	Approach	0.785	0.127	0.127	0.134	0.130	0.013	0.007	0.007	24.539
10R_GA		Climb Out	0.042	0.002	0.002	0.002	0.112	0.007	0.003	0.003	13.144
		Takeoff	0.030	0.001	0.001	0.001	0.132	0.008	0.004	0.004	14.363
		Idle	2.496	1.028	1.028	1.093	0.067	0.014	0.008	0.008	25.725
550 Citation	JT15D-4 (B,C,D)	Approach	1.462	0.235	0.235	0.250	0.241	0.024	0.013	0.013	45.689
10R_Corp		Climb Out	0.078	0.004	0.004	0.004	0.209	0.013	0.007	0.007	24.474
		Takeoff	0.056	0.002	0.002	0.002	0.247	0.014	0.008	0.008	26.742
		Idle	4.646	1.916	1.916	2.037	0.126	0.025	0.013	0.013	47.897
Aztec	TIO-540-J2B2	Approach	8.827	0.094	0.094	0.090	0.010	0.001	N/A	N/A	7.006
10R_GA		Climb Out	7.378	0.084	0.084	0.080	0.001	0.001	N/A	N/A	5.016
		Takeoff	4.917	0.042	0.042	0.041	0.001	0.000	N/A	N/A	3.411
		Idle	4.741	0.249	0.249	0.240	0.001	0.000	N/A	N/A	3.664
B737-300	CFM56-3C-1 (Re...	Approach	0.129	0.002	0.002	0.002	0.245	0.031	0.000	0.000	30.632
10R		Climb Out	0.015	0.001	0.001	0.001	0.227	0.015	0.000	0.000	15.468
		Takeoff	0.019	0.001	0.001	0.001	0.336	0.020	0.000	0.000	20.243
		Idle	1.383	0.104	0.104	0.114	0.138	0.036	0.000	0.000	36.307
B737-300	CFM56-3B-2	Approach	0.260	0.006	0.006	0.007	0.665	0.076	0.001	0.001	76.414
10R		Climb Out	0.036	0.002	0.002	0.002	0.672	0.041	0.001	0.001	40.240
		Takeoff	0.047	0.002	0.002	0.002	1.032	0.053	0.003	0.003	53.170
		Idle	2.541	0.148	0.148	0.162	0.346	0.085	0.001	0.001	84.421
B737-300	CFM56-3-B1	Approach	1.484	0.031	0.031	0.034	3.241	0.390	0.004	0.004	390.471
10R		Climb Out	0.191	0.010	0.010	0.011	3.113	0.201	0.002	0.002	200.832
		Takeoff	0.237	0.011	0.011	0.011	4.665	0.263	0.008	0.008	263.533
		Idle	15.393	1.021	1.021	1.117	1.745	0.448	0.004	0.004	447.458
B737-500	CFM56-3C-1	Approach	0.198	0.004	0.004	0.004	0.584	0.064	0.001	0.001	64.168
10R		Climb Out	0.034	0.001	0.001	0.002	0.682	0.039	0.001	0.001	38.331
		Takeoff	0.045	0.001	0.001	0.002	1.043	0.051	0.004	0.004	50.373
		Idle	1.813	0.096	0.096	0.105	0.291	0.067	0.001	0.001	67.660
B737-700	CFM56-7B22	Approach	1.084	0.043	0.043	0.047	4.335	0.433	0.091	0.091	433.559
10R		Climb Out	0.157	0.026	0.026	0.029	4.953	0.260	0.055	0.055	260.661
		Takeoff	0.186	0.037	0.037	0.041	8.600	0.373	0.078	0.078	372.312
		Idle	9.942	1.090	1.090	1.194	1.962	0.437	0.091	0.091	436.023
B737-800	CFM56-7B26	Approach	0.004	0.000	0.000	0.000	0.031	0.003	0.001	0.001	2.880
10R		Climb Out	0.001	0.000	0.000	0.000	0.045	0.002	0.001	0.001	2.000
		Takeoff	0.001	0.000	0.000	0.000	0.082	0.003	0.001	0.001	2.829
		Idle	0.053	0.006	0.006	0.006	0.013	0.003	0.001	0.001	2.788
B757-300	PW2043	Approach	0.040	0.002	0.002	0.003	0.317	0.030	N/A	N/A	29.654
10R		Climb Out	0.008	0.000	0.000	0.000	0.561	0.020	N/A	N/A	20.125
		Takeoff	0.008	0.000	0.000	0.000	1.033	0.028	N/A	N/A	27.338
		Idle	0.514	0.042	0.042	0.045	0.118	0.026	N/A	N/A	26.612
Bombardier CRJ700	CF34-8C1	Approach	0.020	0.000	0.000	0.000	0.074	0.007	0.000	0.000	6.673
10R		Climb Out	0.002	0.000	0.000	0.000	0.045	0.003	0.000	0.000	3.568
		Takeoff	0.002	0.000	0.000	0.000	0.088	0.006	0.000	0.000	5.984
		Idle	0.193	0.001	0.001	0.001	0.033	0.008	0.000	0.000	7.746
Cessna 172 Skyhawk	O-320	Approach	3.599	0.057	0.057	0.055	0.003	0.000	N/A	N/A	2.950
10R_GA		Climb Out	1.941	0.024	0.024	0.023	0.008	0.000	N/A	N/A	1.960
		Takeoff	1.466	0.017	0.017	0.015	0.003	0.000	N/A	N/A	1.357
		Idle	0.959	0.033	0.033	0.032	0.000	0.000	N/A	N/A	0.887
Cessna 441 Conqu...	TPE331-8	Approach	0.030	0.001	0.001	0.001	0.065	0.007	N/A	N/A	6.811
10R_GA		Climb Out	0.002	0.000	0.000	0.000	0.015	0.001	N/A	N/A	1.443
		Takeoff	0.002	0.000	0.000	0.000	0.019	0.002	N/A	N/A	1.664
		Idle	0.095	0.008	0.008	0.008	0.021	0.006	N/A	N/A	5.057
CITATION I SP	JT15D-1A _1B	Approach	0.227	0.025	0.025	0.026	0.019	0.003	0.002	0.002	5.604
10R_GA		Climb Out	0.012	0.000	0.000	0.000	0.023	0.002	0.001	0.001	3.349
		Takeoff	0.010	0.000	0.000	0.000	0.029	0.002	0.001	0.001	3.721
		Idle	0.768	0.294	0.294	0.312	0.010	0.003	0.002	0.002	5.820
CL600	ALF 502L-2	Approach	0.152	0.007	0.007	0.008	0.249	0.021	0.004	0.004	38.453
10R_GA		Climb Out	0.006	0.000	0.000	0.000	0.241	0.011	0.004	0.004	20.072
		Takeoff	0.011	0.000	0.000	0.001	0.368	0.014	0.003	0.003	27.416
		Idle	1.931	0.281	0.281	0.299	0.143	0.023	0.001	0.001	42.318
DC9-30	JT8D-15 (old co...	Approach	0.423	0.073	0.073	0.079	0.260	0.044	0.032	0.032	44.108
10R		Climb Out	0.039	0.010	0.010	0.011	0.584	0.039	0.028	0.028	38.973
		Takeoff	0.029	0.010	0.010	0.011	0.787	0.041	0.030	0.030	41.234
		Idle	1.980	0.618	0.618	0.678	0.169	0.056	0.041	0.041	56.255
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.299	0.001	0.001	0.001	0.272	0.040	0.000	0.000	39.252
10R		Climb Out	0.020	0.001	0.001	0.001	0.529	0.040	0.000	0.000	39.230

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.013	0.001	0.001	0.001	0.419	0.028	0.000	0.000	27.197
		Idle	1.707	0.169	0.169	0.180	0.190	0.044	0.000	0.000	44.394
Embraer ERJ 145 10R	AE3007A1E	Approach	0.137	0.001	0.001	0.001	0.181	0.024	0.000	0.000	24.305
		Climb Out	0.015	0.001	0.001	0.001	0.371	0.025	0.000	0.000	24.898
		Takeoff	0.013	0.000	0.000	0.001	0.298	0.018	0.000	0.000	17.358
		Idle	0.991	0.091	0.091	0.098	0.111	0.026	0.000	0.000	26.099
Embraer ERJ 145 10R	AE3007A	Approach	0.039	0.008	0.008	0.008	0.093	0.012	0.000	0.000	11.817
		Climb Out	0.011	0.003	0.003	0.003	0.200	0.011	0.000	0.000	11.419
		Takeoff	0.006	0.002	0.002	0.002	0.163	0.008	0.000	0.000	7.917
		Idle	0.233	0.034	0.034	0.036	0.052	0.013	0.000	0.000	13.426
Embraer ERJ 145LR 10R	AE3007A1P (Typ...	Approach	0.262	0.001	0.001	0.001	0.276	0.039	0.000	0.000	38.702
		Climb Out	0.020	0.001	0.001	0.001	0.511	0.036	0.000	0.000	36.524
		Takeoff	0.023	0.001	0.001	0.001	0.508	0.032	0.000	0.000	31.588
		Idle	1.817	0.175	0.175	0.186	0.190	0.045	0.000	0.000	45.441
Embraer ERJ 145LR 10R	AE3007A1/3 (Ty...	Approach	1.030	0.004	0.004	0.004	0.937	0.136	0.000	0.000	135.139
		Climb Out	0.067	0.004	0.004	0.004	1.822	0.136	0.000	0.000	135.061
		Takeoff	0.046	0.003	0.003	0.003	1.444	0.094	0.000	0.000	93.635
		Idle	5.880	0.582	0.582	0.619	0.653	0.153	0.000	0.000	152.841
Embraer ERJ 145LR 10R	AE3007A1/1 (Ty...	Approach	0.701	0.003	0.003	0.003	0.734	0.104	0.000	0.000	103.076
		Climb Out	0.054	0.003	0.003	0.003	1.364	0.097	0.000	0.000	97.362
		Takeoff	0.063	0.002	0.002	0.002	1.356	0.084	0.000	0.000	84.182
		Idle	4.844	0.468	0.468	0.498	0.504	0.121	0.000	0.000	120.866
Embraer ERJ 170 10R	CF34-8E5	Approach	0.565	0.008	0.008	0.009	1.440	0.133	0.015	0.015	133.652
		Climb Out	0.041	0.001	0.001	0.001	0.909	0.072	0.001	0.001	71.903
		Takeoff	0.077	0.002	0.002	0.002	1.782	0.120	0.014	0.014	120.678
		Idle	2.454	0.018	0.018	0.019	0.623	0.136	0.015	0.015	135.132
Falcon 20 10R_GA	CF700-2D	Approach	0.713	0.017	0.017	0.018	0.021	0.011	N/A	N/A	11.507
		Climb Out	0.160	0.001	0.001	0.001	0.028	0.007	N/A	N/A	6.391
		Takeoff	0.187	0.001	0.001	0.001	0.047	0.009	N/A	N/A	8.520
		Idle	2.207	0.257	0.257	0.272	0.012	0.014	N/A	N/A	14.239
Falcon 2000EX 10R_Corp	PW308C	Approach	0.120	0.003	0.003	0.003	0.180	0.023	0.002	0.002	22.882
		Climb Out	0.012	0.001	0.001	0.001	0.196	0.012	0.001	0.001	12.252
		Takeoff	0.013	0.001	0.001	0.001	0.294	0.015	0.001	0.001	15.934
		Idle	0.826	0.116	0.116	0.123	0.071	0.020	0.002	0.002	19.529
Gulfstream II 10R_GA	SPEY MK511-8	Approach	0.061	0.004	0.004	0.004	0.165	0.023	N/A	N/A	22.960
		Climb Out	0.011	0.002	0.002	0.002	0.309	0.018	N/A	N/A	17.839
		Takeoff	0.002	0.002	0.002	0.002	0.474	0.021	N/A	N/A	20.880
		Idle	0.991	0.115	0.115	0.122	0.112	0.031	N/A	N/A	31.178
Gulfstream IV 10R_GA	TAY Mk611-8	Approach	0.285	0.066	0.066	0.071	0.418	0.074	0.043	0.043	73.311
		Climb Out	0.026	0.010	0.010	0.011	0.556	0.033	0.020	0.020	33.100
		Takeoff	0.032	0.036	0.036	0.039	0.969	0.046	0.028	0.028	45.920
		Idle	2.517	0.355	0.355	0.377	0.261	0.105	0.062	0.062	104.415
HS 125 10R_Corp	TFE731-3	Approach	0.539	0.049	0.049	0.054	0.240	0.019	N/A	N/A	34.664
		Climb Out	0.024	0.001	0.001	0.001	0.240	0.008	N/A	N/A	15.005
		Takeoff	0.026	0.001	0.001	0.001	0.446	0.012	N/A	N/A	23.336
		Idle	1.712	0.324	0.324	0.358	0.133	0.020	N/A	N/A	35.888
KC-135R 10R_GA	CFM56-2B-1	Approach	0.125	0.002	0.002	0.002	0.244	0.030	0.000	0.000	29.658
		Climb Out	0.031	0.002	0.002	0.002	0.540	0.034	0.001	0.001	33.788
		Takeoff	0.044	0.002	0.002	0.002	0.898	0.049	0.003	0.003	48.587
		Idle	1.307	0.078	0.078	0.086	0.171	0.043	0.000	0.000	42.589
Learjet 25C 10R_GA	CJ610-6	Approach	2.913	0.000	0.000	0.000	0.050	0.018	N/A	N/A	33.107
		Climb Out	0.347	0.002	0.002	0.002	0.043	0.007	N/A	N/A	12.384
		Takeoff	0.522	0.002	0.002	0.002	0.082	0.010	N/A	N/A	19.350
		Idle	7.300	0.848	0.848	0.901	0.042	0.025	N/A	N/A	47.091
Learjet 35/36 10R_GA	TFE 731-2-2B	Approach	0.729	0.139	0.139	0.148	0.192	0.018	N/A	N/A	32.570
		Climb Out	0.030	0.002	0.002	0.002	0.191	0.008	N/A	N/A	14.617
		Takeoff	0.024	0.002	0.002	0.002	0.268	0.010	N/A	N/A	17.558
		Idle	1.766	0.604	0.604	0.643	0.085	0.017	N/A	N/A	30.139
MD-80-83 10R	JT8D-219 old co...	Approach	0.003	0.001	0.001	0.001	0.009	0.001	0.000	0.000	0.937
		Climb Out	0.001	0.000	0.000	0.000	0.017	0.001	0.000	0.000	0.804
		Takeoff	0.001	0.000	0.000	0.000	0.024	0.001	0.000	0.000	0.886
		Idle	0.012	0.003	0.003	0.003	0.003	0.001	0.000	0.000	0.982
Navajo 10R_GA	TIO-540-J2B2	Approach	3.612	0.039	0.039	0.037	0.004	0.000	N/A	N/A	2.867
		Climb Out	3.019	0.034	0.034	0.033	0.000	0.000	N/A	N/A	2.053
		Takeoff	2.012	0.018	0.018	0.017	0.000	0.000	N/A	N/A	1.396
		Idle	1.940	0.103	0.103	0.098	0.001	0.000	N/A	N/A	1.499
Piper PA-28 10R_GA	O-320	Approach	0.719	0.011	0.011	0.011	0.001	0.000	N/A	N/A	0.589
		Climb Out	0.346	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.349
		Takeoff	0.234	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.216
		Idle	0.151	0.006	0.006	0.006	0.000	0.000	N/A	N/A	0.139

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
UC-12J 10R_GA	PT6A-42	Approach	0.470	0.306	0.306	0.338	0.063	0.008	N/A	N/A	13.519
		Climb Out	0.021	0.007	0.007	0.008	0.024	0.002	N/A	N/A	3.217
		Takeoff	0.013	0.004	0.004	0.004	0.020	0.001	N/A	N/A	2.518
		Idle	1.089	0.960	0.960	1.060	0.019	0.006	N/A	N/A	9.461
Aztec 28L_GA	TIO-540-J2B2	Approach	17.008	0.181	0.181	0.174	0.019	0.001	N/A	N/A	13.498
		Climb Out	14.214	0.161	0.161	0.154	0.002	0.001	N/A	N/A	9.663
		Takeoff	9.474	0.082	0.082	0.078	0.002	0.001	N/A	N/A	6.570
		Idle	9.135	0.481	0.481	0.464	0.002	0.001	N/A	N/A	7.059
B737-300 28L	CFM56-3-B1	Approach	2.423	0.051	0.051	0.056	5.291	0.637	0.008	0.008	637.480
		Climb Out	0.312	0.017	0.017	0.018	5.082	0.327	0.004	0.004	327.877
		Takeoff	0.387	0.018	0.018	0.019	7.615	0.430	0.012	0.012	430.242
		Idle	25.129	1.666	1.666	1.823	2.849	0.731	0.008	0.008	730.516
B737-300 28L	CFM56-3B-2	Approach	0.428	0.009	0.009	0.010	1.093	0.126	0.001	0.001	125.740
		Climb Out	0.060	0.003	0.003	0.003	1.106	0.066	0.001	0.001	66.215
		Takeoff	0.078	0.003	0.003	0.003	1.698	0.087	0.006	0.006	87.490
		Idle	4.181	0.244	0.244	0.266	0.570	0.139	0.001	0.001	138.914
B737-300 28L	CFM56-3C-1 (Re...	Approach	0.233	0.004	0.004	0.004	0.443	0.055	0.001	0.001	55.410
		Climb Out	0.028	0.001	0.001	0.001	0.411	0.028	0.000	0.000	27.980
		Takeoff	0.033	0.002	0.002	0.002	0.607	0.036	0.001	0.001	36.618
		Idle	2.502	0.187	0.187	0.206	0.249	0.066	0.001	0.001	65.675
B737-500 28L	CFM56-3C-1	Approach	0.317	0.008	0.008	0.008	0.933	0.103	0.001	0.001	102.497
		Climb Out	0.055	0.002	0.002	0.002	1.090	0.062	0.002	0.002	61.228
		Takeoff	0.073	0.002	0.002	0.002	1.666	0.080	0.008	0.008	80.464
		Idle	2.897	0.153	0.153	0.168	0.465	0.108	0.001	0.001	108.075
B737-700 28L	CFM56-7B22	Approach	1.868	0.075	0.075	0.082	7.474	0.747	0.158	0.158	747.362
		Climb Out	0.270	0.045	0.045	0.050	8.537	0.450	0.095	0.095	449.323
		Takeoff	0.321	0.064	0.064	0.071	14.825	0.642	0.134	0.134	641.784
		Idle	17.137	1.879	1.879	2.057	3.382	0.752	0.158	0.158	751.608
B737-800 28L	CFM56-7B26	Approach	0.008	0.000	0.000	0.000	0.053	0.004	0.001	0.001	4.914
		Climb Out	0.002	0.000	0.000	0.000	0.077	0.003	0.001	0.001	3.411
		Takeoff	0.001	0.000	0.000	0.000	0.139	0.004	0.001	0.001	4.825
		Idle	0.089	0.009	0.009	0.010	0.022	0.004	0.001	0.001	4.755
B757-300 28L	PW2043	Approach	0.071	0.004	0.004	0.006	0.573	0.054	N/A	N/A	53.535
		Climb Out	0.014	0.001	0.001	0.001	1.013	0.036	N/A	N/A	36.332
		Takeoff	0.014	0.000	0.000	0.000	1.864	0.050	N/A	N/A	49.355
		Idle	0.928	0.075	0.075	0.082	0.213	0.049	N/A	N/A	48.043
Bombardier CRJ700 28L	CF34-8C1	Approach	0.031	0.001	0.001	0.001	0.117	0.011	0.000	0.000	10.524
		Climb Out	0.003	0.000	0.000	0.000	0.072	0.006	0.000	0.000	5.626
		Takeoff	0.004	0.000	0.000	0.000	0.139	0.010	0.000	0.000	9.437
		Idle	0.304	0.001	0.001	0.001	0.053	0.012	0.001	0.001	12.215
CITATION I SP 28L_GA	JT15D-1A _1B	Approach	0.484	0.053	0.053	0.056	0.041	0.007	0.003	0.003	11.940
		Climb Out	0.025	0.000	0.000	0.000	0.049	0.003	0.002	0.002	7.135
		Takeoff	0.021	0.000	0.000	0.000	0.061	0.004	0.002	0.002	7.929
		Idle	1.637	0.626	0.626	0.666	0.022	0.007	0.004	0.004	12.401
CL600 28L_GA	ALF 502L-2	Approach	0.227	0.010	0.010	0.011	0.369	0.031	0.007	0.007	57.086
		Climb Out	0.009	0.001	0.001	0.001	0.358	0.017	0.007	0.007	29.799
		Takeoff	0.017	0.001	0.001	0.001	0.547	0.022	0.004	0.004	40.702
		Idle	2.867	0.418	0.418	0.444	0.213	0.034	0.001	0.001	62.824
Cessna 172 Skyhawk 28L_GA	O-320	Approach	7.229	0.115	0.115	0.111	0.006	0.001	N/A	N/A	5.926
		Climb Out	3.898	0.049	0.049	0.047	0.015	0.000	N/A	N/A	3.937
		Takeoff	2.944	0.032	0.032	0.031	0.006	0.000	N/A	N/A	2.726
		Idle	1.926	0.066	0.066	0.064	0.001	0.000	N/A	N/A	1.782
Cessna 441 Conqu... 28L_GA	TPE331-8	Approach	0.065	0.003	0.003	0.003	0.142	0.015	N/A	N/A	15.030
		Climb Out	0.006	0.000	0.000	0.000	0.034	0.003	N/A	N/A	3.183
		Takeoff	0.006	0.000	0.000	0.000	0.041	0.003	N/A	N/A	3.672
		Idle	0.209	0.017	0.017	0.018	0.046	0.011	N/A	N/A	11.160
DC9-30 28L	JT8D-15 (old co...	Approach	0.640	0.110	0.110	0.120	0.394	0.066	0.049	0.049	66.668
		Climb Out	0.058	0.014	0.014	0.017	0.884	0.058	0.043	0.043	58.906
		Takeoff	0.044	0.015	0.015	0.017	1.190	0.063	0.045	0.045	62.322
		Idle	2.993	0.935	0.935	1.024	0.255	0.085	0.062	0.062	85.028
Embraer ERJ 135/1... 28L	AE3007A1/3 (Ty...	Approach	0.460	0.002	0.002	0.002	0.419	0.061	0.000	0.000	60.375
		Climb Out	0.030	0.002	0.002	0.002	0.814	0.061	0.000	0.000	60.341
		Takeoff	0.021	0.001	0.001	0.001	0.645	0.042	0.000	0.000	41.833
		Idle	2.627	0.260	0.260	0.277	0.292	0.068	0.000	0.000	68.284
Embraer ERJ 145 28L	AE3007A	Approach	0.060	0.012	0.012	0.012	0.142	0.019	0.000	0.000	18.195
		Climb Out	0.017	0.006	0.006	0.006	0.308	0.018	0.000	0.000	17.582
		Takeoff	0.009	0.003	0.003	0.003	0.250	0.012	0.000	0.000	12.189
		Idle	0.358	0.052	0.052	0.055	0.079	0.021	0.000	0.000	20.672
Embraer ERJ 145 28L	AE3007A1E	Approach	0.211	0.001	0.001	0.001	0.278	0.037	0.000	0.000	37.387
		Climb Out	0.024	0.001	0.001	0.001	0.571	0.039	0.000	0.000	38.299

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.021	0.001	0.001	0.001	0.459	0.026	0.000	0.000	26.702
		Idle	1.524	0.141	0.141	0.150	0.171	0.040	0.000	0.000	40.147
Embraer ERJ 145LR 28L	AE3007A1/1 (Ty...	Approach	1.078	0.004	0.004	0.006	1.129	0.159	0.000	0.000	158.583
		Climb Out	0.083	0.004	0.004	0.004	2.099	0.150	0.000	0.000	149.792
		Takeoff	0.096	0.004	0.004	0.004	2.086	0.129	0.000	0.000	129.515
		Idle	7.452	0.722	0.722	0.767	0.775	0.186	0.000	0.000	185.953
Embraer ERJ 145LR 28L	AE3007A1/3 (Ty...	Approach	1.584	0.007	0.007	0.007	1.441	0.208	0.000	0.000	207.888
		Climb Out	0.104	0.007	0.007	0.007	2.803	0.207	0.000	0.000	207.768
		Takeoff	0.072	0.004	0.004	0.004	2.221	0.144	0.000	0.000	144.041
		Idle	9.046	0.896	0.896	0.952	1.004	0.235	0.000	0.000	235.121
Embraer ERJ 145LR 28L	AE3007A1P (Typ...	Approach	0.405	0.002	0.002	0.002	0.424	0.060	0.000	0.000	59.528
		Climb Out	0.031	0.002	0.002	0.002	0.787	0.056	0.000	0.000	56.178
		Takeoff	0.036	0.001	0.001	0.001	0.783	0.049	0.000	0.000	48.587
		Idle	2.793	0.270	0.270	0.287	0.291	0.069	0.000	0.000	69.893
Embraer ERJ 170 28L	CF34-8E5	Approach	0.892	0.012	0.012	0.014	2.270	0.211	0.024	0.024	210.745
		Climb Out	0.065	0.002	0.002	0.002	1.434	0.114	0.001	0.001	113.377
		Takeoff	0.121	0.003	0.003	0.004	2.811	0.191	0.022	0.022	190.288
		Idle	3.869	0.028	0.028	0.031	0.982	0.213	0.024	0.024	213.078
Falcon 20 28L_GA	CF700-2D	Approach	1.572	0.035	0.035	0.037	0.045	0.025	N/A	N/A	25.355
		Climb Out	0.352	0.001	0.001	0.001	0.061	0.014	N/A	N/A	14.082
		Takeoff	0.413	0.002	0.002	0.002	0.105	0.019	N/A	N/A	18.775
		Idle	4.863	0.564	0.564	0.601	0.028	0.031	N/A	N/A	31.374
Gulfstream II 28L_GA	SPEY MK511-8	Approach	0.134	0.009	0.009	0.010	0.364	0.051	N/A	N/A	50.592
		Climb Out	0.024	0.004	0.004	0.006	0.680	0.040	N/A	N/A	39.308
		Takeoff	0.006	0.004	0.004	0.004	1.044	0.046	N/A	N/A	46.008
		Idle	2.183	0.254	0.254	0.269	0.247	0.068	N/A	N/A	68.699
HS 125 28L_Corp	TFE731-3	Approach	0.858	0.077	0.077	0.086	0.381	0.030	N/A	N/A	55.112
		Climb Out	0.039	0.002	0.002	0.002	0.383	0.013	N/A	N/A	23.855
		Takeoff	0.042	0.002	0.002	0.002	0.711	0.020	N/A	N/A	37.102
		Idle	2.722	0.516	0.516	0.570	0.213	0.031	N/A	N/A	57.058
KC-135R 28L_GA	CFM56-2B-1	Approach	0.225	0.004	0.004	0.004	0.439	0.054	0.001	0.001	53.543
		Climb Out	0.055	0.003	0.003	0.003	0.976	0.061	0.001	0.001	60.997
		Takeoff	0.079	0.003	0.003	0.004	1.623	0.088	0.006	0.006	87.713
		Idle	2.360	0.141	0.141	0.155	0.308	0.077	0.001	0.001	76.886
Learjet 25C 28L_GA	CJ610-6	Approach	4.715	0.000	0.000	0.000	0.080	0.029	N/A	N/A	53.573
		Climb Out	0.561	0.004	0.004	0.004	0.071	0.011	N/A	N/A	20.040
		Takeoff	0.845	0.003	0.003	0.003	0.131	0.017	N/A	N/A	31.313
		Idle	11.811	1.371	1.371	1.458	0.068	0.041	N/A	N/A	76.203
Learjet 35/36 28L_GA	TFE 731-2-2B	Approach	1.571	0.299	0.299	0.317	0.414	0.037	N/A	N/A	70.165
		Climb Out	0.064	0.004	0.004	0.004	0.412	0.017	N/A	N/A	31.490
		Takeoff	0.053	0.004	0.004	0.004	0.577	0.021	N/A	N/A	37.826
		Idle	3.805	1.301	1.301	1.383	0.183	0.035	N/A	N/A	64.928
MD-80-83 28L	JT8D-219 old co...	Approach	0.007	0.002	0.002	0.002	0.013	0.001	0.000	0.000	1.498
		Climb Out	0.001	0.000	0.000	0.001	0.026	0.001	0.000	0.000	1.286
		Takeoff	0.001	0.000	0.000	0.000	0.039	0.001	0.000	0.000	1.419
		Idle	0.020	0.006	0.006	0.006	0.006	0.001	0.000	0.000	1.572
Navajo 28L_GA	TIO-540-J2B2	Approach	7.971	0.085	0.085	0.082	0.009	0.001	N/A	N/A	6.326
		Climb Out	6.662	0.075	0.075	0.073	0.001	0.000	N/A	N/A	4.529
		Takeoff	4.440	0.039	0.039	0.036	0.001	0.000	N/A	N/A	3.080
		Idle	4.281	0.225	0.225	0.217	0.001	0.000	N/A	N/A	3.309
Piper PA-28 28L_GA	O-320	Approach	1.581	0.025	0.025	0.024	0.001	0.000	N/A	N/A	1.295
		Climb Out	0.761	0.010	0.010	0.009	0.003	0.000	N/A	N/A	0.768
		Takeoff	0.514	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.476
		Idle	0.331	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.306
UC-12J 28L_GA	PT6A-42	Approach	0.891	0.581	0.581	0.642	0.119	0.014	N/A	N/A	25.616
		Climb Out	0.040	0.012	0.012	0.013	0.046	0.003	N/A	N/A	6.094
		Takeoff	0.024	0.009	0.009	0.009	0.039	0.002	N/A	N/A	4.771
		Idle	2.064	1.819	1.819	2.010	0.035	0.010	N/A	N/A	17.927
550 Citation 28L_Corp	JT15D-4 (B,C,D)	Approach	2.271	0.366	0.366	0.389	0.376	0.039	0.020	0.020	70.976
		Climb Out	0.121	0.008	0.008	0.008	0.325	0.021	0.011	0.011	38.019
		Takeoff	0.087	0.003	0.003	0.004	0.384	0.022	0.012	0.012	41.544
		Idle	7.217	2.976	2.976	3.164	0.196	0.040	0.021	0.021	74.406
Falcon 2000EX 28L_Corp	PW308C	Approach	0.183	0.004	0.004	0.006	0.274	0.035	0.003	0.003	34.999
		Climb Out	0.018	0.002	0.002	0.002	0.300	0.019	0.002	0.002	18.741
		Takeoff	0.020	0.002	0.002	0.002	0.450	0.024	0.002	0.002	24.373
		Idle	1.263	0.177	0.177	0.188	0.108	0.030	0.003	0.003	29.870
550 Citation 28L_GA	JT15D-4 (B,C,D)	Approach	1.730	0.278	0.278	0.295	0.285	0.029	0.015	0.015	54.034
		Climb Out	0.091	0.006	0.006	0.006	0.248	0.015	0.008	0.008	28.943
		Takeoff	0.066	0.003	0.003	0.003	0.292	0.017	0.009	0.009	31.628
		Idle	5.495	2.266	2.266	2.409	0.149	0.031	0.015	0.015	56.646

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV 28L_GA	TAY Mk611-8	Approach	0.521	0.120	0.120	0.128	0.762	0.133	0.079	0.079	133.666
		Climb Out	0.049	0.018	0.018	0.019	1.014	0.061	0.035	0.035	60.352
		Takeoff	0.058	0.067	0.067	0.072	1.767	0.084	0.050	0.050	83.725
		Idle	4.588	0.647	0.647	0.688	0.476	0.191	0.112	0.112	190.377
Aztec 28R_GA	TIO-540-J2B2	Approach	16.667	0.177	0.177	0.171	0.019	0.001	N/A	N/A	13.228
		Climb Out	13.930	0.158	0.158	0.152	0.002	0.001	N/A	N/A	9.470
		Takeoff	9.285	0.079	0.079	0.077	0.002	0.001	N/A	N/A	6.439
		Idle	8.952	0.471	0.471	0.454	0.002	0.001	N/A	N/A	6.918
B737-300 28R	CFM56-3-B1	Approach	0.367	0.008	0.008	0.009	0.801	0.097	0.001	0.001	96.605
		Climb Out	0.047	0.002	0.002	0.002	0.771	0.050	0.001	0.001	49.688
		Takeoff	0.058	0.002	0.002	0.003	1.154	0.065	0.002	0.002	65.200
		Idle	3.808	0.252	0.252	0.277	0.432	0.110	0.001	0.001	110.704
B737-300 28R	CFM56-3B-2	Approach	0.065	0.001	0.001	0.001	0.168	0.019	0.000	0.000	19.261
		Climb Out	0.009	0.000	0.000	0.000	0.170	0.010	0.000	0.000	10.142
		Takeoff	0.012	0.000	0.000	0.000	0.260	0.013	0.001	0.001	13.402
		Idle	0.640	0.037	0.037	0.041	0.087	0.021	0.000	0.000	21.278
B737-300 28R	CFM56-3C-1 (Re...	Approach	0.041	0.001	0.001	0.001	0.077	0.010	0.000	0.000	9.666
		Climb Out	0.004	0.000	0.000	0.000	0.072	0.004	0.000	0.000	4.881
		Takeoff	0.006	0.000	0.000	0.000	0.106	0.007	0.000	0.000	6.388
		Idle	0.437	0.033	0.033	0.036	0.043	0.011	0.000	0.000	11.456
B737-500 28R	CFM56-3C-1	Approach	0.046	0.001	0.001	0.001	0.137	0.015	0.000	0.000	15.058
		Climb Out	0.008	0.000	0.000	0.000	0.160	0.009	0.000	0.000	8.995
		Takeoff	0.011	0.000	0.000	0.000	0.245	0.012	0.001	0.001	11.821
		Idle	0.425	0.022	0.022	0.024	0.068	0.015	0.000	0.000	15.878
B737-700 28R	CFM56-7B22	Approach	0.308	0.012	0.012	0.013	1.228	0.122	0.025	0.025	122.839
		Climb Out	0.044	0.008	0.008	0.008	1.403	0.074	0.015	0.015	73.853
		Takeoff	0.053	0.011	0.011	0.011	2.437	0.106	0.022	0.022	105.486
		Idle	2.816	0.309	0.309	0.338	0.556	0.123	0.026	0.026	123.537
B737-800 28R	CFM56-7B26	Approach	0.001	0.000	0.000	0.000	0.009	0.001	0.000	0.000	0.848
		Climb Out	0.000	0.000	0.000	0.000	0.013	0.001	0.000	0.000	0.588
		Takeoff	0.000	0.000	0.000	0.000	0.024	0.001	0.000	0.000	0.832
		Idle	0.015	0.001	0.001	0.002	0.003	0.001	0.000	0.000	0.820
B757-300 28R	PW2043	Approach	0.012	0.001	0.001	0.001	0.098	0.009	N/A	N/A	9.184
		Climb Out	0.002	0.000	0.000	0.000	0.174	0.007	N/A	N/A	6.234
		Takeoff	0.002	0.000	0.000	0.000	0.320	0.009	N/A	N/A	8.468
		Idle	0.159	0.013	0.013	0.014	0.036	0.008	N/A	N/A	8.243
Bombardier CRJ700 28R	CF34-8C1	Approach	0.032	0.001	0.001	0.001	0.120	0.011	0.000	0.000	10.865
		Climb Out	0.003	0.000	0.000	0.000	0.075	0.006	0.000	0.000	5.809
		Takeoff	0.004	0.000	0.000	0.000	0.143	0.010	0.000	0.000	9.744
		Idle	0.314	0.001	0.001	0.001	0.054	0.012	0.001	0.001	12.612
CITATION I SP 28R_GA	JT15D-1A _1B	Approach	0.172	0.019	0.019	0.020	0.014	0.002	0.001	0.001	4.235
		Climb Out	0.009	0.000	0.000	0.000	0.018	0.001	0.001	0.001	2.531
		Takeoff	0.008	0.000	0.000	0.000	0.021	0.001	0.001	0.001	2.812
		Idle	0.581	0.223	0.223	0.236	0.008	0.002	0.001	0.001	4.398
CL600 28R_GA	ALF 502L-2	Approach	0.244	0.011	0.011	0.012	0.397	0.033	0.008	0.008	61.325
		Climb Out	0.010	0.001	0.001	0.001	0.385	0.018	0.008	0.008	32.011
		Takeoff	0.018	0.001	0.001	0.001	0.588	0.023	0.004	0.004	43.723
		Idle	3.080	0.449	0.449	0.477	0.228	0.036	0.001	0.001	67.488
Cessna 172 Skyhawk 28R_GA	O-320	Approach	5.947	0.095	0.095	0.091	0.004	0.000	N/A	N/A	4.874
		Climb Out	3.207	0.040	0.040	0.039	0.013	0.000	N/A	N/A	3.239
		Takeoff	2.422	0.026	0.026	0.025	0.004	0.000	N/A	N/A	2.242
		Idle	1.584	0.054	0.054	0.052	0.001	0.000	N/A	N/A	1.466
Cessna 441 Conqu... 28R_GA	TPE331-8	Approach	0.026	0.001	0.001	0.001	0.058	0.007	N/A	N/A	6.122
		Climb Out	0.002	0.000	0.000	0.000	0.014	0.001	N/A	N/A	1.296
		Takeoff	0.002	0.000	0.000	0.000	0.017	0.001	N/A	N/A	1.496
		Idle	0.086	0.007	0.007	0.007	0.019	0.004	N/A	N/A	4.546
DC9-30 28R	JT8D-15 (old co...	Approach	0.084	0.014	0.014	0.015	0.052	0.009	0.007	0.007	8.755
		Climb Out	0.008	0.002	0.002	0.002	0.116	0.008	0.006	0.006	7.735
		Takeoff	0.006	0.002	0.002	0.002	0.157	0.008	0.006	0.006	8.184
		Idle	0.394	0.122	0.122	0.134	0.033	0.011	0.008	0.008	11.165
Embraer ERJ 135/1... 28R	AE3007A1/3 (Ty...	Approach	0.483	0.002	0.002	0.002	0.440	0.064	0.000	0.000	63.426
		Climb Out	0.032	0.002	0.002	0.002	0.855	0.064	0.000	0.000	63.388
		Takeoff	0.022	0.001	0.001	0.001	0.678	0.044	0.000	0.000	43.946
		Idle	2.759	0.273	0.273	0.291	0.306	0.072	0.000	0.000	71.734
Embraer ERJ 145 28R	AE3007A	Approach	0.063	0.012	0.012	0.013	0.149	0.019	0.000	0.000	19.133
		Climb Out	0.017	0.006	0.006	0.006	0.323	0.019	0.000	0.000	18.488
		Takeoff	0.010	0.003	0.003	0.003	0.263	0.013	0.000	0.000	12.818
		Idle	0.377	0.054	0.054	0.058	0.084	0.022	0.000	0.000	21.738
Embraer ERJ 145 28R	AE3007A1E	Approach	0.222	0.001	0.001	0.001	0.292	0.040	0.000	0.000	39.311
		Climb Out	0.025	0.001	0.001	0.001	0.601	0.041	0.000	0.000	40.270

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.022	0.001	0.001	0.001	0.482	0.028	0.000	0.000	28.076
		Idle	1.603	0.149	0.149	0.158	0.180	0.042	0.000	0.000	42.213
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	1.134	0.006	0.006	0.006	1.187	0.166	0.000	0.000	166.747
28R		Climb Out	0.087	0.004	0.004	0.006	2.207	0.158	0.000	0.000	157.504
		Takeoff	0.100	0.004	0.004	0.004	2.192	0.137	0.000	0.000	136.183
		Idle	7.835	0.758	0.758	0.807	0.816	0.195	0.000	0.000	195.527
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	1.666	0.007	0.007	0.007	1.516	0.218	0.000	0.000	218.651
28R		Climb Out	0.109	0.007	0.007	0.007	2.948	0.218	0.000	0.000	218.524
		Takeoff	0.076	0.004	0.004	0.004	2.336	0.151	0.000	0.000	151.498
		Idle	9.513	0.942	0.942	1.002	1.056	0.247	0.000	0.000	247.293
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.425	0.002	0.002	0.002	0.445	0.063	0.000	0.000	62.593
28R		Climb Out	0.032	0.002	0.002	0.002	0.828	0.060	0.000	0.000	59.071
		Takeoff	0.037	0.001	0.001	0.001	0.822	0.051	0.000	0.000	51.088
		Idle	2.938	0.283	0.283	0.302	0.306	0.074	0.000	0.000	73.491
Embraer ERJ 170	CF34-8E5	Approach	0.924	0.013	0.013	0.014	2.352	0.218	0.025	0.025	218.445
28R		Climb Out	0.067	0.002	0.002	0.002	1.487	0.118	0.001	0.001	117.520
		Takeoff	0.127	0.004	0.004	0.004	2.913	0.197	0.023	0.023	197.240
		Idle	4.011	0.029	0.029	0.032	1.019	0.220	0.025	0.025	220.864
Falcon 20	CF700-2D	Approach	0.548	0.012	0.012	0.013	0.015	0.009	N/A	N/A	8.831
28R_GA		Climb Out	0.122	0.000	0.000	0.000	0.021	0.004	N/A	N/A	4.904
		Takeoff	0.144	0.001	0.001	0.001	0.036	0.007	N/A	N/A	6.539
		Idle	1.694	0.196	0.196	0.209	0.010	0.011	N/A	N/A	10.927
Gulfstream II	SPEY MK511-8	Approach	0.046	0.003	0.003	0.003	0.127	0.018	N/A	N/A	17.620
28R_GA		Climb Out	0.009	0.001	0.001	0.002	0.237	0.013	N/A	N/A	13.691
		Takeoff	0.002	0.001	0.001	0.001	0.364	0.017	N/A	N/A	16.024
		Idle	0.761	0.088	0.088	0.094	0.086	0.024	N/A	N/A	23.927
HS 125	TFE731-3	Approach	0.883	0.080	0.080	0.088	0.392	0.031	N/A	N/A	56.723
28R_Corp		Climb Out	0.040	0.002	0.002	0.002	0.394	0.013	N/A	N/A	24.553
		Takeoff	0.043	0.002	0.002	0.002	0.731	0.021	N/A	N/A	38.186
		Idle	2.801	0.531	0.531	0.586	0.218	0.032	N/A	N/A	58.727
KC-135R	CFM56-2B-1	Approach	0.039	0.001	0.001	0.001	0.075	0.009	0.000	0.000	9.187
28R_GA		Climb Out	0.010	0.000	0.000	0.001	0.168	0.010	0.000	0.000	10.465
		Takeoff	0.013	0.001	0.001	0.001	0.279	0.015	0.001	0.001	15.049
		Idle	0.405	0.024	0.024	0.026	0.053	0.013	0.000	0.000	13.191
Learjet 25C	CJ610-6	Approach	4.737	0.000	0.000	0.000	0.080	0.029	N/A	N/A	53.830
28R_GA		Climb Out	0.563	0.004	0.004	0.004	0.071	0.011	N/A	N/A	20.136
		Takeoff	0.850	0.003	0.003	0.003	0.132	0.017	N/A	N/A	31.463
		Idle	11.867	1.378	1.378	1.465	0.069	0.042	N/A	N/A	76.568
Learjet 35/36	TFE 731-2-2B	Approach	0.550	0.105	0.105	0.111	0.144	0.013	N/A	N/A	24.567
28R_GA		Climb Out	0.022	0.001	0.001	0.001	0.144	0.006	N/A	N/A	11.025
		Takeoff	0.019	0.001	0.001	0.001	0.202	0.007	N/A	N/A	13.244
		Idle	1.333	0.455	0.455	0.484	0.064	0.012	N/A	N/A	22.734
MD-80-83	JT8D-219 old co...	Approach	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.187
28R		Climb Out	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.161
		Takeoff	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.177
		Idle	0.002	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.196
Navajo	TIO-540-J2B2	Approach	12.451	0.132	0.132	0.128	0.013	0.001	N/A	N/A	9.881
28R_GA		Climb Out	10.406	0.118	0.118	0.114	0.002	0.001	N/A	N/A	7.074
		Takeoff	6.936	0.060	0.060	0.057	0.002	0.000	N/A	N/A	4.809
		Idle	6.688	0.352	0.352	0.340	0.002	0.001	N/A	N/A	5.168
Piper PA-28	O-320	Approach	0.645	0.010	0.010	0.010	0.000	0.000	N/A	N/A	0.528
28R_GA		Climb Out	0.310	0.004	0.004	0.003	0.001	0.000	N/A	N/A	0.313
		Takeoff	0.209	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.194
		Idle	0.134	0.004	0.004	0.004	0.000	0.000	N/A	N/A	0.125
UC-12J	PT6A-42	Approach	0.395	0.258	0.258	0.284	0.053	0.007	N/A	N/A	11.347
28R_GA		Climb Out	0.018	0.006	0.006	0.006	0.020	0.001	N/A	N/A	2.700
		Takeoff	0.011	0.003	0.003	0.004	0.017	0.001	N/A	N/A	2.113
		Idle	0.914	0.806	0.806	0.890	0.015	0.004	N/A	N/A	7.941
550 Citation	JT15D-4 (B,C,D)	Approach	2.358	0.379	0.379	0.403	0.390	0.040	0.021	0.021	73.686
28R_Corp		Climb Out	0.126	0.008	0.008	0.008	0.338	0.021	0.011	0.011	39.470
		Takeoff	0.090	0.004	0.004	0.004	0.398	0.023	0.012	0.012	43.130
		Idle	7.494	3.090	3.090	3.285	0.203	0.042	0.022	0.022	77.248
Falcon 2000EX	PW308C	Approach	0.193	0.006	0.006	0.006	0.289	0.036	0.003	0.003	36.881
28R_Corp		Climb Out	0.019	0.002	0.002	0.002	0.315	0.020	0.002	0.002	19.749
		Takeoff	0.021	0.002	0.002	0.002	0.474	0.025	0.002	0.002	25.684
		Idle	1.332	0.187	0.187	0.198	0.115	0.032	0.003	0.003	31.476
550 Citation	JT15D-4 (B,C,D)	Approach	0.604	0.097	0.097	0.104	0.100	0.010	0.006	0.006	18.867
28R_GA		Climb Out	0.032	0.002	0.002	0.002	0.086	0.006	0.003	0.003	10.106
		Takeoff	0.023	0.001	0.001	0.001	0.101	0.006	0.003	0.003	11.043
		Idle	1.919	0.791	0.791	0.841	0.052	0.011	0.006	0.006	19.779

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV	TAY Mk611-8	Approach	0.330	0.076	0.076	0.080	0.482	0.085	0.050	0.050	84.497
28R_GA		Climb Out	0.031	0.011	0.011	0.012	0.640	0.039	0.022	0.022	38.151
		Takeoff	0.037	0.042	0.042	0.045	1.117	0.053	0.031	0.031	52.926
		Idle	2.900	0.409	0.409	0.435	0.301	0.120	0.071	0.071	120.346
Citation VII	TFE 731-2-2B	Approach	0.182	0.034	0.034	0.036	0.047	0.004	N/A	N/A	8.109
10L_GA		Climb Out	0.009	0.000	0.000	0.001	0.053	0.002	N/A	N/A	4.074
		Takeoff	0.008	0.001	0.001	0.001	0.080	0.003	N/A	N/A	5.277
		Idle	0.417	0.142	0.142	0.151	0.020	0.003	N/A	N/A	7.110
Citation VII	TFE 731-2-2B	Approach	0.259	0.050	0.050	0.052	0.068	0.007	N/A	N/A	11.556
10R_GA		Climb Out	0.012	0.001	0.001	0.001	0.076	0.003	N/A	N/A	5.806
		Takeoff	0.011	0.001	0.001	0.001	0.115	0.004	N/A	N/A	7.520
		Idle	0.594	0.203	0.203	0.216	0.029	0.006	N/A	N/A	10.134
Citation VII	TFE 731-2-2B	Approach	0.418	0.079	0.079	0.085	0.110	0.010	N/A	N/A	18.685
28L_GA		Climb Out	0.019	0.001	0.001	0.001	0.122	0.006	N/A	N/A	9.387
		Takeoff	0.017	0.001	0.001	0.001	0.185	0.007	N/A	N/A	12.158
		Idle	0.960	0.328	0.328	0.349	0.046	0.009	N/A	N/A	16.385
Citation VII	TFE 731-2-2B	Approach	0.422	0.080	0.080	0.085	0.111	0.010	N/A	N/A	18.842
28R_GA		Climb Out	0.019	0.001	0.001	0.001	0.123	0.006	N/A	N/A	9.467
		Takeoff	0.018	0.001	0.001	0.001	0.187	0.007	N/A	N/A	12.261
		Idle	0.968	0.331	0.331	0.352	0.046	0.009	N/A	N/A	16.523
HS 748 2A SERIES	RDa7	Approach	0.154	0.014	0.014	0.015	0.004	0.004	N/A	N/A	4.644
10L_GA		Climb Out	0.011	0.003	0.003	0.004	0.014	0.003	N/A	N/A	3.240
		Takeoff	0.007	0.002	0.002	0.002	0.012	0.002	N/A	N/A	2.083
		Idle	0.514	0.134	0.134	0.149	0.004	0.006	N/A	N/A	5.622
HS 748 2A SERIES	RDa7	Approach	0.360	0.032	0.032	0.036	0.010	0.011	N/A	N/A	10.837
10R_GA		Climb Out	0.026	0.009	0.009	0.009	0.034	0.008	N/A	N/A	7.560
		Takeoff	0.015	0.004	0.004	0.006	0.028	0.004	N/A	N/A	4.862
		Idle	1.199	0.313	0.313	0.346	0.009	0.013	N/A	N/A	13.116
HS 748 2A SERIES	RDa7	Approach	0.594	0.054	0.054	0.060	0.017	0.018	N/A	N/A	17.835
28L_GA		Climb Out	0.044	0.013	0.013	0.015	0.056	0.012	N/A	N/A	12.441
		Takeoff	0.025	0.008	0.008	0.009	0.045	0.008	N/A	N/A	8.002
		Idle	1.973	0.516	0.516	0.570	0.015	0.022	N/A	N/A	21.587
HS 748 2A SERIES	RDa7	Approach	0.396	0.035	0.035	0.040	0.011	0.012	N/A	N/A	11.891
28R_GA		Climb Out	0.029	0.009	0.009	0.010	0.037	0.009	N/A	N/A	8.294
		Takeoff	0.017	0.006	0.006	0.006	0.030	0.006	N/A	N/A	5.334
		Idle	1.315	0.344	0.344	0.380	0.010	0.014	N/A	N/A	14.391
Learjet 25B	CJ610-6	Approach	1.456	0.000	0.000	0.000	0.025	0.009	N/A	N/A	16.553
10L_GA		Climb Out	0.173	0.001	0.001	0.001	0.022	0.003	N/A	N/A	6.192
		Takeoff	0.261	0.001	0.001	0.001	0.041	0.006	N/A	N/A	9.675
		Idle	3.650	0.423	0.423	0.451	0.021	0.013	N/A	N/A	23.545
Learjet 25B	CJ610-6	Approach	5.347	0.000	0.000	0.000	0.091	0.033	N/A	N/A	60.759
10R_GA		Climb Out	0.636	0.004	0.004	0.004	0.079	0.012	N/A	N/A	22.729
		Takeoff	0.959	0.003	0.003	0.003	0.149	0.019	N/A	N/A	35.513
		Idle	13.395	1.555	1.555	1.653	0.078	0.046	N/A	N/A	86.425
Learjet 25B	CJ610-6	Approach	11.772	0.000	0.000	0.000	0.201	0.073	N/A	N/A	133.773
28L_GA		Climb Out	1.401	0.010	0.010	0.011	0.175	0.028	N/A	N/A	50.041
		Takeoff	2.111	0.008	0.008	0.009	0.328	0.042	N/A	N/A	78.189
		Idle	29.493	3.425	3.425	3.641	0.171	0.103	N/A	N/A	190.279
Learjet 25B	CJ610-6	Approach	4.093	0.000	0.000	0.000	0.069	0.025	N/A	N/A	46.515
28R_GA		Climb Out	0.487	0.003	0.003	0.003	0.061	0.010	N/A	N/A	17.400
		Takeoff	0.734	0.002	0.002	0.003	0.115	0.014	N/A	N/A	27.189
		Idle	10.256	1.190	1.190	1.267	0.060	0.035	N/A	N/A	66.164
Bombardier CRJ900	CF34-8C5	Approach	0.067	0.001	0.001	0.001	0.172	0.015	0.002	0.002	15.979
10L		Climb Out	0.004	0.000	0.000	0.000	0.108	0.009	0.000	0.000	8.584
		Takeoff	0.009	0.000	0.000	0.000	0.212	0.014	0.001	0.001	14.403
		Idle	0.295	0.002	0.002	0.002	0.075	0.017	0.002	0.002	16.194
Bombardier CRJ900	CF34-8C5	Approach	0.101	0.001	0.001	0.001	0.257	0.024	0.002	0.002	23.923
10R		Climb Out	0.008	0.000	0.000	0.000	0.162	0.013	0.000	0.000	12.851
		Takeoff	0.014	0.000	0.000	0.000	0.316	0.022	0.002	0.002	21.562
		Idle	0.442	0.003	0.003	0.003	0.111	0.024	0.002	0.002	24.245
Bombardier CRJ900	CF34-8C5	Approach	0.160	0.002	0.002	0.002	0.406	0.037	0.004	0.004	37.712
28L		Climb Out	0.011	0.000	0.000	0.000	0.256	0.020	0.000	0.000	20.256
		Takeoff	0.022	0.001	0.001	0.001	0.499	0.034	0.003	0.003	33.990
		Idle	0.698	0.006	0.006	0.006	0.175	0.039	0.004	0.004	38.218
Bombardier CRJ900	CF34-8C5	Approach	0.165	0.002	0.002	0.002	0.420	0.039	0.004	0.004	39.081
28R		Climb Out	0.012	0.000	0.000	0.000	0.265	0.021	0.000	0.000	20.992
		Takeoff	0.022	0.001	0.001	0.001	0.517	0.035	0.003	0.003	35.224
		Idle	0.723	0.006	0.006	0.006	0.182	0.040	0.004	0.004	39.607
A320-200	V2500-A1	Approach	0.001	0.000	0.000	0.000	0.017	0.001	0.000	0.000	1.247
10L		Climb Out	0.000	0.000	0.000	0.000	0.026	0.001	0.000	0.000	0.855

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.000	0.000	0.000	0.000	0.035	0.001	0.000	0.000	0.948
		Idle	0.010	0.000	0.000	0.000	0.008	0.001	0.000	0.000	1.289
A320-200 10R	V2500-A1	Approach	0.021	0.004	0.004	0.004	0.359	0.026	0.001	0.001	26.707
		Climb Out	0.010	0.002	0.002	0.002	0.565	0.019	0.000	0.000	18.334
		Takeoff	0.011	0.002	0.002	0.002	0.754	0.020	0.000	0.000	20.317
		Idle	0.214	0.007	0.007	0.007	0.163	0.028	0.001	0.001	27.605
A320-200 28L	V2500-A1	Approach	0.026	0.006	0.006	0.006	0.460	0.034	0.001	0.001	34.185
		Climb Out	0.013	0.002	0.002	0.003	0.723	0.023	0.000	0.000	23.467
		Takeoff	0.014	0.002	0.002	0.003	0.966	0.026	0.001	0.001	26.006
		Idle	0.274	0.008	0.008	0.009	0.208	0.035	0.001	0.001	35.335
A320-200 28R	V2500-A1	Approach	0.002	0.000	0.000	0.000	0.039	0.003	0.000	0.000	2.848
		Climb Out	0.001	0.000	0.000	0.000	0.061	0.002	0.000	0.000	1.956
		Takeoff	0.001	0.000	0.000	0.000	0.080	0.002	0.000	0.000	2.167
		Idle	0.023	0.001	0.001	0.001	0.018	0.003	0.000	0.000	2.944
Embraer ERJ 170 10L	CF34-8E5A1	Approach	0.067	0.001	0.001	0.001	0.185	0.017	0.004	0.004	16.719
		Climb Out	0.006	0.000	0.000	0.000	0.120	0.009	0.000	0.000	9.126
		Takeoff	0.011	0.000	0.000	0.000	0.243	0.015	0.004	0.004	15.365
		Idle	0.288	0.002	0.002	0.002	0.078	0.017	0.004	0.004	16.623
Embraer ERJ 170 10R	CF34-8E5A1	Approach	0.101	0.001	0.001	0.001	0.277	0.025	0.007	0.007	25.031
		Climb Out	0.008	0.000	0.000	0.000	0.180	0.013	0.000	0.000	13.663
		Takeoff	0.017	0.000	0.000	0.000	0.364	0.023	0.007	0.007	23.003
		Idle	0.431	0.003	0.003	0.003	0.117	0.025	0.007	0.007	24.886
Embraer ERJ 170 28L	CF34-8E5A1	Approach	0.160	0.002	0.002	0.002	0.437	0.040	0.010	0.010	39.457
		Climb Out	0.012	0.000	0.000	0.000	0.283	0.022	0.001	0.001	21.538
		Takeoff	0.025	0.001	0.001	0.001	0.573	0.036	0.010	0.010	36.261
		Idle	0.679	0.006	0.006	0.006	0.184	0.040	0.010	0.010	39.229
Embraer ERJ 170 28R	CF34-8E5A1	Approach	0.165	0.002	0.002	0.002	0.452	0.041	0.011	0.011	40.890
		Climb Out	0.013	0.000	0.000	0.000	0.293	0.022	0.001	0.001	22.320
		Takeoff	0.026	0.001	0.001	0.001	0.594	0.037	0.010	0.010	37.578
		Idle	0.703	0.006	0.006	0.006	0.191	0.041	0.011	0.011	40.654
B757-200 10L	PW2037	Approach	0.010	0.000	0.000	0.001	0.047	0.004	0.001	0.001	4.847
		Climb Out	0.001	0.000	0.000	0.000	0.086	0.003	0.001	0.001	3.596
		Takeoff	0.001	0.000	0.000	0.000	0.104	0.003	0.001	0.001	3.533
		Idle	0.099	0.009	0.009	0.009	0.018	0.004	0.001	0.001	4.431
B757-200 10R	PW2037	Approach	0.123	0.007	0.007	0.008	0.621	0.064	0.011	0.011	63.491
		Climb Out	0.017	0.001	0.001	0.001	1.129	0.047	0.008	0.008	47.108
		Takeoff	0.015	0.001	0.001	0.001	1.361	0.046	0.008	0.008	46.278
		Idle	1.299	0.111	0.111	0.122	0.238	0.058	0.010	0.010	58.051
B757-200 28L	PW2037	Approach	0.187	0.011	0.011	0.011	0.938	0.096	0.015	0.015	95.964
		Climb Out	0.024	0.001	0.001	0.001	1.706	0.072	0.012	0.012	71.202
		Takeoff	0.023	0.001	0.001	0.001	2.057	0.069	0.011	0.011	69.948
		Idle	1.962	0.169	0.169	0.184	0.359	0.088	0.014	0.014	87.742
B757-200 28R	PW2037	Approach	0.024	0.001	0.001	0.001	0.123	0.012	0.002	0.002	12.602
		Climb Out	0.003	0.000	0.000	0.000	0.224	0.009	0.001	0.001	9.350
		Takeoff	0.003	0.000	0.000	0.000	0.270	0.009	0.001	0.001	9.186
		Idle	0.258	0.022	0.022	0.024	0.047	0.011	0.002	0.002	11.521
Bombardier CRJ700 10L_New T...	CF34-8C1	Approach	0.624	0.013	0.013	0.014	2.378	0.214	0.010	0.010	214.234
		Climb Out	0.057	0.002	0.002	0.002	1.468	0.115	0.001	0.001	114.537
		Takeoff	0.078	0.003	0.003	0.004	2.819	0.192	0.010	0.010	192.120
		Idle	6.196	0.020	0.020	0.022	1.071	0.249	0.012	0.012	248.655
Bombardier CRJ700 8_New Term	CF34-8C1	Approach	0.930	0.019	0.019	0.021	3.548	0.320	0.015	0.015	319.641
		Climb Out	0.086	0.003	0.003	0.003	2.190	0.171	0.001	0.001	170.890
		Takeoff	0.118	0.006	0.006	0.007	4.205	0.287	0.014	0.014	286.645
		Idle	9.245	0.030	0.030	0.032	1.599	0.371	0.018	0.018	370.997
Bombardier CRJ700 26_New Te...	CF34-8C1	Approach	1.466	0.030	0.030	0.033	5.593	0.504	0.024	0.024	503.846
		Climb Out	0.134	0.006	0.006	0.006	3.454	0.269	0.001	0.001	269.372
		Takeoff	0.185	0.009	0.009	0.010	6.628	0.452	0.022	0.022	451.834
		Idle	14.574	0.046	0.046	0.051	2.521	0.585	0.029	0.029	584.797
Bombardier CRJ700 28R_New ...	CF34-8C1	Approach	1.520	0.031	0.031	0.034	5.799	0.522	0.025	0.025	522.411
		Climb Out	0.140	0.006	0.006	0.007	3.580	0.279	0.001	0.001	279.298
		Takeoff	0.192	0.010	0.010	0.010	6.873	0.468	0.023	0.023	468.483
		Idle	15.110	0.049	0.049	0.053	2.614	0.606	0.030	0.030	606.346
B737-800 10L_New T...	CFM56-7B26	Approach	0.023	0.001	0.001	0.001	0.155	0.014	0.004	0.004	14.403
		Climb Out	0.006	0.001	0.001	0.001	0.225	0.010	0.003	0.003	9.997
		Takeoff	0.003	0.001	0.001	0.001	0.407	0.014	0.004	0.004	14.140
		Idle	0.262	0.026	0.026	0.029	0.065	0.014	0.004	0.004	13.938
B737-800 8_New Term	CFM56-7B26	Approach	0.219	0.013	0.013	0.015	1.480	0.137	0.042	0.042	137.085
		Climb Out	0.057	0.010	0.010	0.010	2.141	0.095	0.029	0.029	95.146
		Takeoff	0.026	0.013	0.013	0.014	3.876	0.134	0.041	0.041	134.582
		Idle	2.493	0.252	0.252	0.276	0.624	0.132	0.040	0.040	132.653

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
B737-800 26_New Te...	CFM56-7B26	Approach	0.376	0.023	0.023	0.025	2.534	0.235	0.072	0.072	234.689
		Climb Out	0.098	0.017	0.017	0.018	3.665	0.163	0.050	0.050	162.889
		Takeoff	0.046	0.023	0.023	0.025	6.636	0.230	0.069	0.069	230.403
		Idle	4.269	0.431	0.431	0.473	1.067	0.227	0.068	0.068	227.101
B737-800 28R_New ...	CFM56-7B26	Approach	0.061	0.003	0.003	0.004	0.410	0.037	0.011	0.011	37.957
		Climb Out	0.015	0.002	0.002	0.003	0.593	0.026	0.008	0.008	26.344
		Takeoff	0.008	0.003	0.003	0.004	1.074	0.037	0.011	0.011	37.264
		Idle	0.690	0.069	0.069	0.076	0.173	0.036	0.011	0.011	36.730
MD-80-83 10L_New T...	JT8D-219 old co...	Approach	0.015	0.006	0.006	0.007	0.034	0.003	0.001	0.001	3.747
		Climb Out	0.003	0.001	0.001	0.001	0.067	0.003	0.001	0.001	3.214
		Takeoff	0.002	0.001	0.001	0.001	0.096	0.003	0.001	0.001	3.546
		Idle	0.050	0.013	0.013	0.015	0.014	0.004	0.001	0.001	3.929
MD-80-83 8_New Term	JT8D-219 old co...	Approach	0.196	0.076	0.076	0.084	0.440	0.049	0.014	0.014	48.141
		Climb Out	0.050	0.018	0.018	0.019	0.860	0.041	0.012	0.012	41.311
		Takeoff	0.033	0.012	0.012	0.013	1.230	0.045	0.013	0.013	45.570
		Idle	0.637	0.175	0.175	0.192	0.182	0.051	0.015	0.015	50.487
MD-80-83 26_New Te...	JT8D-219 old co...	Approach	0.295	0.116	0.116	0.126	0.661	0.073	0.021	0.021	72.492
		Climb Out	0.075	0.026	0.026	0.029	1.294	0.062	0.019	0.019	62.208
		Takeoff	0.050	0.019	0.019	0.020	1.853	0.068	0.020	0.020	68.620
		Idle	0.960	0.265	0.265	0.290	0.273	0.076	0.022	0.022	76.025
MD-80-83 28R_New ...	JT8D-219 old co...	Approach	0.039	0.015	0.015	0.017	0.087	0.010	0.003	0.003	9.554
		Climb Out	0.010	0.003	0.003	0.003	0.171	0.008	0.002	0.002	8.198
		Takeoff	0.007	0.002	0.002	0.002	0.244	0.009	0.002	0.002	9.043
		Idle	0.127	0.035	0.035	0.039	0.036	0.010	0.003	0.003	10.019

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-...
Bowtie	Roadway	0.450	0.025	0.024	0.026	0.030	0.000	0.001	0.001
Bowtie to Merge	Roadway	3.038	0.153	0.146	0.154	0.195	0.003	0.009	0.004
Bowtie to New Term 1	Roadway	7.078	0.357	0.338	0.358	0.454	0.007	0.022	0.011
Bowtie to New Term 2	Roadway	7.078	0.357	0.338	0.358	0.454	0.007	0.022	0.011
Brdgwy N of Sawyr 1	Roadway	2.606	0.149	0.141	0.155	0.173	0.002	0.009	0.004
Brdgwy N of Sawyr 2	Roadway	4.773	0.273	0.259	0.284	0.316	0.004	0.015	0.008
Connect to Sawyer	Roadway	9.100	0.521	0.494	0.541	0.603	0.009	0.031	0.015
Curb Exit to Intl	Roadway	0.933	0.057	0.054	0.060	0.063	0.001	0.003	0.001
Curb Through Traffic	Roadway	24.141	1.382	1.308	1.436	1.598	0.024	0.080	0.040
Curb to Bowtie 1	Roadway	1.343	0.077	0.073	0.079	0.089	0.001	0.004	0.002
Curb to Bowtie 2	Roadway	1.613	0.093	0.087	0.096	0.107	0.001	0.006	0.002
Empl Prkg Ent_Exit	Roadway	0.196	0.012	0.011	0.012	0.013	0.000	0.001	0.000
Ent 670 NB	Roadway	4.230	0.201	0.191	0.202	0.272	0.003	0.012	0.007
Ent 670 SB	Roadway	2.798	0.132	0.126	0.133	0.181	0.002	0.008	0.004
Ent Green frm EB 1	Roadway	3.230	0.185	0.175	0.192	0.214	0.003	0.011	0.006
Ent Green frm EB 2	Roadway	1.098	0.063	0.060	0.065	0.073	0.001	0.003	0.002
Ent Green frm WB 1	Roadway	1.134	0.065	0.062	0.067	0.075	0.001	0.003	0.002
Ent Green frm WB 2	Roadway	2.955	0.169	0.160	0.175	0.196	0.003	0.010	0.004
Ent New Gar 1	Roadway	1.400	0.086	0.082	0.090	0.095	0.001	0.004	0.002
Ent New Gar 2	Roadway	1.911	0.118	0.111	0.122	0.129	0.002	0.007	0.003
Ent from 670 1	Roadway	6.006	0.284	0.270	0.285	0.387	0.006	0.018	0.009
Ent from 670 2	Roadway	14.398	0.682	0.648	0.686	0.928	0.013	0.042	0.021
Ent to Lane	Roadway	0.039	0.002	0.002	0.002	0.002	0.000	0.000	0.000
Ex Arr Curb FF	Roadway	0.260	0.017	0.015	0.019	0.017	0.000	0.001	0.000
Ex Arr Curb Pick Up	Roadway	2.143	0.218	0.207	0.299	0.082	0.001	0.002	0.001
Ex Dep Curb Drop Off	Roadway	2.810	0.287	0.271	0.391	0.107	0.001	0.003	0.001
Exit 670 NB	Roadway	2.975	0.141	0.134	0.142	0.192	0.002	0.009	0.004
Exit 670 SB	Roadway	3.469	0.164	0.157	0.165	0.224	0.003	0.010	0.006
Exit Comm Gar	Roadway	5.052	0.289	0.273	0.301	0.334	0.006	0.017	0.009
Exit New Gar 1	Roadway	0.872	0.050	0.047	0.052	0.057	0.001	0.003	0.001
Exit New Gar 2	Roadway	1.479	0.091	0.086	0.095	0.100	0.001	0.004	0.002
Exit Red 1	Roadway	3.398	0.194	0.184	0.202	0.225	0.003	0.011	0.006
Exit Red 2	Roadway	1.052	0.061	0.057	0.063	0.069	0.001	0.003	0.002
Exit Red 3	Roadway	4.706	0.269	0.255	0.280	0.312	0.004	0.015	0.008
Exit Red 4	Roadway	1.834	0.105	0.099	0.109	0.121	0.002	0.007	0.003
Exit frm Green	Roadway	2.258	0.129	0.122	0.134	0.150	0.002	0.008	0.003
Exit from Lane	Roadway	0.037	0.002	0.002	0.002	0.002	0.000	0.000	0.000
Exit to 670 1	Roadway	10.874	0.623	0.590	0.647	0.720	0.011	0.036	0.018
Exit to 670 2	Roadway	4.937	0.234	0.223	0.235	0.319	0.004	0.014	0.008
Green Exit to Sawyer	Roadway	1.219	0.069	0.066	0.073	0.080	0.001	0.004	0.002
Int Grn to New Bow 2	Roadway	13.876	0.700	0.665	0.703	0.890	0.013	0.043	0.021
Int W frm new Bow	Roadway	10.403	0.525	0.498	0.527	0.667	0.010	0.032	0.015
IntGate E at Red	Roadway	34.433	1.971	1.866	2.048	2.280	0.035	0.115	0.057
IntGate E at Tunnel	Roadway	18.622	0.940	0.892	0.944	1.194	0.018	0.057	0.029
IntGate Exit fm Tunl	Roadway	25.968	1.311	1.243	1.316	1.664	0.024	0.079	0.040
IntGate Lane to LT	Roadway	10.248	0.586	0.556	0.610	0.679	0.010	0.034	0.017
IntGate W at Tunnel	Roadway	25.968	1.311	1.243	1.316	1.664	0.024	0.079	0.040
Intl East frm Stlzr	Roadway	12.810	0.646	0.613	0.649	0.821	0.012	0.040	0.020
Intl West to Stelzer	Roadway	25.791	1.302	1.235	1.307	1.653	0.024	0.079	0.040
LT to ST	Roadway	0.806	0.046	0.044	0.047	0.053	0.001	0.002	0.001
Lane Exit to Lane En	Roadway	5.678	0.287	0.272	0.288	0.364	0.006	0.018	0.009
Merge to Sawyer	Roadway	5.698	0.326	0.309	0.338	0.377	0.006	0.019	0.010
New Bowtie	Roadway	0.828	0.047	0.045	0.050	0.055	0.001	0.003	0.001
New Gar Distance	Roadway	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New Gar Ex W	Roadway	21.977	1.109	1.053	1.113	1.409	0.021	0.067	0.034
New Perimeter Road 1	Roadway	0.381	0.022	0.021	0.023	0.025	0.000	0.001	0.001
New Perimeter Road 2	Roadway	0.261	0.015	0.014	0.015	0.018	0.000	0.001	0.000
New Perimeter Road 3	Roadway	5.741	0.328	0.311	0.342	0.380	0.006	0.019	0.010
New Perimeter Road 4	Roadway	0.120	0.007	0.007	0.007	0.008	0.000	0.000	0.000
New Perimeter Road 5	Roadway	0.371	0.021	0.020	0.022	0.024	0.000	0.001	0.001
New Perimeter Road 6	Roadway	2.368	0.136	0.128	0.141	0.157	0.002	0.008	0.004
New Perimeter Road 7	Roadway	0.376	0.022	0.020	0.022	0.025	0.000	0.001	0.001
New Perimeter Road 8	Roadway	0.130	0.008	0.007	0.008	0.009	0.000	0.000	0.000
New Perimeter Road 9	Roadway	0.109	0.007	0.006	0.007	0.008	0.000	0.000	0.000
New Perimeter Road10	Roadway	0.158	0.009	0.009	0.010	0.010	0.000	0.000	0.000
New Stelzer Middle	Roadway	18.403	0.873	0.829	0.876	1.187	0.017	0.054	0.028

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-...
New Stelzer Realgn 1	Roadway	7.918	0.376	0.357	0.377	0.510	0.007	0.023	0.012
New Stelzer Realgn 2	Roadway	9.416	0.446	0.424	0.449	0.607	0.009	0.028	0.014
New Stelzer Realgn 3	Roadway	11.235	0.532	0.506	0.535	0.724	0.010	0.033	0.017
New Stelzer Realgn 4	Roadway	21.988	1.043	0.990	1.047	1.418	0.020	0.065	0.032
New Term Arr FF	Roadway	0.488	0.032	0.030	0.035	0.032	0.000	0.001	0.001
New Term Arr Pick Up	Roadway	3.848	0.392	0.371	0.536	0.147	0.001	0.003	0.002
Ex Term Dep FF	Roadway	0.338	0.022	0.021	0.024	0.022	0.000	0.001	0.000
New Term Dep FF	Roadway	0.660	0.043	0.040	0.047	0.043	0.000	0.002	0.001
New Term E to Lane	Roadway	13.510	0.682	0.647	0.685	0.866	0.012	0.042	0.021
New TermDep Drop Off	Roadway	5.462	0.557	0.528	0.761	0.208	0.001	0.006	0.002
Red Distance	Roadway	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ST to Curb	Roadway	0.783	0.049	0.045	0.051	0.053	0.001	0.002	0.001
Sawyer Fork E	Roadway	1.885	0.108	0.103	0.112	0.125	0.002	0.007	0.003
Sawyer Fork W	Roadway	0.893	0.051	0.049	0.053	0.060	0.001	0.003	0.001
Sawyer N of Fork	Roadway	7.893	0.452	0.428	0.470	0.522	0.008	0.026	0.013
Sawyer S of Brdgwy	Roadway	8.900	0.509	0.483	0.529	0.590	0.009	0.030	0.014
Sawyer from IntlGate	Roadway	3.871	0.195	0.185	0.196	0.248	0.003	0.012	0.006
Sawyer to Brdgwy 1	Roadway	8.389	0.481	0.455	0.499	0.556	0.009	0.028	0.014
Sawyer to Brdgwy 2	Roadway	68.237	3.905	3.699	4.059	4.518	0.069	0.227	0.114
Saywer W to Fork	Roadway	4.113	0.236	0.223	0.245	0.272	0.004	0.013	0.007
Stelzer N	Roadway	43.280	2.053	1.949	2.061	2.791	0.039	0.128	0.064
Stelzer S	Roadway	7.126	0.338	0.321	0.340	0.460	0.007	0.021	0.010
To Red 1	Roadway	2.858	0.163	0.155	0.170	0.190	0.003	0.010	0.004
To Red 2	Roadway	3.613	0.207	0.196	0.215	0.239	0.003	0.012	0.006
To Red 3	Roadway	1.672	0.096	0.090	0.099	0.110	0.002	0.006	0.003
WB from Sawyer	Roadway	22.180	1.270	1.203	1.319	1.468	0.022	0.074	0.036
Employee Parking	Parking	16.868	0.818	0.768	2.520	2.181	0.008	0.028	0.013
Green	Parking	10.993	0.559	0.526	1.800	1.354	0.006	0.017	0.008
Lane Avtn	Parking	5.199	0.261	0.246	0.831	0.648	0.002	0.008	0.004
Long Term Pkg Lvl 3	Parking	13.629	0.685	0.644	2.179	1.700	0.007	0.021	0.011
Long Term Pkg Lvl 4	Parking	6.791	0.341	0.321	1.086	0.847	0.003	0.011	0.006
Long Term Pkg Lvl 5	Parking	13.960	0.701	0.659	2.232	1.741	0.007	0.022	0.011
Long Term Pkg Lvl 6	Parking	9.385	0.472	0.443	1.500	1.171	0.004	0.014	0.008
New Gar Level 1	Parking	0.855	0.047	0.044	0.161	0.096	0.000	0.001	0.001
New Gar Level 2	Parking	0.801	0.044	0.042	0.151	0.090	0.000	0.001	0.000
New Gar Level 3	Parking	1.924	0.106	0.099	0.362	0.216	0.001	0.002	0.001
New Gar Level 4	Parking	0.961	0.053	0.050	0.181	0.108	0.000	0.001	0.001
New Gar Level 5	Parking	1.976	0.108	0.103	0.371	0.223	0.001	0.002	0.001
New Gar Level 6	Parking	1.336	0.073	0.069	0.251	0.150	0.000	0.002	0.001
New RAC	Parking	43.413	1.991	1.867	5.796	5.914	0.023	0.076	0.037
Red	Parking	81.109	3.811	3.577	11.384	10.805	0.041	0.139	0.068
ShortTerm Pkg Lvl 4	Parking	4.807	0.249	0.234	0.812	0.580	0.002	0.007	0.003
ShortTerm Pkg Lvl 5	Parking	4.543	0.235	0.222	0.767	0.548	0.002	0.007	0.003

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.115	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.748	0.748	0.748	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.149	0.149	0.149	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.590	1.590	1.590	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.014	0.004	0.004	0.004	0.004	0.003	0.010	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.911	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.850	0.850	0.850	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.260	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.427	0.427	0.427	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.261	0.261	0.261	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.765	0.765	0.765	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.122	2.122	2.122	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.800	0.800	0.800	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.762	0.762	0.762	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary

(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	850.995	70.917	70.917	75.656	378.760	34.409	3.849	3.849
GSE/APU	1,491.122	60.328	54.719	56.907	80.004	12.165	5.013	4.841
Roadways	653.003	35.180	33.352	36.434	42.159	0.613	2.026	1.012
Parking Facilities	218.551	10.552	9.913	32.385	28.370	0.107	0.358	0.179
Stationary Sources	21.453	12.612	12.081	14.665	35.757	16.638	2.492	2.205
Total	3,235.124	189.590	180.982	216.046	565.049	63.932	13.739	12.086

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary

(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	14.953	0.270	0.270	0.260	0.008	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.001	0.001	0.002	0.003	0.003	0.000
B737-300	CFM56-3-B1	TOTAL	1.267	0.078	0.078	0.086	0.944	0.096	0.001	0.001	0.000
10L		APU	0.183	0.011	0.011	0.011	0.049	0.010	0.000	0.000	0.000
		GSE	0.061	0.006	0.006	0.007	0.055	0.018	0.010	0.010	0.000
B737-300	CFM56-3B-2	TOTAL	0.216	0.012	0.012	0.013	0.205	0.019	0.000	0.000	0.000
10L		APU	0.034	0.002	0.002	0.002	0.009	0.002	0.000	0.000	0.000
		GSE	0.011	0.001	0.001	0.001	0.010	0.003	0.002	0.002	0.000
B737-500	CFM56-3C-1	TOTAL	0.143	0.007	0.007	0.008	0.180	0.015	0.000	0.000	0.000
10L		APU	0.024	0.001	0.001	0.001	0.007	0.001	0.000	0.000	0.000
		GSE	0.008	0.001	0.001	0.001	0.007	0.002	0.001	0.001	0.000
B737-700	CFM56-7B22	TOTAL	0.942	0.099	0.099	0.108	1.663	0.126	0.026	0.026	0.000
10L		APU	0.064	0.004	0.004	0.006	0.087	0.013	0.000	0.000	0.000
		GSE	0.072	0.007	0.007	0.007	0.065	0.021	0.012	0.012	0.000
B737-800	CFM56-7B26	TOTAL	0.003	0.000	0.000	0.000	0.010	0.001	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
B757-300	PW2043	TOTAL	0.050	0.004	0.004	0.004	0.180	0.009	N/A	N/A	0.000
10L		APU	0.002	0.000	0.000	0.000	0.006	0.001	0.000	0.000	0.000
		GSE	0.003	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.110	0.001	0.001	0.001	0.123	0.012	0.000	0.000	0.000
10L		APU	0.036	0.002	0.002	0.002	0.010	0.002	0.000	0.000	0.000
		GSE	0.557	0.022	0.020	0.020	0.022	0.003	0.002	0.001	0.000
Cessna 172 Skyhawk	O-320	TOTAL	6.819	0.111	0.111	0.107	0.012	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.004	0.007	0.006	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.033	0.002	0.002	0.002	0.031	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.332	0.051	0.045	0.047	0.036	0.002	0.001	0.001	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.212	0.066	0.066	0.071	0.017	0.002	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.524	0.022	0.020	0.020	0.017	0.001	0.001	0.001	0.000
CL600	ALF 502L-2	TOTAL	1.092	0.150	0.150	0.160	0.527	0.036	0.007	0.007	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.650	0.265	0.239	0.248	0.290	0.049	0.026	0.025	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	0.149	0.043	0.043	0.047	0.110	0.011	0.008	0.008	0.000
10L		APU	0.014	0.001	0.001	0.001	0.004	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.049	0.088	0.088	0.094	0.733	0.078	0.000	0.000	0.000
10L		APU	0.074	0.007	0.007	0.008	0.053	0.011	0.000	0.000	0.000
		GSE	4.941	0.193	0.174	0.181	0.195	0.025	0.014	0.014	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.148	0.024	0.024	0.025	0.261	0.023	0.000	0.000	0.000
10L		APU	0.021	0.002	0.002	0.002	0.014	0.003	0.000	0.000	0.000
		GSE	1.364	0.053	0.049	0.050	0.054	0.007	0.004	0.004	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.592	0.047	0.047	0.051	0.496	0.047	0.000	0.000	0.000
10L		APU	0.041	0.004	0.004	0.004	0.029	0.007	0.000	0.000	0.000
		GSE	2.728	0.107	0.096	0.099	0.108	0.014	0.008	0.008	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	2.886	0.243	0.243	0.258	2.038	0.208	0.000	0.000	0.000
10L		APU	0.195	0.019	0.019	0.020	0.139	0.030	0.000	0.000	0.000
		GSE	13.055	0.509	0.460	0.477	0.515	0.068	0.040	0.037	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	3.584	0.302	0.302	0.321	2.501	0.266	0.000	0.000	0.000
10L		APU	0.252	0.024	0.024	0.025	0.180	0.039	0.000	0.000	0.000
		GSE	16.869	0.658	0.594	0.616	0.666	0.088	0.051	0.049	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.082	0.091	0.091	0.097	0.765	0.078	0.000	0.000	0.000
10L		APU	0.073	0.007	0.007	0.008	0.052	0.011	0.000	0.000	0.000
		GSE	4.899	0.191	0.173	0.179	0.193	0.025	0.014	0.014	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	1.584	0.015	0.015	0.017	2.422	0.235	0.023	0.023	0.000
10L		APU	0.155	0.014	0.014	0.017	0.110	0.024	0.000	0.000	0.000
		GSE	10.355	0.405	0.365	0.378	0.409	0.054	0.031	0.030	0.000
Falcon 20	CF700-2D	TOTAL	0.639	0.053	0.053	0.057	0.021	0.008	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.502	0.063	0.063	0.067	0.387	0.036	0.003	0.003	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.227	0.089	0.080	0.084	0.119	0.021	0.011	0.010	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	0.208	0.024	0.024	0.025	0.209	0.019	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.171	0.046	0.042	0.043	0.032	0.002	0.001	0.001	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	0.960	0.158	0.158	0.168	0.747	0.087	0.051	0.051	0.000
10L_GA		APU	0.022	0.001	0.001	0.002	0.109	0.011	0.000	0.000	0.000
		GSE	4.566	0.176	0.159	0.164	0.117	0.009	0.009	0.009	0.000
HS 125	TFE731-3	TOTAL	1.174	0.192	0.192	0.212	0.546	0.030	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.382	0.395	0.355	0.368	0.281	0.020	0.011	0.010	0.000
KC-135R	CFM56-2B-1	TOTAL	0.144	0.008	0.008	0.009	0.180	0.015	0.000	0.000	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.001	0.001	0.001	0.011	0.002	0.001	0.001	0.000
Learjet 25C	CJ610-6	TOTAL	6.150	0.471	0.471	0.500	0.121	0.034	N/A	N/A	0.000
10L_GA		APU	0.061	0.006	0.006	0.006	0.043	0.009	0.000	0.000	0.000
		GSE	4.022	0.157	0.142	0.147	0.159	0.021	0.012	0.012	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.514	0.150	0.150	0.160	0.150	0.010	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.519	0.104	0.093	0.097	0.077	0.003	0.003	0.003	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	22.719	0.410	0.410	0.396	0.012	0.002	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.004	0.004	0.000
Piper PA-28	O-320	TOTAL	0.368	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.407	0.325	0.325	0.359	0.032	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.935	0.074	0.066	0.068	0.052	0.003	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	3.322	1.146	1.146	1.219	0.442	0.042	0.022	0.022	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.753	0.401	0.362	0.375	0.310	0.018	0.013	0.013	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.142	0.010	0.010	0.011	0.088	0.010	0.000	0.000	0.000
10L		APU	0.019	0.001	0.001	0.001	0.006	0.001	0.000	0.000	0.000
		GSE	0.007	0.001	0.001	0.001	0.006	0.002	0.001	0.001	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	0.660	0.228	0.228	0.243	0.088	0.009	0.004	0.004	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.939	0.079	0.072	0.075	0.062	0.003	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.416	0.833	0.833	0.886	0.322	0.031	0.015	0.015	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.092	0.292	0.262	0.272	0.225	0.012	0.010	0.009	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	5.430	1.874	1.874	1.992	0.723	0.068	0.035	0.035	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	15.939	0.656	0.591	0.612	0.506	0.029	0.022	0.021	0.000
Aztec	TIO-540-J2B2	TOTAL	21.499	0.388	0.388	0.375	0.011	0.002	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.001	0.003	0.004	0.004	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	1.296	0.090	0.090	0.099	0.801	0.087	0.001	0.001	0.000
10R		APU	0.175	0.010	0.010	0.011	0.046	0.010	0.000	0.000	0.000
		GSE	0.057	0.006	0.006	0.006	0.053	0.017	0.010	0.010	0.000
B737-300	CFM56-3B-2	TOTAL	2.477	0.134	0.134	0.148	2.355	0.219	0.004	0.004	0.000
10R		APU	0.389	0.022	0.022	0.024	0.103	0.022	0.000	0.000	0.000
		GSE	0.128	0.013	0.012	0.013	0.117	0.036	0.022	0.021	0.000
B737-300	CFM56-3-B1	TOTAL	14.776	0.915	0.915	1.001	11.013	1.120	0.017	0.017	0.000
10R		APU	2.141	0.122	0.122	0.134	0.565	0.119	0.000	0.000	0.000
		GSE	0.703	0.071	0.067	0.071	0.640	0.203	0.119	0.116	0.000
B737-500	CFM56-3C-1	TOTAL	1.786	0.088	0.088	0.097	2.243	0.190	0.007	0.007	0.000
10R		APU	0.298	0.017	0.017	0.019	0.078	0.017	0.000	0.000	0.000
		GSE	0.098	0.010	0.009	0.010	0.089	0.029	0.017	0.017	0.000
B737-700	CFM56-7B22	TOTAL	9.521	1.002	1.002	1.097	16.801	1.269	0.267	0.267	0.000
10R		APU	0.643	0.049	0.049	0.053	0.874	0.131	0.000	0.000	0.000
		GSE	0.719	0.072	0.068	0.073	0.655	0.207	0.121	0.118	0.000
B737-800	CFM56-7B26	TOTAL	0.047	0.004	0.004	0.006	0.140	0.009	0.002	0.002	0.000
10R		APU	0.003	0.000	0.000	0.000	0.006	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.003	0.001	0.001	0.001	0.000
B757-300	PW2043	TOTAL	0.473	0.037	0.037	0.041	1.704	0.087	N/A	N/A	0.000
10R		APU	0.023	0.002	0.002	0.002	0.053	0.006	0.000	0.000	0.000
		GSE	0.029	0.003	0.002	0.003	0.026	0.009	0.004	0.004	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.186	0.001	0.001	0.001	0.209	0.021	0.001	0.001	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.063	0.003	0.003	0.004	0.017	0.003	0.000	0.000	0.000
		GSE	0.947	0.037	0.033	0.034	0.037	0.004	0.003	0.002	0.000
Cessna 172 Skyhawk	O-320	TOTAL	6.469	0.106	0.106	0.101	0.011	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.004	0.006	0.006	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.100	0.007	0.007	0.008	0.094	0.012	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.016	0.152	0.138	0.142	0.109	0.008	0.004	0.004	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.800	0.250	0.250	0.266	0.064	0.008	0.004	0.004	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.982	0.082	0.074	0.076	0.063	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	1.819	0.250	0.250	0.266	0.876	0.061	0.011	0.011	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.071	0.441	0.399	0.413	0.482	0.080	0.044	0.043	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	2.184	0.628	0.628	0.688	1.607	0.161	0.116	0.116	0.000
10R		APU	0.215	0.012	0.012	0.013	0.056	0.012	0.000	0.000	0.000
		GSE	0.071	0.007	0.007	0.007	0.064	0.020	0.012	0.011	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.763	0.149	0.149	0.158	1.230	0.130	0.000	0.000	0.000
10R		APU	0.125	0.012	0.012	0.012	0.088	0.019	0.000	0.000	0.000
		GSE	8.295	0.324	0.292	0.303	0.327	0.043	0.025	0.024	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.995	0.080	0.080	0.086	0.836	0.080	0.000	0.000	0.000
10R		APU	0.068	0.007	0.007	0.007	0.049	0.011	0.000	0.000	0.000
		GSE	4.593	0.180	0.162	0.168	0.181	0.024	0.014	0.013	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.249	0.041	0.041	0.043	0.441	0.039	0.000	0.000	0.000
10R		APU	0.034	0.003	0.003	0.003	0.024	0.006	0.000	0.000	0.000
		GSE	2.296	0.089	0.080	0.084	0.090	0.012	0.007	0.007	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.830	0.153	0.153	0.163	1.294	0.132	0.000	0.000	0.000
10R		APU	0.123	0.012	0.012	0.012	0.088	0.019	0.000	0.000	0.000
		GSE	8.282	0.323	0.292	0.303	0.326	0.043	0.025	0.024	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	6.059	0.510	0.510	0.543	4.228	0.449	0.000	0.000	0.000
10R		APU	0.427	0.041	0.041	0.043	0.303	0.066	0.000	0.000	0.000
		GSE	28.518	1.113	1.004	1.042	1.125	0.148	0.086	0.083	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	4.880	0.411	0.411	0.437	3.446	0.353	0.000	0.000	0.000
10R		APU	0.331	0.031	0.031	0.033	0.235	0.051	0.000	0.000	0.000
		GSE	22.074	0.862	0.777	0.807	0.871	0.115	0.066	0.064	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	2.700	0.025	0.025	0.028	4.127	0.400	0.040	0.040	0.000
10R		APU	0.265	0.025	0.025	0.028	0.187	0.041	0.000	0.000	0.000
		GSE	17.648	0.689	0.622	0.645	0.697	0.091	0.053	0.052	0.000
Falcon 20	CF700-2D	TOTAL	2.352	0.196	0.196	0.208	0.078	0.030	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.006	0.001	0.001	0.001	0.017	0.006	0.003	0.003	0.000
Falcon 2000EX	PW308C	TOTAL	0.839	0.105	0.105	0.111	0.647	0.062	0.006	0.006	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.726	0.149	0.134	0.140	0.198	0.035	0.018	0.018	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.764	0.088	0.088	0.094	0.769	0.067	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.305	0.170	0.153	0.159	0.118	0.007	0.006	0.006	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	2.314	0.379	0.379	0.402	1.801	0.209	0.123	0.123	0.000
10R_GA		APU	0.053	0.004	0.004	0.004	0.262	0.026	0.000	0.000	0.000
		GSE	10.998	0.424	0.383	0.397	0.281	0.022	0.022	0.021	0.000
HS 125	TFE731-3	TOTAL	1.982	0.323	0.323	0.357	0.920	0.051	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	17.518	0.666	0.600	0.622	0.474	0.034	0.018	0.018	0.000
KC-135R	CFM56-2B-1	TOTAL	1.251	0.069	0.069	0.077	1.555	0.129	0.003	0.003	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.029	0.007	0.007	0.008	0.094	0.023	0.010	0.009	0.000
Learjet 25C	CJ610-6	TOTAL	9.725	0.744	0.744	0.791	0.192	0.053	N/A	N/A	0.000
10R_GA		APU	0.095	0.009	0.009	0.010	0.067	0.014	0.000	0.000	0.000
		GSE	6.360	0.248	0.224	0.233	0.251	0.033	0.019	0.019	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.965	0.574	0.574	0.611	0.572	0.040	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.634	0.396	0.356	0.369	0.294	0.013	0.012	0.011	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.018	0.006	0.006	0.006	0.053	0.003	0.001	0.001	0.000
10R		APU	0.004	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	8.214	0.148	0.148	0.143	0.004	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	1.122	0.018	0.018	0.018	0.002	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.324	1.062	1.062	1.172	0.105	0.013	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.304	0.239	0.216	0.224	0.171	0.012	0.007	0.007	0.000
Aztec	TIO-540-J2B2	TOTAL	53.684	0.969	0.969	0.935	0.029	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.004	0.008	0.011	0.011	0.000
B737-300	CFM56-3-B1	TOTAL	30.048	1.860	1.860	2.036	22.393	2.278	0.034	0.034	0.000
28L		APU	4.353	0.249	0.249	0.272	1.150	0.243	0.000	0.000	0.000
		GSE	1.430	0.142	0.136	0.144	1.303	0.413	0.241	0.235	0.000
B737-300	CFM56-3B-2	TOTAL	5.034	0.274	0.274	0.300	4.786	0.448	0.010	0.010	0.000
28L		APU	0.790	0.045	0.045	0.050	0.208	0.044	0.000	0.000	0.000
		GSE	0.260	0.026	0.024	0.026	0.237	0.075	0.044	0.043	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.978	0.208	0.208	0.228	1.843	0.200	0.002	0.002	0.000
28L		APU	0.402	0.023	0.023	0.025	0.106	0.022	0.000	0.000	0.000
		GSE	0.132	0.013	0.012	0.013	0.120	0.039	0.022	0.022	0.000
B737-500	CFM56-3C-1	TOTAL	3.562	0.176	0.176	0.193	4.472	0.378	0.012	0.012	0.000
28L		APU	0.592	0.034	0.034	0.037	0.157	0.033	0.000	0.000	0.000
		GSE	0.195	0.020	0.019	0.020	0.177	0.056	0.033	0.032	0.000
B737-700	CFM56-7B22	TOTAL	20.947	2.204	2.204	2.413	36.964	2.791	0.586	0.586	0.000
28L		APU	1.414	0.107	0.107	0.117	1.925	0.290	0.000	0.000	0.000
		GSE	1.581	0.158	0.150	0.159	1.440	0.456	0.267	0.259	0.000
B737-800	CFM56-7B26	TOTAL	0.106	0.011	0.011	0.012	0.311	0.019	0.006	0.006	0.000
28L		APU	0.009	0.001	0.001	0.001	0.011	0.002	0.000	0.000	0.000
		GSE	0.009	0.001	0.001	0.001	0.009	0.002	0.001	0.001	0.000
B757-300	PW2043	TOTAL	1.095	0.086	0.086	0.095	3.947	0.202	N/A	N/A	0.000
28L		APU	0.053	0.006	0.006	0.006	0.121	0.013	0.000	0.000	0.000
		GSE	0.066	0.007	0.007	0.007	0.061	0.019	0.011	0.011	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.363	0.002	0.002	0.002	0.407	0.041	0.002	0.002	0.000
28L		APU	0.121	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	1.838	0.072	0.065	0.067	0.073	0.010	0.006	0.006	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	2.338	0.732	0.732	0.777	0.186	0.023	0.013	0.013	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.789	0.238	0.215	0.223	0.184	0.010	0.008	0.008	0.000
CL600	ALF 502L-2	TOTAL	3.280	0.452	0.452	0.481	1.581	0.109	0.020	0.020	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	19.971	0.796	0.719	0.746	0.869	0.146	0.080	0.077	0.000
Cessna 172 Skyhawk	O-320	TOTAL	17.344	0.283	0.283	0.273	0.031	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.002	0.002	0.002	0.006	0.011	0.015	0.015	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.309	0.021	0.021	0.022	0.288	0.036	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.400	0.471	0.424	0.440	0.335	0.024	0.012	0.012	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	3.937	1.133	1.133	1.240	2.897	0.290	0.208	0.208	0.000
28L		APU	0.387	0.022	0.022	0.024	0.103	0.022	0.000	0.000	0.000
		GSE	0.127	0.013	0.012	0.013	0.116	0.036	0.022	0.021	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.318	0.280	0.280	0.298	2.316	0.246	0.000	0.000	0.000
28L		APU	0.234	0.022	0.022	0.023	0.166	0.036	0.000	0.000	0.000
		GSE	15.616	0.610	0.550	0.571	0.616	0.082	0.047	0.045	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.471	0.076	0.076	0.080	0.833	0.073	0.000	0.000	0.000
28L		APU	0.065	0.007	0.007	0.007	0.046	0.010	0.000	0.000	0.000
		GSE	4.342	0.170	0.153	0.159	0.171	0.022	0.013	0.012	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.883	0.152	0.152	0.162	1.580	0.152	0.000	0.000	0.000
28L		APU	0.130	0.012	0.012	0.013	0.093	0.020	0.000	0.000	0.000
		GSE	8.685	0.340	0.305	0.317	0.343	0.045	0.026	0.025	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	9.212	0.776	0.776	0.825	6.506	0.665	0.000	0.000	0.000
28L		APU	0.624	0.058	0.058	0.063	0.443	0.097	0.000	0.000	0.000
		GSE	41.671	1.627	1.467	1.522	1.645	0.216	0.126	0.121	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	11.435	0.963	0.963	1.025	7.981	0.848	0.000	0.000	0.000
28L		APU	0.805	0.076	0.076	0.080	0.572	0.125	0.000	0.000	0.000
		GSE	53.821	2.101	1.896	1.967	2.123	0.280	0.162	0.157	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	3.454	0.290	0.290	0.309	2.442	0.250	0.000	0.000	0.000
28L		APU	0.234	0.022	0.022	0.023	0.166	0.036	0.000	0.000	0.000
		GSE	15.630	0.610	0.550	0.571	0.616	0.082	0.047	0.045	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	5.256	0.050	0.050	0.054	8.037	0.778	0.078	0.078	0.000
28L		APU	0.514	0.049	0.049	0.053	0.366	0.079	0.000	0.000	0.000
		GSE	34.363	1.342	1.210	1.256	1.356	0.179	0.104	0.100	0.000
Falcon 20	CF700-2D	TOTAL	7.961	0.665	0.665	0.707	0.267	0.099	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.020	0.004	0.004	0.004	0.056	0.020	0.012	0.012	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	2.586	0.299	0.299	0.317	2.604	0.227	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	14.566	0.577	0.519	0.538	0.400	0.022	0.019	0.018	0.000
HS 125	TFE731-3	TOTAL	3.890	0.634	0.634	0.700	1.808	0.100	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	34.391	1.307	1.177	1.220	0.930	0.066	0.035	0.033	0.000
KC-135R	CFM56-2B-1	TOTAL	2.898	0.161	0.161	0.179	3.603	0.300	0.009	0.009	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.067	0.017	0.015	0.017	0.218	0.053	0.022	0.021	0.000
Learjet 25C	CJ610-6	TOTAL	18.960	1.451	1.451	1.542	0.373	0.104	N/A	N/A	0.000
28L_GA		APU	0.185	0.018	0.018	0.019	0.132	0.029	0.000	0.000	0.000
		GSE	12.401	0.484	0.437	0.453	0.489	0.064	0.037	0.036	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	5.967	1.745	1.745	1.855	1.737	0.120	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	29.258	1.202	1.081	1.121	0.893	0.041	0.036	0.035	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.032	0.010	0.010	0.011	0.095	0.007	0.002	0.002	0.000
28L		APU	0.008	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	25.478	0.460	0.460	0.443	0.013	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.006	0.006	0.000
Piper PA-28	O-320	TOTAL	3.480	0.056	0.056	0.054	0.006	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.002	0.002	0.002	0.000
UC-12J	PT6A-42	TOTAL	3.225	2.584	2.584	2.855	0.257	0.032	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	15.354	0.583	0.526	0.545	0.416	0.030	0.015	0.015	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	10.243	3.534	3.534	3.758	1.364	0.129	0.067	0.067	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	30.066	1.237	1.113	1.154	0.955	0.053	0.041	0.040	0.000
Falcon 2000EX	PW308C	TOTAL	1.567	0.196	0.196	0.209	1.208	0.115	0.011	0.011	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.961	0.278	0.251	0.261	0.370	0.066	0.033	0.032	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	8.159	2.815	2.815	2.993	1.086	0.103	0.054	0.054	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	23.951	0.985	0.887	0.919	0.761	0.042	0.033	0.032	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	5.605	0.918	0.918	0.976	4.364	0.506	0.299	0.299	0.000
28L_GA		APU	0.129	0.010	0.010	0.010	0.635	0.063	0.000	0.000	0.000
		GSE	26.641	1.028	0.927	0.961	0.681	0.053	0.052	0.051	0.000
Aztec	TIO-540-J2B2	TOTAL	50.411	0.909	0.909	0.877	0.026	0.004	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.004	0.008	0.011	0.010	0.000
B737-300	CFM56-3-B1	TOTAL	4.749	0.294	0.294	0.322	3.538	0.360	0.006	0.006	0.000
28R		APU	0.688	0.040	0.040	0.043	0.182	0.039	0.000	0.000	0.000
		GSE	0.226	0.022	0.022	0.023	0.206	0.065	0.039	0.037	0.000
B737-300	CFM56-3B-2	TOTAL	0.800	0.044	0.044	0.047	0.761	0.071	0.001	0.001	0.000
28R		APU	0.126	0.008	0.008	0.008	0.033	0.007	0.000	0.000	0.000
		GSE	0.041	0.004	0.004	0.004	0.037	0.012	0.007	0.007	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.536	0.037	0.037	0.041	0.332	0.036	0.000	0.000	0.000
28R		APU	0.073	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	0.024	0.002	0.002	0.002	0.022	0.007	0.004	0.004	0.000
B737-500	CFM56-3C-1	TOTAL	0.546	0.028	0.028	0.030	0.686	0.058	0.002	0.002	0.000
28R		APU	0.090	0.006	0.006	0.006	0.024	0.006	0.000	0.000	0.000
		GSE	0.030	0.003	0.003	0.003	0.028	0.009	0.006	0.004	0.000
B737-700	CFM56-7B22	TOTAL	3.575	0.376	0.376	0.411	6.307	0.476	0.100	0.100	0.000
28R		APU	0.241	0.019	0.019	0.020	0.328	0.050	0.000	0.000	0.000
		GSE	0.270	0.026	0.025	0.028	0.246	0.078	0.045	0.044	0.000
B737-800	CFM56-7B26	TOTAL	0.017	0.002	0.002	0.002	0.050	0.003	0.001	0.001	0.000
28R		APU	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
B757-300	PW2043	TOTAL	0.194	0.015	0.015	0.017	0.700	0.035	N/A	N/A	0.000
28R		APU	0.009	0.001	0.001	0.001	0.022	0.002	0.000	0.000	0.000
		GSE	0.012	0.001	0.001	0.001	0.011	0.003	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.387	0.002	0.002	0.002	0.434	0.043	0.002	0.002	0.000
28R		APU	0.129	0.008	0.008	0.008	0.034	0.008	0.000	0.000	0.000
		GSE	1.962	0.076	0.069	0.072	0.077	0.010	0.006	0.006	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.823	0.258	0.258	0.273	0.066	0.008	0.004	0.004	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.038	0.084	0.075	0.078	0.065	0.003	0.003	0.002	0.000
CL600	ALF 502L-2	TOTAL	3.623	0.499	0.499	0.530	1.746	0.120	0.022	0.022	0.000
28R_GA											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	22.058	0.880	0.794	0.825	0.960	0.161	0.088	0.086	0.000
Cessna 172 Skyhawk	O-320	TOTAL	13.715	0.224	0.224	0.216	0.024	0.001	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.004	0.009	0.012	0.012	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.126	0.009	0.009	0.009	0.117	0.014	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.055	0.192	0.173	0.180	0.137	0.010	0.006	0.004	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	0.541	0.155	0.155	0.171	0.398	0.040	0.029	0.029	0.000
28R		APU	0.053	0.003	0.003	0.003	0.014	0.003	0.000	0.000	0.000
		GSE	0.018	0.002	0.002	0.002	0.015	0.006	0.003	0.003	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.587	0.302	0.302	0.322	2.503	0.266	0.000	0.000	0.000
28R		APU	0.252	0.024	0.024	0.025	0.180	0.040	0.000	0.000	0.000
		GSE	16.883	0.659	0.594	0.617	0.666	0.088	0.051	0.050	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.509	0.083	0.083	0.087	0.903	0.079	0.000	0.000	0.000
28R		APU	0.071	0.007	0.007	0.007	0.050	0.011	0.000	0.000	0.000
		GSE	4.705	0.184	0.165	0.172	0.185	0.024	0.014	0.013	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	2.037	0.165	0.165	0.175	1.709	0.164	0.000	0.000	0.000
28R		APU	0.141	0.013	0.013	0.014	0.100	0.022	0.000	0.000	0.000
		GSE	9.395	0.367	0.331	0.343	0.370	0.049	0.029	0.028	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	9.975	0.840	0.840	0.893	7.045	0.720	0.000	0.000	0.000
28R		APU	0.675	0.064	0.064	0.068	0.480	0.105	0.000	0.000	0.000
		GSE	45.122	1.761	1.590	1.649	1.780	0.235	0.136	0.131	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	12.381	1.044	1.044	1.110	8.641	0.917	0.000	0.000	0.000
28R		APU	0.872	0.083	0.083	0.088	0.619	0.136	0.000	0.000	0.000
		GSE	58.275	2.275	2.053	2.130	2.299	0.303	0.175	0.170	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	3.740	0.314	0.314	0.334	2.643	0.270	0.000	0.000	0.000
28R		APU	0.254	0.024	0.024	0.025	0.180	0.040	0.000	0.000	0.000
		GSE	16.924	0.660	0.596	0.618	0.668	0.088	0.051	0.050	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	5.612	0.053	0.053	0.057	8.580	0.831	0.083	0.083	0.000
28R		APU	0.549	0.052	0.052	0.057	0.390	0.085	0.000	0.000	0.000
		GSE	36.688	1.432	1.292	1.340	1.447	0.191	0.110	0.107	0.000
Falcon 20	CF700-2D	TOTAL	2.767	0.231	0.231	0.246	0.093	0.034	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.001	0.001	0.002	0.020	0.007	0.004	0.004	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.898	0.104	0.104	0.110	0.905	0.079	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.062	0.201	0.181	0.187	0.139	0.008	0.007	0.007	0.000
HS 125	TFE731-3	TOTAL	4.120	0.671	0.671	0.742	1.915	0.106	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	36.430	1.385	1.247	1.293	0.985	0.071	0.037	0.035	0.000
KC-135R	CFM56-2B-1	TOTAL	0.514	0.029	0.029	0.032	0.638	0.053	0.001	0.001	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.012	0.003	0.003	0.003	0.039	0.010	0.004	0.003	0.000
Learjet 25C	CJ610-6	TOTAL	19.534	1.495	1.495	1.590	0.385	0.107	N/A	N/A	0.000
28R_GA		APU	0.191	0.018	0.018	0.019	0.136	0.030	0.000	0.000	0.000
		GSE	12.777	0.498	0.450	0.467	0.504	0.066	0.039	0.037	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	2.087	0.610	0.610	0.648	0.607	0.042	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.228	0.420	0.378	0.392	0.312	0.014	0.013	0.012	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.003	0.001	0.001	0.001	0.011	0.001	0.000	0.000	0.000
28R		APU	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	37.287	0.672	0.672	0.649	0.020	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.003	0.006	0.008	0.008	0.000
Piper PA-28	O-320	TOTAL	1.420	0.023	0.023	0.022	0.002	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.424	1.142	1.142	1.261	0.114	0.014	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.783	0.258	0.233	0.240	0.183	0.013	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	10.928	3.771	3.771	4.009	1.454	0.138	0.072	0.072	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	32.076	1.319	1.188	1.232	1.019	0.057	0.044	0.042	0.000
Falcon 2000EX	PW308C	TOTAL	1.701	0.213	0.213	0.227	1.311	0.125	0.011	0.011	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.549	0.301	0.272	0.283	0.402	0.072	0.036	0.035	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.845	0.982	0.982	1.044	0.379	0.036	0.019	0.019	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	8.352	0.344	0.310	0.321	0.266	0.014	0.011	0.011	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.586	0.588	0.588	0.624	2.792	0.324	0.192	0.192	0.000
28R_GA		APU	0.083	0.006	0.006	0.007	0.407	0.040	0.000	0.000	0.000
		GSE	17.044	0.658	0.593	0.615	0.435	0.034	0.033	0.032	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.478	0.139	0.139	0.148	0.159	0.010	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.307	0.095	0.086	0.088	0.073	0.004	0.003	0.003	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.764	0.222	0.222	0.235	0.252	0.017	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.681	0.151	0.137	0.141	0.117	0.007	0.006	0.004	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.498	0.434	0.434	0.462	0.496	0.033	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.219	0.297	0.268	0.278	0.229	0.013	0.010	0.010	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.548	0.449	0.449	0.477	0.513	0.034	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.459	0.306	0.277	0.287	0.237	0.013	0.010	0.010	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.543	0.121	0.121	0.134	0.028	0.012	N/A	N/A	0.000
10L_GA		APU	0.006	0.000	0.000	0.000	0.029	0.003	0.000	0.000	0.000
		GSE	1.474	0.057	0.052	0.054	0.039	0.003	0.003	0.003	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.404	0.314	0.314	0.347	0.071	0.032	N/A	N/A	0.000
10R_GA		APU	0.015	0.001	0.001	0.001	0.075	0.008	0.000	0.000	0.000
		GSE	3.806	0.150	0.134	0.140	0.101	0.009	0.010	0.009	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.763	0.618	0.618	0.683	0.140	0.063	N/A	N/A	0.000
28L_GA		APU	0.030	0.002	0.002	0.002	0.148	0.014	0.000	0.000	0.000
		GSE	7.490	0.294	0.265	0.274	0.198	0.018	0.019	0.019	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.894	0.423	0.423	0.468	0.096	0.043	N/A	N/A	0.000
28R_GA		APU	0.021	0.001	0.001	0.002	0.101	0.010	0.000	0.000	0.000
		GSE	5.132	0.202	0.182	0.188	0.136	0.012	0.013	0.012	0.000
Learjet 25B	CJ610-6	TOTAL	4.000	0.306	0.306	0.325	0.078	0.022	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.660	0.109	0.098	0.101	0.082	0.003	0.003	0.003	0.000
Learjet 25B	CJ610-6	TOTAL	14.768	1.130	1.130	1.202	0.291	0.080	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.818	0.403	0.363	0.376	0.300	0.014	0.012	0.012	0.000
Learjet 25B	CJ610-6	TOTAL	49.453	3.784	3.784	4.023	0.973	0.271	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	32.879	1.350	1.216	1.260	1.003	0.046	0.041	0.040	0.000
Learjet 25B	CJ610-6	TOTAL	17.194	1.316	1.316	1.399	0.338	0.094	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.431	0.470	0.422	0.438	0.349	0.017	0.014	0.013	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.285	0.002	0.002	0.003	0.432	0.042	0.004	0.004	0.000
10L		APU	0.122	0.007	0.007	0.008	0.032	0.007	0.000	0.000	0.000
		GSE	1.865	0.073	0.066	0.068	0.074	0.010	0.006	0.006	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.486	0.004	0.004	0.006	0.736	0.072	0.007	0.007	0.000
10R		APU	0.209	0.012	0.012	0.013	0.055	0.012	0.000	0.000	0.000
		GSE	3.174	0.123	0.111	0.116	0.126	0.017	0.010	0.009	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.945	0.009	0.009	0.010	1.430	0.139	0.013	0.013	0.000
28L		APU	0.407	0.023	0.023	0.025	0.107	0.022	0.000	0.000	0.000
		GSE	6.165	0.240	0.217	0.225	0.244	0.032	0.019	0.018	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	1.009	0.010	0.010	0.010	1.527	0.149	0.014	0.014	0.000
28R		APU	0.434	0.025	0.025	0.028	0.115	0.024	0.000	0.000	0.000
		GSE	6.583	0.257	0.231	0.240	0.260	0.034	0.020	0.019	0.000
A320-200	V2500-A1	TOTAL	0.009	0.000	0.000	0.000	0.062	0.003	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
A320-200	V2500-A1	TOTAL	0.235	0.013	0.013	0.014	1.704	0.086	0.002	0.002	0.000
10R		APU	0.013	0.001	0.001	0.001	0.067	0.007	0.000	0.000	0.000
		GSE	0.042	0.004	0.004	0.004	0.039	0.012	0.007	0.007	0.000
A320-200	V2500-A1	TOTAL	0.341	0.019	0.019	0.021	2.477	0.125	0.003	0.003	0.000
28L		APU	0.020	0.001	0.001	0.001	0.098	0.010	0.000	0.000	0.000
		GSE	0.061	0.007	0.006	0.007	0.055	0.018	0.010	0.010	0.000
A320-200	V2500-A1	TOTAL	0.032	0.002	0.002	0.002	0.233	0.012	0.000	0.000	0.000
28R		APU	0.002	0.000	0.000	0.000	0.009	0.001	0.000	0.000	0.000
		GSE	0.006	0.001	0.000	0.001	0.006	0.002	0.001	0.001	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.281	0.003	0.003	0.003	0.478	0.044	0.010	0.010	0.000
10L		APU	0.028	0.002	0.002	0.003	0.020	0.004	0.000	0.000	0.000
		GSE	1.865	0.073	0.066	0.068	0.074	0.010	0.006	0.006	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.478	0.004	0.004	0.006	0.815	0.075	0.017	0.017	0.000
10R		APU	0.047	0.004	0.004	0.004	0.034	0.008	0.000	0.000	0.000
		GSE	3.174	0.123	0.111	0.116	0.126	0.017	0.010	0.009	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.930	0.009	0.009	0.010	1.582	0.146	0.033	0.033	0.000
28L		APU	0.093	0.009	0.009	0.010	0.066	0.014	0.000	0.000	0.000
		GSE	6.165	0.240	0.217	0.225	0.244	0.032	0.019	0.018	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.993	0.010	0.010	0.011	1.689	0.155	0.035	0.035	0.000
28R		APU	0.098	0.009	0.009	0.010	0.071	0.015	0.000	0.000	0.000
		GSE	6.583	0.257	0.231	0.240	0.260	0.034	0.020	0.019	0.000
B757-200	PW2037	TOTAL	0.088	0.008	0.008	0.008	0.204	0.013	0.002	0.002	0.000
10L		APU	0.003	0.000	0.000	0.000	0.009	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
B757-200	PW2037	TOTAL	1.282	0.106	0.106	0.116	2.987	0.192	0.032	0.032	0.000
10R		APU	0.056	0.006	0.006	0.007	0.129	0.013	0.000	0.000	0.000
		GSE	0.071	0.007	0.007	0.007	0.064	0.020	0.012	0.011	0.000
B757-200	PW2037	TOTAL	2.312	0.192	0.192	0.209	5.387	0.345	0.057	0.057	0.000
28L		APU	0.101	0.011	0.011	0.011	0.233	0.024	0.000	0.000	0.000
		GSE	0.127	0.013	0.012	0.013	0.116	0.036	0.022	0.021	0.000
B757-200	PW2037	TOTAL	0.317	0.026	0.026	0.029	0.741	0.047	0.008	0.008	0.000
28R		APU	0.014	0.001	0.001	0.001	0.032	0.003	0.000	0.000	0.000
		GSE	0.018	0.002	0.002	0.002	0.015	0.006	0.003	0.003	0.000
B737-800	CFM56-7B26	TOTAL	0.229	0.023	0.023	0.025	0.671	0.041	0.012	0.012	0.000
10L_New T...		APU	0.018	0.001	0.001	0.001	0.024	0.003	0.000	0.000	0.000
		GSE	0.020	0.002	0.002	0.002	0.019	0.006	0.003	0.003	0.000
B737-800	CFM56-7B26	TOTAL	2.378	0.246	0.246	0.269	6.979	0.428	0.130	0.130	0.000
8_New Term		APU	0.187	0.014	0.014	0.015	0.256	0.039	0.000	0.000	0.000
		GSE	0.209	0.021	0.020	0.021	0.191	0.061	0.035	0.034	0.000
B737-800	CFM56-7B26	TOTAL	5.089	0.526	0.526	0.575	14.941	0.916	0.278	0.278	0.000
26_New Te...		APU	0.401	0.031	0.031	0.033	0.547	0.083	0.000	0.000	0.000
		GSE	0.449	0.045	0.043	0.045	0.409	0.130	0.076	0.074	0.000
B737-800	CFM56-7B26	TOTAL	0.854	0.088	0.088	0.097	2.507	0.154	0.046	0.046	0.000
28R_New ...		APU	0.067	0.006	0.006	0.006	0.091	0.014	0.000	0.000	0.000
		GSE	0.075	0.008	0.008	0.008	0.068	0.022	0.013	0.012	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	5.235	0.030	0.030	0.032	5.884	0.584	0.024	0.024	0.000
10L_New T...		APU	1.750	0.100	0.100	0.109	0.462	0.097	0.000	0.000	0.000
		GSE	26.556	1.036	0.935	0.970	1.048	0.138	0.079	0.077	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	8.914	0.050	0.050	0.055	10.019	0.994	0.042	0.042	0.000
8_New Term		APU	2.980	0.171	0.171	0.186	0.787	0.165	0.000	0.000	0.000
		GSE	45.220	1.765	1.593	1.652	1.785	0.235	0.136	0.131	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	17.355	0.097	0.097	0.107	19.504	1.936	0.082	0.082	0.000
26_New Te...		APU	5.801	0.332	0.332	0.364	1.532	0.323	0.000	0.000	0.000
		GSE	88.032	3.436	3.101	3.217	3.473	0.457	0.265	0.256	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	18.532	0.104	0.104	0.114	20.827	2.067	0.087	0.087	0.000
28R_New ...		APU	6.195	0.355	0.355	0.388	1.636	0.344	0.000	0.000	0.000
		GSE	94.002	3.670	3.310	3.435	3.709	0.488	0.283	0.273	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.208	0.064	0.064	0.071	0.622	0.042	0.012	0.012	0.000
28R_New ...		APU	0.054	0.003	0.003	0.003	0.014	0.003	0.000	0.000	0.000
		GSE	0.014	0.001	0.001	0.001	0.013	0.004	0.002	0.002	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.473	0.453	0.453	0.496	4.395	0.300	0.088	0.088	0.000
26_New Te...		APU	0.383	0.022	0.022	0.024	0.101	0.021	0.000	0.000	0.000
		GSE	0.100	0.011	0.011	0.011	0.094	0.030	0.018	0.017	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.791	0.244	0.244	0.267	2.361	0.161	0.047	0.047	0.000
8_New Term		APU	0.205	0.012	0.012	0.013	0.054	0.011	0.000	0.000	0.000
		GSE	0.054	0.006	0.006	0.006	0.051	0.017	0.010	0.009	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.053	0.017	0.017	0.018	0.158	0.011	0.003	0.003	0.000
10L_New T...		APU	0.013	0.001	0.001	0.001	0.003	0.001	0.000	0.000	0.000
		GSE	0.003	0.000	0.000	0.000	0.003	0.001	0.001	0.001	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	5.116	0.054	0.054	0.053	0.006	0.000	N/A	N/A	4.061
10L_GA		Climb Out	4.276	0.049	0.049	0.046	0.001	0.000	N/A	N/A	2.907
		Takeoff	2.851	0.024	0.024	0.023	0.001	0.000	N/A	N/A	1.976
		Idle	2.711	0.142	0.142	0.138	0.001	0.000	N/A	N/A	2.094
B737-300	CFM56-3-B1	Approach	0.110	0.002	0.002	0.002	0.240	0.029	0.000	0.000	28.924
10L		Climb Out	0.014	0.001	0.001	0.001	0.230	0.014	0.000	0.000	14.877
		Takeoff	0.018	0.001	0.001	0.001	0.345	0.020	0.001	0.001	19.521
		Idle	1.124	0.075	0.075	0.082	0.128	0.033	0.000	0.000	32.692
B737-300	CFM56-3B-2	Approach	0.020	0.000	0.000	0.000	0.051	0.006	0.000	0.000	5.794
10L		Climb Out	0.002	0.000	0.000	0.000	0.051	0.003	0.000	0.000	3.051
		Takeoff	0.003	0.000	0.000	0.000	0.078	0.004	0.000	0.000	4.031
		Idle	0.190	0.011	0.011	0.012	0.025	0.007	0.000	0.000	6.313
B737-500	CFM56-3C-1	Approach	0.014	0.000	0.000	0.000	0.041	0.004	0.000	0.000	4.449
10L		Climb Out	0.002	0.000	0.000	0.000	0.047	0.002	0.000	0.000	2.658
		Takeoff	0.003	0.000	0.000	0.000	0.073	0.003	0.000	0.000	3.492
		Idle	0.123	0.007	0.007	0.008	0.020	0.004	0.000	0.000	4.628
B737-700	CFM56-7B22	Approach	0.090	0.003	0.003	0.004	0.364	0.036	0.008	0.008	36.374
10L		Climb Out	0.013	0.002	0.002	0.002	0.416	0.022	0.004	0.004	21.869
		Takeoff	0.015	0.003	0.003	0.003	0.722	0.031	0.007	0.007	31.235
		Idle	0.822	0.090	0.090	0.099	0.162	0.036	0.008	0.008	36.089
B737-800	CFM56-7B26	Approach	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.170
10L		Climb Out	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.118
		Takeoff	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.166
		Idle	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.162
B757-300	PW2043	Approach	0.003	0.000	0.000	0.000	0.028	0.002	N/A	N/A	2.625
10L		Climb Out	0.001	0.000	0.000	0.000	0.050	0.002	N/A	N/A	1.781
		Takeoff	0.001	0.000	0.000	0.000	0.091	0.002	N/A	N/A	2.420
		Idle	0.045	0.003	0.003	0.004	0.010	0.002	N/A	N/A	2.323
Bombardier CRJ700	CF34-8C1	Approach	0.010	0.000	0.000	0.000	0.037	0.003	0.000	0.000	3.423
10L		Climb Out	0.001	0.000	0.000	0.000	0.023	0.002	0.000	0.000	1.830
		Takeoff	0.001	0.000	0.000	0.000	0.045	0.003	0.000	0.000	3.069
		Idle	0.098	0.000	0.000	0.000	0.017	0.004	0.000	0.000	3.918
Cessna 172 Skyhawk	O-320	Approach	3.086	0.050	0.050	0.047	0.002	0.000	N/A	N/A	2.530
10L_GA		Climb Out	1.664	0.021	0.021	0.020	0.007	0.000	N/A	N/A	1.681
		Takeoff	1.258	0.013	0.013	0.013	0.002	0.000	N/A	N/A	1.164
		Idle	0.810	0.028	0.028	0.026	0.000	0.000	N/A	N/A	0.751
Cessna 441 Conqu...	TPE331-8	Approach	0.008	0.000	0.000	0.000	0.017	0.002	N/A	N/A	1.765
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.374
		Takeoff	0.001	0.000	0.000	0.000	0.004	0.000	N/A	N/A	0.431
		Idle	0.024	0.002	0.002	0.002	0.006	0.001	N/A	N/A	1.292
CITATION I SP	JT15D-1A ,1B	Approach	0.047	0.006	0.006	0.006	0.004	0.001	0.000	0.000	1.178
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.704
		Takeoff	0.002	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.783
		Idle	0.160	0.061	0.061	0.065	0.002	0.001	0.000	0.000	1.207
CL600	ALF 502L-2	Approach	0.080	0.003	0.003	0.004	0.131	0.011	0.002	0.002	20.255
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.127	0.006	0.002	0.002	10.573
		Takeoff	0.006	0.000	0.000	0.000	0.194	0.008	0.001	0.001	14.441
		Idle	1.003	0.147	0.147	0.155	0.074	0.012	0.000	0.000	21.982
DC9-30	JT8D-15 (old co...	Approach	0.025	0.004	0.004	0.004	0.015	0.002	0.002	0.002	2.694
10L		Climb Out	0.002	0.001	0.001	0.001	0.035	0.002	0.002	0.002	2.380
		Takeoff	0.002	0.001	0.001	0.001	0.049	0.002	0.002	0.002	2.518
		Idle	0.119	0.037	0.037	0.041	0.010	0.003	0.002	0.002	3.389
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.155	0.001	0.001	0.001	0.141	0.021	0.000	0.000	20.432
10L		Climb Out	0.010	0.001	0.001	0.001	0.276	0.021	0.000	0.000	20.420
		Takeoff	0.007	0.000	0.000	0.000	0.218	0.014	0.000	0.000	14.157
		Idle	0.876	0.087	0.087	0.093	0.097	0.023	0.000	0.000	22.792
Embraer ERJ 145	AE3007A	Approach	0.020	0.004	0.004	0.004	0.047	0.007	0.000	0.000	6.128
10L		Climb Out	0.006	0.002	0.002	0.002	0.104	0.006	0.000	0.000	5.921
		Takeoff	0.003	0.001	0.001	0.001	0.084	0.004	0.000	0.000	4.105
		Idle	0.119	0.018	0.018	0.019	0.026	0.007	0.000	0.000	6.866
Embraer ERJ 145	AE3007A1E	Approach	0.071	0.000	0.000	0.000	0.094	0.012	0.000	0.000	12.569
10L		Climb Out	0.008	0.000	0.000	0.000	0.192	0.013	0.000	0.000	12.876
		Takeoff	0.007	0.000	0.000	0.000	0.154	0.009	0.000	0.000	8.977
		Idle	0.506	0.047	0.047	0.050	0.056	0.013	0.000	0.000	13.313
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	0.362	0.001	0.001	0.002	0.379	0.053	0.000	0.000	53.182
10L		Climb Out	0.028	0.001	0.001	0.001	0.703	0.051	0.000	0.000	50.233

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.032	0.001	0.001	0.001	0.699	0.043	0.000	0.000	43.434
		Idle	2.465	0.238	0.238	0.254	0.257	0.062	0.000	0.000	61.507
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	0.531	0.002	0.002	0.002	0.484	0.069	0.000	0.000	69.756
10L		Climb Out	0.035	0.002	0.002	0.002	0.940	0.069	0.000	0.000	69.716
		Takeoff	0.024	0.001	0.001	0.001	0.745	0.049	0.000	0.000	48.333
		Idle	2.994	0.297	0.297	0.315	0.332	0.078	0.000	0.000	77.814
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.136	0.001	0.001	0.001	0.142	0.020	0.000	0.000	19.975
10L		Climb Out	0.010	0.001	0.001	0.001	0.265	0.019	0.000	0.000	18.851
		Takeoff	0.012	0.000	0.000	0.000	0.262	0.017	0.000	0.000	16.303
		Idle	0.925	0.089	0.089	0.095	0.097	0.023	0.000	0.000	23.132
Embraer ERJ 170	CF34-8E5	Approach	0.289	0.004	0.004	0.004	0.734	0.068	0.008	0.008	68.201
10L		Climb Out	0.021	0.001	0.001	0.001	0.464	0.036	0.000	0.000	36.690
		Takeoff	0.040	0.001	0.001	0.001	0.909	0.062	0.007	0.007	61.581
		Idle	1.235	0.009	0.009	0.010	0.313	0.068	0.008	0.008	68.006
Falcon 20	CF700-2D	Approach	0.141	0.003	0.003	0.003	0.004	0.002	N/A	N/A	2.275
10L_GA		Climb Out	0.032	0.000	0.000	0.000	0.006	0.001	N/A	N/A	1.263
		Takeoff	0.037	0.000	0.000	0.000	0.010	0.002	N/A	N/A	1.684
		Idle	0.430	0.050	0.050	0.053	0.002	0.003	N/A	N/A	2.776
Falcon 2000EX	PW308C	Approach	0.063	0.002	0.002	0.002	0.094	0.012	0.001	0.001	11.968
10L_Corp		Climb Out	0.007	0.001	0.001	0.001	0.103	0.007	0.001	0.001	6.409
		Takeoff	0.007	0.001	0.001	0.001	0.153	0.009	0.001	0.001	8.333
		Idle	0.427	0.060	0.060	0.064	0.036	0.010	0.001	0.001	10.073
Gulfstream II	SPEY MK511-8	Approach	0.012	0.001	0.001	0.001	0.033	0.004	N/A	N/A	4.538
10L_GA		Climb Out	0.002	0.000	0.000	0.000	0.061	0.003	N/A	N/A	3.526
		Takeoff	0.000	0.000	0.000	0.000	0.094	0.004	N/A	N/A	4.127
		Idle	0.193	0.022	0.022	0.024	0.022	0.007	N/A	N/A	6.077
Gulfstream IV	TAY Mk611-8	Approach	0.097	0.022	0.022	0.024	0.142	0.025	0.014	0.014	24.917
10L_GA		Climb Out	0.009	0.003	0.003	0.003	0.188	0.011	0.007	0.007	11.250
		Takeoff	0.011	0.012	0.012	0.013	0.330	0.015	0.009	0.009	15.608
		Idle	0.843	0.119	0.119	0.127	0.087	0.035	0.021	0.021	34.997
HS 125	TFE731-3	Approach	0.278	0.025	0.025	0.028	0.123	0.010	N/A	N/A	17.870
10L_Corp		Climb Out	0.012	0.001	0.001	0.001	0.123	0.004	N/A	N/A	7.735
		Takeoff	0.013	0.001	0.001	0.001	0.230	0.007	N/A	N/A	12.030
		Idle	0.870	0.165	0.165	0.182	0.068	0.010	N/A	N/A	18.243
KC-135R	CFM56-2B-1	Approach	0.012	0.000	0.000	0.000	0.023	0.003	0.000	0.000	2.887
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.053	0.003	0.000	0.000	3.289
		Takeoff	0.004	0.000	0.000	0.000	0.087	0.004	0.000	0.000	4.730
		Idle	0.126	0.008	0.008	0.009	0.017	0.004	0.000	0.000	4.090
Learjet 25C	CJ610-6	Approach	1.631	0.000	0.000	0.000	0.028	0.010	N/A	N/A	18.542
10L_GA		Climb Out	0.194	0.001	0.001	0.001	0.024	0.003	N/A	N/A	6.936
		Takeoff	0.292	0.001	0.001	0.001	0.045	0.006	N/A	N/A	10.838
		Idle	4.031	0.468	0.468	0.497	0.023	0.014	N/A	N/A	26.007
Learjet 35/36	TFE 731-2-2B	Approach	0.149	0.029	0.029	0.030	0.039	0.003	N/A	N/A	6.626
10L_GA		Climb Out	0.006	0.000	0.000	0.000	0.039	0.001	N/A	N/A	2.974
		Takeoff	0.006	0.000	0.000	0.000	0.054	0.002	N/A	N/A	3.571
		Idle	0.354	0.121	0.121	0.129	0.017	0.003	N/A	N/A	6.046
MD-80-83	JT8D-219 old co...	Approach	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10L		Climb Out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Takeoff	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Idle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	Approach	7.773	0.083	0.083	0.079	0.009	0.001	N/A	N/A	6.170
10L_GA		Climb Out	6.497	0.074	0.074	0.071	0.001	0.000	N/A	N/A	4.417
		Takeoff	4.330	0.037	0.037	0.036	0.001	0.000	N/A	N/A	3.003
		Idle	4.118	0.217	0.217	0.209	0.001	0.000	N/A	N/A	3.182
Piper PA-28	O-320	Approach	0.183	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.150
10L_GA		Climb Out	0.088	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.089
		Takeoff	0.060	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.055
		Idle	0.037	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.035
UC-12J	PT6A-42	Approach	0.121	0.079	0.079	0.087	0.017	0.002	N/A	N/A	3.483
10L_GA		Climb Out	0.006	0.002	0.002	0.002	0.007	0.000	N/A	N/A	0.829
		Takeoff	0.003	0.001	0.001	0.001	0.006	0.000	N/A	N/A	0.648
		Idle	0.277	0.244	0.244	0.269	0.004	0.001	N/A	N/A	2.403
550 Citation	JT15D-4 (B,C,D)	Approach	0.786	0.127	0.127	0.134	0.130	0.013	0.007	0.007	24.574
10L_Corp		Climb Out	0.042	0.002	0.002	0.002	0.112	0.007	0.003	0.003	13.163
		Takeoff	0.030	0.001	0.001	0.001	0.132	0.008	0.004	0.004	14.384
		Idle	2.465	1.016	1.016	1.080	0.067	0.013	0.007	0.007	25.405
B737-300	CFM56-3C-1 (Re...	Approach	0.012	0.000	0.000	0.000	0.023	0.003	0.000	0.000	2.859
10L		Climb Out	0.001	0.000	0.000	0.000	0.021	0.001	0.000	0.000	1.444
		Takeoff	0.002	0.000	0.000	0.000	0.031	0.002	0.000	0.000	1.889
		Idle	0.128	0.010	0.010	0.010	0.013	0.003	0.000	0.000	3.342

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation 10L_GA	JT15D-4 (B,C,D)	Approach	0.157	0.025	0.025	0.026	0.025	0.002	0.001	0.001	4.887
		Climb Out	0.009	0.000	0.000	0.000	0.022	0.001	0.001	0.001	2.617
		Takeoff	0.006	0.000	0.000	0.000	0.026	0.001	0.001	0.001	2.860
		Idle	0.491	0.202	0.202	0.215	0.013	0.002	0.001	0.001	5.052
550 Citation 10R_GA	JT15D-4 (B,C,D)	Approach	0.572	0.091	0.091	0.098	0.095	0.010	0.006	0.006	17.868
		Climb Out	0.031	0.002	0.002	0.002	0.082	0.006	0.002	0.002	9.571
		Takeoff	0.022	0.001	0.001	0.001	0.097	0.006	0.003	0.003	10.459
		Idle	1.792	0.739	0.739	0.786	0.049	0.010	0.006	0.006	18.473
550 Citation 10R_Corp	JT15D-4 (B,C,D)	Approach	1.285	0.207	0.207	0.219	0.213	0.022	0.011	0.011	40.159
		Climb Out	0.068	0.004	0.004	0.004	0.184	0.012	0.006	0.006	21.512
		Takeoff	0.050	0.002	0.002	0.002	0.217	0.013	0.007	0.007	23.507
		Idle	4.027	1.661	1.661	1.766	0.109	0.022	0.012	0.012	41.517
Aztec 10R_GA	TIO-540-J2B2	Approach	7.356	0.078	0.078	0.075	0.008	0.001	N/A	N/A	5.838
		Climb Out	6.148	0.069	0.069	0.067	0.001	0.000	N/A	N/A	4.180
		Takeoff	4.098	0.035	0.035	0.034	0.001	0.000	N/A	N/A	2.842
		Idle	3.897	0.205	0.205	0.197	0.001	0.000	N/A	N/A	3.012
B737-300 10R	CFM56-3C-1 (Re...	Approach	0.109	0.002	0.002	0.002	0.208	0.026	0.000	0.000	26.002
		Climb Out	0.013	0.001	0.001	0.001	0.193	0.013	0.000	0.000	13.131
		Takeoff	0.015	0.001	0.001	0.001	0.285	0.018	0.000	0.000	17.184
		Idle	1.159	0.087	0.087	0.095	0.116	0.031	0.000	0.000	30.400
B737-300 10R	CFM56-3B-2	Approach	0.226	0.004	0.004	0.006	0.578	0.066	0.001	0.001	66.393
		Climb Out	0.032	0.001	0.001	0.002	0.584	0.035	0.001	0.001	34.963
		Takeoff	0.042	0.002	0.002	0.002	0.896	0.046	0.003	0.003	46.197
		Idle	2.178	0.127	0.127	0.139	0.297	0.073	0.001	0.001	72.348
B737-300 10R	CFM56-3-B1	Approach	1.283	0.026	0.026	0.030	2.802	0.337	0.004	0.004	337.540
		Climb Out	0.165	0.009	0.009	0.010	2.691	0.173	0.002	0.002	173.609
		Takeoff	0.205	0.009	0.009	0.010	4.032	0.228	0.007	0.007	227.809
		Idle	13.124	0.870	0.870	0.952	1.488	0.381	0.003	0.003	381.523
B737-500 10R	CFM56-3C-1	Approach	0.172	0.004	0.004	0.004	0.505	0.055	0.001	0.001	55.441
		Climb Out	0.030	0.001	0.001	0.001	0.590	0.033	0.001	0.001	33.118
		Takeoff	0.040	0.001	0.001	0.001	0.901	0.043	0.004	0.004	43.523
		Idle	1.545	0.082	0.082	0.089	0.248	0.057	0.001	0.001	57.661
B737-700 10R	CFM56-7B22	Approach	0.918	0.036	0.036	0.040	3.674	0.367	0.077	0.077	367.439
		Climb Out	0.132	0.022	0.022	0.024	4.198	0.220	0.046	0.046	220.909
		Takeoff	0.158	0.032	0.032	0.034	7.288	0.315	0.066	0.066	315.532
		Idle	8.311	0.912	0.912	0.998	1.640	0.365	0.077	0.077	364.560
B737-800 10R	CFM56-7B26	Approach	0.003	0.000	0.000	0.000	0.025	0.002	0.001	0.001	2.372
		Climb Out	0.001	0.000	0.000	0.000	0.037	0.001	0.000	0.000	1.647
		Takeoff	0.000	0.000	0.000	0.000	0.067	0.002	0.001	0.001	2.329
		Idle	0.043	0.004	0.004	0.004	0.011	0.002	0.001	0.001	2.264
B757-300 10R	PW2043	Approach	0.033	0.002	0.002	0.002	0.267	0.025	N/A	N/A	24.930
		Climb Out	0.007	0.000	0.000	0.000	0.472	0.017	N/A	N/A	16.919
		Takeoff	0.007	0.000	0.000	0.000	0.869	0.023	N/A	N/A	22.984
		Idle	0.427	0.034	0.034	0.037	0.098	0.022	N/A	N/A	22.067
Bombardier CRJ700 10R	CF34-8C1	Approach	0.017	0.000	0.000	0.000	0.065	0.006	0.000	0.000	5.818
		Climb Out	0.001	0.000	0.000	0.000	0.040	0.003	0.000	0.000	3.111
		Takeoff	0.002	0.000	0.000	0.000	0.076	0.006	0.000	0.000	5.217
		Idle	0.166	0.000	0.000	0.001	0.029	0.007	0.000	0.000	6.659
Cessna 172 Skyhawk 10R_GA	O-320	Approach	2.929	0.046	0.046	0.045	0.002	0.000	N/A	N/A	2.401
		Climb Out	1.580	0.020	0.020	0.019	0.007	0.000	N/A	N/A	1.595
		Takeoff	1.193	0.013	0.013	0.012	0.002	0.000	N/A	N/A	1.105
		Idle	0.769	0.026	0.026	0.025	0.000	0.000	N/A	N/A	0.712
Cessna 441 Conqu... 10R_GA	TPE331-8	Approach	0.023	0.001	0.001	0.001	0.051	0.006	N/A	N/A	5.322
		Climb Out	0.002	0.000	0.000	0.000	0.012	0.001	N/A	N/A	1.128
		Takeoff	0.002	0.000	0.000	0.000	0.014	0.001	N/A	N/A	1.301
		Idle	0.073	0.006	0.006	0.007	0.017	0.004	N/A	N/A	3.897
CITATION I SP 10R_GA	JT15D-1A _1B	Approach	0.181	0.020	0.020	0.021	0.015	0.002	0.001	0.001	4.458
		Climb Out	0.009	0.000	0.000	0.000	0.018	0.001	0.001	0.001	2.664
		Takeoff	0.008	0.000	0.000	0.000	0.022	0.001	0.001	0.001	2.960
		Idle	0.603	0.230	0.230	0.245	0.008	0.002	0.001	0.001	4.566
CL600 10R_GA	ALF 502L-2	Approach	0.133	0.007	0.007	0.007	0.218	0.019	0.004	0.004	33.716
		Climb Out	0.006	0.000	0.000	0.000	0.212	0.010	0.004	0.004	17.600
		Takeoff	0.010	0.000	0.000	0.000	0.323	0.013	0.002	0.002	24.039
		Idle	1.670	0.244	0.244	0.259	0.123	0.020	0.001	0.001	36.592
DC9-30 10R	JT8D-15 (old co...	Approach	0.378	0.065	0.065	0.072	0.233	0.040	0.029	0.029	39.394
		Climb Out	0.035	0.009	0.009	0.010	0.522	0.035	0.025	0.025	34.808
		Takeoff	0.025	0.009	0.009	0.010	0.703	0.036	0.026	0.026	36.827
		Idle	1.745	0.546	0.546	0.596	0.149	0.050	0.035	0.035	49.558
Embraer ERJ 135/1... 10R	AE3007A1/3 (Ty...	Approach	0.261	0.001	0.001	0.001	0.238	0.034	0.000	0.000	34.303
		Climb Out	0.018	0.001	0.001	0.001	0.463	0.034	0.000	0.000	34.283

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.012	0.001	0.001	0.001	0.366	0.024	0.000	0.000	23.768
		Idle	1.472	0.146	0.146	0.155	0.163	0.039	0.000	0.000	38.266
Embraer ERJ 145 10R	AE3007A1E	Approach	0.119	0.001	0.001	0.001	0.157	0.021	0.000	0.000	21.162
		Climb Out	0.014	0.001	0.001	0.001	0.323	0.022	0.000	0.000	21.678
		Takeoff	0.012	0.000	0.000	0.000	0.259	0.015	0.000	0.000	15.114
		Idle	0.851	0.079	0.079	0.084	0.096	0.022	0.000	0.000	22.414
Embraer ERJ 145 10R	AE3007A	Approach	0.034	0.007	0.007	0.007	0.080	0.010	0.000	0.000	10.317
		Climb Out	0.009	0.003	0.003	0.003	0.174	0.010	0.000	0.000	9.969
		Takeoff	0.006	0.002	0.002	0.002	0.142	0.007	0.000	0.000	6.911
		Idle	0.201	0.029	0.029	0.031	0.044	0.011	0.000	0.000	11.561
Embraer ERJ 145LR 10R	AE3007A1P (Typ...	Approach	0.229	0.001	0.001	0.001	0.240	0.034	0.000	0.000	33.765
		Climb Out	0.018	0.001	0.001	0.001	0.446	0.032	0.000	0.000	31.865
		Takeoff	0.021	0.001	0.001	0.001	0.444	0.028	0.000	0.000	27.559
		Idle	1.563	0.151	0.151	0.161	0.163	0.039	0.000	0.000	39.101
Embraer ERJ 145LR 10R	AE3007A1/3 (Ty...	Approach	0.898	0.003	0.003	0.003	0.817	0.118	0.000	0.000	117.930
		Climb Out	0.058	0.003	0.003	0.003	1.590	0.118	0.000	0.000	117.861
		Takeoff	0.041	0.002	0.002	0.002	1.260	0.082	0.000	0.000	81.711
		Idle	5.061	0.502	0.502	0.532	0.562	0.131	0.000	0.000	131.553
Embraer ERJ 145LR 10R	AE3007A1/1 (Ty...	Approach	0.612	0.002	0.002	0.003	0.640	0.090	0.000	0.000	89.922
		Climb Out	0.046	0.002	0.002	0.002	1.190	0.085	0.000	0.000	84.937
		Takeoff	0.054	0.002	0.002	0.002	1.183	0.074	0.000	0.000	73.439
		Idle	4.167	0.403	0.403	0.429	0.433	0.104	0.000	0.000	103.998
Embraer ERJ 170 10R	CF34-8E5	Approach	0.492	0.007	0.007	0.008	1.252	0.116	0.013	0.013	116.235
		Climb Out	0.035	0.001	0.001	0.001	0.791	0.063	0.001	0.001	62.532
		Takeoff	0.067	0.002	0.002	0.002	1.550	0.105	0.012	0.012	104.952
		Idle	2.104	0.015	0.015	0.017	0.535	0.116	0.013	0.013	115.901
Falcon 20 10R_GA	CF700-2D	Approach	0.518	0.012	0.012	0.012	0.015	0.009	N/A	N/A	8.362
		Climb Out	0.116	0.000	0.000	0.000	0.020	0.004	N/A	N/A	4.644
		Takeoff	0.137	0.001	0.001	0.001	0.034	0.007	N/A	N/A	6.192
		Idle	1.582	0.184	0.184	0.195	0.009	0.010	N/A	N/A	10.204
Falcon 2000EX 10R_Corp	PW308C	Approach	0.105	0.003	0.003	0.003	0.157	0.020	0.002	0.002	20.021
		Climb Out	0.010	0.001	0.001	0.001	0.172	0.011	0.001	0.001	10.721
		Takeoff	0.011	0.001	0.001	0.001	0.257	0.014	0.001	0.001	13.942
		Idle	0.713	0.100	0.100	0.107	0.061	0.017	0.001	0.001	16.851
Gulfstream II 10R_GA	SPEY MK511-8	Approach	0.044	0.003	0.003	0.003	0.120	0.017	N/A	N/A	16.686
		Climb Out	0.008	0.001	0.001	0.002	0.224	0.013	N/A	N/A	12.964
		Takeoff	0.002	0.001	0.001	0.001	0.344	0.015	N/A	N/A	15.174
		Idle	0.710	0.083	0.083	0.088	0.080	0.022	N/A	N/A	22.343
Gulfstream IV 10R_GA	TAY Mk611-8	Approach	0.234	0.054	0.054	0.057	0.342	0.060	0.035	0.035	60.022
		Climb Out	0.022	0.008	0.008	0.009	0.455	0.028	0.017	0.017	27.100
		Takeoff	0.026	0.030	0.030	0.032	0.794	0.037	0.022	0.022	37.597
		Idle	2.032	0.287	0.287	0.304	0.211	0.084	0.050	0.050	84.306
HS 125 10R_Corp	TFE731-3	Approach	0.470	0.043	0.043	0.047	0.208	0.017	N/A	N/A	30.153
		Climb Out	0.021	0.001	0.001	0.001	0.209	0.007	N/A	N/A	13.051
		Takeoff	0.023	0.001	0.001	0.001	0.389	0.011	N/A	N/A	20.299
		Idle	1.468	0.278	0.278	0.308	0.115	0.017	N/A	N/A	30.782
KC-135R 10R_GA	CFM56-2B-1	Approach	0.105	0.002	0.002	0.002	0.204	0.025	0.000	0.000	24.934
		Climb Out	0.025	0.001	0.001	0.001	0.454	0.029	0.000	0.000	28.405
		Takeoff	0.036	0.001	0.001	0.002	0.756	0.041	0.002	0.002	40.847
		Idle	1.085	0.065	0.065	0.072	0.141	0.035	0.000	0.000	35.322
Learjet 25C 10R_GA	CJ610-6	Approach	2.581	0.000	0.000	0.000	0.044	0.015	N/A	N/A	29.321
		Climb Out	0.308	0.002	0.002	0.002	0.039	0.006	N/A	N/A	10.968
		Takeoff	0.463	0.002	0.002	0.002	0.072	0.009	N/A	N/A	17.138
		Idle	6.375	0.741	0.741	0.787	0.037	0.022	N/A	N/A	41.126
Learjet 35/36 10R_GA	TFE 731-2-2B	Approach	0.568	0.108	0.108	0.115	0.150	0.013	N/A	N/A	25.349
		Climb Out	0.023	0.001	0.001	0.001	0.149	0.007	N/A	N/A	11.376
		Takeoff	0.019	0.001	0.001	0.002	0.208	0.008	N/A	N/A	13.665
		Idle	1.356	0.464	0.464	0.493	0.065	0.012	N/A	N/A	23.133
MD-80-83 10R	JT8D-219 old co...	Approach	0.003	0.001	0.001	0.001	0.009	0.001	0.000	0.000	0.937
		Climb Out	0.001	0.000	0.000	0.000	0.017	0.001	0.000	0.000	0.804
		Takeoff	0.001	0.000	0.000	0.000	0.024	0.001	0.000	0.000	0.886
		Idle	0.012	0.003	0.003	0.003	0.003	0.001	0.000	0.000	0.969
Navajo 10R_GA	TIO-540-J2B2	Approach	2.811	0.030	0.030	0.029	0.003	0.000	N/A	N/A	2.231
		Climb Out	2.349	0.026	0.026	0.025	0.000	0.000	N/A	N/A	1.597
		Takeoff	1.565	0.013	0.013	0.013	0.000	0.000	N/A	N/A	1.086
		Idle	1.489	0.078	0.078	0.076	0.000	0.000	N/A	N/A	1.151
Piper PA-28 10R_GA	O-320	Approach	0.558	0.009	0.009	0.009	0.000	0.000	N/A	N/A	0.456
		Climb Out	0.268	0.003	0.003	0.003	0.001	0.000	N/A	N/A	0.271
		Takeoff	0.181	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.168
		Idle	0.115	0.004	0.004	0.003	0.000	0.000	N/A	N/A	0.107

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
UC-12J	PT6A-42	Approach	0.395	0.258	0.258	0.284	0.053	0.007	N/A	N/A	11.347
10R_GA		Climb Out	0.018	0.006	0.006	0.006	0.020	0.001	N/A	N/A	2.700
		Takeoff	0.011	0.003	0.003	0.004	0.017	0.001	N/A	N/A	2.113
		Idle	0.902	0.795	0.795	0.877	0.015	0.004	N/A	N/A	7.830
Aztec	TIO-540-J2B2	Approach	18.369	0.195	0.195	0.188	0.020	0.001	N/A	N/A	14.578
28L_GA		Climb Out	15.352	0.173	0.173	0.168	0.002	0.001	N/A	N/A	10.437
		Takeoff	10.233	0.088	0.088	0.085	0.002	0.001	N/A	N/A	7.096
		Idle	9.730	0.511	0.511	0.494	0.003	0.001	N/A	N/A	7.520
B737-300	CFM56-3-B1	Approach	2.608	0.055	0.055	0.061	5.697	0.687	0.009	0.009	686.361
28L		Climb Out	0.335	0.018	0.018	0.020	5.472	0.353	0.004	0.004	353.017
		Takeoff	0.417	0.019	0.019	0.020	8.199	0.463	0.013	0.013	463.232
		Idle	26.687	1.769	1.769	1.937	3.026	0.776	0.008	0.008	775.796
B737-300	CFM56-3B-2	Approach	0.459	0.010	0.010	0.011	1.174	0.134	0.002	0.002	134.978
28L		Climb Out	0.064	0.003	0.003	0.003	1.187	0.071	0.001	0.001	71.079
		Takeoff	0.085	0.003	0.003	0.003	1.822	0.094	0.006	0.006	93.918
		Idle	4.427	0.258	0.258	0.282	0.603	0.147	0.001	0.001	147.085
B737-300	CFM56-3C-1 (Re...	Approach	0.251	0.004	0.004	0.006	0.478	0.060	0.001	0.001	59.766
28L		Climb Out	0.030	0.001	0.001	0.001	0.443	0.030	0.000	0.000	30.180
		Takeoff	0.035	0.002	0.002	0.002	0.656	0.040	0.001	0.001	39.497
		Idle	2.662	0.200	0.200	0.218	0.266	0.069	0.001	0.001	69.872
B737-500	CFM56-3C-1	Approach	0.343	0.008	0.008	0.009	1.006	0.110	0.001	0.001	110.540
28L		Climb Out	0.060	0.002	0.002	0.003	1.175	0.066	0.002	0.002	66.032
		Takeoff	0.078	0.002	0.002	0.003	1.797	0.087	0.008	0.008	86.777
		Idle	3.081	0.163	0.163	0.179	0.494	0.115	0.001	0.001	114.966
B737-700	CFM56-7B22	Approach	2.021	0.080	0.080	0.088	8.084	0.808	0.170	0.170	808.395
28L		Climb Out	0.292	0.049	0.049	0.053	9.234	0.486	0.103	0.103	486.017
		Takeoff	0.347	0.069	0.069	0.076	16.036	0.694	0.146	0.146	694.197
		Idle	18.287	2.005	2.005	2.195	3.609	0.802	0.169	0.169	802.062
B737-800	CFM56-7B26	Approach	0.009	0.000	0.000	0.001	0.056	0.006	0.001	0.001	5.253
28L		Climb Out	0.002	0.000	0.000	0.000	0.082	0.003	0.001	0.001	3.645
		Takeoff	0.001	0.000	0.000	0.001	0.149	0.006	0.001	0.001	5.157
		Idle	0.095	0.010	0.010	0.010	0.023	0.006	0.001	0.001	5.013
B757-300	PW2043	Approach	0.076	0.006	0.006	0.006	0.617	0.057	N/A	N/A	57.734
28L		Climb Out	0.015	0.001	0.001	0.001	1.092	0.040	N/A	N/A	39.182
		Takeoff	0.015	0.000	0.000	0.001	2.011	0.053	N/A	N/A	53.226
		Idle	0.987	0.079	0.079	0.087	0.226	0.051	N/A	N/A	51.104
Bombardier CRJ700	CF34-8C1	Approach	0.033	0.001	0.001	0.001	0.126	0.011	0.000	0.000	11.293
28L		Climb Out	0.003	0.000	0.000	0.000	0.077	0.006	0.000	0.000	6.037
		Takeoff	0.004	0.000	0.000	0.000	0.149	0.010	0.000	0.000	10.128
		Idle	0.322	0.001	0.001	0.001	0.056	0.013	0.001	0.001	12.927
CITATION I SP	JT15D-1A ,1B	Approach	0.527	0.057	0.057	0.062	0.045	0.007	0.004	0.004	13.024
28L_GA		Climb Out	0.028	0.000	0.000	0.000	0.053	0.004	0.002	0.002	7.782
		Takeoff	0.023	0.000	0.000	0.000	0.066	0.004	0.002	0.002	8.648
		Idle	1.760	0.674	0.674	0.717	0.023	0.008	0.004	0.004	13.339
CL600	ALF 502L-2	Approach	0.241	0.011	0.011	0.012	0.394	0.033	0.008	0.008	60.826
28L_GA		Climb Out	0.010	0.001	0.001	0.001	0.383	0.018	0.008	0.008	31.751
		Takeoff	0.018	0.001	0.001	0.001	0.582	0.023	0.004	0.004	43.367
		Idle	3.013	0.439	0.439	0.466	0.223	0.035	0.001	0.001	66.016
Cessna 172 Skyhawk	O-320	Approach	7.852	0.125	0.125	0.120	0.007	0.001	N/A	N/A	6.435
28L_GA		Climb Out	4.234	0.053	0.053	0.051	0.017	0.000	N/A	N/A	4.276
		Takeoff	3.198	0.035	0.035	0.034	0.007	0.000	N/A	N/A	2.961
		Idle	2.061	0.071	0.071	0.068	0.001	0.000	N/A	N/A	1.909
Cessna 441 Conqu...	TPE331-8	Approach	0.072	0.003	0.003	0.003	0.157	0.017	N/A	N/A	16.437
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.037	0.003	N/A	N/A	3.481
		Takeoff	0.006	0.000	0.000	0.000	0.044	0.004	N/A	N/A	4.016
		Idle	0.226	0.018	0.018	0.019	0.050	0.012	N/A	N/A	12.034
DC9-30	JT8D-15 (old co...	Approach	0.682	0.117	0.117	0.128	0.419	0.071	0.051	0.051	71.045
28L		Climb Out	0.063	0.015	0.015	0.018	0.941	0.063	0.045	0.045	62.773
		Takeoff	0.046	0.017	0.017	0.018	1.269	0.066	0.047	0.047	66.414
		Idle	3.146	0.983	0.983	1.076	0.268	0.089	0.064	0.064	89.373
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.492	0.002	0.002	0.002	0.448	0.065	0.000	0.000	64.577
28L		Climb Out	0.032	0.002	0.002	0.002	0.871	0.065	0.000	0.000	64.539
		Takeoff	0.022	0.001	0.001	0.001	0.690	0.045	0.000	0.000	44.744
		Idle	2.771	0.274	0.274	0.292	0.308	0.072	0.000	0.000	72.036
Embraer ERJ 145	AE3007A	Approach	0.064	0.012	0.012	0.013	0.152	0.020	0.000	0.000	19.508
28L		Climb Out	0.018	0.006	0.006	0.006	0.330	0.019	0.000	0.000	18.851
		Takeoff	0.010	0.003	0.003	0.003	0.269	0.013	0.000	0.000	13.069
		Idle	0.379	0.055	0.055	0.058	0.084	0.022	0.000	0.000	21.861
Embraer ERJ 145	AE3007A1E	Approach	0.225	0.001	0.001	0.001	0.297	0.040	0.000	0.000	40.016
28L		Climb Out	0.026	0.001	0.001	0.001	0.611	0.041	0.000	0.000	40.992

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.022	0.001	0.001	0.001	0.491	0.029	0.000	0.000	28.580
		Idle	1.609	0.149	0.149	0.159	0.181	0.042	0.000	0.000	42.383
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	1.154	0.006	0.006	0.006	1.208	0.170	0.000	0.000	169.752
28L		Climb Out	0.088	0.004	0.004	0.006	2.247	0.160	0.000	0.000	160.342
		Takeoff	0.103	0.004	0.004	0.004	2.232	0.139	0.000	0.000	138.638
		Idle	7.867	0.762	0.762	0.810	0.819	0.196	0.000	0.000	196.324
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	1.696	0.007	0.007	0.007	1.542	0.223	0.000	0.000	222.565
28L		Climb Out	0.111	0.007	0.007	0.007	3.000	0.223	0.000	0.000	222.435
		Takeoff	0.077	0.004	0.004	0.004	2.378	0.154	0.000	0.000	154.210
		Idle	9.552	0.946	0.946	1.005	1.060	0.248	0.000	0.000	248.275
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.433	0.002	0.002	0.002	0.454	0.064	0.000	0.000	63.728
28L		Climb Out	0.033	0.002	0.002	0.002	0.842	0.061	0.000	0.000	60.141
		Takeoff	0.039	0.001	0.001	0.002	0.838	0.052	0.000	0.000	52.014
		Idle	2.950	0.284	0.284	0.303	0.308	0.074	0.000	0.000	73.799
Embraer ERJ 170	CF34-8E5	Approach	0.958	0.013	0.013	0.014	2.437	0.226	0.026	0.026	226.329
28L		Climb Out	0.069	0.002	0.002	0.002	1.540	0.121	0.002	0.002	121.760
		Takeoff	0.131	0.004	0.004	0.004	3.018	0.204	0.024	0.024	204.359
		Idle	4.098	0.030	0.030	0.032	1.041	0.226	0.026	0.026	225.680
Falcon 20	CF700-2D	Approach	1.755	0.040	0.040	0.042	0.051	0.029	N/A	N/A	28.299
28L_GA		Climb Out	0.392	0.001	0.001	0.002	0.067	0.015	N/A	N/A	15.717
		Takeoff	0.461	0.002	0.002	0.002	0.117	0.021	N/A	N/A	20.954
		Idle	5.352	0.622	0.622	0.660	0.031	0.034	N/A	N/A	34.530
Gulfstream II	SPEY MK511-8	Approach	0.150	0.010	0.010	0.011	0.407	0.056	N/A	N/A	56.465
28L_GA		Climb Out	0.028	0.006	0.006	0.006	0.759	0.044	N/A	N/A	43.872
		Takeoff	0.007	0.004	0.004	0.004	1.165	0.052	N/A	N/A	51.350
		Idle	2.402	0.279	0.279	0.297	0.272	0.076	N/A	N/A	75.609
HS 125	TFE731-3	Approach	0.922	0.084	0.084	0.093	0.410	0.032	N/A	N/A	59.194
28L_Corp		Climb Out	0.042	0.002	0.002	0.002	0.410	0.014	N/A	N/A	25.622
		Takeoff	0.045	0.002	0.002	0.002	0.763	0.022	N/A	N/A	39.850
		Idle	2.883	0.547	0.547	0.603	0.225	0.033	N/A	N/A	60.432
KC-135R	CFM56-2B-1	Approach	0.243	0.004	0.004	0.006	0.474	0.057	0.001	0.001	57.741
28L_GA		Climb Out	0.060	0.003	0.003	0.003	1.053	0.066	0.001	0.001	65.782
		Takeoff	0.085	0.003	0.003	0.004	1.750	0.095	0.006	0.006	94.593
		Idle	2.511	0.150	0.150	0.165	0.327	0.082	0.001	0.001	81.799
Learjet 25C	CJ610-6	Approach	5.031	0.000	0.000	0.000	0.086	0.031	N/A	N/A	57.166
28L_GA		Climb Out	0.599	0.004	0.004	0.004	0.075	0.011	N/A	N/A	21.385
		Takeoff	0.902	0.003	0.003	0.003	0.140	0.018	N/A	N/A	33.413
		Idle	12.429	1.443	1.443	1.534	0.072	0.043	N/A	N/A	80.182
Learjet 35/36	TFE 731-2-2B	Approach	1.723	0.327	0.327	0.348	0.454	0.042	N/A	N/A	76.977
28L_GA		Climb Out	0.071	0.004	0.004	0.004	0.452	0.019	N/A	N/A	34.546
		Takeoff	0.057	0.004	0.004	0.006	0.633	0.022	N/A	N/A	41.498
		Idle	4.116	1.408	1.408	1.497	0.198	0.037	N/A	N/A	70.247
MD-80-83	JT8D-219 old co...	Approach	0.007	0.002	0.002	0.003	0.015	0.002	0.000	0.000	1.685
28L		Climb Out	0.002	0.001	0.001	0.001	0.030	0.001	0.000	0.000	1.446
		Takeoff	0.001	0.000	0.000	0.000	0.043	0.001	0.000	0.000	1.596
		Idle	0.022	0.007	0.007	0.007	0.007	0.002	0.000	0.000	1.744
Navajo	TIO-540-J2B2	Approach	8.717	0.093	0.093	0.089	0.010	0.001	N/A	N/A	6.919
28L_GA		Climb Out	7.286	0.083	0.083	0.079	0.001	0.000	N/A	N/A	4.953
		Takeoff	4.857	0.042	0.042	0.041	0.001	0.000	N/A	N/A	3.368
		Idle	4.618	0.243	0.243	0.235	0.001	0.000	N/A	N/A	3.569
Piper PA-28	O-320	Approach	1.728	0.028	0.028	0.026	0.001	0.000	N/A	N/A	1.418
28L_GA		Climb Out	0.832	0.010	0.010	0.010	0.003	0.000	N/A	N/A	0.840
		Takeoff	0.562	0.007	0.007	0.006	0.001	0.000	N/A	N/A	0.520
		Idle	0.357	0.012	0.012	0.012	0.000	0.000	N/A	N/A	0.331
UC-12J	PT6A-42	Approach	0.961	0.627	0.627	0.692	0.128	0.015	N/A	N/A	27.637
28L_GA		Climb Out	0.043	0.013	0.013	0.014	0.050	0.003	N/A	N/A	6.574
		Takeoff	0.026	0.009	0.009	0.010	0.041	0.003	N/A	N/A	5.147
		Idle	2.196	1.935	1.935	2.137	0.037	0.010	N/A	N/A	19.071
550 Citation	JT15D-4 (B,C,D)	Approach	2.424	0.390	0.390	0.414	0.401	0.041	0.021	0.021	75.754
28L_Corp		Climb Out	0.129	0.008	0.008	0.008	0.347	0.022	0.011	0.011	40.578
		Takeoff	0.093	0.004	0.004	0.004	0.409	0.024	0.012	0.012	44.340
		Idle	7.597	3.133	3.133	3.330	0.206	0.042	0.022	0.022	78.316
Falcon 2000EX	PW308C	Approach	0.195	0.006	0.006	0.006	0.293	0.037	0.003	0.003	37.408
28L_Corp		Climb Out	0.020	0.002	0.002	0.002	0.321	0.020	0.002	0.002	20.031
		Takeoff	0.021	0.002	0.002	0.002	0.481	0.026	0.002	0.002	26.050
		Idle	1.332	0.187	0.187	0.198	0.115	0.032	0.003	0.003	31.484
550 Citation	JT15D-4 (B,C,D)	Approach	1.931	0.311	0.311	0.331	0.320	0.033	0.017	0.017	60.347
28L_GA		Climb Out	0.103	0.007	0.007	0.007	0.277	0.018	0.009	0.009	32.325
		Takeoff	0.074	0.003	0.003	0.003	0.326	0.019	0.010	0.010	35.322
		Idle	6.052	2.496	2.496	2.653	0.164	0.034	0.018	0.018	62.388

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV	TAY Mk611-8	Approach	0.567	0.131	0.131	0.139	0.829	0.146	0.086	0.086	145.405
28L_GA		Climb Out	0.053	0.020	0.020	0.021	1.103	0.066	0.039	0.039	65.651
		Takeoff	0.064	0.073	0.073	0.077	1.921	0.091	0.054	0.054	91.077
		Idle	4.922	0.694	0.694	0.739	0.510	0.204	0.120	0.120	204.231
Aztec	TIO-540-J2B2	Approach	17.249	0.183	0.183	0.177	0.019	0.001	N/A	N/A	13.690
28R_GA		Climb Out	14.416	0.163	0.163	0.157	0.002	0.001	N/A	N/A	9.800
		Takeoff	9.609	0.083	0.083	0.079	0.002	0.001	N/A	N/A	6.663
		Idle	9.137	0.481	0.481	0.464	0.002	0.001	N/A	N/A	7.061
B737-300	CFM56-3-B1	Approach	0.412	0.009	0.009	0.010	0.901	0.108	0.001	0.001	108.464
28R		Climb Out	0.053	0.003	0.003	0.003	0.864	0.056	0.001	0.001	55.787
		Takeoff	0.066	0.003	0.003	0.003	1.295	0.073	0.002	0.002	73.203
		Idle	4.217	0.280	0.280	0.306	0.478	0.122	0.001	0.001	122.597
B737-300	CFM56-3B-2	Approach	0.073	0.001	0.001	0.002	0.186	0.021	0.000	0.000	21.452
28R		Climb Out	0.010	0.000	0.000	0.001	0.188	0.011	0.000	0.000	11.296
		Takeoff	0.013	0.000	0.000	0.001	0.290	0.015	0.001	0.001	14.926
		Idle	0.703	0.041	0.041	0.045	0.096	0.023	0.000	0.000	23.377
B737-300	CFM56-3C-1 (Re...	Approach	0.045	0.001	0.001	0.001	0.086	0.011	0.000	0.000	10.755
28R		Climb Out	0.006	0.000	0.000	0.000	0.079	0.006	0.000	0.000	5.431
		Takeoff	0.007	0.000	0.000	0.000	0.118	0.007	0.000	0.000	7.108
		Idle	0.480	0.036	0.036	0.040	0.047	0.012	0.000	0.000	12.574
B737-500	CFM56-3C-1	Approach	0.053	0.001	0.001	0.001	0.154	0.017	0.000	0.000	16.940
28R		Climb Out	0.009	0.000	0.000	0.000	0.180	0.010	0.000	0.000	10.119
		Takeoff	0.012	0.000	0.000	0.000	0.276	0.013	0.001	0.001	13.298
		Idle	0.472	0.025	0.025	0.028	0.076	0.018	0.000	0.000	17.618
B737-700	CFM56-7B22	Approach	0.345	0.014	0.014	0.015	1.379	0.138	0.029	0.029	137.943
28R		Climb Out	0.050	0.009	0.009	0.009	1.575	0.083	0.018	0.018	82.933
		Takeoff	0.060	0.012	0.012	0.013	2.736	0.118	0.025	0.025	118.457
		Idle	3.121	0.342	0.342	0.375	0.616	0.137	0.029	0.029	136.863
B737-800	CFM56-7B26	Approach	0.001	0.000	0.000	0.000	0.009	0.001	0.000	0.000	0.848
28R		Climb Out	0.000	0.000	0.000	0.000	0.013	0.001	0.000	0.000	0.588
		Takeoff	0.000	0.000	0.000	0.000	0.024	0.001	0.000	0.000	0.832
		Idle	0.015	0.001	0.001	0.002	0.003	0.001	0.000	0.000	0.809
B757-300	PW2043	Approach	0.013	0.001	0.001	0.001	0.109	0.010	N/A	N/A	10.235
28R		Climb Out	0.002	0.000	0.000	0.000	0.194	0.007	N/A	N/A	6.946
		Takeoff	0.003	0.000	0.000	0.000	0.356	0.010	N/A	N/A	9.436
		Idle	0.175	0.014	0.014	0.015	0.040	0.009	N/A	N/A	9.059
Bombardier CRJ700	CF34-8C1	Approach	0.035	0.001	0.001	0.001	0.133	0.012	0.001	0.001	12.064
28R		Climb Out	0.003	0.000	0.000	0.000	0.083	0.007	0.000	0.000	6.450
		Takeoff	0.004	0.000	0.000	0.000	0.159	0.011	0.000	0.000	10.818
		Idle	0.344	0.001	0.001	0.001	0.060	0.014	0.001	0.001	13.809
CITATION I SP	JT15D-1A _1B	Approach	0.185	0.020	0.020	0.022	0.015	0.002	0.001	0.001	4.586
28R_GA		Climb Out	0.010	0.000	0.000	0.000	0.019	0.001	0.001	0.001	2.740
		Takeoff	0.008	0.000	0.000	0.000	0.023	0.001	0.001	0.001	3.045
		Idle	0.619	0.237	0.237	0.252	0.008	0.002	0.001	0.001	4.697
CL600	ALF 502L-2	Approach	0.267	0.012	0.012	0.013	0.434	0.036	0.008	0.008	67.183
28R_GA		Climb Out	0.011	0.001	0.001	0.001	0.422	0.019	0.008	0.008	35.069
		Takeoff	0.019	0.001	0.001	0.001	0.644	0.025	0.006	0.006	47.900
		Idle	3.327	0.485	0.485	0.516	0.247	0.040	0.001	0.001	72.915
Cessna 172 Skyhawk	O-320	Approach	6.208	0.099	0.099	0.095	0.004	0.001	N/A	N/A	5.088
28R_GA		Climb Out	3.348	0.042	0.042	0.041	0.013	0.000	N/A	N/A	3.381
		Takeoff	2.529	0.028	0.028	0.026	0.006	0.000	N/A	N/A	2.341
		Idle	1.630	0.056	0.056	0.054	0.001	0.000	N/A	N/A	1.509
Cessna 441 Conqu...	TPE331-8	Approach	0.029	0.001	0.001	0.001	0.064	0.007	N/A	N/A	6.701
28R_GA		Climb Out	0.002	0.000	0.000	0.000	0.015	0.001	N/A	N/A	1.420
		Takeoff	0.002	0.000	0.000	0.000	0.018	0.001	N/A	N/A	1.637
		Idle	0.093	0.008	0.008	0.008	0.020	0.004	N/A	N/A	4.906
DC9-30	JT8D-15 (old co...	Approach	0.094	0.017	0.017	0.018	0.057	0.010	0.007	0.007	9.764
28R		Climb Out	0.009	0.002	0.002	0.002	0.129	0.009	0.007	0.007	8.628
		Takeoff	0.007	0.002	0.002	0.002	0.174	0.009	0.007	0.007	9.128
		Idle	0.432	0.136	0.136	0.148	0.036	0.012	0.009	0.009	12.283
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.532	0.002	0.002	0.002	0.484	0.069	0.000	0.000	69.814
28R		Climb Out	0.035	0.002	0.002	0.002	0.941	0.069	0.000	0.000	69.773
		Takeoff	0.024	0.001	0.001	0.001	0.746	0.049	0.000	0.000	48.373
		Idle	2.996	0.297	0.297	0.315	0.333	0.078	0.000	0.000	77.878
Embraer ERJ 145	AE3007A	Approach	0.069	0.013	0.013	0.014	0.164	0.021	0.000	0.000	21.134
28R		Climb Out	0.019	0.006	0.006	0.007	0.357	0.021	0.000	0.000	20.421
		Takeoff	0.011	0.003	0.003	0.003	0.291	0.014	0.000	0.000	14.159
		Idle	0.411	0.060	0.060	0.063	0.090	0.023	0.000	0.000	23.682
Embraer ERJ 145	AE3007A1E	Approach	0.244	0.001	0.001	0.001	0.321	0.043	0.000	0.000	43.287
28R		Climb Out	0.029	0.001	0.001	0.001	0.661	0.044	0.000	0.000	44.343

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.024	0.001	0.001	0.001	0.531	0.031	0.000	0.000	30.915
		Idle	1.741	0.161	0.161	0.172	0.195	0.046	0.000	0.000	45.846
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	1.250	0.006	0.006	0.006	1.308	0.184	0.000	0.000	183.813
28R		Climb Out	0.096	0.006	0.006	0.006	2.433	0.174	0.000	0.000	173.623
		Takeoff	0.111	0.004	0.004	0.004	2.417	0.150	0.000	0.000	150.120
		Idle	8.519	0.825	0.825	0.876	0.886	0.213	0.000	0.000	212.586
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	1.836	0.008	0.008	0.008	1.670	0.241	0.000	0.000	240.983
28R		Climb Out	0.120	0.008	0.008	0.008	3.249	0.240	0.000	0.000	240.843
		Takeoff	0.084	0.006	0.006	0.006	2.575	0.166	0.000	0.000	166.972
		Idle	10.342	1.024	1.024	1.089	1.148	0.269	0.000	0.000	268.820
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.468	0.002	0.002	0.002	0.492	0.069	0.000	0.000	69.006
28R		Climb Out	0.035	0.002	0.002	0.002	0.913	0.065	0.000	0.000	65.122
		Takeoff	0.042	0.002	0.002	0.002	0.907	0.056	0.000	0.000	56.321
		Idle	3.194	0.309	0.309	0.327	0.333	0.079	0.000	0.000	79.910
Embraer ERJ 170	CF34-8E5	Approach	1.022	0.014	0.014	0.015	2.603	0.241	0.028	0.028	241.638
28R		Climb Out	0.074	0.002	0.002	0.003	1.645	0.130	0.002	0.002	129.996
		Takeoff	0.140	0.004	0.004	0.004	3.222	0.218	0.025	0.025	218.180
		Idle	4.375	0.031	0.031	0.034	1.111	0.241	0.028	0.028	240.944
Falcon 20	CF700-2D	Approach	0.610	0.013	0.013	0.014	0.018	0.010	N/A	N/A	9.835
28R_GA		Climb Out	0.137	0.000	0.000	0.001	0.023	0.006	N/A	N/A	5.462
		Takeoff	0.160	0.001	0.001	0.001	0.041	0.008	N/A	N/A	7.282
		Idle	1.860	0.216	0.216	0.229	0.011	0.012	N/A	N/A	12.000
Gulfstream II	SPEY MK511-8	Approach	0.052	0.003	0.003	0.003	0.141	0.020	N/A	N/A	19.622
28R_GA		Climb Out	0.010	0.002	0.002	0.002	0.263	0.015	N/A	N/A	15.246
		Takeoff	0.002	0.001	0.001	0.002	0.405	0.018	N/A	N/A	17.845
		Idle	0.834	0.097	0.097	0.104	0.095	0.026	N/A	N/A	26.276
HS 125	TFE731-3	Approach	0.976	0.088	0.088	0.098	0.434	0.034	N/A	N/A	62.704
28R_Corp		Climb Out	0.044	0.002	0.002	0.002	0.434	0.014	N/A	N/A	27.141
		Takeoff	0.047	0.002	0.002	0.003	0.808	0.023	N/A	N/A	42.212
		Idle	3.053	0.579	0.579	0.639	0.238	0.034	N/A	N/A	64.015
KC-135R	CFM56-2B-1	Approach	0.043	0.001	0.001	0.001	0.084	0.010	0.000	0.000	10.236
28R_GA		Climb Out	0.011	0.001	0.001	0.001	0.186	0.012	0.000	0.000	11.661
		Takeoff	0.015	0.001	0.001	0.001	0.310	0.017	0.001	0.001	16.768
		Idle	0.445	0.026	0.026	0.030	0.058	0.014	0.000	0.000	14.501
Learjet 25C	CJ610-6	Approach	5.183	0.000	0.000	0.000	0.088	0.032	N/A	N/A	58.899
28R_GA		Climb Out	0.617	0.004	0.004	0.004	0.077	0.012	N/A	N/A	22.032
		Takeoff	0.929	0.003	0.003	0.003	0.144	0.019	N/A	N/A	34.425
		Idle	12.804	1.487	1.487	1.581	0.074	0.044	N/A	N/A	82.612
Learjet 35/36	TFE 731-2-2B	Approach	0.602	0.115	0.115	0.122	0.159	0.014	N/A	N/A	26.912
28R_GA		Climb Out	0.024	0.001	0.001	0.001	0.158	0.007	N/A	N/A	12.078
		Takeoff	0.020	0.002	0.002	0.002	0.222	0.008	N/A	N/A	14.508
		Idle	1.440	0.492	0.492	0.524	0.069	0.013	N/A	N/A	24.559
MD-80-83	JT8D-219 old co...	Approach	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.187
28R		Climb Out	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.161
		Takeoff	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.177
		Idle	0.002	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.194
Navajo	TIO-540-J2B2	Approach	12.758	0.136	0.136	0.131	0.014	0.001	N/A	N/A	10.126
28R_GA		Climb Out	10.663	0.120	0.120	0.116	0.002	0.001	N/A	N/A	7.249
		Takeoff	7.108	0.061	0.061	0.058	0.002	0.000	N/A	N/A	4.928
		Idle	6.758	0.356	0.356	0.343	0.002	0.001	N/A	N/A	5.223
Piper PA-28	O-320	Approach	0.705	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.579
28R_GA		Climb Out	0.340	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.343
		Takeoff	0.229	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.213
		Idle	0.146	0.006	0.006	0.004	0.000	0.000	N/A	N/A	0.134
UC-12J	PT6A-42	Approach	0.424	0.277	0.277	0.306	0.056	0.007	N/A	N/A	12.208
28R_GA		Climb Out	0.019	0.006	0.006	0.007	0.022	0.001	N/A	N/A	2.905
		Takeoff	0.012	0.004	0.004	0.004	0.018	0.001	N/A	N/A	2.274
		Idle	0.970	0.854	0.854	0.945	0.017	0.004	N/A	N/A	8.424
550 Citation	JT15D-4 (B,C,D)	Approach	2.586	0.417	0.417	0.442	0.428	0.044	0.023	0.023	80.819
28R_Corp		Climb Out	0.138	0.008	0.008	0.009	0.370	0.023	0.012	0.012	43.291
		Takeoff	0.099	0.004	0.004	0.004	0.437	0.025	0.013	0.013	47.306
		Idle	8.104	3.342	3.342	3.553	0.219	0.045	0.023	0.023	83.552
Falcon 2000EX	PW308C	Approach	0.212	0.006	0.006	0.006	0.317	0.041	0.003	0.003	40.569
28R_Corp		Climb Out	0.021	0.002	0.002	0.002	0.347	0.022	0.002	0.002	21.724
		Takeoff	0.023	0.002	0.002	0.002	0.521	0.029	0.002	0.002	28.252
		Idle	1.444	0.203	0.203	0.216	0.123	0.034	0.003	0.003	34.145
550 Citation	JT15D-4 (B,C,D)	Approach	0.674	0.108	0.108	0.116	0.111	0.011	0.006	0.006	21.043
28R_GA		Climb Out	0.036	0.002	0.002	0.002	0.097	0.007	0.003	0.003	11.272
		Takeoff	0.025	0.001	0.001	0.001	0.114	0.007	0.003	0.003	12.317
		Idle	2.110	0.870	0.870	0.925	0.057	0.012	0.007	0.007	21.754

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV	TAY Mk611-8	Approach	0.363	0.084	0.084	0.089	0.530	0.093	0.055	0.055	93.024
28R_GA		Climb Out	0.033	0.012	0.012	0.013	0.705	0.042	0.025	0.025	42.000
		Takeoff	0.041	0.046	0.046	0.050	1.229	0.058	0.034	0.034	58.268
		Idle	3.149	0.444	0.444	0.472	0.326	0.131	0.077	0.077	130.658
Citation VII	TFE 731-2-2B	Approach	0.143	0.028	0.028	0.029	0.037	0.003	N/A	N/A	6.385
10L_GA		Climb Out	0.007	0.000	0.000	0.000	0.042	0.002	N/A	N/A	3.208
		Takeoff	0.006	0.000	0.000	0.000	0.063	0.002	N/A	N/A	4.155
		Idle	0.324	0.110	0.110	0.118	0.015	0.003	N/A	N/A	5.521
Citation VII	TFE 731-2-2B	Approach	0.228	0.043	0.043	0.046	0.061	0.006	N/A	N/A	10.185
10R_GA		Climb Out	0.010	0.001	0.001	0.001	0.067	0.003	N/A	N/A	5.117
		Takeoff	0.009	0.001	0.001	0.001	0.101	0.003	N/A	N/A	6.627
		Idle	0.516	0.176	0.176	0.187	0.025	0.004	N/A	N/A	8.807
Citation VII	TFE 731-2-2B	Approach	0.448	0.085	0.085	0.090	0.118	0.011	N/A	N/A	19.978
28L_GA		Climb Out	0.020	0.001	0.001	0.001	0.131	0.006	N/A	N/A	10.037
		Takeoff	0.018	0.001	0.001	0.001	0.198	0.007	N/A	N/A	13.000
		Idle	1.012	0.346	0.346	0.368	0.049	0.009	N/A	N/A	17.275
Citation VII	TFE 731-2-2B	Approach	0.462	0.088	0.088	0.094	0.121	0.011	N/A	N/A	20.644
28R_GA		Climb Out	0.021	0.001	0.001	0.001	0.136	0.006	N/A	N/A	10.372
		Takeoff	0.019	0.001	0.001	0.001	0.205	0.008	N/A	N/A	13.433
		Idle	1.046	0.358	0.358	0.380	0.051	0.010	N/A	N/A	17.851
HS 748 2A SERIES	RDa7	Approach	0.123	0.011	0.011	0.012	0.003	0.003	N/A	N/A	3.716
10L_GA		Climb Out	0.009	0.003	0.003	0.003	0.012	0.002	N/A	N/A	2.592
		Takeoff	0.006	0.002	0.002	0.002	0.009	0.002	N/A	N/A	1.667
		Idle	0.406	0.106	0.106	0.117	0.003	0.004	N/A	N/A	4.436
HS 748 2A SERIES	RDa7	Approach	0.320	0.029	0.029	0.032	0.009	0.010	N/A	N/A	9.599
10R_GA		Climb Out	0.023	0.008	0.008	0.008	0.030	0.007	N/A	N/A	6.695
		Takeoff	0.014	0.004	0.004	0.004	0.024	0.004	N/A	N/A	4.307
		Idle	1.047	0.273	0.273	0.302	0.008	0.011	N/A	N/A	11.459
HS 748 2A SERIES	RDa7	Approach	0.629	0.056	0.056	0.063	0.017	0.019	N/A	N/A	18.888
28L_GA		Climb Out	0.046	0.014	0.014	0.017	0.060	0.013	N/A	N/A	13.175
		Takeoff	0.028	0.009	0.009	0.009	0.047	0.009	N/A	N/A	8.473
		Idle	2.061	0.539	0.539	0.595	0.015	0.022	N/A	N/A	22.548
HS 748 2A SERIES	RDa7	Approach	0.431	0.039	0.039	0.043	0.012	0.013	N/A	N/A	12.943
28R_GA		Climb Out	0.032	0.010	0.010	0.011	0.041	0.009	N/A	N/A	9.028
		Takeoff	0.019	0.006	0.006	0.007	0.032	0.006	N/A	N/A	5.807
		Idle	1.412	0.369	0.369	0.408	0.011	0.015	N/A	N/A	15.451
Learjet 25B	CJ610-6	Approach	1.062	0.000	0.000	0.000	0.018	0.007	N/A	N/A	12.063
10L_GA		Climb Out	0.127	0.001	0.001	0.001	0.015	0.002	N/A	N/A	4.512
		Takeoff	0.191	0.001	0.001	0.001	0.030	0.003	N/A	N/A	7.050
		Idle	2.622	0.304	0.304	0.324	0.015	0.009	N/A	N/A	16.918
Learjet 25B	CJ610-6	Approach	3.919	0.000	0.000	0.000	0.067	0.024	N/A	N/A	44.527
10R_GA		Climb Out	0.466	0.003	0.003	0.003	0.058	0.009	N/A	N/A	16.656
		Takeoff	0.702	0.002	0.002	0.003	0.109	0.014	N/A	N/A	26.026
		Idle	9.680	1.124	1.124	1.195	0.056	0.034	N/A	N/A	62.454
Learjet 25B	CJ610-6	Approach	13.122	0.000	0.000	0.000	0.224	0.080	N/A	N/A	149.107
28L_GA		Climb Out	1.562	0.011	0.011	0.012	0.195	0.030	N/A	N/A	55.777
		Takeoff	2.353	0.009	0.009	0.009	0.366	0.047	N/A	N/A	87.151
		Idle	32.417	3.764	3.764	4.002	0.188	0.112	N/A	N/A	209.139
Learjet 25B	CJ610-6	Approach	4.562	0.000	0.000	0.000	0.078	0.028	N/A	N/A	51.841
28R_GA		Climb Out	0.543	0.004	0.004	0.004	0.068	0.010	N/A	N/A	19.392
		Takeoff	0.818	0.003	0.003	0.003	0.127	0.017	N/A	N/A	30.300
		Idle	11.270	1.308	1.308	1.391	0.065	0.040	N/A	N/A	72.713
Bombardier CRJ900	CF34-8C5	Approach	0.052	0.001	0.001	0.001	0.131	0.012	0.001	0.001	12.236
10L		Climb Out	0.003	0.000	0.000	0.000	0.083	0.007	0.000	0.000	6.572
		Takeoff	0.007	0.000	0.000	0.000	0.162	0.011	0.001	0.001	11.029
		Idle	0.223	0.001	0.001	0.002	0.056	0.012	0.001	0.001	12.229
Bombardier CRJ900	CF34-8C5	Approach	0.088	0.001	0.001	0.001	0.224	0.021	0.002	0.002	20.819
10R		Climb Out	0.007	0.000	0.000	0.000	0.141	0.011	0.000	0.000	11.183
		Takeoff	0.012	0.000	0.000	0.000	0.276	0.019	0.002	0.002	18.765
		Idle	0.380	0.002	0.002	0.003	0.096	0.021	0.002	0.002	20.808
Bombardier CRJ900	CF34-8C5	Approach	0.172	0.002	0.002	0.002	0.434	0.041	0.004	0.004	40.452
28L		Climb Out	0.012	0.000	0.000	0.000	0.273	0.022	0.000	0.000	21.728
		Takeoff	0.023	0.001	0.001	0.001	0.536	0.036	0.004	0.004	36.459
		Idle	0.737	0.006	0.006	0.006	0.186	0.041	0.004	0.004	40.429
Bombardier CRJ900	CF34-8C5	Approach	0.183	0.002	0.002	0.003	0.464	0.043	0.004	0.004	43.191
28R		Climb Out	0.013	0.000	0.000	0.000	0.292	0.023	0.000	0.000	23.199
		Takeoff	0.025	0.001	0.001	0.001	0.572	0.039	0.004	0.004	38.928
		Idle	0.788	0.006	0.006	0.007	0.198	0.043	0.004	0.004	43.168
A320-200	V2500-A1	Approach	0.001	0.000	0.000	0.000	0.012	0.001	0.000	0.000	0.891
10L		Climb Out	0.000	0.000	0.000	0.000	0.019	0.001	0.000	0.000	0.611

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.000	0.000	0.000	0.000	0.025	0.001	0.000	0.000	0.677
		Idle	0.007	0.000	0.000	0.000	0.006	0.001	0.000	0.000	0.908
A320-200	V2500-A1	Approach	0.019	0.003	0.003	0.004	0.333	0.024	0.001	0.001	24.749
10R		Climb Out	0.009	0.002	0.002	0.002	0.524	0.017	0.000	0.000	16.989
		Takeoff	0.010	0.002	0.002	0.002	0.699	0.019	0.000	0.000	18.827
		Idle	0.196	0.006	0.006	0.007	0.149	0.025	0.001	0.001	25.239
A320-200	V2500-A1	Approach	0.028	0.006	0.006	0.006	0.484	0.036	0.001	0.001	35.966
28L		Climb Out	0.013	0.002	0.002	0.003	0.761	0.024	0.001	0.001	24.690
		Takeoff	0.015	0.002	0.002	0.003	1.016	0.028	0.001	0.001	27.360
		Idle	0.284	0.008	0.008	0.009	0.217	0.036	0.001	0.001	36.678
A320-200	V2500-A1	Approach	0.002	0.000	0.000	0.001	0.045	0.003	0.000	0.000	3.383
28R		Climb Out	0.001	0.000	0.000	0.000	0.072	0.002	0.000	0.000	2.323
		Takeoff	0.001	0.000	0.000	0.000	0.096	0.002	0.000	0.000	2.574
		Idle	0.026	0.001	0.001	0.001	0.020	0.003	0.000	0.000	3.450
Embraer ERJ 170	CF34-8E5A1	Approach	0.052	0.001	0.001	0.001	0.141	0.013	0.003	0.003	12.802
10L		Climb Out	0.004	0.000	0.000	0.000	0.091	0.007	0.000	0.000	6.988
		Takeoff	0.009	0.000	0.000	0.000	0.186	0.012	0.003	0.003	11.765
		Idle	0.217	0.001	0.001	0.002	0.060	0.012	0.003	0.003	12.553
Embraer ERJ 170	CF34-8E5A1	Approach	0.088	0.001	0.001	0.001	0.241	0.022	0.006	0.006	21.783
10R		Climb Out	0.007	0.000	0.000	0.000	0.157	0.012	0.000	0.000	11.890
		Takeoff	0.014	0.000	0.000	0.000	0.316	0.020	0.006	0.006	20.018
		Idle	0.369	0.003	0.003	0.003	0.100	0.021	0.006	0.006	21.358
Embraer ERJ 170	CF34-8E5A1	Approach	0.172	0.002	0.002	0.003	0.468	0.042	0.011	0.011	42.323
28L		Climb Out	0.013	0.000	0.000	0.000	0.304	0.023	0.001	0.001	23.102
		Takeoff	0.028	0.001	0.001	0.001	0.615	0.039	0.010	0.010	38.895
		Idle	0.718	0.006	0.006	0.006	0.195	0.042	0.011	0.011	41.499
Embraer ERJ 170	CF34-8E5A1	Approach	0.183	0.002	0.002	0.003	0.499	0.045	0.012	0.012	45.189
28R		Climb Out	0.014	0.000	0.000	0.000	0.324	0.024	0.001	0.001	24.666
		Takeoff	0.030	0.001	0.001	0.001	0.657	0.042	0.011	0.011	41.528
		Idle	0.766	0.006	0.006	0.007	0.208	0.044	0.012	0.012	44.309
B757-200	PW2037	Approach	0.008	0.000	0.000	0.000	0.037	0.004	0.001	0.001	3.877
10L		Climb Out	0.001	0.000	0.000	0.000	0.069	0.003	0.000	0.000	2.877
		Takeoff	0.001	0.000	0.000	0.000	0.083	0.003	0.000	0.000	2.826
		Idle	0.078	0.007	0.007	0.008	0.014	0.003	0.001	0.001	3.497
B757-200	PW2037	Approach	0.110	0.007	0.007	0.007	0.554	0.056	0.010	0.010	56.706
10R		Climb Out	0.014	0.001	0.001	0.001	1.009	0.042	0.007	0.007	42.074
		Takeoff	0.013	0.001	0.001	0.001	1.216	0.041	0.007	0.007	41.333
		Idle	1.143	0.098	0.098	0.108	0.209	0.051	0.009	0.009	51.142
B757-200	PW2037	Approach	0.200	0.011	0.011	0.012	0.999	0.103	0.017	0.017	102.264
28L		Climb Out	0.025	0.001	0.001	0.002	1.818	0.076	0.012	0.012	75.876
		Takeoff	0.024	0.001	0.001	0.001	2.192	0.075	0.012	0.012	74.540
		Idle	2.062	0.177	0.177	0.194	0.378	0.093	0.015	0.015	92.229
B757-200	PW2037	Approach	0.028	0.001	0.001	0.002	0.138	0.014	0.002	0.002	14.056
28R		Climb Out	0.003	0.000	0.000	0.000	0.250	0.010	0.002	0.002	10.429
		Takeoff	0.003	0.000	0.000	0.000	0.301	0.010	0.002	0.002	10.245
		Idle	0.283	0.024	0.024	0.026	0.052	0.012	0.002	0.002	12.677
B737-800	CFM56-7B26	Approach	0.018	0.001	0.001	0.001	0.122	0.011	0.003	0.003	11.353
10L_New T...		Climb Out	0.004	0.001	0.001	0.001	0.177	0.008	0.002	0.002	7.879
		Takeoff	0.002	0.001	0.001	0.001	0.321	0.011	0.003	0.003	11.145
		Idle	0.204	0.021	0.021	0.022	0.051	0.011	0.003	0.003	10.836
B737-800	CFM56-7B26	Approach	0.188	0.012	0.012	0.013	1.274	0.118	0.035	0.035	117.937
8_New Term		Climb Out	0.050	0.008	0.008	0.009	1.842	0.082	0.024	0.024	81.855
		Takeoff	0.023	0.012	0.012	0.012	3.334	0.116	0.035	0.035	115.783
		Idle	2.116	0.214	0.214	0.234	0.529	0.112	0.034	0.034	112.565
B737-800	CFM56-7B26	Approach	0.403	0.025	0.025	0.028	2.727	0.252	0.076	0.076	252.480
26_New Te...		Climb Out	0.105	0.018	0.018	0.019	3.943	0.175	0.053	0.053	175.238
		Takeoff	0.050	0.024	0.024	0.028	7.139	0.248	0.075	0.075	247.870
		Idle	4.530	0.457	0.457	0.502	1.132	0.241	0.073	0.073	240.978
B737-800	CFM56-7B26	Approach	0.067	0.004	0.004	0.004	0.457	0.042	0.013	0.013	42.363
28R_New ...		Climb Out	0.018	0.003	0.003	0.003	0.661	0.030	0.009	0.009	29.402
		Takeoff	0.009	0.004	0.004	0.004	1.198	0.042	0.012	0.012	41.589
		Idle	0.761	0.077	0.077	0.084	0.190	0.041	0.012	0.012	40.433
Bombardier CRJ700	CF34-8C1	Approach	0.475	0.010	0.010	0.011	1.812	0.163	0.008	0.008	163.242
10L_New T...		Climb Out	0.044	0.002	0.002	0.002	1.119	0.087	0.000	0.000	87.274
		Takeoff	0.060	0.003	0.003	0.003	2.147	0.147	0.007	0.007	146.391
		Idle	4.656	0.015	0.015	0.017	0.806	0.187	0.009	0.009	186.858
Bombardier CRJ700	CF34-8C1	Approach	0.809	0.017	0.017	0.019	3.085	0.278	0.013	0.013	277.974
8_New Term		Climb Out	0.074	0.003	0.003	0.003	1.905	0.149	0.001	0.001	148.615
		Takeoff	0.103	0.006	0.006	0.006	3.657	0.249	0.012	0.012	249.280
		Idle	7.929	0.025	0.025	0.028	1.371	0.319	0.015	0.015	318.188

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Bombardier CRJ700 26_New Te...	CF34-8C1	Approach	1.575	0.032	0.032	0.035	6.006	0.541	0.026	0.026	541.148
		Climb Out	0.144	0.006	0.006	0.007	3.709	0.289	0.001	0.001	289.315
		Takeoff	0.200	0.010	0.010	0.011	7.119	0.485	0.023	0.023	485.286
		Idle	15.437	0.050	0.050	0.054	2.670	0.619	0.030	0.030	619.434
Bombardier CRJ700 28R_New ...	CF34-8C1	Approach	1.681	0.034	0.034	0.037	6.414	0.578	0.029	0.029	577.851
		Climb Out	0.154	0.007	0.007	0.007	3.961	0.309	0.001	0.001	308.938
		Takeoff	0.213	0.010	0.010	0.011	7.602	0.518	0.025	0.025	518.201
		Idle	16.483	0.053	0.053	0.058	2.851	0.661	0.032	0.032	661.447
MD-80-83 28R_New ...	JT8D-219 old co...	Approach	0.045	0.018	0.018	0.019	0.101	0.011	0.003	0.003	11.052
		Climb Out	0.011	0.004	0.004	0.004	0.197	0.010	0.003	0.003	9.484
		Takeoff	0.008	0.003	0.003	0.003	0.282	0.010	0.003	0.003	10.461
		Idle	0.144	0.040	0.040	0.044	0.041	0.011	0.003	0.003	11.433
MD-80-83 26_New Te...	JT8D-219 old co...	Approach	0.317	0.125	0.125	0.136	0.713	0.078	0.023	0.023	78.112
		Climb Out	0.080	0.029	0.029	0.031	1.394	0.067	0.020	0.020	67.030
		Takeoff	0.054	0.020	0.020	0.022	1.996	0.074	0.021	0.021	73.940
		Idle	1.021	0.281	0.281	0.308	0.291	0.080	0.024	0.024	80.807
MD-80-83 8_New Term	JT8D-219 old co...	Approach	0.171	0.067	0.067	0.073	0.384	0.042	0.012	0.012	41.959
		Climb Out	0.043	0.015	0.015	0.017	0.748	0.036	0.011	0.011	36.007
		Takeoff	0.029	0.011	0.011	0.012	1.073	0.040	0.011	0.011	39.718
		Idle	0.548	0.151	0.151	0.165	0.157	0.043	0.013	0.013	43.407
MD-80-83 10L_New T...	JT8D-219 old co...	Approach	0.011	0.004	0.004	0.004	0.025	0.003	0.001	0.001	2.810
		Climb Out	0.003	0.001	0.001	0.001	0.050	0.002	0.001	0.001	2.411
		Takeoff	0.002	0.001	0.001	0.001	0.072	0.002	0.001	0.001	2.660
		Idle	0.036	0.010	0.010	0.011	0.010	0.003	0.001	0.001	2.907

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-...
Bowtie	Roadway	0.450	0.025	0.024	0.026	0.030	0.000	0.001	0.001
Bowtie to Merge	Roadway	3.038	0.153	0.146	0.154	0.195	0.003	0.009	0.004
Bowtie to New Term 1	Roadway	7.078	0.357	0.338	0.358	0.454	0.007	0.022	0.011
Bowtie to New Term 2	Roadway	7.078	0.357	0.338	0.358	0.454	0.007	0.022	0.011
Brdgwy N of Sawyr 1	Roadway	2.606	0.149	0.141	0.155	0.173	0.002	0.009	0.004
Brdgwy N of Sawyr 2	Roadway	4.773	0.273	0.259	0.284	0.316	0.004	0.015	0.008
Connect to Sawyer	Roadway	9.100	0.521	0.494	0.541	0.603	0.009	0.031	0.015
Curb Exit to Intl	Roadway	0.933	0.057	0.054	0.060	0.063	0.001	0.003	0.001
Curb Through Traffic	Roadway	24.141	1.382	1.308	1.436	1.598	0.024	0.080	0.040
Curb to Bowtie 1	Roadway	1.343	0.077	0.073	0.079	0.089	0.001	0.004	0.002
Curb to Bowtie 2	Roadway	1.613	0.093	0.087	0.096	0.107	0.001	0.006	0.002
Empl Prkg Ent_Exit	Roadway	0.196	0.012	0.011	0.012	0.013	0.000	0.001	0.000
Ent 670 NB	Roadway	4.230	0.201	0.191	0.202	0.272	0.003	0.012	0.007
Ent 670 SB	Roadway	2.798	0.132	0.126	0.133	0.181	0.002	0.008	0.004
Ent Green frm EB 1	Roadway	3.230	0.185	0.175	0.192	0.214	0.003	0.011	0.006
Ent Green frm EB 2	Roadway	1.098	0.063	0.060	0.065	0.073	0.001	0.003	0.002
Ent Green frm WB 1	Roadway	1.134	0.065	0.062	0.067	0.075	0.001	0.003	0.002
Ent Green frm WB 2	Roadway	2.955	0.169	0.160	0.175	0.196	0.003	0.010	0.004
Ent New Gar 1	Roadway	1.400	0.086	0.082	0.090	0.095	0.001	0.004	0.002
Ent New Gar 2	Roadway	1.911	0.118	0.111	0.122	0.129	0.002	0.007	0.003
Ent from 670 1	Roadway	6.006	0.284	0.270	0.285	0.387	0.006	0.018	0.009
Ent from 670 2	Roadway	14.398	0.682	0.648	0.686	0.928	0.013	0.042	0.021
Ent to Lane	Roadway	0.039	0.002	0.002	0.002	0.002	0.000	0.000	0.000
Ex Arr Curb FF	Roadway	0.260	0.017	0.015	0.019	0.017	0.000	0.001	0.000
Ex Arr Curb Pick Up	Roadway	2.143	0.218	0.207	0.299	0.082	0.001	0.002	0.001
Ex Dep Curb Drop Off	Roadway	2.810	0.287	0.271	0.391	0.107	0.001	0.003	0.001
Exit 670 NB	Roadway	2.975	0.141	0.134	0.142	0.192	0.002	0.009	0.004
Exit 670 SB	Roadway	3.469	0.164	0.157	0.165	0.224	0.003	0.010	0.006
Exit Comm Gar	Roadway	5.052	0.289	0.273	0.301	0.334	0.006	0.017	0.009
Exit New Gar 1	Roadway	0.872	0.050	0.047	0.052	0.057	0.001	0.003	0.001
Exit New Gar 2	Roadway	1.479	0.091	0.086	0.095	0.100	0.001	0.004	0.002
Exit Red 1	Roadway	3.398	0.194	0.184	0.202	0.225	0.003	0.011	0.006
Exit Red 2	Roadway	1.052	0.061	0.057	0.063	0.069	0.001	0.003	0.002
Exit Red 3	Roadway	4.706	0.269	0.255	0.280	0.312	0.004	0.015	0.008
Exit Red 4	Roadway	1.834	0.105	0.099	0.109	0.121	0.002	0.007	0.003
Exit frm Green	Roadway	2.258	0.129	0.122	0.134	0.150	0.002	0.008	0.003
Exit from Lane	Roadway	0.037	0.002	0.002	0.002	0.002	0.000	0.000	0.000
Exit to 670 1	Roadway	10.874	0.623	0.590	0.647	0.720	0.011	0.036	0.018
Exit to 670 2	Roadway	4.937	0.234	0.223	0.235	0.319	0.004	0.014	0.008
Green Exit to Sawyer	Roadway	1.219	0.069	0.066	0.073	0.080	0.001	0.004	0.002
Int Grn to New Bow 2	Roadway	13.876	0.700	0.665	0.703	0.890	0.013	0.043	0.021
Int W frm new Bow	Roadway	10.403	0.525	0.498	0.527	0.667	0.010	0.032	0.015
IntGate E at Red	Roadway	34.433	1.971	1.866	2.048	2.280	0.035	0.115	0.057
IntGate E at Tunnel	Roadway	18.622	0.940	0.892	0.944	1.194	0.018	0.057	0.029
IntGate Exit fm Tunl	Roadway	25.968	1.311	1.243	1.316	1.664	0.024	0.079	0.040
IntGate Lane to LT	Roadway	10.248	0.586	0.556	0.610	0.679	0.010	0.034	0.017
IntGate W at Tunnel	Roadway	25.968	1.311	1.243	1.316	1.664	0.024	0.079	0.040
Intl East frm Stlzr	Roadway	12.810	0.646	0.613	0.649	0.821	0.012	0.040	0.020
Intl West to Stelzer	Roadway	25.791	1.302	1.235	1.307	1.653	0.024	0.079	0.040
LT to ST	Roadway	0.806	0.046	0.044	0.047	0.053	0.001	0.002	0.001
Lane Exit to Lane En	Roadway	5.678	0.287	0.272	0.288	0.364	0.006	0.018	0.009
Merge to Sawyer	Roadway	5.698	0.326	0.309	0.338	0.377	0.006	0.019	0.010
New Bowtie	Roadway	0.828	0.047	0.045	0.050	0.055	0.001	0.003	0.001
New Gar Distance	Roadway	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New Gar Ex W	Roadway	21.977	1.109	1.053	1.113	1.409	0.021	0.067	0.034
New Perimeter Road 1	Roadway	0.381	0.022	0.021	0.023	0.025	0.000	0.001	0.001
New Perimeter Road 2	Roadway	0.261	0.015	0.014	0.015	0.018	0.000	0.001	0.000
New Perimeter Road 3	Roadway	5.741	0.328	0.311	0.342	0.380	0.006	0.019	0.010
New Perimeter Road 4	Roadway	0.120	0.007	0.007	0.007	0.008	0.000	0.000	0.000
New Perimeter Road 5	Roadway	0.371	0.021	0.020	0.022	0.024	0.000	0.001	0.001
New Perimeter Road 6	Roadway	2.368	0.136	0.128	0.141	0.157	0.002	0.008	0.004
New Perimeter Road 7	Roadway	0.376	0.022	0.020	0.022	0.025	0.000	0.001	0.001
New Perimeter Road 8	Roadway	0.130	0.008	0.007	0.008	0.009	0.000	0.000	0.000
New Perimeter Road 9	Roadway	0.109	0.007	0.006	0.007	0.008	0.000	0.000	0.000
New Perimeter Road10	Roadway	0.158	0.009	0.009	0.010	0.010	0.000	0.000	0.000
New Stelzer Middle	Roadway	18.403	0.873	0.829	0.876	1.187	0.017	0.054	0.028

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-...
New Stelzer Realgn 1	Roadway	7.918	0.376	0.357	0.377	0.510	0.007	0.023	0.012
New Stelzer Realgn 2	Roadway	9.416	0.446	0.424	0.449	0.607	0.009	0.028	0.014
New Stelzer Realgn 3	Roadway	11.235	0.532	0.506	0.535	0.724	0.010	0.033	0.017
New Stelzer Realgn 4	Roadway	21.988	1.043	0.990	1.047	1.418	0.020	0.065	0.032
New Term Arr FF	Roadway	0.488	0.032	0.030	0.035	0.032	0.000	0.001	0.001
New Term Arr Pick Up	Roadway	3.848	0.392	0.371	0.536	0.147	0.001	0.003	0.002
Ex Term Dep FF	Roadway	0.338	0.022	0.021	0.024	0.022	0.000	0.001	0.000
New Term Dep FF	Roadway	0.660	0.043	0.040	0.047	0.043	0.000	0.002	0.001
New Term E to Lane	Roadway	13.510	0.682	0.647	0.685	0.866	0.012	0.042	0.021
New TermDep Drop Off	Roadway	5.462	0.557	0.528	0.761	0.208	0.001	0.006	0.002
Red Distance	Roadway	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ST to Curb	Roadway	0.783	0.049	0.045	0.051	0.053	0.001	0.002	0.001
Sawyer Fork E	Roadway	1.885	0.108	0.103	0.112	0.125	0.002	0.007	0.003
Sawyer Fork W	Roadway	0.893	0.051	0.049	0.053	0.060	0.001	0.003	0.001
Sawyer N of Fork	Roadway	7.893	0.452	0.428	0.470	0.522	0.008	0.026	0.013
Sawyer S of Brdgwy	Roadway	8.900	0.509	0.483	0.529	0.590	0.009	0.030	0.014
Sawyer from IntlGate	Roadway	3.871	0.195	0.185	0.196	0.248	0.003	0.012	0.006
Sawyer to Brdgwy 1	Roadway	8.389	0.481	0.455	0.499	0.556	0.009	0.028	0.014
Sawyer to Brdgwy 2	Roadway	68.237	3.905	3.699	4.059	4.518	0.069	0.227	0.114
Saywer W to Fork	Roadway	4.113	0.236	0.223	0.245	0.272	0.004	0.013	0.007
Stelzer N	Roadway	43.280	2.053	1.949	2.061	2.791	0.039	0.128	0.064
Stelzer S	Roadway	7.126	0.338	0.321	0.340	0.460	0.007	0.021	0.010
To Red 1	Roadway	2.858	0.163	0.155	0.170	0.190	0.003	0.010	0.004
To Red 2	Roadway	3.613	0.207	0.196	0.215	0.239	0.003	0.012	0.006
To Red 3	Roadway	1.672	0.096	0.090	0.099	0.110	0.002	0.006	0.003
WB from Sawyer	Roadway	22.180	1.270	1.203	1.319	1.468	0.022	0.074	0.036
Employee Parking	Parking	16.868	0.818	0.768	2.520	2.181	0.008	0.028	0.013
Green	Parking	10.993	0.559	0.526	1.800	1.354	0.006	0.017	0.008
Lane Avtn	Parking	5.199	0.261	0.246	0.831	0.648	0.002	0.008	0.004
Long Term Pkg Lvl 3	Parking	13.629	0.685	0.644	2.179	1.700	0.007	0.021	0.011
Long Term Pkg Lvl 4	Parking	6.791	0.341	0.321	1.086	0.847	0.003	0.011	0.006
Long Term Pkg Lvl 5	Parking	13.960	0.701	0.659	2.232	1.741	0.007	0.022	0.011
Long Term Pkg Lvl 6	Parking	9.385	0.472	0.443	1.500	1.171	0.004	0.014	0.008
New Gar Level 1	Parking	0.855	0.047	0.044	0.161	0.096	0.000	0.001	0.001
New Gar Level 2	Parking	0.801	0.044	0.042	0.151	0.090	0.000	0.001	0.000
New Gar Level 3	Parking	1.924	0.106	0.099	0.362	0.216	0.001	0.002	0.001
New Gar Level 4	Parking	0.961	0.053	0.050	0.181	0.108	0.000	0.001	0.001
New Gar Level 5	Parking	1.976	0.108	0.103	0.371	0.223	0.001	0.002	0.001
New Gar Level 6	Parking	1.336	0.073	0.069	0.251	0.150	0.000	0.002	0.001
New RAC	Parking	43.413	1.991	1.867	5.796	5.914	0.023	0.076	0.037
Red	Parking	81.109	3.811	3.577	11.384	10.805	0.041	0.139	0.068
ShortTerm Pkg Lvl 4	Parking	4.807	0.249	0.234	0.812	0.580	0.002	0.007	0.003
ShortTerm Pkg Lvl 5	Parking	4.543	0.235	0.222	0.767	0.548	0.002	0.007	0.003

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.115	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.748	0.748	0.748	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.149	0.149	0.149	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.590	1.590	1.590	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.014	0.004	0.004	0.004	0.004	0.003	0.010	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.911	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.850	0.850	0.850	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.260	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.427	0.427	0.427	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.261	0.261	0.261	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.765	0.765	0.765	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.122	2.122	2.122	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.800	0.800	0.800	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.762	0.762	0.762	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary
(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	854.252	71.333	71.333	76.095	379.083	34.475	3.861	3.861
GSE/APU	1,491.067	60.316	54.702	56.910	79.985	12.164	5.008	4.848
Roadways	653.003	35.180	33.352	36.434	42.159	0.613	2.026	1.012
Parking Facilities	218.551	10.552	9.913	32.385	28.370	0.107	0.358	0.179
Stationary Sources	21.453	12.612	12.081	14.665	35.757	16.638	2.492	2.205
Total	3,238.325	189.993	181.381	216.488	565.353	63.997	13.746	12.104

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary
(Short Tons/Year)

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	16.352	0.295	0.295	0.285	0.009	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.001	0.002	0.003	0.003	0.000
B737-300	CFM56-3-B1	TOTAL	1.617	0.100	0.100	0.109	1.199	0.122	0.002	0.002	0.000
10L		APU	0.233	0.013	0.013	0.014	0.062	0.013	0.000	0.000	0.000
		GSE	0.076	0.008	0.008	0.008	0.069	0.022	0.013	0.012	0.000
B737-300	CFM56-3B-2	TOTAL	0.276	0.015	0.015	0.017	0.261	0.024	0.000	0.000	0.000
10L		APU	0.043	0.002	0.002	0.002	0.011	0.002	0.000	0.000	0.000
		GSE	0.014	0.001	0.001	0.001	0.013	0.004	0.002	0.002	0.000
B737-500	CFM56-3C-1	TOTAL	0.188	0.009	0.009	0.010	0.236	0.020	0.001	0.001	0.000
10L		APU	0.031	0.002	0.002	0.002	0.008	0.002	0.000	0.000	0.000
		GSE	0.010	0.001	0.001	0.001	0.009	0.003	0.002	0.002	0.000
B737-700	CFM56-7B22	TOTAL	1.209	0.127	0.127	0.139	2.123	0.161	0.034	0.034	0.000
10L		APU	0.082	0.007	0.007	0.007	0.110	0.017	0.000	0.000	0.000
		GSE	0.090	0.009	0.009	0.009	0.083	0.026	0.015	0.014	0.000
B737-800	CFM56-7B26	TOTAL	0.007	0.001	0.001	0.001	0.020	0.001	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
B757-300	PW2043	TOTAL	0.065	0.006	0.006	0.006	0.234	0.012	N/A	N/A	0.000
10L		APU	0.003	0.000	0.000	0.000	0.008	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.003	0.001	0.001	0.001	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.143	0.001	0.001	0.001	0.161	0.015	0.001	0.001	0.000
10L		APU	0.047	0.002	0.002	0.003	0.012	0.002	0.000	0.000	0.000
		GSE	0.724	0.029	0.025	0.026	0.029	0.003	0.002	0.002	0.000
Cessna 172 Skyhawk	O-320	TOTAL	7.296	0.119	0.119	0.115	0.013	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.004	0.007	0.007	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.042	0.003	0.003	0.003	0.040	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.685	0.064	0.057	0.060	0.045	0.003	0.002	0.001	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.265	0.083	0.083	0.088	0.021	0.002	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.651	0.026	0.024	0.025	0.021	0.001	0.001	0.001	0.000
CL600	ALF 502L-2	TOTAL	1.359	0.187	0.187	0.200	0.651	0.045	0.009	0.009	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.225	0.327	0.297	0.308	0.358	0.060	0.033	0.032	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	0.187	0.054	0.054	0.060	0.138	0.013	0.010	0.010	0.000
10L		APU	0.019	0.001	0.001	0.001	0.004	0.001	0.000	0.000	0.000
		GSE	0.006	0.001	0.001	0.001	0.006	0.002	0.001	0.001	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	1.347	0.114	0.114	0.121	0.936	0.099	0.000	0.000	0.000
10L		APU	0.095	0.009	0.009	0.010	0.067	0.014	0.000	0.000	0.000
		GSE	6.305	0.246	0.222	0.230	0.249	0.033	0.019	0.019	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.190	0.031	0.031	0.033	0.334	0.030	0.000	0.000	0.000
10L		APU	0.026	0.002	0.002	0.002	0.019	0.004	0.000	0.000	0.000
		GSE	1.739	0.068	0.062	0.064	0.068	0.009	0.006	0.006	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.762	0.062	0.062	0.066	0.636	0.062	0.000	0.000	0.000
10L		APU	0.052	0.004	0.004	0.006	0.037	0.008	0.000	0.000	0.000
		GSE	3.493	0.137	0.123	0.128	0.138	0.018	0.011	0.010	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	3.725	0.314	0.314	0.334	2.618	0.268	0.000	0.000	0.000
10L		APU	0.250	0.024	0.024	0.025	0.179	0.039	0.000	0.000	0.000
		GSE	16.757	0.654	0.590	0.613	0.661	0.087	0.051	0.049	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	4.623	0.390	0.390	0.414	3.212	0.342	0.000	0.000	0.000
10L		APU	0.324	0.031	0.031	0.033	0.230	0.051	0.000	0.000	0.000
		GSE	21.643	0.844	0.762	0.791	0.854	0.112	0.065	0.063	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.398	0.118	0.118	0.125	0.983	0.100	0.000	0.000	0.000
10L		APU	0.094	0.009	0.009	0.010	0.067	0.014	0.000	0.000	0.000
		GSE	6.291	0.246	0.222	0.230	0.248	0.033	0.019	0.019	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	2.090	0.020	0.020	0.022	3.182	0.309	0.031	0.031	0.000
10L		APU	0.204	0.019	0.019	0.021	0.144	0.032	0.000	0.000	0.000
		GSE	13.598	0.531	0.478	0.497	0.537	0.071	0.041	0.040	0.000
Falcon 20	CF700-2D	TOTAL	0.888	0.074	0.074	0.079	0.030	0.011	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.007	0.002	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.637	0.080	0.080	0.085	0.489	0.046	0.004	0.004	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.815	0.112	0.101	0.106	0.150	0.026	0.013	0.013	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	0.289	0.033	0.033	0.035	0.290	0.025	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.618	0.064	0.057	0.060	0.044	0.002	0.002	0.002	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.232	0.202	0.202	0.214	0.955	0.111	0.065	0.065	0.000
10L_GA		APU	0.029	0.002	0.002	0.002	0.139	0.013	0.000	0.000	0.000
		GSE	5.824	0.225	0.203	0.211	0.149	0.012	0.011	0.011	0.000
HS 125	TFE731-3	TOTAL	1.549	0.252	0.252	0.279	0.717	0.040	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.628	0.518	0.466	0.484	0.368	0.026	0.014	0.013	0.000
KC-135R	CFM56-2B-1	TOTAL	0.172	0.010	0.010	0.011	0.213	0.018	0.000	0.000	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.001	0.001	0.001	0.013	0.003	0.001	0.001	0.000
Learjet 25C	CJ610-6	TOTAL	7.779	0.596	0.596	0.634	0.152	0.043	N/A	N/A	0.000
10L_GA		APU	0.076	0.008	0.008	0.008	0.054	0.012	0.000	0.000	0.000
		GSE	5.066	0.197	0.179	0.185	0.200	0.026	0.015	0.014	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.667	0.195	0.195	0.207	0.193	0.013	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.254	0.133	0.120	0.125	0.099	0.004	0.004	0.004	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10L		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	23.484	0.424	0.424	0.410	0.012	0.002	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.006	0.004	0.000
Piper PA-28	O-320	TOTAL	0.474	0.008	0.008	0.008	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.492	0.395	0.395	0.435	0.039	0.004	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.330	0.088	0.079	0.083	0.063	0.004	0.002	0.002	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	4.201	1.451	1.451	1.543	0.557	0.053	0.028	0.028	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.273	0.505	0.454	0.472	0.389	0.022	0.017	0.017	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.184	0.013	0.013	0.014	0.114	0.012	0.000	0.000	0.000
10L		APU	0.024	0.001	0.001	0.001	0.007	0.001	0.000	0.000	0.000
		GSE	0.008	0.001	0.001	0.001	0.008	0.002	0.001	0.001	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	0.911	0.314	0.314	0.334	0.121	0.011	0.006	0.006	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.661	0.109	0.098	0.103	0.085	0.004	0.003	0.003	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	3.334	1.152	1.152	1.225	0.442	0.042	0.022	0.022	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.739	0.400	0.360	0.374	0.309	0.018	0.013	0.013	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	6.207	2.144	2.144	2.280	0.823	0.078	0.041	0.041	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	18.133	0.746	0.671	0.697	0.575	0.032	0.025	0.024	0.000
Aztec	TIO-540-J2B2	TOTAL	25.829	0.467	0.467	0.451	0.013	0.002	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.006	0.006	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	1.536	0.107	0.107	0.118	0.946	0.103	0.001	0.001	0.000
10R		APU	0.206	0.012	0.012	0.013	0.054	0.011	0.000	0.000	0.000
		GSE	0.068	0.007	0.007	0.007	0.062	0.020	0.011	0.011	0.000
B737-300	CFM56-3B-2	TOTAL	2.866	0.157	0.157	0.171	2.712	0.254	0.006	0.006	0.000
10R		APU	0.448	0.025	0.025	0.028	0.118	0.025	0.000	0.000	0.000
		GSE	0.147	0.014	0.014	0.014	0.134	0.043	0.025	0.024	0.000
B737-300	CFM56-3-B1	TOTAL	17.193	1.065	1.065	1.165	12.750	1.299	0.020	0.020	0.000
10R		APU	2.477	0.142	0.142	0.155	0.654	0.138	0.000	0.000	0.000
		GSE	0.814	0.082	0.077	0.082	0.742	0.235	0.138	0.133	0.000
B737-500	CFM56-3C-1	TOTAL	2.079	0.103	0.103	0.112	2.598	0.220	0.008	0.008	0.000
10R		APU	0.344	0.020	0.020	0.022	0.090	0.019	0.000	0.000	0.000
		GSE	0.114	0.011	0.011	0.011	0.103	0.033	0.019	0.019	0.000
B737-700	CFM56-7B22	TOTAL	11.296	1.189	1.189	1.302	19.836	1.499	0.315	0.315	0.000
10R		APU	0.758	0.057	0.057	0.063	1.032	0.155	0.000	0.000	0.000
		GSE	0.848	0.085	0.080	0.085	0.773	0.245	0.143	0.139	0.000
B737-800	CFM56-7B26	TOTAL	0.058	0.006	0.006	0.007	0.171	0.011	0.003	0.003	0.000
10R		APU	0.004	0.000	0.000	0.000	0.007	0.001	0.000	0.000	0.000
		GSE	0.006	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
B757-300	PW2043	TOTAL	0.565	0.044	0.044	0.049	2.028	0.104	N/A	N/A	0.000
10R		APU	0.028	0.003	0.003	0.003	0.063	0.007	0.000	0.000	0.000
		GSE	0.034	0.003	0.003	0.003	0.031	0.010	0.006	0.006	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.215	0.001	0.001	0.001	0.240	0.024	0.001	0.001	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.072	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	1.086	0.042	0.039	0.040	0.043	0.006	0.003	0.003	0.000
Cessna 172 Skyhawk	O-320	TOTAL	7.956	0.130	0.130	0.126	0.014	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.006	0.007	0.007	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.129	0.009	0.009	0.010	0.119	0.015	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.139	0.195	0.176	0.182	0.139	0.010	0.006	0.006	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	1.011	0.316	0.316	0.336	0.080	0.010	0.006	0.006	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.491	0.103	0.093	0.096	0.079	0.004	0.003	0.003	0.000
CL600	ALF 502L-2	TOTAL	2.087	0.288	0.288	0.305	1.001	0.069	0.013	0.013	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.625	0.503	0.454	0.472	0.549	0.091	0.051	0.050	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	2.457	0.708	0.708	0.774	1.800	0.180	0.130	0.130	0.000
10R		APU	0.240	0.013	0.013	0.015	0.064	0.013	0.000	0.000	0.000
		GSE	0.079	0.008	0.008	0.008	0.072	0.023	0.013	0.013	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	2.027	0.171	0.171	0.182	1.409	0.150	0.000	0.000	0.000
10R		APU	0.142	0.013	0.013	0.014	0.101	0.022	0.000	0.000	0.000
		GSE	9.492	0.370	0.334	0.347	0.375	0.050	0.029	0.028	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.150	0.094	0.094	0.099	0.960	0.093	0.000	0.000	0.000
10R		APU	0.079	0.008	0.008	0.008	0.056	0.012	0.000	0.000	0.000
		GSE	5.275	0.206	0.186	0.193	0.208	0.028	0.015	0.015	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.287	0.046	0.046	0.050	0.505	0.044	0.000	0.000	0.000
10R		APU	0.040	0.003	0.003	0.004	0.028	0.007	0.000	0.000	0.000
		GSE	2.630	0.103	0.093	0.096	0.104	0.013	0.008	0.008	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.109	0.177	0.177	0.188	1.484	0.152	0.000	0.000	0.000
10R		APU	0.142	0.013	0.013	0.014	0.101	0.022	0.000	0.000	0.000
		GSE	9.492	0.370	0.334	0.347	0.375	0.050	0.029	0.028	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	6.981	0.589	0.589	0.626	4.850	0.516	0.000	0.000	0.000
10R		APU	0.489	0.046	0.046	0.050	0.347	0.076	0.000	0.000	0.000
		GSE	32.679	1.275	1.151	1.194	1.290	0.170	0.098	0.095	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	5.624	0.474	0.474	0.504	3.954	0.405	0.000	0.000	0.000
10R		APU	0.378	0.035	0.035	0.039	0.269	0.058	0.000	0.000	0.000
		GSE	25.302	0.988	0.891	0.925	0.999	0.131	0.076	0.074	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	3.120	0.030	0.030	0.032	4.750	0.461	0.046	0.046	0.000
10R		APU	0.303	0.029	0.029	0.032	0.216	0.047	0.000	0.000	0.000
		GSE	20.292	0.793	0.714	0.742	0.800	0.106	0.061	0.060	0.000
Falcon 20	CF700-2D	TOTAL	3.251	0.272	0.272	0.289	0.108	0.041	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.008	0.002	0.002	0.002	0.023	0.008	0.004	0.004	0.000
Falcon 2000EX	PW308C	TOTAL	0.965	0.121	0.121	0.129	0.740	0.071	0.007	0.007	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.257	0.170	0.153	0.160	0.227	0.041	0.021	0.020	0.000
Gulfstream II	SPEY MK511-8	TOTAL	1.058	0.122	0.122	0.130	1.059	0.093	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.923	0.235	0.211	0.218	0.163	0.009	0.008	0.008	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	2.843	0.465	0.465	0.494	2.202	0.256	0.151	0.151	0.000
10R_GA		APU	0.065	0.004	0.004	0.006	0.320	0.032	0.000	0.000	0.000
		GSE	13.432	0.518	0.467	0.484	0.343	0.026	0.026	0.025	0.000
HS 125	TFE731-3	TOTAL	2.290	0.374	0.374	0.412	1.059	0.058	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	20.139	0.765	0.689	0.714	0.545	0.039	0.021	0.020	0.000
KC-135R	CFM56-2B-1	TOTAL	1.497	0.084	0.084	0.093	1.852	0.154	0.004	0.004	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.034	0.008	0.008	0.009	0.112	0.028	0.011	0.011	0.000
Learjet 25C	CJ610-6	TOTAL	11.028	0.845	0.845	0.899	0.216	0.061	N/A	N/A	0.000
10R_GA		APU	0.107	0.010	0.010	0.011	0.076	0.017	0.000	0.000	0.000
		GSE	7.182	0.280	0.252	0.262	0.283	0.037	0.022	0.021	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	2.536	0.742	0.742	0.789	0.735	0.051	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.379	0.508	0.457	0.474	0.378	0.018	0.015	0.014	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.018	0.006	0.006	0.006	0.053	0.003	0.001	0.001	0.000
10R		APU	0.004	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	10.569	0.191	0.191	0.184	0.006	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.002	0.000
Piper PA-28	O-320	TOTAL	1.447	0.023	0.023	0.022	0.002	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.585	1.271	1.271	1.403	0.126	0.015	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	7.511	0.285	0.257	0.267	0.203	0.014	0.008	0.008	0.000
Aztec	TIO-540-J2B2	TOTAL	49.763	0.899	0.899	0.869	0.026	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.003	0.008	0.011	0.010	0.000
B737-300	CFM56-3-B1	TOTAL	28.068	1.738	1.738	1.903	20.817	2.121	0.032	0.032	0.000
28L		APU	4.043	0.231	0.231	0.254	1.067	0.225	0.000	0.000	0.000
		GSE	1.328	0.132	0.127	0.133	1.210	0.384	0.225	0.217	0.000
B737-300	CFM56-3B-2	TOTAL	4.717	0.257	0.257	0.281	4.462	0.418	0.009	0.009	0.000
28L		APU	0.736	0.042	0.042	0.046	0.194	0.041	0.000	0.000	0.000
		GSE	0.243	0.024	0.023	0.024	0.220	0.069	0.041	0.040	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.778	0.194	0.194	0.213	1.710	0.185	0.002	0.002	0.000
28L		APU	0.374	0.021	0.021	0.023	0.098	0.021	0.000	0.000	0.000
		GSE	0.122	0.012	0.012	0.012	0.111	0.035	0.021	0.020	0.000
B737-500	CFM56-3C-1	TOTAL	3.320	0.164	0.164	0.180	4.149	0.352	0.012	0.012	0.000
28L		APU	0.549	0.032	0.032	0.034	0.146	0.031	0.000	0.000	0.000
		GSE	0.181	0.018	0.018	0.018	0.164	0.052	0.031	0.030	0.000
B737-700	CFM56-7B22	TOTAL	19.472	2.049	2.049	2.243	34.194	2.585	0.543	0.543	0.000
28L		APU	1.307	0.099	0.099	0.108	1.779	0.268	0.000	0.000	0.000
		GSE	1.462	0.146	0.139	0.147	1.332	0.422	0.247	0.239	0.000
B737-800	CFM56-7B26	TOTAL	0.099	0.010	0.010	0.011	0.291	0.018	0.006	0.006	0.000
28L		APU	0.008	0.001	0.001	0.001	0.011	0.001	0.000	0.000	0.000
		GSE	0.009	0.001	0.001	0.001	0.008	0.002	0.001	0.001	0.000
B757-300	PW2043	TOTAL	1.021	0.080	0.080	0.088	3.662	0.187	N/A	N/A	0.000
28L		APU	0.049	0.006	0.006	0.006	0.112	0.012	0.000	0.000	0.000
		GSE	0.062	0.007	0.006	0.007	0.056	0.018	0.010	0.010	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.340	0.002	0.002	0.002	0.379	0.037	0.001	0.001	0.000
28L		APU	0.112	0.007	0.007	0.007	0.030	0.007	0.000	0.000	0.000
		GSE	1.712	0.067	0.061	0.063	0.067	0.009	0.006	0.006	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	2.155	0.675	0.675	0.718	0.171	0.021	0.012	0.012	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.309	0.218	0.196	0.204	0.169	0.010	0.008	0.007	0.000
CL600	ALF 502L-2	TOTAL	3.097	0.427	0.427	0.453	1.485	0.103	0.019	0.019	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	18.744	0.747	0.675	0.700	0.816	0.137	0.075	0.073	0.000
Cessna 172 Skyhawk	O-320	TOTAL	15.982	0.261	0.261	0.252	0.029	0.001	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.002	0.002	0.002	0.006	0.010	0.014	0.014	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.283	0.020	0.020	0.021	0.263	0.033	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.338	0.431	0.388	0.402	0.306	0.022	0.011	0.011	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	3.714	1.069	1.069	1.170	2.721	0.272	0.196	0.196	0.000
28L		APU	0.363	0.021	0.021	0.023	0.096	0.020	0.000	0.000	0.000
		GSE	0.119	0.012	0.011	0.012	0.109	0.034	0.020	0.020	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.118	0.263	0.263	0.280	2.167	0.230	0.000	0.000	0.000
28L		APU	0.218	0.021	0.021	0.022	0.155	0.034	0.000	0.000	0.000
		GSE	14.600	0.570	0.514	0.534	0.577	0.076	0.044	0.043	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.441	0.072	0.072	0.076	0.778	0.068	0.000	0.000	0.000
28L		APU	0.061	0.006	0.006	0.007	0.043	0.010	0.000	0.000	0.000
		GSE	4.050	0.158	0.142	0.148	0.160	0.021	0.012	0.012	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.769	0.143	0.143	0.152	1.477	0.142	0.000	0.000	0.000
28L		APU	0.121	0.011	0.011	0.012	0.086	0.019	0.000	0.000	0.000
		GSE	8.114	0.316	0.285	0.297	0.320	0.042	0.024	0.023	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	8.653	0.730	0.730	0.775	6.083	0.623	0.000	0.000	0.000
28L		APU	0.582	0.055	0.055	0.058	0.414	0.090	0.000	0.000	0.000
		GSE	38.929	1.520	1.371	1.423	1.536	0.203	0.117	0.114	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	10.739	0.906	0.906	0.963	7.462	0.793	0.000	0.000	0.000
28L		APU	0.752	0.072	0.072	0.076	0.535	0.117	0.000	0.000	0.000
		GSE	50.272	1.962	1.770	1.838	1.983	0.261	0.151	0.147	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	3.244	0.272	0.272	0.290	2.283	0.234	0.000	0.000	0.000
28L		APU	0.218	0.021	0.021	0.022	0.155	0.034	0.000	0.000	0.000
		GSE	14.600	0.570	0.514	0.534	0.577	0.076	0.044	0.043	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	4.919	0.046	0.046	0.051	7.489	0.726	0.073	0.073	0.000
28L		APU	0.478	0.045	0.045	0.050	0.341	0.074	0.000	0.000	0.000
		GSE	31.998	1.249	1.127	1.170	1.262	0.166	0.096	0.093	0.000
Falcon 20	CF700-2D	TOTAL	7.164	0.600	0.600	0.637	0.239	0.089	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.018	0.004	0.004	0.004	0.050	0.018	0.011	0.011	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	2.330	0.270	0.270	0.287	2.335	0.204	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.051	0.516	0.465	0.482	0.358	0.020	0.017	0.015	0.000
HS 125	TFE731-3	TOTAL	3.640	0.594	0.594	0.656	1.684	0.094	N/A	N/A	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	32.019	1.217	1.096	1.136	0.866	0.062	0.033	0.031	0.000
KC-135R	CFM56-2B-1	TOTAL	2.702	0.151	0.151	0.166	3.343	0.279	0.008	0.008	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.062	0.015	0.014	0.015	0.202	0.050	0.020	0.020	0.000
Learjet 25C	CJ610-6	TOTAL	17.845	1.369	1.369	1.455	0.351	0.097	N/A	N/A	0.000
28L_GA		APU	0.174	0.017	0.017	0.018	0.123	0.026	0.000	0.000	0.000
		GSE	11.622	0.454	0.409	0.424	0.459	0.061	0.035	0.034	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	5.464	1.598	1.598	1.700	1.584	0.110	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	26.668	1.095	0.985	1.022	0.814	0.037	0.033	0.032	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.029	0.009	0.009	0.010	0.085	0.006	0.002	0.002	0.000
28L		APU	0.008	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	23.324	0.422	0.422	0.407	0.012	0.002	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.004	0.004	0.000
Piper PA-28	O-320	TOTAL	3.185	0.052	0.052	0.050	0.006	0.000	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.001	0.002	0.002	0.002	0.000
UC-12J	PT6A-42	TOTAL	3.003	2.407	2.407	2.659	0.238	0.030	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	14.231	0.541	0.487	0.505	0.385	0.028	0.014	0.014	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	9.643	3.331	3.331	3.541	1.279	0.121	0.063	0.063	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	28.170	1.159	1.043	1.081	0.894	0.050	0.039	0.037	0.000
Falcon 2000EX	PW308C	TOTAL	1.475	0.185	0.185	0.197	1.131	0.108	0.010	0.010	0.000
28L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.512	0.260	0.235	0.244	0.346	0.062	0.031	0.031	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	7.341	2.535	2.535	2.696	0.973	0.093	0.049	0.049	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	21.445	0.882	0.795	0.823	0.681	0.037	0.030	0.029	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	5.182	0.848	0.848	0.902	4.015	0.466	0.276	0.276	0.000
28L_GA		APU	0.118	0.009	0.009	0.009	0.584	0.057	0.000	0.000	0.000
		GSE	24.490	0.946	0.852	0.883	0.626	0.050	0.049	0.046	0.000
Aztec	TIO-540-J2B2	TOTAL	48.767	0.882	0.882	0.851	0.025	0.004	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.003	0.008	0.010	0.010	0.000
B737-300	CFM56-3-B1	TOTAL	4.254	0.263	0.263	0.289	3.155	0.322	0.004	0.004	0.000
28R		APU	0.613	0.035	0.035	0.039	0.162	0.034	0.000	0.000	0.000
		GSE	0.202	0.020	0.019	0.020	0.183	0.058	0.034	0.033	0.000
B737-300	CFM56-3B-2	TOTAL	0.722	0.040	0.040	0.043	0.683	0.064	0.001	0.001	0.000
28R		APU	0.112	0.007	0.007	0.007	0.030	0.007	0.000	0.000	0.000
		GSE	0.037	0.003	0.003	0.003	0.034	0.011	0.007	0.007	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.485	0.034	0.034	0.037	0.299	0.032	0.000	0.000	0.000
28R		APU	0.065	0.003	0.003	0.004	0.018	0.003	0.000	0.000	0.000
		GSE	0.021	0.002	0.002	0.002	0.020	0.007	0.003	0.003	0.000
B737-500	CFM56-3C-1	TOTAL	0.488	0.024	0.024	0.026	0.610	0.052	0.002	0.002	0.000
28R		APU	0.080	0.004	0.004	0.006	0.021	0.004	0.000	0.000	0.000
		GSE	0.026	0.002	0.002	0.002	0.024	0.008	0.004	0.004	0.000
B737-700	CFM56-7B22	TOTAL	3.201	0.337	0.337	0.369	5.621	0.424	0.089	0.089	0.000
28R		APU	0.215	0.017	0.017	0.018	0.292	0.044	0.000	0.000	0.000
		GSE	0.240	0.024	0.023	0.024	0.219	0.069	0.041	0.040	0.000
B737-800	CFM56-7B26	TOTAL	0.018	0.002	0.002	0.002	0.051	0.003	0.001	0.001	0.000
28R		APU	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
		GSE	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
B757-300	PW2043	TOTAL	0.175	0.014	0.014	0.015	0.628	0.032	N/A	N/A	0.000
28R		APU	0.009	0.001	0.001	0.001	0.020	0.002	0.000	0.000	0.000
		GSE	0.011	0.001	0.001	0.001	0.010	0.003	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	0.351	0.002	0.002	0.002	0.392	0.039	0.001	0.001	0.000
28R		APU	0.117	0.007	0.007	0.008	0.031	0.007	0.000	0.000	0.000
		GSE	1.768	0.069	0.062	0.065	0.069	0.009	0.006	0.006	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.764	0.239	0.239	0.255	0.061	0.008	0.004	0.004	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.883	0.077	0.069	0.073	0.060	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	3.328	0.459	0.459	0.487	1.595	0.110	0.021	0.021	0.000
28R_GA											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	20.135	0.802	0.725	0.753	0.876	0.147	0.080	0.078	0.000
Cessna 172 Skyhawk	O-320	TOTAL	13.147	0.215	0.215	0.207	0.023	0.001	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.004	0.008	0.012	0.011	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.116	0.008	0.008	0.009	0.107	0.013	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.619	0.175	0.158	0.164	0.125	0.009	0.004	0.004	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	0.487	0.140	0.140	0.153	0.357	0.035	0.025	0.025	0.000
28R		APU	0.047	0.002	0.002	0.003	0.012	0.002	0.000	0.000	0.000
		GSE	0.015	0.001	0.001	0.001	0.014	0.004	0.002	0.002	0.000
Embraer ERJ 135/1...	AE3007A1/3 (Typ...	TOTAL	3.276	0.277	0.277	0.294	2.276	0.243	0.000	0.000	0.000
28R		APU	0.229	0.022	0.022	0.023	0.163	0.035	0.000	0.000	0.000
		GSE	15.338	0.599	0.540	0.560	0.605	0.079	0.046	0.044	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.464	0.075	0.075	0.079	0.818	0.072	0.000	0.000	0.000
28R		APU	0.064	0.006	0.006	0.007	0.045	0.010	0.000	0.000	0.000
		GSE	4.259	0.166	0.150	0.155	0.168	0.022	0.013	0.012	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.860	0.151	0.151	0.160	1.553	0.150	0.000	0.000	0.000
28R		APU	0.128	0.012	0.012	0.013	0.090	0.020	0.000	0.000	0.000
		GSE	8.532	0.333	0.301	0.312	0.336	0.044	0.025	0.025	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	9.098	0.767	0.767	0.816	6.396	0.655	0.000	0.000	0.000
28R		APU	0.613	0.058	0.058	0.062	0.435	0.095	0.000	0.000	0.000
		GSE	40.933	1.598	1.442	1.496	1.615	0.213	0.123	0.119	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	11.295	0.953	0.953	1.013	7.847	0.834	0.000	0.000	0.000
28R		APU	0.791	0.075	0.075	0.079	0.562	0.122	0.000	0.000	0.000
		GSE	52.875	2.064	1.862	1.932	2.087	0.274	0.159	0.153	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	3.412	0.287	0.287	0.305	2.400	0.246	0.000	0.000	0.000
28R		APU	0.229	0.022	0.022	0.023	0.163	0.035	0.000	0.000	0.000
		GSE	15.352	0.600	0.540	0.561	0.605	0.079	0.046	0.044	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	5.098	0.047	0.047	0.053	7.764	0.753	0.075	0.075	0.000
28R		APU	0.496	0.047	0.047	0.052	0.353	0.077	0.000	0.000	0.000
		GSE	33.166	1.295	1.168	1.213	1.308	0.172	0.100	0.096	0.000
Falcon 20	CF700-2D	TOTAL	2.496	0.208	0.208	0.222	0.084	0.031	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.007	0.001	0.001	0.001	0.018	0.007	0.003	0.003	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.811	0.094	0.094	0.100	0.814	0.071	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.546	0.180	0.162	0.168	0.125	0.007	0.006	0.006	0.000
HS 125	TFE731-3	TOTAL	3.746	0.611	0.611	0.675	1.734	0.096	N/A	N/A	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	32.956	1.252	1.128	1.170	0.891	0.064	0.033	0.032	0.000
KC-135R	CFM56-2B-1	TOTAL	0.464	0.025	0.025	0.029	0.573	0.047	0.001	0.001	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.011	0.002	0.002	0.002	0.034	0.009	0.003	0.003	0.000
Learjet 25C	CJ610-6	TOTAL	17.930	1.376	1.376	1.462	0.352	0.098	N/A	N/A	0.000
28R_GA		APU	0.174	0.017	0.017	0.018	0.125	0.028	0.000	0.000	0.000
		GSE	11.677	0.456	0.411	0.427	0.461	0.061	0.035	0.034	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.913	0.560	0.560	0.595	0.554	0.039	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	9.338	0.384	0.345	0.358	0.285	0.013	0.012	0.011	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.003	0.001	0.001	0.001	0.011	0.001	0.000	0.000	0.000
28R		APU	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	TOTAL	36.431	0.659	0.659	0.636	0.019	0.003	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.003	0.006	0.008	0.008	0.000
Piper PA-28	O-320	TOTAL	1.299	0.021	0.021	0.020	0.002	0.000	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.330	1.066	1.066	1.178	0.106	0.013	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.304	0.239	0.216	0.224	0.171	0.012	0.007	0.007	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	10.011	3.458	3.458	3.676	1.327	0.126	0.065	0.065	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	29.245	1.203	1.084	1.123	0.928	0.052	0.040	0.039	0.000
Falcon 2000EX	PW308C	TOTAL	1.554	0.195	0.195	0.207	1.192	0.114	0.011	0.011	0.000
28R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.863	0.273	0.248	0.257	0.365	0.065	0.033	0.032	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	2.564	0.885	0.885	0.941	0.340	0.032	0.017	0.017	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	7.488	0.308	0.278	0.288	0.238	0.013	0.010	0.010	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	3.276	0.536	0.536	0.570	2.538	0.295	0.174	0.174	0.000
28R_GA		APU	0.075	0.006	0.006	0.006	0.369	0.036	0.000	0.000	0.000
		GSE	15.482	0.597	0.538	0.559	0.396	0.031	0.031	0.030	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.611	0.177	0.177	0.188	0.202	0.013	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.930	0.120	0.108	0.112	0.093	0.006	0.004	0.004	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.871	0.252	0.252	0.268	0.288	0.019	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.176	0.172	0.154	0.160	0.132	0.008	0.006	0.006	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.408	0.408	0.408	0.434	0.464	0.031	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.752	0.278	0.250	0.259	0.214	0.012	0.009	0.009	0.000
Citation VII	TFE 731-2-2B	TOTAL	1.419	0.411	0.411	0.438	0.468	0.031	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	6.809	0.280	0.252	0.261	0.216	0.012	0.009	0.009	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.682	0.153	0.153	0.169	0.034	0.015	N/A	N/A	0.000
10L_GA		APU	0.008	0.000	0.000	0.001	0.036	0.003	0.000	0.000	0.000
		GSE	1.842	0.073	0.065	0.067	0.049	0.004	0.004	0.004	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.593	0.357	0.357	0.395	0.080	0.036	N/A	N/A	0.000
10R_GA		APU	0.018	0.001	0.001	0.001	0.085	0.009	0.000	0.000	0.000
		GSE	4.298	0.169	0.152	0.158	0.114	0.010	0.011	0.010	0.000
HS 748 2A SERIES	RDa7	TOTAL	2.621	0.588	0.588	0.649	0.132	0.060	N/A	N/A	0.000
28L_GA		APU	0.029	0.002	0.002	0.002	0.139	0.014	0.000	0.000	0.000
		GSE	7.072	0.278	0.250	0.259	0.187	0.017	0.018	0.018	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.748	0.391	0.391	0.432	0.088	0.040	N/A	N/A	0.000
28R_GA		APU	0.019	0.001	0.001	0.001	0.093	0.009	0.000	0.000	0.000
		GSE	4.716	0.185	0.166	0.173	0.125	0.011	0.012	0.011	0.000
Learjet 25B	CJ610-6	TOTAL	5.514	0.423	0.423	0.450	0.108	0.030	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.650	0.150	0.134	0.140	0.111	0.006	0.004	0.004	0.000
Learjet 25B	CJ610-6	TOTAL	20.238	1.552	1.552	1.650	0.397	0.110	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.397	0.550	0.495	0.514	0.409	0.019	0.017	0.017	0.000
Learjet 25B	CJ610-6	TOTAL	44.559	3.418	3.418	3.633	0.874	0.244	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	29.498	1.211	1.090	1.131	0.901	0.042	0.036	0.035	0.000
Learjet 25B	CJ610-6	TOTAL	15.494	1.188	1.188	1.263	0.304	0.085	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	10.257	0.421	0.379	0.394	0.313	0.014	0.013	0.012	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.375	0.003	0.003	0.003	0.565	0.055	0.006	0.006	0.000
10L		APU	0.161	0.009	0.009	0.010	0.042	0.009	0.000	0.000	0.000
		GSE	2.436	0.095	0.086	0.089	0.096	0.012	0.008	0.007	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.562	0.006	0.006	0.006	0.847	0.083	0.008	0.008	0.000
10R		APU	0.240	0.013	0.013	0.015	0.064	0.013	0.000	0.000	0.000
		GSE	3.646	0.142	0.129	0.133	0.144	0.019	0.011	0.011	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.885	0.009	0.009	0.009	1.335	0.130	0.012	0.012	0.000
28L		APU	0.379	0.022	0.022	0.024	0.100	0.021	0.000	0.000	0.000
		GSE	5.749	0.225	0.203	0.211	0.227	0.030	0.018	0.017	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.918	0.009	0.009	0.010	1.383	0.134	0.012	0.012	0.000
28R		APU	0.392	0.022	0.022	0.024	0.104	0.022	0.000	0.000	0.000
		GSE	5.957	0.233	0.209	0.217	0.235	0.031	0.018	0.018	0.000
A320-200	V2500-A1	TOTAL	0.012	0.001	0.001	0.001	0.086	0.004	0.000	0.000	0.000
10L		APU	0.001	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000
		GSE	0.002	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
A320-200	V2500-A1	TOTAL	0.255	0.014	0.014	0.015	1.841	0.093	0.002	0.002	0.000
10R		APU	0.014	0.001	0.001	0.001	0.073	0.008	0.000	0.000	0.000
		GSE	0.045	0.004	0.004	0.004	0.041	0.013	0.008	0.008	0.000
A320-200	V2500-A1	TOTAL	0.326	0.018	0.018	0.020	2.356	0.119	0.002	0.002	0.000
28L		APU	0.019	0.001	0.001	0.001	0.093	0.009	0.000	0.000	0.000
		GSE	0.057	0.006	0.006	0.006	0.053	0.017	0.010	0.010	0.000
A320-200	V2500-A1	TOTAL	0.028	0.001	0.001	0.001	0.196	0.010	0.000	0.000	0.000
28R		APU	0.001	0.000	0.000	0.000	0.008	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.369	0.003	0.003	0.004	0.625	0.057	0.013	0.013	0.000
10L		APU	0.036	0.003	0.003	0.003	0.026	0.006	0.000	0.000	0.000
		GSE	2.436	0.095	0.086	0.089	0.096	0.012	0.008	0.007	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.553	0.006	0.006	0.006	0.936	0.086	0.020	0.020	0.000
10R		APU	0.054	0.006	0.006	0.006	0.039	0.009	0.000	0.000	0.000
		GSE	3.646	0.142	0.129	0.133	0.144	0.019	0.011	0.011	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.872	0.009	0.009	0.010	1.476	0.137	0.031	0.031	0.000
28L		APU	0.086	0.008	0.008	0.009	0.061	0.013	0.000	0.000	0.000
		GSE	5.749	0.225	0.203	0.211	0.227	0.030	0.018	0.017	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.903	0.009	0.009	0.010	1.530	0.141	0.032	0.032	0.000
28R		APU	0.089	0.009	0.009	0.009	0.063	0.014	0.000	0.000	0.000
		GSE	5.957	0.233	0.209	0.217	0.235	0.031	0.018	0.018	0.000
B757-200	PW2037	TOTAL	0.110	0.009	0.009	0.010	0.256	0.017	0.002	0.002	0.000
10L		APU	0.004	0.000	0.000	0.000	0.011	0.001	0.000	0.000	0.000
		GSE	0.006	0.001	0.001	0.001	0.006	0.002	0.001	0.001	0.000
B757-200	PW2037	TOTAL	1.444	0.119	0.119	0.131	3.347	0.215	0.035	0.035	0.000
10R		APU	0.063	0.007	0.007	0.007	0.144	0.015	0.000	0.000	0.000
		GSE	0.079	0.008	0.008	0.008	0.072	0.023	0.013	0.013	0.000
B757-200	PW2037	TOTAL	2.183	0.181	0.181	0.197	5.057	0.324	0.054	0.054	0.000
28L		APU	0.095	0.010	0.010	0.011	0.218	0.023	0.000	0.000	0.000
		GSE	0.119	0.012	0.011	0.012	0.109	0.034	0.020	0.020	0.000
B757-200	PW2037	TOTAL	0.287	0.024	0.024	0.026	0.665	0.043	0.007	0.007	0.000
28R		APU	0.012	0.001	0.001	0.001	0.029	0.003	0.000	0.000	0.000
		GSE	0.015	0.001	0.001	0.001	0.014	0.004	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	6.910	0.039	0.039	0.042	7.728	0.767	0.032	0.032	0.000
10L_New T...		APU	2.296	0.131	0.131	0.144	0.606	0.128	0.000	0.000	0.000
		GSE	34.851	1.360	1.227	1.273	1.375	0.181	0.105	0.101	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	10.310	0.057	0.057	0.063	11.531	1.145	0.049	0.049	0.000
8_New Term		APU	3.427	0.196	0.196	0.215	0.905	0.191	0.000	0.000	0.000
		GSE	51.998	2.029	1.831	1.900	2.051	0.270	0.157	0.151	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	16.252	0.091	0.091	0.099	18.176	1.806	0.076	0.076	0.000
26_New Te...		APU	5.401	0.310	0.310	0.338	1.426	0.300	0.000	0.000	0.000
		GSE	81.963	3.200	2.887	2.995	3.234	0.425	0.247	0.238	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	16.851	0.095	0.095	0.104	18.846	1.872	0.079	0.079	0.000
28R_New ...		APU	5.600	0.321	0.321	0.351	1.478	0.311	0.000	0.000	0.000
		GSE	84.984	3.317	2.993	3.105	3.353	0.442	0.256	0.247	0.000
B737-800	CFM56-7B26	TOTAL	0.292	0.030	0.030	0.033	0.853	0.053	0.015	0.015	0.000
10L_New T...		APU	0.023	0.002	0.002	0.002	0.031	0.004	0.000	0.000	0.000
		GSE	0.025	0.002	0.002	0.002	0.023	0.008	0.004	0.004	0.000
B737-800	CFM56-7B26	TOTAL	2.779	0.287	0.287	0.314	8.116	0.498	0.151	0.151	0.000
8_New Term		APU	0.218	0.017	0.017	0.018	0.297	0.045	0.000	0.000	0.000
		GSE	0.244	0.024	0.023	0.024	0.223	0.071	0.041	0.040	0.000
B737-800	CFM56-7B26	TOTAL	4.758	0.492	0.492	0.538	13.895	0.853	0.259	0.259	0.000
26_New Te...		APU	0.374	0.029	0.029	0.031	0.508	0.076	0.000	0.000	0.000
		GSE	0.418	0.042	0.040	0.042	0.380	0.120	0.071	0.068	0.000
B737-800	CFM56-7B26	TOTAL	0.769	0.079	0.079	0.087	2.248	0.138	0.042	0.042	0.000
28R_New ...		APU	0.061	0.004	0.004	0.006	0.083	0.012	0.000	0.000	0.000
		GSE	0.067	0.007	0.007	0.007	0.062	0.020	0.011	0.011	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.071	0.022	0.022	0.024	0.211	0.014	0.004	0.004	0.000
10L_New T...		APU	0.019	0.001	0.001	0.001	0.004	0.001	0.000	0.000	0.000
		GSE	0.004	0.000	0.000	0.000	0.004	0.001	0.001	0.001	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.912	0.281	0.281	0.308	2.709	0.185	0.054	0.054	0.000
8_New Term		APU	0.236	0.013	0.013	0.014	0.062	0.013	0.000	0.000	0.000
		GSE	0.062	0.007	0.007	0.007	0.057	0.019	0.011	0.011	0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.373	0.422	0.422	0.463	4.081	0.279	0.082	0.082	0.000
26_New Te...		APU	0.355	0.020	0.020	0.022	0.094	0.020	0.000	0.000	0.000
		GSE	0.093	0.010	0.010	0.010	0.087	0.029	0.017	0.015	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.181	0.056	0.056	0.061	0.538	0.036	0.011	0.011	0.000
28R_New ...		APU	0.046	0.002	0.002	0.003	0.012	0.002	0.000	0.000	0.000
		GSE	0.012	0.001	0.001	0.001	0.011	0.003	0.002	0.002	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	5.589	0.060	0.060	0.057	0.007	0.000	N/A	N/A	4.436
10L_GA		Climb Out	4.670	0.053	0.053	0.051	0.001	0.000	N/A	N/A	3.175
		Takeoff	3.113	0.026	0.026	0.025	0.001	0.000	N/A	N/A	2.159
		Idle	2.980	0.157	0.157	0.151	0.001	0.000	N/A	N/A	2.303
B737-300	CFM56-3-B1	Approach	0.140	0.003	0.003	0.003	0.305	0.036	0.000	0.000	36.733
10L		Climb Out	0.018	0.001	0.001	0.001	0.293	0.019	0.000	0.000	18.894
		Takeoff	0.022	0.001	0.001	0.001	0.439	0.024	0.001	0.001	24.792
		Idle	1.437	0.095	0.095	0.105	0.163	0.042	0.000	0.000	41.788
B737-300	CFM56-3B-2	Approach	0.025	0.000	0.000	0.001	0.064	0.008	0.000	0.000	7.360
10L		Climb Out	0.003	0.000	0.000	0.000	0.065	0.004	0.000	0.000	3.876
		Takeoff	0.004	0.000	0.000	0.000	0.099	0.006	0.000	0.000	5.121
		Idle	0.243	0.014	0.014	0.015	0.033	0.008	0.000	0.000	8.071
B737-500	CFM56-3C-1	Approach	0.018	0.000	0.000	0.000	0.053	0.006	0.000	0.000	5.818
10L		Climb Out	0.003	0.000	0.000	0.000	0.062	0.003	0.000	0.000	3.476
		Takeoff	0.004	0.000	0.000	0.000	0.095	0.004	0.000	0.000	4.567
		Idle	0.163	0.009	0.009	0.010	0.026	0.007	0.000	0.000	6.090
B737-700	CFM56-7B22	Approach	0.116	0.004	0.004	0.006	0.464	0.046	0.010	0.010	46.392
10L		Climb Out	0.017	0.003	0.003	0.003	0.530	0.028	0.006	0.006	27.892
		Takeoff	0.020	0.004	0.004	0.004	0.920	0.040	0.009	0.009	39.839
		Idle	1.056	0.116	0.116	0.127	0.208	0.046	0.010	0.010	46.321
B737-800	CFM56-7B26	Approach	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.338
10L		Climb Out	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.235
		Takeoff	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.333
		Idle	0.007	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.325
B757-300	PW2043	Approach	0.004	0.000	0.000	0.000	0.036	0.003	N/A	N/A	3.412
10L		Climb Out	0.001	0.000	0.000	0.000	0.065	0.002	N/A	N/A	2.315
		Takeoff	0.001	0.000	0.000	0.000	0.119	0.003	N/A	N/A	3.145
		Idle	0.058	0.004	0.004	0.006	0.013	0.003	N/A	N/A	3.039
Bombardier CRJ700	CF34-8C1	Approach	0.013	0.000	0.000	0.000	0.050	0.004	0.000	0.000	4.449
10L		Climb Out	0.001	0.000	0.000	0.000	0.031	0.002	0.000	0.000	2.379
		Takeoff	0.001	0.000	0.000	0.000	0.058	0.004	0.000	0.000	3.989
		Idle	0.128	0.000	0.000	0.000	0.022	0.006	0.000	0.000	5.126
Cessna 172 Skyhawk	O-320	Approach	3.300	0.053	0.053	0.051	0.002	0.000	N/A	N/A	2.705
10L_GA		Climb Out	1.779	0.022	0.022	0.022	0.007	0.000	N/A	N/A	1.798
		Takeoff	1.344	0.014	0.014	0.014	0.002	0.000	N/A	N/A	1.245
		Idle	0.872	0.030	0.030	0.029	0.000	0.000	N/A	N/A	0.808
Cessna 441 Conqu...	TPE331-8	Approach	0.010	0.000	0.000	0.000	0.021	0.002	N/A	N/A	2.233
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.006	0.000	N/A	N/A	0.473
		Takeoff	0.001	0.000	0.000	0.000	0.006	0.000	N/A	N/A	0.546
		Idle	0.031	0.002	0.002	0.002	0.007	0.001	N/A	N/A	1.646
CITATION I SP	JT15D-1A _1B	Approach	0.060	0.007	0.007	0.007	0.006	0.001	0.000	0.000	1.465
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.875
		Takeoff	0.002	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.972
		Idle	0.200	0.076	0.076	0.082	0.002	0.001	0.000	0.000	1.510
CL600	ALF 502L-2	Approach	0.099	0.004	0.004	0.004	0.162	0.013	0.003	0.003	25.053
10L_GA		Climb Out	0.004	0.000	0.000	0.000	0.158	0.007	0.003	0.003	13.078
		Takeoff	0.007	0.000	0.000	0.000	0.240	0.010	0.002	0.002	17.863
		Idle	1.249	0.182	0.182	0.194	0.093	0.014	0.000	0.000	27.368
DC9-30	JT8D-15 (old co...	Approach	0.032	0.006	0.006	0.007	0.020	0.003	0.002	0.002	3.368
10L		Climb Out	0.003	0.001	0.001	0.001	0.044	0.003	0.002	0.002	2.975
		Takeoff	0.002	0.001	0.001	0.001	0.061	0.003	0.002	0.002	3.147
		Idle	0.150	0.047	0.047	0.052	0.013	0.004	0.003	0.003	4.263
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.198	0.001	0.001	0.001	0.181	0.026	0.000	0.000	26.072
10L		Climb Out	0.013	0.001	0.001	0.001	0.352	0.026	0.000	0.000	26.058
		Takeoff	0.009	0.000	0.000	0.001	0.279	0.018	0.000	0.000	18.065
		Idle	1.127	0.111	0.111	0.119	0.125	0.030	0.000	0.000	29.273
Embraer ERJ 145	AE3007A	Approach	0.025	0.006	0.006	0.006	0.061	0.008	0.000	0.000	7.815
10L		Climb Out	0.007	0.002	0.002	0.002	0.132	0.008	0.000	0.000	7.552
		Takeoff	0.004	0.001	0.001	0.001	0.108	0.006	0.000	0.000	5.236
		Idle	0.153	0.022	0.022	0.023	0.034	0.009	0.000	0.000	8.815
Embraer ERJ 145	AE3007A1E	Approach	0.090	0.000	0.000	0.000	0.119	0.017	0.000	0.000	16.096
10L		Climb Out	0.011	0.000	0.000	0.000	0.246	0.017	0.000	0.000	16.488
		Takeoff	0.009	0.000	0.000	0.000	0.197	0.011	0.000	0.000	11.496
		Idle	0.651	0.061	0.061	0.064	0.073	0.018	0.000	0.000	17.159
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	0.464	0.002	0.002	0.002	0.486	0.068	0.000	0.000	68.264
10L		Climb Out	0.035	0.002	0.002	0.002	0.904	0.064	0.000	0.000	64.480

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.041	0.002	0.002	0.002	0.897	0.056	0.000	0.000	55.752
		Idle	3.183	0.309	0.309	0.327	0.332	0.079	0.000	0.000	79.461
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	0.682	0.002	0.002	0.003	0.621	0.089	0.000	0.000	89.498
10L		Climb Out	0.045	0.002	0.002	0.003	1.207	0.089	0.000	0.000	89.446
		Takeoff	0.031	0.002	0.002	0.002	0.956	0.062	0.000	0.000	62.011
		Idle	3.866	0.383	0.383	0.407	0.429	0.100	0.000	0.000	100.482
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.174	0.001	0.001	0.001	0.183	0.025	0.000	0.000	25.650
10L		Climb Out	0.013	0.001	0.001	0.001	0.340	0.024	0.000	0.000	24.207
		Takeoff	0.015	0.001	0.001	0.001	0.337	0.021	0.000	0.000	20.935
		Idle	1.195	0.116	0.116	0.122	0.125	0.030	0.000	0.000	29.896
Embraer ERJ 170	CF34-8E5	Approach	0.379	0.006	0.006	0.006	0.965	0.089	0.010	0.010	89.559
10L		Climb Out	0.028	0.001	0.001	0.001	0.610	0.049	0.001	0.001	48.181
		Takeoff	0.052	0.001	0.001	0.002	1.195	0.080	0.010	0.010	80.866
		Idle	1.633	0.012	0.012	0.013	0.414	0.090	0.010	0.010	89.886
Falcon 20	CF700-2D	Approach	0.195	0.004	0.004	0.004	0.006	0.003	N/A	N/A	3.144
10L_GA		Climb Out	0.044	0.000	0.000	0.000	0.008	0.002	N/A	N/A	1.746
		Takeoff	0.051	0.000	0.000	0.000	0.013	0.002	N/A	N/A	2.328
		Idle	0.599	0.069	0.069	0.074	0.003	0.004	N/A	N/A	3.861
Falcon 2000EX	PW308C	Approach	0.079	0.002	0.002	0.002	0.118	0.015	0.001	0.001	15.129
10L_Corp		Climb Out	0.008	0.001	0.001	0.001	0.130	0.008	0.001	0.001	8.101
		Takeoff	0.009	0.001	0.001	0.001	0.194	0.011	0.001	0.001	10.536
		Idle	0.542	0.076	0.076	0.080	0.046	0.013	0.001	0.001	12.817
Gulfstream II	SPEY MK511-8	Approach	0.017	0.001	0.001	0.001	0.045	0.007	N/A	N/A	6.274
10L_GA		Climb Out	0.003	0.001	0.001	0.001	0.085	0.004	N/A	N/A	4.874
		Takeoff	0.001	0.000	0.000	0.000	0.129	0.006	N/A	N/A	5.706
		Idle	0.269	0.031	0.031	0.033	0.031	0.009	N/A	N/A	8.456
Gulfstream IV	TAY Mk611-8	Approach	0.123	0.029	0.029	0.031	0.181	0.032	0.019	0.019	31.783
10L_GA		Climb Out	0.011	0.004	0.004	0.004	0.241	0.014	0.009	0.009	14.350
		Takeoff	0.014	0.015	0.015	0.017	0.420	0.020	0.012	0.012	19.908
		Idle	1.082	0.153	0.153	0.162	0.112	0.045	0.026	0.026	44.934
HS 125	TFE731-3	Approach	0.365	0.033	0.033	0.036	0.162	0.012	N/A	N/A	23.456
10L_Corp		Climb Out	0.017	0.001	0.001	0.001	0.163	0.006	N/A	N/A	10.152
		Takeoff	0.018	0.001	0.001	0.001	0.302	0.009	N/A	N/A	15.791
		Idle	1.150	0.218	0.218	0.240	0.089	0.013	N/A	N/A	24.104
KC-135R	CFM56-2B-1	Approach	0.014	0.000	0.000	0.000	0.028	0.003	0.000	0.000	3.412
10L_GA		Climb Out	0.003	0.000	0.000	0.000	0.062	0.004	0.000	0.000	3.887
		Takeoff	0.006	0.000	0.000	0.000	0.104	0.006	0.000	0.000	5.590
		Idle	0.149	0.009	0.009	0.010	0.020	0.004	0.000	0.000	4.864
Learjet 25C	CJ610-6	Approach	2.055	0.000	0.000	0.000	0.035	0.012	N/A	N/A	23.355
10L_GA		Climb Out	0.245	0.002	0.002	0.002	0.031	0.004	N/A	N/A	8.736
		Takeoff	0.368	0.001	0.001	0.001	0.057	0.008	N/A	N/A	13.650
		Idle	5.110	0.593	0.593	0.631	0.030	0.018	N/A	N/A	32.972
Learjet 35/36	TFE 731-2-2B	Approach	0.192	0.036	0.036	0.039	0.051	0.004	N/A	N/A	8.562
10L_GA		Climb Out	0.008	0.000	0.000	0.000	0.051	0.002	N/A	N/A	3.843
		Takeoff	0.007	0.000	0.000	0.001	0.071	0.002	N/A	N/A	4.615
		Idle	0.461	0.158	0.158	0.168	0.022	0.004	N/A	N/A	7.864
MD-80-83	JT8D-219 old co...	Approach	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10L		Climb Out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Takeoff	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Idle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Navajo	TIO-540-J2B2	Approach	8.026	0.085	0.085	0.083	0.009	0.001	N/A	N/A	6.370
10L_GA		Climb Out	6.708	0.076	0.076	0.073	0.001	0.000	N/A	N/A	4.560
		Takeoff	4.471	0.039	0.039	0.037	0.001	0.000	N/A	N/A	3.101
		Idle	4.279	0.225	0.225	0.217	0.001	0.000	N/A	N/A	3.307
Piper PA-28	O-320	Approach	0.235	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.193
10L_GA		Climb Out	0.114	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.115
		Takeoff	0.076	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.071
		Idle	0.049	0.002	0.002	0.001	0.000	0.000	N/A	N/A	0.045
UC-12J	PT6A-42	Approach	0.146	0.095	0.095	0.105	0.020	0.002	N/A	N/A	4.194
10L_GA		Climb Out	0.007	0.002	0.002	0.002	0.008	0.000	N/A	N/A	0.998
		Takeoff	0.004	0.001	0.001	0.001	0.007	0.000	N/A	N/A	0.782
		Idle	0.335	0.295	0.295	0.326	0.006	0.001	N/A	N/A	2.913
550 Citation	JT15D-4 (B,C,D)	Approach	0.990	0.159	0.159	0.170	0.163	0.017	0.009	0.009	30.922
10L_Corp		Climb Out	0.053	0.003	0.003	0.003	0.142	0.009	0.004	0.004	16.563
		Takeoff	0.037	0.001	0.001	0.002	0.168	0.010	0.006	0.006	18.100
		Idle	3.122	1.287	1.287	1.368	0.085	0.018	0.009	0.009	32.178
B737-300	CFM56-3C-1 (Re...	Approach	0.015	0.000	0.000	0.000	0.030	0.003	0.000	0.000	3.676
10L		Climb Out	0.002	0.000	0.000	0.000	0.028	0.002	0.000	0.000	1.856
		Takeoff	0.002	0.000	0.000	0.000	0.041	0.002	0.000	0.000	2.429
		Idle	0.164	0.012	0.012	0.013	0.017	0.004	0.000	0.000	4.325

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation	JT15D-4 (B,C,D)	Approach	0.215	0.034	0.034	0.036	0.035	0.003	0.002	0.002	6.705
10L_GA		Climb Out	0.011	0.001	0.001	0.001	0.031	0.002	0.001	0.001	3.591
		Takeoff	0.008	0.000	0.000	0.000	0.036	0.002	0.001	0.001	3.924
		Idle	0.677	0.279	0.279	0.297	0.019	0.003	0.002	0.002	6.978
550 Citation	JT15D-4 (B,C,D)	Approach	0.785	0.127	0.127	0.134	0.130	0.013	0.007	0.007	24.539
10R_GA		Climb Out	0.042	0.002	0.002	0.002	0.112	0.007	0.003	0.003	13.144
		Takeoff	0.030	0.001	0.001	0.001	0.132	0.008	0.004	0.004	14.363
		Idle	2.477	1.022	1.022	1.086	0.067	0.014	0.008	0.008	25.534
550 Citation	JT15D-4 (B,C,D)	Approach	1.462	0.235	0.235	0.250	0.241	0.024	0.013	0.013	45.689
10R_Corp		Climb Out	0.078	0.004	0.004	0.004	0.209	0.013	0.007	0.007	24.474
		Takeoff	0.056	0.002	0.002	0.002	0.247	0.014	0.008	0.008	26.742
		Idle	4.612	1.901	1.901	2.022	0.125	0.025	0.013	0.013	47.543
Aztec	TIO-540-J2B2	Approach	8.827	0.094	0.094	0.090	0.010	0.001	N/A	N/A	7.006
10R_GA		Climb Out	7.378	0.084	0.084	0.080	0.001	0.001	N/A	N/A	5.016
		Takeoff	4.917	0.042	0.042	0.041	0.001	0.000	N/A	N/A	3.411
		Idle	4.707	0.248	0.248	0.239	0.001	0.000	N/A	N/A	3.638
B737-300	CFM56-3C-1 (Re...	Approach	0.129	0.002	0.002	0.002	0.245	0.031	0.000	0.000	30.632
10R		Climb Out	0.015	0.001	0.001	0.001	0.227	0.015	0.000	0.000	15.468
		Takeoff	0.019	0.001	0.001	0.001	0.336	0.020	0.000	0.000	20.243
		Idle	1.373	0.104	0.104	0.112	0.137	0.036	0.000	0.000	36.042
B737-300	CFM56-3B-2	Approach	0.260	0.006	0.006	0.007	0.665	0.076	0.001	0.001	76.414
10R		Climb Out	0.036	0.002	0.002	0.002	0.672	0.041	0.001	0.001	40.240
		Takeoff	0.047	0.002	0.002	0.002	1.032	0.053	0.003	0.003	53.170
		Idle	2.522	0.147	0.147	0.161	0.344	0.084	0.001	0.001	83.807
B737-300	CFM56-3-B1	Approach	1.484	0.031	0.031	0.034	3.241	0.390	0.004	0.004	390.471
10R		Climb Out	0.191	0.010	0.010	0.011	3.113	0.201	0.002	0.002	200.832
		Takeoff	0.237	0.011	0.011	0.011	4.665	0.263	0.008	0.008	263.533
		Idle	15.280	1.013	1.013	1.109	1.733	0.444	0.004	0.004	444.201
B737-500	CFM56-3C-1	Approach	0.198	0.004	0.004	0.004	0.584	0.064	0.001	0.001	64.168
10R		Climb Out	0.034	0.001	0.001	0.002	0.682	0.039	0.001	0.001	38.331
		Takeoff	0.045	0.001	0.001	0.002	1.043	0.051	0.004	0.004	50.373
		Idle	1.800	0.096	0.096	0.105	0.289	0.067	0.001	0.001	67.168
B737-700	CFM56-7B22	Approach	1.084	0.043	0.043	0.047	4.335	0.433	0.091	0.091	433.559
10R		Climb Out	0.157	0.026	0.026	0.029	4.953	0.260	0.055	0.055	260.661
		Takeoff	0.186	0.037	0.037	0.041	8.600	0.373	0.078	0.078	372.312
		Idle	9.870	1.082	1.082	1.185	1.948	0.433	0.091	0.091	432.896
B737-800	CFM56-7B26	Approach	0.004	0.000	0.000	0.000	0.031	0.003	0.001	0.001	2.880
10R		Climb Out	0.001	0.000	0.000	0.000	0.045	0.002	0.001	0.001	2.000
		Takeoff	0.001	0.000	0.000	0.000	0.082	0.003	0.001	0.001	2.829
		Idle	0.052	0.006	0.006	0.006	0.013	0.003	0.001	0.001	2.767
B757-300	PW2043	Approach	0.040	0.002	0.002	0.003	0.317	0.030	N/A	N/A	29.654
10R		Climb Out	0.008	0.000	0.000	0.000	0.561	0.020	N/A	N/A	20.125
		Takeoff	0.008	0.000	0.000	0.000	1.033	0.028	N/A	N/A	27.338
		Idle	0.510	0.041	0.041	0.045	0.117	0.026	N/A	N/A	26.418
Bombardier CRJ700	CF34-8C1	Approach	0.020	0.000	0.000	0.000	0.074	0.007	0.000	0.000	6.673
10R		Climb Out	0.002	0.000	0.000	0.000	0.045	0.003	0.000	0.000	3.568
		Takeoff	0.002	0.000	0.000	0.000	0.088	0.006	0.000	0.000	5.984
		Idle	0.192	0.001	0.001	0.001	0.033	0.008	0.000	0.000	7.689
Cessna 172 Skyhawk	O-320	Approach	3.599	0.057	0.057	0.055	0.003	0.000	N/A	N/A	2.950
10R_GA		Climb Out	1.941	0.024	0.024	0.023	0.008	0.000	N/A	N/A	1.960
		Takeoff	1.466	0.017	0.017	0.015	0.003	0.000	N/A	N/A	1.357
		Idle	0.951	0.032	0.032	0.031	0.000	0.000	N/A	N/A	0.881
Cessna 441 Conqu...	TPE331-8	Approach	0.030	0.001	0.001	0.001	0.065	0.007	N/A	N/A	6.811
10R_GA		Climb Out	0.002	0.000	0.000	0.000	0.015	0.001	N/A	N/A	1.443
		Takeoff	0.002	0.000	0.000	0.000	0.019	0.002	N/A	N/A	1.664
		Idle	0.095	0.008	0.008	0.008	0.021	0.006	N/A	N/A	5.020
CITATION I SP	JT15D-1A _1B	Approach	0.227	0.025	0.025	0.026	0.019	0.003	0.002	0.002	5.604
10R_GA		Climb Out	0.012	0.000	0.000	0.000	0.023	0.002	0.001	0.001	3.349
		Takeoff	0.010	0.000	0.000	0.000	0.029	0.002	0.001	0.001	3.721
		Idle	0.763	0.292	0.292	0.310	0.010	0.003	0.002	0.002	5.777
CL600	ALF 502L-2	Approach	0.152	0.007	0.007	0.008	0.249	0.021	0.004	0.004	38.453
10R_GA		Climb Out	0.006	0.000	0.000	0.000	0.241	0.011	0.004	0.004	20.072
		Takeoff	0.011	0.000	0.000	0.001	0.368	0.014	0.003	0.003	27.416
		Idle	1.917	0.279	0.279	0.297	0.142	0.023	0.001	0.001	42.006
DC9-30	JT8D-15 (old co...	Approach	0.423	0.073	0.073	0.079	0.260	0.044	0.032	0.032	44.108
10R		Climb Out	0.039	0.010	0.010	0.011	0.584	0.039	0.028	0.028	38.973
		Takeoff	0.029	0.010	0.010	0.011	0.787	0.041	0.030	0.030	41.234
		Idle	1.965	0.614	0.614	0.672	0.168	0.056	0.041	0.041	55.846
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.299	0.001	0.001	0.001	0.272	0.040	0.000	0.000	39.252
10R		Climb Out	0.020	0.001	0.001	0.001	0.529	0.040	0.000	0.000	39.230

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.013	0.001	0.001	0.001	0.419	0.028	0.000	0.000	27.197
		Idle	1.695	0.168	0.168	0.179	0.188	0.044	0.000	0.000	44.070
Embraer ERJ 145 10R	AE3007A1E	Approach	0.137	0.001	0.001	0.001	0.181	0.024	0.000	0.000	24.305
		Climb Out	0.015	0.001	0.001	0.001	0.371	0.025	0.000	0.000	24.898
		Takeoff	0.013	0.000	0.000	0.001	0.298	0.018	0.000	0.000	17.358
		Idle	0.983	0.091	0.091	0.097	0.110	0.026	0.000	0.000	25.909
Embraer ERJ 145 10R	AE3007A	Approach	0.039	0.008	0.008	0.008	0.093	0.012	0.000	0.000	11.817
		Climb Out	0.011	0.003	0.003	0.003	0.200	0.011	0.000	0.000	11.419
		Takeoff	0.006	0.002	0.002	0.002	0.163	0.008	0.000	0.000	7.917
		Idle	0.231	0.033	0.033	0.035	0.051	0.013	0.000	0.000	13.328
Embraer ERJ 145LR 10R	AE3007A1P (Typ...	Approach	0.262	0.001	0.001	0.001	0.276	0.039	0.000	0.000	38.702
		Climb Out	0.020	0.001	0.001	0.001	0.511	0.036	0.000	0.000	36.524
		Takeoff	0.023	0.001	0.001	0.001	0.508	0.032	0.000	0.000	31.588
		Idle	1.803	0.174	0.174	0.185	0.188	0.045	0.000	0.000	45.109
Embraer ERJ 145LR 10R	AE3007A1/3 (Ty...	Approach	1.030	0.004	0.004	0.004	0.937	0.136	0.000	0.000	135.139
		Climb Out	0.067	0.004	0.004	0.004	1.822	0.136	0.000	0.000	135.061
		Takeoff	0.046	0.003	0.003	0.003	1.444	0.094	0.000	0.000	93.635
		Idle	5.837	0.578	0.578	0.615	0.648	0.152	0.000	0.000	151.725
Embraer ERJ 145LR 10R	AE3007A1/1 (Ty...	Approach	0.701	0.003	0.003	0.003	0.734	0.104	0.000	0.000	103.076
		Climb Out	0.054	0.003	0.003	0.003	1.364	0.097	0.000	0.000	97.362
		Takeoff	0.063	0.002	0.002	0.002	1.356	0.084	0.000	0.000	84.182
		Idle	4.808	0.465	0.465	0.495	0.500	0.120	0.000	0.000	119.983
Embraer ERJ 170 10R	CF34-8E5	Approach	0.565	0.008	0.008	0.009	1.440	0.133	0.015	0.015	133.652
		Climb Out	0.041	0.001	0.001	0.001	0.909	0.072	0.001	0.001	71.903
		Takeoff	0.077	0.002	0.002	0.002	1.782	0.120	0.014	0.014	120.678
		Idle	2.436	0.018	0.018	0.019	0.618	0.134	0.015	0.015	134.138
Falcon 20 10R_GA	CF700-2D	Approach	0.713	0.017	0.017	0.018	0.021	0.011	N/A	N/A	11.507
		Climb Out	0.160	0.001	0.001	0.001	0.028	0.007	N/A	N/A	6.391
		Takeoff	0.187	0.001	0.001	0.001	0.047	0.009	N/A	N/A	8.520
		Idle	2.190	0.255	0.255	0.270	0.012	0.014	N/A	N/A	14.133
Falcon 2000EX 10R_Corp	PW308C	Approach	0.120	0.003	0.003	0.003	0.180	0.023	0.002	0.002	22.882
		Climb Out	0.012	0.001	0.001	0.001	0.196	0.012	0.001	0.001	12.252
		Takeoff	0.013	0.001	0.001	0.001	0.294	0.015	0.001	0.001	15.934
		Idle	0.820	0.115	0.115	0.122	0.071	0.020	0.002	0.002	19.384
Gulfstream II 10R_GA	SPEY MK511-8	Approach	0.061	0.004	0.004	0.004	0.165	0.023	N/A	N/A	22.960
		Climb Out	0.011	0.002	0.002	0.002	0.309	0.018	N/A	N/A	17.839
		Takeoff	0.002	0.002	0.002	0.002	0.474	0.021	N/A	N/A	20.880
		Idle	0.983	0.115	0.115	0.121	0.111	0.031	N/A	N/A	30.946
Gulfstream IV 10R_GA	TAY Mk611-8	Approach	0.285	0.066	0.066	0.071	0.418	0.074	0.043	0.043	73.311
		Climb Out	0.026	0.010	0.010	0.011	0.556	0.033	0.020	0.020	33.100
		Takeoff	0.032	0.036	0.036	0.039	0.969	0.046	0.028	0.028	45.920
		Idle	2.498	0.353	0.353	0.375	0.259	0.104	0.062	0.062	103.645
HS 125 10R_Corp	TFE731-3	Approach	0.539	0.049	0.049	0.054	0.240	0.019	N/A	N/A	34.664
		Climb Out	0.024	0.001	0.001	0.001	0.240	0.008	N/A	N/A	15.005
		Takeoff	0.026	0.001	0.001	0.001	0.446	0.012	N/A	N/A	23.336
		Idle	1.699	0.322	0.322	0.356	0.132	0.019	N/A	N/A	35.622
KC-135R 10R_GA	CFM56-2B-1	Approach	0.125	0.002	0.002	0.002	0.244	0.030	0.000	0.000	29.658
		Climb Out	0.031	0.002	0.002	0.002	0.540	0.034	0.001	0.001	33.788
		Takeoff	0.044	0.002	0.002	0.002	0.898	0.049	0.003	0.003	48.587
		Idle	1.299	0.077	0.077	0.086	0.169	0.042	0.000	0.000	42.284
Learjet 25C 10R_GA	CJ610-6	Approach	2.913	0.000	0.000	0.000	0.050	0.018	N/A	N/A	33.107
		Climb Out	0.347	0.002	0.002	0.002	0.043	0.007	N/A	N/A	12.384
		Takeoff	0.522	0.002	0.002	0.002	0.082	0.010	N/A	N/A	19.350
		Idle	7.244	0.841	0.841	0.894	0.042	0.025	N/A	N/A	46.741
Learjet 35/36 10R_GA	TFE 731-2-2B	Approach	0.729	0.139	0.139	0.148	0.192	0.018	N/A	N/A	32.570
		Climb Out	0.030	0.002	0.002	0.002	0.191	0.008	N/A	N/A	14.617
		Takeoff	0.024	0.002	0.002	0.002	0.268	0.010	N/A	N/A	17.558
		Idle	1.753	0.600	0.600	0.637	0.085	0.017	N/A	N/A	29.917
MD-80-83 10R	JT8D-219 old co...	Approach	0.003	0.001	0.001	0.001	0.009	0.001	0.000	0.000	0.937
		Climb Out	0.001	0.000	0.000	0.000	0.017	0.001	0.000	0.000	0.804
		Takeoff	0.001	0.000	0.000	0.000	0.024	0.001	0.000	0.000	0.886
		Idle	0.012	0.003	0.003	0.003	0.003	0.001	0.000	0.000	0.976
Navajo 10R_GA	TIO-540-J2B2	Approach	3.612	0.039	0.039	0.037	0.004	0.000	N/A	N/A	2.867
		Climb Out	3.019	0.034	0.034	0.033	0.000	0.000	N/A	N/A	2.053
		Takeoff	2.012	0.018	0.018	0.017	0.000	0.000	N/A	N/A	1.396
		Idle	1.926	0.101	0.101	0.098	0.001	0.000	N/A	N/A	1.488
Piper PA-28 10R_GA	O-320	Approach	0.719	0.011	0.011	0.011	0.001	0.000	N/A	N/A	0.589
		Climb Out	0.346	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.349
		Takeoff	0.234	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.216
		Idle	0.150	0.006	0.006	0.004	0.000	0.000	N/A	N/A	0.138

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
UC-12J 10R_GA	PT6A-42	Approach	0.470	0.306	0.306	0.338	0.063	0.008	N/A	N/A	13.519
		Climb Out	0.021	0.007	0.007	0.008	0.024	0.002	N/A	N/A	3.217
		Takeoff	0.013	0.004	0.004	0.004	0.020	0.001	N/A	N/A	2.518
		Idle	1.081	0.952	0.952	1.053	0.019	0.006	N/A	N/A	9.391
Aztec 28L_GA	TIO-540-J2B2	Approach	17.008	0.181	0.181	0.174	0.019	0.001	N/A	N/A	13.498
		Climb Out	14.214	0.161	0.161	0.154	0.002	0.001	N/A	N/A	9.663
		Takeoff	9.474	0.082	0.082	0.078	0.002	0.001	N/A	N/A	6.570
		Idle	9.068	0.477	0.477	0.461	0.002	0.001	N/A	N/A	7.007
B737-300 28L	CFM56-3-B1	Approach	2.423	0.051	0.051	0.056	5.291	0.637	0.008	0.008	637.480
		Climb Out	0.312	0.017	0.017	0.018	5.082	0.327	0.004	0.004	327.877
		Takeoff	0.387	0.018	0.018	0.019	7.615	0.430	0.012	0.012	430.242
		Idle	24.946	1.653	1.653	1.810	2.829	0.725	0.008	0.008	725.198
B737-300 28L	CFM56-3B-2	Approach	0.428	0.009	0.009	0.010	1.093	0.126	0.001	0.001	125.740
		Climb Out	0.060	0.003	0.003	0.003	1.106	0.066	0.001	0.001	66.215
		Takeoff	0.078	0.003	0.003	0.003	1.698	0.087	0.006	0.006	87.490
		Idle	4.151	0.241	0.241	0.265	0.565	0.138	0.001	0.001	137.902
B737-300 28L	CFM56-3C-1 (Re...	Approach	0.233	0.004	0.004	0.004	0.443	0.055	0.001	0.001	55.410
		Climb Out	0.028	0.001	0.001	0.001	0.411	0.028	0.000	0.000	27.980
		Takeoff	0.033	0.002	0.002	0.002	0.607	0.036	0.001	0.001	36.618
		Idle	2.484	0.186	0.186	0.204	0.248	0.065	0.001	0.001	65.197
B737-500 28L	CFM56-3C-1	Approach	0.317	0.008	0.008	0.008	0.933	0.103	0.001	0.001	102.497
		Climb Out	0.055	0.002	0.002	0.002	1.090	0.062	0.002	0.002	61.228
		Takeoff	0.073	0.002	0.002	0.002	1.666	0.080	0.008	0.008	80.464
		Idle	2.875	0.152	0.152	0.166	0.462	0.107	0.001	0.001	107.289
B737-700 28L	CFM56-7B22	Approach	1.868	0.075	0.075	0.082	7.474	0.747	0.158	0.158	747.362
		Climb Out	0.270	0.045	0.045	0.050	8.537	0.450	0.095	0.095	449.323
		Takeoff	0.321	0.064	0.064	0.071	14.825	0.642	0.134	0.134	641.784
		Idle	17.014	1.865	1.865	2.043	3.358	0.746	0.157	0.157	746.220
B737-800 28L	CFM56-7B26	Approach	0.008	0.000	0.000	0.000	0.053	0.004	0.001	0.001	4.914
		Climb Out	0.002	0.000	0.000	0.000	0.077	0.003	0.001	0.001	3.411
		Takeoff	0.001	0.000	0.000	0.000	0.139	0.004	0.001	0.001	4.825
		Idle	0.089	0.009	0.009	0.010	0.022	0.004	0.001	0.001	4.720
B757-300 28L	PW2043	Approach	0.071	0.004	0.004	0.006	0.573	0.054	N/A	N/A	53.535
		Climb Out	0.014	0.001	0.001	0.001	1.013	0.036	N/A	N/A	36.332
		Takeoff	0.014	0.000	0.000	0.000	1.864	0.050	N/A	N/A	49.355
		Idle	0.920	0.074	0.074	0.082	0.212	0.047	N/A	N/A	47.693
Bombardier CRJ700 28L	CF34-8C1	Approach	0.031	0.001	0.001	0.001	0.117	0.011	0.000	0.000	10.524
		Climb Out	0.003	0.000	0.000	0.000	0.072	0.006	0.000	0.000	5.626
		Takeoff	0.004	0.000	0.000	0.000	0.139	0.010	0.000	0.000	9.437
		Idle	0.302	0.001	0.001	0.001	0.052	0.012	0.001	0.001	12.124
CITATION I SP 28L_GA	JT15D-1A _1B	Approach	0.484	0.053	0.053	0.056	0.041	0.007	0.003	0.003	11.940
		Climb Out	0.025	0.000	0.000	0.000	0.049	0.003	0.002	0.002	7.135
		Takeoff	0.021	0.000	0.000	0.000	0.061	0.004	0.002	0.002	7.929
		Idle	1.625	0.622	0.622	0.661	0.022	0.007	0.004	0.004	12.311
CL600 28L_GA	ALF 502L-2	Approach	0.227	0.010	0.010	0.011	0.369	0.031	0.007	0.007	57.086
		Climb Out	0.009	0.001	0.001	0.001	0.358	0.017	0.007	0.007	29.799
		Takeoff	0.017	0.001	0.001	0.001	0.547	0.022	0.004	0.004	40.702
		Idle	2.845	0.414	0.414	0.441	0.211	0.034	0.001	0.001	62.362
Cessna 172 Skyhawk 28L_GA	O-320	Approach	7.229	0.115	0.115	0.111	0.006	0.001	N/A	N/A	5.926
		Climb Out	3.898	0.049	0.049	0.047	0.015	0.000	N/A	N/A	3.937
		Takeoff	2.944	0.032	0.032	0.031	0.006	0.000	N/A	N/A	2.726
		Idle	1.911	0.065	0.065	0.063	0.001	0.000	N/A	N/A	1.769
Cessna 441 Conqu... 28L_GA	TPE331-8	Approach	0.065	0.003	0.003	0.003	0.142	0.015	N/A	N/A	15.030
		Climb Out	0.006	0.000	0.000	0.000	0.034	0.003	N/A	N/A	3.183
		Takeoff	0.006	0.000	0.000	0.000	0.041	0.003	N/A	N/A	3.672
		Idle	0.208	0.017	0.017	0.018	0.046	0.011	N/A	N/A	11.077
DC9-30 28L	JT8D-15 (old co...	Approach	0.640	0.110	0.110	0.120	0.394	0.066	0.049	0.049	66.668
		Climb Out	0.058	0.014	0.014	0.017	0.884	0.058	0.043	0.043	58.906
		Takeoff	0.044	0.015	0.015	0.017	1.190	0.063	0.045	0.045	62.322
		Idle	2.971	0.928	0.928	1.016	0.254	0.085	0.061	0.061	84.408
Embraer ERJ 135/1... 28L	AE3007A1/3 (Ty...	Approach	0.460	0.002	0.002	0.002	0.419	0.061	0.000	0.000	60.375
		Climb Out	0.030	0.002	0.002	0.002	0.814	0.061	0.000	0.000	60.341
		Takeoff	0.021	0.001	0.001	0.001	0.645	0.042	0.000	0.000	41.833
		Idle	2.608	0.258	0.258	0.274	0.290	0.067	0.000	0.000	67.786
Embraer ERJ 145 28L	AE3007A	Approach	0.060	0.012	0.012	0.012	0.142	0.019	0.000	0.000	18.195
		Climb Out	0.017	0.006	0.006	0.006	0.308	0.018	0.000	0.000	17.582
		Takeoff	0.009	0.003	0.003	0.003	0.250	0.012	0.000	0.000	12.189
		Idle	0.356	0.052	0.052	0.055	0.078	0.021	0.000	0.000	20.522
Embraer ERJ 145 28L	AE3007A1E	Approach	0.211	0.001	0.001	0.001	0.278	0.037	0.000	0.000	37.387
		Climb Out	0.024	0.001	0.001	0.001	0.571	0.039	0.000	0.000	38.299

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Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.021	0.001	0.001	0.001	0.459	0.026	0.000	0.000	26.702
		Idle	1.513	0.140	0.140	0.149	0.170	0.040	0.000	0.000	39.854
Embraer ERJ 145LR 28L	AE3007A1/1 (Ty...	Approach	1.078	0.004	0.004	0.006	1.129	0.159	0.000	0.000	158.583
		Climb Out	0.083	0.004	0.004	0.004	2.099	0.150	0.000	0.000	149.792
		Takeoff	0.096	0.004	0.004	0.004	2.086	0.129	0.000	0.000	129.515
		Idle	7.397	0.717	0.717	0.762	0.769	0.184	0.000	0.000	184.595
Embraer ERJ 145LR 28L	AE3007A1/3 (Ty...	Approach	1.584	0.007	0.007	0.007	1.441	0.208	0.000	0.000	207.888
		Climb Out	0.104	0.007	0.007	0.007	2.803	0.207	0.000	0.000	207.768
		Takeoff	0.072	0.004	0.004	0.004	2.221	0.144	0.000	0.000	144.041
		Idle	8.979	0.890	0.890	0.946	0.996	0.234	0.000	0.000	233.404
Embraer ERJ 145LR 28L	AE3007A1P (Typ...	Approach	0.405	0.002	0.002	0.002	0.424	0.060	0.000	0.000	59.528
		Climb Out	0.031	0.002	0.002	0.002	0.787	0.056	0.000	0.000	56.178
		Takeoff	0.036	0.001	0.001	0.001	0.783	0.049	0.000	0.000	48.587
		Idle	2.773	0.268	0.268	0.284	0.289	0.069	0.000	0.000	69.383
Embraer ERJ 170 28L	CF34-8E5	Approach	0.892	0.012	0.012	0.014	2.270	0.211	0.024	0.024	210.745
		Climb Out	0.065	0.002	0.002	0.002	1.434	0.114	0.001	0.001	113.377
		Takeoff	0.121	0.003	0.003	0.004	2.811	0.191	0.022	0.022	190.288
		Idle	3.842	0.028	0.028	0.030	0.976	0.212	0.024	0.024	211.511
Falcon 20 28L_GA	CF700-2D	Approach	1.572	0.035	0.035	0.037	0.045	0.025	N/A	N/A	25.355
		Climb Out	0.352	0.001	0.001	0.001	0.061	0.014	N/A	N/A	14.082
		Takeoff	0.413	0.002	0.002	0.002	0.105	0.019	N/A	N/A	18.775
		Idle	4.827	0.561	0.561	0.596	0.028	0.031	N/A	N/A	31.141
Gulfstream II 28L_GA	SPEY MK511-8	Approach	0.134	0.009	0.009	0.010	0.364	0.051	N/A	N/A	50.592
		Climb Out	0.024	0.004	0.004	0.006	0.680	0.040	N/A	N/A	39.308
		Takeoff	0.006	0.004	0.004	0.004	1.044	0.046	N/A	N/A	46.008
		Idle	2.166	0.251	0.251	0.268	0.246	0.068	N/A	N/A	68.190
HS 125 28L_Corp	TFE731-3	Approach	0.858	0.077	0.077	0.086	0.381	0.030	N/A	N/A	55.112
		Climb Out	0.039	0.002	0.002	0.002	0.383	0.013	N/A	N/A	23.855
		Takeoff	0.042	0.002	0.002	0.002	0.711	0.020	N/A	N/A	37.102
		Idle	2.702	0.511	0.511	0.565	0.211	0.031	N/A	N/A	56.635
KC-135R 28L_GA	CFM56-2B-1	Approach	0.225	0.004	0.004	0.004	0.439	0.054	0.001	0.001	53.543
		Climb Out	0.055	0.003	0.003	0.003	0.976	0.061	0.001	0.001	60.997
		Takeoff	0.079	0.003	0.003	0.004	1.623	0.088	0.006	0.006	87.713
		Idle	2.344	0.140	0.140	0.154	0.305	0.076	0.001	0.001	76.334
Learjet 25C 28L_GA	CJ610-6	Approach	4.715	0.000	0.000	0.000	0.080	0.029	N/A	N/A	53.573
		Climb Out	0.561	0.004	0.004	0.004	0.071	0.011	N/A	N/A	20.040
		Takeoff	0.845	0.003	0.003	0.003	0.131	0.017	N/A	N/A	31.313
		Idle	11.724	1.361	1.361	1.447	0.068	0.041	N/A	N/A	75.637
Learjet 35/36 28L_GA	TFE 731-2-2B	Approach	1.571	0.299	0.299	0.317	0.414	0.037	N/A	N/A	70.165
		Climb Out	0.064	0.004	0.004	0.004	0.412	0.017	N/A	N/A	31.490
		Takeoff	0.053	0.004	0.004	0.004	0.577	0.021	N/A	N/A	37.826
		Idle	3.777	1.292	1.292	1.373	0.182	0.035	N/A	N/A	64.450
MD-80-83 28L	JT8D-219 old co...	Approach	0.007	0.002	0.002	0.002	0.013	0.001	0.000	0.000	1.498
		Climb Out	0.001	0.000	0.000	0.001	0.026	0.001	0.000	0.000	1.286
		Takeoff	0.001	0.000	0.000	0.000	0.039	0.001	0.000	0.000	1.419
		Idle	0.020	0.006	0.006	0.006	0.006	0.001	0.000	0.000	1.560
Navajo 28L_GA	TIO-540-J2B2	Approach	7.971	0.085	0.085	0.082	0.009	0.001	N/A	N/A	6.326
		Climb Out	6.662	0.075	0.075	0.073	0.001	0.000	N/A	N/A	4.529
		Takeoff	4.440	0.039	0.039	0.036	0.001	0.000	N/A	N/A	3.080
		Idle	4.251	0.224	0.224	0.216	0.001	0.000	N/A	N/A	3.285
Piper PA-28 28L_GA	O-320	Approach	1.581	0.025	0.025	0.024	0.001	0.000	N/A	N/A	1.295
		Climb Out	0.761	0.010	0.010	0.009	0.003	0.000	N/A	N/A	0.768
		Takeoff	0.514	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.476
		Idle	0.328	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.304
UC-12J 28L_GA	PT6A-42	Approach	0.891	0.581	0.581	0.642	0.119	0.014	N/A	N/A	25.616
		Climb Out	0.040	0.012	0.012	0.013	0.046	0.003	N/A	N/A	6.094
		Takeoff	0.024	0.009	0.009	0.009	0.039	0.002	N/A	N/A	4.771
		Idle	2.048	1.806	1.806	1.994	0.035	0.010	N/A	N/A	17.792
550 Citation 28L_Corp	JT15D-4 (B,C,D)	Approach	2.271	0.366	0.366	0.389	0.376	0.039	0.020	0.020	70.976
		Climb Out	0.121	0.008	0.008	0.008	0.325	0.021	0.011	0.011	38.019
		Takeoff	0.087	0.003	0.003	0.004	0.384	0.022	0.012	0.012	41.544
		Idle	7.164	2.954	2.954	3.140	0.194	0.040	0.021	0.021	73.856
Falcon 2000EX 28L_Corp	PW308C	Approach	0.183	0.004	0.004	0.006	0.274	0.035	0.003	0.003	34.999
		Climb Out	0.018	0.002	0.002	0.002	0.300	0.019	0.002	0.002	18.741
		Takeoff	0.020	0.002	0.002	0.002	0.450	0.024	0.002	0.002	24.373
		Idle	1.254	0.176	0.176	0.187	0.108	0.030	0.002	0.002	29.650
550 Citation 28L_GA	JT15D-4 (B,C,D)	Approach	1.730	0.278	0.278	0.295	0.285	0.029	0.015	0.015	54.034
		Climb Out	0.091	0.006	0.006	0.006	0.248	0.015	0.008	0.008	28.943
		Takeoff	0.066	0.003	0.003	0.003	0.292	0.017	0.009	0.009	31.628
		Idle	5.454	2.249	2.249	2.391	0.148	0.031	0.015	0.015	56.228

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV 28L_GA	TAY Mk611-8	Approach	0.521	0.120	0.120	0.128	0.762	0.133	0.079	0.079	133.666
		Climb Out	0.049	0.018	0.018	0.019	1.014	0.061	0.035	0.035	60.352
		Takeoff	0.058	0.067	0.067	0.072	1.767	0.084	0.050	0.050	83.725
		Idle	4.555	0.643	0.643	0.683	0.473	0.188	0.111	0.111	188.973
Aztec 28R_GA	TIO-540-J2B2	Approach	16.667	0.177	0.177	0.171	0.019	0.001	N/A	N/A	13.228
		Climb Out	13.930	0.158	0.158	0.152	0.002	0.001	N/A	N/A	9.470
		Takeoff	9.285	0.079	0.079	0.077	0.002	0.001	N/A	N/A	6.439
		Idle	8.887	0.467	0.467	0.451	0.002	0.001	N/A	N/A	6.867
B737-300 28R	CFM56-3-B1	Approach	0.367	0.008	0.008	0.009	0.801	0.097	0.001	0.001	96.605
		Climb Out	0.047	0.002	0.002	0.002	0.771	0.050	0.001	0.001	49.688
		Takeoff	0.058	0.002	0.002	0.003	1.154	0.065	0.002	0.002	65.200
		Idle	3.781	0.250	0.250	0.274	0.429	0.110	0.001	0.001	109.898
B737-300 28R	CFM56-3B-2	Approach	0.065	0.001	0.001	0.001	0.168	0.019	0.000	0.000	19.261
		Climb Out	0.009	0.000	0.000	0.000	0.170	0.010	0.000	0.000	10.142
		Takeoff	0.012	0.000	0.000	0.000	0.260	0.013	0.001	0.001	13.402
		Idle	0.636	0.037	0.037	0.041	0.087	0.021	0.000	0.000	21.124
B737-300 28R	CFM56-3C-1 (Re...	Approach	0.041	0.001	0.001	0.001	0.077	0.010	0.000	0.000	9.666
		Climb Out	0.004	0.000	0.000	0.000	0.072	0.004	0.000	0.000	4.881
		Takeoff	0.006	0.000	0.000	0.000	0.106	0.007	0.000	0.000	6.388
		Idle	0.433	0.033	0.033	0.035	0.043	0.011	0.000	0.000	11.374
B737-500 28R	CFM56-3C-1	Approach	0.046	0.001	0.001	0.001	0.137	0.015	0.000	0.000	15.058
		Climb Out	0.008	0.000	0.000	0.000	0.160	0.009	0.000	0.000	8.995
		Takeoff	0.011	0.000	0.000	0.000	0.245	0.012	0.001	0.001	11.821
		Idle	0.422	0.022	0.022	0.024	0.067	0.015	0.000	0.000	15.762
B737-700 28R	CFM56-7B22	Approach	0.308	0.012	0.012	0.013	1.228	0.122	0.025	0.025	122.839
		Climb Out	0.044	0.008	0.008	0.008	1.403	0.074	0.015	0.015	73.853
		Takeoff	0.053	0.011	0.011	0.011	2.437	0.106	0.022	0.022	105.486
		Idle	2.797	0.306	0.306	0.336	0.552	0.122	0.025	0.025	122.652
B737-800 28R	CFM56-7B26	Approach	0.001	0.000	0.000	0.000	0.009	0.001	0.000	0.000	0.848
		Climb Out	0.000	0.000	0.000	0.000	0.013	0.001	0.000	0.000	0.588
		Takeoff	0.000	0.000	0.000	0.000	0.024	0.001	0.000	0.000	0.832
		Idle	0.015	0.001	0.001	0.002	0.003	0.001	0.000	0.000	0.814
B757-300 28R	PW2043	Approach	0.012	0.001	0.001	0.001	0.098	0.009	N/A	N/A	9.184
		Climb Out	0.002	0.000	0.000	0.000	0.174	0.007	N/A	N/A	6.234
		Takeoff	0.002	0.000	0.000	0.000	0.320	0.009	N/A	N/A	8.468
		Idle	0.158	0.013	0.013	0.014	0.036	0.008	N/A	N/A	8.182
Bombardier CRJ700 28R	CF34-8C1	Approach	0.032	0.001	0.001	0.001	0.120	0.011	0.000	0.000	10.865
		Climb Out	0.003	0.000	0.000	0.000	0.075	0.006	0.000	0.000	5.809
		Takeoff	0.004	0.000	0.000	0.000	0.143	0.010	0.000	0.000	9.744
		Idle	0.312	0.001	0.001	0.001	0.054	0.012	0.001	0.001	12.519
CITATION I SP 28R_GA	JT15D-1A _1B	Approach	0.172	0.019	0.019	0.020	0.014	0.002	0.001	0.001	4.235
		Climb Out	0.009	0.000	0.000	0.000	0.018	0.001	0.001	0.001	2.531
		Takeoff	0.008	0.000	0.000	0.000	0.021	0.001	0.001	0.001	2.812
		Idle	0.577	0.220	0.220	0.235	0.008	0.002	0.001	0.001	4.366
CL600 28R_GA	ALF 502L-2	Approach	0.244	0.011	0.011	0.012	0.397	0.033	0.008	0.008	61.325
		Climb Out	0.010	0.001	0.001	0.001	0.385	0.018	0.008	0.008	32.011
		Takeoff	0.018	0.001	0.001	0.001	0.588	0.023	0.004	0.004	43.723
		Idle	3.057	0.445	0.445	0.474	0.226	0.036	0.001	0.001	66.992
Cessna 172 Skyhawk 28R_GA	O-320	Approach	5.947	0.095	0.095	0.091	0.004	0.000	N/A	N/A	4.874
		Climb Out	3.207	0.040	0.040	0.039	0.013	0.000	N/A	N/A	3.239
		Takeoff	2.422	0.026	0.026	0.025	0.004	0.000	N/A	N/A	2.242
		Idle	1.572	0.054	0.054	0.052	0.001	0.000	N/A	N/A	1.455
Cessna 441 Conqu... 28R_GA	TPE331-8	Approach	0.026	0.001	0.001	0.001	0.058	0.007	N/A	N/A	6.122
		Climb Out	0.002	0.000	0.000	0.000	0.014	0.001	N/A	N/A	1.296
		Takeoff	0.002	0.000	0.000	0.000	0.017	0.001	N/A	N/A	1.496
		Idle	0.085	0.007	0.007	0.007	0.019	0.004	N/A	N/A	4.512
DC9-30 28R	JT8D-15 (old co...	Approach	0.084	0.014	0.014	0.015	0.052	0.009	0.007	0.007	8.755
		Climb Out	0.008	0.002	0.002	0.002	0.116	0.008	0.006	0.006	7.735
		Takeoff	0.006	0.002	0.002	0.002	0.157	0.008	0.006	0.006	8.184
		Idle	0.390	0.122	0.122	0.133	0.033	0.011	0.008	0.008	11.084
Embraer ERJ 135/1... 28R	AE3007A1/3 (Ty...	Approach	0.483	0.002	0.002	0.002	0.440	0.064	0.000	0.000	63.426
		Climb Out	0.032	0.002	0.002	0.002	0.855	0.064	0.000	0.000	63.388
		Takeoff	0.022	0.001	0.001	0.001	0.678	0.044	0.000	0.000	43.946
		Idle	2.739	0.271	0.271	0.289	0.304	0.072	0.000	0.000	71.210
Embraer ERJ 145 28R	AE3007A	Approach	0.063	0.012	0.012	0.013	0.149	0.019	0.000	0.000	19.133
		Climb Out	0.017	0.006	0.006	0.006	0.323	0.019	0.000	0.000	18.488
		Takeoff	0.010	0.003	0.003	0.003	0.263	0.013	0.000	0.000	12.818
		Idle	0.375	0.054	0.054	0.057	0.083	0.022	0.000	0.000	21.579
Embraer ERJ 145 28R	AE3007A1E	Approach	0.222	0.001	0.001	0.001	0.292	0.040	0.000	0.000	39.311
		Climb Out	0.025	0.001	0.001	0.001	0.601	0.041	0.000	0.000	40.270

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.022	0.001	0.001	0.001	0.482	0.028	0.000	0.000	28.076
		Idle	1.591	0.148	0.148	0.157	0.179	0.042	0.000	0.000	41.905
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	1.134	0.006	0.006	0.006	1.187	0.166	0.000	0.000	166.747
28R		Climb Out	0.087	0.004	0.004	0.006	2.207	0.158	0.000	0.000	157.504
		Takeoff	0.100	0.004	0.004	0.004	2.192	0.137	0.000	0.000	136.183
		Idle	7.778	0.753	0.753	0.800	0.809	0.194	0.000	0.000	194.098
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	1.666	0.007	0.007	0.007	1.516	0.218	0.000	0.000	218.651
28R		Climb Out	0.109	0.007	0.007	0.007	2.948	0.218	0.000	0.000	218.524
		Takeoff	0.076	0.004	0.004	0.004	2.336	0.151	0.000	0.000	151.498
		Idle	9.444	0.935	0.935	0.994	1.048	0.246	0.000	0.000	245.488
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.425	0.002	0.002	0.002	0.445	0.063	0.000	0.000	62.593
28R		Climb Out	0.032	0.002	0.002	0.002	0.828	0.060	0.000	0.000	59.071
		Takeoff	0.037	0.001	0.001	0.001	0.822	0.051	0.000	0.000	51.088
		Idle	2.916	0.281	0.281	0.300	0.304	0.073	0.000	0.000	72.954
Embraer ERJ 170	CF34-8E5	Approach	0.924	0.013	0.013	0.014	2.352	0.218	0.025	0.025	218.445
28R		Climb Out	0.067	0.002	0.002	0.002	1.487	0.118	0.001	0.001	117.520
		Takeoff	0.127	0.004	0.004	0.004	2.913	0.197	0.023	0.023	197.240
		Idle	3.982	0.029	0.029	0.031	1.011	0.219	0.025	0.025	219.240
Falcon 20	CF700-2D	Approach	0.548	0.012	0.012	0.013	0.015	0.009	N/A	N/A	8.831
28R_GA		Climb Out	0.122	0.000	0.000	0.000	0.021	0.004	N/A	N/A	4.904
		Takeoff	0.144	0.001	0.001	0.001	0.036	0.007	N/A	N/A	6.539
		Idle	1.681	0.195	0.195	0.207	0.010	0.011	N/A	N/A	10.846
Gulfstream II	SPEY MK511-8	Approach	0.046	0.003	0.003	0.003	0.127	0.018	N/A	N/A	17.620
28R_GA		Climb Out	0.009	0.001	0.001	0.002	0.237	0.013	N/A	N/A	13.691
		Takeoff	0.002	0.001	0.001	0.001	0.364	0.017	N/A	N/A	16.024
		Idle	0.754	0.088	0.088	0.094	0.086	0.024	N/A	N/A	23.749
HS 125	TFE731-3	Approach	0.883	0.080	0.080	0.088	0.392	0.031	N/A	N/A	56.723
28R_Corp		Climb Out	0.040	0.002	0.002	0.002	0.394	0.013	N/A	N/A	24.553
		Takeoff	0.043	0.002	0.002	0.002	0.731	0.021	N/A	N/A	38.186
		Idle	2.780	0.527	0.527	0.582	0.217	0.032	N/A	N/A	58.290
KC-135R	CFM56-2B-1	Approach	0.039	0.001	0.001	0.001	0.075	0.009	0.000	0.000	9.187
28R_GA		Climb Out	0.010	0.000	0.000	0.001	0.168	0.010	0.000	0.000	10.465
		Takeoff	0.013	0.001	0.001	0.001	0.279	0.015	0.001	0.001	15.049
		Idle	0.402	0.024	0.024	0.026	0.053	0.013	0.000	0.000	13.097
Learjet 25C	CJ610-6	Approach	4.737	0.000	0.000	0.000	0.080	0.029	N/A	N/A	53.830
28R_GA		Climb Out	0.563	0.004	0.004	0.004	0.071	0.011	N/A	N/A	20.136
		Takeoff	0.850	0.003	0.003	0.003	0.132	0.017	N/A	N/A	31.463
		Idle	11.780	1.368	1.368	1.454	0.068	0.041	N/A	N/A	76.000
Learjet 35/36	TFE 731-2-2B	Approach	0.550	0.105	0.105	0.111	0.144	0.013	N/A	N/A	24.567
28R_GA		Climb Out	0.022	0.001	0.001	0.001	0.144	0.006	N/A	N/A	11.025
		Takeoff	0.019	0.001	0.001	0.001	0.202	0.007	N/A	N/A	13.244
		Idle	1.323	0.452	0.452	0.481	0.064	0.012	N/A	N/A	22.567
MD-80-83	JT8D-219 old co...	Approach	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.187
28R		Climb Out	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.161
		Takeoff	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.177
		Idle	0.002	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.195
Navajo	TIO-540-J2B2	Approach	12.451	0.132	0.132	0.128	0.013	0.001	N/A	N/A	9.881
28R_GA		Climb Out	10.406	0.118	0.118	0.114	0.002	0.001	N/A	N/A	7.074
		Takeoff	6.936	0.060	0.060	0.057	0.002	0.000	N/A	N/A	4.809
		Idle	6.638	0.349	0.349	0.337	0.002	0.001	N/A	N/A	5.130
Piper PA-28	O-320	Approach	0.645	0.010	0.010	0.010	0.000	0.000	N/A	N/A	0.528
28R_GA		Climb Out	0.310	0.004	0.004	0.003	0.001	0.000	N/A	N/A	0.313
		Takeoff	0.209	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.194
		Idle	0.134	0.004	0.004	0.004	0.000	0.000	N/A	N/A	0.125
UC-12J	PT6A-42	Approach	0.395	0.258	0.258	0.284	0.053	0.007	N/A	N/A	11.347
28R_GA		Climb Out	0.018	0.006	0.006	0.006	0.020	0.001	N/A	N/A	2.700
		Takeoff	0.011	0.003	0.003	0.004	0.017	0.001	N/A	N/A	2.113
		Idle	0.907	0.799	0.799	0.883	0.015	0.004	N/A	N/A	7.882
550 Citation	JT15D-4 (B,C,D)	Approach	2.358	0.379	0.379	0.403	0.390	0.040	0.021	0.021	73.686
28R_Corp		Climb Out	0.126	0.008	0.008	0.008	0.338	0.021	0.011	0.011	39.470
		Takeoff	0.090	0.004	0.004	0.004	0.398	0.023	0.012	0.012	43.130
		Idle	7.437	3.067	3.067	3.261	0.202	0.042	0.022	0.022	76.677
Falcon 2000EX	PW308C	Approach	0.193	0.006	0.006	0.006	0.289	0.036	0.003	0.003	36.881
28R_Corp		Climb Out	0.019	0.002	0.002	0.002	0.315	0.020	0.002	0.002	19.749
		Takeoff	0.021	0.002	0.002	0.002	0.474	0.025	0.002	0.002	25.684
		Idle	1.322	0.185	0.185	0.197	0.114	0.031	0.003	0.003	31.244
550 Citation	JT15D-4 (B,C,D)	Approach	0.604	0.097	0.097	0.104	0.100	0.010	0.006	0.006	18.867
28R_GA		Climb Out	0.032	0.002	0.002	0.002	0.086	0.006	0.003	0.003	10.106
		Takeoff	0.023	0.001	0.001	0.001	0.101	0.006	0.003	0.003	11.043
		Idle	1.905	0.785	0.785	0.834	0.052	0.011	0.006	0.006	19.633

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV	TAY Mk611-8	Approach	0.330	0.076	0.076	0.080	0.482	0.085	0.050	0.050	84.497
28R_GA		Climb Out	0.031	0.011	0.011	0.012	0.640	0.039	0.022	0.022	38.151
		Takeoff	0.037	0.042	0.042	0.045	1.117	0.053	0.031	0.031	52.926
		Idle	2.879	0.406	0.406	0.432	0.299	0.119	0.071	0.071	119.457
Citation VII	TFE 731-2-2B	Approach	0.182	0.034	0.034	0.036	0.047	0.004	N/A	N/A	8.109
10L_GA		Climb Out	0.009	0.000	0.000	0.001	0.053	0.002	N/A	N/A	4.074
		Takeoff	0.008	0.001	0.001	0.001	0.080	0.003	N/A	N/A	5.277
		Idle	0.413	0.141	0.141	0.150	0.020	0.003	N/A	N/A	7.058
Citation VII	TFE 731-2-2B	Approach	0.259	0.050	0.050	0.052	0.068	0.007	N/A	N/A	11.556
10R_GA		Climb Out	0.012	0.001	0.001	0.001	0.076	0.003	N/A	N/A	5.806
		Takeoff	0.011	0.001	0.001	0.001	0.115	0.004	N/A	N/A	7.520
		Idle	0.590	0.202	0.202	0.214	0.029	0.006	N/A	N/A	10.059
Citation VII	TFE 731-2-2B	Approach	0.418	0.079	0.079	0.085	0.110	0.010	N/A	N/A	18.685
28L_GA		Climb Out	0.019	0.001	0.001	0.001	0.122	0.006	N/A	N/A	9.387
		Takeoff	0.017	0.001	0.001	0.001	0.185	0.007	N/A	N/A	12.158
		Idle	0.953	0.326	0.326	0.346	0.046	0.009	N/A	N/A	16.264
Citation VII	TFE 731-2-2B	Approach	0.422	0.080	0.080	0.085	0.111	0.010	N/A	N/A	18.842
28R_GA		Climb Out	0.019	0.001	0.001	0.001	0.123	0.006	N/A	N/A	9.467
		Takeoff	0.018	0.001	0.001	0.001	0.187	0.007	N/A	N/A	12.261
		Idle	0.961	0.328	0.328	0.349	0.046	0.009	N/A	N/A	16.400
HS 748 2A SERIES	RDa7	Approach	0.154	0.014	0.014	0.015	0.004	0.004	N/A	N/A	4.644
10L_GA		Climb Out	0.011	0.003	0.003	0.004	0.014	0.003	N/A	N/A	3.240
		Takeoff	0.007	0.002	0.002	0.002	0.012	0.002	N/A	N/A	2.083
		Idle	0.510	0.133	0.133	0.148	0.004	0.006	N/A	N/A	5.580
HS 748 2A SERIES	RDa7	Approach	0.360	0.032	0.032	0.036	0.010	0.011	N/A	N/A	10.837
10R_GA		Climb Out	0.026	0.009	0.009	0.009	0.034	0.008	N/A	N/A	7.560
		Takeoff	0.015	0.004	0.004	0.006	0.028	0.004	N/A	N/A	4.862
		Idle	1.190	0.311	0.311	0.344	0.009	0.013	N/A	N/A	13.021
HS 748 2A SERIES	RDa7	Approach	0.594	0.054	0.054	0.060	0.017	0.018	N/A	N/A	17.835
28L_GA		Climb Out	0.044	0.013	0.013	0.015	0.056	0.012	N/A	N/A	12.441
		Takeoff	0.025	0.008	0.008	0.009	0.045	0.008	N/A	N/A	8.002
		Idle	1.959	0.513	0.513	0.565	0.015	0.021	N/A	N/A	21.429
HS 748 2A SERIES	RDa7	Approach	0.396	0.035	0.035	0.040	0.011	0.012	N/A	N/A	11.891
28R_GA		Climb Out	0.029	0.009	0.009	0.010	0.037	0.009	N/A	N/A	8.294
		Takeoff	0.017	0.006	0.006	0.006	0.030	0.006	N/A	N/A	5.334
		Idle	1.306	0.342	0.342	0.377	0.010	0.014	N/A	N/A	14.286
Learjet 25B	CJ610-6	Approach	1.456	0.000	0.000	0.000	0.025	0.009	N/A	N/A	16.553
10L_GA		Climb Out	0.173	0.001	0.001	0.001	0.022	0.003	N/A	N/A	6.192
		Takeoff	0.261	0.001	0.001	0.001	0.041	0.006	N/A	N/A	9.675
		Idle	3.622	0.421	0.421	0.448	0.021	0.012	N/A	N/A	23.370
Learjet 25B	CJ610-6	Approach	5.347	0.000	0.000	0.000	0.091	0.033	N/A	N/A	60.759
10R_GA		Climb Out	0.636	0.004	0.004	0.004	0.079	0.012	N/A	N/A	22.729
		Takeoff	0.959	0.003	0.003	0.003	0.149	0.019	N/A	N/A	35.513
		Idle	13.296	1.544	1.544	1.641	0.077	0.046	N/A	N/A	85.783
Learjet 25B	CJ610-6	Approach	11.772	0.000	0.000	0.000	0.201	0.073	N/A	N/A	133.773
28L_GA		Climb Out	1.401	0.010	0.010	0.011	0.175	0.028	N/A	N/A	50.041
		Takeoff	2.111	0.008	0.008	0.009	0.328	0.042	N/A	N/A	78.189
		Idle	29.274	3.400	3.400	3.614	0.170	0.103	N/A	N/A	188.867
Learjet 25B	CJ610-6	Approach	4.093	0.000	0.000	0.000	0.069	0.025	N/A	N/A	46.515
28R_GA		Climb Out	0.487	0.003	0.003	0.003	0.061	0.010	N/A	N/A	17.400
		Takeoff	0.734	0.002	0.002	0.003	0.115	0.014	N/A	N/A	27.189
		Idle	10.180	1.182	1.182	1.257	0.060	0.035	N/A	N/A	65.674
Bombardier CRJ900	CF34-8C5	Approach	0.067	0.001	0.001	0.001	0.172	0.015	0.002	0.002	15.979
10L		Climb Out	0.004	0.000	0.000	0.000	0.108	0.009	0.000	0.000	8.584
		Takeoff	0.009	0.000	0.000	0.000	0.212	0.014	0.001	0.001	14.403
		Idle	0.293	0.002	0.002	0.002	0.074	0.017	0.002	0.002	16.075
Bombardier CRJ900	CF34-8C5	Approach	0.101	0.001	0.001	0.001	0.257	0.024	0.002	0.002	23.923
10R		Climb Out	0.008	0.000	0.000	0.000	0.162	0.013	0.000	0.000	12.851
		Takeoff	0.014	0.000	0.000	0.000	0.316	0.022	0.002	0.002	21.562
		Idle	0.439	0.003	0.003	0.003	0.110	0.024	0.002	0.002	24.067
Bombardier CRJ900	CF34-8C5	Approach	0.160	0.002	0.002	0.002	0.406	0.037	0.004	0.004	37.712
28L		Climb Out	0.011	0.000	0.000	0.000	0.256	0.020	0.000	0.000	20.256
		Takeoff	0.022	0.001	0.001	0.001	0.499	0.034	0.003	0.003	33.990
		Idle	0.692	0.004	0.004	0.006	0.174	0.037	0.004	0.004	37.937
Bombardier CRJ900	CF34-8C5	Approach	0.165	0.002	0.002	0.002	0.420	0.039	0.004	0.004	39.081
28R		Climb Out	0.012	0.000	0.000	0.000	0.265	0.021	0.000	0.000	20.992
		Takeoff	0.022	0.001	0.001	0.001	0.517	0.035	0.003	0.003	35.224
		Idle	0.718	0.006	0.006	0.006	0.181	0.040	0.004	0.004	39.315
A320-200	V2500-A1	Approach	0.001	0.000	0.000	0.000	0.017	0.001	0.000	0.000	1.247
10L		Climb Out	0.000	0.000	0.000	0.000	0.026	0.001	0.000	0.000	0.855

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.000	0.000	0.000	0.000	0.035	0.001	0.000	0.000	0.948
		Idle	0.010	0.000	0.000	0.000	0.008	0.001	0.000	0.000	1.279
A320-200 10R	V2500-A1	Approach	0.021	0.004	0.004	0.004	0.359	0.026	0.001	0.001	26.707
		Climb Out	0.010	0.002	0.002	0.002	0.565	0.019	0.000	0.000	18.334
		Takeoff	0.011	0.002	0.002	0.002	0.754	0.020	0.000	0.000	20.317
		Idle	0.213	0.006	0.006	0.007	0.162	0.028	0.001	0.001	27.408
A320-200 28L	V2500-A1	Approach	0.026	0.006	0.006	0.006	0.460	0.034	0.001	0.001	34.185
		Climb Out	0.013	0.002	0.002	0.003	0.723	0.023	0.000	0.000	23.467
		Takeoff	0.014	0.002	0.002	0.003	0.966	0.026	0.001	0.001	26.006
		Idle	0.272	0.008	0.008	0.009	0.207	0.035	0.001	0.001	35.083
A320-200 28R	V2500-A1	Approach	0.002	0.000	0.000	0.000	0.039	0.003	0.000	0.000	2.848
		Climb Out	0.001	0.000	0.000	0.000	0.061	0.002	0.000	0.000	1.956
		Takeoff	0.001	0.000	0.000	0.000	0.080	0.002	0.000	0.000	2.167
		Idle	0.023	0.001	0.001	0.001	0.018	0.003	0.000	0.000	2.923
Embraer ERJ 170 10L	CF34-8E5A1	Approach	0.067	0.001	0.001	0.001	0.185	0.017	0.004	0.004	16.719
		Climb Out	0.006	0.000	0.000	0.000	0.120	0.009	0.000	0.000	9.126
		Takeoff	0.011	0.000	0.000	0.000	0.243	0.015	0.004	0.004	15.365
		Idle	0.285	0.002	0.002	0.002	0.077	0.017	0.004	0.004	16.500
Embraer ERJ 170 10R	CF34-8E5A1	Approach	0.101	0.001	0.001	0.001	0.277	0.025	0.007	0.007	25.031
		Climb Out	0.008	0.000	0.000	0.000	0.180	0.013	0.000	0.000	13.663
		Takeoff	0.017	0.000	0.000	0.000	0.364	0.023	0.007	0.007	23.003
		Idle	0.428	0.003	0.003	0.003	0.116	0.024	0.007	0.007	24.703
Embraer ERJ 170 28L	CF34-8E5A1	Approach	0.160	0.002	0.002	0.002	0.437	0.040	0.010	0.010	39.457
		Climb Out	0.012	0.000	0.000	0.000	0.283	0.022	0.001	0.001	21.538
		Takeoff	0.025	0.001	0.001	0.001	0.573	0.036	0.010	0.010	36.261
		Idle	0.674	0.006	0.006	0.006	0.183	0.039	0.010	0.010	38.940
Embraer ERJ 170 28R	CF34-8E5A1	Approach	0.165	0.002	0.002	0.002	0.452	0.041	0.011	0.011	40.890
		Climb Out	0.013	0.000	0.000	0.000	0.293	0.022	0.001	0.001	22.320
		Takeoff	0.026	0.001	0.001	0.001	0.594	0.037	0.010	0.010	37.578
		Idle	0.698	0.006	0.006	0.006	0.190	0.041	0.011	0.011	40.355
B757-200 10L	PW2037	Approach	0.010	0.000	0.000	0.001	0.047	0.004	0.001	0.001	4.847
		Climb Out	0.001	0.000	0.000	0.000	0.086	0.003	0.001	0.001	3.596
		Takeoff	0.001	0.000	0.000	0.000	0.104	0.003	0.001	0.001	3.533
		Idle	0.098	0.009	0.009	0.009	0.018	0.004	0.001	0.001	4.399
B757-200 10R	PW2037	Approach	0.123	0.007	0.007	0.008	0.621	0.064	0.011	0.011	63.491
		Climb Out	0.017	0.001	0.001	0.001	1.129	0.047	0.008	0.008	47.108
		Takeoff	0.015	0.001	0.001	0.001	1.361	0.046	0.008	0.008	46.278
		Idle	1.289	0.110	0.110	0.121	0.236	0.057	0.010	0.010	57.630
B757-200 28L	PW2037	Approach	0.187	0.011	0.011	0.011	0.938	0.096	0.015	0.015	95.964
		Climb Out	0.024	0.001	0.001	0.001	1.706	0.072	0.012	0.012	71.202
		Takeoff	0.023	0.001	0.001	0.001	2.057	0.069	0.011	0.011	69.948
		Idle	1.948	0.168	0.168	0.183	0.357	0.087	0.014	0.014	87.105
B757-200 28R	PW2037	Approach	0.024	0.001	0.001	0.001	0.123	0.012	0.002	0.002	12.602
		Climb Out	0.003	0.000	0.000	0.000	0.224	0.009	0.001	0.001	9.350
		Takeoff	0.003	0.000	0.000	0.000	0.270	0.009	0.001	0.001	9.186
		Idle	0.256	0.022	0.022	0.024	0.047	0.011	0.002	0.002	11.438
Bombardier CRJ700 10L_New T...	CF34-8C1	Approach	0.624	0.013	0.013	0.014	2.378	0.214	0.010	0.010	214.234
		Climb Out	0.057	0.002	0.002	0.002	1.468	0.115	0.001	0.001	114.537
		Takeoff	0.078	0.003	0.003	0.004	2.819	0.192	0.010	0.010	192.120
		Idle	6.151	0.020	0.020	0.022	1.064	0.247	0.012	0.012	246.827
Bombardier CRJ700 8_New Term	CF34-8C1	Approach	0.930	0.019	0.019	0.021	3.548	0.320	0.015	0.015	319.641
		Climb Out	0.086	0.003	0.003	0.003	2.190	0.171	0.001	0.001	170.890
		Takeoff	0.118	0.006	0.006	0.007	4.205	0.287	0.014	0.014	286.645
		Idle	9.177	0.030	0.030	0.032	1.587	0.368	0.018	0.018	368.269
Bombardier CRJ700 26_New Te...	CF34-8C1	Approach	1.466	0.030	0.030	0.033	5.593	0.504	0.024	0.024	503.846
		Climb Out	0.134	0.006	0.006	0.006	3.454	0.269	0.001	0.001	269.372
		Takeoff	0.185	0.009	0.009	0.010	6.628	0.452	0.022	0.022	451.834
		Idle	14.466	0.046	0.046	0.051	2.502	0.581	0.029	0.029	580.497
Bombardier CRJ700 28R_New ...	CF34-8C1	Approach	1.520	0.031	0.031	0.034	5.799	0.522	0.025	0.025	522.411
		Climb Out	0.140	0.006	0.006	0.007	3.580	0.279	0.001	0.001	279.298
		Takeoff	0.192	0.010	0.010	0.010	6.873	0.468	0.023	0.023	468.483
		Idle	14.999	0.049	0.049	0.053	2.594	0.602	0.030	0.030	601.887
B737-800 10L_New T...	CFM56-7B26	Approach	0.023	0.001	0.001	0.001	0.155	0.014	0.004	0.004	14.403
		Climb Out	0.006	0.001	0.001	0.001	0.225	0.010	0.003	0.003	9.997
		Takeoff	0.003	0.001	0.001	0.001	0.407	0.014	0.004	0.004	14.140
		Idle	0.260	0.026	0.026	0.029	0.065	0.014	0.004	0.004	13.836
B737-800 8_New Term	CFM56-7B26	Approach	0.219	0.013	0.013	0.015	1.480	0.137	0.042	0.042	137.085
		Climb Out	0.057	0.010	0.010	0.010	2.141	0.095	0.029	0.029	95.146
		Takeoff	0.026	0.013	0.013	0.014	3.876	0.134	0.041	0.041	134.582
		Idle	2.476	0.250	0.250	0.273	0.618	0.131	0.040	0.040	131.687

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
B737-800 26_New Te...	CFM56-7B26	Approach	0.376	0.023	0.023	0.025	2.534	0.235	0.072	0.072	234.689
		Climb Out	0.098	0.017	0.017	0.018	3.665	0.163	0.050	0.050	162.889
		Takeoff	0.046	0.023	0.023	0.025	6.636	0.230	0.069	0.069	230.403
		Idle	4.238	0.429	0.429	0.468	1.059	0.226	0.068	0.068	225.446
B737-800 28R_New ...	CFM56-7B26	Approach	0.061	0.003	0.003	0.004	0.410	0.037	0.011	0.011	37.957
		Climb Out	0.015	0.002	0.002	0.003	0.593	0.026	0.008	0.008	26.344
		Takeoff	0.008	0.003	0.003	0.004	1.074	0.037	0.011	0.011	37.264
		Idle	0.686	0.069	0.069	0.076	0.171	0.036	0.011	0.011	36.462
MD-80-83 10L_New T...	JT8D-219 old co...	Approach	0.015	0.006	0.006	0.007	0.034	0.003	0.001	0.001	3.747
		Climb Out	0.003	0.001	0.001	0.001	0.067	0.003	0.001	0.001	3.214
		Takeoff	0.002	0.001	0.001	0.001	0.096	0.003	0.001	0.001	3.546
		Idle	0.050	0.013	0.013	0.014	0.014	0.004	0.001	0.001	3.900
MD-80-83 8_New Term	JT8D-219 old co...	Approach	0.196	0.076	0.076	0.084	0.440	0.049	0.014	0.014	48.141
		Climb Out	0.050	0.018	0.018	0.019	0.860	0.041	0.012	0.012	41.311
		Takeoff	0.033	0.012	0.012	0.013	1.230	0.045	0.013	0.013	45.570
		Idle	0.633	0.174	0.174	0.191	0.181	0.050	0.014	0.014	50.122
MD-80-83 26_New Te...	JT8D-219 old co...	Approach	0.295	0.116	0.116	0.126	0.661	0.073	0.021	0.021	72.492
		Climb Out	0.075	0.026	0.026	0.029	1.294	0.062	0.019	0.019	62.208
		Takeoff	0.050	0.019	0.019	0.020	1.853	0.068	0.020	0.020	68.620
		Idle	0.953	0.262	0.262	0.288	0.271	0.075	0.022	0.022	75.475
MD-80-83 28R_New ...	JT8D-219 old co...	Approach	0.039	0.015	0.015	0.017	0.087	0.010	0.003	0.003	9.554
		Climb Out	0.010	0.003	0.003	0.003	0.171	0.008	0.002	0.002	8.198
		Takeoff	0.007	0.002	0.002	0.002	0.244	0.009	0.002	0.002	9.043
		Idle	0.126	0.034	0.034	0.037	0.035	0.010	0.003	0.003	9.946

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-...
Bowtie	Roadway	0.450	0.025	0.024	0.026	0.030	0.000	0.001	0.001
Bowtie to Merge	Roadway	3.038	0.153	0.146	0.154	0.195	0.003	0.009	0.004
Bowtie to New Term 1	Roadway	7.078	0.357	0.338	0.358	0.454	0.007	0.022	0.011
Bowtie to New Term 2	Roadway	7.078	0.357	0.338	0.358	0.454	0.007	0.022	0.011
Brdgwy N of Sawyr 1	Roadway	2.606	0.149	0.141	0.155	0.173	0.002	0.009	0.004
Brdgwy N of Sawyr 2	Roadway	4.773	0.273	0.259	0.284	0.316	0.004	0.015	0.008
Connect to Sawyer	Roadway	9.100	0.521	0.494	0.541	0.603	0.009	0.031	0.015
Curb Exit to Intl	Roadway	0.933	0.057	0.054	0.060	0.063	0.001	0.003	0.001
Curb Through Traffic	Roadway	24.141	1.382	1.308	1.436	1.598	0.024	0.080	0.040
Curb to Bowtie 1	Roadway	1.343	0.077	0.073	0.079	0.089	0.001	0.004	0.002
Curb to Bowtie 2	Roadway	1.613	0.093	0.087	0.096	0.107	0.001	0.006	0.002
Empl Prkg Ent_Exit	Roadway	0.196	0.012	0.011	0.012	0.013	0.000	0.001	0.000
Ent 670 NB	Roadway	4.230	0.201	0.191	0.202	0.272	0.003	0.012	0.007
Ent 670 SB	Roadway	2.798	0.132	0.126	0.133	0.181	0.002	0.008	0.004
Ent Green frm EB 1	Roadway	3.230	0.185	0.175	0.192	0.214	0.003	0.011	0.006
Ent Green frm EB 2	Roadway	1.098	0.063	0.060	0.065	0.073	0.001	0.003	0.002
Ent Green frm WB 1	Roadway	1.134	0.065	0.062	0.067	0.075	0.001	0.003	0.002
Ent Green frm WB 2	Roadway	2.955	0.169	0.160	0.175	0.196	0.003	0.010	0.004
Ent New Gar 1	Roadway	1.400	0.086	0.082	0.090	0.095	0.001	0.004	0.002
Ent New Gar 2	Roadway	1.911	0.118	0.111	0.122	0.129	0.002	0.007	0.003
Ent from 670 1	Roadway	6.006	0.284	0.270	0.285	0.387	0.006	0.018	0.009
Ent from 670 2	Roadway	14.398	0.682	0.648	0.686	0.928	0.013	0.042	0.021
Ent to Lane	Roadway	0.039	0.002	0.002	0.002	0.002	0.000	0.000	0.000
Ex Arr Curb FF	Roadway	0.260	0.017	0.015	0.019	0.017	0.000	0.001	0.000
Ex Arr Curb Pick Up	Roadway	2.143	0.218	0.207	0.299	0.082	0.001	0.002	0.001
Ex Dep Curb Drop Off	Roadway	2.810	0.287	0.271	0.391	0.107	0.001	0.003	0.001
Exit 670 NB	Roadway	2.975	0.141	0.134	0.142	0.192	0.002	0.009	0.004
Exit 670 SB	Roadway	3.469	0.164	0.157	0.165	0.224	0.003	0.010	0.006
Exit Comm Gar	Roadway	5.052	0.289	0.273	0.301	0.334	0.006	0.017	0.009
Exit New Gar 1	Roadway	0.872	0.050	0.047	0.052	0.057	0.001	0.003	0.001
Exit New Gar 2	Roadway	1.479	0.091	0.086	0.095	0.100	0.001	0.004	0.002
Exit Red 1	Roadway	3.398	0.194	0.184	0.202	0.225	0.003	0.011	0.006
Exit Red 2	Roadway	1.052	0.061	0.057	0.063	0.069	0.001	0.003	0.002
Exit Red 3	Roadway	4.706	0.269	0.255	0.280	0.312	0.004	0.015	0.008
Exit Red 4	Roadway	1.834	0.105	0.099	0.109	0.121	0.002	0.007	0.003
Exit frm Green	Roadway	2.258	0.129	0.122	0.134	0.150	0.002	0.008	0.003
Exit from Lane	Roadway	0.037	0.002	0.002	0.002	0.002	0.000	0.000	0.000
Exit to 670 1	Roadway	10.874	0.623	0.590	0.647	0.720	0.011	0.036	0.018
Exit to 670 2	Roadway	4.937	0.234	0.223	0.235	0.319	0.004	0.014	0.008
Green Exit to Sawyer	Roadway	1.219	0.069	0.066	0.073	0.080	0.001	0.004	0.002
Int Grn to New Bow 2	Roadway	13.876	0.700	0.665	0.703	0.890	0.013	0.043	0.021
Int W frm new Bow	Roadway	10.403	0.525	0.498	0.527	0.667	0.010	0.032	0.015
IntGate E at Red	Roadway	34.433	1.971	1.866	2.048	2.280	0.035	0.115	0.057
IntGate E at Tunnel	Roadway	18.622	0.940	0.892	0.944	1.194	0.018	0.057	0.029
IntGate Exit fm Tunl	Roadway	25.968	1.311	1.243	1.316	1.664	0.024	0.079	0.040
IntGate Lane to LT	Roadway	10.248	0.586	0.556	0.610	0.679	0.010	0.034	0.017
IntGate W at Tunnel	Roadway	25.968	1.311	1.243	1.316	1.664	0.024	0.079	0.040
Intl East frm Stlzr	Roadway	12.810	0.646	0.613	0.649	0.821	0.012	0.040	0.020
Intl West to Stelzer	Roadway	25.791	1.302	1.235	1.307	1.653	0.024	0.079	0.040
LT to ST	Roadway	0.806	0.046	0.044	0.047	0.053	0.001	0.002	0.001
Lane Exit to Lane En	Roadway	5.678	0.287	0.272	0.288	0.364	0.006	0.018	0.009
Merge to Sawyer	Roadway	5.698	0.326	0.309	0.338	0.377	0.006	0.019	0.010
New Bowtie	Roadway	0.828	0.047	0.045	0.050	0.055	0.001	0.003	0.001
New Gar Distance	Roadway	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New Gar Ex W	Roadway	21.977	1.109	1.053	1.113	1.409	0.021	0.067	0.034
New Perimeter Road 1	Roadway	0.381	0.022	0.021	0.023	0.025	0.000	0.001	0.001
New Perimeter Road 2	Roadway	0.261	0.015	0.014	0.015	0.018	0.000	0.001	0.000
New Perimeter Road 3	Roadway	5.741	0.328	0.311	0.342	0.380	0.006	0.019	0.010
New Perimeter Road 4	Roadway	0.120	0.007	0.007	0.007	0.008	0.000	0.000	0.000
New Perimeter Road 5	Roadway	0.371	0.021	0.020	0.022	0.024	0.000	0.001	0.001
New Perimeter Road 6	Roadway	2.368	0.136	0.128	0.141	0.157	0.002	0.008	0.004
New Perimeter Road 7	Roadway	0.376	0.022	0.020	0.022	0.025	0.000	0.001	0.001
New Perimeter Road 8	Roadway	0.130	0.008	0.007	0.008	0.009	0.000	0.000	0.000
New Perimeter Road 9	Roadway	0.109	0.007	0.006	0.007	0.008	0.000	0.000	0.000
New Perimeter Road10	Roadway	0.158	0.009	0.009	0.010	0.010	0.000	0.000	0.000
New Stelzer Middle	Roadway	18.403	0.873	0.829	0.876	1.187	0.017	0.054	0.028

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-...
New Stelzer Realgn 1	Roadway	7.918	0.376	0.357	0.377	0.510	0.007	0.023	0.012
New Stelzer Realgn 2	Roadway	9.416	0.446	0.424	0.449	0.607	0.009	0.028	0.014
New Stelzer Realgn 3	Roadway	11.235	0.532	0.506	0.535	0.724	0.010	0.033	0.017
New Stelzer Realgn 4	Roadway	21.988	1.043	0.990	1.047	1.418	0.020	0.065	0.032
New Term Arr FF	Roadway	0.488	0.032	0.030	0.035	0.032	0.000	0.001	0.001
New Term Arr Pick Up	Roadway	3.848	0.392	0.371	0.536	0.147	0.001	0.003	0.002
Ex Term Dep FF	Roadway	0.338	0.022	0.021	0.024	0.022	0.000	0.001	0.000
New Term Dep FF	Roadway	0.660	0.043	0.040	0.047	0.043	0.000	0.002	0.001
New Term E to Lane	Roadway	13.510	0.682	0.647	0.685	0.866	0.012	0.042	0.021
New TermDep Drop Off	Roadway	5.462	0.557	0.528	0.761	0.208	0.001	0.006	0.002
Red Distance	Roadway	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ST to Curb	Roadway	0.783	0.049	0.045	0.051	0.053	0.001	0.002	0.001
Sawyer Fork E	Roadway	1.885	0.108	0.103	0.112	0.125	0.002	0.007	0.003
Sawyer Fork W	Roadway	0.893	0.051	0.049	0.053	0.060	0.001	0.003	0.001
Sawyer N of Fork	Roadway	7.893	0.452	0.428	0.470	0.522	0.008	0.026	0.013
Sawyer S of Brdgwy	Roadway	8.900	0.509	0.483	0.529	0.590	0.009	0.030	0.014
Sawyer from IntlGate	Roadway	3.871	0.195	0.185	0.196	0.248	0.003	0.012	0.006
Sawyer to Brdgwy 1	Roadway	8.389	0.481	0.455	0.499	0.556	0.009	0.028	0.014
Sawyer to Brdgwy 2	Roadway	68.237	3.905	3.699	4.059	4.518	0.069	0.227	0.114
Saywer W to Fork	Roadway	4.113	0.236	0.223	0.245	0.272	0.004	0.013	0.007
Stelzer N	Roadway	43.280	2.053	1.949	2.061	2.791	0.039	0.128	0.064
Stelzer S	Roadway	7.126	0.338	0.321	0.340	0.460	0.007	0.021	0.010
To Red 1	Roadway	2.858	0.163	0.155	0.170	0.190	0.003	0.010	0.004
To Red 2	Roadway	3.613	0.207	0.196	0.215	0.239	0.003	0.012	0.006
To Red 3	Roadway	1.672	0.096	0.090	0.099	0.110	0.002	0.006	0.003
WB from Sawyer	Roadway	22.180	1.270	1.203	1.319	1.468	0.022	0.074	0.036
Employee Parking	Parking	16.868	0.818	0.768	2.520	2.181	0.008	0.028	0.013
Green	Parking	10.993	0.559	0.526	1.800	1.354	0.006	0.017	0.008
Lane Avtn	Parking	5.199	0.261	0.246	0.831	0.648	0.002	0.008	0.004
Long Term Pkg Lvl 3	Parking	13.629	0.685	0.644	2.179	1.700	0.007	0.021	0.011
Long Term Pkg Lvl 4	Parking	6.791	0.341	0.321	1.086	0.847	0.003	0.011	0.006
Long Term Pkg Lvl 5	Parking	13.960	0.701	0.659	2.232	1.741	0.007	0.022	0.011
Long Term Pkg Lvl 6	Parking	9.385	0.472	0.443	1.500	1.171	0.004	0.014	0.008
New Gar Level 1	Parking	0.855	0.047	0.044	0.161	0.096	0.000	0.001	0.001
New Gar Level 2	Parking	0.801	0.044	0.042	0.151	0.090	0.000	0.001	0.000
New Gar Level 3	Parking	1.924	0.106	0.099	0.362	0.216	0.001	0.002	0.001
New Gar Level 4	Parking	0.961	0.053	0.050	0.181	0.108	0.000	0.001	0.001
New Gar Level 5	Parking	1.976	0.108	0.103	0.371	0.223	0.001	0.002	0.001
New Gar Level 6	Parking	1.336	0.073	0.069	0.251	0.150	0.000	0.002	0.001
New RAC	Parking	43.413	1.991	1.867	5.796	5.914	0.023	0.076	0.037
Red	Parking	81.109	3.811	3.577	11.384	10.805	0.041	0.139	0.068
ShortTerm Pkg Lvl 4	Parking	4.807	0.249	0.234	0.812	0.580	0.002	0.007	0.003
ShortTerm Pkg Lvl 5	Parking	4.543	0.235	0.222	0.767	0.548	0.002	0.007	0.003

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.115	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.748	0.748	0.748	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.149	0.149	0.149	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.590	1.590	1.590	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.014	0.004	0.004	0.004	0.004	0.003	0.010	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.911	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.850	0.850	0.850	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.260	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.427	0.427	0.427	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.261	0.261	0.261	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.765	0.765	0.765	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.122	2.122	2.122	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.800	0.800	0.800	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.762	0.762	0.762	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emissions Inventory Summary

(Short Tons/Year)

Category	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	835.893	69.031	69.031	73.642	377.423	34.079	3.818	3.818
GSE/APU	1,491.133	60.333	54.724	56.927	79.989	12.154	5.013	4.834
Roadways	673.182	35.188	33.375	36.020	43.411	0.625	2.065	1.032
Parking Facilities	212.172	10.776	10.126	30.155	26.253	0.110	0.368	0.182
Stationary Sources	21.453	12.612	12.081	14.665	35.757	16.638	2.492	2.205
Total	3,233.832	187.940	179.337	211.409	562.832	63.607	13.757	12.070

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions Summary
(Short Tons/Year)

Aircraft	Engine		CO	THC	N...VOC	NOx	SOxPM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	TOTAL	18.029	0.322	0.322	0.311	0.010	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.001	0.002	0.003	0.003	0.000
B737-300	CFM56-3-B1	TOTAL	5.002	0.309	0.309	0.338	3.815	0.386	0.006	0.006	0.000
10L		APU	0.745	0.043	0.043	0.046	0.196	0.042	0.000	0.000	0.000
		GSE	0.245	0.024	0.023	0.024	0.223	0.071	0.042	0.040	0.000
B737-300	CFM56-3B-2	TOTAL	0.841	0.045	0.045	0.050	0.819	0.076	0.002	0.002	0.000
10L		APU	0.136	0.008	0.008	0.009	0.036	0.008	0.000	0.000	0.000
		GSE	0.044	0.004	0.004	0.004	0.041	0.013	0.008	0.008	0.000
B737-500	CFM56-3C-1	TOTAL	0.596	0.030	0.030	0.032	0.766	0.064	0.002	0.002	0.000
10L		APU	0.101	0.006	0.006	0.007	0.026	0.006	0.000	0.000	0.000
		GSE	0.033	0.003	0.003	0.003	0.031	0.010	0.006	0.006	0.000
B737-700	CFM56-7B22	TOTAL	3.392	0.356	0.356	0.390	6.128	0.460	0.097	0.097	0.000
10L		APU	0.235	0.018	0.018	0.020	0.320	0.049	0.000	0.000	0.000
		GSE	0.262	0.026	0.025	0.026	0.239	0.076	0.044	0.043	0.000
B737-800	CFM56-7B26	TOTAL	0.858	0.088	0.088	0.097	2.582	0.158	0.047	0.047	0.000
10L		APU	0.069	0.006	0.006	0.006	0.095	0.014	0.000	0.000	0.000
		GSE	0.078	0.008	0.008	0.008	0.071	0.022	0.013	0.013	0.000
B757-300	PW2043	TOTAL	0.174	0.013	0.013	0.015	0.645	0.033	N/A	N/A	0.000
10L		APU	0.009	0.001	0.001	0.001	0.020	0.002	0.000	0.000	0.000
		GSE	0.011	0.001	0.001	0.001	0.010	0.003	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	8.825	0.051	0.051	0.055	10.154	1.002	0.042	0.042	0.000
10L		APU	3.034	0.174	0.174	0.190	0.801	0.169	0.000	0.000	0.000
		GSE	46.027	1.797	1.621	1.682	1.816	0.239	0.139	0.133	0.000
Cessna 172 Skyha...	O-320	TOTAL	7.786	0.127	0.127	0.122	0.013	0.001	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.004	0.007	0.007	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.049	0.003	0.003	0.003	0.046	0.006	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.997	0.076	0.068	0.071	0.054	0.003	0.002	0.002	0.000
CITATION I SP	JT15D-1A ,1B	TOTAL	0.324	0.100	0.100	0.107	0.026	0.003	0.002	0.002	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.821	0.034	0.031	0.032	0.026	0.001	0.001	0.001	0.000
CL600	ALF 502L-2	TOTAL	1.774	0.244	0.244	0.259	0.876	0.060	0.011	0.011	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.111	0.443	0.400	0.416	0.484	0.080	0.045	0.043	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	0.692	0.198	0.198	0.217	0.520	0.052	0.037	0.037	0.000
10L		APU	0.069	0.004	0.004	0.004	0.019	0.004	0.000	0.000	0.000
		GSE	0.023	0.002	0.002	0.002	0.021	0.007	0.004	0.003	0.000
Embraer ERJ 135/...	AE3007A1/3 (Typ...	TOTAL	1.723	0.144	0.144	0.153	1.229	0.130	0.000	0.000	0.000
10L		APU	0.125	0.012	0.012	0.012	0.088	0.020	0.000	0.000	0.000
		GSE	8.322	0.325	0.293	0.304	0.328	0.043	0.025	0.024	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.243	0.040	0.040	0.042	0.440	0.039	0.000	0.000	0.000
10L		APU	0.034	0.003	0.003	0.003	0.024	0.006	0.000	0.000	0.000
		GSE	2.296	0.089	0.080	0.084	0.090	0.012	0.007	0.007	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.970	0.078	0.078	0.083	0.832	0.079	0.000	0.000	0.000
10L		APU	0.068	0.007	0.007	0.007	0.049	0.011	0.000	0.000	0.000
		GSE	4.593	0.180	0.162	0.168	0.181	0.024	0.014	0.013	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	4.747	0.398	0.398	0.423	3.428	0.348	0.000	0.000	0.000
10L		APU	0.330	0.031	0.031	0.033	0.235	0.051	0.000	0.000	0.000
		GSE	22.046	0.861	0.776	0.806	0.870	0.115	0.066	0.064	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	5.896	0.495	0.495	0.526	4.205	0.444	0.000	0.000	0.000
10L		APU	0.425	0.041	0.041	0.043	0.303	0.066	0.000	0.000	0.000
		GSE	28.476	1.111	1.003	1.041	1.123	0.148	0.086	0.083	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	1.779	0.149	0.149	0.159	1.286	0.131	0.000	0.000	0.000
10L		APU	0.123	0.012	0.012	0.012	0.088	0.019	0.000	0.000	0.000
		GSE	8.267	0.323	0.291	0.302	0.326	0.043	0.025	0.024	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	2.628	0.025	0.025	0.028	4.102	0.395	0.040	0.040	0.000
10L		APU	0.263	0.025	0.025	0.028	0.187	0.041	0.000	0.000	0.000
		GSE	17.606	0.687	0.621	0.644	0.694	0.091	0.053	0.051	0.000
Falcon 20	CF700-2D	TOTAL	1.032	0.086	0.086	0.090	0.035	0.013	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.001	0.001	0.001	0.008	0.002	0.001	0.001	0.000
Falcon 2000EX	PW308C	TOTAL	0.820	0.103	0.103	0.109	0.647	0.062	0.006	0.006	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.739	0.149	0.134	0.140	0.200	0.035	0.018	0.018	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...VOC	NOx	SOxPM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	0.333	0.039	0.039	0.041	0.344	0.030	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.928	0.076	0.068	0.072	0.053	0.003	0.002	0.002	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.553	0.256	0.256	0.271	1.239	0.142	0.084	0.084	0.000
10L_GA		APU	0.036	0.002	0.002	0.003	0.181	0.018	0.000	0.000	0.000
		GSE	7.588	0.293	0.263	0.273	0.194	0.015	0.015	0.014	0.000
HS 125	TFE731-3	TOTAL	1.948	0.316	0.316	0.349	0.923	0.051	N/A	N/A	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	17.622	0.669	0.603	0.625	0.476	0.034	0.018	0.018	0.000
KC-135R	CFM56-2B-1	TOTAL	0.462	0.025	0.025	0.029	0.588	0.049	0.001	0.001	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.011	0.002	0.002	0.003	0.035	0.009	0.003	0.003	0.000
Learjet 25C	CJ610-6	TOTAL	10.089	0.764	0.764	0.812	0.202	0.055	N/A	N/A	0.000
10L_GA		APU	0.100	0.010	0.010	0.010	0.072	0.015	0.000	0.000	0.000
		GSE	6.736	0.263	0.237	0.246	0.266	0.035	0.020	0.020	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	0.810	0.236	0.236	0.251	0.240	0.017	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.061	0.166	0.150	0.155	0.123	0.006	0.006	0.004	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.256	0.079	0.079	0.086	0.778	0.053	0.015	0.015	0.000
10L		APU	0.068	0.004	0.004	0.004	0.018	0.003	0.000	0.000	0.000
		GSE	0.018	0.002	0.002	0.002	0.017	0.006	0.003	0.003	0.000
Navajo	TIO-540-J2B2	TOTAL	23.964	0.428	0.428	0.412	0.012	0.002	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.006	0.004	0.000
Piper PA-28	O-320	TOTAL	0.559	0.009	0.009	0.009	0.001	0.000	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
UC-12J	PT6A-42	TOTAL	0.586	0.468	0.468	0.517	0.047	0.006	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	2.851	0.108	0.098	0.101	0.077	0.006	0.003	0.003	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	5.442	1.870	1.870	1.987	0.737	0.069	0.036	0.036	0.000
10L_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	16.349	0.672	0.605	0.628	0.519	0.029	0.022	0.022	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.482	0.033	0.033	0.036	0.305	0.033	0.000	0.000	0.000
10L		APU	0.067	0.003	0.003	0.004	0.018	0.003	0.000	0.000	0.000
		GSE	0.022	0.002	0.002	0.002	0.020	0.007	0.003	0.003	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	1.060	0.364	0.364	0.387	0.143	0.013	0.007	0.007	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.185	0.131	0.118	0.122	0.101	0.006	0.004	0.004	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	1.946	0.668	0.668	0.711	0.263	0.025	0.013	0.013	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.847	0.240	0.216	0.225	0.185	0.010	0.008	0.008	0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	1.593	0.547	0.547	0.582	0.216	0.020	0.011	0.011	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.784	0.197	0.177	0.184	0.152	0.009	0.007	0.007	0.000
Aztec	TIO-540-J2B2	TOTAL	18.220	0.325	0.325	0.314	0.010	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.001	0.002	0.004	0.003	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	0.647	0.045	0.045	0.050	0.410	0.044	0.000	0.000	0.000
10R		APU	0.090	0.006	0.006	0.006	0.024	0.006	0.000	0.000	0.000
		GSE	0.030	0.003	0.003	0.003	0.026	0.009	0.006	0.004	0.000
B737-300	CFM56-3B-2	TOTAL	1.358	0.074	0.074	0.080	1.322	0.122	0.003	0.003	0.000
10R		APU	0.219	0.012	0.012	0.013	0.058	0.012	0.000	0.000	0.000
		GSE	0.072	0.008	0.007	0.008	0.066	0.021	0.012	0.012	0.000
B737-300	CFM56-3-B1	TOTAL	8.094	0.500	0.500	0.548	6.174	0.624	0.010	0.010	0.000
10R		APU	1.205	0.069	0.069	0.076	0.319	0.067	0.000	0.000	0.000
		GSE	0.396	0.040	0.037	0.040	0.360	0.115	0.067	0.065	0.000
B737-500	CFM56-3C-1	TOTAL	0.993	0.049	0.049	0.054	1.276	0.107	0.003	0.003	0.000
10R		APU	0.170	0.010	0.010	0.011	0.045	0.010	0.000	0.000	0.000
		GSE	0.056	0.006	0.006	0.006	0.051	0.017	0.010	0.009	0.000
B737-700	CFM56-7B22	TOTAL	4.947	0.520	0.520	0.569	8.938	0.671	0.141	0.141	0.000
10R		APU	0.343	0.026	0.026	0.029	0.466	0.071	0.000	0.000	0.000
		GSE	0.384	0.039	0.036	0.039	0.349	0.110	0.065	0.063	0.000
B737-800	CFM56-7B26	TOTAL	1.283	0.132	0.132	0.146	3.861	0.236	0.072	0.072	0.000
10R		APU	0.104	0.008	0.008	0.009	0.141	0.021	0.000	0.000	0.000
		GSE	0.117	0.012	0.011	0.012	0.106	0.033	0.020	0.019	0.000
B757-300	PW2043	TOTAL	0.237	0.019	0.019	0.021	0.877	0.044	N/A	N/A	0.000
10R		APU	0.012	0.001	0.001	0.001	0.028	0.003	0.000	0.000	0.000
		GSE	0.014	0.001	0.001	0.001	0.013	0.004	0.002	0.002	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	2.541	0.014	0.014	0.015	2.923	0.289	0.012	0.012	0.000
10R											

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		APU	0.873	0.050	0.050	0.055	0.230	0.049	0.000	0.000	0.000
		GSE	13.250	0.517	0.466	0.484	0.522	0.068	0.040	0.039	0.000
Cessna 172 Skyha...	O-320	TOTAL	5.455	0.088	0.088	0.086	0.010	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.001	0.001	0.001	0.001	0.002	0.003	0.004	0.004	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.080	0.006	0.006	0.006	0.077	0.010	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.329	0.127	0.114	0.118	0.090	0.007	0.003	0.003	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.659	0.205	0.205	0.218	0.054	0.007	0.003	0.003	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.670	0.068	0.062	0.064	0.053	0.003	0.002	0.002	0.000
CL600	ALF 502L-2	TOTAL	0.559	0.077	0.077	0.082	0.276	0.019	0.003	0.003	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.499	0.140	0.126	0.131	0.152	0.025	0.014	0.013	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	1.283	0.368	0.368	0.403	0.966	0.096	0.069	0.069	0.000
10R		APU	0.129	0.008	0.008	0.008	0.034	0.008	0.000	0.000	0.000
		GSE	0.043	0.004	0.004	0.004	0.039	0.012	0.008	0.007	0.000
Embraer ERJ 135/...	AE3007A1/3 (Typ...	TOTAL	0.516	0.043	0.043	0.046	0.368	0.039	0.000	0.000	0.000
10R		APU	0.037	0.003	0.003	0.003	0.026	0.006	0.000	0.000	0.000
		GSE	2.491	0.097	0.088	0.091	0.098	0.013	0.008	0.008	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	0.291	0.023	0.023	0.025	0.250	0.024	0.000	0.000	0.000
10R		APU	0.021	0.002	0.002	0.002	0.014	0.003	0.000	0.000	0.000
		GSE	1.378	0.054	0.049	0.051	0.054	0.007	0.004	0.004	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.072	0.012	0.012	0.012	0.130	0.011	0.000	0.000	0.000
10R		APU	0.010	0.001	0.001	0.001	0.008	0.001	0.000	0.000	0.000
		GSE	0.682	0.026	0.024	0.025	0.026	0.003	0.002	0.002	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	0.534	0.044	0.044	0.047	0.386	0.040	0.000	0.000	0.000
10R		APU	0.037	0.003	0.003	0.003	0.026	0.006	0.000	0.000	0.000
		GSE	2.477	0.097	0.087	0.090	0.098	0.013	0.008	0.008	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	1.764	0.148	0.148	0.158	1.258	0.133	0.000	0.000	0.000
10R		APU	0.128	0.012	0.012	0.013	0.090	0.020	0.000	0.000	0.000
		GSE	8.518	0.333	0.300	0.311	0.336	0.044	0.025	0.024	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	1.420	0.119	0.119	0.127	1.026	0.105	0.000	0.000	0.000
10R		APU	0.099	0.009	0.009	0.010	0.071	0.015	0.000	0.000	0.000
		GSE	6.597	0.258	0.233	0.241	0.260	0.034	0.020	0.019	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	0.756	0.007	0.007	0.008	1.181	0.114	0.011	0.011	0.000
10R		APU	0.076	0.008	0.008	0.008	0.054	0.012	0.000	0.000	0.000
		GSE	5.066	0.197	0.179	0.185	0.200	0.026	0.015	0.014	0.000
Falcon 20	CF700-2D	TOTAL	1.898	0.158	0.158	0.168	0.065	0.024	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.004	0.001	0.001	0.001	0.013	0.004	0.003	0.003	0.000
Falcon 2000EX	PW308C	TOTAL	0.246	0.031	0.031	0.033	0.194	0.019	0.002	0.002	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.120	0.045	0.041	0.042	0.060	0.011	0.006	0.006	0.000
Gulfstream II	SPEY MK511-8	TOTAL	0.612	0.071	0.071	0.075	0.632	0.055	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.547	0.140	0.127	0.131	0.097	0.006	0.004	0.004	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	1.300	0.214	0.214	0.227	1.036	0.119	0.071	0.071	0.000
10R_GA		APU	0.031	0.002	0.002	0.002	0.151	0.015	0.000	0.000	0.000
		GSE	6.350	0.245	0.220	0.229	0.162	0.013	0.012	0.012	0.000
HS 125	TFE731-3	TOTAL	0.552	0.089	0.089	0.099	0.261	0.014	N/A	N/A	0.000
10R_Corp		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.993	0.190	0.171	0.177	0.134	0.010	0.006	0.004	0.000
KC-135R	CFM56-2B-1	TOTAL	0.628	0.035	0.035	0.039	0.800	0.066	0.002	0.002	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.015	0.003	0.003	0.003	0.049	0.012	0.004	0.004	0.000
Learjet 25C	CJ610-6	TOTAL	2.751	0.208	0.208	0.222	0.055	0.015	N/A	N/A	0.000
10R_GA		APU	0.028	0.002	0.002	0.003	0.020	0.004	0.000	0.000	0.000
		GSE	1.838	0.072	0.065	0.067	0.073	0.010	0.006	0.006	0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	1.615	0.471	0.471	0.500	0.478	0.033	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.092	0.332	0.299	0.310	0.247	0.011	0.010	0.010	0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.471	0.146	0.146	0.159	1.431	0.097	0.029	0.029	0.000
10R		APU	0.125	0.007	0.007	0.008	0.033	0.007	0.000	0.000	0.000
		GSE	0.033	0.003	0.003	0.003	0.031	0.010	0.006	0.006	0.000
Navajo	TIO-540-J2B2	TOTAL	6.797	0.121	0.121	0.117	0.003	0.001	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000
Piper PA-28	O-320	TOTAL	0.926	0.015	0.015	0.014	0.001	0.000	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		GSE	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000
UC-12J	PT6A-42	TOTAL	1.108	0.886	0.886	0.979	0.089	0.011	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.388	0.205	0.184	0.192	0.146	0.010	0.006	0.006	0.000
Aztec	TIO-540-J2B2	TOTAL	50.226	0.896	0.896	0.865	0.026	0.004	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.002	0.002	0.002	0.002	0.004	0.008	0.011	0.010	0.000
B737-300	CFM56-3-B1	TOTAL	22.958	1.419	1.419	1.552	17.514	1.770	0.026	0.026	0.000
28L		APU	3.418	0.196	0.196	0.214	0.903	0.190	0.000	0.000	0.000
		GSE	1.123	0.112	0.107	0.114	1.023	0.324	0.190	0.184	0.000
B737-300	CFM56-3B-2	TOTAL	3.843	0.208	0.208	0.228	3.739	0.347	0.008	0.008	0.000
28L		APU	0.619	0.035	0.035	0.039	0.164	0.034	0.000	0.000	0.000
		GSE	0.204	0.020	0.020	0.021	0.185	0.058	0.034	0.033	0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	2.291	0.160	0.160	0.175	1.451	0.155	0.002	0.002	0.000
28L		APU	0.319	0.019	0.019	0.020	0.084	0.018	0.000	0.000	0.000
		GSE	0.105	0.010	0.010	0.011	0.095	0.030	0.018	0.018	0.000
B737-500	CFM56-3C-1	TOTAL	2.722	0.134	0.134	0.147	3.498	0.294	0.010	0.010	0.000
28L		APU	0.465	0.026	0.026	0.029	0.122	0.025	0.000	0.000	0.000
		GSE	0.153	0.015	0.014	0.015	0.139	0.044	0.025	0.025	0.000
B737-700	CFM56-7B22	TOTAL	16.077	1.690	1.690	1.850	29.048	2.180	0.459	0.459	0.000
28L		APU	1.114	0.085	0.085	0.093	1.517	0.228	0.000	0.000	0.000
		GSE	1.246	0.125	0.119	0.126	1.135	0.359	0.211	0.204	0.000
B737-800	CFM56-7B26	TOTAL	3.974	0.410	0.410	0.450	11.966	0.730	0.222	0.222	0.000
28L		APU	0.323	0.024	0.024	0.026	0.439	0.066	0.000	0.000	0.000
		GSE	0.360	0.036	0.034	0.036	0.328	0.104	0.061	0.060	0.000
B757-300	PW2043	TOTAL	0.837	0.066	0.066	0.072	3.099	0.157	N/A	N/A	0.000
28L		APU	0.042	0.004	0.004	0.004	0.096	0.010	0.000	0.000	0.000
		GSE	0.052	0.006	0.004	0.006	0.047	0.015	0.009	0.009	0.000
Bombardier CRJ700	CF34-8C1	TOTAL	10.923	0.062	0.062	0.068	12.569	1.240	0.052	0.052	0.000
28L		APU	3.754	0.215	0.215	0.235	0.991	0.208	0.000	0.000	0.000
		GSE	56.966	2.223	2.006	2.082	2.248	0.297	0.172	0.165	0.000
CITATION I SP	JT15D-1A _1B	TOTAL	2.162	0.672	0.672	0.715	0.176	0.022	0.012	0.012	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	5.478	0.225	0.203	0.211	0.174	0.010	0.008	0.008	0.000
CL600	ALF 502L-2	TOTAL	1.976	0.271	0.271	0.289	0.976	0.067	0.012	0.012	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	12.380	0.494	0.445	0.463	0.539	0.090	0.050	0.049	0.000
Cessna 172 Skyha...	O-320	TOTAL	16.289	0.265	0.265	0.256	0.029	0.001	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.003	0.002	0.002	0.002	0.006	0.010	0.014	0.014	0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.284	0.020	0.020	0.021	0.270	0.034	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.713	0.445	0.401	0.416	0.316	0.023	0.012	0.011	0.000
DC9-30	JT8D-15 (old comb)	TOTAL	3.004	0.862	0.862	0.944	2.260	0.225	0.162	0.162	0.000
28L		APU	0.303	0.018	0.018	0.019	0.079	0.017	0.000	0.000	0.000
		GSE	0.099	0.010	0.010	0.010	0.090	0.029	0.017	0.017	0.000
Embraer ERJ 135/...	AE3007A1/3 (Typ...	TOTAL	2.028	0.170	0.170	0.181	1.447	0.153	0.000	0.000	0.000
28L		APU	0.147	0.014	0.014	0.014	0.105	0.023	0.000	0.000	0.000
		GSE	9.798	0.383	0.345	0.358	0.387	0.051	0.030	0.029	0.000
Embraer ERJ 145	AE3007A	TOTAL	0.288	0.046	0.046	0.050	0.522	0.045	0.000	0.000	0.000
28L		APU	0.041	0.004	0.004	0.004	0.029	0.007	0.000	0.000	0.000
		GSE	2.728	0.107	0.096	0.099	0.108	0.014	0.008	0.008	0.000
Embraer ERJ 145	AE3007A1E	TOTAL	1.152	0.093	0.093	0.099	0.989	0.095	0.000	0.000	0.000
28L		APU	0.082	0.008	0.008	0.008	0.058	0.012	0.000	0.000	0.000
		GSE	5.455	0.213	0.192	0.200	0.215	0.029	0.017	0.015	0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	5.636	0.473	0.473	0.503	4.072	0.414	0.000	0.000	0.000
28L		APU	0.391	0.037	0.037	0.040	0.279	0.061	0.000	0.000	0.000
		GSE	26.180	1.022	0.922	0.957	1.033	0.136	0.078	0.076	0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	7.003	0.588	0.588	0.625	4.995	0.528	0.000	0.000	0.000
28L		APU	0.506	0.047	0.047	0.051	0.359	0.078	0.000	0.000	0.000
		GSE	33.821	1.321	1.192	1.236	1.335	0.175	0.101	0.098	0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	2.114	0.177	0.177	0.188	1.529	0.155	0.000	0.000	0.000
28L		APU	0.147	0.014	0.014	0.014	0.105	0.023	0.000	0.000	0.000
		GSE	9.826	0.384	0.346	0.359	0.388	0.051	0.030	0.029	0.000
Embraer ERJ 170	CF34-8E5	TOTAL	3.252	0.031	0.031	0.034	5.074	0.488	0.049	0.049	0.000
28L		APU	0.326	0.031	0.031	0.034	0.231	0.051	0.000	0.000	0.000
		GSE	21.782	0.850	0.767	0.796	0.860	0.114	0.065	0.063	0.000
Falcon 20	CF700-2D	TOTAL	7.389	0.612	0.612	0.650	0.251	0.094	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	0.019	0.004	0.004	0.004	0.053	0.019	0.011	0.011	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...VOC	NOx	SOxPM...	PM...	Fuel Con...
Gulfstream II	SPEY MK511-8	TOTAL	2.380	0.276	0.276 0.292	2.460	0.213	N/A	N/A 0.000
28L_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	13.809	0.546	0.492 0.510	0.379	0.021	0.018	0.017 0.000
HS 125	TFE731-3	TOTAL	2.414	0.392	0.392 0.433	1.144	0.063	N/A	N/A 0.000
28L_Corp		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	21.846	0.830	0.747 0.775	0.591	0.042	0.022	0.021 0.000
KC-135R	CFM56-2B-1	TOTAL	2.220	0.123	0.123 0.137	2.825	0.234	0.007	0.007 0.000
28L_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.053	0.012	0.012 0.013	0.171	0.042	0.018	0.017 0.000
Learjet 25C	CJ610-6	TOTAL	11.820	0.895	0.895 0.951	0.236	0.065	N/A	N/A 0.000
28L_GA		APU	0.118	0.011	0.011 0.012	0.084	0.019	0.000	0.000 0.000
		GSE	7.891	0.308	0.278 0.289	0.311	0.041	0.024	0.023 0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	5.533	1.612	1.612 1.713	1.639	0.114	N/A	N/A 0.000
28L_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	27.715	1.138	1.024 1.063	0.845	0.039	0.034	0.033 0.000
MD-80-83	JT8D-219 old comb	TOTAL	1.155	0.356	0.356 0.390	3.513	0.238	0.069	0.069 0.000
28L		APU	0.306	0.018	0.018 0.019	0.080	0.017	0.000	0.000 0.000
		GSE	0.080	0.009	0.009 0.009	0.075	0.024	0.014	0.013 0.000
Navajo	TIO-540-J2B2	TOTAL	23.932	0.428	0.428 0.412	0.012	0.002	N/A	N/A 0.000
28L_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.001	0.001	0.001 0.001	0.002	0.003	0.006	0.004 0.000
Piper PA-28	O-320	TOTAL	3.277	0.053	0.053 0.051	0.006	0.000	N/A	N/A 0.000
28L_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.000	0.000	0.000 0.000	0.001	0.002	0.002	0.002 0.000
UC-12J	PT6A-42	TOTAL	2.969	2.373	2.373 2.621	0.240	0.030	N/A	N/A 0.000
28L_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	14.439	0.549	0.494 0.513	0.390	0.028	0.014	0.014 0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	6.295	2.163	2.163 2.298	0.853	0.080	0.042	0.042 0.000
28L_Corp		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	18.911	0.778	0.700 0.726	0.601	0.033	0.026	0.025 0.000
Falcon 2000EX	PW308C	TOTAL	0.956	0.119	0.119 0.127	0.754	0.072	0.007	0.007 0.000
28L_Corp		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	4.355	0.174	0.158 0.163	0.231	0.042	0.021	0.020 0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	7.563	2.598	2.598 2.761	1.025	0.097	0.051	0.051 0.000
28L_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	22.720	0.935	0.841 0.873	0.721	0.041	0.031	0.030 0.000
Gulfstream IV	TAY Mk611-8	TOTAL	4.502	0.740	0.740 0.787	3.590	0.413	0.244	0.244 0.000
28L_GA		APU	0.107	0.008	0.008 0.009	0.525	0.052	0.000	0.000 0.000
		GSE	21.994	0.849	0.765 0.794	0.562	0.044	0.043	0.042 0.000
Aztec	TIO-540-J2B2	TOTAL	53.289	0.951	0.951 0.918	0.028	0.004	N/A	N/A 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.002	0.002	0.002 0.002	0.004	0.008	0.011	0.011 0.000
B737-300	CFM56-3-B1	TOTAL	13.404	0.828	0.828 0.906	10.225	1.034	0.015	0.015 0.000
28R		APU	1.996	0.115	0.115 0.125	0.527	0.111	0.000	0.000 0.000
		GSE	0.656	0.065	0.063 0.066	0.597	0.190	0.111	0.107 0.000
B737-300	CFM56-3B-2	TOTAL	2.251	0.122	0.122 0.133	2.190	0.203	0.004	0.004 0.000
28R		APU	0.363	0.021	0.021 0.023	0.096	0.020	0.000	0.000 0.000
		GSE	0.119	0.012	0.011 0.012	0.109	0.034	0.020	0.020 0.000
B737-300	CFM56-3C-1 (Rer...	TOTAL	1.407	0.098	0.098 0.107	0.891	0.096	0.001	0.001 0.000
28R		APU	0.195	0.011	0.011 0.012	0.052	0.011	0.000	0.000 0.000
		GSE	0.064	0.007	0.007 0.007	0.058	0.019	0.011	0.011 0.000
B737-500	CFM56-3C-1	TOTAL	1.573	0.077	0.077 0.085	2.022	0.170	0.006	0.006 0.000
28R		APU	0.269	0.015	0.015 0.017	0.071	0.015	0.000	0.000 0.000
		GSE	0.088	0.009	0.009 0.009	0.080	0.025	0.015	0.014 0.000
B737-700	CFM56-7B22	TOTAL	9.656	1.015	1.015 1.111	17.447	1.310	0.276	0.276 0.000
28R		APU	0.669	0.051	0.051 0.055	0.911	0.137	0.000	0.000 0.000
		GSE	0.748	0.075	0.072 0.075	0.681	0.216	0.127	0.122 0.000
B737-800	CFM56-7B26	TOTAL	2.375	0.246	0.246 0.269	7.153	0.437	0.132	0.132 0.000
28R		APU	0.193	0.014	0.014 0.017	0.262	0.040	0.000	0.000 0.000
		GSE	0.215	0.021	0.021 0.022	0.196	0.062	0.036	0.035 0.000
B757-300	PW2043	TOTAL	0.513	0.041	0.041 0.044	1.898	0.096	N/A	N/A 0.000
28R		APU	0.025	0.002	0.002 0.003	0.058	0.007	0.000	0.000 0.000
		GSE	0.032	0.003	0.003 0.003	0.029	0.009	0.006	0.006 0.000
Bombardier CRJ700	CF34-8C1	TOTAL	27.389	0.155	0.155 0.171	31.515	3.110	0.131	0.131 0.000
28R		APU	9.413	0.539	0.539 0.590	2.486	0.524	0.000	0.000 0.000
		GSE	142.841	5.575	5.031 5.221	5.636	0.742	0.430	0.416 0.000
CITATION I SP	JT15D-1A _1B	TOTAL	0.927	0.289	0.289 0.306	0.075	0.009	0.006	0.006 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	2.350	0.097	0.087 0.090	0.075	0.004	0.003	0.003 0.000
CL600	ALF 502L-2	TOTAL	5.233	0.720	0.720 0.765	2.584	0.177	0.033	0.033 0.000
28R_GA									

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...VOC	NOx	SOxPM...	PM...	Fuel Con...
		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	32.781	1.306	1.181 1.225	1.426	0.238	0.132	0.128 0.000
Cessna 172 Skyha...	O-320	TOTAL	14.663	0.238	0.238 0.230	0.026	0.001	N/A	N/A 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.002	0.002	0.002 0.002	0.004	0.009	0.013	0.013 0.000
Cessna 441 Conqu...	TPE331-8	TOTAL	0.140	0.010	0.010 0.010	0.132	0.017	N/A	N/A 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	5.742	0.218	0.196 0.204	0.155	0.011	0.006	0.006 0.000
DC9-30	JT8D-15 (old comb)	TOTAL	1.666	0.478	0.478 0.524	1.253	0.125	0.089	0.089 0.000
28R		APU	0.168	0.010	0.010 0.011	0.044	0.009	0.000	0.000 0.000
		GSE	0.055	0.006	0.006 0.006	0.051	0.015	0.009	0.009 0.000
Embraer ERJ 135/...	AE3007A1/3 (Typ...	TOTAL	5.199	0.437	0.437 0.464	3.708	0.391	0.000	0.000 0.000
28R		APU	0.376	0.035	0.035 0.037	0.267	0.058	0.000	0.000 0.000
		GSE	25.108	0.980	0.884 0.917	0.991	0.130	0.076	0.073 0.000
Embraer ERJ 145	AE3007A	TOTAL	0.739	0.120	0.120 0.127	1.337	0.117	0.000	0.000 0.000
28R		APU	0.105	0.010	0.010 0.011	0.074	0.017	0.000	0.000 0.000
		GSE	6.986	0.272	0.246 0.256	0.276	0.036	0.021	0.020 0.000
Embraer ERJ 145	AE3007A1E	TOTAL	2.951	0.238	0.238 0.254	2.532	0.243	0.000	0.000 0.000
28R		APU	0.209	0.020	0.020 0.021	0.149	0.032	0.000	0.000 0.000
		GSE	13.974	0.546	0.492 0.510	0.551	0.073	0.042	0.041 0.000
Embraer ERJ 145LR	AE3007A1/1 (Typ...	TOTAL	14.446	1.211	1.211 1.289	10.436	1.062	0.000	0.000 0.000
28R		APU	1.004	0.095	0.095 0.101	0.714	0.155	0.000	0.000 0.000
		GSE	67.099	2.619	2.363 2.453	2.648	0.348	0.202	0.195 0.000
Embraer ERJ 145LR	AE3007A1/3 (Typ...	TOTAL	17.948	1.506	1.506 1.601	12.802	1.353	0.000	0.000 0.000
28R		APU	1.296	0.122	0.122 0.130	0.923	0.201	0.000	0.000 0.000
		GSE	86.681	3.384	3.052 3.168	3.420	0.451	0.261	0.252 0.000
Embraer ERJ 145LR	AE3007A1P (Type...	TOTAL	5.416	0.453	0.453 0.482	3.915	0.398	0.000	0.000 0.000
28R		APU	0.377	0.035	0.035 0.037	0.268	0.058	0.000	0.000 0.000
		GSE	25.164	0.982	0.886 0.919	0.993	0.131	0.076	0.073 0.000
Embraer ERJ 170	CF34-8E5	TOTAL	8.153	0.077	0.077 0.085	12.722	1.226	0.122	0.122 0.000
28R		APU	0.817	0.077	0.077 0.085	0.581	0.127	0.000	0.000 0.000
		GSE	54.614	2.132	1.924 1.996	2.155	0.283	0.164	0.159 0.000
Falcon 20	CF700-2D	TOTAL	3.114	0.258	0.258 0.274	0.106	0.040	N/A	N/A 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.008	0.002	0.002 0.002	0.022	0.008	0.004	0.004 0.000
Gulfstream II	SPEY MK511-8	TOTAL	1.003	0.116	0.116 0.123	1.037	0.090	N/A	N/A 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	5.819	0.230	0.207 0.215	0.160	0.009	0.008	0.007 0.000
HS 125	TFE731-3	TOTAL	5.997	0.973	0.973 1.076	2.842	0.157	N/A	N/A 0.000
28R_Corp		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	54.260	2.062	1.857 1.926	1.467	0.105	0.055	0.053 0.000
KC-135R	CFM56-2B-1	TOTAL	1.360	0.076	0.076 0.084	1.732	0.143	0.004	0.004 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.032	0.008	0.008 0.008	0.105	0.025	0.011	0.010 0.000
Learjet 25C	CJ610-6	TOTAL	28.601	2.165	2.165 2.302	0.571	0.158	N/A	N/A 0.000
28R_GA		APU	0.285	0.028	0.028 0.029	0.203	0.044	0.000	0.000 0.000
		GSE	19.095	0.745	0.672 0.698	0.753	0.099	0.057	0.055 0.000
Learjet 35/36	TFE 731-2-2B	TOTAL	2.350	0.685	0.685 0.728	0.697	0.049	N/A	N/A 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	11.770	0.483	0.435 0.451	0.359	0.017	0.014	0.014 0.000
MD-80-83	JT8D-219 old comb	TOTAL	0.644	0.198	0.198 0.217	1.957	0.132	0.039	0.039 0.000
28R		APU	0.171	0.010	0.010 0.011	0.045	0.010	0.000	0.000 0.000
		GSE	0.044	0.006	0.004 0.006	0.042	0.013	0.008	0.008 0.000
Navajo	TIO-540-J2B2	TOTAL	38.483	0.687	0.687 0.662	0.020	0.003	N/A	N/A 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.001	0.001	0.001 0.001	0.003	0.006	0.008	0.008 0.000
Piper PA-28	O-320	TOTAL	1.608	0.025	0.025 0.025	0.003	0.000	N/A	N/A 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	0.000	0.000	0.000 0.000	0.000	0.001	0.001	0.001 0.000
UC-12J	PT6A-42	TOTAL	1.587	1.269	1.269 1.401	0.128	0.015	N/A	N/A 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	7.718	0.293	0.265 0.274	0.208	0.015	0.008	0.008 0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	15.903	5.462	5.462 5.807	2.156	0.203	0.106	0.106 0.000
28R_Corp		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	47.774	1.965	1.769 1.834	1.517	0.085	0.066	0.063 0.000
Falcon 2000EX	PW308C	TOTAL	2.464	0.308	0.308 0.327	1.943	0.184	0.017	0.017 0.000
28R_Corp		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000
		GSE	11.233	0.448	0.406 0.421	0.597	0.107	0.054	0.053 0.000
550 Citation	JT15D-4 (B,C,D)	TOTAL	3.194	1.097	1.097 1.166	0.433	0.041	0.021	0.021 0.000
28R_GA		APU	0.000	0.000	0.000 0.000	0.000	0.000	0.000	0.000 0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...VOC		NOx	SOxPM...		PM...	Fuel Con...
		GSE	9.598	0.395	0.355	0.368	0.304	0.017	0.013	0.012	0.000
Gulfstream IV	TAY Mk611-8	TOTAL	4.776	0.785	0.785	0.834	3.808	0.438	0.259	0.259	0.000
28R_GA		APU	0.112	0.008	0.008	0.009	0.557	0.055	0.000	0.000	0.000
		GSE	23.334	0.901	0.811	0.841	0.596	0.046	0.046	0.044	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.788	0.227	0.227	0.241	0.266	0.018	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	3.879	0.160	0.143	0.149	0.123	0.007	0.006	0.006	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.213	0.062	0.062	0.065	0.072	0.004	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	1.047	0.043	0.039	0.040	0.033	0.002	0.001	0.001	0.000
Citation VII	TFE 731-2-2B	TOTAL	0.931	0.269	0.269	0.285	0.314	0.021	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.587	0.188	0.170	0.176	0.146	0.008	0.007	0.006	0.000
Citation VII	TFE 731-2-2B	TOTAL	2.261	0.653	0.653	0.693	0.763	0.050	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	11.126	0.457	0.412	0.428	0.353	0.020	0.015	0.014	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.019	0.227	0.227	0.250	0.053	0.023	N/A	N/A	0.000
10L_GA		APU	0.011	0.001	0.001	0.001	0.055	0.006	0.000	0.000	0.000
		GSE	2.824	0.111	0.100	0.104	0.075	0.007	0.007	0.007	0.000
HS 748 2A SERIES	RDa7	TOTAL	0.549	0.122	0.122	0.136	0.029	0.013	N/A	N/A	0.000
10R_GA		APU	0.007	0.000	0.000	0.000	0.030	0.003	0.000	0.000	0.000
		GSE	1.522	0.060	0.054	0.056	0.041	0.003	0.003	0.003	0.000
HS 748 2A SERIES	RDa7	TOTAL	1.886	0.420	0.420	0.464	0.097	0.044	N/A	N/A	0.000
28L_GA		APU	0.021	0.001	0.001	0.002	0.103	0.010	0.000	0.000	0.000
		GSE	5.230	0.205	0.185	0.192	0.139	0.012	0.013	0.013	0.000
HS 748 2A SERIES	RDa7	TOTAL	3.019	0.674	0.674	0.744	0.155	0.069	N/A	N/A	0.000
28R_GA		APU	0.033	0.002	0.002	0.002	0.165	0.017	0.000	0.000	0.000
		GSE	8.374	0.328	0.297	0.308	0.222	0.020	0.021	0.020	0.000
Learjet 25B	CJ610-6	TOTAL	6.442	0.487	0.487	0.518	0.129	0.035	N/A	N/A	0.000
10L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	4.372	0.180	0.162	0.168	0.133	0.007	0.006	0.006	0.000
Learjet 25B	CJ610-6	TOTAL	11.966	0.906	0.906	0.963	0.239	0.066	N/A	N/A	0.000
10R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	8.121	0.333	0.300	0.311	0.248	0.011	0.010	0.010	0.000
Learjet 25B	CJ610-6	TOTAL	45.945	3.479	3.479	3.698	0.917	0.254	N/A	N/A	0.000
28L_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	31.181	1.280	1.153	1.195	0.951	0.044	0.039	0.037	0.000
Learjet 25B	CJ610-6	TOTAL	19.367	1.466	1.466	1.559	0.387	0.107	N/A	N/A	0.000
28R_GA		APU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		GSE	13.143	0.540	0.486	0.504	0.401	0.019	0.017	0.015	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.473	0.004	0.004	0.004	0.730	0.071	0.007	0.007	0.000
10L		APU	0.208	0.012	0.012	0.013	0.055	0.011	0.000	0.000	0.000
		GSE	3.159	0.123	0.111	0.116	0.125	0.017	0.010	0.009	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.136	0.001	0.001	0.001	0.209	0.020	0.002	0.002	0.000
10R		APU	0.060	0.003	0.003	0.003	0.015	0.003	0.000	0.000	0.000
		GSE	0.905	0.035	0.032	0.033	0.035	0.004	0.002	0.002	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	0.585	0.006	0.006	0.006	0.904	0.087	0.008	0.008	0.000
28L		APU	0.258	0.014	0.014	0.017	0.068	0.014	0.000	0.000	0.000
		GSE	3.911	0.152	0.138	0.143	0.154	0.020	0.012	0.011	0.000
Bombardier CRJ900	CF34-8C5	TOTAL	1.466	0.014	0.014	0.015	2.264	0.219	0.021	0.021	0.000
28R		APU	0.646	0.037	0.037	0.041	0.171	0.036	0.000	0.000	0.000
		GSE	9.798	0.383	0.345	0.358	0.387	0.051	0.030	0.029	0.000
A320-200	V2500-A1	TOTAL	0.066	0.003	0.003	0.004	0.489	0.024	0.001	0.001	0.000
10L		APU	0.004	0.000	0.000	0.000	0.020	0.002	0.000	0.000	0.000
		GSE	0.012	0.001	0.001	0.001	0.011	0.003	0.002	0.002	0.000
A320-200	V2500-A1	TOTAL	0.151	0.009	0.009	0.009	1.125	0.056	0.001	0.001	0.000
10R		APU	0.009	0.001	0.001	0.001	0.044	0.004	0.000	0.000	0.000
		GSE	0.028	0.003	0.002	0.003	0.025	0.008	0.004	0.004	0.000
A320-200	V2500-A1	TOTAL	0.257	0.014	0.014	0.015	1.908	0.096	0.002	0.002	0.000
28L		APU	0.015	0.001	0.001	0.001	0.075	0.008	0.000	0.000	0.000
		GSE	0.047	0.004	0.004	0.004	0.043	0.013	0.008	0.008	0.000
A320-200	V2500-A1	TOTAL	0.127	0.007	0.007	0.008	0.941	0.047	0.001	0.001	0.000
28R		APU	0.008	0.001	0.001	0.001	0.037	0.003	0.000	0.000	0.000
		GSE	0.023	0.002	0.002	0.002	0.021	0.007	0.004	0.003	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.465	0.004	0.004	0.006	0.808	0.074	0.017	0.017	0.000
10L		APU	0.047	0.004	0.004	0.004	0.033	0.008	0.000	0.000	0.000
		GSE	3.159	0.123	0.111	0.116	0.125	0.017	0.010	0.009	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.133	0.001	0.001	0.001	0.231	0.021	0.004	0.004	0.000
10R		APU	0.013	0.001	0.001	0.001	0.010	0.002	0.000	0.000	0.000
		GSE	0.905	0.035	0.032	0.033	0.035	0.004	0.002	0.002	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine		CO	THC	N...VOC		NOx	SOxPM...		PM...	Fuel Con...
Embraer ERJ 170	CF34-8E5A1	TOTAL	0.577	0.006	0.006	0.007	1.000	0.091	0.021	0.021	0.000
28L		APU	0.058	0.006	0.006	0.006	0.042	0.009	0.000	0.000	0.000
		GSE	3.911	0.152	0.138	0.143	0.154	0.020	0.012	0.011	0.000
Embraer ERJ 170	CF34-8E5A1	TOTAL	1.443	0.014	0.014	0.015	2.504	0.229	0.052	0.052	0.000
28R		APU	0.147	0.014	0.014	0.015	0.105	0.023	0.000	0.000	0.000
		GSE	9.798	0.383	0.345	0.358	0.387	0.051	0.030	0.029	0.000
B757-200	PW2037	TOTAL	0.406	0.033	0.033	0.036	0.968	0.062	0.010	0.010	0.000
10L		APU	0.019	0.002	0.002	0.002	0.042	0.004	0.000	0.000	0.000
		GSE	0.023	0.002	0.002	0.002	0.021	0.007	0.004	0.003	0.000
B757-200	PW2037	TOTAL	0.752	0.062	0.062	0.068	1.797	0.115	0.019	0.019	0.000
10R		APU	0.034	0.003	0.003	0.003	0.078	0.008	0.000	0.000	0.000
		GSE	0.043	0.004	0.004	0.004	0.039	0.012	0.008	0.007	0.000
B757-200	PW2037	TOTAL	1.759	0.146	0.146	0.159	4.204	0.268	0.044	0.044	0.000
28L		APU	0.079	0.008	0.008	0.009	0.182	0.019	0.000	0.000	0.000
		GSE	0.099	0.010	0.010	0.010	0.090	0.029	0.017	0.017	0.000
B757-200	PW2037	TOTAL	0.976	0.080	0.080	0.088	2.331	0.149	0.024	0.024	0.000
28R		APU	0.044	0.004	0.004	0.006	0.101	0.011	0.000	0.000	0.000
		GSE	0.055	0.006	0.006	0.006	0.051	0.015	0.009	0.009	0.000

*** PM data for some aircraft in the study is unavailable.

Aircraft Emissions by Mode

(Short Tons/Year)

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Aztec	TIO-540-J2B2	Approach	6.204	0.066	0.066	0.064	0.007	0.000	N/A	N/A	4.923
10L_GA		Climb Out	5.184	0.058	0.058	0.056	0.001	0.000	N/A	N/A	3.524
		Takeoff	3.456	0.030	0.030	0.029	0.001	0.000	N/A	N/A	2.396
		Idle	3.186	0.168	0.168	0.162	0.001	0.000	N/A	N/A	2.461
B737-300	CFM56-3-B1	Approach	0.446	0.010	0.010	0.010	0.974	0.118	0.001	0.001	117.430
10L		Climb Out	0.057	0.003	0.003	0.003	0.936	0.061	0.001	0.001	60.398
		Takeoff	0.072	0.003	0.003	0.003	1.403	0.079	0.002	0.002	79.255
		Idle	4.427	0.293	0.293	0.321	0.502	0.129	0.001	0.001	128.692
B737-300	CFM56-3B-2	Approach	0.078	0.002	0.002	0.002	0.202	0.023	0.000	0.000	23.175
10L		Climb Out	0.011	0.001	0.001	0.001	0.204	0.012	0.000	0.000	12.204
		Takeoff	0.014	0.001	0.001	0.001	0.313	0.017	0.001	0.001	16.126
		Idle	0.737	0.043	0.043	0.047	0.100	0.024	0.000	0.000	24.485
B737-500	CFM56-3C-1	Approach	0.058	0.001	0.001	0.001	0.173	0.019	0.000	0.000	18.994
10L		Climb Out	0.010	0.000	0.000	0.000	0.202	0.011	0.000	0.000	11.346
		Takeoff	0.013	0.000	0.000	0.000	0.309	0.015	0.001	0.001	14.911
		Idle	0.514	0.028	0.028	0.030	0.083	0.019	0.000	0.000	19.154
B737-700	CFM56-7B22	Approach	0.336	0.013	0.013	0.014	1.344	0.134	0.029	0.029	134.398
10L		Climb Out	0.049	0.008	0.008	0.009	1.536	0.080	0.017	0.017	80.802
		Takeoff	0.057	0.011	0.011	0.012	2.666	0.116	0.024	0.024	115.413
		Idle	2.949	0.323	0.323	0.354	0.582	0.129	0.028	0.028	129.349
B737-800	CFM56-7B26	Approach	0.069	0.004	0.004	0.004	0.472	0.044	0.013	0.013	43.718
10L		Climb Out	0.019	0.003	0.003	0.003	0.682	0.031	0.009	0.009	30.343
		Takeoff	0.009	0.004	0.004	0.004	1.236	0.043	0.013	0.013	42.920
		Idle	0.761	0.077	0.077	0.084	0.190	0.041	0.012	0.012	40.454
B757-300	PW2043	Approach	0.012	0.001	0.001	0.001	0.101	0.010	N/A	N/A	9.447
10L		Climb Out	0.002	0.000	0.000	0.000	0.179	0.007	N/A	N/A	6.411
		Takeoff	0.002	0.000	0.000	0.000	0.328	0.009	N/A	N/A	8.709
		Idle	0.157	0.012	0.012	0.014	0.036	0.008	N/A	N/A	8.107
Bombardier CRJ700	CF34-8C1	Approach	0.823	0.017	0.017	0.019	3.140	0.283	0.014	0.014	282.937
10L		Climb Out	0.076	0.003	0.003	0.003	1.939	0.151	0.001	0.001	151.267
		Takeoff	0.104	0.006	0.006	0.006	3.723	0.254	0.012	0.012	253.730
		Idle	7.823	0.025	0.025	0.028	1.353	0.314	0.015	0.015	313.907
Cessna 172 Skyhawk	O-320	Approach	3.537	0.056	0.056	0.054	0.002	0.000	N/A	N/A	2.899
10L_GA		Climb Out	1.907	0.024	0.024	0.023	0.008	0.000	N/A	N/A	1.927
		Takeoff	1.441	0.015	0.015	0.015	0.003	0.000	N/A	N/A	1.334
		Idle	0.899	0.031	0.031	0.030	0.000	0.000	N/A	N/A	0.833
Cessna 441 Conqu...	TPE331-8	Approach	0.011	0.000	0.000	0.000	0.025	0.002	N/A	N/A	2.648
10L_GA		Climb Out	0.001	0.000	0.000	0.000	0.006	0.001	N/A	N/A	0.561
		Takeoff	0.001	0.000	0.000	0.000	0.008	0.001	N/A	N/A	0.647
		Idle	0.035	0.003	0.003	0.003	0.008	0.002	N/A	N/A	1.878
CITATION I SP	JT15D-1A ,1B	Approach	0.075	0.008	0.008	0.009	0.007	0.001	0.001	0.001	1.846
10L_GA		Climb Out	0.004	0.000	0.000	0.000	0.008	0.001	0.000	0.000	1.103
		Takeoff	0.003	0.000	0.000	0.000	0.009	0.001	0.000	0.000	1.226
		Idle	0.243	0.093	0.093	0.098	0.003	0.001	0.001	0.001	1.833
CL600	ALF 502L-2	Approach	0.134	0.007	0.007	0.007	0.219	0.019	0.004	0.004	33.841
10L_GA		Climb Out	0.006	0.000	0.000	0.000	0.213	0.010	0.004	0.004	17.665
		Takeoff	0.010	0.000	0.000	0.000	0.324	0.013	0.002	0.002	24.127
		Idle	1.625	0.237	0.237	0.251	0.120	0.019	0.001	0.001	35.597
DC9-30	JT8D-15 (old co...	Approach	0.122	0.021	0.021	0.023	0.075	0.013	0.009	0.009	12.795
10L		Climb Out	0.011	0.003	0.003	0.003	0.170	0.011	0.008	0.008	11.305
		Takeoff	0.009	0.003	0.003	0.003	0.228	0.012	0.009	0.009	11.961
		Idle	0.549	0.172	0.172	0.187	0.046	0.015	0.011	0.011	15.605
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.262	0.001	0.001	0.001	0.238	0.034	0.000	0.000	34.417
10L		Climb Out	0.018	0.001	0.001	0.001	0.464	0.034	0.000	0.000	34.398
		Takeoff	0.012	0.001	0.001	0.001	0.368	0.024	0.000	0.000	23.847
		Idle	1.432	0.142	0.142	0.151	0.159	0.037	0.000	0.000	37.222
Embraer ERJ 145	AE3007A	Approach	0.034	0.007	0.007	0.007	0.080	0.010	0.000	0.000	10.317
10L		Climb Out	0.009	0.003	0.003	0.003	0.174	0.010	0.000	0.000	9.969
		Takeoff	0.006	0.002	0.002	0.002	0.142	0.007	0.000	0.000	6.911
		Idle	0.194	0.029	0.029	0.030	0.043	0.011	0.000	0.000	11.208
Embraer ERJ 145	AE3007A1E	Approach	0.119	0.001	0.001	0.001	0.157	0.021	0.000	0.000	21.162
10L		Climb Out	0.014	0.001	0.001	0.001	0.323	0.022	0.000	0.000	21.678
		Takeoff	0.012	0.000	0.000	0.000	0.259	0.015	0.000	0.000	15.114
		Idle	0.825	0.076	0.076	0.082	0.093	0.022	0.000	0.000	21.730
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	0.611	0.002	0.002	0.002	0.003	0.639	0.089	0.000	0.000	89.809
10L		Climb Out	0.046	0.002	0.002	0.002	1.188	0.085	0.000	0.000	84.831

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.054	0.002	0.002	0.002	1.181	0.074	0.000	0.000	73.347
		Idle	4.034	0.390	0.390	0.416	0.420	0.100	0.000	0.000	100.693
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	0.897	0.003	0.003	0.003	0.816	0.118	0.000	0.000	117.758
10L		Climb Out	0.058	0.003	0.003	0.003	1.587	0.118	0.000	0.000	117.689
		Takeoff	0.041	0.002	0.002	0.002	1.258	0.082	0.000	0.000	81.591
		Idle	4.899	0.485	0.485	0.516	0.543	0.128	0.000	0.000	127.350
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.229	0.001	0.001	0.001	0.240	0.034	0.000	0.000	33.709
10L		Climb Out	0.018	0.001	0.001	0.001	0.445	0.032	0.000	0.000	31.812
		Takeoff	0.020	0.001	0.001	0.001	0.443	0.028	0.000	0.000	27.513
		Idle	1.512	0.147	0.147	0.155	0.158	0.037	0.000	0.000	37.842
Embraer ERJ 170	CF34-8E5	Approach	0.491	0.007	0.007	0.008	1.249	0.116	0.013	0.013	115.960
10L		Climb Out	0.035	0.001	0.001	0.001	0.789	0.063	0.001	0.001	62.384
		Takeoff	0.067	0.002	0.002	0.002	1.547	0.105	0.012	0.012	104.704
		Idle	2.035	0.014	0.014	0.015	0.517	0.112	0.013	0.013	112.072
Falcon 20	CF700-2D	Approach	0.233	0.006	0.006	0.006	0.007	0.003	N/A	N/A	3.747
10L_GA		Climb Out	0.052	0.000	0.000	0.000	0.009	0.002	N/A	N/A	2.081
		Takeoff	0.061	0.000	0.000	0.000	0.015	0.003	N/A	N/A	2.775
		Idle	0.687	0.079	0.079	0.085	0.004	0.004	N/A	N/A	4.429
Falcon 2000EX	PW308C	Approach	0.105	0.003	0.003	0.003	0.158	0.020	0.002	0.002	20.096
10L_Corp		Climb Out	0.010	0.001	0.001	0.001	0.172	0.011	0.001	0.001	10.762
		Takeoff	0.011	0.001	0.001	0.001	0.258	0.014	0.001	0.001	13.995
		Idle	0.693	0.097	0.097	0.104	0.060	0.017	0.001	0.001	16.392
Gulfstream II	SPEY MK511-8	Approach	0.020	0.001	0.001	0.001	0.054	0.008	N/A	N/A	7.475
10L_GA		Climb Out	0.003	0.001	0.001	0.001	0.100	0.006	N/A	N/A	5.808
		Takeoff	0.001	0.001	0.001	0.001	0.154	0.007	N/A	N/A	6.798
		Idle	0.309	0.035	0.035	0.039	0.035	0.010	N/A	N/A	9.699
Gulfstream IV	TAY Mk611-8	Approach	0.162	0.037	0.037	0.040	0.236	0.042	0.024	0.024	41.418
10L_GA		Climb Out	0.015	0.006	0.006	0.006	0.314	0.019	0.011	0.011	18.701
		Takeoff	0.018	0.021	0.021	0.022	0.548	0.026	0.015	0.015	25.943
		Idle	1.359	0.192	0.192	0.204	0.141	0.056	0.033	0.033	56.378
HS 125	TFE731-3	Approach	0.472	0.043	0.043	0.047	0.209	0.017	N/A	N/A	30.331
10L_Corp		Climb Out	0.021	0.001	0.001	0.001	0.211	0.007	N/A	N/A	13.129
		Takeoff	0.023	0.001	0.001	0.001	0.391	0.011	N/A	N/A	20.419
		Idle	1.431	0.271	0.271	0.300	0.111	0.017	N/A	N/A	30.004
KC-135R	CFM56-2B-1	Approach	0.040	0.001	0.001	0.001	0.077	0.010	0.000	0.000	9.449
10L_GA		Climb Out	0.010	0.000	0.000	0.001	0.172	0.011	0.000	0.000	10.764
		Takeoff	0.014	0.001	0.001	0.001	0.287	0.015	0.001	0.001	15.479
		Idle	0.399	0.024	0.024	0.026	0.052	0.013	0.000	0.000	12.983
Learjet 25C	CJ610-6	Approach	2.733	0.000	0.000	0.000	0.046	0.017	N/A	N/A	31.053
10L_GA		Climb Out	0.325	0.002	0.002	0.002	0.041	0.007	N/A	N/A	11.616
		Takeoff	0.491	0.002	0.002	0.002	0.076	0.010	N/A	N/A	18.151
		Idle	6.541	0.759	0.759	0.808	0.037	0.023	N/A	N/A	42.203
Learjet 35/36	TFE 731-2-2B	Approach	0.239	0.045	0.045	0.049	0.063	0.006	N/A	N/A	10.682
10L_GA		Climb Out	0.010	0.001	0.001	0.001	0.063	0.002	N/A	N/A	4.794
		Takeoff	0.008	0.001	0.001	0.001	0.088	0.003	N/A	N/A	5.760
		Idle	0.553	0.190	0.190	0.202	0.026	0.006	N/A	N/A	9.448
MD-80-83	JT8D-219 old co...	Approach	0.056	0.022	0.022	0.024	0.127	0.014	0.004	0.004	13.862
10L		Climb Out	0.014	0.006	0.006	0.006	0.247	0.012	0.003	0.003	11.895
		Takeoff	0.010	0.003	0.003	0.004	0.354	0.013	0.003	0.003	13.121
		Idle	0.175	0.049	0.049	0.053	0.050	0.014	0.004	0.004	13.906
Navajo	TIO-540-J2B2	Approach	8.245	0.088	0.088	0.085	0.009	0.001	N/A	N/A	6.544
10L_GA		Climb Out	6.892	0.078	0.078	0.075	0.001	0.000	N/A	N/A	4.685
		Takeoff	4.593	0.040	0.040	0.039	0.001	0.000	N/A	N/A	3.186
		Idle	4.234	0.223	0.223	0.215	0.001	0.000	N/A	N/A	3.272
Piper PA-28	O-320	Approach	0.279	0.004	0.004	0.004	0.000	0.000	N/A	N/A	0.228
10L_GA		Climb Out	0.134	0.002	0.002	0.001	0.000	0.000	N/A	N/A	0.136
		Takeoff	0.090	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.084
		Idle	0.056	0.002	0.002	0.002	0.000	0.000	N/A	N/A	0.052
UC-12J	PT6A-42	Approach	0.179	0.117	0.117	0.129	0.024	0.003	N/A	N/A	5.130
10L_GA		Climb Out	0.008	0.002	0.002	0.002	0.009	0.001	N/A	N/A	1.220
		Takeoff	0.004	0.002	0.002	0.002	0.008	0.000	N/A	N/A	0.956
		Idle	0.395	0.348	0.348	0.385	0.007	0.002	N/A	N/A	3.429
550 Citation	JT15D-4 (B,C,D)	Approach	1.318	0.212	0.212	0.226	0.218	0.022	0.012	0.012	41.194
10L_Corp		Climb Out	0.071	0.004	0.004	0.004	0.188	0.012	0.007	0.007	22.066
		Takeoff	0.051	0.002	0.002	0.002	0.223	0.013	0.007	0.007	24.112
		Idle	4.004	1.651	1.651	1.755	0.108	0.022	0.012	0.012	41.272
B737-300	CFM56-3C-1 (Re...	Approach	0.042	0.001	0.001	0.001	0.079	0.010	0.000	0.000	9.938
10L		Climb Out	0.006	0.000	0.000	0.000	0.074	0.006	0.000	0.000	5.019
		Takeoff	0.006	0.000	0.000	0.000	0.109	0.007	0.000	0.000	6.568
		Idle	0.429	0.032	0.032	0.035	0.043	0.011	0.000	0.000	11.266

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
550 Citation 10L_GA	JT15D-4 (B,C,D)	Approach	0.257	0.041	0.041	0.044	0.043	0.004	0.002	0.002	8.025
		Climb Out	0.013	0.001	0.001	0.001	0.036	0.002	0.001	0.001	4.299
		Takeoff	0.010	0.000	0.000	0.000	0.043	0.002	0.001	0.001	4.697
		Idle	0.779	0.322	0.322	0.342	0.021	0.004	0.002	0.002	8.040
550 Citation 10R_GA	JT15D-4 (B,C,D)	Approach	0.472	0.076	0.076	0.080	0.078	0.008	0.004	0.004	14.730
		Climb Out	0.025	0.001	0.001	0.001	0.067	0.004	0.002	0.002	7.890
		Takeoff	0.018	0.001	0.001	0.001	0.079	0.004	0.002	0.002	8.622
		Idle	1.432	0.591	0.591	0.627	0.039	0.008	0.004	0.004	14.758
550 Citation 10R_Corp	JT15D-4 (B,C,D)	Approach	0.386	0.062	0.062	0.066	0.064	0.007	0.003	0.003	12.055
		Climb Out	0.021	0.001	0.001	0.001	0.055	0.003	0.002	0.002	6.457
		Takeoff	0.014	0.001	0.001	0.001	0.065	0.003	0.002	0.002	7.056
		Idle	1.172	0.483	0.483	0.514	0.032	0.007	0.003	0.003	12.078
Aztec 10R_GA	TIO-540-J2B2	Approach	6.269	0.066	0.066	0.064	0.007	0.000	N/A	N/A	4.976
		Climb Out	5.239	0.060	0.060	0.057	0.001	0.000	N/A	N/A	3.562
		Takeoff	3.492	0.030	0.030	0.029	0.001	0.000	N/A	N/A	2.422
		Idle	3.219	0.170	0.170	0.163	0.001	0.000	N/A	N/A	2.488
B737-300 10R	CFM56-3C-1 (Re...	Approach	0.056	0.001	0.001	0.001	0.107	0.013	0.000	0.000	13.342
		Climb Out	0.007	0.000	0.000	0.000	0.099	0.007	0.000	0.000	6.737
		Takeoff	0.008	0.000	0.000	0.000	0.147	0.009	0.000	0.000	8.817
		Idle	0.577	0.043	0.043	0.047	0.057	0.015	0.000	0.000	15.123
B737-300 10R	CFM56-3B-2	Approach	0.127	0.002	0.002	0.003	0.325	0.037	0.000	0.000	37.425
		Climb Out	0.018	0.001	0.001	0.001	0.330	0.020	0.000	0.000	19.708
		Takeoff	0.023	0.001	0.001	0.001	0.505	0.026	0.001	0.001	26.040
		Idle	1.190	0.069	0.069	0.076	0.162	0.040	0.000	0.000	39.540
B737-300 10R	CFM56-3-B1	Approach	0.722	0.015	0.015	0.017	1.577	0.190	0.002	0.002	190.030
		Climb Out	0.093	0.004	0.004	0.006	1.515	0.098	0.001	0.001	97.739
		Takeoff	0.116	0.006	0.006	0.006	2.270	0.128	0.003	0.003	128.253
		Idle	7.164	0.475	0.475	0.520	0.812	0.208	0.002	0.002	208.252
B737-500 10R	CFM56-3C-1	Approach	0.098	0.002	0.002	0.002	0.288	0.032	0.000	0.000	31.656
		Climb Out	0.017	0.001	0.001	0.001	0.336	0.019	0.000	0.000	18.910
		Takeoff	0.022	0.001	0.001	0.001	0.515	0.025	0.002	0.002	24.852
		Idle	0.855	0.045	0.045	0.050	0.138	0.032	0.000	0.000	31.922
B737-700 10R	CFM56-7B22	Approach	0.491	0.020	0.020	0.021	1.961	0.196	0.041	0.041	196.049
		Climb Out	0.071	0.012	0.012	0.013	2.240	0.118	0.024	0.024	117.867
		Takeoff	0.084	0.017	0.017	0.019	3.889	0.169	0.035	0.035	168.355
		Idle	4.302	0.472	0.472	0.516	0.849	0.188	0.040	0.040	188.683
B737-800 10R	CFM56-7B26	Approach	0.105	0.007	0.007	0.007	0.707	0.065	0.020	0.020	65.408
		Climb Out	0.028	0.004	0.004	0.006	1.022	0.045	0.013	0.013	45.398
		Takeoff	0.013	0.007	0.007	0.007	1.850	0.064	0.020	0.020	64.213
		Idle	1.138	0.115	0.115	0.126	0.284	0.061	0.019	0.019	60.524
B757-300 10R	PW2043	Approach	0.017	0.001	0.001	0.001	0.138	0.013	N/A	N/A	12.858
		Climb Out	0.003	0.000	0.000	0.000	0.244	0.009	N/A	N/A	8.727
		Takeoff	0.003	0.000	0.000	0.000	0.448	0.012	N/A	N/A	11.855
		Idle	0.213	0.018	0.018	0.019	0.049	0.011	N/A	N/A	11.035
Bombardier CRJ700 10R	CF34-8C1	Approach	0.237	0.004	0.004	0.006	0.904	0.082	0.004	0.004	81.450
		Climb Out	0.022	0.001	0.001	0.001	0.558	0.044	0.000	0.000	43.546
		Takeoff	0.030	0.001	0.001	0.001	1.071	0.073	0.003	0.003	73.042
		Idle	2.252	0.008	0.008	0.008	0.389	0.090	0.004	0.004	90.366
Cessna 172 Skyhawk 10R_GA	O-320	Approach	2.478	0.040	0.040	0.037	0.002	0.000	N/A	N/A	2.032
		Climb Out	1.336	0.017	0.017	0.017	0.006	0.000	N/A	N/A	1.350
		Takeoff	1.010	0.011	0.011	0.011	0.002	0.000	N/A	N/A	0.935
		Idle	0.631	0.022	0.022	0.021	0.000	0.000	N/A	N/A	0.584
Cessna 441 Conqu... 10R_GA	TPE331-8	Approach	0.019	0.001	0.001	0.001	0.042	0.004	N/A	N/A	4.413
		Climb Out	0.001	0.000	0.000	0.000	0.010	0.001	N/A	N/A	0.935
		Takeoff	0.001	0.000	0.000	0.000	0.012	0.001	N/A	N/A	1.078
		Idle	0.058	0.004	0.004	0.004	0.013	0.003	N/A	N/A	3.129
CITATION I SP 10R_GA	JT15D-1A _1B	Approach	0.152	0.017	0.017	0.018	0.013	0.002	0.001	0.001	3.758
		Climb Out	0.008	0.000	0.000	0.000	0.015	0.001	0.001	0.001	2.245
		Takeoff	0.007	0.000	0.000	0.000	0.019	0.001	0.001	0.001	2.495
		Idle	0.493	0.188	0.188	0.201	0.007	0.002	0.001	0.001	3.730
CL600 10R_GA	ALF 502L-2	Approach	0.042	0.002	0.002	0.002	0.069	0.006	0.001	0.001	10.657
		Climb Out	0.002	0.000	0.000	0.000	0.067	0.003	0.001	0.001	5.563
		Takeoff	0.003	0.000	0.000	0.000	0.103	0.004	0.001	0.001	7.598
		Idle	0.511	0.075	0.075	0.079	0.037	0.006	0.000	0.000	11.211
DC9-30 10R	JT8D-15 (old co...	Approach	0.228	0.040	0.040	0.043	0.140	0.024	0.018	0.018	23.737
		Climb Out	0.021	0.006	0.006	0.006	0.314	0.021	0.015	0.015	20.974
		Takeoff	0.015	0.006	0.006	0.007	0.424	0.022	0.017	0.017	22.191
		Idle	1.020	0.319	0.319	0.348	0.087	0.029	0.021	0.021	28.952
Embraer ERJ 135/1... 10R	AE3007A1/3 (Ty...	Approach	0.078	0.000	0.000	0.000	0.072	0.010	0.000	0.000	10.302
		Climb Out	0.006	0.000	0.000	0.000	0.139	0.010	0.000	0.000	10.297

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.003	0.000	0.000	0.000	0.110	0.007	0.000	0.000	7.139
		Idle	0.429	0.043	0.043	0.045	0.047	0.011	0.000	0.000	11.141
Embraer ERJ 145 10R	AE3007A1E	Approach	0.035	0.000	0.000	0.000	0.047	0.007	0.000	0.000	6.348
		Climb Out	0.004	0.000	0.000	0.000	0.097	0.007	0.000	0.000	6.504
		Takeoff	0.003	0.000	0.000	0.000	0.078	0.004	0.000	0.000	4.534
		Idle	0.248	0.023	0.023	0.024	0.028	0.007	0.000	0.000	6.519
Embraer ERJ 145 10R	AE3007A	Approach	0.010	0.002	0.002	0.002	0.024	0.003	0.000	0.000	3.063
		Climb Out	0.002	0.001	0.001	0.001	0.052	0.003	0.000	0.000	2.961
		Takeoff	0.001	0.000	0.000	0.000	0.042	0.002	0.000	0.000	2.053
		Idle	0.057	0.009	0.009	0.009	0.013	0.003	0.000	0.000	3.328
Embraer ERJ 145LR 10R	AE3007A1P (Typ...	Approach	0.068	0.000	0.000	0.000	0.072	0.010	0.000	0.000	10.102
		Climb Out	0.006	0.000	0.000	0.000	0.133	0.010	0.000	0.000	9.533
		Takeoff	0.007	0.000	0.000	0.000	0.132	0.008	0.000	0.000	8.244
		Idle	0.453	0.044	0.044	0.046	0.047	0.011	0.000	0.000	11.339
Embraer ERJ 145LR 10R	AE3007A1/3 (Ty...	Approach	0.268	0.001	0.001	0.001	0.244	0.035	0.000	0.000	35.223
		Climb Out	0.018	0.001	0.001	0.001	0.475	0.035	0.000	0.000	35.203
		Takeoff	0.012	0.001	0.001	0.001	0.376	0.024	0.000	0.000	24.405
		Idle	1.465	0.146	0.146	0.154	0.163	0.039	0.000	0.000	38.093
Embraer ERJ 145LR 10R	AE3007A1/1 (Ty...	Approach	0.183	0.001	0.001	0.001	0.192	0.026	0.000	0.000	26.874
		Climb Out	0.014	0.001	0.001	0.001	0.356	0.025	0.000	0.000	25.385
		Takeoff	0.017	0.001	0.001	0.001	0.354	0.022	0.000	0.000	21.948
		Idle	1.207	0.117	0.117	0.125	0.126	0.030	0.000	0.000	30.132
Embraer ERJ 170 10R	CF34-8E5	Approach	0.141	0.002	0.002	0.002	0.359	0.033	0.004	0.004	33.367
		Climb Out	0.010	0.000	0.000	0.000	0.227	0.018	0.000	0.000	17.951
		Takeoff	0.019	0.001	0.001	0.001	0.445	0.030	0.003	0.003	30.128
		Idle	0.585	0.004	0.004	0.004	0.149	0.032	0.003	0.003	32.248
Falcon 20 10R_GA	CF700-2D	Approach	0.428	0.010	0.010	0.010	0.012	0.007	N/A	N/A	6.891
		Climb Out	0.096	0.000	0.000	0.000	0.017	0.003	N/A	N/A	3.827
		Takeoff	0.112	0.000	0.000	0.000	0.029	0.006	N/A	N/A	5.103
		Idle	1.263	0.147	0.147	0.155	0.008	0.008	N/A	N/A	8.147
Falcon 2000EX 10R_Corp	PW308C	Approach	0.032	0.001	0.001	0.001	0.047	0.006	0.001	0.001	6.022
		Climb Out	0.003	0.000	0.000	0.000	0.052	0.003	0.000	0.000	3.224
		Takeoff	0.003	0.000	0.000	0.000	0.077	0.004	0.000	0.000	4.193
		Idle	0.207	0.029	0.029	0.031	0.018	0.004	0.000	0.000	4.912
Gulfstream II 10R_GA	SPEY MK511-8	Approach	0.036	0.002	0.002	0.002	0.099	0.013	N/A	N/A	13.749
		Climb Out	0.007	0.001	0.001	0.001	0.185	0.011	N/A	N/A	10.682
		Takeoff	0.001	0.001	0.001	0.001	0.283	0.012	N/A	N/A	12.504
		Idle	0.567	0.066	0.066	0.069	0.064	0.018	N/A	N/A	17.840
Gulfstream IV 10R_GA	TAY Mk611-8	Approach	0.136	0.031	0.031	0.033	0.197	0.034	0.021	0.021	34.662
		Climb Out	0.012	0.004	0.004	0.006	0.263	0.015	0.009	0.009	15.651
		Takeoff	0.015	0.018	0.018	0.019	0.459	0.022	0.013	0.013	21.711
		Idle	1.138	0.161	0.161	0.171	0.118	0.047	0.028	0.028	47.182
HS 125 10R_Corp	TFE731-3	Approach	0.133	0.012	0.012	0.013	0.060	0.004	N/A	N/A	8.595
		Climb Out	0.006	0.000	0.000	0.000	0.060	0.002	N/A	N/A	3.720
		Takeoff	0.007	0.000	0.000	0.000	0.111	0.003	N/A	N/A	5.786
		Idle	0.406	0.077	0.077	0.085	0.032	0.004	N/A	N/A	8.502
KC-135R 10R_GA	CFM56-2B-1	Approach	0.054	0.001	0.001	0.001	0.106	0.013	0.000	0.000	12.861
		Climb Out	0.013	0.001	0.001	0.001	0.235	0.014	0.000	0.000	14.651
		Takeoff	0.019	0.001	0.001	0.001	0.390	0.021	0.001	0.001	21.068
		Idle	0.542	0.032	0.032	0.035	0.071	0.018	0.000	0.000	17.671
Learjet 25C 10R_GA	CJ610-6	Approach	0.745	0.000	0.000	0.000	0.013	0.004	N/A	N/A	8.469
		Climb Out	0.088	0.001	0.001	0.001	0.011	0.002	N/A	N/A	3.168
		Takeoff	0.133	0.000	0.000	0.000	0.021	0.002	N/A	N/A	4.950
		Idle	1.784	0.207	0.207	0.220	0.010	0.007	N/A	N/A	11.510
Learjet 35/36 10R_GA	TFE 731-2-2B	Approach	0.476	0.090	0.090	0.096	0.126	0.011	N/A	N/A	21.291
		Climb Out	0.020	0.001	0.001	0.001	0.125	0.006	N/A	N/A	9.556
		Takeoff	0.017	0.001	0.001	0.001	0.175	0.007	N/A	N/A	11.478
		Idle	1.103	0.377	0.377	0.401	0.053	0.010	N/A	N/A	18.831
MD-80-83 10R	JT8D-219 old co...	Approach	0.104	0.041	0.041	0.044	0.233	0.025	0.008	0.008	25.476
		Climb Out	0.026	0.009	0.009	0.010	0.455	0.022	0.007	0.007	21.861
		Takeoff	0.018	0.007	0.007	0.007	0.651	0.024	0.007	0.007	24.114
		Idle	0.323	0.089	0.089	0.097	0.091	0.025	0.008	0.008	25.556
Navajo 10R_GA	TIO-540-J2B2	Approach	2.339	0.025	0.025	0.024	0.002	0.000	N/A	N/A	1.856
		Climb Out	1.954	0.022	0.022	0.021	0.000	0.000	N/A	N/A	1.328
		Takeoff	1.303	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.904
		Idle	1.200	0.063	0.063	0.061	0.000	0.000	N/A	N/A	0.928
Piper PA-28 10R_GA	O-320	Approach	0.462	0.008	0.008	0.007	0.000	0.000	N/A	N/A	0.378
		Climb Out	0.223	0.003	0.003	0.002	0.001	0.000	N/A	N/A	0.225
		Takeoff	0.150	0.001	0.001	0.001	0.000	0.000	N/A	N/A	0.139
		Idle	0.093	0.003	0.003	0.003	0.000	0.000	N/A	N/A	0.086

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
UC-12J	PT6A-42	Approach	0.337	0.220	0.220	0.244	0.045	0.006	N/A	N/A	9.699
10R_GA		Climb Out	0.015	0.004	0.004	0.006	0.018	0.001	N/A	N/A	2.307
		Takeoff	0.009	0.003	0.003	0.003	0.014	0.001	N/A	N/A	1.807
		Idle	0.746	0.658	0.658	0.726	0.013	0.003	N/A	N/A	6.484
Aztec	TIO-540-J2B2	Approach	17.282	0.184	0.184	0.177	0.019	0.001	N/A	N/A	13.715
28L_GA		Climb Out	14.444	0.163	0.163	0.158	0.002	0.001	N/A	N/A	9.818
		Takeoff	9.628	0.083	0.083	0.079	0.002	0.001	N/A	N/A	6.677
		Idle	8.874	0.467	0.467	0.451	0.002	0.001	N/A	N/A	6.857
B737-300	CFM56-3-B1	Approach	2.048	0.043	0.043	0.047	4.473	0.539	0.007	0.007	538.994
28L		Climb Out	0.263	0.014	0.014	0.015	4.297	0.277	0.003	0.003	277.222
		Takeoff	0.327	0.014	0.014	0.015	6.439	0.364	0.011	0.011	363.773
		Idle	20.319	1.347	1.347	1.474	2.304	0.591	0.006	0.006	590.680
B737-300	CFM56-3B-2	Approach	0.359	0.008	0.008	0.009	0.920	0.106	0.001	0.001	105.853
28L		Climb Out	0.051	0.002	0.002	0.003	0.930	0.056	0.001	0.001	55.743
		Takeoff	0.066	0.002	0.002	0.003	1.429	0.074	0.004	0.004	73.653
		Idle	3.366	0.196	0.196	0.214	0.459	0.111	0.001	0.001	111.836
B737-300	CFM56-3C-1 (Re...	Approach	0.198	0.003	0.003	0.004	0.378	0.047	0.001	0.001	47.241
28L		Climb Out	0.024	0.001	0.001	0.001	0.351	0.024	0.000	0.000	23.855
		Takeoff	0.028	0.001	0.001	0.002	0.518	0.031	0.000	0.000	31.220
		Idle	2.040	0.153	0.153	0.168	0.204	0.054	0.000	0.000	53.548
B737-500	CFM56-3C-1	Approach	0.269	0.007	0.007	0.007	0.789	0.087	0.001	0.001	86.755
28L		Climb Out	0.046	0.002	0.002	0.002	0.923	0.052	0.001	0.001	51.824
		Takeoff	0.062	0.002	0.002	0.002	1.410	0.068	0.007	0.007	68.105
		Idle	2.345	0.125	0.125	0.136	0.376	0.087	0.001	0.001	87.485
B737-700	CFM56-7B22	Approach	1.593	0.064	0.064	0.069	6.371	0.637	0.134	0.134	637.160
28L		Climb Out	0.230	0.039	0.039	0.042	7.279	0.384	0.080	0.080	383.069
		Takeoff	0.273	0.055	0.055	0.060	12.639	0.547	0.115	0.115	547.152
		Idle	13.982	1.533	1.533	1.678	2.759	0.613	0.129	0.129	613.220
B737-800	CFM56-7B26	Approach	0.324	0.020	0.020	0.022	2.189	0.203	0.062	0.062	202.662
28L		Climb Out	0.085	0.014	0.014	0.015	3.165	0.141	0.043	0.043	140.660
		Takeoff	0.040	0.020	0.020	0.022	5.730	0.198	0.061	0.061	198.962
		Idle	3.525	0.356	0.356	0.390	0.882	0.187	0.057	0.057	187.530
B757-300	PW2043	Approach	0.060	0.004	0.004	0.004	0.486	0.045	N/A	N/A	45.400
28L		Climb Out	0.012	0.001	0.001	0.001	0.860	0.031	N/A	N/A	30.811
		Takeoff	0.012	0.000	0.000	0.000	1.581	0.042	N/A	N/A	41.855
		Idle	0.753	0.061	0.061	0.066	0.173	0.039	N/A	N/A	38.962
Bombardier CRJ700	CF34-8C1	Approach	1.019	0.021	0.021	0.023	3.887	0.351	0.017	0.017	350.184
28L		Climb Out	0.094	0.003	0.003	0.004	2.400	0.187	0.001	0.001	187.220
		Takeoff	0.129	0.007	0.007	0.007	4.607	0.314	0.015	0.015	314.036
		Idle	9.682	0.031	0.031	0.034	1.674	0.388	0.019	0.019	388.516
CITATION I SP	JT15D-1A _1B	Approach	0.499	0.055	0.055	0.058	0.042	0.007	0.004	0.004	12.323
28L_GA		Climb Out	0.025	0.000	0.000	0.000	0.050	0.004	0.002	0.002	7.363
		Takeoff	0.022	0.000	0.000	0.000	0.062	0.004	0.002	0.002	8.182
		Idle	1.615	0.617	0.617	0.657	0.021	0.007	0.003	0.003	12.233
CL600	ALF 502L-2	Approach	0.150	0.007	0.007	0.008	0.244	0.020	0.004	0.004	37.705
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.237	0.011	0.004	0.004	19.682
		Takeoff	0.011	0.000	0.000	0.001	0.362	0.014	0.003	0.003	26.883
		Idle	1.810	0.263	0.263	0.280	0.134	0.021	0.001	0.001	39.662
Cessna 172 Skyhawk	O-320	Approach	7.401	0.118	0.118	0.114	0.006	0.001	N/A	N/A	6.066
28L_GA		Climb Out	3.990	0.050	0.050	0.049	0.017	0.000	N/A	N/A	4.031
		Takeoff	3.014	0.033	0.033	0.032	0.007	0.000	N/A	N/A	2.791
		Idle	1.883	0.064	0.064	0.062	0.001	0.000	N/A	N/A	1.744
Cessna 441 Conqu...	TPE331-8	Approach	0.067	0.003	0.003	0.003	0.148	0.015	N/A	N/A	15.526
28L_GA		Climb Out	0.006	0.000	0.000	0.000	0.035	0.003	N/A	N/A	3.288
		Takeoff	0.006	0.000	0.000	0.000	0.042	0.003	N/A	N/A	3.794
		Idle	0.207	0.017	0.017	0.018	0.045	0.011	N/A	N/A	11.013
DC9-30	JT8D-15 (old co...	Approach	0.534	0.091	0.091	0.100	0.327	0.055	0.040	0.040	55.556
28L		Climb Out	0.050	0.012	0.012	0.013	0.736	0.050	0.035	0.035	49.088
		Takeoff	0.036	0.013	0.013	0.014	0.992	0.052	0.037	0.037	51.935
		Idle	2.385	0.745	0.745	0.816	0.203	0.067	0.049	0.049	67.761
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.309	0.001	0.001	0.001	0.281	0.041	0.000	0.000	40.519
28L		Climb Out	0.020	0.001	0.001	0.001	0.547	0.041	0.000	0.000	40.496
		Takeoff	0.014	0.001	0.001	0.001	0.433	0.028	0.000	0.000	28.075
		Idle	1.685	0.166	0.166	0.177	0.187	0.044	0.000	0.000	43.819
Embraer ERJ 145	AE3007A	Approach	0.040	0.008	0.008	0.009	0.096	0.012	0.000	0.000	12.254
28L		Climb Out	0.011	0.003	0.003	0.003	0.207	0.012	0.000	0.000	11.842
		Takeoff	0.007	0.002	0.002	0.002	0.169	0.008	0.000	0.000	8.210
		Idle	0.231	0.033	0.033	0.035	0.051	0.013	0.000	0.000	13.314
Embraer ERJ 145	AE3007A1E	Approach	0.141	0.001	0.001	0.001	0.186	0.025	0.000	0.000	25.138
28L		Climb Out	0.017	0.001	0.001	0.001	0.384	0.025	0.000	0.000	25.751

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.014	0.000	0.000	0.001	0.309	0.018	0.000	0.000	17.954
		Idle	0.980	0.090	0.090	0.097	0.110	0.025	0.000	0.000	25.813
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	0.725	0.003	0.003	0.003	0.759	0.107	0.000	0.000	106.648
28L		Climb Out	0.055	0.003	0.003	0.003	1.411	0.100	0.000	0.000	100.736
		Takeoff	0.064	0.002	0.002	0.003	1.402	0.087	0.000	0.000	87.100
		Idle	4.792	0.464	0.464	0.493	0.498	0.119	0.000	0.000	119.573
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	1.066	0.004	0.004	0.004	0.969	0.140	0.000	0.000	139.858
28L		Climb Out	0.069	0.004	0.004	0.004	1.886	0.140	0.000	0.000	139.777
		Takeoff	0.049	0.003	0.003	0.003	1.495	0.097	0.000	0.000	96.904
		Idle	5.819	0.577	0.577	0.613	0.646	0.151	0.000	0.000	151.251
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.272	0.001	0.001	0.001	0.285	0.040	0.000	0.000	40.064
28L		Climb Out	0.021	0.001	0.001	0.001	0.530	0.037	0.000	0.000	37.809
		Takeoff	0.024	0.001	0.001	0.001	0.527	0.033	0.000	0.000	32.700
		Idle	1.798	0.173	0.173	0.184	0.187	0.045	0.000	0.000	44.978
Embraer ERJ 170	CF34-8E5	Approach	0.607	0.009	0.009	0.010	1.545	0.143	0.017	0.017	143.460
28L		Climb Out	0.044	0.001	0.001	0.002	0.977	0.077	0.001	0.001	77.179
		Takeoff	0.083	0.002	0.002	0.003	1.914	0.130	0.015	0.015	129.535
		Idle	2.518	0.018	0.018	0.020	0.639	0.139	0.017	0.017	138.650
Falcon 20	CF700-2D	Approach	1.663	0.037	0.037	0.040	0.049	0.026	N/A	N/A	26.827
28L_GA		Climb Out	0.373	0.001	0.001	0.001	0.064	0.015	N/A	N/A	14.900
		Takeoff	0.437	0.002	0.002	0.002	0.111	0.020	N/A	N/A	19.864
		Idle	4.916	0.571	0.571	0.607	0.029	0.032	N/A	N/A	31.719
Gulfstream II	SPEY MK511-8	Approach	0.142	0.010	0.010	0.010	0.386	0.054	N/A	N/A	53.528
28L_GA		Climb Out	0.026	0.006	0.006	0.006	0.720	0.042	N/A	N/A	41.590
		Takeoff	0.006	0.004	0.004	0.004	1.105	0.049	N/A	N/A	48.679
		Idle	2.207	0.256	0.256	0.272	0.250	0.069	N/A	N/A	69.453
HS 125	TFE731-3	Approach	0.585	0.053	0.053	0.058	0.260	0.020	N/A	N/A	37.601
28L_Corp		Climb Out	0.026	0.001	0.001	0.001	0.261	0.009	N/A	N/A	16.276
		Takeoff	0.029	0.001	0.001	0.002	0.485	0.013	N/A	N/A	25.313
		Idle	1.775	0.336	0.336	0.371	0.139	0.020	N/A	N/A	37.195
KC-135R	CFM56-2B-1	Approach	0.191	0.003	0.003	0.004	0.373	0.045	0.001	0.001	45.406
28L_GA		Climb Out	0.046	0.002	0.002	0.003	0.828	0.052	0.001	0.001	51.728
		Takeoff	0.067	0.003	0.003	0.003	1.376	0.074	0.004	0.004	74.384
		Idle	1.916	0.115	0.115	0.126	0.249	0.063	0.001	0.001	62.391
Learjet 25C	CJ610-6	Approach	3.201	0.000	0.000	0.000	0.055	0.020	N/A	N/A	36.378
28L_GA		Climb Out	0.381	0.002	0.002	0.003	0.047	0.008	N/A	N/A	13.608
		Takeoff	0.574	0.002	0.002	0.002	0.089	0.011	N/A	N/A	21.262
		Idle	7.663	0.890	0.890	0.946	0.044	0.026	N/A	N/A	49.441
Learjet 35/36	TFE 731-2-2B	Approach	1.631	0.311	0.311	0.331	0.430	0.040	N/A	N/A	72.920
28L_GA		Climb Out	0.066	0.004	0.004	0.004	0.428	0.018	N/A	N/A	32.725
		Takeoff	0.055	0.004	0.004	0.004	0.600	0.021	N/A	N/A	39.311
		Idle	3.779	1.292	1.292	1.373	0.182	0.035	N/A	N/A	64.493
MD-80-83	JT8D-219 old co...	Approach	0.255	0.099	0.099	0.109	0.571	0.063	0.019	0.019	62.565
28L		Climb Out	0.064	0.022	0.022	0.024	1.117	0.054	0.015	0.015	53.688
		Takeoff	0.043	0.017	0.017	0.018	1.599	0.060	0.017	0.017	59.223
		Idle	0.793	0.218	0.218	0.239	0.226	0.063	0.019	0.019	62.763
Navajo	TIO-540-J2B2	Approach	8.234	0.087	0.087	0.085	0.009	0.001	N/A	N/A	6.536
28L_GA		Climb Out	6.882	0.077	0.077	0.075	0.001	0.000	N/A	N/A	4.678
		Takeoff	4.587	0.040	0.040	0.039	0.001	0.000	N/A	N/A	3.181
		Idle	4.228	0.223	0.223	0.215	0.001	0.000	N/A	N/A	3.267
Piper PA-28	O-320	Approach	1.633	0.026	0.026	0.025	0.001	0.000	N/A	N/A	1.338
28L_GA		Climb Out	0.786	0.010	0.010	0.010	0.003	0.000	N/A	N/A	0.794
		Takeoff	0.531	0.006	0.006	0.006	0.001	0.000	N/A	N/A	0.492
		Idle	0.326	0.011	0.011	0.011	0.000	0.000	N/A	N/A	0.302
UC-12J	PT6A-42	Approach	0.904	0.590	0.590	0.651	0.120	0.014	N/A	N/A	25.990
28L_GA		Climb Out	0.040	0.012	0.012	0.014	0.046	0.003	N/A	N/A	6.183
		Takeoff	0.024	0.009	0.009	0.009	0.039	0.002	N/A	N/A	4.840
		Idle	2.000	1.763	1.763	1.947	0.034	0.010	N/A	N/A	17.374
550 Citation	JT15D-4 (B,C,D)	Approach	1.524	0.246	0.246	0.261	0.252	0.025	0.013	0.013	47.650
28L_Corp		Climb Out	0.082	0.004	0.004	0.006	0.218	0.014	0.008	0.008	25.524
		Takeoff	0.058	0.002	0.002	0.002	0.258	0.015	0.008	0.008	27.891
		Idle	4.631	1.909	1.909	2.030	0.126	0.025	0.013	0.013	47.739
Falcon 2000EX	PW308C	Approach	0.122	0.003	0.003	0.003	0.183	0.023	0.002	0.002	23.409
28L_Corp		Climb Out	0.012	0.001	0.001	0.001	0.201	0.012	0.001	0.001	12.534
		Takeoff	0.013	0.001	0.001	0.001	0.301	0.017	0.001	0.001	16.301
		Idle	0.808	0.114	0.114	0.120	0.069	0.019	0.002	0.002	19.093
550 Citation	JT15D-4 (B,C,D)	Approach	1.832	0.294	0.294	0.313	0.303	0.031	0.017	0.017	57.244
28L_GA		Climb Out	0.097	0.006	0.006	0.007	0.262	0.017	0.009	0.009	30.663
		Takeoff	0.071	0.003	0.003	0.003	0.310	0.018	0.010	0.010	33.506
		Idle	5.563	2.294	2.294	2.438	0.151	0.031	0.017	0.017	57.351

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV	TAY Mk611-8	Approach	0.468	0.108	0.108	0.115	0.685	0.120	0.071	0.071	120.045
28L_GA		Climb Out	0.043	0.017	0.017	0.018	0.911	0.054	0.032	0.032	54.201
		Takeoff	0.053	0.061	0.061	0.064	1.586	0.075	0.044	0.044	75.193
		Idle	3.939	0.556	0.556	0.591	0.409	0.163	0.097	0.097	163.406
Aztec	TIO-540-J2B2	Approach	18.336	0.195	0.195	0.188	0.020	0.001	N/A	N/A	14.552
28R_GA		Climb Out	15.324	0.173	0.173	0.166	0.002	0.001	N/A	N/A	10.418
		Takeoff	10.214	0.088	0.088	0.085	0.002	0.001	N/A	N/A	7.083
		Idle	9.415	0.495	0.495	0.478	0.003	0.001	N/A	N/A	7.276
B737-300	CFM56-3-B1	Approach	1.196	0.025	0.025	0.028	2.612	0.314	0.004	0.004	314.690
28R		Climb Out	0.153	0.008	0.008	0.009	2.509	0.162	0.002	0.002	161.856
		Takeoff	0.191	0.009	0.009	0.009	3.759	0.213	0.007	0.007	212.388
		Idle	11.863	0.786	0.786	0.861	1.345	0.345	0.003	0.003	344.867
B737-300	CFM56-3B-2	Approach	0.211	0.004	0.004	0.004	0.539	0.062	0.001	0.001	62.008
28R		Climb Out	0.030	0.001	0.001	0.002	0.546	0.033	0.001	0.001	32.654
		Takeoff	0.039	0.001	0.001	0.002	0.837	0.043	0.002	0.002	43.146
		Idle	1.972	0.115	0.115	0.126	0.269	0.065	0.001	0.001	65.514
B737-300	CFM56-3C-1 (Re...	Approach	0.121	0.002	0.002	0.002	0.231	0.029	0.000	0.000	28.999
28R		Climb Out	0.014	0.001	0.001	0.001	0.215	0.014	0.000	0.000	14.643
		Takeoff	0.018	0.001	0.001	0.001	0.319	0.019	0.000	0.000	19.164
		Idle	1.252	0.094	0.094	0.103	0.125	0.033	0.000	0.000	32.870
B737-500	CFM56-3C-1	Approach	0.155	0.003	0.003	0.003	0.456	0.050	0.001	0.001	50.136
28R		Climb Out	0.026	0.001	0.001	0.001	0.534	0.030	0.001	0.001	29.950
		Takeoff	0.035	0.001	0.001	0.001	0.815	0.040	0.003	0.003	39.359
		Idle	1.355	0.072	0.072	0.078	0.217	0.051	0.000	0.000	50.559
B737-700	CFM56-7B22	Approach	0.957	0.039	0.039	0.042	3.827	0.383	0.080	0.080	382.697
28R		Climb Out	0.138	0.023	0.023	0.025	4.372	0.230	0.049	0.049	230.082
		Takeoff	0.164	0.033	0.033	0.036	7.592	0.328	0.069	0.069	328.635
		Idle	8.397	0.920	0.920	1.008	1.658	0.368	0.077	0.077	368.317
B737-800	CFM56-7B26	Approach	0.194	0.012	0.012	0.013	1.308	0.121	0.036	0.036	121.157
28R		Climb Out	0.051	0.009	0.009	0.009	1.892	0.084	0.025	0.025	84.091
		Takeoff	0.024	0.012	0.012	0.013	3.426	0.119	0.036	0.036	118.945
		Idle	2.108	0.213	0.213	0.234	0.527	0.112	0.034	0.034	112.111
B757-300	PW2043	Approach	0.036	0.002	0.002	0.002	0.298	0.028	N/A	N/A	27.817
28R		Climb Out	0.008	0.000	0.000	0.000	0.527	0.019	N/A	N/A	18.878
		Takeoff	0.008	0.000	0.000	0.000	0.969	0.025	N/A	N/A	25.645
		Idle	0.461	0.037	0.037	0.041	0.106	0.024	N/A	N/A	23.873
Bombardier CRJ700	CF34-8C1	Approach	2.555	0.053	0.053	0.057	9.747	0.879	0.043	0.043	878.071
28R		Climb Out	0.235	0.010	0.010	0.010	6.019	0.470	0.002	0.002	469.445
		Takeoff	0.323	0.015	0.015	0.018	11.551	0.787	0.039	0.039	787.429
		Idle	24.276	0.078	0.078	0.085	4.199	0.974	0.047	0.047	974.186
CITATION I SP	JT15D-1A _1B	Approach	0.214	0.023	0.023	0.025	0.018	0.003	0.002	0.002	5.286
28R_GA		Climb Out	0.011	0.000	0.000	0.000	0.021	0.002	0.001	0.001	3.158
		Takeoff	0.009	0.000	0.000	0.000	0.026	0.002	0.001	0.001	3.510
		Idle	0.692	0.265	0.265	0.282	0.009	0.003	0.001	0.001	5.247
CL600	ALF 502L-2	Approach	0.397	0.019	0.019	0.020	0.646	0.054	0.012	0.012	99.840
28R_GA		Climb Out	0.015	0.001	0.001	0.001	0.627	0.029	0.012	0.012	52.116
		Takeoff	0.029	0.001	0.001	0.001	0.956	0.039	0.008	0.008	71.183
		Idle	4.792	0.699	0.699	0.743	0.355	0.056	0.002	0.002	105.023
Cessna 172 Skyhawk	O-320	Approach	6.662	0.106	0.106	0.103	0.006	0.001	N/A	N/A	5.461
28R_GA		Climb Out	3.592	0.045	0.045	0.043	0.014	0.000	N/A	N/A	3.629
		Takeoff	2.713	0.030	0.030	0.029	0.006	0.000	N/A	N/A	2.512
		Idle	1.695	0.058	0.058	0.056	0.001	0.000	N/A	N/A	1.570
Cessna 441 Conqu...	TPE331-8	Approach	0.033	0.001	0.001	0.001	0.073	0.008	N/A	N/A	7.611
28R_GA		Climb Out	0.002	0.000	0.000	0.000	0.018	0.001	N/A	N/A	1.612
		Takeoff	0.002	0.000	0.000	0.000	0.021	0.002	N/A	N/A	1.860
		Idle	0.101	0.008	0.008	0.009	0.022	0.006	N/A	N/A	5.399
DC9-30	JT8D-15 (old co...	Approach	0.295	0.051	0.051	0.055	0.182	0.031	0.022	0.022	30.808
28R		Climb Out	0.028	0.007	0.007	0.008	0.408	0.028	0.020	0.020	27.222
		Takeoff	0.020	0.008	0.008	0.008	0.550	0.029	0.021	0.021	28.801
		Idle	1.323	0.413	0.413	0.452	0.112	0.037	0.028	0.028	37.577
Embraer ERJ 135/1...	AE3007A1/3 (Ty...	Approach	0.791	0.003	0.003	0.003	0.720	0.104	0.000	0.000	103.829
28R		Climb Out	0.052	0.003	0.003	0.003	1.400	0.104	0.000	0.000	103.768
		Takeoff	0.036	0.002	0.002	0.002	1.109	0.072	0.000	0.000	71.941
		Idle	4.320	0.428	0.428	0.455	0.480	0.112	0.000	0.000	112.287
Embraer ERJ 145	AE3007A	Approach	0.103	0.020	0.020	0.021	0.245	0.031	0.000	0.000	31.387
28R		Climb Out	0.028	0.009	0.009	0.009	0.530	0.031	0.000	0.000	30.330
		Takeoff	0.015	0.006	0.006	0.006	0.432	0.021	0.000	0.000	21.029
		Idle	0.592	0.086	0.086	0.091	0.130	0.034	0.000	0.000	34.099
Embraer ERJ 145	AE3007A1E	Approach	0.363	0.002	0.002	0.002	0.477	0.064	0.000	0.000	64.385
28R		Climb Out	0.042	0.002	0.002	0.002	0.983	0.066	0.000	0.000	65.955

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.035	0.001	0.001	0.001	0.789	0.046	0.000	0.000	45.984
		Idle	2.510	0.233	0.233	0.247	0.281	0.066	0.000	0.000	66.111
Embraer ERJ 145LR	AE3007A1/1 (Ty...	Approach	1.858	0.008	0.008	0.009	1.947	0.273	0.000	0.000	273.338
28R		Climb Out	0.142	0.008	0.008	0.008	3.617	0.258	0.000	0.000	258.186
		Takeoff	0.165	0.007	0.007	0.007	3.595	0.224	0.000	0.000	223.237
		Idle	12.280	1.189	1.189	1.264	1.278	0.306	0.000	0.000	306.466
Embraer ERJ 145LR	AE3007A1/3 (Ty...	Approach	2.732	0.011	0.011	0.011	2.485	0.358	0.000	0.000	358.452
28R		Climb Out	0.179	0.011	0.011	0.011	4.833	0.358	0.000	0.000	358.243
		Takeoff	0.125	0.008	0.008	0.008	3.829	0.248	0.000	0.000	248.363
		Idle	14.913	1.477	1.477	1.570	1.656	0.388	0.000	0.000	387.652
Embraer ERJ 145LR	AE3007A1P (Typ...	Approach	0.697	0.003	0.003	0.003	0.731	0.103	0.000	0.000	102.600
28R		Climb Out	0.053	0.003	0.003	0.003	1.357	0.097	0.000	0.000	96.826
		Takeoff	0.062	0.002	0.002	0.002	1.348	0.084	0.000	0.000	83.741
		Idle	4.604	0.444	0.444	0.473	0.481	0.115	0.000	0.000	115.183
Embraer ERJ 170	CF34-8E5	Approach	1.521	0.022	0.022	0.023	3.874	0.359	0.042	0.042	359.706
28R		Climb Out	0.110	0.004	0.004	0.004	2.448	0.194	0.002	0.002	193.514
		Takeoff	0.208	0.007	0.007	0.007	4.797	0.325	0.037	0.037	324.788
		Idle	6.313	0.045	0.045	0.050	1.603	0.347	0.041	0.041	347.644
Falcon 20	CF700-2D	Approach	0.701	0.015	0.015	0.017	0.020	0.011	N/A	N/A	11.306
28R_GA		Climb Out	0.157	0.001	0.001	0.001	0.026	0.007	N/A	N/A	6.280
		Takeoff	0.184	0.001	0.001	0.001	0.047	0.009	N/A	N/A	8.372
		Idle	2.072	0.240	0.240	0.256	0.012	0.013	N/A	N/A	13.368
Gulfstream II	SPEY MK511-8	Approach	0.060	0.004	0.004	0.004	0.162	0.022	N/A	N/A	22.559
28R_GA		Climb Out	0.011	0.002	0.002	0.002	0.303	0.018	N/A	N/A	17.528
		Takeoff	0.002	0.002	0.002	0.002	0.465	0.021	N/A	N/A	20.516
		Idle	0.930	0.108	0.108	0.115	0.106	0.030	N/A	N/A	29.271
HS 125	TFE731-3	Approach	1.453	0.131	0.131	0.146	0.646	0.051	N/A	N/A	93.393
28R_Corp		Climb Out	0.065	0.003	0.003	0.003	0.647	0.022	N/A	N/A	40.425
		Takeoff	0.071	0.004	0.004	0.004	1.204	0.034	N/A	N/A	62.873
		Idle	4.407	0.836	0.836	0.923	0.344	0.050	N/A	N/A	92.386
KC-135R	CFM56-2B-1	Approach	0.117	0.002	0.002	0.002	0.228	0.028	0.000	0.000	27.821
28R_GA		Climb Out	0.029	0.001	0.001	0.002	0.507	0.032	0.000	0.000	31.695
		Takeoff	0.041	0.002	0.002	0.002	0.843	0.045	0.002	0.002	45.576
		Idle	1.174	0.069	0.069	0.077	0.153	0.039	0.000	0.000	38.228
Learjet 25C	CJ610-6	Approach	7.746	0.000	0.000	0.000	0.132	0.047	N/A	N/A	88.027
28R_GA		Climb Out	0.922	0.007	0.007	0.007	0.116	0.018	N/A	N/A	32.928
		Takeoff	1.389	0.006	0.006	0.006	0.216	0.028	N/A	N/A	51.450
		Idle	18.543	2.154	2.154	2.290	0.108	0.065	N/A	N/A	119.635
Learjet 35/36	TFE 731-2-2B	Approach	0.693	0.132	0.132	0.140	0.183	0.017	N/A	N/A	30.969
28R_GA		Climb Out	0.029	0.002	0.002	0.002	0.182	0.008	N/A	N/A	13.899
		Takeoff	0.023	0.002	0.002	0.002	0.255	0.009	N/A	N/A	16.696
		Idle	1.605	0.549	0.549	0.583	0.077	0.014	N/A	N/A	27.390
MD-80-83	JT8D-219 old co...	Approach	0.142	0.055	0.055	0.061	0.319	0.035	0.010	0.010	34.842
28R		Climb Out	0.036	0.012	0.012	0.013	0.622	0.030	0.009	0.009	29.898
		Takeoff	0.024	0.009	0.009	0.010	0.891	0.033	0.010	0.010	32.980
		Idle	0.441	0.121	0.121	0.133	0.126	0.035	0.010	0.010	34.952
Navajo	TIO-540-J2B2	Approach	13.241	0.141	0.141	0.136	0.014	0.001	N/A	N/A	10.508
28R_GA		Climb Out	11.066	0.125	0.125	0.120	0.002	0.001	N/A	N/A	7.523
		Takeoff	7.377	0.064	0.064	0.062	0.002	0.001	N/A	N/A	5.116
		Idle	6.799	0.358	0.358	0.345	0.002	0.001	N/A	N/A	5.255
Piper PA-28	O-320	Approach	0.801	0.013	0.013	0.012	0.001	0.000	N/A	N/A	0.657
28R_GA		Climb Out	0.386	0.004	0.004	0.004	0.001	0.000	N/A	N/A	0.389
		Takeoff	0.260	0.003	0.003	0.002	0.000	0.000	N/A	N/A	0.241
		Idle	0.160	0.006	0.006	0.006	0.000	0.000	N/A	N/A	0.149
UC-12J	PT6A-42	Approach	0.483	0.315	0.315	0.348	0.064	0.008	N/A	N/A	13.894
28R_GA		Climb Out	0.021	0.007	0.007	0.008	0.025	0.002	N/A	N/A	3.305
		Takeoff	0.013	0.004	0.004	0.006	0.021	0.001	N/A	N/A	2.587
		Idle	1.069	0.942	0.942	1.041	0.019	0.006	N/A	N/A	9.288
550 Citation	JT15D-4 (B,C,D)	Approach	3.851	0.619	0.619	0.659	0.637	0.065	0.034	0.034	120.372
28R_Corp		Climb Out	0.205	0.012	0.012	0.013	0.552	0.035	0.018	0.018	64.479
		Takeoff	0.148	0.007	0.007	0.007	0.650	0.039	0.020	0.020	70.458
		Idle	11.698	4.824	4.824	5.128	0.317	0.065	0.034	0.034	120.598
Falcon 2000EX	PW308C	Approach	0.315	0.009	0.009	0.009	0.473	0.061	0.006	0.006	60.365
28R_Corp		Climb Out	0.031	0.003	0.003	0.003	0.517	0.032	0.003	0.003	32.324
		Takeoff	0.034	0.003	0.003	0.004	0.776	0.042	0.004	0.004	42.037
		Idle	2.082	0.292	0.292	0.311	0.179	0.050	0.004	0.004	49.238
550 Citation	JT15D-4 (B,C,D)	Approach	0.774	0.125	0.125	0.132	0.128	0.013	0.007	0.007	24.181
28R_GA		Climb Out	0.041	0.002	0.002	0.002	0.111	0.007	0.003	0.003	12.953
		Takeoff	0.030	0.001	0.001	0.001	0.131	0.008	0.004	0.004	14.154
		Idle	2.350	0.969	0.969	1.031	0.064	0.013	0.007	0.007	24.227

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
Gulfstream IV	TAY Mk611-8	Approach	0.497	0.115	0.115	0.122	0.726	0.128	0.075	0.075	127.354
28R_GA		Climb Out	0.046	0.018	0.018	0.019	0.966	0.057	0.034	0.034	57.501
		Takeoff	0.056	0.064	0.064	0.068	1.683	0.079	0.047	0.047	79.771
		Idle	4.178	0.590	0.590	0.626	0.433	0.173	0.103	0.103	173.355
Citation VII	TFE 731-2-2B	Approach	0.240	0.045	0.045	0.049	0.063	0.006	N/A	N/A	10.733
10L_GA		Climb Out	0.011	0.001	0.001	0.001	0.071	0.003	N/A	N/A	5.393
		Takeoff	0.010	0.001	0.001	0.001	0.107	0.003	N/A	N/A	6.984
		Idle	0.527	0.181	0.181	0.192	0.025	0.004	N/A	N/A	8.995
Citation VII	TFE 731-2-2B	Approach	0.065	0.012	0.012	0.013	0.018	0.001	N/A	N/A	2.899
10R_GA		Climb Out	0.003	0.000	0.000	0.000	0.019	0.001	N/A	N/A	1.456
		Takeoff	0.002	0.000	0.000	0.000	0.029	0.001	N/A	N/A	1.886
		Idle	0.142	0.049	0.049	0.052	0.007	0.001	N/A	N/A	2.429
Citation VII	TFE 731-2-2B	Approach	0.284	0.054	0.054	0.057	0.075	0.007	N/A	N/A	12.692
28L_GA		Climb Out	0.013	0.001	0.001	0.001	0.084	0.003	N/A	N/A	6.377
		Takeoff	0.011	0.001	0.001	0.001	0.126	0.004	N/A	N/A	8.259
		Idle	0.623	0.213	0.213	0.227	0.030	0.006	N/A	N/A	10.635
Citation VII	TFE 731-2-2B	Approach	0.689	0.131	0.131	0.139	0.182	0.017	N/A	N/A	30.790
28R_GA		Climb Out	0.031	0.002	0.002	0.002	0.203	0.009	N/A	N/A	15.469
		Takeoff	0.028	0.002	0.002	0.002	0.305	0.011	N/A	N/A	20.035
		Idle	1.512	0.517	0.517	0.550	0.073	0.014	N/A	N/A	25.801
HS 748 2A SERIES	RDa7	Approach	0.237	0.021	0.021	0.023	0.007	0.007	N/A	N/A	7.122
10L_GA		Climb Out	0.018	0.006	0.006	0.006	0.022	0.006	N/A	N/A	4.968
		Takeoff	0.010	0.003	0.003	0.003	0.018	0.003	N/A	N/A	3.196
		Idle	0.753	0.197	0.197	0.217	0.006	0.008	N/A	N/A	8.242
HS 748 2A SERIES	RDa7	Approach	0.128	0.011	0.011	0.013	0.003	0.003	N/A	N/A	3.839
10R_GA		Climb Out	0.010	0.003	0.003	0.003	0.012	0.002	N/A	N/A	2.679
		Takeoff	0.006	0.002	0.002	0.002	0.010	0.002	N/A	N/A	1.723
		Idle	0.406	0.106	0.106	0.117	0.003	0.004	N/A	N/A	4.443
HS 748 2A SERIES	RDa7	Approach	0.439	0.040	0.040	0.044	0.012	0.013	N/A	N/A	13.190
28L_GA		Climb Out	0.032	0.010	0.010	0.011	0.042	0.009	N/A	N/A	9.201
		Takeoff	0.019	0.006	0.006	0.007	0.033	0.006	N/A	N/A	5.918
		Idle	1.396	0.365	0.365	0.403	0.011	0.015	N/A	N/A	15.266
HS 748 2A SERIES	RDa7	Approach	0.703	0.063	0.063	0.069	0.019	0.021	N/A	N/A	21.117
28R_GA		Climb Out	0.052	0.017	0.017	0.018	0.066	0.014	N/A	N/A	14.730
		Takeoff	0.031	0.010	0.010	0.010	0.053	0.010	N/A	N/A	9.474
		Idle	2.233	0.584	0.584	0.645	0.018	0.024	N/A	N/A	24.439
Learjet 25B	CJ610-6	Approach	1.745	0.000	0.000	0.000	0.030	0.011	N/A	N/A	19.825
10L_GA		Climb Out	0.207	0.001	0.001	0.001	0.026	0.004	N/A	N/A	7.416
		Takeoff	0.313	0.001	0.001	0.001	0.049	0.007	N/A	N/A	11.587
		Idle	4.177	0.485	0.485	0.516	0.024	0.014	N/A	N/A	26.944
Learjet 25B	CJ610-6	Approach	3.241	0.000	0.000	0.000	0.055	0.020	N/A	N/A	36.828
10R_GA		Climb Out	0.386	0.002	0.002	0.003	0.049	0.008	N/A	N/A	13.777
		Takeoff	0.581	0.002	0.002	0.002	0.090	0.012	N/A	N/A	21.525
		Idle	7.758	0.901	0.901	0.958	0.045	0.028	N/A	N/A	50.052
Learjet 25B	CJ610-6	Approach	12.444	0.000	0.000	0.000	0.212	0.076	N/A	N/A	141.408
28L_GA		Climb Out	1.482	0.011	0.011	0.011	0.185	0.029	N/A	N/A	52.897
		Takeoff	2.231	0.008	0.008	0.009	0.347	0.044	N/A	N/A	82.651
		Idle	29.789	3.459	3.459	3.677	0.173	0.104	N/A	N/A	192.182
Learjet 25B	CJ610-6	Approach	5.245	0.000	0.000	0.000	0.089	0.032	N/A	N/A	59.604
28R_GA		Climb Out	0.624	0.004	0.004	0.004	0.078	0.012	N/A	N/A	22.296
		Takeoff	0.940	0.003	0.003	0.003	0.147	0.019	N/A	N/A	34.839
		Idle	12.556	1.458	1.458	1.550	0.073	0.044	N/A	N/A	81.007
Bombardier CRJ900	CF34-8C5	Approach	0.088	0.001	0.001	0.001	0.223	0.021	0.002	0.002	20.728
10L		Climb Out	0.007	0.000	0.000	0.000	0.140	0.011	0.000	0.000	11.133
		Takeoff	0.012	0.000	0.000	0.000	0.274	0.019	0.002	0.002	18.682
		Idle	0.366	0.002	0.002	0.003	0.093	0.020	0.002	0.002	20.080
Bombardier CRJ900	CF34-8C5	Approach	0.025	0.000	0.000	0.000	0.064	0.006	0.001	0.001	5.935
10R		Climb Out	0.002	0.000	0.000	0.000	0.040	0.003	0.000	0.000	3.188
		Takeoff	0.003	0.000	0.000	0.000	0.078	0.006	0.001	0.001	5.350
		Idle	0.105	0.001	0.001	0.001	0.026	0.006	0.001	0.001	5.750
Bombardier CRJ900	CF34-8C5	Approach	0.109	0.001	0.001	0.002	0.276	0.025	0.003	0.003	25.659
28L		Climb Out	0.008	0.000	0.000	0.000	0.174	0.014	0.000	0.000	13.782
		Takeoff	0.014	0.000	0.000	0.000	0.340	0.023	0.002	0.002	23.126
		Idle	0.454	0.003	0.003	0.003	0.115	0.025	0.002	0.002	24.856
Bombardier CRJ900	CF34-8C5	Approach	0.272	0.003	0.003	0.004	0.691	0.064	0.007	0.007	64.283
28R		Climb Out	0.020	0.001	0.001	0.001	0.435	0.034	0.000	0.000	34.529
		Takeoff	0.037	0.001	0.001	0.001	0.851	0.058	0.007	0.007	57.939
		Idle	1.136	0.008	0.008	0.009	0.287	0.062	0.007	0.007	62.273
A320-200	V2500-A1	Approach	0.006	0.001	0.001	0.001	0.096	0.007	0.000	0.000	7.122
10L		Climb Out	0.002	0.000	0.000	0.001	0.151	0.004	0.000	0.000	4.889

*** PM data for some aircraft in the study is unavailable.

Aircraft	Engine	Mode	CO	THC	N...	VOC	NOx	SOx	PM...	PM...	Fuel Con...
		Takeoff	0.003	0.000	0.000	0.001	0.201	0.006	0.000	0.000	5.418
		Idle	0.055	0.001	0.001	0.002	0.042	0.007	0.000	0.000	7.046
A320-200	V2500-A1	Approach	0.012	0.002	0.002	0.002	0.220	0.017	0.000	0.000	16.380
10R		Climb Out	0.007	0.001	0.001	0.001	0.346	0.011	0.000	0.000	11.245
		Takeoff	0.007	0.001	0.001	0.001	0.463	0.012	0.000	0.000	12.462
		Idle	0.126	0.003	0.003	0.004	0.096	0.017	0.000	0.000	16.207
A320-200	V2500-A1	Approach	0.021	0.004	0.004	0.004	0.374	0.028	0.001	0.001	27.775
28L		Climb Out	0.011	0.002	0.002	0.002	0.588	0.019	0.000	0.000	19.067
		Takeoff	0.012	0.002	0.002	0.002	0.785	0.021	0.000	0.000	21.130
		Idle	0.213	0.006	0.006	0.007	0.162	0.028	0.001	0.001	27.482
A320-200	V2500-A1	Approach	0.011	0.002	0.002	0.002	0.184	0.013	0.000	0.000	13.709
28R		Climb Out	0.006	0.001	0.001	0.001	0.290	0.010	0.000	0.000	9.412
		Takeoff	0.006	0.001	0.001	0.001	0.387	0.010	0.000	0.000	10.429
		Idle	0.105	0.003	0.003	0.003	0.080	0.013	0.000	0.000	13.564
Embraer ERJ 170	CF34-8E5A1	Approach	0.088	0.001	0.001	0.001	0.240	0.022	0.006	0.006	21.687
10L		Climb Out	0.007	0.000	0.000	0.000	0.155	0.012	0.000	0.000	11.838
		Takeoff	0.014	0.000	0.000	0.000	0.315	0.020	0.006	0.006	19.930
		Idle	0.356	0.002	0.002	0.003	0.097	0.021	0.006	0.006	20.611
Embraer ERJ 170	CF34-8E5A1	Approach	0.025	0.000	0.000	0.000	0.068	0.007	0.001	0.001	6.210
10R		Climb Out	0.002	0.000	0.000	0.000	0.044	0.003	0.000	0.000	3.390
		Takeoff	0.004	0.000	0.000	0.000	0.090	0.006	0.001	0.001	5.707
		Idle	0.103	0.001	0.001	0.001	0.028	0.006	0.001	0.001	5.902
Embraer ERJ 170	CF34-8E5A1	Approach	0.109	0.001	0.001	0.002	0.297	0.026	0.007	0.007	26.847
28L		Climb Out	0.009	0.000	0.000	0.000	0.193	0.014	0.000	0.000	14.654
		Takeoff	0.018	0.000	0.000	0.000	0.390	0.024	0.007	0.007	24.671
		Idle	0.441	0.003	0.003	0.003	0.120	0.025	0.007	0.007	25.513
Embraer ERJ 170	CF34-8E5A1	Approach	0.272	0.004	0.004	0.004	0.744	0.067	0.018	0.018	67.260
28R		Climb Out	0.021	0.001	0.001	0.001	0.483	0.036	0.001	0.001	36.712
		Takeoff	0.044	0.001	0.001	0.001	0.978	0.062	0.017	0.017	61.810
		Idle	1.106	0.009	0.009	0.009	0.301	0.064	0.017	0.017	63.920
B757-200	PW2037	Approach	0.036	0.002	0.002	0.002	0.180	0.019	0.003	0.003	18.417
10L		Climb Out	0.004	0.000	0.000	0.000	0.327	0.013	0.002	0.002	13.665
		Takeoff	0.004	0.000	0.000	0.000	0.395	0.013	0.002	0.002	13.424
		Idle	0.360	0.031	0.031	0.034	0.066	0.017	0.002	0.002	16.106
B757-200	PW2037	Approach	0.066	0.003	0.003	0.004	0.334	0.034	0.006	0.006	34.168
10R		Climb Out	0.009	0.000	0.000	0.001	0.607	0.025	0.004	0.004	25.352
		Takeoff	0.008	0.000	0.000	0.000	0.732	0.025	0.004	0.004	24.906
		Idle	0.668	0.057	0.057	0.063	0.122	0.030	0.004	0.004	29.880
B757-200	PW2037	Approach	0.155	0.009	0.009	0.010	0.782	0.080	0.013	0.013	79.969
28L		Climb Out	0.020	0.001	0.001	0.001	1.422	0.060	0.010	0.010	59.334
		Takeoff	0.019	0.001	0.001	0.001	1.714	0.058	0.010	0.010	58.290
		Idle	1.564	0.134	0.134	0.147	0.287	0.069	0.011	0.011	69.933
B757-200	PW2037	Approach	0.086	0.004	0.004	0.006	0.433	0.044	0.008	0.008	44.347
28R		Climb Out	0.011	0.001	0.001	0.001	0.788	0.033	0.006	0.006	32.904
		Takeoff	0.011	0.001	0.001	0.001	0.950	0.032	0.006	0.006	32.324
		Idle	0.868	0.075	0.075	0.082	0.159	0.039	0.007	0.007	38.782

*** PM data for some aircraft in the study is unavailable.

Vehicular Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
Arr Curb FF	Roadway	0.434	0.028	0.026	0.031	0.029	0.000	0.001	0.001
Arr Curb Pick Up	Roadway	3.668	0.374	0.355	0.510	0.140	0.001	0.003	0.002
Blue Ent_Exit	Roadway	0.774	0.047	0.045	0.050	0.052	0.001	0.002	0.001
Bowtie	Roadway	0.450	0.025	0.024	0.026	0.030	0.000	0.001	0.001
Brdgwy N of Sawyr 1	Roadway	2.606	0.149	0.141	0.155	0.173	0.002	0.009	0.004
Brdgwy N of Sawyr 2	Roadway	4.773	0.273	0.259	0.284	0.316	0.004	0.015	0.008
Crb Exit to IntlGat1	Roadway	1.555	0.096	0.090	0.100	0.105	0.001	0.006	0.002
Curb Exit to IntlGa2	Roadway	12.033	0.741	0.699	0.774	0.812	0.012	0.039	0.020
Dep Curb Drop Off	Roadway	4.793	0.488	0.463	0.668	0.183	0.001	0.004	0.002
Dep Curb FF	Roadway	0.564	0.036	0.034	0.041	0.036	0.000	0.001	0.001
Ent from 670 NB	Roadway	4.230	0.201	0.191	0.202	0.272	0.003	0.012	0.007
Ent from 670 SB	Roadway	2.798	0.132	0.126	0.133	0.181	0.002	0.008	0.004
Ent from 670_1	Roadway	5.898	0.280	0.266	0.281	0.380	0.006	0.018	0.009
Ent from 670_2	Roadway	14.398	0.682	0.648	0.686	0.928	0.013	0.042	0.021
Ent_Exit_Employee	Roadway	0.377	0.022	0.021	0.022	0.025	0.000	0.001	0.001
Exit Comm Gar	Roadway	9.346	0.535	0.507	0.556	0.618	0.010	0.031	0.015
Exit Red 1	Roadway	1.382	0.079	0.075	0.083	0.091	0.001	0.004	0.002
Exit Red 2	Roadway	0.428	0.024	0.023	0.025	0.029	0.000	0.001	0.001
Exit Red 3	Roadway	1.914	0.109	0.104	0.114	0.127	0.002	0.007	0.003
Exit Red 4	Roadway	0.746	0.043	0.041	0.044	0.050	0.001	0.002	0.001
Exit to 670 NB	Roadway	2.975	0.141	0.134	0.142	0.192	0.002	0.009	0.004
Exit to 670 SB	Roadway	3.469	0.164	0.157	0.165	0.224	0.003	0.010	0.006
Exit to 670_1	Roadway	12.302	0.583	0.554	0.585	0.794	0.011	0.036	0.018
Exit to 670_2	Roadway	5.071	0.240	0.228	0.241	0.327	0.004	0.015	0.008
Green Lot Ent_Exit	Roadway	0.674	0.042	0.039	0.043	0.045	0.001	0.002	0.001
Int West to Stlz_2	Roadway	26.098	1.317	1.250	1.323	1.673	0.024	0.080	0.040
Intl Blue to Lane 1	Roadway	10.970	0.553	0.525	0.556	0.703	0.010	0.034	0.017
Intl Blue to Lane 2	Roadway	15.456	0.780	0.740	0.783	0.991	0.014	0.047	0.023
Intl East Bowtie_1	Roadway	6.979	0.353	0.334	0.354	0.448	0.007	0.021	0.011
Intl East Bowtie_2	Roadway	10.753	0.542	0.515	0.545	0.689	0.010	0.033	0.017
Intl East at Red	Roadway	42.801	2.159	2.049	2.169	2.744	0.040	0.131	0.065
Intl East at Tunnel	Roadway	21.223	1.071	1.016	1.076	1.360	0.020	0.065	0.032
Intl Exit at Tunnel	Roadway	29.598	1.494	1.418	1.500	1.898	0.028	0.090	0.045
Intl Green to Blue 1	Roadway	7.981	0.402	0.383	0.405	0.511	0.008	0.024	0.012
Intl Green to Blue 2	Roadway	7.981	0.402	0.383	0.405	0.511	0.008	0.024	0.012
Intl Green to Blue 3	Roadway	36.079	1.821	1.727	1.828	2.314	0.033	0.111	0.055
Intl Lane to LT	Roadway	11.895	0.732	0.691	0.765	0.804	0.011	0.039	0.019
Intl West to Stlz_1	Roadway	29.881	1.508	1.431	1.515	1.916	0.028	0.091	0.045
Intl from Sawyer	Roadway	10.692	0.539	0.511	0.542	0.686	0.010	0.033	0.017
Intll East frm Stzr	Roadway	12.810	0.646	0.613	0.649	0.821	0.012	0.040	0.020
LT to ST	Roadway	1.382	0.085	0.080	0.089	0.094	0.001	0.004	0.002
Lane Ent	Roadway	0.028	0.001	0.001	0.001	0.002	0.000	0.000	0.000
Lane Exit	Roadway	0.031	0.002	0.002	0.002	0.002	0.000	0.000	0.000
Merge to Sawyer	Roadway	10.287	0.589	0.558	0.612	0.681	0.010	0.034	0.018
New Bowtie	Roadway	0.828	0.047	0.045	0.050	0.055	0.001	0.003	0.001
New Stelzer	Roadway	69.065	3.275	3.111	3.289	4.453	0.062	0.204	0.101
Perimeter Road 1	Roadway	6.111	0.349	0.332	0.364	0.405	0.007	0.020	0.010
Perimeter Road 2	Roadway	0.795	0.045	0.043	0.047	0.053	0.001	0.002	0.001
Perimeter Road 3	Roadway	0.345	0.020	0.019	0.021	0.023	0.000	0.001	0.001
Perimeter Road 4	Roadway	1.737	0.099	0.094	0.104	0.115	0.002	0.006	0.003
Perimeter Road 5	Roadway	0.229	0.013	0.012	0.013	0.015	0.000	0.001	0.000
Perimeter Road 6	Roadway	0.875	0.050	0.047	0.052	0.058	0.001	0.003	0.001
Perimeter Road 7	Roadway	0.381	0.022	0.021	0.023	0.025	0.000	0.001	0.001
ST to Curb	Roadway	1.305	0.080	0.076	0.084	0.088	0.001	0.004	0.002
Sawyer East Fork	Roadway	4.009	0.229	0.217	0.238	0.266	0.004	0.013	0.007
Sawyer Forks	Roadway	2.526	0.144	0.137	0.150	0.168	0.002	0.009	0.004
Sawyer S of Brdgwy	Roadway	8.900	0.509	0.483	0.529	0.590	0.009	0.030	0.014
Sawyer West Fork	Roadway	3.862	0.222	0.209	0.229	0.256	0.004	0.013	0.007
Sawyer off Intl	Roadway	11.526	0.659	0.625	0.686	0.763	0.012	0.039	0.019
Sawyer to Brdgwy 1	Roadway	12.035	0.689	0.653	0.715	0.797	0.012	0.040	0.020
Sawyer to Brdgwy 2	Roadway	53.285	3.050	2.888	3.169	3.528	0.054	0.177	0.088
Sawyer to Intl 1	Roadway	27.744	1.400	1.328	1.405	1.779	0.025	0.085	0.043
Sawyer to Intl 2	Roadway	20.923	1.056	1.002	1.060	1.342	0.020	0.064	0.032
Stelzer N	Roadway	45.812	2.173	2.064	2.181	2.954	0.041	0.134	0.067
Stelzer S	Roadway	7.008	0.333	0.315	0.334	0.452	0.007	0.021	0.010
To Red 1	Roadway	1.146	0.066	0.062	0.068	0.076	0.001	0.003	0.002

Name	Type	CO	THC	NMHC	VOC	NOx	SOx	PM-10	PM-2.5
To Red 2	Roadway	1.469	0.084	0.079	0.087	0.097	0.001	0.004	0.002
To Red 3	Roadway	0.680	0.039	0.036	0.041	0.045	0.001	0.002	0.001
Red	Parking	18.143	1.391	1.306	1.296	1.109	0.015	0.051	0.025
Lane Avtn	Parking	5.230	0.262	0.247	0.837	0.653	0.002	0.008	0.004
Blue	Parking	50.351	2.369	2.224	7.086	6.700	0.025	0.086	0.043
Green	Parking	10.993	0.559	0.526	1.800	1.354	0.006	0.017	0.008
Employee Parking	Parking	16.868	0.818	0.768	2.520	2.181	0.008	0.028	0.013
ShortTerm Pkg Lvl 4	Parking	6.415	0.328	0.310	1.066	0.783	0.003	0.010	0.004
Long Term Pkg Lvl 1	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Long Term Pkg Lvl 3	Parking	17.071	0.858	0.807	2.730	2.129	0.008	0.026	0.013
ShortTerm Pkg Lvl 5	Parking	6.053	0.310	0.292	1.005	0.739	0.002	0.009	0.004
Long Term Pkg Lvl 4	Parking	8.442	0.424	0.399	1.350	1.053	0.004	0.013	0.007
Long Term Pkg Lvl 5	Parking	17.496	0.879	0.827	2.798	2.181	0.008	0.028	0.013
Long Term Pkg Lvl 6	Parking	11.696	0.588	0.552	1.871	1.458	0.006	0.018	0.009
Long Term Pkg Lvl 2	Parking	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New RAC	Parking	43.413	1.991	1.867	5.796	5.914	0.023	0.076	0.037

Stationary Source Emissions Inventory

(Short Tons/Year)

Name	Type	CO	THCNMHC	VOC	NOx	SOx	PM-10	PM-2.5
Concourse A	Stationary Source	1.416	0.196	0.155	0.098	1.744	0.011	0.131	0.131
Concourse B_NatGas	Stationary Source	6.611	0.915	0.724	0.457	8.136	0.051	0.611	0.611
Concourse B_Diesel	Stationary Source	1.863	0.094	0.094	0.094	7.451	16.111	0.373	0.093
Concourse C	Stationary Source	4.679	0.648	0.513	0.324	5.760	0.036	0.432	0.432
PEA	Stationary Source	2.275	0.315	0.249	0.158	2.801	0.018	0.211	0.211
Lane_Corridor A	Stationary Source	0.067	0.009	0.008	0.004	0.083	0.000	0.007	0.007
Lane_Hangar 3	Stationary Source	2.048	0.283	0.224	0.142	2.521	0.015	0.190	0.190
Lane_Hangar 4	Stationary Source	0.868	0.120	0.095	0.060	1.067	0.007	0.080	0.080
Lane_Hangar 5	Stationary Source	0.365	0.051	0.040	0.025	0.449	0.003	0.034	0.034
Backup_I.T.	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Concourse A	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_Concouse C	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Misc._Concourse B_1	Stationary Source	0.094	0.033	0.033	0.035	0.434	0.029	0.031	0.031
Backup_Garage	Stationary Source	0.076	0.026	0.026	0.029	0.352	0.023	0.025	0.025
Backup_ARFF	Stationary Source	0.117	0.041	0.041	0.043	0.538	0.035	0.039	0.039
Aircraft Deice_PG_TI	Stationary Source	0.000	0.000	0.000	0.115	0.000	0.000	0.000	0.000
Aircraft Deicing_EG	Stationary Source	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
Airfield Maint._Gas	Stationary Source	0.000	0.748	0.748	0.748	0.000	0.000	0.000	0.000
Airfield Maint._Dies	Stationary Source	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Lane_Jet A	Stationary Source	0.000	0.149	0.149	0.149	0.000	0.000	0.000	0.000
Lane_Diesel	Stationary Source	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000
Lane_Gasoline	Stationary Source	0.000	1.590	1.590	1.590	0.000	0.000	0.000	0.000
Incinerator	Stationary Source	0.014	0.004	0.004	0.004	0.004	0.003	0.010	0.002
Paint_Access Roads	Stationary Source	0.000	0.353	0.353	0.353	0.000	0.000	0.000	0.000
Air Deice_PG_TIV	Stationary Source	0.000	0.000	0.000	0.911	0.000	0.000	0.000	0.000
Lane_100LL	Stationary Source	0.000	0.850	0.850	0.850	0.000	0.000	0.000	0.000
Runway Deice_KOAC	Stationary Source	0.000	0.000	0.000	2.260	0.000	0.000	0.000	0.000
Million Air_Jet A	Stationary Source	0.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000
Million Air_AvGas	Stationary Source	0.000	0.427	0.427	0.427	0.000	0.000	0.000	0.000
45 Hotel_Jet A	Stationary Source	0.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000
Dollar_Gasoline	Stationary Source	0.000	0.261	0.261	0.261	0.000	0.000	0.000	0.000
Englefield_Gasoline	Stationary Source	0.000	0.705	0.705	0.705	0.000	0.000	0.000	0.000
FAA Control Tower	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Hertz_Gasoline	Stationary Source	0.000	0.765	0.765	0.765	0.000	0.000	0.000	0.000
QTA_Gasoline	Stationary Source	0.000	2.122	2.122	2.122	0.000	0.000	0.000	0.000
Avis_Gasoline	Stationary Source	0.000	0.800	0.800	0.800	0.000	0.000	0.000	0.000
National_Gasoline	Stationary Source	0.000	0.762	0.762	0.762	0.000	0.000	0.000	0.000
FAA ASR9	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Flight Safety	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Airfield Maintenance	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Electrical Vault	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Lift Station	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Net Jets	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Nationwide	Stationary Source	0.089	0.031	0.031	0.033	0.410	0.028	0.030	0.030
Million Air_Diesel	Stationary Source	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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ATTACHMENT 5
ON-SITE GSE SURVEY SUMMARY AND STATIONARY SOURCE SURVEY SUMMARY

An on-site inventory of GSE and stationary sources of emissions was conducted in July 2006. Reports describing the methodology and results of the surveys are included in this attachment.

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MEMORANDUM

TO: Virginia Raps — Landrum and Brown, Inc.

FROM: Jill Foster — Gresham, Smith and Partners

DATE: July 21, 2006

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
PORT COLUMBUS INTERNATIONAL AIRPORT
MOBILE SOURCE EMISSION SURVEY SUMMARY REPORT
COLUMBUS, OHIO
GS&P Project No. 25112.01

Preparation of the Environmental Impact Statement (EIS) for the Port Columbus International Airport (PCIA) requires consideration of potential air quality issues associated with the proposed development projects. A survey of mobile air emissions sources at PCIA was conducted on July 13, 2006. The survey crew consisted of one representative from Landrum and Brown, Inc. and one representative from Gresham, Smith and Partners (the Team). This survey was conducted in order to determine fuel type, number of units, and the time spent in operating mode for each mobile source while aircraft were parked at the terminal gates. The data was collected from a pre-determined set of aircraft, airline operators, and concourses. In addition, the Team completed data forms using information provided by the appropriate airport personnel and information collected during the Team's visual inspection.

The following information relates to the equipment the Team visually inspected:

Each gate was visually inspected for the availability of 400 MHz ground power units (GPU), preconditioned air, and potable water taps.



400 MHz GPU attached to plane



Preconditioned air gate service



Potable water source at gate service

Ground Support Vehicles

Aircraft tractors are used for towing aircraft into the terminal gate area and/or pushing the aircraft onto the tarmac. They are also used for towing aircraft to and from hangars for maintenance.



Aircraft Tractor

Baggage tractors are a diverse set of highly maneuverable vehicles used primarily to pull dolly trains between the terminal and the aircraft. They are also used for general transport around the ramp area.



Baggage Tractor

Belt loaders are versatile, self-propelled conveyor belts with hydraulic systems that adjust the belt angle and belt height. Although some of the newer models can operate the conveyor belt system with out the engines running, most need to have the engines running in order to operate the hydraulic systems. Belt loaders are used for loading and unloading small cargo and passenger luggage from the lower storage compartment of the aircraft.



Belt Loader

Catering trucks are capable of hydraulically lifting its payload to the elevation of the aircraft door. Typically, the vehicle is left running while servicing the aircraft. The service time for these vehicles vary by the need for meals.



Catering Truck

Fuel trucks are mobile tanks with fuel that drive to refill the aircraft directly from the tank. The mobile tanks are used to refuel the general aviation aircraft that do not gate near an underground fuel supply. Since the pump on the truck needs to be powered by the vehicle's engine, the truck is left running during the entire refueling operation.



Fuel Truck

Lavatory trucks are equipped with pumps to extract discharge from the aircraft lavatory tank, as well as, pump a fresh supply of antiseptic fluid back into the aircraft. Waste is then transported for discharged into a sewage system on the premises. Lavatory services are not needed for each leg of a flight, and therefore do not service every flight. When lavatory service is needed, the number of lavatories onboard the aircraft will determine the time it takes to service the aircraft. Since the pumps on the truck need to be powered by the vehicle's engine, the truck is left running during service.



Lavatory Truck

To avoid congestion at the gate and interference with passengers and cabin crew, cabin service trucks are employed to transport airline personnel and cleaning supplies to the rear hatches of aircraft. These trucks are often equipped with a hydraulic lift to access elevated aircraft ports. Cabin service trucks may also transport trash from the aircraft to garbage receptacles located elsewhere in the airport.



Cabin Service Truck

The following report is a summary of the areas visited and mobile equipment identified by the Team during the mobile source tour:

8:00 am

At 7:45 am the Team proceeded to gate B18, Midwest Airlines Flight 2053 where the Team awaited the aircraft (Dornier 328 Jet) arrival. The Team identified that there was electricity and potable water available at the gate. Preconditioned air was not available. Once the aircraft arrived, one gasoline baggage tractor and one diesel belt loader were used to assist with baggage loading and unloading. The gasoline baggage tractor operated for approximately 8 minutes and the diesel belt loader operated for approximately 22 minutes. Also, one diesel aircraft tractor was available and used to pushback the aircraft during departure. The aircraft tractor operated for approximately 5 minutes. One diesel fuel truck, owned and operated by Lane Aviation, refueled the aircraft. The fuel truck operated for approximately 13 minutes. The aircraft did not use the potable water at the gate. The aircraft did not use the electricity at the gate. Its auxiliary power unit (APU) was operating for approximately 28 minutes.



Dornier 328 Jet

8:42 am

After the data was recorded for Flight 2053, the Team proceeded to gate A6, Continental Airlines Flight 2929 where the Team awaited the aircraft (Regional Jet, ERJ) arrival. The Team noted the time and observed that the ground crew was not preparing for Flight 2929's arrival. After the Team asked the ground crew about Flight 2929's status, they informed the Team that flight was delayed and that it was expected to arrive at 9:12 am. The Team decided to skip Flight 2929 and proceed to the next scheduled arrival.

9:31 am

At 9:20 am the Team proceeded to gate B24, US Airways Flight 4931 where the Team awaited the aircraft (Saab SF 340) arrival. The Team identified that there was electricity at the gate. Preconditioned air and potable water were not available. Once the aircraft arrived, three diesel baggage tractors and one diesel belt loader were used to assist with baggage loading and unloading. The baggage tractors operated for approximately 8 minutes and the belt loader operated for approximately 25 minutes. In addition, one diesel fuel truck, owned and operated by Lane Aviation, refueled the aircraft. The fuel truck operated for approximately 14 minutes. The aircraft did not use the electricity at the gate. Its APU was operating for approximately 33 minutes. Ground crew personnel informed the Team that air conditioning carts are available at the pilot's request. The air conditioning carts were not used during this turn.



Saab SF 340

When the Team was at gate B24, it was noted that another aircraft (Regional Jet) was going to arrive at gate B22. Therefore, the Team decided to add this flight to the schedule to compensate for the previously cancelled flight. US Airways Flight 3053 arrived at gate B22. The Team identified that there was electricity at the gate.

Preconditioned air and potable water were not available. Once the aircraft arrived, one gasoline baggage tractor, three diesel baggage tractors, and one diesel belt loader were used to assist with baggage loading and unloading. The gasoline baggage tractor operated for approximately 26 minutes, the diesel baggage tractors operated for approximately 12 minutes, and the belt loader operated for approximately 28 minutes. One diesel fuel truck, owned and operated by Lane Aviation, refueled the aircraft. The fuel truck operated for approximately 7 minutes. The aircraft did not use the electricity at the gate. Its APU was operating for approximately 33 minutes.



Regional Jet

10:12 am

After the data was recorded for both Flight 4931 and Flight 3053, the Team proceeded to gate B30 for Air Canada Flight 7890 where the Team awaited the aircraft's (Dash 8) arrival. The Team identified that there was preconditioned air, electricity, and potable water at the gate. Once the aircraft arrived, three gasoline baggage tractors and one gasoline belt loader were used to assist with baggage loading and unloading. The baggage tractors operated for approximately 42 minutes and the belt loader operated for approximately 21 minutes. A ground power unit (GPU) was also operating at the gate for approximately 30 minutes. In addition, one diesel fuel truck, owned and operated by Lane Aviation, refueled the aircraft. The fuel truck operated for approximately 10 minutes. The aircraft did not use the preconditioned air or potable water at the gate. The aircraft did not use electricity at the gate. Its APU was operating for approximately 32 minutes.



Dash 8

11:10 am

After the data was recorded for Flight 7890, the Team proceeded to gate B22, US Airways Flight 394 where the Team awaited the aircraft (737-300) arrival. The Team identified that there was electricity at the gate. Preconditioned air and potable water were not available. Once the aircraft arrived, three diesel baggage tractors, one gasoline belt loader, and one diesel belt loader were used to assist with baggage loading and unloading. The diesel baggage tractors operated for approximately 17 minutes, the gasoline belt loader operated for approximately 22 minutes, and the diesel belt loader operated for approximately 21 minutes. Also, one diesel aircraft tractor was available and used to pushback the aircraft during departure. The aircraft tractor operated for approximately 21 minutes. In addition, one diesel fuel truck, owned and operated by Lane Aviation, refueled the aircraft. The fuel truck operated for approximately 20 minutes. The aircraft was at the gate for approximately 36 minutes, and used the provided electricity. The APU operated for approximately 3 minutes. Dave Wall, a Columbus Regional Airport Authority representative, provided information that a gasoline catering truck (Gate Gourmet) usually provided its services for larger aircraft such as the 737 and typically operated for approximately 15 minutes. The catering truck was not used during the data collection.



737-300

2:01 pm

The Team proceeded to gate B18 for Midwest Airlines Flight 1512 where the Team awaited the aircraft (Beech 1900) arrival. The Team identified that there was electricity at the gate. Preconditioned air and potable water were not available. Once the aircraft arrived, one diesel baggage tractor was used to assist with baggage loading and unloading. The baggage tractor operated for approximately 2 minutes. In addition, one diesel fuel truck, owned and operated by Lane Aviation, refueled the aircraft. The fuel truck operated for approximately 18 minutes. The APU operated for approximately 27 minutes. The ground crew provided information that a diesel GPU was usually used at this gate and typically operated for approximately 10 minutes. The GPU was not used during the data collection.



Beech 1900

2:44 pm

After the data was recorded for Flight 1512, the Team proceeded to gate B22, US Airways Flight 3117, where the Team awaited the aircraft (Regional Jet, ERJ) arrival. The Team identified that there was electricity at the gate. Preconditioned air and potable water were not available. Once the aircraft arrived, three gasoline baggage tractors, one diesel baggage tractor, one gasoline belt loader, and one diesel belt loader were used to assist with baggage loading and unloading. The gasoline baggage tractors operated for approximately 22 minutes, the diesel baggage tractor operated for approximately 38 minutes, the gasoline belt loader operated for approximately 23 minutes, and the diesel belt loader operated for approximately 42 minutes. Also, one diesel aircraft tractor was available and used to pushback the aircraft during departure. The aircraft tractor operated for approximately 9 minutes. One diesel fuel truck, owned and operated by Lane Aviation, refueled the aircraft. The fuel truck operated for approximately 11 minutes. The aircraft did not use electricity at the gate. The APU operated for approximately 49 minutes.



Regional Jet, ERJ

3:35 pm

After the data was recorded for Flight 3117, the Team proceeded to gate C56, Delta Flight 720 where the Team awaited the aircraft (MD88) arrival. The Team identified that there was preconditioned air and electricity at the gate. Potable water was not available. The aircraft was expected to arrive at 3:35 pm but actually arrived at 4:15 pm. Once the aircraft arrived, seven diesel baggage tractors and two diesel belt loaders were used to assist with baggage loading and unloading. The diesel baggage tractors operated for approximately 42 minutes and the diesel belt loader operated for

approximately 46 minutes. Also, one diesel aircraft tractor was available and used to pushback the aircraft during departure. The aircraft tractor operated for approximately 20 minutes. One diesel fuel truck, owned and operated by Lane Aviation, refueled the aircraft. The fuel truck operated for approximately 18 minutes. The aircraft did use the preconditioned air at the gate. The aircraft appeared to use electricity at the gate; however, it was determined that the APU was also operating. The APU operated for approximately 46 minutes. Dave Wall, a Columbus Regional Airport Authority representative, provided information that a gasoline catering truck (Gate Gourmet) usually provided its services for larger aircraft such as the 737 and typically operated for approximately 15 minutes. The catering truck was not used during the data collection.



MD 88

Questions regarding information from the mobile source emission survey may be directed to:

Jill Foster
Gresham, Smith and Partners
580 North 4th Street, Suite 230
Columbus, Ohio 43215
tel: 614-221-0678
fax: 614-221-7329

JF

Copy Virginia Raps - Landrum and Brown, Inc.

GRESHAM
SMITH AND
PARTNERS

MEMORANDUM

TO: Virginia Raps — Landrum and Brown, Inc.

FROM: Jill Foster — Gresham, Smith and Partners

DATE: July 21, 2006

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
PORT COLUMBUS INTERNATIONAL AIRPORT
STATIONARY SOURCE EMISSION SURVEY SUMMARY REPORT
GS&P Project No. 25112.01

Preparation of the Environmental Impact Statement (EIS) for the Port Columbus International Airport (PCIA) requires consideration of potential air quality issues associated with the proposed development projects. A survey of stationary air emissions sources at PCIA was conducted on July 12, 2006. The survey crew consisted of one representative from Landrum and Brown, Inc. and one representative from Gresham, Smith and Partners (the Team). This survey was conducted in order to augment data from a previous stationary source tour conducted by Environmental Quality Management, Inc. and Gresham, Smith and Partners in 2004[i] . The Team completed data forms using information provided by the appropriate airport personnel and information collected during the Team's visual inspection.

The following report is a summary of the areas visited by the Team during the stationary tour:

Glycol Farm

The Team was escorted by Dave Wall, a representative from the Columbus Regional Airport Authority (CRAA). The Team was driven to the glycol farm where most of the deicing fluids are stored. The deicing fluids are contained within tanks that are either privately owned by individual airlines or owned by CRAA. These tanks consist of Propylene Glycol and Potassium Acetate. The deicing fluid is dispersed using trucks that spray the fluid on the aircraft. There were approximately nine diesel engine trucks parked at the glycol farm that were owned by various airlines.



Glycol Tank



Trucks Owned By Airlines Which Distribute Glycol

Airport Rescue and Fire Fighting (ARFF)

The Team was then escorted to the ARFF located near the glycol farm. The Team was introduced to the ARFF Chief, Allen Ward. The Team spoke with Mr. Ward regarding the ARFF facilities, equipment, and general information. Mr. Ward gave detailed descriptions regarding the trucks that are used by ARFF. There are two fire trucks, one Titan 1,500 gallon water truck and one Oshkosh 3,000 gallon water truck, a Ford 550 used as a rescue truck, and a Ford 350 used as a staff truck. All of these trucks carry water (300 to 3000 gallons) and ARFF foam (200 to 400 gallons), while two trucks also carry a dry chemical, Purple K (500 lbs). There are also Ford 350 trucks that are used as ambulances. All the trucks run on diesel fuel. Mr. Wall and Mr. Ward then escorted the Team to an emergency generator located at the facility and provided information of its use.



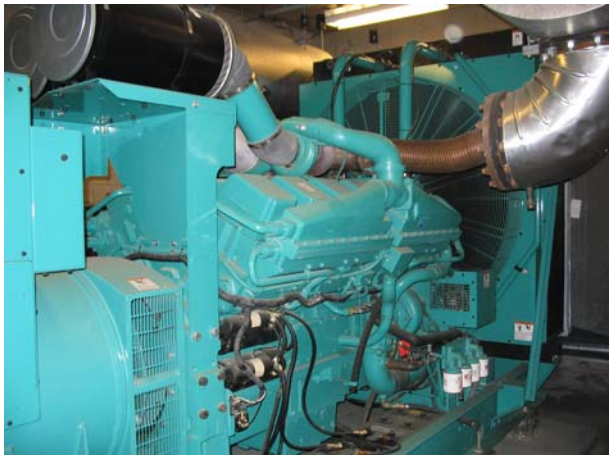
Titan Fire Truck

Boilers and Emergency Generators

The Team was escorted back to the Airport Administrative offices where they were introduced to Denny Finch, Manager of Facilities, and Jim Iles, Manager of Building Maintenance. The team was then escorted by Mr. Iles to view the boilers and emergency generators located below Concourses A, B, and C, and the equipment located within the parking garage. Mr. Iles provided information regarding each boiler and generator and allowed the Team to write down information located on placards affixed on the equipment.



Boilers Located Below Concourse B



Emergency Generator located in the Parking Garage

Airport Maintenance Facility

The Team was escorted back to the Airport Administrative Offices and introduced to Larry Heistand, Supervisor of Facilities. Mr. Heistand escorted the Team to the Airfield Maintenance offices where they were introduced to John Bumgartner, Fleet Maintenance Supervisor. Mr. Heistand and Mr. Bumgartner escorted the Team around the Airfield Maintenance Facility where the Team was informed about the Fuel Island and sand/salt piles.

Mr. Bumgartner informed the Team that there were three underground storage tanks, one 10,000 gallon diesel tank and two 20,000 gallon gasoline tanks. Mr. Bumgartner stated that the tanks are used to fuel CRAA equipment and vehicles and that the soil has been checked for tank leakage. Mr. Baumgartner then escorted the Team to the sand/salt piles, which were located within enclosed buildings. Trucks equipped with shovels take the sand/salt out of the buildings. The sand/salt is then placed in vehicles that distribute the materials on the airport's paved surfaces as needed for deicing and traction. Mr. Baumgartner indicated that the location stores 600 tons of salt and 800 tons of sand. The stored sand is used for runways and the stored salt is used for roads. He also stated that 150 tons of sodium acetate is stored for the parking garage and 150 tons of sodium formate is stored for the ramp, concrete surfaces, and access roads. He also indicated that potassium formate, which is used as an anti-icer on paved surfaces is contained within storage tanks at the Airfield Maintenance facility and at the Glycol Farm. The potassium formate is contained within two storage tanks at the Airfield Maintenance facility, one 20,000 gallon AST and one 10,000 gallon UST, as well as within one 10,000 gallon AST at the Glycol Farm.



Salt Truck Distributing Salt

Incinerator

The Team was then escorted by Mr. Heistand to the incinerator located at the Glycol Farm. Mr. Heistand allowed the Team to gather information provided on the incinerator exterior. He informed the Team that the incinerator is used by custodial personnel to burn aircraft waste and is used by the Airport Police to burn illegal narcotics.



Incinerator Located at the Glycol Farm

Questions regarding information from the mobile source emission survey may be directed to:

Jill Foster
Gresham, Smith and Partners
580 North 4th Street, Suite 230
Columbus, Ohio 43215
tel: 614-221-0678
fax: 614-221-7329

Copy Virginia Raps - Landrum and Brown, Inc.

[i] Potential Air Emission Inventory for The Port Columbus International Airport, Columbus, Ohio. 2004. Environmental Quality Management, Inc. and Gresham, Smith and Partners.

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ATTACHMENT 6
CONSTRUCTION EMISSIONS INVENTORY TABLES

Construction emissions were calculated for 20 separate project tasks, depending on the build-out year. The four spreadsheets provided in this attachment show the total emissions for each calendar year for each project alternative, including the 2012 Accelerated Sponsor's Proposed Project.

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Construction Emissions Page 1
Port Columbus International Airport

				2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	CONSTRUCTION YEAR 2008 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2009 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2010 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2011 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2012 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2013 Emissions in tons per year CO	HC	NOx	SOx	PM10
2012	C2	1	Expansion Glycol Storage Facility/Wastewater Detention		X	X															1.78	0.39	2.72	0.63	0.11	0.00	0.00	0.00	0.00	0.00																
		2	Install Utility Lines (Power, Waste, Water) South Airport Property		X	X															0.90	0.16	1.08	0.26	0.05	0.00	0.00	0.00	0.00	0.00																
		3	Replacement Runway		X	X	X	X													0.95	0.14	0.98	0.35	0.06	1.33	0.20	1.37	0.49	0.08	8.74	1.30	9.00	3.22	0.52	7.98	1.19	8.22	2.94	0.47					
		4	Construct Additional Taxiways		X	X	X	X													2.28	0.34	2.35	0.84	0.13	6.83	1.02	7.04	2.53	0.40	19.12	2.86	19.70	7.09	1.13	17.30	2.58	17.83	6.41						
		5	Realignment of Stelzer Road		X	X															0.077	0.013	0.091	0.024	0.005	0.000	0.000	0.000	0.000	0.000																
		6	Remove Portions of Columbus International Aircenter, including Control Tower Building #7		X	X															0.22	0.03	0.23	0.08	0.01	0.00	0.00	0.00	0.00	0.00																
		7	Demolish Two Hangars		X	X															5.60	0.84	5.79	2.03	0.33	0.00	0.00	0.00	0.00	0.00																
		8	Realignment of Perimeter Road (Phase 3)			X	X																			1.46	0.25	1.70	0.46	0.09	0.00	0.00	0.00	0.00	0.00										
		9	Demolish 24 Acquired Homes			X	X																			1.60	0.23	1.59	0.58	0.09	0.00	0.00	0.00	0.00	0.00										
		10	Remove Various Structures			X	X																			4.37	0.63	4.32	1.59	0.26	0.00	0.00	0.00	0.00	0.00										
		11	Instrument Landing System (ILS)					X																												0.37	0.05	0.33	0.11	0.02					
		12	Reconfigure Golf Course				X	X																							0.12	0.02	0.15	0.03	0.01	0.12	0.02	0.15	0.03	0.01					
			TOTAL												0.00	0.00	0.00	0.00	0.00	11.80	1.92	13.22	4.21	0.70	15.59	2.32	16.01	5.64	0.92	27.98	4.18	28.86	10.34	1.65	25.77	3.85	26.53	9.50	0.50	0.00	0.00	0.00	0.00	0.00
	C3	1	New Glycol Facility		X	X															1.78	0.39	2.72	0.63	0.11	0.00	0.00	0.00	0.00	0.00																
		2	Install Utility Lines (Power, Waste, Water) South Airport Property		X	X															0.90	0.16	1.08	0.26	0.05	0.00	0.00	0.00	0.00	0.00																
		3	Replacement Runway		X	X	X	X													0.95	0.14	0.98	0.35	0.06	1.33	0.20	1.37	0.49	0.08	8.74	1.30	9.00	3.22	0.52	7.98	1.19	8.22	2.94	0.47					
		4	Construct Additional Taxiways		X	X	X	X													2.24	0.33	2.31	0.83	0.13	6.73	1.00	6.93	2.49	0.40	18.83	2.81	19.41	6.98	1.11	17.04	2.54	17.56	6.31	1.00					
		5	Realignment of Stelzer Road		X	X															0.077	0.013	0.091	0.024	0.005	0.000	0.000	0.000	0.000	0.000																
		6	Remove Control Tower Building #7		X	X															0.22	0.03	0.23	0.08	0.01	0.00	0.00	0.00	0.00	0.00																
		7	Demolish One Hangar		X	X															5.60	0.84	5.79	2.03	0.33																				
		8	Realignment of Perimeter Road (Phase 3)			X	X																			1.46	0.25	1.70	0.46	0.09	0.00	0.00	0.00	0.00	0.00										
		9	Demolish 15 Acquired Homes			X	X																			1.00	0.14	0.99	0.36	0.06	0.00	0.00	0.00	0.00	0.00										
		10	Remove Various Structures			X	X																			4.37	0.63	4.32	1.59	0.26	0.00	0.00	0.00	0.00	0.00										
		11	Instrument Landing System (ILS)					X																												0.37	0.05	0.33	0.11	0.02					
		12	Reconfigure Golf Course				X	X																							0.12	0.02	0.15	0.03	0.01	0.12	0.02	0.15	0.03	0.01					
			TOTAL												0.00	0.00	0.00	0.00	0.00	11.77	1.91	13.19	4.20	0.69	14.89	2.22	15.31	5.39	0.88	27.70	4.14	28.56	10.23	1.63	25.51	3.81	26.26	9.40	1.50	0.00	0.00	0.00	0.00	0.00

Construction Emissions Page 2
Port Columbus International Airport

					2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	CONSTRUCTION YEAR 2008 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2009 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2010 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2011 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2012 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2013 Emissions in tons per year CO	HC	NOx	SOx	PM10
		1	Expansion Glycol Storage Facility/Wastewater Detention			X	X															1.78	0.39	2.72	0.63	0.11	0.00	0.00	0.00	0.00	0.00																
		2	Install Utility Lines (Power, Waste, Water) South Airport Property			X	X															0.90	0.16	1.08	0.26	0.05	0.00	0.00	0.00	0.00	0.00																
		3	Replacement Runway			X	X	X	X													0.95	0.14	0.98	0.35	0.06	1.33	0.20	1.37	0.49	0.08	8.74	1.30	9.00	3.22	0.52	7.98	1.19	8.22	2.94	0.47					
		4	Construct Additional Taxiways			X	X	X	X													2.28	0.34	2.35	0.84	0.13	6.83	1.02	7.04	2.53	0.40	19.12	2.86	19.70	7.09	1.13	17.30	2.58	17.83	6.41	0.00					
		5	Realignment of Stelzer Road			X	X															0.077	0.013	0.091	0.024	0.005	0.000	0.000	0.000	0.000	0.000																
		6	Remove Portions of Columbus International Aircenter, including Control Tower Building #7			X	X															0.22	0.03	0.23	0.08	0.01	0.00	0.00	0.00	0.00	0.00																
		7	Demolish Two Hangars			X	X															5.60	0.84	5.79	2.03	0.33	0.00	0.00	0.00	0.00	0.00																
		8	Realignment of Perimeter Road (Phase 3)				X	X																			1.46	0.25	1.70	0.46	0.09	0.00	0.00	0.00	0.00	0.00										
		9	Demolish 24 Acquired Homes				X	X																			1.60	0.23	1.59	0.58	0.09	0.00	0.00	0.00	0.00	0.00										
		10	Remove Various Structures				X	X																			4.37	0.63	4.32	1.59	0.26	0.00	0.00	0.00	0.00	0.00										
	C2	11	Instrument Landing System (ILS)						X																												0.37	0.05	0.33	0.11	0.02					
		12	Reconfigure Golf Course						X																												0.12	0.02	0.15	0.03	0.01	0.12	0.02	0.15	0.03	0.01
		13	Relocated Utility Corridor along International Gateway									X	X	X	X																																
		14	Extended Parking - Red Lot										X																																	
		15	Underground Aircraft Fuel Hydrant System										X	X	X	X																																
		16	New Heating, Venting, and Air Conditioning Plant (HVAC)											X	X																																
		17	New Passenger Terminal											X	X	X																																
														X	X	X																																
		18	New Apron Area for New Terminal												X	X																																
		19	New Parking Garage Connectors												X	X																																
2018		20	New Parking Garage												X	X																																
			TOTAL														0.00	0.00	0.00	0.00	0.00	11.80	1.92	13.22	4.21	0.70	15.59	2.32	16.01	5.64	0.92	27.98	4.18	28.86	10.34	1.65	25.77	3.85	26.53	9.50	0.50	0.00	0.00	0.00	0.00	0.00
		1	New Glycol Facility			X	X															1.78	0.39	2.72	0.63	0.11	0.00	0.00	0.00	0.00	0.00																
		2	Install Utility Lines (Power, Waste, Water) South Airport Property			X	X															0.90	0.16	1.08	0.26	0.05	0.00	0.00	0.00	0.00	0.00																
		3	Replacement Runway			X	X	X	X													0.95	0.14	0.98	0.35	0.06	1.33	0.20	1.37	0.49	0.08	8.74	1.30	9.00	3.22	0.52	7.98	1.19	8.22	2.94	0.47					
		4	Construct Additional Taxiways			X	X	X	X													2.24	0.33	2.31	0.83	0.13	6.73	1.00	6.93	2.49	0.40	18.83	2.81	19.41	6.98	1.11	17.04	2.54	17.56	6.31	1.00					
		5	Realignment of Stelzer Road			X	X															0.077	0.013	0.091	0.024	0.005	0.000	0.000	0.000	0.000	0.000																
		6	Remove Control Tower Building #7			X	X															0.22	0.03	0.23	0.08	0.01	0.00	0.00	0.00	0.00	0.00																
		7	Demolish One Hangar			X	X															5.60	0.84	5.79	2.03	0.33	0.00	0.00	0.00	0.00	0.00																
		8	Realignment of Perimeter Road (Phase 3)				X	X																			1.46	0.25	1.70	0.46	0.09	0.00	0.00	0.00	0.00	0.00										
		9	Demolish 15 Acquired Homes				X	X																			1.00	0.14	0.99	0.36	0.06	0.00	0.00	0.00	0.00	0.00										
		10	Remove Various Structures				X	X																			4.37	0.63	4.32	1.59	0.26	0.00	0.00	0.00	0.00	0.00										
	C3	11	Instrument Landing System (ILS)						X																												0.37	0.05	0.33	0.11	0.02					
		12	Reconfigure Golf Course						X																												0.12	0.02	0.15	0.03	0.01	0.12	0.02	0.15	0.03	0.01
		13	Relocated Utility Corridor along International Gateway									X	X	X	X																																
		14	Extended Parking - Red Lot										X																																	
		15	Underground Aircraft Fuel Hydrant System										X	X	X	X																																
		16	New Heating, Venting, and Air Conditioning Plant (HVAC)											X	X																																
		17	New Passenger Terminal											X	X	X																																
		18	New Apron Area for New Terminal												X	X																																
		19	New Parking Garage Connectors												X	X																																
		20	New Parking Garage												X	X																																
			TOTAL														0.00	0.00	0.00	0.00	0.00	11.77	1.91	13.19	4.20	0.69	14.89	2.22	15.31	5.39	0.88	27.70	4.14	28.56	10.23	1.63	25.51	3.81	26.26	9.40	1.50	0.00	0.00	0.00	0.00	0.00

2009-2013	11.77	1.91	13.19	4.20	0.69	14.89	2.22	15.31	5.39	0.88	27.70	4.14	28.56	10.23	1.63	25.51	3.81	26.26	9.40	1.50	0.00	0.00	0.00	0.00	0.00	
2014-2018	0.55	0.09	0.61	0.17	0.03	3.23	0.31	1.53	0.94	0.06	4.48	0.65	3.94	1.10	0.14	17.61	1.86	9.78	5.02	0.37	17.44	1.84	9.63	4.98	0.36	
	12.32	2.00	13.80	4.37	0.73	18.11	2.53	16.84	6.33	0.94	32.18	4.79	32.50	11.33	1.78	43.12	5.67	36.04	14.42	1.87	17.44	1.84	9.63	4.98	0.36	295.90

Construction Emissions Page 3
Port Columbus International Airport

														CONSTRUCTION YEAR 2014 Emissions in tons per year					CONSTRUCTION YEAR 2015 Emissions in tons per year					CONSTRUCTION YEAR 2016 Emissions in tons per year					CONSTRUCTION YEAR 2017 Emissions in tons per year					CONSTRUCTION YEAR 2018 Emissions in tons per year					CONSTRUCTION YEAR 2019 Emissions in tons per year					
				2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	CO	HC	NOx	SOx	PM10	CO	HC	NOx	SOx	PM10	CO	HC	NOx	SOx	PM10	CO	HC	NOx	SOx	PM10	CO	HC	NOx	SOx	PM10	CO	HC	NOx	SOx	PM10
	C2	1	Expansion Glycol Storage Facility/Wastewater Detention		X	X																																				
		2	Install Utility Lines (Power, Waste, Water) South Airport Property		X	X																																				
		3	Replacement Runway		X	X	X	X																																		
		4	Construct Additional Taxiways		X	X	X	X																																		
		5	Realignment of Stelzer Road		X	X																																				
		6	Remove Portions of Columbus International Aircenter, including Control Tower Building #7		X	X																																				
		7	Demolish Two Hangars		X	X																																				
		8	Realignment of Perimeter Road (Phase 3)			X	X																																				
		9	Demolish 24 Acquired Homes			X	X																																				
		10	Remove Various Structures			X	X																																				
		11	Instrument Landing System (ILS)					X																																			
		12	Reconfigure Golf Course				X	X																																			
		13	Relocated Utility Corridor along International Gateway							X	X	X	X		0.55	0.09	0.61	0.17	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
		14	Extended Parking - Red Lot								X									3.11	0.30	1.47	0.91	0.06																				
		15	Underground Aircraft Fuel Hydrant System								X	X	X	X						0.12	0.01	0.06	0.03	0.00	0.12	0.01	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
		16	New Heating, Venting, and Air Conditioning Plant (HVAC)									X	X												0.187	0.010	0.029	0.059	0.001	0.000	0.000	0.000	0.000	0.000									
		17	New Passenger Terminal									X	X	X											4.18	0.63	3.84	1.00	0.14	6.35	0.95	5.84	1.53	0.21	6.18	0.93	5.69	1.49	0.21					
												X	X	X																													
		18	New Apron Area for New Terminal										X	X																7.09	0.38	0.89	2.40	0.04	7.09	0.38	0.89	2.40	0.04					
		19	New Parking Garage Connectors										X	X																0.07	0.01	0.03	0.02	0.001	0.07	0.01	0.03	0.02	0.00					
2018		20	New Parking Garage										X	X																4.10	0.52	3.02	1.07	0.11	4.10	0.52	3.02	1.07	0.11					
			TOTAL												**0.55**	**0.09**	**0.61**	**0.17**	**0.03**	**3.23**	**0.31**	**1.53**	**0.94**	**0.06**	**4.48**	**0.65**	**3.94**	**1.10**	**0.14**	**17.61**	**1.86**	**9.78**	**5.02**	**0.37**	**17.44**	**1.84**	**9.63**	**4.98**	**0.36**					
	C3	1	New Glycol Facility		X	X																																				
		2	Install Utility Lines (Power, Waste, Water) South Airport Property		X	X																																				
		3	Replacement Runway		X	X	X	X																																		
		4	Construct Additional Taxiways		X	X	X	X																																		
		5	Realignment of Stelzer Road		X	X																																				
		6	Remove Control Tower Building #7		X	X																																				
		7	Demolish One Hangar		X	X																																				
		8	Realignment of Perimeter Road (Phase 3)			X	X																																				
		9	Demolish 15 Acquired Homes			X	X																																				
		10	Remove Various Structures			X	X																																				
		11	Instrument Landing System (ILS)					X																																			
		12	Reconfigure Golf Course				X	X																																			
		13	Relocated Utility Corridor along International Gateway							X	X	X	X		0.55	0.09	0.61	0.17	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
		14	Extended Parking - Red Lot								X									3.11	0.30	1.47	0.91	0.06																				
		15	Underground Aircraft Fuel Hydrant System								X	X	X	X						0.12	0.01	0.06	0.03	0.00	0.12	0.01	0.06	0.03	0.00																
		16	New Heating, Venting, and Air Conditioning Plant (HVAC)									X	X												0.187	0.010	0.029	0.059	0.001	0.000	0.000	0.000	0.000	0.000									
		17	New Passenger Terminal									X	X	X											4.18	0.63	3.84	1.00	0.14	6.35	0.95	5.84	1.53	0.21	6.18	0.93	5.69	1.49	0.21					
												X	X	X																													
		18	New Apron Area for New Terminal										X	X																7.09	0.38	0.89	2.40	0.04	7.09	0.38	0.89	2.40	0.04					
		19	New Parking Garage Connectors										X	X																0.07	0.01	0.03	0.02	0.001	0.07	0.01	0.03	0.02	0.00					
		20	New Parking Garage										X	X																4.10	0.52	3.02	1.07	0.11	4.10	0.52	3.02	1.07	0.11					
			TOTAL												**0.55**	**0.09**	**0.61**	**0.17**	**0.03**	**3.23**	**0.31**	**1.53**	**0.94**	**0.06**	**4.48**	**0.65**	**3.94**	**1.10**	**0.14**	**17.61**	**1.86**	**9.78**	**5.02**	**0.37**	**17.44**	**1.84**	**9.63**	**4.98**	**0.36**					

60.76

Construction Emissions Page 4
Port Columbus International Airport

				2009	2010	2011	2012	CONSTRUCTION YEAR 2009 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2010 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2011 Emissions in tons per year CO	HC	NOx	SOx	PM10	CONSTRUCTION YEAR 2012 Emissions in tons per year CO	HC	NOx	SOx	PM10
2012 Sub-Alternative for Runway Development		1	Expansion Glycol Storage Facility/Wastewater Detention	X	X			1.78	0.39	2.72	0.63	0.11	0.00	0.00	0.00	0.00	0.00											
		2	Install Utility Lines (Power, Waste, Water) South Airport Property	X	X			0.90	0.16	1.08	0.26	0.05	0.00	0.00	0.00	0.00	0.00											
		3	Replacement Runway	X	X	X	X	0.95	0.14	0.98	0.35	0.06	1.33	0.20	1.37	0.49	0.08	8.74	1.30	9.00	3.22	0.52	7.98	1.19	8.22	2.94	0.47
		4	Construct Additional Taxiways	X	X	X	X	2.24	0.33	2.31	0.83	0.13	6.73	1.00	6.93	2.49	0.40	18.83	2.81	19.41	6.98	1.11	17.04	2.54	17.56	6.31	1.00
		5	Realignment of Stelzer Road	X	X			0.077	0.013	0.091	0.024	0.005	0.000	0.000	0.000	0.000	0.000											
		6	Remove Control Tower Building #7	X	X			0.22	0.03	0.23	0.08	0.01	0.00	0.00	0.00	0.00	0.00											
		7	Demolish One Hangar	X	X			5.60	0.84	5.79	2.03	0.33	0.00	0.00	0.00	0.00	0.00											
		8	Realignment of Perimeter Road (Phase 3)		X	X							1.46	0.25	1.70	0.46	0.09	0.00	0.00	0.00	0.00	0.00					
		9	Demolish 15 Acquired Homes		X	X							1.00	0.14	0.99	0.36	0.06	0.00	0.00	0.00	0.00	0.00					
	C3	10	Remove Various Structures		X	X							4.37	0.63	4.32	1.59	0.26	0.00	0.00	0.00	0.00	0.00					
		11	Instrument Landing System (ILS)				X																0.37	0.05	0.33	0.11	0.02
		12	Reconfigure Golf Course				X											0.12	0.02	0.15	0.03	0.01	0.12	0.02	0.15	0.03	0.01
		13	Relocated Utility Corridor along International Gateway					0.55	0.09	0.61	0.17	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		14	Extended Parking - Red Lot	X				3.11	0.30	1.47	0.91	0.06															
		15	Underground Aircraft Fuel Hydrant System	X	X	X	X	0.12	0.01	0.06	0.03	0.00	0.12	0.01	0.06	0.03	0.00											
		16	New Heating, Venting, and Air Conditioning Plant (HVAC)		X	X							0.187	0.010	0.029	0.059	0.001	0.000	0.000	0.000	0.000	0.000					
		17	New Passenger Terminal		X	X	X						2.72	0.41	2.50	0.65	0.09	4.13	0.62	3.80	0.99	0.14	4.02	0.60	3.70	0.97	0.14
		18	New Apron Area for New Terminal		X	X	X						2.70	0.14	0.34	0.91	0.02	2.70	0.14	0.34	0.91	0.02	2.70	0.14	0.34	0.91	0.02
		19	New Parking Garage Connectors			X	X											0.07	0.01	0.03	0.02	0.001	0.07	0.01	0.03	0.02	0.00
		20	New Parking Garage			X	X											4.10	0.52	3.02	1.07	0.11	4.10	0.52	3.02	1.07	0.11
			TOTAL					**15.54**	**2.31**	**15.33**	**5.31**	**0.79**	**20.61**	**2.79**	**18.24**	**7.05**	**0.99**	**38.70**	**5.43**	**35.75**	**13.23**	**1.90**	**36.40**	**5.08**	**33.35**	**12.38**	**1.77**

ATTACHMENT 7
MOBILE 6.2 INPUT AND OUTPUT FILES

The metropolitan planning organization in Columbus, MORPC, created motor vehicle emission data using the USEPA MOBILE emission factor computer model for the transportation modeling required for the Transportation Improvement Plan (TIP). These files were provided to FAA for use in calculating emission factors for motor vehicles for the EIS air quality assessment. The files were revised to reflect the analysis years used for the EIS, 2006, 2012, and 2018. Copies of the computer input and output files are provided in this attachment.

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************************************************************************
* MOBILE6.2 (31-Oct-2002)                                              *
* Input file: CMH06MOB.IN (file 1, run 1).                             *
************************************************************************

* Reading Registration Distributions from the following external
* data file: COLREGS.D

* # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 2.5

* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of  2.5
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                  Calendar Year:  2006
                          Month:  July
                       Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   33. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                 Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000     (All)
                          ------    ------    ------    ------    ------    ------
------    ------    ------    ------
    VMT Distribution:    0.4145    0.3128    0.1369              0.0377    0.0005
0.0021    0.0895    0.0060    1.0000

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 Composite Emission Factors (g/mi):
     Composite VOC :      11.391    16.742    10.424    14.819    15.337    1.155
1.576     1.570     8.86    12.161
     Composite CO  :      44.01     53.07     47.44     51.36     66.06     4.440
3.485    12.874    106.61    45.627
     Composite NOX :       1.874     2.560     2.927     2.672     2.712     1.965
2.068    16.428      1.05     3.563

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-----------------------------------
Exhaust emissions (g/mi):
       VOC   Start:      0.218     0.372     0.314     0.354               0.228
0.216                 0.384
```



```
       VOC   Running:      1.404     2.594     2.521     2.572               0.928
1.360                 7.627
  VOC Total Exhaust:      1.622     2.965     2.836     2.926     3.341     1.155
1.576     1.570      8.01     2.306

            CO Start:      3.13      6.31      4.82      5.86               0.742
0.447                 2.830
         CO Running:     40.87     46.76     42.62     45.50               3.699
3.038               103.785
   CO Total Exhaust:     44.01     53.07     47.44     51.36     66.06     4.440
3.485    12.874    106.61    45.627

           NOx Start:      0.137     0.285     0.228     0.268               0.066
0.045                 0.382
        NOx Running:      1.737     2.274     2.699     2.404               1.900
2.023                 0.665
  NOx Total Exhaust:      1.874     2.560     2.927     2.672     2.712     1.965
2.068    16.428      1.05     3.563

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Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.223     0.350     0.161     0.292     0.292     0.000
0.000     0.000     0.387     0.237
       Diurnal Loss:      0.031     0.043     0.025     0.038     0.053     0.000
0.000     0.000     0.115     0.033
      Resting Loss:      0.099     0.158     0.078     0.133     0.175     0.000
0.000     0.000     0.351     0.110
      Running Loss:      9.332    13.047     7.042    11.219    11.063     0.000
0.000     0.000     0.000     9.331
     Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.009
     Refueling Loss:      0.074     0.166     0.271     0.198     0.403     0.000
0.000     0.000     0.000     0.135
  Total Non-Exhaust:      9.769    13.777     7.588    12.203    11.996     0.000
0.000     0.000     0.853     9.855

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* # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 15.0

* File 1, Run 1, Scenario 2.
* # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 15.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                  Calendar Year:  2006
                          Month:  July
                       Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   33. ppm
```

```
            Exhaust I/M Program:  No
               Evap I/M Program:  No
                    ATP Program:  No
               Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
               GVWR:                <6000     >6000     (All)
                     ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.4145    0.3128    0.1369              0.0377    0.0005
0.0021    0.0895    0.0060    1.0000

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 Composite Emission Factors (g/mi):
     Composite VOC :      1.689     2.604     1.973     2.412     2.873     0.741
0.969     0.869     3.06     1.992
     Composite CO  :     14.46     20.00     17.21     19.15     24.68     2.244
1.681     5.229     21.49     16.136
     Composite NOX :      1.058     1.597     1.793     1.657     3.065     1.283
1.342     10.737     0.93     2.269

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Exhaust emissions (g/mi):
       VOC   Start:      0.218     0.372     0.314     0.354               0.228
0.216               0.384
      VOC   Running:     0.372     0.656     0.637     0.650               0.514
0.753               1.826
  VOC Total Exhaust:     0.590     1.028     0.951     1.005     1.192     0.741
0.969     0.869     2.21     0.835

        CO Start:       3.13      6.31      4.82      5.86               0.742
0.447               2.830
       CO Running:     11.33     13.69     12.39     13.29               1.502
1.234              18.656
  CO Total Exhaust:     14.46     20.00     17.21     19.15     24.68     2.244
1.681     5.229     21.49     16.136

        NOx Start:      0.137     0.285     0.228     0.268               0.066
0.045               0.382
       NOx Running:     0.921     1.312     1.565     1.389               1.218
1.297               0.552
  NOx Total Exhaust:     1.058     1.597     1.793     1.657     3.065     1.283
1.342     10.737     0.93     2.269

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Non-Exhaust Emissions (g/mi):
     Hot Soak Loss:      0.223     0.350     0.161     0.292     0.292     0.000
0.000     0.000     0.387     0.237
      Diurnal Loss:      0.031     0.043     0.025     0.038     0.053     0.000
0.000     0.000     0.115     0.033
      Resting Loss:      0.099     0.158     0.078     0.133     0.175     0.000
0.000     0.000     0.351     0.110
      Running Loss:      0.663     0.847     0.476     0.734     0.749     0.000
0.000     0.000     0.000     0.633
    Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
```



```
0.000     0.000     0.000     0.009
    Refueling Loss:      0.074     0.166     0.271     0.198     0.403     0.000
0.000     0.000     0.000     0.135
  Total Non-Exhaust:     1.099     1.576     1.022     1.436     1.682     0.000
0.000     0.000     0.853     1.157

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 25.0

* File 1, Run 1, Scenario 3.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 25.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                   Calendar Year:  2006
                           Month:  July
                        Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   33. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                 Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
               GVWR:                <6000     >6000     (All)
                     ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.4145    0.3128    0.1369              0.0377    0.0005
0.0021    0.0895    0.0060    1.0000

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 Composite Emission Factors (g/mi):
     Composite VOC :      1.277     2.021     1.554     1.879     1.980     0.581
0.734     0.598     2.51     1.520
     Composite CO  :     12.48     17.67     15.17     16.91     14.39     1.638
1.184     3.121     14.01     13.687
     Composite NOX :      0.889     1.401     1.565     1.451     3.347     1.067
1.111     8.928     1.05     1.955

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Exhaust emissions (g/mi):
       VOC   Start:      0.218     0.372     0.314     0.354               0.228
```

```
0.216                0.384
      VOC   Running:     0.261     0.457     0.443     0.452                0.353
0.518                1.271
  VOC Total Exhaust:     0.479     0.828     0.757     0.807     0.630      0.581
0.734     0.598      1.66     0.650

           CO Start:      3.13      6.31      4.82      5.86                0.742
0.447                2.830
        CO Running:      9.35     11.36     10.35     11.05                0.897
0.736               11.180
   CO Total Exhaust:     12.48     17.67     15.17     16.91     14.39      1.638
1.184     3.121     14.01    13.687

           NOx Start:     0.137     0.285     0.228     0.268                0.066
0.045                0.382
         NOx Running:     0.752     1.115     1.337     1.183                1.001
1.066                0.665
  NOx Total Exhaust:     0.889     1.401     1.565     1.451     3.347      1.067
1.111     8.928      1.05     1.955

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.223     0.350     0.161     0.292     0.292      0.000
0.000     0.000     0.387     0.237
       Diurnal Loss:     0.031     0.043     0.025     0.038     0.053      0.000
0.000     0.000     0.115     0.033
      Resting Loss:     0.099     0.158     0.078     0.133     0.175      0.000
0.000     0.000     0.351     0.110
      Running Loss:     0.361     0.464     0.251     0.399     0.418      0.000
0.000     0.000     0.000     0.345
    Crankcase Loss:     0.009     0.012     0.011     0.012     0.010      0.000
0.000     0.000     0.000     0.009
     Refueling Loss:     0.074     0.166     0.271     0.198     0.403      0.000
0.000     0.000     0.000     0.135
  Total Non-Exhaust:     0.798     1.193     0.797     1.093     1.351      0.000
0.000     0.000     0.853     0.869

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 30.0

* File 1, Run 1, Scenario 4.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 30.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2006
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   33. ppm
```



```
                 Exhaust I/M Program:  No
                    Evap I/M Program:  No
                         ATP Program:  No
                   Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34       LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000      (All)
                        ------    ------    ------    ------     ------     ------
------     ------     ------    ------
   VMT Distribution:    0.4145    0.3128    0.1369                0.0377     0.0005
0.0021     0.0895     0.0060     1.0000

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---------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      1.195     1.908     1.478     1.777     1.766      0.531
0.660      0.513      2.35     1.423
     Composite CO  :     12.28     17.43     14.99     16.69     11.93      1.483
1.057      2.582     11.96    13.351
     Composite NOX :     0.844     1.350     1.506     1.398     3.488      1.023
1.064      8.563      1.10     1.886

-------------------------------------------------------------------------------
---------------------------------
Exhaust emissions (g/mi):
       VOC   Start:     0.218     0.372     0.314     0.354                0.228
0.216                0.384
      VOC   Running:     0.242     0.420     0.408     0.417                0.303
0.444                1.113
  VOC Total Exhaust:     0.460     0.792     0.722     0.771     0.487      0.531
0.660     0.513      1.50     0.612

           CO Start:      3.13      6.31      4.82      5.86                0.742
0.447                2.830
        CO Running:      9.15     11.12     10.16     10.83                0.742
0.609                9.125
   CO Total Exhaust:     12.28     17.43     14.99     16.69     11.93      1.483
1.057      2.582     11.96    13.351

           NOx Start:     0.137     0.285     0.228     0.268                0.066
0.045                0.382
         NOx Running:     0.707     1.065     1.278     1.130                0.957
1.019                0.722
  NOx Total Exhaust:     0.844     1.350     1.506     1.398     3.488      1.023
1.064     8.563      1.10     1.886

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.223     0.350     0.161     0.292     0.292      0.000
0.000     0.000     0.387     0.237
       Diurnal Loss:     0.031     0.043     0.025     0.038     0.053      0.000
0.000     0.000     0.115     0.033
      Resting Loss:     0.099     0.158     0.078     0.133     0.175      0.000
0.000     0.000     0.351     0.110
      Running Loss:     0.299     0.386     0.209     0.332     0.346      0.000
0.000     0.000     0.000     0.286
```

```
     Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.009
     Refueling Loss:      0.074     0.166     0.271     0.198     0.403     0.000
0.000     0.000     0.000     0.135
  Total Non-Exhaust:      0.735     1.116     0.755     1.024     1.279     0.000
0.000     0.000     0.853     0.811

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 35.0

* File 1, Run 1, Scenario 5.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 35.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2006
                            Month:  July
                         Altitude:  Low
               Minimum Temperature:  64.9 (F)
               Maximum Temperature:  85.3 (F)
                 Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
               Fuel Sulfur Content:   33. ppm

               Exhaust I/M Program:  No
                  Evap I/M Program:  No
                       ATP Program:  No
                  Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

      Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC    All Veh
              GVWR:                 <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.4145    0.3128    0.1369              0.0377    0.0005
0.0021    0.0895    0.0060    1.0000

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----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :       1.129     1.813     1.411     1.691     1.618     0.493
0.605     0.449     2.23      1.344
     Composite CO  :      12.45     17.65     15.21     16.91     10.45     1.384
0.975     2.235     10.43    13.425
     Composite NOX :       0.820     1.330     1.483     1.376     3.629     1.014
1.055     8.489     1.15      1.865

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Exhaust emissions (g/mi):
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       VOC   Start:       0.218     0.372     0.314     0.354               0.228
0.216                0.384
       VOC   Running:     0.224     0.382     0.373     0.379               0.265
0.389                0.989
  VOC Total Exhaust:      0.442     0.754     0.687     0.734     0.393     0.493
0.605     0.449     1.37      0.578

        CO Start:         3.13      6.31      4.82      5.86               0.742
0.447                2.830
        CO Running:       9.32     11.34     10.39     11.05               0.642
0.527                7.602
   CO Total Exhaust:     12.45     17.65     15.21     16.91     10.45     1.384
0.975     2.235     10.43    13.425

        NOx Start:        0.137     0.285     0.228     0.268               0.066
0.045                0.382
        NOx Running:      0.683     1.044     1.255     1.108               0.948
1.010                0.766
  NOx Total Exhaust:      0.820     1.330     1.483     1.376     3.629     1.014
1.055     8.489     1.15      1.865

-------------------------------------------------------------------------------
----------------------------------
Non-Exhaust Emissions (g/mi):
     Hot Soak Loss:       0.223     0.350     0.161     0.292     0.292     0.000
0.000     0.000     0.387     0.237
      Diurnal Loss:       0.031     0.043     0.025     0.038     0.053     0.000
0.000     0.000     0.115     0.033
      Resting Loss:       0.099     0.158     0.078     0.133     0.175     0.000
0.000     0.000     0.351     0.110
      Running Loss:       0.251     0.329     0.178     0.283     0.292     0.000
0.000     0.000     0.000     0.242
     Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.009
     Refueling Loss:      0.074     0.166     0.271     0.198     0.403     0.000
0.000     0.000     0.000     0.135
  Total Non-Exhaust:      0.687     1.059     0.724     0.974     1.225     0.000
0.000     0.000     0.853     0.766

-------------------------------------------------------------------------------
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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 40.0

* File 1, Run 1, Scenario 6.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 40.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2006
                            Month:  July
                         Altitude:  Low
               Minimum Temperature:  64.9 (F)
               Maximum Temperature:  85.3 (F)
                 Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
```

```
            Fuel Sulfur Content:   33. ppm

            Exhaust I/M Program:  No
               Evap I/M Program:  No
                    ATP Program:  No
               Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34       LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000      (All)
                            ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.4145    0.3128    0.1369              0.0377    0.0005
0.0021    0.0895    0.0060    1.0000

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 Composite Emission Factors (g/mi):
     Composite VOC :       1.086     1.754     1.372     1.638     1.512     0.466
0.565     0.402      2.14     1.294
     Composite CO  :      13.16     18.45     15.97     17.69      9.67     1.323
0.925     2.025      9.37     14.015
     Composite NOX :       0.826     1.341     1.493     1.387     3.770     1.039
1.082     8.700      1.18     1.897

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-----------------------------------
Exhaust emissions (g/mi):
        VOC   Start:      0.218     0.372     0.314     0.354               0.228
0.216                0.384
      VOC   Running:      0.220     0.367     0.359     0.365               0.238
0.349                0.903
  VOC Total Exhaust:      0.438     0.739     0.673     0.719     0.330     0.466
0.565     0.402      1.29     0.562

         CO Start:        3.13      6.31      4.82      5.86               0.742
0.447                2.830
       CO Running:       10.03     12.14     11.14     11.84               0.582
0.478                6.544
   CO Total Exhaust:      13.16     18.45     15.97     17.69      9.67     1.323
0.925     2.025      9.37     14.015

         NOx Start:      0.137     0.285     0.228     0.268               0.066
0.045                0.382
      NOx Running:      0.689     1.055     1.265     1.119               0.974
1.037                0.796
  NOx Total Exhaust:      0.826     1.341     1.493     1.387     3.770     1.039
1.082     8.700      1.18     1.897

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Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.223     0.350     0.161     0.292     0.292     0.000
0.000     0.000     0.387     0.237
       Diurnal Loss:      0.031     0.043     0.025     0.038     0.053     0.000
0.000     0.000     0.115     0.033
       Resting Loss:      0.099     0.158     0.078     0.133     0.175     0.000
0.000     0.000     0.351     0.110
       Running Loss:      0.211     0.285     0.153     0.245     0.249     0.000
```



```
0.000     0.000     0.000     0.207
    Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.009
     Refueling Loss:      0.074     0.166     0.271     0.198     0.403     0.000
0.000     0.000     0.000     0.135
  Total Non-Exhaust:      0.648     1.015     0.699     0.935     1.182     0.000
0.000     0.000     0.853     0.731

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 45.0

* File 1, Run 1, Scenario 7.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 45.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                   Calendar Year:  2006
                           Month:  July
                        Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   33. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                 Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34       LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000      (All)
                            ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.4145    0.3128    0.1369              0.0377    0.0005
0.0021    0.0895    0.0060    1.0000

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-----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :       1.048     1.703     1.338     1.592     1.434     0.446
0.535     0.368      2.09     1.251
     Composite CO  :      13.86     19.25     16.72     18.48      9.45     1.293
0.900     1.920      8.71     14.639
     Composite NOX :       0.837     1.358     1.511     1.405     3.911     1.101
1.148     9.217      1.20     1.962

-------------------------------------------------------------------------------------------
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```

```
Exhaust emissions (g/mi):
        VOC    Start:      0.218      0.372      0.314      0.354                 0.228
0.216                 0.384
      VOC    Running:      0.215      0.352      0.345      0.350                 0.218
0.319                 0.853
  VOC Total Exhaust:      0.433      0.724      0.659      0.704      0.289      0.446
0.535      0.368      1.24      0.549

           CO Start:       3.13       6.31       4.82       5.86                 0.742
0.447                 2.830
         CO Running:      10.73      12.94      11.90      12.62                 0.552
0.453                 5.876
   CO Total Exhaust:      13.86      19.25      16.72      18.48       9.45      1.293
0.900      1.920      8.71     14.639

           NOx Start:      0.137      0.285      0.228      0.268                 0.066
0.045                 0.382
         NOx Running:      0.700      1.073      1.283      1.137                 1.036
1.103                 0.819
  NOx Total Exhaust:      0.837      1.358      1.511      1.405      3.911      1.101
1.148      9.217      1.20      1.962

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.223      0.350      0.161      0.292      0.292      0.000
0.000      0.000      0.387      0.237
       Diurnal Loss:      0.031      0.043      0.025      0.038      0.053      0.000
0.000      0.000      0.115      0.033
       Resting Loss:      0.099      0.158      0.078      0.133      0.175      0.000
0.000      0.000      0.351      0.110
       Running Loss:      0.178      0.250      0.133      0.214      0.212      0.000
0.000      0.000      0.000      0.178
     Crankcase Loss:      0.009      0.012      0.011      0.012      0.010      0.000
0.000      0.000      0.000      0.009
     Refueling Loss:      0.074      0.166      0.271      0.198      0.403      0.000
0.000      0.000      0.000      0.135
  Total Non-Exhaust:      0.614      0.979      0.679      0.903      1.145      0.000
0.000      0.000      0.853      0.702

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* # # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 50.0

* File 1, Run 1, Scenario 8.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 50.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2006
                           Month:  July
                        Altitude:  Low
                 Minimum Temperature:  64.9 (F)
                 Maximum Temperature:  85.3 (F)
                   Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:   9.0 psi
```



```
                          Weathered RVP:   9.2 psi
                  Fuel Sulfur Content:   33. ppm

                  Exhaust I/M Program:  No
                     Evap I/M Program:  No
                          ATP Program:  No
                    Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

        Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV          MC    All Veh
                GVWR:                <6000     >6000      (All)
                          ------    ------    ------    ------     ------     ------
------     ------     ------     ------
   VMT Distribution:     0.4145    0.3128    0.1369                0.0377     0.0005
0.0021     0.0895     0.0060     1.0000

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---------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :         1.013     1.651     1.305     1.546     1.375     0.432
0.515      0.345      2.07      1.211
     Composite CO  :        14.57     20.05     17.48     19.27      9.76     1.289
0.897      1.905      8.43     15.293
     Composite NOX :        0.849     1.377     1.529     1.423     4.052     1.207
1.260     10.100      1.27      2.059

-------------------------------------------------------------------------------------
---------------------------------
Exhaust emissions (g/mi):
        VOC    Start:      0.218      0.372      0.314      0.354                 0.228
0.216                 0.384
      VOC    Running:      0.211      0.337      0.331      0.335                 0.204
0.299                 0.837
  VOC Total Exhaust:      0.429      0.709      0.645      0.689      0.264      0.432
0.515      0.345      1.22      0.537

           CO Start:       3.13       6.31       4.82       5.86                 0.742
0.447                 2.830
         CO Running:      11.43      13.74      12.66      13.41                 0.547
0.449                 5.603
   CO Total Exhaust:      14.57      20.05      17.48      19.27       9.76      1.289
0.897      1.905      8.43     15.293

           NOx Start:      0.137      0.285      0.228      0.268                 0.066
0.045                 0.382
         NOx Running:      0.711      1.091      1.301      1.155                 1.141
1.216                 0.889
  NOx Total Exhaust:      0.849      1.377      1.529      1.423      4.052      1.207
1.260     10.100      1.27      2.059

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.223      0.350      0.161      0.292      0.292      0.000
0.000      0.000      0.387      0.237
       Diurnal Loss:      0.031      0.043      0.025      0.038      0.053      0.000
0.000      0.000      0.115      0.033
       Resting Loss:      0.099      0.158      0.078      0.133      0.175      0.000
0.000      0.000      0.351      0.110
```

```
*******************************************************************************
* MOBILE6.2 (31-Oct-2002)                                                     *
* Input file: CMH09MOB.IN (file 1, run 1).                                    *
*******************************************************************************

* Reading Registration Distributions from the following external
* data file: COLREGS.D

* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 2.5

* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of  2.5
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                  Calendar Year:  2009
                          Month:  July
                       Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                 Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT      HDDV        MC   All Veh
               GVWR:                <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3723    0.3414    0.1493              0.0380    0.0003
0.0022    0.0907    0.0058    1.0000

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---------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      8.278    12.414     7.887    11.036    11.232    0.585
1.070     1.298     8.85      9.096
     Composite CO  :     39.70     47.05     41.04     45.22     46.08     3.762
2.644     8.915    106.61    40.155
     Composite NOX :      1.453     2.225     2.282     2.242     1.884    0.921
1.304    12.226     1.05      2.830

-------------------------------------------------------------------------------------
---------------------------------
Exhaust emissions (g/mi):
       VOC   Start:     0.171     0.297     0.242     0.280               0.095
0.125               0.384
```



```
      VOC   Running:     1.082     2.027     1.935     1.999               0.489
0.944               7.627
  VOC Total Exhaust:     1.253     2.323     2.177     2.279     1.984     0.585
1.070     1.298     8.01      1.827

           CO Start:      2.93      5.33      4.32      5.02               0.496
0.283               2.830
        CO Running:     36.77     41.73     36.72     40.20               3.266
2.362             103.785
   CO Total Exhaust:     39.70     47.05     41.04     45.22     46.08     3.762
2.644     8.915    106.61    40.155

          NOx Start:     0.110     0.246     0.193     0.230               0.025
0.024               0.382
       NOx Running:     1.343     1.979     2.088     2.012               0.896
1.280               0.665
  NOx Total Exhaust:     1.453     2.225     2.282     2.242     1.884     0.921
1.304    12.226     1.05      2.830

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.184     0.306     0.138     0.255     0.264     0.000
0.000     0.000     0.394     0.206
       Diurnal Loss:     0.025     0.036     0.021     0.031     0.050     0.000
0.000     0.000     0.112     0.027
      Resting Loss:     0.079     0.132     0.065     0.112     0.147     0.000
0.000     0.000     0.330     0.092
      Running Loss:     6.686     9.478     5.285     8.202     8.484     0.000
0.000     0.000     0.000     6.836
    Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
    Refueling Loss:     0.042     0.127     0.189     0.146     0.292     0.000
0.000     0.000     0.000     0.098
  Total Non-Exhaust:     7.025    10.091     5.710     8.979     9.248     0.000
0.000     0.000     0.836     7.269

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 15.0

* File 1, Run 1, Scenario 2.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 15.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                  Calendar Year:  2009
                          Month:  July
                       Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   30. ppm
```

```
            Exhaust I/M Program:  No
               Evap I/M Program:  No
                    ATP Program:  No
               Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
               GVWR:               <6000     >6000     (All)
                     ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3723    0.3414    0.1493              0.0380    0.0003
0.0022    0.0907    0.0058    1.0000

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-----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      1.278     2.045     1.523     1.886     2.055     0.366
0.648     0.719      3.05     1.564
     Composite CO  :     13.13     17.85     15.28     17.07     17.22     1.822
1.242     3.621     21.49     14.373
     Composite NOX :     0.822     1.388     1.406     1.394     2.129     0.599
0.845     7.961      0.93     1.800

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-----------------------------------
Exhaust emissions (g/mi):
       VOC   Start:     0.171     0.297     0.242     0.280               0.095
0.125               0.384
      VOC   Running:     0.289     0.521     0.497     0.514               0.271
0.523               1.826
  VOC Total Exhaust:     0.459     0.817     0.739     0.794     0.708     0.366
0.648     0.719      2.21     0.667

        CO Start:      2.93      5.33      4.32      5.02               0.496
0.283               2.830
       CO Running:     10.20     12.52     10.96     12.04               1.327
0.959              18.656
  CO Total Exhaust:     13.13     17.85     15.28     17.07     17.22     1.822
1.242     3.621     21.49     14.373

        NOx Start:     0.110     0.246     0.193     0.230               0.025
0.024               0.382
       NOx Running:     0.712     1.142     1.213     1.164               0.574
0.820               0.552
  NOx Total Exhaust:     0.822     1.388     1.406     1.394     2.129     0.599
0.845     7.961      0.93     1.800

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-----------------------------------
Non-Exhaust Emissions (g/mi):
     Hot Soak Loss:     0.184     0.306     0.138     0.255     0.264     0.000
0.000     0.000     0.394     0.206
      Diurnal Loss:     0.025     0.036     0.021     0.031     0.050     0.000
0.000     0.000     0.112     0.027
      Resting Loss:     0.079     0.132     0.065     0.112     0.147     0.000
0.000     0.000     0.330     0.092
      Running Loss:     0.479     0.614     0.359     0.537     0.583     0.000
0.000     0.000     0.000     0.464
    Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
```



```
0.000     0.000     0.000     0.010
    Refueling Loss:     0.042     0.127     0.189     0.146     0.292     0.000
0.000     0.000     0.000     0.098
  Total Non-Exhaust:     0.818     1.227     0.784     1.115     1.347     0.000
0.000     0.000     0.836     0.897

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 25.0

* File 1, Run 1, Scenario 3.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 25.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                   Calendar Year:  2009
                           Month:  July
                        Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                 Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
               GVWR:               <6000     >6000     (All)
                     ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3723    0.3414    0.1493              0.0380    0.0003
0.0022    0.0907    0.0058    1.0000

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-----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.971     1.608     1.200     1.484     1.461     0.282
0.485     0.494      2.49     1.206
     Composite CO  :     11.24     15.64     13.31     14.93     10.03     1.288
0.855     2.161     14.01     12.174
     Composite NOX :     0.691     1.218     1.229     1.221     2.325     0.497
0.699     6.605      1.05     1.551

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-----------------------------------
Exhaust emissions (g/mi):
       VOC   Start:     0.171     0.297     0.242     0.280               0.095
```

```
0.125                0.384
      VOC   Running:     0.202     0.362     0.344     0.356               0.186
0.360                1.271
  VOC Total Exhaust:     0.372     0.658     0.587     0.636     0.374     0.282
0.485     0.494      1.66     0.521

           CO Start:      2.93      5.33      4.32      5.02               0.496
0.283                2.830
         CO Running:      8.32     10.31      8.99      9.91               0.792
0.573               11.180
   CO Total Exhaust:     11.24     15.64     13.31     14.93     10.03     1.288
0.855     2.161     14.01    12.174

           NOx Start:     0.110     0.246     0.193     0.230               0.025
0.024                0.382
        NOx Running:     0.581     0.972     1.035     0.991               0.472
0.674                0.665
  NOx Total Exhaust:     0.691     1.218     1.229     1.221     2.325     0.497
0.699     6.605      1.05     1.551

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.184     0.306     0.138     0.255     0.264     0.000
0.000     0.000     0.394     0.206
       Diurnal Loss:     0.025     0.036     0.021     0.031     0.050     0.000
0.000     0.000     0.112     0.027
      Resting Loss:     0.079     0.132     0.065     0.112     0.147     0.000
0.000     0.000     0.330     0.092
      Running Loss:     0.260     0.337     0.189     0.292     0.323     0.000
0.000     0.000     0.000     0.252
    Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.042     0.127     0.189     0.146     0.292     0.000
0.000     0.000     0.000     0.098
  Total Non-Exhaust:     0.599     0.950     0.614     0.865     1.087     0.000
0.000     0.000     0.836     0.685

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 30.0

* File 1, Run 1, Scenario 4.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 30.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2009
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   30. ppm
```



```
                Exhaust I/M Program:  No
                   Evap I/M Program:  No
                        ATP Program:  No
                  Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------
------     ------     ------    ------
   VMT Distribution:    0.3723    0.3414    0.1493              0.0380    0.0003
0.0022    0.0907    0.0058    1.0000

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---------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :      0.911     1.523     1.141     1.407     1.321     0.255
0.434     0.424      2.33     1.133
    Composite CO  :     11.03     15.41     13.10     14.70      8.32     1.151
0.756     1.788     11.96     11.873
    Composite NOX :      0.657     1.174     1.183     1.177     2.423     0.476
0.669     6.331      1.10     1.496

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Exhaust emissions (g/mi):
      VOC   Start:     0.171     0.297     0.242     0.280               0.095
0.125                0.384
      VOC   Running:     0.186     0.333     0.317     0.328               0.160
0.308                1.113
  VOC Total Exhaust:     0.357     0.630     0.559     0.608     0.289     0.255
0.434     0.424      1.50     0.490

           CO Start:      2.93      5.33      4.32      5.02               0.496
0.283                2.830
         CO Running:      8.11     10.08      8.77      9.68               0.655
0.474                9.125
   CO Total Exhaust:     11.03     15.41     13.10     14.70      8.32     1.151
0.756     1.788     11.96     11.873

           NOx Start:     0.110     0.246     0.193     0.230               0.025
0.024                0.382
        NOx Running:     0.547     0.928     0.990     0.947               0.452
0.645                0.722
  NOx Total Exhaust:     0.657     1.174     1.183     1.177     2.423     0.476
0.669     6.331      1.10     1.496

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.184     0.306     0.138     0.255     0.264     0.000
0.000     0.000     0.394     0.206
       Diurnal Loss:     0.025     0.036     0.021     0.031     0.050     0.000
0.000     0.000     0.112     0.027
      Resting Loss:     0.079     0.132     0.065     0.112     0.147     0.000
0.000     0.000     0.330     0.092
      Running Loss:     0.215     0.281     0.157     0.243     0.268     0.000
0.000     0.000     0.000     0.210
```

```
     Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:      0.042     0.127     0.189     0.146     0.292     0.000
0.000     0.000     0.000     0.098
  Total Non-Exhaust:      0.554     0.894     0.582     0.815     1.032     0.000
0.000     0.000     0.836     0.642

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 35.0

* File 1, Run 1, Scenario 5.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 35.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2009
                            Month:  July
                         Altitude:  Low
               Minimum Temperature:  64.9 (F)
               Maximum Temperature:  85.3 (F)
                 Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
               Fuel Sulfur Content:   30. ppm

               Exhaust I/M Program:  No
                  Evap I/M Program:  No
                       ATP Program:  No
                  Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

      Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC    All Veh
              GVWR:                 <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3723    0.3414    0.1493              0.0380    0.0003
0.0022    0.0907    0.0058    1.0000

-------------------------------------------------------------------------------
----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :       0.863     1.453     1.091     1.343     1.222     0.235
0.396     0.371     2.21      1.074
     Composite CO  :      11.16     15.59     13.24     14.88      7.29     1.063
0.693     1.548     10.43    11.933
     Composite NOX :       0.638     1.156     1.164     1.158     2.521     0.472
0.663     6.276     1.15      1.479

-------------------------------------------------------------------------------
----------------------------------
Exhaust emissions (g/mi):
```



```
        VOC   Start:       0.171     0.297     0.242     0.280               0.095
0.125                0.384
      VOC   Running:       0.172     0.305     0.291     0.300               0.140
0.270                0.989
  VOC Total Exhaust:       0.343     0.601     0.533     0.580     0.233     0.235
0.396     0.371      1.37      0.464

           CO Start:       2.93      5.33      4.32      5.02               0.496
0.283                2.830
         CO Running:       8.23     10.26      8.92      9.86               0.567
0.410                7.602
   CO Total Exhaust:      11.16     15.59     13.24     14.88      7.29     1.063
0.693      1.548     10.43    11.933

          NOx Start:       0.110     0.246     0.193     0.230               0.025
0.024                0.382
        NOx Running:       0.528     0.910     0.971     0.928               0.447
0.639                0.766
  NOx Total Exhaust:       0.638     1.156     1.164     1.158     2.521     0.472
0.663      6.276      1.15      1.479

-------------------------------------------------------------------------------
----------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:       0.184     0.306     0.138     0.255     0.264     0.000
0.000     0.000     0.394     0.206
       Diurnal Loss:       0.025     0.036     0.021     0.031     0.050     0.000
0.000     0.000     0.112     0.027
      Resting Loss:       0.079     0.132     0.065     0.112     0.147     0.000
0.000     0.000     0.330     0.092
      Running Loss:       0.180     0.239     0.134     0.207     0.225     0.000
0.000     0.000     0.000     0.177
     Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:      0.042     0.127     0.189     0.146     0.292     0.000
0.000     0.000     0.000     0.098
  Total Non-Exhaust:      0.519     0.852     0.558     0.778     0.989     0.000
0.000     0.000     0.836     0.610

-------------------------------------------------------------------------------
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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 40.0

* File 1, Run 1, Scenario 6.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 40.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2009
                            Month:  July
                         Altitude:  Low
               Minimum Temperature:  64.9 (F)
               Maximum Temperature:  85.3 (F)
                 Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
```

```
             Fuel Sulfur Content:   30. ppm

             Exhaust I/M Program:  No
                Evap I/M Program:  No
                     ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000     (All)
                            ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3723    0.3414    0.1493              0.0380    0.0003
0.0022    0.0907    0.0058    1.0000

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 Composite Emission Factors (g/mi):
     Composite VOC :       0.831     1.411     1.064     1.305     1.151    0.221
0.367     0.333      2.12     1.037
     Composite CO  :      11.76     16.32     13.89     15.58      6.74    1.009
0.654     1.402      9.37    12.463
     Composite NOX :       0.644     1.165     1.174     1.168     2.619    0.484
0.680     6.434      1.18     1.504

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-----------------------------------
Exhaust emissions (g/mi):
        VOC   Start:      0.171     0.297     0.242     0.280               0.095
0.125               0.384
      VOC   Running:      0.169     0.294     0.282     0.290               0.125
0.242               0.903
  VOC Total Exhaust:      0.340     0.591     0.524     0.570     0.196     0.221
0.367     0.333      1.29     0.452

          CO Start:       2.93      5.33      4.32      5.02               0.496
0.283               2.830
        CO Running:       8.83     10.99      9.57     10.56               0.514
0.371               6.544
   CO Total Exhaust:     11.76     16.32     13.89     15.58      6.74     1.009
0.654     1.402      9.37    12.463

          NOx Start:      0.110     0.246     0.193     0.230               0.025
0.024               0.382
       NOx Running:      0.533     0.919     0.981     0.938               0.459
0.656               0.796
  NOx Total Exhaust:      0.644     1.165     1.174     1.168     2.619     0.484
0.680     6.434      1.18     1.504

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-----------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.184     0.306     0.138     0.255     0.264     0.000
0.000     0.000     0.394     0.206
       Diurnal Loss:      0.025     0.036     0.021     0.031     0.050     0.000
0.000     0.000     0.112     0.027
       Resting Loss:      0.079     0.132     0.065     0.112     0.147     0.000
0.000     0.000     0.330     0.092
       Running Loss:      0.152     0.207     0.115     0.179     0.191     0.000
```



```
0.000     0.000     0.000     0.152
    Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:      0.042     0.127     0.189     0.146     0.292     0.000
0.000     0.000     0.000     0.098
  Total Non-Exhaust:      0.491     0.820     0.540     0.749     0.955     0.000
0.000     0.000     0.836     0.584

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 45.0

* File 1, Run 1, Scenario 7.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 45.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                   Calendar Year:  2009
                           Month:  July
                        Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                 Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000     (All)
                            ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3723    0.3414    0.1493              0.0380    0.0003
0.0022    0.0907    0.0058    1.0000

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-----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :       0.803     1.374     1.040     1.273     1.098    0.210
0.347     0.305      2.07     1.006
     Composite CO  :      12.37     17.04     14.54     16.28      6.59    0.983
0.635     1.329      8.71    13.018
     Composite NOX :       0.653     1.181     1.190     1.184     2.717    0.513
0.722     6.822      1.20     1.554

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```

```
Exhaust emissions (g/mi):
        VOC    Start:      0.171      0.297      0.242      0.280                 0.095
0.125                 0.384
      VOC    Running:      0.166      0.284      0.273      0.280                 0.115
0.222                 0.853
  VOC Total Exhaust:      0.336      0.580      0.515      0.560      0.172      0.210
0.347      0.305      1.24      0.442

           CO Start:       2.93       5.33       4.32       5.02                 0.496
0.283                 2.830
         CO Running:       9.44      11.72      10.22      11.26                 0.487
0.352                 5.876
   CO Total Exhaust:      12.37      17.04      14.54      16.28       6.59      0.983
0.635      1.329      8.71     13.018

           NOx Start:      0.110      0.246      0.193      0.230                 0.025
0.024                 0.382
        NOx Running:      0.543      0.935      0.996      0.954                 0.489
0.698                 0.819
  NOx Total Exhaust:      0.653      1.181      1.190      1.184      2.717      0.513
0.722      6.822      1.20      1.554

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.184      0.306      0.138      0.255      0.264      0.000
0.000      0.000      0.394      0.206
       Diurnal Loss:      0.025      0.036      0.021      0.031      0.050      0.000
0.000      0.000      0.112      0.027
       Resting Loss:      0.079      0.132      0.065      0.112      0.147      0.000
0.000      0.000      0.330      0.092
       Running Loss:      0.127      0.181      0.100      0.157      0.163      0.000
0.000      0.000      0.000      0.130
     Crankcase Loss:      0.009      0.012      0.011      0.012      0.010      0.000
0.000      0.000      0.000      0.010
     Refueling Loss:      0.042      0.127      0.189      0.146      0.292      0.000
0.000      0.000      0.000      0.098
  Total Non-Exhaust:      0.466      0.794      0.525      0.726      0.926      0.000
0.000      0.000      0.836      0.563

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* # # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 50.0

* File 1, Run 1, Scenario 8.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 50.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2009
                            Month:  July
                         Altitude:  Low
                Minimum Temperature:  64.9 (F)
                Maximum Temperature:  85.3 (F)
                  Absolute Humidity:   75. grains/lb
                   Nominal Fuel RVP:   9.0 psi
```



```
                        Weathered RVP:   9.2 psi
                Fuel Sulfur Content:   30. ppm

                Exhaust I/M Program:  No
                   Evap I/M Program:  No
                        ATP Program:  No
                  Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV          MC    All Veh
                GVWR:                <6000     >6000      (All)
                          ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3723    0.3414    0.1493              0.0380    0.0003
0.0022    0.0907    0.0058    1.0000

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---------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :       0.777     1.337     1.016     1.239     1.057    0.203
0.333     0.285     2.06      0.976
     Composite CO  :      12.97     17.77     15.19     16.99      6.81    0.979
0.632     1.319     8.43     13.595
     Composite NOX :       0.662     1.197     1.205     1.199     2.815    0.563
0.793     7.483     1.27      1.630

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---------------------------------
Exhaust emissions (g/mi):
        VOC    Start:      0.171      0.297      0.242      0.280                 0.095
0.125                 0.384
      VOC    Running:      0.162      0.273      0.264      0.270                 0.108
0.207                 0.837
  VOC Total Exhaust:      0.333      0.570      0.506      0.550      0.157      0.203
0.333      0.285      1.22      0.434

           CO Start:       2.93       5.33       4.32       5.02                 0.496
0.283                 2.830
         CO Running:      10.05      12.44      10.87      11.97                 0.483
0.350                 5.603
   CO Total Exhaust:      12.97      17.77      15.19      16.99       6.81      0.979
0.632      1.319      8.43     13.595

           NOx Start:      0.110      0.246      0.193      0.230                 0.025
0.024                 0.382
        NOx Running:      0.552      0.951      1.012      0.969                 0.538
0.769                 0.889
  NOx Total Exhaust:      0.662      1.197      1.205      1.199      2.815      0.563
0.793      7.483      1.27      1.630

-------------------------------------------------------------------------------------
---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.184      0.306      0.138      0.255      0.264      0.000
0.000      0.000      0.394      0.206
       Diurnal Loss:      0.025      0.036      0.021      0.031      0.050      0.000
0.000      0.000      0.112      0.027
       Resting Loss:      0.079      0.132      0.065      0.112      0.147      0.000
0.000      0.000      0.330      0.092
```

Running Loss:	0.105	0.155	0.085	0.134	0.136	0.000
0.000	0.000	0.000	0.110			
Crankcase Loss:	0.009	0.012	0.011	0.012	0.010	0.000
0.000	0.000	0.000	0.010			
Refueling Loss:	0.042	0.127	0.189	0.146	0.292	0.000
0.000	0.000	0.000	0.098			
Total Non-Exhaust:	0.444	0.768	0.510	0.703	0.900	0.000
0.000	0.000	0.836	0.543			

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*******************************************************************************
* MOBILE6.2 (31-Oct-2002)                                                     *
* Input file: CMH12MOB.IN (file 1, run 1).                                    *
*******************************************************************************

* Reading Registration Distributions from the following external
* data file: COLREGS.D

* # # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 2.5

* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of  2.5
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b
  M 48 Warning:
              there are no sales for vehicle class LDDT12

                    Calendar Year:  2012
                            Month:  July
                         Altitude:  Low
               Minimum Temperature:  64.9 (F)
               Maximum Temperature:  85.3 (F)
                 Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
               Fuel Sulfur Content:   30. ppm

               Exhaust I/M Program:  No
                  Evap I/M Program:  No
                       ATP Program:  No
                  Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3394    0.3640    0.1593              0.0380    0.0003
0.0023    0.0910    0.0057    1.0000

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 Composite Emission Factors (g/mi):
     Composite VOC :      5.808     8.376     5.981     7.647     8.566     0.317
0.734     1.066      8.84     6.447
     Composite CO  :     35.08     42.54     35.96     40.54     39.88     3.216
2.119     5.900    106.61    35.782
     Composite NOX :      1.075     1.782     1.646     1.741     1.254     0.432
0.781     8.046      1.05     2.064

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Exhaust emissions (g/mi):
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```
        VOC    Start:      0.133     0.240     0.195     0.226               0.043
0.089               0.384
      VOC    Running:      0.808     1.549     1.508     1.536               0.274
0.645               7.627
  VOC Total Exhaust:      0.941     1.788     1.702     1.762     1.343     0.317
0.734     1.066      8.01     1.437

             CO Start:      2.62      4.60      3.76      4.34               0.391
0.223               2.830
          CO Running:     32.46     37.94     32.20     36.20               2.825
1.896             103.785
   CO Total Exhaust:     35.08     42.54     35.96     40.54     39.88     3.216
2.119     5.900    106.61    35.782

            NOx Start:      0.085     0.204     0.152     0.188               0.011
0.016               0.382
          NOx Running:      0.990     1.578     1.493     1.552               0.421
0.765               0.665
  NOx Total Exhaust:      1.075     1.782     1.646     1.741     1.254     0.432
0.781     8.046      1.05     2.064

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Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.134     0.232     0.118     0.197     0.242     0.000
0.000     0.000     0.394     0.160
       Diurnal Loss:      0.018     0.027     0.017     0.024     0.036     0.000
0.000     0.000     0.111     0.020
      Resting Loss:      0.057     0.098     0.052     0.084     0.120     0.000
0.000     0.000     0.328     0.069
      Running Loss:      4.624     6.135     3.972     5.477     6.588     0.000
0.000     0.000     0.000     4.686
     Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.026     0.083     0.108     0.091     0.226     0.000
0.000     0.000     0.000     0.065
  Total Non-Exhaust:     4.867     6.587     4.278     6.003     7.223     0.000
0.000     0.000     0.834     5.010

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* # # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 15.0

* File 1, Run 1, Scenario 2.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 15.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b
  M 48 Warning:
              there are no sales for vehicle class LDDT12

                    Calendar Year:  2012
                            Month:  July
                         Altitude:  Low
               Minimum Temperature:  64.9 (F)
               Maximum Temperature:  85.3 (F)
                 Absolute Humidity:   75. grains/lb
```

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                Nominal Fuel RVP:   9.0 psi
                   Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV       LDDV
 LDDT      HDDV        MC   All Veh
             GVWR:               <6000     >6000     (All)
                    ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3394    0.3640    0.1593              0.0380    0.0003
0.0023    0.0910    0.0057    1.0000

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-----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.943     1.503     1.171     1.402     1.578     0.195
0.446     0.590      3.04     1.186
     Composite CO  :      11.68     16.13     13.58     15.35     14.90     1.539
0.993     2.397     21.49    12.906
     Composite NOX :      0.607     1.115     1.018     1.085     1.417     0.281
0.506     5.236      0.93     1.311

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-----------------------------------
Exhaust emissions (g/mi):
       VOC   Start:     0.133     0.240     0.195     0.226               0.043
0.089                 0.384
    VOC   Running:     0.220     0.402     0.391     0.399               0.152
0.357                 1.826
  VOC Total Exhaust:     0.353     0.642     0.586     0.625     0.479     0.195
0.446     0.590      2.21     0.532

          CO Start:      2.62      4.60      3.76      4.34               0.391
0.223                 2.830
       CO Running:      9.06     11.53      9.82     11.01               1.147
0.770                18.656
   CO Total Exhaust:     11.68     16.13     13.58     15.35     14.90     1.539
0.993     2.397     21.49    12.906

          NOx Start:     0.085     0.204     0.152     0.188               0.011
0.016                 0.382
       NOx Running:     0.522     0.911     0.866     0.897               0.270
0.491                 0.552
  NOx Total Exhaust:     0.607     1.115     1.018     1.085     1.417     0.281
0.506     5.236      0.93     1.311

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-----------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.134     0.232     0.118     0.197     0.242     0.000
0.000     0.000     0.394     0.160
       Diurnal Loss:     0.018     0.027     0.017     0.024     0.036     0.000
0.000     0.000     0.111     0.020
      Resting Loss:     0.057     0.098     0.052     0.084     0.120     0.000
```



```
0.000     0.000     0.328     0.069
      Running Loss:     0.347     0.409     0.279     0.370     0.464     0.000
0.000     0.000     0.000     0.329
    Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
    Refueling Loss:     0.026     0.083     0.108     0.091     0.226     0.000
0.000     0.000     0.000     0.065
  Total Non-Exhaust:     0.590     0.861     0.585     0.792     1.099     0.000
0.000     0.000     0.834     0.654

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 25.0

* File 1, Run 1, Scenario 3.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 25.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b
  M 48 Warning:
             there are no sales for vehicle class LDDT12

                   Calendar Year:  2012
                           Month:  July
                        Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV       LDDV
 LDDT      HDDV        MC   All Veh
             GVWR:               <6000     >6000     (All)
                    ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3394    0.3640    0.1593              0.0380    0.0003
0.0023    0.0910    0.0057    1.0000

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-----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.713     1.189     0.914     1.106     1.142     0.148
0.335     0.406      2.49     0.916
     Composite CO  :      9.91     13.98     11.71     13.29      8.69     1.076
0.683     1.430     14.01    10.861
     Composite NOX :      0.510     0.978     0.890     0.951     1.547     0.233
```

```
0.419     4.343      1.05     1.132

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---------------------------------
Exhaust emissions (g/mi):
        VOC   Start:     0.133     0.240     0.195     0.226               0.043
0.089               0.384
      VOC   Running:     0.153     0.279     0.271     0.276               0.104
0.246               1.271
  VOC Total Exhaust:     0.286     0.518     0.466     0.502     0.253     0.148
0.335     0.406      1.66     0.417

          CO Start:      2.62      4.60      3.76      4.34               0.391
0.223               2.830
        CO Running:      7.29      9.39      7.95      8.95               0.685
0.460              11.180
   CO Total Exhaust:      9.91     13.98     11.71     13.29      8.69     1.076
0.683     1.430     14.01    10.861

          NOx Start:     0.085     0.204     0.152     0.188               0.011
0.016               0.382
       NOx Running:     0.425     0.774     0.738     0.763               0.222
0.403               0.665
  NOx Total Exhaust:     0.510     0.978     0.890     0.951     1.547     0.233
0.419     4.343      1.05     1.132

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.134     0.232     0.118     0.197     0.242     0.000
0.000     0.000     0.394     0.160
       Diurnal Loss:     0.018     0.027     0.017     0.024     0.036     0.000
0.000     0.000     0.111     0.020
       Resting Loss:     0.057     0.098     0.052     0.084     0.120     0.000
0.000     0.000     0.328     0.069
       Running Loss:     0.184     0.219     0.142     0.195     0.254     0.000
0.000     0.000     0.000     0.175
    Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.026     0.083     0.108     0.091     0.226     0.000
0.000     0.000     0.000     0.065
  Total Non-Exhaust:     0.427     0.671     0.449     0.615     0.888     0.000
0.000     0.000     0.834     0.499

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 30.0

* File 1, Run 1, Scenario 4.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 30.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b
  M 48 Warning:
              there are no sales for vehicle class LDDT12

                    Calendar Year:  2012
```



```
                                Month:  July
                             Altitude:  Low
                  Minimum Temperature:  64.9 (F)
                  Maximum Temperature:  85.3 (F)
                    Absolute Humidity:   75. grains/lb
                      Nominal Fuel RVP:   9.0 psi
                         Weathered RVP:   9.2 psi
                  Fuel Sulfur Content:   30. ppm

                  Exhaust I/M Program:  No
                     Evap I/M Program:  No
                          ATP Program:  No
                    Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

        Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT       HDDV          MC   All Veh
               GVWR:                 <6000     >6000     (All)
                           ------    ------    ------    ------    ------    ------
------     ------     ------    ------
   VMT Distribution:    0.3394    0.3640    0.1593              0.0380    0.0003
0.0023    0.0910    0.0057    1.0000

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---------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :       0.669     1.131     0.868     1.051     1.041     0.133
0.300     0.348      2.33     0.862
    Composite CO  :       9.70     13.74     11.49     13.05      7.20     0.958
0.604     1.183     11.96    10.573
    Composite NOX :       0.485     0.943     0.858     0.917     1.612     0.223
0.401     4.162      1.10     1.092

-------------------------------------------------------------------------------
---------------------------------
Exhaust emissions (g/mi):
        VOC   Start:     0.133     0.240     0.195     0.226               0.043
0.089               0.384
      VOC   Running:     0.141     0.257     0.249     0.254               0.089
0.211               1.113
  VOC Total Exhaust:     0.274     0.496     0.444     0.480     0.196     0.133
0.300     0.348      1.50     0.393

          CO Start:      2.62      4.60      3.76      4.34               0.391
0.223               2.830
        CO Running:      7.08      9.14      7.73      8.71               0.567
0.380               9.125
   CO Total Exhaust:      9.70     13.74     11.49     13.05      7.20     0.958
0.604     1.183     11.96    10.573

          NOx Start:     0.085     0.204     0.152     0.188               0.011
0.016               0.382
       NOx Running:     0.400     0.739     0.705     0.728               0.212
0.386               0.722
  NOx Total Exhaust:     0.485     0.943     0.858     0.917     1.612     0.223
0.401     4.162      1.10     1.092

-------------------------------------------------------------------------------
---------------------------------
Non-Exhaust Emissions (g/mi):
```

```
      Hot Soak Loss:     0.134     0.232     0.118     0.197     0.242     0.000
0.000     0.000     0.394     0.160
       Diurnal Loss:     0.018     0.027     0.017     0.024     0.036     0.000
0.000     0.000     0.111     0.020
       Resting Loss:     0.057     0.098     0.052     0.084     0.120     0.000
0.000     0.000     0.328     0.069
       Running Loss:     0.152     0.182     0.119     0.163     0.210     0.000
0.000     0.000     0.000     0.145
     Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.026     0.083     0.108     0.091     0.226     0.000
0.000     0.000     0.000     0.065
  Total Non-Exhaust:     0.395     0.634     0.425     0.581     0.845     0.000
0.000     0.000     0.834     0.470

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 35.0

* File 1, Run 1, Scenario 5.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 35.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

                     Calendar Year:  2012
                             Month:  July
                          Altitude:  Low
               Minimum Temperature:  64.9 (F)
               Maximum Temperature:  85.3 (F)
                 Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
               Fuel Sulfur Content:   30. ppm

               Exhaust I/M Program:  No
                  Evap I/M Program:  No
                       ATP Program:  No
                  Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------
------    ------    ------    ------
    VMT Distribution:    0.3394    0.3640    0.1593              0.0380    0.0003
0.0023    0.0910    0.0057    1.0000

-------------------------------------------------------------------------------
---------------------------------
 Composite Emission Factors (g/mi):
```



```
     Composite VOC :      0.634     1.083     0.831     1.006     0.969     0.122
0.274     0.305      2.21      0.820
     Composite CO  :      9.78     13.87     11.59     13.18      6.31     0.881
0.552     1.024     10.43     10.608
     Composite NOX :     0.471     0.928     0.844     0.902     1.677     0.221
0.398     4.126      1.15      1.079

-------------------------------------------------------------------------------
---------------------------------
Exhaust emissions (g/mi):
        VOC   Start:     0.133     0.240     0.195     0.226               0.043
0.089               0.384
      VOC   Running:     0.131     0.236     0.229     0.234               0.078
0.185               0.989
   VOC Total Exhaust:     0.264     0.476     0.424     0.460     0.158     0.122
0.274     0.305      1.37      0.373

            CO Start:      2.62      4.60      3.76      4.34               0.391
0.223               2.830
         CO Running:      7.16      9.27      7.83      8.84               0.490
0.329               7.602
    CO Total Exhaust:      9.78     13.87     11.59     13.18      6.31     0.881
0.552     1.024     10.43     10.608

           NOx Start:     0.085     0.204     0.152     0.188               0.011
0.016               0.382
        NOx Running:     0.386     0.724     0.692     0.714               0.210
0.382               0.766
   NOx Total Exhaust:     0.471     0.928     0.844     0.902     1.677     0.221
0.398     4.126      1.15      1.079

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.134     0.232     0.118     0.197     0.242     0.000
0.000     0.000     0.394     0.160
       Diurnal Loss:     0.018     0.027     0.017     0.024     0.036     0.000
0.000     0.000     0.111     0.020
       Resting Loss:     0.057     0.098     0.052     0.084     0.120     0.000
0.000     0.000     0.328     0.069
       Running Loss:     0.127     0.155     0.101     0.138     0.177     0.000
0.000     0.000     0.000     0.122
     Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.026     0.083     0.108     0.091     0.226     0.000
0.000     0.000     0.000     0.065
  Total Non-Exhaust:     0.370     0.607     0.407     0.557     0.811     0.000
0.000     0.000     0.834     0.447

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 40.0

* File 1, Run 1, Scenario 6.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 40.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
```

```
             there are no sales for vehicle class HDGV8b
  M 48 Warning:
             there are no sales for vehicle class LDDT12

                   Calendar Year:  2012
                           Month:  July
                        Altitude:  Low
             Minimum Temperature:  64.9 (F)
             Maximum Temperature:  85.3 (F)
               Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
             Fuel Sulfur Content:   30. ppm

             Exhaust I/M Program:  No
                Evap I/M Program:  No
                     ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000     (All)
                          ------    ------    ------    ------    ------    ------
------    ------    ------    ------
    VMT Distribution:    0.3394    0.3640    0.1593              0.0380    0.0003
0.0023    0.0910    0.0057    1.0000

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-----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :       0.611     1.056     0.811     0.981     0.916     0.114
0.254     0.273      2.12     0.793
     Composite CO  :       10.29     14.52     12.15     13.80      5.84     0.835
0.522     0.928      9.37    11.074
     Composite NOX :       0.475     0.937     0.851     0.911     1.742     0.226
0.408     4.230      1.18     1.097

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Exhaust emissions (g/mi):
        VOC   Start:      0.133     0.240     0.195     0.226               0.043
0.089               0.384
      VOC   Running:      0.129     0.230     0.223     0.228               0.070
0.165               0.903
   VOC Total Exhaust:      0.262     0.470     0.418     0.454     0.133     0.114
0.254     0.273      1.29     0.364

             CO Start:       2.62      4.60      3.76      4.34               0.391
0.223               2.830
          CO Running:       7.68      9.92      8.39      9.45               0.444
0.298               6.544
    CO Total Exhaust:      10.29     14.52     12.15     13.80      5.84     0.835
0.522     0.928      9.37    11.074

             NOx Start:      0.085     0.204     0.152     0.188               0.011
0.016               0.382
          NOx Running:      0.390     0.733     0.699     0.722               0.216
0.392               0.796
   NOx Total Exhaust:      0.475     0.937     0.851     0.911     1.742     0.226
```



```
0.408     4.230      1.18     1.097

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-----------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.134     0.232     0.118     0.197     0.242     0.000
0.000     0.000     0.394     0.160
       Diurnal Loss:      0.018     0.027     0.017     0.024     0.036     0.000
0.000     0.000     0.111     0.020
      Resting Loss:      0.057     0.098     0.052     0.084     0.120     0.000
0.000     0.000     0.328     0.069
      Running Loss:      0.106     0.134     0.086     0.119     0.149     0.000
0.000     0.000     0.000     0.104
    Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:      0.026     0.083     0.108     0.091     0.226     0.000
0.000     0.000     0.000     0.065
  Total Non-Exhaust:      0.349     0.586     0.393     0.537     0.784     0.000
0.000     0.000     0.834     0.429

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 45.0

* File 1, Run 1, Scenario 7.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
             The user supplied arterial average speed of 45.0
             will be used for all hours of the day.  100% of VMT
             has been assigned to the arterial/collector roadway
             type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b
  M 48 Warning:
             there are no sales for vehicle class LDDT12

                   Calendar Year:  2012
                           Month:  July
                        Altitude:  Low
             Minimum Temperature:  64.9 (F)
             Maximum Temperature:  85.3 (F)
               Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
             Fuel Sulfur Content:   30. ppm

             Exhaust I/M Program:  No
                Evap I/M Program:  No
                     ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000     (All)
                          ------    ------    ------    ------    ------    ------
------    ------    ------    ------
    VMT Distribution:    0.3394    0.3640    0.1593              0.0380    0.0003
```

```
0.0023    0.0910    0.0057    1.0000

-------------------------------------------------------------------------------
---------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.591     1.032     0.793     0.960     0.877    0.108
0.240     0.250     2.07     0.771
     Composite CO  :     10.81     15.16     12.71     14.42     5.71     0.812
0.506     0.880     8.71    11.560
     Composite NOX :      0.481     0.950     0.863     0.923     1.808    0.240
0.433     4.485     1.20     1.131

-------------------------------------------------------------------------------
---------------------------------
Exhaust emissions (g/mi):
        VOC   Start:     0.133     0.240     0.195     0.226               0.043
0.089               0.384
      VOC   Running:     0.127     0.224     0.218     0.222               0.064
0.151               0.853
   VOC Total Exhaust:     0.260     0.464     0.413     0.448     0.116     0.108
0.240     0.250     1.24     0.358

            CO Start:      2.62      4.60      3.76      4.34               0.391
0.223               2.830
          CO Running:      8.19     10.57      8.95     10.07               0.421
0.283               5.876
    CO Total Exhaust:     10.81     15.16     12.71     14.42      5.71     0.812
0.506     0.880     8.71    11.560

           NOx Start:     0.085     0.204     0.152     0.188               0.011
0.016               0.382
         NOx Running:     0.396     0.746     0.710     0.735               0.230
0.417               0.819
   NOx Total Exhaust:     0.481     0.950     0.863     0.923     1.808     0.240
0.433     4.485     1.20     1.131

-------------------------------------------------------------------------------
---------------------------------
Non-Exhaust Emissions (g/mi):
       Hot Soak Loss:     0.134     0.232     0.118     0.197     0.242     0.000
0.000     0.000     0.394     0.160
        Diurnal Loss:     0.018     0.027     0.017     0.024     0.036     0.000
0.000     0.000     0.111     0.020
        Resting Loss:     0.057     0.098     0.052     0.084     0.120     0.000
0.000     0.000     0.328     0.069
        Running Loss:     0.087     0.117     0.075     0.104     0.126     0.000
0.000     0.000     0.000     0.089
      Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.026     0.083     0.108     0.091     0.226     0.000
0.000     0.000     0.000     0.065
   Total Non-Exhaust:     0.330     0.569     0.381     0.521     0.760     0.000
0.000     0.000     0.834     0.413

-------------------------------------------------------------------------------
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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 50.0

* File 1, Run 1, Scenario 8.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
```



```
            The user supplied arterial average speed of 50.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
 M 48 Warning:
            there are no sales for vehicle class HDGV8b
 M 48 Warning:
            there are no sales for vehicle class LDDT12

                  Calendar Year:  2012
                          Month:  July
                       Altitude:  Low
            Minimum Temperature:  64.9 (F)
            Maximum Temperature:  85.3 (F)
              Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   9.2 psi
            Fuel Sulfur Content:   30. ppm

            Exhaust I/M Program:  No
               Evap I/M Program:  No
                    ATP Program:  No
               Reformulated Gas:  No

  Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
  Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                         Alcohol Blend RVP Waiver: Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
             GVWR:                <6000     >6000     (All)
                     ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.3394    0.3640    0.1593              0.0380    0.0003
0.0023    0.0910    0.0057    1.0000

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---------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.573     1.009     0.776     0.938     0.845    0.104
0.231     0.234     2.06     0.751
     Composite CO  :     11.33     15.81     13.27     15.04     5.90     0.809
0.504     0.873     8.43    12.067
     Composite NOX :      0.488     0.963     0.874     0.936     1.873    0.264
0.476     4.921     1.27     1.183

-------------------------------------------------------------------------------
---------------------------------
Exhaust emissions (g/mi):
        VOC   Start:     0.133     0.240     0.195     0.226               0.043
0.089               0.384
      VOC   Running:     0.126     0.218     0.212     0.216               0.060
0.142               0.837
   VOC Total Exhaust:     0.259     0.457     0.407     0.442     0.106     0.104
0.231     0.234     1.22     0.352

            CO Start:      2.62      4.60      3.76      4.34               0.391
0.223               2.830
          CO Running:      8.71     11.21      9.52     10.70               0.418
0.281               5.603
    CO Total Exhaust:     11.33     15.81     13.27     15.04      5.90     0.809
0.504     0.873     8.43    12.067
```

```
          NOx Start:     0.085     0.204     0.152     0.188                0.011
0.016                0.382
        NOx Running:     0.403     0.759     0.722     0.748                0.253
0.460                0.889
  NOx Total Exhaust:     0.488     0.963     0.874     0.936     1.873      0.264
0.476     4.921      1.27     1.183

-------------------------------------------------------------------------------
---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.134     0.232     0.118     0.197     0.242      0.000
0.000     0.000     0.394     0.160
       Diurnal Loss:     0.018     0.027     0.017     0.024     0.036      0.000
0.000     0.000     0.111     0.020
       Resting Loss:     0.057     0.098     0.052     0.084     0.120      0.000
0.000     0.000     0.328     0.069
       Running Loss:     0.071     0.099     0.063     0.088     0.104      0.000
0.000     0.000     0.000     0.074
     Crankcase Loss:     0.009     0.012     0.011     0.012     0.010      0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.026     0.083     0.108     0.091     0.226      0.000
0.000     0.000     0.000     0.065
  Total Non-Exhaust:     0.314     0.551     0.369     0.506     0.739      0.000
0.000     0.000     0.834     0.399

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*******************************************************************************
* MOBILE6.2 (31-Oct-2002)                                                     *
* Input file: CMH18MOB.IN (file 1, run 1).                                    *
*******************************************************************************

* Reading Registration Distributions from the following external
* data file: COLREGS.D

* # # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 2.5

* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of  2.5
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b
  M 48 Warning:
              there are no sales for vehicle class LDDT12

                    Calendar Year:  2018
                            Month:  July
                         Altitude:  Low
                Minimum Temperature:  64.9 (F)
                Maximum Temperature:  85.3 (F)
                  Absolute Humidity:   75. grains/lb
                   Nominal Fuel RVP:   9.0 psi
                      Weathered RVP:   9.2 psi
                Fuel Sulfur Content:   30. ppm

                Exhaust I/M Program:  No
                   Evap I/M Program:  No
                      ATP Program:  No
                  Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC    All Veh
              GVWR:                <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------
------    ------    ------    ------
    VMT Distribution:    0.2978    0.3918    0.1714              0.0385    0.0003
0.0025    0.0922    0.0055    1.0000

--------------------------------------------------------------------------------
---------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      4.077     4.979     4.245     4.755     5.474     0.167
0.395     0.854      8.84     4.231
     Composite CO  :     28.20     36.28     32.12     35.02     37.23     2.442
1.678     2.474    106.61    30.369
     Composite NOX :      0.686     1.102     1.035     1.082     0.548     0.118
0.337     3.401      1.05     1.155

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---------------------------------
Exhaust emissions (g/mi):
```



```
        VOC   Start:      0.098     0.176     0.145     0.166               0.023
0.051               0.384
      VOC   Running:      0.564     1.071     1.065     1.069               0.145
0.344               7.627
  VOC Total Exhaust:      0.662     1.247     1.211     1.236     0.819     0.167
0.395     0.854      8.01     1.048

         CO Start:      2.13      3.88      3.32      3.71               0.304
0.173               2.830
       CO Running:     26.07     32.40     28.80     31.30               2.138
1.505             103.785
   CO Total Exhaust:     28.20     36.28     32.12     35.02     37.23     2.442
1.678     2.474    106.61    30.369

         NOx Start:      0.053     0.128     0.091     0.117               0.003
0.008               0.382
       NOx Running:      0.633     0.974     0.944     0.965               0.115
0.329               0.665
  NOx Total Exhaust:      0.686     1.102     1.035     1.082     0.548     0.118
0.337     3.401      1.05     1.155

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---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:      0.077     0.103     0.072     0.094     0.146     0.000
0.000     0.000     0.394     0.083
       Diurnal Loss:      0.009     0.012     0.010     0.012     0.023     0.000
0.000     0.000     0.111     0.011
      Resting Loss:      0.028     0.035     0.028     0.033     0.066     0.000
0.000     0.000     0.328     0.031
      Running Loss:      3.278     3.530     2.861     3.327     4.247     0.000
0.000     0.000     0.000     3.013
     Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:      0.014     0.039     0.052     0.043     0.162     0.000
0.000     0.000     0.000     0.035
  Total Non-Exhaust:      3.415     3.732     3.034     3.557     4.654     0.000
0.000     0.000     0.834     3.183

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* # # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 15.0

* File 1, Run 1, Scenario 2.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 15.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b
  M 48 Warning:
              there are no sales for vehicle class LDDT12

                    Calendar Year:  2018
                            Month:  July
                         Altitude:  Low
                Minimum Temperature:  64.9 (F)
                Maximum Temperature:  85.3 (F)
                  Absolute Humidity:   75. grains/lb
```

```
                Nominal Fuel RVP:   9.0 psi
                   Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
             GVWR:               <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.2978    0.3918    0.1714              0.0385    0.0003
0.0025    0.0922    0.0055    1.0000

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-----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.652     0.907     0.807     0.877     1.021     0.103
0.241     0.473      3.04     0.788
     Composite CO  :      9.34     13.80     12.15     13.30     13.91     1.172
0.784     1.005     21.49    11.020
     Composite NOX :      0.380     0.687     0.633     0.670     0.619     0.077
0.219     2.201      0.93     0.723

-------------------------------------------------------------------------------------------
-----------------------------------
Exhaust emissions (g/mi):
       VOC   Start:     0.098     0.176     0.145     0.166               0.023
0.051                 0.384
       VOC   Running:     0.154     0.280     0.278     0.279               0.080
0.190                 1.826
  VOC Total Exhaust:     0.252     0.455     0.423     0.446     0.292     0.103
0.241     0.473      2.21     0.394

        CO Start:      2.13      3.88      3.32      3.71               0.304
0.173                 2.830
        CO Running:      7.21      9.92      8.83      9.59               0.868
0.611                18.656
   CO Total Exhaust:      9.34     13.80     12.15     13.30     13.91     1.172
0.784     1.005     21.49    11.020

        NOx Start:     0.053     0.128     0.091     0.117               0.003
0.008                 0.382
        NOx Running:     0.327     0.559     0.542     0.554               0.074
0.211                 0.552
  NOx Total Exhaust:     0.380     0.687     0.633     0.670     0.619     0.077
0.219     2.201      0.93     0.723

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-----------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.077     0.103     0.072     0.094     0.146     0.000
0.000     0.000     0.394     0.083
       Diurnal Loss:     0.009     0.012     0.010     0.012     0.023     0.000
0.000     0.000     0.111     0.011
      Resting Loss:     0.028     0.035     0.028     0.033     0.066     0.000
```



```
0.000     0.000     0.328     0.031
      Running Loss:     0.263     0.250     0.211     0.238     0.321     0.000
0.000     0.000     0.000     0.225
    Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
    Refueling Loss:     0.014     0.039     0.052     0.043     0.162     0.000
0.000     0.000     0.000     0.035
  Total Non-Exhaust:     0.400     0.452     0.384     0.435     0.729     0.000
0.000     0.000     0.834     0.395

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 25.0

* File 1, Run 1, Scenario 3.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 25.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b
  M 48 Warning:
             there are no sales for vehicle class LDDT12

                   Calendar Year:  2018
                           Month:  July
                        Altitude:  Low
              Minimum Temperature:  64.9 (F)
              Maximum Temperature:  85.3 (F)
                Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
             GVWR:               <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.2978    0.3918    0.1714              0.0385    0.0003
0.0025    0.0922    0.0055    1.0000

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-----------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.477     0.698     0.614     0.672     0.732     0.078
0.182     0.325      2.49     0.593
     Composite CO  :      7.82     11.81     10.38     11.37      8.11     0.822
0.538     0.600     14.01     9.178
     Composite NOX :      0.318     0.601     0.550     0.585     0.676     0.064
```

```
0.181     1.820      1.05     0.624

-------------------------------------------------------------------------------
---------------------------------
Exhaust emissions (g/mi):
        VOC   Start:     0.098     0.176     0.145     0.166               0.023
0.051               0.384
      VOC   Running:     0.107     0.194     0.192     0.193               0.055
0.131               1.271
  VOC Total Exhaust:     0.205     0.369     0.337     0.359     0.154     0.078
0.182     0.325      1.66     0.309

          CO Start:      2.13      3.88      3.32      3.71               0.304
0.173               2.830
         CO Running:      5.69      7.92      7.06      7.66               0.518
0.365              11.180
   CO Total Exhaust:      7.82     11.81     10.38     11.37      8.11     0.822
0.538     0.600     14.01     9.178

          NOx Start:     0.053     0.128     0.091     0.117               0.003
0.008               0.382
        NOx Running:     0.265     0.473     0.459     0.469               0.060
0.173               0.665
  NOx Total Exhaust:     0.318     0.601     0.550     0.585     0.676     0.064
0.181     1.820      1.05     0.624

-------------------------------------------------------------------------------
---------------------------------
Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.077     0.103     0.072     0.094     0.146     0.000
0.000     0.000     0.394     0.083
       Diurnal Loss:     0.009     0.012     0.010     0.012     0.023     0.000
0.000     0.000     0.111     0.011
       Resting Loss:     0.028     0.035     0.028     0.033     0.066     0.000
0.000     0.000     0.328     0.031
       Running Loss:     0.135     0.127     0.103     0.119     0.170     0.000
0.000     0.000     0.000     0.114
    Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.014     0.039     0.052     0.043     0.162     0.000
0.000     0.000     0.000     0.035
  Total Non-Exhaust:     0.273     0.328     0.276     0.316     0.577     0.000
0.000     0.000     0.834     0.284

-------------------------------------------------------------------------------
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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 30.0

* File 1, Run 1, Scenario 4.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 30.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b
  M 48 Warning:
              there are no sales for vehicle class LDDT12

                    Calendar Year:  2018
```



```
                                Month:  July
                             Altitude:  Low
                  Minimum Temperature:  64.9 (F)
                  Maximum Temperature:  85.3 (F)
                    Absolute Humidity:   75. grains/lb
                     Nominal Fuel RVP:   9.0 psi
                         Weathered RVP:   9.2 psi
                  Fuel Sulfur Content:   30. ppm

                  Exhaust I/M Program:  No
                     Evap I/M Program:  No
                          ATP Program:  No
                   Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

        Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV          MC   All Veh
                GVWR:                <6000     >6000     (All)
                            ------    ------    ------    ------    ------    ------
------     ------     ------     ------
   VMT Distribution:     0.2978    0.3918    0.1714              0.0385    0.0003
0.0025     0.0922     0.0055     1.0000

-------------------------------------------------------------------------------
---------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :       0.445     0.660     0.580     0.636     0.667     0.070
0.163     0.279      2.33     0.555
     Composite CO  :       7.62     11.55     10.16     11.13      6.72     0.733
0.475     0.496     11.96     8.908
     Composite NOX :       0.301     0.579     0.529     0.564     0.705     0.061
0.173     1.743      1.10     0.601

-------------------------------------------------------------------------------
---------------------------------
Exhaust emissions (g/mi):
        VOC   Start:     0.098     0.176     0.145     0.166               0.023
0.051               0.384
      VOC   Running:     0.098     0.178     0.176     0.177               0.047
0.112               1.113
  VOC Total Exhaust:     0.196     0.353     0.322     0.344     0.119     0.070
0.163     0.279      1.50     0.291

          CO Start:      2.13      3.88      3.32      3.71               0.304
0.173               2.830
         CO Running:      5.49      7.67      6.84      7.42               0.429
0.302               9.125
   CO Total Exhaust:      7.62     11.55     10.16     11.13      6.72     0.733
0.475     0.496     11.96     8.908

          NOx Start:     0.053     0.128     0.091     0.117               0.003
0.008               0.382
        NOx Running:     0.248     0.451     0.438     0.447               0.058
0.166               0.722
  NOx Total Exhaust:     0.301     0.579     0.529     0.564     0.705     0.061
0.173     1.743      1.10     0.601

-------------------------------------------------------------------------------
---------------------------------
Non-Exhaust Emissions (g/mi):
```

```
      Hot Soak Loss:     0.077     0.103     0.072     0.094     0.146     0.000
0.000     0.000     0.394     0.083
       Diurnal Loss:     0.009     0.012     0.010     0.012     0.023     0.000
0.000     0.000     0.111     0.011
       Resting Loss:     0.028     0.035     0.028     0.033     0.066     0.000
0.000     0.000     0.328     0.031
       Running Loss:     0.112     0.105     0.086     0.099     0.140     0.000
0.000     0.000     0.000     0.095
     Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.014     0.039     0.052     0.043     0.162     0.000
0.000     0.000     0.000     0.035
  Total Non-Exhaust:     0.249     0.307     0.259     0.295     0.548     0.000
0.000     0.000     0.834     0.264

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 35.0

* File 1, Run 1, Scenario 5.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 35.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

                     Calendar Year:  2018
                             Month:  July
                          Altitude:  Low
               Minimum Temperature:  64.9 (F)
               Maximum Temperature:  85.3 (F)
                 Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
               Fuel Sulfur Content:   30. ppm

               Exhaust I/M Program:  No
                  Evap I/M Program:  No
                       ATP Program:  No
                  Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.2978    0.3918    0.1714              0.0385    0.0003
0.0025    0.0922    0.0055    1.0000

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 Composite Emission Factors (g/mi):
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     Composite VOC :      0.419     0.632     0.554     0.608     0.621     0.064
0.149     0.244      2.21     0.526
     Composite CO  :      7.66     11.62     10.23     11.20      5.89     0.675
0.434     0.429     10.43     8.911
     Composite NOX :     0.292     0.570     0.520     0.555     0.733     0.060
0.172     1.727      1.15     0.594

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Exhaust emissions (g/mi):
        VOC   Start:     0.098     0.176     0.145     0.166               0.023
0.051               0.384
      VOC   Running:     0.091     0.165     0.163     0.164               0.041
0.098               0.989
  VOC Total Exhaust:     0.189     0.340     0.308     0.331     0.096     0.064
0.149     0.244      1.37     0.277

           CO Start:      2.13      3.88      3.32      3.71               0.304
0.173               2.830
         CO Running:      5.53      7.74      6.91      7.49               0.371
0.261               7.602
   CO Total Exhaust:      7.66     11.62     10.23     11.20      5.89     0.675
0.434     0.429     10.43     8.911

          NOx Start:     0.053     0.128     0.091     0.117               0.003
0.008               0.382
        NOx Running:     0.239     0.442     0.429     0.438               0.057
0.164               0.766
  NOx Total Exhaust:     0.292     0.570     0.520     0.555     0.733     0.060
0.172     1.727      1.15     0.594

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Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.077     0.103     0.072     0.094     0.146     0.000
0.000     0.000     0.394     0.083
       Diurnal Loss:     0.009     0.012     0.010     0.012     0.023     0.000
0.000     0.000     0.111     0.011
       Resting Loss:     0.028     0.035     0.028     0.033     0.066     0.000
0.000     0.000     0.328     0.031
       Running Loss:     0.092     0.089     0.073     0.084     0.117     0.000
0.000     0.000     0.000     0.079
     Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.014     0.039     0.052     0.043     0.162     0.000
0.000     0.000     0.000     0.035
  Total Non-Exhaust:     0.230     0.291     0.246     0.280     0.524     0.000
0.000     0.000     0.834     0.249

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 40.0

* File 1, Run 1, Scenario 6.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 40.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
  M 48 Warning:
```

```
             there are no sales for vehicle class HDGV8b
  M 48 Warning:
             there are no sales for vehicle class LDDT12

                  Calendar Year:  2018
                          Month:  July
                       Altitude:  Low
             Minimum Temperature:  64.9 (F)
             Maximum Temperature:  85.3 (F)
               Absolute Humidity:   75. grains/lb
                Nominal Fuel RVP:   9.0 psi
                   Weathered RVP:   9.2 psi
             Fuel Sulfur Content:   30. ppm

             Exhaust I/M Program:  No
                Evap I/M Program:  No
                     ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000     (All)
                          ------    ------    ------    ------    ------    ------
------    ------    ------    ------
    VMT Distribution:    0.2978    0.3918    0.1714              0.0385    0.0003
0.0025    0.0922    0.0055    1.0000

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 Composite Emission Factors (g/mi):
     Composite VOC :       0.401     0.616     0.540     0.593     0.586     0.060
0.139     0.219      2.12      0.508
     Composite CO  :       8.04     12.14     10.71     11.70      5.45     0.640
0.410     0.389      9.37      9.283
     Composite NOX :       0.294     0.575     0.525     0.560     0.762     0.062
0.176     1.771      1.18      0.603

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Exhaust emissions (g/mi):
       VOC   Start:      0.098     0.176     0.145     0.166               0.023
0.051               0.384
      VOC   Running:      0.090     0.162     0.160     0.161               0.037
0.088               0.903
  VOC Total Exhaust:      0.188     0.338     0.305     0.328     0.081     0.060
0.139     0.219      1.29      0.271

            CO Start:       2.13      3.88      3.32      3.71               0.304
0.173               2.830
         CO Running:       5.91      8.25      7.40      7.99               0.336
0.237               6.544
   CO Total Exhaust:       8.04     12.14     10.71     11.70      5.45     0.640
0.410     0.389      9.37      9.283

           NOx Start:      0.053     0.128     0.091     0.117               0.003
0.008               0.382
        NOx Running:      0.241     0.448     0.434     0.444               0.059
0.169               0.796
  NOx Total Exhaust:      0.294     0.575     0.525     0.560     0.762     0.062
```



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0.176     1.771      1.18      0.603

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Non-Exhaust Emissions (g/mi):
     Hot Soak Loss:      0.077     0.103     0.072     0.094     0.146     0.000
0.000     0.000     0.394     0.083
      Diurnal Loss:      0.009     0.012     0.010     0.012     0.023     0.000
0.000     0.000     0.111     0.011
     Resting Loss:      0.028     0.035     0.028     0.033     0.066     0.000
0.000     0.000     0.328     0.031
     Running Loss:      0.076     0.077     0.062     0.072     0.097     0.000
0.000     0.000     0.000     0.067
   Crankcase Loss:      0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
    Refueling Loss:      0.014     0.039     0.052     0.043     0.162     0.000
0.000     0.000     0.000     0.035
  Total Non-Exhaust:     0.213     0.278     0.235     0.268     0.505     0.000
0.000     0.000     0.834     0.237

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 45.0

* File 1, Run 1, Scenario 7.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
             The user supplied arterial average speed of 45.0
             will be used for all hours of the day.  100% of VMT
             has been assigned to the arterial/collector roadway
             type for all hours of the day and all vehicle types.
  M 48 Warning:
             there are no sales for vehicle class HDGV8b
  M 48 Warning:
             there are no sales for vehicle class LDDT12

                  Calendar Year:  2018
                          Month:  July
                       Altitude:  Low
             Minimum Temperature:  64.9 (F)
             Maximum Temperature:  85.3 (F)
               Absolute Humidity:   75. grains/lb
                Nominal Fuel RVP:   9.0 psi
                   Weathered RVP:   9.2 psi
             Fuel Sulfur Content:   30. ppm

             Exhaust I/M Program:  No
                Evap I/M Program:  No
                     ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                          Alcohol Blend RVP Waiver: Yes

       Vehicle Type:       LDGV    LDGT12    LDGT34      LDGT       HDGV       LDDV
 LDDT       HDDV         MC   All Veh
                GVWR:                <6000     >6000     (All)
                          ------    ------    ------    ------    ------    ------
------    ------    ------    ------
    VMT Distribution:    0.2978    0.3918    0.1714              0.0385    0.0003
```

```
0.0025    0.0922    0.0055    1.0000

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 Composite Emission Factors (g/mi):
     Composite VOC :      0.386     0.603     0.528     0.580     0.559     0.057
0.132     0.200     2.07     0.493
     Composite CO  :      8.42     12.66     11.20     12.21      5.33     0.623
0.397     0.369     8.71     9.674
     Composite NOX :      0.298     0.584     0.533     0.569     0.791     0.066
0.187     1.881     1.20     0.620

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Exhaust emissions (g/mi):
        VOC   Start:     0.098     0.176     0.145     0.166               0.023
0.051               0.384
      VOC   Running:     0.089     0.159     0.157     0.159               0.034
0.081               0.853
   VOC Total Exhaust:     0.187     0.335     0.302     0.325     0.071     0.057
0.132     0.200     1.24     0.267

            CO Start:      2.13      3.88      3.32      3.71               0.304
0.173               2.830
          CO Running:      6.29      8.77      7.88      8.50               0.319
0.224               5.876
    CO Total Exhaust:      8.42     12.66     11.20     12.21      5.33     0.623
0.397     0.369     8.71     9.674

           NOx Start:     0.053     0.128     0.091     0.117               0.003
0.008               0.382
         NOx Running:     0.245     0.456     0.442     0.452               0.063
0.179               0.819
   NOx Total Exhaust:     0.298     0.584     0.533     0.569     0.791     0.066
0.187     1.881     1.20     0.620

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Non-Exhaust Emissions (g/mi):
       Hot Soak Loss:     0.077     0.103     0.072     0.094     0.146     0.000
0.000     0.000     0.394     0.083
        Diurnal Loss:     0.009     0.012     0.010     0.012     0.023     0.000
0.000     0.000     0.111     0.011
       Resting Loss:     0.028     0.035     0.028     0.033     0.066     0.000
0.000     0.000     0.328     0.031
       Running Loss:     0.061     0.066     0.053     0.062     0.080     0.000
0.000     0.000     0.000     0.056
     Crankcase Loss:     0.009     0.012     0.011     0.012     0.010     0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.014     0.039     0.052     0.043     0.162     0.000
0.000     0.000     0.000     0.035
   Total Non-Exhaust:     0.199     0.268     0.226     0.258     0.488     0.000
0.000     0.000     0.834     0.226

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* # # # # # # # # # # # # # # # # # # # # # # # #
* COL  2005 MODEL RUN - VOC - ARTERIAL h0 - SPEED 50.0

* File 1, Run 1, Scenario 8.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
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            The user supplied arterial average speed of 50.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
 M 48 Warning:
            there are no sales for vehicle class HDGV8b
 M 48 Warning:
            there are no sales for vehicle class LDDT12

                  Calendar Year:  2018
                          Month:  July
                       Altitude:  Low
             Minimum Temperature:  64.9 (F)
             Maximum Temperature:  85.3 (F)
               Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   9.2 psi
             Fuel Sulfur Content:   30. ppm

             Exhaust I/M Program:  No
                Evap I/M Program:  No
                     ATP Program:  No
                Reformulated Gas:  No

  Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.420
  Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.036
                                         Alcohol Blend RVP Waiver: Yes

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV
 LDDT      HDDV        MC   All Veh
             GVWR:                <6000     >6000     (All)
                    ------    ------    ------    ------    ------    ------
------    ------    ------    ------
   VMT Distribution:    0.2978    0.3918    0.1714              0.0385    0.0003
0.0025    0.0922    0.0055    1.0000

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 Composite Emission Factors (g/mi):
     Composite VOC :      0.373     0.590     0.517     0.568     0.538     0.055
0.126     0.188     2.06     0.480
     Composite CO  :      8.80     13.18     11.69     12.73      5.50     0.620
0.396     0.366     8.43     10.082
     Composite NOX :      0.302     0.593     0.541     0.577     0.819     0.072
0.205     2.067     1.27     0.645

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Exhaust emissions (g/mi):
        VOC   Start:     0.098     0.176     0.145     0.166               0.023
0.051               0.384
      VOC   Running:     0.088     0.157     0.154     0.156               0.032
0.076               0.837
   VOC Total Exhaust:     0.186     0.332     0.299     0.322     0.065     0.055
0.126     0.188     1.22     0.264

            CO Start:      2.13      3.88      3.32      3.71               0.304
0.173               2.830
          CO Running:      6.67      9.30      8.37      9.02               0.316
0.223               5.603
    CO Total Exhaust:      8.80     13.18     11.69     12.73      5.50     0.620
0.396     0.366     8.43    10.082
```

```
          NOx Start:     0.053     0.128     0.091     0.117                0.003
0.008                0.382
        NOx Running:     0.249     0.465     0.450     0.460                0.069
0.198                0.889
  NOx Total Exhaust:     0.302     0.593     0.541     0.577     0.819      0.072
0.205     2.067      1.27     0.645

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Non-Exhaust Emissions (g/mi):
      Hot Soak Loss:     0.077     0.103     0.072     0.094     0.146      0.000
0.000     0.000     0.394     0.083
       Diurnal Loss:     0.009     0.012     0.010     0.012     0.023      0.000
0.000     0.000     0.111     0.011
       Resting Loss:     0.028     0.035     0.028     0.033     0.066      0.000
0.000     0.000     0.328     0.031
       Running Loss:     0.049     0.056     0.045     0.052     0.065      0.000
0.000     0.000     0.000     0.047
     Crankcase Loss:     0.009     0.012     0.011     0.012     0.010      0.000
0.000     0.000     0.000     0.010
     Refueling Loss:     0.014     0.039     0.052     0.043     0.162      0.000
0.000     0.000     0.000     0.035
  Total Non-Exhaust:     0.186     0.258     0.218     0.248     0.473      0.000
0.000     0.000     0.834     0.217

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