

APPENDIX I AIRPORT GOLF COURSE

This appendix contains documentation of the planning and coordination of the proposed reconfiguration of the Airport Golf Course.

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Meeting Summaries

Initial Meeting with City of Columbus, July 8, 2004
Follow-up Meeting with City of Columbus, November 13, 2006
Follow-up Meeting with City of Columbus, October 17, 2007

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Meeting Subject: Relocated runway impacts on the Airport Golf Course
Date: July 8, 2004 @ 9:00 a.m.
Location: Parks & Recs Building (200 Greenlawn Avenue)

Attendees:

Stacey Heaton, CRAA,	239-3175 (SH)
Veronica Sherman, City Finance	645-8405 (VS)
Alan McKnight, CRPD	645-3310 (AM)
W. Scott Stanley, CRPD	645-3341 (SS)
Bernie Meleski, CRAA	239-4042 (BM)
Rob Adams, Landrum & Brown (w/CRAA)	513-530-1201 (RA)
Jay Meuther, URS (w/CRAA)	464-4500 (JM)
Ron Dixon, URS (w/CRAA)	464-4500 (RD)

Project Overview (Meleski)

- Opening remarks included a briefing of the following:
 - Need for a larger terminal envelope
 - Need for movement of south runway to accommodate larger terminal envelope
 - Explained URS role for physical planning
 - Explained Landrum & Brown role for Environmental planning
 - Clarification that this project detail planning has just started
 - Estimated project cost (to include runway and all neighboring land modifications) is approximately 150-200 million.
 - Time line is an estimated 2010 runway opening which consists of:
 - Detail planning of 9+ months
 - Environmental process (EA) of 18 – 24 months
 - Funding issues – months
 - Design of 18 – 24 months
 - Construction of 24 months
 - Need to understand total costs associated with all impact mitigation

Airport Golf Course and Future Approach Light System (Dixon)

- Defined Medium Intensity Approach Light System with running lights (MASLR)
 - Explained their need and importance to an airport
 - Currently have MALSR on golf course and would likely have identical system minus a few equipment shelters
 - Explained that a service road would still be needed (as is today)
 - Explained the limited flexibility due to equipment/FAA requirements
 - Runway length is assumed to be the same as the existing runway (for the time being) but may be able to be shifted slightly
-

Environmental Items (Adams)

- Discussed their tasks as follows:
- There is a list of 24 items for review including:
 - Identification of DOT 4F direct and indirect impacts
 - Identification of direct and indirect socioeconomic issues
 - Noise issues, air quality, etc.
- Phase I is to determine if enough impact to require more detailed review (EA vs. EIS)
- Schedule is likely 2+ years
- Noted that there must be one face to the public and CRAA is going in the right direction with the meeting in November.

Q & A with Discussion (All)

Q1 - Will the width of clear area for lights remain the same?

A – Likely but have some flexibility depending on contours

Q 2– Who would the golf course like to see as a reference to design questions?

A – Michael Hurtzen or Arthur Hills

Q3– Who is golf course contact person for design questions?

A – Al McKnight; however they would rely on previously stated architects.

Q4 – What will happen with loss of revenue to golf course during construction?

A – Bernie explained it is a negotiation process with higher ups once a good grasp is had on the costs associated with issues such as that. Bernie continued to explain there is difference between funding from FAA and cost to CRAA for interruptions of business around airport. The City will likely have to tell CRAA an estimate for the loss in revenue and deal with it in process.

Q5 – Does CRAA know that the future MALSR is on land they don't own? And that there is an issue that has yet to be resolved from 1991 relating to rents?

A – Yes.

Q6 – Will the landfill (Morrison) be impacted?

A – We have an avigation easement that addresses height restrictions. The RPZ is shown on the exhibit as slightly impacting the parcel but not much is anticipated.

Q7 – Will Hamilton Road go away?

A – No.

Q8 – Does any other property become available as part of this runway replacement?
A – No more becomes available but potential options as part of the discussions (Wonderland parcel).

Q9 – Are flood issues planned to be addressed?
A – During a design review, earthwork will likely occur. Further environmental review will assist in that determination.

Q10 – Is CRAA aware of “significant” improvements triggering needs for upgrade? ADA requirements and proximity to roadway issues?
A – CRAA will inquire from the golf course consultant.

Q11 – Can the geese issue be resolved?
A – Likely with design.

Q12 – What is happening with the sewer extension?
A – On hold.

Q13 – Will traffic on Hamilton Road increase as a result of the terminal expansion?
A – Nothing significant at this point.

Conclusion

City will make first contact to golf course architect before URS contacts them
Meeting concluded with indications of further discussion.

/SH

Federal Aviation Administration
ENVIRONMENTAL IMPACT STATEMENT
FOR
REPLACEMENT RUNWAY AND TERMINAL EXPANSION
AT
PORT COLUMBUS INTERNATIONAL AIRPORT

CMH GOLF COURSE

MEETING SUMMARY

NOVEMBER 13, 2006

2:00 P.M. – 3:30 P.M.

Meeting Attendees: Rob Adams, *L&B*, Sarah Potter, *L&B*, Bernie Meleski, *CRAA*, Dave Wall, *CRAA*, Ron Dixon, *URS*, Jay Muether, *URS*, Alan McKnight, *Columbus Recreations and Parks*, Al Brant, *Columbus Recreations and Parks*

Introductions

- Dave Wall opened meeting with introductions
 - URS attending meeting to discuss planning for the replacement runway
 - Landrum & Brown attending meeting to represent the EIS Team.

Runway 10R/28L Replacement Project Overview

- Dave Wall discussed the future demand of passengers and operations at CMH. The forecasted demand sparked the need for the replacement project.

Planning for the Replacement Runway

- Ron Dixon presented an exhibit of the proposed runway location and the light strip for the proposed runway.
- Background information was given for the need of light strips during landing.
- The FAA owns and operates the light strip not the CRAA.
- During the planning process, Hurdzanfry was contracted to design the golf course around the light strip for the new runway.

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NOVEMBER 13, 2006

2:00 P.M. – 3:30 P.M.

- Design was prepared under the assumption that the FAA did not want golfers to play through the light strip.
- There would be a redesign of 12 of the original holes.
- During construction 9 holes would remain with some of them being temporary
- Question (Alan McKnight): Why does the FAA not want a golfer to play through the light strip?
- Answer (Ron Dixon): Could be the possibility of breaking the lights. The play through restriction was given by a different division of the FAA then the division approving the runway.
- Comment (Bernie Meleski): Submit a comment to the EIS on reducing the impacts to the golf course.
- Comment (Alan McKnight): Please make sure he is on the mailing list for the EIS.

Environmental Overview/ Environmental Impact Statement

- Rob Adams explained NEPA and the different levels of environmental study.
- The Environmental Overview found there would be significant impacts associated with the project, pushing it into an EIS.
- The FAA manages the EIS and looks at other alternatives to the proposed project.
- Question (Rob Adams): What financial impact would being down to nine holes during construction have on the golf course?
- Answer (Al Brandt): Turnberry (golf course operated by Columbus Parks and Recreation) was down from 18 holes to nine holes during placement

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of a sewer line. They could use this as an example for revenue lost and how long it would take to rebound. There are 40-45,000 rounds of golf played at the CMH golf course annually.

Action Items

- Columbus Parks and Recreation would like to get copies of the nine temporary holes during construction designed by Hurdzanfry.
- Columbus Parks and Recreation would like to get a copy of the notes from the meeting.
- Columbus Parks and Recreation would like to see a full schedule of the project.
- Bernie Meleski checking on the ownership of a portion of the golf course.

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AT
PORT COLUMBUS INTERNATIONAL AIRPORT
AIRPORT GOLF COURSE

MEETING SUMMARY
OCTOBER 17, 2007
1:00 P.M. – 3:00 P.M.

Meeting Attendees: Rob Adams, *L&B*, Sarah Potter, *L&B*, Bernie Meleski, *CRAA*, Dave Wall, *CRAA*, Alan McKnight, *Columbus Recreations and Parks*, Al Brant, *Columbus Recreations and Parks*, Terri Leist, *Columbus Recreations and Parks*, Greg Poston, *Columbus Recreations and Parks*, Katy Jones, *FAA (via telephone)*

I. Introductions

II. Runway 10R/28L Replacement Project Overview

- Bernie Meleski updated the City of Columbus on the status of the EIS.

III. Review of Airport Golf Course Reconfiguration Plans

- Bernie Meleski reviewed the efforts that have occurred on the Airport Golf Course to date.

IV. Outstanding Issues

- The City of Columbus and CRAA agreed on the proposed Airport Golf Course layout as developed in the Airport Golf Course planning report.
- The potential reimbursement for loss of revenue was discussed
 - The CRAA would be open to discussing loss of revenue during the construction period
 - The City of Columbus stated that loss of revenue could extend beyond the construction period due to reduced use. They asked

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OCTOBER 17, 2007
1:00 P.M. – 3:00 P.M.

if revenue reimbursement could extend beyond the construction period. The CRAA stated that this would have to be discussed with CRAA management.

- It was the desire on both sides to maintain at least nine holes of the golf course during construction. It was determined that the feasibility of this would be looked at during the design process.
- Gahanna had suggested that an existing bike path could be extended through the Airport Golf Course. There are no firm plans or funding for this project and as such, no decisions on this issue were made. The City of Columbus would consider this option if it did not interfere with golf course operations or play.

V. Next Steps

- The City of Columbus was to send a letter to the FAA outlining the points upon which there is agreement and points where additional negotiation would occur.
- The CRAA was going to draft a Memorandum of Understanding (MOU) to begin the negotiation process on the remaining points.

Planning Reports

Airport Golf Course Alternative Analysis

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**Airport Golf Course Alternatives Analysis
Associated with Replacement
Of Runway 10R-28L
Port Columbus International Airport**

February 15, 2005

By



**Hurdzan/Fry Golf Course Design, Inc.
1270 Old Henderson Road
Columbus, Ohio 43220
www.hurdzanfry.com**

**AIRPORT GOLF COURSE ALTERNATIVES ANALYSIS
ASSOCIATED WITH REPLACEMENT
OF RUNWAY 10R-28L
PORT COLUMBUS INTERNATIONAL AIRPORT**

Goals and Preliminary Discussion

Because of the proposed relocation of runway 10R-28L, and the resulting need to relocate the approach lights from their current location on the existing Airport Golf Course, an analysis of that impact and required changes has become necessary. The new approach lights (MALSR) will extend at least 1200 feet into the golf course property requiring the re-routing of various golf holes while the removal of the old approach lights (MALSR) should free up property for that re-routing.

The purpose of this study is to determine what changes, both minor and major will occur to the golf course, the cost to make those changes and a possible timeline that will allow the least amount of interruption to the golf operations by the City of Columbus as possible. One stated goal would be to attempt to keep at least nine holes open and playable at all times in order to maintain some revenue stream for the City and a facility that can be used by the golfing public.

Base Data and Assumptions

The following data and assumptions were ascertained from meetings with the Columbus Regional Airport Authority and URS, and from base maps and other information provided by those two entities. From that information, various assumptions and criteria that will have a major affect on the timeline of the reconstruction of the golf course are outlined here. As follows:

- Per information provided by URS, the new "south runway", 10R-28L, will be relocated seven hundred (700) feet to the south of the current runway,
- Logically, the approach lights will also be moved 700 feet,
- Golf holes may not be located between the new MALSR nor will golf shots be allowed between the new light towers,

HURDZAN/FRY ANALYSIS OF RUNWAY RELOCATION

Page 2 of 6

February 15, 2005

- Golf shots will be played away from or toward the lights but not over them,
- Golf tees, greens and other features must remain a minimum of 20 feet from the enclosures around the light towers, further if possible,
- In the final design of the new course, it is also assumed that the new elevations of golf course features (tees, greens, bunkers, etc.) will NOT be any higher than the existing golf course features,
- Based on the current schedule, the new runway will begin construction on or about December 31, 2009 and will be completed and commissioned on or about January 25, 2012,
- At that time the new runway and lights will become operational, and not until operational, will the existing light structures be removed, a demolition period of one month or so, then final golf course construction may commence,
- This will have a major impact on the timeline for the reconfiguration of the existing golf course,
- The completed re-routed golf course must be of an equal or better quality golfing experience as now exists.

Impact and Discussion of Routing Alternatives

The construction of the new approach lights and that zone of construction will directly affect only four holes of the existing course, however, these holes fall into the middle of each nine-hole loop at Airport Golf Course. And with the new lights being built 700 feet south of the current lights, this necessitates the rerouting of twelve holes of the existing course in order to re-create a course of comparable length and quality.

The new golf routing must respect the topography of the land and the location of the new lights, and at the same time use the property where the old lights are located. Golf course designs require certain minimums of space between golf holes, distance from tee to greens, variety in length of holes if possible and hopefully a balanced yardage on the front and back nines. The existing golf course measures from just over 6200 yards at the longest to approximately 5400 yards from the forward-most tees. The re-routed golf course needs to be similar to this if possible and with a par of 70, from the back tees. The option that presented itself after much study is shown as Attachment A and is labeled Routing Option "A-1".

HURDZAN/FRY ANALYSIS OF RUNWAY RELOCATION

Page 3 of 6

February 15, 2005

In effect, Option "A-1" requires twelve totally new holes while leaving intact 6 holes of the existing course. With a length of 6194 yards and a par of 70, the "new" course is equal in many respects to the current golf course. This option is also the least expensive way in which to achieve the minimum goals as outlined in the discussion. Attachment B is the preliminary cost estimate associated with the reconstruction as shown in Option "A-1". In this scenario, only twelve new greens, twelve tee complexes, etc. have to be built while leaving the other 6 holes essentially alone, with one exception. That exception is that it would be impractical, almost impossible, to install a new irrigation system on the 12 new holes without damaging much of the current antiquated irrigation. Therefore, a totally new system is recommended for the entire eighteen holes. This cost is included in the estimate as shown.

Hurdzan/Fry was also asked to consider the possible impact of this reconstruction on the clubhouse area and parking at the existing Airport Golf Course. As the golf course has been operating for many years with the current building and parking area, there is no reason to assume that any appreciable increase in the numbers of golfers would occur just because of this reconstruction. A new golf course often attracts a few more golfers during the period after opening, but the fact that the new course will be very similar to the old course, would suggest that after this novelty period, similar numbers would be seen. Therefore, it is unlikely that any increase in clubhouse area or parking spaces would be absolutely necessary.

However, if the City of Columbus decided that they wanted to be able to host more corporate outings or other golf functions, then more space and more parking might be needed. This would seem to be as a result of higher goals as opposed to expecting higher numbers of golfers. The only real increase in numbers of rounds of golf might be attributed to a slow increase in the overall numbers of golfers, or participation rate, and this would be extremely difficult to predict.

Temporary 9-Hole Routings During Construction

It is important to the City that at least nine holes of the golf course be kept open during the construction period, therefore Hurdzan/Fry also investigated those alternatives. As the construction area does affect 4 holes (two each on the front and back nines), the possible 9-hole scenarios are somewhat awkward requiring in many cases that the golfer walk further from green to tee that would be desirable. However, this is only a temporary situation, so it is not the concern it would be in a final plan.

HURDZAN/FRY ANALYSIS OF RUNWAY RELOCATION

Page 4 of 6

February 15, 2005

In an effort to minimize difficulties such as that and to keep the best 9 holes possible, two or three options eventually presented themselves. It was also desirable to keep the temporary nine as far from the construction zones as possible, but as it turns out, in either option at least one hole must be adjacent to either the new light area or the old light removal area. It is also imperative that the finishing hole be as close to the clubhouse as possible. Both options achieve that.

Temporary Option "1", Attachment C, uses nine holes as they currently exist in a configuration that is not too confusing and finishes close to the clubhouse with current hole number 4 being the temporary 9th hole. The only possible problem with the option is that two of the holes being used would likely conflict with a practical construction scenario for the new holes. Temporary holes 7 and 8, existing 14 and 15 respectively, would need to be "taken down" early in the reconstruction process in order to get the completed new 18 in operation as soon as possible.

Therefore Option "2", included as Attachment D, might be suggested more practical with only a minor challenge. In this case, a temporary tee and a temporary green would have to be built on the 9th or finishing hole. This minimal cost (between \$40,000 and \$50,000) would allow the temporary nine holes to remain open long enough to get new holes 4, 5, 6, 17 and 18 completed and incorporated into another temporary 9 hole loop until the rest of the course is completed. Option "1" or "2" would be implemented upon the onset of the construction of the new approach lights and would remain in place until demolition of the old lights begins, at which time the following temporary 9 holes could be used. More discussion of the schedule is found on page 5.

Temporary Option "3" (Attachment E) shows this final interim golf layout. This is necessary in order for at least nine holes to be open and playable during the entire construction period. The change from one temporary scenario to another will be somewhat inconvenient, and possibly confusing but at least would keep a facility open for the public and a revenue stream for the City. This option includes holes 1, 2, 3, and 4, holes that will NOT be changed in the final plan and 5 brand new holes, thus not complicating the construction timing any more than necessary. The par of this scenario is only 33 and the yardage less than either of the other options at just over 2800 yards, but it does allow for a continuity of play and minimal interference with construction.

Construction Sequence and Timing

The construction of new golf courses in the northern part of the U.S. is greatly affected by our seasons and therefore it is necessary to begin construction within a certain timeframe so the golf courses can be seeded, or grassed, at the optimum times. The best time to plant "cool season" grasses is late summer and early fall because of the decreased competition from weeds and the lessened likelihood of spring and summer storms. There are other factors but these are two major ones, and typically courses are planted if possible between August 1st and September 15th at the latest. This gives the new seedlings the best opportunity to become established before the frosts of fall and winter. Then the following spring additional grow-in time is necessary before a golf course can be opened for play.

Therefore, it is best to start construction of a course either in late fall of one year, complete any heavy earthwork and grading before winter, then shut down for the winter and resume the following spring. The course is then finish graded, tees, greens, sand traps built and irrigation can be installed before the late summer planting period mentioned in the previous paragraph. What this means is that from the time of construction start until a course is open for play is typically about eighteen months.

In this case, the construction must be timed and phased around the installation of the new MALSR and removal of the old. It has been suggested that the new light construction not begin until October of the first year of construction, which would be a tremendous advantage to the City in that the existing 18 holes could remain open for almost the entire first season during runway construction. During that same time, the final plans for the construction of the new golf course could be completed and the project let for bid, with the stipulation that construction begin also in October.

When that construction begins, either Temporary Routing Option "1" or "2" would be implemented allowing for that nine holes to be played for the period during which the new MALSR are constructed. Work on the golf holes in that area can also be occurring, as this should not conflict with the approach lights installation, nor vice versa. Holes 4, 5, 6, 7, 15, 16, and 17 can be worked on without conflict and at the same time the new greens for holes 13 and 18 could be built as well as the tees for 14 and 18. The other golf course areas would be affected by either the old MALSR or the temporary holes still in use. Option "2" could very well be in place during the entire 2nd season of construction.

HURDZAN/FRY ANALYSIS OF RUNWAY RELOCATION

Page 6 of 6

February 15, 2005

The 3rd season would see the new runway and MALSR operational, hopefully, and work on the rest of the course could commence. The new holes built during season two would be playable and the temporary routing Option "3" put in place for this season only. By the fall of this year the balance of the golf course would should be completed and grow-in of the new facility underway, with the intention and hope of having the new golf course playable by late spring or early summer of the following year.

Of course all of this is heavily dependent upon weather and a season or two with less precipitation than normal could keep this schedule intact whereas heavier than normal rainfall could delay not only the golf course but the runway construction as well.

Closing Comments and Recommendations

It is understood that the City would like to keep at least some portion of the golf course open at all times, but it appears that this may be somewhat awkward and a less than wonderful golfing experience for the playing public. The concern is that if the patrons do not have a course to play, they will go elsewhere and it will be difficult to lure them back. However, anytime a "new" course is opened, curiosity overcomes many golfers and they just have to try it out, and if the quality is there, they will return again and again.

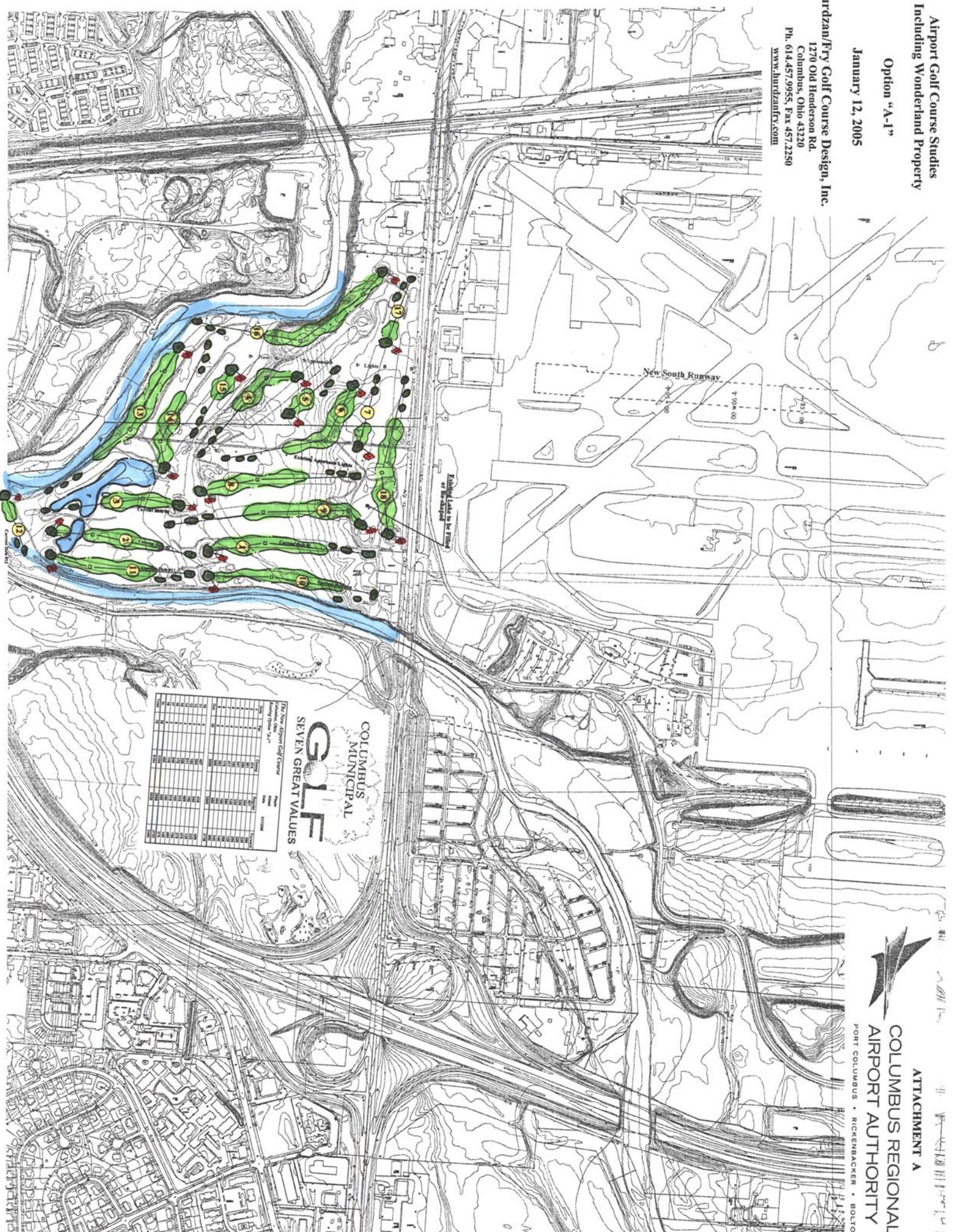
Having said that, because of the inconvenience of having two different temporary 9 hole routings, it might be best to just close the facility completely and complete the work in one 18-month period instead of extending that another 12 months as was outlined above. This is a big IF, but if, the entire golf course were to be shut down and work proceeds on the entire golf course at the same time possibly on one season maybe one and one half seasons of revenue and down time would be lost. Would that equate to two and one half seasons of decreased revenue because of only having nine holes open? Only the accountants can determine that, but at least it would be worth considering.

ATTACHMENTS

- Attachment A – Golf Course Routing Option “A-1” with Scorecard, no scale,
- Attachment B – Preliminary Golf Course Construction Estimate for Option “A-1”,
- Attachment C – Temporary 9-hole Routing “1”, no scale,
- Attachment D – Temporary 9-hole Routing “2”, no scale,
- Attachment E – Temporary 9-hole Routing “3”, no scale,

Note: All plans are available upon request from Hurdzan/Fry Design at a scale of 1 inch equals 200 feet.

Hurdzan/Ery Golf Course Design, Inc.
1270 Old Henderson Rd.
Columbus, Ohio 43220
Ph. 614.457.9955, Fax 457.2250
www.hurdzanery.com



THE NEW AIRPORT GOLF COURSE
Including Wonderland Property

NO.	NAME	AREA	ACRES
1	18th	18th Green	1.00
2	17th	17th Green	1.00
3	16th	16th Green	1.00
4	15th	15th Green	1.00
5	14th	14th Green	1.00
6	13th	13th Green	1.00
7	12th	12th Green	1.00
8	11th	11th Green	1.00
9	10th	10th Green	1.00
10	9th	9th Green	1.00
11	8th	8th Green	1.00
12	7th	7th Green	1.00
13	6th	6th Green	1.00
14	5th	5th Green	1.00
15	4th	4th Green	1.00
16	3rd	3rd Green	1.00
17	2nd	2nd Green	1.00
18	1st	1st Green	1.00
19	18th	18th Tee	1.00
20	17th	17th Tee	1.00
21	16th	16th Tee	1.00
22	15th	15th Tee	1.00
23	14th	14th Tee	1.00
24	13th	13th Tee	1.00
25	12th	12th Tee	1.00
26	11th	11th Tee	1.00
27	10th	10th Tee	1.00
28	9th	9th Tee	1.00
29	8th	8th Tee	1.00
30	7th	7th Tee	1.00
31	6th	6th Tee	1.00
32	5th	5th Tee	1.00
33	4th	4th Tee	1.00
34	3rd	3rd Tee	1.00
35	2nd	2nd Tee	1.00
36	1st	1st Tee	1.00
37	18th	18th Fairway	1.00
38	17th	17th Fairway	1.00
39	16th	16th Fairway	1.00
40	15th	15th Fairway	1.00
41	14th	14th Fairway	1.00
42	13th	13th Fairway	1.00
43	12th	12th Fairway	1.00
44	11th	11th Fairway	1.00
45	10th	10th Fairway	1.00
46	9th	9th Fairway	1.00
47	8th	8th Fairway	1.00
48	7th	7th Fairway	1.00
49	6th	6th Fairway	1.00
50	5th	5th Fairway	1.00
51	4th	4th Fairway	1.00
52	3rd	3rd Fairway	1.00
53	2nd	2nd Fairway	1.00
54	1st	1st Fairway	1.00
55	18th	18th Water	1.00
56	17th	17th Water	1.00
57	16th	16th Water	1.00
58	15th	15th Water	1.00
59	14th	14th Water	1.00
60	13th	13th Water	1.00
61	12th	12th Water	1.00
62	11th	11th Water	1.00
63	10th	10th Water	1.00
64	9th	9th Water	1.00
65	8th	8th Water	1.00
66	7th	7th Water	1.00
67	6th	6th Water	1.00
68	5th	5th Water	1.00
69	4th	4th Water	1.00
70	3rd	3rd Water	1.00
71	2nd	2nd Water	1.00
72	1st	1st Water	1.00
73	18th	18th Clubhouse	1.00
74	17th	17th Clubhouse	1.00
75	16th	16th Clubhouse	1.00
76	15th	15th Clubhouse	1.00
77	14th	14th Clubhouse	1.00
78	13th	13th Clubhouse	1.00
79	12th	12th Clubhouse	1.00
80	11th	11th Clubhouse	1.00
81	10th	10th Clubhouse	1.00
82	9th	9th Clubhouse	1.00
83	8th	8th Clubhouse	1.00
84	7th	7th Clubhouse	1.00
85	6th	6th Clubhouse	1.00
86	5th	5th Clubhouse	1.00
87	4th	4th Clubhouse	1.00
88	3rd	3rd Clubhouse	1.00
89	2nd	2nd Clubhouse	1.00
90	1st	1st Clubhouse	1.00

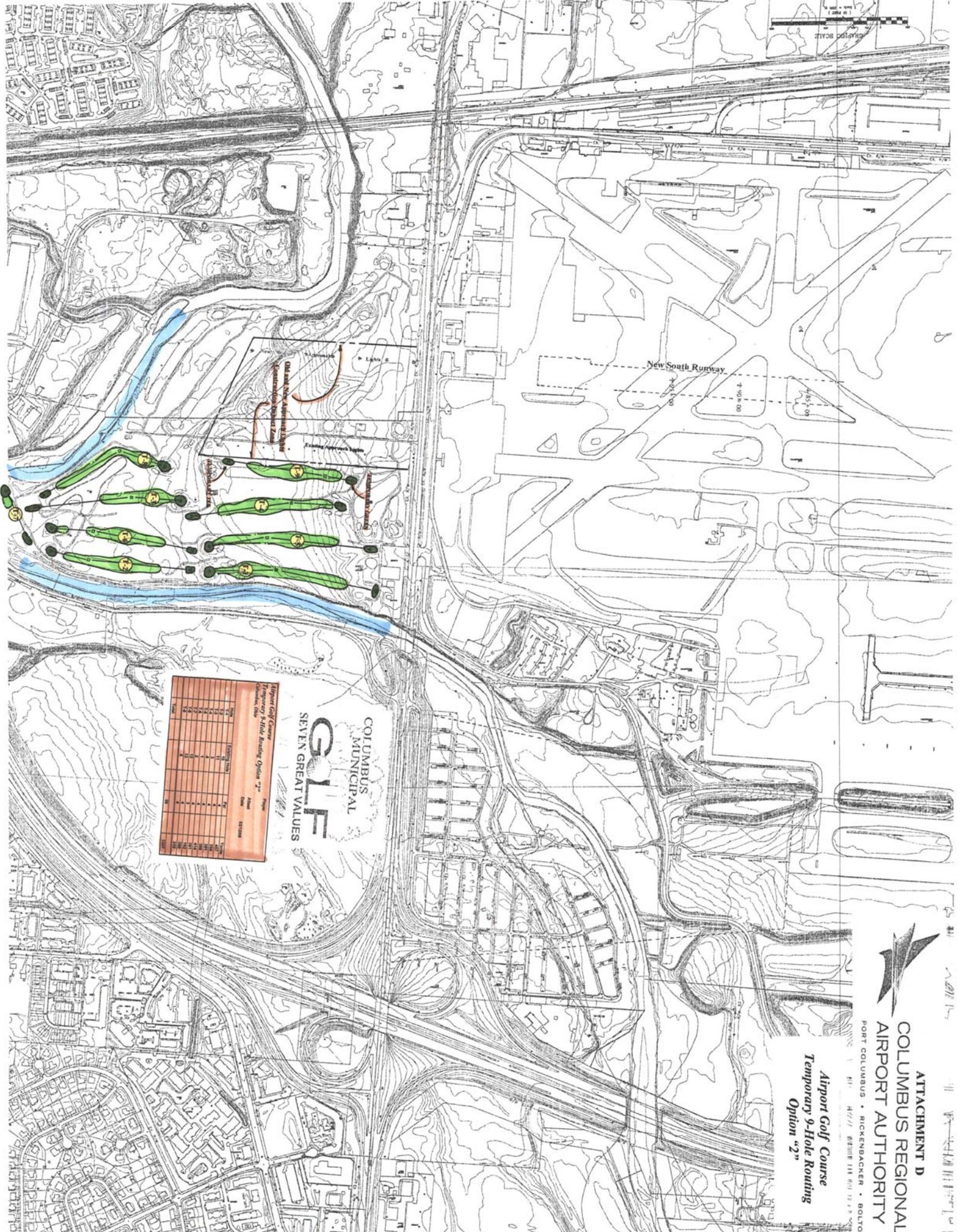
COLUMBUS MUNICIPAL GOLF SEVEN GREAT VALUES



ATTACHMENT A
COLUMBUS REGIONAL AIRPORT AUTHORITY
PORT COLUMBUS • RICKENBACKER • BOLTON

ATTACHMENT B

Airport Golf Course Reconstruction Preliminary Cost - Routing Option "A-1"							
Revised January 12, 2005							
Assumes 12 New Holes + 6 Existing Holes on Current Golf Course Property Only							
Item	Description	Unit	Estimated Quantity	Unit Cost	Extension	% Total Cost	
1	Mobilization	ls	1	\$50,000			
2	Erosion Control				\$ 50,000.00		2.35%
	a. Silt Fence	lf	15,000	\$3.00		\$ 45,000.00	
3	Clearing & Thinning						2.12%
	a. Total Clearing	ac	4	\$1,500		\$ 6,000.00	0.28%
	b. Selective Clearing	ac	2	\$2,000		\$ 4,000.00	0.19%
4	Topsoil Management	cu.yds	60,000	\$2.20		\$ 132,000.00	6.21%
	Stockpile/Relay/Shape						
5	Earthmoving & Includes Lake Excavation	cu.yds.	150,000	\$1.50		\$ 225,000.00	10.59%
6	Drainage						
	a. Major (> 12")	lin.ft.	5,000	\$20		\$ 100,000.00	4.71%
	b. Minor (< 12")	lin.ft.	5,000	\$7.00		\$ 35,000.00	1.65%
	c. Field Lines (6")	lin.ft.	5,000	\$5.00		\$ 25,000.00	1.18%
	d. Exit Lines (4")	lin.ft.	5,000	\$3.00		\$ 15,000.00	0.71%
	e. Catch Basin (12")	ea.	100	\$140		\$ 14,000.00	0.66%
7	Shaping	hrs.	1,500	\$125		\$ 187,500.00	8.82%
8	Greens Construction (assumes 12 new greens)	sq.ft.	75,000	\$1.75		\$ 131,250.00	6.18%
9	Tee Construction (assumes 10 new tee complexes)	sq.ft.	75,000	\$1.00		\$ 75,000.00	0.28%
10	Bunkers						
	a. Edge/Contour	sq.ft.	40,000	\$1.00		\$ 40,000.00	1.88%
	b. Sand Buy/Place	tons	781	\$25.00		\$ 19,513.31	0.92%
11	Irrigation System						
	a. Sprinklers	heads	650	\$750		\$ 487,500.00	22.94%
	b. Pump Station	ea	1	\$90,000		\$ 90,000.00	4.24%
12	Planting Preparation (assumes affecting approx. 2/3 of the area)	ac.	65	\$2,000		\$ 130,000.00	6.12%
13	Seeding						
	a. Greens	sq.ft.	75,000	\$0.12		\$ 9,000.00	0.42%
	b. Tees	sq.ft.	75,000	\$0.12		\$ 9,000.00	0.42%
	c. Fairways	ac.	30	\$1,000		\$ 30,000.00	1.41%
	d. Primary Rough	ac.	25	\$1,000		\$ 25,000.00	1.18%
	e. Secondary Rough	ac.	10	\$750		\$ 7,500.00	0.35%
14	Sod	sq.yd.	25,000	\$2.50		\$ 62,500.00	2.94%
15	Germination	ls	1	\$0		\$ -	0.00%
16	Cart Path						
	a. 8' wide - asphalt	lin.ft.	12,000	\$10		\$ 120,000.00	5.65%
17	Bridges	lin.ft.	0	\$250		\$ -	0.00%
18	Miscellaneous						
	a. Temporary Green & Tee Option "2"	ls	1	\$50,000		\$ 50,000.00	0.0%
	Base Cost					\$ 2,124,763.31	97%
	Prevailing Wage Increase of 30% Minimum					\$ 637,428.99	
	Contingency of 5%					\$ 138,109.62	
19	Golf Course Design Fees					\$ 250,000.00	
20	Engineering Fees					\$ 50,000.00	
	Grand Total					\$ 3,200,301.92	



New South Runway

Older New Orleans Golf Course
Construction Site

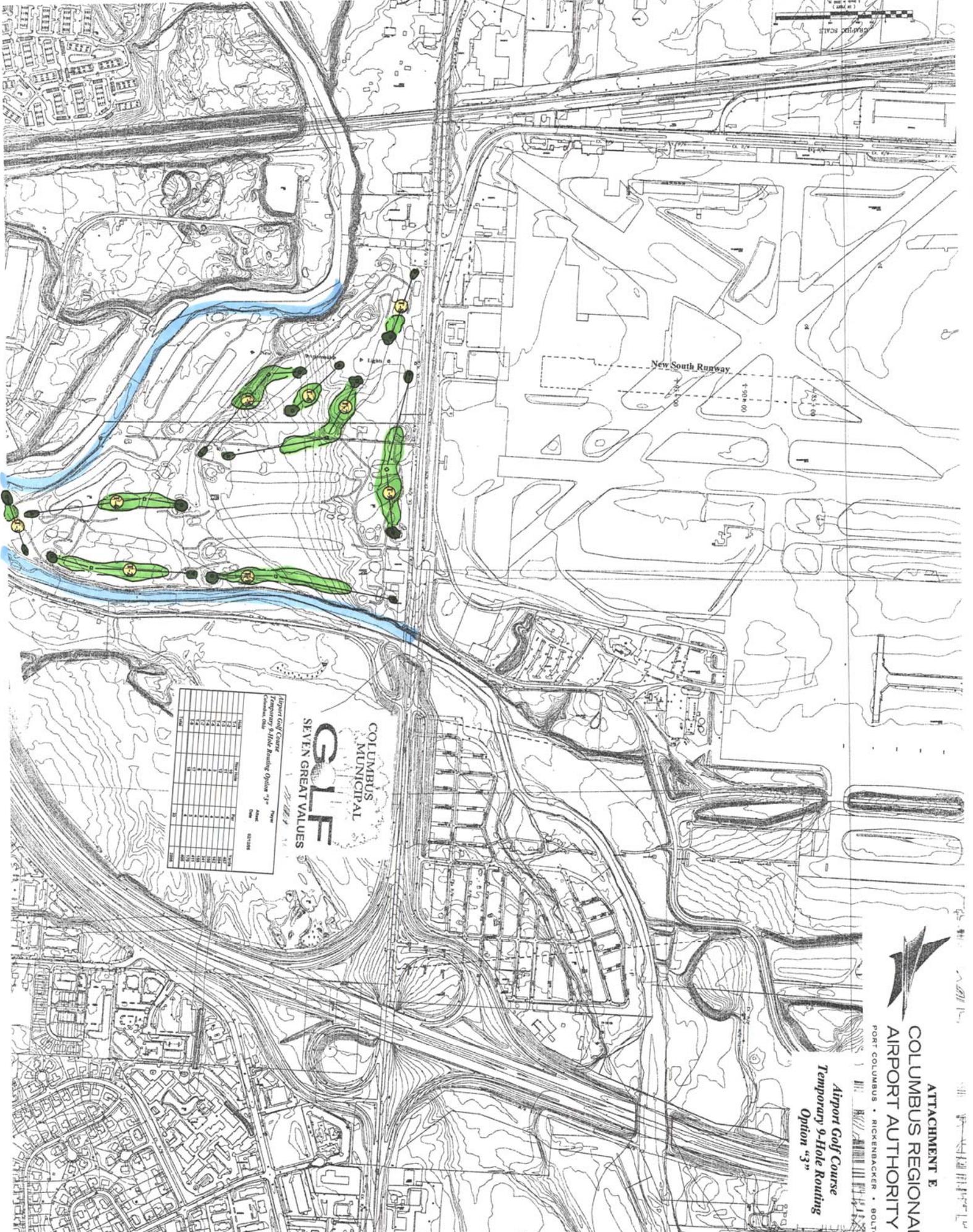
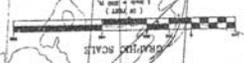
COLUMBUS
MUNICIPAL
GOLF
SEVEN GREAT VALUES

Year	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Population	1,000,000	1,100,000	1,200,000	1,300,000	1,400,000	1,500,000	1,600,000	1,700,000	1,800,000	1,900,000	2,000,000	2,100,000	2,200,000
Household Income	\$20,000	\$22,000	\$24,000	\$26,000	\$28,000	\$30,000	\$32,000	\$34,000	\$36,000	\$38,000	\$40,000	\$42,000	\$44,000
Unemployment Rate	10%	9%	8%	7%	6%	5%	4%	3%	2%	1%	1%	1%	1%
Median Age	25	26	27	28	29	30	31	32	33	34	35	36	37
Population Density	100	110	120	130	140	150	160	170	180	190	200	210	220
Population Growth	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Population Density	100	110	120	130	140	150	160	170	180	190	200	210	220
Population Growth	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%



ATTACHMENT D
COLUMBUS REGIONAL
AIRPORT AUTHORITY
PORT COLUMBUS • RICKENBACKER • BOLTON

Airport Golf Course
Temporary 9-Hole Routing
Option "2"



Future Golf Course
 Temporary 9-Hole Routing Option "3"
 Construction Date: _____

Area	Acres	Area	Acres
1	10.00	11	10.00
2	10.00	12	10.00
3	10.00	13	10.00
4	10.00	14	10.00
5	10.00	15	10.00
6	10.00	16	10.00
7	10.00	17	10.00
8	10.00	18	10.00
9	10.00	19	10.00
10	10.00	20	10.00
21	10.00	22	10.00
23	10.00	24	10.00
25	10.00	26	10.00
27	10.00	28	10.00
29	10.00	30	10.00
31	10.00	32	10.00
33	10.00	34	10.00
35	10.00	36	10.00
37	10.00	38	10.00
39	10.00	40	10.00
41	10.00	42	10.00
43	10.00	44	10.00
45	10.00	46	10.00
47	10.00	48	10.00
49	10.00	50	10.00
51	10.00	52	10.00
53	10.00	54	10.00
55	10.00	56	10.00
57	10.00	58	10.00
59	10.00	60	10.00
61	10.00	62	10.00
63	10.00	64	10.00
65	10.00	66	10.00
67	10.00	68	10.00
69	10.00	70	10.00
71	10.00	72	10.00
73	10.00	74	10.00
75	10.00	76	10.00
77	10.00	78	10.00
79	10.00	80	10.00
81	10.00	82	10.00
83	10.00	84	10.00
85	10.00	86	10.00
87	10.00	88	10.00
89	10.00	90	10.00
91	10.00	92	10.00
93	10.00	94	10.00
95	10.00	96	10.00
97	10.00	98	10.00
99	10.00	100	10.00

COLUMBUS MUNICIPAL
GOLF
 SEVEN GREAT VALUES



ATTACHMENT E
COLUMBUS REGIONAL
AIRPORT AUTHORITY
 FORT COLUMBUS • RICKENBACKER • BOLTON

Airport Golf Course
Temporary 9-Hole Routing
Option "3"

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Airport Golf Course Correspondence

CRAA Letter to FAA, May 30, 2007
FAA Internal Memorandum, June 15, 2007
City of Columbus Letter to FAA, October 18, 2007
CRAA Letter to City of Gahanna, January 16, 2007
City of Columbus Letter to FAA December 12, 2008
Memorandum of Understanding between CRAA and City of
Columbus

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Federal Aviation Administration

Memorandum

Date: June 15, 2007

From: Community Planner, Detroit Airports District Office

To: Cleland Micheel

Prepared by: Katherine S. Jones *Katherine S. Jones*

Subject: Port Columbus International Airport, Columbus, Ohio
Proposed Airport Golf Course Reconfiguration

The FAA is currently preparing an Environmental Impact Statement for the proposed development at the Port Columbus International Airport, in Columbus, Ohio.

The Airport is proposing to relocate Runway 10R/28L 702 feet south of its existing location. All of the existing infrastructure would also be relocated to accommodate the relocated runway. The current MALSR goes through the Airport Golf Course. With the proposed relocation, we would need to relocate the MALSR and associated building. Attached is a drawing of the proposed golf course realignment. This option has been coordinated with various persons within the FAA. See the detailed correspondence outline below.

The Airport did a partial ALP update. The FAA reviewed and airspaced it under ASN 2005-AGL-819-NRA. In our airspace coordination memo, dated September 23, 2005, we stated, "The golf course is currently on airport property, this proposed development will require the reconfiguration of some of the tees/greens. Each appropriate line of business should provide detailed information as to any requirements concerning NAVAIDs, approaches, and the golf course." We specifically pointed out that the report also states that the Air Traffic Organization-Technical Operations in Des Plaines, IL reviewed the illustrative plan known as Option A-1." We asked for comments/concurrence on this option. AGL-471 asked for the correspondence related to the golf course; a fax was sent to them on November 29, 2005.

The FAA – Airports District Office provided airspace review comments to the airport on December 15, 2005 and approved the partial revision to the ALP on February 23, 2006.

History of coordination/correspondence for the Airport Golf Course:

December 10, 2004. Email from Ron Dixon (URS – Airport Consultant) to Cleland Micheel, Andrew Stasiuk (FAA). The consultant provided an exhibit showing a 400-foot wide light lane for a future MALSR at the 28L end of the future relocated Runway 10R/28L at CMH. “The existing MALSR is in the Airport Golf Course and we need to properly plan and budget for the layout of the future navigation equipment associated with the new South Runway, and for the cost to reconfigure the golf course tees, fairways and greens. The golf course layout in the attached exhibit is the initial concept developed by the golf course architect, superimposed over the existing golf course. The concern of URS (and subsequent request to the FAA for review) is that the current concept plan places selected tees (7th, 5th, and 18th hole), greens (6th hole), and parts of the fairways (4th and 16th) within the 400-foot wide light lane.” The consultant asked for guidance and specifically asked if “any part of a tee, or fairway, or green could be inside the 400 foot wide area? Can certain elements of the course or activities be tolerated, if so, how close to the MALSR towers?

January 10, 2005. Email from Leo Espino (FAA) to Ron Dixon (URS – Airport Consultant). (In response to the December 10, 2004 email). The FAA stated that, “Based on the attached sketch, Golf activities, any part of a tee, fairway or green can be inside the 400-foot light plane. Certain elements of the course or activities are allowed provided they should not be closer than 20 feet from the MALSR tower. Planning to plant trees must not penetrate the approach light plane. If there are existing trees on this area, other agencies are involved for environmental study.”

January 11, 2005. Email from Ron Dixon (URS – Airport Consultant) to Leo Espino, Andy Stasiuk, and Cleland Micheel (FAA). Ron Dixon stated that as they understand, the layout is generally acceptable as long as elements of the course (i.e., tees) are not closer than 20 feet to the towers, and that no existing or future trees penetrate the approach light plane.

September 23, 2005. FAA Memo from the Airports District Office to various Lines of Business requesting airspace review of the Partial ALP Revision. A summary of each section of the ALP report was presented.

November 23, 2005. FAA Memo from Sam Lakhani, AGL-471 to Katy Jones, DET ADO. The memo states that Tech Ops have no prior knowledge of option A-1 plan as mentioned in the ALP Airspace memo (Section 4.7). The DET ADO provided AGL-471 with an 8-page fax of correspondence related to the Airport Golf Course. The resolution was that CMH would have to submit a FAA Form 7460-1 when the proposed golf course redesign was completed. This was conveyed to the airport sponsor in the airspace review comment letter dated December 15, 2005.

Requested Action: Please review the attached “Airport Golf Course Studies, Option A-1, January 12, 2005” and provide your written concurrence with the following assumptions:

- Golf holes may not be located between the new MALSR nor will golf shots be allowed between the new light towers.
- Golf shots will be played away from or toward the lights but not over them.
- In the final design of the new course, it is also assumed that the new elevations of golf course features (tees, greens, bunkers, etc) will NOT be any higher than the existing golf course features.
- Golf activities such as a part of the tee, fairway, or green can be within the 400-foot light plane.

- Golf activities should not be closer than 20 feet to the MALSR towers.
- There can be no playing through the MALSR light lane.

We understand that prior to the reconfiguration of the Airport Golf Course that FAA Form 7460-1 will be required and an airspace review of the project be completed and coordinated with all the appropriate lines of business.

Thank you for your timely review of this submittal.

Katherine S. Jones

Attachments

- 1 – December 10, 2004 and January 10, 2005 Email correspondence between Ron Dixon and Leo Espino
- 2 – January 11, 2005 Email correspondence between Ron Dixon and Leo Espino
- 3 – September 23, 2005 Partial Airport Layout Plan Airspace Coordination Memorandum from Katherine Jones
- 4 – November 23, 2005 AGL-471 Airspace Coordination Comments on Partial ALP Update
- 5 – December 15, 2005 Airspace Review Comments to Columbus Regional Airport Authority from the FAA
- 6 – February 23, 2006 Revised Airport Layout Plan Approval to Columbus Regional Airport Authority from the FAA
- 7 – May 30, 2007 Letter from Columbus Regional Airport Authority to the FAA for the Airport Golf Course Reconfiguration



Leo.Espino@faa.gov
01/10/2005 12:41 PM

To: Ron_Dixon@urscorp.com
cc: Cleland.R.Micheel@faa.gov, Andrew.Stasiuk@faa.gov
Subject: Fw: Port Columbus 28R MALSR & Golf Course

Ron,

Based on the attached sketch, Golf activities , any part of a tee, fairway or green can be inside the 400 feet light plane. Certain elements of the course or activities are allowed provided they should not be closer than 20 feet from the MALSR tower. Planning to plant trees must not penetrate the approach light plane. If there are existing trees on this area , other agencies are involved for environmental study.

Respectfully,
Leo
(847)-294-7587

----- Forwarded by Leo Espino/AGL/FAA on 01/10/2005 11:14 AM -----

Cleland R Micheel

Espino/AGL/FAA@FAA

12/13/2004 05:45
AM

To: Leo

cc:
Subject: Fw: Port Columbus 28R

MALSR & Golf Course

----- Forwarded by Cleland R Micheel/AGL/FAA on 12/13/2004 05:45 AM -----

Ron_Dixon@URSCorp
.com

12/10/2004 04:23
PM

Cleland R Micheel/AGL/FAA@FAA,
Andrew Stasiuk/AGL/FAA@FAA

To

cc

Mary Jagiello/AGL/FAA@FAA, Irene
Porter/AGL/FAA@FAA,
Jay_Muether@URSCorp.com,
Jack_Deter@URSCorp.com,
Steve_Lucchesi@URSCorp.com

Subject

Port Columbus 28R MALSR & Golf
Course

Gentlemen,

Kindly take a minute or two to look at the attached pdf exhibit. It shows a future 400 ft wide light lane for a future MALSR at the 28L End of a future relocated Runway 10R-28L (i.e., new South Runway) at Port Columbus Int'l Airport (CMH). The existing MALSR is in the Airport Golf Course and we need to properly plan and budget for the layout of the future navigation equipment associated with the new South Runway, and for the cost to reconfigure the golf course tees, fairways and greens. The golf course layout in the attached exhibit is the initial concept developed by the golf course architect, superimposed over the existing golf course. Our concern is that the current concept plan places selected tees (e.g., 18th hole), greens (e.g., 6th hole), and parts of fairways (e.g., 4th and 16th) within the 400 ft wide light lane. Please provide some guidance based on this illustration. Can any part of a tee, or fairway, or green be inside the 400 ft wide area? Can certain elements of the course or activities be tolerated, and if so, how close to the MALSR towers?

Your comments will directly effect our preparation of the Benefit Cost Analysis for the runway project. Your timely response will be greatly appreciated. Feel free to call, or respond by email ... and I will be pleased to meet with you in Des Plaines as well.

(See attached file: CMHnew28LMALSRLane.pdf)

Ron D. Dixon, AIA, AICP
Airport Projects Manager
URS Corporation
Architects, Engineers, Planners
277 West Nationwide Boulevard
Columbus, Ohio 43215-2566

TEL 614.464.4500, X-7791

FAX 614.464.0588

Ron_Dixon@urscorp.com(See attached file: CMHnew28LMALSRLane.pdf)



CMHnew28LMALSRLane.pdf

Attachment 2



Ron Dixon

01/11/2005 12:20 PM

To: Leo.Espino@faa.gov
cc: Andrew.Stasiuk@faa.gov, Cleland.R.Micheel@faa.gov,
sheaton@columbusairports.com, BMeleski@ColumbusAirports.com,
Jack Deter/HuntValley/URSCorp@URSCORP, Steve
Subject: Re: Fw: Port Columbus 28R MALSR & Golf Course

Leo,

Thanks for the review and comment on the future Runway 28R MALSR light lane vs. the illustrative golf course layout we sent to Cleland on December 10. We understand that the layout is generally acceptable as long elements of the course (i.e., tees) are not closer than 20 feet to the towers, and that no existing or future trees penetrate the approach light plane.

Ron D. Dixon, AIA, AICP
Airport Projects Manager
URS Corporation
Architects, Engineers, Planners
277 West Nationwide Boulevard
Columbus, Ohio 43215-2566

TEL 614.464.4500, X-7791
FAX 614.464.0588
Ron_Dixon@urscorp.com



Federal Aviation Administration

Memorandum

Date: September 23, 2005

From: Community Planner, Detroit Airports District Office

To: Airports Division, Safety/Standards Branch, AGL-620 11/18/05
 Air Traffic Organization, ASW-520 10/6/05
 Airport Traffic Control Tower, CMH Manager 11/28/05
 Air Traffic Organization, Technical Operations Branch, AGL-470
 Attention: Program Management Branch, AGL-471 11/23/05
 Flight Standards Division, AGL-230
 Chicago Flight Procedures Office, Manager, CHI-FPO, AVN-140B 10/28/05
 Ohio Systems Management Office, Manager, Ohio SMO 10/26/05

Prepared by: Katherine S. Jones, Community Planner, Detroit ADO

Subject: Port Columbus International Airport (CMH) Partial Airport Layout Plan Update
 Airfield Planning Report Associated with Replacement of Runway 10R/28L

Attached for your review and airspace determination is a copy of the "Airfield Planning Report Associated with Replacement of Runway 10R/28L at The Columbus International Airport" and the "Columbus International Airport Interim Airport Layout Plan Set" (including, the appropriate plan and profile sheets which show the ultimate south runway development).

The last ALP reviewed and approved for this airport was under ASN 1994-AGL-942-NRA (ALP approval date May 1, 1995) and ASN 2000-AGL-1025-NRA (ALP revision approval date August 1, 2005).

Due to extensive and continuing public involvement, this case does not need to be circularized.

The major development being evaluated on this partial ALP update revision is the south airfield development which would be the construction of replacement runway 10R/28L and all associated airfield development, including but not limited to at this time:

1. Shifting/relocating the existing Runway 10R/28L 700 feet to the south. The new Runway 10R/28L and 10L/28R centerline-to-centerline separation would be 3,500 feet.

CONCURRENCES
ROUTING SYMBOL 600
INITIALS/SIGNATURE [Signature]
DATE 11/28/05
ROUTING SYMBOL 601
INITIALS/SIGNATURE [Signature]
DATE 11/28/05
ROUTING SYMBOL 608
INITIALS/SIGNATURE [Signature]
DATE 9/23/05
ROUTING SYMBOL 600
INITIALS/SIGNATURE [Signature]
DATE 9/23/05
ROUTING SYMBOL
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DATE

2. Constructing two parallel taxiways north of Runway 10R/28L (an inboard and outboard taxiway providing access to and from the terminal area). The third taxiway would be a parallel taxiway south of Runway 10R/28L.
3. A conceptual layout of a new terminal envelope, which would include the construction of the terminal, four concourses, and parking garage. This proposed terminal project would be triggered when passenger demand warrants the expansion.

In addition to the three sheets being provided for the partial ALP review and evaluation, the "Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Columbus International Airport" is also included. For easy reference, I have outlined below the major sections.

Section 2.6 – Threshold Analysis: The Airport Sponsor's assessment revealed that shifting the Runway 702 feet south was optimal. There is analysis on the threshold placement in relation to Stelzer Road to the west and Hamilton Road to the east.

Section 2.7 – TERPS Analysis: The Airport Sponsor completed a TERPS analysis based on the preliminary threshold analysis completed in Section 2.6. The Airport would like to ultimately receive a CAT II approach to Runway 10R. The report contains the full analysis and appropriate figures for review. A summary follows:

- The Precision Final Approach Segment OCS for Runway 10R has 11 trees in the surface.
- The Precision Final Approach Segment OCS for Runway 28L has utility poles, a street light on Hamilton Road, and trees in the surface.
- The CAT II/III Missed Approach Segment OCS for Runway 10R has abandoned storage structures located northwest of Building 7, several tall light towers north and west of Building 3, and a ground control tower located on top of Building 7.
- The CAT II/III Missed Approach Segment OCS for Runway 28L has four tall light towers located north and west of Building 3.
- The inner-approach OFZ for Runway 10R has trees located just west of Stelzer Road.
- The inner-approach OFZ for Runway 28L has two utility poles and trees located east of Hamilton Road.
- The Instrument Departure Procedure OCS for Runway 10R has Hangar 3, light poles west of Hamilton Road, and trees in the surface.
- The Instrument Departure Procedure OCS for Runway 28L has trees and one light pole in the surface.

Section 2.8 – CFR Part 77 Analysis: The Airport Sponsor completed an analysis of Part 77 surfaces. This section has a complete analysis with appropriate figures for each approach and its

transitional surface. It states that each approach and associated transitional surface will have penetrations.

Section 2.10 – Air Traffic Control Tower Line of Sight Analysis: The Airport Sponsor states in their analysis that a clear line of sight would exist from the tower to both taxiway and runway thresholds. It is possible that some aircraft tails at the proposed outer concourse would block the view of intermittent portions of the outer taxiway. The majority of the taxiway would be clear. The Airport Sponsor's conclusion is that the relocation of Runway 10R/28L southward would not generate any line-of-sight issues for the air traffic personnel.

Section 2.11 – ARFF Response Time Evaluation: The proposed southward relocation of Runway 10R/28L would place the runway farther away from the airport's existing Aircraft Rescue and Firefighting (ARFF) station. The Airport Sponsor completed an evaluation for ARFF response times and concluded that the proposed relocation should not require the construction of an additional ARFF station to meet the vehicle response time requirements of CFR Part 139.

Section 3.1 – NAVAIDs Assessment (Instrument Approaches, ILS Equipment, and Approach Lighting Systems): In addition, refer to Appendix D for the NAVAID Modeling Summary. The Ohio University Avionics Engineering Center (Athens, OH) completed this analysis. The Airport Sponsor would like to preserve the ability to upgrade to a CAT II approach in the future. This will require additional evaluation given the runway separation will not meet the standards for simultaneous instrument arrivals. Also, the ALSF-II will require relocation of Stelzer Road and one of the light bars to be accommodated in the median of the roadway.

Section 3.2 – Preliminary Concept Development (Runway and Taxiway Geometry, etc): The Airport occasionally accommodates Group V aircraft, thus they would like to maintain their design to Group V standards which requires a parallel taxiway to parallel taxiway separation of 267 feet. The Airport Sponsor cannot accommodate the 267 feet between the two taxiways. Based on analysis using AC 150/5300-13, Appendix 9, a separation of 241 feet is proposed for the parallel taxiway separation, which would allow the taxiways to be used by a Group IV and V aircraft at the same time. The outboard taxiway, which will be on the edge of the terminal apron, will be 241 feet north of the inboard taxiway.

Section 4.3 – Columbus International AirCenter: The Airport Sponsor provides discussion on aircraft operations and proposed obstruction removal.

Section 4.4 – Airfield Obstructions: The Airport Sponsor provides discussion on additional airfield obstructions. They have only identified the Remote Transmitter/Receiver (RTR-B) and two abandoned structures.

Section 4.5 – Hangar 3 Evaluation: Hangar 3 will be located within the proposed RPZ for the relocated runway. The Airport Sponsor is planning to remove the structure.

Section 4.6 – Lighted Obstructions: The Airport Sponsor anticipates requesting an aeronautical study during the design of the project to determine if the following obstructions can remain and be appropriately marked and lighted. They are Hangar 2, the Anderson Concrete Plant on the east side of Hamilton Road, and the northeast corner of the International AirCenter Building 3 High Bay. Please provide preliminary analysis if possible.

Section 4.7 – Airport Golf Course: The golf course is currently on airport property, this proposed development will require the reconfiguration of some of the tees/greens. Each appropriate line of business should provide detailed information as to any requirements concerning NAVAIDs, approaches, and the golf course. *The report states that the Air Traffic Organization-Technical Ops in Des Plaines, IL has reviewed the illustrative plan, known as Option A-1. Please provide your comments/concurrence on this option (Figure 4-6).*

Section 4.8 – Outer Marker Beacon: The Airport Sponsor completed analysis of siting the Outer Marker Beacon using FAA Order 6750.16C, “*Siting Criteria for Instrument Landing Systems.*” They have identified five sites to the west and two sites to the east. It appears that the preferred site for Runway 10R would be on the Ohio University campus. This section also details the process to interact with the University on siting the outer marker beacon on their property. It appears that the site for Runway 28L would be on vacant private property.

Section 6.0 – Program Schedule: The Airport Sponsor has included their version of a proposed program schedule that would have a formal commissioning of the project in July, 2013. Please review this schedule and provide any comments on timing of the objectives stated and if the schedule they propose is reasonable. As an additional note, the ALP has just started FAA internal review and the EIS has not been officially started. It is anticipated that the schedule will be adjusted.

We request that your line of business conduct a complete aeronautical study of the proposed project under the guidelines of the Great Lakes Region Planning and Coordination Procedures Desk Guide, dated January 10, 2003. This project is in the initial planning stages and all comments received will be used to assist the Airport and the FAA to further develop and plan for this project, including accessing the timing and requirements needed to begin an environmental study of the project.

If you have any questions, please contact me at (734) 229-2958 or Katherine.S.Jones@faa.gov. Thank you in advance for your review of this document.

Katherine S. Jones



U.S. Department
of Transportation

**Federal Aviation
Administration**

Memorandum

DATE: 11/23/2005

INFORMATION: Airspace Case: 05-AGL-0819-NRA-A
Proposal: Replacement of Runway 10R/28L
Location: Columbus, OH

FROM: Sam Lakhani, AGL-471

TO: Katy Jones

CC: Nort Dennison, MTS, OHI SMO, (440) 716-7175
Dave Machala, OHI SMO Airspace PM, (440) 716-7183
7-AGL-OH-SMO

We have reviewed the subject proposal for Port Columbus International, Columbus, OH.
We have NO OBJECTIONS PROVIDED:

1. **RUNWAYS 10R AND 28L PAPI'S.** If the existing PAPI'S are moved, each must be installed 300 feet inbound from its corresponding glide slope, per FAA Order 6850.2A Paragraph 502.
2. **DME.** Complexities of ILS approach procedure geometry and development makes it extremely difficult to acquire land at precisely the right location for an outer marker. For this reason, the sponsor should consider installing future ILS's with a DME (distance measuring equipment) collocated with a localizer or glide slope (G.S).
3. **RVR and MID RVR.** The Runway 10L-28R RVR's are not shown on the submitted ALP. On sheet 1, instead of GLIDE SLOPE ANTENNA, say GLIDE SLOPE/RVR, to label the Runway 10R and 28L glide slope/RVR facilities. Show the Mid-RVR centered 5150 feet east of Runway 10R end and 265 feet south of Runway 10R centerline. This is a nonstandard site for the Mid-RVR, which will require an NCP Waiver. No standard site is available for the Mid-RVR with the proposed configuration of runway and taxiways.
4. **EQUIPMENT SHELTERS.** It is recommended that all localizer, glide slope, MALSR and ALSF-2 equipment shelters be shown on the ALP.
5. **ACCESS ROADS.** It is recommended that all localizer, glide slope, MALSR and ALSF-2 access roads and parking areas be shown on the ALP.

6. **RUNWAY 10R GLIDE SLOPE.** The G.S. antenna tower shown 950 feet from threshold does not meet the threshold crossing height (TCH) requirements (50'-60') for CAT-II ILS. The recommended location for the G.S. antenna tower is 1050 feet from runway end, to ensure a 55-foot TCH with 3-degree glide path. The B-747-200 requires a 55-foot TCH. The S-curve in the parallel taxiway must be redesigned inbound per Paragraph 10.
7. **RUNWAY 28L GLIDE SLOPE.** The recommended location for the G.S. antenna mast is 1100 feet from runway end to assure a 55-foot TCH with 3-degree glide path. The B-747-200 requires a 55-foot TCH. The S-curve in the parallel taxiway must be redesigned inbound per Paragraph 10.
8. **LINE OF SIGHT.** We noticed the line of sight criterion on the drawings. The depiction is not yet correct. Lines of sight to an approach lighting system do not originate at the FAR Part 77 50:1 approach surface, as presently shown on the drawings. To show the line of sight criterion correctly, it is necessary to show it per FAA Order 6850.2A Paragraph 201d, Visibility, which states in part:

“There shall be a clear line-of-sight to all lights of the system from any point on a surface, one half degree below the ILS glide path and extending 250 feet each side of the centerline, up to 1600 feet in advance of the outermost light in the system”.

To show the line of sight criterion correctly, first adjust the glide slope location per paragraphs 6 and 7 above. The elevation of the line of sight determinant surface depends on glide slope location. When the glide slope locations have been adjusted, show and identify the surface that is one half degree below the glide path out to 1600 feet in advance of the outermost light in the system, is 500 feet wide, and is centered on runway extended centerline. This surface is 2.5 degrees above horizontal, and originates at runway elevation abeam the glide slope antenna tower. In the plan and profile views of Runway 28L, sheet 3, mark surface as LINE-OF-SIGHT DETERMINANT SURFACE. This surface is not the line of sight but the surface from which lines of sight are determined. In the profile view of Runway 28L, sheet 3, the outermost point of the line-of-sight determinant surface to the outermost light of the approach lighting system, show a line labeled LINE-OF-SIGHT. This particular line-of-sight is generally accepted as being the critical line-of-sight.

9. **TAXIWAY CLEARANCE FROM GLIDE SLOPE/RVR.** Redesign the parallel taxiway to accommodate the glide slope and RVR facilities. See paragraph 6 and 7 above. For adequate clearance, move the S-curves in the parallel inbound. Place the points of curvature abeam or inbound of the G.S. antenna towers.
10. **RUNWAY 10R ALSF-2.** Break the approach light plane at the station 14+15 light bar instead of the station 12+15 light bar.
11. **RUNWAY 28L MALSR.** Break the approach light plane at the station 10+80 instead of the station 8+80 light bar. Run the plane horizontal to

the station 15+00 light bar. Break at station 15+00, and run the RAIL primary plane down at 2.5 percent to the station 25+00 RAIL flasher. East of Hamilton Road, the MALSR is shown outside the existing airport property boundary.

12. OUTER MARKER SITES. The existing Runways 10R and 28L outer markers (OM's) must be decommissioned when new Runway 10R -28L opens. Whether to decommission the Runway 28L NDB (SUMIE) must be studied. SUMIE NDB is used to redundantly establish the GOTSL Intersection on the Runway 28R ILS approach, and will probably not be decommissioned. The Runway 10R OM will be removed and the site restored.

13. REIMBURSABLE AGREEMENT.

Relocation of FAA facilities will require a signed and executed reimbursable agreement with the FAA. The airport must write FAA/ANI-480, requesting a reimbursable agreement. The request should be accompanied with:

- The latest approved and developmental ALP
- Drawings showing development plans for the area
- A list of all facilities impacted
- Any suggested new facility sites
- Proposed timeframe for relocations.

FAA/ANI-480 will execute a preliminary agreement with the airport upon receipt of the airport's letter, so that the FAA can begin providing engineering services. FAA/ANI-480 will then develop the final reimbursable agreement. On average, 12 to 18 months are required from the time the preliminary reimbursable agreement is signed to the time the final reimbursable agreement is signed.

14. ENVIRONMENTAL STUDIES. Where navoids must be moved or reconstructed, or constructed for a new runway, ensure that the navaid sites are adequately covered in the environmental study for the runway construction action. The navaid coverage must address and resolve, or prepare for future resolution of, special problems such as navaid construction or earthwork that will:

- Encroach on a wetland or river floodplain.
- Be required on recreational land.
- Be required in a contaminated area.
- Otherwise be an environmental problem unless adequately covered in the environmental study.

Send a copy of the environmental document's cover sheet, signature sheet, and text covering the nav aids to the FAA. If the nav aids project is 100 percent nonfed (with no F&E involvement), send the document to:

FAA AGL-473
2300 E. Devon Avenue
Des Plaines, IL 60018

If the nav aids project has the slightest F&E involvement, or has the potential to involve F&E, send the document to:

FAA ANI-400
2300 E. Devon Avenue
Des Plaines, IL 60018

With regard to section 4.7 (Airport Golf Course) of ADO's memo attached with the subject case, we (TECH OPS) have no prior knowledge of option A-1 plan as mentioned in the section 4.7 paragraph. The ADO (Katy Jones) has agreed to send out an airspace case to the Tech Ops (AF) and other FAA LOB for airspace evaluations. The ADO will include the AF airspace determination of the option A1 plan as part of this subject ALP study. K&J

The sponsor should refer to the appropriate FAA Advisory Circular for navigation facilities installation design. For lighted navigational facilities, the sponsor should refer to the Advisory Circular 150/5345-28E, "Precision Approach Path Indicator" (PAPI) Systems) and Advisory Circular 150-5340-30, "Economy Approach Lighting Aids". When designing and installing future lighted NAVAID's, the sponsor should be aware of FAA Order 6850.2A, "Visual Guidance Lighting Systems".

Each proposed construction activity identified on the ALP shall be submitted as a separate airspace case study. A safety-phasing plan shall be included as part of the airspace study for each proposed construction activity identified on the ALP, and must be approved by AF before any construction activity can begin. Also, each proposed construction activity should be highlighted on the submitted safety-phasing plan.

Any displaced or relocated FAA facility or cables if any, due to new ALP construction will have to be coordinated through ANI-480 in order to establish reimbursable funding for the engineering and relocation. Point of contact in the Regional Office is Mr. Andrew Stasiuk at, (847) 294-7586.

Sam Lakhani, AGL-471

Navais Obstruction Evaluation Services (IL, IN & OH)

847-294-8451

Attachments



U.S. Department of Transportation
Federal Aviation Administration

Detroit Airports District Office
Metro Airport Center
11677 South Wayne Road, Ste. 107
Romulus, MI 48174

December 15, 2005

Mr. David E. Wall, AAE
Capital Program Manager
Columbus Regional Airport Authority
4600 International Gateway
Columbus, OH 43219

Dear Mr. Wall:

Port Columbus International Airport
Partial Airport Layout Plan Update
2005-AGL-819-NRA

We have conducted an aeronautical study on the proposed Runway 10R/28L replacement runway. Based on our review, we request the following changes or additional information be provided:

1. The new replacement runway is to be designed to Design Group IV design standards so that CAT II/III conditions can be preserved. References to Group V should be removed in the supporting planning document and made for Group IV.
2. The collision risk model (CRM) that the airport completed in 2003, was for the existing location of Runway 10R/28L and parallel taxiway being located 400 feet centerline to centerline. These results cannot be used for the replacement runway project. Airspace Obstruction Standards Committee Decision Document #4 (March 21, 2005) states, "The following runway/parallel taxiway separation standards will apply to all new runway/parallel taxiway construction projects. Airport improvement projects for which a Draft Environmental Impact Statement (EIS), Environmental Assessment (EA), Categorical Exclusion (CATEX) has not been issued prior to approval of AOSC Decision Document #1 on December 18, 2003 will be treated as new projects." Based on this, the replacement runway is considered a new project. (See attached DD#4 for the entire text - 3. AOSC Decision, Construction of new runways/parallel taxiways).
3. Further review of ARFF response time is needed. An independent analysis should be obtained, some of the issues to be evaluated would be trucks should be driven at manufacturers safe conditions to simulate response to a worst case scenario. Further information or clarification can be obtained from CMH's Airport Safety Certification Inspector, Jesse Carriger at (847) 294-7626.

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4. Taxiway configurations for the proposed south parallel taxiway and air cargo apron could pose a signage and marking problem. This intersection should be further evaluated to see if unnecessary pavement could be removed as part of the project to improve the airport geometry.
5. The golf course and proposed re-design **has not** been airspaced or reviewed by all necessary FAA lines of business. Once a proposed layout of the golf course reconfiguration is finalized, please submit the appropriate FAA 7460-1 forms and supporting documentation to this office for an official airspace review and determination.

We provide the following comments for your information and use through the environmental and design phases of the project:

1. Runway 10R/28L PAPIs. If the existing PAPI's are moved, each must be installed 300 feet inbound from its corresponding glide slope, per FAA Order 6850.2A, paragraph 502.
2. DME. Complexities of ILS approach procedure geometry and development makes it extremely difficult to acquire land at precisely the right location for an outer marker. For this reason, the sponsor should consider installing future ILS's with DME collocated with a localizer or glide slope.
- ✓ 3. RVR and MID-RVR. The Runway 10R/28L RVR's are not shown on the submitted ALP. On sheet 1, instead of Glide Slope Antenna, say Glide Slope/RVR facilities. Show the MID-RVR centered 5150 feet east of Runway 10R end and 265 feet south of the Runway 10R centerline. This is a non-standard site for the MID-RVR, which will require an NCP waiver. No standard site is available for the MID-RVR with the proposed configuration of runway and taxiways.
- ✓ 4. Equipment Shelters. It is recommended that all localizer, glide slope, MALSR, and ALSF-2 equipment shelters be shown on the ALP.
- ✓ 5. Access Roads. It is recommended that all localizer, glide slope, MALSR, and ALSF-2 access roads and parking areas be shown on the ALP.
- ✓ 6. Runway 10R Glide Slope. The GS antenna tower shown 950 feet from threshold does not meet the threshold crossing height (TCH) requirements (50'-60') for CAT II ILS. The recommended location for the GS antenna tower is 1050 feet from the runway end to ensure a 55-foot TCH with 3-degree glide path. The B-747-200 requires a 55-foot TCH. The S-curve in the parallel taxiway must be redesigned inbound per comment number 9.
- ✓ 7. Runway 28L Glide Slope. The recommended location for the GS antenna mast is 1100 feet from the runway end to ensure a 55-foot TCH with a 3-degree glide path. The S-curve in the parallel taxiway must be redesigned inbound per comment number 9.
- ✓ 8. Line of Sight. The depiction for the line of sight is incorrect. Lines of sight to an approach lighting system do not originate at the FAR Part 77 50:1 approach surface, as presently shown on the drawings. To show the line of sight criterion correctly, it is necessary to show it per FAA Order 6850.2A, Paragraph 201d, Visibility, which states in part, "There shall be a clear line of sight to all lights of

the system from any point on a surface, one half degree below the ILS glide path and extending 250 feet each side of the centerline, up to 1600 feet in advance of the outermost light in the system.”

To show the line of sight criterion correctly, first adjust the glide slope location per comment numbers 6 and 7 in this section. The elevation of the line of sight determinant surface depends on glide slope location. When the glide slope locations have been adjusted, show and identify the surface that is one half degree below the glide path out to 1600 feet in advance of the outermost light in the system, is 500 feet wide, and is centered on the extended runway centerline. This surface is 2.5 degrees above horizontal, and originates at runway elevation abeam the glide slope antenna tower. In the plan and profile views of Runway 28L, sheet 3, mark surface as Line of Sight Determinant Surface. This surface is not the line of sight but the surface from which lines of sight are determined. In the profile view of Runway 28L, sheet 3, the outermost point of the line of sight determinant surface to the outermost light of the approach lighting system, show a line labeled line of sight. This particular line of sight is generally accepted as being the critical line of sight.

9. Taxiway Clearance from Glide Slope/RVR. Redesign the parallel taxiway to accommodate the glide slope and RVR facilities. See paragraph 6 and 7 above. For adequate clearance, move the S-curves in the parallel inbound taxiway. Place the points of curvature abeam or inbound of the GS antennas towers.
10. Runway 10R ALSF-2. Break the approach light plane at station 14+15 light bar instead of station 12+15 light bar.
11. Runway 28L MALSR. Break the approach light plane at the station 10+80 instead of the station 8+80 light bar. Run the plane horizontal to the station 15+00 light bar. Break at station 15+00, and run the RAIL primary plane down at 2.5 percent to the station 25+00 RAIL flasher. East of Hamilton Road, the MALSR is shown outside the existing airport property boundary.
12. Outer Marker Sites. The existing Runway 10R/28L outer markers (OM's) must be decommissioned when the new Runway 10R/28L opens. Whether to decommission the Runway 28L NDB (SUMIE) must be studied. SUMIE NDB is used to redundantly establish the GOTSL intersection of the Runway 28R ILS approach and will probably not be decommissioned. The Runway 10R OM will be removed and the site restored.
13. Reimbursable Agreement. Relocation of FAA facilities will require a signed and executed reimbursable agreement with the FAA. The airport must write FAA/ANI-480, requesting a reimbursable agreement. The latest approved and developmental ALP; drawings showing development plans for the area; a list of all facilities impacted; any suggested new facility sites; and proposed timeframe for relocations should be included.

FAA/ANI-480 will execute a preliminary agreement with the Sponsor upon receipt of their request, so that the FAA can begin providing engineering services. FAA/ANI-480 will then develop the final reimbursable agreement. On average,

- 12 to 18 months are required from the time the preliminary reimbursable agreement is signed to the time the final reimbursable agreement is signed.
14. Environmental Studies. Where NAVAIDs must be moved, reconstructed, or constructed for a new runway, ensure that the NAVAID sites are adequately covered in the environmental study for the runway construction action. The NAVAID coverage must address and resolve, or prepare for future resolution of, special problems such as NAVAID construction or earthwork that will encroach on a wetland or river floodplain, be required on recreational land, be required in a contaminated area, or otherwise be an environmental problem unless adequately covered in the environmental study.

Send a copy of the environmental document's cover sheet, signature sheet, and text covering the NAVAIDs to the FAA. If the NAVAID project is 100 percent non-fed (no F&E involvement), send the document to: AGL-473, 2300 E. Devon Ave., Des Plaines, IL 60018.

If the NAVAID project has F&E involvement, or has the potential to involve F&E, send the document to ANI-400, 2300 E. Devon Ave., Des Plaines, IL 60018.

15. Navigation facilities installation design should be in accordance with appropriate FAA Advisory Circulars. For lighted navigational facilities, the sponsor should refer to AC 150/5345-28E, "Precision Approach Path Indicator (PAPI) Systems and Advisory Circular 150/5340-30, "Economy Approach Lighting Aids." When designing and installing future lighted NAVAIDs, the sponsor should be aware of FAA Order 6850.2A, "Visual Guidance Lighting Systems."
16. Each proposed construction activity identified on the ALP shall be submitted as a separate airspace case study. A safety-phasing plan shall be included as part of the airspace study for each proposed construction activity identified on the ALP, and must be approved by AF before any construction can begin. Also, each proposed construction activity should be highlighted on the submitted safety-phasing plan.
17. Displaced or relocated FAA facility or cables resulting from any new ALP construction will have to be coordinated through ANI-480 in order to establish reimbursable funding for the engineering and relocation. Point of contact at the regional office is Mr. Andrew Stasiuk at (847) 294-7586.
18. New runways will require revisions of all standard instrument approach procedures (SIAPs) at the airport. Any new procedures request must be submitted in writing to the CHI FPO with the concurrence of the owner/operator of the airport.
19. CHI FPO requires new runway end coordinates (NAD83), runway end elevations, runway touchdown zone elevation; if the airport elevation changes by 1.0 foot all SIAPS have to be revised.
20. In order to maintain existing and future IFR operations, refer to AC 150/5300-13, Appendix 16, Table A16-1A/Precision or Table A-16-1B.
21. Based on current publication list for the USA and Great Lakes, to meet publication cutoff dates a minimum of up to 1.5 to 2 years, based on complexity and current workload, will be required to revise or develop all SIAPS. Any new

runway pavement that will cause revisions to the current SIAPS will have to be flight checked for day/night operations: Reference United States Standard Flight Inspection Manual OA P 8200.1, Chapt. 100, Section 104, Types and Priorities of Flight Inspections.

22. Please forward a copy of the data to the CHI FPO, AJW-327C. This data will be used to amend and publish instrument approach procedures at this airport. To achieve the lowest IFR minimums, obstacle identification surfaces have to be clear. During CAT II/III operations to the proposed Runway 10R/28L submitted design, aircraft are restricted to design group IV or less. Larger aircraft flying the approach or taxiing on parallel taxiways, require a collision risk analysis to determine the minimum HAT value.

NOTE: An approved ALP does not constitute a request for procedure revision and/or development. Development/revision of SIAPS cannot start until the revised/new survey under FAA specification 405 has been received by CHI FPO AJW-327C to start the process.

23. CHI FPO asks that the attached checklist be applied to each runway end out to the extended runway centerline in order to evaluate the possible effects of aircraft out to at least 20 nautical miles or 3000 feet above the landing runway threshold. This should meet the requirements for possible environmental effects.
24. All runways shall have a minimum clear 20:1 visual approach slope.

If you desire further clarification of these comments, please contact Ms. Katy Jones, of this office, at (734) 229-2958. When all comments have been incorporated into the partial ALP update, please submit one copy for final review. We will require 10 complete sets of the ALP update for distribution when this is completed.

Sincerely,

Katherine S. Jones
Community Planner
Detroit Airports District Office

cc: Ron Dixon, URS

AGL-471

AGL 620

CHI FPO

Attachment 6



U.S. Department of Transportation
Federal Aviation Administration

Detroit Airports District Office
Metro Airport Center
11677 South Wayne Road, Ste. 107
Romulus, MI 48174

February 23, 2006

Ms. Elaine Roberts, A.A.E
President & CEO
Columbus Regional Airport Authority
4600 International Gateway
Columbus, OH 43219

Dear Ms. Roberts:

Port Columbus International Airport
Columbus, Ohio
Airspace Case Number 2005-AGL-819-NRA
Revision Airport Layout Plan Approval

Enclosed for your use and files is one conditionally approved copy of a revision to the Airport Layout Plan (ALP) for this site, bearing the revision date of January 20, 2006. The major revisions are:

1. Shifting and relocating the existing Runway 10R/28L approximately 700 feet to the south. The new Runway 10R/28L and Runway 10L/28 R have a centerline-to-centerline separation of 3,500 feet.
2. The construction of three new parallel taxiways: two north of the new Runway 10R/28L (an inboard and outboard taxiway providing access to and from the terminal area) and one south of the new Runway 10R/28L.
3. A conceptual layout of a new terminal envelope, which will include the construction of the terminal, four concourses, and a parking garage.
4. Depiction of the ultimate stormwater management sites.

This revision approval is conditioned upon recognition of and adherence to the following:

1. Approval of an ALP revision is not to be considered a determination of necessity or as a commitment of Federal funding for accomplishment of the projected development. Inclusion of the proposed development signifies a concurrence for planning purposes based on review of conformance with current design standards for safety, utility, and efficiency. Actual facility development will be governed by adherence to development standards applicable at the time the development is undertaken.
2. The approval, indicated by my signature is given with regard to the stated revisions only. The approved ALP remains the one approved by our letter dated

CONCURRENCES
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ROUTING SYMBOL 608
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- May 1, 1995, as adjusted by this revision and any other approved revisions. All stipulations and conditions of the aforementioned approval letter remain in effect.
3. All development depicted on this ALP must comply with the National Environmental Policy Act of 1969 (P.L. 91-190). Approval is given subject to the condition that the proposed airport development identified above is not undertaken without prior environmental evaluation.

This revision was studied under Airspace Case Number 2005-AGL-819-NRA.

We trust the foregoing provides a reasonable explanation of the conditions inherent in our revision approval. If, however, you desire further clarification, please do not hesitate to contact this office at (734) 229-2958.

Sincerely,

Katherine S. Jones
Community Planner
Detroit Airports District Office

cc: CHI FPO
AGL-470
ASW-520
AGL-620
OHIO SMO
CMH ATCT (Transmittal Letter only)

Attachment 7



COLUMBUS REGIONAL AIRPORT AUTHORITY
PORT COLUMBUS • RICKENBACKER • BOLTON

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JUN 01 2007

FAA, DETROIT ADO

May 30, 2007

Ms. Katherine Jones
Community Planner
FAA Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, MI 48174

Kathleen H. Ransier
Chair
Dwight E. Smith
Vice Chair

Don M. Casto, III
Frank J. Cipriano
John W. Kessler
Wm. J. Lhota
James P. Loomis, P.E.
George A. Skestos
Dennis L. White

Elaine Roberts, A.A.E.
President & CEO

RE: Airport Golf Course Reconfiguration

Dear Katy:

This letter is to formally notify the FAA of the Columbus Regional Airport Authority's (CRAA) selection of option "A-1" from the *Airport Golf Course Alternatives Analysis Associated with Replacement of Runway 10R-28L Port Columbus International Airport* report, prepared by Hurdzan/Fry Golf Course Design, Inc. on February 15, 2005, as the preferred option for the reconfiguration of the Airport Golf Course.

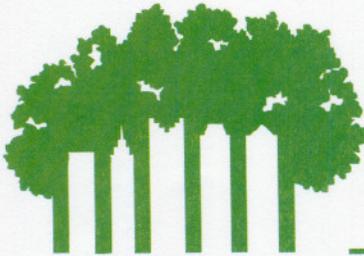
The layout of the golf course, as depicted in "Attachment A" of the report, is not a final layout and minor modifications may be made during the actual design. In addition, the CRAA is gathering additional information on the hike/bike trail proposed by the cities of Gahanna and Whitehall, which may impact the ultimate layout of the golf course.

If you have any questions, please call Dave Wall at (614) 239-4063.

Sincerely,

Bernard F. Meleski
Director, Airport Planning & Development

Cc: Angela Newland, A.A.E.
David Wall, A.A.E.
Rob Adams, L&B



COLUMBUS
RECREATION
AND PARKS

Alan D. McKnight
Director

1111 East Broad Street
Suite 200
Columbus, Ohio 43205

614/645-3300
Fax 614/645-5801
TDD 1-800-750-0750

**Recreation and
Parks Commission**

Lorraine P. Brock
Kathy Duffy Espy
Lynn A. Greer
Archie M. Griffin
Thomas L. Kaplin
Clayton H. Royder, D.O.
Jerry Saunders
Ellen Larrimer Tripp

Member of the National
Recreation and Parks
Association and the Ohio
Parks and Recreation
Association

The City of Columbus is
An Equal Opportunity
Employer

*Our vision is to provide
leisure opportunities
for all ... something for
everyone ... naturally.*

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OCT 29 2007

FAA, DETROIT ADO

Michael B. Coleman, Mayor
City of Columbus

October 18, 2007

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

Re: Department of Transportation Section 4(f) Consultation on Potential Impacts
to the Airport Golf Course

Dear Ms. Jones:

We are writing this letter in response to your request for consultation regarding the potential impacts to the Airport Golf Course from the proposed Runway 10R/28L replacement project currently being evaluated in the Environmental Impact Statement for the Port Columbus International Airport. The Columbus Recreation and Parks Department's Golf Division (CRPDGD) has been coordinating with the Columbus Regional Airport Authority (CRAA) since 2005 on this issue and participated in the preparation of a study that assessed alternative golf course layouts. Based on previous meetings, we understand the purpose of relocating Runway 10R/28L and the resulting need to relocate the approach lights, which will cause the golf course to be reconfigured.

We have been presented with a conceptual plan for the reconfiguration of the Airport Golf Course that when implemented will make the golf course whole and therefore no "taking" under Department of Transportation Section 4(f) would occur. We also understand that during reconstruction, there will be temporary impacts, such as reduction in the number of playable holes. There are still a number of issues remaining to be negotiated, but the following summarizes the areas of concurrence, as well as the areas where further discussion is needed.

Areas of concurrence between CRPDGD and CRAA

- The Airport Golf Course will be returned to an 18-hole facility that is comparable to the character, distance, and style of the current course and conforms to all relevant FAA guidelines concerning airport design standards, safety, and maintenance of approach light systems (specifics of which are in Attachment 1). The course layout shown in Layout Option "A-1" of the golf course reconfiguration report (Attachment 2) satisfies all of these requirements.

Our mission is to enrich the lives of our citizens.

www.columbusrecparks.com

October 18, 2007

Pg. 2

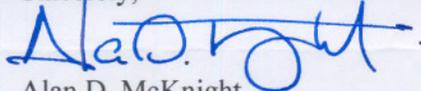
- The Airport Golf Course will remain within the boundaries of the current course.
- The CRAA will fund and manage the reconstruction of the Airport Golf Course.
- There is a desire by both the CRAA and the CRPDGD to compress the schedule of the reconstruction as much as possible to reduce the amount of time the Airport Golf Course is less than an 18-hole facility.
- There is a desire by both the CRAA and the CRPDGD to maintain at least 9 playable holes during the reconstruction. The feasibility of this will require further analysis during the design phase of the project.
- The CRPDGD will participate in the reconstruction process in the following areas: selection of design consultants, contractors; development of construction specifications; sign-off on final design; and sign-off on delivery of the finished course.
- CRPDGD will be compensated for loss and/or revenue attributed to impacts of reconstruction of the golf course.

Areas needing further discussion between the CRPDGD and CRAA

- The determination of how much and by what means compensation for loss and/or revenue will be made is yet to be determined.
- Development of a Memorandum of Understanding between the CRPDGD and the CRAA outlining the responsibilities of each party throughout the reconfiguration process.
- Evaluating the feasibility of maintaining a right-of-way either on or near the Airport Golf Course for a future hike/bike path. The CRAA and FAA will not participate in the funding of a hike/bike path, but would consider the possibility of a hike/bike path in final design and grading plans if requested by the City of Columbus provided that it does not impact the final outcome of the Airport Golf Course reconfiguration being comparable to the existing course.

We look forward to future discussions regarding these remaining items.

Sincerely,



Alan D. McKnight
Director, Columbus Recreation and Parks

Cc: Bernie Meleski, CRAA
Terri Leist, Assistant Director, Columbus Recreation and Parks

ATTACHMENT 1

FAA guidelines concerning airport design standards, safety, and maintenance of approach light systems that impact the layout and operation of the Airport Golf Course:

- Golf holes may not be located between the new MALSR (approach lights) nor will golf shots be allowed between the new light towers.
- Golf shots will be played away from or toward the lights but not over them.
- Golf tees, greens, and other features must remain a minimum of 20 feet from the enclosures around the light towers.
- In the final design of the new course, it is also assumed that the new elevations of golf course features (tees, greens, bunkers, etc.) will NOT be any higher than existing golf course features.
- The existing light structures will NOT be removed until such time as the new runway and lights become operational.

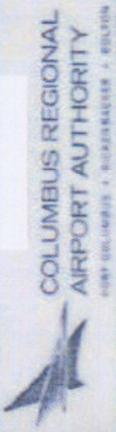
ATTACHMENT 2

Airport Golf Course Studies
Including Wonderland Property

Option "A-1"

January 12, 2005

Hurdzan/Fry Golf Course Design, Inc.
1270 Old Henderson Rd.
Columbus, Ohio 43220
Ph. 614.877.9955, Fax 614.877.1250
www.hurdzandfry.com



COLUMBUS MUNICIPAL
GIF
SEVEN GREAT VALUES

Category	Value
1. Environmental	
2. Economic	
3. Cultural	
4. Historical	
5. Recreational	
6. Scientific	
7. Aesthetic	



COLUMBUS REGIONAL AIRPORT AUTHORITY
PORT COLUMBUS • RICKENBACKER • BOLTON

Board of Directors
Kathleen H. Ransier
Chair
Dwight E. Smith
Vice Chair

January 16, 2007

Mr. Tony Collins
Director
Department of Parks and Recreation
City of Gahanna
200 South Hamilton Road
Gahanna, Ohio 43220

Don M. Casto, III
Frank J. Cipriano
John W. Kessler
Wm. J. Lhota
James P. Loomis, P.E.
George A. Skestos
Dennis L. White

Elaine Roberts, A.A.E.
President & CEO

RE: Proposed Wonderland Bike Trail

Dear Mr. Collins:

I enjoyed meeting with you and Mr. Gee last week to discuss a potential bike trail through the old Wonderland Subdivision on property controlled by the Columbus Regional Airport Authority (CRAA). As promised, I have reviewed a potential route, which avoids the Runway Protection Zone (RPZ). Enclosed you will find a very rough exhibit of that route. The **Proposed Wonderland Bike Trail Route** is as follows:

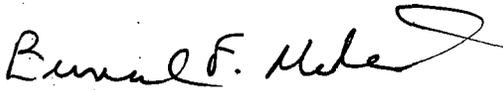
1. Follow Big Walnut Creek south under I-270 to a point which would intersect an extension of vacated Friendship Drive
 - a. Note: Any route that follows the east side of the creek will cross CRAA property and property owned by Atlas Construction.
2. Proceed east and follow vacated Friendship Drive to the Atlas Construction compound.
 - a. Note: Old street pavement exists for about 400.'
3. Continue east on CRAA property to General Avenue
 - a. Note: Relocation of the existing CRAA fence would be required.
4. Turn south on General Avenue to Thruway Drive
 - a. Note: This route would utilize an existing public street.
 - b. Note: Any widening of pavement in the RPZ would need to be within the existing public right of way or reviewed with the FAA.
5. Follow Thruway east to Swanson Avenue
 - a. Note: This route would utilize an existing public street and access State of Ohio right of way.
 - b. Note: Any widening of pavement in the RPZ would need to be within the existing right of way or reviewed with the FAA.
6. Continue south on Swanson to either the Hamilton Road intersection or to Big Walnut Creek
 - a. Note: This route would utilize an existing public street and access State of Ohio right of way.

Mr. Tony Collins
January 16, 2007
Page 2

Please consider this letter as a starting point. As you progress on the project's development, there will be other legal, administrative and liability issues which will need to be resolved. For example, if a dedicated easement over CRAA property is contemplated, then the approval of our Board of Directors and the FAA will be required.

If you have any questions or would like to discuss this matter further, please contact me at 239-4042.

Sincerely,



Bernard F. Meleski
Director, Airport Planning

Enclosure

cc: Terry Gee, Whitehall Parks and Recreation Director
Angela Newland, CRAA
David Whitaker, CRAA
David Wall, CRAA
Allen Nederveld, CRAA

ENCLOSURE AVAILABLE UPON REQUEST

Contact:

Ms. Katherine S. Delaney
Community Planner
FAA, Detroit ADO
11677 South Wayne Road
Suite 107
Romulus, MI 48174
CMHEIS@FAA.gov



COLUMBUS
RECREATION
AND PARKS

Michael B. Coleman, Mayor
City of Columbus

December 12, 2008

Alan D. McKnight
Director

Recreation and Parks
1111 East Broad Street
Suite 200
Columbus, Ohio
43205-1303

614-645-3300
Fax 614-645-5801
TDD 1-800-750-0750

Recreation and
Parks Commission

Lorraine P. Brock
Kathy Duffy Espy
Archie M. Griffin
Thomas L. Kaplin
Barry Pickett
Karla Rothan
Clayton H. Royder, D.O.
Jerry Saunders
Ellen Larrimer Tripp

Member of the National
Recreation and Parks
Association and the Ohio
Parks and Recreation
Association

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An Equal Opportunity
Employer

*Our vision is to provide
leisure opportunities
for all ... something for
everyone ... naturally.*

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

Re: Department of Transportation Section 4(f) Consultation on Potential Impacts to the
Airport Golf Course

Dear Ms. Delaney:

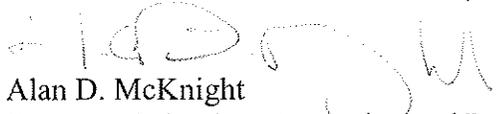
We are writing this letter to keep you updated on the potential impacts to the Airport Golf Course from the proposed Runway 10R/28L replacement project currently being evaluated in the Environmental Impact Statement for the Port Columbus International Airport. The Columbus Recreation and Parks Department has been coordinating with the Columbus Regional Airport Authority (CRAA) since 2005 on this issue and participated in the preparation of a study that assessed alternative golf course layouts. Based on previous meetings, we understand the purpose of relocating Runway 10R/28L and the resulting need to relocate the approach lights, which will cause the golf course to be reconfigured.

In our last correspondence, we identified the areas of concurrence between the City of Columbus and the CRAA, as well as areas needing further discussion. I am pleased to report that all of the issues that were outstanding have now been resolved. Furthermore, the agreement between the City of Columbus and the CRAA has been memorialized in a Memorandum of Understanding (MOU) that was executed by both parties on December 12, 2008. The MOU contains both broad goals and specific actions which will address issues of surplus lost revenue and the fact that the Airport Golf Course will be returned to an 18-hole facility that is comparable to the character, distance, and style of the current course, while conforming to all relevant FAA guidelines concerning safety. With the agreement contained in the MOU in place, the golf course will be made whole and therefore no "taking" under Department of Transportation Section 4(f) would occur.

December 12, 2008
Page 2

We look forward to a successful project at the airport and a successful reconfiguration of the Airport Golf Course.

Sincerely,

A handwritten signature in dark ink, appearing to read "Alan D. McKnight". The signature is fluid and cursive, with a large initial "A" and "M".

Alan D. McKnight
Director, Columbus Recreation and Parks Department

Cc: Bernie Meleski, CRAA
Terri S. Leist, Columbus Recreation and Parks Golf Division

MEMORANDUM OF UNDERSTANDING
BETWEEN
COLUMBUS RECREATION AND PARKS DEPARTMENT GOLF DIVISION
AND
COLUMBUS REGIONAL AIRPORT AUTHORITY

I. INTRODUCTION AND PURPOSE

- A. This Memorandum of Understanding (MOU) provides a framework in which the Columbus Regional Airport Authority (CRAA) will conduct a reconfiguration of the Airport Golf Course (Project) as part of the relocation of Runway 10R-28L at Port Columbus International Airport. This MOU describes the relationship of the above-named parties in conducting the planned improvements.
- B. It is the purpose of this MOU to establish an understanding between the CRAA and the Columbus Recreation and Parks Department's Golf Division (CRPDGD) regarding the responsibilities of each party and the conditions and procedures to be followed in the design and construction of the Project.

II. GENERAL DESIGN PROVISIONS

- A. The Project will generally conform to the preliminary course layout as shown in Layout Option "A-1" contained in the Wonderland Property Golf Course Feasibility Study, as prepared by Hurdzan/Fry Course Designs, Inc. for the CRAA and dated February 15, 2005 (Attachment A).
- B. The Airport Golf Course will remain within the boundaries of the current course and be returned to an 18-hole facility that is comparable to the character, distance, and style of the current course.
- C. The final design and construction of the Airport Golf Course will conform to all relevant FAA guidelines concerning safety and maintenance of approach light systems.
 - i. Golf holes may not be located between the new MALSR (approach lights) nor will golf shots be allowed between the new light towers.
 - ii. Golf shots will be played away from or toward the lights but not over them.
 - iii. Golf tees, greens, and other features must remain a minimum of 20 feet from the enclosures around the light towers.
 - iv. The new elevations of golf course features (tees, greens, bunkers, etc.) will NOT be any higher than the existing golf course features.

- v. The existing approach light structures will NOT be removed until such time as the new runway and lights become fully operational.
- D. The final design and construction of the Project will satisfy any pertinent environmental requirements of the Federal Aviation Administration (FAA) and comply with any provisions set forth in the Environmental Impact Statement Record of Decision.
- E. The CRPDGD will evaluate the feasibility of and make final determination on maintaining a right-of-way on the Airport Golf Course for a future hike/bike path. The CRAA and FAA will not participate in the funding of a hike/bike path, but will consider the possibility of a hike/bike path in final design and grading plans if requested by the CRPDGD.
- F. The CRAA will fund and manage the Project.
 - i. The CRAA will select, in consultation with the CRPDGD, an independent architectural/engineering firm (AE), which shall include any necessary sub-consultants, to prepare the design drawings, technical specifications and bid documents and to conduct construction administration. The AE must have experience in the design and construction of public golf courses/facilities. CRAA will be responsible for engaging and retaining the AE with funds provided by the CRAA. The CRPDGD will participate in the selection of the AE.
 - ii. The CRAA, in consultation with CRPDGD, will procure the services of a construction contractor (Contractor) that has public golf construction experience to perform all necessary construction to complete the Project.
 - iii. The CRAA, in consultation with CRPDGD, will direct the scope of the design and administer and supervise the construction contract.
- G. To the extent necessary, the contracts between the CRAA and The AE and the Contractor and between the AE, Contractor and subcontractors shall be consistent with and subject to the provisions of this MOU.
- H. The CRPDGD shall facilitate the coordination of efforts and the exchange of information related to the planning, design, and construction of the Project. The CRPDGD shall make all reasonable efforts to assure the satisfactory and timely performance of the duties of the AE, as specified in this MOU.
- I. The CRPDGD and CRAA will appoint representatives to:
 - i. Accomplish the coordination necessary for the satisfactory completion of the Project. Notice to any representative will constitute notice to that party.
 - ii. Review substantive phases of the Project as each deems necessary.
 - iii. Attend Meetings for the purpose of increasing communications and receiving comments.

III. DESIGN PROCEDURES

- A. Under the direction of the CRAA, the AE will develop and submit a scope of services for the design of the project (Scope) to the CRAA for approval in consultation with CRPDGD. The Scope shall include detailed descriptions of all work to be performed, the methodologies to be proposed to perform the work, the name and qualifications of the person performing each aspect of the work, estimated man-hours required for completion of each aspect, the schedule for performing each aspect, and a description of the internal and external review procedures to assure quality control.
- B. The CRAA will forward the Scope to the CRPDGD for review and comment. After receiving comments from the CRPDGD, the CRAA will finalize and approve the Scope.
- C. The Scope may be amended by the CRAA as the AE's work proceeds. The CRPDGD will be notified, consulted and provide agreement prior to any significant modifications to the Scope.
- D. Unless otherwise directed by the CRAA, all work performed by the AE in preparation of the design shall be submitted to the CRAA. The CRPDGD may communicate with the AE and its subcontractors during the development of the design. The CRPDGD agrees not to modify or edit the AE's work prior to submission to the CRAA. All suggestions for modifications or changes to the design recommended by the CRPDGD shall only be made to the CRAA.
- E. The AE shall submit monthly written reports on the progress of its work to CRAA, with a concurrent copy to the CRPDGD. This report shall describe the present status of each aspect of the work, any problems encountered, and recommendations for modifications to the Scope and any changes to personnel, methodology, or schedules for completion.
- F. As each phase of the design process is completed, the CRAA shall review the tasks completed and, after consultation with the CRPDGD, shall approve, modify, comment, and/or direct further work with regard to such tasks as necessary.
- G. If requested, the AE will provide the CRAA access to and review of all procedures and data used in developing any reports. The CRPDGD will also have access to such procedures and underlying data.
- H. To facilitate design and construction of the Project, joint meetings among the CRAA, the CRPDGD, AE and the Contractor may be held. The CRAA reserves the right to work directly with the AE and Contractor for purposes of assuring expeditious communication and timely completion of the Project, but CRAA will notify CRPDGD of any changes as a result of that direct contact prior to any change implementation.

IV. GENERAL CONSTRUCTION PROVISIONS

- A. The CRAA will assume responsibility for all aspects of the construction of the Project, including contract administration and construction supervision.
- B. The CRAA will procure the services of an experienced public golf course Contractor, in consultation with CRPDGD, to perform all necessary construction required to complete the Project.
- C. There is a desire by both the CRAA and the CRPDGD to compress the schedule of the reconstruction as much as possible to reduce the amount of time the Airport Golf Course is less than an 18-hole facility.
- D. There is a desire by both the CRAA and the CRPDGD to maintain at least nine playable holes during the reconstruction, and feasibility of this will be further analyzed and determined during the design phase of the project.
- E. The CRPDGD will participate in the construction process in the following areas: the review of bids, the final selection of AE and Contractor, scope of services approval, participation in monthly contractor meetings, consultation on work order changes, development of a Project punch list, and sign-off on delivery of the finished course.
- F. The parties shall make all reasonable efforts to assure the satisfactory and timely performance of the duties of the Contractor, as specified in this MOU.
- G. The CRAA will assume NO obligations regarding maintenance of the golf course improvements following completion of the Project.

V. FINANCIAL PROVISIONS

- A. All costs incurred in connection with employment of the AE and the Contractor, and any subcontractors, or other persons retained or employed by the CRAA, shall be the sole responsibility of the CRAA.
- B. Pursuant to that certain lease agreement between the CRAA and the City of Columbus titled "Columbus Airport Golf Course Lease Agreement" and dated [Insert Effective Date] (the "Lease"), the CRAA will provide financial compensation to the CRPDGD for surplus revenues lost, if any, during construction of the Project according to the formula provided for in the Lease. Additionally, the CRAA agrees to provide financial compensation to the CRPDGD for surplus revenues lost, if any, for a period up to two years after completion of the Project pursuant to the same process as provided in the Lease and as follows:
 - i. Before the Airport Golf Course is open to customers for 18 holes of golf, the CRPDGD and the CRAA will:

1. Determine anticipated CRPDGD revenues lost due to anticipated temporary loss of business after full reopening resulting from the Project.
 2. Determine, and subtract from anticipated revenues, all costs saved, if any, including a mutually agreed factor for overhead costs, by the CRPDGD due to the temporary reduction in the scope of the CRPDGD's operation of the Airport Golf Course.
 3. The net amount will form the basis for determining the annual compensation owed by the CRAA to the CRPDGD for a period up to two years after completion of the Project.
- ii. To make the above determinations the parties will mutually examine Airport Golf Course financial statements certified by City Auditor's Office for the three fiscal years prior to the first year during which Airport Golf Course is impacted by the Project. Additionally, the parties will estimate expected golf course revenues for the period during construction of the Project as if the Project had not occurred by using the last full calendar year of full Airport Golf Course operations and establishing estimated Airport Golf Course revenues during impacted years by adjusting estimated revenues up or down based upon market revenue trends for similar courses in Central Ohio provided by the Professional Golfers Association's (PGA) Performance Track Report (PGA Report). This will allow for a fair compensation assessment based on economic and weather conditions throughout Central Ohio and the Midwest during the two-year post construction period. The parties agree to then use the five-year trends identified from the above review of the certified financial statements and PGA reports to:
1. Project Airport Golf Course revenues and costs for a period up to two years after completion of the Project as if there would not be any impact to Golf Course operations from the South Runway Relocation Project.
 2. For the same years, estimate lost revenues and all costs saved, including a mutually agreed upon factor for overhead, by the CRPDGD due to the Project.
- iii. As soon as reasonably possible after Airport Golf Course certified financial statements and the PGA Report are available for the year prior to the year in which Airport Golf Course becomes fully operational, the parties will determine the projected net loss to the CRPDGD based upon the methodology provided above. On or before the beginning of each month during the fiscal year the CRAA shall pay to the CRPDGD 1/12 of the estimated net loss to the CRPDGD for that year. At the end of each CRPDGD fiscal year, as soon as practical after CRPDGD certified financial statements for the Airport Golf Course become available the parties shall determine whether the actual net loss to the CRPDGD was

less than or greater than the net loss projected at the beginning of the fiscal year. If the CRPDGD's net loss was greater than projected, the CRAA shall compensate the CRPDGD for the additional net loss. If the CRPDGD's net loss was less than projected, the CRPDGD shall reimburse the CRAA the amount the CRAA overpaid during the prior CRPDGD fiscal year.

- iv. Additionally, during the course of completing any "true-up" provided for above, the parties agree to develop a method for taking into account reasons of force majeure, as defined in the Lease, that could justify an adjustment to the net loss to the CRPDGD for the prior fiscal year.
- v. Following is a hypothetical example of the application of this formula:
 1. Assume the Airport Golf Course is opened for the full 18 holes of golf on April 1, 2012. Construction commenced March 1, 2010. To determine anticipated surplus revenues lost the parties would apply the above formula using certified financial statements for the years 2007 through 2009. Assume revenues for those years were: 2007 = \$780,928; 2008 = \$804,356 (3.0% increase over 2007); 2009 = \$828,487 (3.0% increase over 2008).
 2. Since the full course was not opened during 2010 and 2011, the parties would use market trends reported in the PGA Report to project Airport Golf Course revenues for 2010 and 2011. Assume the PGA reports for 2010 and 2011 showed a Central Ohio golf market that declined by 5.0% in 2010 and grew by 3.0% in 2011. Estimated 2010 revenues would be \$787,063 ($\$828,487 \times .95$) and 2011 revenues would be \$810,675 ($\$787,063 \times 1.03$).
 3. The average change over the 5-year period (2007-2011) is +1.0% ($(\$810,675 - \$780,928) / \$780,929 / 4$).
 4. Projected revenues for 2012 would be \$818,782 ($\$810,675 \times 1.01$).
 5. The parties then mutually agree to actual anticipated revenues. Assume for 2012 the parties agreed to \$698,782. Assume that the parties agreed there would be no estimated costs saved and there are no events of force majeure. The net projected lost surplus for 2012 is \$120,000 or \$10,000 per month.
 6. For the remainder of 2012 (9 months – April thru December), CRAA will pay CRPDGD \$10,000 per month.
 7. When final 2012 financial information is available the parties will perform the true up contemplated in iii above. For example, if actual surplus revenues were \$90,000. The CRPDGD would owe the CRAA \$30,000 which the parties could agree would be reimbursed in a lump sum or could be netted against any monthly payments made by CRAA during 2013. The final true-up for January thru March of 2014, to complete the 24 month post-construction compensation period would be by lump sum payment from the owing party to the owed party

pursuant to this formula.

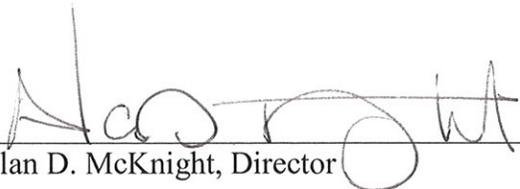
VI. CESSATION AND TERMINATION

A. This MOU will remain in force between the parties until the Project is completed and all relevant compensations have been paid.

VII. MODIFICATION

A. This MOU represents the entire agreement between the parties and the MOU may be modified by the parties, only by written agreement by both of the parties.

Columbus Recreation and Parks Department


Alan D. McKnight, Director

12/12/08
Date

Columbus Regional Airport Authority


Elaine Roberts, President and CEO

11-26-08
Date



