Harrisburg International Airport

DRAFT

NOISE EXPOSURE MAP UPDATE

July 2015

L&B

Aviation Planning at the Leading Edge

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HARRISBURG INTERNATIONAL AIRPORT

NOISE EXPOSURE MAP UPDATE

DRAFT

July 2015

Prepared for:

Susquehanna Area Regional Airport Authority
One Terminal Drive
Middletown, PA 17057

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

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Date

Susan McDonald
Environmental Specialist
Federal Aviation Administration
Harrisburg Airports District Office
3905 Hartzdale Drive, Suite 508
Camp Hill, PA 17011

Subject: Submission of Noise Exposure Maps for Harrisburg International Airport

Dear Ms. McDonald:

Enclosed please find five (5) copies of the above referenced document submitted under 14 C.F.R. Part 150 for appropriate FAA determination. Susquehanna Area Regional Airport Authority (SARAA) requests FAA acceptance of the updated Noise Exposure Maps (NEMs) for existing conditions (2015 NEM) and future conditions (2020 NEM) at the Harrisburg International Airport.

The future NEM is based upon reasonable forecasts and planning assumptions developed for the Airport. We herein verify that the documentation is representative of existing and future forecast conditions as of the date of submission. These NEMs are an update to the NEMs that were previously determined by the FAA to be in compliance with 14 C.F.R. Part 150.

On behalf of the SARAA, I would like to express appreciation to the FAA for its support in conducting the Noise Exposure Map Update. We look forward to an expeditious Federal review of the NEMs.

Sincerely,

Timothy Edwards
Executive Director
Susquehanna Area Regional Airport Authority

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PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
I. Submitting And Identifying The NEM:			
A. Submission is properly identified:			
1. 14 C.F.R. Part 150 NEM?	X		Chapter One, Page 1-1
2. NEM and NCP together?		X	n/a
3. Revision to NEMs FAA previously determined to be in compliance with Part 150?	X		Chapter One, Section 1.2
B. Airport and Airport Operator's name are identified?	X		Chapter One, Page 1-1
C. NCP is transmitted by airport operator's dated cover letter, describing it as a Part 150 submittal and requesting appropriate FAA determination?		X	n/a
II. Consultation: [150.21(b), A150.105(a)]			
A. Is there a narrative description of the consultation accomplished, including opportunities for public review and comment during map development?	X		Chapter One, Section 1.4 and Appendix B
B. Identification of consulted parties:			
1. Are the consulted parties identified?	X		Appendix B, Section B.1
2. Do they include all those required by 150.21(b) and A150.105(a)?	X		Appendix B, Section B.1
3. Agencies in 2., above, correspond to those indicated on the NEM?	X		Appendix B, Section B.1 and Existing (2015) and Future (2020) NEMs
C. Does the documentation include the airport operator's certification, and evidence to support it, that interested persons have been afforded adequate opportunity to submit their views, data, and comments during map development and in accordance with 150.21(b)?	X		Statement of Certification and Public Notification
D. Does the document indicate whether written comments were received during consultation and, if there were comments, that they are on file with the FAA regional airports division manager?	X		Appendix B, Section B.3
III. General Requirements: [150.21]			
A. Are there two maps, each clearly labeled on the face with year (existing condition year and one that is at least 5 years into the future)?	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map
B. Map currency:			
1. Does the year on the face of the existing condition map graphic match the year on the airport operator's NEM submittal letter?	X		Existing (2015) Noise Exposure Map and Transmittal Letter
2. Is the forecast year map based on reasonable forecasts and other planning assumptions and is it for at least the fifth calendar year after the year of submission?	X		Future (2020) Noise Exposure Map and Appendix F
3. If the answer to 1 and 2 above is no, the airport operator must verify in writing that data in the documentation are representative of existing condition and at least 5 years' forecast conditions as of the date of submission?		X	n/a

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
III. General Requirements: [150.21] ***[continued]***			
C. If the NEM and NCP are submitted together:			
1. Has the airport operator indicated whether the forecast year map is based on either forecast conditions without the program or forecast conditions if the program is implemented?		X	n/a
2. If the forecast year map is based on program implementation:			
a. Are the specific program measures that are reflected on the map identified?		X	n/a
b. Does the documentation specifically describe how these measures affect land use compatibilities depicted on the map?		X	n/a
3. If the forecast year NEM does not model program implementation, the airport operator must either submit a revised forecast NEM showing program implementation conditions [B150.3(b), 150.35(f)] or the sponsor must demonstrate the adopted forecast year NEM with approved NCP measures would not change by plus/minus 1.5 DNL? (150.21(d))		X	n/a
IV. Map Scale, Graphics, And Data Requirements: [A150.101, A150.103, A150.105, 150.21(a)]			
A. Are the maps of sufficient scale to be clear and readable (they must not be less than 1" to 2,000'), and is the scale indicated on the maps? (*Note (1) if the submittal uses separate graphics to depict flight tracks and/or noise monitoring sites, these must be of the same scale, because they are part of the documentation required for NEMs*.) (*Note (2) supplemental graphics that are not required by the regulation do not need to be at the 1" to 2,000' scale*)	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map at a scale of 1 inch equals 1,000 feet enclosed in pocket in the back of this document
B. Is the quality of the graphics such that required information is clear and readable? (*Refer to C. through G., below, for specific graphic depictions that must be clear and readable*)	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map at a scale of 1 inch equals 1,000 feet enclosed in pocket in the back of this document

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
IV. Map Scale, Graphics, And Data Requirements: [A150.101, A150.103, A150.105, 150.21(a)] ***[continued]***			
C. Depiction of the airport and its environs:			
1. Is the following graphically depicted to scale on both the existing condition and forecast year maps?			
a. Airport boundaries	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map
b. Runway configurations with runway end numbers	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map
2. Does the depiction of the off-airport data include?			
a. A land use base map depicting streets and other identifiable geographic features	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map
b. The area within the DNL[1] 65 dB (or beyond, at local discretion)	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map
c. Clear delineation of geographic boundaries and the names of all jurisdictions with planning and land use control authority within the DNL 65 dB (or beyond, at local discretion)	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map
D. 1.Continuous contours for at least the DNL 65, 70, and 75 dB?	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map
2. Has the local land use jurisdiction(s) adopted a lower local standard and if so, has the sponsor depicted this on the NEMs?		X	n/a
3. Based on current airport and operational data for the existing condition year NEM, and forecast data representative of the selected year for the forecast NEM?	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map; Appendix C, Section C-5; and Appendix F
E. Flight tracks for the existing condition and forecast year timeframes (these may be on supplemental graphics which must use the same land use base map and scale as the existing condition and forecast year NEM), which are numbered to correspond to accompanying narrative?	X		Appendix C, Exhibit C-11 and Exhibit C-12 and Supplemental Graphics included in the pocket in the back of this document
F. Locations of any noise monitoring sites (these may be on supplemental graphics which must use the same land use base map and scale as the official NEMs)		X	n/a

[1] [CNEL for California airports]

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
IV. Map Scale, Graphics, And Data Requirements: [A150.101, A150.103, A150.105, 150.21(a)] ***[continued]***			
G. Noncompatible land use identification:			
1. Are noncompatible land uses within at least the DNL 65 dB noise contour depicted on the map graphics?	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map
2. Are noise sensitive public buildings and historic properties identified? (*Note: If none are within the depicted NEM noise contours, this should be stated in the accompanying narrative text.*)	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map and Chapter 2, Section 2.3
3. Are the noncompatible uses and noise sensitive public buildings readily identifiable and explained on the map legend?	X		Existing (2015) Noise Exposure Map and Future (2020) Noise Exposure Map, and Appendix D
4. Are compatible land uses, which would normally be considered noncompatible, explained in the accompanying narrative?		X	n/a
V. Narrative Support Of Map Data: [150.21(a), A150.1, A150.101, A150.103]			
A. 1. Are the technical data and data sources on which the NEMs are based adequately described in the narrative?	X		Appendix C, Section C.5 and Appendix F
2. Are the underlying technical data and planning assumptions reasonable?	X		Appendix C, Section C.5 and Appendix E
B. Calculation of Noise Contours:			
1. Is the methodology indicated?	X		Appendix C, Section C.5
a. Is it FAA approved?	X		Appendix C, Section C.5
b. Was the same model used for both maps? (*Note: The same model also must be used for NCP submittals associated with NEM determinations already issued by FAA where the NCP is submitted later, unless the airport sponsor submits a combined NEM/NCP submittal as a replacement, in which case the model used must be the most recent version at the time the update was started.*)	X		Appendix C, Section C.5.1
c. Has AEE approval been obtained for use of a model other than those that have previous blanket FAA approval?		X	n/a
2. Correct use of noise models:			
a. Does the documentation indicate, or is there evidence, the airport operator (or its consultant) has adjusted or calibrated FAA-approved noise models or substituted one aircraft type for another that was not included on the FAA's pre-approved list of aircraft substitutions?		X	n/a
b. If so, does this have written approval from AEE, and is that written approval included in the submitted document?		X	n/a
3. If noise monitoring was used, does the narrative indicate that Part 150 guidelines were followed?		X	n/a

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
V. Narrative Support Of Map Data: [150.21(a), A150.1, A150.101, A150.103] ***[continued]***			
4. For noise contours below DNL 65 dB, does the supporting documentation include an explanation of local reasons? (*Note: A narrative explanation, including evidence the local jurisdiction(s) have adopted a noise level less than DNL 65 dB as sensitive for the local community(ies), and including a table or other depiction of the differences from the Federal table, is highly desirable but not specifically required by the rule. However, if the airport sponsor submits NCP measures within the locally significant noise contour, an explanation must be included if it wants the FAA to consider the measure(s) for approval for purposes of eligibility for Federal aid.*)		X	n/a
C. Noncompatible Land Use Information:			
1. Does the narrative (or map graphics) give estimates of the number of people residing in each of the contours (DNL 65, 70 and 75, at a minimum) for both the existing condition and forecast year maps?	X		Chapter Three, Section 3.3, and Table 3-2; Chapter Four, Section 4.3, and Table 4-2
2. Does the documentation indicate whether the airport operator used Table 1 of Part 150?	X		Chapter Three, Section 3.3; Chapter Four, Section 4.3; and Appendix A, Table A-1
a. If a local variation to table 1 was used:			
(1) Does the narrative clearly indicate which adjustments were made and the local reasons for doing so?		X	n/a
(2) Does the narrative include the airport operator's complete substitution for table 1?		X	n/a
3. Does the narrative include information on self- generated or ambient noise where compatible or noncompatible land use identifications consider non-airport and non-aircraft noise sources?		X	n/a
4. Where normally noncompatible land uses are not depicted as such on the NEMs, does the narrative satisfactorily explain why, with reference to the specific geographic areas?		X	n/a
5. Does the narrative describe how forecast aircraft operations, forecast airport layout changes, and forecast land use changes will affect land use compatibility in the future?	X		Chapter 2, Section 2.4 and Chapter Four, Section 4.3
VI. Map Certifications: [150.21(b), 150.21(e)]			
A. Has the operator certified in writing that interested persons have been afforded adequate opportunity to submit views, data, and comments concerning the correctness and adequacy of the draft maps and forecasts?	X		Statement of Certification and Public Notification
B. Has the operator certified in writing that each map and description of consultation and opportunity for public comment are true and complete under penalty of 18 U.S.C. § 1001?	X		Statement of Certification and Public Notification

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SPONSOR'S CERTIFICATION AND NOISE EXPOSURE MAPS

The following pages contain small-scale representations of the official Noise Exposure Maps (NEMs) for Existing (2015) and Future (2020) conditions at the Harrisburg International Airport. The official NEMs, at a scale of 1 inch equals 1,000 feet are included at the back of this document. The Existing (2015) NEM is based on data developed between 2014 and 2015 as further explained in this document in Chapter Three, *Baseline Noise* and Appendix C, *Noise Methodology*.

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STATEMENT OF CERTIFICATION AND PUBLIC NOTIFICATION

The Noise Exposure Maps and accompanying documentation for the Noise Exposure Maps for the Harrisburg International Airport, submitted in accordance with 14 C.F.R. Part 150 with the best available information are hereby certified as true and complete to the best of my knowledge and belief under penalty of 18 U.S.C. 1001. I verify that the data used to develop the Existing (2015) Noise Exposure Map is representative of existing conditions and that the data used to develop the Future (2020) Noise Exposure Map is representative of the five-year forecast condition. Interested persons have been afforded adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the Noise Exposure Maps and forecast of operations. The record and description of consultation and opportunity for public comment as provided herein are, to the best of my knowledge true and complete under penalty of 18 U.S.C. 1001.

_____ Date _____

Timothy Edwards
Executive Director
Susquehanna Area Regional Airport Authority

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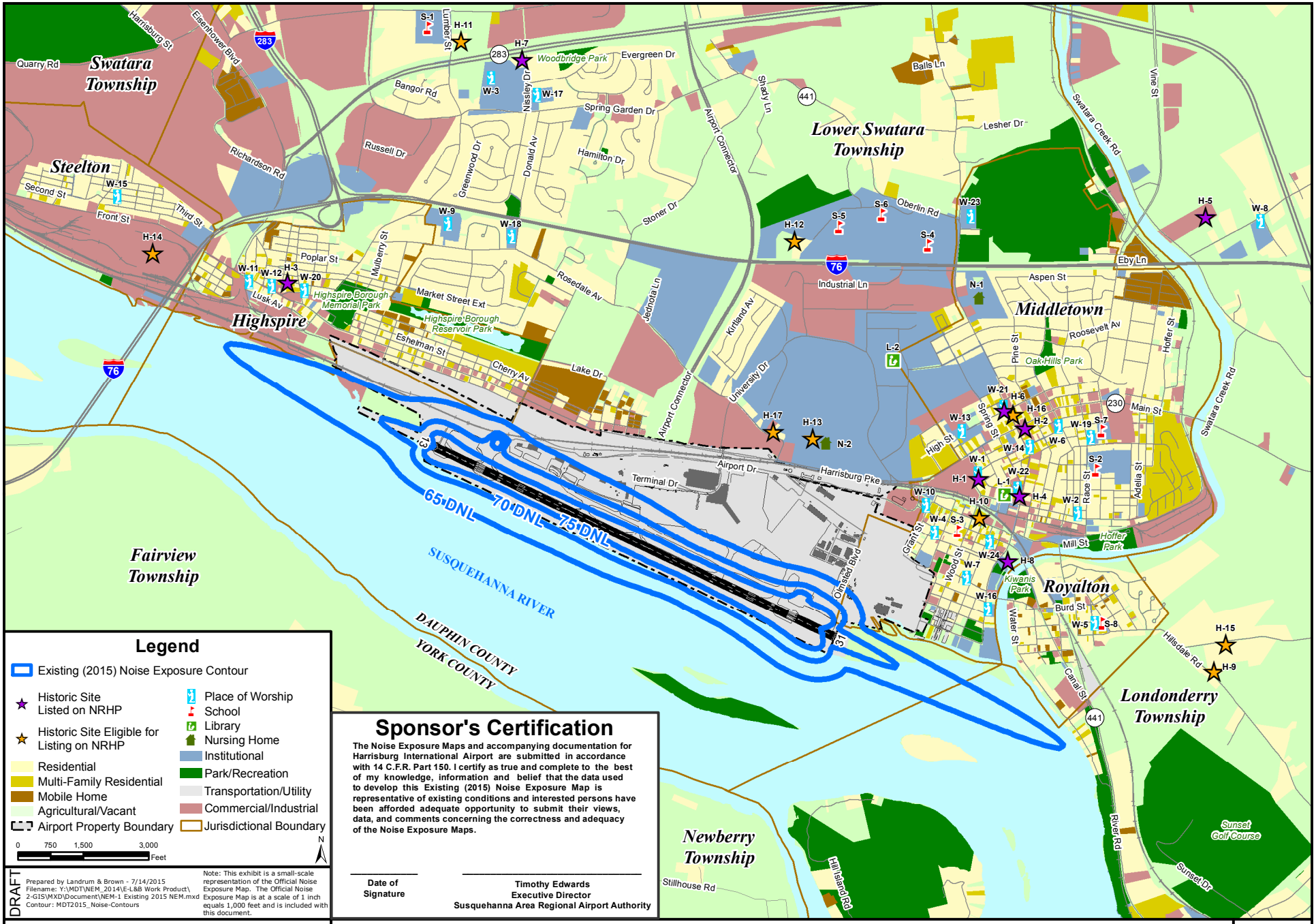

Legend

- Existing (2015) Noise Exposure Contour
- Historic Site Listed on NRHP
- Historic Site Eligible for Listing on NRHP
- Residential
- Multi-Family Residential
- Mobile Home
- Agricultural/Vacant
- Airport Property Boundary
- Place of Worship
- School
- Library
- Nursing Home
- Institutional
- Park/Recreation
- Transportation/Utility
- Commercial/Industrial
- Jurisdictional Boundary

0 750 1,500 3,000 Feet

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Prepared by Landrum & Brown - 7/14/2015
Filename: Y:\MDT\NEM_2014\E-L&B Work Product\2-GIS\MXD\Document\NEM-1 Existing 2015 NEM.mxd
Contour: MDT2015_Noise-Contours

Note: This exhibit is a small-scale representation of the Official Noise Exposure Map. The Official Noise Exposure Map is at a scale of 1 inch equals 1,000 feet and is included with this document.

Sponsor's Certification

The Noise Exposure Maps and accompanying documentation for Harrisburg International Airport are submitted in accordance with 14 C.F.R. Part 150. I certify as true and complete to the best of my knowledge, information and belief that the data used to develop this Existing (2015) Noise Exposure Map is representative of existing conditions and interested persons have been afforded adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the Noise Exposure Maps.

Date of Signature

Timothy Edwards
Executive Director
Susquehanna Area Regional Airport Authority

Noise Exposure Map Update

HIA Harrisburg International Airport — HARRISBURG INTERNATIONAL AIRPORT — L&B

Existing (2015) Noise Exposure Map

EXHIBIT:
NEM-1

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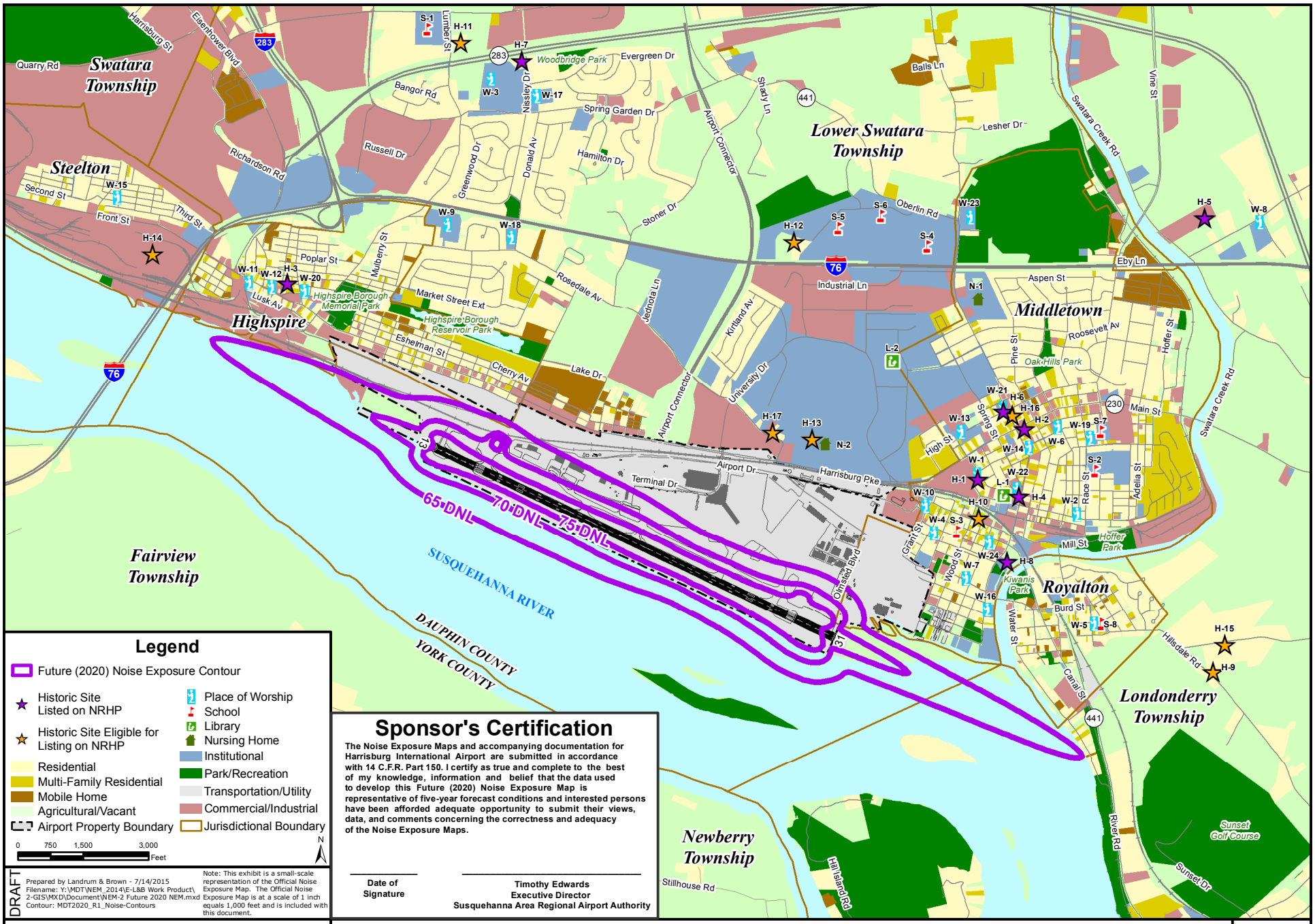

Legend

- Future (2020) Noise Exposure Contour
- Historic Site Listed on NRHP
- Historic Site Eligible for Listing on NRHP
- Residential
- Multi-Family Residential
- Mobile Home
- Agricultural/Vacant
- Airport Property Boundary
- Place of Worship
- School
- Library
- Nursing Home
- Institutional
- Park/Recreation
- Transportation/Utility
- Commercial/Industrial
- Jurisdictional Boundary

0 750 1,500 3,000 Feet

N

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Prepared by Landrum & Brown - 7/14/2015
Filename: Y:\MDT\NEM_2014\E-L&B Work Product\2-GIS\MXD\Document\NEM-2 Future 2020 NEM.mxd
Contour: MDT2020_R1_Noise-Contours

Note: This exhibit is a small-scale representation of the Official Noise Exposure Map. The Official Noise Exposure Map is at a scale of 1 inch equals 1,000 feet and is included with this document.

Sponsor's Certification

The Noise Exposure Maps and accompanying documentation for Harrisburg International Airport are submitted in accordance with 14 C.F.R. Part 150. I certify as true and complete to the best of my knowledge, information and belief that the data used to develop this Future (2020) Noise Exposure Map is representative of five-year forecast conditions and interested persons have been afforded adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the Noise Exposure Maps.

Date of Signature

Timothy Edwards
Executive Director
Susquehanna Area Regional Airport Authority

Noise Exposure Map Update

HIA Harrisburg International Airport — HARRISBURG INTERNATIONAL AIRPORT — L&B

Future (2020) Noise Exposure Map

EXHIBIT:
NEM-2

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Chapter One

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CHAPTER ONE
BACKGROUND

The Susquehanna Area Regional Airport Authority (SARAA) has conducted a Noise Exposure Map (NEM) Update for Harrisburg International Airport (MDT or Airport) to document the noise levels from aircraft operations. The NEM Update provides information on the existing and projected future five-year boundaries of significant levels of annual-average day noise exposure surrounding the Airport. This chapter provides the background information under which the NEM Update was prepared.

1.1 14 C.F.R. PART 150

Part 150 is a section of the Code of Federal Regulations (C.F.R.) that sets forth rules and guidelines for airports desiring to undertake airport noise compatibility planning. The regulations were promulgated by the Federal Aviation Administration (FAA) pursuant to the Aviation Safety and Noise Abatement Act (ASNA) of 1979, Public Law 96-193. ASNA was enacted to "…provide and carry out noise compatibility programs, to improve assistance to assure continued safety in aviation and for other purposes." The FAA was vested with the authority to implement and administer this act. This legislation required the establishment of a single system for measuring aircraft noise, determining noise exposure, and identifying land uses which are normally compatible with various noise exposure levels.

Through 14 C.F.R. Part 150, the FAA established regulations governing the technical aspects of aircraft noise analysis and the public participation process for airports choosing to conduct noise compatibility planning. The components of 14 C.F.R. Part 150 include the preparation of NEMs and a Noise Compatibility Program (NCP).

1.2 HISTORY OF NOISE COMPATIBILITY PLANNING AT HARRISBURG INTERNATIONAL AIRPORT

SARAA previously developed NEMs and an NCP for the Part 150 Study Update that was completed for MDT in 2005. That 2005 Part 150 Study prepared NEMs for 2004 and 2010 conditions, which were found to be in compliance with FAA guidance on January 13, 2006. In addition to updating the NEMs, the 2005 Part 150 Study prepared an NCP which included recommendations for improving land use compatibility in the vicinity of MDT. The NCP measures included a voluntary acquisition program (Measure LU-5) which recommended that SARAA initiate a program to offer voluntary acquisition to owners of residential properties that were significantly impacted by noise. Properties recommended for voluntary acquisition were located within or adjacent to the Future (2010) NEM/NCP 65+ Day Night Average Sound Level (DNL) noise exposure contour from the 2005 Part 150 Study. The voluntary acquisition area was developed to ensure that contiguous neighborhoods (block areas) would not be divided by eligibility status to participate in the voluntary acquisition program. Therefore, when a residential block was partially located within the 65+ DNL noise exposure contour, the entire block was included in the program.

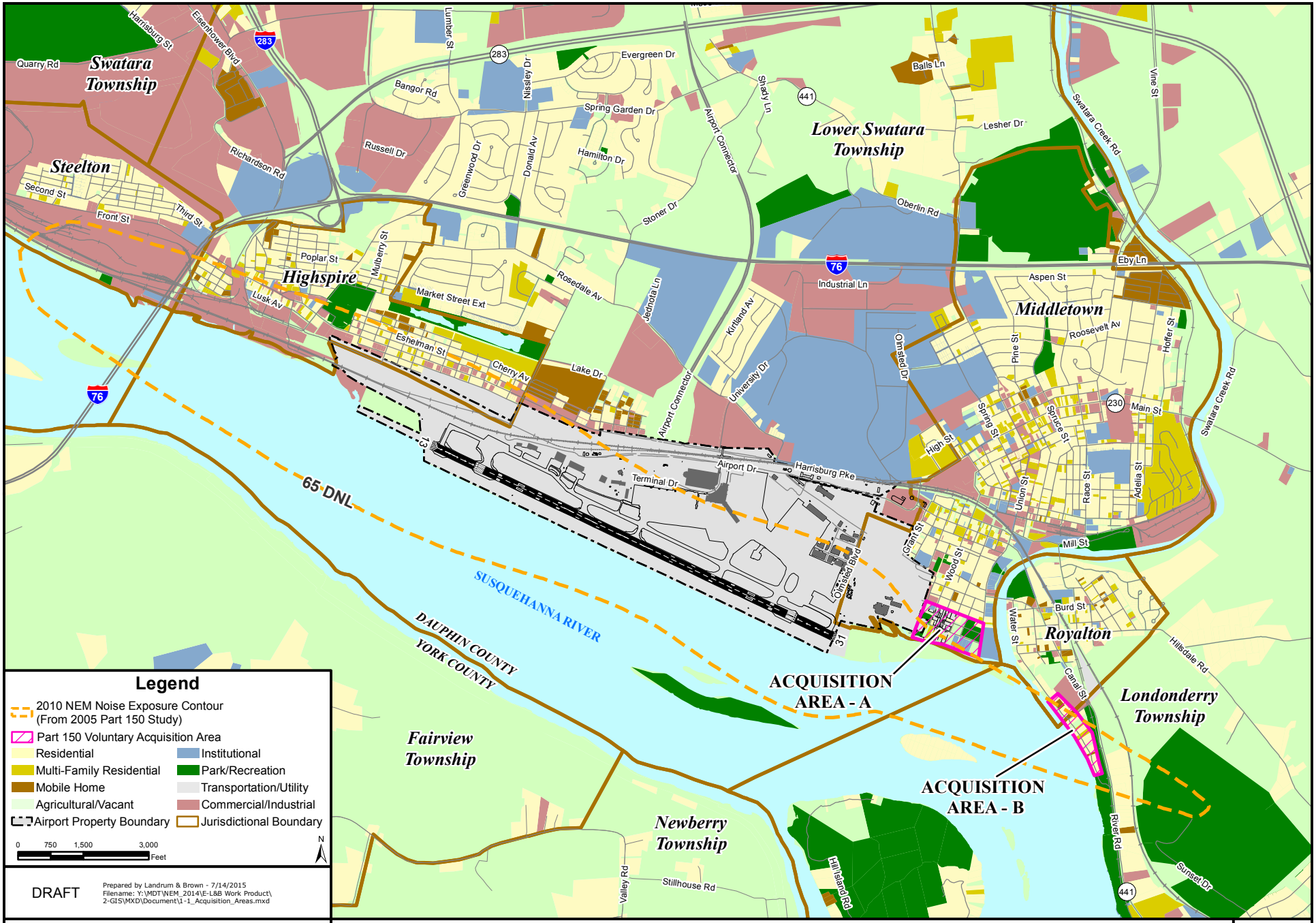
Exhibit 1-1, *Part 150 Voluntary Acquisition Program* shows the areas that were recommended for acquisition in the 2005 Part 150 Study. The program included two contiguous areas; Area A, which included 33 eligible residential properties south of Pike Street in Middletown, and Area B, which included 12 eligible residential properties on Water Street in Royalton, and Londonderry Township.

Implementation of the voluntary acquisition program was approved by the FAA in the Record of Approval of the NCP issued on July 7, 2006. Funding for the acquisition program was obtained through the Airport Improvement Program (AIP), which was created by the Airport and Airway Improvement Act of 1982 and is the primary source of FAA funding for land acquisition. Participation in the program was voluntary on the part of the property owners and implementation was dependent upon the availability of funding from the FAA and SARAA.

Under the voluntary acquisition program, SARAA acquired 26 residential parcels[1] in Middletown as shown on **Exhibit 1-2, *Voluntary Acquisition Program Status***. The residents of these properties were relocated and all residential structures were removed to convert these 26 properties to vacant land. Several property owners chose not to participate in the voluntary acquisition program and their occupied residences remain within Area A. Prior to initiating the acquisition program in Area B, the FAA requested that SARAA update the NEMs to demonstrate the eligibility of these properties for Federal assistance with the acquisition program.

This NEM Update Study has been undertaken to update the 2004 and 2010 NEMs from the 2005 Part 150 Study and determine if any modifications to the boundaries of the voluntary acquisition program area are required.

[1] Parcel acquisition data is current as of October 2014.



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Prepared by Landrum & Brown - 7/14/2015
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Noise Exposure Map Update

HIA Harrisburg International Airport
HARRISBURG INTERNATIONAL AIRPORT
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Part 150 Voluntary Acquisition Program

EXHIBIT:
1-1

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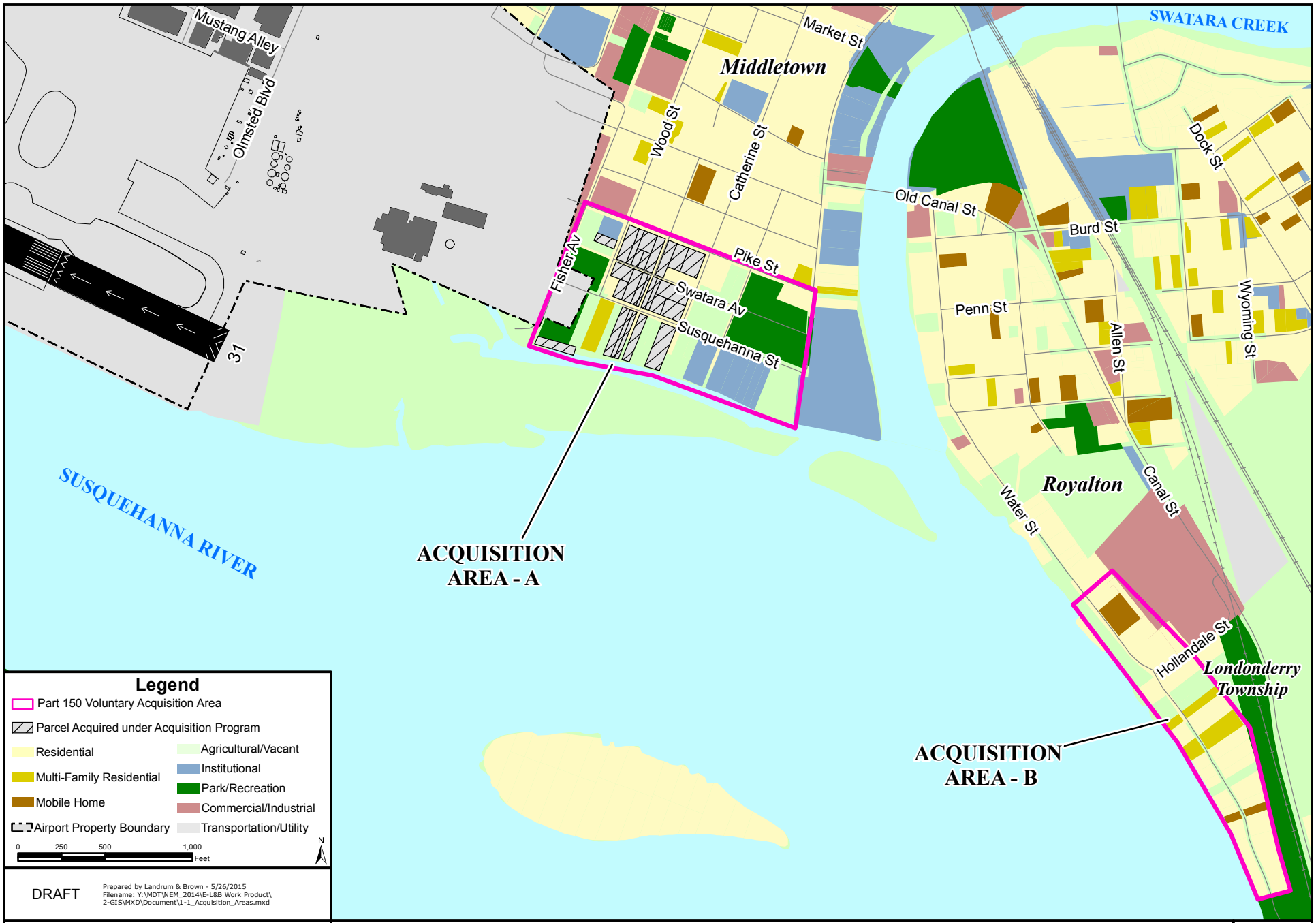

Noise Exposure Map Update

HIA Harrisburg International Airport — HARRISBURG INTERNATIONAL AIRPORT — L&B

Voluntary Acquisition Program Status

EXHIBIT: **1-2**

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1.3 NOISE EXPOSURE MAPS (NEM)

The NEM component of 14 C.F.R. Part 150 presents the Airport's noise exposure contours for the existing condition and a forecast condition five years from the date of submission of the maps for FAA review. The NEMs depict the noise exposure contours, lines connecting points of equal noise levels, overlaid onto a land use base map.

The current year noise exposure contour for this NEM Update is labeled 2015 and is based on actual operating levels from January 2014 through December 2014. During that twelve-month period, 50,855 operations occurred at MDT, which results in 140 average-annual day operations. As shown in **Table 1-1**, aircraft operating levels have decreased at MDT from 71,857 in 2005 to 50,855 in 2014. More information on the Existing (2015) NEM is included in Chapter Three.

Table 1-1
TOTAL ANNUAL AIRCRAFT OPERATIONS, 2005-2014
Harrisburg International Airport

CALENDAR YEAR	AIRCRAFT OPERATIONS				
	AIR CARRIER	AIR TAXI	GENERAL AVIATION	MILITARY	TOTAL
2005	10,000	38,181	15,358	8,318	71,857
2006	8,528	36,007	16,169	9,135	69,839
2007	10,195	33,291	18,615	9,187	71,288
2008	11,565	28,149	15,684	12,514	67,912
2009	10,165	27,495	20,013	19,757	77,430
2010	8,912	30,733	21,782	22,710	84,137
2011	7,889	33,493	21,164	19,355	81,901
2012	7,877	30,982	9,525	8,021	56,405
2013	8,135	27,717	10,119	8,440	54,411
2014	12,094	19,212	11,215	8,334	50,855

Source: Federal Aviation Administration, Operations Network (OPSNET)

The Future (2020) NEM presents the Airport's noise exposure contours for future (2020) conditions. The Future NEM is labeled 2020 because it is five years from the date of the Existing (2015) NEM. The operating levels forecasted for the year 2020 from the latest forecast were used to model 2020 conditions. More information on this forecast is included in Appendix F, *Forecast of Aviation Activity*. The Future (2020) NEM is based on 59,741 annual operations or 164 average-annual day operations, an increase of 17 percent from the Existing (2015) NEM operating levels. More information on the Future (2020) NEM is included in Chapter Four.

The NEM noise exposure contours for both years are superimposed on a land use map to show areas where any incompatible land uses exist. Incompatible land uses include residences, schools, libraries, hospitals, nursing homes, and places of worship. Appendix C, *Noise Modeling Methodology*, contains detailed information on the input data and methodology for preparing the noise exposure contours.

A copy of the official Existing (2015) and Future (2020) NEMs at a scale of 1 inch equals 1,000 feet are included in a pocket in the back of this document. Small-scale representations of the official NEMs are located at the front of this document with the NEM checklist.

14 C.F.R. Part 150 requires the use of standard methodologies and metrics for analyzing and describing noise. It also establishes guidelines for the identification of land uses that are incompatible with noise of different levels. Section 150.21(d) of 14 C.F.R. Part 150 states that airport proprietors are required to update NEMs when changes in the operation of the airport would create any new, substantial incompatible use. This is considered to be an increase in DNL of 1.5 decibels (dB) over incompatible land uses when the aircraft noise level exceeds 65 DNL. Of course, the airport operator may update the NEMs at any time based on their own needs and concerns.

The airport proprietor can gain limited protection through preparation, submission, and publication of NEMs. ASNA provides in Section 107(a) that:

> "No person who acquires property or an interest therein … in an area surrounding an airport with respect to which a noise exposure map has been submitted shall be entitled to recover damages with respect to the noise attributable to such airport if such person had actual or constructive knowledge of the existence of such noise exposure map unless … such person can show that:
>
> i. A significant change in the type or frequency of aircraft operations at the airport; or
>
> ii. A significant change in the airport layout; or
>
> iii. A significant change in the flight patterns; or
>
> iv. A significant increase in nighttime operations; occurred after the date of acquisition of such property."

ASNA provides that "constructive knowledge" shall be imputed to any person if a copy of the NEM was provided to them at the time of property acquisition or if notice of the existence of the NEM was published three times in a newspaper of general circulation in the area. In addition, Part 150 defines "significant increase" as occurring when a "change in the operation of an airport creates a substantial new noncompatible use if that change results in an increase in the yearly day-night average sound level of 1.5 dB or greater in either a land area which was formerly compatible but is thereby made noncompatible (see Appendix A, *FAA Policies, Guidance, and Regulations*, Table A-1), or in a land area which was previously determined to be noncompatible…and whose noncompatibility is now significantly increased." (14 C.F.R. Part 150, Section 150.21(d), (f), and (g)).

1.4 PUBLIC INVOLVEMENT

A key element in the NEM Update process is public involvement. The public involvement process was designed to inform and gather input from the public regarding the methodology and findings of the NEM Update. The following sections describe the public involvement process for this NEM Update.

1.4.1 PUBLIC INFORMATION MEETING / PUBLIC HEARING

A Public Information Meeting / Public Hearing is scheduled to be held to present the Draft NEMs and supporting documentation and gather public comment. The meeting information is listed below:

Date: Thursday, August 20, 2015
Time: 5:30 p.m. – 7:00 p.m.
Location: Penn State Harrisburg Library Room 101 (Morrison Gallery)
351 Olmsted Drive
Middletown, PA, 17057

Meeting materials, including meeting advertisements, sign-in sheets, handouts, presentation boards, and comments received will be included in Appendix B, *Public Involvement*.

1.4.2 PUBLIC COMMENT PERIOD

14 C.F.R. Part 150 requires that Draft NEM documents be made available for public comment prior to submission to the FAA. The Draft NEM document was made available to the public at local libraries, the Airport, and on-line at http://www.airportsites.net/MDT-NEM/. Public Information Meetings/Public Hearings are scheduled to be held on August 20, 2015 to obtain public comments as described in Appendix B of this document.

1.5 AIRPORT FACILITIES AND ACTIVITY

MDT is a publicly-owned airport operated by SARAA. Members of SARAA represent Cumberland, Dauphin, and York counties, the cities of Harrisburg and York, and the townships of Fairview and Lower Swatara. The following sections provide a basic discussion of the history of the Airport, a description of the area surrounding the Airport, an inventory of the existing airport facilities, and a description of the current aircraft activity at MDT.

1.5.1 AIRPORT LOCATION

MDT is located in Dauphin County in Central Pennsylvania, approximately 7 miles southeast of downtown Harrisburg. The Airport is bounded to the north by State Route 230 and an adjacent railroad corridor. The airport boundary to the east and south is established by the Susquehanna River. MDT serves central Pennsylvania, with the primary service region of Dauphin, Lebanon, Lancaster, York, Adams, Cumberland, and Perry counties, serving some 2.2 million Pennsylvania residents. **Exhibit 1-3, *Airport Location Map***, shows the general Airport location and surroundings.

1.5.2 AIRPORT HISTORY

Central Pennsylvania has been served by MDT for over 100 years, beginning with the Signal Corps of the U.S. Army stationed there in 1898. The first planes landed in 1918 at what was then called Olmsted Air Force Base. The base was decommissioned in 1969. At that time, MDT began to the serve the public, under the ownership of the Commonwealth of Pennsylvania.

Ownership of MDT was transferred to SARAA in 1998 to oversee the operation of MDT and Capital City Airport, a general aviation facility located approximately 3.5 miles west of MDT. On July 29th, 2004, SARAA acquired the Chambersburg Municipal Airport and renamed it the Franklin County Regional Airport and on August 25th, 2006, SARAA acquired the Gettysburg Travel Center and renamed it the Gettysburg Regional Airport.

1.5.3 CURRENT AIRPORT OPERATORS AND SERVICE

Harrisburg International Airport is served by the following major airlines and/or their regional partners:

- Air Canada
- Allegiant
- American Airlines / US Airways
- Delta Air Lines
- United Airlines

These carriers provide daily, nonstop service to 10 destinations with one-stop connections to cities around the world as of May 2015.

1.5.4 AIRPORT FACILITIES

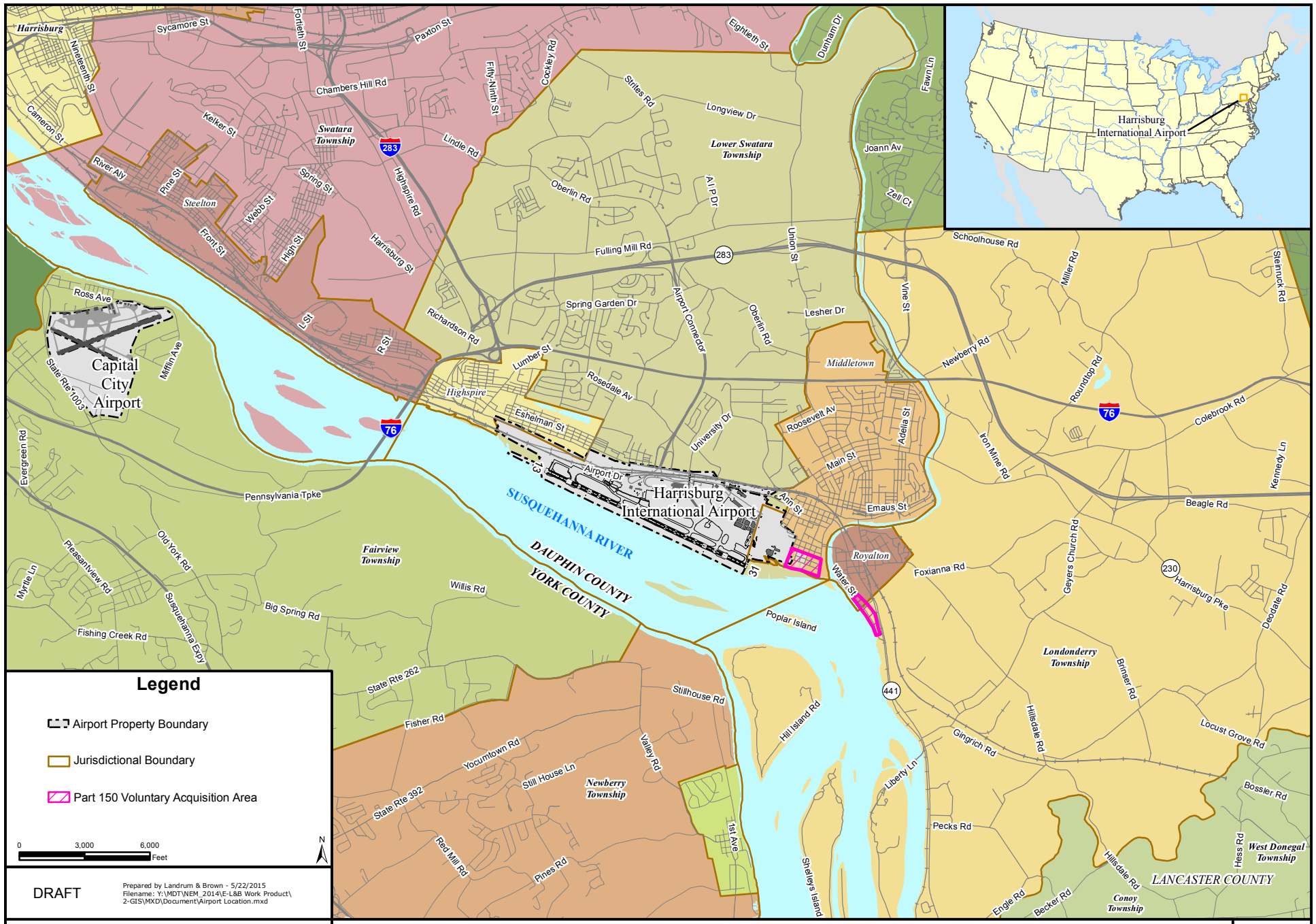
The current airport layout and facilities are shown in **Exhibit 1-4, *Existing Airport Layout***, and described in the following sections.

1.5.4.1 Airside Facilities

There is one runway at MDT, Runway 13/31, which is 10,001 feet long by 200 feet wide. The runway runs parallel to the Susquehanna River. Both runway ends have 993-foot displaced arrival thresholds and each runway end is equipped with an instrument landing system (ILS).

1.5.4.2 Terminal Facilities

A 12-gate terminal building opened in late September 2004 at MDT. This facility provides travelers with easy access to ticket counters, baggage claim, and departure gates. The facility is divided into three concourses, designated Concourse A, Concourse B, and Concourse C. Security checkpoints are located in the center of the building with departure gates in close proximity.



Noise Exposure Map Update

HARRISBURG INTERNATIONAL AIRPORT

Airport Location

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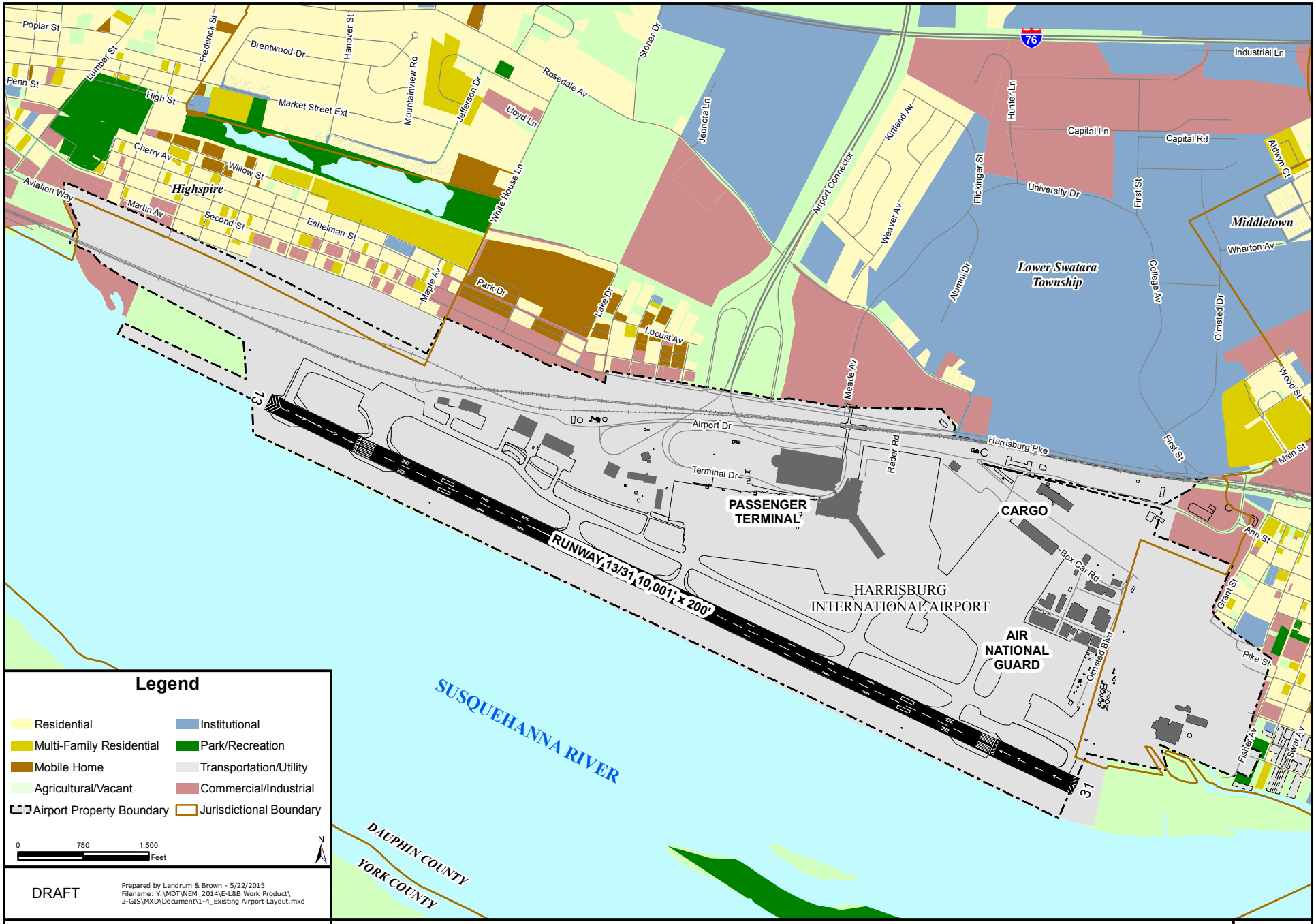

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Noise Exposure Map Update

HIA Harrisburg International Airport
HARRISBURG INTERNATIONAL AIRPORT
L&B

Existing Airport Layout

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1-4

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In addition to the new terminal building, there is a new multi-modal transportation facility (MMTF) that is connected to the second floor via a climate controlled aerial walkway with moving sidewalks that provide access to the terminal building. The top three levels of the MMTF house short-term and long-term parking. Taxis, limos, hotel shuttles, busses, and rental car ready/return lots are located on the first level.

1.5.4.3 Cargo Facilities

The Air Cargo Center is located on the northeast side of the airfield and provides facilities to air cargo carriers that transport cargo to and from MDT.

1.5.4.4 Pennsylvania Air National Guard (PANG)

MDT is also the site of the Harrisburg Air National Guard Station and serves as the home of the Pennsylvania Air National Guard (PANG) 193rd Special Operations Wing (193 SOW). The 193rd SOW maintains a fleet of C-130 aircraft and support assets for prompt mobilization. The PANG facilities are located on the east side of the airfield. The PANG base consists of support facilities, including warehouses, a maintenance hangar, an administration building, and the commissary.

1.5.4.5 General Aviation and Fixed-Base Operator (FBO)

Corporate facilities are located at the west end of the airfield. These facilities include several aircraft hangars, tiedowns, and a fixed based operator (FBO) facility. Avflight Harrisburg provides FBO service at MDT, including general aviation parking, hanger rental, oxygen service, aircraft maintenance service, aircraft fueling, deicing, catering, and other services. The Airport Traffic Control Tower (ATCT) is located to the east of the corporate hangars.

A total of 34 aircraft were based at the Airport as of April 2015. **Table 1-2** provides the number of aircraft based at MDT by aircraft type.

Table 1-2
BASED AIRCRAFT
Harrisburg International Airport

AIRCRAFT TYPE	NUMBER
Single engine airplanes	9
Multi engine airplanes	9
Jet airplanes	8
Military Aircraft	8
Total aircraft based on the field	**34**

Source: www.airnav.com. Airport information published as of April 15, 2015.

1.5.5 ANNUAL OPERATIONS

The number of annual operations at MDT for the Existing (2015) Baseline period was approximately 50,855, which results in 140 average-annual day operations. The number of annual operations at MDT was based on FAA Operations Network (OPSNET) data.[2] **Table 1-3** shows a breakdown of the Existing (2015) Baseline average daily operations by primary user groups. For a detailed breakdown of the annual operations by specific aircraft type, refer to Appendix C.

Table 1-3
AVERAGE DAILY AIRCRAFT OPERATIONS BY USER GROUP
EXISTING (2015) BASELINE CONDITION
Harrisburg International Airport

AIRCRAFT USER GROUP[3]	TOTAL	PERCENT
Air Carrier	12,094	23.8%
Air Taxi	19,212	37.8%
General Aviation	11,215	22.1%
Military	8,334	16.4%
Total	**50,855**	**100.0%**

Note: Total percentage may not equal the sum of the category percentages due to rounding.
Source: FAA Operational Network (OPSNET), January 2014 to December 2014.

As shown in Table 1-3, air taxi operations comprise the greatest percentage (37.8 percent) of operations at MDT. These operations include commercial passenger and/or cargo flights using small (50-seat) regional jets and turboprops.

[2] FAA OPSNET Data for January 2014 through December 2014, accessed February 2015.

[3] FAA defines air carrier operations as aircraft with seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds carrying passengers or cargo for hire or compensation. Conversely, air taxi operations include aircraft designed to have a maximum seating capacity of 60 seats or less or a maximum payload capacity of 18,000 pounds or less carrying passengers or cargo for hire or compensation. General aviation (GA) includes takeoffs and landings of all civil aircraft, except those classified as air carriers or air taxis. GA and military operations can be either local operations, meaning they operate in the local traffic pattern or takeoff and land at airports within a 20-mile radius of each other, or itinerant (non-local) operations.

Chapter Two

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CHAPTER TWO
AFFECTED ENVIRONMENT

Airports and aircraft operations generally have direct benefits and impacts upon surrounding communities as airport activity is inherently intertwined with its neighbors. This includes both positive and negative impacts. Identifying and evaluating land uses surrounding an airport is an important step in quantifying potential impacts through the NEM Update process. This evaluation identifies the residential and other noise-sensitive land uses around MDT. A discussion of the land use mapping methodology is provided in Appendix D, *Land Use Assessment Methodology*.

2.1 AIRPORT LOCATION

MDT is located in Dauphin County, approximately seven miles west of downtown Harrisburg, in central Pennsylvania.

2.2. AIRPORT ENVIRONS

The Airport Environs refers to the regional area that may experience broader effects from the noise of aircraft operations. The Airport Environs for MDT is shown in **Exhibit 2-1, *Airport Environs***, and includes portions of Dauphin County and York County; including the boroughs of Highspire, Middletown, Royalton, and Steelton; Fairview Township, Londonderry Township, Newberry Township, Swatara Township, and Lower Swatara Township. These jurisdictions generally share both the benefits and the potentially negative impacts of airport operations at MDT, and therefore, are the subject of the land use evaluation in this study. The Airport Environs, shown on Exhibit 2-1, encompasses an area of approximately 23 square miles. The map includes jurisdictional boundaries, local roads and major highways, the Airport property boundary, and other significant geographical features. The Airport Environs was delineated based upon previous noise exposure contours as well as radar data showing existing flight tracks. The Airport Environs map extends to the east by approximately 2.2 miles from Runway 13/31, to the west by approximately 2.1 miles west of Runway 13/31, and to the north and south by approximately 1.5 to 2.5 miles from the centerline of Runway 13/31.

2.3 EXISTING LAND USES WITHIN THE AIRPORT ENVIRONS

Land uses in the Airport Environs were identified, mapped, and categorized in terms of the general land use classifications presented in 14 C.F.R. Part 150, which includes residential (single and multi-family), commercial/industrial, public/ institutional, agriculture/vacant/open space, and parks/recreation. These land uses were identified based on Dauphin County's Geographic Information System (GIS) database, and supplemented as necessary by field verification. Appendix D provides additional detailed information regarding the classification and identification of land uses. **Exhibit 2-2, *Generalized Existing Land Use***, depicts

the existing land uses within the Airport Environs. The methodology for grouping specific land use types into the general categories shown in Exhibit 2-2 is discussed in Appendix D.

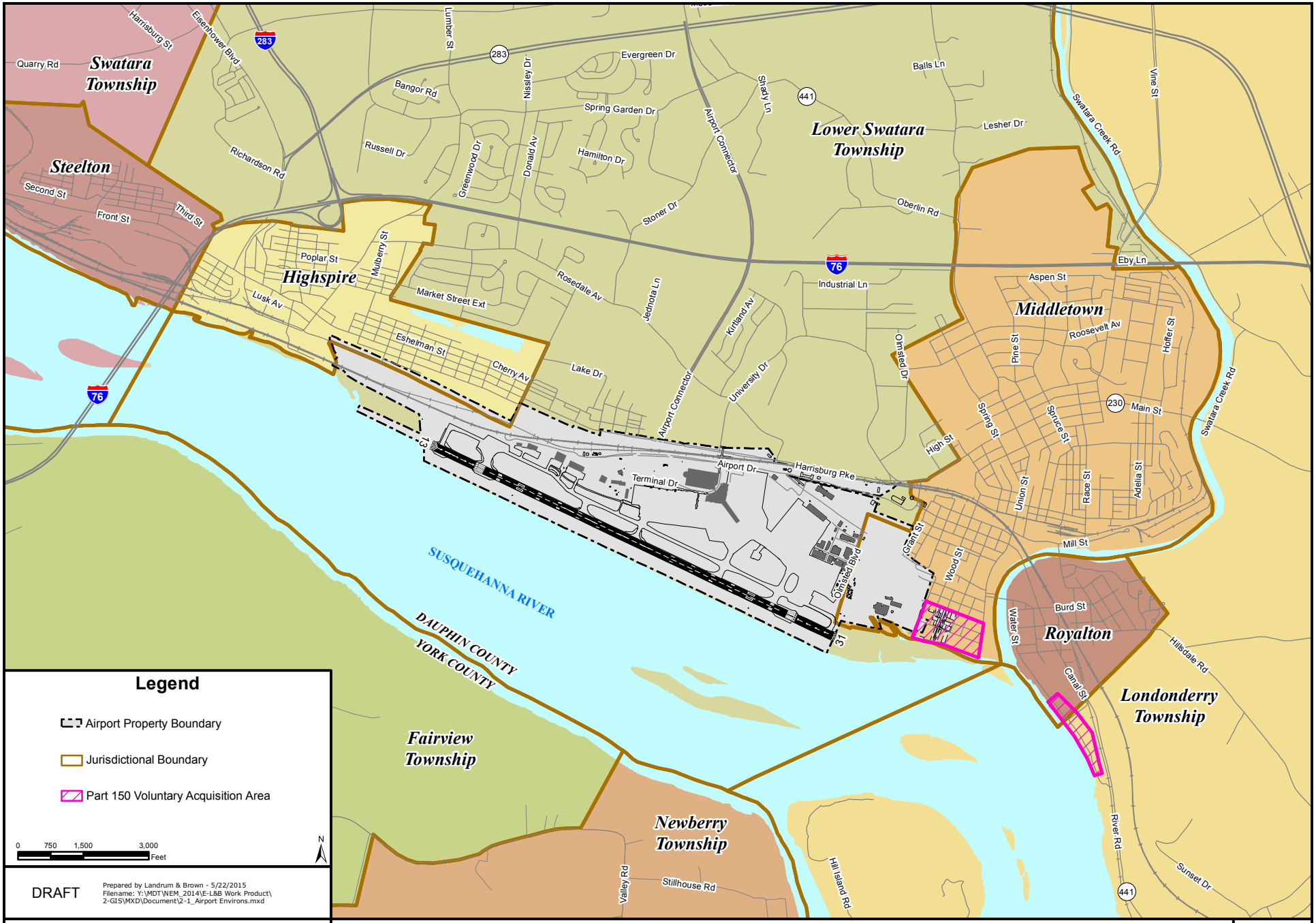
The area for which existing land uses were identified involves two levels of delineation: 1) the area directly adjacent to the Airport and the areas directly in line with the orientation of the runways; and 2) the regional area that may experience the broader effects of aircraft overflight and noise impacts. To the immediate north and northeast of MDT, land uses are characterized by commercial, residential, and institutional uses, including the Penn State University Harrisburg Campus. The Susquehanna River is located to the east and south of MDT. To the west of MDT, land uses include residential, recreational, and commercial/industrial property.

2.3.1 EXISTING NOISE-SENSITIVE PUBLIC FACILITIES

Land uses that could be considered incompatible with airport operations include more than just residential uses. FAA guidelines define certain public facilities as noise-sensitive, including: places of worship, schools (and daycare facilities at which licensed education occurs), hospitals, nursing homes, and libraries. Detailed information on noise-sensitive facilities was collected within the vicinity of MDT. Within this area there are 8 schools, 2 libraries, 2 nursing homes, and 24 places of worship as shown on **Exhibit 2-3, *Existing Noise-Sensitive Public Facilities***. Appendix D discusses the methodology for collecting and organizing the noise-sensitive facility data and Table D-2 provides a list of all facilities.

2.3.2 EXISTING HISTORIC PROPERTIES

Per FAA guidance, historic properties in the vicinity of MDT have been identified and are displayed on the NEMs. Historic properties include those properties that are listed on the National Register of Historic Places (NRHP). There are eight properties listed on the NRHP within this area as shown on **Exhibit 2-4, *Historic Resources*** and listed in Appendix D. There are an additional ten sites that have been determined eligible for the NRHP but have not been nominated or accepted for listing on the NRHP.


Swatara Township
Steelton
Highspire
Lower Swatara Township
Middletown
Royalton
Londonderry Township
Fairview Township
Newberry Township
SUSQUEHANNA RIVER
DAUPHIN COUNTY
YORK COUNTY
Harrisburg Pke
Airport Dr
Terminal Dr
Airport Connector
Industrial Ln
Oberlin Rd
Eby Ln
Main St
Mill St
Burd St
Lake Dr
Market Street Ext
Eshelman St
Cherry Av
Lusk Av
Poplar St
Second St
Front St
Third St
Quarry Rd
Harrisburg St
Eisenhower Blvd
Bangor Rd
Evergreen Dr
Spring Garden Dr
Russell Dr
Richardson Rd
Hamilton Dr
Stoner Dr
Rosedale Av
Jedhota Ln
Kirkland Av
University Dr
Omsted Dr
Aspen St
Roosevelt Av
Pine St
Hoffer St
Spring St
Spruce St
Race St
Adelia St
Union St
High St
Wood St
Grant St
Water St
Canal St
Hillsdale Rd
River Rd
Sunset Dr
Hill Island Rd
Valley Rd
Stillhouse Rd
Swatara Creek Rd
Vine St
Balls Ln
Lesher Dr
Shady Ln
Nissley Dr
Donald Av
Greenwood Dr
Mulberry St
Lumber St
Legend
Airport Property Boundary
Jurisdictional Boundary
Part 150 Voluntary Acquisition Area
0 750 1,500 3,000
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Prepared by Landrum & Brown - 5/22/2015
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Noise Exposure Map Update
HARRISBURG INTERNATIONAL AIRPORT
Airport Environs
EXHIBIT:
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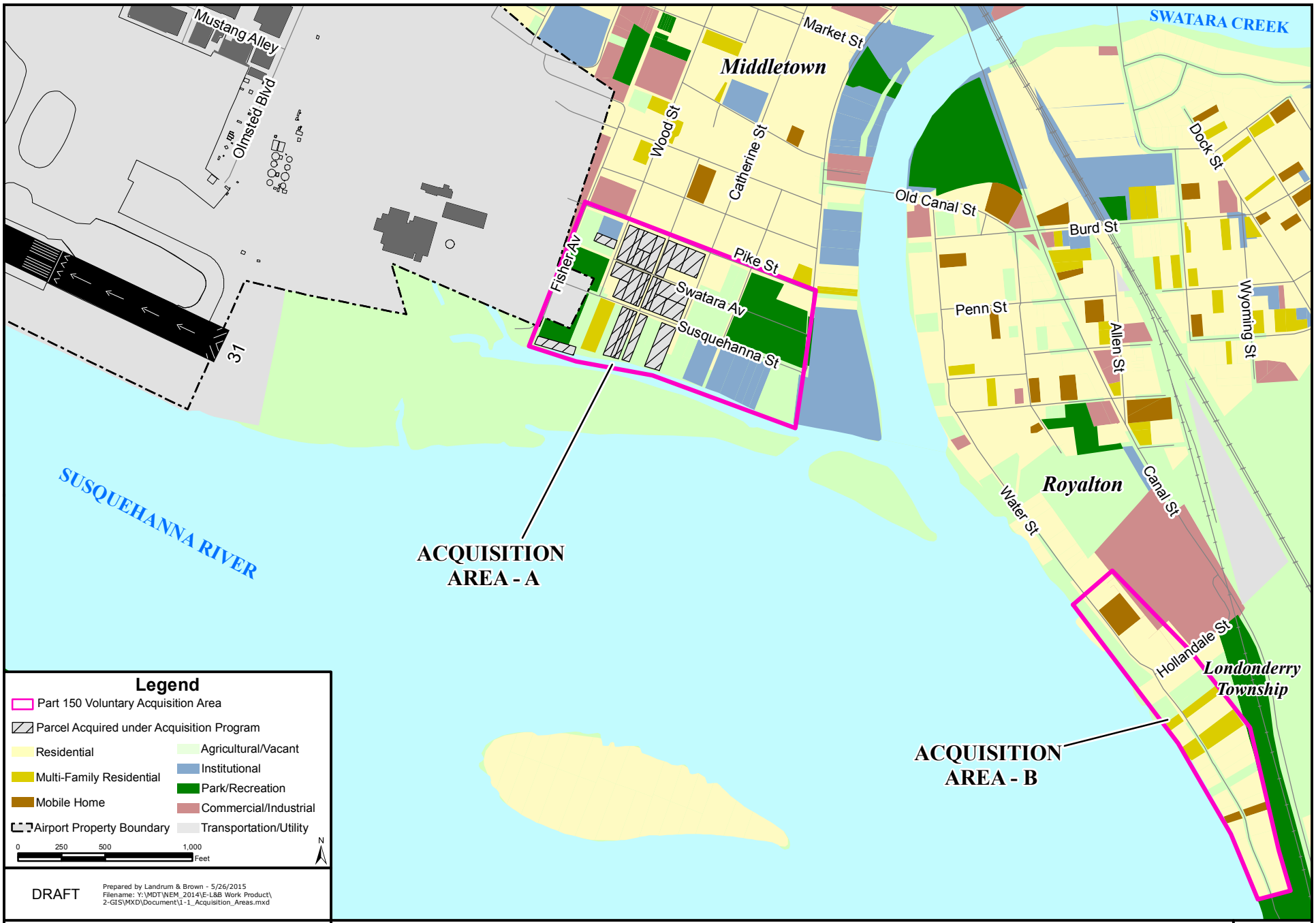

Noise Exposure Map Update

HIA Harrisburg International Airport — HARRISBURG INTERNATIONAL AIRPORT — L&B

Voluntary Acquisition Program Status

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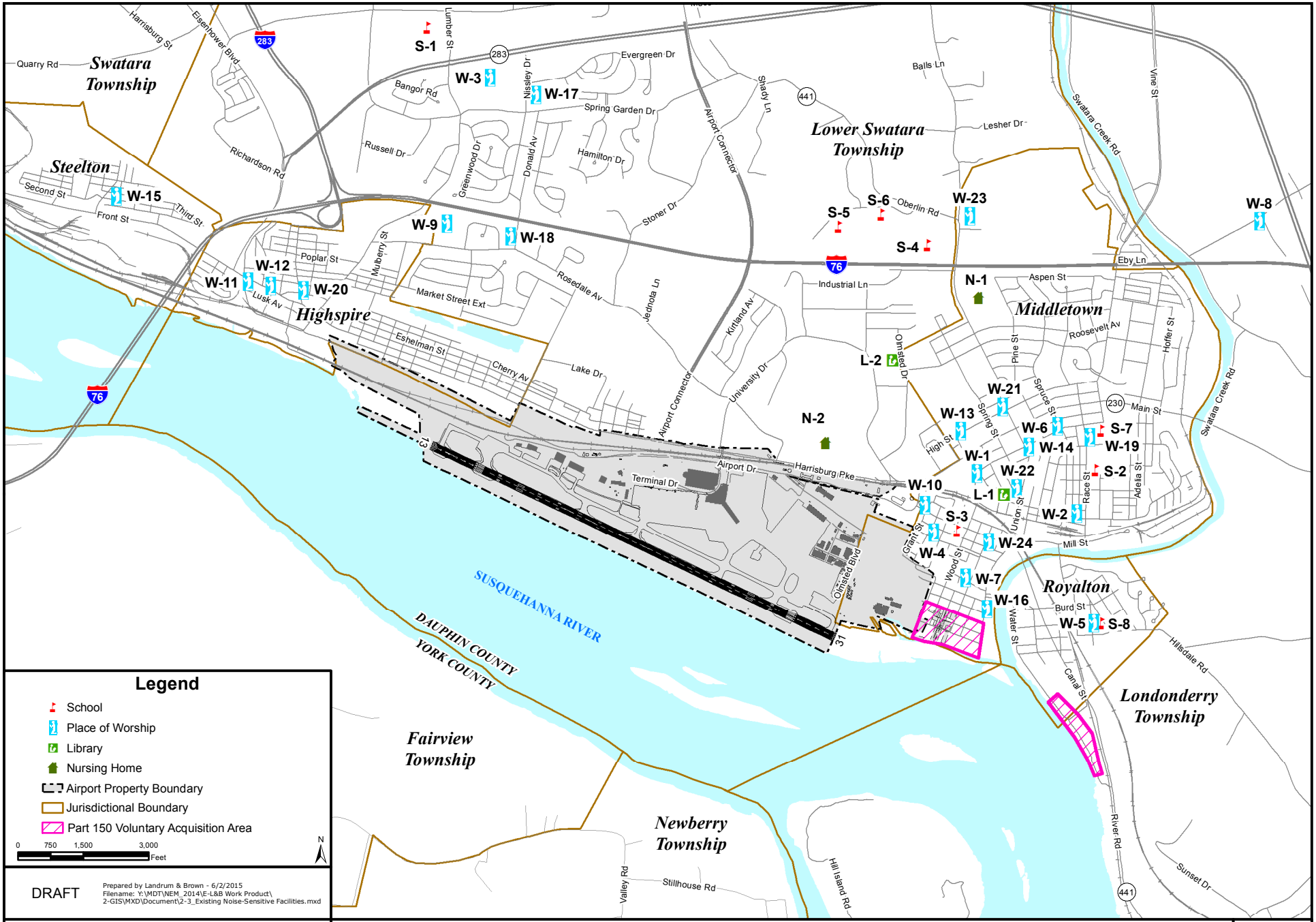

Noise Exposure Map Update

HARRISBURG INTERNATIONAL AIRPORT

Existing Noise-Sensitive Public Facilities

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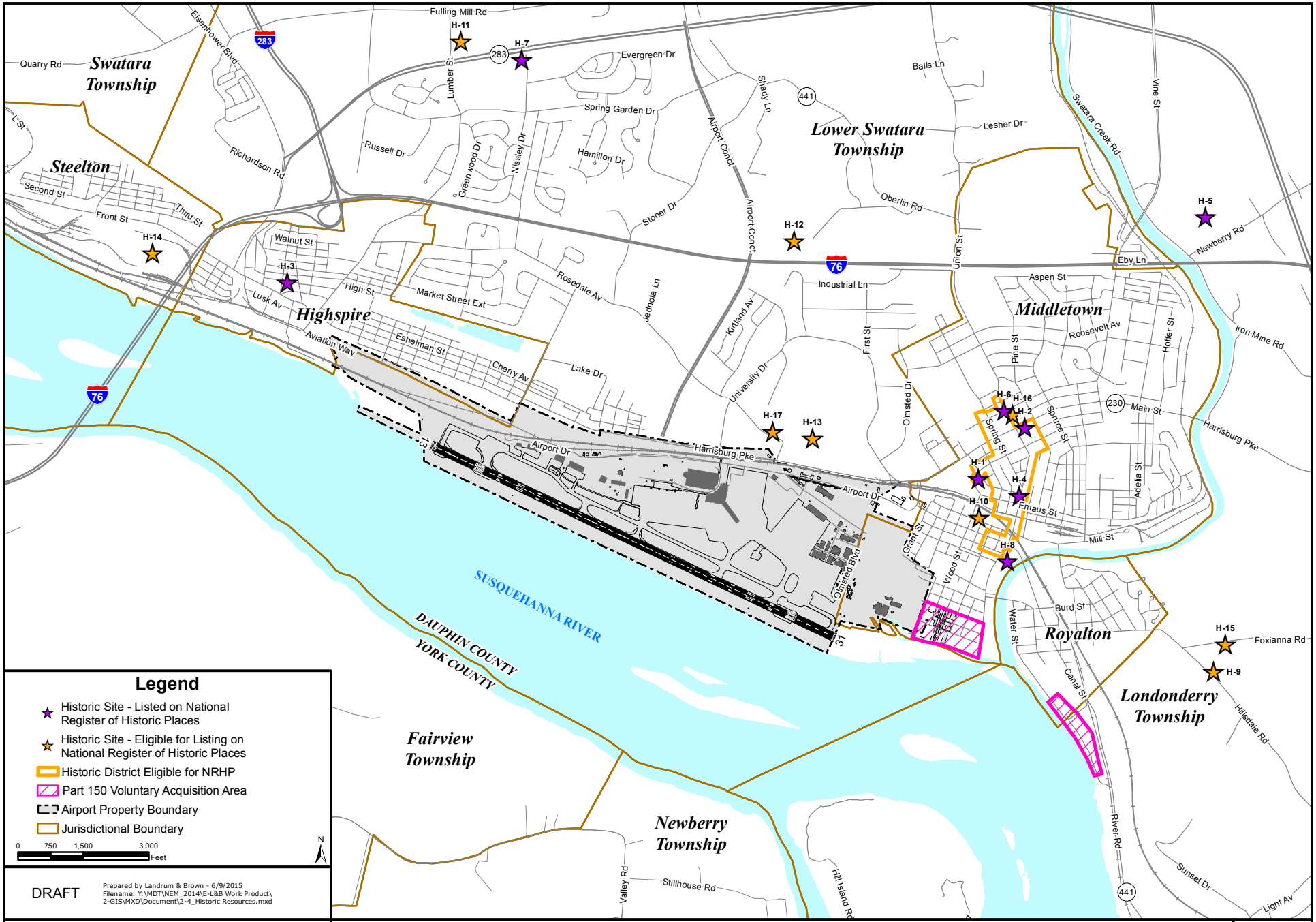
Swatara Township
Steelton
Highspire
Lower Swatara Township
Middletown
Royalton
Londonderry Township
Fairview Township
Newberry Township
SUSQUEHANNA RIVER
DAUPHIN COUNTY
YORK COUNTY
Harrisburg Pke
Airport Dr
Fulling Mill Rd
Eisenhower Blvd
Quarry Rd
Lumber St
Evergreen Dr
Spring Garden Dr
Russell Dr
Richardson Rd
Greenwood Dr
Nissley Dr
Hamilton Dr
Stoner Dr
Airport Conct
Shady Ln
Balls Ln
Lesher Dr
Oberlin Rd
Industrial Ln
Union St
Swatara Creek Rd
Vine St
Newberry Rd
Eby Ln
Aspen St
Iron Mine Rd
Hoffer St
Roosevelt Av
Pine St
First St
Olmsted Dr
Olmsted Blvd
Grant St
Wood St
Spring St
Spruce St
Adelia St
Emaus St
Mill St
Burd St
Water St
Canal St
River Rd
Foxianna Rd
Hillsdale Rd
Sunset Dr
Light Av
Stillhouse Rd
Valley Rd
Hill Island Rd
Second St
Third St
Front St
L St
Walnut St
High St
Market Street Ext
Rosedale Av
Jednota Ln
Kirtland Av
University Dr
Lusk Av
Aviation Way
Eshelman St
Cherry Av
Lake Dr
H-1
H-2
H-3
H-4
H-5
H-6
H-7
H-8
H-9
H-10
H-11
H-12
H-13
H-14
H-15
H-16
H-17
Legend
Historic Site - Listed on National Register of Historic Places
Historic Site - Eligible for Listing on National Register of Historic Places
Historic District Eligible for NRHP
Part 150 Voluntary Acquisition Area
Airport Property Boundary
Jurisdictional Boundary
0 750 1,500 3,000 Feet
N
DRAFT
Prepared by Landrum & Brown - 6/9/2015
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Noise Exposure Map Update
HARRISBURG INTERNATIONAL AIRPORT
Historic Resources
EXHIBIT:
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2.4 DEVELOPMENT TRENDS

One goal of noise compatibility planning is to identify potential future incompatible land uses that could occur both due to increases in noise levels in the future or the development of new incompatible land uses in areas that are impacted by aircraft noise. Anticipated future land uses in the Airport Environs were identified through zoning maps prepared by the local jurisdictions. Zoning is a tool available to local governments to guide future land use. Typically, jurisdictions prepare a zoning ordinance, which identifies specific zoning districts and the permitted land uses within each zone; and map showing the locations of each zoning district within the municipal boundaries. Available maps and zoning ordinances from the jurisdictions within Dauphin County were obtained and zoning districts were mapped and categorized in terms of the general land use classifications presented in 14 C.F.R. Part 150, which includes residential (single-family, two-family, and multi-family), commercial/industrial, public/institutional, and agriculture/open space. **Exhibit 2-5, *Current Zoning***, depicts the zoning districts of the jurisdictions in Dauphin County within the Airport Environs.

The SARAA implemented a voluntary acquisition program to improve land use compatibility in the vicinity of MDT. To date, 26 residential parcels in Middletown have been acquired under that program. Following the acquisition, residents were relocated and all residential structures were removed to convert the property to vacant land that is compatible with airport operations. It is the intention of SARAA to seek redevelopment options for these properties to convert them to non-residential, tax-generating uses that are compatible with aircraft noise. Until that time, these properties are expected to remain vacant, undeveloped lots. No new residential or other incompatible uses are expected to be developed in areas impacted by significant noise in the vicinity of MDT.

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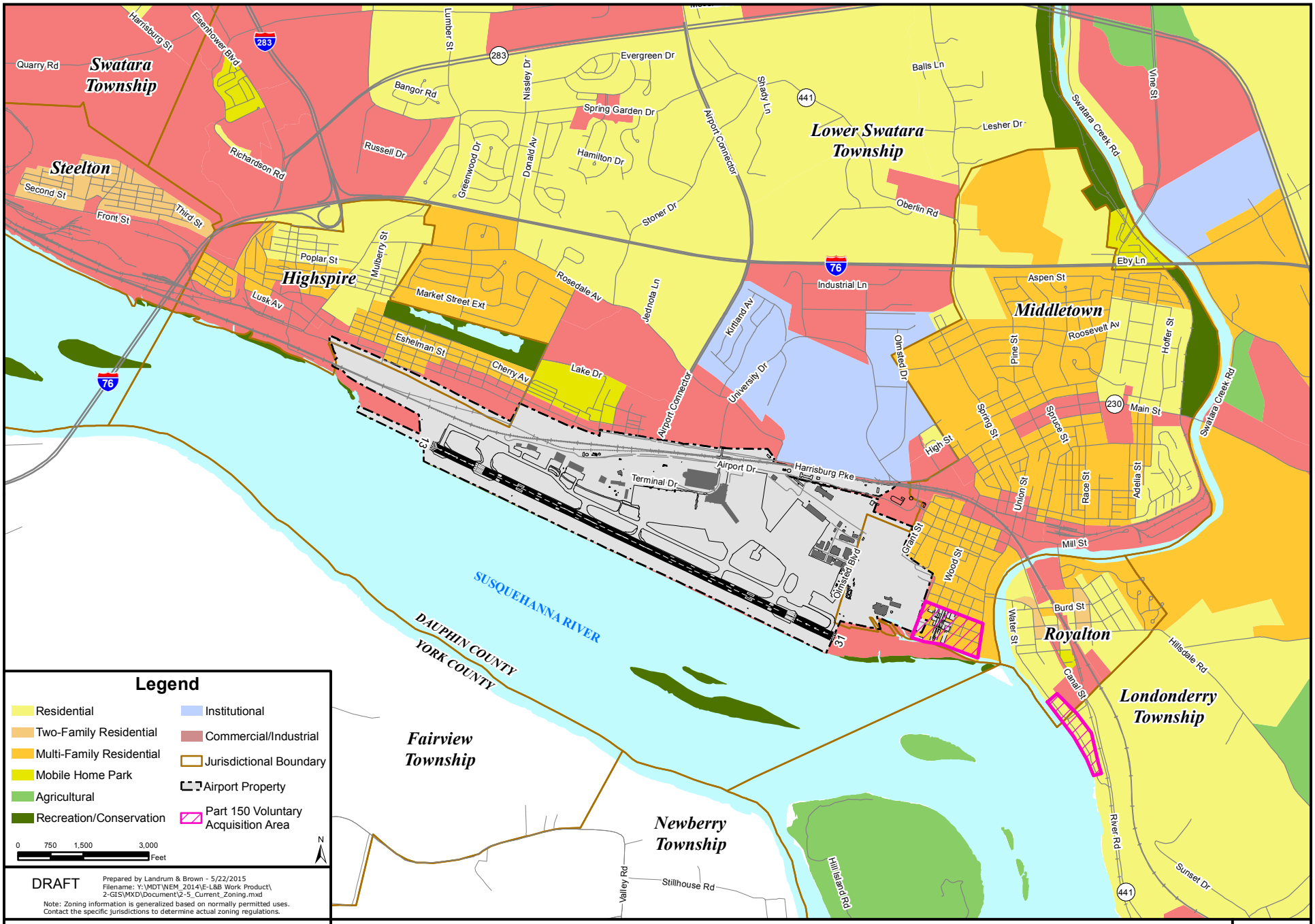

Noise Exposure Map Update

HARRISBURG INTERNATIONAL AIRPORT

Generalized Current Zoning

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Chapter Three

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CHAPTER THREE
EXISTING (2015) CONDITION

3.1 OVERVIEW

The following sections describe the existing noise exposure on communities surrounding MDT. The noise analysis for this NEM Update included the development of the noise exposure contours for the existing conditions with a base year of 2015. Aircraft-related noise exposure is defined through noise exposure contours prepared using the FAA's Integrated Noise Model (INM) per 14 C.F.R. Part 150 guidelines. Inputs into the noise model include: the number of aircraft operations (arrivals and departures) by aircraft type and time of day, the percent of time each runway end is used for arrival and departure, flight paths to and from the runway ends, and engine run-up activity.

This noise exposure is presented using the DNL metric, which represents the average noise energy for an average-annual day, on the dB scale. For the calculation of DNL, an extra penalty of 10 dB is added to nighttime (10:00 pm to 6:59 am) operations. Per Federal guidelines, 65 DNL is the level at which noise-sensitive land uses (residences, places of worship, schools, libraries, and nursing homes) are considered incompatible with aircraft noise unless mitigated to reduce interior noise levels below acceptable levels. The noise exposure patterns in this chapter are presented using noise exposure contours, which are lines that connect areas of equal noise exposure. For this NEM Update, 65, 70, and 75 DNL noise contours were prepared. The noise exposure contours are presented on exhibits depicting land uses, jurisdictional boundaries, roads, and other features. The total land area encompassed by each of the noise contour levels is quantified; and a description of the land uses within the noise exposure contour is provided.

More information regarding the INM and the DNL metric, including a review of the physics of noise, research related to noise impacts on humans, social impacts of noise, and the data required to develop noise exposure contours, is summarized in Appendix C, *Noise Modeling Methodology.* This information details the operating characteristics in use at MDT, the number of operations, and the use of flight paths to and from MDT. Copies of the official NEMs, at a scale of 1 inch equals 1,000 feet, and supplemental graphics showing INM flight tracks are included in the back of this document.

3.2 EXISTING (2015) NOISE EXPOSURE CONTOUR

The number of operations, runway use, flight track, stage length data, and engine run-ups presented in Appendix C, are used as inputs to the INM computer model for calculation of noise exposure in the Airport Environs. **Exhibit 3-1, *Existing (2015) Noise Exposure Contour*,** reflects the average-annual noise exposure pattern present at MDT during the existing baseline period. The Existing (2015) Noise Exposure Contour is the contour depicted on the Existing (2015) NEM. Noise contours are presented for the 65, 70, and 75 DNL. The FAA uses the 65 DNL as the noise level in which noise-sensitive land uses are considered

significantly impacted. Therefore, these land uses are considered incompatible with noise levels at or above 65 DNL unless mitigated per Federal guidelines. Below 65 DNL, all land uses are determined to be compatible. **Table 3-1** summarizes the area within each noise contour level for the Existing (2015) Noise Exposure Contour.

A DNL noise contour does not represent the noise levels present on any specific day; rather it represents the average noise energy of all 365 days of operation during the year. Noise contour patterns extend from an airport along each extended runway centerline, reflective of the flight tracks used by all aircraft. The relative distance of a contour from an airport along each route is a function of the frequency of use of each runway by aircraft type, by arrival and departure, and use at night.

Table 3-1
AREAS WITHIN EXISTING (2015) NOISE EXPOSURE CONTOUR
Harrisburg International Airport

CONTOUR RANGE	2015 NOISE EXPOSURE CONTOUR (SQUARE MILES)
65-70 DNL	0.6
70-75 DNL	0.2
75 + DNL	0.2
65 + DNL	1.1

Contour: MDT2015Noise-Contours
Source: Landrum & Brown, 2015.

The size and shape of the noise exposure contours for MDT are primarily a function of the combination of flight tracks and runway use. Wind direction is a primary factor in determining runway use, as well as the airfield layout and airspace configuration. Based on annual wind patterns and airfield and airspace configurations, MDT operates in west flow (arriving to and departing from Runway 31) approximately 72 percent of the time; and in east flow (arriving to and departing from Runway 13) approximately 28 percent of the time.

In general, the noise exposure contours extend in an east-west direction along the runway. The noise exposure contours are slightly wider to the west of MDT due to the slightly larger percentage of departures in west flow as departures typically have a wider distribution of noise. The noise exposure contours are longer and narrower to the east since more arrivals occur from the east in a straight-in approach. There are two noticeable points were the noise exposure contours extend outward at the aircraft run-up locations just north of the approach thresholds of the runway ends.


Swatara Township
Steelton
Highspire
Lower Swatara Township
Middletown
Royalton
Londonderry Township
Fairview Township
Newberry Township
SUSQUEHANNA RIVER
DAUPHIN COUNTY
YORK COUNTY
65 DNL
70 DNL
75 DNL
Harrisburg Pke
Airport Dr
Terminal Dr
Industrial Ln
Oberlin Rd
Eby Ln
Aspen St
Roosevelt Av
Oak Hills Park
Main St
Mill St
Hoffer Park
Kiwanis Park
Burd St
Hillsdale Rd
Canal St
River Rd
Sunset Golf Course
Sunset Dr
Hill Island Rd
Stillhouse Rd
Valley Rd
Woodbridge Park
Highspire Borough Memorial Park
Highspire Borough Reservoir Park
Legend
Existing (2015) Noise Exposure Contour
Part 150 Voluntary Acquisition Area
Residential
Multi-Family Residential
Mobile Home
Agricultural/Vacant
Airport Property Boundary
Institutional
Park/Recreation
Transportation/Utility
Commercial/Industrial
Jurisdictional Boundary
0 750 1,500 3,000
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Prepared by Landrum & Brown - 7/14/2015
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Contour: MDT2015_Noise-Contours
Noise Exposure Map Update
HARRISBURG INTERNATIONAL AIRPORT
Existing (2015) Noise Exposure Contour
EXHIBIT:
3-1

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3.3 EXISTING (2015) NOISE EXPOSURE CONTOUR LAND USE COMPATIBILITY ANALYSIS

The FAA has created land use compatibility guidelines relating types of land use to airport sound levels. These guidelines are defined in 14 C.F.R. Part 150, *Land Use Compatibility with Yearly Day-Night Average Sound Levels*. The compatibility table is reproduced in Appendix A, *FAA Policies, Guidance*, and Regulations, of this document (see Table A-1, *Land Use Compatibility Guidelines – 14 C.F.R. Part 150*).

The 65+ DNL of the Existing (2015) Noise Exposure Contour extends approximately 1.09 miles to the east of Runway 13/31, and approximately 0.99 miles to the west of Runway 13/31. The 65 DNL of the Existing (2015) Noise Exposure Contour noise contour remains over airport property, the Susquehanna River, or the railroad right-of-way. There are no residences or other noise-sensitive facilities within the 65+ DNL of the Existing (2015) Noise Exposure Contour. Modeled noise levels at each of the noise-sensitive public facilities are provided in Appendix E, *Supplemental Grid Point Analysis*.

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Chapter Four

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CHAPTER FOUR
FUTURE (2020) CONDITION

4.1 OVERVIEW

The discussion of the affected environment for noise and compatible land uses describes the existing noise exposure on communities surrounding MDT. This chapter presents the noise exposure for the future conditions forecast for the year 2020. Aircraft-related noise exposure is defined through noise exposure contours prepared using the INM. The noise exposure contours are presented on exhibits depicting land uses, jurisdictional boundaries, roads, and other features. The total land area encompassed by each of the noise contour levels is quantified; and a description of the land uses within the noise exposure contour is provided.

More information regarding the INM and the DNL metric, including a review of the physics of noise, research related to noise impacts on humans, social impacts of noise, and the data required to develop noise exposure contours, is summarized in Appendix C, *Noise Modeling Methodology.* This information details the operating characteristics in use at MDT, the number of operations, and the use of flight paths to and from MDT. Copies of the official NEMs at a scale of 1 inch equals 1,000 feet, and supplemental graphics showing INM flight tracks are included in the back of this document.

4.2 FUTURE (2020) NOISE EXPOSURE CONTOUR

The future noise exposure contour projected for 2020 is presented in **Exhibit 4-1, *Future (2020) Noise Exposure Contour***. This noise exposure contour assumes growth in aircraft operations and changes in fleet mix as forecasted for MDT (see Appendix F, *Forecast of Aviation Activity*).

As shown in **Exhibit 4-2, *Comparison of Existing (2015) Noise Exposure Contour to Future (2020) Noise Exposure Contour***, the Future (2020) Noise Exposure Contour is slightly larger than the Existing (2015) Noise Exposure Contour. This change in size is due to an overall increase in operations forecast to occur at MDT. **Table 4-1** provides a comparison of the areas within the Existing (2015) and Future (2020) Noise Exposure Contours. The shape of the Future (2020) Noise Exposure Contour remains similar to the Existing (2015) Noise Exposure Contour because there is no anticipated change in runway use or flight tracks from current conditions within the next five years.

TABLE 4-1
COMPARISON OF AREAS WITHIN THE EXISTING (2015) AND FUTURE (2020) NOISE EXPOSURE CONTOURS (IN SQUARE MILES)
Harrisburg International Airport

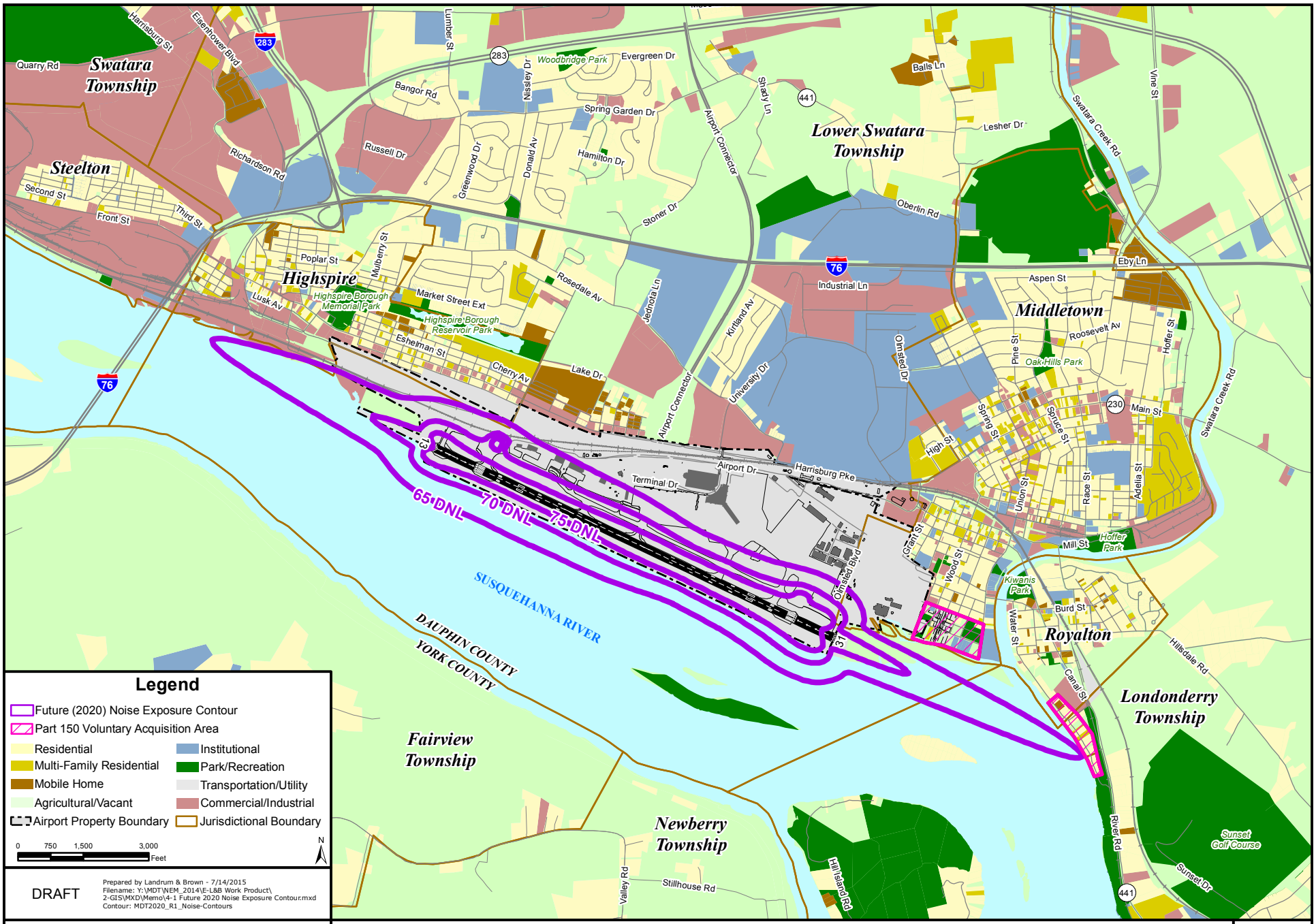
CONTOUR RANGE	2015 NOISE EXPOSURE CONTOUR (SQUARE MILES)	2020 NOISE EXPOSURE CONTOUR (SQUARE MILES)	DIFFERENCE
65-70 DNL	0.6	0.7	0.1
70-75 DNL	0.2	0.3	0.0
75 + DNL	0.2	0.2	0.0
65 + DNL	1.1	1.2	0.1

Contours: MDT2015Noise-Contours/MDT2020Noise-Contours
Source: Landrum & Brown, 2015.

4.3 FUTURE (2020) NOISE EXPOSURE CONTOUR LAND USE COMPATIBILITY ANALYSIS

The FAA has created land use compatibility guidelines relating types of land use to airport sound levels. These guidelines are defined in 14 C.F.R. Part 150, Land Use Compatibility with Yearly Day-Night Average Sound Levels. The compatibility table is reproduced in Appendix A, *FAA Policies, Guidance, and Regulations*, of this document (see Table A-1, Land Use Compatibility Guidelines – 14 C.F.R. Part 150).

The 65 DNL of the Future (2020) Noise Exposure Contour extends approximately 1.18 miles to the east of Runway 13/31, and approximately 1.05 miles to the west of Runway 13/31. The 65 DNL of the Future (2020) Noise Exposure Contour noise contour remains over airport property, the Susquehanna River, or the railroad right-of-way. There are no residences or other noise-sensitive facilities within the 65+ DNL of the Future (2020) Noise Exposure Contour. Modeled noise levels at each of the noise-sensitive public facilities are provided in Appendix E, *Supplemental Grid Point Analysis*.



DRAFT

Prepared by Landrum & Brown - 7/14/2015
Filename: Y:\MDT\NEM_2014\E-L&B Work Product\2-GIS\MXD\Memo\4-1 Future 2020 Noise Exposure Contour.mxd
Contour: MDT2020_R1_Noise-Contours

Noise Exposure Map Update

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Future (2020) Noise Exposure Contour

EXHIBIT:
4-1

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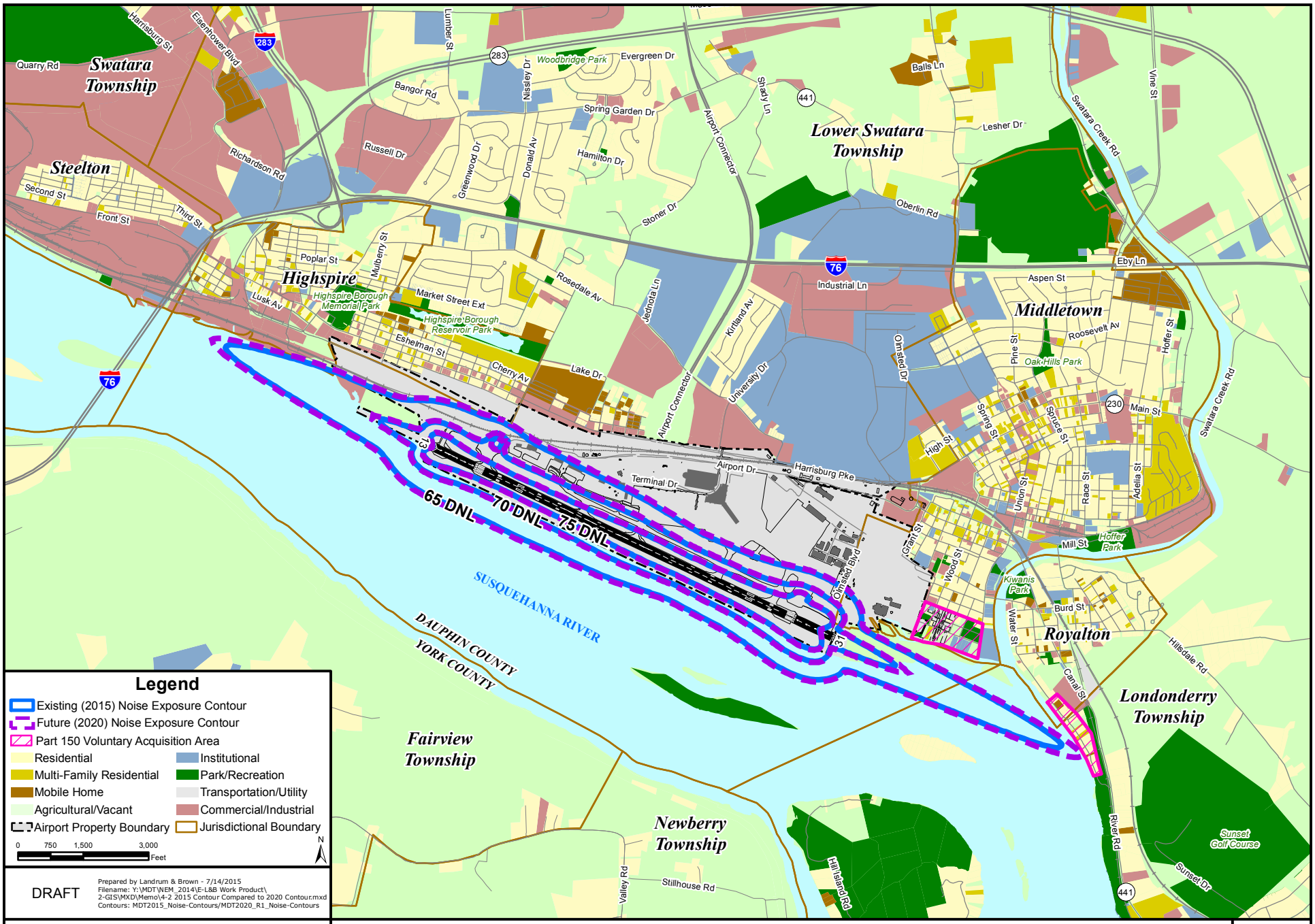

Noise Exposure Map Update

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Existing (2015) Noise Exposure Contour Compared to the Future (2020) NEM Noise Exposure Contour

EXHIBIT: **4-2**

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