Appendix A

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APPENDIX A
AGENCY COORDINATION

This Appendix contains the copies of coordination materials for this Environmental Assessment. The following documentation is included:

1) Copies of the initial coordination letters sent to the agencies and interested parties (note that coordination with the Ohios State Historic Preservation Office is included in Appendix C and coordination with the U.S. Army Corps of Engineers and Ohio Environmental protection agency is included in Appendix D);

2) Exhibits and Tables attached to the coordination letters;

3) Comments received on the coordination letters;

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AGENCY COORDINATION LETTERS

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January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Mr. James Bryant
Aviation Administrator
Ohio Department of Transportation Office of Aviation
2829 W. Dublin-Granville Road
Columbus, OH 43235

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Bryant:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

The Proposed Action includes the development of a Consolidated Rental Car Facility, a replacement passenger terminal, a new automobile parking garage, and other associated supporting and enabling projects. The Proposed Action is planned to occur in Phases to limit disruption to existing operations at CMH. The Proposed Action includes the following elements which are shown on the attached Exhibit 1:

- Construction of a new Consolidated Rental Car Facility (CONRAC)
- Reclaim existing quick turnaround area (QTA) and levels P1 and P2 of the existing long-term parking garage for public parking use
- Construction of rental car support facilities at the Drake Road site
- RTR Antenna Relocation and installation of new underground cabling
- Cell Phone Lot Relocation
- Reconfiguration of the existing International Gateway Loop Road
- Demolition of the existing Hertz, Avis, and former Dollar rental car staging areas
- Demolition of the existing McDonalds
- Construction of a new Parking Garage
- Redevelopment of east development area parcels and demolition of former U.S. Postal Service (USPS) facility
- Closure of the Blue Parking Lot / Employee Lot
- Expansion of the Red Parking Lot and new entrance/exit to Stelzer Road at East 17th Avenue with various intersection improvements

- Decommission Existing Taxiway D, Construct Replacement Parallel Taxiway north of Runway 10R/28L, and reconfigure taxiway exits per FAA guidelines
- Various stormwater improvements including rerouting stormwater to a potential new stormwater detention basin on the east side of CMH property and replacement of existing underground stormwater pipes at Outfall 4
- Construction of a new Midfield Passenger Terminal and associated apron
- Construction of a Ground Transportation Center (GTC)
- Construction of a Central Utility Plant, Utility Corridor, and various utility improvements
- Extension of a sanitary sewer line
- Construction of a Second Crossover Taxiway
- Demolition of the existing Passenger Terminal and short-term parking garage
- Expansion or relocation of the existing fuel farm
- Construction of a new Concession Warehouse
- Removal and replacement of other existing aviation facilities

The project site is primarily located in the central core of CMH and is surrounded by commercial and aviation land uses. Site features include a combination of buildings, roadways, airfield pavement, and maintained grassy areas.

Several surveys have been conducted as part of this project, including:

- A Biological Resources survey has been conducted to survey for habitat type and search for evidence of threatened/endangered species' presence or habitat use;
- A Wetland and Waters of the US Delineation/Jurisdiction Determination has been conducted in accordance with the US Army Corp of Engineers (USACE) guidance;
- Phase I Reconnaissance Archaeological Survey, consisting of a visual inspection and subsurface investigation, has been conducted of the undisturbed areas of the project area; and
- Surveys of potentially historic buildings to determine if any properties are historically significant and eligible for listing on the National Register of Historic Places.

The results of these field surveys will be coordinated with the appropriate agency to determine next steps and mitigation if necessary.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your

comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

January 6, 2017

Ms. Sarah Tebbe
Division of Real Estate
Ohio Department of Natural Resources
2045 Morse Road
Building E-2
Columbus, OH 43229

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Ms. Tebbe:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

The Proposed Action includes the development of a Consolidated Rental Car Facility, a replacement passenger terminal, a new automobile parking garage, and other associated supporting and enabling projects. The Proposed Action is planned to occur in Phases to limit disruption to existing operations at CMH. The Proposed Action includes the following elements which are shown on the attached Exhibit 1:

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The project site is primarily located in the central core of CMH and is surrounded by commercial and aviation land uses. Site features include a combination of buildings, roadways, airfield pavement, and maintained grassy areas.

Several surveys have been conducted as part of this project, including:

- A Biological Resources survey has been conducted to survey for habitat type and search for evidence of threatened/endangered species' presence or habitat use;
- A Wetland and Waters of the US Delineation/Jurisdiction Determination has been conducted in accordance with the US Army Corp of Engineers (USACE) guidance;
- Phase I Reconnaissance Archaeological Survey, consisting of a visual inspection and subsurface investigation, has been conducted of the undisturbed areas of the project area; and
- Surveys of potentially historic buildings to determine if any properties are historically significant and eligible for listing on the National Register of Historic Places.

The Proposed Action is expected to impact portions of Mason Run and approximately 13 acres of wooded areas and several wetlands located on airport property. A list of threatened and endangered species that may be present at the project site, obtained from U.S. Fish and Wildlife Service (USFWS) and Ohio Division of Natural Resources (ODNR) records, is shown in the attached Table 1. A survey of threatened and endangered species was recently conducted at the site. The field survey did not identify any threatened or endangered species at the site. This survey reported that the ODNR has no records of any rare or endangered species at CMH or within a 1-mile radius. Of the species listed in Table 1, the only species for which potentially suitable habitat was identified is the Indiana bat and the northern long-eared bat. The study area contains five potential roosting trees that are potentially summer habitat for these species. No maternity roost trees were observed in the study area. A survey of the study area did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula habitat for the bat. Tree clearing activities are planned to occur outside of the summer foraging period for these species from April 1 through September 30. Based on these findings and the natural features of the site, no significant impacts to threatened and endangered species are anticipated as a result of the Proposed Action.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1, Table 1

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Ms. Sadicka White
Division Chief
Ohio Department of Development Community Services
77 S. High Street 28th Floor
Columbus, OH 43215

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Ms. White:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

The Proposed Action includes the development of a Consolidated Rental Car Facility, a replacement passenger terminal, a new automobile parking garage, and other associated supporting and enabling projects. The Proposed Action is planned to occur in Phases to limit disruption to existing operations at CMH. The Proposed Action includes the following elements which are shown on the attached Exhibit 1:

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- Construction of rental car support facilities at the Drake Road site
- RTR Antenna Relocation and installation of new underground cabling
- Cell Phone Lot Relocation
- Reconfiguration of the existing International Gateway Loop Road
- Demolition of the existing Hertz, Avis, and former Dollar rental car staging areas
- Demolition of the existing McDonalds
- Construction of a new Parking Garage
- Redevelopment of east development area parcels and demolition of former U.S. Postal Service (USPS) facility
- Closure of the Blue Parking Lot / Employee Lot
- Expansion of the Red Parking Lot and new entrance/exit to Stelzer Road at East 17th Avenue with various intersection improvements

- Decommission Existing Taxiway D, Construct Replacement Parallel Taxiway north of Runway 10R/28L, and reconfigure taxiway exits per FAA guidelines
- Various stormwater improvements including rerouting stormwater to a potential new stormwater detention basin on the east side of CMH property and replacement of existing underground stormwater pipes at Outfall 4
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- Extension of a sanitary sewer line
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- Demolition of the existing Passenger Terminal and short-term parking garage
- Expansion or relocation of the existing fuel farm
- Construction of a new Concession Warehouse
- Removal and replacement of other existing aviation facilities

The project site is primarily located in the central core of CMH and is surrounded by commercial and aviation land uses. Site features include a combination of buildings, roadways, airfield pavement, and maintained grassy areas.

Several surveys have been conducted as part of this project, including:

- A Biological Resources survey has been conducted to survey for habitat type and search for evidence of threatened/endangered species' presence or habitat use;
- A Wetland and Waters of the US Delineation/Jurisdiction Determination has been conducted in accordance with the US Army Corp of Engineers (USACE) guidance;
- Phase I Reconnaissance Archaeological Survey, consisting of a visual inspection and subsurface investigation, has been conducted of the undisturbed areas of the project area; and
- Surveys of potentially historic buildings to determine if any properties are historically significant and eligible for listing on the National Register of Historic Places.

The results of these field surveys will be coordinated with the appropriate agency to determine next steps and mitigation if necessary.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your

comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Mr. Craig W. Butler
Director
Ohio Environmental Protection Agency
50 West Town Street
Suite 700
Columbus, OH 43215

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Butler:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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- Surveys of potentially historic buildings to determine if any properties are historically significant and eligible for listing on the National Register of Historic Places.

The Proposed Action will not cause unforecasted growth in aircraft operations; therefore it will not cause an increase in aircraft emissions. The Proposed Action is expected to reduce surface vehicle traffic congestion along the terminal curbfront at CMH.

According to Flood Insurance Rate Maps (FIRMs), published by the Federal Emergency Management Agency (FEMA), the project site is not located within a designated floodplain with the exception of the site of a proposed underground utility relocation.

A wetland delineation has been prepared and coordination has been conducted with the U.S. Army Corps of Engineers (USACE) to obtain a Jurisdictional Determination for the wetlands at the project site. The site contains both jurisdictional and isolated wetlands. There are 29 wetlands and 4 streams within the Project Site as shown on Exhibit 2 and listed in Table 1 and Table 2. Additional coordination will be conducted with the USACE and the Ohio EPA Division of Surface Water to obtain the necessary permits per Section 401 and 404 of the Clean Water Act.

The Proposed Project is expected to impact portions of Mason Run and wooded areas and wetlands located on airport property. A list of threatened and endangered species that may be present in the Project Study Area, obtained from the U.S. Fish and Wildlife Service and the Ohio Division of Natural Resources (ODNR) records, is shown in the attached Table 3, State and Federal Threatened and Endangered Species. A survey of threatened and endangered species was recently conducted at the site. The field survey did not identify any threatened or endangered species at the site. This survey reported that the ODNR has no records of any rare or endangered species at CMH or within a 1-mile radius. Of the species listed in Table 3, the only species for which potentially suitable habitat was identified is the Indiana bat and the northern long-eared bat. The study area contains five potential roosting trees that are potentially summer habitat for these species. No maternity roost trees were observed in the study area. A survey of the study area did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula habitat for the bat. Coordination with the Ohio Department of Natural Resources will be conducted to identify potential impacts to protected species. Based on these findings and the natural features of the site, no significant impacts to threatened and endangered species are anticipated as a result of the Proposed Project.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibits 1 & 2, Tables 1, 2, & 3

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Mr. David Jacob
National Park Service
Environmental Planning and Compliance Branch
Curtis Building
601 Riverfront Drive
Omaha, NE 68102

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Jacob:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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The results of these field surveys will be coordinated with the appropriate agency to determine next steps and mitigation if necessary.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your

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Landrum & Brown
Attn: Rob Adams
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Sincerely,

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Mr. Ken Westlake
Chief, NEPA Implementation Section
U.S. EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Westlake:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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The Proposed Action will not cause unforecasted growth in aircraft operations; therefore it will not cause an increase in aircraft emissions. The Proposed Action is expected to reduce surface vehicle traffic congestion along the terminal curbfront at CMH.

According to Flood Insurance Rate Maps (FIRMs), published by the Federal Emergency Management Agency (FEMA), the project site is not located within a designated floodplain with the exception of the site of a proposed underground utility relocation.

A wetland delineation has been prepared and coordination has been conducted with the U.S. Army Corps of Engineers (USACE) to obtain a Jurisdictional Determination for the wetlands at the project site. The site contains both jurisdictional and isolated wetlands. There are 29 wetlands and 4 streams within the Project Site as shown on Exhibit 2 and listed in Table 1 and Table 2. Additional coordination will be conducted with the USACE and the Ohio EPA Division of Surface Water to obtain the necessary permits per Section 401 and 404 of the Clean Water Act.

The Proposed Project is expected to impact portions of Mason Run and wooded areas and wetlands located on airport property. A list of threatened and endangered species that may be present in the Project Study Area, obtained from the U.S. Fish and Wildlife Service and the Ohio Division of Natural Resources (ODNR) records, is shown in the attached Table 3, State and Federal Threatened and Endangered Species. A survey of threatened and endangered species was recently conducted at the site. The field survey did not identify any threatened or endangered species at the site. This survey reported that the ODNR has no records of any rare or endangered species at CMH or within a 1-mile radius. Of the species listed in Table 3, the only species for which potentially suitable habitat was identified is the Indiana bat and the northern long-eared bat. The study area contains five potential roosting trees that are potentially summer habitat for these species. No maternity roost trees were observed in the study area. A survey of the study area did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula habitat for the bat. Coordination with the Ohio Department of Natural Resources will be conducted to identify potential impacts to protected species. Based on these findings and the natural features of the site, no significant impacts to threatened and endangered species are anticipated as a result of the Proposed Project.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority
Jennifer Blonn, USEPA Region 5

Enclosure: Exhibits 1 & 2, Tables 1, 2, & 3

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Ms. Jennifer Blonn
NEPA Reviewer
U.S. EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Ms. Blonn:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

The Proposed Action includes the development of a Consolidated Rental Car Facility, a replacement passenger terminal, a new automobile parking garage, and other associated supporting and enabling projects. The Proposed Action is planned to occur in Phases to limit disruption to existing operations at CMH. The Proposed Action includes the following elements which are shown on the attached Exhibit 1:

- Construction of a new Consolidated Rental Car Facility (CONRAC)
- Reclaim existing quick turnaround area (QTA) and levels P1 and P2 of the existing long-term parking garage for public parking use
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- Cell Phone Lot Relocation
- Reconfiguration of the existing International Gateway Loop Road
- Demolition of the existing Hertz, Avis, and former Dollar rental car staging areas
- Demolition of the existing McDonalds
- Construction of a new Parking Garage
- Redevelopment of east development area parcels and demolition of former U.S. Postal Service (USPS) facility
- Closure of the Blue Parking Lot / Employee Lot
- Expansion of the Red Parking Lot and new entrance/exit to Stelzer Road at East 17^{th} Avenue with various intersection improvements

- Decommission Existing Taxiway D, Construct Replacement Parallel Taxiway north of Runway 10R/28L, and reconfigure taxiway exits per FAA guidelines
- Various stormwater improvements including rerouting stormwater to a potential new stormwater detention basin on the east side of CMH property and replacement of existing underground stormwater pipes at Outfall 4
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- Construction of a Ground Transportation Center (GTC)
- Construction of a Central Utility Plant, Utility Corridor, and various utility improvements
- Extension of a sanitary sewer line
- Construction of a Second Crossover Taxiway
- Demolition of the existing Passenger Terminal and short-term parking garage
- Expansion or relocation of the existing fuel farm
- Construction of a new Concession Warehouse
- Removal and replacement of other existing aviation facilities

The project site is primarily located in the central core of CMH and is surrounded by commercial and aviation land uses. Site features include a combination of buildings, roadways, airfield pavement, and maintained grassy areas.

Several surveys have been conducted as part of this project, including:

- A Biological Resources survey has been conducted to survey for habitat type and search for evidence of threatened/endangered species' presence or habitat use;
- A Wetland and Waters of the US Delineation/Jurisdiction Determination has been conducted in accordance with the US Army Corp of Engineers (USACE) guidance;
- Phase I Reconnaissance Archaeological Survey, consisting of a visual inspection and subsurface investigation, has been conducted of the undisturbed areas of the project area; and
- Surveys of potentially historic buildings to determine if any properties are historically significant and eligible for listing on the National Register of Historic Places.

The Proposed Action will not cause unforecasted growth in aircraft operations; therefore it will not cause an increase in aircraft emissions. The Proposed Action is expected to reduce surface vehicle traffic congestion along the terminal curbfront at CMH.

According to Flood Insurance Rate Maps (FIRMs), published by the Federal Emergency Management Agency (FEMA), the project site is not located within a designated floodplain with the exception of the site of a proposed underground utility relocation.

A wetland delineation has been prepared and coordination has been conducted with the U.S. Army Corps of Engineers (USACE) to obtain a Jurisdictional Determination for the wetlands at the project site. The site contains both jurisdictional and isolated wetlands. There are 29 wetlands and 4 streams within the Project Site as shown on Exhibit 2 and listed in Table 1 and Table 2. Additional coordination will be conducted with the USACE and the Ohio EPA Division of Surface Water to obtain the necessary permits per Section 401 and 404 of the Clean Water Act.

The Proposed Project is expected to impact portions of Mason Run and wooded areas and wetlands located on airport property. A list of threatened and endangered species that may be present in the Project Study Area, obtained from the U.S. Fish and Wildlife Service and the Ohio Division of Natural Resources (ODNR) records, is shown in the attached Table 3, State and Federal Threatened and Endangered Species. A survey of threatened and endangered species was recently conducted at the site. The field survey did not identify any threatened or endangered species at the site. This survey reported that the ODNR has no records of any rare or endangered species at CMH or within a 1-mile radius. Of the species listed in Table 3, the only species for which potentially suitable habitat was identified is the Indiana bat and the northern long-eared bat. The study area contains five potential roosting trees that are potentially summer habitat for these species. No maternity roost trees were observed in the study area. A survey of the study area did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula habitat for the bat. Coordination with the Ohio Department of Natural Resources will be conducted to identify potential impacts to protected species. Based on these findings and the natural features of the site, no significant impacts to threatened and endangered species are anticipated as a result of the Proposed Project.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority
Ken Westlake, USEPA Region 5

Enclosure: Exhibits 1 & 2, Tables 1, 2, & 3

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Ms. Janet M. Odeshoo
Acting Regional Administrator
Federal Emergency Management Agency
536 South Clark Street
6th Floor
Chicago, IL 60605

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Ms. Odeshoo:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

The Proposed Action includes the development of a Consolidated Rental Car Facility, a replacement passenger terminal, a new automobile parking garage, and other associated supporting and enabling projects. The Proposed Action is planned to occur in Phases to limit disruption to existing operations at CMH. The Proposed Action includes the following elements which are shown on the attached Exhibit 1:

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- Removal and replacement of other existing aviation facilities

The project site is primarily located in the central core of CMH and is surrounded by commercial and aviation land uses. Site features include a combination of buildings, roadways, airfield pavement, and maintained grassy areas.

Several surveys have been conducted as part of this project, including:

- A Biological Resources survey has been conducted to survey for habitat type and search for evidence of threatened/endangered species' presence or habitat use;
- A Wetland and Waters of the US Delineation/Jurisdiction Determination has been conducted in accordance with the US Army Corp of Engineers (USACE) guidance;
- Phase I Reconnaissance Archaeological Survey, consisting of a visual inspection and subsurface investigation, has been conducted of the undisturbed areas of the project area; and
- Surveys of potentially historic buildings to determine if any properties are historically significant and eligible for listing on the National Register of Historic Places.

The Federal Emergency Management Agency (FEMA) has mapped the 100-year and 500-year floodplains for CMH and the surrounding areas as shown on FEMA flood insurance rate maps (FIRMs) 39049C0193K, 39049C0194K, 39049C0213K, 39049C0331K, 39049C0332K, and 39049C0351K. There are no areas of the 100 year flood zone (Zone A) located within the project with the exception of the site of a proposed underground utility relocation. The 100-year floodplain in relation to the project is shown in Exhibit 2. The Proposed Action would not cause adverse impacts related to floodplains according to FAA Order 1050.1F, Environmental Impacts: Policies and Procedures or Department of Transportation Order 5650.2. The Proposed Action would not have a high probability of loss of human life, have substantial encroachment-associated costs or damage due to flooding, or cause adverse impacts on natural and beneficial floodplain values.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibits 1 & 2

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Mr. Carlson Ross
Environmental Officer
U.S. Department of Housing and Urban Development
200 North High St.
Columbus, OH 43215

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Ross:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

The Proposed Action includes the development of a Consolidated Rental Car Facility, a replacement passenger terminal, a new automobile parking garage, and other associated supporting and enabling projects. The Proposed Action is planned to occur in Phases to limit disruption to existing operations at CMH. The Proposed Action includes the following elements which are shown on the attached Exhibit 1:

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- Demolition of the existing McDonalds
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- Redevelopment of east development area parcels and demolition of former U.S. Postal Service (USPS) facility
- Closure of the Blue Parking Lot / Employee Lot
- Expansion of the Red Parking Lot and new entrance/exit to Stelzer Road at East 17^{th} Avenue with various intersection improvements

- Decommission Existing Taxiway D, Construct Replacement Parallel Taxiway north of Runway 10R/28L, and reconfigure taxiway exits per FAA guidelines
- Various stormwater improvements including rerouting stormwater to a potential new stormwater detention basin on the east side of CMH property and replacement of existing underground stormwater pipes at Outfall 4
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- Construction of a Second Crossover Taxiway
- Demolition of the existing Passenger Terminal and short-term parking garage
- Expansion or relocation of the existing fuel farm
- Construction of a new Concession Warehouse
- Removal and replacement of other existing aviation facilities

The project site is primarily located in the central core of CMH and is surrounded by commercial and aviation land uses. Site features include a combination of buildings, roadways, airfield pavement, and maintained grassy areas.

Several surveys have been conducted as part of this project, including:

- A Biological Resources survey has been conducted to survey for habitat type and search for evidence of threatened/endangered species' presence or habitat use;
- A Wetland and Waters of the US Delineation/Jurisdiction Determination has been conducted in accordance with the US Army Corp of Engineers (USACE) guidance;
- Phase I Reconnaissance Archaeological Survey, consisting of a visual inspection and subsurface investigation, has been conducted of the undisturbed areas of the project area; and
- Surveys of potentially historic buildings to determine if any properties are historically significant and eligible for listing on the National Register of Historic Places.

The results of these field surveys will be coordinated with the appropriate agency to determine next steps and mitigation if necessary.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your

comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Mr. Doug Pauley
Assistant State Conservationist
USDA, Natural Resources Conservation Service
475 Western Avenue
Suite J
Chillicothe, OH 45601

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Pauley:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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The project site is primarily located in the central core of CMH and is surrounded by commercial and aviation land uses. Site features include a combination of buildings, roadways, airfield pavement, and maintained grassy areas.

Several surveys have been conducted as part of this project, including:

- A Biological Resources survey has been conducted to survey for habitat type and search for evidence of threatened/endangered species' presence or habitat use;
- A Wetland and Waters of the US Delineation/Jurisdiction Determination has been conducted in accordance with the US Army Corp of Engineers (USACE) guidance;
- Phase I Reconnaissance Archaeological Survey, consisting of a visual inspection and subsurface investigation, has been conducted of the undisturbed areas of the project area; and
- Surveys of potentially historic buildings to determine if any properties are historically significant and eligible for listing on the National Register of Historic Places.

The project site is surrounded by airport infrastructure and development and is not used for agriculture. Past correspondence from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) has indicated that property at CMH is within an urban area and is not considered prime or unique farmland, thus it is not necessary to complete USDA Form AD-1006. Therefore, the Proposed Action would not cause any significant impacts to farmland.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National*

Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

January 31, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Mr. Dan Everson
U.S. Department of the Interior
Fish and Wildlife Services, Ecological Services
4625 Morse Road
Suite 104
Columbus, OH 43230

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Everson:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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- Phase I Reconnaissance Archaeological Survey, consisting of a visual inspection and subsurface investigation, has been conducted of the undisturbed areas of the project area; and
- Surveys of potentially historic buildings to determine if any properties are historically significant and eligible for listing on the National Register of Historic Places.

The Proposed Action is expected to impact portions of Mason Run and approximately 13 acres of wooded areas and several wetlands located on airport property. A list of threatened and endangered species that may be present at the project site, obtained from U.S. Fish and Wildlife Service (USFWS) and Ohio Division of Natural Resources (ODNR) records, is shown in the attached Table 1. A survey of threatened and endangered species was recently conducted at the site. The field survey did not identify any threatened or endangered species at the site. This survey reported that the ODNR has no records of any rare or endangered species at CMH or within a 1-mile radius. Of the species listed in Table 1, the only species for which potentially suitable habitat was identified is the Indiana bat and the northern long-eared bat. The study area contains five potential roosting trees that are potentially summer habitat for these species. No maternity roost trees were observed in the study area. A survey of the study area did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula habitat for the bat. Tree clearing activities are planned to occur outside of the summer foraging period for these species from April 1 through September 30. Based on these findings and the natural features of the site, no significant impacts to threatened and endangered species are anticipated as a result of the Proposed Action.

The EA document will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. As part of the coordination process for this EA, the CRAA and the FAA are respectfully seeking your comments and identification of any specific areas of concern related to this Proposed Action. We would appreciate your assistance and request that your comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

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Sincerely,

Rob Adams

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1, Table 1

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Ms. Leigh Oesterling
Planning & Environmental Team Leader
Federal Highway Administration
200 N. High Street
Room 328
Columbus, OH 43215

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Ms. Oesterling:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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- Demolition of the existing McDonalds
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The project site is primarily located in the central core of CMH and is surrounded by commercial and aviation land uses. Site features include a combination of buildings, roadways, airfield pavement, and maintained grassy areas.

Several surveys have been conducted as part of this project, including:

- A Biological Resources survey has been conducted to survey for habitat type and search for evidence of threatened/endangered species' presence or habitat use;
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The results of these field surveys will be coordinated with the appropriate agency to determine next steps and mitigation if necessary.

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comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (513) 530-1201 or by email at radams@landrum-brown.com.

Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Mr. Anthony Jones
Director of Planning & Development
City of Gahanna
200 South Hamilton Road
Gahanna, OH 43230

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Jones:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

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Sincerely,

Rob Adams

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

Landrum & Brown
11279 Cornell Park Drive
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Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

January 6, 2017

Ms. Kerstin Carr
Director of Planning & Environment
Mid Ohio Regional Planning Commission
111 Liberty Street
Suite 100
Columbus, OH 43215

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Ms. Carr:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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Please send any written comments to the following address:

Landrum & Brown
Attn: Rob Adams
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response is appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

Sincerely,

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

January 6, 2017

Mr. James Schimmer
Director
Franklin County Economic Development and Planning
150 South Front Street
FSL Suite 10
Columbus, OH 43215

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Schimmer:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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Sincerely,

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

January 6, 2017

Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242
Tel: 513.530.5333
Fax: 513.530.1278
www.landrum-brown.com

Mr. Kevin Wheeler
Planning Administrator
City of Columbus
50 West Gay Street
Columbus, OH 43215

Re: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Wheeler:

This letter is sent to inform you that the Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency that will review the EA. The EA will investigate, analyze, and disclose any potential environmental impacts associated with the Proposed Action.

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Cincinnati, OH 45242

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Sincerely,

Rob Adams
Vice President

cc: Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

Enclosure: Exhibit 1

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 16, 2017

Mr. Dan Everson
U.S. Department of the Interior
Fish and Wildlife Service, Ecological Services
4625 Morse Road
Suite 104
Columbus, OH 43230

Re: Section 7 Consultation for Proposed Midfield Development Program at John Glenn Columbus International Airport

Dear Mr. Everson:

Thank you for your email to Mr. Rob Adams of Landrum & Brown on February 7, 2017, regarding the ongoing Environmental Assessment (EA) for the proposed Midfield Development Program (the Proposed Action) at the John Glenn Columbus International Airport (CMH). The Federal Aviation Administration (FAA) is the lead Federal agency for the Proposed Action. Therefore, the FAA is requesting your concurrence with our assessment and determination of potential effects of the Proposed Action on Federally listed threatened and endangered species per Section 7 of the Endangered Species Act.

<u>Project Description</u>

The Proposed Action includes the development of a Consolidated Rental Car Facility, a replacement passenger terminal, a new automobile parking garage, and other associated supporting and enabling projects. The Proposed Action is planned to occur in Phases to limit disruption to existing operations at CMH. The Proposed Action includes the following elements, which are shown on the attached **Exhibit 1**:

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Federally Threatened and Endangered Species

A list of threatened and endangered species that may be present at the project site, obtained from U.S. Fish and Wildlife Service (USFWS) and Ohio Division of Natural Resources (ODNR) records, is shown in the attached **Table 1**. Of the species listed in Table 1, the only species for which potentially suitable habitat was identified are the Indiana bat and the northern long-eared bat.

A survey of threatened and endangered species was conducted at the site in September 2016. The study area contains potential roosting trees that are potentially summer habitat for these species. A survey of the study area did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula habitat for bats. The field survey did not identify any individual threatened or endangered species at the site. This survey reported that the ODNR has no records of any rare or endangered species at CMH or within a 1-mile radius.

Determination of Effects

Indiana bat and northern long-eared bat

The Proposed Action would impact approximately 13 acres of a wooded area and other isolated trees that are potentially suitable summer habitat for the Indiana bat and northern long-eared bat. Tree clearing activities are planned to occur outside of the summer foraging period for these species from April 1 through September 30. Due to the avoidance of tree clearing from April 1 through September 30, no significant impacts to Indiana bats and northern long-eared bats would be likely to occur as a result of the Proposed Action. Therefore, the FAA has concluded that the Proposed Action warrants a determination of ***Not Likely to Adversely Affect*** for the Indiana bat (*Myotis septentrionalis*) and northern long-eared bat (*Myotis septentrionalis*).

Other Federally Listed Species

No other Federally endangered, threatened, or candidate species or habitat has been identified within the site of the Proposed Action. Therefore, the FAA has concluded that the Proposed Action warrants a determination of ***No Affect*** for the clubshell (*Pleurobema clava*), northern riffleshell (*Epioblasma torulosa rangiana*), rabbitsfoot (*Quadrula cylindrical*), rayed bean (*Villosa fabalis*), rusty patched bumblebee (*Bombus affinis*), Scioto madtom (*Noturus trautmani*), and the snuffbox (*Epioblasma triquetra*).

We seek your concurrence on our above listed determinations and any other comments you may have on the project. Thank you for your assistance in this matter.

Sincerely,

Ernest P. Gubry

Ernest P. Gubry

EXHIBITS AND TABLES ATTACHED TO COORDINATION LETTERS

Copies of the following exhibits and tables were included with the coordination letters. Note that due to different areas of concern for the different agencies, not all agencies received the same exhibits or tables.

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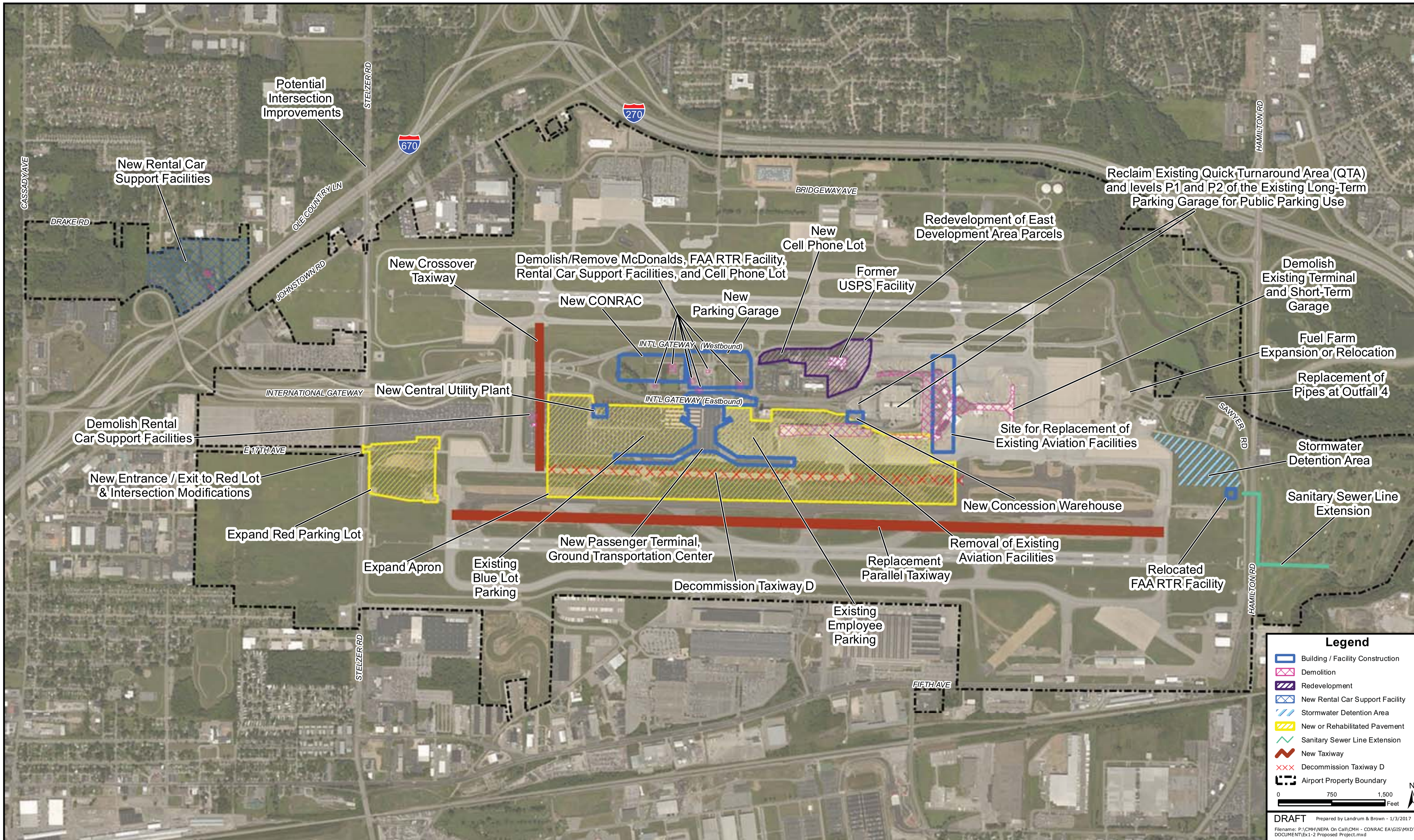


Midfield Development Program
Environmental Assessment
John Glenn Columbus International Airport

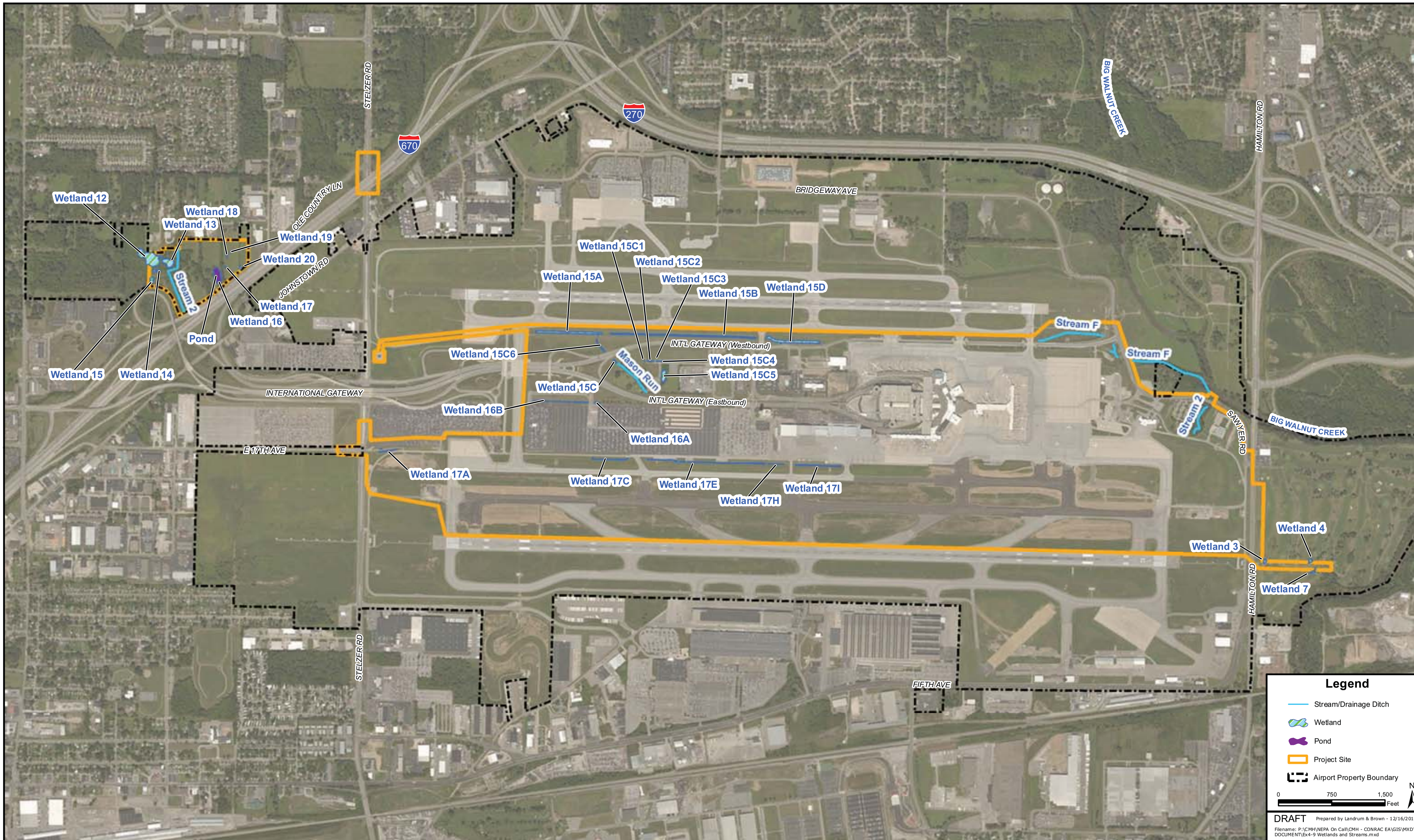
Proposed Action

EXHIBIT: 1

Midfield Development Program
Environmental Assessment
John Glenn Columbus International Airport

Floodplains

EXHIBIT:
2



COLUMBUS

Midfield Development Program
Environmental Assessment
John Glenn Columbus International Airport

L&B

Wetlands and Streams

EXHIBIT:
2

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Table 1
STATE AND FEDERAL THREATENED AND ENDANGERED SPECIES

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	OHIO STATUS
American Sweet-flag	Acorus americanus		P
Arbor Vitae	Thuja occidentalis		P
Badger	Taxidea taxus		SC
Bald Eagle	Haliaeetus leucocephalus	*	
Barn Owl	Tyto alba		T
Black Sandshell	Ligumia recta		T
Blacknose Shiner	Notropis heterolepis		X
Clubshell	Pleurobema clava	E	E
Cypress-knee Sedge	Carex decomposita		E
Deertoe	Truncilla truncata		SC
Elephant-ear	Elliptio crassidens		E
Elktoe	Alasmidonta marginata		SC
Fawnsfoot	Truncilla donaciformis		T
Four-toed Salamander	Hemidactylium scutatum		SC
Gattinger's-foxglove	Agalinis gattingeri		T
Golden-winged Warbler	Vermivora chrysoptera		X
Goldeye	Hiodon alosoides		E
Great Egret	Casmerodius albus		SC
Green-winged Teal	Anas crecca		SI
Indiana Bat	Myotis sodalis	E	E
Kidneyshell	Ptychobranchus fasciolaris		SC
Northern Brook Lamprey	Ichthyomyzon fossor		E
Northern long-eared bat	Myotis septentrionalis	T	
Northern Riffleshell	Epioblasma torulosa rangiana	E	E
One-sided Rush	Juncus secundus		P
Paddlefish	Polyodon spathula		T
Pale Umbrella-sedge	Cyperus acuminatus		P
Pocketbook	Lampsilis ovata		E
Pondhorn	Uniomerus tetralasmus		T
Prairie Brome	Bromus kalmii		P
Prairie False Indigo	Baptisia lactea		P
Prothonotary Warbler	Protonotaria citrea		SC
Purple Wartyback	Cyclonaias tuberculata		SC
Rabbitsfoot	Quadrula cylindrica	T	E
Rayed Bean	Villosa fabalis	E	E
River Redhorse	Moxostoma carinatum		SC
Rock Elm	Ulmus thomasii		P
Round Pigtoe	Pleurobema sintoxia		SC
Rusty patched bumble bee	Bombus affinis	PE	

Table 1, *(Continued)*
STATE AND FEDERAL THREATENED AND ENDANGERED SPECIES

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	OHIO STATUS
Salamander Mussel	Simpsonaias ambigua		SC
Scaly Blazing-star	Liatris squarrosa		P
Scioto madtom	Noturus trautmani	E	
Shortnose Gar	Lepisosteus platostomus		E
Smooth Greensnake	Opheodrys vernalis		E
Snuffbox	Epioblasma triquetra	E	E
Spotted Darter	Etheostoma maculatum		E
Spreading Rock Cress	Arabis patens		E
Tall Larkspur	Delphinium exaltatum		P
Three-birds Orchid	Triphora trianthophora		P
Threehorn Wartyback	Obliquaria reflexa		T
Tippecanoe Darter	Etheostoma tippecanoe		T
Upland Sandpiper	Bartramia longicauda		E
Washboard	Megalonaias nervosa		E
Wavy-rayed Lampmussel	Lampsilis fasciola		SC
Weak Spear Grass	Poa saltuensis ssp. languida		P
Yellow-crowned Night-heron	Nyctanassa violacea		SI

E = Endangered: A native species or subspecies threatened with extirpation from the state. The danger may result from one or more causes, such as habitat loss, pollution, predation, interspecific competition, or disease.

T = Threatened: A species or subspecies whose survival in Ohio is not in immediate jeopardy, but to which a threat exists. Continued or increased stress will result in its becoming endangered.

SC = Species of Concern: A species or subspecies which might become threatened in Ohio under continued or increased stress. Also, a species or subspecies for which there is some concern, but for which information is insufficient to permit an adequate status evaluation. This category may contain species designated as a furbearer or game species, but whose statewide population is dependent on the quality and/or quantity of habitat and is not adversely impacted by regulated harvest.

SI = Special Interest: A species that occurs periodically and is capable of breeding in Ohio. It is at the edge of a larger, contiguous range with viable population(s) within the core of its range. These species have no federal endangered or threatened status, are at low breeding densities in the state, and have not been recently released to enhance Ohio's wildlife diversity. With the exception of efforts to conserve occupied areas, minimal management efforts will be directed for these species because it is unlikely to result in significant increases in their populations within the state.

X = Extirpated: A species or subspecies that occurred in Ohio at the time of European settlement and that has since disappeared from the state.

P = Potentially Threatened

PE = Proposed as Endangered

*Note: The bald eagle was removed from the federal list of threatened and endangered species on August 9, 2007, but is still protected under the Bald and Golden Eagle Protection Act.

Source: *US Fish & Wildlife Service and Ohio Department of Natural Resources records*, November 30, 2016.

Table 1
WETLANDS WITHIN THE PROJECT SITE

Wetland ID	Acreage	Wetland Type	Connectivity	Location	Receiving Water
Wetland 12	0.538	PFO1	Isolated	Drake Road	n/a
Wetland 13	0.292	PFO1	Isolated	Drake Road	n/a
Wetland 14	0.043	PFO1	Isolated	Drake Road	n/a
Wetland 15	0.094	PFO1	Isolated	Drake Road	n/a
Wetland 16	0.142	PEM	Isolated	Drake Road	n/a
Wetland 17	0.009	PEM	Isolated	Drake Road	n/a
Wetland 18	0.016	PEM	Isolated	Drake Road	n/a
Wetland 19	0.001	PEM	Isolated	Drake Road	n/a
Wetland 20	0.023	PEM	Isolated	Drake Road	n/a
Wetland 3	0.039	PEM	Isolated	Golf Course	n/a
Wetland 4	0.051	PEM	Isolated	Golf Course	n/a
Wetland 7	0.040	PEM	Isolated	Golf Course	n/a
Wetland 15A	0.497	PEM	Connected	Midfield	Mason Run
Wetland 15B	0.758	PEM	Connected	Midfield	Stream F
Wetland 15C	0.023	PEM	Connected	Midfield	Mason Run
Wetland 15C1	0.001	PEM	Connected	Midfield	Mason Run
Wetland 15C2	0.014	PEM	Connected	Midfield	Mason Run
Wetland 15C3	0.002	PEM	Connected	Midfield	Mason Run
Wetland 15C4	0.020	PEM	Connected	Midfield	Mason Run
Wetland 15C5	0.175	PFO1	Isolated	Midfield	n/a
Wetland 15C6	0.046	PEM	Connected	Midfield	Mason Run
Wetland 15D	0.547	PEM	Connected	Midfield	Stream F
Wetland 16A	0.009	PEM	Connected	Midfield	Mason Run
Wetland 16B	0.050	PEM	Connected	Midfield	Mason Run
Wetland 17A	0.025	PEM	Connected	Midfield	Turkey Run
Wetland 17C	0.092	PEM	Connected	Midfield	Turkey Run
Wetland 17E	0.212	PEM	Connected	Midfield	Mason Run
Wetland 17H	0.019	PEM	Connected	Midfield	Mason Run
Wetland 17I	0.128	PEM	Connected	Midfield	Mason Run

Notes: Wetland type based on Cowardin Classification system, PEM = Palustrine emergent, PFO = Palustrine forested.

Table 2
STREAM WITHIN THE PROJECT SITE

Stream	Length within Study Area (in feet)	Description
Stream 4 (Mason Run)	574	Intermittent Stream
Stream F	1,365	Intermittent Stream
Stream 2 (drains to Big Walnut Creek at Outfall 4)	480	Intermittent Stream
Stream 2 (drains to catch basin south of Drake Road)	1,027	Ephemeral Stream

Table 3
STATE AND FEDERAL THREATENED AND ENDANGERED SPECIES

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	OHIO STATUS
American Sweet-flag	Acorus americanus		P
Arbor Vitae	Thuja occidentalis		P
Badger	Taxidea taxus		SC
Bald Eagle	Haliaeetus leucocephalus	*	
Barn Owl	Tyto alba		T
Black Sandshell	Ligumia recta		T
Blacknose Shiner	Notropis heterolepis		X
Clubshell	Pleurobema clava	E	E
Cypress-knee Sedge	Carex decomposita		E
Deertoe	Truncilla truncata		SC
Elephant-ear	Elliptio crassidens		E
Elktoe	Alasmidonta marginata		SC
Fawnsfoot	Truncilla donaciformis		T
Four-toed Salamander	Hemidactylium scutatum		SC
Gattinger's-foxglove	Agalinis gattingeri		T
Golden-winged Warbler	Vermivora chrysoptera		X
Goldeye	Hiodon alosoides		E
Great Egret	Casmerodius albus		SC
Green-winged Teal	Anas crecca		SI
Indiana Bat	Myotis sodalis	E	E
Kidneyshell	Ptychobranchus fasciolaris		SC
Northern Brook Lamprey	Ichthyomyzon fossor		E
Northern long-eared bat	Myotis septentrionalis	T	
Northern Riffleshell	Epioblasma torulosa rangiana	E	E
One-sided Rush	Juncus secundus		P
Paddlefish	Polyodon spathula		T
Pale Umbrella-sedge	Cyperus acuminatus		P
Pocketbook	Lampsilis ovata		E
Pondhorn	Uniomerus tetralasmus		T
Prairie Brome	Bromus kalmii		P
Prairie False Indigo	Baptisia lactea		P
Prothonotary Warbler	Protonotaria citrea		SC
Purple Wartyback	Cyclonaias tuberculata		SC
Rabbitsfoot	Quadrula cylindrica	T	E
Rayed Bean	Villosa fabalis	E	E
River Redhorse	Moxostoma carinatum		SC
Rock Elm	Ulmus thomasii		P
Round Pigtoe	Pleurobema sintoxia		SC
Rusty patched bumble bee	Bombus affinis	PE	

Table 3, *(Continued)*
STATE AND FEDERAL THREATENED AND ENDANGERED SPECIES

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	OHIO STATUS
Salamander Mussel	Simpsonaias ambigua		SC
Scaly Blazing-star	Liatris squarrosa		P
Scioto madtom	Noturus trautmani	E	
Shortnose Gar	Lepisosteus platostomus		E
Smooth Greensnake	Opheodrys vernalis		E
Snuffbox	Epioblasma triquetra	E	E
Spotted Darter	Etheostoma maculatum		E
Spreading Rock Cress	Arabis patens		E
Tall Larkspur	Delphinium exaltatum		P
Three-birds Orchid	Triphora trianthophora		P
Threehorn Wartyback	Obliquaria reflexa		T
Tippecanoe Darter	Etheostoma tippecanoe		T
Upland Sandpiper	Bartramia longicauda		E
Washboard	Megalonaias nervosa		E
Wavy-rayed Lampmussel	Lampsilis fasciola		SC
Weak Spear Grass	Poa saltuensis ssp. languida		P
Yellow-crowned Night-heron	Nyctanassa violacea		SI

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X = Extirpated: A species or subspecies that occurred in Ohio at the time of European settlement and that has since disappeared from the state.

P = Potentially Threatened

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*Note: The bald eagle was removed from the federal list of threatened and endangered species on August 9, 2007, but is still protected under the Bald and Golden Eagle Protection Act.

Source: *US Fish & Wildlife Service and Ohio Department of Natural Resources records*, November 30, 2016.

AGENCY RESPONSES

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From: "Castillo, Melanie H" <Melanie.H.Castillo@hud.gov>
Date: January 24, 2017 at 3:40:52 PM EST
To: "radams@landrum-brown.com" <radams@landrum-brown.com>
Cc: "Vahl, Steve" <steve.vahl@hud.gov>
Subject: Agency Scoping for Midfield Development Program EA at John Glenn Columbus International Airport

Hello,

The Region Five HUD environmental team has no comment regarding this project at this time. Thank you for your consideration.

Melanie H. Castillo
U.S. Dept. of Housing and Urban Development
Environmental Protection Specialist
77 West Jackson Blvd, Room 2401
Chicago, IL 60604
(312) 913-8723 (office)
(312) 353-5417 (fax)
https://www.hudexchange.info/environmental-review/

Please consider the environment before printing this e-mail

Begin forwarded message:

From: "Christina.Tatum@development.ohio.gov" <Christina.Tatum@development.ohio.gov>
Date: January 27, 2017 at 4:18:22 PM EST
To: "radams@landrum-brown.com" <radams@landrum-brown.com>
Cc: "Annie.VanBlaricom@development.ohio.gov" <Annie.VanBlaricom@development.ohio.gov>
Subject: Environmental Assessment at John Glenn CMH

Good Afternoon Mr. Adams,

Please be advised that our office received your letter addressed to the former Chief of our Division, Sadicka White, regarding the *Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport*. Thank you for sharing with us information regarding this proposed initiative.

You mentioned in your letter that one of the elements of this proposed action is to improve rerouting stormwater to a potential new stormwater basin. Please let our staff member Annie van Blaricom, Special Projects Manager, know if you'll be interested in learning about the Alternative Stormwater Infrastructure Loan Program that is administered by our office. Annie can be reached directly at 614.728.3183 or via e-mail at Annie.VanBlaricom@development.ohio.gov.

Thank you,

Christina Tatum

Ohio | Development Services Agency

Christina Tatum
Executive Assistant
Community Services Division

77 South High Street
Columbus, Ohio 43215
614.466.0882 F: 614.752.4426

Christina.Tatum@development.ohio.gov
www.development.ohio.gov

OHIO DEPARTMENT OF TRANSPORTATION

CENTRAL OFFICE • 1980 WEST BROAD STREET, MAIL STOP 4170 • COLUMBUS, OH 43223
JOHN R. KASICH, GOVERNOR • JERRY WRAY, DIRECTOR

January 31, 2017

Mr. Rob Adams
Vice President
Landrum & Brown
11279 Cornell Park Drive
Cincinnati, OH 45242

RE: Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Dear Mr. Adams:

This letter is sent in response to your January 6, 2017 letter to the Federal Highway Administration (FHWA) regarding the Environmental Assessment (EA) for the proposed Midfield Development Program at John Glenn Columbus International Airport. We would like to inform you that pursuant to 23 U.S.C. 327 and a Memorandum of Understanding (MOU) dated December 11, 2015, and executed by the FHWA and the Ohio Department of Transportation (ODOT), ODOT has assumed all the United States Department of Transportation Secretary's responsibilities for compliance with the National Environmental Policy Act of 1969 (NEPA) and other Federal environmental laws for highway projects within the State of Ohio subject to the terms and conditions set forth in 23 U.S.C. 327 and the MOU. These responsibilities include the environmental review, reevaluation, consultation, and other actions pertaining to the review or approval of highway projects required by applicable Federal environmental laws. Therefore, ODOT will be acting as FHWA and commenting on this project.

We appreciate the opportunity to comment and look forward to coordinating with your team in the future. At this time, we do not offer any comments on the scoping effort to date, however, we respectfully request to continue to be informed. We are interested in the details as the project progresses, especially as they relate to Stelzer Road and the Interstate 270 and Interstate 670 Interchange. Questions and future information should be addressed to:

Timothy M. Hill, Administrator
Office of Environmental Services
Ohio Department of Transportation
1980 West Broad Street, Mail Stop 4170
Columbus, OH 43223
Tim.Hill@dot.ohio.gov
(614) 644-0377

We look forward to reviewing the EA and thank you very much for your consideration.

Respectfully,

Timothy M. Hill

Timothy M. Hill
Environmental Administrator

Cc: Leigh Oesterling, FHWA
Ernest Gubry, Federal Aviation Administration
David Wall, Columbus Regional Airport Authority

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

FEB 0 8 2017

REPLY TO THE ATTENTION OF: E-19J

Ernie Gubry
Federal Aviation Administration
Detroit Airports District Office, DET-ADO-600
11677 South Wayne Road, Suite 107
Romulus, Michigan 48174

Rob Adams
Landrum & Brown
11279 Cornell Park Drive
Cincinnati, Ohio 45242

Re: Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport, City of Columbus, Franklin County, Ohio

Dear Mr. Gubry and Mr. Adams:

The U.S. Environmental Protection Agency received a January 6, 2017 letter and scoping materials from Landrum & Brown requesting scoping comments related to the above mentioned project. The Columbus Regional Airport Authority (CRAA) is the project proponent and the Federal Aviation Administration (FAA) is the lead federal agency under the National Environmental Policy Act (NEPA). As requested, this letter identifies key issues to inform the NEPA process.

The proposed action includes changes to the John Glenn Columbus International Airport (CMH) to develop a consolidated rental car facility, a replacement passenger terminal, a new automobile parking garage, and several other supporting and enabling facilities. Scoping materials state that the proposed action is expected to reduce surface vehicle traffic congestion along the terminal curb-front and would not cause unforecasted growth in aircraft operations.

Aquatic Resources

Scoping materials indicate that the project team has prepared a wetland delineation and engaged in coordination with the U.S. Army Corps of Engineers (Crops) regarding a Jurisdictional Determination. Surveys identified 29 wetlands and 4 streams within the project site. It is important for the NEPA document to discuss direct and indirect impacts to aquatic resources within and surrounding the project area that may result from the proposed actions. Examples of indirect impacts include: runoff, contamination, sedimentation, or changes to hydrology of the remaining portions of wetlands, rivers, and streams. While we offer the following comments to inform the NEPA process, EPA reserves its right to provide additional comments during the subsequent Clean Water Act (CWA) Section 404 permitting process.

Recommendations for the NEPA Document:

- Include a robust discussion on the CWA Section 401 water quality certification and Section 404 permitting requirements. Include relevant correspondence as an appendix.
- Discuss efforts that the project team has taken to date, as well as measures that will be taken in the future, to avoid and minimize potential impacts to Waters of the U.S. (Waters) to the extent practicable, in line with the CWA Section 404(b)(1) Guidelines.
- Discuss how cost, logistical, or technological constraints preclude avoidance and minimization of any known impacts to Waters.
- Discuss proposed mitigation types, ratios, and potential locations. Include mitigation sequencing per the CWA Section 404(b)(1) Guidelines, and describe how mitigation would comply with the 2008 Mitigation Rule.
- Include a summary of the Section 404(b)(1) analysis, or, if available, include a draft as an appendix.

If impacts to wetlands are unavoidable, we recommend the following measures to minimize impacts during construction:

- Perform construction in wetlands during frozen ground conditions, if feasible.
- Use easily-removed materials for construction of temporary access roads and staging areas (e.g., swamp/timber mats) in lieu of materials that sink (e.g., stone, rip-rap, wood chips).
- Use swamp/timber mats or other alternative matting to distribute the weight of the construction equipment. This will minimize soil rutting and compaction.
- Use vehicles and construction equipment with wider tires or rubberized tracks, or use low-ground-pressure equipment to further minimize impacts during construction access and staging.
- Use long-reach excavators, where appropriate, to avoid driving or staging in wetlands.
- Place mats under construction equipment to contain any spills.

Threatened and Endangered Species

We understand that the project team obtained a list of threatened and endangered species that may be present in the project study area from the U.S. Fish and Wildlife (FWS) Service and the Ohio Department of Natural Resources (ODNR). A recent survey did not identify any federally- or state-protected species on site, and found that the Northern Long-Earned Bat and the Indiana Bat are the only species with potentially suitable habitat on site.

Recommendations for the NEPA Document:

Describe how the proposed project would comply with the Endangered Species Act in the NEPA document. Summarize coordination with FWS and ODNR, and include relevant correspondence as an appendix.

Air Quality

The project area is currently in maintenance status for the 2008 8-hour ozone National Ambient Air Quality Standard.[1] The proposed actions would result in emissions from construction

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[1] Franklin County's attainment status is listed in U.S. EPA's Green Book at: https://www3.epa.gov/airquality/greenbook/ancl.html#OH

equipment. Temporary construction emissions have the potential to impact human health, especially in sensitive populations, such as the elderly, children, and those with impaired respiratory systems. Over the long term, the proposed project would change operational emissions from the airport by altering vehicle patterns.

Recommendations for the NEPA Document:

- Discuss potential emissions sources from the construction phase of the proposed project. Consider: truck trips, demolition, use of construction equipment.
- Discuss whether construction emissions could impact nearby people. If so, consider potential local health effects from construction emissions, including childhood asthma and other respiratory illnesses that can be triggered by short-term elevated emission levels.
- Identify and commit to specific measures to reduce construction emissions, including those listed in the enclosed Construction Emission Control Checklist.
- Analyze long-term operational emissions at the airport, including emissions from automobiles, that would result from the proposed project. Discuss measures to minimize such emissions.
- Demonstration the that proposed project would comply with Clean Air Act General Conformity requirements.

McDonnell Douglas Corp Air Force Plant 85 Cleanup Site

The proposed project is located just north of the McDonnell Douglas Corp Air Force Plant 85 Cleanup Site. Given the close proximity of this cleanup site to the proposed project, it is important for the NEPA document to discuss whether the proposed project could potentially impact the cleanup site.[2]

Recommendations for the NEPA Document and Project Implementation:

Discuss the proximity of the proposed project to the McDonnell Douglas Corp Airforce Plant 85 Site. Provide a background on the site, and assess whether the proposed project could impact the cleanup site. Consider potential impacts related to the release of contaminants as well as impacts to cleanup activities. Commit to protective measures if the proposed project could potentially impact the cleanup site.

Climate Change Adaptation and Resiliency

The U.S. Global Change Research Program's National Climate Assessment (NCA)[3] provides information valuable to determining how changing climate could affect the environmental impacts of the project, and how the project could be made more resilient to the impacts of climate change. The NCA's section on the Midwest is a useful starting place for analyzing changing climate conditions. The report finds that, in the Midwest, extreme heat, heavy downpours, and flooding will affect infrastructure, health, air and water quality, and more.

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[2] Details on the McDonnell Douglas Corp Air Force Plant 85 are available at: https://oaspub.epa.gov/enviro/fii_query_dtl.disp_program_facility?pgm_sys_id_in=OH1170090004&pgm_sys_acrnm_in=SEMS and https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0504928

[3] U.S. Global Change Research Program, 2014 National Climate Assessment, available at: http://nca2014.globalchange.gov/report

Recommendations for the NEPA Document:

- Consider how the proposed project may impact climate change by using greenhouse gas emissions as a proxy measure, and explore alternatives and best practices to lower greenhouse gas emissions.
- Consider the effects of climate change on the proposed action.
- Use assessments of future climate scenarios to determine whether the environmental impacts of the alternatives could be exacerbated by climate change. If impacts may be exacerbated, additional mitigation measures may be warranted.
- Consider whether measures are needed to improve resiliency to climate change in the project's design. Add protective measures if needed, such as enhanced stormwater management.

Sustainable Development

We recognize that the John Glenn Columbus International Airport's website states energy conservation and sustainability will be incorporated into the project.[4] We encourage implementation of sustainable designs and practices, which can reduce the environmental impact of the proposed actions, increase the project's resiliency to changing climate conditions, and may have long-term economic benefits.

Recommendations for the NEPA Document and Project Implementation:

- Discuss specific energy conservation and sustainability best practices that would be incorporated into the project.
- Consider developing an Airport Sustainability Plan. FAA can support such plans at eligible airports with their Airport Improvement Program grant funds. Program details and example Sustainability Plans are available on FAA's website.[5]
- Consider Leadership in Energy and Environmental Design (LEED) and other green building certification programs, as well as designing for net-zero energy usage, for new buildings.
- Consider using green infrastructure to help prepare for increases in the frequency of heavy precipitation events under changing climate conditions. Green infrastructure may include green roofs, bioswales, rain gardens, and permeable pavements. Permeable pavements may be particularly well-suited to airport operations because they help manage stormwater without attracting wildlife.
- Consider best practices for energy efficiency and sustainable building design. Examples include south-facing skylights and windows, motion-sensored lighting where appropriate, use of Energy Star certified products, and siting renewable energy onsite. See FAA's Technical Guidance for Evaluating and Selecting Solar Technologies on Airports.[6]
- Commit to recycle construction and demolition debris.

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[4] CRAA's commitment to incorporate sustainability into project development is posted at: http://flycolumbus.com/at-port-columbus/terminal-modernization-program

[5] For details on Airport Sustainability Plans and FAA's Airport Improvement Program, see https://www.faa.gov/airports/environmental/sustainability/

[6] FAA's "Technical Guidance for Evaluating and Selecting Solar Technologies on Airports" is available at: https://www.faa.gov/airports/environmental/

- Consider replacing raw materials with recycled materials for infrastructure components. Some options include:
  - Use recycled materials to replace carbon-intensive Portland Cement in concrete as "supplementary cementitious material,"
  - Use tire-derived aggregate in lightweight embankment fill and retaining wall backfill, and
  - Use recycled materials in pavement applications, such as crushed recycled concrete, recycled asphalt pavement, and rubberized asphalt concrete. Also, in some circumstances, on-site asphalt can be re-used (e.g., cold in-place recycling or full depth reclamation).

We appreciate the opportunity to provide comments. If you have any questions or would like to discuss our recommendations, please contact Jen Blonn, the lead reviewer for this project, at 312-886-6394 or blonn.jennifer@epa.gov.

Sincerely,

Jennifer Blonn
for

Kenneth A. Westlake
Chief, NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Enclosure:

Construction Emission Control Checklist

U.S. Environmental Protection Agency
Construction Emission Control Checklist

Mobile and Stationary Source Diesel Controls

Purchase or solicit bids that require the use of vehicles that are equipped with zero-emission technologies or the most advanced emission control systems available. Commit to the best available emissions control technologies for project equipment in order to meet the following standards.

- On-Highway Vehicles: On-highway vehicles project should meet, or exceed, the U.S. EPA exhaust emissions standards for model year 2010 and newer heavy-duty, on-highway compression-ignition engines (e.g., long-haul trucks, refuse haulers, shuttle buses, etc.).[7]
- Non-road Vehicles and Equipment: Non-road vehicles and equipment should meet, or exceed, the U.S. EPA Tier 4 exhaust emissions standards for heavy-duty, non-road compression-ignition engines (e.g., construction equipment, non-road trucks, etc.).[8]
- Low Emission Equipment Exemptions: The equipment specifications outlined above should be met unless: 1) a piece of specialized equipment is not available for purchase or lease within the United States; or 2) the relevant project contractor has been awarded funds to retrofit existing equipment, or purchase/lease new equipment, but the funds are not yet available.

Consider requiring the following best practices through the construction contacting or oversight process:

- Use onsite renewable electricity generation and/or grid-based electricity rather than diesel-powered generators or other equipment.
- Use ultra-low sulfur diesel fuel (15 ppm maximum) in construction vehicles and equipment.
- Use catalytic converters to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels.
- Use electric starting aids such as block heaters with older vehicles to warm the engine.
- Regularly maintain diesel engines to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance (e.g., blue/black smoke indicates that an engine requires servicing or tuning).
- Retrofit engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site.
- Repower older vehicles and/or equipment with diesel- or alternatively-fueled engines certified to meet newer, more stringent emissions standards (e.g., plug-in hybrid-electric vehicles, battery-electric vehicles, fuel cell electric vehicles, advanced technology locomotives, etc.).
- Retire older vehicles, given the significant contribution of vehicle emissions to the poor air quality conditions. Implement programs to encourage the voluntary removal from use

[7] http://www.epa.gov/otaq/standards/heavy-duty/hdci-exhaust.htm
[8] http://www.epa.gov/otaq/standards/nonroad/nonroadci.htm

and the marketplace of pre-2010 model year on-highway vehicles (e.g., scrappage rebates) and replace them with newer vehicles that meet or exceed the latest U.S. EPA exhaust emissions standards.

Fugitive Dust Source Controls

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative, where appropriate. This applies to both inactive and active sites, during workdays, weekends, holidays, and windy conditions.
- Install wind fencing and phase grading operations where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage and limit speeds to 15 miles per hour (mph). Limit speed of earth-moving equipment to 10 mph.

Occupational Health

- Reduce exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel-equipment operators to perform routine inspection, and maintaining filtration devices.
- Position the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, reducing the fume concentration to which personnel are exposed.
- Use enclosed, climate-controlled cabs pressurized and equipped with high-efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.
- Use respirators, which are only an interim measure to control exposure to diesel emissions. In most cases, an N95 respirator is adequate. Workers must be trained and fit-tested before they wear respirators. Depending on the type of work being conducted, and if oil is present, concentrations of particulates present will determine the efficiency and type of mask and respirator. Personnel familiar with the selection, care, and use of respirators must perform the fit testing. Respirators must bear a NIOSH approval number.

Office of Real Estate
Paul R. Baldridge, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

February 24, 2017

Rob Adams
Landrum & Brown
11279 Cornell Park Drive
Cincinnati, Ohio 45242

Re: 17-043; Agency Scoping for Midfield Development Program Environmental Assessment at John Glenn Columbus International Airport

Project: The proposed project involves the development of a Consolidated Rental Car Facility, a replacement passenger terminal, a new automobile parking garage, and other associated supporting and enabling projects.

Location: The proposed project is located in the City of Columbus, Franklin County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the purple cat's paw (*Epioblasma o. obliquata*), a state endangered and federally endangered mussel, the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel species, the rabbitsfoot (*Quadrula cylindrica cylindrica*), a state endangered and federal candidate mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federal endangered mussel, the long solid (*Fusconaia maculata maculata*), a state endangered mussel, the Ohio pigtoe (*Pleurobema cordatum*), a state endangered mussel, the pocketbook (*Lampsilis ovata*), a state endangered mussel, the washboard (*Megalonaias nervosa*), a state endangered mussel, the elephant-ear (*Elliptio crassidens crassidens*), a state endangered mussel, the black sandshell (*Ligumia recta*), a state threatened mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, the pondhorn (*Uniomerus tetralasmus*), a state threatened mussel, and the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact these species.

The project is within the range of the Scioto madtom (*Noturus trautmani*), a state endangered and federally endangered fish, the popeye shiner (*Notropis ariommus*), a state endangered fish, the northern brook lamprey (*Ichthyomyzon fossor*), a state endangered fish, the spotted darter (*Etheostoma maculatum*), a state endangered fish, the shortnose gar (*Lepisosteus platostomus*), a state endangered fish, the tonguetied minnow (*Exoglossum laurae*), a state threatened fish, the paddlefish (*Polyodon spathula*) a state threatened fish, and the Tippecanoe darter (*Etheostoma tippecanoe*), a state threatened fish. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact these species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/water-use-planning/floodplain-management#PUB

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler
ODNR Office of Real Estate
2045 Morse Road, Building E-2
Columbus, Ohio 43229-6693
John.Kessler@dnr.state.oh.us

From: susan_zimmermann@fws.gov [mailto:susan_zimmermann@fws.gov] **On Behalf Of** Ohio, FW3
Sent: Tuesday, February 7, 2017 9:22 AM
To: Rob Adams
Subject: Midfield Development Program, CONRAC Facility at John Glen CMH Airport, Franklin Co.

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994

TAILS# 03E15000-2017-TA-0711

Dear Mr. Adams,

We have received your recent correspondence regarding potential impacts to federally listed species in the vicinity of the above referenced project. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. We recommend that proposed activities minimize water quality impacts, including fill in streams and wetlands. Best management practices should be utilized to minimize erosion and sedimentation.

FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES COMMENTS: Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to Indiana bats and northern long-eared bats, we do not anticipate adverse effects to any federally endangered, threatened, proposed or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the U.S. Fish and Wildlife Service (Service) should be initiated to assess any potential impacts.

If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the Endangered Species Act (ESA), between the Service and the federal action agency, is completed. We recommend that the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

Dan Everson
Ohio Field Office Supervisor

From: Ernest.Gubry@faa.gov [mailto:Ernest.Gubry@faa.gov]
Sent: Monday, February 27, 2017 1:04 PM
To: David Wall; radams@landrum-brown.com
Cc: Ernest.Gubry@faa.gov; brian.tenkhoff@faa.gov
Subject: FW: Midfield Development Program, John Glen Columbus International Airport, Franklin Co.

FYI

Ernest P. Gubry
FAA DETADO
(734) 229-2905

From: susan_zimmermann@fws.gov [mailto:susan_zimmermann@fws.gov] **On Behalf Of** Ohio, FW3
Sent: Monday, February 27, 2017 12:40 PM
To: Gubry, Ernest (FAA)
Subject: Midfield Development Program, John Glen Columbus International Airport, Franklin Co.

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994

TAILS# 03E15000-2017-TA-0711

Dear Mr. Gubry,

We have received your recent correspondence regarding the above-referenced project. You have requested concurrence with your determination of effects to federally listed species, pursuant to section 7(a)(2) of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) has reviewed your project description and concurs with your determination that the project, as proposed, is not likely to adversely affect any federally listed species. This is based on the commitment to cut all trees ≥3 inches dbh only between October 1 and March 31 to avoid adverse effects to the endangered Indiana bat (*Myotis sodalis*) and threatened Northern long-eared bat (*Myotis septentrionalis*).

This concludes consultation on this action as required by section 7(a)(2) of the ESA. Should, during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be reinitiated to assess whether the determinations are still valid.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

Dan Everson

Ohio Field Office Supervisor

CRAA users can click here to report this email as spam.

From: Baker, Steven - NRCS, Columbus, OH <Steven.Baker@oh.usda.gov>
Sent: Wednesday, January 11, 2017 8:18 AM
To: Chris Sandfoss
Subject: RE: Midfield Development Program at John Glenn Columbus International Airport
Attachments: FormAD1006_for_CMH_MDP.pdf

Good morning Chris,

Attached is the complete AD-1006 form. Thanks,

Steve

From: Chris Sandfoss [mailto:csandfoss@landrum-brown.com]
Sent: Tuesday, January 10, 2017 4:36 PM
To: Baker, Steven - NRCS, Columbus, OH <Steven.Baker@oh.usda.gov>
Subject: Midfield Development Program at John Glenn Columbus International Airport

Mr. Baker,

Per our discussion, attached is the Form AD-1006 with Part I completed for your review and action for the proposed project described in the letter you received dated 1/6/2017.

Thanks,

Chris

Chris Sandfoss, AICP | Landrum & Brown
11279 Cornell Park Drive Cincinnati, OH 45242
P: 513.530.1256 | F: 513.530.2256

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 1/10/2017
Name of Project CMH Midfield Development Program	Federal Agency Involved Federal Aviation Administration
Proposed Land Use Airport Development	County and State Franklin County, Ohio
PART II *(To be completed by NRCS)*	Date Request Received By NRCS 1/11/17 / Person Completing Form: Steve Baker

Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES ☐ NO ☑	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Amount of Farmland As Defined in FPPA Acres: %	
Name of Land Evaluation System Used	Name of State or Local Site Assessment System	Date Land Evaluation Returned by NRCS 1/11/17	

PART III *(To be completed by Federal Agency)*		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site					
PART IV *(To be completed by NRCS)* Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide Important or Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)					
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)				
2. Perimeter In Non-urban Use	(10)				
3. Percent Of Site Being Farmed	(20)				
4. Protection Provided By State and Local Government	(20)				
5. Distance From Urban Built-up Area	(15)				
6. Distance To Urban Support Services	(15)				
7. Size Of Present Farm Unit Compared To Average	(10)				
8. Creation Of Non-farmable Farmland	(10)				
9. Availability Of Farm Support Services	(5)				
10. On-Farm Investments	(20)				
11. Effects Of Conversion On Farm Support Services	(10)				
12. Compatibility With Existing Agricultural Use	(10)				
TOTAL SITE ASSESSMENT POINTS	160	0	0	0	0
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or local site assessment)*	160	0	0	0	0
TOTAL POINTS ***(Total of above 2 lines)***	260	0	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES ☐ NO ☐

Reason For Selection:

NRCS Note: Area committed to Urban Development, not subject to FPPA

Name of Federal agency representative completing this form:	Date:

(See Instructions on reverse side) **Form AD-1006 (03-02)**

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Appendix B

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APPENDIX B
PUBLIC INVOLVEMENT

This Appendix contains the copies of coordination materials for this Environmental Assessment. The following documentation is included:

1) Public Workshop / Hearing materials including the Notice of Aviability, the sign in sheet, handouts, the public comment form, and the public hearing transcript;

2) Comments received on the Draft EA; and

3) Responses to those comments.

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PUBLIC WORKSHOP/ HEARING

The Public Workshop/Hearing is scheduled for the following times and locations:

Wednesday, April 26, 2017
6:00 pm to 8:00 pm
Gahanna Senior Center
480 Rocky Fork Blvd
Gahanna, OH 43230

Thursday, April 27, 2017
6:00 pm to 8:00 pm
Days Inn Columbus Airport
750 Stelzer Road,
Columbus, OH 43219

Information regarding this Workshop/Hearing, including published notices, meeting registration, and meeting handouts will be provided in the final document.

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COMMENTS RECEIVED ON THE DRAFT EA

Any comments received regarding this EA, and responses to those comments will be included in the final document.

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RESPONSE TO COMMENTS

Responses to any comments will be included in the final document.

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Appendix C

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APPENDIX C
HISTORIC AND CULTURAL RESOURCES

This appendix contains a copy of the documentation related to the analysis of historic and cultural resources and the consultation between the Federal Aviation Administration (FAA) and the Ohio State Historic Preservation Office (SHPO) in accordance with Section 106 of the National Historic Preservation Act (NHPA). The following documentation is included:

1) Phase I Archaeological Survey for the Approximately 24.3-hectare (Drake Road Site) Potential Automobile Related Facility in the City of Columbus, Franklin County, Ohio; January 15, 2007

2) Phase I Archaeological Survey for the Proposed Consolidated Rental Car Facility (CONRAC), Port Columbus International Airport, City of Columbus, Franklin County, Ohio; September 28, 2016

3) Historic American Building Survey (HABS) for the Elam Drake Farmstead, 2378 Ole Country Lane, in Mifflin Township, Franklin County, Ohio; November 8, 2006

4) National Register of Historic Places (NRHP) Eligibility Evaluation of the John Glenn Columbus International Airport Terminal and the Lane Aviation Facility, City of Columbus, Franklin County, Ohio; July 8, 2016

5) Section 106 Consultation Materials

6) Memorandum of Agreement between the FAA, SHPO, and Columbus Regional Airport Authority for the Mitigation of Adverse Effects to the Elam Drake Farmstead, 2738 Ole Country Lane, Columbus, Franklin County, Ohio

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PHASE 1 CULTURAL RESOURCES SURVEY OF THE DRAKE ROAD SITE

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5500 New Albany Road
Columbus, Ohio 43054
Tel: 614-775-4500
Fax: 614-775-4802

Phase I Cultural Resources Survey for the approximately 24.3 ha (60 a.) Potential Automobile Related Facility in the City of Columbus, Franklin County, Ohio

By:
Joel Brown

Prepared For:
Columbus Regional Airport Authority

January 15, 2007
2006-2194

Phase I Archaeological Survey for the approximately 24.3 ha (60 a.) Potential Automobile Related Facility in the City of Columbus, Franklin County, Ohio

By:

Joel Brown

Submitted To:

Columbus Regional Airport Authority
4600 International Gateway
Columbus, Ohio 43219

Submitted By:

Joel Brown, P.I.
EMH&T, Inc.
Archaeology Division
5500 New Albany Road
Columbus, Ohio 43054
Phone: (614) 775-4526 Fax: (614) 775-4802

Project #: 2006-2194

15 January 2007

Table of Contents

i. Abstract

A Phase I Cultural Resources Survey was conducted by the Archaeological Division of EMH&T, Inc. for the 24.3 ha (60 a.) potential automobile related facility in the City of Columbus, Franklin County, Ohio. They were conducted beginning at the end of October and running into early November in 2006. These investigations were performed for the Columbus Regional Airport Authority.

The project area is located in the northeast quarter of the City of Columbus, formerly Mifflin Township. It is located specifically in Township 1 North, Range 17 West. The project consists of a number of different property parcels and as such, is irregularly shaped. The western boundary is Cassady Road, the eastern boundary is Sterling Avenue, part of the northern boundary is Drake Road and part of the southern boundary is Ole Country Lane. The remaining southern and northern boundaries are property lines. The project is bordered to the south by new commercial development and I-670, and to the north and west by residential parcels.

The project area consists of woods, scrub fields and grassy fields or lawns. A unique research design was formulated for the project because of the low probability of encountering prehistoric period archaeological remains and because of the presence of a National Register home within the project area. These investigations identified three previously unidentified archaeological sites (33-Fr-2639-2641). All three of the sites are historic period artifact scatters. Site 33-Fr-2639 also contained a very minor prehistoric period aspect as well. One of the sites is directly related to the NRHP Elam Drake house (33-Fr-2639), another is probably related to formalized trash disposal at an extant house (33-Fr-2640) and the final appears to be random trash disposal related to an unknown but probably local house (33-Fr-2641). An additional archaeological site was previously located within the project area but no additional work was done on this site. Archaeological site 33-Fr-1828 is a 20th century historic period site consisting of foundation remains and a small scattering of artifacts. It was previously recommended by Ryan Weller as not eligible. Historic building FRA-9622-12 located at 2734 Ole Country Lane is an early vernacular style house with many additions and upgrades located in the central part of the project area.

It is the opinion of the author that archaeological sites 33-Fr-1828, 2639, 2640 and 2641 are not eligible for inclusion to the National Register of Historic Places. No additional work has been recommended for these archaeological sites. Additionally, historic building FRA-9622-12 is likewise not eligible for inclusion onto the NRHP. The effects to the NRHP Elam Drake house are being addressed in a Memorandum of Agreement between the CRAA and signatory agencies separate from this report.

ii. Acknowledgements

Project Manager

Joel Brown

Archaeological Principal Investigator

Joel Brown

Architectural Principal Investigator

Amy Kramb-Botos

Supervisors of Fieldwork

Scott Derick

Technical Staff

Field Crew

Scott Derick
Elaine Meyer
Keith Workman

Analysis

Scott Derick

Literature Review

Elaine Meyer

Graphics

Scott Derick
Stacy Sattler

Report Preparation

Catrina Saterfield

Reprography Services

Brian Meyers

iii. Figures and Exhibits

Figures

Exhibits

10. Large gravel driveway east of the Elam Drake house.
11. Large gravel parking lot located behind the barn at the Elam Drake house.
12. Gravel drive and parking area in front of the garage and barn at the Elam Drake house.
13. Smokehouse located northwest of the Elam Drake house.
14. Outhouse located west of the Elam Drake house.
15. Barn located north of the Elam Drake house.
16. Large pond that may have been a clay pit located east of the Elam Drake house.

I. Introduction

Phase I Cultural Resources Survey was conducted by the Archaeological Division of EMH&T, Inc. for the 24.3 ha (60 a.) potential automobile related facility in the City of Columbus, Franklin County, Ohio. They were conducted beginning at the end of October and running into early November in 2006. These investigations were performed for the Columbus Regional Airport Authority.

The project area is located in the northeast quarter of the City of Columbus, formerly Mifflin Township (Figures 1 and 2). It is located specifically in Township 1 North, Range 17 West.

The project area is situated in the central part of the county, which is contained within the Central Lowland Till Plains (Brockman 1998). More specifically it is located within the Columbus Lowlands (Brockman 1998). This area consists of lowland with a broad slope towards the Scioto River and moderately low relief (Pavey et al 1999). The topography of the project area is generally level with a gradual slope to the west towards Alum Creek.

The project area is irregularly shaped and consists of multiple parcels. The western boundary is Cassady Road, the eastern boundary is Sterling Avenue, part of the northern boundary is Drake Road and part of the southern boundary is Ole Country Lane. The remaining southern and northern boundaries are property lines. The project is bordered to the south by new commercial development and I-670 and to the north and west by residential parcels. The houses in the area are generally ranch or cap code style houses built during the post WWII housing boom. The ground cover of the project area presently consists of mature woods, grassy fields or scrub brush (Exhibits 1-3).

II. Environmental Setting

2.1. Climate

The climate in Franklin County is cold in the winter and warm in the summer. The average winter temperature is 0.5°C, (31°F); low temperatures can reach single digits or even into the negatives (USDA, SCS 1980). The average high temperature during the summer is 22.7° C (73° F), with highs possibly reaching triple digits (USDA, SCS 1980). The total annual precipitation is 92.7 cm (36.5 in.) (USDA, SCS 1980). The prevailing winds are generally out of the south-southwest.

2.2. Physiography

Franklin County is located within the glaciated till plain of Central Ohio (Brockman 1998). The landscape varies from level to gently rolling hills. The Scioto River is the main waterway in Central Ohio. All of the other drainages in Franklin County eventually flow into the Scioto River, which in turn empties into the Ohio River. Elevation above sea level in the county ranges from 344 m (1,130 ft) in the northeast corner to 204 m (670 ft) along the southern boundary where the Scioto River exits the county (USDA, SCS 1980).

2.3. Geomorphology

Franklin County has been glaciated during at least two different glacial periods. The first being the Illinoian which occurred about 130,000-300,000 years ago, leaving a layer of fine, well-sorted sands (USDA, SCS 1980). The Wisconsin glacial episode occurred about 50,000-16,000 years ago (USDA, SCS 1980). When the Wisconsin glacier retreated it resulted in an abundance of sediment-laden melt water, creating gravel outwashes along the Scioto River and its tributaries (USDA, SCS 1980).

The surface deposits in the county are primarily ground moraine with thin bands of end moraine (Pavey et al 1999). Areas of ground moraine characteristically have nearly level to gently rolling landscape. End moraines are areas where the glaciers stopped for a period of time leaving behind an elongated pile of till. This resulted in end moraines being about 20 to 50 feet higher than the surrounding ground moraine. Other landscape features include kames and eskers. These hummocky hills are prevalent in the southern part of the county (Pavey et al 1999).

2.4. Geology

The bedrock underlying the glacial deposits in Franklin County is sedimentary in nature. The two systems present include the Devonian and Mississippian Systems (USDA, SCS 1980). The Devonian System, the older of the two, is present primarily in the western portion of the county and consists of dolomitic limestone, Columbus and Delaware limestones and Ohio and Olentangy shales (USDA, SCS 1980). The limestone is located mostly along the Scioto River Valley and the shale is located along the Olentangy River Valley (USDA, SCS 1980). The Mississippian System is present in the eastern portion of the county. This system consists of mostly alternating beds of Bedford shales, Berea sandstone, Sunbury shale, and Cuyahoga sandstone (USDA, SCS 1980).

2.5. Hydrology

The principal waterway of Franklin County is the Scioto River. Its numerous tributaries include the Olentangy River and Darby, Walnut, Blacklick and Alum Creeks. All of these drainages flow south to the Ohio River (Sherman 2000[1925]).

2.6. Soils

The project area is contained within the Bennington-Pewamo soil association. The Bennington-Pewamo soil association typically consists of deep, nearly level and gently sloping, somewhat poorly drained and very poorly drained soils, which are formed mainly in medium textured and moderately fine textured glacial till (USDA, SCS 1980). The specific soil types found within the project area are Bennington urban land complex (BfA) and Pewamo urban land complex (Pn) (USDA, SCS 1980). The Bennington soils are somewhat poorly drained and the Pewamo soils are very poorly drained (USDA, SCS 1980).

2.7. Fauna

Central Ohio's rolling hills and numerous waterways provide an environment where faunal populations can thrive. The diverse habitats of open prairie, swamps, and dense forests create a habitat for a very diverse group of wildlife. Some of the common mammal species that were prevalent in Central Ohio prehistorically include: black bear, elk, wolf, woodland bison, white-tailed deer, red fox, bobcat, beaver, muskrat, groundhog, opossum, raccoon, rabbit, squirrels, various members of the weasel family and skunks. This list is not comprehensive, but it covers the mammals that appear in the archaeological record more frequently (Funk 1993). One major change in the faunal population from prehistoric times to historic times is a decrease in population of large mammals and predators. Historic peoples during the late 1700's and 1800's found the large predators such as the wolf and black bear a nuisance and a very definite danger to themselves and their livestock. Some animal numbers have been greatly increased due to modern changes to the environment. The white-tailed deer are more plentiful now than ever in their history. The main reason being farmlands make ideal habitats for them, as it provides excellent cover and a steady food supply.

2.8. Flora

Central Ohio is characterized as being primarily Beech Forest with small dispersed areas of Elm-Ash Swamp Forests, Prairie Grasslands, Sphagnum Peat Bogs and Mixed Oak Forests (Melvin 1970). Trees found in this region include members of the oak, maple, ash, and locust families. Nut trees, such as black walnut, hickory, hazelnut, and butternut are present in the forests. Trees that are found in wet/swampy habitat would include elms, ash, box elder, buckeye, hawthorn and sassafras. This list is not exhaustive, but it includes the trees most commonly encountered in Ohio. Prehistoric and historic peoples utilized a large number of plants in Ohio. Some of the plants used for medicinal purposes include: wild leek, turtlehead, great lobelia, goldenseal, yarrow, horsetail, and Solomon's seal. Many native plants were also used for food, such as, arrowhead, wild leek, chickweed, goosefoot, maygrass, blackberry, elderberry, wild garlic, cattail, wild ginger, wild onion, cucumber root, and wild strawberry (Henn 1998, Murphy 1990).

III. Prehistoric Cultural Setting

3.1. Introduction

Ohio has a long culture history dating back to the end of the last ice age. The following text is meant as a brief introduction to what is known of the unrecorded prehistoric period in Ohio. This summary is merely meant as an introduction to the various cultures and artifacts which may be encountered during the current cultural resources management investigation.

* The date ranges for each period are the result of numerous chronometric dates taken from various sites across the Midwest and the end and beginning dates are estimations which are subject to change as new sites are identified.

3.2. Paleo-Indian Period: 10050-8050 BC

It is generally accepted that the Paleo-Indians migrated to this area from the Southwest and Plains states. These nomadic people traveled in small groups hunting and gathering. In addition to the rather sparse plant foods, many types of animals were hunted. They hunted and butchered mammoths and mastodons but it appears that they killed weakened or wounded individuals as well as scavenged carcasses. Other large mammals that may have been hunted include giant beaver, giant ground sloth and bison. In addition to the mega-fauna, caribou, elk and rabbit have all been located in dated Paleo-Indian contexts. Archaeological evidence recovered from eastern Paleo-Indian sites has confirmed the use of nut and berry resources by these early inhabitants (Hooge and Lepper 1992).

Paleo-Indian sites are typically located near kettle bogs, end moraines and glacial kames (Tankersley et al. 1990). In Ohio, the majority of the Paleo-Indian sites are comprised mostly of isolated find spots of fluted points (Prufer and Baby 1963). Other site types include small campsites, chert quarries, butchering and kill sites. Sites which may be associated with habitation are usually located on hilltops and bluffs which overlook the larger tributary valleys.

Paleo-Indian artifacts include fluted projectile points, lanceolate shaped projectile points, drills, burins made on flakes and broken points, denticulates, alternately beveled knives, backed knives, unifacial knives, square knives, unifacial endscrapers with and without graver spurs, sidescrapers, pitted stones and adzes to name a few of the more common cultural trappings (Gramly 1992, Converse 1973). Subsurface features and evidence of structural remains are exceedingly rare from this period.

3.3. Archaic Period: 8050-300 BC

3.3.1. Early Archaic Period: 8050-4550 BC

With the recession of the glacier and the extinction of the Pleistocene mega-fauna, the Early Archaic Indians faced some major changes. Broad leaf forests were replacing the spruce and pines that previously dominated the terrain. Increasing dryness and warming made large, previously inhospitable tracts of land available and opened up the majority of Ohio to settlement. More space, combined with the increasing sources of food, led to a sustained population growth throughout the Archaic. Archaic populations had base camps which were centrally located for the best access to the most resources (Chapman 1985). From these base camps smaller groups or individuals would make forays to collect resources to bring back to the base camps (Chapman 1985). During the winter, small family groups would radiate out from the base camp, returning again when resources were more plentiful. Early Archaic groups were still nomadic in nature, much like the Paleo-Indians of the preceding period.

With the expansion of the broadleaf forests, plant foods became more prominent in the diet (Fagan 1995). In addition, herd animals became the focus of hunting. Deer, elk, caribou and bison were probably the main sources of protein. Smaller animals that are common today such as rabbits, squirrel, mink, fox and others were also important for their meat as well as fur.

Early Archaic artifacts include large beveled knives such as Dovetails (St. Charles), Thebes and Lost Lakes, Kirk varieties, and bifurcated points such as Lake Eries, MacCorkles and LeCroys (Justice 1987, Converse 1973). Tools found on Early Archaic sites include endscrapers, sidescrapers and utilized flakes among others. Groundstone and slate artifacts became common during this period for the first time. These included various axes, chisels, gouges, and bannerstones. Early Archaic artifacts are found throughout the state in geographically diverse environments and made from many different flint types. This would seem to indicate that Early Archaic populations were utilizing a wider range of food sources and habitats than previously exploited in the Paleo-Indian Period.

3.3.2. Middle Archaic Period (4550-3050 BC)

The Middle Archaic Period in Ohio is not very well understood. Many Middle Archaic sites within Ohio consist of isolated finds and small lithic scatters only identifiable as such based on the recovery of diagnostic point types.

This period occurs at the end of a warm, dry trend known as the hypsithermal climatic interval. The drying of the environment led to a decrease in forests, which were being replaced by grasslands. This in turn led to technological developments to deal with the more arid environment. In more northerly climes like Michigan this period is marked by a transition from a spruce to pine to deciduous forest (Fitting 1970). Important sites from this period are all located well south of the Ohio region. New groundstone implements such as pitted anvils, grinding stones and pestles make their appearance. These appear to be a result of utilizing more plant foods, especially nuts and starchy seeds that become more common with the drying of the environment. Whitetail deer and turkey were the most important game animals. Riverine resources such as shellfish, fish and waterfowl were also important. The ephemeral nature of most Middle Archaic sites in Ohio suggests a low population with high mobility. It has been postulated that during this time period the lack of Middle Archaic type sites is best explained by a lack of environments to which the Middle Archaic people were best adapted (Fitting 1970).

Middle Archaic artifacts which may be encountered in Ohio include; Eva points, Morrow Mountain points and White Springs points. The ranges for these are all limited to extreme southern Ohio along the Ohio River (Justice 1987).

3.3.3. Late Archaic Period: 3050-300 BC

During the Late Archaic Period, rising waters from the melting of the last of the glaciers created a focus on riverine environments. Plant foods seemed to gain importance and a population increase followed accordingly (Fagan 1995). A more sedentary lifestyle is evident with good examples of storage pits and re-occupied base camps. Pottery was first introduced in the Southeast during this period around 2500 BC (Fagan 1995). It is also during this period that rather unique culturally based mortuary expressions are first seen.

The Glacial Kame Culture (2950-2450 BC) is a unique burial cult of the Late Archaic Period. It was labeled based on the way the dead were buried in the gravelly glacial deposits of the same name. It is most common in the northwest part of the state. This culture was involved in the importation of exotic trade goods. Conch shells were brought from the coasts, cannel coal from Southern Ohio and copper from the Upper Peninsula of Michigan. Some of the burial items recovered include; sandal sole gorgets, shell gorgets, copper celts and awls, birdstones, humped back gorgets and constricted center gorgets (Converse 1979).

Late Archaic artifacts include the following point types; various Brewerton, Matanzas, Table Rock, Bottleneck, Lamoka, Karnak, McWhinney, Ashtabula, Turkey tail and Meadowood points (Justice 1987). Slate gorgets are first present during this period and are often found as burial goods. Many of these point types have overlapping distributions indicating a lot of movement between peoples and a high diversity of tool types.

3.4. Woodland Period

3.4.1. Early Woodland Period: 500 BC-100 AD

The Early Woodland Period is sometimes known as the period of the Adena Culture. The Early Woodland period is marked by changes in subsistence practices, social organization, cultural traits and regional exploitation of resources. The Early

Woodland populations likely followed a hunter-gatherer subsistence pattern with a greater reliance on gathering. There also appears to have been a primitive form of social hierarchy beginning among populations of the Early Woodland period. It is during the Early Woodland period that the practice of constructing earthen mounds for burial practices first begins. It is also during this period that a greater degree of regionalism and territorialism is seen.

It is during the Early Woodland period in Ohio that the use of ceramic vessels becomes common. These early ceramics are usually quite thick and usually poorly fired. The ceramics were often flat-bottomed vessels with lug handles. Often, cordmarking is present on the exterior and interior of the vessel. Latter ceramic designs include stamped designs and incised lines (Tuck 1978). The practice of building earthworks and burial mounds also first appears during the Early Woodland period.

The construction of residential dwellings as well as the increased use of ceramics is often used to suggest an increase in sedentism of the Early Woodland populations. The Early Woodland peoples also appear to have had established home ranges which a single political unit (likely the family) would exploit for providing the necessary resources for survival.

Artifacts which are considered to be diagnostic of the Early Woodland (Adena Culture) of Ohio include weak-shouldered lobate-stemmed spear or dart points such as Cresap Stemmed, Kramer, Robbins, Dickson Contracting Stemmed, and Adena Stemmed projectile points, bar and keel shaped gorgets, cigar-shaped and block-end-tube smoking pipes, quadriconcave gorgets, bi-concave gorgets, elliptical gorgets, indented gorgets, loafstones, bar amulets, keyhole pendants, bell-shaped pendants, boatstones, bust-type birdstones, and expanding center gorgets (Webb and Snow 1945; Webb and Baby 1966[1957]; Dragoo 1963, Converse 1978).

3.4.2. Middle Woodland Period: AD 0-450

The Middle Woodland period is perhaps one of the most visible of all of Ohio's prehistoric populations due to their construction of large-scale geometric earthworks. For this reason, the Middle Woodland period of Ohio is often thought of as the period of the Hopewell culture. The Hopewell culture practiced an elaborate mortuary cult that involved mound and earthwork construction, the importation of exotic trade goods, elaborate ceremonial items and cremation practices.

It is during the Middle Woodland period that there appears to be an increase in the levels of social organization as evidenced by the burial populations and associated burial items, which have been recovered. However, the burial populations are limited and do not appear to include any individuals of the perceived lower classes of Hopewell society.

The Middle Woodland period is also noted for its monumental architecture in the form of large geometric earthworks. These shapes include circles, octagons and squares and more symbolic forms such as a bear paw, a menorah-like form, a horseshoe-like form

(Atwater 1820; Squier and Davis 1848), and even what appears to be an outline of a giant Hopewellian House for the Dead [Mound City] (Shumaker 1965). The Hopewell peoples also constructed large earthen enclosures which were often placed in specific locations to take advantage of natural features such as is seen at Fort Hill in Highland County and at Fort Ancient in Warren County.

The ceramic technology becomes more refined during the Middle Woodland period. The ceramics which are produced by the Middle Woodland populations are thinner walled than that of the Early Woodland and are better fired. The highest quality ceramics are often recovered in burial mound contexts. The utilitarian ceramics are more rarely encountered. This is likely due to the poor preservation factors at most of these habitation sites (Licking County Archaeological and Landmarks Society [LCALS] 1985).

Artifacts which are considered to be diagnostic of the Middle Woodland (Hopewell Culture) of Ohio include projectile points such as Snyders, Steuben Expanded Stem, Bakers Creek and Chesser Notched. Other items which are considered diagnostic are bladelets, prepared bladelet cores, squared celts, rectangular two-hole gorgets, expanding center gorgets, boat shaped gorgets, reel-shaped gorgets, boatstones, anchor pendants, shovel-shaped pendants, pentagonal pendants, trapezoidal pendants, cones, and bust type birdstones, among other items.

3.4.3. Late Woodland: A.D. 450-1000

The Late Woodland period is markedly different from the preceding prehistoric periods in Ohio. During the Late Woodland period, regionalism of specific cultural groups becomes apparent in the archaeological record. The evidence of long distance trafficking of exotic trade goods is no longer as prevalent as it was in the preceding Middle Woodland period. Late Woodland populations practiced agricultural oriented subsistence practices. The crops produced by these populations included maize, beans, sunflower and squash. Other features of Late Woodland life included living in more permanent villages, some of which were surrounded by palisades that were for defensive purposes. There are several phases of the Late Woodland period in Ohio as well as several distinct cultural manifestations.

Newtown Culture AD 450-1000

The Late Woodland Newtown Culture (AD 450-1000) is considered to be the predecessors of the Fort Ancient people (Cowan 1987). They lived in seasonally occupied, circular villages along rivers. Unlike the later Fort Ancient peoples the Newtown Culture did not appear to build palisades around their villages (Cowan 1987). These people were still primarily hunter-gatherers but also practiced garden horticulture. Many new innovations were introduced during this period such as the bow and arrow, shell tempered pottery and maize agriculture.

3.5. Late Prehistoric: AD 1000-1600

The Late Prehistoric period is marked by a move to larger, more permanent villages, full blown agriculture, particularly corn, and an apparent increase in warfare. Late Prehistoric sites seemed to focus on fertile, easily tilled river valleys or coastal areas (Brose et al 2001). The Late Prehistoric period in Central Ohio is sort of an enigma. With the Fort Ancient Culture developing in the south, Monongahela in the East, Whittlesey in the northeast and Western Basin in the northwest, Central Ohio seems to have served as a buffer between these different cultures. It is well known that large portions of the Eastern North America were unoccupied during this time (Brose et al 2001). Central Ohio seems to be one of those largely unoccupied areas.

IV. Historic Setting

4.1. Protohistoric to Historic

During the mid 1600's, European traders and explorers traveled through the Great Lakes region in search of pelts for the lucrative fur trade. The French primarily traded with the Great Lakes Indians, while the English concentrated on trading with the Iroquois and other groups east of the Great Lakes. The first recorded village in Ohio, Teanontoria was located on the western bank of the Maumee River (Tanner 1987). The Tionontati Indians occupied it in 1652-1653 (Tanner 1987). In the 1670's, three recorded Shawnee villages on the banks of the Little Miami also appear in Ohio (Tanner 1987). The Iroquois Wars of 1641-1701, were sporadic hostilities that covered a large area from the Plains to New England and into Canada. The fur trade played a major role in Iroquois aggressions towards their neighboring native populations. The large quantities of furs east of the Great Lakes had become depleted and were no longer able to support the Five Nations. They began to move westward into the land of the French and their allies. The Iroquois' westward expansion was greatly aided by the supplied firearms from the British. The Hurons, being decimated by the Iroquois, sought refuge among the Erie of Ohio and other native groups. Later the Iroquois expelled the Erie from their lands in northern Ohio (Tanner 1987). During the 1870's, the Iroquois were being ravaged by European diseases and could no longer sustain their widespread attacks. This gave the Great Lakes Indians and their French allies time to rebuild their numbers and defenses, thus ending the Iroquoian threat.

During the early to late 1700's, the French and British rivalry over the Indian trade had hit its peak. The French concentrated their trade on the Mississippi and the area surrounding Detroit. Using the numerous waterways for transportation they spread their trade across the Great Lakes region. The British concentrated mainly in the town of Albany in New York (Tanner 1987). In Ohio at this time, the Shawnee Indians began to consolidate its scattered groups in the lower half of the state. In the 1750's, the French and Indian forces fought the British at Pickawillany, capturing British traders and a Miami leader (Tanner 1987). The French then began to move south into Kentucky and into eastern Ohio, securing trade with the Indians. They remained in control of the trade in Ohio until the beginning of the Seven Years War in Europe. The conflict between France and Great Britain climaxed in the French and Indian War of 1754-60 (Tanner 1987). The war began with the defeat of General Braddock's British forces at Fort Duquesne in 1755 (Tanner 1987). The Great Lakes Indians supported the French as a way to stop the land hungry British from taking more Indian lands. The Indians concentrated their attacks on the British outposts and small settlements, also sending large numbers to aid the French battling the British militia. The final battle of the French and Indian War took place in Montreal on September of 1760 (Tanner 1987). With the French capitulation, and surrender of all military posts, the British gained full control of the trade routes. In 1763, Great Britain was granted the Ohio lands under the laws set forth in the Treaty of Paris (Tanner 1987).

The Ohio lands consisted of at least six different tribal groups circa 1768. The Ottawa and Miami were located in the northwest. The Shawnee were located primarily in the southwest. The Wyandot were located in the north-central part of the state. The Delaware and Mingo were in the eastern half of the state. The conflicts between the tribes had lessened considerably due to their concerns with the British. In 1795, the Treaty of Greeneville was established to move all native peoples north of the 42nd parallel (Tanner 1987). The last major development involving the Ohio Native Americans, British and Americans was The War of 1812. The battles that ensued culminated in the defeat of the British and the Indians being sent to reservations in Northwest Ohio.

4.2. Franklin County History

The first American to survey Franklin County was Lucas Sullivant in August of 1797 (Martin 1858). Sullivant was also the first settler to erect a cabin in what would later be known as Franklinton that same year. Other early settlers include the Armstrongs, Brickells, Dixons, Donigans and Marshals (Martin 1858). Franklin County was laid out on April 30, 1803, although its borders were not made official until 1857 (Moore 1930). Many of the early settlers arrived from Pennsylvania, Virginia and New England. Most of the early settlers were of German, Irish and English decent.

Other settlements began to emerge adjacent to the Scioto and Olentangy Rivers. The town of Worthington, named after the early statesmen, Thomas Worthington, was settled in 1803 on the banks of the Olentangy River. Columbus became the state capital in 1812, due to its central location and strong development (Moore 1930). In 1818 the town of Dublin was organized on the banks of the Scioto River and was an early contender for the title of capitol (Moore 1930). The Ohio-Erie Canal built in the early 1830's passed through the Southeast corner of Franklin County. In 1834, the National Road (State Route 40) was constructed through the center of Franklin County and passes by the Capitol building (Moore 1930). During the mid- to late 1800's numerous small villages and towns began to emerge along the small waterways and new transportation routes. Franklin County is one of the most developed and heavily populated counties in Ohio. Franklin County is home to a wide array of national companies, large industries, state agencies, and numerous universities.

4.3. Mifflin Township History

Franklin County was divided into townships in 1803. Mifflin Township was contained within Liberty Township, until it was separated out in 1811. Between 1799 and 1800 settlers from Pennsylvania were the first to reside in the township. Because the settlers originated from Pennsylvania, the township was eventually named in honor of the Governor of Pennsylvania (Moore 1930). These first settlers included Judge William Read, William Simmons, Frederick Agler, George Baughman, Daniel Turney, Matthias Ridenour, and Ebenezer Butler (Moore 1930). Later settlers included John Scott, Stephen Harris, Stephen R. Price, Henry Hawken, Samuel Gillet, John Hawken, James Smith, David Beers, John Starret, A. W. Jeffries, and Philip Klein (Moore 1930).

Gahanna was founded in 1849 by John Clark of Ross County (Moore 1930). Gahanna was named after the original name of Clark's 800 acre property, Gahanna Plantation. The root of the name originates from a Native American word for three creeks that join into one and is also the former name of Big Walnut Creek (Moore 1930).

The earliest sawmills were the Dean Mill and Old Park's Mill, both erected before 1820 (Moore 1930). Around 1835 a sawmill was built on Big Walnut Creek by J. J. Janney and another was also built by A. McElvain. In 1849, in the town of Gahanna, the first post office was established. Another post office was built at Park's Mill, on Alum Creek, in 1851 (Moore 1930).

V. Literature Review

5.1. Introduction

The literature review encompasses a circular area of 2.0 km (1.2 mi.) in diameter centered on the project area. This area includes portions of the United States Geological Survey (USGS) *1964 (Photorevised 1982) Northeast Columbus, Ohio, 7.5 Minute Series (Topographic)* map.

5.2. William C. Mills' *An Archaeological Atlas of Ohio* (1914)

In the early part of the past century the director of the Ohio Archaeological and Historical Society, William C. Mills, produced a generalized map of mound and site locations at the county level through personal inspection and correspondence. Franklin County contained 132 mounds, 28 enclosures, 6 villages, 20 burials and 1 cache (Mills 1914). Examination of William C. Mills' *An Archaeological Atlas of Ohio* (1914) failed to locate any such resources located in the project area (Figure 3).

5.3. Ohio Archaeological Inventory (OAI) Forms

A review of the archived OAI forms stored at the Ohio Historic Preservation Office (OHPO) was conducted to get the necessary background information. This review identified a total of 27 previously recorded archaeological sites (33-Fr-86-87, 89, 92-93, 111-113, 975-979, 1334, 1491-1492, 1573-1581, 1828 and 2525) located within the aforementioned study radius.

Most of the previously identified sites were related to the prehistoric period (n=12). About a quarter were historic period sites (n=7) and the remaining sites contained both prehistoric and historic aspects (n=8). A few of the sites contained artifacts that were diagnostic to a specific time period.

Archaeological site 33-Fr-1828 is located within the project area. This site contains the foundation remains and a small scatter of historic artifacts related to a destroyed early 20th century house. Surprisingly only 5 artifacts were recovered from this site. The site was identified during a Cultural Resources Management Survey for a project that was never completed (Weller 2000).

5.4. Ohio Historical Inventory (OHI) Forms

A review of the archived OHI forms stored at the OHPO was conducted prior to the initiation of fieldwork. A total of 26 historic buildings and structures were identified in the study radius. The Wallick House (FRA-2605-12) and Barn (FRA-2606-12) are located in the project area and are described in the National Register of Historic Places section as the Elam Drake house. No other historic buildings are located in or adjacent to the project area. Most of the houses are located along Stelzer Road to the northeast and Sunbury Road to the west.

5.5. National Register of Historic Places (NRHP) Files

A review of the archived NRHP files stored at the OHPO was conducted prior to the initiation of fieldwork. The Elam Drake house was noted as being located within the project area along Ole Country Lane. This house was noted for its architecture and for it's relation to Elam Drake, an early brick mason responsible for the manufacture of many of the early brick homes and stores in Columbus. He also reputedly made many of the bricks that he used on this farmstead.

The Valley Dale Ballroom was also contained within the study radius. This building is renowned as an early dancehall active during the "Big Band" era. A number of famous musicians were known to have played there. This building is located on the west side of Alum Creek with a heavily wooded border between it and the project area. It seems unlikely that this building will be affected by this project.

A Consensus Determination of Eligibility file was discovered for a building located at 1388 Sunbury Road. This building is located on the opposite side of Alum Creek southwest of the project area. It is unlikely that it will be affected by this project.

5.6. Cultural Resources Management (CRM) Reports

A review of the archived CRM reports stored at the OHPO identified nine CRM surveys that had been previously conducted within the study radius. These reports are as follows;

Biehl, S.
1998 *Phase I Cultural Resources Management Investigation of the 2.725 ha (6.734 a.) Proposed Construction Site for the Providence Glen Apartments and the Corban Commons Apartments in Mifflin Township, Franklin County, Ohio.*

Brown, J.
2002 *Addendum to the Literature Review and Reconnaissance Survey of the Proposed Improvements along Stelzer Road from Morse Road to Interstate 670 in Blendon and Mifflin Townships, Franklin County, Ohio (PID 12399).*

Derick, S.
2004 *Phase I Cultural Resources Management Investigations for the approximately 18.21 ha (45 a.) Village at Stonecliff in the City of Columbus, Franklin County, Ohio.*

Earth Tech
1997 *Cultural Resources Investigation for Air Force Plant 85 Columbus, Ohio.*

Gibbs, K. J., A. Scott and A. Tonetti
2001 *Phase I Cultural Resources Survey for the Proposed Improvements to the Stelzer Road/International Gateway Interchange at Port Columbus International Airport in Mifflin Township, Franklin County, Ohio.*

Kramb, A. and R. J. Weller
1999 *Phase I Cultural Resources Management Investigation for the 25.6 ha (63.3 a.) Proposed Construction of the United States Postal Service Facility in Mifflin Township, Franklin County, Ohio.*

McDaniel, G., D. Dobson-Brown and R. Corso
1992 *Literature Review and Reconnaissance Survey of the Proposed Improvements along Stelzer Road from Morse Road to Interstate 670 in Blendon and Mifflin Townships, Franklin County, Ohio.*

ODOT, BES
1978 *Archaeological Survey Report FRA-670-3.93/3.94/3.95.*

Seitz, S. and C. Mustain
2005 *Phase I Archaeological Resources Survey for the Proposed New Alignment of International Gateway at Port Columbus International Airport (FRA-670-8.87) in Mifflin Township, Franklin County, Ohio.*

5.7. Historic Atlases and Topographic Maps

Atlases, pertinent histories, 15' series topographic maps and 7.5' topographic maps for Mifflin Township, Franklin County were researched for location of historic buildings and for past owners and their possible historical significance.

The earliest atlas to be found for Mifflin Township is the *Franklin County, Ohio* map (Wheeler 1842; Figure 4). This atlas does not indicate the location of buildings but does name early property owners. This atlas indicates that an A. McElvain, P. Price and J. F. Drake formerly owned the project area.

The Mifflin Township portion of the *Map of Franklin County, Ohio* (Graham 1856; Figure 5) indicates landowners, acreage, as well as building locations. This atlas indicates that the project area was formerly owned by Katzmeier's Heirs, Saml Powell, Elam Drake, A. Hall. Wm Ronmebbey?. Houses are indicated on the E. Drake property, the S. Ebnet property and a schoolhouse is also indicated adjacent to the Drake property.

The Mifflin Township portion of the *Atlas of Franklin County and of the City of Columbus, Ohio* (Caldwell 1872; Figure 6) indicated that the project area was owned by E. Drake, A. Guider, S. Ebnet, S. Powell, J. A. Hall, Wm. St. Schatt, E. Kent, C. Guider and J. O. Diemer. Houses are indicated on the Drake property, the S. Ebnet property and a schoolhouse is also indicated adjacent to the Drake property, although it may be outside the project area.

The *Map of Franklin County, Ohio* (Brand 1883, Figure 7) does not show buildings but does give acreage and in some cases, mound and earthwork locations. This atlas indicates that Elam Drake, Saml Powell, Wm. Schau, S. Ebner, Hall, Beck and Guider own the project area and no mounds or earthworks are indicated.

The USGS *1902 Westerville Quadrangle, Ohio, 15' Series (Topographic)* map (Figure 8) indicates that as many as five houses could be located within the project area. Four of the houses are off of what is now Ole Country Lane Road and the other is located along Cassady Avenue. The *1995 Northeast Columbus Quadrangle, Ohio, 7.5 Minute Series (Topographic)* map indicates that there are as many as nine houses located in the project area.

Review of the Mifflin Township histories identified A. McElvain as an early but failed sawmill owner. McElvain is indicated as a landowner on the 1842 atlas (Wheeler 1842), however the sawmill was obviously located on Alum Creek well outside the project area. No houses or buildings are indicated on the McElvain property on any of the maps that were consulted.

VI. Research Design

The research design is a series of general questions used to direct the fieldwork by focusing the efforts towards a specific goal. The goal of this particular project is to locate, document and evaluate for the National Register of Historic Places all the cultural resources which may be located within the project area. The research design draws on the information gathered from the environmental situation, prehistoric and historic settings, locally specific literature review, historic maps and atlas review and authors' experience in the region. These factors are taken together to form a series of general research questions that are formulated prior to the initiation of fieldwork. The goal of the research questions is to develop expectations as to where and why cultural resources are located within the project area.

6.1. Fieldwork Methodologies

There are three basic methodologies that may be utilized during the fieldwork portion of these investigations; visual inspection, surface collection and subsurface investigations. The use of each methodology is dependent on the conditions experienced in the field.

6.1.1. Visual Inspection

All portions of the project area will be subjected to visual inspection. Visual inspection will be utilized to identify any structures, buildings, objects, or properties that are over 50 years old. It will also be used as a supplementary form of investigation to examine portions of the project area that may be steep, disturbed, or saturated.

6.1.2. Surface Collection

Any portions of the project area which offer sufficient bare ground surface visibility (>50%) will be subjected to surface collection methodologies. Surface collection will be conducted through pedestrian transects which will be paced at 3 m (10') intervals. Where possible, all encountered artifacts may be initially flagged with pin flags for the purpose of defining spatial distribution of encountered archaeological sites. The pin flags will also allow the Principal Investigator to review the locations of the artifacts and to determine if concentrations, densities, or clusters are apparent on the inter-site level. If the Principal Investigator deems that there are no concentrations, densities, or clusters present at the encountered site, then the location and boundaries of the site will be plotted on a map and the artifacts will be grab sampled. If the Principal Investigator observes concentrations, densities, or clusters at an identified site then the artifacts will be collected by grid blocks, or the artifacts will be piece plotted.

6.1.3. Subsurface Investigation

All portions of the project area which do not offer sufficient bare ground surface visibility (<50%), and are less than 15 degrees slope will be investigated through subsurface testing methodologies. Subsurface testing in the form of shovel test units will be performed at 15 m or 50 ft intervals in the form of a grid system across the whole of the project area except in areas of low probability. If the project consists of a corridor, units will be excavated at 15 m or 50 ft intervals along the length of the corridor except in areas of low probability. Areas of low probability include areas such as those that are seasonally inundated and poorly drained. In this case intervals may be increased at the discretion of the field supervisor. Also, the areas immediately surrounding known historic structures may be excavated at decreased intervals due to the increased probability of remains. These shovel test units measure .5 m x .5 m (1.6 ft x 1.6 ft). All soil from each unit will be screened through .25 in^2 hardware cloth. The artifacts from each unit will be bagged and labeled as such. The floor of each unit will be scraped level and examined for subsurface features. Any cultural features identified within a shovel test unit will be exposed, troweled and cleaned for pictures and a plan view drawing. Depending on the size and location of the feature it could either be quartered or halved and excavated by hand with appropriate profile drawings and pictures taken. If stratified fill is evident then the remaining portions of the feature could be excavated accordingly. A sample of fill measuring 3 liters (size permitting) will be collected for the purpose of flotation to recover organic remains (primarily prehistoric features). A portion of the feature not to exceed one half of the total size may be left *in situ* at the discretion of the field supervisor.

6.2. Artifact Analysis Methodologies

6.2.1. Prehistoric Period Artifact Analysis Methodology

After the completion of the fieldwork, trained personnel will conduct a detailed analysis on the artifacts that are recovered. All of the artifacts that are recovered will be maintained and inventoried by site designation. The artifacts that are non-diagnostic in nature will be classed into their functional attributes (described below). The analyses that will be conducted on the temporally diagnostic prehistoric artifacts that may be recovered from the project area will be based upon various projectile point and tool form typology sources and guides which will include but may not be limited to Bell (1958, 1960), Converse (1973, 1974, 1978, 1994), DeRegnaucourt and Georgiady (1998), Fogelman (1988), Gramly (1992), Justice (1987), Perino (1968, 1971) and Waldorf and Waldorf (1987). A chert type analysis will also be performed on all of the chert artifacts that are collected based solely on the macroscopic attributes of each type.

6.2.2. Artifact Functional Categories

The following are definitions of the artifact functional categories, which will be used during the artifact analysis. These definitions will aid in the interpretation of the function expressed at the prehistoric sites that were encountered during these CRM Investigations. These definitions are modeled after Flenniken and Garrison (1975).

Primary Reduction Artifacts

Core: A core is a block of stone (usually chert) which shows evidence of manipulation by humans. Cores have at least one, but usually multiple, flake scars that are the result of hard hammer percussion strikes to create blanks for the purpose of tool production. The striking platform may or may not show evidence of preparation.

Primary Decortication Flakes: This type of flake is characterized by having cortex or a weathered surface on the dorsal side of the artifact. The cortex or weathering covers an area of 50 percent or greater on the dorsal side. These flakes are usually caused by direct percussion techniques. These artifacts are the results of (1) checking a core for the quality of knappable chert, and (2) preparing a core for the removal of serviceable flakes for tool production. These types of artifacts often exhibit numerous flake scars or crushing at the platform due to prior failed attempts to remove the cortex.

Secondary Decortication Flake: This artifact type is characterized by having an area of less than 50 percent of the dorsal side of the artifact covered with a cortex or weathered surface. They also exhibit flake scars on the dorsal side from the removal of the primary decortication flakes.

Secondary Reduction Artifacts

Primary Thinning Flake: This artifact type represents the initial mode of the reduction of a blank, struck from a core, into a useable biface. These flakes usually lack cortex on the dorsal side of the flake. These artifacts are usually the result of hard percussion hammering at steep striking angles. They often have rather prominent platforms and bulbs of percussion on their ventral sides due to the stone or billet reduction techniques.

Secondary Thinning Flake: These artifacts often show numerous flake scars on the dorsal side due to the previous removal of lithic material during prior modes of bifacial reduction. These flakes are usually smaller and thinner than primary thinning flakes and are created through the implementation of soft hammering techniques such as the use of a billet, or through pressure flaking with an antler tine. Some secondary thinning flakes have a "v" shaped wedge on their proximal edge. This wedge is the result of the knapper over striking his mark during the reduction process.

Non-Attributable Reduction Artifacts

Shatter/Blocky Irregular: These artifacts are cubical and irregularly shaped pieces of lithic material which lack platforms and do not show clear negative or positive bulbs of percussion or associated features of conchoidal fractures.

Broken Flake: These artifacts, as the name suggests, are broken. They lack the diagnostic attributes, which allow them to be classed into a functional category such as a bulb of percussion, platform, flake scars and the artifacts original shape.

Finished Tool Forms

Utilized Flake: These artifacts, as their name suggests, are flakes that have been used as expedient tools. These flakes will show evidence of modification through intentional use. These artifacts include side scrapers, endscrapers, burins, denticulates, gravers, and basically all unifacial tool forms.

Biface: These artifacts are produced through the initial and secondary reduction methods already discussed. This artifact category includes all unfinished tool forms, which are modified on both the dorsal and ventral sides of the artifact. The artifacts in this category range from slightly bifacially modified blanks, to almost finished artifacts which only lack the diagnostic basal treatments.

Finished Biface, Diagnostic: As the category name suggests these bifaces have identifiable basal treatments, which allow them to be placed in a temporal framework to aid in interpretation of archaeological sites. These artifacts are commonly called points and knives.

Finished Biface, Non-Diagnostic: As the category name suggests, these bifaces are broken or do not otherwise fit into an identifiable category and they show features, such as notches, stems, or sharpening which suggest they are finished bifaces. However, they are so fragmentary that they cannot be confidently attributed to a specific type.

6.2.3. Historic Period Artifact Analysis Methodology

After the completion of the fieldwork, an artifact analysis will be conducted by trained personnel, on the historic period artifacts that may have been recovered. Historic period artifacts will be maintained and inventoried by site. They will be typed through the use of various guidebooks and other resources for the purpose of determining the approximate age of the artifacts as well as to aid in site interpretation. The guidebooks and resources which will be used include, but are not limited to, the following: Ball (1984), DeBolt (1994), Feild (2001), Gurke (1987), Hume (1969, 1991[1969]), Ketchum (2000), Kovel and Kovel (1986a, 1986b), Lehner (1988), Majewski and O'Brien (1987), Manson and Snyder (1997), McAllister (2001), Newman (1970), Shuman (1998), South

(1977), Sussman (1977) and Thorn (1947). After an analysis has been performed and the artifacts have been inventoried, the site will be analyzed as to function, economic status of the inhabitants (when possible) and artifact patterning (when possible).

6.3. Background Information

A review of the archived OAI forms stored at the Ohio Historic Preservation Office (OHPO) was conducted in order to get the necessary background information. There were a total of 27 archaeological sites located within the aforementioned study radius. These consist of twelve prehistoric period sites ranging from isolated finds to small lithic scatters, seven historic period sites and eight prehistoric/historic sites.

The 14 sites with prehistoric aspects and detailed artifact inventories consist of five isolated finds and nine lithic scatters of between 2 and 33 artifacts. These sites averaged 7.7 prehistoric artifacts per site (n=108). This seems to be a good representation of the overall area.

The general pattern for the previously identified sites are short term transient type sites which are probably related to hunting and gathering forays into the uplands from larger semi-permanent base camps which were situated in and around the Alum Creek valley.

The Elam Drake house shows up in the central portion of the project area as early as the mid 19th century (Graham 1856; Figure 5). It is known from project mapping that the house is still standing and has been included onto the National Register of Historic Places. Another house and a schoolhouse are shown in close proximity to the Drake house at the same time but the schoolhouse does not show up on any project mapping and has likely been destroyed. Three buildings are shown in the vicinity of the home located west of the Drake house but it is unknown if they are related.

6.4. Expected Results

The average number of artifacts for the prehistoric sites located in the study radius was 7.7 artifacts per site. Because of the poorly drained nature of the project, it is expected that if prehistoric sites are identified within the project area they will be small lithic scatters consisting of ten artifacts or less but the project is generally considered low probability to contain prehistoric sites.

In addition to some modern housing the NRHP mid-19th century Elam Drake house is located in the project area. This historic home has never been subjected to archaeological testing and it is expected that archaeological deposits surround the house. Another mid-19th century house and a mid-19th century schoolhouse were once located in the project area. Both of these buildings have been destroyed and unless they were destroyed by I-670 construction it is expected that they will be located as archaeological sites.

A unique research design was drafted for this project under the advice of OHPO. It was determined that because of the poorly drained nature of the project area and it's general location in the uplands that based on similar studies in the surrounding region that it contained a low probability to include significant prehistoric remains. However, because of the presence of the NRHP Elam Drake house it was determined that an emphasis should be placed on the historic archaeology.

Judgmental sampling will be conducted on a 4.8 ha (12 a.) section of the project area on the eastern edge of the project area. This section of the project area was selected to be entirely tested using standard shovel testing methodologies, because according to the historic maps there were three buildings located in this area including the Elam Drake house. The area immediately surrounding the Elam Drake house would be tested at 5 m (16 ft) intervals to maximize the recovery of artifacts from this important historic site.

The remaining approximately 19.4 ha (48 a.) of the project area will be split into twelve equal blocks of 1.6 ha (4 a.) for random quadrat testing. These blocks were assigned numbers from 1-12 starting in the northwest corner and working to the east. Using a random number generator, Quadrats 3, 7, 8 and 10 were selected for testing. Since most of the prehistoric sites in the study area were small lithic scatters, it was expected that quadrats, rather than widely spaced transects would be more useful to confirm the assumption that the project is similar to other projects in the area. This research design has been approved in correspondence with OHPO.

6.5. Curation and Submission of Artifacts

In accordance with the property laws of the State of Ohio, all artifacts remain the property of the landowner till such a time as they relinquish their rights with the understanding that the artifacts will become the property of an acceptable curation facility. With the full cooperation of the landowner and pending acceptance of the artifacts by the selected curation facility, all artifacts will be washed and prepared for permanent curation. Until this time all artifacts will be stored in a temporary manner in a limited access facility under the direction of the Archaeological Division. These details will be addressed in a Memorandum of Agreement between CRAA and the signatory agencies.

VII. Field Work and Interpretation

7.1. Introduction

The fieldwork that was conducted for the approximately 24.3 ha (60 a.) potential automobile related facility in the City of Columbus, Franklin County, Ohio was completed in late October and early November of 2006. The weather conditions experienced during the fieldwork varied wildly from warm and dry to cold and rainy but only occasionally hindered fieldwork.

The project area is located in the City of Columbus, formerly Mifflin Township (Figures 1 and 2). It is located specifically in Township 1 North, Range 17 West.

7.2. Fieldwork

The ground cover of the project area presently consists of mature woods, grassy fields and overgrown residential yards (Exhibits 1-3). This ground cover necessitated the use of shovel testing strategies. Prior to beginning the fieldwork a testing strategy using probability sampling methods was developed. This testing strategy sought to scale down testing on areas that have been shown to have a low probability to contain archaeological sites, primarily based on the drainage capabilities of the soils types present in the project area. It was also felt that additional testing focused on the NRHP Elam Drake house would be of greater benefit to preservation efforts.

A two stage testing approach was planned for the project. This was felt to be a good balance of sample size and percent of the project being sampled considering the low probability of the project to contain prehistoric sites due to the poor drainage. Judgmental sampling would be conducted on a 4.8 ha (12 a.) section of the project area on the eastern edge of the project area. This section of the project area was selected to be entirely tested using standard shovel testing methodologies, because according to the historic maps there were three buildings located in this area, one of which was the Elam Drake house (Figures 9-10). The area immediately surrounding the Elam Drake house was tested at decreased intervals. A 5 m (16 ft) grid was set up around the Elam Drake house north to the barn to maximize the recovery of artifacts.

The remaining 19.4 ha (48 a.) of the project area was split into twelve equal blocks of 1.6 ha (4 a.) for random quadrat testing. These blocks were assigned numbers from 1-12 starting in the northwest corner and working to the east. Using a random number generator, Quadrats 3, 7, 8 and 10 were selected for testing (Figure 9). Since most of the prehistoric sites in the study area were small lithic scatters, it was expected that quadrats, rather than widely spaced transects would be more useful to confirm the assumption that the project is similar to other projects in the area.

Due to the unique method of testing the project area, a number of separate datum points were established for each of the different areas (Figure 9). Quadrat 3 is located in the southwest corner of the project along Cassady Avenue. The datum point for this 4 acre block is located in the southwest property corner. A portion of this quadrat was a grassy field, but the larger portion was actually wooded (Exhibits 1 and 4). Quadrat 7 was similar to Quadrat 3, except it was located in the opposite corner of this rectangular property parcel. The ground cover was also partially grassy field but primarily woods (Exhibits 1 and 4). The location of the units were paced so some human error is expected, however the woods were generally mature so the transects were able to be kept fairly straight.

Quadrat 8 is a rectangular section located along Drake Road in the north central portion of the project area. The datum point for this section is located at the northwest corner along Drake Road. This section was composed of scrub-brush (Exhibit 3). The shovel test units in this area were excavated using standard methodologies, although occasionally some shovel tests were shifted because of heavy undergrowth.

Quadrat 10 is located southeast of Quadrat 8 in the north central portion of the project area. This quadrat was partially wooded and partially scrub-brush. The datum point for this section was established at the northwest corner of the quadrat on the property corner between this parcel and a private business along Drake Road. The units in this area were paced and because of the thick undergrowth some error is expected, although it should not have a great effect on the statistical probability of encountering significant archaeological sites.

The entire eastern portion of approximately 4.8 ha (12 a.) was tested because of the likelihood to contain historic period remains. This is also the section that contained the Elam Drake house. Because of the tree lines that corresponded to the former property lines, this section was divided into three separate areas of testing. The easternmost area was a grassy field and the datum point was established at the northeast corner of the project area where Drake Road and Sterling Avenue intersect (Exhibit 2). It was believed that a historic schoolhouse would be located in this area based on historic atlases (Figures 5-6). No evidence of this school was located, which may be a result of matching very poorly scaled, hand drawn atlases with modern day survey maps. Shovel test transects were paced but since the field was open it is expected that they should very accurately adhere to the test grid.

The central field of the eastern portion contained the Elam Drake house (Exhibits 5-6). The Drake house was excavated at 5 m (16 ft) intervals with a datum point set up on a telephone pole. All of the shovel tests surrounding the Drake house were measured in using handheld tapes and a compass. The remaining portion of the central section is open field with a datum point at the northeast corner of the field. Testing followed standard methodologies in this portion of the project.

The western portion of the 4.8 ha (12 a.) section contained two houses. One of the homes was vernacular and the other was a ranch style home (Exhibits 7-8). The datum for this area is located at the southeast corner along Ole Country Lane. This area was tested using standard methodologies.

Most of the shovel test units excavated resembled typical soils types. There were, however, significant areas of soil disturbance found in the project area. The most obvious were the large areas of gravel around the Elam Drake house, particularly to the north of the barn (Exhibits 10-12). Some other sections of disturbance included areas around the other homes, along Ole Country Lane and along Sterling Avenue.

The area surrounding the project has been growing steadily with the expansion of commercial and retail business along Stelzer Road and at the Cassady Avenue/I-670 intersection. The houses located directly adjacent to the northern project boundary are generally small cape cod and ranch houses built in the post WWII housing boom. There is a house located in the northwest corner of the project area that was located in quadrat 1 that was not selected for testing. The house is a vernacular style with updates and upgrades that make it difficult to determine the age of the building (Exhibit 9). Regardless it is not a potentially eligible building.

These investigations identified three previously unrecorded archaeological sites (33-Fr-2639-2642) and a historic house (FRA-9622-12). These sites are described below.

7.3. Site Descriptions

33-Fr-1828

Although this site was not tested during the current fieldwork it was located within the project area along Cassady Avenue in Quadrat 2 (Figures 9 and 11). This site was identified during a Cultural Resources Management project in 2000 that was never submitted for review. It represents the remains of a mid 20th century house. Some foundation remains and a small scattering of historic artifacts were recovered from this site. The original recommendations for this site were that it was not potentially eligible. The artifacts recovered during the original work are listed below. The location of the foundation remains were confirmed during the walkover of the project, however no additional work was completed on this site.

Artifact	#
Ironstone backstamp	3
Decalware	1
Depression glass	1

33-Fr-2639

Archaeological site 33-Fr-2639 is the artifact scatter surrounding the NRHP Elam Drake house (Figures 9-11). This site was originally identified on the 1856 atlas map (Graham 1856). The house, smokehouse, barn, outhouse and garage are all still standing, although they are currently vacant and boarded up (Exhibits 5-6 and 12-15). The datum point for the excavations around this farmstead was established at a telephone pole located at the southwest corner of the project area (pole #35A279). The testing grid surrounding the house was set at 5 m (16.4 ft) intervals to maximize the sampling in what should be the most likely area to contain historic remains related to the house. Unfortunately, the biggest limiting factor to testing was the large amount of area that was graveled for the driveway and parking (Exhibits 10-12). Efforts to identify clay pits that Elam Drake reportedly used to locally manufacture many of the bricks he used were largely unsuccessful. Although purely speculation, the large pond that sits just east of the house may be one such pit (Exhibit 16). No other prospective clay pits were identified, although they may have long ago been filled in.

A minor prehistoric element was also discovered at this site. It consists of a single prehistoric flint flake related to tool reduction activities. This aspect of the site is ancillary to the historic occupation. The total size of this site is estimated at 975 m^2 (10,500 ft^2).

Artifact	#
Redware	20
Pane glass	19
Animal bone	19
Milkglass	18
Clear bottle glass	10
Square nail	9
Whiteware	5
Ironstone	4
Misc. plastic	3
Stoneware	3
Handpainted whiteware	2
Blue spongeware	1
Amber glass	1
Mason jar frag.	1
Blue transfer	1
Porcelain	1
Amber bottle top	1
Carnival glass	1
Battery	1
Two hole shell button	1
Earthenware	1
Light bulb glass	1
Opalescent glass	1
Plastic fork	1

Artifact	#	Material
Primary thinning flake	1	Delaware flint

33-Fr-2640

This archaeological site is a small trash scatter, probably related to the extant house located just south of it (Figures 9 and 11). It consists of a light mix of kitchen and architectural artifacts and is more than likely the result of formalized trash disposal from the nearest house. Some modern trash piles including old automobiles and appliances were observed in an overgrown area near here. These artifacts all appear to date to the 20th century, although they are admittedly sparse. Some disturbance around the house limited testing and a number of sheds and garages behind the house also restricted the amount of excavation. The size of this site is estimated at 1 m^2 (11 ft^2).

Artifact	#
Clear bottle glass	2
Pane glass	1
Animal bone	1
Misc. plastic	1
Amber glass	1

33-Fr-2641

Archaeological site 33-Fr-2641 is a small historic period artifact scatter located in the northeastern corner of the project area (Figures 9 and 11). It was expected that artifact remains related to a mid-1800s schoolhouse would be located in this area. With the small sample of artifacts recovered it is hard to determine whether they are related to a mid-1800s school house. The thickness of the pane glass was measured to determine the relative date of manufacture. This pane glass averaged 3.26 mm which dates to a rather unimpressive estimated date of 1987.3 when applied to Moir's (1987) regression formula for estimating the age of window pane glass. Although there are a number of inherent problems with dating such a small sample from an unknown source, it does seem to confirm that this site is not related to any 19th century buildings such as the schoolhouse. Artifacts were recovered from two shovel test units. The size of this site is estimated at 697 m^2 (7,500 ft^2).

Artifact	#
Pane glass	19
Corningware	1
Earthenware	1
Light bulb glass	1

FRA-9622-12 (by Amy Kramb-Botos)
2734 Ole Country Lane

Physical Description

According to the Franklin County Auditor's data the house at 2734 Ole Country Lane, was built in 1804. The core of the house is a one-room, one and one-half story, side gabled dwelling of frame construction (Exhibit 8, Appendix B). It is likely that this single pen type house was built in 1804. Unfortunately, the numerous additions obscure three elevations of the original dwelling. Furthermore, the substantial alterations leave few original materials and details.

The dwelling's original design is masked by additions. Across the south elevation is a one-story, shed roof, permanently enclosed porch with a center entry door used as the main entrance into the dwelling. Across the east elevation is a one-story, shed roof addition which contains a bedroom and bathroom. Across the north elevation is a one-story shed roof kitchen addition. There is another one-story, shed roof, permanently enclosed porch addition on the northwest corner of the dwelling that provides entry into the kitchen. The original dwelling's west elevation is the only side not obscured by additions.

The dwelling lacks original materials and details. The entire dwelling is clad in vinyl siding and the windows, now covered by plywood, are replacement windows from various years. The foundation consists of various types of concrete, and there is no evidence of the original foundation. Furthermore, the remaining exposed wood around the replacement windows, on the door frames, and in the eaves, is not original.

The dwelling's original setting, feeling, and association were vastly different than today. The dwelling was likely associated with agriculture in the once rural setting. But with construction of I- 670, the expansion of Port Columbus International Airport and other commercial and residential development nearby, the once rural setting is now urban. The property lacks any original outbuildings, but there are several modern outbuildings including a concrete block garage and a pole barn. There is also household debris and collapsed wood-framed outbuildings scattered around the northern edge of the property.

Historical Significance

To ascertain the historical significance of the property, several atlases of Franklin County, Ohio were reviewed. According to Wheeler's 1842 *Franklin County, Ohio* map, the property owner was either an A. McElvain or J.F. The initials J.F. may be associated with E. Drake which clearly owned the parcel across the street. The scale and boundary lines of the 1842 map are unclear. But looking at Graham's 1856 *Map of Franklin County, Ohio*, the property does not appear to be E. Drake's property. The property owner's name, however, is illegible. The 1856 map does show a house in the vicinity of 2734 Ole Country Lane. Caldwell's 1872 *Atlas of Franklin County and the City of Columbus* clearly shows the property owner as S. Ebnet and there is a house on the property. It is also clear from the 1872 map that the property is not part of the neighboring E. Drake parcel. Brand's 1883 *Map of Franklin County, Ohio* also clearly indicates that the parcel is not part of the Drake property. The 1883 map appears to show S. Ebnet as the landowner, however, the writing is somewhat illegible.

Because the subject property, 2734 Ole Country Lane, is in such close proximity to the NRHP listed Elam Drake House, the Drake house's NRHP form was reviewed for a possible connection. The Drake house is on the NRHP for its architecture and for its association with Elam Drake, a locally significant master craftsman who built brick commercial store fronts and building facades throughout Columbus. Mr. Drake also built several residences in Columbus before retiring and farming the property. The NRHP form's statement of significance indicates that Mr. Drake moved to the area in 1831 where he lived in a log cabin on the site of the existing house. It appears that the dwelling at 2734 Ole Country Lane is not associated with the NRHP-listed Elam Drake House because, the dwelling at 2734 Ole Country Lane likely pre-dates Mr. Drakes arrival.

A search of William Martin's *History of Franklin County, Ohio* dated 1858 noted that a Col. Andrew McElvain was once a prominent citizen of Franklin County, Ohio prior. Apparently, at age 13 Andrew McElvain was the first mail carrier between Chillicothe and Franklinton. From a letter written by Col. Andrew McElvain in 1856, McElvain explained that he immigrated to Ohio from Kentucky with his father in 1797 to Franklinton. Lee's 1892 *History of the City of Columbus, Ohio* confirmed that a Col. Andrew McElvain came to Franklinton in 1797. The 1892 history also confirmed that Col. Andrew McElvain left Franklinton in 1816, traveled down the Scioto and Ohio Rivers and settled in Vincennes. Thus, it appears that Col. Andrew McElvain is not the A. McElvain who owned the property at 2734 Ole Country Lane in 1842.

The only other mention of an A. McElvain was in the 1858 *History of Franklin County, Ohio*. There was an A. McElvain who was a Director at the Ohio Penitentiary from 1842-1844. It appears that the McElvain's were earlier settlers in Columbus, but beyond the name A. McElvain on an 1842 map, the preliminary search of early atlases revealed no specific local or regional significance associated with the 2734 Ole Country Lane dwelling. It is also unclear whether A. McElvain and Col. Andrew McElvain are one in the same persons.

7.4. Conclusions

The fieldwork that was conducted for the approximately 24.3 ha (60 a.) potential automobile related facility in the City of Columbus, Franklin County, Ohio identified three previously unidentified archaeological sites (33-Fr-2639-2641) and one historic building (FRA-9622-12).

VIII. Expected Results Evaluation

There were expected results prepared before the commencement of the field work portion of these investigations, based on the background information and previous experience in the area. These questions were formulated so that the field work portion of these investigations could be conducted with some direction and with a set of goals in mind.

It was stated that sites within the project area would be low-density lithic scatters containing ten artifacts or less but that the project was generally considered a low probability area. A single prehistoric artifact was recovered from the project area at site 33-Fr-2639. These results were not unexpected because of the poorly drained nature of the project area and the fact that efforts were concentrated on the NRHP Elam Drake house.

It was expected that archaeological deposits that surrounded the NRHP Elam Drake house would easily be discovered. This was true, although these deposits did not meet expectations. The large gravel drive and gravel lot in the backyard and surrounding the barn limited testing in what should have been productive areas. The most prolific areas for artifacts were located around the smokehouse to the northwest of the house.

Another mid-1800s house and a schoolhouse were also suspected to be located within the project area. No conclusive evidence of the schoolhouse was located. The mid-1800s house should have been located west of the Elam Drake house and appears to be synonymous to 2734 Ole Country Lane (FRA-9622-12). The house located at 2734 Ole Country Lane was reportedly built in 1804 according to the Franklin County Auditor. Because of the many newer outbuildings and sheds located behind the house, archaeological testing was limited. It appears as if the main body of the house could have been built in 1804, however it has been greatly altered. The schoolhouse may have been located outside the project area, east of Sterling Avenue. No visible portions remain.

The artifacts from the NRHP Elam Drake house were put into a comparative formula used to measure economic status. Unfortunately, because of the paucity of recovered artifacts and the long period of occupation this may have been an exercise in futility. However, using Miller's CC index (1991) it was determined that the assemblage has an average CC index value of 2.2. This price was obtained using a slight modification of Miller's formula since it was not know from the sample if the tea cups were handled or not so an average of the two prices were used. Also, the comparative price ranges dated from 1846-1871 with the earliest dates actually pre-dating the house. With a sample of only 5 identifiable vessels the sample is really too small to draw reliable comparisons anyway.

IX. Eligibility Assessment

The Phase I Cultural Resources survey conducted for the approximately 24.3 ha (60 a.) potential automobile related facility in the City of Columbus, Franklin County, Ohio during October of 2006 identified three previously unrecorded archaeological sites (33-Fr-2639-2641) and a historic building (FRA-9622-12).

Site 33-Fr-1828 is located within the project area along Cassady Avenue. Although no work was done at this site during the current project this site was previously recommended as not eligible (see OAI form). Based on the artifacts recovered, coupled with the fact that none of the historic maps show this house, indicate a date for this site sometime in the early to mid 19th century. This site does not seem to possess the potential to yield additional information which would be important to the understanding of the historic period in Mifflin Township, Franklin County, Ohio (Criterion D). This site is not considered to be eligible for inclusion to the National Register of Historic Places because it fails to meet the minimum requirements as set forth by the United States Department of the Interior (USDI 1997). No further work is recommended for this archaeological site.

Site 33-Fr-2639 is the historic period artifact scatter related to the NRHP Elam Drake house that was apparently occupied from the mid-1800s until recently. The amount of artifacts recovered was somewhat disappointing considering the age of the house. The limiting factor for most of the house area was a large gravel drive and parking areas that precluded testing. Although an interesting scatter was identified near the smokehouse, no sealed deposits or intact stratigraphic layers were found. A minor prehistoric component consisting of a single flake was also identified. Neither the prehistoric or historic archaeological component of this site seems to possess the potential to yield additional information which would be important to the understanding of the historic period in Mifflin Township, Franklin County, Ohio or more specifically the Elam Drake house (Criterion D). The archaeological component of this site is not considered to be eligible for inclusion to the National Register of Historic Places under Criterion D because it fails to meet the minimum requirements as set forth by the United States Department of the Interior (USDI 1997), this site has obviously already been placed on the NRHP for Criteria B and C. The adverse effects to the NRHP Elam Drake house are being addressed in a Memorandum of Agreement between CRAA and the signatory agencies separate from this report.

Site 33-Fr-2640 is a historic period artifact scatter related to formalized trash disposal at an extant house. Although establishing a date is difficult based on the paucity of artifacts recovered, this site seems to date to the 20th century. This site does not seem to possess the potential to yield additional information which would be important to the understanding of the historic period in Mifflin Township, Franklin County, Ohio (Criterion D). This site is not considered to be eligible for inclusion to the National Register of Historic Places because it fails to meet the minimum requirements as set forth by the United States Department of the Interior (USDI 1997). No further work is recommended for this archaeological site.

Site 33-Fr-2641 is a historic period artifact scatter located in an open field. Very few artifacts were recovered from this site. This site does not seem to possess the potential to yield additional information which would be important to the understanding of the historic period in Mifflin Township, Franklin County, Ohio (Criterion D). This site is not considered to be eligible for inclusion to the National Register of Historic Places because it fails to meet the minimum requirements as set forth by the United States Department of the Interior (USDI 1997). No further work is recommended for this archaeological site.

Historic building FRA-9622-12 (2734 Ole Country Lane) is not eligible for the NRHP under Criterion C, because of the numerous additions and alterations the property lacks distinctive physical characteristics. It is also not eligible under Criterion A, because archival research failed to identify any significant historical events or themes associated with the property. It seems certain that the property was not associated with Elam Drake and the neighboring NRHP Elam Drake House. It also seems certain that the dwelling at 2734 Ole Country Lane was not the home of Col. Andrew McElvain. Therefore FRA-9622-12 is not eligible for the NRHP under Criterion B for its association with a significant person.

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Figures

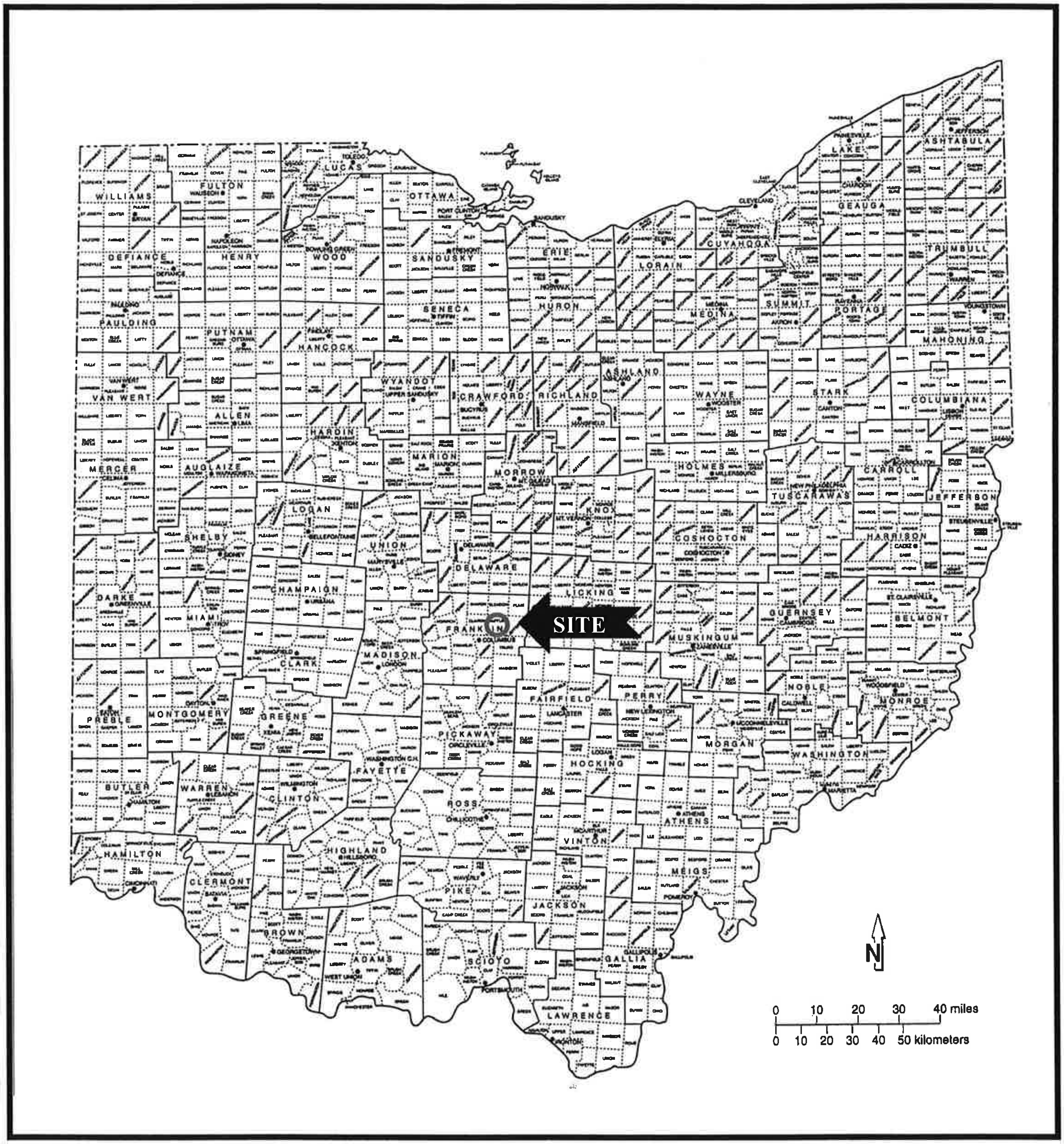


Figure 1. Political map of Ohio showing the approximate location of the project area.

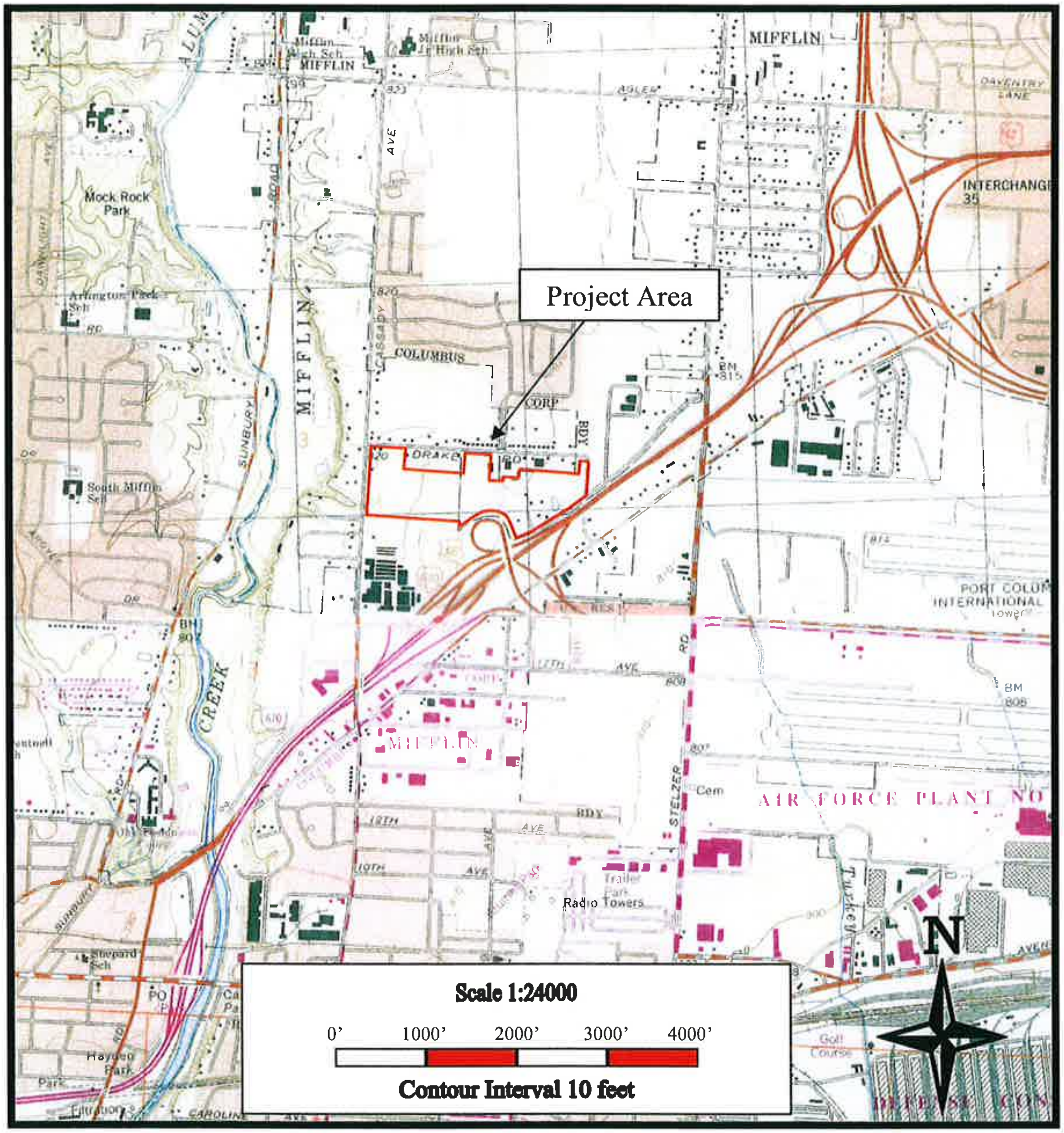


Figure 2. Portions of the United States Geological Survey (USGS) *1995 Northeast Columbus, Ohio 7.5 Minute Series* (Topographic) map and the *1964 (Photorevised 1994) Southeast Columbus, Ohio 7.5 Minute Series* (Topographic) map showing the location of the project area.

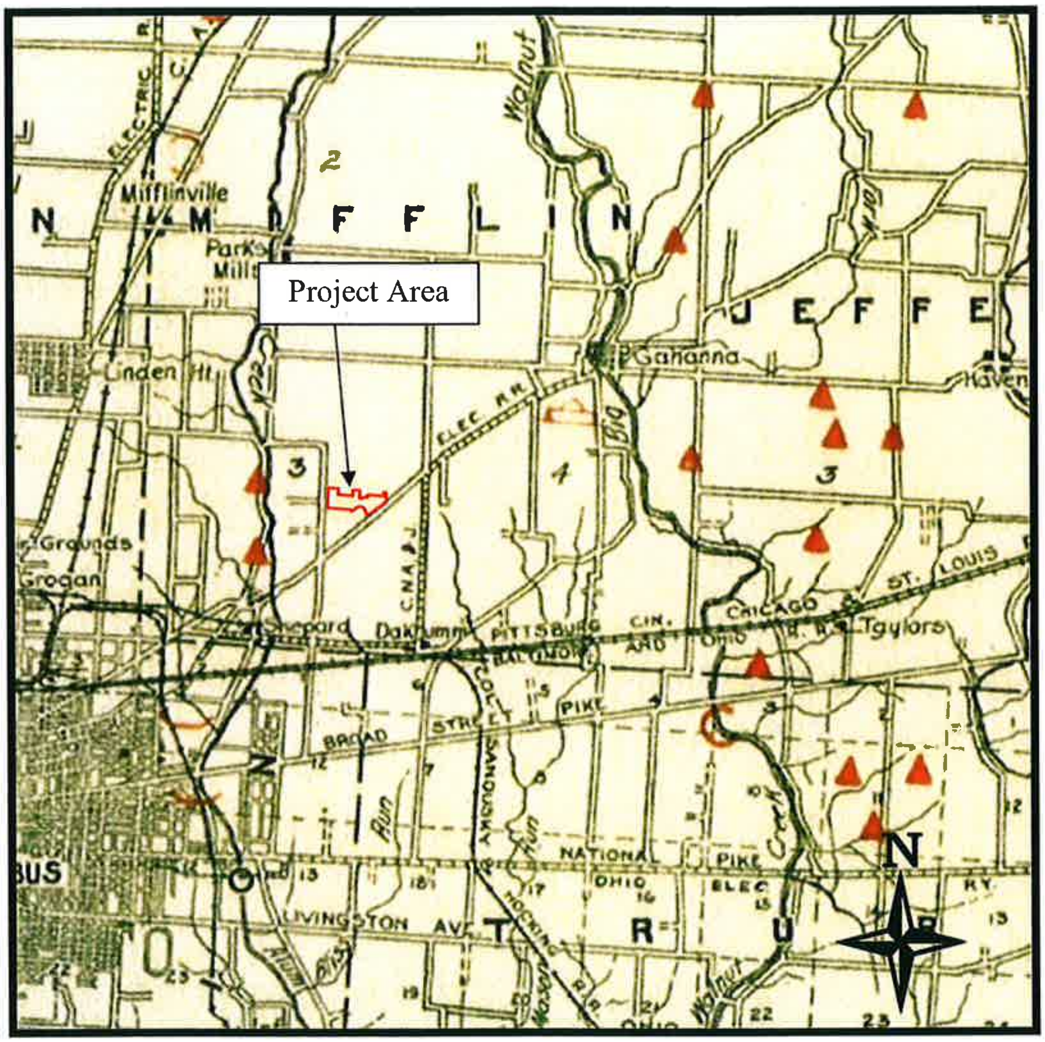


Figure 3. Portion of *An Archaeological Atlas of Ohio* (Mills 1914) showing the approximate location of the project area.

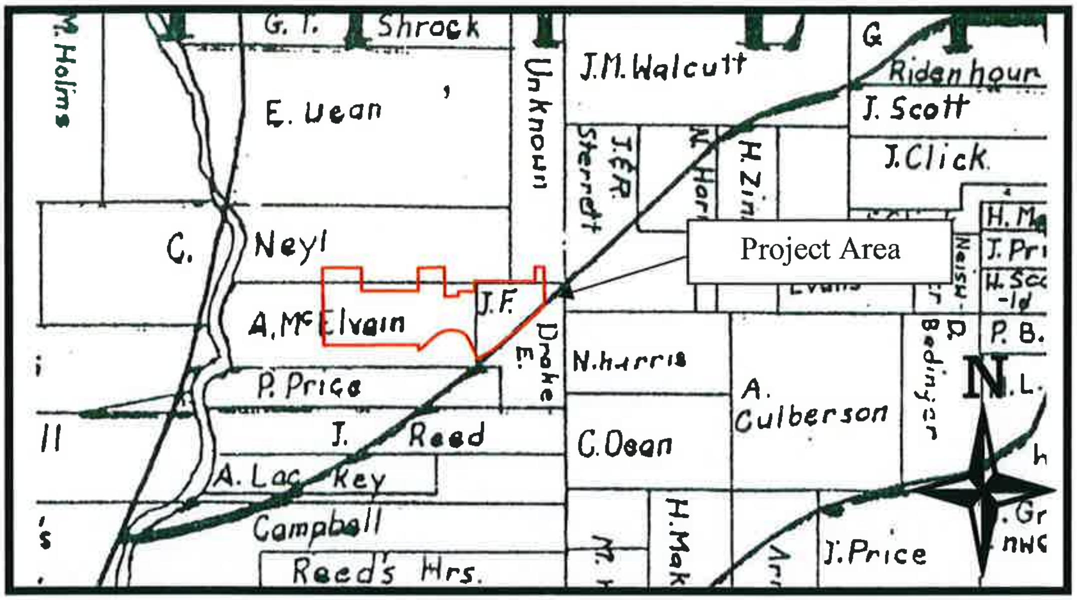


Figure 4. Portion of the *Franklin County, Ohio* map (Wheeler 1842) showing the approximate location of the project area.

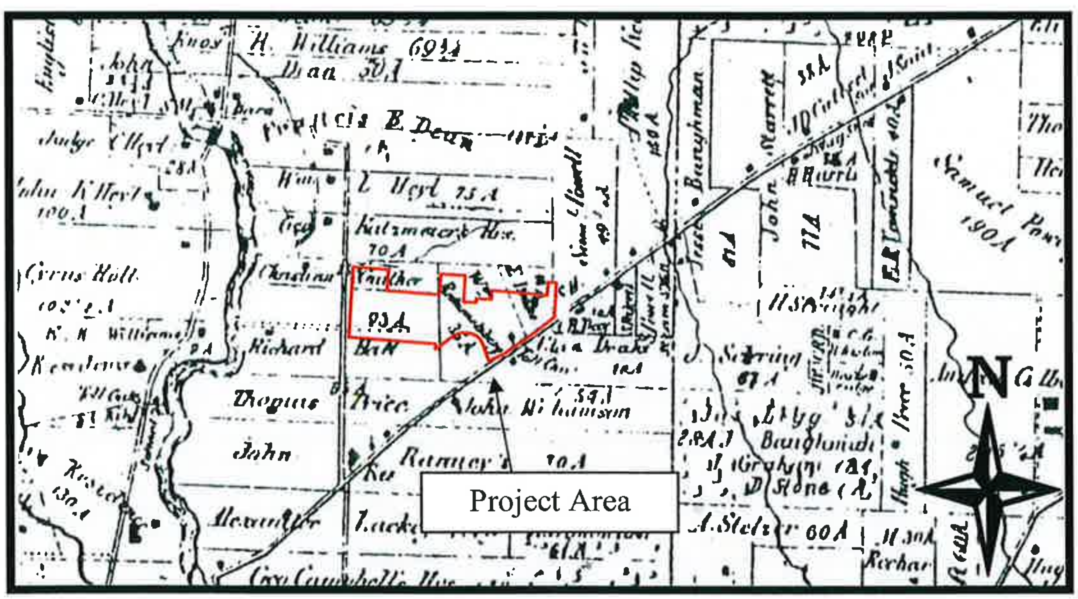


Figure 5. Portion of the *Map of Franklin County, Ohio* (Graham 1856) showing the approximate location of the project area.

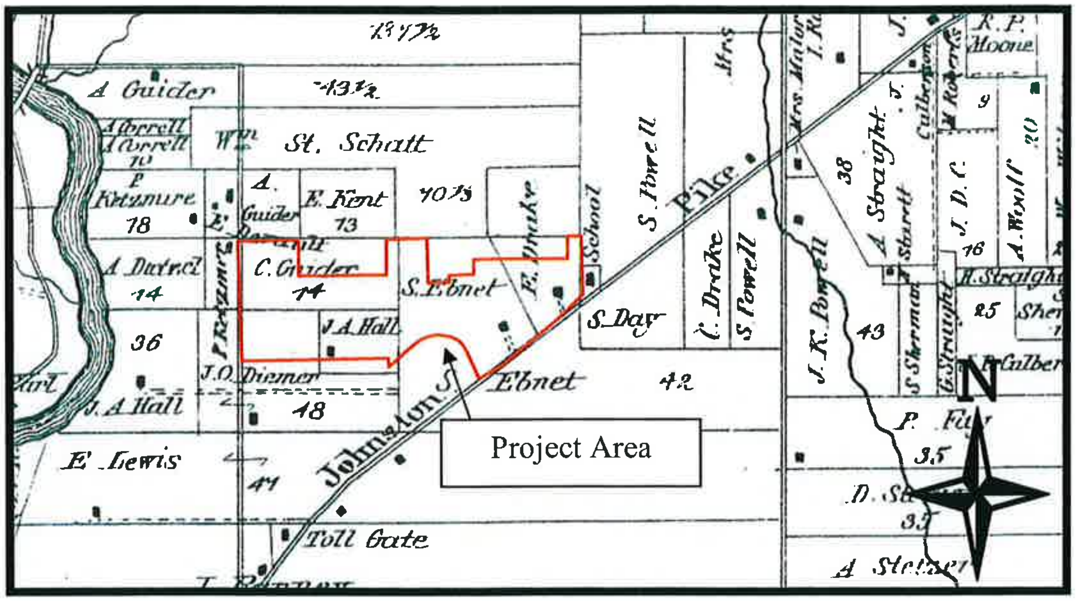


Figure 6. Portion of the *Atlas of Franklin County and of the City of Columbus* (Caldwell 1872) showing the approximate location of the project area.

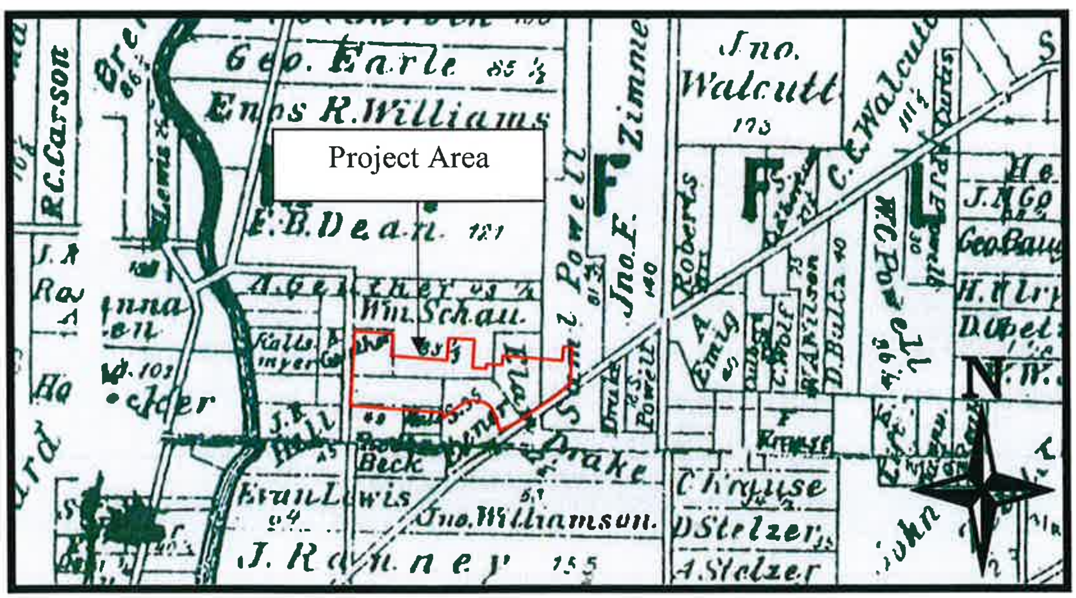


Figure 7. Portion of the *Map of Franklin County, Ohio* (Brand 1883) showing the approximate location of the project area.

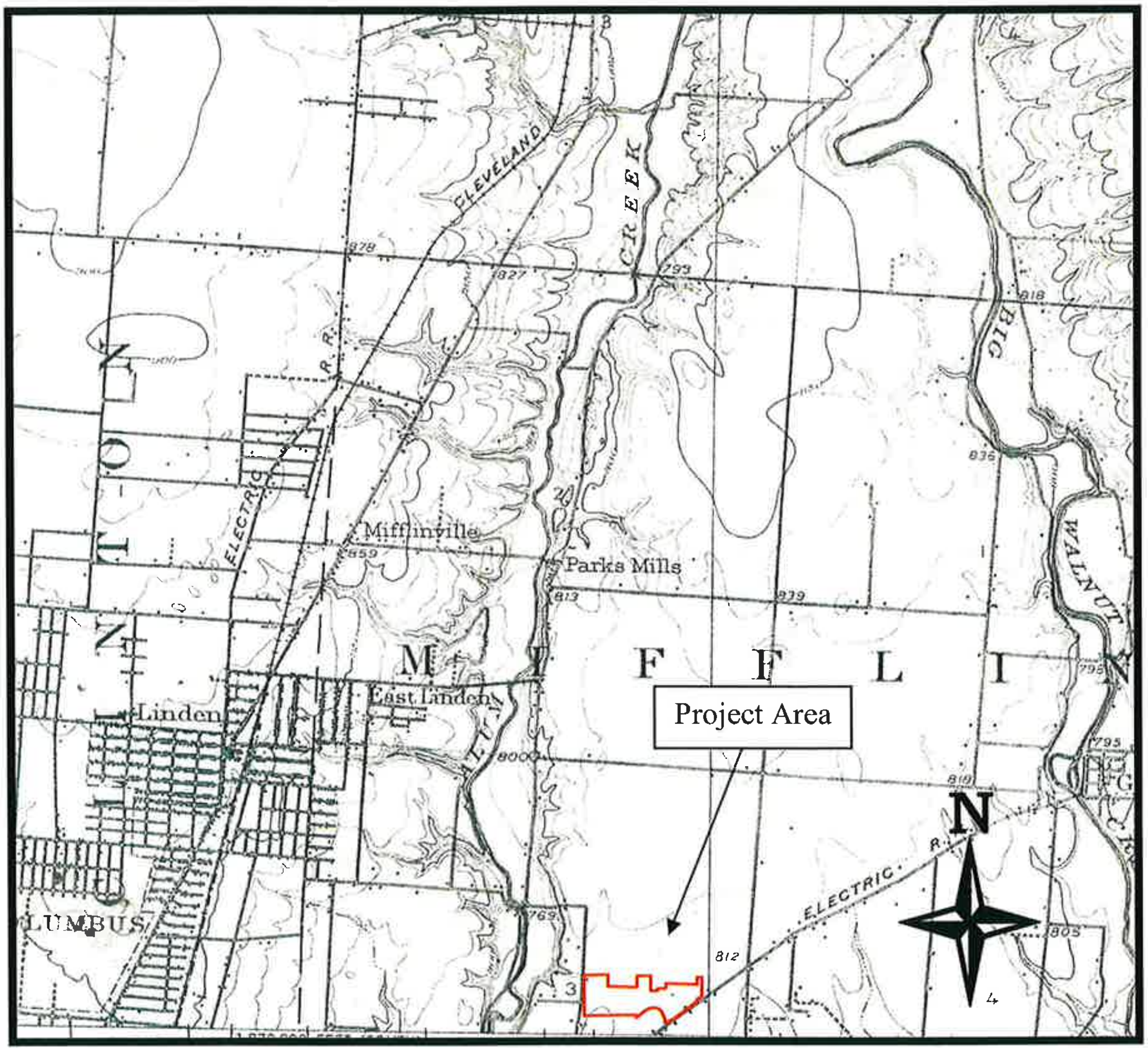


Figure 8. Portion of the USGS *1902 Westerville Quadrangle, Ohio 15' Series (Topographic)* map showing the approximate location of the project area.

Figure 9. Fieldwork map showing the field conditions, testing strategies, location of archaeological sites 33-Fr-1828 and 2639-2641 and FRA-9622-12.

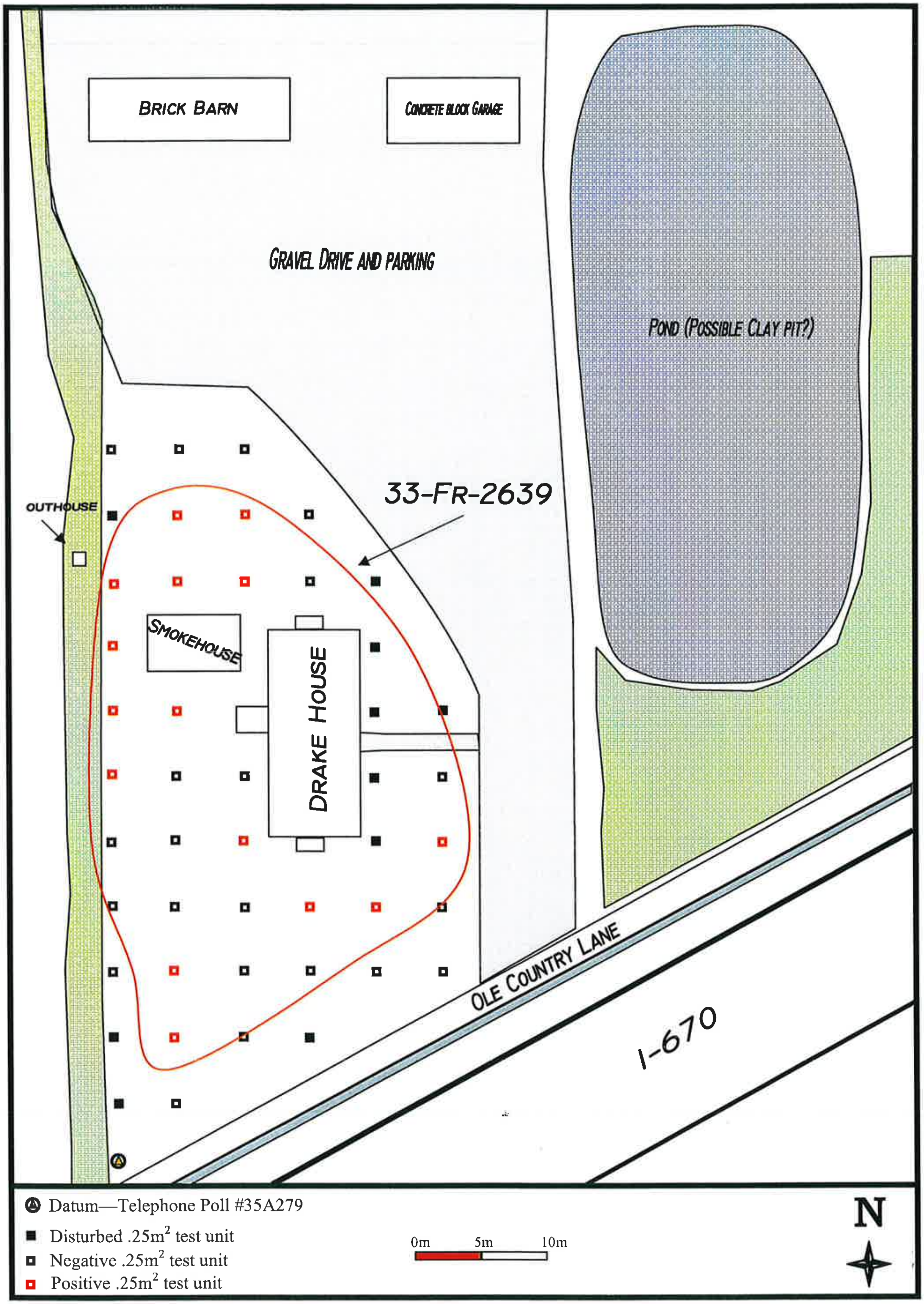


Figure 10. Map showing the testing methods around the Elam Drake House (NRHP ref. # 78002064, 33-Fr-2639).

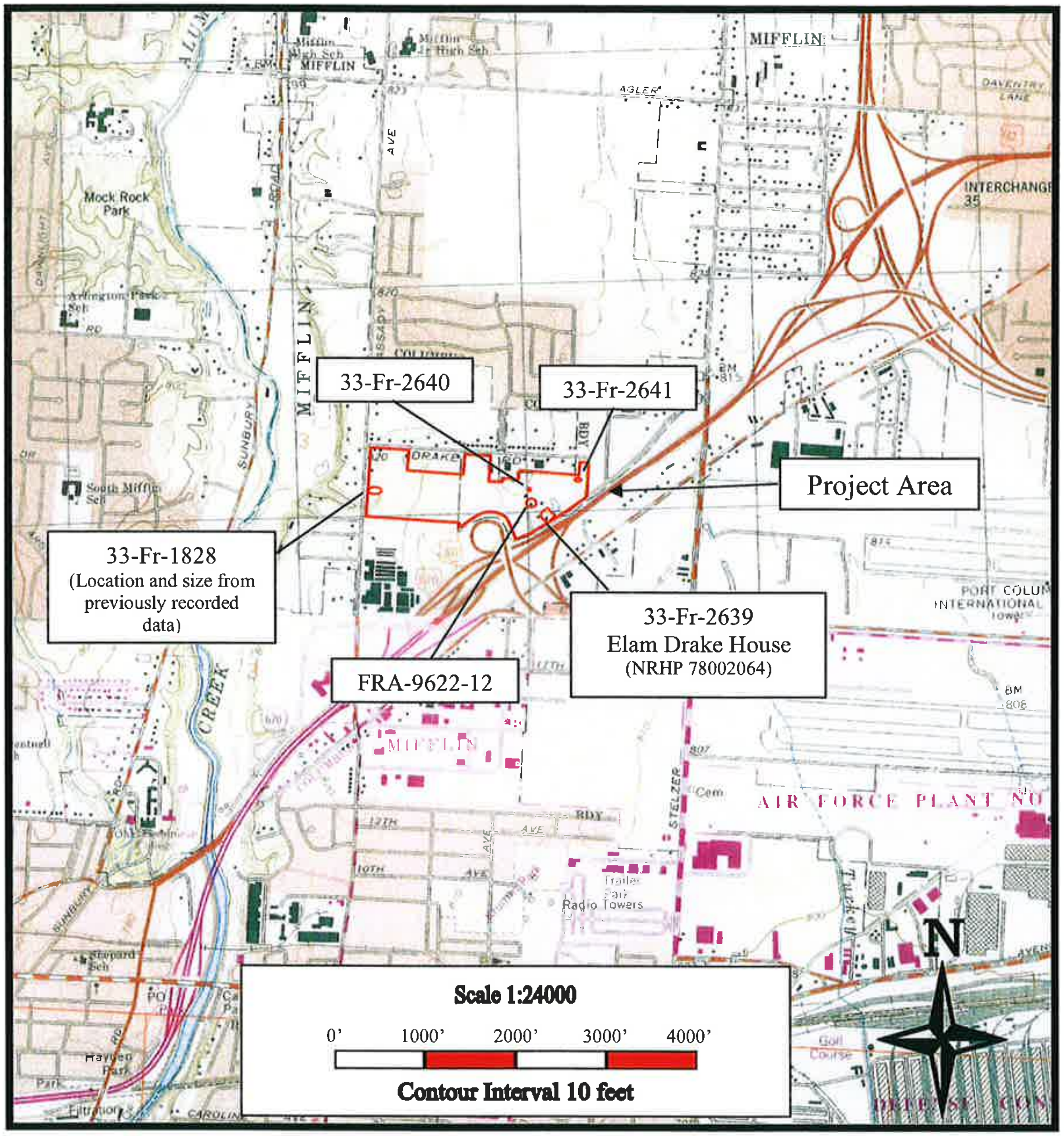
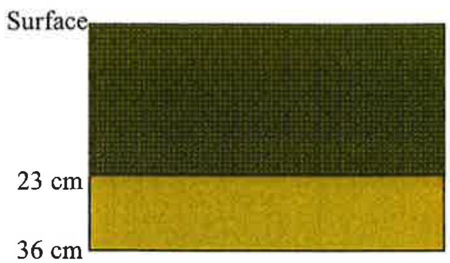


Figure 11. Portions of the United States Geological Survey (USGS) *1995 Northeast Columbus, Ohio 7.5 Minute Series* (Topographic) map and the *1964 (Photorevised 1994) Southeast Columbus, Ohio 7.5 Minute Series* (Topographic) map showing the location of the project area, archaeological sites 33-Fr-1828, 2639-2641 and historic home FRA-9622-12.

Typical Shovel Test Unit Profile



Soil Type: Bennington-Urban land complex (BfA)

Ap Horizon- 0-23 cm. Dark grayish brown (10YR4/2) silt loam; moderate medium granular structure; friable; many medium roots.

B Horizon- 23-36 cm. Yellowish brown (10YR 5/4) silty clay loam; common medium distinct grayish brown (10YR5/2) and yellowish brown (10YR5/8) mottles; moderate medium subangular structure blocky structure; common fine roots.

Plan View of a Typical Shovel Test Unit in Bennington soil

Figure 12. Soil profile of a typical test unit and plan view photograph showing typical Bennington silt loam located within the project area.

Exhibits

Exhibit 1. Typical wooded section in the project area.

Exhibit 2. Typical grassy field in the project area.

Exhibit 3. Typical scrub-brush field in the project area.

Exhibit 4. Small section of grassy field on the south part of Quadrats 3 and 7.

Exhibit 5. The NRHP Elam Drake house.

Exhibit 6. Rear of the NRHP Elam Drake house.

Exhibit 7. House at 2730 Ole Country Lane located within the project area.

Exhibit 8. House located at 2734 Ole Country Lane (FRA-9622-12) within the project area.

Exhibit 9. House located at 1760 North Cassady Avenue within the northwestern corner of the project area.

Exhibit 10. Large gravel driveway east of the Elam Drake house.

Exhibit 11. Large gravel parking lot located behind the barn at the Elam Drake house.

Exhibit 12. Gravel drive and parking area in front of the garage and barn at the Elam Drake house.

Exhibit 13. Smokehouse located northwest of the Elam Drake house.

Exhibit 14. Outhouse located west of the Elam Drake house.

Exhibit 15. Barn located north of the Elam Drake house.

Exhibit 16. Large pond that may have been a clay pit located east of the Elam Drake house.

Appendix A

Ohio Historic Preservation Office

567 East Hudson Street
Columbus, Ohio 43211-1030
614/298-2000
Fax: 298-2037

OHIO HISTORICAL SOCIETY SINCE 1885

RECEIVED OCT 1 2005

SCANNED

*Site No. 33- FR - 1828

OHIO ARCHAEOLOGICAL INVENTORY

*Response required for acceptance of form

for official use only

Coder ___

Date ___

A. Identification

*1. Type of Form (select as many as appropriate):
X New Form ___ Revised Form ___ Transcribed Data

2. County Franklin *3. Trinomial State Site Number 33- FR - 1828
4. Site Name(s) ___
5. Project Site Number ___
6. Other State Site Number ___
7. Source (of Item A.5. and/or A.6.) APPLIED fieldwork notes and maps

B. Location

*1. UTM Zone ___ 16 or X 17
Easting 3 3 5 2 9 0
Northing 4 4 2 9 8 4 0
2. Latitude ___ ° ___ ' ___ "
Longitude ___ ° ___ ' ___ "
*3. Township 1N Range 17W Not Applicable ___
Section 3 1/4 Section: ___ SW X SE ___ NW ___ NE
Township Name Mifflin
*4. Quadrangle Name Northeast Columbus — 1 9 ___
*5. Quadrangle Date 1964 (P.R. 1982)
*6. Confident of Site Location X Yes ___ No

C. Ownership

*1. Name(s) Casto Communities
Address 191 W. Nationwide Blvd. Suite 200
City/Town, State, Zip Columbus, OH 43215
Phone (___) ___
2. Tenant (if any) ___
Address ___
City/Town, State, Zip ___
Phone (___) ___
*3. Ownership Status (select only one, as appropriate):
X Private (single) ___ Private (multiple) ___ Local Govt.
___ State Govt. ___ Federal Govt. ___ Multiple Govt.
___ Mixed-Govt./Private ___ Unknown

D. Temporal Affiliations

*1. Affiliations Present (select only one, as appropriate):
___ Prehistoric X Historic ___ Prehistoric and Historic
___ Unknown ___ Unrecorded

*Site No. 33- FR - 1828
Plotted ☐

 *Site No. 33- FR - 1828

for official use only

Prehistoric

*2. Prehistoric Temporal Period(s) Represented (select as many as appropriate)

_____ Unassigned Prehistoric _____ Paleoindian

Archaic: _____ Unassigned _____ Early _____ Middle _____ Late

Woodland: _____ Unassigned _____ Early _____ Middle _____ Late

_____ Late Prehistoric _____ Protohistoric _____ Other (specify) ____________________

*3. Minimum Number of Prehistoric Temporal Periods Represented ____________________

*4. Basis for Assignment of Prehistoric Temporal Period(s) (select as many as appropriate):

_____ Diagnostic Artifacts _____ Diagnostic Features _____ Radiometric

_____ Unrecorded _____ Other (specify) ____________________

5. Prehistoric Cultural Component(s) Represented (see manual):

a. ____________________

b. ____________________

c. ____________________

d. ____________________

e. ____________________

f. ____________________

6. Describe how Prehistoric Temporal Period(s) and Cultural Component(s) were determined (list diagnostic artifacts and/or features; include type names, attach photographs and/or illustrations, and identify researcher). When listing artifacts and/or features please specify Prehistoric Cultural Component(s) by using letter designations from Item D.5.

Researcher ____________________

*7. Categories of Prehistoric Materials Present at Site (select as many as appropriate)

_____ Lithics _____ Ceramics _____ Metal _____ Faunal Remains _____ Floral Remains

_____ Human Skeletal Remains _____ Unrecorded _____ Other (specify) ____________________

8. Specific Prehistoric Cultural Materials Collected:

Type	Count	Type	Count

Historic

*9. Affiliation Present (select only one, as appropriate):

_____ Aboriginal __X__ Non-Aboriginal _____ Both _____ Undetermined

*10. Historic Temporal Period(s) Represented (select as many as appropriate):

a. _____ Pre-1795 b. _____ 1796-1829 c. _____ 1830-1849

d. _____ 1850-1879 e. _____ 1880-1899 f. _____ 1900-1929

g. _____ 1930-1949 h. _____ 1950-1974 i. _____ 1975-2000

j. _____ Historic k. _____ 18th Century l. _____ 19th Century

m. __X__ 20th Century n. _____ Historic Aboriginal

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*11. Minimum Number of Historic Temporal Periods Represented 1

*12. Basis for Assignment of Historic Temporal Period(s) (select as many as appropriate):

X Diagnostic Artifacts ____ Diagnostic Architectural Remains

____ Diagnostic Features ____ Documentary Evidence ____ Oral Tradition

____ Unrecorded ____ Other (specify) ____

*13. Describe how Historic Temporal Period(s) were determined (list any diagnostic architectural remains, diagnostic artifacts and/or features; include type names, attach photographs and/or illustrations, and identify researcher). When listing artifacts and/or features specify Historic Temporal Period(s) by using letter designations from Item D.10.

M. Ironstone sherd with backstamp - Homer Laughlin Company (Lang, 1995)

Researcher ____

*14. Functional Categories of Historic Materials Present at Site (select as many as appropriate):

X Kitchen ____ Furniture ____ Personal

____ Toys & Games ____ Printed Matter ____ Religious/Ceremonial

____ Military ____ Weapons ____ Transportation

____ Architectural ____ Misc. Hardware ____ Const./Manufacturing Tools

____ Agricultural ____ Fuel/Energy ____ Food Remains

____ Clothing ____ Unrecorded ____ Unknown

____ Other (specify) ____

15. Specific Historic Cultural Materials Collected:

Type	Count	Type	Count
decal ware	1		
ironstone w/ backstamp	3		
depression glass	1		

General

16. Describe Prehistoric and/or Historic Cultural Materials observed but not collected. State reason(s) for not collecting.

Foundation stones because they were too heavy.

17. Affiliated Ohio Historic Inventory Site Number and Name:

*Site No. 33- FR - 1828

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E. Physical Description

*1. Archaeological Setting (select only one, as appropriate):
_____ Rockshelter/Cave __X__ Open _____ Unrecorded _____ Unknown
_____ Submerged _____ Other (specify) __________

*2. Prehistoric Site (select as many as appropriate):
Habitation: _____ Camp _____ Village _____ Hamlet _____ Unspecified Habitation
Extractive: _____ Quarry _____ Workshop
Ceremonial: _____ Unspecified Mound _____ Earth Mound _____ Stone Mound
_____ Effigy Mound _____ Mound Group _____ Hilltop Enclosure
_____ Geometrical Earthwork _____ Cemetery _____ Isolated Burial(s)
_____ Petroglyph/Pictograph
Other: _____ Unknown _____ Unrecorded _____ Other (specify) __________

*3. Historic Site Type (select as many as appropriate):
__X__ Residential _____ Commercial _____ Social _____ Government
_____ Religious _____ Educational _____ Mortuary _____ Recreation
_____ Subsistence _____ Industrial _____ Health Care _____ Military
_____ Transportation _____ Unrecorded _____ Unknown
_____ Other (specify) __________

4. State the bases on which site type assignment(s) were made.
Residential foundations and diagnostics were found

*5. Site Condition (select only one, as appropriate):
_____ Undisturbed __X__ Disturbed - Extent Unknown _____ Fully Disturbed
_____ Destroyed _____ Unrecorded _____ Unknown

*6. Dominant Agent(s) of Disturbance (select as many as appropriate):
_____ None Apparent __X__ Agriculture __X__ Historic Construction _____ Water
_____ Transportation _____ Archaeological Excavation _____ Mining _____ Vandalism
_____ Unrecorded _____ Other (specify) __________

7. Nature of Disturbance/Destruction:

*8. Current Dominant Land Use (see manual): Shrub/brush range land

9. Land Use History:

*10. Site Elevation 244 Meters A.M.S.L. (elevation to be taken from UTM point)

*11. Physiographic Setting of Site (select only one, as appropriate):
_____ Lake Plain _____ Lexington Peneplain _____ Unglaciated Plateau
__X__ Till Plain _____ Glaciated Plateau _____ Unrecorded

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*12. Glacial Geomorphology (select only one, as appropriate):

_____ Not Applicable _____ Wisconsin End/Lateral Moraine ___ ___
_____ Kansan Ground Moraine _____ Wisconsin Kame/Kettle/Esker/Drumlin
_____ Illinoian Ground Moraine _____ Wisconsin Lacustrine Deposit
_____ Illinoian Outwash _____ Post Wisconsin Lacustrine Deposit
__X__ Wisconsin Ground Moraine _____ Wisconsin Outwash
_____ Unrecorded _____ Other (specify) ____________

*13. Regional Geomorphological Setting (select only one, as appropriate):

_____ Stream Valley __X__ Upland Hill Slope _____ Beach Ridge ___
_____ Hill or Ridge Top _____ Lake Plains Interfluvial Zone _____ Unrecorded

*14. Local Environmental Setting (select only one, as appropriate):

Terrace: _____ Unknown _____ T-1 _____ T-2 _____ T-3 _____ T-4 ___ ___
_____ Beach Ridge _____ Terrace Remnant _____ Natural Levee _____ Floodplain
_____ Low Rise on Floodplain _____ Alluvium _____ Island _____ Kame _____ Drumlin
_____ Esker _____ Moraine _____ Glacial Hummock _____ Wetland Hummock
_____ Bluff _____ Bluff Base _____ Bluff Edge _____ Saddle __X__ Hill or Ridge Top
_____ Closed Depression _____ Unrecorded _____ Other (specify) ____________

*15. Soils:

Soil Association Bennington-Pewamo ___ ___ ___
Soil Series-Phase/Complex Bennington-Urban land Complex ___ ___ ___ ___
Reference USDA, SCS of Franklin County, OH
1980

*16. Down Slope Direction (select only one, as appropriate):

_____ N _____ NW _____ NE _____ E _____ All _____ Flat ___ ___
_____ S _____ SW _____ SE __X__ W _____ Unrecorded

*17. Slope Gradient (percent) 0-2 Unrecorded _____ ___ ___

*18. Drainage System (see manual):

Major Drainage Big Walnut Creek ___ ___ ___
Minor Drainage Alum Creek ___ ___ ___

*19. Closest Water Source (select only one, as appropriate):

Name: unnamed tributary of Alum Creek
_____ Permanent Stream _____ Lake/Pond __X__ Ephemeral Stream ___ ___
_____ Permanent Spring _____ Swamp/Bog _____ Intermittent Spring/Seep
_____ Slough/Oxbow Lake _____ Artificial Lake/Pond (historic sites only)
_____ Artificial Stream/Ditch (historic sites only) _____ Unrecorded
_____ Other (specify) ____________

20. Horizontal Distance to Closest Water Source 460 (meters from UTM point) ___ ___ ___ ___

21. Elevation Above Closest Water Source _____ (meters A.M.S.L. from UTM point)

F. Reporting Information

*1. Investigation Type (select as many as appropriate):

_____ Reported _____ Examination of Collection _____ Surface Collection ___ ___ ___
_____ Auger/Soil Corer __X__ Shovel Test(s) _____ Test Pit(s) _____ Test Trench(es) ___ ___ ___ ___
_____ Deep Test(s) _____ PZ or Humus Removal _____ Testing/Excav. (strategy unknown) ___ ___ ___
_____ Mitigation/Block Excavation _____ Aerial Photograph ___ ___
_____ Remote Sensing (specify) ____________ ___
_____ Chemical Analysis (specify) ____________ ___
_____ Unrecorded _____ Other (specify) ____________ ___ ___

*Site No. 33- FR - 1826

for official use only

*2. Surface Collection Strategy (select as many as appropriate):
X Not Applicable ____ Grab Sample ____ Diagnostics
____ Controlled-Unknown ____ Controlled-Total
____ Controlled-Sample ____ Unrecorded
____ Other (specify) ____

3. If surface collection strategy is Controlled-Total, Controlled-Sample, or Other, describe methodology and percentage.

4. Surface Visibility (select only one, as appropriate):
____ None ____ Less than 10% ____ 11-50%
____ 51-90% ____ 91-100% ____ Unrecorded

5. Describe surface conditions.

*6. Site Area (square meters) 3695

Unrecorded ____

*7. Basis for Site Area Estimate (select only one, as appropriate):
____ Guessed ____ Historic Maps ____ Aerial Photograph ____ Paced
X Taped ____ Transit/Alidade ____ Range Finder ____ Unrecorded
____ Other (specify) ____

*8. Confident of Site Boundaries: X No ____ Yes ____ Unrecorded

9. Estimated Percentage of Site Excavated ____ Unrecorded ____ Unknown ____

*10. Name of Form Preparer Justin Zink

*11. Institution Weller and Associates

*12. Date of Form (year/month) 2003/09 — 2 0 __ __/__ __

*13. Field Date (year/month) 2000/12 — 2 0 __ __/__ __

14. Time Spent at Site

15. Weather Conditions

16. Name(s), Address(es), Phone Number(s) of Local Informants

*17. Artifact Repository (ies) OHS warehouse pending owner donation

18. Name(s), Address(es), Phone Number(s) of Owners of Collections From Site (attach inventories of private collections).

for official use only

19. Photographs (select as many as appropriate):

No. of Slides _____ No. of Prints _____

Aerials: _____ Black/White _____ Color _____Infrared

20. Name and Address of Institution Where Photos Are Filed (include photo log number if available)

*21. National Register Status (select only one, as appropriate):

_____ National Register Property†

_____ Determined Eligible for National Register†

__X__ National Register Status Not Assessed

_____ Removed from National Register†

_____ Determined Not Eligible†

†Determination made by Keeper of the National Register (date) _____

22. State Registry Status (select only one, as appropriate)

_____ State Registry Listed†

__X__ Not Assessed for State Registry

_____ Removed from State Registry†

_____ Determined Not Eligible†

†Determination made by Ohio Historical Society (date) _____

23. Discuss the potential significance of the site (does it meet National Register and/or State Registry criteria of significance in your opinion? Why or why not? Upon what evidence have you based your opinion?)

Due to the lack of site integrity, this site is not considered eligible for inclusion into the NRHP.

*24. Special Status (select only one, as appropriate):

__X__ None

_____ Park

_____ Forest

_____ Archaeological District

_____ Other (specify) _____

_____ Wilderness Area

_____ Scenic River

_____ Military Installation

_____ Wildlife Preserve

_____ Nature Preserve

_____ Archaeological Preserve

_____ Unknown

***G. References** - List Primary Documentary References (see manual):

1. Weller, Ryan
2000 Phase I Cultural Resource Management Investigations for the Proposed 8.1 ha (20.7 ac.) Development in Mifflin Township, Franklin County, Ohio. Submitted to EMH+T, Inc. by
2. APPLIED. Copy available at OHPO.

Lang, Gordon
1995 Miller's Pottery and Porcelain Marks. Reed International
3. Books Ltd.

H. Radiometric Dates

1. Material(s) Dated ______
   Date (uncorrected C14 years) ______
   Laboratory ______
   Sample # ______
   Reference(s) ______
2. Material(s) Dated ______
   Date (uncorrected C14 years) ______
   Laboratory ______
   Sample # ______
   Reference(s) ______
3. Additional Radiometric Dates Yes ____ No ____
   (use Continuation Section to list other dates)

Description of Site

*1. State physical description of the site and its setting, including dimensions, features (with measurements), nature and location of artifacts and concentrations, extent and location of disturbances, etc.

See continuation sheet 2a.

*Site No. 33- FR - 1828

*2. Discuss the relationship between the site and other known sites in the area in terms of location, physical characteristics, size, etc.

33 FR 1828 is similar to sites 33FR 975 and 976. All three of these sites have 20th century historic diagnostics affiliated with them. 33 FR 975 and 976 fall within the 2.5 km study radius for 33 FR 1828.

J. Continuation Section: Specify Section & Item (use additional Continuation Sheet(s) if necessary)

Continuation Sheet: Specify Section & Item (use additional Continuation Sheets if necessary)

This site represents the remains of a razed middle twentieth century dwelling. The former frontage of this residence would have been along Cassady Avenue. The site is situated in the west central portion of the subject area and is north of an ephemeral tributary of Alum Creek. Review of the various Franklin County atlases and topographic maps did not indicate the presence of any structure at this location. Shovel test unit excavation and visual inspection were used to delineate the site boundaries. The site includes the remnants of the driveway, an open foundation/basement, and trash pile. The driveway was identified during the shovel testing and is situated on the south side of the foundation. The open foundation or basement is comprised of tile-brick and measures 20 x 24 feet. There were no artifacts recovered from the area surrounding the residence due to some disturbances. Artifacts were void in the former front yard area. To the rear of the residence a storm sewer line bisected the site. This substantially altered the previous terrain and any evidence of additional buildings or archaeological deposits.

On the west side of the storm sewer corridor is a midden or trash area. A shovel test unit excavated near this area noted large quantities of charcoal, cinder, and gravels. The trash area is visually noticeable. Various granite wares, (large bowls and a teapot) were on the surface as well as ketchup bottle glass, Gerber baby food bottles, and scrap iron. Most of these items were burnt. Shovel probing and scraping the surface provided several temporally diagnostic artifacts including ceramic wares with backstamps and Depression glass. One fragment of decalware was recovered.

Two of the backstamps are from the Homer Laughlin Company. This company began in 1891 and is still in operation today. One sherd has the cipher [I9 N 6] below the name. This indicates that the plate was made in September of 1929 at plant number 6. Another Homer Laughlin mug had a discernible cipher. Another backstamp that was recovered from the site is labeled UTOPIA CRESCENT. This is on a plain ironstone sherd, however, the backstamp was not located in the identification guide. The recovery of the green Depression glass further confirmed the site's age as dating to the middle twentieth century. There were no remains recovered or observed that would support dating the site prior to 1925 including topographic maps. The amount of burning at this site evidenced in the artifacts and around the foundation indicates that the residence likely burned down. This would have been prior to 1961 as the house is absent from modem topographic references. Furthermore, the artifacts do not support later occupation. The site is suspected of dating from 1925-1945. Diagnostic materials from the trash area were the only artifacts maintained and have all been mentioned or described in the previous text. The trash deposit is not stratified as evidenced by a shovel probe. The site area encompasses an area that is 3,695 m^2.

Appendix B

OHIO HISTORIC INVENTORY

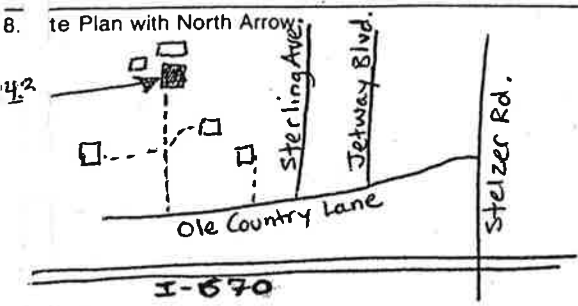
Ohio Historic Preservation Office
567 East Hudson Street
Columbus, Ohio 43211-1030
614/ 298-2000 Fax: 614/ 298-2037

OHIO HISTORICAL SOCIETY
SINCE 1885

1. No. FRA-9622-12
2. County Franklin
3. Location of Negatives EMH&T
Roll No. Picture No.(s)
4. Present Name(s) Columbus Regional Airport Authority Property PID: 010-213817
☐ Coded
5. Historic or Other Name(s) A.McElvain Property; S. Ebnet Property

1. No. FRA-9622-12
2. County Franklin
4,5. Present or Historic Name Columbus Regional Airport Auth. Property
6. Specific Address or Location 2743 Ole Country Lane

6. Specific Address or Location 2,34 Ole Country Lane
6a. Lot, Section or VMD Number
7. City or Village Columbus — If Rural, Township & Vicinity Mifflin Township
8. Site Plan with North Arrow



9. U.T.M. Reference
Quadrangle Name Northeast Columbus

Zone	Easting	Northing
17	335990	4429770

10. Site ☐ Building ☒ Structure ☐ Object ☐
11. On National Register? Yes ☐ No ☒
12. N.R. Potential? Yes ☐ No ☐
13. Part of Estab. Hist. Dist.? Yes ☐ No ☒
14. District Potential? Yes ☐ No ☒
15. Name of Established District (N.R. or Local)

16. Thematic Association(s)
17. Date(s) or Period 1804
17b. Alteration Date(s)
18. Style or Design vernacular — ☐ High Style ☐ Elements
18a. Style of Addition or Element(s) vernacular
19. Architect or Engineer unknown
19a. Design Sources
20. Contractor or Builder unknown
21. Building Type or Plan Single Pen
22. Original Use, if apparent Single Dwelling
23. Present Use Single Dwelling - vacant
24. Ownership Public ☐ Private ☒
25. Owner's Name & Address, if known Columbus Regional Airport Auth. 4600 International Gateway
26. Property Acreage 6.624
27. Other Surveys in Which Included

28. No. of Stories 1.5
29. Basement? Yes ☐ No ☒
30. Foundation Material Concrete
31. Wall Construction Wood Frame
32. Roof Type & Material Gable / Asphalt
33. No. of Bays Front 2 Side 1
34. Exterior Wall Material(s) vinyl siding
35. Plan Shape rectangular
36. Changes (Explain in #42) Addition ☒ Altered ☒ Moved ☐
37. Window Type(s) ☐ 6 over 6 ☐ 2 over 2 ☐ 4 over 4 ☐ Other
38. Building Dimensions 10x20
39. Endangered? Yes ☒ No ☐ By What? Demolition
40. Chimney Placement Gabled End
41. Distance from and Frontage on Road

42. Further Description of Important Interior and Exterior Features (Continue on reverse if necessary)
The core of the dwelling is a one-room, 1.5 story, side-gabled dwelling of frame construction. Additions obscure three elevations of the original dwelling. Across the south elevation is a 1-story, shed roof, permanently enclosed porch with a center entry used as the main entrance into the dwelling. Across the east elevation is a 1-story, shed roof addition which serves as a bedroom...(see back)

SOUTH AND WEST ELEVATIONS

NORTH AND EAST ELEVATIONS

43. History and Significance (Continue on reverse if necessary)
1842 - owner was either A. McElvain or possibly J.F.
1856 - owners name is illegible. Possibly R...berg
1872 - owners name is S. Ebnet and a house is indicated
1883 - owners name is illegible but looks like S...Ebnet
1902 - house is indicated on the topo map

44. Description of Environment and Outbuildings (See #52)
There is a concrete block garage and a pole barn north of the house. There is also household debris and several demolished/ruined outbuildings along the north property line. Numerous walnut and other decidiuos trees surround the house. The yard is overgrown.

45. Sources of Information
1842 Wheeler - Franklin County, Ohio; 1856 Graham - Map of Franklin County, Ohio; 1872 Caldwell - Atlas of Franklin County, Ohio and the City of Columbus; 1883 Brand - Map of Franklin County, Ohio; 1858 Martin - History of Franklin County, Ohio

46. Prepared by Amy Kramb Botos
47. Organization ARCH for EMH&T
48. Date Recorded in Field 12-29-06
49. Revised by
50a. Date Revised
50b. Reviewed by

51. Condition of Property

- ☐ Excellent
- ☒ Good/Fair
- ☐ Deteriorated
- ☐ Ruin
- ☐ Destroyed/Burned

Date______________

52. Historic Outbuildings and Dependencies

Barn Type(s)

____

____

Corn Crib or Shed ☐	Smoke House ☐	Privy ☐
Summer Kitchen ☐	Spring House ☐	Garage ☐
Silo ☐	Ice House ☐	
	Designed landscape features ☐	

53. Affiliated OAI Site Number(s)__________ one__________ multiple

Archaeological Feature:	Observed	Expected on Basis of Archival Research
Well	______	______
Privy	______	______
Cistern	______	______
Foundation	______	______
Structural Rubble	______	______
Formal Trash Dump	______	______
Other __________	______	______

54. Farmstead Plan

42. (Cont'd)

.. nd bathroom. Across the north elevation is a one-story, shed roof addition which contains a kitchen. There is another one-story, shed roof, permanently enclosed porch addition on the northwest corner of the dwelling that has an entry door into the kitchen. The windows, ın ently covered in plywood, are replacement windows from various years. The foundation is ar ous types of concrete. The vinyl siding obscures any original wood.

43. (Cont'd)

Photo 1: Showing the dwelling at 2743 Ole Country Lane.

Photo 2: Showing the west and south elevations of the dwelling.

Photo 3: Showing the east and north elevations of the dwelling.

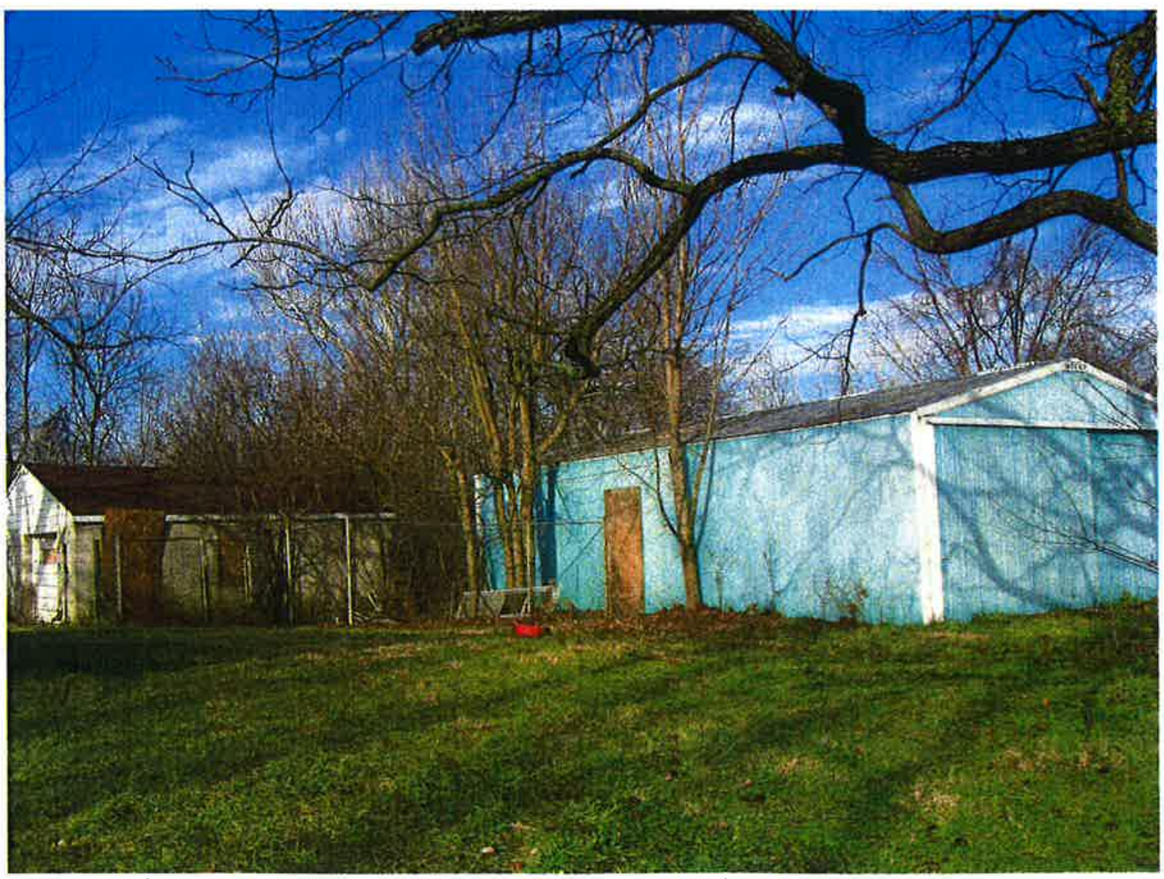


Photo 4: Showing the garage and pole barn associated with the dwelling.

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PHASE 1 ARCHAEOLOGICAL SURVEY FOR THE PROPOSED CONRAC

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Phase I Archaeological Survey for the Proposed Consolidated Rental Car Facility (CONRAC), Port Columbus International Airport, City of Columbus, Franklin County, Ohio

By

Alan Tonetti

Phase I Archaeological Survey for the Proposed Consolidated Rental Car Facility (CONRAC), Port Columbus International Airport, City of Columbus, Franklin County, Ohio

By

Alan Tonetti

Submitted By:
Kevin Schwarz, PhD, RPA
Project Manager
ASC Group, Inc.
800 Freeway Drive North, Suite 101
Columbus, Ohio 43229
614.268.2514

Submitted To:
Chris Sandfoss
Landrum & Brown, Inc.
11279 Cornell Park Drive
Cincinnati, Ohio 45242
513.530.5333

Lead Agency: Federal Aviation Administration

September 28, 2016

ABSTRACT

ASC Group, Inc. (ASC) completed a Phase I archaeological survey for an Environmental Assessment (EA) of the proposed Consolidated Rental Car Facility (CONRAC) at the Port Columbus International Airport[1] in Franklin County, Ohio. The survey is necessary to comply with Section 106 of the National Historic Preservation Act of 1966, as amended. The lead federal agency for the EA is the Federal Aviation Administration. The goals of the survey are to determine if archaeological sites exist in the Area of Potential Effects (APE), and determine if any sites are eligible for inclusion in the National Register of Historic Places (NRHP).

The Columbus Regional Airport Authority is developing the CONRAC on approximately 7.62 hectares (ha) [18.85 acres (ac)]. The roughly C-shaped APE is bordered on the north, south, and west by International Gateway (the main entrance road into the airport), and on the east by a hotel overflow parking lot, the airport's cell phone parking lot, and a Hertz Rental Car lot. Although most of the proposed CONRAC is mown grass, it also contains a partially paved former Dollar Rental Car lot and a paved access road. The APE also contains a tree-lined channelized stream and a small wooded area containing a wetland. The Franklin County soil survey indicates the APE is composed of a mix of urban cut and fill and natural soils.

Background research indicated that the southwestern portion of the APE was surveyed for archaeological sites in 2005 by ASC. This survey was completed for realignment of International Gateway. The survey identified one historical archaeological site with a minor prehistoric component in the CONRAC's APE. The site, 33FR2526, was determined not eligible for listing in the NRHP by the Ohio Department of Transportation and the Ohio Historic Preservation Office. The current survey did not re-examine the approximately 1.6-ha (4-ac) area surveyed in 2005 by ASC.

Archaeological fieldwork in the CONRAC APE was conducted on May 4 and 5, 2015. Field methods included visual inspection and shovel test pit excavation. The shovel test pits confirmed information from the Franklin County soil survey that much of the APE contains fill. No archaeological sites were identified during the survey and further archaeological investigations of the proposed CONRAC site are not recommended.

[1] The name of the Airport changed from Port Columbus International Airport to John Glenn Columbus International Airport in June 2016. Subsequent references to the Airport in this report use the former name, as that was the name at the time of the field survey and is the name used by many of the historical references cited in this report.

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INTRODUCTION

Under contract with Landrum & Brown, Inc., ASC Group, Inc. (ASC) completed a Phase I archaeological survey for an Environmental Assessment (EA) of the proposed Consolidated Rental Car Facility (CONRAC) at the Port Columbus International Airport[2] (CMH) in Franklin County, Ohio (Figures 1 and 2). The survey is necessary to comply with Section 106 of the National Historic Preservation Act of 1966, as amended. The goals of the survey are to determine if archaeological sites exist in the Area of Potential Effects (APE), and determine if any sites are eligible for inclusion in the National Register of Historic Places (NRHP). The lead agency for the EA is the Federal Aviation Administration.

The Columbus Regional Airport Authority is proposing to develop the CONRAC within the area known as the Loop Road Area (Columbus Regional Airport Authority 2015). Final plans for the undertaking are not available at this time; however, ground disturbance will include approximately 7.63 hectares (ha) [18.85 acres (ac)] of undeveloped land which is the APE for this Phase I archaeological survey.

The roughly C-shaped APE is in an urban setting at CMH. The APE is bordered on the north, south, and west by International Gateway (the main entrance road into the airport), and on the east by a hotel overflow parking lot, the airport's cell phone parking lot, and a Hertz Rental Car lot. Although most of the proposed APE is mown grass with a few mature trees, it also contains a chain-link enclosed and partially paved parking lot, which was formerly a Dollar Rental Car facility, and a paved access road. The APE also contains a partially tree-lined channelized stream enclosed at either end by culverts, and a small wooded area containing a wetland. The Franklin County soil survey indicates the APE is composed of a mix of urban cut and fill and natural soils (United States Department of Agriculture, Soil Conservation Service [USDA, SCS] 1980).

Archaeological fieldwork in the CONRAC APE was conducted on May 4 and 5, 2015 by Alan Tonetti, Jeremy Thornburg, and Scott Shupe. The project manager and principal investigator was Kevin Schwarz, PhD, RPA.

[2] The name of the Airport changed from Port Columbus International Airport to John Glenn Columbus International Airport in June 2016. Subsequent references to the Airport in this report use the former name, as that was the name at the time of the field survey and is the name used by many of the historical references cited in this report.

RESEARCH DESIGN

The goals of the Phase I archaeological survey were to make a reasonable and good faith effort to identify archaeological sites in the APE and determine if any sites were eligible for inclusion in the NRHP. To accomplish this, background research and archaeological fieldwork were conducted.

BACKGROUND RESEARCH

Background research included examination of the Ohio State Historic Preservation Office's Online Mapping System (SHPO 2015), Mills' (1914) *Archeological Atlas of Ohio*, Troutman's (2003) *Ohio Cemeteries: 1803–2003*, and historical maps and atlases. This research shows a few archaeological surveys have been conducted adjacent to the current project's APE (Figure 4), identifying two sites (Table 1). Historical maps show two structures dating to the mid-late nineteenth and early twentieth centuries existed in or adjacent to the APE, but none are extant. One may be associated with archaeological site 33FR2526 (Table 1).

Gibbs et al. (2001) conducted a literature review of the area surrounding the current project's APE documenting 13 previously documented archaeological sites and six archaeological surveys. The only additional archaeological investigation since then was by Seitz and Mustain (2005), who investigated an area that included the approximately 1.6-ha (4-ac) southwestern portion of the current project's APE (Figure 4). During this survey they identified two archaeological sites, one of which, 33FR2526, is in the current project's APE. Another site (33FR2525) was found much farther to the west, well beyond the current project's APE. Site 33FR2526 is a historical archaeological site with a minor prehistoric component. It appears to be near the location of a building documented on two historical maps (Figures 5 and 6). It contained historical artifacts and a structure foundation of brick and concrete with rebar. Based primarily on the cartographic information, it was thought to represent a rural dwelling extant from ca. 1872–1925 (Seitz and Mustain 2005). Neither 33FR2525 nor 33FR2526 was determined eligible for listing on the NRHP (Timothy M. Hill to Mark J. Epstein, letter, January 9, 2006, SHPO, Columbus) [Appendix A]. The rest of the APE does not appear to have been surveyed for archaeological sites and no sites are shown in the rest of the APE (Figure 4). Mills (1914) does not depict any archaeological sites near the APE (Figure 7). Troutman (2003) does not reference any cemeteries near the APE.

No buildings or structures are present in the APE on Graham's (1856) map (Figure 8). However, Caldwell et al. (1872) [Figure 5] and the 1904 Westerville and 1925 East Columbus, Ohio quadrangles (USGS 15' topographic maps) [Figure 6] show two buildings, probably dwellings, that may have been in or very near the APE, one of which may be represented by 33FR2526. Caldwell et al. (1872) [Figure 5] shows the other building approximately 250 m (820 ft) east of the structure that may be represented by 33FR2526, placing it in or along the south side of the Hertz Rental Car lot, in an area severely disturbed by underground utilities and International Gateway (Figure 9). This structure does not appear on the 1904 Westerville and 1925 East Columbus, Ohio quadrangles (USGS 15' topographic maps) [Figure 6].

The Franklin County soil survey indicates the APE is composed of a mix of urban cut and fill and natural soils (USDA, SCS 1980). The soil is mapped as Bennington-Urban land complex, 0–2 percent slopes. There is more fill than cut because drainage is poor. This soil is composed of deep, nearly level, somewhat poorly drained Bennington soil intricately mixed with urban or man-made land (fill) to improve drainage. Much of this soil complex has been artificially drained by installing subsurface drains and through sewer systems. Very poorly drained Pewamo soil is found in depressions and along streams. Due to these conditions, much of the APE was expected to be disturbed and the likelihood of identifying intact archaeological sites was considered low.

REGIONAL ENVIRONMENTAL SETTING

The APE is located on flat to gently undulating Late Wisconsinan ground moraine in the Columbus Lowland region of the Till Plains section of the Central Lowland province (Brockman 1998; Pavey et al. 1999). This region consists of a lowland surrounded in all directions by uplands, with a broad regional slope westward toward the Scioto River. The bedrock underlying this soil is shale belonging to the Devonian-age Olentangy and Ohio formation (Bownocker 1992). While this formation is not known for containing cherts used by Native Americans, several limestones and dolomite formations of the Devonian system contain chert. These occur in two formations: Columbus and Delaware (Stout and Schoenlaub 1945). These chert sources were easily attainable in the area and would have provided adequate tool-making materials for prehistoric Native Americans.

The APE contains an ephemeral stream, Mason Run, which based on an examination of historical maps, has been channelized (Figures 5 and 6). Mason Run flows southeast through the

APE, but farther downstream it bends to the south. Mason Run continues south and empties into Big Walnut Creek, which flows into the Scioto River.

The region comprising the APE has undergone a drastic transformation from the native vegetation cover due to large-scale deforestation. The APE lies in what was originally a beech forest surrounded by oak-sugar maple forest and elm-ash swamp forest. Beech forests covered most of the upland area and the tributary creek valleys in the region (Gordon 1969). The variety of floral associations and the patchiness of cover within the associations provided a wide regional diversity of plant food resources supporting a variety of fauna exploitable by local inhabitants as demonstrated by Wymer (1983). Excavations at the Zencor/Scioto Trails site (33FR8), a Late Woodland prehistoric village site located along the Scioto River in southern Columbus, produced large amounts of wood charcoal identified as hickory, oak, elm/hackberry, walnut, and maple. Nutshells identified as hickory, hazelnut, black walnut, butternut, and acorn were also recovered. Numerous carbonized seeds were recovered during flotation, consisting mainly of maygrass, goosefoot, blackberry, knotweed/rush, and sumac. This assemblage exhibits the exploitation of the regional diversity of available wild plants (Wymer 1983).

The fauna in central Ohio has been greatly influenced by the modern patterns of land use in much the same way the flora in the region has been altered. Many species of fauna adapted to forest environments find minimal woodland acreage in central Ohio. Natural phenomena such as glaciation during the Pleistocene and its associated climate changes had a major effect on both flora and fauna (Anderson and King 1976). The region supports a wide variety of animals. Mammals important to Native Americans and early settlers included white-tailed deer, gray wolf, mountain lion, black bear, bobcat, gray fox, elk, squirrel, rabbit, possum, raccoon, and woodchuck (Hall and Kelson 1959; Shelford 1963). Birds available for human exploitation included turkey, ruffed grouse, prairie chicken, and duck (Cope 1872; Gross 1932).

Paleoclimatic conditions are reflected in the archaeological record through pollen types (Shane 1976). A decline in conifer pollens combined with an increase in hardwood pollens is evidence of a warming and drying trend that lasted until ca. 2,000 B.C. At this time the trend was toward moister, cooler conditions, evidenced by the rise in mesophytic forests. Franklin County has a characteristically continental climate with warm, humid summers and reasonably cold winters. Precipitation is plentiful and evenly distributed throughout the year with an average growing season of 159 days (USDA, SCS 1980).

Regional Prehistoric Overview

Paleoindian

It is estimated that the occupation of the Ohio area would have been possible approximately 11,000 to 11,500 years B.C. By this time the glacial front that once covered Ohio had retreated into Ontario (Seeman and Prufer 1982). Paleoindians, the first known prehistoric population to occupy the Ohio area, were highly mobile, small-band hunters moving on a seasonal basis in order to more fully exploit the available natural resources (Dragoo 1976). These bands emigrated from the south and across the state as the glacier slowly retreated, and open grazing lands supporting large herbivores (i.e., musk ox, woolly mammoth, giant beaver, moose, elk, and caribou) gradually replaced the spruce-fir-pine forests. Although probably in pursuit of herd animals, Paleoindians were willing to utilize a broad spectrum of animal and plant resources.

Information on Paleoindian sites in Ohio is rare, but the database of sites has been steadily growing over the past 50 years. Information on Paleoindian settlement patterns and the distribution of fluted projectile point types was first provided by Prufer and Baby (1963), who looked at a sample of surface-collected fluted points that were diagnostic of early Paleoindians. Their study noted that the distribution of these artifacts follows a diagonal line across Ohio that corresponds roughly to the maximum Wisconsinan glacial boundary. The diagnostic fluted and lanceolate point types associated within this period have been reported in considerable numbers from Franklin County. Most are apparently isolated surface occurrences associated with the main tributary valleys. The majority of the points were made from locally available chert and flint, suggesting that groups did not range widely (Prufer and Baby 1963). Subsequently, Seeman and Prufer (1982) looked at a larger sample of fluted points and concluded that 1) fluted points frequently are found in major stream valleys and confluences; 2) sites tend to occur in proximity to quality flint resources; and 3) these points are rarely found in extensive swampy lowlands or in rugged highlands, such as the unglaciated portions of southeastern Ohio.

Archaic

As the glaciers retreated north at the end of the Pleistocene, the climate became temperate, large-game species became extinct, and the deciduous forest common today developed along with the modern contingent of associated fauna and flora. This environmental change was the catalyst for human adaptive shifts that are encompassed within the Archaic period (Ford 1974). Artifact assemblages from sites of this period showed a wider range of tool types, some of which had specialized functions for the processing of a wider variety of plant and animal resources (Griffin 1967). Although all human groups of this period were hunters and gatherers, environmental differences led to regionally distinctive artifact assemblages by the end of the period, which may or may not reflect culturally distinct human social groups (Dragoo 1976).

Changes in human social group organization occurred concurrently with changing food procurement strategies. In general for eastern North America, these changes included restricted group mobility, larger aggregations of individuals, development of ritual behavior, development of interregional exchange systems, and early attempts at plant domestication (Ford 1974), resulting in smaller group territories, occupation of sites for longer periods, reuse of sites at more frequent and probably more regular intervals, and use of a wider variety of plants and animals. In addition, storage facilities and vessels began to appear more frequently, along with evidence for incipient cultivation of some plant species. Burial ceremonialism and most likely other ritual behavior developed and showed signs of becoming formalized in some regions. Such activity may be linked to the establishment of social group identities, the maintenance of territorial boundaries, and the regulation of intergroup alliances and trade. However, this proposition has not been adequately tested nor fully demonstrated.

By 9000 B.C., a warmer, drier climate emerged that encouraged an increase in deciduous forest elements that, by 5000 B.C., became the dominant forest type. This period, classified as the Archaic period, has been subdivided into three temporal periods: Early, Middle, and Late.

During the Early Archaic period (9000 B.C. to 6000 B.C.), small mobile groups gradually became more geographically restricted as seasonally oriented hunting-and-gathering activities were focused on smaller, well-exploited territories, which can be a direct link to the expansion of the deciduous forests that produced a more favorable habitat for game species (Chapman 1975). Although hunting was a major subsistence activity, a narrow spectrum of nutritious plant foods was also utilized (Chapman 1975; Cleland 1966). This transition is marked in the material culture by a change from lanceolate spear points, ideal for hunting larger animals, to a series of smaller, more diversified notched and stemmed projectile points, scrapers, knives, drills, and ovoid blades. Woodworking and food preparation tools were added to the assemblage, which included axes, adzes, mortars and pestles, as well as awls, gouges, and grinding stones.

Habitation sites seemed to have centered on the uplands. Sites tend to be small and scattered, limited to surface discoveries, and usually located in uplands near secondary stream valleys.

During the Middle Archaic period (6000 B.C. to 3000 B.C.), the continuing alteration of the climate led to a wider selection of exploited plant foods. However, the major emphasis remained on hunting with an increasingly sedentary lifestyle (Cleland 1966). The broadening economy is reflected in the material cultural as well, which was adapted to intensive exploitation of forest and riverine biomes. Plant-processing tools included a variety of ground stone implements, grooved axes, metates, and nutting stones. Atlatl weights are also noted, and bone tools were added to the artifact assemblage (Broyles 1971; Lewis and Lewis 1961).

In the Late Archaic period (3000 B.C. to 900 B.C.), the expansion of deciduous forests reached its northernmost limit (by approximately 2000 B.C.), and the climate was warmer than today. Coinciding with an increase in territorial permanence was the appearance of regional manifestations such as Glacial Kame, Red Ochre, and the Old Copper cultures (Cleland 1966). A wider array of specialized objects was utilized, such as steatite and sandstone bowls, stone tubes and beads, polished plummets, net sinkers, whistles and rattles, birdstones, boatstones, and awls, needles, and perforators made of bone (Chapman 1975). Ceremonialism increased in importance, as evidenced by more elaborate, formalized burial practices and the presence of exotic materials obtained from emerging trade networks. Scheduled harvesting of seasonally available plant and animal resources climaxed in the Late Archaic.

The majority of Late Archaic sites in the Ohio River valley appear to be related to the Brewerton phase of the Laurentian tradition (Dragoo 1976). In addition, the Laurentian tradition is generally represented by the widespread occurrence of crudely fashioned, thick, small stemmed or notched points that persisted through the Middle Woodland period (George 1971). These Late Archaic sites occur as two predominant types: 1) relatively large base camps on high ground along major tributaries; and 2) small encampments on knolls, overlooking lakes, ponds, and swamps (Prufer and Long 1986). In general, both site types exhibit similar artifact assemblages but differ in quantity of materials. Larger sites also exhibit more diverse assemblages that include ground stone and bone tools.

Other models of the Late Archaic settlement system are based on a generalized model of hunter-gatherer settlement for the Eastern Woodlands. Four potential site types are generated by a hunter-gatherer adaptation, including 1) semi-permanent base camps; 2) satellite short-term seasonal camps for generalized resource procurement; 3) special-purpose extraction camps (e.g., quarries); and 4) mortuary sites (Roper and Lepper 1991). On the other hand, investigations of other Late Archaic sites in southeastern Ohio have suggested that a logistically organized settlement pattern was present, one where the use of lithic resources was embedded in the procurement of other resources (Church et al. 1991).

The first evidence of cultigens is associated with the Late Archaic period. At the Salts Cave site, chenopodium, sunflower, and gourd seeds have been recovered and dated to approximately 1500 B.C. (Yarnell 1974). This period also shows a more efficient and broad-based exploitation of local plant and animal resources, including aquatic species. This success has been evidenced by the recovery of charred botanical remains of a variety of nuts, including acorn, hazel, hickory, and black walnut. Fruit was also becoming an important food resource as demonstrated by the diversity of fruit seeds, such as wild grape, blueberry, raspberry, and strawberry (Dye 1977; Yarnell 1974).

In the central Ohio region, the overwhelming majority of sites with assigned cultural affiliations contain an Archaic component. Many of these sites are, however, unidentified as to their chronological occurrence within the period (i.e., Early, Middle, and Late). Archaic sites have been documented on all landforms in the region. In general, the distribution of Archaic sites is equal in both the creek valleys and the interior upland till plain, with a noted predominance of Early Archaic sites on the till plain (Clarke 1980). East of this area, in the uplands between the Olentangy and Scioto River valleys, Archaic sites are similarly distributed. In the latter area, large terrace sites contained not only Archaic components but Middle Woodland and/or Late Woodland and Late Prehistoric components as well (Immel and Kime 1984). Outwash terraces in the Alum Creek valley exhibited the same temporal occupations (Clarke 1980). A series of Late Archaic burials dating to at least 3045 B.C. have been recovered from 33PI267; this site is on a glacial feature remnant overlooking Big Walnut Creek near its confluence with the Scioto River (Hillen et al. 1997).

Woodland

Prior distinction between the Archaic and Woodland periods was based on the introduction of agriculture, elaborate burial ceremonialism, and pottery; however, this theory is no longer accepted. More recent evidence has demonstrated a continuum from the end of the Archaic through the Middle Woodland for the intensification of horticulture and the formalization and elaboration of mortuary practices (Dragoo 1976). The innovation and adaptation of these traits by the different human groups were not uniform but occurred at different rates in different regions. The introduction and use of these traits had to be synchronized with the perceived biological and social needs of the different human groups. Consequently, the rate of change in subsistence and mortuary practices varied from region to region, with some local groups maintaining Late Archaic lifestyles throughout the Late Woodland, while other groups, primarily those along the main river valleys, underwent rapid transformations. The Early and Middle Woodland periods mark the beginning of mound building in the region.

In central Ohio, the local Early Woodland expression was the Adena culture, noted for the manufacture of pottery and the use of conical burial mounds for interment (Greenman 1932; Webb and Baby 1957). Although semisedentary like their Late Archaic predecessors, the Adena inhabitants of Ohio were more territorially restrictive. This is indicated by the occurrence of semipermanent village sites and the manufacture of Fayette Thick (both plain and cordmarked), Adena Plain, and Montgomery Incised ceramics (Dragoo 1963), conical mounds, Adena Stemmed and Cresap points, and Robbins blades (Converse 1973; Dragoo 1963).

Sites associated not only with the Early Woodland period but also the subsequent Middle Woodland periods are of two types: lithic manifestations and earthworks. In the Scioto River valley region, most lithic sites considered to be Early Woodland have produced items diagnostic of the transitional Late Archaic/Early Woodland period (Immel and Kime 1984). To the east in the Alum Creek valley, Late Archaic/Early Woodland sites are common on the floodplain and bluff edge and typically are represented by small, low-density artifact scatters (Clarke 1980).

Earthworks are fairly common throughout this region. In Franklin County alone, Mills (1914) documented 132 mounds. Most of these were located in southern Franklin County along the Scioto River valley. In northern Franklin and southern Delaware counties, comparatively fewer earthworks were present along the small tributaries such as Alum Creek. In this region, most mounds are located in proximity to the bluff edge (Clarke 1980; Immel and Kime 1984). On the basis of research conducted at several Late Adena sites in the Philo Archaeological District, along the Muskingum River, and elsewhere in the unglaciated Appalachian Plateau, Adena sites consist of ridgetop mortuary camps and mounds, and year-round multipurpose hamlets and seasonal encampments located on terraces and floodplains (Abrams 1989;

Carskadden 1995; Carskadden and Gregg 1974; Carskadden and Morton 1989; Clay and Niquette 1989).

Excavation of Adena habitation sites has failed to delineate house patterns even though post molds are generally identified. Mortuary structures consist of a circular arrangement of paired posts. This pattern has not been identified at habitation localities (Carskadden 1996). Generally, shallow basin-shaped pits, cylindrical straight-sided pits, and hearths are feature types frequently identified at these sites (Carskadden 1996; Carskadden and Gregg 1974; Seeman 1986).

The predominant Middle Woodland manifestation in Ohio was the Hopewell culture, which lasted from 100 B.C. to A.D. 500. This culture was characterized by elaborate geometric earthworks, enclosures, and mounds that are often associated with multiple burials and a diverse assemblage of exotic ceremonial artifacts (Brose et al. 1978). Ceremonially, Hopewell appears to represent a continuation of the Adena culture, albeit on a more expanded and spectacular scale (Prufer 1964). Hopewellian trade networks were extensive, and the raw materials for ceremonial objects were acquired from various regions of North America (Seeman 1979). Although Mills (1914) has documented several mounds and earthworks in the county, their specific cultural affiliations are unknown. There is growing evidence that not all Middle Woodland groups were participating in these elaborate mortuary practices but were continuing to use and add to the Adena mounds (Aument and Wright 1991).

Most of the information to date on the Hopewell culture has been obtained through mound exploration. Relatively little is known of settlement and subsistence patterns because so few habitation sites have been located and excavated. Using information from nonmound excavations (e.g., Prufer 1965), Ford (1979) has suggested a basic hunting-and-gathering economy with limited horticulture. Nuts appear to have been important, as were deer. Corn seems to have been utilized but was not a dietary staple. This settlement system is interpreted as consisting of a semipermanent shifting of agricultural farmsteads and hamlets that cluster around ceremonial centers (Prufer 1964). Prufer and colleagues tested his initial hypothesis about Middle Woodland settlement patterns with the excavation of the McGraw site (Prufer 1965). Prufer believed that the data recovered supported his supposition of an agricultural-based society living in dispersed hamlets or farmsteads (Prufer 1965). Research by Pacheco (1988), which was directed as a test of the Prufer model or Hamlet Hypothesis, suggests that the Licking River valley Middle Woodland settlement system supports Prufer's initial interpretation. However, the settlement system summarized by Smith (1987) and supported by Church and Ericksen (1997) indicates the presence of a three-tiered pattern that includes seasonal farming hamlets, cold season homesteads, and short-term procurement camps. To date, the interpretation of the Murphy site (an Early Middle Woodland occupation located in Licking County) as representative of a year-round continuous occupation of some 300 years (Dancey 1989) is debated (Dancey 1991; Yerkes 1990).

Although a small hamlet (encompassing not more than 1 ha [2.47 ac]), interpretation of the settlement layout of the Murphy site includes the identification of "maintained space" (Dancey 1991), i.e., specific zones are defined by the distribution and type of features excavated. Dancey (1991) has identified a structure zone, a food-processing zone, and an open yard at the Murphy site. Feature types included earth oven, cylindrical pits, basins, hearths, and post molds. No structure was identified at Murphy; however, at least two subrectangular structures were present at 33FR895 in Franklin County, Ohio, a multicomponent location with two Middle Woodland loci (Aument and Gibbs 1991).

During the Middle Woodland period, the large Hopewell culture centers were located in the central Ohio River valley and the Scioto River valley of southern Ohio with a concentration in Ross County (Mayer-Oakes 1955). It has been suggested that this pattern represents a habitation shift from bluff edge to river bottoms, possibly connected to an increased utilization of pioneer annual seeds, which were abundant on wide stream bottoms, and initial attempts at horticulture. From approximately 100 B.C. to A.D. 500, the Scioto Hopewell experienced a cultural apex (Shane 1970). A decline took place in the sixth century A.D., the exact cause of which is not known. One theory suggests that climatic fluctuation inhibited agricultural pursuits and resulted in the decline (Baerreis et al. 1976). Another theory stresses the breakdown of territories and intergroup contacts due to the concentration on a single subsistence activity, a focal agricultural economy (Cleland 1966).

The Late Woodland period has been poorly defined for most of Ohio. To date, much of what is known for central and southern Ohio is based on ceramic assemblages (Prufer 1975; Prufer and McKenzie 1966). In addition to changes in the prehistoric ceramic assemblages from Middle to Late Woodland, there is a notable modification of projectile point style. This may be partially attributable to the development of the bow and arrow. Along with triangular projectiles, a shallow notched point dubbed Chesser Notched is common in the Late Woodland (Prufer 1975).

The Late Woodland period in Ohio (ca. A.D. 500 to A.D. 900) is often viewed as a prehistoric dark age, following the disappearance of elaborate earthworks and evidence of mortuary ceremonialism which defined the Middle Woodland or Hopewell period in the region. With the recent identification and excavation of several archaeological sites from the Late Woodland period (Church 1987; Fuller 1981; Rafferty 1985; Railey 1984), interest has increased in this relatively obscure period. In the light of this research, the Late Woodland period in Ohio is viewed as a time of sociopolitical and subsistence change that laid the groundwork for the development of stratified societies and intensive agricultural production during the Late Prehistoric period. According to Braun (1988), the lack of stylistic complexity in both the ceramic and lithic assemblages of this period is evidence of sociopolitical change in the form of increased regional integration among villages. Changes in the subsistence regime indicate an increased focus on naturally abundant seed plants and an intensification of their utilization and manipulation by prehistoric groups. Related changes occurred in the production of ceramics that could withstand higher cooking temperatures and greater repetitive use, a shift toward increased residential sedentariness, a concomitant decrease in land-use area, and a simplification of the chipped stone industry (Braun 1988).

In central Ohio, these changes are evident throughout the Late Woodland period with sites early in the period consisting of small, nucleated communities frequently located on bluff edges with an encircling ditch or earthwork feature. Ceramics are grit tempered, and Chesser Notched is the dominant point type. These early Late Woodland sites are similar in settlement structure and artifact assemblages to Late Woodland Newtown phase sites described in northern Kentucky and southwestern Ohio (Church 1987). During the latter part of the Late Woodland period, sites no longer appear to be nucleated but instead consist of small, dispersed, seasonally occupied sites located variably on the terrace or floodplain, with an increased use of the uplands. Ceramics are variously tempered with locally available materials, such as grit, chert, or limestone, and the predominant point types include Raccoon Notched and Jack's Reef pentagonal points and small triangular points (Church 1987).

Several Late Woodland phases have been described for the central Scioto River valley, largely based on a handful of sites excavated in the 1960s. Cole, Chesser, and Peters phases were defined on the basis of ceramic ware types (Potter 1966; Prufer 1975; Prufer and McKenzie 1966). As currently understood, these phases probably represent local variants of Woodland cultures.

Currently defined Late Woodland cultural manifestations in the central Scioto River valley include the Cole complex, first described by Baby and Potter (1965) and Potter (1966) on the basis of ceramic similarities among the sites of Cole, Lichliter, Voss, and Zencor (known also as the Scioto Trails School site). The complex rests largely upon the definition of Cole Cordmarked and Cole Plain prehistoric ceramic types, distinguished by form, surface treatment, and lip shape from previously described Late Woodland prehistoric ceramic types like Newtown Cordmarked.

With the publication of excavation results from the Voss Mound, the definition of the Cole complex was extended from ceramics to ceremonial life (Baby et al. 1966). Voss Mound yielded triangular points and knives, marine shell, and turkey bone awls. Evidence of a buried structure was present under the mound (radiocarbon-dated to ca. A.D. 966), and two burial pits were dug into the mound. The presence of triangular points and shell-tempered prehistoric ceramics was interpreted as representing contact with Fort Ancient groups located to the south. Voss Village, excavated in 1966 (Baby et al. 1967), yielded radiocarbon dates of A.D. 910 to A.D. 1500.

The position of the Cole complex as a lineal Late Woodland descendant of Hopewell was reinforced by this work, and later the sites of Erp, Hudson, Shipley, Fishinger Park, the Wolf Rockshelter, and Swinehart Village were added to the complex (Baby et al. 1966). The diagnostic trait list was expanded to include Cole points, chipped slate discs, chipped stone celts, circular houses, and small villages located on second terraces.

Prufer and McKenzie (1966) described a new Late Woodland phase for central Ohio based on the excavation of Peters Cave in Ross County, Ohio. The Peters phase was located in the unglaciated portions of southeastern Ohio, defined on the basis of Peters Plain and Peters Cordmarked prehistoric ceramics, which have more rounded shoulders than other Late Woodland ceramics, no interior cordmarking, grit, limestone, or chert tempering, fine vertical cordmarking, and flat lips. Triangular points, Chesser Notched points, and fishspear points are the diagnostic lithics. The settlement pattern was summarized as a system of riverine villages and seasonal upland hunting camps similar to Peters Cave (Prufer and McKenzie 1966).

Prufer (1975) also described the Chesser phase, based on the excavation of Chesser Cave, Athens County, Ohio. A radiocarbon date of A.D. 1070 was obtained from the site; the prehistoric ceramics were predominantly limestone tempered, but small amounts of Peters Plain and shell-tempered wares were also documented. The Chesser phase was interpreted as belonging to an indigenous Scioto tradition, which also included the Peters phase but excluded the Fort Ancient tradition as intrusive to the valley (Prufer 1975).

Barkes (1982) reanalyzed the Cole ceramics and found that sites like W.S. Cole, Ufferman, and DECCO shared traits of crushed rock temper, cordmarking, and a general similarity of vessel morphology; typical Fort Ancient traits like punctates, incised designs, shell tempering, and strap handles were absent. However, Cole ceramics did exhibit collared rims, rims with nodes, lugs, and flanges, which are also present on Fort Ancient ceramics. Barkes concluded that the Cole complex was culturally distinct from but contemporaneous with early Fort Ancient.

Thus, several Late Woodland phases have been described for the central Scioto River valley, largely based on a handful of sites excavated in the 1960s. Since that time, a number of additional sites have been excavated in this region, including the Scioto Woods and Hartley Farm sites (Church 1992) and the Sabre Farms site (Nass et al. 1990).

The Transitional Late Prehistoric period was recognized in the central Scioto River valley based on a number of sites that share certain characteristics with both Late Woodland and Late Prehistoric sites. This work redefined the cultural chronology of the region, using in part sites that had previously been identified as Fort Ancient. Four sites assigned to this period include Howard Baum and Blain Village in Ross County, Enos Holmes in Highland County, and Voss Mound and Village in Franklin County (Church 1987). These sites have dates that span the end of the Late Woodland to the Late Prehistoric period (ca. A.D. 950 to A.D. 1150) and are variably located on terraces and floodplains. The material culture includes ceramics that are <5 percent shell tempered and have a guilloche as a design element >50 percent of the time; rims are thick, and lips are flat to round. Convex-based triangular points predominate (Church 1987).

Late Prehistoric

The Late Prehistoric period in Ohio extends from approximately A.D. 900 to A.D. 1600. This period is characterized as a time of sedentary, village-dwelling maize agriculturalists. A few widespread cultural traditions have been identified across Ohio and the immediate region, including Fort Ancient, Monongahela, Whittlesey, and the Mississippian Angel and Oliver phases. In particular, each of these late Prehistoric cultures bears specific ceramic traits, such as a mix of Late Woodland and Fort Ancient-like traits among Oliver-phase ceramics, and loop handles, negative painting, and a more varied vessel inventory among Angel-phase ceramic assemblages.

Fort Ancient was recognized as a distinct prehistoric culture as early as the turn of the century (Moorehead 1899; Putnam 1886). By the 1930s it was firmly established as a Late Prehistoric culture extending across southern Ohio, southeast Indiana, northern Kentucky, and possibly into West Virginia (Griffin 1943). During the 1970s, a three-phase model of the Fort Ancient tradition was developed: Early (A.D. 950 to A.D. 1250), Middle (A.D. 1250 to A.D. 1450), and Late (A.D. 1450 to A.D. 1700) [Prufer and Shane 1970]. Early Fort Ancient was represented by three phases: Baum, Baldwin, and Brush Creek. Middle Fort Ancient included the Fuert and Anderson phases, and Late Fort Ancient was represented by the widespread Madisonville phase. The Fort Ancient tradition in general was characterized by village agriculturalists whose economy was built upon maize, beans, and squash, with some supplementary hunting (primarily of deer and turkey) and foraging (mostly nuts and berries) [Graybill 1981; Prufer and Shane 1970]. Fort Ancient villages contained a central plaza surrounded by circular zones of habitations, refuse pits, midden, and burials. Burial mounds were sometimes present, and after A.D. 1250, villages were usually palisaded.

The Fort Ancient culture was considered to be so different from earlier cultures in the region that its origins were hypothesized to be a result of stimulus diffusion from the Mississippian heartland at approximately A.D. 900 to A.D. 1000 (Griffin 1943). Prufer and Shane (1970) interpreted Fort Ancient as a result of population intrusion into the area, from which occurred “the physical and/or cultural annihilation of the older Woodland cultures” (Prufer and Shane 1970:258). More recent research in Ohio, northern Kentucky, and West Virginia (Church 1987; Graybill 1981; Rafferty 1974) has supported an alternative hypothesis, namely that the Fort Ancient culture developed in situ from local Late Woodland antecedents.

Protohistoric

Around A.D. 1550, Late Prehistoric groups in western Pennsylvania procured materials that indicate an indirect contact with European settlers (Herbstritt 1983). These materials include wire-wound faceted beads, copper tinklers, and native-manufactured artifacts such as triangular glass and metal pendants made from imported European goods. In contrast to later sites, there is no change in intrasite patterning of subsistence procurement strategy. Recognition of protohistoric sites is based solely on the occasional occurrence of European trade items (Skinner and Brose 1985). This influx of trade items is documented in the Middle Ohio Valley ca. A.D. 1650 to A.D. 1750 at two contact period sites in Greenup County, Kentucky (Pollack and Henderson 1983). The difficulty in recognizing these sites, given the limited change in the material culture, undoubtedly has resulted in the lack of proper protohistoric designations.

Historic Period Context

Settlement And Organization

The first notable wave of settlers to the Ohio territory began arriving shortly after the establishment of the Greenville Treaty Line. In 1796, a portion of central Ohio was apportioned by an Act of Congress and ordered surveyed so land warrants could be issued to Revolutionary War soldiers for payment of services (Perrins and Battle 1880). This area of central Ohio became known as the US Military District (Martin 1858). Political organization of the area followed. Franklin County, first settled in 1797, was organized with the state's admission to the union in 1803 (Martin 1858), and later reduced to its present size.

The initial flow of Euro-American immigrants into what is now Franklin County came from the south, settling in Franklinton and Worthington, then moving northward along the main tributaries (Martin 1858). These early settlers were primarily Revolutionary War veterans who received land warrants for their services. A second influx of immigrants came beginning about 1810 from the New England area via Pennsylvania. Many of these individuals moved into Morrow County, where congressional lands were available for purchase. Other individuals purchased small land holdings in Delaware and Franklin counties from the original holders of the land warrants.

Much of Franklin County was under agricultural cultivation by the mid-nineteenth century. Important early farm products included corn, wheat, cattle, and hogs. By 1880, oats, potatoes, orchards, and sheep were also significant. Commercial activity centered on communities and served mostly the local population. Initially, private schools met the educational needs of the residents. Most townships had public school districts by the 1860s. Most industrial activity focused on processing the agricultural products of the county and consisted of mostly saw- and gristmills and distilleries (Benjamin D. Rickey & Company 1983).

As railroads, interurbans, and eventually automobiles improved mobility around the county in the late-nineteenth and early-twentieth centuries, significant changes began to occur. Commercial activity initially became centered on Columbus, but later spread outward following suburban residential development along the main roads and interurban lines. Agricultural land began to disappear in the face of new streetcar suburbs. The development of the interstate highway system greatly increased the transition of agricultural to residential land. The interstate highway system has also resulted in the spread of commercial and industrial activity away from the city and village centers and into formerly rural land (Benjamin D. Rickey & Company 1983).

Transportation

Early forms of transportation encouraged settlement and subsequent agricultural development, providing a means for distributing produce to distant markets. Later forms also provided for the movement of people within the developing urban and suburban environments. The early roadways through the region were no more than former Indian trails. Three paths of travel crossed this area and shaped patterns of development. The earliest was the road from Granville to Worthington (present State Route 161). This path linked together two pioneer communities of New England ancestry and was the primary means of opening up the northeast corner of Franklin County to initial settlement. The second path linked the city of Columbus, designated capital of the state in 1816, with Johnstown and other settlements to the northeast. Both of these roads were clearly established by the early 1840s (Anonymous 1842). The third and later path led north from the intersection of the other two paths and connected with the settlement of Condit in Delaware County. This road was in use by the 1850s (Graham 1856). Other early roadways through the region include the National Road (1834) as well as local roads such as Agler, James, and Price Roads (ca. 1850). Stelzer Road, perpendicular to the entrance to Port Columbus International Airport, first appears in the Caldwell et al. (1872) [Figure 5].

Other forms of transportation were important as well. The construction of the Ohio Canal, begun in 1825, was completed in 1828. Located south of the APE, the Central Ohio Railroad, later known as the S.O. Railroad, the Pittsburgh, Cincinnati, Chicago, and St. Louis/Baltimore & Ohio Railroad, and the Pennsylvania/Baltimore & Ohio Railroad, was incorporated in 1847. Its construction from Columbus to Zanesville was completed in 1853 (Lee 2000 [1892]), ultimately connecting to Bellaire, Ohio and the eastern divisions of the Baltimore & Ohio Railroad. The canal and the railroad greatly improved the economy of the region by supplying efficient means for distributing the county's agricultural products. In 1899, the Columbus, New Albany, & Johnstown interurban was proposed and incorporated. Its construction from Columbus to Gahanna along Stelzer and Johnstown roads was completed in 1902, and it operated until 1910. The Gahanna to Johnstown branch was not completed (Hooper 1920).

Modern transportation developments in Franklin County include the creation of Port Columbus International Airport. The airport was founded in 1929 as part of the first Transcontinental Air/Rail Service from New York. With the introduction of instrumentation for night flying in 1932, the rail portion of Transcontinental & Western Airlines (TWA) service was eliminated. By 1939 there were 14 daily flights from Port Columbus. The Federal government took over Port Columbus in 1941 for military service and enlarged the airport. By the 1950s, the runway was believed to be the largest in the Midwest. International designation arrived in 1965 when an official Customs facility was created (Columbus Regional Airport Authority 2003).

Mifflin Township

Although Port Columbus International Airport is in the city of Columbus, the property on which the airport was constructed was once in Mifflin Township. Originally covered by a dense forest with a variety of timber, the region that later became Mifflin Township had the benefit of two major watercourses, Alum and Big Walnut creeks. Marked by steep shaley banks, they are the exceptions to the otherwise relatively flat terrain. In 1799 or 1800, the first settlers, largely emigrating from Pennsylvania, began arriving. Clearing the land, they exposed rich bottomlands and fertile uplands that produced quality wheat. The first settler in the area is believed to have been William (later Judge) Read. Frederick Agler, George and Barbara Baughman, John Starrett, and James Price (1811) were also early settlers (Historical Publishing Company 1901).

Mifflin Township, originally part of the old Liberty Township created with the organization of the county, was established and attached to Plain Township until it was officially organized in 1811. The first brick houses were built in 1815 by Judge William Read and Andrew Agler. Church services began in 1819. Reverend Washburn of Blendon led the Presbyterian congregation and Reverend Hankle was the Lutheran pastor. These two sects became prominent in Mifflin Township. Ebenezer Dean built the first sawmill early in the history of the township, probably before 1825. In that year D. Stygler moved to Mifflin. The Styglers were prominent in local affairs (Williams Bros. 1974 [1880]). Gahanna/Bridgeport, platted in 1849 and 1853 by John Clark and Jesse Baughman, respectively, became the largest village and boasted the first post office (1849) and the first and only gristmill in the township (1859) [Historical Publishing Company 1901; Williams Bros. 1974 (1880)].

By 1850, the population of Mifflin Township was 1,095, including 300 migrants. The census that year indicates the majority of these migrants (249) were from the Mid-Atlantic States, primarily (191) from Pennsylvania. Thirty-four came from the southern state of Virginia and 16 came from New England. Though agriculturally based, immigrants also settled in Mifflin Township lured to some extent by its proximity to Columbus, an industrial center. However, the Pennsylvania Dutch community was most likely the attraction for the majority of immigrants. Of the 66 immigrants enumerated in Mifflin Township, 51 were from Germany (Wilhelm 1982).

FIELD METHODS

Two methods of investigation were conducted: visual inspection and shovel test pit (STP) excavation. The entire APE was visually inspected to identify readily apparent archaeological sites such as mounds or structure foundations, and areas that might be disturbed or otherwise unlikely to contain archaeological sites (e.g., wetlands, drainage ditches, road berms, and areas containing buried utilities).

The portion of the APE not surveyed by Seitz and Mustain (2005) or visually determined or documented to be disturbed was investigated by excavating STPs. The interval between STPs varied between 15 m (49 ft) and 30 m (98 ft) as the Franklin County soil survey (USDA, SCS 1980) data indicated the APE was a mix of natural and urban land containing a substantial amount of fill at various levels. STPs were approximately 50 cm by 50 cm (20 in by 20 in) in size. STPs were excavated down to the subsoil or to a depth sufficient to demonstrate the disturbed nature of the soil. Soil data was recorded on STP forms. Soil was screened through 0.64-cm (0.25-in) hardware cloth to determine if artifacts were present. The only artifacts found were modern items, i.e., trash or rubble in fill soil. They appear to represent roadside trash or secondary deposits, none of which were recorded as archaeological sites. Due to the nature of these artifacts, the STPs in which they were found are indicated as negative (Figure 3), but the artifacts are discussed in the survey area discussion below. None of the artifacts were retained following completion of this report. Notes were taken on each STP, recording soil characteristics and the presence or absence of cultural material. A GPS unit was used to record some features in the APE and some of the STP locations. Photographs of a few STP profiles were taken to show fill episodes, and others were taken to show the survey conditions and obvious areas of disturbance. Photographs are keyed to project mapping (Figure 3).

ARTIFACT ANALYSIS

PREHISTORIC MATERIAL

No prehistoric artifacts were identified.

HISTORIC MATERIAL

All of the artifacts collected from screening STPs were modern trash or demolition debris found in fill. No formal analysis of these materials was undertaken.

CURATION

All cultural materials found are modern and do not represent in situ archaeological deposits. Thus, they were disposed of after completion of the report and not curated. Field records and photographs are retained by ASC.

ARCHAEOLOGICAL SURVEY RESULTS AND CONCLUSIONS

The Phase I archaeological survey was conducted May 4 and 5, 2015. The weather during the fieldwork was seasonal and partly cloudy. The APE is an irregular but generally C-shaped area of some 7.62 ha (18.85 ac) [Figure 3]. The southwestern portion of the APE, approximately 1.6 ha (4 ac), was previously surveyed (Seitz and Mustain 2005) and was not re-examined. The rest of the APE was divided into four areas for survey.

In Area 1, 10 STPS were excavated at 15-m (49-ft) intervals (Figure 3). Area 1 (Plates 1 and 2) is bordered on north by a paved access road and unpaved lane (Area 3), on the east by a small wooded area containing a wetland and a grassy field south of the airport cell phone parking lot (Area 4), on the south by a tree line and grassy road berm in which numerous utilities are buried (Area 4), and on the west by a grassy field (Area 2). Area 1 is enclosed by a chain link fence. It contains a paved parking lot and access road, and a grass field (Plates 1 and 2). STP excavation began in the northeast corner of the grassy field. The STP grid was established with a GPS unit and oriented true west. Some STP soil profiles consisted of a dark grayish brown, compact, uneven, silt loam A horizon varying in depth from 12 centimeters below surface (cmbs)–33 cmbs (5 inches below surface [inbs]–13 inbs), underlain by compact clay loam that varies in depth from 12 cmbs–23+ cmbs (5 inbs–9 inbs). These units may represent the natural soil profile for Bennington silt loam, which typically has a dark grayish brown friable silt loam approximately 20 cm (8 in) thick underlain by a yellowish brown mottled firm silty clay loam and clay loam to approximately 89 cm (35 in) [USDA, SCS 1980]. However, STP 2 in Transect 1 (T1) contained pieces of gravel, shale, and other rocks, and two small brick fragments were found at 19 cmbs (7.5 inbs). STP 2 in T2 also contained gravel at a depth of 20 cmbs (8 inbs). All STPS in T3, next to the paved lot, contained a somewhat shallow (4 cmbs–19 cmbs) [1.5 inbs–7.5 inbs] grayish brown silt loam A horizon above a yellowish brown clay loam containing much gravel. These units were terminated upon reaching the gravel. It was concluded that much of the area in the grass field in Area 1 is disturbed or contains made-land of fill dirt. Photographs of STP profiles (Plates 3–5) of two units in T2 show fill deposits. No archaeological sites were identified in Area 1.

In Area 2, 15 STPs were excavated at 15-m (49-ft) and 30-m (98-ft) intervals (Figure 3). Area 2 (Plates 6–11) is bordered on north by International Gateway, on the east by a dirt and grass lane separating Area 2 from Area 3 and the chain link fence at the western border of Area 1, and on the south and west by Mason Run. A sanitary sewer line runs into and through the southern portion of Area 2 to Mason Run. A manhole is shown in Plate 7. A drainage ditch exists in the northeastern and central portion of Area 2, shown on Plates 9 and 11. The area adjacent to Mason Run has a natural or man-made levee, also best illustrated on Plates 9 and 11. The STP grid was established in the southeastern corner of Area 2 with a GPS unit and oriented toward true north. Typical soil profiles in the southern portion of Area 2 consisted of a relatively shallow A horizon of dark grayish brown silt loam (8 cmbs–19 cmbs) [3 inbs–7.5 inbs] containing few rocks underlain by a sometimes heavily mottled grayish brown to yellowish brown silty clay loam with a blocky structure. The A horizon generally got much deeper (26 cmbs–35 cmbs) [10 inbs–14 inbs] north of the drainage ditch bisecting Area 2. The STPs south of the drainage ditch seem to indicate disturbance and filling. North of the drainage ditch the soil profiles indicate more natural but deeper Bennington soil profiles. No archaeological sites were identified in Area 2.

In Area 3, 14 STPS were excavated at 30-m (98-ft) intervals (Figure 3). Area 3 (Plates 12–14) is bordered on the north by International Gateway, on the east by a hotel overflow parking lot, on the south by a paved access road and a dirt lane, and on the west by a dirt and grass lane separating Areas 2 and 3. STPs units in Area 3 STPs were oriented on compass transects. STPs in the eastern two-thirds of Area 4 showed evidence of fill deposits in the form of 30–40 percent gravel below 13 cm–17 cm (5 in–6.5 in). The grayish brown silt loam A horizon in some STPs showed disturbance in the form of deposits of recent ("highway") trash, mottling, and compaction. STP 7 in T2 contained pieces of drainage tile, slag, and metal wire from 0 cmbs–13 cmbs (0 inbs–5 inbs). No archaeological sites were identified in Area 3.

In Area 4, seven STPs were excavated (Figure 3). Area 4 (Plates 15–19) is bordered on the north by a paved access road, the cell phone parking lot, and the two rental car lots; on the east by the airport's cell phone parking lot, the Hertz Rental Car lot, and another paved access road; on the south by International Gateway; and on the west by the former Dollar Rental Car lot and the area surveyed by Seitz and Mustain (2005) [Figure 3]. The area south of the east-west oriented tree line south of the former Dollar and Hertz lots was not shovel tested due to its previous use as a road and the presence of numerous underground utilities (Figure 9) buried in the berm of International Gateway. A comparison of Google Earth historical imagery shows that as of February 28, 2007, this berm was the location of two westbound lanes exiting the airport. A sanitary sewer line runs through the center of Area 4 from east to west. A manhole exists along this line (Figure 3).

STP 1 in T1 had an A horizon of dark grayish brown silt loam extending 0 cmbs–10 cmbs (0 inbs– 4 inbs). It was underlain by a thin 3-cm (1-in) lens of dark yellowish brown clay loam heavily mottled with brownish yellow clay containing numerous rocks. This lens was underlain by a lightly mottled dark grayish brown silt loam from 13 cmbs–27 cmbs (5 inbs–10.5 inbs). Below this level was a heavily mottled clay loam containing pieces of slag and small fragments of asphalt shingles, indicating a large amount of fill had been deposited in the southern end of Area 4, south of the sanitary sewer line. Fill was also present in all other STPs in Area 4. These units contained approximately 25 percent gravel mixed with silt loam to a depth of approximately 50 cmbs (19.5 inbs). No archaeological sites were identified in Area 4.

SUMMARY

Under contract with Landrum & Brown, Inc., ASC, completed a Phase I archaeological survey for an EA of the proposed CONRAC at Port Columbus International Airport, City of

Columbus, Franklin County, Ohio. The Columbus Regional Airport Authority is developing the CONRAC on approximately 7.63 ha (18.85 ac) at the airport.

Background research indicated that in 2005 the 1.6-ha (4-ac) southwestern portion of the APE had been surveyed for archaeological sites and that the one archaeological site found there, 33FR2526, was determined not eligible for the NRHP. This area was not re-examined. The rest of the APE had not been surveyed and no other known sites existed in the APE. One historical map showed a late nineteenth century building once existed near the southeastern portion of the APE. Any remnant of this building is covered by the Hertz Rental Car lot. The Franklin County soil survey indicated that the APE included a mixture of natural soil and made-land or fill. Thus, the likelihood of identifying intact archaeological sites, especially prehistoric sites, was very low.

The archaeological survey was conducted May 4 and 5, 2015. Field methods consisted of visual inspection and STP excavation. No archaeological sites were found. Much of the APE was found to contain fill. No further archaeological investigation of the APE is recommended.

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FIGURES

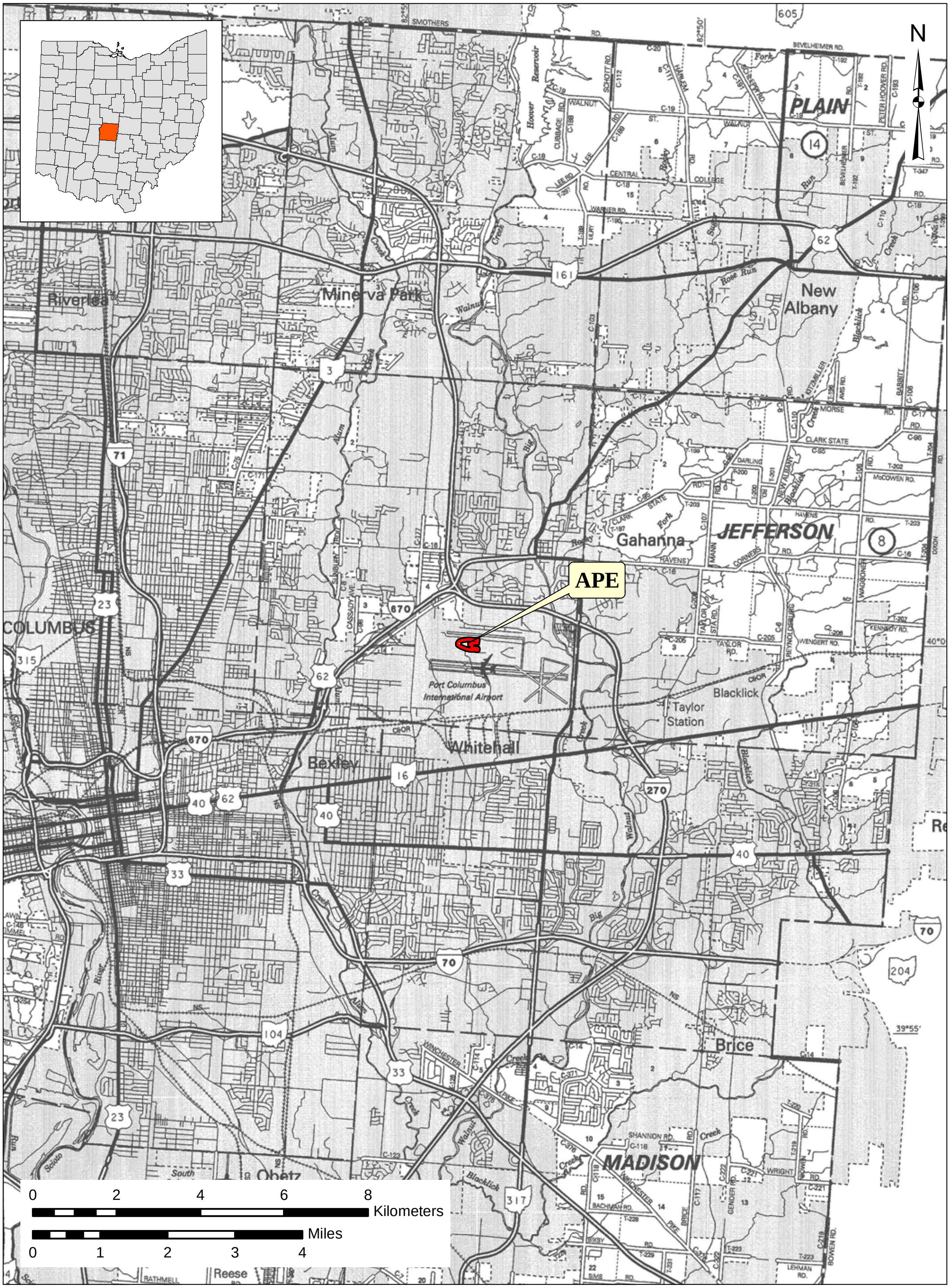

Figure 1. Portion of the ODOT Franklin County highway map showing the vicinity of the APE.

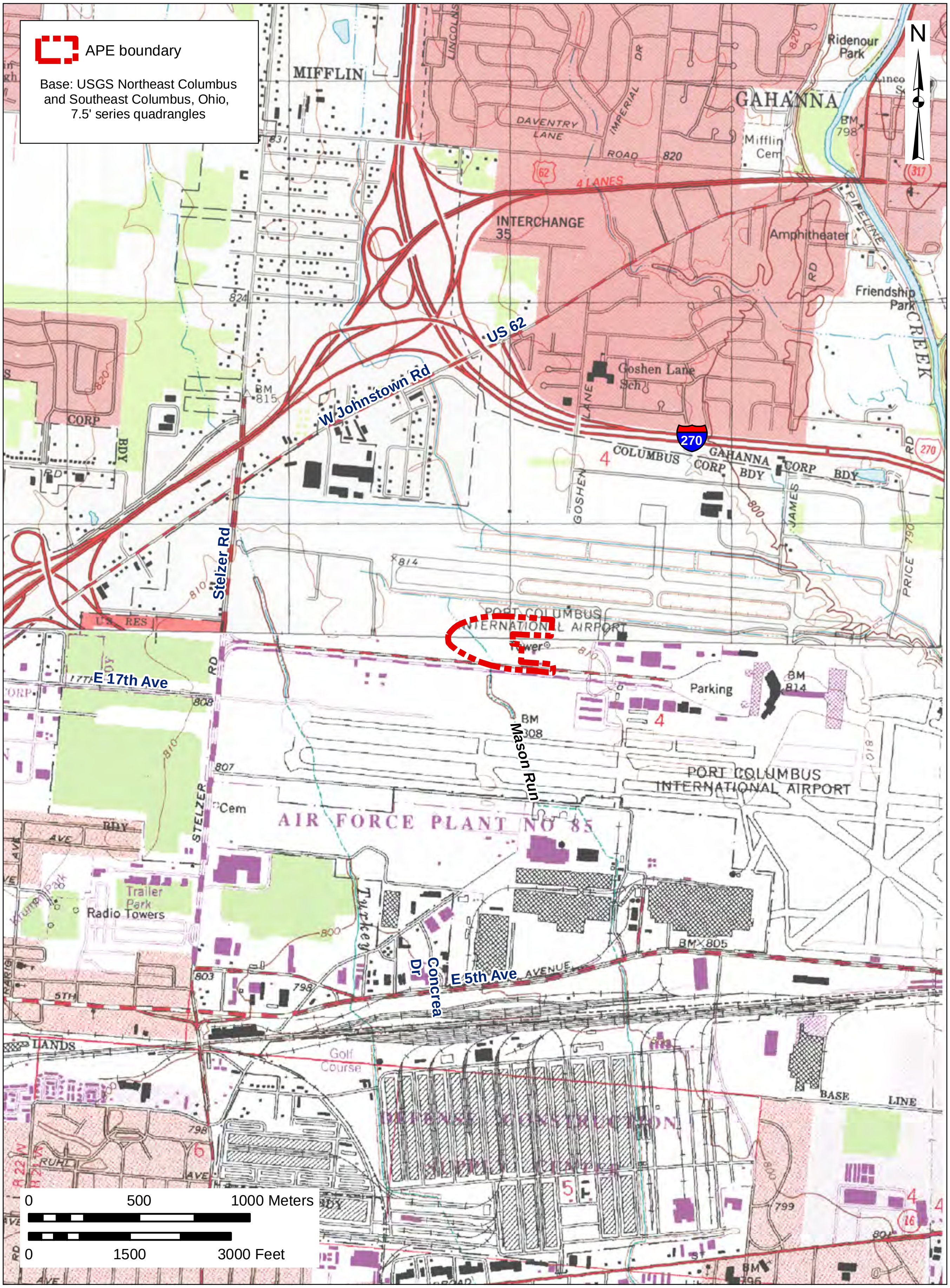

Figure 2. Portions of the 1995 Northeast Columbus and 1964 (photorevised 1994) Southeast Columbus, Ohio quadrangles (USGS 7.5' topographic maps) showing the APE.

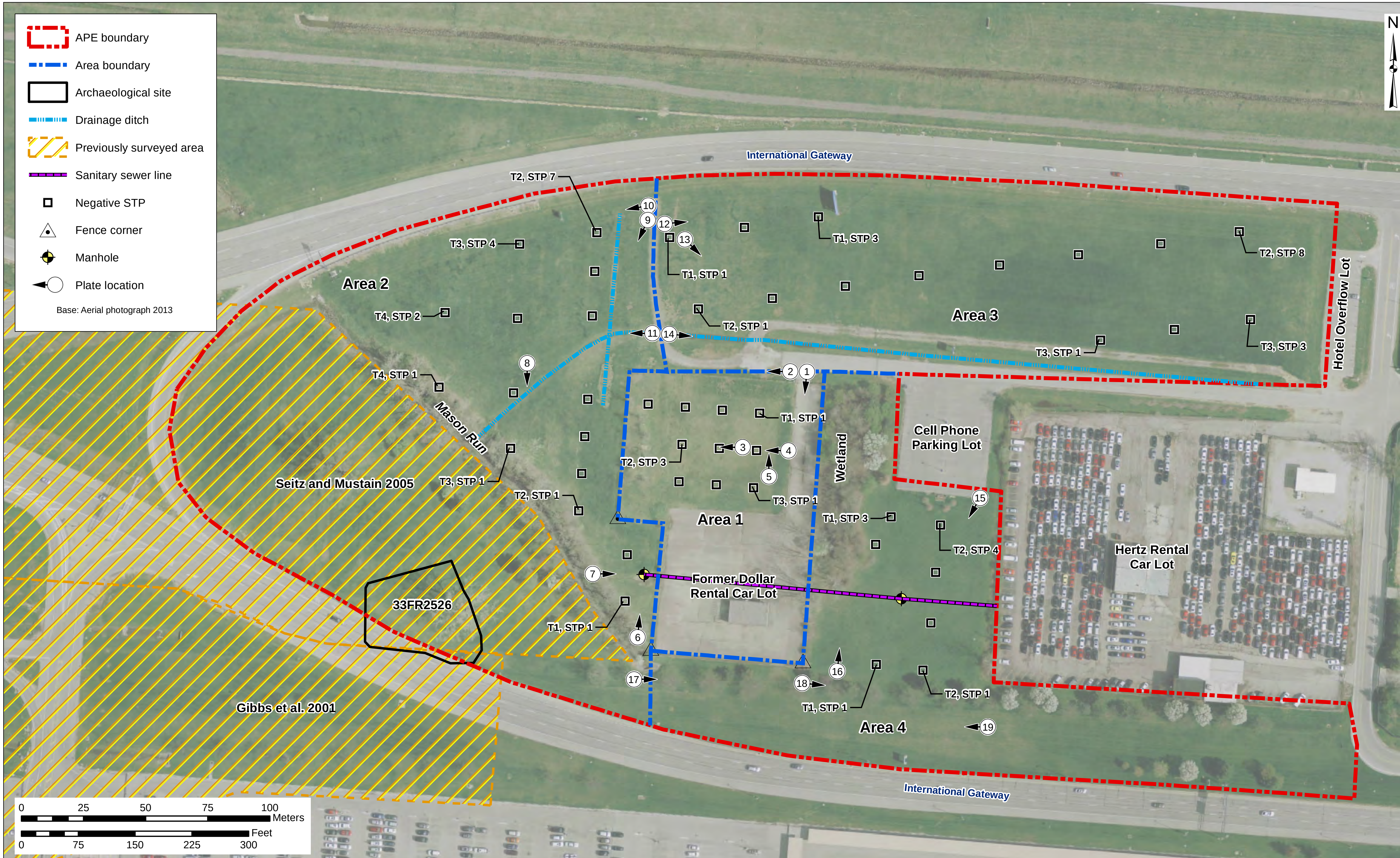

Figure 3. Aerial map showing the APE, the previously surveyed areas, archaeological survey elements, and plate locations.

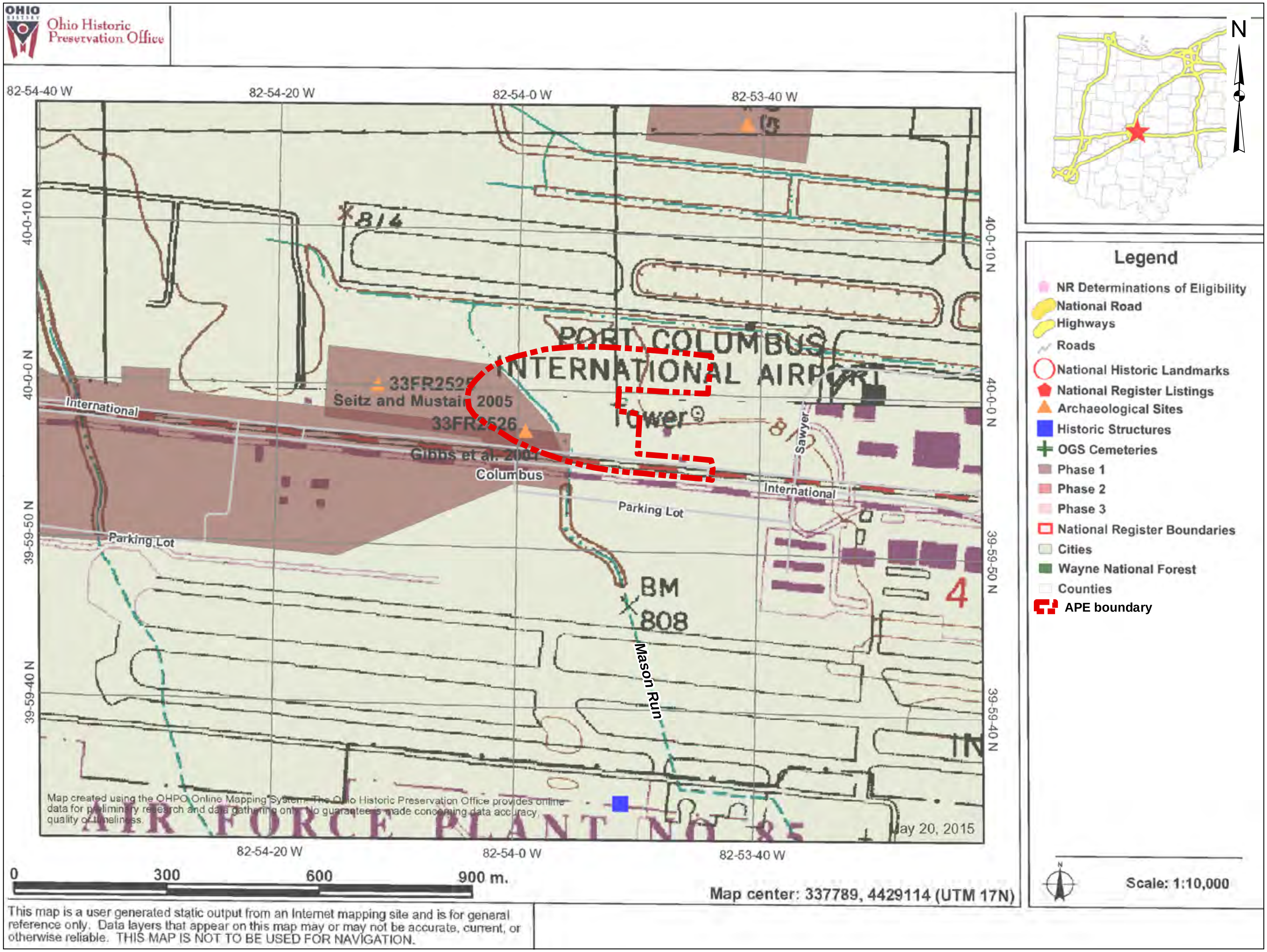

Figure 4. SHPO Online Mapping System (2015) map showing the vicinity of the APE.

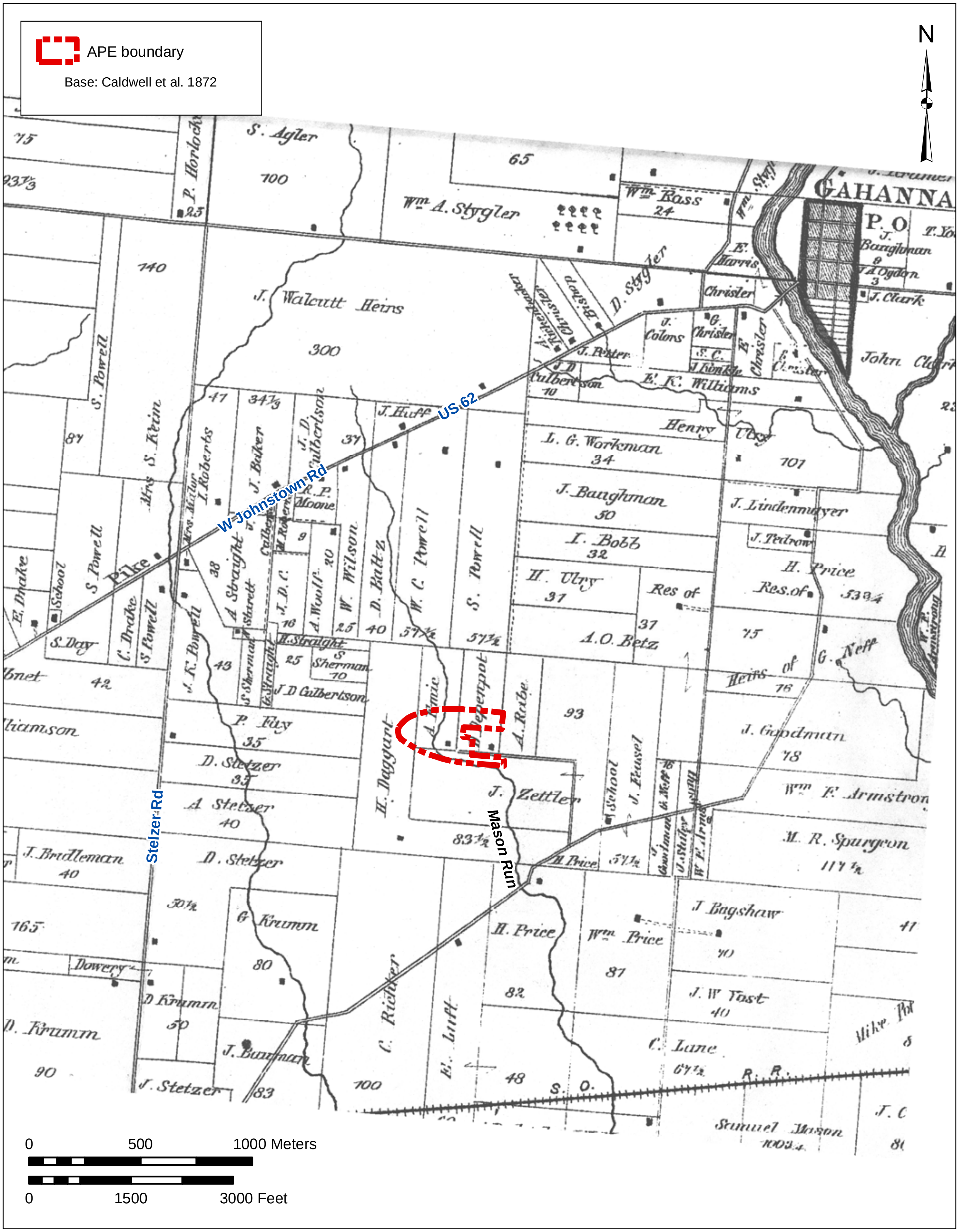

Figure 5. Portion of Caldwell et al.'s (1872) *Caldwell's Atlas of Franklin Co. and the City of Columbus, Ohio* showing the APE.

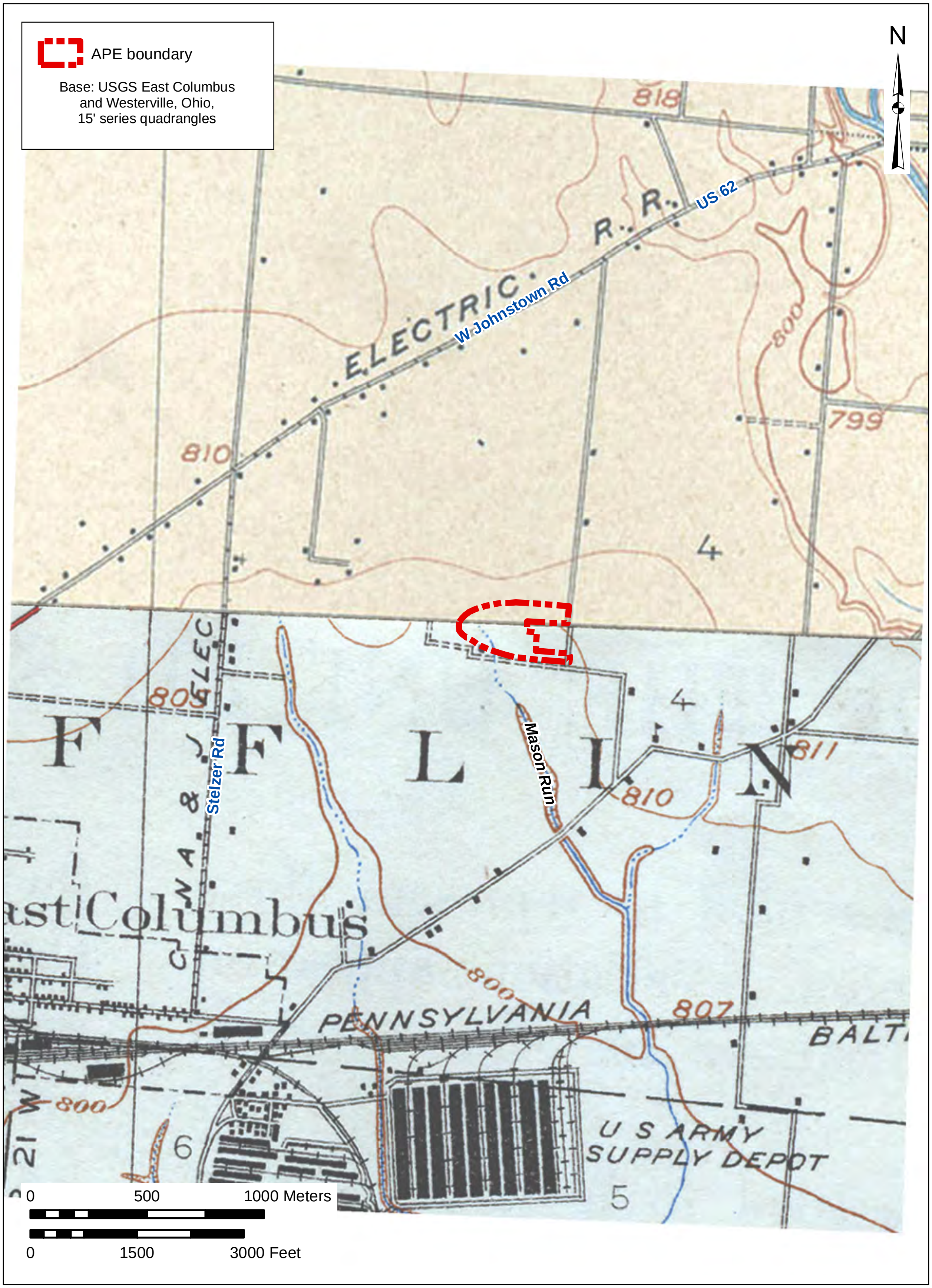

Figure 6. Portions of the 1904 Westerville and 1925 East Columbus, Ohio quadrangles (USGS 15' topographic maps) showing the APE.

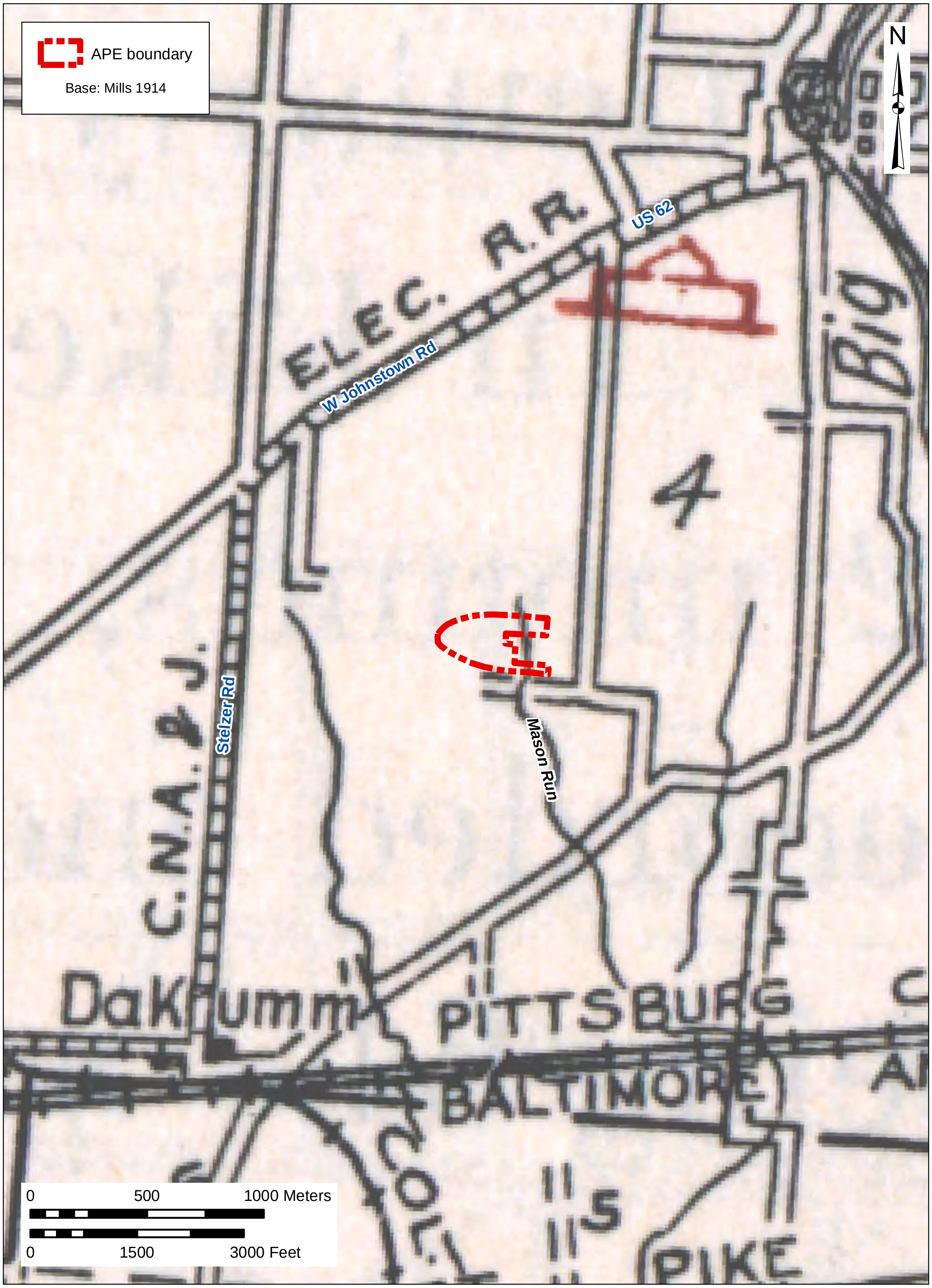

Figure 7. Portion of Mills' (1914) *Archeological Atlas of Ohio* showing the APE.

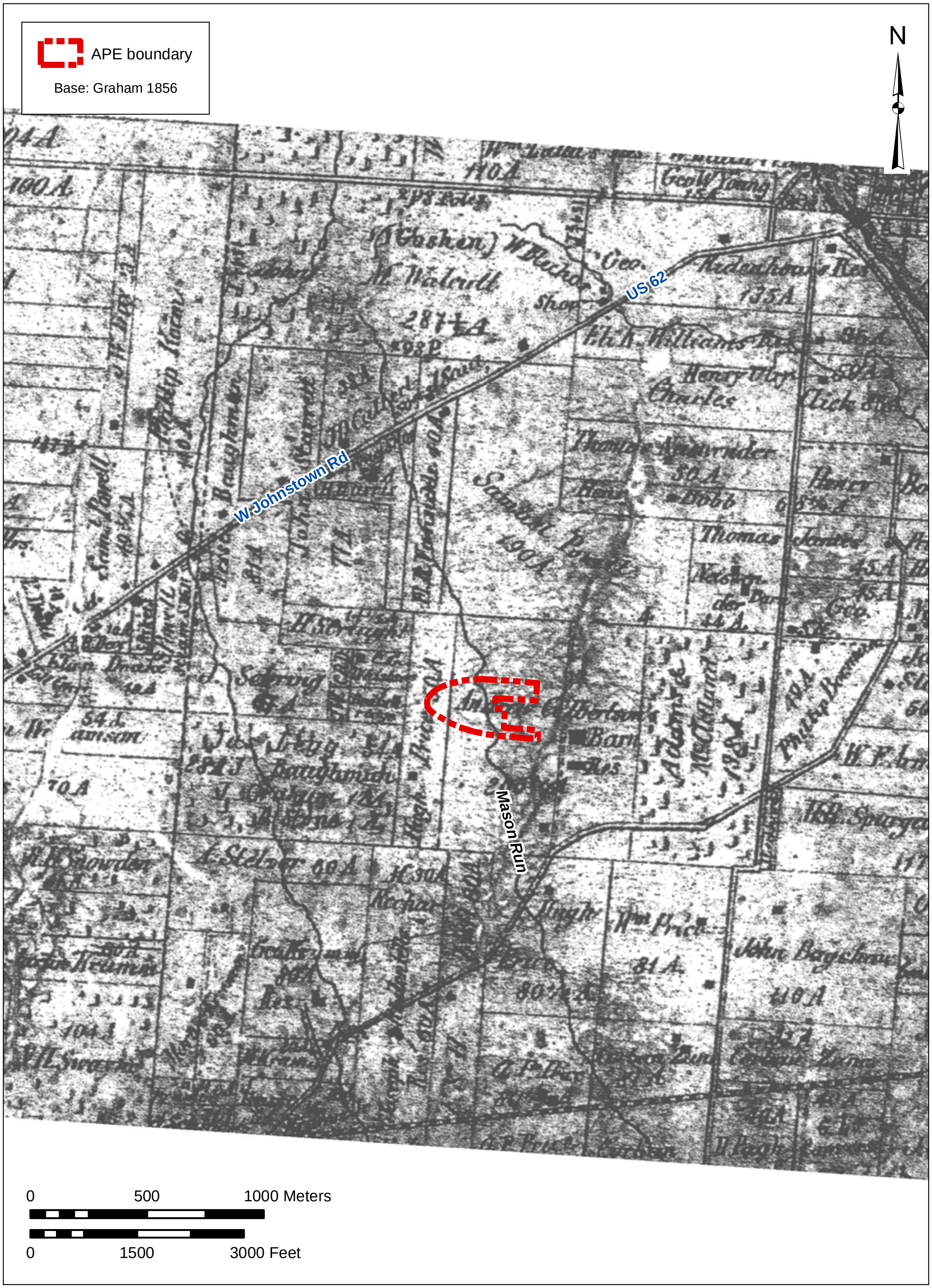

Figure 8. Portion of Graham's (1856) *Map of Franklin County, Ohio* showing the APE.

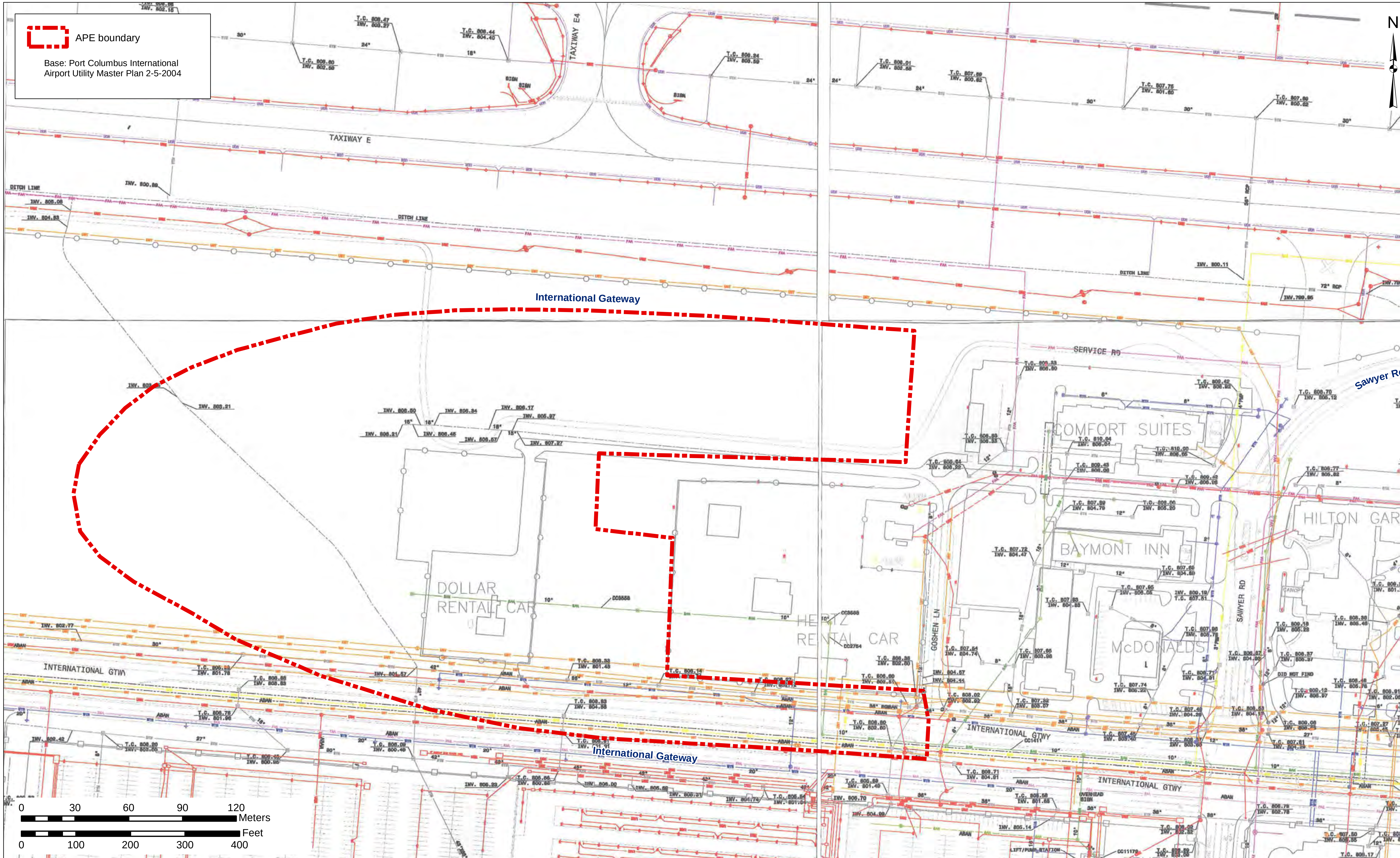

Figure 9. Port Columbus International Airport Utility Master Plan showing the APE.

TABLES

Table 1. Ohio Archaeological Inventory.

OAI #	Affiliation	UNPRE	PALEO	UNARCH	EARCH	MARCH	LARCH	UNWOOD	EWOOD	MWOOD	LWOOD	LPREH	PROTO	HISAFF	TYP UNK
FR2525	Prehistoric and Historic	Yes	No	No	No	No	No	No	No	No	No	No	No	Non-aboriginal	Yes
FR2526	Prehistoric and Historic	Yes	No	No	No	No	No	No	No	No	No	No	No	Non-aboriginal	Yes

PLATES

Plate 1. Area 1, former Dollar Rental Car lot, facing south.

Plate 2. Area 1, grassy field in north end of former Dollar Rental Car lot, facing west.

Plate 3. Area 1, Profile of STP 2, Transect 2, facing west.

Plate 4. Area 1, Profile of STP 1, Transect 2, facing west.

Plate 5. Area 1, Profile of STP 1, Transect 2, facing north.

Plate 6. Area 2, grassy field west of former Dollar Rental Car lot, facing north.

Plate 7. Area 2, manhole and ditch associated with sanitary sewer line, facing east.

Plate 8. Area 2, low levee along Mason Run, facing south.

Plate 9. Area 2, showing drainage ditch and low levee along Mason Run, facing south-southwest.

Plate 10. Area 2, northern end of grassy field, facing west.

Plate 11. Area 2, open drainage ditch, facing west.

Plate 12. Area 3, grassy field, facing east.

Plate 13. Area 3, southwestern corner of grassy field north of former Dollar Rental Car lot, facing southeast.

Plate 14. Area 3, open drainage ditch, facing east.

Plate 15. Area 4, grassy field south of cell phone parking lot, facing south-southwest.

Plate 16. Area 4, small wooded area containing a wetland, facing north.

Plate 17. Area 4, culvert at southern end of Mason Run and southwestern corner of former Dollar Rental Car lot, facing east.

Plate 18. Area 4, storm water drain at base of berm along International Gateway, facing east.

Plate 19. Area 4, berm slope along International Gateway, facing west.

APPENDIX A: ODOT/SHPO CORRESPONDENCE

OHIO DEPARTMENT OF TRANSPORTATION
CENTRAL OFFICE, P.O. BOX 899, COLUMBUS, OHIO 43216-0899

OFFICE OF ENVIRONMENTAL SERVICES

9 January 2006

Mark J. Epstein, Department Head
Resource Protection and Review
Ohio Historic Preservation Office
567 East Hudson Street
Columbus, Ohio 43211-1030

Attention: Thomas Grooms, Archaeology Reviews Manager
Nancy Campbell, History/Architecture Reviews Manager

Re: FRA-670-8.87 (PID 75293)
Archaeological Resources Coordination

Dear Mr. Epstein:

Enclosed for your review and coordination is one copy of the Phase I Archaeological Resources Survey report for the above project entitled *Phase I Archaeological Resources Survey for the Proposed New Alignment of International Gateway at Port Columbus International Airport (FRA-670-8.87 in Mifflin Township, Franklin County, Ohio*, prepared by ASC Group, Inc., of Columbus, Ohio, for DLZ Ohio, Inc., Columbus, Ohio.

According to the Abstract and Introduction sections in the above report the proposed project involves the construction of a new road on a new alignment of International Gateway, north of the existing road. The total area for the survey is 1427 ft. (435 m) at its widest point along the southern end of the study area by 394 ft (120m), or approximately 12.9 acres (5.2 hectares). The study area setting is urban, located within the Port Columbus Airport confines. The project area consists of a large open field that is part of an airport maintenance access area. A drainage ditch and two artificial rises are within the project area. Some of the soils within the project area are other than plow-disturbed soils.

Literature Review

Archaeology

A literature review was conducted by ASC Group, Inc., at the Ohio Historic Preservation Office August of 2005. In 2001, ASC conducted a literature review for the area surrounding the current project area and found 13 previously documented archaeological sites and six previous archaeological or cultural resources surveys. The 2005 literature review indicated no additional studies have been conducted nor any additional archaeological sites inventoried. Review of Mills' 1914 *Archaeological Atlas of Ohio* shows numerous archaeological sites within Franklin County, but none adjacent to or within the proposed project area.

History/Architecture

Based on the location of the proposed project within the confines of the Port Columbus International Airport, previous archaeological work in the area, and the nature of the disturbances related to the construction and airport maintenance history of the Port Columbus International Airport, a history/architecture background review was not undertaken. Although the area is depicted as part plow-zone, the area is deflated, indicating some sort of grading episode.

Archaeological Survey Methods and Results:

Methods used to locate sites included visual inspection and shovel test pit excavation. The number of test units is not given, however, the proposed project area was well represented by shovel test units. These methods resulted in the location of two prehistoric/historic archaeological sites (33 Fr 2525 and 33 Fr 2526). OAI forms for these sites have been submitted to OHPO by OES.

Site 33FR 2525 consisted of a single flake fragment of Vanport chert, placed in the "unassigned prehistoric" period. In addition, 38 historic artifacts of the late nineteen to early twentieth centuries were recovered. These materials, as well as the prehistoric flake, contain no important information about the history of the region, and, therefore, are not considered eligible for listing on the NRHP.

Site 33 Fr 2526 consisted of a single flake fragment of Upper Mercer chert and is, therefore, placed in an unassigned prehistoric period. The historic component of this site consisted of remnants of a building foundation and a scatter of 142 artifacts. Based on cartographic information as well as the artifacts recovered which date to ca. 1872-1925, this site appears to represent a rural residence with indications that the original foundation may have been replaced by a building on the same footprint, or modified. Neither site is recommended for further investigation.

In accordance with the Advisory Council on Historic Preservation's current regulations and based on the findings submitted by our office herein, it is our opinion that the proposed project will have no effect on or use land from any known historic property.

Based on the enclosed report and in accordance with the Advisory Council on Historic Preservation's current regulations, we request concurrence with the following:

1) that the two newly identified prehistoric/ historic archaeology sites (33 Fr 2525 and 33 Fr 2526) did not possess sufficient integrity to convey importance under the NRHP evaluation criteria, and, therefore, no further work is warranted for these sites, and;

2) Based on the location of the proposed project within the confines of the Port Columbus International Airport, previous archaeological work in the area, and the nature of the disturbances related to the construction and airport maintenance history of the Port Columbus International Airport, a history/architecture background review was not considered necessary, and;

3) that based on evidence gathered, ODOT has determined that the subject project will have no effect on any historic properties. On behalf of FHWA and in accordance with 36 CFR 800.4(d)(1), we have determined that a finding of "no historic properties affected" is appropriate for the subject project.

We would appreciate the return of this letter signed to indicate that you do not object to our cultural resources finding. If no objection is received within 30 days, in accordance with the advisory Council on Historic Preservation's current regulations under 36 CFR Part 800.4(d)(1), FHWA's and ODOT's responsibilities under Section 106 are fulfilled.

If you have any questions or concerns, please contact Marilyn Orr, Staff Archaeologist, at 614-752-8279 or by e-mail at "morr@dot.state.oh.us."

Respectfully,

Susan Caldarro

Timothy M. Hill
Administrator
Office of Environmental Services

tmh:mro
Enclosure

c: Jeffrey White, D- 6 DEC; File w/attachments; Reading File

STATE HISTORIC PRESERVATION OFFICE:

Thomas Graham 1/24/06
Date

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HISTORIC AMERICAN BUILDING SURVEY FOR THE ELAM DRAKE FARMSTEAD

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Historic American Building Survey
Elam Drake Farmstead 2378 Ole Country Lane
in Mifflin Township, Franklin County, Ohio

By

Amy Bennett

Submitted By:
Shaune Skinner
Project Manager
ASC Group, Inc.
4620 Indianola Avenue
Columbus, Ohio 43214
614. 268. 2514

Submitted To:
Columbus Regional Airport Authority
4600 International Gateway
Columbus, Ohio 43219

November 8, 2006

ASC GROUP, INC. ARCHAEOLOGY ARCHITECTURE ENVIRONMENT

CULTURAL AND ENVIRONMENTAL CONSULTANTS

ASC Group, Inc.
4620 Indianola Avenue
Columbus, Ohio 43214

ELAM DRAKE FARMSTEAD
2738 Ole Country Lane
Mifflin Township
Franklin County
Ohio

FRA-2605-12 and FRA-2606-12

PHOTOGRAPH

WRITTEN HISTORICAL DESCRIPTIVE DATA

Prepared following the standards of the:

Historic American Building Survey
U.S. Department of the Interior
1849 C Street NW, NC300
Washington, D.C. 20240-2270

HISTORIC AMERICAN BUILDINGS SURVEY

INDEX TO PHOTOGRAPHS

ELAM DRAKE FARMSTEAD
2738 Ole Country Lane
Mifflin Township
Franklin County
Ohio

FRA-2605-12 and FRA-2606-12

Documentation: 23 exterior photos (2006)
7 interior photos (2006)
16 data pages (2006)

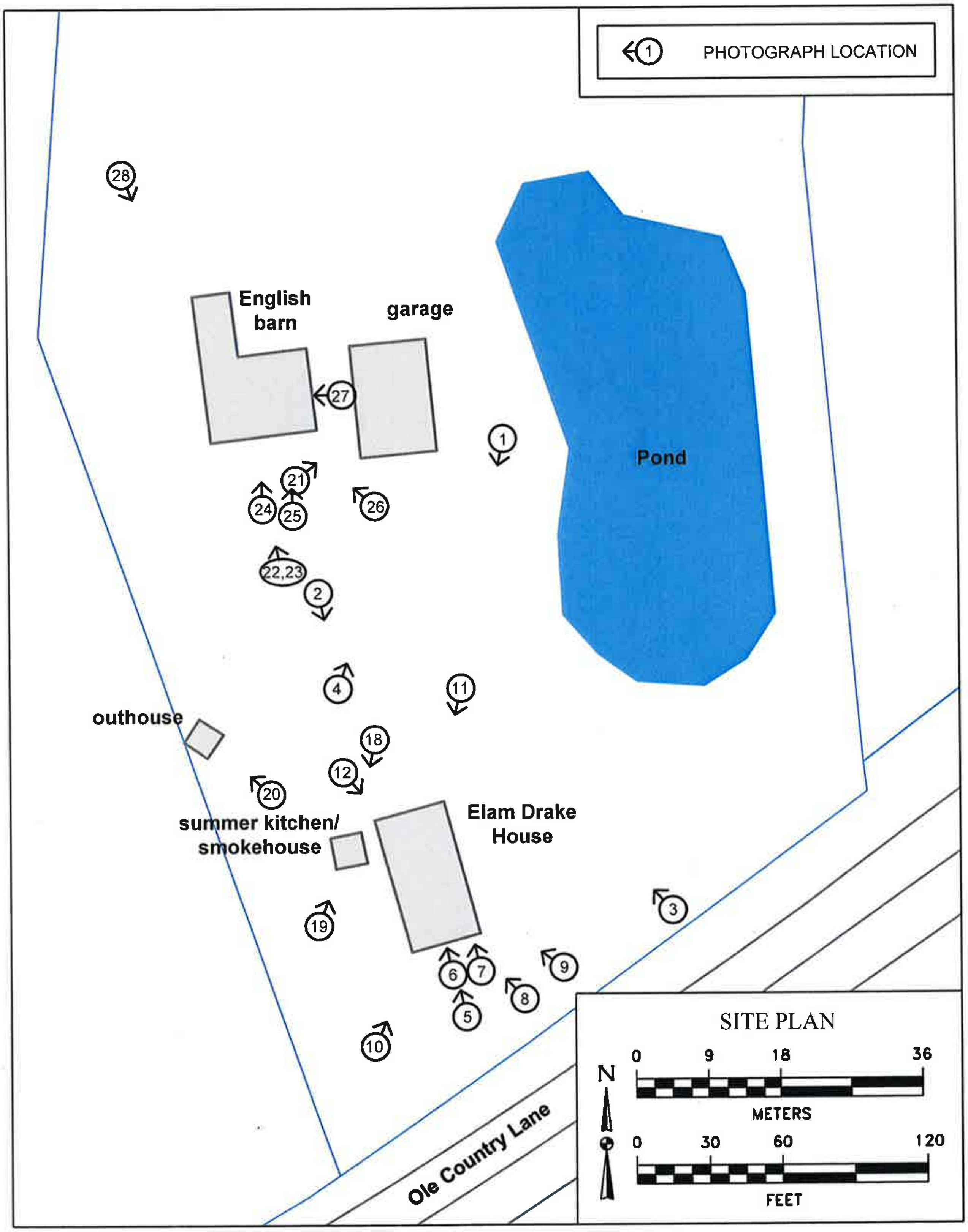
Douglas Terpstra and Amy Bennett, Photographers, September 2006

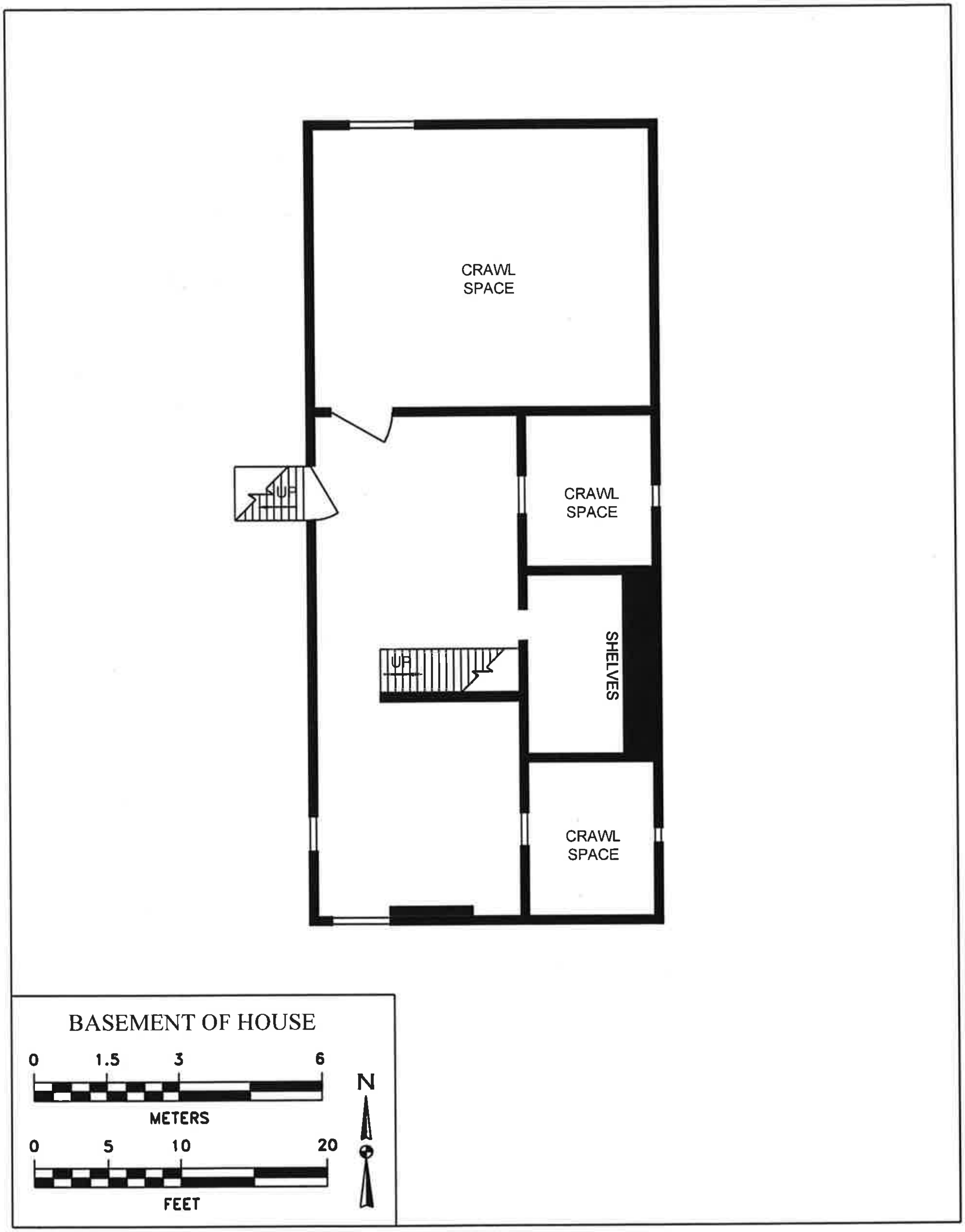
FRA-2605-12-1	CONTEXT VIEW OF FARM COMPLEX, HOUSE AND SUMMER KITCHEN/SMOKEHOUSE, LOOKING SOUTHWEST
FRA-2605-12-2	CONTEXT VIEW OF FARM COMPLEX, HOUSE AND SUMMER KITCHEN/SMOKEHOUSE, LOOKING SOUTHEAST
FRA-2605-12-3	CONTEXT VIEW OF FARM COMPLEX, HOUSE, ENGLISH BARN AND GARAGE, LOOKING NORTHWEST
FRA-2605-12-4	CONTEXT VIEW OF FARM COMPLEX, ENGLISH BARN, GARAGE AND POND, LOOKING NORTHEAST
FRA-2605-12-5	VIEW OF HOUSE, SOUTH WALL WITH SCALE STICK, LOOKING NORTHWEST
FRA-2605-12-6	VIEW OF HOUSE, SOUTH WALL, DETAIL OF FIRST FLOOR DOORWAY AND BRICKWORK, LOOKING NORTHWEST
FRA-2605-12-7	VIEW OF HOUSE, SOUTH WALL, DETAIL OF FIRST FLOOR WINDOW NEAR SOUTHEAST CORNER, LOOKING NORTHWEST
FRA-2605-12-8	VIEW OF HOUSE, SOUTH AND EAST WALLS, LOOKING NORTHWEST

FRA-2605-12-9	VIEW OF HOUSE, SOUTH AND EAST WALLS, SHOWING KITCHEN ELL AND ENCLOSED PORCH, LOOKING NORTHWEST
FRA-2605-12-10	VIEW OF HOUSE, SOUTH AND WEST WALLS, LOOKING NORTHEAST
FRA-2605-12-11	VIEW OF HOUSE, NORTH AND EAST WALLS, LOOKING SOUTHWEST
FRA-2605-12-12	VIEW OF HOUSE, NORTH AND WEST WALLS, DETAIL OF KITCHEN ELL, LOOKING SOUTHEAST
FRA-2605-12-13	VIEW OF HOUSE, INTERIOR, HALL/DINING ROOM WITH STAIRS, LOOKING SOUTHWEST
FRA-2605-12-14	VIEW OF HOUSE, INTERIOR, DETAIL OF STAIR BALUSTRADE, LOOKING SOUTHEAST
FRA-2605-12-15	VIEW OF HOUSE, INTERIOR, PARLOR, LOOKING SOUTHEAST
FRA-2605-12-16	VIEW OF HOUSE, INTERIOR, KITCHEN NORTH AND WEST WALLS, LOOKING NORTHWEST
FRA-2605-12-17	VIEW OF HOUSE, INTERIOR, UPPER STORY BEDROOMS, LOOKING SOUTH
FRA-2605-12-18	VIEW OF SUMMER KITCHEN/SMOKEHOUSE, NORTH AND EAST WALLS, LOOKING SOUTHWEST
FRA-2605-12-19	VIEW OF SUMMER KITCHEN/SMOKEHOUSE, SOUTH AND WEST WALL, LOOKING NORTHEAST
FRA-2605-12-20	VIEW OF OUTHOUSE, SOUTHEAST WALL AND INTERIOR, LOOKING NORTHWEST
FRA-2605-12-21	VIEW OF GARAGE, SOUTH AND WEST WALLS, LOOKING NORTHEAST
FRA-2606-12-22	VIEW OF ENGLISH BARN, SOUTH WALL, WITH SCALE STICK, LOOKING NORTHWEST

FRA-2606-12-23	VIEW OF ENGLISH BARN, SOUTH WALL, LOOKING NORTHWEST
FRA-2606-12-24	VIEW OF ENGLISH BARN, SOUTH WALL, DOORWAY AND BRICKWORK, LOOKING NORTH
FRA-2606-12-25	VIEW OF ENGLISH BARN, SOUTH WALL, DETAIL OF BRICK WORK EAST OF MAIN DOORWAY, ONE BRICK INSCRIBED WITH "D.F.D. 68"
FRA-2606-12-26	VIEW OF ENGLISH BARN, SOUTH AND EAST WALLS, LOOKING NORTHWEST
FRA-2606-12-27	VIEW OF ENGLISH BARN, EAST WALL, DETAIL OF DOOR AND BRICKWORK (BRICK ABOVE SEGMENTAL ARCH INSCRIBED WITH "D.F.D. 68"), LOOKING WEST
FRA-2606-12-28	VIEW OF ENGLISH BARN, WEST AND NORTH WALLS WITH STABLE ADDITION NEAR NORTHWEST CORNER, LOOKING SOUTHEAST
FRA-2606-12-29	VIEW OF ENGLISH BARN, INTERIOR GROUND FLOOR, STORAGE ROOM AND INTERIOR OF MAIN DOOR ON SOUTH WALL, LOOKING SOUTHWEST
FRA-2606-12-30	VIEW OF ENGLISH BARN, INTERIOR GROUND FLOOR AND LOFT WEST AND NORTH WALLS, LOOKING NORTHWEST

Key to Photographs
ELAM DRAKE FARMSTEAD
FRA-2605-12 and FRA-2606-12 (Page 4)

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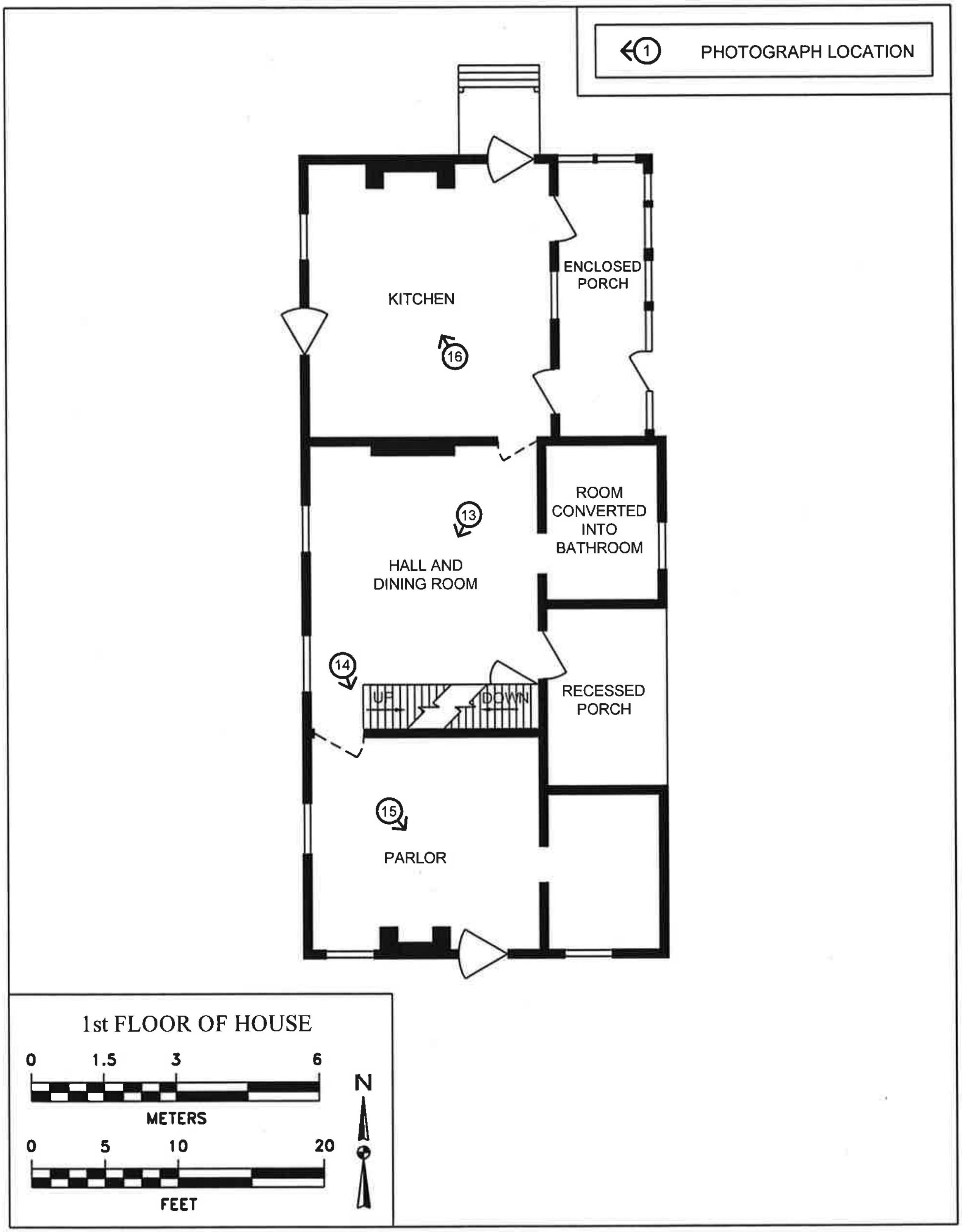
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ENCLOSED PORCH
ROOM CONVERTED INTO BATHROOM
13
HALL AND DINING ROOM
14
UP
DOWN
RECESSED PORCH
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PARLOR
1st FLOOR OF HOUSE
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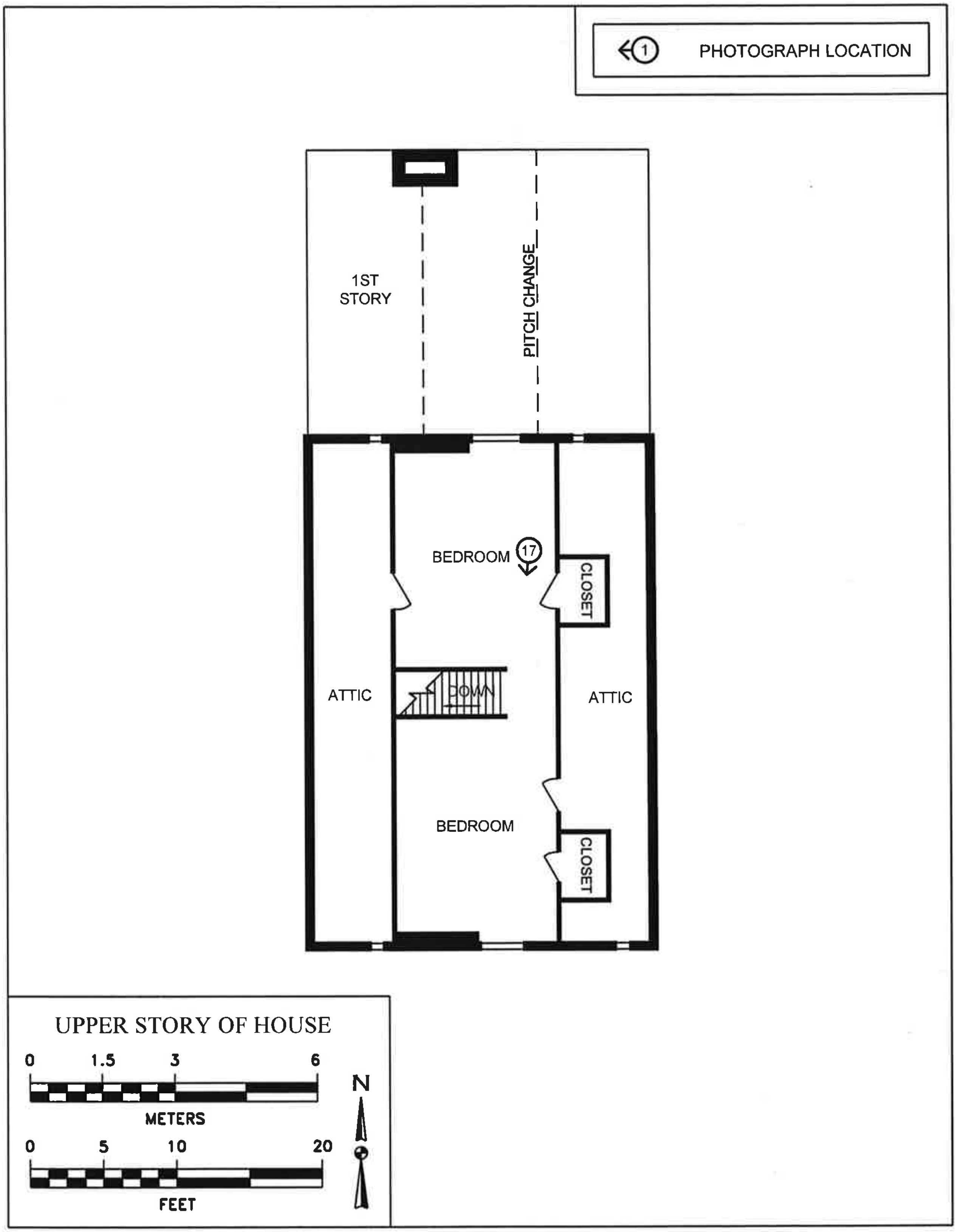

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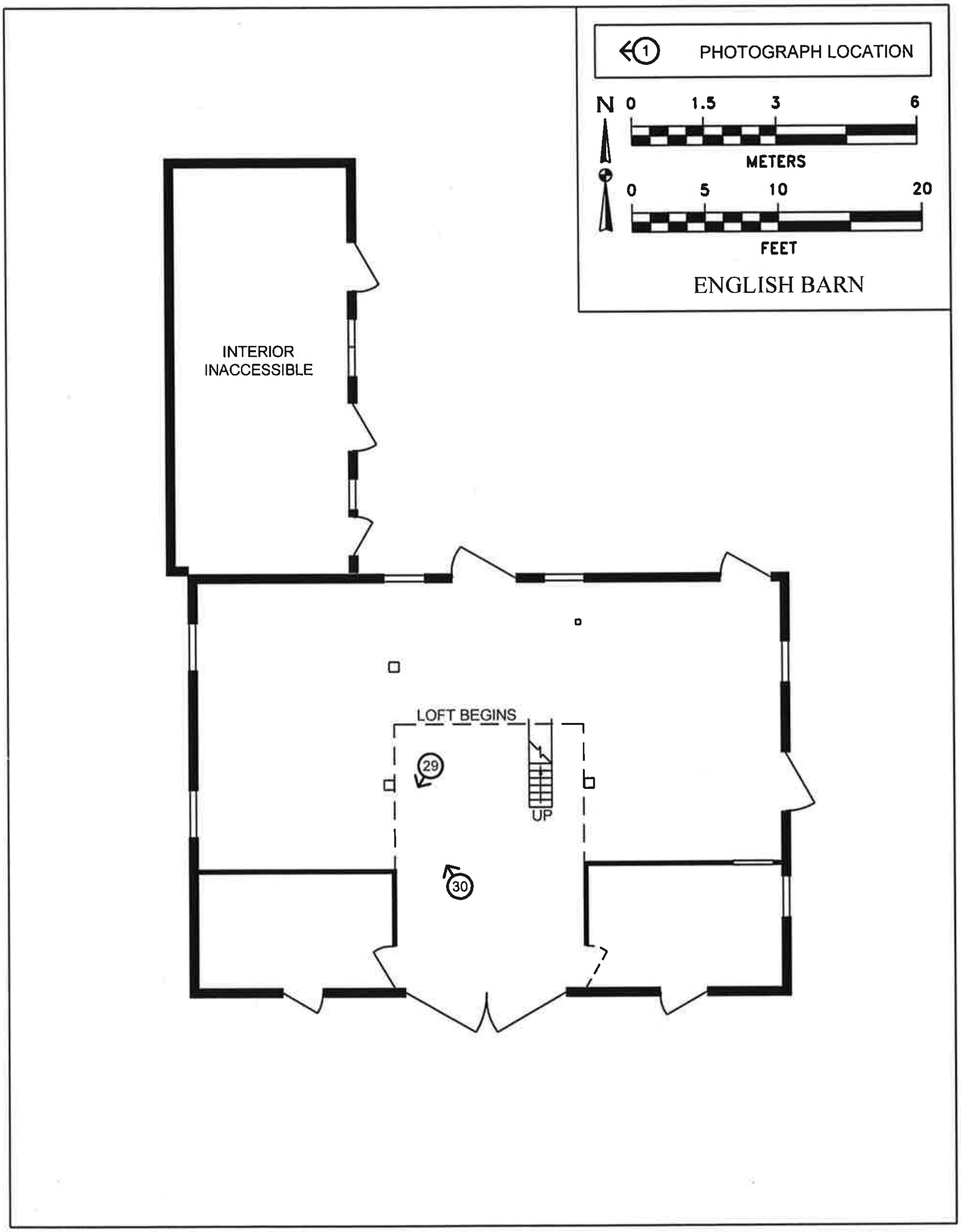

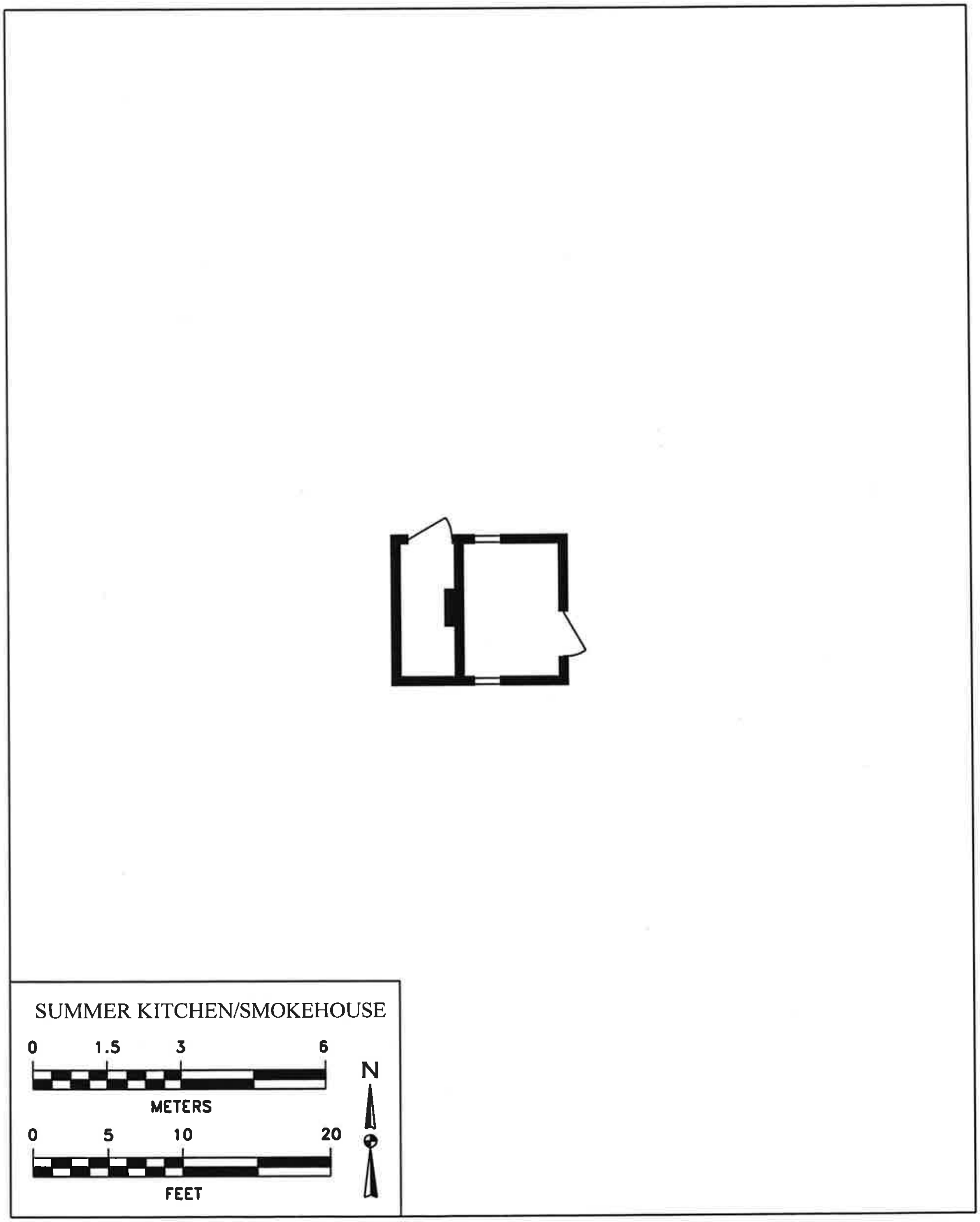
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HISTORIC AMERICAN BUILDINGS SURVEY
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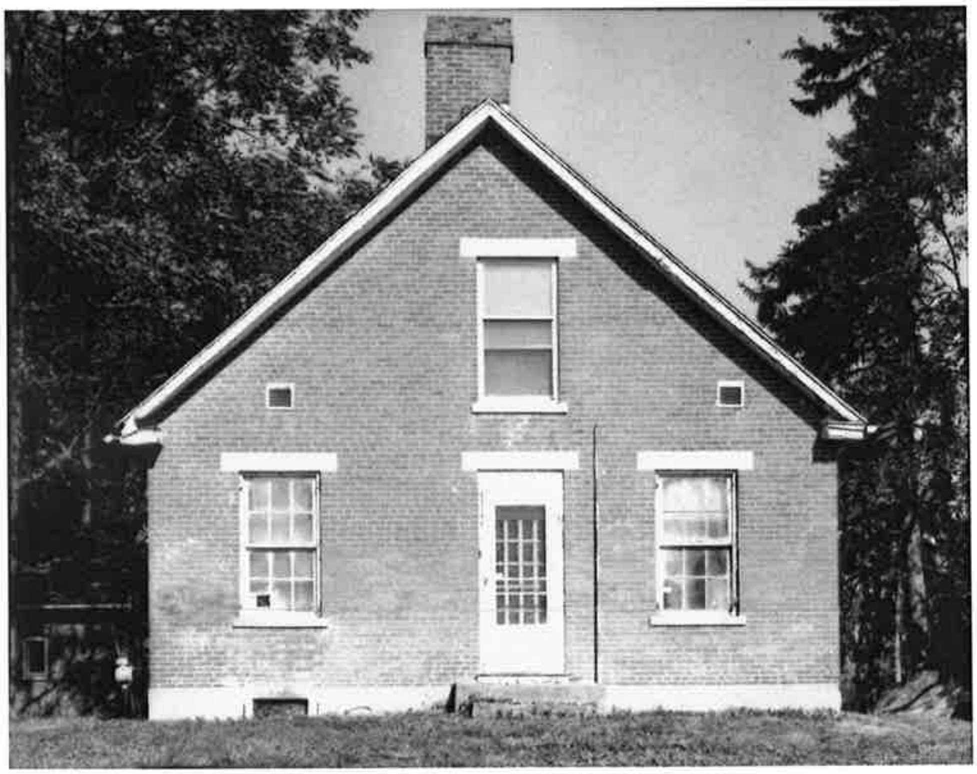

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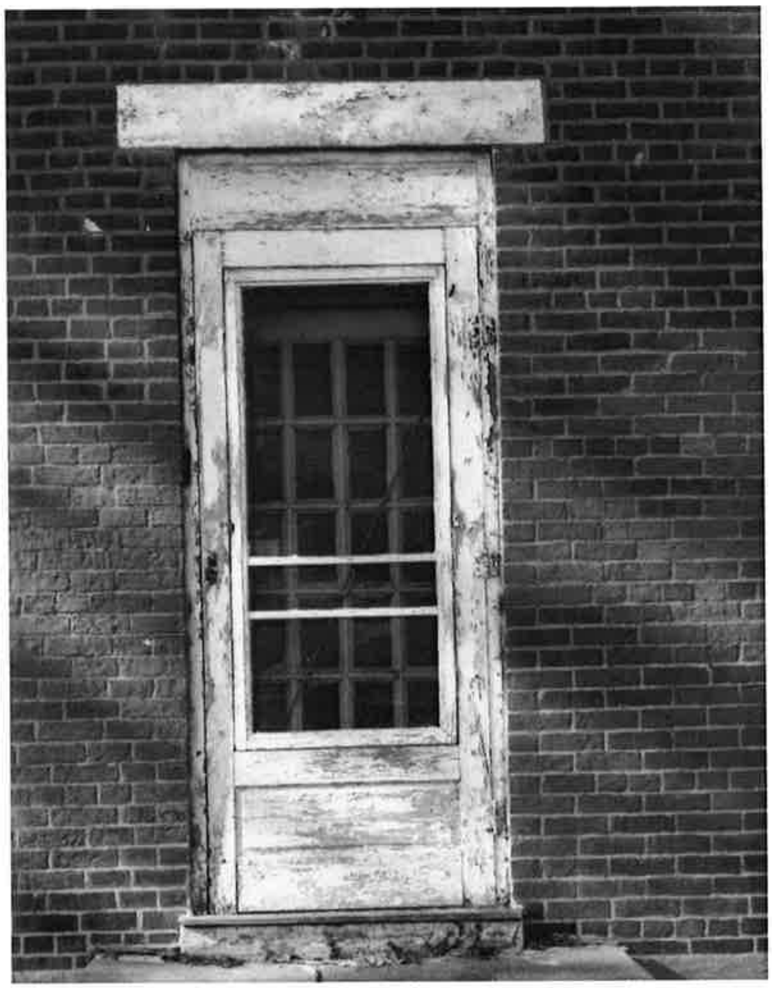

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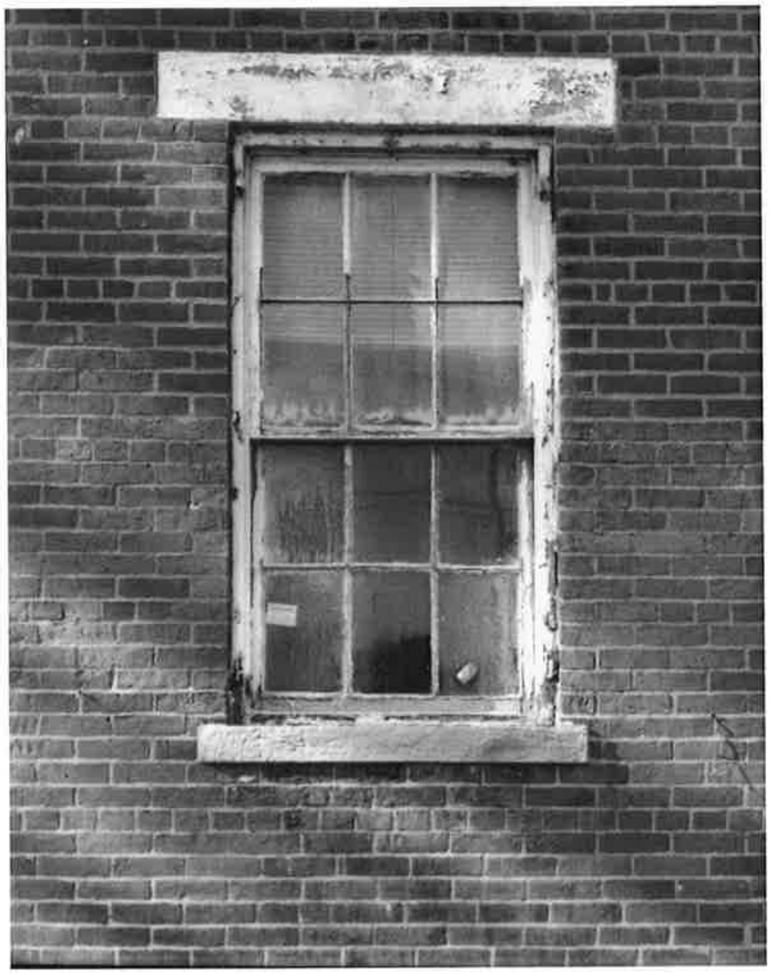

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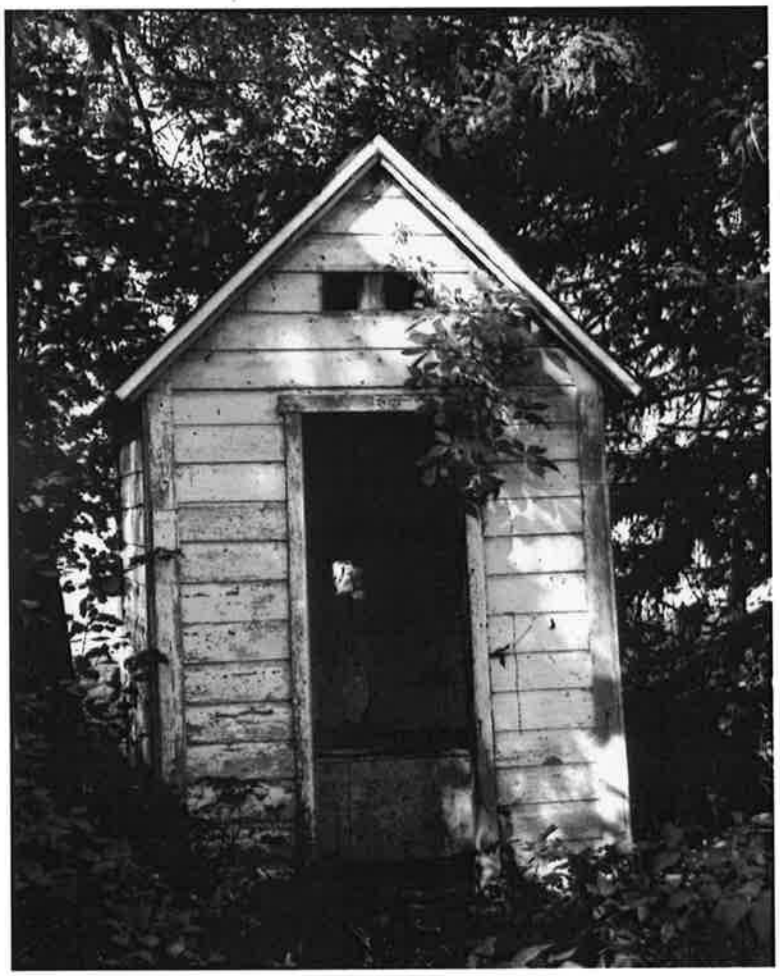

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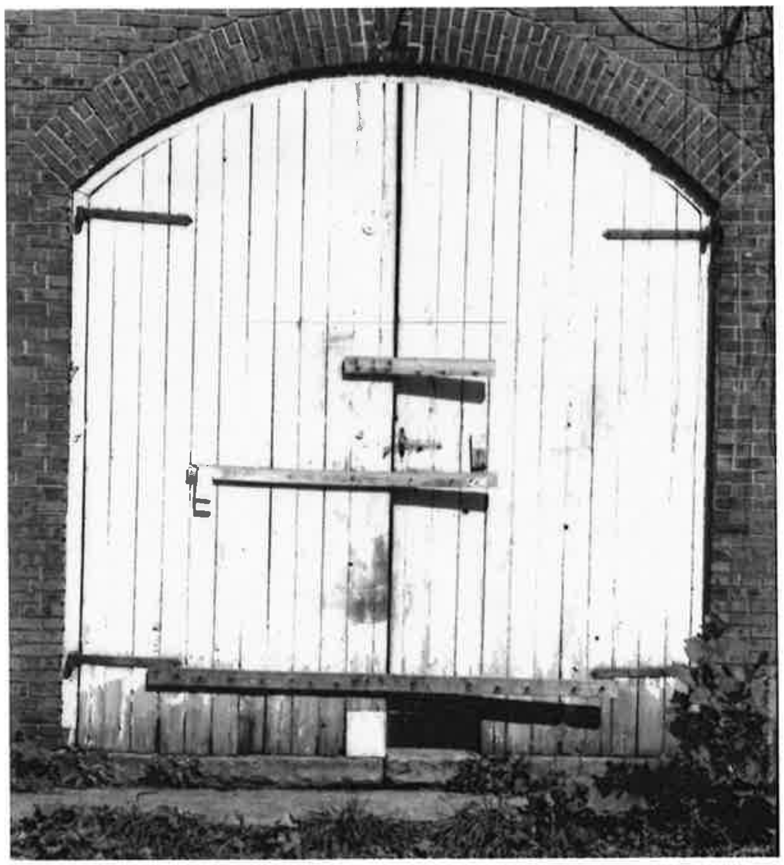

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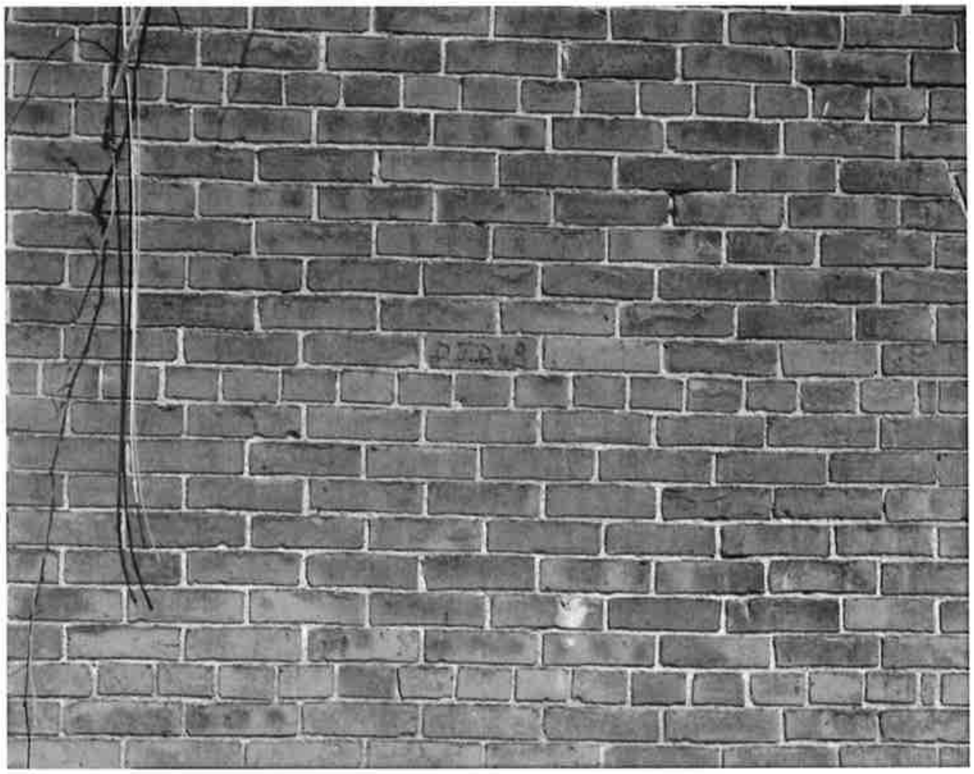

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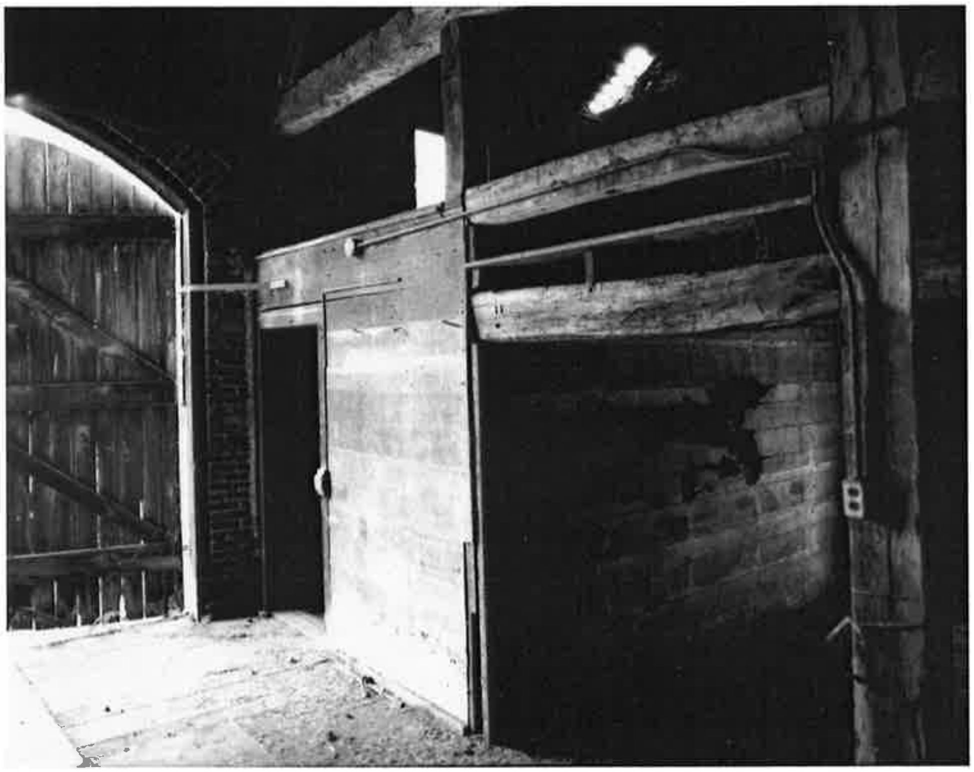

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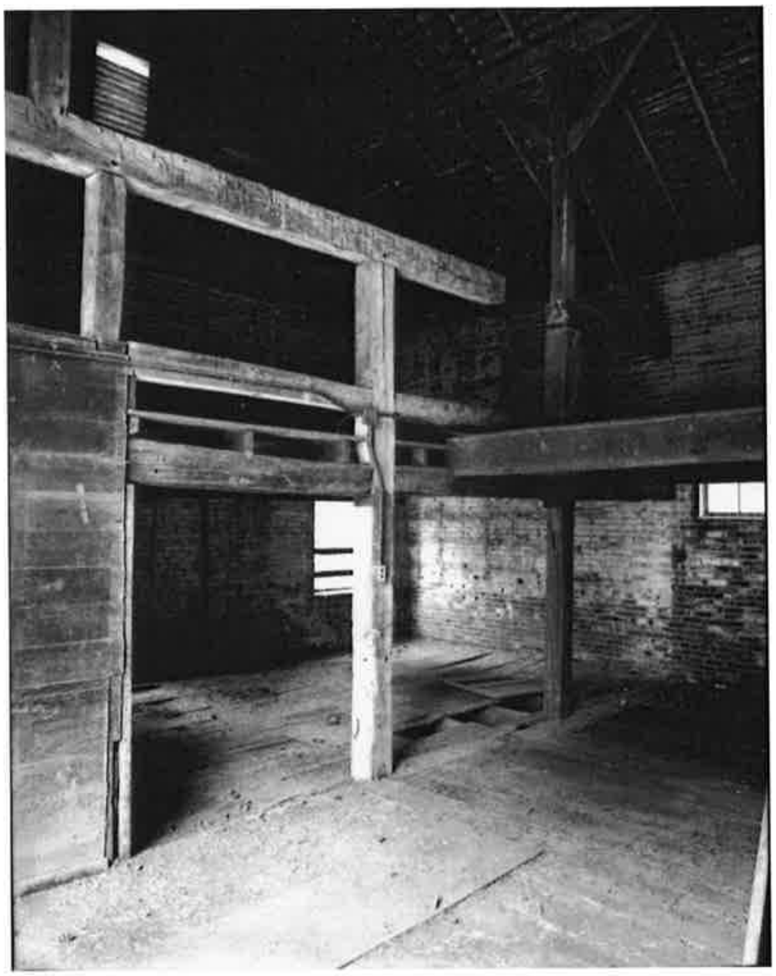

HISTORIC AMERICAN BUILDINGS SURVEY

ELAM DRAKE HOUSE FRA-2605-12

Location: 2738 Ole Country Lane (formerly Johnstown Pike), Mifflin Township, Franklin County, Ohio

USGS 7.5' Northeast Columbus Quadrangle
UTM Coordinates:
House: 17.336072.4429743
Barn: 17.336052.4429811

Present Owner: Columbus Regional Airport Authority
4600 International Gateway
Columbus, Ohio

Present Use: Vacant. The house and its outbuildings are scheduled to be demolished.

Significance: As a complex, the Elam Drake Farmstead is significant as an example of a mid-nineteenth century farmstead with relatively few changes. The English barn's brick construction is unusual in the region. The farmstead was listed on the National Register of Historic Places in 1977.

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection: Main house built ca. 1855. Summer kitchen/smokehouse built ca. 1855. Barn built 1868. Outhouse built early twentieth century. Garage built ca. 1950. According to the National Register of Historic Places nomination, the bricks for the house, summer kitchen/smokehouse and English barn were made from clay pits located on the property.

2. Architect/Builder: Elam Drake built the brick house and summer kitchen/smokehouse, probably with the help of his family. Dwight F. Drake, one of Elam's sons, is credited as the builder of the barn. The builder(s) of the twentieth-century outhouse and garage are unknown.

3. Original and subsequent owners: The following is a list of past property owners of the parcel of land containing the farmhouse and remaining outbuildings located at 2738 Ole Country Lane (formerly Johnstown Pike).

Elam Drake	1837
Charles P. Drake	1911
Thomas Carpenter	1920
John P. Reynolds	1921
Laura B. Burrell	1921
Lula E. and William J. Welch	1924
James Holden	1925
Jasperel Farrand	1927
James and Iva Holden	1935
Frances Rotering	1943
Adrian Wallick	1950
Louis C. and Elizabeth J. Wallick	1958
Debra W. Stone and Constance W. Broadwater (Trustees)	1992
Constance W. Broadwater (Trustee)	1996
Ques M. Atieh	2003
Columbus Regional Airport Authority	2005

4. Alterations and additions: Alterations to the exterior include the following: encasement of the original foundation in a thin concrete veneer, replacing original stoop, rear porch and recessed porch flooring with concrete slabs, enclosing the ell porch with multi-pane wood windows, removal of original doors and transoms, removal of most shutters, replacement of original upper story windows with one-over-one double-hung windows, perforation of the attic with modern metal vents, altering the rear chimney's cap, and replacing slate shingles with asphalt shingles. Alterations to the interior of the house include: installation of modern furnace, installation of plumbing (kitchen and bathroom), installation of electrical wiring, removal and/or replacement of interior doors, installation of modern hardwood flooring of various widths throughout house over original flooring, vinyl flooring in bathroom, carpeting on stairs, alteration and enclosure of fireboxes, removal of mantelpieces, removal of window and door trim in some rooms, installation of fluorescent lighting, and various paint and wallpaper treatments.

B. Historical Context: Elam Drake, born in 1812, was the third child born to Elias and Mary Collins Drake in East Windsor, Hartford County, Connecticut. Elias taught his son Elam the trades of brick masonry and plastering. When the family relocated to Franklin County, Ohio in 1831, 20-year-old Elam came with them. As stated in *A Centennial Biographical History of Columbus and Franklin County, Ohio* (Taylor 1909):

> He assisted in the erection of the first brick house in that city [Columbus] and for his services he received good wages, being a first-class mechanic. He helped support his mother and younger brothers and sisters. He did much work outside of the city, being called upon to construct the fronts of many of he buildings in the county. For some time he was in the employ of others, but eventually began contracting and building on his own account in Franklin and adjoining counties.

Elam met his wife Angeline Patterson in Franklin County and they were married in 1837 (*Franklin County Early Marriage Records* 1937). They raised six children: Franklin, Charles P., Douglas, Dwight F., Alice A. and George B. Franklin remained a bachelor and was a member of 43rd Ohio Volunteer Infantry during the Civil War. Charles married Sarah Reese. Douglas married Elsie W. Moore. Dwight F. married Lizzie Goodman. Alice married Henry Innis. Like Franklin, George B. remained single (Taylor 1909).

In 1837, Elam Drake purchased 50 acres of land in Franklin County from Fredrick Townsbury for $250. The land was located on the north side of Johnstown Pike, in Mifflin Township. Over the next decades, Drake added to his land holdings until the total acreage reached 65.21 acres, including land south of Johnstown Pike (Caldwell and Gould 1872; Franklin County Deeds 1837–1864; Graham 1856). Elam Drake and his family lived in a log house during his years as a bricklayer and building contractor (Taylor 1909). Around the time of his retirement in 1856, he built the brick house and summer kitchen/smokehouse documented in this report (Lind 1978). In 1868, his son Dwight constructed the English-style brick barn on the property.

The Agricultural Censuses from 1840 until 1870 indicate that this modest farm grew corn, potatoes, and wheat, produced butter and raised dairy cows and pigs as livestock. Horses were used for plowing and transportation. Ca. 1880, after Charles became the head of the household, the farm's income was diversified by adding sheep to the livestock (to produce wool), and by planting a one-acre apple orchard (Population Censuses for Franklin County, Ohio, 1830–1910; Agricultural Censuses for Franklin County, Ohio, 1850–1880).

On February 21, 1911, Elam Drake died at the age of 98, after seven days of what was described as "general paralysis" [stroke] (Certificate of Death for Elam Drake 1911). In his brief obituary, Elam Drake was described as a pioneer of Franklin County (*Columbus Dispatch* 1911). According to his wishes, the farm and all of his possessions were divided among his adult children (Franklin County Will Book 1911). The house, multiple outbuildings, and much of the original acreage became the property of his son Charles and his daughter-in-law Sarah Drake. In the years following Charles Drake's death in 1920 until 1958, the land that contained the Elam Drake house and its outbuildings passed through a series of nine owners, none of who possessed the property for more than eight years (Franklin County Deeds 1911–1950).

Elizabeth and Louis Wallick obtained the property in 1958 (Franklin County Deeds 1958). In 1977, they had the farmstead listed on the National Register of Historic Places (Lind 1978). In 1979, the Wallicks applied for a Historic Preservation Matching Grant from the Ohio Historical Society. Their grant proposal outlined their plans to spend their retirement restoring and preserving the buildings, with the eventual goal to open up the farm for tours. Their future plans also involved converting the large interior space of the barn into a meeting room, a gift shop, living quarters, and a place to display tools and other objects related to the property (Wallick and Wallick 1979).

The Wallick's daughters, Debra and Constance, held the property in trust from 1992 until 2003, when it was sold to a private owner. The farmhouse, outbuildings, and surrounding 5.37 acres were then sold to the Columbus Regional Airport Authority (Office of the Auditor, Franklin County, Ohio 2006).

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural Character: The Elam Drake House was constructed ca. 1856 as a one-and-one-half-story, structural brick house with a kitchen ell and a partial basement. The house's design shows concern for overall massing; however, all exterior doorways and windows are positioned off-center within their bays denoting more concern for function than a specific architectural style (Photos 5 and 9). The exterior has changed very little with the exception of changes to its windows, doors, and roofing material. The interior has suffered more alteration and deterioration, but still retains its original configuration. The main stairs appear to be original and a few Greek Revival-inspired door and window surrounds remain in the parlor and hall/dining room.

2. Condition of fabric: Despite a general lack of maintenance, the exterior appears to be in good condition. The overall fenestration pattern remains intact, although some original windows have been replaced with newer double-hung wood. The original interior plan of the house appears to be intact. The integrity of the interior of the house has been somewhat undermined by the removal, replacement, or destruction of original building fabric. Most notably, the house has suffered the loss of all mantels, all original flooring, some original doors, and some interior woodwork (Photos 15 and 16).

B. Description of Exterior:

1. Overall dimensions: One-and-a-half stories with one-story rear ell. Main facade measures approximately 26' (three bay) [Photo 5]; side facades (east/west) measure approximately 36' (three bay) [Photos 9 and 10]. The kitchen ell measures 18'-6" x 18'-6" with an 18'-6" x 8'-0" shed-roof porch (now enclosed) [Photos 11 and 12].

2. Foundation: The main part of the house rests on a brick foundation with basement and the kitchen ell rests on a coursed rubble fieldstone foundation with crawlspace. A smooth concrete veneer covers the exterior of the entire foundation system.

3. Walls: The red brick walls of the main portion of the house are laid in six-course common bond (Photos 6 and 7). The kitchen ell's red brick common bond pattern is seven stretcher rows per header row.

4. Porches: No front (south façade) porch or stoop appears to have existed on the house. Currently, the house has two open porches and one enclosed porch. One recessed porch is located on the east façade (Photos 8 and 9). A concrete slab replaced its original flooring sometime in the twentieth century. There is no trace of the original porch detailing. A small concrete stoop with three steps allows access to the north door of the kitchen ell (Photos 11 and 12). Unadorned square wood posts support its small shed-roof porch. Modern fixed-sash wood windows and a partial brick wall have transformed a former ell porch into a sunroom located on the east façade of the kitchen ell (Photos 11 and 12).

5. Structural system, framing: The brick walls are load bearing. The floors and roof are wood-frame construction. The floor joists for the first floor (as seen from the basement) have discernable straight up-and-down saw marks. On the upper floor, wood frame, non-load-bearing walls are used to enclose closet space and the staircase.

6. Chimneys: The house has three brick chimneys positioned inside the gable ends (Photos 5 and 11). A chimney for the south façade parlor is positioned on the west slope very near the ridge. A smaller chimney that warmed the hall/dining room is positioned on the slope west of the ridge. A large kitchen chimney is centered on the ridge near the north façade of the one-story ell.

7. Openings:

   a. Doorways and doors: The building has five exterior doorways, one on the south façade into the first story parlor, one on the east façade into the first story hall/dining room, one on the west façade into the kitchen, one on the north façade into the kitchen, and one in east façade of the enclosed ell porch. Except for the latter, all doorways appear to be original and have plain limestone lintels and thresholds (Photo 6). The doorway in south façade and the one under the recessed porch are both taller than the doorways in the west and north facades. The extra doorway height allows for a transom window. Additionally, two doorways are located between the kitchen and the ell porch. Access is gained to the basement from the exterior through a bulkhead positioned below a west side window located near the rear ell. The bulkhead is formed of concrete, set a slight incline and covered by an asphalt shingled wood door. All original exterior doors have been replaced.

   b. Windows and shutters: Windows on the first floor (with the exceptions of those enclosing the ell porch) are six-over-six in configuration and framed with plain stone lintels and sills (Photo 7). Seven, twelve-light wood frame windows enclose the ell porch. There is also one interior window located between the kitchen ell and the enclosed ell porch. Windows in the upper story are one-over-one framed by plain stone lintels and sills. At one time, the exterior windows were shuttered. Many of the shutters have since been removed, but examples of operable wood louvered shutters can be found on the east and west façades of the main house (Photo 10).

c. Ventilation: Four rectangular vents cut into the foundation provide air to the basement. The two larger vents are topped by cut stone lintels and set into the foundation on the south and west façades near the southwest corner of the house (Photo 10). The two smaller vents are located on the east façade on either side of the recessed porch (Photo 11). These smaller vents do not have stone lintels. A simple grill of thin cast iron posts protects each of the four vents. Attic ventilation is provided by pairs of small louvered metal vents located on the south and north walls (Photos 5, 11 and 12). As indicated by a patch in the brick, one of the attic vents on the east side of the north wall replaced a larger vent or window.

8. Roof

a. Shape, covering: The roof of both the main block of the house and its ell are gabled and covered by asphalt shingles. Sheets of metal cover the ell porch.

b. Cornice, eaves: Cornices are unornamented box gutters. At some point the gutters failed and modern metal gutters were attached.

C. Description of Interior of House:

1. Floor plans:

a. First floor: Five rooms on first floor. Recessed porch on east side flanked by two small rooms of unknown original function. Small room to the north of the recessed porch is currently a modern bathroom. Large dual function hall/dining room flanked by a parlor to the south and a kitchen ell to the north.

b. Second floor: Two rooms of equal size separated by stairway and short hallway. Each room has a closet and an attic access.

2. Stairways: The open stairway is located on the south side of the hall/dining room (Photo 13). The stairway rises in a straight run to the second floor. It has a turned newel post that is reminiscent of a Tuscan column and turned spindle balusters (Photo 14). An enclosed stairwell is located underneath the main stairs and provides access to the

basement. The original basement stairs have been replaced by a modern wood stairway of no particular design.

3. Flooring: Basement floors are concrete. Modern hardwood floors of various widths are found throughout first and second floors. The bathroom floor is coated with layer of vinyl flooring. Attic crawl spaces are finished with wide planks of various widths.

4. Wall and ceiling finishes: The basement spaces have concrete or exposed brick walls and exposed floor structure ceilings. On the first floor, plaster is applied directly to the brick walls. In some places the plaster has fallen off the exposing the brick. Interior brick has also been exposed where fireplace mantles were removed (Photos 15 and 16). The wall below the stairs is board and batten (Photo 13). No chair rails are evident, but large Greek Revival interior doorframes and window frames enliven the parlor and the hall/dining room (Photo 15). These plainly molded architraves appear to be made from walnut wood and have ear details at the intersection of the jambs and head architraves. Some of these Greek Revival door frames have been removed or had portions of their decorative molding removed. The ceilings inside the house and on the recessed porch are plaster on machine-cut lath. The ceilings and walls of the attic crawlspaces are left unfinished.

5. Doorways and doors: All interior doorways appear to be original to the house. However, only five doors filling these doorways appear to be original. One is a four-panel wood door located in the kitchen ell. The door has a cast iron rim lock mechanism with a ceramic brown swirl doorknob. Upstairs, four narrow two-panel wood doors provide access to the closets and attic spaces (Photo 17). These doors appear to date to mid or late nineteenth century. The other doors are of more recent vintage and include a hollow core door, an accordion-style folding door, and multi-panel wood doors.

6. Mechanical and electrical equipment: Most electrical wiring and outlets are modern with conduits running on top of the plaster walls and wood baseboards. Remnants of ceramic tube and knob insulators are found in the basement. Fluorescent lights are located in all major rooms (Photo 15). A ceiling fan with lights is located in the kitchen. Originally, three fireplaces supplied heat (Photo 16). At unknown dates, the firebox in the south parlor was partially filled to accept coal, and the hall/dining room fireplace was infilled. A circular hole in the brick over the kitchen fireplace indicates that a cook-stove was once installed in the kitchen (Photo 16). Currently, heat is supplied by a gas-fired forced air high-efficiency furnace located in the basement.

D. Outbuildings:

1. Outhouse: A single-hole outhouse is located approximately 72' northwest of the house (Photo 20). This small wood frame structure measures approximately 5'-7" x 4'-10". Its architectural design and materials date it to the early part of the twentieth century.

Sheathed in clapboard, the building sits on a concrete block foundation and is covered by a gable roof covered with asphalt shingles. The centered doorway contains a four-panel wood door that appears to be older than the rest of the building, indicating that the door might be recycled from the house. Centered over the door is a pair of small rectangular holes covered by metal screens. Horizontal wood planks held in place by round-headed nails cover the interior walls. Plain shelves decorate the interior walls. The floor is severely deteriorated. A single hole covered by a modern toilet seat cover is cut into a wood bench.

2. Garage: Northeast of the house and approximately 18'-6" east of the barn stands a two car, side-gable, concrete block garage (Photos 4 and 21). Probably dating to the 1950s, the garage measures approximately 29'-5" x 22'-4" with a 20'-6" shed-roof extension on its north side. The walls of the building are concrete block with wide weatherboard in the upper part of the gable ends. The garage doors of on the south-facing front façade have been removed and large sheets of plywood cover the openings. A single-leaf door with twelve lights provides access to the interior of the garage on the east façade. A pair of four-light wood windows on the west façade provides light to the interior of the garage. The equipment-shed addition is supported by a post-in-ground foundation and is sheathed by planks on the west and north facades. A doorway pierces the center of the west side of the shed addition and allows for access to the interior. The east side of the shed is left open. Asphalt shingles cover the roof. The roof has no gutters and the rafter ends are exposed.

3. Summer kitchen/smokehouse: Built ca. 1855, the summer kitchen and smoke house are combined in a small one-story building located approximately 10'-5" to the west of the kitchen ell (Photo 2). Since ca. 1950, a concrete patio has covered the ground between the house and the outbuilding. The dimensions of the building are approximately 10' x 12'. Above the course rubble foundation, the load-bearing red brick walls are laid in common bond with generally nine stretcher rows per header row. Two doorways and two windows punctuate the exterior (Photo 18). An inset summer kitchen doorway is located in the gable end and is oriented toward the kitchen ell. A flush smokehouse doorway is located on the north façade and is oriented toward the barn. Segmental arches top both doorways. Vertical-batten doors fill both entrances. Windows (once covered by wood louvers) are located on the south and north facades and provide light to the summer kitchen. Additional ventilation is provided by wood louvered vents located high in the gable ends. Asphalt shingles cover the boxed eave gable roof.

   The interior is divided into two rooms, both of which can only be accessed from the exterior. The summer kitchen is located on the east side of the building and has a partial limestone floor, plastered walls, shelves, and a plastered ceiling. The smokehouse interior has a dirt floor. Its plaster walls and ceiling are charred. A chimney flue extends into this half but the only opening is near the top. Wood poles with metal hooks extend from the ceiling.

The small outbuilding appears to be in good condition. It has only sustained changes to its roofing material and the loss of some of its wood louvered vents.

E. Site:

1. General setting and orientation: Once an average-sized agricultural property located on both sides of Johnstown Pike, the acreage of the property has been reduced to 5.33 acres containing all of the surviving farmstead buildings. Influenced by the nearby airport, this area of eastern Franklin County is in the process of transforming from a rural landscape to a mostly commercial and service industrial landscape. A residential development is located to the north. The landscape to the south of the house was dramatically transformed with the construction of Interstate 670 and U.S. Highway 62. This highway construction necessitated the rerouting of access to the property and its neighbors. A new road named Johnstown Road was laid south of I-670 and U.S. 62. A road that approximates the route of the former Johnstown Pike was nostalgically named Ole Country Lane. This road provides access to the house and is separated from I-670 by short reinforced-concrete wall.

   The Elam Drake house is sited approximately 70’ north of Ole Country Lane on the top of a rise of land surrounded by a few second growth hardwood trees and evergreens. A large pond, which dates to the latter part of the twentieth century, is sited to the east of the house, and the land to the north of the house is still agricultural in nature although not in use. A gravel driveway begins near the southeast of the property line at Ole Country Lane, widens between the house and the pond, and then continues north of the house curling around to the garage and English barn (Photos 1, 3 and 4). Presently, metal posts connected by a thickly corded wire guard the beginning of the driveway and protect the property from unwanted vehicular traffic. Mature vegetation along the east, north and west edges of the property helps screen the farmstead from view. Nonetheless, the highway and interstate located to the south of the property is a visual and auditory intrusion (Photo 1).

III. SOURCES OF INFORMATION

A. Bibliography

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Office of the Auditor, Franklin County Ohio. Property Assessment List, 2006.

IV. PROJECT INFORMATION

ASC Group, Inc., prepared this report in September and October 2006, as mitigation for the proposed demolition of the buildings of the property. Amy Bennett conducted the research and prepared the report text. Douglas Terpstra and Amy Bennett conducted the large-format photography.

HISTORIC AMERICAN BUILDINGS SURVEY

ELAM DRAKE FARMSTEAD-ENGLISH BARN FRA-2606-12

Location: 2738 Ole Country Lane (formerly Johnstown Pike), Mifflin Township, Franklin County, Ohio

USGS 7.5' Northeast Columbus Quadrangle
UTM Coordinates: 17.336072.4429743

Present Owner: Columbus Regional Airport Authority
4600 International Gateway
Columbus, Ohio

Present Use: Vacant. The barn is scheduled to be demolished.

Significance: The barn is a noteworthy example of a mid-nineteenth century three-bay English barn constructed with handmade brick. Local examples of English barns are typically frame. The barn's survival into the twenty-first century speaks to the success of its original construction technique and the care of subsequent owners. The Elam Drake Farmstead and its nineteenth-century outbuildings were listed in the National Register of Historic Places in 1977.

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection: Barn constructed 1868.

2. Architect/Builder: Bricks inscribed with the initials "D.F.D." and the date "[18]68" is located on the south façade and above the east side door (Photos 25 and 27). This information corresponds to the name of Elam Drake's son Dwight F. Drake and the year he built the barn for his father.

3. History/Original and subsequent owners: Refer to the Elam Drake Farmstead portion of this report for a fuller history of the farm and a chain of title.

4. Alterations and additions: The exterior has undergone several alterations to its fenestration (Photo 26). Sometime during the latter part of the nineteenth century, a vertical board stable addition was added to the rear of the building (Photo 28).

Alterations to the interior include: addition of a loft, partial replacement of original flooring with concrete, addition of two storage rooms, and replacement of many original hewn timbers with sawn post and beams (Photos 29 and 30).

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural Character: The Elam Drake Farmstead English Barn is a large, two-story agricultural building with common bond brick walls. The rectangular building has a side-gable roof and a large double-leaf entrance flanked by single leaf doors (Photos 22, 23, and 26). In the late nineteenth century or early twentieth century, a board-and-batten addition was added to the rear of the building near the northwest corner (Photo 28).

2. Condition of fabric: The condition of the building is fair. The exterior of the building has suffered some natural deterioration and some deterioration relating to fenestration changes and lack of maintenance. Mostly notably, the recent failure of a gutter and the loss of a portion of the standing seam metal roofing are allowing water to erode the exterior mortar and enter the interior (Photo 26).

B. Description of Exterior:

1. Overall dimensions: The English barn is a structural brick building measuring 42'-0" x 30'-5". A board-and-batten addition to the north east corner of the barn measures 28'-2" x 15'-0".

2. Foundation: The English barn and its addition both rest on a brick foundation. A thin coating of concrete has been applied to the addition's brick foundation.

3. Walls: The red brick walls of the main portion of the barn are laid in seven-course common bond (Photo 25). The stable addition walls were originally board and batten; however, at some point during the twentieth century the exterior of these walls was covered with sheets of asphalt shingles (Photo 28). At that time, the original wood battens were removed so the asphalt siding would lay flat.

4. Structural system, framing: The exterior brick walls are load bearing. The barn has timber frame construction to support the roof and lofts. The north end of the center tie beams has been cut out, and metal bars were inserted at some point to prevent the roof from spreading.

5. Openings:

a. Doorways and doors: The main double-leaf doorway measures approximately 11' across and is located on the south wall (Photo 24). Secondary single-leaf doorways flank the main doorway, and single-leaf doorways are also located on the east and north sides of the barn. Segmental arch lintels top all the exterior doorways.

Two large rectangular cut stones form the threshold of the main doorway. A pair of large vertical plank doors with "Z" bracing curve to fill the arch above them. The doors pivot on plain iron strap hinges.

Flanking the main doors is a pair of single-leaf doors (Photo 23). The door to the east is a rectangular vertical plank door hung on iron strap hinges. At some point a rectangular hole was cut into the middle of the door to allow for a window. The hole is now covered by a piece of standing seam metal. The doorway retains its original stone threshold. A pair of poured concrete steps allow for access to the door. The doorway flanking the west side of the main doors is filled with a rectangular paneled wood door. As evidenced by the smudges of Portland cement along the mortar joints on either side, the doorway has suffered more repairs. It features a paneled wood door hung on metal plate hinges, and a wood threshold. This paneled door was also cut with a rectangular hole to allow light into the interior. The hole is covered with a thick wire screen.

Roughly centered on the east side of the barn is an approximately 4' wide doorway with a stone threshold. The door filling this doorway is a rectangular vertical plank door hung on iron strap hinges.

Two doorways are located on the north wall. One 3'-5" wide doorway is located near the northeast corner of the barn and a 4'-4" doorway is roughly centered on this façade. A multi-panel wood door fills the doorway located near the northeast corner. The centered doorway features a rectangular vertical board door.

The stable addition features three single-leaf doorways on its east side and one single-leaf doorway on its west side.

b. Windows: Window openings are present at both the ground floor and the loft levels of the barn. Window openings topped by double-course segmental arch lintels are original. Window openings topped by metal lintels and stretcher courses of brick were put in at a later date. Two of these later window openings have been subsequently infilled with brick. Window openings and windows are located on each of the four sides of the barn. Several windows have been broken and/or replaced and thus do not contain their original sash configuration. On the south façade, windows with metal lintels and concrete sills are positioned over each of the flanking single-leaf doors. On the east side, two eight-light wood windows topped by segmental arch lintels are positioned on either side of the door. Above the door and offset to the north was a window that has now been infilled with brick. The former window's concrete sill remains in the wall. Another pair of segmental arch lintel windows flanks the north façade door. Two twelve-light windows with flat metal lintels and concrete sills are located on the ground level of the west side. A loft-level infilled window is positioned between them.

c. Ventilation: Centered metal louvered vents topped by segmental arch lintels are located high up in the gable ends.

6. Roof:

a. Shape, covering: Various types of standing seam metal cover the moderately pitched side-gable roof. The gable roof of the addition is covered in asphalt shingles.

b. Eaves: The eaves extend beyond the walls of the barn and the rafters are exposed. The eaves of the addition do not extend very far from the walls and they are fitted with a metal gutter system. The gutter is missing its downspouts.

C. Description of Interior:

1. Floor plans:

a. First floor: Nearly two thirds of the 15'-0" wide interior aisle is open to the ceiling. The rest of the interior ground floor has ceilings formed by the loft. On either side of the aisle are storage spaces enclosed by wood frame walls. The storage space to the west of the center aisle measures 8'-0" x 13'-5" and the one to the east measures 8'-6" x 13'-5". The date the walls were framed is not known, although the finish of the framing indicates that they are not original.

b. Loft: A loft space was created inside the barn at an unknown date. By virtue of its timber and heavy frame structure, the loft is divided into three parts. The center section roughly corresponds to the center aisle. In order to move more easily between the three loft spaces the tie beams were cut. Tie rods and metal pipe jacks have been installed in several places to reestablish the equilibrium of the building.

c. Addition: The interior of the vertical board addition is divided into three livestock stalls.

2. Stairways: A single movable wood ladder provides access to the loft.

3. Flooring: The floors of both the ground and loft levels consist of wide planks of mixed lengths. In the northeast corner of the ground floor a portion of floor is poured concrete. The flooring is in disrepair and a section is missing completely from the ground floor.

4. Wall and ceiling finishes: The interior of the barn has exposed brick walls and exposed structural posts and beams. The floor of the loft forms the ceiling of the ground floor.

5. Openings and doors: Access to the storage spaces is provided by single-leaf doors on the south façade exterior and narrower interior doors positioned on either side of the aisle nearest the main double doors. There is no access to the north addition from the interior of the barn.

6. Mechanical and electrical equipment: The electrical wiring and outlets are modern with conduits running across the wood posts and beams. The barn does not contain any historic farm equipment.

D. Site:

1. General setting and orientation: The English barn is sited north of the Elam Drake House at the south edge of an old field. To the east of the barn is a mid-century concrete block garage.

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NRHP ELIGIBILITY EVALUATION OF THE JOHN GLENN COLUMBUS INTERNATIONAL AIRPORT TERMINAL AND THE LANE AVIATION FACILITY

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National Register of Historic Places Eligibility Evaluation of the John Glenn Columbus International Airport Terminal and the Lane Aviation Facility, City of Columbus, Franklin County, Ohio

By

Douglas Terpstra, MS

ASC GROUP, INC.
ARCHAEOLOGY ARCHITECTURAL HISTORY ENVIRONMENT
CULTURAL AND ENVIRONMENTAL CONSULTANTS

National Register of Historic Places Eligibility Evaluation of the John Glenn Columbus International Airport Terminal and the Lane Aviation Facility, City of Columbus, Franklin County, Ohio

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ABSTRACT

ASC Group, Inc., under contract with Landrum & Brown, has completed a National Register of Historic Places eligibility evaluation of the John Glenn Columbus International Airport Terminal and the Lane Aviation Hangar and Office Facility in the City of Columbus, Franklin County, Ohio. The former has been assigned Ohio Historic Inventory Number FRA-10570-12, and the latter has been assigned number FRA-10571-12.

This report is intended to provide a recommendation for eligibility for listing on the National Register of Historic Places to aid future consultation per Section 106 of the National Historic Preservation Act for future development at John Glenn Columbus International Airport (formerly Port Columbus International Airport). FRA-10570-12 is historically significant under Criterion A for its association with the history of transportation in Columbus, but has been significantly altered by numerous modern expansions and renovations. The building lacks integrity and is recommended as not eligible for listing in the National Register of Historic Places. FRA-10571-12 is historically significant under Criterion A for its association with the history of transportation in Columbus and under Criterion B for its association with Foster Lane, an important Columbus aviator and businessman. However, FRA-10571-12 has been significantly altered through multiple modern expansions, lacks integrity, and is recommended as not eligible for listing in the National Register of Historic Places.

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INTRODUCTION

ASC Group, Inc. (ASC), under contract with Landrum & Brown, has completed a National Register of Historic Places (NRHP) eligibility evaluation of the John Glenn Columbus International Airport Terminal (the Terminal) and the Lane Aviation Hangar and Office Facility (Lane Aviation Facility) in the City of Columbus, Franklin County, Ohio (Figures 1 and 2). The Terminal is located at 4600 International Gateway, and the Lane Aviation Facility is located at 4389 International Gateway (Figures 1 and 2). The Terminal has been assigned Ohio Historic Inventory (OHI) number FRA-10570-12, and Lane Aviation has been assigned OHI number FRA-10571-12. The name of the airport changed to John Glenn Columbus International Airport from Port Columbus International Airport in June 2016. Contemporary references to the airport in this report use the new name; historical references to the airport retain the Port Columbus name, as that was the name in use at the time.

This report is being prepared in anticipation of coordination under Section 106 of the National Historic Preservation Act of 1966, as amended. Construction of the Terminal and Lane Aviation each began in the 1950s, and both buildings are greater than 50 years of age. Therefore, an evaluation of the buildings' NRHP eligibility status has been prepared to aid in future Section 106 coordination efforts. Douglas Terpstra, MS, architectural history project manager with ASC, served as the principal investigator, conducted the fieldwork, and evaluated the NRHP eligibility of the buildings.

HISTORIC CONTEXT

JOHN GLENN COLUMBUS INTERNATIONAL AIRPORT

Initially, the first airplane pilots in central Ohio used any handy pasture field as a landing field. The Columbus Aero Club, formed in 1908, established Norton Field along East Broad Street in 1923 for dedicated use as a landing field. Columbus business leaders and aviators began to advocate for construction of a proper airport to serve Columbus' interests in the coming "air age." An initial attempt at an airport bond issue in November 1927 failed by a two-to-one margin. The mayor of Columbus then appointed a committee of influential citizens to advocate for the bond; a year later an $850,000 bond received voter approval by a wide margin. Members of the city's Airport Commission approached Charles Lindbergh for assistance in choosing a site for the new airport, and 524 acres of land were purchased off Hamilton Road for the airport. Construction of the airport was completed in approximately eight months. The new airport was named Port Columbus because the airport was expected to serve as an "air harbor" for air transport (Arter 1969; CRAA 2003). Ernest H. Stork of the city's engineering office designed the airport and oversaw its construction, and also soon invented a type of runway boundary light that came to be used at Port Columbus and in airports around the world (CRAA 2003; Roberts 1959). William F. Centner was named the first superintendent of the airport (Burton 1929).

The dedication of the airport in July 1929 not only marked the opening of the airport, but also the introduction of transcontinental passenger travel using air transport in Columbus. After two days of festivities, on July 8 the Pennsylvania Railroad's "Airway Limited" arrived at the railroad station along Fifth Avenue across from the airport. Nineteen passengers, including Amelia Earhart, transferred to airplanes for the next stage of the transcontinental trip. Special guests at the airport opening included Henry and Edsel Ford, Harvey Firestone, and Charles Lindbergh (Arter 1969; CRAA 2003). At the time of the dedication, the terminal/control tower and the existing south hangar were the airport's primary facilities (Roberts 1959).

Transcontinental Air Transport (TAT) conducted the transcontinental passenger service in Columbus. The trip included travel by passenger train from New York City to Columbus, by airplane from Columbus to Waynoka, Oklahoma, by train from Waynoka to Clovis, New Mexico, and by plane from Clovis to Los Angeles, California. The eastern leg of the air trip also included stops in Indianapolis, St. Louis, Kansas City, and Wichita. TAT publicity claimed that the trip would take only 48 hours, a record speed for the time. In its first year, TAT made more than 3,000 trips and used Columbus as its eastern hub and main base of operations. TAT used the existing south hangar along Hamilton Road. In October 1930, TAT merged with Western Air, Inc., to form Transcontinental & Western Air (TWA) and that, along with the introduction of instruments for night flying, caused the railroad portion of the transcontinental flight to be discontinued; the trip was then made entirely by air (Arter 1969; City of Columbus 1939; CRAA 2003; Grant 2000).

In November 1929, the original administration/terminal/control tower building and the TAT hangar, both located in what is now the southeast corner of the airport, were the only completed buildings at Port Columbus, although two additional hangars were under construction. Nine sites for hangars had been arranged north-south along the Hamilton Road side of the airport; the TAT hangar was the southernmost and also had the hangar site to the north. The next hangar, under construction, was for the Curtis Flying Service. The municipal hangar also was under construction. United States Air Lines of Cleveland had leased a hangar site and Universal Air Lines and Western Air Express were each negotiating for two lots. The Allied Architects Association of Columbus designed the hangars and administration building. Future hangars and buildings were expected to conform to the style and design of these buildings, although with the US Navy's construction in the 1940s this did not come to pass (Burton 1929; Columbus-A Great Air Harbor 1929).

More than 11,000 people traveled through Port Columbus in 1930. In addition to TWA, American Airways also offered passenger service to and from Columbus in the 1930s. The City of Columbus maintained a municipal hangar at the airport beginning in 1930. In 1935, Foster Lane established the Port Columbus Flying School, which also expanded into charter trips, aerial sightseeing tours, and cargo transport. Lane Aviation is still in operation at Port Columbus. In 1936–1937, the Public Works Administration added an east-west runway to the original two northeast-southwest and northwest-southeast runways, and in 1939 added a north-south runway. By 1939, 15 scheduled flights left Port Columbus each day (CRAA 2003; Grant 2000; Roberts 1959). In 1939, Port Columbus' facilities consisted of the railroad station, the administration/terminal/control tower building, a pavilion to its west, and three hangars along Poth (later Hamilton) Road. The south hangar was used by TWA, the middle hangar by Curtis, and the north hangar (no longer extant) was the municipal hangar and also used by the US Army (City of Columbus 1939). In 1937, Stanley O. Nollenberger succeeded William Centner as airport superintendent (Roberts 1959).

With the outbreak of World War II, the US government began preparation for the country's expected entrance into the war. In October 1940, the Curtiss-Wright Corporation leased 83 acres of airport land to construct a manufacturing plant for military aircraft. These aircraft included SO3C-1 Seagull observation planes and SB2C Helldivers. In 1943, almost 10 percent of the nation's warplane production came out of Columbus. In 1941, the federal government took over operation of Port Columbus entirely and subsequently established a Naval Air Facility at the airport. The Naval Air Station constructed several buildings and widened and lengthened the existing runways. Among the station's main tasks were to arm the planes produced by Curtiss-Wright and to ferry the completed planes to military bases. After the war it served as a training facility for reserve squadrons. The facility had approximately 25 major buildings, mostly along Sawyer Road, but most are no longer extant. The US Navy relinquished control of Port Columbus in March 1946, although the Naval Air Station did not leave until 1958 (CRAA 2003; Lisska 2000; *Port Columbus Anniversary* 1979; Roberts 1959; Rycus 1981). Francis A. Bolton was appointed as airport superintendent in 1946; at just 26 years of age, he was the youngest manager of a large urban airport in the country (Roberts 1959).

Following the war, the facilities at Port Columbus were inadequate to handle the growing demand for air travel. From 64,500 take-offs and landings in 1940, the number had grown to 218,258 in 1947. Although the eighth busiest airport in the country, the Civil Aeronautics Board denied expanding service to include north-south air service due to the airport's outmoded facilities (Rycus 1981). With an eye to expanding the airport, the city purchased 252 acres of land in 1948 and continued to add land in following years until, by 1959, the property had a total area of approximately 2,200 acres (Roberts 1959).

With the outbreak of the Korean War in 1950, North American Aviation began to lease the former Curtiss-Wright plant from the federal government to produce jet aircraft for the military. The plant eventually employed 18,000 workers. In April 1951, voters approved a more than three million dollar bond issue for an airport expansion project, and the federal government added a similar amount. Another bond issue five years later with matching federal funds added nearly $8 million. Delta and United airlines added service in 1959, increasing to seven the number of major air carriers operating out of the airport. By the end of the 1950s, Port Columbus was the 16th busiest airport in the US (Roberts 1959; Rycus 1981).

In 1952, the east-west runway was extended from 4,500 to 8,000 feet with parallel taxiways to accommodate the large airplanes entering use.[1] In anticipation of future growth, the city decided to move airport operations from Fifth Avenue to a more centrally located site. Work on a new control tower began in 1953, and a new $4 million terminal building, one of the subjects of this report, was dedicated in September 1958. The runway had been extended again to 10,700 feet, making it the longest commercial runway between New York and Tucson. A second east-west runway was constructed north of the new terminal around this same time (CRAA 2003; Rycus 1981).

Three hangars at the southeast corner of the airport were still extant in 2010. In 1961 the south hangar housed Lane Aviation, the north hangar housed Nationwide Transport Association, Inc., and the US Navy occupied the middle building (not one of the airport's original hangars) [Sanborn Map Company 1961]. The north hangar is no longer extant. Lane Aviation operated from two hangars in this area prior to the opening of their new hangar complex in the new terminal area in 1957.

TWA became the first air carrier to begin jet service at Port Columbus in 1961. With the establishment of a US Customs facility in 1965, Port Columbus reached international status. Francis Bolton died in 1968, and Daniel F. Ginty became superintendent of Port Columbus. In 1970, the city opened Bolton Field southwest of downtown to take over much of the general aviation traffic and relieve congestion at Port Columbus; the new facility was named for Francis Bolton. Planning began in 1975 for a $70 million terminal renovation at Port Columbus that was dedicated in 1981 (CRAA 2003; Rycus 1981; Tenenbaum 1981). In 1982 the former Curtiss-Wright plant was transferred from the Navy to the Air Force and was given the name Air Force Plant 85. Rockwell International used the plant to build components for military jets and missiles, and McDonnell Douglas later built parts for civilian and military planes, but shut down operations at the plant in 1994. The government sold the plant to private owners in 1997 (Pramik 1997). Later expansions of airport facilities have included construction of Concourse A on the south side of the terminal in 1989; construction of Concourse C on the north side of the terminal in 1996; completion of a $92 million project in 1999 that included a parking garage, rental car and roadway improvements, and an atrium; and construction of a new air traffic control tower beginning in 2001

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[1] This runway, known as the south parallel runway, was relocated approximately 702 feet south of its original location. This relocated runway opened in August 2013 and the former south runway was converted into a parallel taxiway.

(CRAA 2004). The Columbus Regional Airport Authority Board of Directors approved a resolution in 2016 changing the name of the airport to John Glenn Columbus International Airport.

FOSTER LANE AND LANE AVIATION

Foster Lane first flew in an airplane in 1925 when he sought out a barnstormer operating near Dayton to hire a ride. Taken with the experience, Lane returned on subsequent weekends to hire the barnstormer for flying lessons. When the barnstormer moved on to another area, Lane moved to Cleveland, where a new airport (now Cleveland Hopkins International Airport) was under construction. While in Cleveland, Lane decided that flying would someday be a popular form of transportation and was determined to be involved. However, at the time there were few full-time jobs in aviation, and both airplane sales and rentals were prohibitively expensive. When Lane received word of a newly-repaired Waco 9 biplane available for sale, he convinced his parents to help him obtain a loan to buy the plane, with the hope of making a living by selling rides and giving flying lessons. After a time spent as a barnstormer providing excursion flights, Lane was hired as the head pilot for the Willard Airport Company in Huron County, Ohio. The Willard Airport Company was a barnstorming company with its operating base at the Willard Airport, although the company put on shows across Ohio and neighboring states. Lane flew one of the company's planes for excursion rides and stunt exhibitions, including parachute jumpers and wing walkers (Lane 1987).

Within a few years, with more airports being constructed, barnstormers began to settle in at a single base of operation and drawing customers to the airport, rather than traveling to exhibitions. Flying companies became Fixed Base Operators (FBOs). Even through the 1930s and 1940s, flying was still a novelty to most people, and prospective passengers would travel to airports to hire a plane for sight-seeing flights or flying lessons. In October 1929, Lane took a job with Dungan Airways at what is now Cleveland Hopkins International Airport. In addition to "passenger hops" and flying lessons, Lane also began to fly what later became known as charter flights, carrying passengers to specific destinations and back (Lane 1987). Lane competed in one of the National Air Races while in Cleveland (Waldron 1963).

When the company closed during the Great Depression, Lane struggled for a few years, finally deciding to open his own flying company. With money saved by his wife and money obtained as a traveling salesman for the Peerless Model Company, an airplane kit manufacturer, Lane leased hangar space at Port Columbus, purchased a used airplane from a doctor in Chillicothe, and, on May 1, 1935, opened the Port Columbus Flying School. Lane provided flying lessons during the week and passenger hops on the weekend, while also making charter flights as far as Chicago, Illinois, and Louisville, Kentucky. Lane also carried radio announcers and news photographers over the Ohio and Muskingum rivers during flood events (Lane 1987). He also sold and serviced airplanes, becoming a Taylorcraft agent in 1937 (Raper 1947).

Lane was successful enough in his business that by August 1939 he was able to acquire the H. C. Robbins Company of Cleveland and incorporated as Lane Aviation. Lane would remain in Columbus, while one of his co-incorporators would run operations in Cleveland, including servicing airplanes, operating a flying service, and operating a school for aeronautics (*Columbus Citizen* 1939). The Cleveland operation eventually closed, and the Lane Aviation name was transferred to his Columbus operation. During World War II, although evicted from Port Columbus with all other civilian operations, Lane trained pilots through the Civilian Pilot Training Program (later renamed to the War Training Service), first at Sullivant Airport, then Don Scott Field (Ohio State University Airport). In total, Lane is credited with training 1,054 pilots through these programs (Jose 1942; Raper 1947).

Following the war, Lane moved Lane Aviation back to Port Columbus and operated from the former TAT Hangar adjacent to the original terminal. In addition to flying lessons, charter flights, and airplane sales and service, the company also provided aerial photography services (Raper 1947). As an offshoot of the charter service, Lane operated an air ambulance in a Cessna equipped to accommodate a stretcher. Patients included accident victims wishing to return home from some other location, polio patients traveling to Warm Springs in Georgia, and patients traveling to the Mayo Clinic in Rochester, Minnesota (Price 1950; Roland 1949). By 1954, Lane Aviation occupied two of the original hangars at the east end of the airport. The company was the distributor for Cessna aircraft for central Ohio and operated an air taxi service (*Ohio State Journal* 1954). A profile of the company in 1959 states that Lane Aviation was responsible for refueling for American, United, Lake Central, Eastern, and Piedmont airlines at Port Columbus. Lane Aviation also serviced all of the military aircraft at Port Columbus (Thomson 1959). With the opening of the company's new hangar complex in the new terminal area in 1957, most of the company's operations moved out of the southeast corner of the airport, although the former TAT Hangar continued to be used at least into the 1960s (Sanborn Map Company 1961).

By the 1960s, Foster Lane was a nationally respected executive in commercial aviation. Lane Aviation's services included charter flights, flying instruction, line service to commercial airliners and other aircraft (fuel, etc.), maintenance facilities, hangar space rental, aircraft sales, air taxi service, air ambulance service, charter freight, and a store for pilots. Airplane sales included both new and used aircraft, and Lane Aviation employees had delivered airplanes to as far away as Colombia and Argentina. The company employed approximately 50 people by this time (Waldron 1963). A notable event in Lane Aviation's history was in 1964 when Jerrie Mock began and ended her journey as the first woman to fly solo around the world at the Lane Aviation Facility (McGarey 1964). By 1974, Lane Aviation employed approximately 100 people (Moore 1974). By the 1980s, Foster Lane was the chairman and president of the Ohio History of Flight Museum, which was housed in a hangar on Port Columbus property (Switzer 1983).

By the time of the company's 50th anniversary in 1985, it was one of the largest FBOs in the country. Most of the company's customers were Columbus companies that used Lane Aviation to service their corporate jets, including providing pilots and flight crews, maintenance, supplies, and/or hangar space; corporate services provided 50 to 70 percent of the company's revenues. The company was also certified to do maintenance on Boeing airplanes for the major airlines. The company also had a perfect 50-year safety record, with no passenger ever injured on a Lane flight (Amatos 1985). Foster Lane died on July 18, 1995, at age 92 (Narciso 1995). By this time, the company had eight divisions: cargo handling, terminal service, ramp operations, equipment maintenance, charter flights, aircraft sales, aircraft parts, and a service department. The company managed fueling operations for 17 airlines that served Port Columbus and provided standby emergency maintenance for airlines (Henson 1995). To the present day, Lane Aviation continues to provide flight support services for private and corporate pilots, airline services such as fueling and de-icing, aircraft maintenance, sales of parts and aircraft, and private aircraft charters.

METHODS

Fieldwork was conducted at the Terminal and the Lane Aviation Facility on January 14, 2016. During the fieldwork, photographs were taken to record the design, materials, additions, and alterations to the Terminal and the Lane Aviation Facility (Figure 3). The photographs and field notes in turn were compared with historic photographs and aerial views of the Terminal and the Lane Aviation Facility. This comparison aided in the determination of the resources' integrity, yielding additional data by which the eligibility of the buildings for the NRHP could be judged.

Background research was conducted at the Ohio History Connection Archives and Library (OHC) and at the Columbus Metropolitan Library (CML). Historic photographs were accessed through CML's websites (www.columbuslibrary.org and www.digital-collections.columbuslibrary.org). OHC holds a large collection of records from the Columbus Department of Public Service, Division of Municipal Airport, including airport superintendents' correspondence (1940–1970), plans and blueprints (State Archives Series 3117), and photographs (1929–1970) [State Archives Series 5080AV]. OHC also has a collection of materials, both records/correspondence and photographs, from Foster Lane and Lane Aviation (MSS 1359). The NRHP Criteria for Evaluation were used to evaluate the eligibility of resources (Andrus 1997).

ANALYSIS AND RECOMMENDATIONS

FRA-10570-12, JOHN GLENN COLUMBUS INTERNATIONAL AIRPORT TERMINAL

Description

FRA-10570-12 is an irregularly shaped building generally one to three stories in height (not including parking garage levels or below-grade areas) [Figures 2 and 3; Plate 1]. The tallest element of the building is the 1958 air traffic control tower, which is 10 stories in height (Plate 2). A new air traffic control tower opened in 2004 west of the Terminal; the former air traffic control tower is now used for ramp control. The 1958 terminal building had exterior finishes of brick, aluminum, and glass, but the 1981 renovation mostly clad the building in metal panels with thin window bands. The 1958 terminal building had a Y-shape, with a passenger loading pier (the predecessor to the present Concourse B) extending east, the former air traffic control tower at the junction of the Y, and angled wings for offices and traveler amenities extending northwest and southwest (Plates 3–5).

In the 1981 renovation, Concourse B was raised to two stories to allow jetway access to aircraft, and a T-extension was added to the east end to provide more gates (Plate 6). The west end of Concourse B was widened in the 1981 renovation to provide more space for retail and concessions. The angled wings have mostly been encompassed within later additions, although a portion of the southwest wing is still exposed on the east, albeit with later exterior materials. A 1981 addition west of the 1958 terminal provided lobby and ticket counter space; the 1981 renovation also added the east portion of the parking garage. This parking garage once had spiral ramps at the north and south ends of its west wall, but these were removed when the west portion of the parking garage was constructed. Concourse A was added in 1989 and extends west along the south side of the Terminal (Plates 7–9). The first part of Concourse C opened in 1996; this concourse extends west along the north side of the Terminal (Plates 10–12). The west portion of the parking garage was opened in 2000 (Plates 7 and 9). The interior of the Terminal has been remodeled and renovated on several occasions, with the current remodeling still underway at the time of the field survey. The interior of the Terminal has all modern finishes (Plates 13–15). The entrance atrium was part of a renovation completed in 2000 (Plate 14).

History

Planning for the development of a new terminal for Port Columbus began after World War II. The J. E. Greiner Company prepared a master plan for extensions and improvements to the airport, which the city's Airport Commission approved on January 26, 1951. Work was underway by 1952 to extend the runway, construct connecting taxiways, and rehabilitate existing pavement. In October 1952, the J. E. Greiner Company submitted a preliminary report for the development of the Terminal Area and Terminal Building to the city. The report called for the immediate construction of a new air traffic control tower, which would later be incorporated into the new terminal building. The recommended initial development of the terminal area included adequate apron area for aircraft parking, access and service roads and parking areas to accommodate estimated vehicular traffic, a service building with a central heating plant and airport and aircraft maintenance facilities, an aviation fuel storage farm, hangars for small aircraft, an executive aircraft terminal, and areas for potential hangars and shops for large aircraft, air cargo facilities, and helicopter operations in the still further future (J. E. Greiner 1952).

The proposed terminal was, if constructed within the next few years, expected to be adequate for at least 10 to 15 years before a major expansion would become necessary. The proposed first floor plan included the main lobby, airline operations, dining and kitchen areas, concession areas, public facilities, claim baggage area, a branch bank, a sub-post office, airmail facilities, and express and cargo facilities. The first floor of the passenger loading pier provided passenger access to the aircraft gate positions. The second floor provided additional public lobby space, airport management offices, a conference room, weather bureau facilities, and office rental space. The roof of the pier, accessed from the second floor, was to provide an open observation deck. The air traffic control tower provided space for the air traffic control facilities and other Civil Aeronautics Administration equipment (J. E. Greiner 1952).

Construction began in 1953 on the new 10-story air traffic control tower, and it was still under construction at the time of the airport's 25th anniversary celebration on July 11, 1954 (*Ohio State Journal*, 10 July 1954:1, 8). Garwick & Ross was the general contractor for the terminal construction (Thomson 1959). A photograph dated March 1957 shows the air traffic control tower standing alone near the northwest corner of the airport, with construction of the Terminal having not yet begun (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library) [Appendix A, p. A-2]. A photograph dated spring 1957 shows foundation work having begun on the southwest wing and the passenger loading pier (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library) [Appendix A, p. A-3]. The airport superintendent's house was still located adjacent to the air traffic control tower, although it would soon be moved to the north to make way for the northwest wing of the Terminal. A photograph dated ca. November 1957 shows both wings and the passenger loading pier under construction (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library) [Appendix A, p. A-4]. The Terminal was substantially complete by the summer of 1958 (State Archives Series 5080AV, Box 1, Folder 2, Ohio History Connection Archives/Library) [Appendix A, p. A-6].

The new terminal was dedicated on September 21, 1958, in a ceremony and airshow that drew 150,000 spectators (Stebbins 1958). The completed building followed the 1952 plan in most respects. The exterior of the building was aluminum and glass with brick trim. The Y-shaped building had a passenger loading pier as the base of the Y. The pier had eight permanent loading gate positions, and the terminal could accommodate as many as 13 aircraft simultaneously. From the pier, passengers walked out onto the apron and climbed steps up into the airplane. A wing of the terminal was used for passenger services, including a restaurant and coffee shop, while the other wing was used for services for deplaning passengers, including baggage, rental cars, and limousine service. Ticket counters for seven airlines were located in both wings. The partial second floor housed administrative offices (Thomson 1959). A photograph of the new terminal was used as the cover image of *Greater Columbus* magazine early in 1959 (Appendix A, p. A-8).

City of Columbus officials and business leaders began to realize in the late 1960s that the existing airport terminal was becoming overwhelmed with the numbers of passengers it was receiving. As early as 1969 city officials discussed the need for 23 more gates, additional parking, a second access road, and a second level to the passenger loading pier. A \$525,000 terminal expansion project was underway in 1969 to improve the baggage claim area and expand the passenger loading gates (Lambert 1969). The terminal had been designed to handle one million passengers per year, but saw 1.71 million in 1969 and 2.61 million in 1978 (Curtin 1979).

In 1975, the city contracted with consulting firm Landrum & Brown to study the airport and recommend improvements. Landrum & Brown submitted a master plan to the city in 1976 that recommended that a new terminal be constructed west of the existing terminal along E. 17th Avenue, then the airport's approach road and later to be renamed International Gateway. The airlines using Port Columbus objected and hired Turner Construction Company to produce a cost estimate for renovating the existing terminal. Turner produced for the city a comparison of the costs for the two plans, and the renovation plan came in at \$20 million less than the cost of a new terminal. Faced with the cost difference, the majority of the City's Airport Commission voted for the renovation plan (Cain 1976; Tenenbaum 1981).

The City contracted with Columbus architectural and planning firm Brubaker/Brandt to design the project. The firm developed more than 20 variations of a basic design and presented the City with several designs for serious study (Curtain 1977a; Tenenbaum 1981). The Airport Commission approved a design plan in May 1977. The plan called for the existing terminal to be used mostly for nonpublic purposes, such as offices and operations needs, although ticket sales and some baggage facilities would remain in the building. A new diamond-shaped addition would be constructed east of the terminal and linked to it by single concourse equipped with a people mover. The loading facility would include 17 gates (with room for expansion), baggage claim facilities, restrooms, and a concessions area. A parking garage would be constructed on the west side of the terminal (Curtain 1977a, 1977b).

Construction plans were developed over the next 18 months, and the project was opened for bids in April 1979. When all of the bids came back well above the cost estimates, the design was revised from a new diamond-shaped building to the T-design of the present Concourse B. The project was rebid successfully, with Dugan and Meyers Construction Company chosen as general contractor (Tenenbaum 1981). Although the city could have financed the project with unvoted bonds, City Council decided to put a bond issue to the general public. Voters approved the bond issue in June 1979 (*Columbus* Dispatch, 6 June 1979:1B). The bonds were paid back in large part through rents paid by the airlines and concessionaires (Tenenbaum 1981). The groundbreaking for the project was in June 1979, a month before the airport's 50th anniversary celebration and airshow was held (Curtain 1979). The new building's nearly 500,000 square feet of usable space (not including the parking garage) would include 133,000 square feet of the old terminal; only 6,000 square feet of the old building was lost as a result of the project (Tenenbaum 1981).

Whereas previously access to the Terminal was directly from the surface parking lot, the renovated Terminal had multi-level access. Departing passengers used a second-level drive to access the ticket lobby and baggage check. On the ground level, newly arrived passengers could meet rides or access the baggage claim or rental car companies. Buses and taxis used a lower-level drive to drop off or pick up passengers. The new parking garage covered the entirety of the driveway complex. A short-term outdoor parking lot remained west of the parking garage, and a newly enlarged remote parking lot was present south of E. 17th Avenue. The present Concourse

B took on its present basic form at this time, with passengers passing through the main lobby with its ticket counters, a retail and restaurant area, the security gate, and then the two-story T-shaped structure housing the gates. Gates 1 through 10 were located along the main corridor, with the remainder of the 17 new gates in the cross of the T. Most of the gates were now equipped with jetways to allow enclosed access from the building to the planes. Arriving passengers passed through the concourse to the lobby and then took escalators to the ground floor baggage claim area. The first floor of the T, where the gates were originally located, were now airline offices and service areas. In addition to the Terminal renovations, E. 17th Avenue (now International Gateway) was widened to four lanes with a median to improve access to the Terminal, Sawyer Road was relocated and resurfaced, and the airplane parking apron was expanded (Tenenbaum 1981). The newly renovated and expanded terminal was dedicated on October 4, 1981 (Foster 1981).

Concourse A opened in December 1989 with seven new gates, all used by USAir, which paid for its construction. The new concourse also included a gift shop, a restaurant, a separate baggage claim area, and a ticketing area adjacent to the main lobby. The ticketing area was decorated by a Culver Cadet airplane constructed in 1939 at Port Columbus and loaned by Foster Lane (Reuter-May 1989). Construction began on Concourse C in May 1994, with the work completed by December 1995. The concourse opened in January 1996 and contained four gates and food and retail facilities. The new concourse accommodated Delta and Southwest airlines, while America West Airlines expanded in Concourse B (Carter 1995; Mayhood 1995).

Construction began in February 1998 on a project to renovate the Terminal and add a new parking garage; the project was mostly completed by February 2000. The $92 million project added a six-level 2,800-car parking garage, the 100-ft high entrance atrium, new rental car counters, a people mover, new escalators and elevators, and access to the baggage-claim from the road. The project also renovated the old parking garage and the food and retail areas in the Terminal (Williams 2000). A project to expand Concourse C by five additional gates began in 2001 and was completed in 2002 (Niquette 2001; Williams 2002).

Analysis

The Terminal is associated with important trends in transportation history in Columbus. Airplane travel became the dominant form of long-distance travel over the course of the twentieth century. As airplanes grew larger and the number of flights and volume of passengers increased, the City of Columbus built the Terminal to accommodate airline travel on a scale that the original terminal could not handle. While the 1929 terminal had access by railroad, the 1958 Terminal was away from the railroad and had a large parking lot to accommodate the automobile. While the 1929 terminal reflects the emergence of air travel as an option for transportation, the 1958 terminal reflects air travel's growth into a dominant and mature form of transportation. The Terminal is significant under Criterion A for having important associations with the history of transportation in Columbus.

No evidence was found to show that a person or people important in history have specific associations with the Terminal, and it is not significant under Criterion B. When built, the Terminal was an interesting work of International-style architecture, rejecting the use of traditional ornament and symmetry and making use of curtain walls of glass and aluminum. However, subsequent expansions and renovations have completely removed its original architectural character, and it lacks significance under Criterion C.

In its role as one of the primary hubs for travel in central Ohio, the Terminal has been renovated, expanded, and modernized on multiple occasions in the past 50 years, mostly notably the 1979–1981 expansion and the 2000 completion of a large new parking garage, which have removed most of the building's historic character. The Terminal has not moved and retains its integrity of location. The Terminal's exterior appearance, interior organization, and connections to surface transportation mostly date to the expansion and renovation completed in 1981 and reflect little or nothing of the 1958 building. The subsequent additions have further altered the building's sense of size and massing. Therefore, the Terminal has lost its integrity of design. The building is still located on an airport and retains its integrity of setting. The building's exterior materials mostly date to the 1981 renovation, and the interior has been remodeled and modernized on several occasions. The Terminal does not retain its integrity of materials, as virtually no original materials remain evident. With the loss of its original design and materials, the Terminal has lost its sense of its original workmanship and feeling as a mid-twentieth century transportation-related building. The Terminal is still associated with air travel and retains its integrity of association.

The Terminal (FRA-10570-12) is significant under Criterion A for its association with transportation history in Columbus. However, little remains of the 1958 terminal building. The current appearance of the Terminal mostly reflects renovation and expansion campaigns that are less than 50 years of age, and the Terminal lacks integrity of design, materials, workmanship, and feeling. Although historically significant, FRA-10570-12 lacks integrity and is recommended as not eligible for listing in the NRHP.

FRA-10571-12, LANE AVIATION HANGAR AND OFFICE FACILITY

Description

FRA-10571-12 consists of six interconnected hangars and associated offices, corridors, and lobby space (Figures 2 and 4). The hangars were constructed in sequence from east to west, with hangars 1 and 2 having been constructed in 1957, hangar 3 in 1968–1969, and the others all after 1975, with the most recent being hangar 6 in 2006–2007. Hangars 1, 2, 3, and 5 have segmental arched roofs, hangar 6 has a gable roof, and hangar 4 has a gable roof on the south and a segmental arched roof on the north (Plates 16–23). The hangars have steel frames, with steel truss roofs, and have metal siding and roofing (Plates 24–33). The interiors of the hangars generally have concrete floors, concrete block interior walls, and insulation covering the metal exterior walls. The hangar doors slide open horizontally on tracks, and the door panels are staggered to slide past one another in sequence (Plates 27 and 29). Hangars 1, 2, 3, and 4 have additional openings above the doors that can be raised vertically to allow larger planes with taller tail sections to enter the hangars.

Hangars 5 and 6 directly abut, but the other hangars are separated by corridors and lobby spaces. A U. S. Customs and Border Protection facility recently was built adjacent to the southeast corner of hangar 1 (Plate 19). A brick-faced office section runs along the north side of hangars 2 and 3 from corridors A to C (Plate 22). This office section is one-story in height and has a flat roof. Its windows are plate glass in tall narrow openings. Most of the entrances are recessed, and the main north entrance, located at corridor C, has a flat-roofed shelter over the front steps. Corridors A and B are faced with metal siding at their south ends, and both have doorways opening onto the apron. The present main lobby is between hangars 3 and 4. The airfield entrance to the main lobby is faced with glass and has a rounded banner at the top with the name Lane Aviation (Plate 18). A narrow shed-roof section extends north from hangar 4, providing vehicular access into the hangar from the north; hangar 4 is the only hangar with such access on the north. Corridor D, between hangars 4 and 5, is two stories in height, has brick facing on the north, and has metal siding on the south (Plates 16 and 23). The interiors of the corridors, lobby, and offices have modern finishes, including carpeting and dropped ceilings (Plates 34–37). The main lobby is a two-story atrium with a mezzanine, with rooms and corridor C on both floors (Plate 34).

History

Lane Aviation introduced the prospect of building a new hangar complex as part of the 1950s airport expansion early in the process. A memo on Lane Aviation letterhead and dated December 19, 1955, provided the company's proposal for new hangar development (Hangar Proposal, State Archives Series 3117, Box 4963, Folder 5/38, Ohio History Connection Archives/Library). Lane would build the hangar and ramp space, while the city would build utility lines and a taxiway. The hangar would revert to the city at the expiration of the lease, with Lane having right of first refusal. Lane also would have right of first refusal for the land to the east and west of the hangars for expansion. State Archives Series 3117 containing the Port Columbus superintendent's correspondence unfortunately contained no other relevant information regarding the initial development of the facility.

A photograph dated March 1957 shows construction beginning on the foundations of hangars 1 and 2 (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library) [Appendix A, p. A-2]. A photograph dated spring 1957 shows the steel frame having been erected for hangars 1 and 2 (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library) [Appendix A, p. A-3]. A photograph of a contractor's sign, taken during construction of the hangars, indicates that the hangars were built by the Dresser-Ideco Company and were designed by Holroyd Associates (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library [this photograph does not depict the hangars and so is not included in Appendix A]). Photographs dated ca. November 1957 shows the completed, but not yet painted, hangars, with a completed apron and taxiway leading to the runway (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library) [Appendix A, pp. A-4 and A-5]. No brick office wing was present north of the hangars at this time. A ca. 1958 photograph shows a large Sohio/Standard Oil sign above the south end of corridor A (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library) [Appendix A, p. A-7]. This sign also is visible in a photograph from ca. 1960 (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library) [Appendix A, p. A-9]. Photographs from ca. 1963 show a small parking lot on the north side of the hangars, a small apron on the south side of the hangars, and a short taxiway to the north taxiway of the south runway (MSS 1359, Box 3, Folder AV/3/15, Ohio History Connection Archives/Library) [Appendix A, pp. A-10 and A-11].

Lane Aviation saw the need to expand its hangar facilities as early as 1965. In May 1965, Foster Lane wrote to Francis Bolton, the superintendent of Port Columbus, that their hangars were filled to capacity and inquired about leasing the land west of the hangars for building purposes (Letter, Foster A. Lane to Francis A. Bolton, May 3, 1965, State Archives Series 3117, Box 4975, Folder 17/31, Ohio History Connection Archives/Library). In January 1966, Lane wrote again to Bolton, providing a location and site plan for the new hangar, with plans by Holroyd and Myers (Letter, Foster A. Lane to Francis A. Bolton, January 20, 1966, State Archives Series 3117, Box 4976, Folder 18/62, Ohio History Connection Archives/Library). The site plan shows the existing office space north of hangar 2 and proposed office space north of hangar 3, although what is shown on the plans is less than the area that is currently present in the brick office wing. In May 1966, Robert Varner of Lane Aviation wrote to Bolton indicating that engineering drawings and specifications were being completed that week by Holroyd and Myers; the proposed hangar would be approximately 125 ft by 175 ft (Letter, Robert H. Varner to Francis A. Bolton, May 5, 1966, State Archives Series 3117, Box 4976, Folder 18/62, Ohio History Connection Archives/Library).

A photograph dated September 12, 1968, shows hangar 3 under construction, with its steel frame in place and walls nearing completion (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library) [Appendix A, p. A-12]. The eastern portion of the brick office wing was present by this time, located along the north side of hangar 2. The photograph also shows that the apron south of the hangars had been greatly expanded by this time. A photograph dated January 23, 1969, shows the completed, but not yet painted, hangar 3 (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library) [Appendix A, p. A-13]. Photographs dated June 19, 1970, show the main lobby between hangars 1 and 2; what before had been a simple wall with a door now had a two-story glass-enclosed porch (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library) [Appendix A, pp. A-14 and A-15].

A November 1985 newspaper article indicates that Foster Lane had recently signed a contract to build a new office building and 23,200 square foot hangar on the west side of the existing facilities (Amatos 1985). The company began construction of hangar 6 in September 2006 (Aviation News Today 2006).

Analysis

Just as the Terminal is historically significant for reflecting the growth of flight as a significant form of long distance travel, the Lane Aviation Facility is associated with the important historic theme of transportation for reflecting the growth of general aviation as a transportation resource and as an element essential in the operation of John Glenn Columbus International Airport. Foster Lane's career as an aviator and aviation businessman spanned the period from when airplanes were a novelty to when airplanes were a mature form of personal and corporate travel. Lane Aviation also has a long history of fueling and servicing both private and airline aircraft at Port Columbus. The Lane Aviation Facility is significant under Criterion A for its association with air travel in Columbus.

Foster Lane is significant in history as an important Columbus aviator, flight instructor, and aviation businessman who grew Lane Aviation from a small flight school to a large and diverse aviation business. Although one of the 1929 hangars that housed Lane Aviation prior to the construction of the Lane Aviation Facility is still extant, enough changes have occurred to the size and character of the airport subsequent to the company's use of that hangar that the Lane Aviation Facility is the best remaining building associated with Lane's career and an aviator and businessman. The Lane Aviation Facility is significant under Criterion B for its association with Foster Lane.

No evidence was found to show that the Lane Aviation Facility is a significant work of architecture or engineering. The buildings do not embody the distinctive characteristics of a type, period, or method of construction. The Lane Aviation Facility is not significant under Criterion C.

Just as with the Terminal, the Lane Aviation Facility has undergone numerous campaigns of expansion and renovation. Four of the six hangars at the time of this report are less than 50 years of age, in addition to other smaller additions. The main lobby has been moved from its original location, and the interior finishes in the offices and corridors are modern. These expansions and alterations have removed much of the facility's historic character. The Lane Aviation Facility has not been moved and retains its integrity of location. The facility has been tripled in size within the past 50 years, removing the sense of its original size and massing. The Lane Aviation Facility has lost its integrity of design. The growth westward of the Terminal, the removal of most small general aviation aircraft to Bolton Field, the expansion of surface parking lots west of the facility, and the removal of other small hangars and structures once located in this area has diminished the facility's integrity of setting, although it obviously still retains its sense of being located on an airport. The hangars form the predominant interior space and exterior surfaces, and hangars 1 and 2 retain their original materials. The added hangars are constructed of essentially the same materials and do not detract significantly from the original hangars' integrity of materials. The renovations of the other interior spaces have diminished the Lane Aviation Facility's integrity of materials somewhat, although it has not lost its overall integrity of materials. Workmanship is not a significant component of integrity for a utilitarian type of building as forms the Lane Aviation Facility, and no alterations have occurred that have significantly impacted its integrity of workmanship. The Lane Aviation Facility still retains its integrity of feeling and association as a result of remaining an operational hangar complex located at an airport.

The Lane Aviation Facility (FRA-10571-12) is significant under Criterion A for its association with transportation history in Columbus and under Criterion B for its association with Foster Lane, a significant Columbus aviator and businessman. However, much of the Lane Aviation Facility is less than 50 years of age due to the four hangars that have been added to the original two 1957 hangars. The Lane Aviation Facility lacks integrity of design and does not have a high level of integrity of setting or materials. Although historically significant, the Lane Aviation Facility lacks integrity and is recommended as not eligible for listing in the NRHP.

SUMMARY

ASC Group, Inc., under contract with Landrum & Brown, has completed a NRHP eligibility evaluation of the Terminal and the Lane Aviation Facility at John Glenn Columbus International Airport. The Terminal (FRA-10570-12) is historically significant under Criterion A, but lacks integrity and is recommended as not eligible for listing in the NRHP. The Lane Aviation Facility (FRA-10571-12) is historically significant under Criteria A and B, but lacks integrity and is recommended as not eligible for listing in the NRHP.

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FIGURES

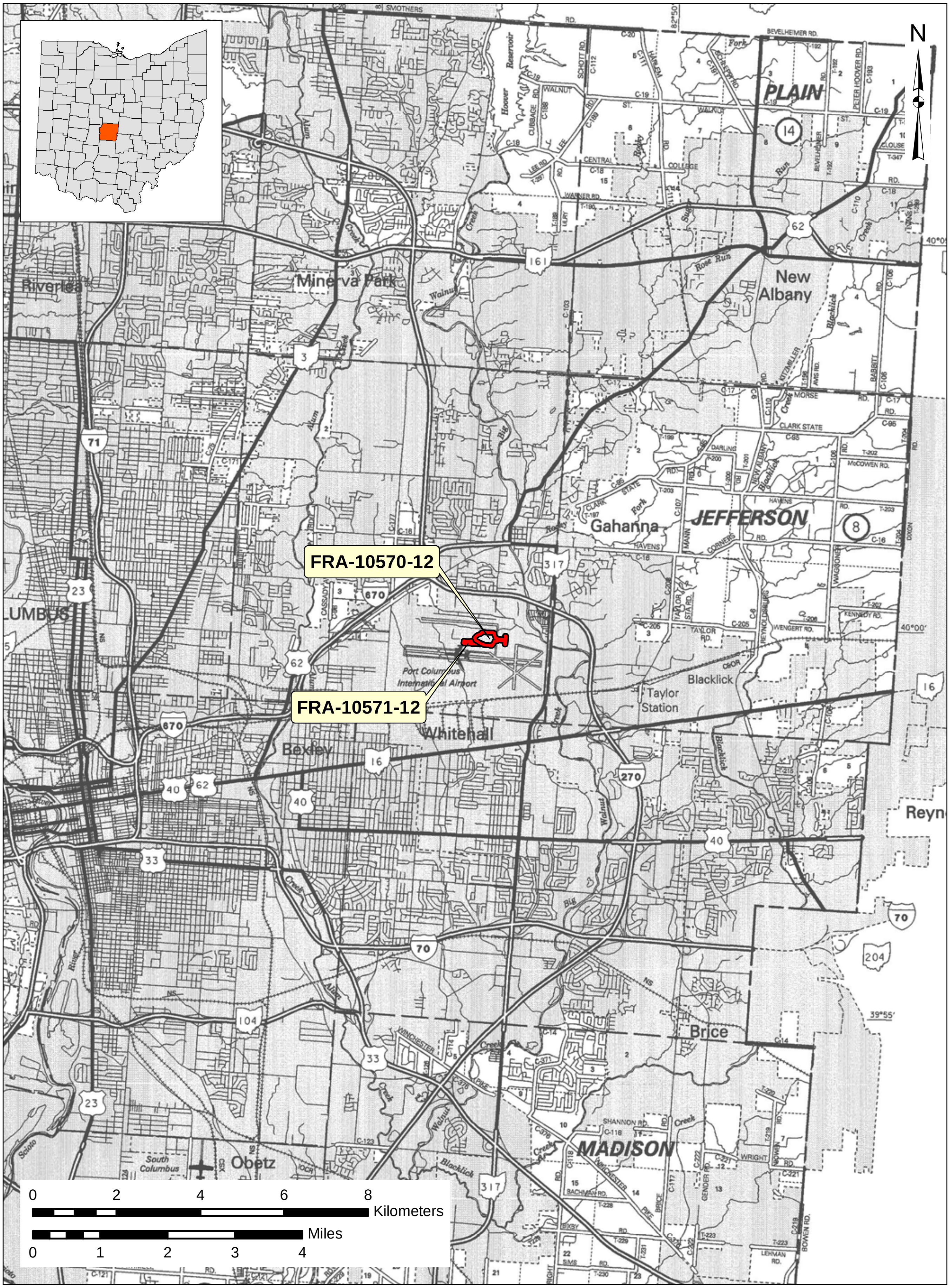


Figure 1. Portion of the ODOT Franklin County highway map showing the vicinity of FRA-10570-12 and FRA-10571-12.

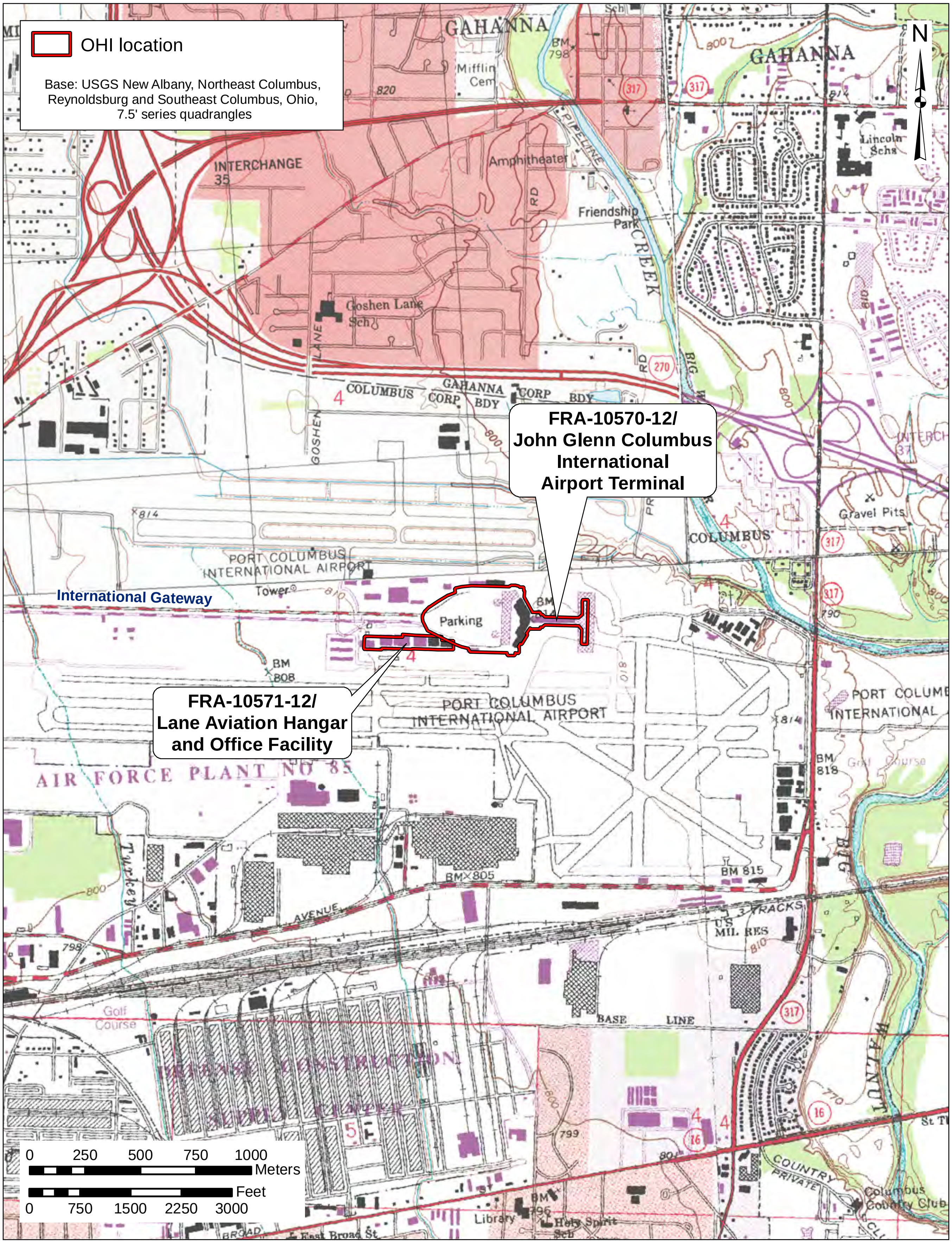


Figure 2. Portions of the 1966 (photorevised 1982) New Albany, 1995 Northeast Columbus, 1964 (photorevised 1994), Reynoldsburg, and 1964 (photorevised 1994) Southeast Columbus, Ohio quadrangles (USGS 7.5' topographic maps) showing the locations of the FRA-10570-12/John Glenn Columbus International Airport Terminal and the FRA-10571-12/Lane Aviation Hangar and Office Facility.

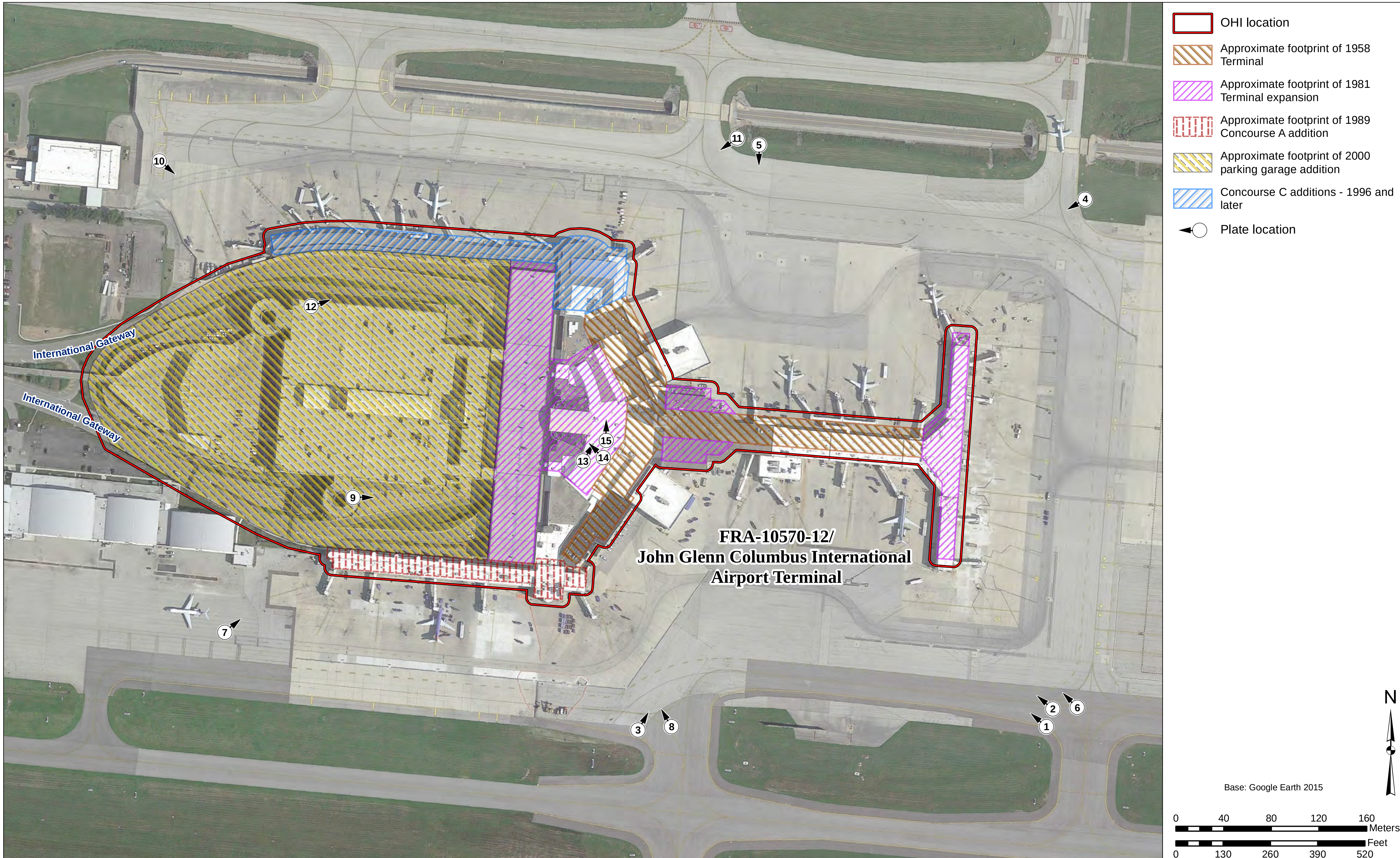


Figure 3. Aerial photograph showing stages of development of FRA-10570-12/John Glenn Columbus International Airport Terminal and plate locations.

Figure 4. Aerial photograph showing FRA-10571-12/Lane Aviation Hangar and Office Facility and plate locations.

PLATES

Plate 1. View looking northwest toward the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing a portion of what remains visible of the 1958 terminal.

Plate 2. View looking northwest toward the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing 1958 air traffic control tower.

Plate 3. View looking northeast toward the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing a portion of what remains visible of the 1958 terminal and "passenger loading pier."

Plate 4. View looking southwest and showing the FRA-10570-12/John Glenn Columbus International Airport Terminal.

Plate 5. View looking south toward the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing a portion of what remains visible of the 1958 terminal and "passenger loading pier."

Plate 6. View looking northwest and showing the FRA-10570-12/John Glenn Columbus International Airport Terminal and T-extension.

Plate 7. View looking northeast toward the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing a portion of the 2000 parking garage and 1989 Concourse A addition.

Plate 8. View looking northwest toward the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing the south side of the terminal building, including the 1989 Concourse A addition.

Plate 9. View looking east toward the FRA-10570-12/John Glenn Columbus International Airport Terminal with the 2000 parking garage to the left, the 1981 parking garage in the center, and the 1989 Concourse A addition to the right.

Plate 10. View looking southeast toward the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing a portion of the 2000 parking garage and Concourse C additions.

Plate 11. View looking southwest toward the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing the Concourse C additions.

Plate 12. View looking northeast toward the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing Concourse C, with a portion of the 1981 parking garage to its right.

Plate 13. View looking northeast within the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing the lobby and ticket counters.

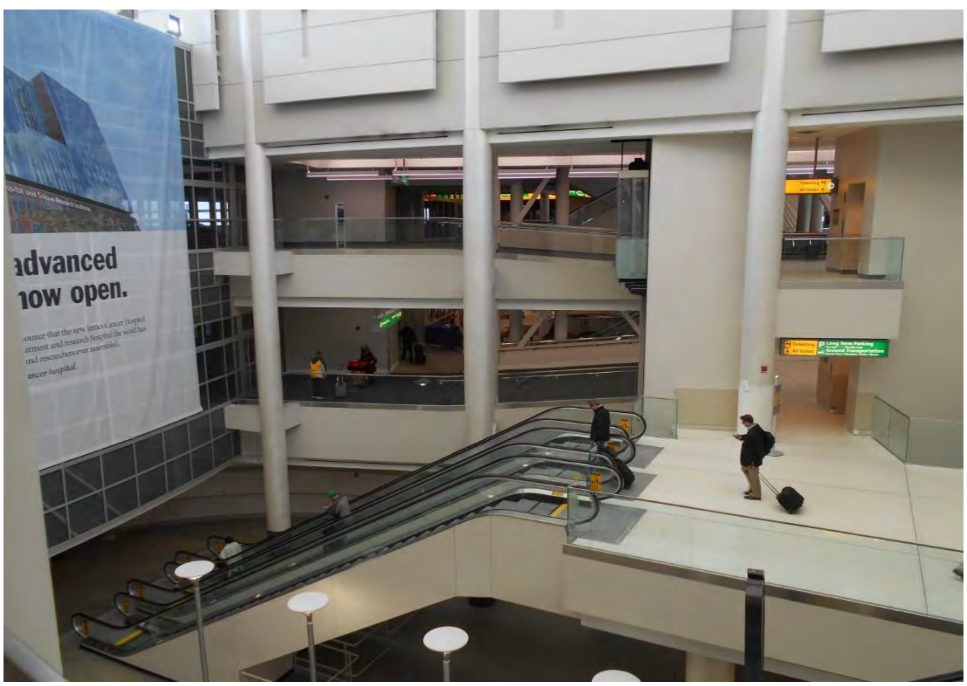


Plate 14. View looking northwest within the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing the entrance atrium.

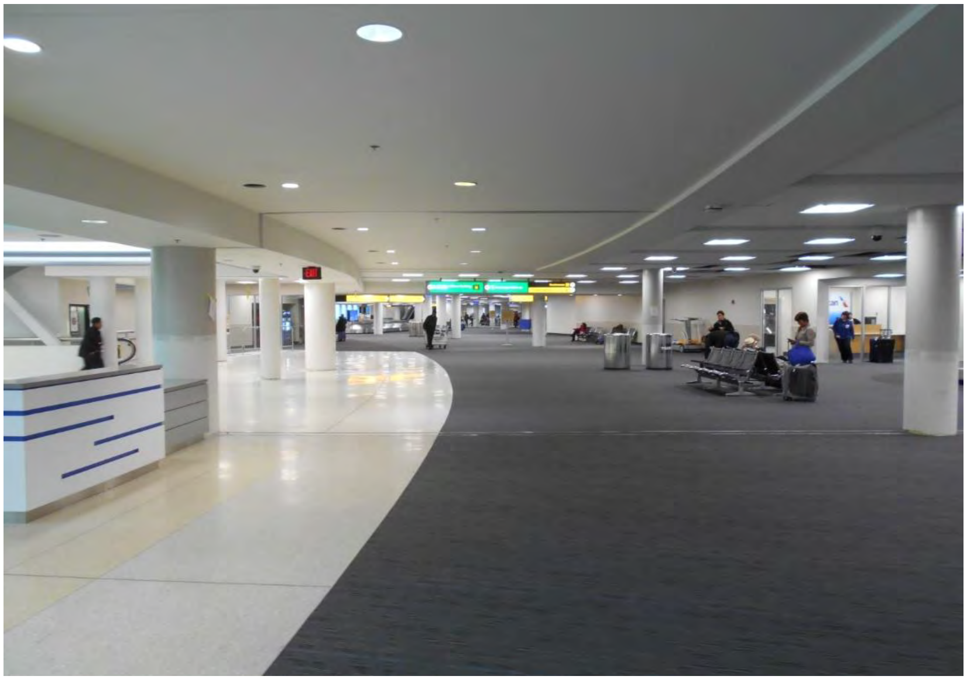


Plate 15. View looking north within the FRA-10570-12/John Glenn Columbus International Airport Terminal and showing the baggage claim level.

Plate 16. View looking northeast and showing the FRA-10571-12/Lane Aviation Hangar and Office Facility.

Plate 17. View looking northwest and showing the FRA-10571-12/Lane Aviation Hangar and Office Facility.

Plate 18. View looking northeast and showing hangars 1, 2, and 3 and the entrance to the main lobby of the FRA-10571-12/Lane Aviation Hangar and Office Facility.

Plate 19. View looking northeast and showing hangar 1 of the FRA-10571-12/Lane Aviation Hangar and Office Facility.

Plate 20. View looking northeast and showing hangar 2 of the FRA-10571-12/Lane Aviation Hangar and Office Facility.

Plate 21. View looking west-southwest and showing the FRA-10571-12/Lane Aviation Hangar and Office Facility.

Plate 22. View looking west-southwest and showing the office section of the FRA-10571-12/Lane Aviation Hangar and Office Facility.

Plate 23. View looking west-southwest and showing the north walls of hangars 4, 5, and 6 of the FRA-10571-12/Lane Aviation Hangar and Office Facility.

Plate 24. View of interior of hangar 1 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking southwest.

Plate 25. View of interior of hangar 1 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking northeast.

Plate 26. View of interior of hangar 2 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking northeast.

Plate 27. View of the interior side of the doors of hangar 2 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking east-southeast.

Plate 28. View of interior of hangar 3 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking northeast.

Plate 29. View of the interior side of the doors of hangar 3 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking west-southwest.

Plate 30. View of interior of hangar 4 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking southeast.

Plate 31. View of interior of hangar 4 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking northwest.

Plate 32. View of interior of hangar 5 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking north.

Plate 33. View of interior of hangar 6 of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking northwest.

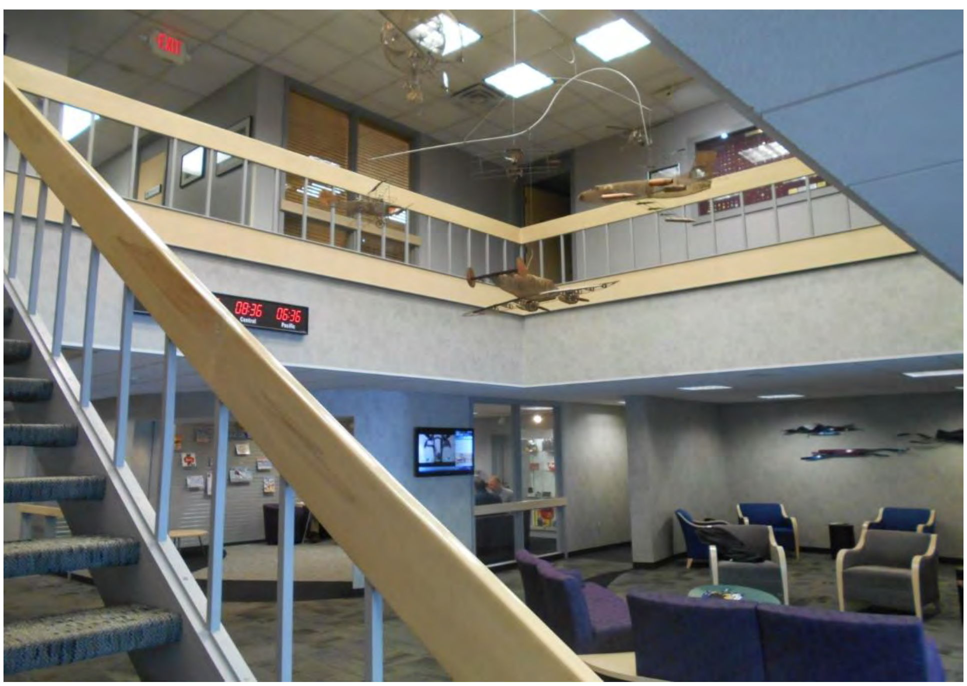


Plate 34. View of the main lobby of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking northeast.

Plate 35. View of corridor C of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking north from the main lobby.

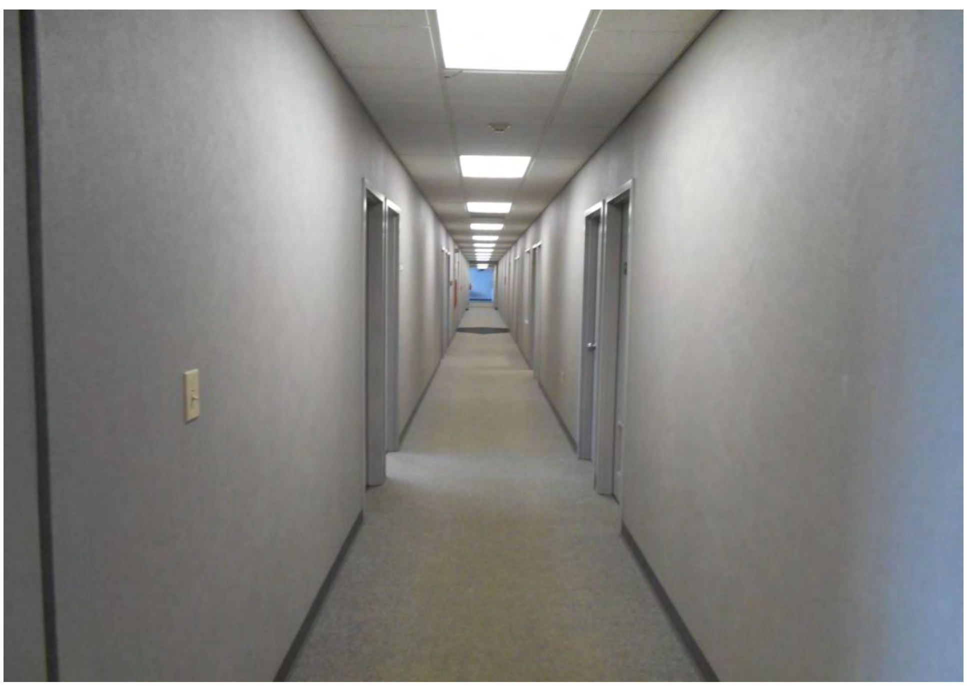
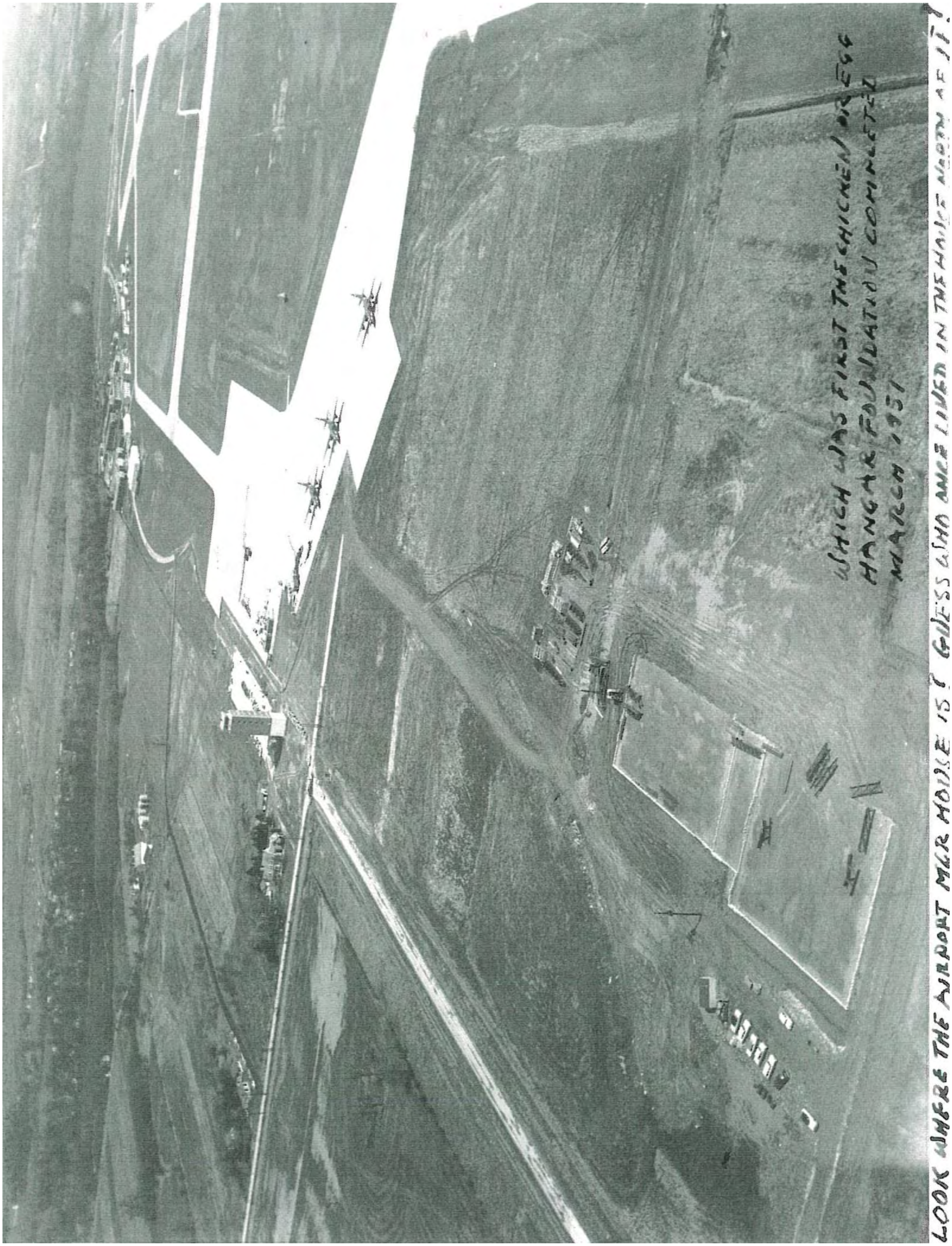


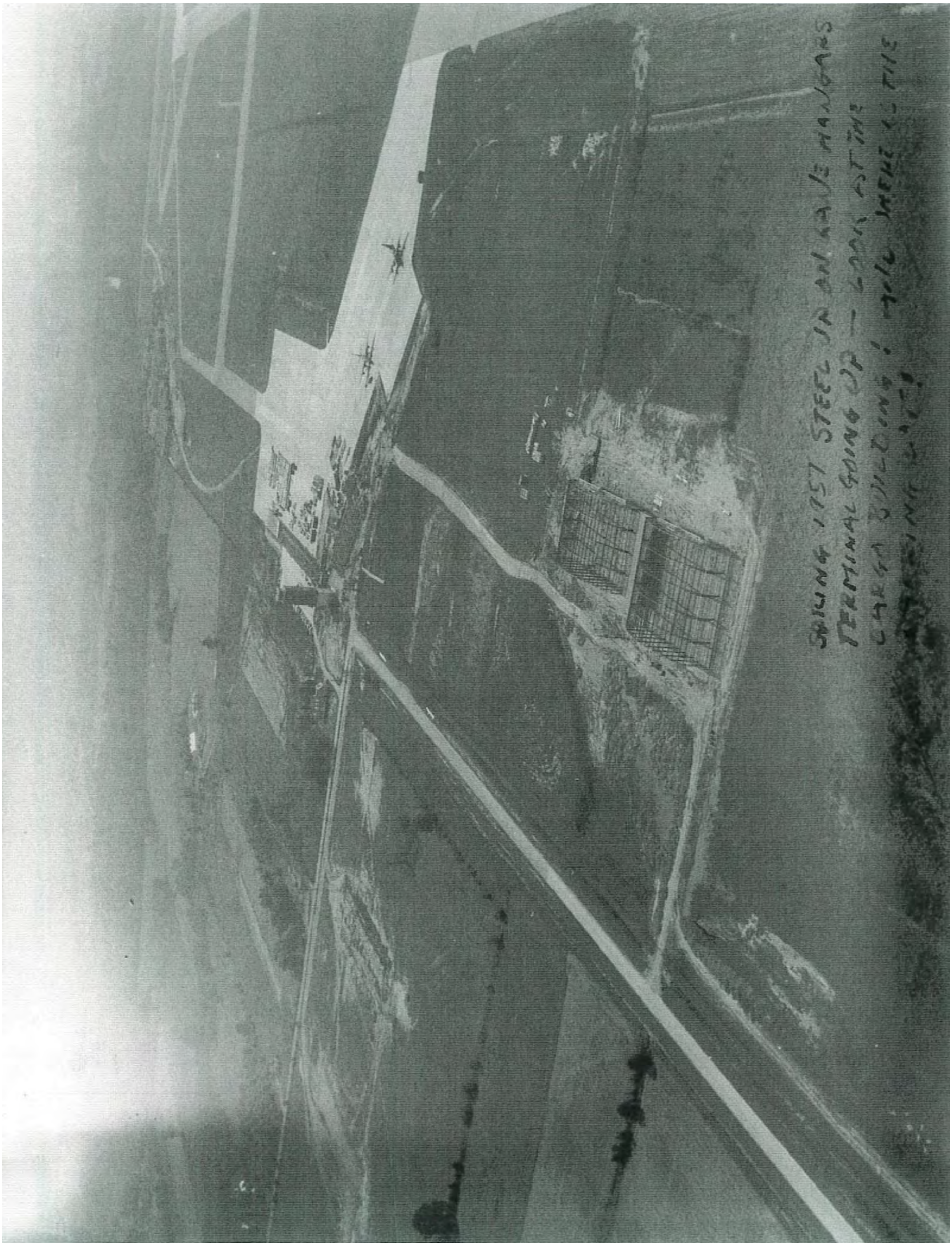
Plate 36. View of corridor in office section of the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking east from corridor B.

Plate 37. View of old lobby between hangars 1 and 2 in the FRA-10571-12/Lane Aviation Hangar and Office Facility, looking west.

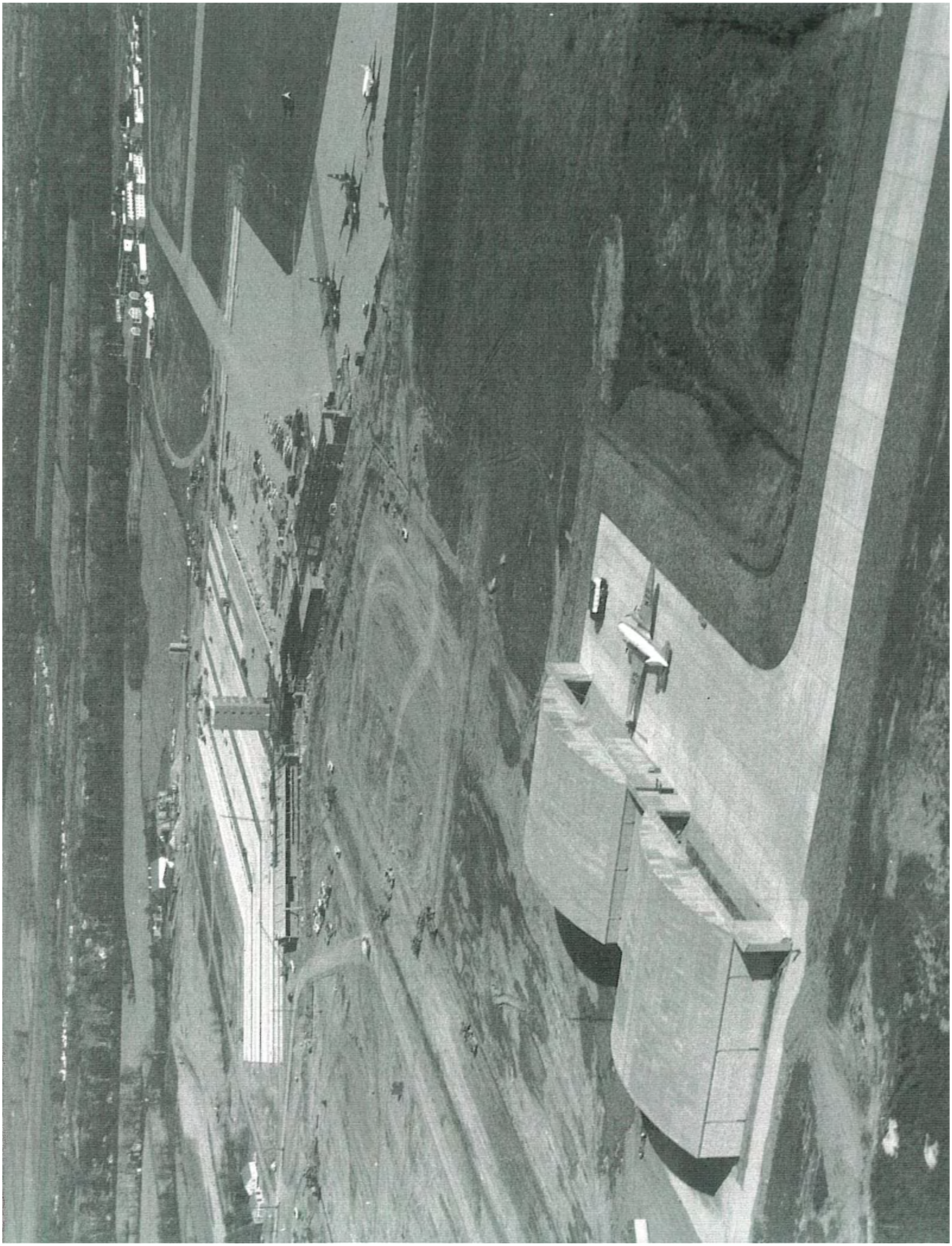
APPENDIX A: HISTORIC PHOTOGRAPHS



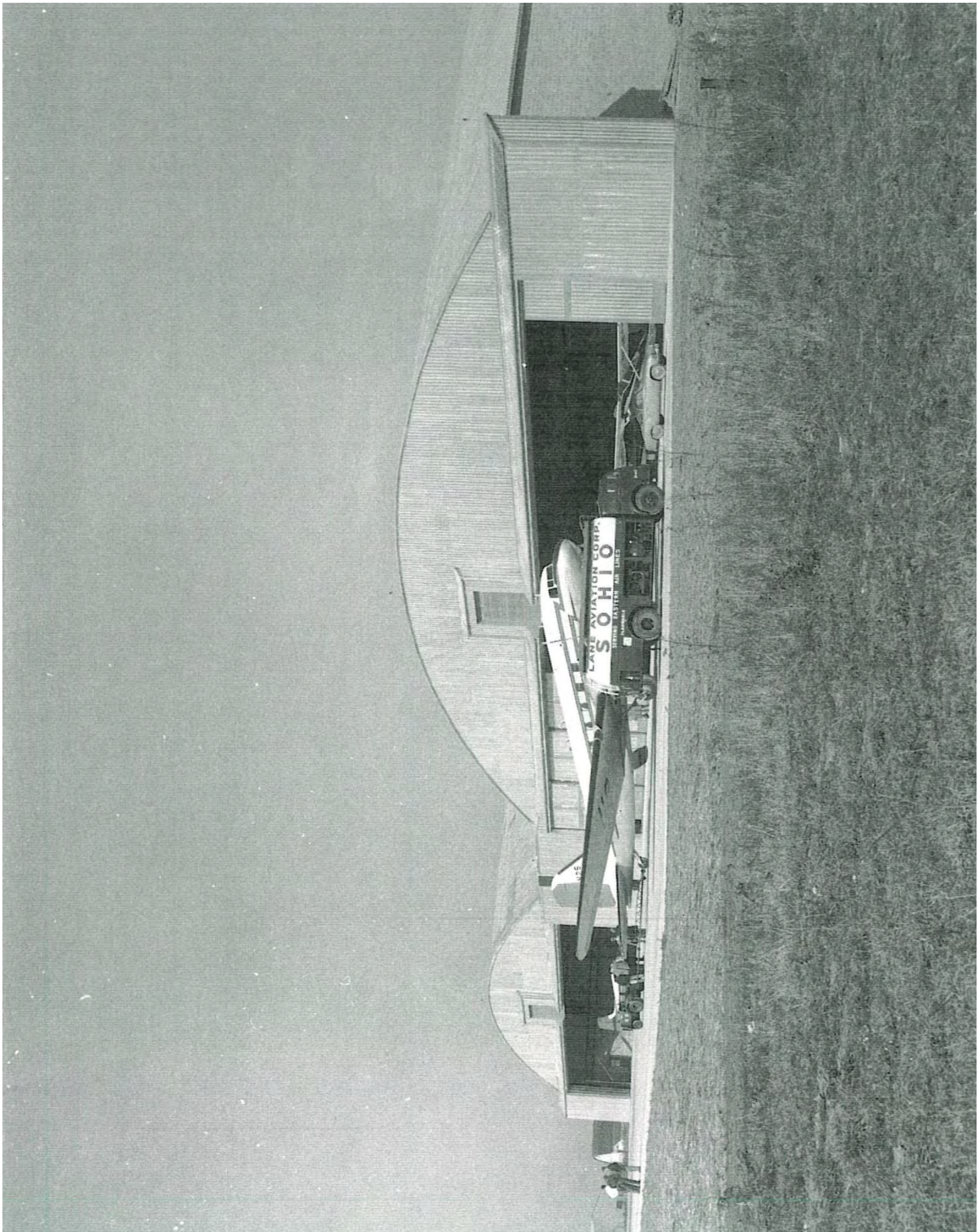
1. Construction of Lane Aviation Facility and Terminal, photo dated March 1957 (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library).



2. Construction of Lane Aviation Facility and Terminal, photo dated Spring 1957 (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library).

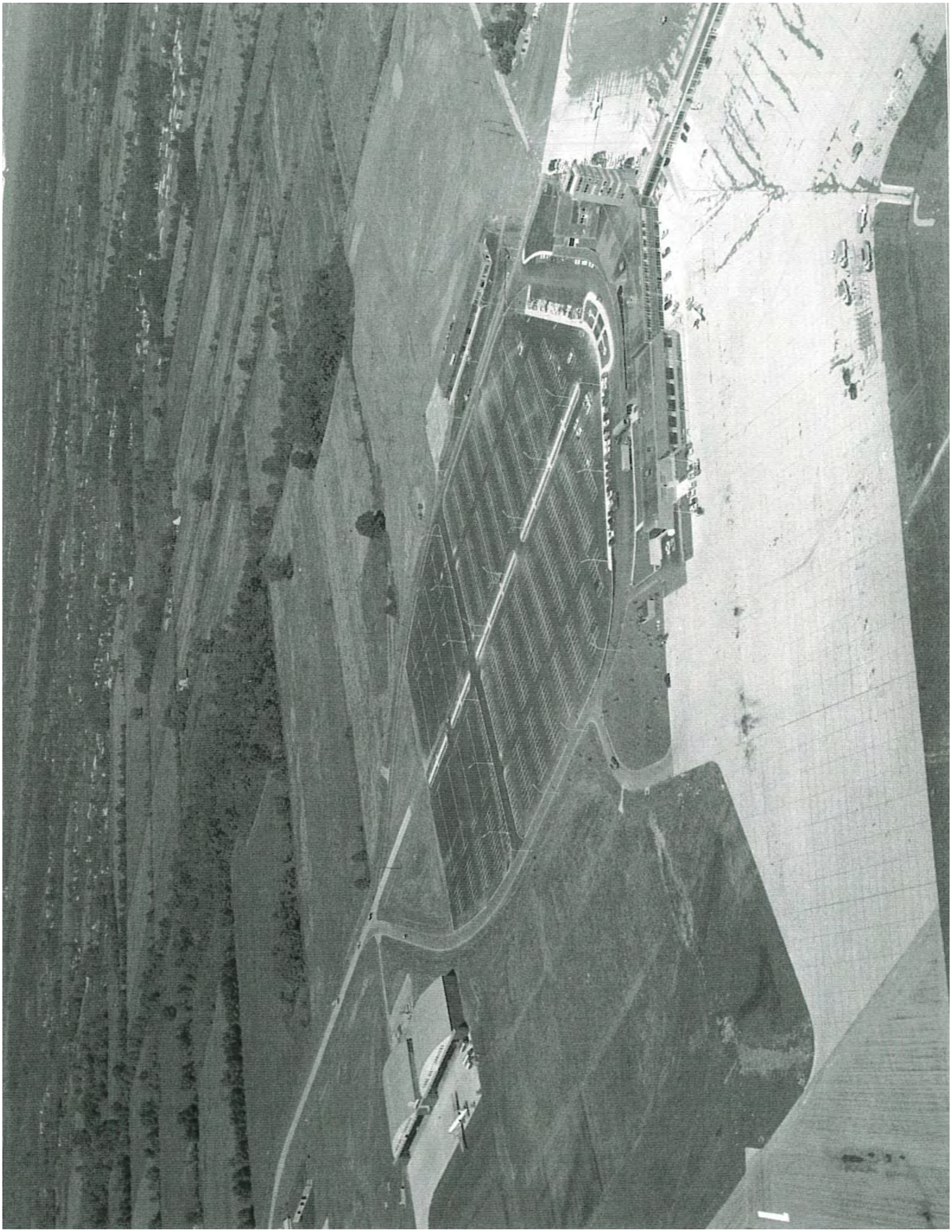


3. Construction of Lane Aviation Facility and Terminal, photo undated, but estimated to date to November 1957 (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library).

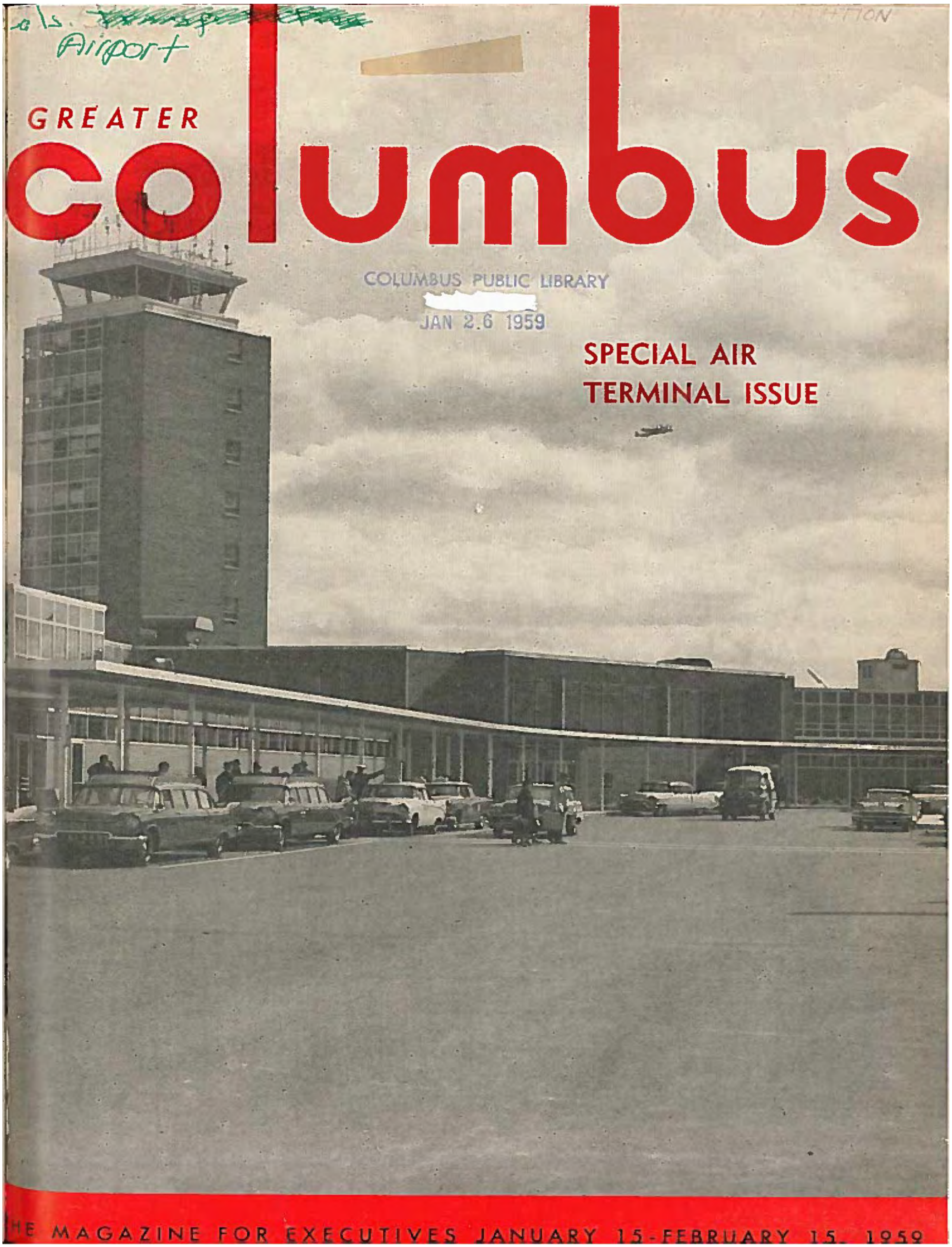


4. Construction of Lane Aviation Facility and Terminal, photo undated, but estimated to date to November 1957 (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library).

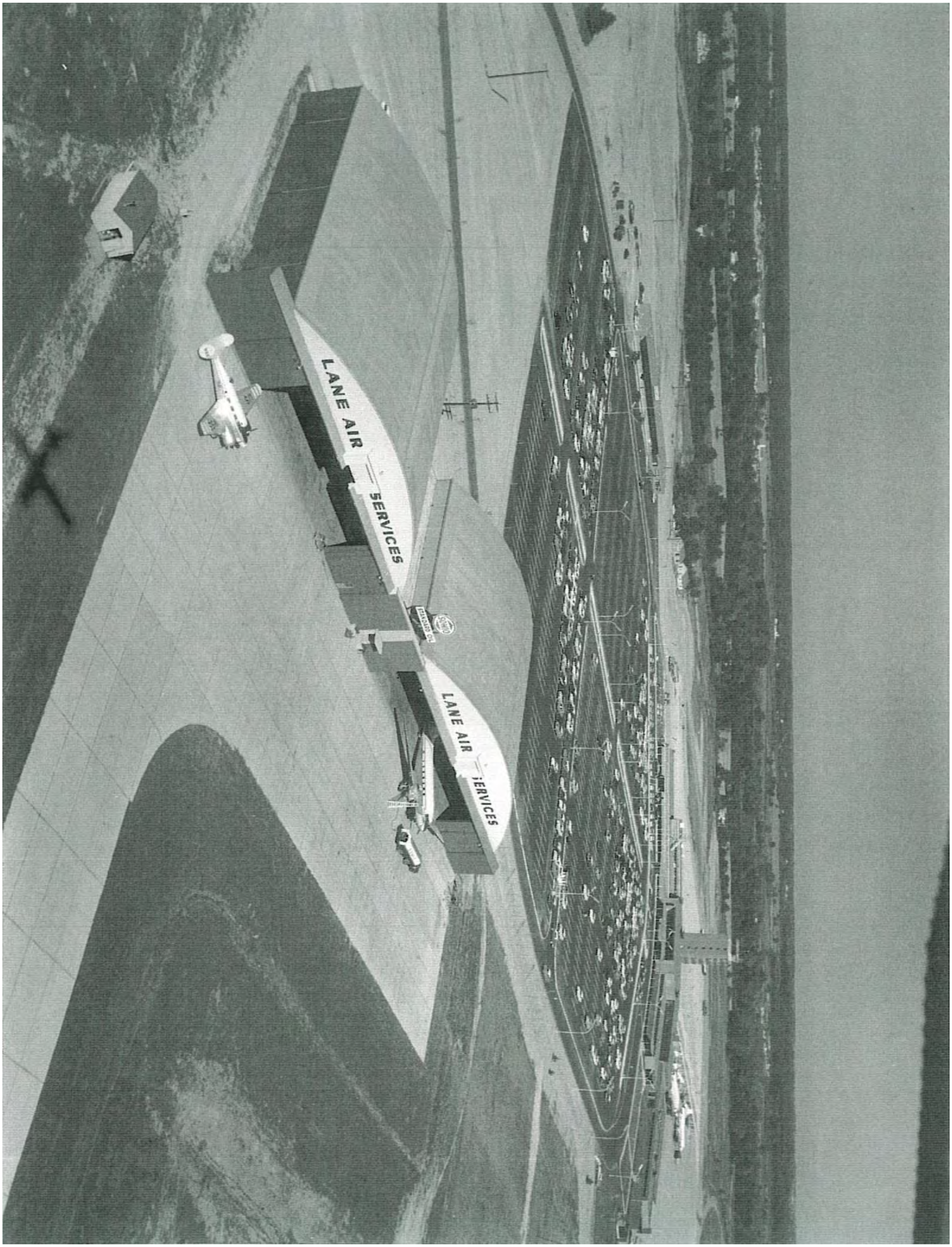
5. Construction of Terminal, photo undated, but estimated to date to Summer 1958 (State Archives Series 5080AV, Box 1, Folder 2, Ohio History Connection Archives/Library).



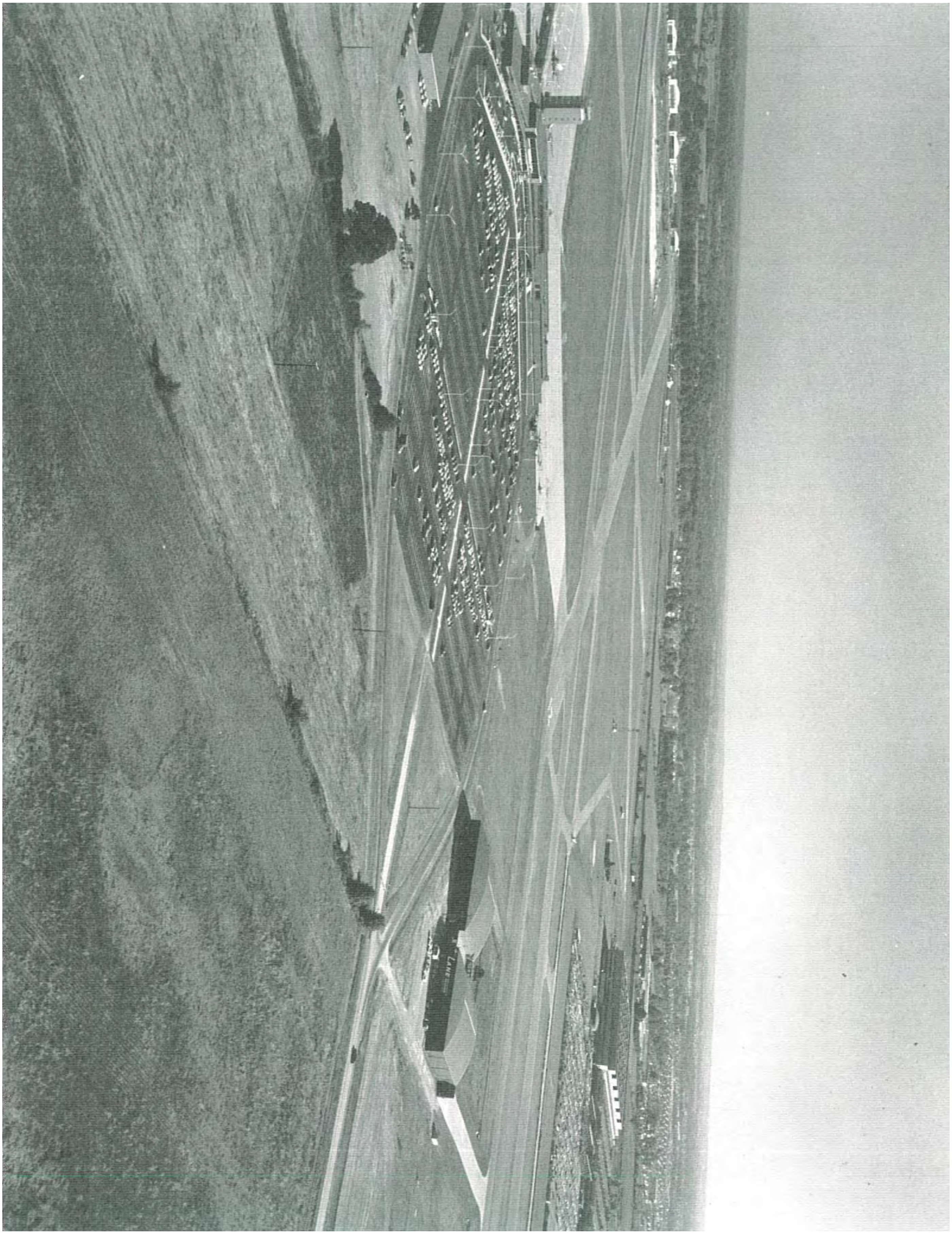
6. Construction of Terminal near completion; Lane Aviation Facility in operation, photo undated, but estimated to date to Summer or Fall 1958 (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library).



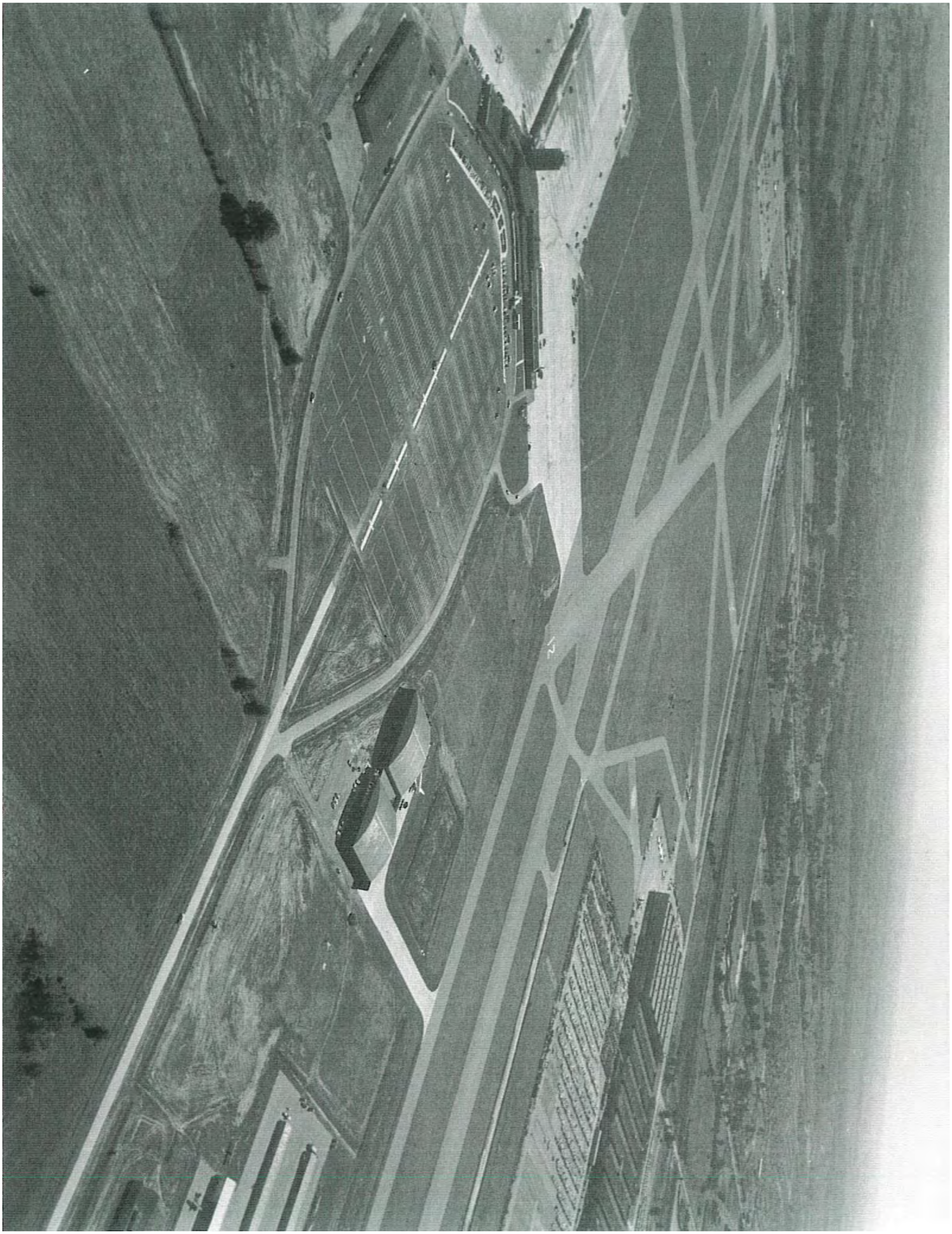
7. Cover of *Greater Columbus* magazine's Special Air Terminal Issue, January 15-February 15, 1959.



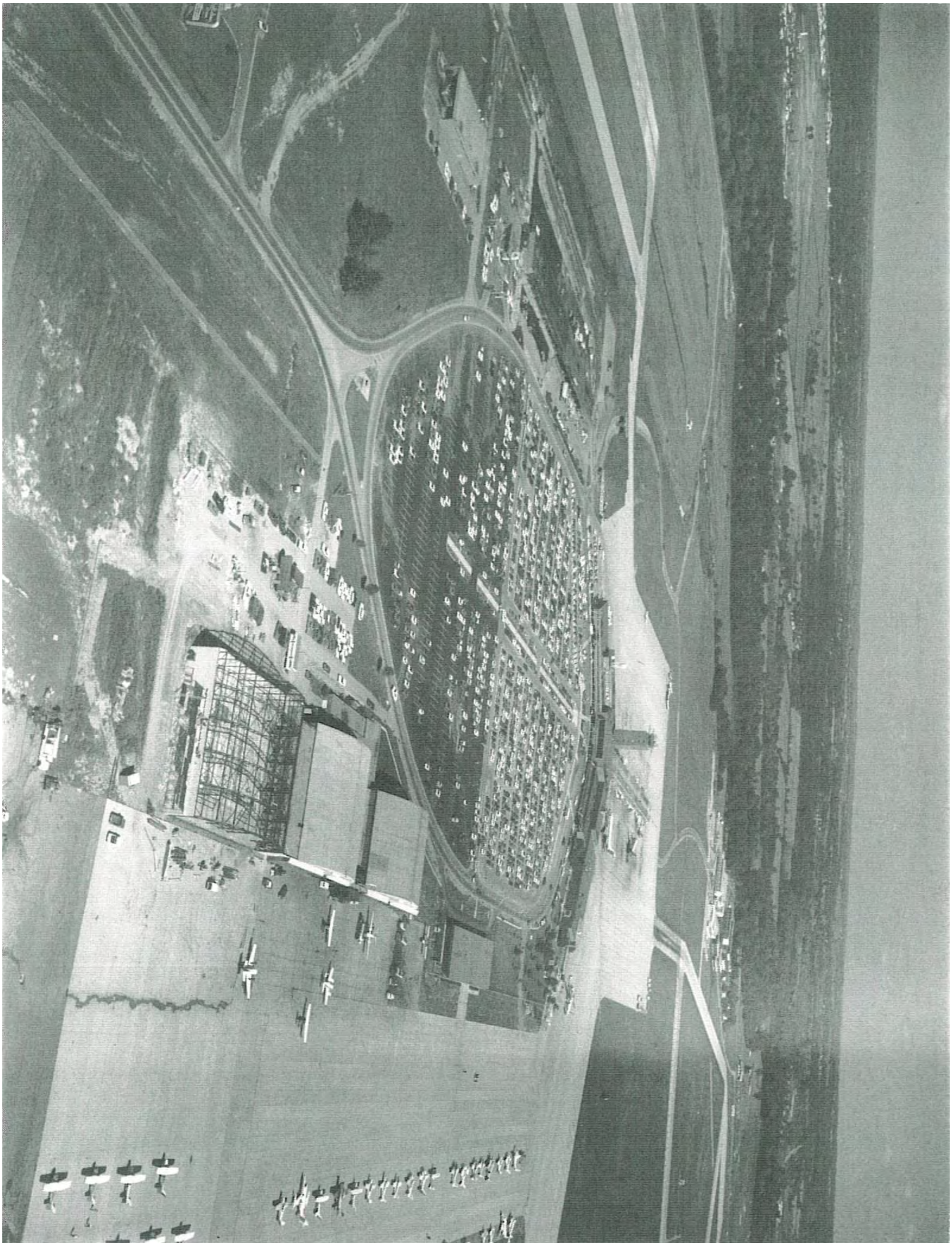
8. Terminal and Lane Aviation Facility in operation, photo undated, but estimated to ca. 1960 (MSS 1359, Box 3, Folder AV/3/15, Ohio History Connection Archives/Library).



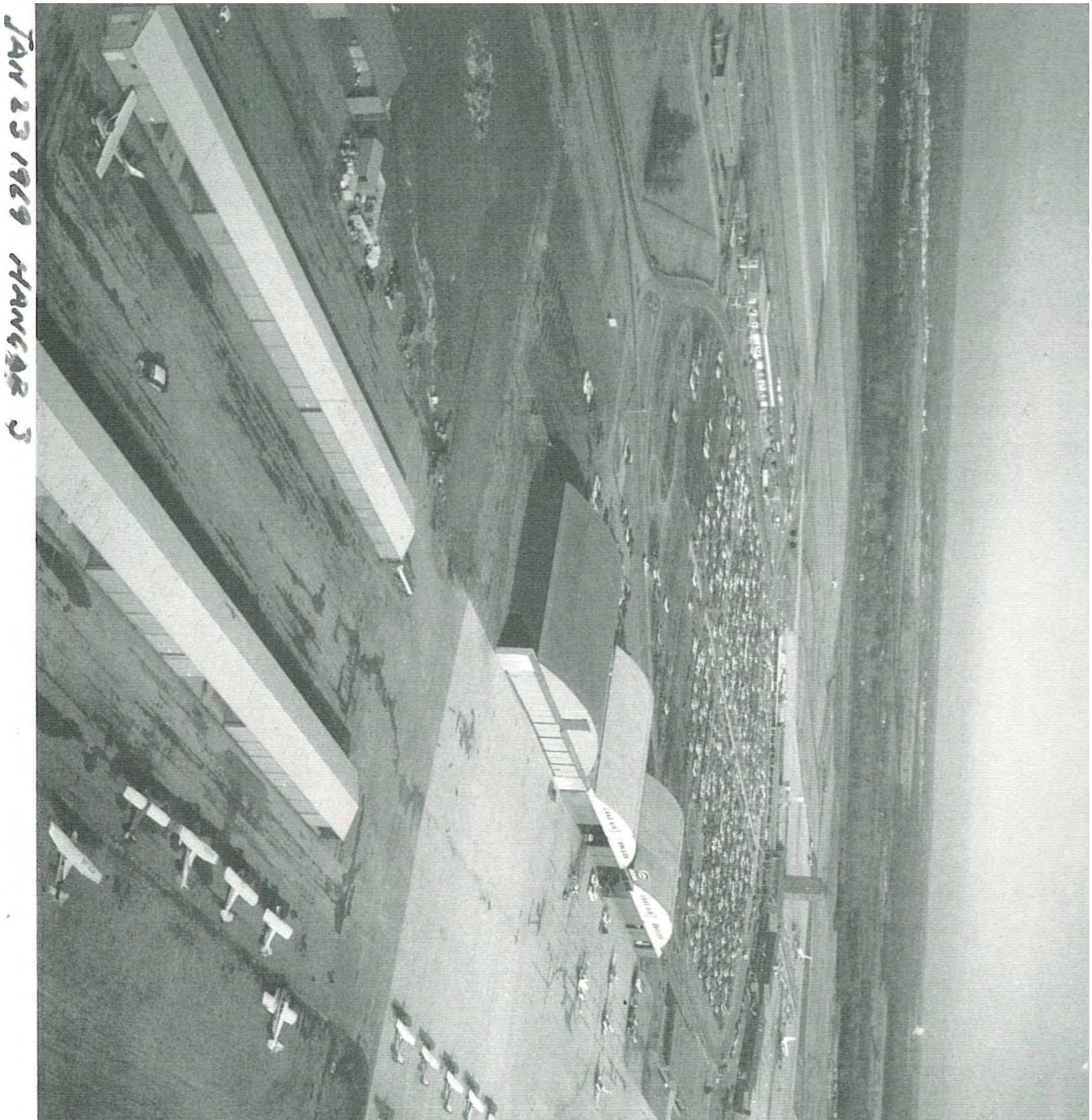
9. Terminal and Lane Aviation Facility in operation; photo undated, but estimated to ca. 1963 (MSS 1359, Box 3, Folder AV/3/15, Ohio History Connection Archives/Library).



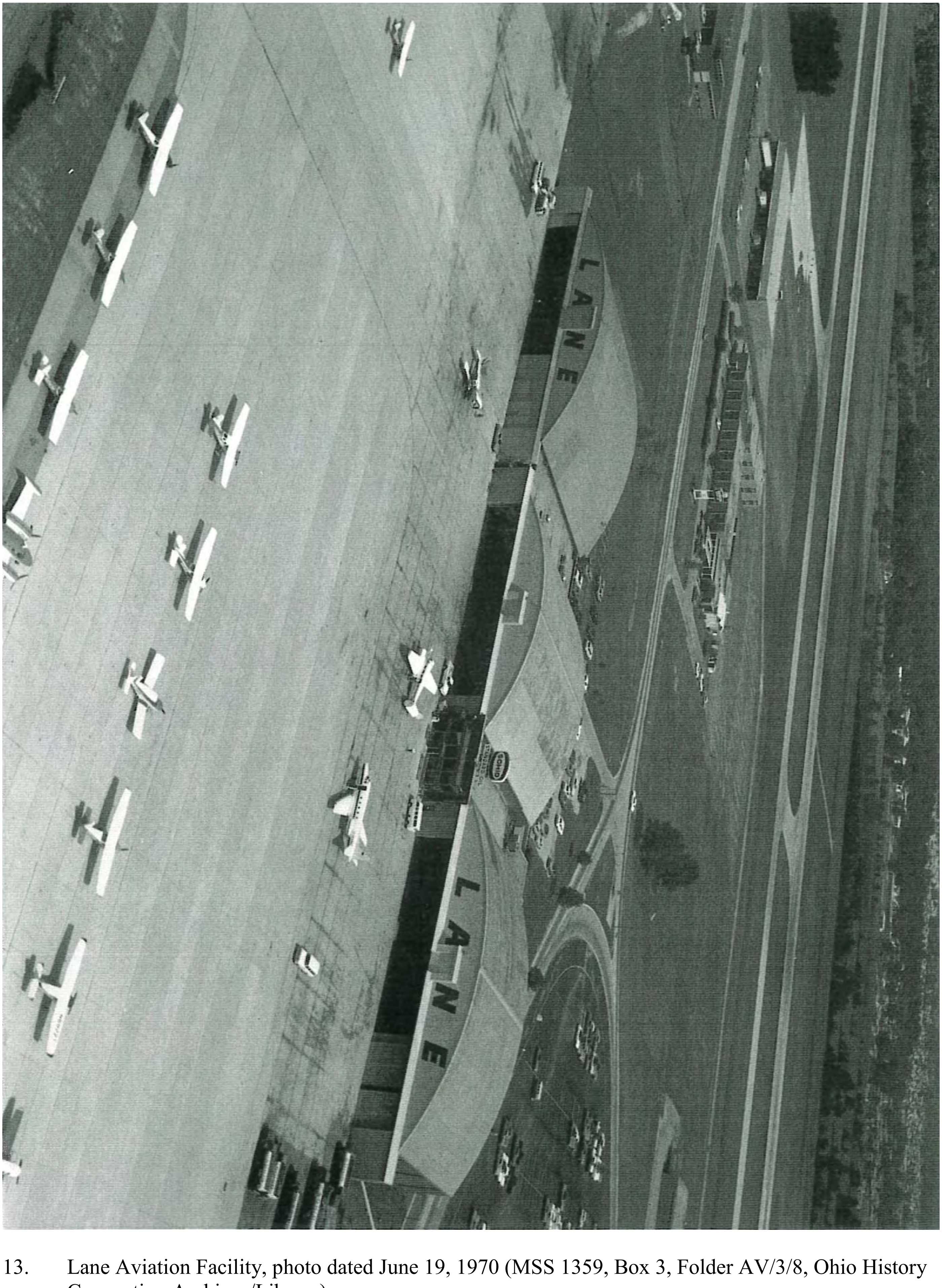
10. Terminal and Lane Aviation Facility in operation; photo undated, but estimated to ca. 1963 (MSS 1359, Box 3, Folder AV/3/15, Ohio History Connection Archives/Library).



11. Lane Aviation Facility hangar 3 under construction, photo dated September 12, 1968 (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library).



12. Lane Aviation Facility hangar 3 following construction, photo dated January 23, 1969 (MSS 1359, Box 3, Folder AV/3/16, Ohio History Connection Archives/Library).



13. Lane Aviation Facility, photo dated June 19, 1970 (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library).

14. Lane Aviation Facility, photo dated June 19, 1970 (MSS 1359, Box 3, Folder AV/3/8, Ohio History Connection Archives/Library).

SECTION 106 CONSULTATION MATERIALS

October 4, 2016 Scoping Meeting Agenda, Sign-in Sheet, and Presentation
October 28, 2016 Determination of Effects Letter from FAA to SHPO
November 29, 2016 Letter of Concurrence from SHPO to FAA
December 7, 2017 Meeting Summary
Consultation Letters to other Historic Preservation Groups
February 7, 2017 Meeting Summary

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PROJECT SCOPING MEETING
FOR MIDFIELD DEVELOPMENT PROGRAM (MDP)
AND SECTION 106 CONSULTATION

AT

JOHN GLENN COLUMBUS INTERNATIONAL AIRPORT

AGENDA

OCTOBER 4, 2016

I. **Introductions**

II. **Overview of Midfield Development Program**

III. **Elam Drake Property**

- Impacts from Proposed Project
- Previous Historic / Cultural Resource Analysis
- Section 106 Requirements

IV. **Other Potential Impacts**

- Existing Passenger Terminal
- Lane Aviation Facility

V. **Next Steps / Action Items**

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Scoping Meeting

Midfield Development Program at John Glenn Columbus International Airport

October 4, 2016

SIGN-IN FORM

NAME	ORGANIZATION	EMAIL
David Wall	CRAA	dwall@columbusairports.com
Mark Kelby	CRAA	MKELBY@COLUMBUSAIRPORTS.COM
Chris Sandfoss	L&B	csandfoss@landrum-brown.com
Rob Adams	L&B	radams@landrum-brown.com
Kevin R. Schwarz	ASC Group, Inc.	kschwarz@ascgroup.net
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Diana Welling	Ohio SHPO	dwelling@ohiohistory.org
Jenny Bellville-Marrion	Ohio SHPO	jmbellvillemarrion@ohiohistory.org
Joy Williams	Ohio SHPO	jwilliams@ohiohistory.org
Joe Ortega	ODOT Aviation	joe.ortega2@DOT.OHIO.gov

SCOPING MEETING

MIDFIELD DEVELOPMENT PROGRAM AT JOHN GLENN COLUMBUS INTERNATIONAL AIRPORT

October 4, 2016

SIGN-IN FORM

NAME	ORGANIZATION	EMAIL
JOHN STAINS	ODOT - AVIATION	JOHN.STAINS@DOT.OHIO.GOV
BRIAN TENKHOFF	FAA	BRIAN.TENKHOFF@FAA.GOV
ERNEST GUBRY	FAA	ERNEST.GUBRY@FAA.GOV
BRITTAN SMITH	FAA	BRITTANY.M.SMITH@FAA.GOV

Project Scoping Meeting

Midfield Development Program
John Glenn Columbus International Airport

October 4, 2016

Agenda

I. **Introductions**

II. **Overview of Midfield Development Program**

III. **Elam Drake Property**

- Potential Impacts from Proposed Project
- Analysis of Previous Archaeological / Historic Resources
- Section 106 Requirements

IV. **Other Potential Impacts**

- Existing Passenger Terminal and Lane Aviation Facility

V. **Next Steps / Action Items**

2

Overview of Midfield Development Program

- **Midfield Development Program Planning**
  - Long-Term Garage frequently exceeds capacity
  - CRAA conducted study to determine solutions including construction of a Consolidated Rental Car Facility (CONRAC)
  - Preferred location for the CONRAC was identified within the International Gateway Loop Road
  - Site is adjacent to planned site of Future Midfield Passenger Terminal that was assessed in the 2009 EIS
  - CONRAC and other enabling/connected projects were not included in the 2009 EIS
  - FAA recommended preparing an Environmental Assessment to address full buildout referred to as the Midfield Development Program (MDP)

3

Overview of Midfield Development Program

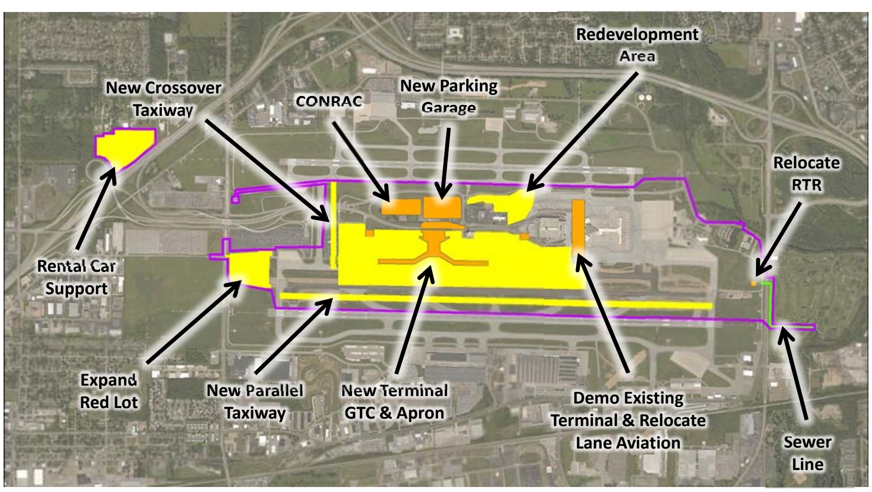
4

Overview of Midfield Development Program

- Project Elements – Proposed Construction
  - Construction of a Midfield Passenger Terminal and associated apron
  - Construction of a new Consolidated Rental Car Facility (CONRAC)
  - Construction of a Second Crossover Taxiway
  - Construction of a new Parking Garage
  - Construction of Ground Transportation Center (GTC)
  - Construction of Central Utility Plant and Utility Corridor
  - Construction of a new facility for Lane Aviation
  - Construction of a new Concession Warehouse
  - Redevelopment of east development area parcels
  - Construction of rental car support facilities at the Drake Road site
  - Red Lot Expansion
  - Demolition of Existing Facilities and other Enabling Projects

5

Overview of Midfield Development Program



6

Elam Drake Property

- Elam Drake Property Listed on NRHP
- Proposed action would require demolition of structures and ground disturbance of entire farm
- CRAA coordination with SHPO in 2006/2007 to remove structures for a planned CONRAC
  - Draft MOA with CRAA/SHPO to remove structures (not signed)
  - HABS Report for structures (ASC Group)
  - Phase I Cultural Resources Survey (EMH&T)

7

Elam Drake Property – Previous Investigations

Figure 9. Fieldwork map showing the field conditions, testing strategies, location of archaeological sites 33-Fr-1828 and 2639-2641 and FRA-9622-12.

8

Elam Drake Property – Previous Investigations

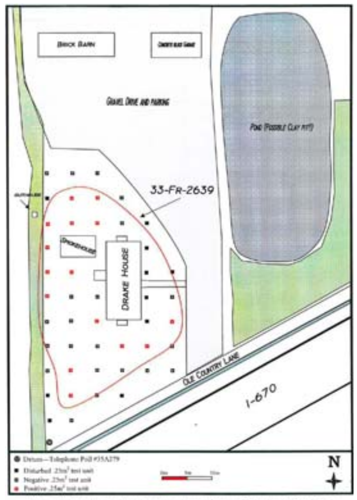


Figure 10. Map showing the testing methods around the Elam Drake House (NRHP ref. # 78002064, 33-Fr-2639).

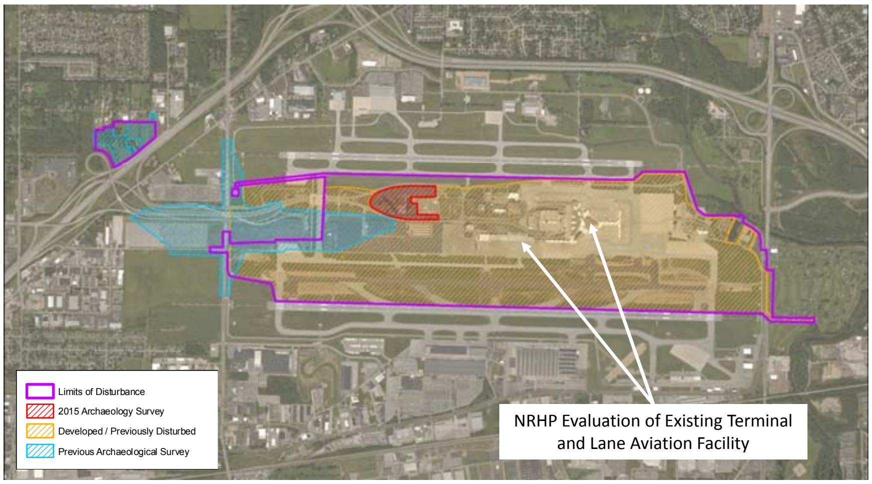
9

Other Potential Impacts

- Existing Passenger Terminal
  - Opened in 1958
  - Extensive modification and expansion
- Lane Aviation Facility
  - Hangars 1 & 2 Constructed in 1957
  - Facility has undergone modification and expansion
- Other Buildings to be Removed
  - RTR Antenna Building
  - McDonalds
  - Rental Car Facilities
  - Former USPS building

10

Analysis of Previous Archaeological / Historic Resources



11

Next Steps

12

U.S. Department of Transportation
Federal Aviation Administration

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

October 28, 2016

Ms. Diana Welling
Resource Protection and Review Department Head
Ohio Historic Preservation Office
Ohio Historical Society
800 E. 17th Avenue
Columbus, Ohio 43211

Re: Section 106 Coordination for Proposed Midfield Development Program (MDP) at the John Glenn Columbus International Airport

Dear Ms. Welling:

This letter is being sent in accordance with 36 CFR part 800 which governs Section 106 of the National Historic Preservation Act (NHPA) to inform you that the Federal Aviation Administration (FAA) and Columbus Regional Airport Authority (CRAA) intend to prepare an Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA) for the proposed Midfield Development Program (MDP) and enabling projects (the Proposed Project) at the John Glenn Columbus International Airport (CMH or Airport) in Franklin County, Ohio as shown on **Exhibit 1, *Project Site***. The Proposed Project constitutes an "undertaking" per 36 CFR part 800. The FAA is the lead Federal agency and as such the EA will be prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures,* FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions,* and the FAA's Environmental Desk Reference for Airport Actions.

Description of the Undertaking

The undertaking consists of several development projects, known collectively as the MDP, as well as several enabling projects at CMH. Exhibit 1, shows the general project area along with the location of the project site at CMH. The undertaking would primarily occur within the midfield area at CMH, which is generally bound by Taxiway E to the north, Hamilton Road to the east, Runway 10L/28R to the south, and Stelzer Road to the west. Additionally, some proposed project elements would occur between Drake Road and I-670 and on the Airport Golf Course. The Proposed Project (the undertaking), which is shown on **Exhibit 2, *Proposed Project*,** includes the following activities:

- Construction of a new Consolidated Rental Car Facility (CONRAC)
- Reclaim existing quick turnaround area (QTA) and levels P1 and P2 of the existing long-term parking garage for public parking use
- Construction of rental car support facilities at the Drake Road site
- RTR Antenna Relocation and installation of new underground cabling
- Cell Phone Lot Relocation
- Reconfiguration of the existing International Gateway Loop Road
- Construction of a Utility Corridor and various utility improvements
- Demolition of the existing Hertz, Avis, and former Dollar rental car staging areas
- Demolition of the existing McDonalds
- Construction of a new Parking Garage
- Redevelopment of east development area parcels and demolition of former U.S. Postal Service (USPS) facility
- Closure of the Blue Parking Lot / Employee Lot
- Expansion of the Red Parking Lot and new entrance/exit to Stelzer Road at East 17th Avenue with various intersection improvements
- Decommission Existing Taxiway D, Construct Replacement Parallel Taxiway north of Runway 10R/28L, and reconfigure taxiway exits per FAA guidelines
- Various stormwater improvements including rerouting stormwater to a potential new stormwater detention basin on the east side of CMH property and replacement of existing underground stormwater pipes at Outfall 4
- Construction of a new Midfield Passenger Terminal and associated apron
- Construction of a Ground Transportation Center (GTC)
- Construction of a Central Utility Plant and Utility Corridor
- Extension of a sanitary sewer line
- Construction of a Second Crossover Taxiway
- Demolition of the existing Passenger Terminal and short-term parking garage
- Expansion or relocation of the existing fuel farm
- Construction of a new Concession Warehouse
- Construction of a new facility for Lane Aviation and demolition of the existing facility

The Project Site is primarily located in the center of CMH property. Some ancillary development would occur northwest of CMH, between Drake Road and I-670, along Stelzer Road, and on the Airport Golf Course.

Area of Potential Effect

The Area of Potential Effect (APE) was determined based on the areas of potential direct impacts (Direct APE) from the Proposed Project, as well as the limit of potential indirect impacts (Indirect APE) related to noise, viewshed, and setting. Both APEs are shown on **Exhibit 3, *Areas of Potential Effect***. The Direct APE was determined by identifying the areas where ground disturbance and/or construction activities would occur. The Indirect APE includes the Direct APE, as well as an expanded area that has historically been subject to significant noise levels per FAA guidelines. For the purpose of this consultation, the 2012 Noise Contour from the 2009 Environmental Impact Statement (EIS) for the relocation of Runway 10R/28L is the most recent official representation of noise levels around the Airport and continues to represent current noise levels. The Indirect APE was further expanded to include areas where potential visual impacts may occur.

Identification of Historic Properties

Efforts were made to identify historic properties or archaeological sites within the APEs. This effort included researching past environmental documents at CMH.

Exhibit 4, *Previous Archaeological Investigations*, shows areas that have been surveyed for archaeological resources or have been previously disturbed and are unlikely to yield significant archaeological resources. As shown in this exhibit, most areas within the Direct APE have been surveyed or are previously disturbed. Enclosed with this letter are the following Phase 1 Archaeological Survey Reports:

- Phase I Archaeological Survey for the Approximately 24.3-hectare Potential Automobile Related Facility in the City of Columbus, Franklin County, Ohio (see Attachment 1)

- Phase I Archaeological Survey for the Proposed Consolidated Rental Car Facility (CONRAC), Port Columbus International Airport, City of Columbus, Franklin County, Ohio (see Attachment 2)

Sites 33-Fr-1828, 2639, 2640, and 2641 were identified within the site of the Potential Automobile Related Facility at the site south of Drake Road. These sites were recommended as not eligible for inclusion on the NRHP (see Attachment 1). No archaeological sites were identified during the field survey within the site of the Proposed Consolidated Rental Car Facility (see Attachment 2). Previous survey areas shown on Exhibit 4 were reviewed during the 2009 FEIS and no significant archaeological sites were identified. The Stelzer Cemetery was identified during the 2009 EIS (Schwarz & Tonetti 2007); however, no NRHP determination was made regarding this site. The Stelzer Cemetery is not within the Direct APE and would not be impacted by this undertaking. ***Therefore, FAA has determined that no significant archaeological sites are located within the Direct APE for this undertaking.***

Exhibit 5, *Historic Resources*, shows buildings that are listed on or potentially eligible for the NRHP. There are several buildings within the APEs which are 50 years old or greater. These are listed in **Table 1**.

Table 1
Properties Fifty Years Old or Greater within the APEs

Property	Year Built
Air Force Plant 85 and Associated Facilities	1940-1944
Nationwide (formerly Curtiss Flying Service) Hangar	1929-1930
CRAA President and CEO's Residence	circa 1930
Elam Drake Farmstead	
Elam Drake House	circa 1855
Smokehouse	circa 1855
Brick Barn	circa 1868
Concrete Block Garage	circa 1960
Existing John Glenn International Airport Passenger Terminal	1958
Hertz Rental Car Building	1959
Lane Aviation Facility (Hangars 1 & 2)	1957
Original Port Columbus Airport Terminal & Control Tower	1929
Remote Transmitter Receiver (RTR) Building	1963-1966
Residences on Drake Road	1950-1956
Transcontinental Air Transport (TAT) Hangar	1929

Source: Landrum & Brown, 2016.

Of the known buildings that are at least 50 years old, the Elam Drake House (FRA-2605-12) and brick barn (FRA-2606-12) are listed on the NRHP. A Historic American Building Survey (HABS) report was conducted for the Elam Drake Farmhouse in 2006. A copy of this report is enclosed for your records in **Attachment 3**.

The Air Force Plant 85 and Associated Facilities, the Original Port Columbus Airport Terminal & Control Tower (FRA-1793-12) is listed on the NRHP. The TAT Hangar (FRA-9675-12), and the CRAA President and CEO's Residence (FRA-10474-12) are eligible or potentially eligible for the NRHP. The former Curtiss Flying Service Hangar (FRA-9676-12) was previously determined ineligible for the NRHP.

The Existing John Glenn International Airport Passenger Terminal and the Lane Aviation Facility were evaluated for this project. **Attachment 4** includes a complete review of the existing passenger terminal and Lane aviation facility. Both of these properties were found to meet different criterion for historical significance. ***However, the FAA has determined that these structures are not eligible for listing on the NRHP due to extensive alterations through multiple modern expansions, which have destroyed the buildings' historic integrity.***

Several residences along Drake Road that were constructed between 1950 and 1956 would likely be within the viewshed of the proposed rental car support facility south of Drake Road. This area has undergone recent commercial development on adjacent property not owned by the CRAA. Construction of commercial rental car facilities, including parking lots and maintenance garages, would not significantly alter the current visual setting. The single family detached homes in this area include various style homes that were built in the 1950s and many have more modern accessory structures. A review of these properties did not identify any features that would indicate the homes are unique or significant compared to other 1950s era houses in the area. ***Therefore, the FAA has determined that these structures are not eligible for listing on the NRHP.***

Other buildings that would be directly impacted within the APE include the existing RTR Building (built between 1963 and 1966, the existing McDonalds (built circa 1987), the former USPS Facility (built in 1987), the Avis rental car office and garage (built in 1970), the former Dollar rental car garage (built after 1971), and the Hertz rental car office and garage (built in 1959 and 1971). None of these buildings have been identified as eligible for the NRHP. These buildings are of utilitarian construction and do not have unique or significant architectural features and are not known to be associated with significant historical events or persons. ***Therefore, the FAA has determined that these structures are not eligible for listing on the NRHP.***

Therefore, the following properties within the APEs are historic or potentially historic resources:

- Elam Drake Farmhouse and Brick Barn – Listed on NRHP
- Original Port Columbus Airport Terminal & Control Tower – Listed on NRHP
- Air Force Plant 85 and Associated Facilities – Eligible for NRHP
- Transcontinental Air Transport (TAT) – Eligible for NRHP
- CRAA President and CEO's Residence – Potentially Eligible for NRHP

Determination of Effects

No significant archaeological resources would be impacted within the APE. In regards to historic or potentially historic resources within the APE, potential impacts could be related to direct effects as well as indirect noise and visual effects. **Exhibit 6, *Proposed Demolition Activities***, shows all structures that would be directly impacted as a result of the undertaking. The undertaking would also cause visual changes and has the potential to cause changes in noise levels. The following sections describe the determination of effects upon each historic or potentially historic property within the APE.

Elam Drake Farmhouse

The Elam Drake Farmhouse (including the brick barn, smokehouse, and concrete block garage) would be directly impacted. These structures would be removed to accommodate the proposed rental car support facilities. ***Therefore, the FAA makes a finding of Adverse Effect to the Elam Drake House and Brick Barn***.

The adverse effect to the Elam Drake property cannot be avoided without significantly impacting the ability of the CRAA to provide for adequate airport facilities to meet the demand for air travel and economic growth in the Columbus region. Alternatives for avoiding impacts to these structures were considered and no feasible alternative was identified. The proposed rental car support facility requires a large area of land near the Airport. All other suitably sized tracts of land owned by the CRAA are committed for other airport development or are located within protected areas near the runways which must remain free of development per FAA regulations. Past efforts have been made to identify potential options for relocating the structures. No willing party has been found to take ownership of and relocate the structures. Due to the size and condition of the structures, it is not known if it is feasible to relocate them without causing damage; or to reuse the buildings for the proposed rental car support facilities. The CRAA is currently preparing an engineering report to determine if relocation or reuse would be possible.

Air Force Plant 85 and Associated Facilities

The undertaking would not physically impact this property. The undertaking would cause visual changes and would potentially alter noise patterns around the Airport. The properties associated with the Air Force Plant 85 may be within view of the new development and may experience changes in noise patterns. However, this property is already within view of the Airport and additional airport-related development would not significantly change the overall setting. Furthermore, this property already experiences airport noise and any change in noise levels would not diminish the significance or integrity of the property. ***Therefore, the***

FAA makes a finding of No Adverse Effect to the Air Force Plant 85 and Associated Facilities.

Original Port Columbus Airport Terminal & Control Tower

The undertaking would not physically impact this property. The undertaking would cause visual changes and would potentially alter noise patterns around the Airport. The original Port Columbus Airport Terminal & Control Tower may be within view of the new development and may experience changes in noise patterns. However, this property is already within view of the Airport and additional airport-related development would not significantly change the overall setting. Furthermore, this property already experiences airport noise and any change in noise levels would not diminish the significance or integrity of the property. ***Therefore, the FAA makes a finding of No Adverse Effect to the Original Port Columbus Airport Terminal & Control Tower.***

CRAA President and CEO's Residence

The undertaking would not physically impact this property. The undertaking would cause visual changes and would potentially alter noise patterns around the Airport. The residence would be within view of the new airport development and may experience changes in noise patterns. However, this property is already within view of the Airport and additional airport-related development would not significantly change the overall setting. Furthermore, this property already experiences airport noise and any change in noise levels would not diminish the significance or integrity of the property. This property is greater than 50 years old and is potentially eligible for the NRHP. FAA is not making a determination regarding the eligibility of this property as no direct impact would occur and any indirect impacts would not be significant. ***Therefore, the FAA makes a finding of No Adverse Effect to the CRAA President and CEO's Residence.***

As part of the early coordination process for this EA, we are respectfully seeking comments on the enclosed reports, the determination of the APE, and effects on historic properties within the APE. Once we have your comments, we plan to coordinate with the following local interested parties:

- City of Columbus Historic Preservation Office
- Columbus Historical Society
- Columbus Landmarks Foundation
- Franklin County Genealogical and Historical Society
- Heritage Ohio
- Preservation Ohio
- Ohio Archaeological Council

We would appreciate your assistance and request that your comments are returned within 30 days or at your earliest convenience. If you would like additional information on this project, or would like to speak with me directly, please do not hesitate to contact me at (734) 229-2905 or by email at Ernest.Gubry@faa.gov.

Please send any written comments to the following address:

Landrum & Brown
Attn: Chris Sandfoss
11279 Cornell Park Drive
Cincinnati, OH 45242

Your prompt response would be appreciated so that the project may proceed as scheduled. Thank you for your consideration of this request.

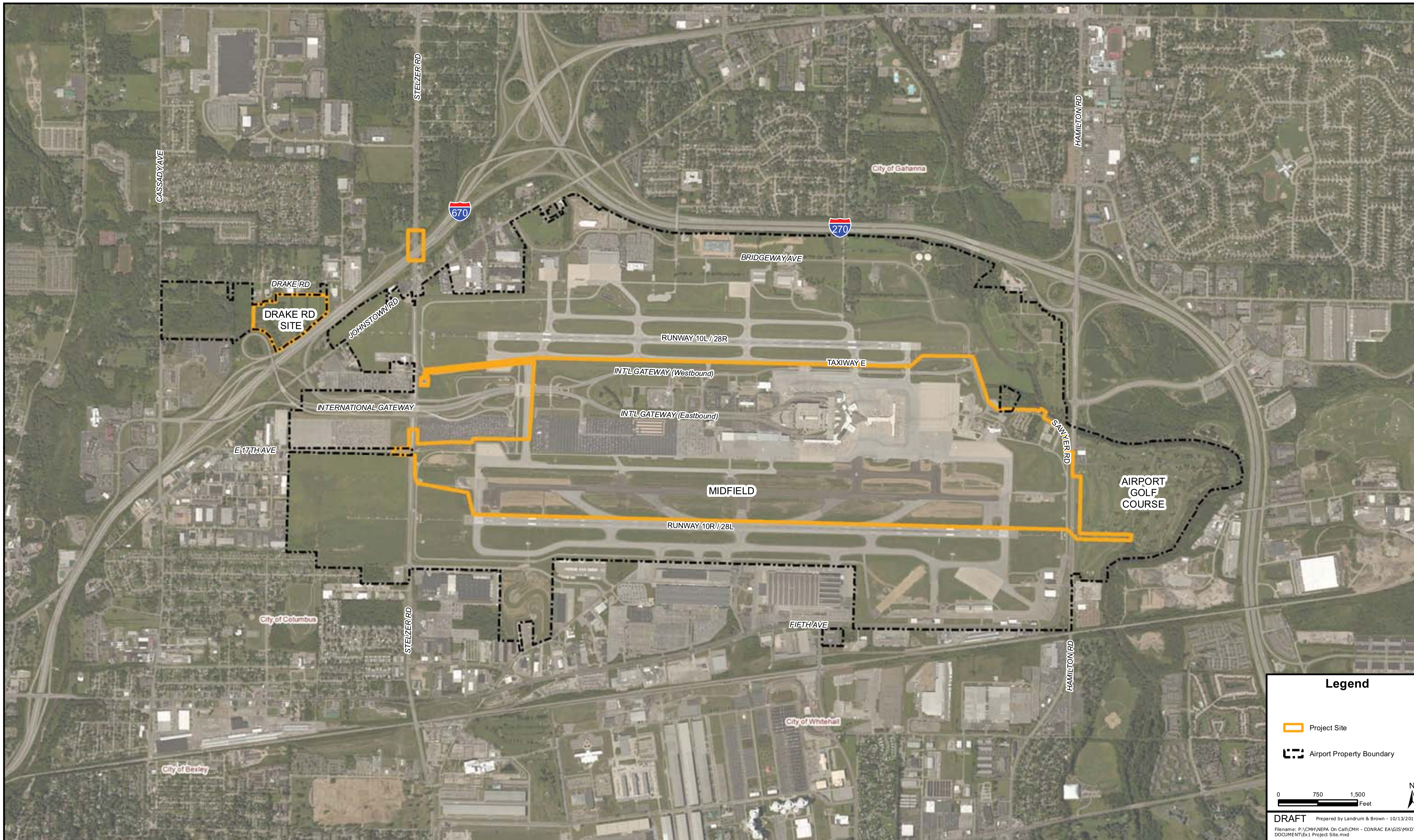
Sincerely,

Ernest P. Gubry

Ernest P. Gubry

Attachments: Exhibits 1-6; NRHP Eligibility Evaluation of the John Glenn Columbus International Airport Terminal and the Lane Aviation Facility, City of Columbus, Franklin County, Ohio; Historic American Building Survey, Elam Drake Farmstead; Phase I Archaeological Survey for the Proposed CONRAC, Port Columbus International Airport, City of Columbus, Franklin County, Ohio; and Phase I Archaeological Survey for the Approximately 24.3-hectare Potential Automobile Related Facility in the City of Columbus, Franklin County, Ohio

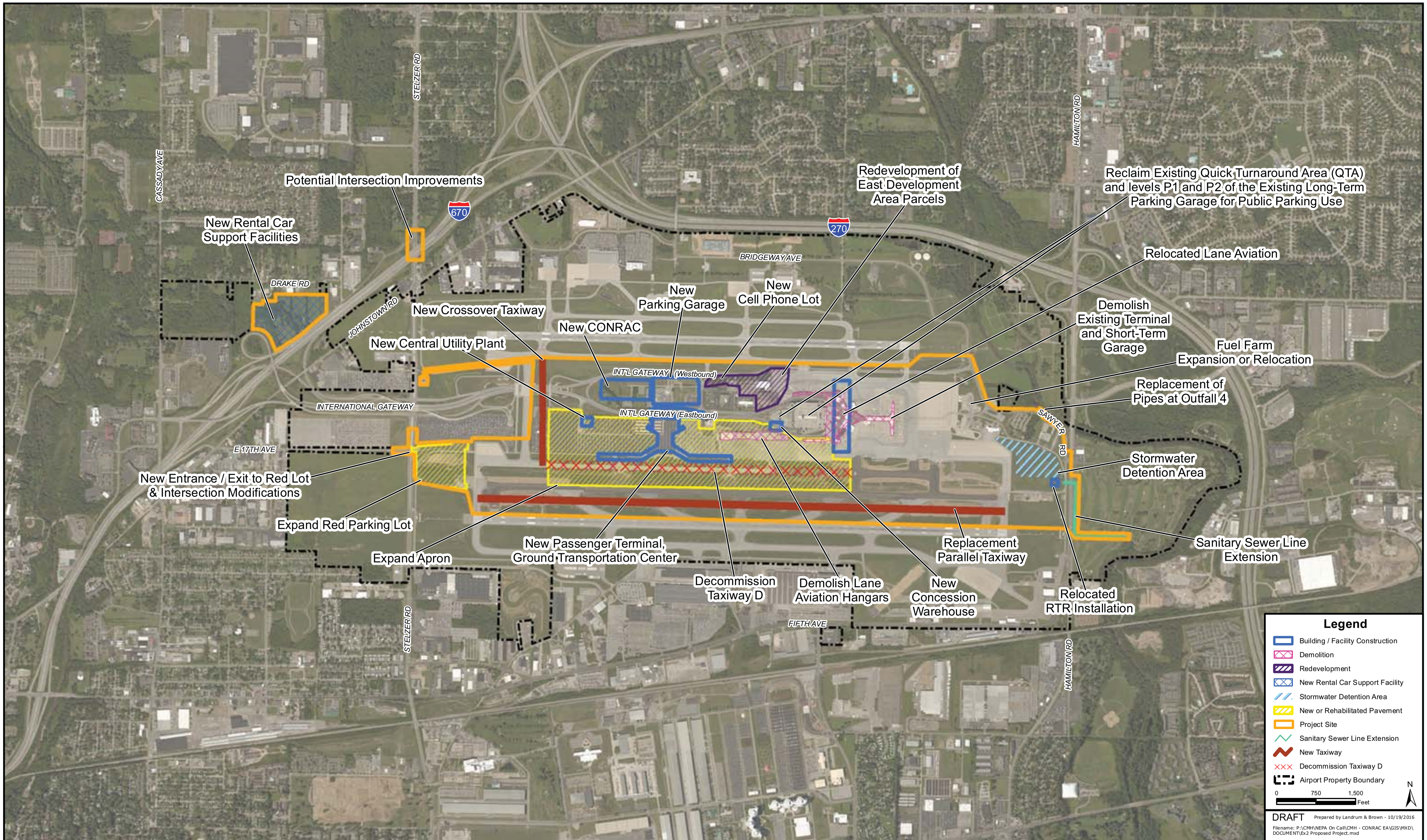
cc: Dave Wall, Columbus Regional Airport Authority
Chris Sandfoss, Landrum & Brown



Midfield Development Program
Environmental Assessment
John Glenn Columbus International Airport

Project Site

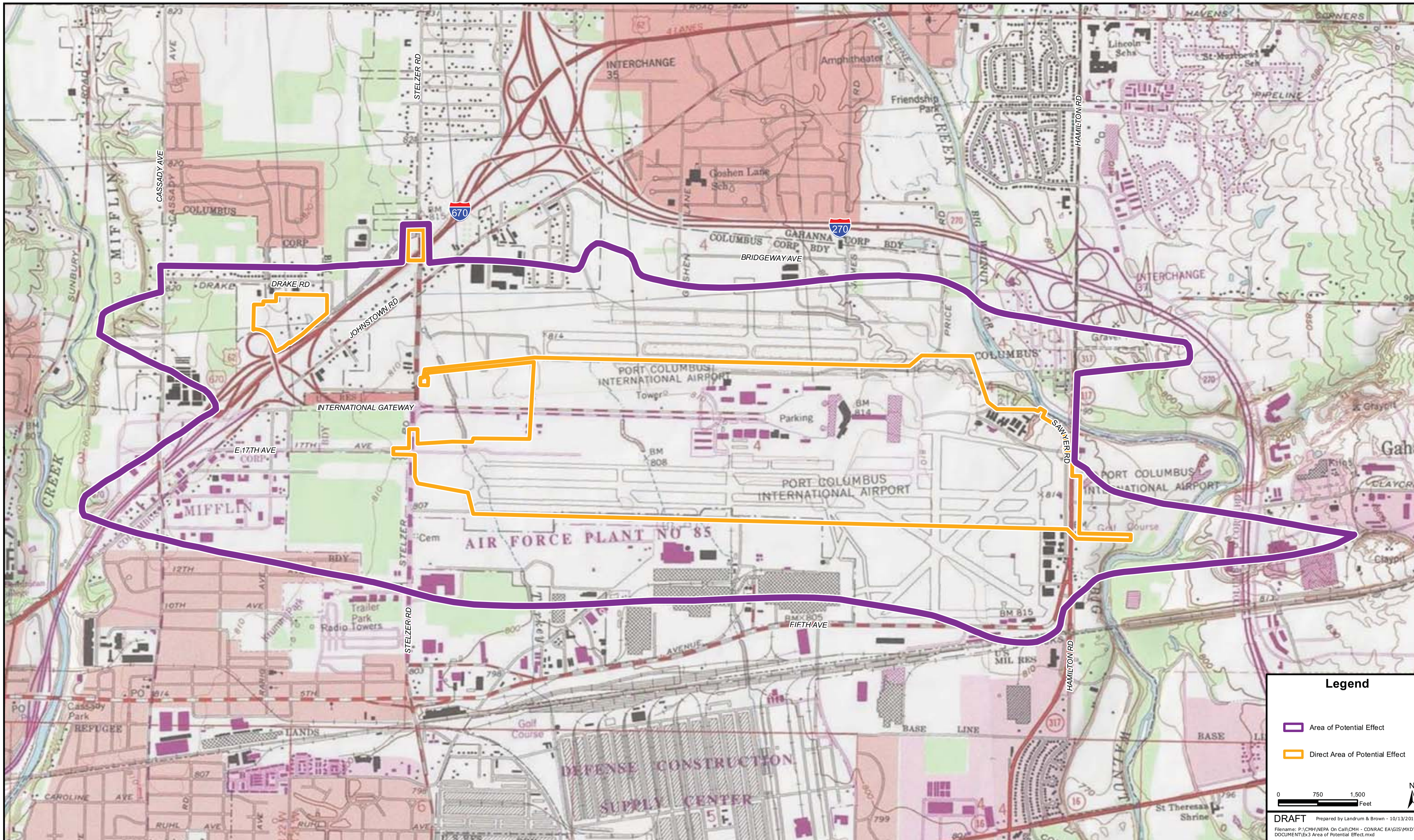
EXHIBIT:
1



Midfield Development Program
Environmental Assessment
John Glenn Columbus International Airport

Proposed Project

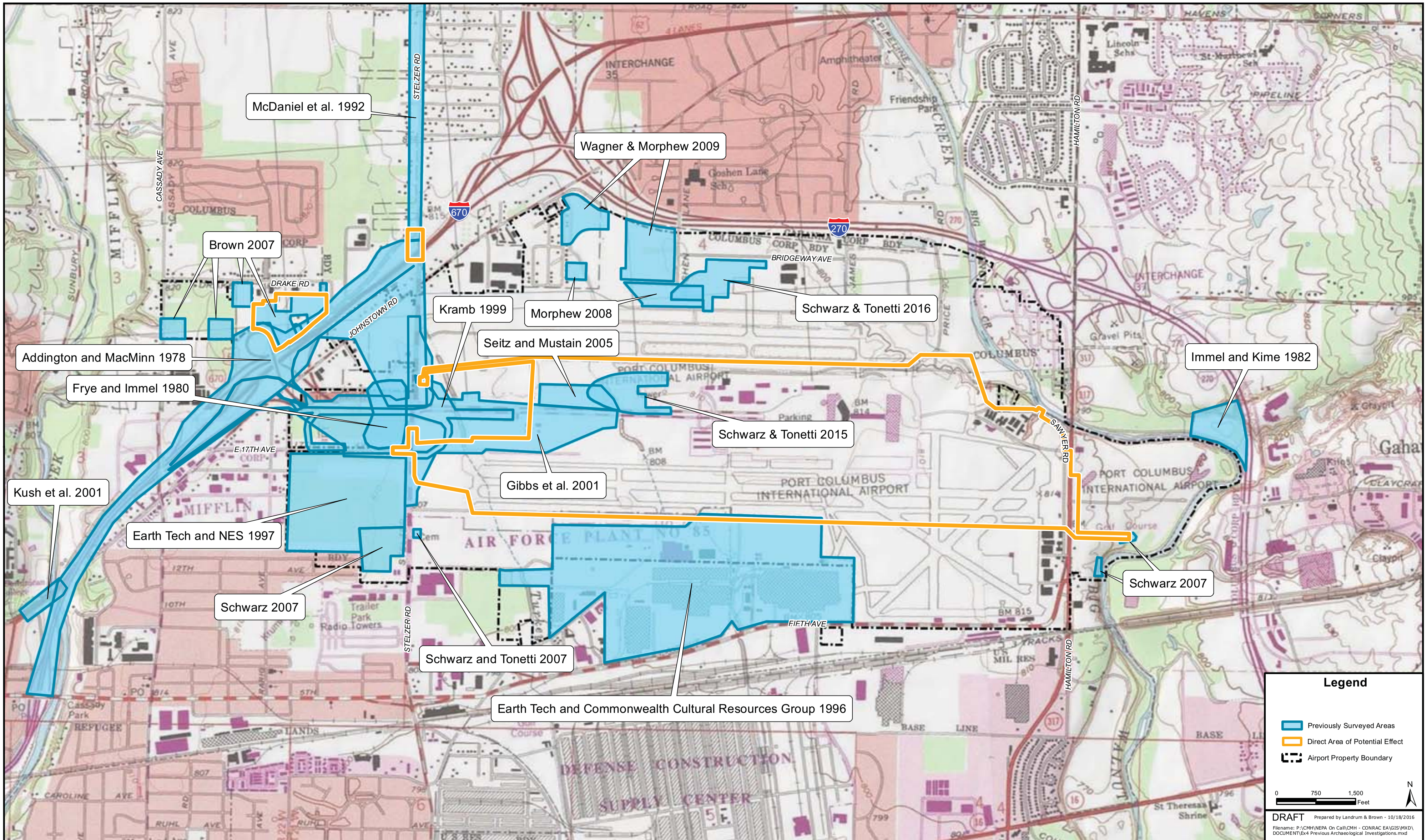
EXHIBIT: 2



Midfield Development Program
Environmental Assessment
John Glenn Columbus International Airport

Area of Potential Effect

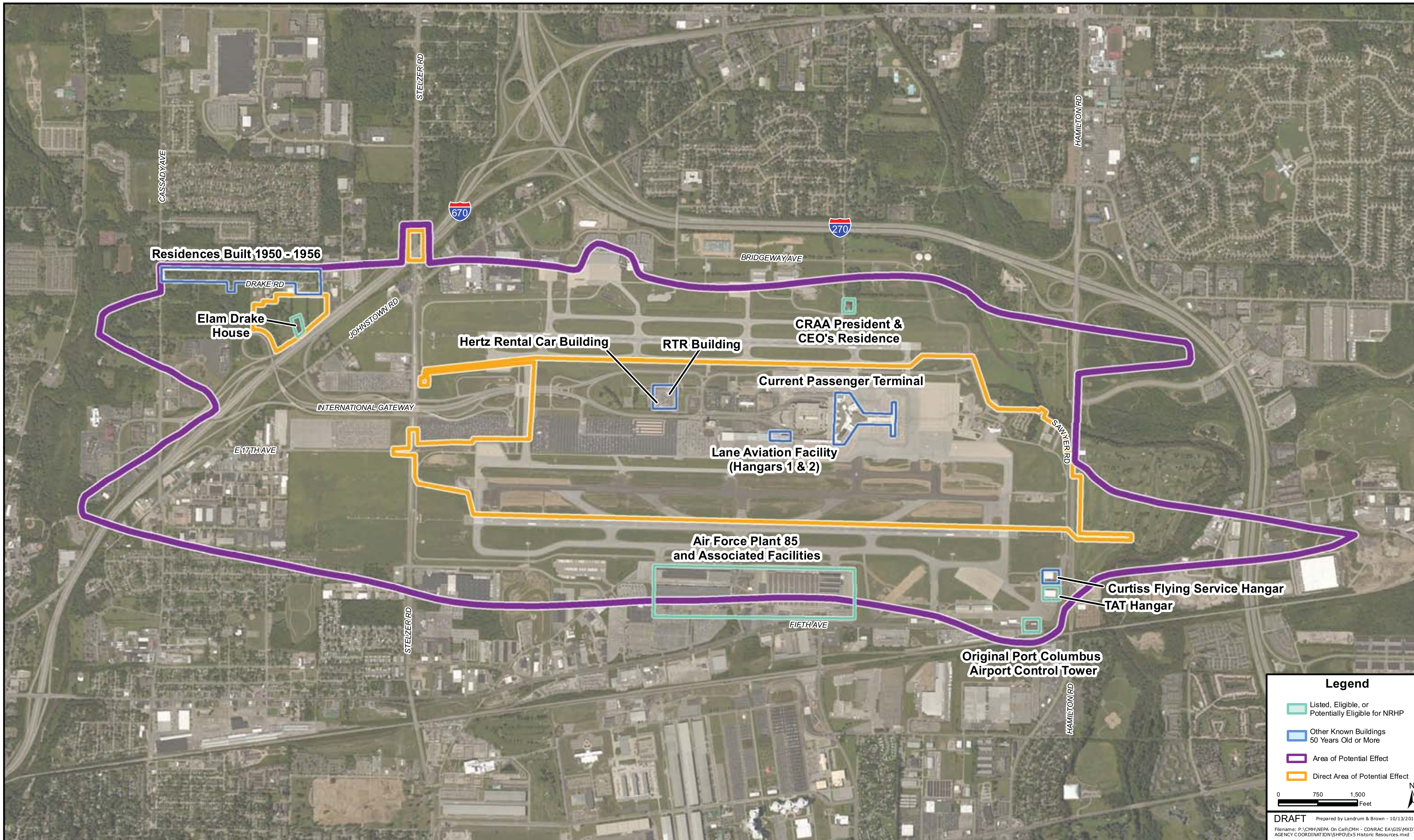
EXHIBIT: 3



Midfield Development Program
Environmental Assessment
John Glenn Columbus International Airport

Previous Archaeological Investigations

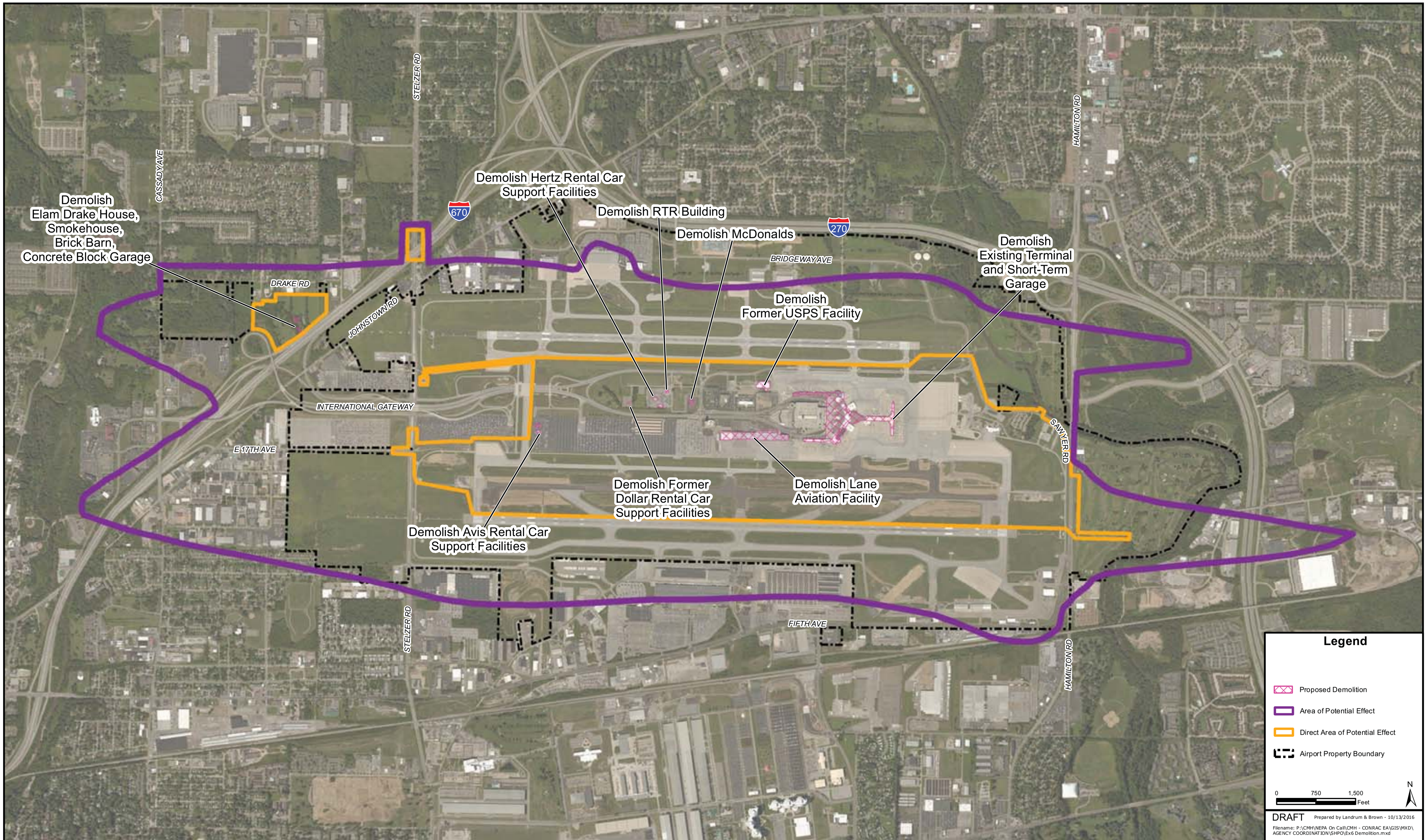
EXHIBIT:
4



Midfield Development Program
Environmental Assessment
John Glenn Columbus International Airport

Potential Historic Resources

EXHIBIT: 5



Midfield Development Program
Environmental Assessment
John Glenn Columbus International Airport

Proposed Demolition Activities

EXHIBIT:
6

OHIO HISTORY CONNECTION

November 29, 2016

In reply, please refer to:
2016-FRA-36782

Ernest P. Gubry
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Road, Suite 107
Romulus, Michigan 48174

RE: Proposed Midfield Development Program (MDP) – John Glenn Columbus International Airport
Columbus, Franklin County, Ohio

Dear Mr. Gubry:

This letter is in response to correspondence received on October 31, 2016 regarding the above referenced project. Our comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and the associated regulations at 36 CFR Part 800.

Report Comments

Thank you for providing copies of two previously submitted reports: *Phase I Archaeological Survey for the approximately 24.3 ha (60a.) Potential Automobile Related Facility in the City of Columbus, Franklin County, Ohio* and *Historic American Building Survey Elam Drake Farmstead 2378 Ole Country Lane in Mifflin Township, Franklin County, Ohio.*

Two recently completed reports were also submitted for review and comment: *National Register of Historic Places Eligibility Evaluation of the John Glenn Columbus International Airport Terminal and the Lane Aviation Facility, City of Columbus, Franklin County, Ohio* and *Phase I Archaeological Survey for the Proposed Consolidated Rental Car Facility (CONRAC), Port Columbus International Airport, City of Columbus, Franklin County, Ohio*. These reports were well organized and thorough, providing sufficient information for our office to evaluate potential eligibility of properties and/or sites within the APE.

Description of the Undertaking

The Federal Aviation Administration (FAA) and Columbus Regional Airport Authority (CRAA) intend to prepare an Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA) for the proposed Midfield Development Program (MDP) and enabling projects (the Proposed Project) at the John Glenn Columbus International Airport (CMH or Airport). The undertaking consists of several development projects, known collectively as the MDP, as well as several enabling projects at CMH. It is our understanding that the following activities are included in the scope of work for the Proposed Project:

- Construction of a new Consolidated Rental Car Facility (CONRAC)
- Reclaim existing quick turnaround area (QTA) and levels P1 and P2 of the existing long-term parking garage for public parking use
- Construction of rental car support facilities at the Drake Road site
- RTR antenna relocation and installation of new underground cabling
- Cell Phone Lot relocation
- Reconfiguration of the existing International Gateway Loop Road
- Construction of a Utility Corridor and various utility improvements
- Demolition of the existing Hertz, Avis, and former Dollar rental car staging areas
- Demolition of the existing McDonald's
- Construction of a new Parking Garage
- Redevelopment of east development area parcels and demolition of former U.S. Postal Service (USPS) facility
- Closure of the Blue Parking Lot / Employee Lot
- Expansion of the Red Parking Lot and new entrance/exit to Stelzer Road at East 17th Avenue with various intersection improvements
- Decommission existing Taxiway D, construct replacement parallel taxiway north of Runway 10R/28L, and reconfigure taxiway exits per FAA guidelines
- Various stormwater improvements including rerouting stormwater to a potential new stormwater detention basin on the east side of CMH property and replacement of existing underground stormwater pipes at Outfall 4
- Construction of a new Midfield Passenger Terminal and associated apron
- Construction of a Ground Transportation Center (GTC)
- Construction of a Central Utility Plant and Utility Corridor
- Extension of a sanitary sewer line
- Construction of a Second Crossover Taxiway
- Demolition of the existing Passenger Terminal and short-term parking garage
- Expansion or relocation of the existing fuel farm
- Construction of a new Concession Warehouse
- Construction of a new facility for Lane Aviation and demolition of the existing facility

Area of Potential Effects

The Area of Potential Effects (APE) was determined based on the areas of potential direct impacts from the Proposed Project as well as the limit of potential indirect impacts related to noise, viewshed, and setting. The Direct APE includes areas where ground disturbance and/or construction activities will occur. The Indirect APE includes areas that have historically been subject to significant noise levels per FAA guidelines. It was further expanded to include areas where potential visual impacts occur. Our office concurs that both the established Direct and Indirect APEs are appropriate for the Proposed Project.

Identification of Historic Properties

The following properties are located within the Proposed Project's APE and are at least 50 years old:

- Air Force Plant 85 and Associated Facilities
- Nationwide (formerly Curtiss Flying Service Hangar)
- CRAA President and CEO's Residence
- Elam Drake Farmstad: including the Elam Drake House, Smokehouse, Brick Barn, and Concrete Block Garage
- Existing John Glenn International Airport Passenger Terminal
- Hertz Rental Car Building
- Lane Aviation Facility (Hangars 1 & 2)
- Original Port Columbus Airport Terminal & Control Tower
- Remote Transmitter Receiver (RTR) Building
- Residences on Drake Road
- Transcontinental Air Transport (TAT) Hangar
- Four Archaeological Sites : 33FR1828, 33FR2639-33FR2641

Our office has reviewed the documentation submitted regarding the Proposed Project. Based on the information submitted, our office provides the following concurrences:

- The existing John Glenn International Airport Passenger Terminal and the Lane Aviation Facility were both found to meet different criterion for historical significance. However, due to extensive alterations which have compromised the properties' integrity, we concur that these properties are not eligible for listing in the National Register of Historic Places.
- Residences along Drake Road constructed between 1950 and 1956 are potentially within the viewshed of the proposed rental car support facility. However, we concur that these properties are not eligible for listing in the National Register of Historic Places.
- Additional facilities, including the RTR Building, Hertz Rental Car Building, McDonald's, USPS facility, and other rental car facilities, are of utilitarian construction and do not have unique or significant architectural features and are not known to be associated with significant historical events or persons. Therefore, we concur that these properties are not eligible for listing in the National Register of Historic Places.
- The Nationwide (formerly Curtiss Flying Service) Hangar (FRA0967612) was previously determined not eligible for listing in the National Register of Historic Places.

- Based on the information provided in the Tonetti 2015 Report, *Phase I Archaeological Survey for the Proposed Consolidated Rental Car Facility (CONRAC) Port Columbus International Airport, City of Columbus, Franklin County, Ohio*, did not identify any new archaeological or historic properties. Our office concurs that no further archaeological investigation are necessary for this portion of the project area.
- Based on the information provided in the Brown 2007 Report, *Phase I Cultural Survey for the Approximately 24.3 HA (60 a.) Potential Automobile Related Facility in the City of Columbus, Franklin County, Ohio,* our office continues to maintain 33FR1828, 33FR2640, 33FR2641 are not eligible for listing on the National Register of Historic Places.

Determination of Effects

The Elam Drake Farmstead is listed in the National Register of Historic Places (NRHP Ref. 78002064). These properties are proposed for removal to accommodate the proposed rental car support facilities. Therefore, we concur with your finding that this constitutes an adverse effect to historic properties.

Based on the information provided in the Brown 2007 report, our office continues to maintain that the archaeological site 33FR2639 is an integral part of the National Register property and has reasonable potential to add new and important information about the activities associated with Elam Drake house during its occupation. Therefore, it is our offices opinion that this constitutes an adverse effect to historic properties.

Several buildings and facilities are associated with Air Force Plant 85 (numerous Ohio Historic Inventory reference numbers). Air Force Plant 85 is eligible for listing in the National Register of Historic Places. However, the Proposed Project will not diminish the significance or integrity of the property. Therefore, we concur with your finding that the undertaking will have no adverse effect to Air Force Plant 85 and Associated Facilities.

The Original Port Columbus Airport Terminal and Control Tower is listed in the National Register of Historic Places (NRHP Ref. 79001839). However, the Proposed Project will not diminish the significance or integrity of the property. Therefore, we concur with you finding that the undertaking will have no adverse effect to this property.

The Transcontinental Air Transport (TAT) Hangar (FRA0967512) is eligible for listing in the National Register of Historic Places. However, the Proposed Project will not diminish the significance or integrity of the property. Therefore, we concur that the undertaking will have no adverse effect to this property.

The CRAA President and CEO's Residence (FRA1047412) has been determined by our office to be eligible for listing in the National Register of Historic Places under Criterion A. We continue to maintain that this property is eligible. However, the Proposed Project will not diminish the significance or integrity of the property. Therefore, we concur that the undertaking will have no adverse effect to this property.

Resolution of Adverse Effects

Pursuant to 36 CFR Section 800.6(a)(1), the agency and applicant must work to develop and evaluate project alternatives that would avoid, minimize, or mitigate the adverse effect on historic properties that will result from this project. If it is agreed that no alternative can be found, the FAA and the Ohio State Historic Preservation Office (SHPO) need to agree on appropriate mitigation for the removal of the Elam Drake Farmstead. The process used to reach this decision and the mitigation will be memorialized in a Memorandum of Agreement (MOA).

The FAA should notify the Advisory Council on Historic Preservation (ACHP) that consultation to resolve the adverse effect has been initiated with our office. After the ACHP has been notified, we will move forward in trying to resolve the adverse effect through avoidance, minimization, or mitigation and the execution of an MOA that is acceptable to all parties.

If you have any questions about this letter or our review of this project, please contact Joy Williams at jwilliams@ohiohistory.org or (614) 298-2000. Thank you for your cooperation.

Sincerely,

Diana Welling, Department Head
Resource Protection and Review

cc: Landrum & Brown, Attn: Chris Sandfoss, 11279 Cornell Park Drive
Cincinnati, OH 45242

RPR Serial No: 1066050

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Meeting:
Section 106 Consultation with OHPO for Elam Drake Farmstead

Date/Time:
December 7, 2016/3:00 pm

Attendees:
OHPO – Diana Welling, Jenny Bellville-Marrion, Joy Williams
CRAA – Dave Wall, Mark Kelby
L&B – Rob Adams, Chris Sandfoss
ASC Group – Shaune Skinner, Kevin Schwarz, Doug Terpstra, Alan Tonetti

Meeting Summary:
Archaeology
OHPO provided thoughts on additional effort related to potential archaeological resources that have not been fully identified in previous research. A Phase I archaeology study was completed in 2007 by EMH&T of the site. OHPO indicated that at that time Dave Snyder from OHPO sent a letter requesting additional surveying of certain features on the site. That additional work was never completed and the OHPO is requesting that it be completed. The specific areas of concern and additional field work include the pond, several cisterns, and a depressed area that was noted during a site walk over in October 2016. OHPO is interested to know if these features played a role in or are related to the activity that made the farmstead eligible for the National Register of Historic Places (NRHP). The level of work can be described as a Phase II level or potentially something less intense depending on the research and the findings. The OHPO stated that this additional field work did not need to be completed prior to the MOA being signed, but did need to be completed prior to the disturbance of the site.

Historic/Architecture
OHPO provided thoughts on historic/architecture impacts and mitigation. They reiterated their concurrence that the existing passenger terminal and the Lane Aviation facilities were not eligible for the NRHP due to the physical conditions/modifications that have been made over the years. OHPO is interested in preserving as much of the history of the airport as possible (particularly the original features). As such, OHPO requested that FAA and CRAA consider mitigation for the adverse effect to Elam Drake that results in a "preservation win" for Columbus and its aviation history. Specific options included:

- Establishing programs and/or funding to stabilize and preserve the Original Airport Control Tower.
- Identify and preserve other features of the airport that are of the same era, even if they are not eligible for the NRHP.
- Displaying items from the Ohio History Connection's "History of Flight" collection at the airport in the new terminal.
- CRAA mentioned that their current exhibit "Legacy of Leadership" has historical photos and information about the airport. This may be a starting point for other opportunities.

OHPO asked CRAA to research and consider other similar preservation ideas. Agreed upon programs would be included in the MOA as mitigation for impacts to Elam Drake farmstead.

Consulting Parties

OHPO requested that the list of consulting parties in the original letter from FAA be contacted and offered an opportunity to participate in the Section 106 process. L&B will draft the letters for FAA review, signature, and distribution.

Memorandum of Agreement Process

OHPO noted that typically FAA will produce the first draft of the MOA for review. OHPO and FAA need to have a conversation to discuss and finalize that.

Next Meeting

Parties on the call agreed that a meeting prior to the holidays is desired to keep the process moving forward.

Action Items:

- FAA to contact OHPO to finalize who will produce first draft of the MOA.
- L&B to create consulting parties letter for CRAA/FAA review and distribution.
- CRAA to explore opportunities for identifying and preserving airport features.
- All to set a date/time for next meeting

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 16, 2016

Mr. Randy Black
Historic Preservation Officer
City of Columbus Historic Preservation Office
109 N Front St
Columbus, OH 43215

Re: Section 106 Consultation for John Glenn Columbus International Airport – Request for Participation

Dear Mr. Black:

This letter is notification that the Federal Aviation Administration (FAA) has initiated Section 106 consultation through the NEPA process as stipulated in 36 CFR 800.8. The Columbus Regional Airport Authority (CRAA) is preparing an Environmental Assessment (EA) to review the potential impacts from a set of proposed capital improvements at the John Glenn Columbus International Airport (CMH).

On October 31, 2016, the FAA sent the Ohio Historic Preservation Office (OHPO) documentation related to the project and its potential impacts to historic properties listed or eligible for listing on the National Register of Historic Places (NRHP). In that submittal, it was identified that the proposed project would result in an adverse effect to the Elam Drake Farmstead, which is listed on the NRHP. The OHPO replied to the FAA's letter on November 29, 2016 concurring with the FAA's determinations and requesting to enter consultation regarding mitigation and the development of a Memorandum of Agreement. A copy of the FAA's letter and the OHPO's response are available online at http://tinyurl.com/CMH-section106.

As part of the process, the FAA and OHPO identified your organization as a potential local interested party that may wish to participate as a consulting party in the Section 106 process. The purpose of this letter is to determine if you wish to participate in that regard. If you wish to participate in the process as a consulting party, <u>please respond no later than January 6, 2017</u>.

If you have any questions regarding the EA or this request, please contact me at (734) 229-2905 or by email at Ernest.Gubry@faa.gov.

Sincerely,

Ernest P. Gubry

Ernest P. Gubry

ENCLOSURES

Cc: David Wall, CRAA
Diana Welling, OHPO

HISTORIC PRESERVATION GROUPS DISTRIBUTION LIST

Mr. Randy Black
Historic Preservation Officer
City of Columbus Historic Preservation Office
109 N Front St
Columbus, OH 43215

Mr. Jeff LaFever
Director
Columbus Historical Society
Columbus Historical Society at COSI
333 W Broad St
Columbus, OH 43215

Mr. Ed Lentz
Executive Director
Columbus Landmarks Foundation
57 Jefferson Ave
Columbus, OH 43215

Ms. Jayne Davis
President
Franklin County Genealogical and Historical Society
96 S Grant Ave
Columbus, OH 43215

Mr. Frank Quinn
Director of Preservation
Heritage Ohio
846 E Main St
Columbus, OH 43205

Mr. Thomas Palmer
Executive Director
Preservation Ohio
P. O. Box 340885
Columbus, OH 43234-0885

Ms. Anne Lee
President
Ohio Archaeological Council
PO Box 82012
Columbus, OH 43202-0012

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Meeting:
Section 106 Consultation with Ohio State Historic Preservation Office (SHPO) and Consulting Parties for CMH Midfield Development Program

Date/Time:
February 7, 2017 @ 9:30 am

Attendees:
Ohio State Historic Preservation Office (SHPO) – Diana Welling, Jenny Bellville-Marrion, Joy Williams
Federal Aviation Administration (FAA) – Ernest Gubry, Katherine Delaney
Columbus Regional Airport Authority (CRAA) – Dave Wall, Mark Kelby
Landrum & Brown (L&B) – Rob Adams, Chris Sandfoss
Columbus Landmarks Foundation – Ed Lentz
Heritage Ohio – Frank Quinn
Preservation Ohio – Marian Vance

Meeting Summary:

Proposed Project

CRAA staff described the need for the proposed project (the undertaking), including lack of parking capacity and overcrowding in the existing parking garage. The purpose of the project is to relocate the rental car operations to a new consolidated rental car facility (CONRAC), which would be located adjacent to the site of the proposed new passenger terminal. The CONRAC would require a separate off-site facility for rental car storage and maintenance, which is proposed for the Drake Road site.

FAA staff described the agency's role in the review of the proposed project and the request that all the project elements would be assessed in one Environmental Assessment.

CRAA and L&B staff presented the elements of the proposed project, including impacts to the Elam Drake Farmstead, which is listed on the National Register of Historic Places (NRHP). The proposed rental car storage and maintenance site would require removal of all the buildings and ground disturbance of the entire Elam Drake farm. It was noted that the Elam Drake farm was previously subject to analysis for a potential development, and a Historic American Building Survey (HABS) and a Phase I Archaeological Survey were conducted. A draft memorandum of agreement (MOA) was prepared but never executed. The previous proposed project was never implemented.

Memorandum of Agreement

L&B staff listed the proposed elements of the draft MOA

Consulting Party Comments

Preservation Ohio has the Elam Drake Farmhouse listed as one of Ohio's Most Endangered Historic Sites and would like to see the site preserved. Columbus Landmarks Foundation listed the Elam Drake Farm as one of the Most Endangered Buildings and would like to see the building saved.

Review of Other Potential Impacts

CRAA and L&B discussed other buildings that would be impacted by the proposed project, none of which were found to be eligible for the NRHP. Previously undisturbed areas were noted to have been surveyed for archaeological resources. No other NRHP-eligible sites were identified beyond the Elam Drake property. Impact to Elam Drake Farm would be an adverse effect. No other adverse effects were identified. FAA provided this determination to the SHPO and SHPO concurred

Open Discussion

SHPO noted their desire to include in the MOA efforts to preserve other historic buildings if the Elam Drake property cannot be preserved. CRAA discussed plans to support the preservation of the Original Port Columbus Airport Terminal and maintain two other historic hangars on the southeast of airport property (TAT Hangar and former Curtiss Flying Service Hangar), as well as incorporating historic items in a public display within the proposed new terminal or airport hotel.

Questions were asked about the possibility of preserving the Elam Drake structures or incorporating them into the design of the rental car facility. CRAA noted that due to the central location of the Elam Drake buildings on the site, preserving the buildings would require expanding the plans for the rental car storage and maintenance facility that would extend further west into an area with high quality wetlands and summer habitat for the endangered Indiana bat species. Plans for the proposed layout were circulated for review. Building security was also noted as a concern as buildings are and would continue to be a target for vandalism. CRAA discussed the poor condition of the Elam Drake House, roof caving in and other structural problems, as a factor in not being able to reuse the building. In order to reuse the Elam Drake house it would basically need to be torn down and rebuilt. It was requested that CRAA provide more details about the current condition of the buildings.

Question was asked about any hazardous materials in the building. CRAA staff noted that some investigation had occurred in the past but the results of those studies were not readily available.

Question was asked if the decision was a financial issue. CRAA staff noted it was also a safety and security issue. CRAA staff also noted that other sites on airport property were looked at as possible alternatives but no other site was available due to commitments to use property for aviation use and large areas being within runway protection zones that must be free of development.

Question was asked about how the layout of the rental car facility was determined. CRAA staff responded that the layout was based on forecast needs and market share of the rental car companies, the desire for them to each have their own separate facility, and the need for future expansion capability. The buildings cannot be avoided without meeting demand or impacting high quality wetlands and large area of Indiana bat habitat.

Question was asked regarding the threshing barn and whether or not it could be reused. A comment was made that the barn is unique and rare in the area. It was acknowledged that the barn is in better condition than the house but the feasibility of reusing the barn was not known. A request was made for information on other similar type barns in the area. SHPO staff agreed to check their database.

Question was asked about draft MOA measure to support preserving the Original Port Columbus Airport Terminal. CRAA staff discussed the recent rehabilitation of the building, roof restoration, mold remediation, periodic maintenance and security checks, and efforts to secure a tenant for the building. Similar efforts could be conducted for the two historic hangars. FAA noted that signing an MOA would provide some flexibility for CRAA to reuse the property that may not yield the highest and best use that would otherwise be required due to FAA funding conditions.

SHPO staff asked about the possibility of turning the original terminal into a museum. CRAA staff would need to discuss internally.

Questions were asked about the possibility of visiting the site. CRAA agreed to arrange a site visit with maintenance personnel to provide limited access to view the building interiors without entering the buildings.

Next Steps

Tour of Elam Drake Site
Finalize MOA
Conduct additional archaeological surveying
CONRAC development proposed for 2020 timeframe – other enabling actions would occur sooner

Action Items:

- CRAA provide more details about the current condition of the buildings, including the condition and possible reuse of the threshing barn and other buildings on the Elam Drake Farm
- CRAA to arrange a site visit
- CRAA to consider use of Original Port Columbus Airport Terminal as a museum
- SHPO staff to provide information on other barns similar to the brick threshing barn at the Elam Drake Farm

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DRAFT MEMORANDUM OF AGREEMENT FOR THE MITIGATION OF ADVERSE EFFECTS TO THE ELAM DRAKE FARMSTEAD

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MEMORANDUM OF AGREEMENT
Between
THE FEDERAL AVIATION ADMINISTRATION (FAA), THE COLUMBUS REGIONAL AIRPORT AUTHORITY (CRAA), AND THE OHIO STATE HISTORIC PRESERVATION OFFICE (SHPO)
For
THE MITIGATION OF ADVERSE EFFECTS TO THE ELAM DRAKE PROPERTY, 2738 OLE COUNTRY LANE, COLUMBUS, FRANKLIN COUNTY, OHIO

WHEREAS, the CRAA is planning a public improvement (ground transportation facilities, including a future consolidated rental car facility, and rental car storage facilities) at John Glenn Columbus International Airport (CMH) that will necessitate removing all of the contributing and noncontributing buildings on a 5.314-acre parcel containing the Elam Drake House, a historic property listed in the National Register of Historic Places; and

WHEREAS, the FAA is preparing an Environmental Assessment in accordance with FAA Order 5050.4B and FAA Order 1050.1F to disclose the potential impacts of the proposed improvements; and

WHEREAS, the FAA and CRAA have consulted with the SHPO pursuant to the provisions of the National Historic Preservation Act of 1966, as amended (16 U.S.C. § 470(f)) and implementing regulations at 36 C.F.R. Part 800; and

WHEREAS, the FAA, the Advisory Council on Historic Preservation (ACHP) and SHPO agreed to a combined review of this project pursuant to 36 C.F.R. § Part 800.8; and copies of all environmental documents and findings were made available for public review; and

WHEREAS, the FAA and CRAA have consulted with the City of Columbus (COC) Historic Preservation Officer, the Columbus Historical Society, the Columbus Landmarks Foundation, the Franklin County Genealogical and Historical Society, Heritage Ohio, Preservation Ohio, and the Ohio Archaeological Council, concerning the effects of the public improvement on the Elam Drake Property, and invited them to concur in this agreement; and

WHEREAS, the CRAA, in consultation with the FAA and SHPO, has determined that it is not feasible to incorporate the Elam Drake Property into the public improvement primarily due to the project development needs and operational integration concerns, and that removal of the historic property is necessary for construction of the public improvements.

NOW, THEREFORE, the FAA, CRAA, and the SHPO agree that the Undertakings shall be implemented in accordance with the following stipulations in order to take into account the effect of the Undertakings on historic properties.

STIPULATIONS

The FAA will ensure that the following stipulations will be carried out:

I. Interim Maintenance

The CRAA will use its standard procedures to protect and secure the Elam Drake House, Smokehouse and Barn from vandalism and arson until such time as the buildings are removed.

II. Recordation

The parties acknowledge that the CRAA has completed a Level II Historic American Building Survey (HABS) recordation of the property according to the scope of service prepared by ASC Group, Inc., dated November 8, 2006, as a necessary precondition to proceeding with the removal of the buildings on the property contemplated pursuant to this agreement. A copy of said Level II HABS recordation is included as Exhibit A and by reference made a part of this agreement.

III. Salvage

The CRAA may permit architectural elements from the buildings to be salvaged by groups or individuals interested in reuse of the historic building materials for use in restoring other historic properties with materials of similar vintage.

IV. Archaeological Investigations

CRAA has, pursuant to Ohio Revised Code 149.53, conducted a Phase I archaeological investigation on the Elam Drake Property parcel. The report, which has been received, reviewed, and commented on by SHPO, is attached to this agreement as Exhibit B and by reference made a part of this agreement. The SHPO noted that the parcel on which the Elam Drake House and Outbuildings sits is an integral part of the NRHP-listed property. Therefore, additional archaeological investigation should be conducted to provide a better understanding of the types of activities that were associated with the Elam Drake Property.

The SHPO has requested additional research and potentially field investigations of specific elements on the Elam Drake Property. Those elements include:

- Research related to the pond, to determine how it may have contributed to the historic activities that occurred at the site.
- Research and potential retrieval of artifacts from the cistern(s)/pit(s) located near the house.
- Research and potential retrieval of artifacts from the depressed area located between the house and barn.

The research and investigations should be complete prior to ground disturbance on the site. Should this research and investigation result in artifacts or new information, the FAA, CRAA, and SHPO shall consult to develop next steps.

Any archaeological artifacts likely to be related to the Elam Drake Property that are found on the parcel will be documented and a report will be prepared to discuss the findings and the relationship to past activities conducted on the Site. Should any new archaeological sites potentially eligible for listing on the NRHP be found that predate the Elam Drake property, the FAA, CRAA, and the SHPO shall consult to develop a treatment plan for the sites. In such an event, removal of any buildings on the parcel shall not occur until the treatment plan is completed and its provisions implemented, as necessary.

V. Preservation of the Original Port Columbus Terminal and Hangars

The SHPO has requested CRAA implement additional actions to assist in preserving the remaining historic buildings owned by the CRAA in an attempt to preserve the rich aviation history of the City of Columbus and the Airport. These preservation activities will serve to benefit the aviation history of central Ohio and its overall context within the history of air transportation in the U.S. The CRAA has agreed to implement the following:

1. The Original Port Columbus Terminal is nationally significant for its association with early commercial aviation history as the location of the first transfer point in the westbound transcontinental passenger service, which was operated by the Pennsylvania Railroad and Transcontinental Air Transport (which became TWA). The Original Port Columbus Terminal is listed on the NRHP (listing #79001839). The building was listed in the NRHP in 1979 under Criterion A and C for National significance for transportation and architecture. CRAA will make reasonable efforts to support the preservation of the building including the following.
    - CRAA has recently conducted a rehabilitation of the building, including roof restoration and mold remediation. CRAA will continue to perform periodic maintenance and security checks.
    - CRAA will work with the Preserve Original Columbus Air Terminal (POCAT) group as they solicit possible tenants to occupy the original terminal building.
    - In the event the building is not leased, CRAA will make the building available to historic preservation groups to be operated as a museum at no cost to CRAA.
2. CRAA has identified other features of the airport that are of the same era as the original terminal building which include: Hangar 1 (TAT) and the former Curtiss Flying Service hangar (the Flight Safety hangar). CRAA will keep these maintained, including conducting periodic inspections and maintenance, until such time that the land is required for redevelopment of facilities to meet requirements of federally obligated land under FAA regulations. There are currently no significant redevelopment plans for these areas. However, should a specific need arise, the CRAA is required to use this land for aeronautical purposes, per FAA grant assurances, which may result in impacts to the hangars. Any such undertakings would undergo a separate environmental review and consultation process.

VI. Additional Preservation Activities

In addition to efforts to preserve other historic properties at the Airport as described under Section V, the CRAA has agreed to implement the following measures to record and make public, information related to historic properties at the Airport.

1. CRAA will complete the archaeological research and investigations described in Section IV above. CRAA will make this report, along with the 2006 Historic American Building Survey, available on the CRAA website for the public to view.
2. CRAA will display mutually agreeable items from the Ohio History Connection's "History of Flight" that have a connection to CMH. These would be publicly displayed in the new hotel, anticipated to be constructed by the CRAA in 2018. CRAA would evaluate the possibility of incorporating historic items in the new passenger terminal when it is constructed.
3. Per the suggestion of Preservation Ohio, CRAA will allow an interested party to remove the smokehouse from the Elam Drake property to non-CRAA owned property. Due to its structural condition, it is not known if the smokehouse can be relocated for preservation purposes. If feasible, the CRAA will fund up to $5,000 for the removal of the smokehouse.

VII. Duration

This MOA shall be null and void if its stipulations are not carried out within five (5) years from the date of its execution. Prior to such time, the CRAA may consult with the other signatories to reconsider the terms of the MOA and amend or extend it if the Undertakings have not been implemented. In such event, the CRAA will notify the signatories to this MOA and if the CRAA chooses to continue with the proposed removal of the buildings, the CRAA shall resume consultation for the removal in accordance with 36 C.F.R. Part 800.

VIII. Amendments

This Memorandum of Agreement (MOA) may be amended when such an amendment is agreed to in writing by all signatories (FAA, CRAA, and SHPO) (36 C.F.R. § 800.6(c)(7)). The amendment will be effective on the date a copy signed by all the signatories is signed.

IX. Post-Review Discoveries

If items which may contain historical significance or if additional historic properties or unanticipated effects on the historic property are discovered (36 C.F.R. § 800.6(c)(6)), the CRAA shall notify the SHPO of the discovery and consult with the OHPO pursuant to 36 C.F.R. Part 800.

X. Termination

If any signatory to this MOA determines that its terms will not or cannot be carried out, that signatory shall immediately consult with the other signatories to attempt to develop an amendment as defined above. If within thirty (30) days (or another time period agreed to in writing by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once this MOA is terminated, and prior to work continuing on the Undertakings, the CRAA must execute an MOA pursuant to 36 C.F.R. 800.6.

SIGNATORIES

Execution of this MOA by the FAA, CRAA, and the SHPO and completion of the above stipulations by the CRAA, evidences that the CRAA has taken into account the effects of the Undertakings on historic properties and satisfied any and all Federal or State mitigation requirements of any nature for the proposed project in the FONSI/ROD.

FEDERAL AVIATION ADMINISTRATION

____

<NAME>, <TITLE> Date
<DIVISION>
<ORGANIZATION>

OHIO STATE HISTORIC PRESERVATION OFFICE

____

Diana Welling Date
Department Head & Deputy State Historic Preservation Officer
for Resource Protection & Review
Ohio State Historic Preservation Office

COLUMBUS REGIONAL AIRPORT AUTHORITY

____

Elaine Roberts Date
President and Chief Executive Officer
Columbus Regional Airport Authority

CONCURRING

Frank Quinn, Director of Preservation — Date
Heritage Ohio

CONCURRING

Ed Lentz, Executive Director — Date
Columbus Landmarks Foundation

CONCURRING

Marian Vance — Date
Preservation Ohio

Appendix D

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APPENDIX D
WATER RESOURCES

This appendix contains a copy of the analysis and coordination related to wetlands and streams. The following documentation is included:

1) Jurisdictional Determination from U.S. Army Corps of Engineers (USACE)

2) Clean Water Act Section 401/404 Permitting Materials

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JURISDICTIONAL DETERMINATION

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DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO
ATTENTION OF

December 20, 2016

Regulatory Division
North Branch
LRH-2016-889-SCR-Big Walnut Creek

APPROVED JURISDICTIONAL DETERMINATION

Mrs. Elaine Roberts
Columbus Regional Airport Authority
4600 International Gateway
Columbus, Ohio 43219

Dear Mrs. Roberts:

I refer to the *Wetland Delineation Report for John Glenn Columbus International Airport in Columbus, Franklin County, Ohio,* dated September 15, 2016 and submitted on your behalf by ASC Group, Inc. You have requested an approved jurisdictional determination (JD) for the 1,082-acre of land affiliated with the John Glenn International Airport in the City of Columbus, Franklin County, Ohio (40.00077, -82.89195). Your JD request has been assigned the following file number: LRH-2016-889-SCR-Big Walnut Creek. Please reference this number on all future correspondence related to this project.

The United States Army Corps of Engineers' (Corps) authority to regulate waters of the United States is based on the definitions and limits of jurisdiction contained in 33 CFR 328, , and 33 CFR 329. Section 404 of the Clean Water Act (Section 404) requires a Department of the Army (DA) permit be obtained prior to discharging dredged or fill material into waters of the United States, including wetlands. Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires a DA permit be obtained for any work in, on, over or under a navigable water. Our December 2, 2008 headquarters guidance entitled *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* was followed in the final verification of Clean Water Act jurisdiction.

Based upon a review of the submitted *Wetland Delineation Report for John Glenn Columbus International Airport in Columbus, Franklin County, Ohio,* dated September 15, 2016, 46 wetlands, six (6) streams, and two (2) open water features (Ponds) were identified within the 1,082 acre project site. Due to the overall size of the project site, the delineation report was broken down in to five (5) separate geographic areas. Each geographic area was assessed based on the definitions and limits of jurisdiction contained in 33 CFR 328, and 33 CFR 329.

The *International Gateway East* area contains one (1) stream (Stream 4 – Mason Run) and 12 wetlands (Wetland 15A, Wetland 15B, Wetland 15C, Wetland 15C1, Wetland 15C2, Wetland 15C3, Wetland 15C4, Wetland 15C5, Wetland 15C6, Wetland 15D, Wetland 16A, and Wetland 16B) within the 110.5-acre International Gateway East study area. Stream 4 is a relatively permanent water (RPW) and is a direct tributary to Big Walnut Creek, which is a direct tributary to the Scioto River, a TNW. Therefore, Stream 4 is jurisdictional by definition and is a water of the United States. Additionally, Wetland 15A, Wetland 15C, and Wetland 15C6 directly abut an RPW (Stream 4), they are jurisdictional by definition and are considered waters of the United States. Furthermore, Wetland 15C1, Wetland 15C2, Wetland 15C3, Wetland 15C4, Wetland 16A, and Wetland 16B were determined to be adjacent to Stream 4 and provide more than a speculative or insubstantial effect on the chemical, physical, and biological integrity of the receiving TNW, the Scioto River. Therefore, Wetland 15C1, Wetland 15C2, Wetland 15C3, Wetland 15C4, Wetland 16A, and Wetland 16B are determined to have a significant nexus on the TNW and are jurisdictional waters of the United States. Finally, Wetland 15C5 is completely surrounded by uplands and does not present hydrological connection to a surface tributary system. In addition to being hydrologically isolated from a surface water tributary system, this wetland does not appear to support interstate of foreign commerce interests nor does it contain any rare or endangered species. Based on this information, Wetland 15C5 is an isolated wetland and is not a jurisdictional water of the United States. Therefore, no authorization would be required from this office for the discharge of dredged or fill material into this wetland.

The *East Sawyer Road* area contains two (2) streams (Stream 2 – Unnamed Tributary to Big Walnut Creek and Stream F – Unnamed Tributary to Big Walnut Creek) within the 56.51 acre East Sawyer Road study area. Stream 2 is an RPW and is a direct tributary to Big Walnut Creek, which is a direct tributary to the Scioto River, a TNW. Stream 2 is jurisdictional by definition and is a water of the United States. Stream F is an RPW and is a direct tributary to Big Walnut Creek, which is a direct tributary to the Scioto River, a TNW. Stream 4 is jurisdictional by definition and is a water of the United States. Finally, Wetland 15B and Wetland 15D (from the International Gateway East Area) directly abut Stream F and are therefore jurisdictional by definition and are considered waters of the United States.

The *South Airfield* area contains five (5) wetlands (Wetland 17A, Wetland 17C, Wetland 17E, Wetland 17H, and Wetland 17I) within the 712.77-acre South Airfield study area. Wetland 17A is adjacent to a section of Turkey Run that exists in a known underground culvert system underneath the airfield. Wetland 17A provides more than a speculative or insubstantial effect on the chemical, physical, and biological integrity of the receiving TNW, the Scioto River. Therefore, Wetland 17A is determined to have a significant nexus on the TNW and are jurisdictional waters of the United States. Wetland 17C, Wetland 17E, Wetland 17H, and Wetland 17I are adjacent to a section of Mason Run that exists in a known underground culvert system underneath the airfield. Wetland 17C, Wetland 17E, Wetland 17H, and Wetland 17I provides more than a speculative or insubstantial effect on the chemical, physical, and biological integrity of the receiving TNW, the Scioto River. Therefore, Wetland 17C, Wetland 17E, Wetland 17H, and Wetland 17I were determined to have a significant nexus on the TNW and are jurisdictional waters of the United States.

The *Golf Course* area contains one (1) perennial stream (Big Walnut Creek), eight (8) wetlands (Wetland 1, Wetland 2, Wetland 3, Wetland 4, Wetland 5, Wetland 6, Wetland 7, and wetland 8) and one open water feature (Pond 1) within the 138.58-acre Golf Course area. Big Walnut Creek is an RPW and is a direct tributary to the Scioto River, a TNW. Therefore, Big Walnut Creek is jurisdictional by definition and is a water of the United States. Additionally, Wetland 2 and Wetland 6 directly abut an RPW (Big Walnut Creek), they are jurisdictional by definition and are considered waters of the United States. Finally, Wetland 1, Wetland 3, Wetland 4, Wetland 5, Wetland 7, Wetland 8, and Pond 1 are completely surrounded by uplands and do not present hydrological connection to a surface tributary system. In addition to being hydrologically isolated from a surface water tributary system, these wetlands do not appear to support interstate of foreign commerce interests nor does it contain any rare or endangered species. Based on this information, Wetland 1, Wetland 3, Wetland 4, Wetland 5, Wetland 7, Wetland 8, and Pond 1 are isolated wetlands and are not jurisdictional waters of the United States. Therefore, no authorization would be required from this office for the discharge of dredged or fill material into these features.

The *Drake Road* area contains (2) ephemeral streams (Stream 1 and Stream 2), 21 wetlands (Wetland 1, Wetland 2, Wetland 3, Wetland 4, Wetland 5, Wetland 6, Wetland 7, Wetland 8, Wetland 9, Wetland 10, Wetland 11, Wetland 12, Wetland 13, Wetland 14, Wetland 15, Wetland 16, Wetland 17, Wetland 18, Wetland 19, Wetland 20, and Wetland 21), and one (1) open water feature (Pond 2). Stream 1 is an ephemeral non-RPW within the delineation boundary of the Drake Road area and provides more than a minimal or insubstantial effect on the chemical physical, and biological integrity of the receiving TNW, the Scioto River. Therefore, Stream 1 was determined to have a significant nexus on the TNW. Wetland 10 directly abuts Stream 1 and provides more than a speculative or insubstantial effect on the chemical, physical, and biological integrity of the receiving TNW, the Scioto River and is a jurisdictional water of the United States. Additionally, Stream 2 lacks a continuous surface water connection to a tributary system of a TNW. Therefore, this feature is not a jurisdictional water of the United States. Finally, Wetland 1, Wetland 2, Wetland 3, Wetland 4, Wetland 5, Wetland 6, Wetland 7, Wetland 8, Wetland 9, Wetland 11, Wetland 12, Wetland 13, Wetland 14, Wetland 15, Wetland 16, Wetland 17, Wetland 18, Wetland 19, Wetland 20, Wetland 21, and Pond 2 are completely surrounded by uplands and do not present hydrological connection to a surface tributary system. In addition to being hydrologically isolated from a surface water tributary system, these wetlands do not appear to support interstate of foreign commerce interests nor does it contain any rare or endangered species. Based on this information, Wetland 1, Wetland 2, Wetland 3, Wetland 4, Wetland 5, Wetland 6, Wetland 7, Wetland 8, Wetland 9, Wetland 11, Wetland 12, Wetland 13, Wetland 14, Wetland 15, Wetland 16, Wetland 17, Wetland 18, Wetland 19, Wetland 20, Wetland 21, and Pond 2 are isolated wetlands and are not jurisdictional waters of the United States. Therefore, no authorization would be required from this office for the discharge of dredged or fill material into these features.

In accordance with the June 5, 2007 Joint Memorandum between the United States Environmental Protection Agency (USEPA) and the Corps and the January 28, 2008 Corps Memorandum regarding coordination on jurisdictional determinations, the above determinations were coordinated with the USEPA Region 5 and Corps Headquarters, with coordination completed on November 28, 2016.

This jurisdictional verification is valid for a period of five years from the date of this letter unless new information warrants revision of the delineation prior to the expiration date. This letter contains an approved jurisdictional determination for the subject site within the approved jurisdictional determination boundary. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the Great Lakes and Ohio River Division Office at the following address:

Appeal Review Officer
United States Army Corps of Engineers
Great Lakes and Ohio River Division
550 Main Street, Room 10524
Cincinnati, Ohio 45202-3222
Phone: (513) 684-6212
Fax: (513) 684-2460

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by February 18, 2016. It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

This determination has been conducted to identify the limits of the Corps' Section 404 jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are United States Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

A copy of this letter will be provided to your agent, Mr. Len Mikles with ASC Group, Inc. at 800 Freeway Drive North, Suite 101, Columbus, Ohio 43229, and the Ohio Environmental Protection Agency Division of Surface Water at 50 West Town Street, Suite 700, Post Office Box 1049, Columbus, Ohio 43216-1049. If you have any questions concerning the above, please contact Mr. Andrew Wendt of the North Branch at 513-825-4818, by mail at the above address, or by email at andrew.j.wendt@usace.army.mil.

Sincerely,
SPAGNA.TERESA.D.1229740519
Digitally signed by SPAGNA.TERESA.D.1229740519
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=SPAGNA.TERESA.D.1229740519
Date: 2016.12.20 10:53:19 -05'00'
Teresa D. Spagna
Chief, North Branch

Enclosures

SECTION 401 WATER QUALITY CERTIFICATION

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SECTION 404 WETLAND PERMIT APPLICATION

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OHIO EPA ISOLATED WETLAND PERMIT APPLICATION

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WETLAND MITIGATION PLAN

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Appendix E

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APPENDIX E
TRAFFIC STUDY

This appendix contains a copy of the Traffic Study that was conducted for the Proposed Action.

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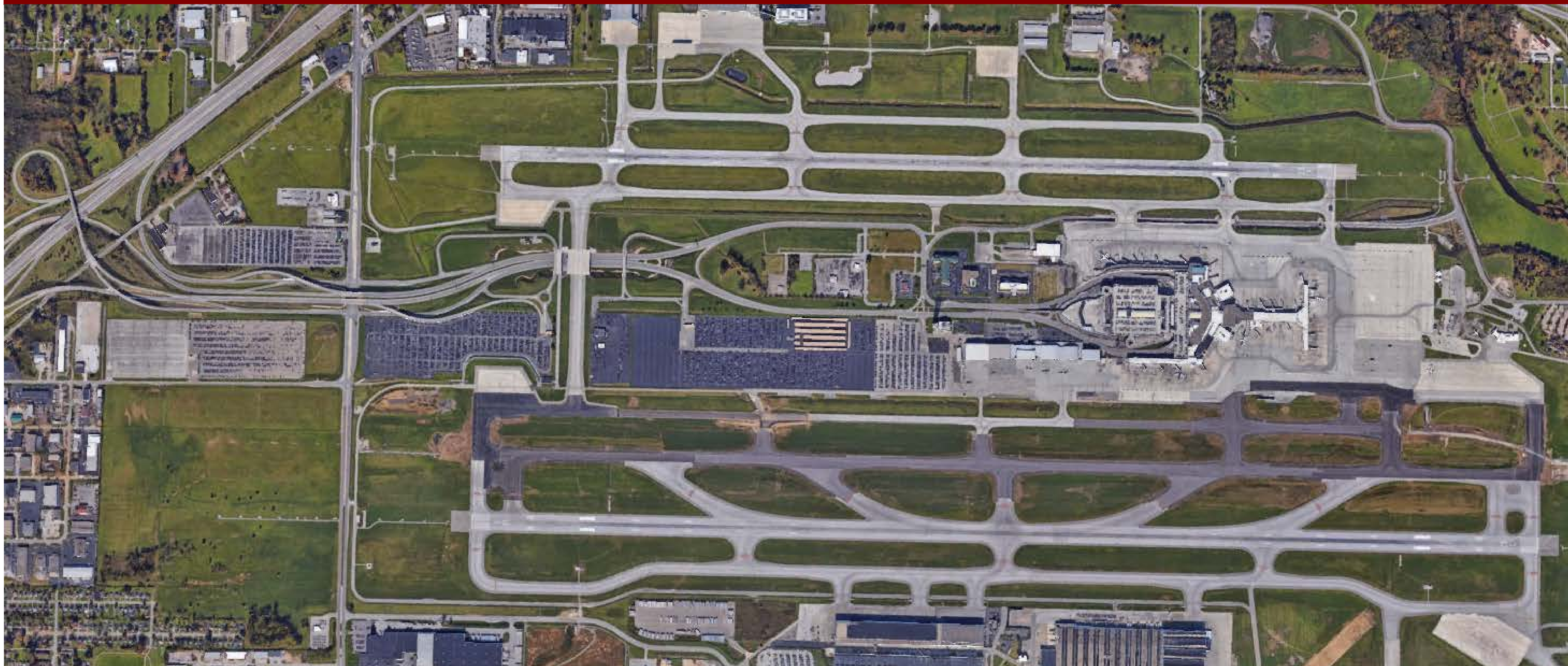
CMH LOOP ROAD

TRAFFIC STUDY



COLUMBUS REGIONAL AIRPORT AUTHORITY

January 11, 2017

TranSystems EXPERIENCE | Transportation

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I. Introduction

TranSystems performed a traffic study for Columbus Regional Airport Authority's (CRAA) loop road area at John Glenn Columbus International Airport (CMH) in Columbus, Ohio. The traffic study is comprised of existing conditions and various Build phases for the planned airport redevelopment and expansion. The purpose of the study is to evaluate four phases of future development and document the traffic operations with and without the development impact (i.e., Build and No-Build). An April 2015 Loop Road Land Use Study Final Report prepared by Ricondo was used as a primary source of information for this study. **Figure 1** shows a map of the project location study boundary. In general, the study boundary for the purposes of traffic operations will be International Gateway within the loop road area including its intersection with Sawyer Road to the east, and the Stelzer Road corridor to the west. This report summarizes the traffic volumes and capacity analyses for the existing condition and the four Build phases.

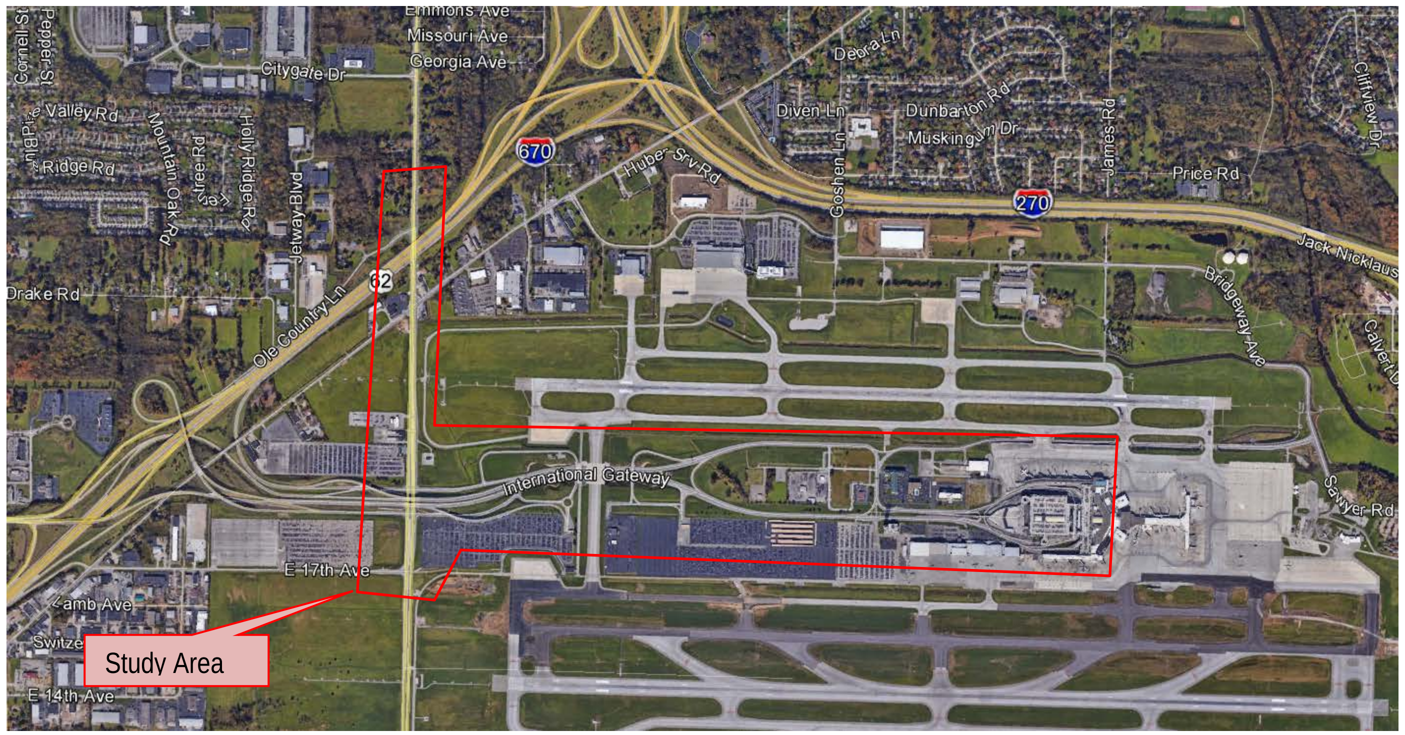

Figure 1 General Location Map

II. Existing Conditions

Traffic Counts

Intersection turning movement traffic counts for the morning and afternoon peak periods and 24-hour machine counts were conducted in the study area during November 2015 and September 2016. The turning movement counts were performed at the following intersections. A STOP designation below means only the minor street approach is under the control of a STOP sign.

A. Stelzer Road/Ole Country Lane – STOP
B. Stelzer Road/International Gateway Westbound – SIGNAL
C. Stelzer Road/International Gateway Eastbound – SIGNAL
D. Stelzer Road/17th Avenue – SIGNAL
E. 17th Avenue/Green Lot Drive – STOP
F. International Gateway Eastbound at Airport Traffic Control Tower – SIGNAL (Includes the eastbound left under STOP control)
G. Sawyer Road Westbound at International Gateway (Loop Road) – STOP

In addition to these manual counts, 24-hour machine counts were also collected at the following locations:

1. International Gateway Eastbound east of Stelzer Road
2. International Gateway Westbound east of Stelzer Road
3. International Gateway Eastbound near Terminal (Departures, Arrivals and Permit Only data were collected separately)
4. International Gateway Ramps to Red Lot to obtain inbound traffic activity (3 locations)
   a. Ramp from International Gateway
   b. The connector road (via Stelzer Road) at the roundabout (west leg)
   c. The south leg of the roundabout

Traffic count data for each of these locations are contained in **Appendix A**. The individual count locations are shown and labeled in **Figure 2**. The yellow and red symbols designate the approximate traffic count locations with labels corresponding to the text above. In addition to these locations, other recent counts were obtained and used in the study as indicated by the blue symbols in **Figure 2**. The turning movement counts for the Stelzer Road and Johnstown Road intersection were obtained from Mid-Ohio Regional Planning Commission's (MORPC) Transportation Data Management System (TDMS) while other counts were collected as part of ongoing CRAA studies at CMH.

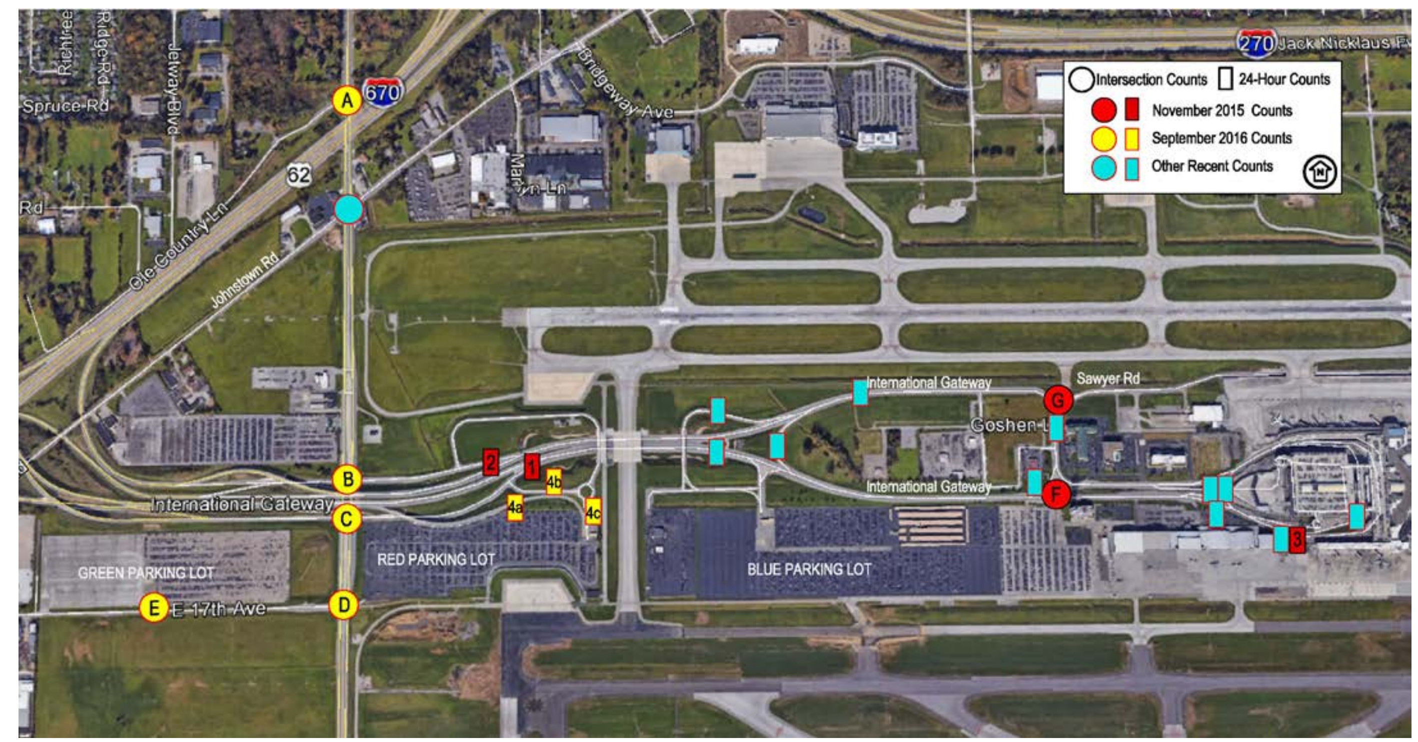

Figure 2 Traffic Count Locations

Development of Peak Hour Traffic Data

Field collected traffic volume data were reviewed to determine peak periods of travel activity at the airport. The peak hours along International Gateway were 5:00 – 6:00 AM during the morning and 4:00 – 5:00 PM during the afternoon time periods. For intersections along Stelzer Road, the peak hours were 7:30 – 8:30 AM during the morning and approximately 4:30 – 5:30 PM during the afternoon time period. The AM peak period is earlier along International Gateway compared to typical commuter peak periods as noted on Stelzer Road due to the early morning departure flights leaving CMH on weekdays. Data were extracted from the counts for the identified AM and PM peak hours and summarized in **Figure 3**. Traffic volumes were balanced where necessary to develop a data set representative of typical weekday peak period conditions. **Appendix B** includes the traffic volume exhibits.

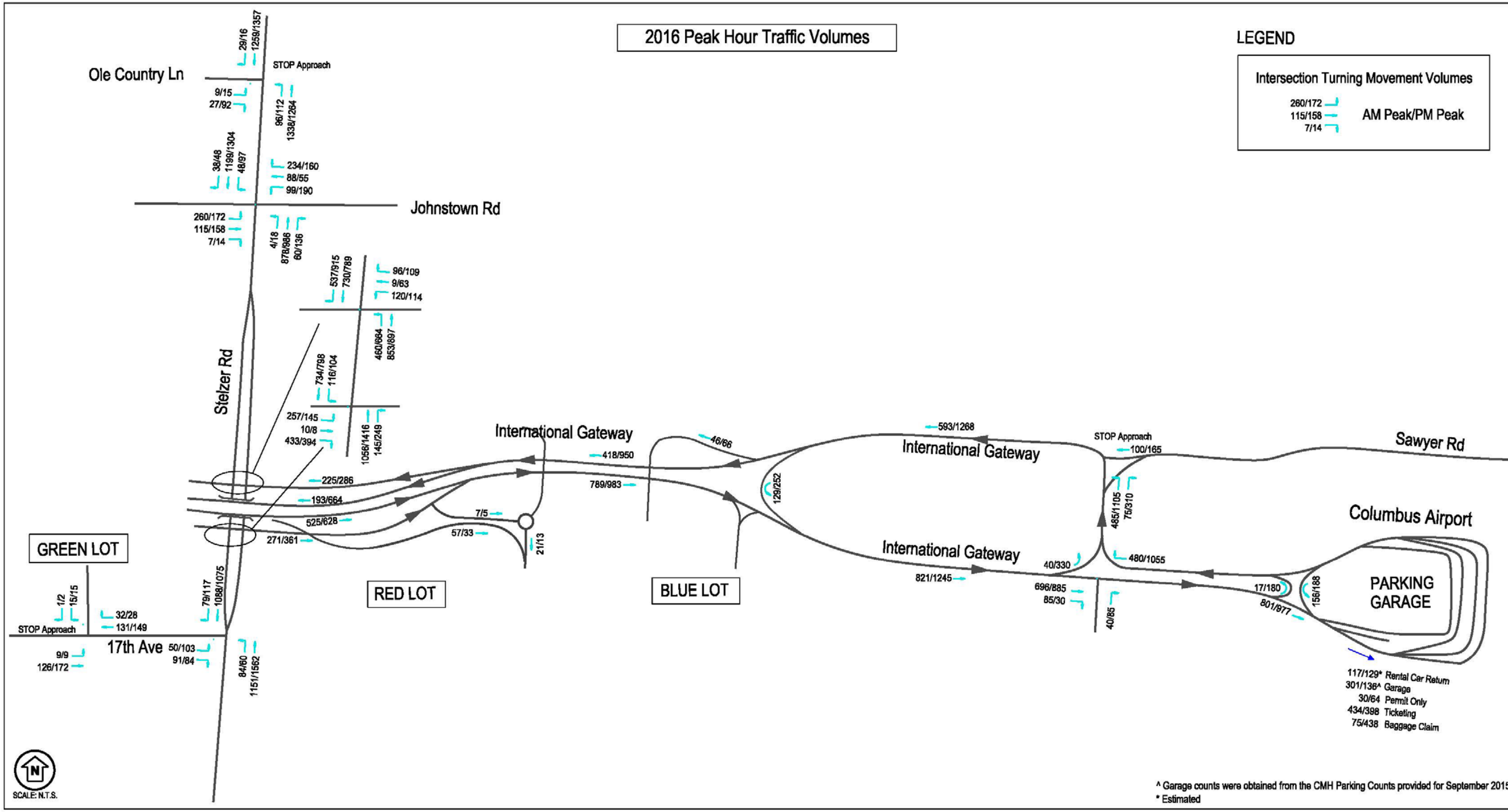

Figure 3 Existing (2016) Peak Hour Traffic Volumes

In addition to the traffic count data, vehicles entering and exiting the existing airport parking facilities during the AM and PM peak hours are summarized in Table 1. This information was obtained from CRAA-provided parking count spreadsheets and employee parking lot count data from September 2015. The table also shows the number of parking spaces in the existing parking facilities. The parking lot locations are shown in Figure 4.

Table 1 Peak Hour Vehicle Trips at Various Parking Locations

Parking Facility	Parking Spaces	AM (5-6 AM)		PM (4-5 PM)	
		Enter	Exit	Enter	Exit
Garage (short term)	568	301	47	136	106
Garage (long term)	2,556				
Blue Lot (covered)	337	165	68	36	49
Blue Lot (open)	4,035				
Red Lot	2,686	87	10	32	31
Green Lot	2,130	30	5	16	29
Employee Lot	1,600	85	20	41	72

Source: September 2015 parking counts

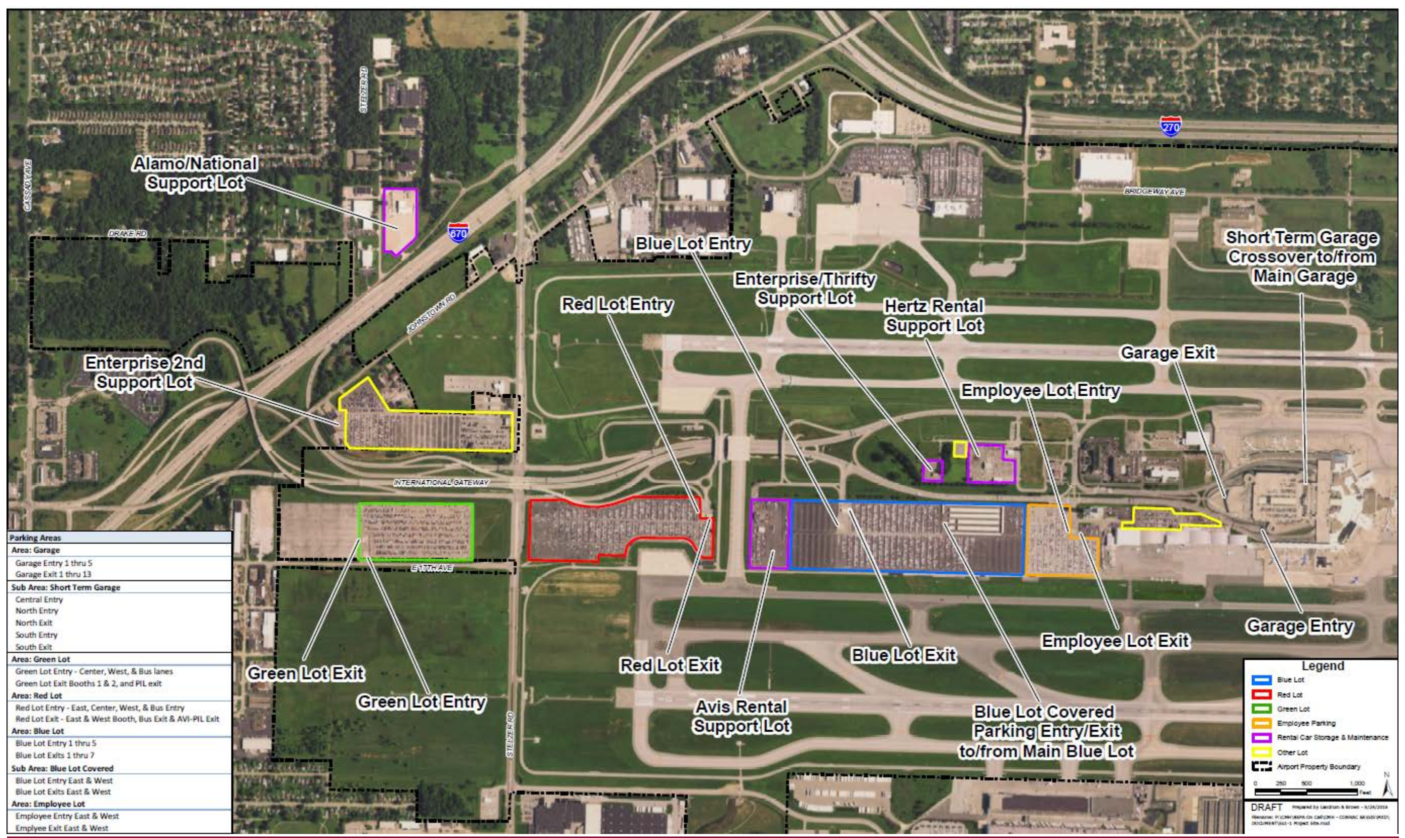

Figure 4 Existing Parking Lot Locations

Capacity Analysis

Capacity analyses were performed at the critical study area intersections within and around the loop road using the industry-accepted Synchro 9 traffic analysis software. Roadway operational performance was evaluated to establish the 2016 existing year level of service (LOS), or quality of traffic service, within the study boundary for average or typical weekday conditions. Current traffic control (STOP sign or Signalization) and lane configurations were used in the year 2016 evaluation of intersection operations. The existing traffic control at the various study intersections is shown in Figure 5.

Figure 5 Existing Traffic Control

The operating conditions at an intersection are assigned a letter grade representing the level of service, or travel delay, as experienced by drivers approaching an intersection. LOS describes the quality of traffic operating conditions and is rated from "A" to "F". LOS A represents the most desirable condition with free flow movement of traffic and minimal delays. LOS F generally indicates severely congested conditions with excessive travel delays. Intermediate grades of B, C, D and E reflect incremental increases in the average delay per vehicle. Traffic analysis software such as Synchro 9 reports LOS by movement, approach and overall for signalized intersections. For unsignalized and specifically two-way stop controlled intersections as are present within the study area, LOS is not computed for the entire intersection since the major street through movements are free flow, which skews the overall average intersection delay results. Rather, results are generated for minor street movements and left turns from the major street. Due to the hierarchy of conflicting intersection traffic movements, through and left turn movements from the minor street have the lowest priority and therefore the potential for higher delays. An overall intersection result of LOS D or better is generally acceptable for signalized intersections while unsignalized (STOP controlled) intersections are evaluated on an individual movement basis with the understanding that delays can be less predictable versus traffic signal control where the timing and phasing are relatively fixed. Table 2 shows the level of service ranges for both unsignalized and signalized intersections based on criteria from the Highway Capacity Manual.

Table 2 LOS Criteria for Signalized & Unsignalized Intersections

Level of Service	Unsignalized Intersection Delay (Seconds/Vehicle)	Signalized Intersection Delay (Seconds/Vehicle)
A	≤ 10	≤ 10
B	> 10 – 15	> 10 - 20
C	> 15 - 25	> 20 - 35
D	> 25 - 35	> 35 - 55
E	> 35 - 50	> 55 - 80
F	> 50 or V/C ratio > 1.00	> 80 or V/C ratio > 1.00

Source: Transportation Research Board, *Highway Capacity Manual 2010*

For analysis purposes, a base year of 2016 has been assumed for the existing condition analyses, with subsequent years identified for the evaluation of future Build condition development phases. The intersection LOS summary for the 2016 AM and PM peak hours is shown in **Figure 6**. The overall intersection LOS is shown at signalized intersections and, since a representative overall LOS is not reported at unsignalized intersections, the LOS for the STOP controlled approach has been displayed. All the signalized intersections operate at LOS C or better. At the unsignalized intersections, the STOP controlled approaches experience longer delays with LOS F operations during peak periods. The 2016 analyses establish a baseline of existing operations for comparison to future conditions as phased construction occurs. The Synchro LOS outputs are provided in **Appendix C**.

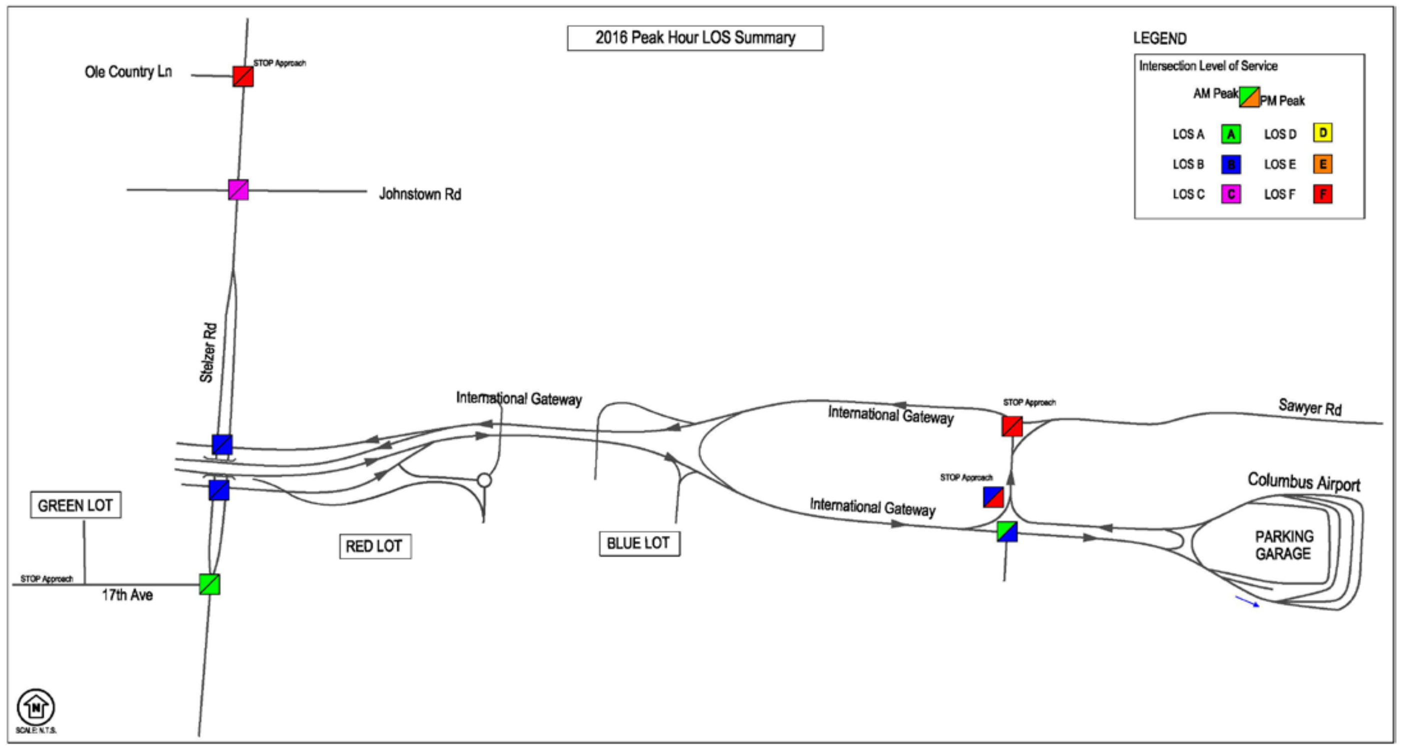

Figure 6 Existing (2016) Peak Hour Traffic LOS Summary

In summary, all signalized intersections in the study area are operating at acceptable levels of service today. However, the STOP-controlled locations presently experience LOS F in at least one of the two peak periods evaluated for existing conditions.

III. Scenario Evaluation for Four Build Phases

Four construction or implementation phases were defined and evaluated as part of this study as shown in **Figure 7**. These phases of planned development are further described below. **Table 3** lists the various development phases and the assumed year of completion for the purpose of traffic analysis. Both No-Build and Build conditions were analyzed for each phase of construction. As noted previously, a base year of 2016 has been assumed for reference. The No-Build condition includes only the growth in the background traffic while the Build condition includes the phased development traffic added or reassigned to the No-Build traffic volumes throughout the roadway network.

The FAA-approved 2016 Aviation Activity Demand Forecast included total enplanement projections to year 2045 for CMH, which indicated a 2.3% per year growth rate. This growth rate was applied to the existing year (2016) volumes to derive the future No-Build traffic volumes along International Gateway. A growth rate of 1% per year was applied on Stelzer Road (for movements not oriented to/from the airport) based on the historic traffic count data along Stelzer Road obtained from MORPC's TDMS website. Information from the April 2015 Loop Road Land Use Study (by Ricondo) was used as source of information to determine traffic volumes for the various development phases as well as any changes related to the roadway configuration. Various other updates have been incorporated into the development phases based on information from CRAA. Each of the four development phases are discussed in detail below.

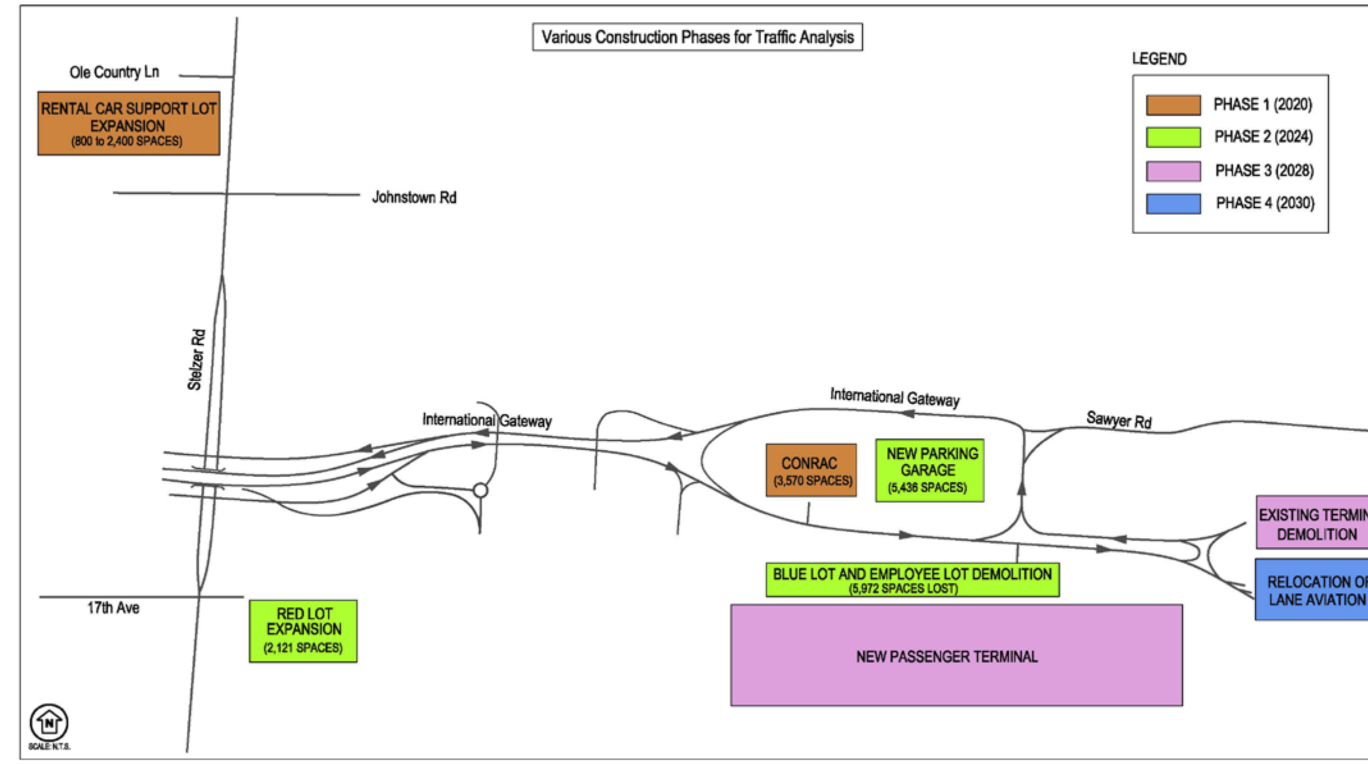

Figure 7 Phase Development Scenarios by Year

Table 3 Various Construction Phases for Traffic Analysis

Phases	Phase Description	Year Assumed	No-Build	Build
1	Opening of CONRAC (Consolidated Rental Car Facility)	2020	Growth for 4 years	Phase 1
2	Red Parking Lot Expansion - South Addition	2024	Growth for 8 years	Phase 1+2
	New Parking Garage			
3	New Passenger Terminal / Apron / Roadway	2028	Growth for 12 years	Phase 1+2+3
	Existing Terminal Demolition and Apron Replacement			
4	Relocation of Lane Aviation	2030	Growth for 14 years	Phase 1+2+3+4

Phase 1 – Opening of CONRAC (2020)

Today, the multi-level parking garage attached to the passenger terminal includes short- and long-term customer parking and also houses rental car ready return and quick turn-around operations. As part of Phase 1 of the CRAA's development plan, the rental car operations will be relocated to a newly constructed Consolidated Rental Car Facility (CONRAC) to be located within the western side of the loop road as shown in **Figure 7**. The CONRAC would host the major rental car functions, including customer service counters, ready return lots, and quick turn-around stations. The CONRAC capacity is expected to be approximately 3,570 rental car parking spaces. The vehicles entering and leaving the existing rental car facility were estimated by adding and subtracting recent counts (designated by green symbols on **Figure 8**) collected at the terminal drive and International Gateway and from the parking garage data (shown in **Table 1**). The resulting vehicle trips at the existing rental car facility are shown in **Table 4**. For the Phase 1 Build scenario, the vehicle trips were proportionally increased and added to the roadway network to account for the additional spaces expected to be available in the new rental car facility. While it is expected that the CONRAC will not initially operate at full capacity when opened, using the total number of available spaces would provide a worst-case scenario for estimating vehicle circulation.

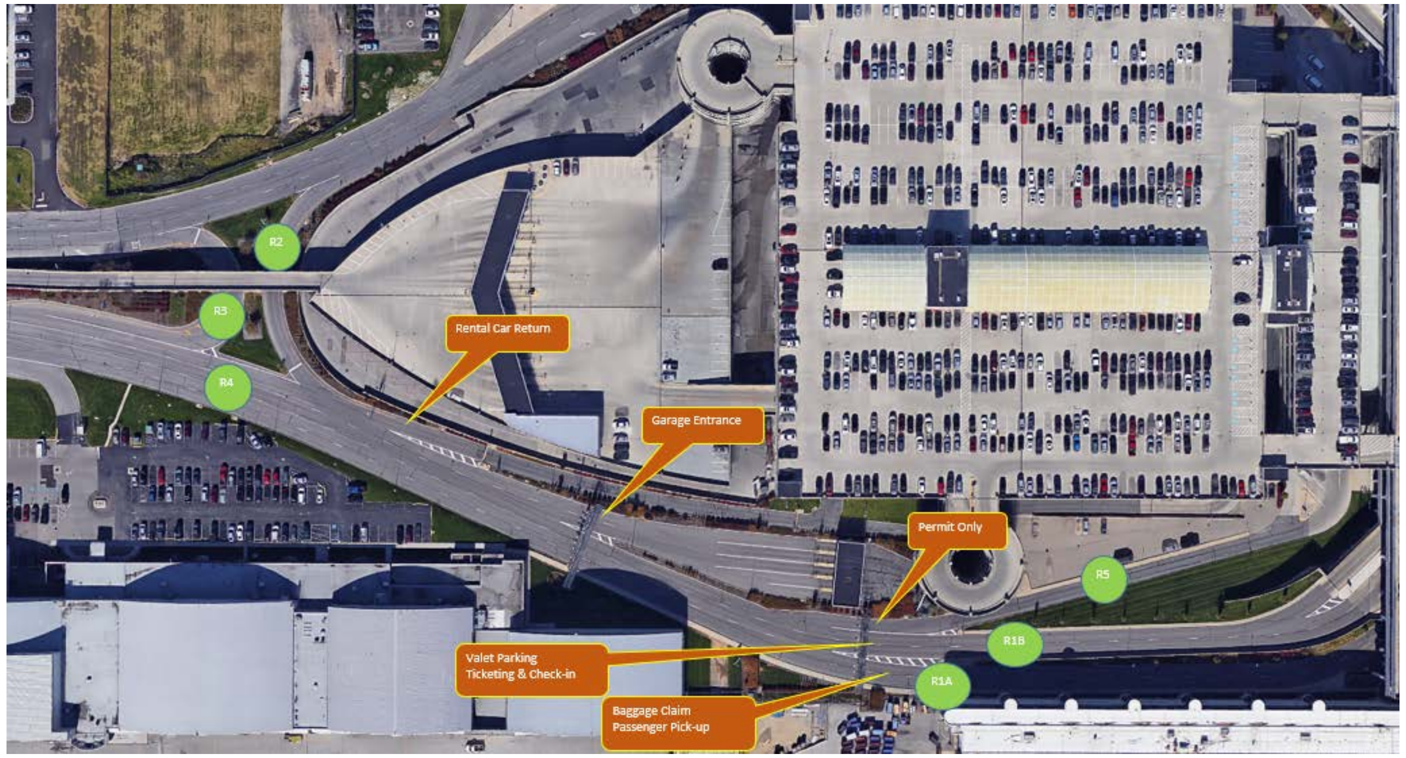

Figure 8 Count Locations Near Terminal to Determine Rental Car Traffic

Table 4 Existing and New Rental Car Facility Vehicle-Trips

Rental Car Facility	Parking Spaces	AM (5-6 AM)		PM (4-5 PM)	
		Enter	Exit	Enter	Exit
Existing	1,313	117	121	129	109
New	3,570	318	329	351	296
Difference	2,257	201	208	222	187

This phase also includes changes to the remote storage of rental vehicles through the construction of a common facility near Ole County Lane. This facility will replace off-site rental car storage, with all rental car companies utilizing a common site for storage and light maintenance activities. Presently, Alamo/National has its own 800-space support facility near Ole County Lane (see Figure 4). CRAA will make additional land near Ole Country Lane available for the rental car companies to construct off-site storage and maintenance facilities. It is expected that the off-site storage will accommodate approximately 2,400 parking spaces to allow for overflow vehicles to be transported or shuttled between this site and the new CONRAC building. As a result, it is assumed that the existing support lots for Alamo/National, Enterprise (off Stelzer Road), Avis (near Red Lot) and Hertz (north of Blue Lot) in the study area will relocate and consolidate operations on the CRAA-owned site. While the transfer of rental vehicles between this remote lot and the new CONRAC facility will not occur on a daily basis (only when demand for rental cars exceeds the supply at the CONRAC itself), these vehicle transfers have been conservatively assumed to occur during the peak periods and are thus captured in the operational results for the AM and PM peak hours. Thus, the operational results represent a worst case condition and do not necessarily reflect average weekday conditions. Changes in the traffic patterns (i.e., travel routes) have been made to account for the opening of this facility during Phase 1.

Traffic volumes for the 2020 No-Build condition were derived by applying a growth rate of 2.3% per year along International Gateway and 1% per year along Stelzer Road. The 2020 Build condition traffic volumes were derived by adding the additional traffic resulting from the CONRAC expansion to the 2020 No-Build volumes. The resulting 2020 traffic volumes for the No-Build and Build conditions are provided in Appendix B. Capacity analyses were performed at the major intersections for No-Build and Build conditions and a side by side summary of the No-Build and Build LOS results is shown in Figure 9. The LOS summary for No-Build and Build conditions is also shown in the exhibits provided in Appendix B. The Synchro LOS reports are provided in Appendix C.

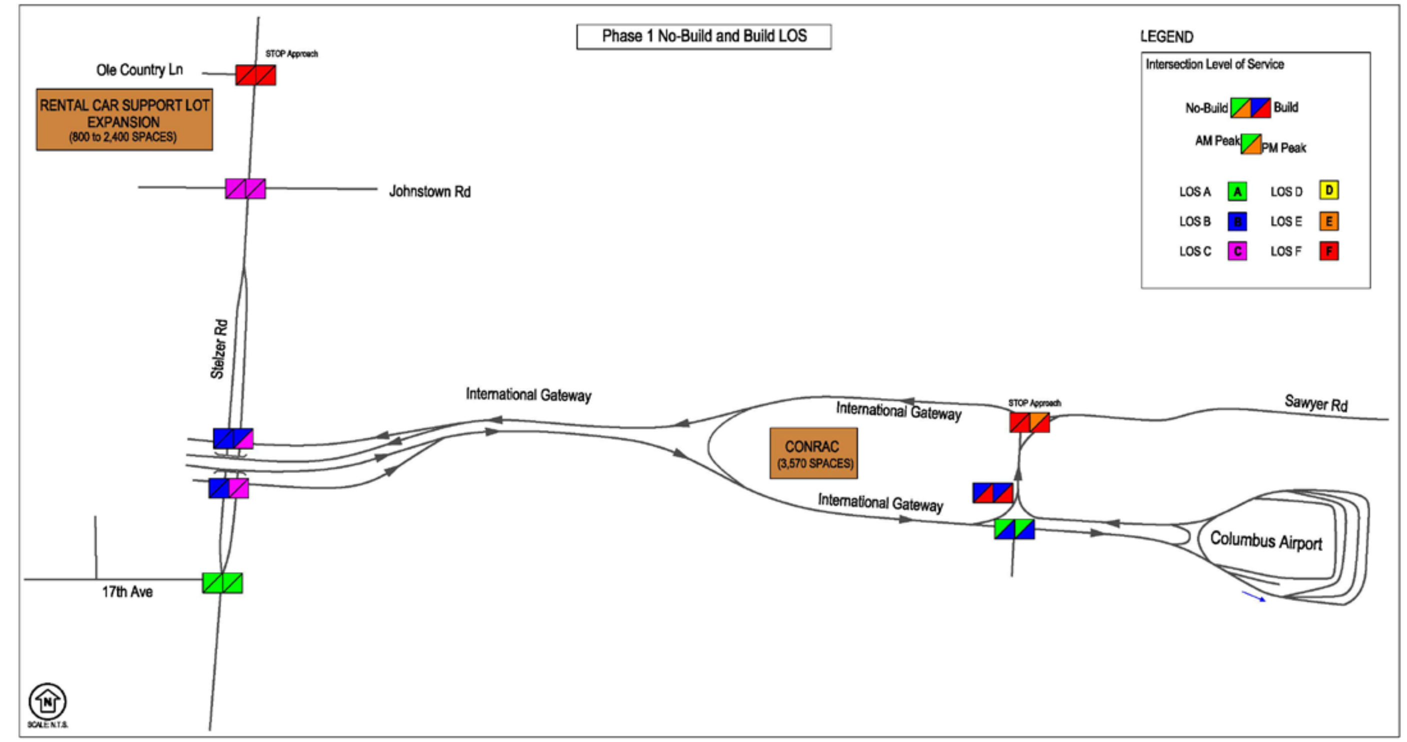

Figure 9 2020 No-Build & Build (Phase 1) LOS Summary

As shown in these figures, the LOS remains the same at most intersections between the No-Build and Build conditions, with the exception of the International Gateway eastbound and westbound intersections at Stelzer Road and for International Gateway at Sawyer Road. At the International Gateway westbound and Stelzer Road intersection, the LOS will change from LOS B in the No-Build to LOS C in the Build condition during the PM peak hour. At the International Gateway eastbound and Stelzer Road intersection, the LOS will change from LOS B in the No-Build to LOS C in the Build condition during both peak hours. At the International Gateway and Sawyer Road intersection, the operations during the Build condition will improve in the AM peak hour for the Sawyer Road approach because the rental car vehicles are removed from this intersection. CONRAC traffic will be able to enter and exit the new facility without traversing the entire loop road, thereby reducing traffic demand at some locations. The delay is also reduced in the PM peak hour, but the approach will remain at LOS F. The Ole Country Lane intersection remains at LOS F under STOP-controlled operations. It should be noted that the LOS F outcome is mainly for traffic trying to turn left from Ole Country Lane, a movement that does not include any traffic associated with the rental car operation. Therefore, this is an existing deficiency that is not impacted by the proposed Build development phase. Making the right turn movement from this approach (which has its own lane and includes traffic oriented towards the airport) will not be as difficult and will operate at LOS C in the AM peak hour and LOS D in the PM peak hour. Similarly, the northbound left turning movement will also be at LOS C during both peak hours. A peak hour signal warrant analysis following Warrant 3 of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) indicates that the warrant is met for the existing PM peak hour traffic volumes. Installing a signal with a protected/permissive northbound left turn lane is a possible solution at this intersection. Under signal control, if implemented in the future, the intersection will operate at LOS B overall with all movements at LOS C or better. As a result of these findings and observations, no roadway improvements are required or recommended to accommodate the Phase 1 development.

Phase 2 – New Parking Garage & Red Lot Expansion (2024)

The 2024 No-Build traffic volumes include a background growth for eight years at the rate of 2.3% per year along International Gateway and 1% per year along Stelzer Road. The Phase 2 developments include (1) a 2,121-space expansion of the Red Lot, and (2) construction of a new 5,436-space public parking garage as shown previously in Figure 7.

The Red Lot expansion is shown in greater detail in Figure 10. Access to the expanded public parking lot will be provided from Stelzer Road opposite 17th Avenue thereby necessitating the addition of an east leg to the existing signalized intersection. The vehicular trips generated by the lot expansion were estimated from the existing Red Lot trips (shown in Table 1).

Figure 10 Phase 2 – Red Lot Expansion

Table 5 summarizes the vehicular trips for the AM and PM peak hours for the existing Red Lot and for the planned surface parking lot expansion. These trips were assigned to the study intersections based on trip distributions derived from existing count data. It was assumed that 20% of the trips will come from the west on 17th Avenue, 10% from the south on Stelzer Road, 20% from the north on Stelzer Road and 50% from I-670 and International Gateway west of Stelzer Road.

Table 5 Red Lot Vehicle-Trips

Parking Facility	Parking Spaces	AM (5-6 AM)		PM (4-5 PM)	
		Enter	Exit	Enter	Exit
Existing Red Lot	2,686	87	10	32	31
Red Lot Expansion	2,121	69	8	25	24

The new parking garage next to the CONRAC facility is proposed to have 5,436 public parking spaces. It is also assumed that by this phase, construction of the replacement passenger terminal and apron will begin resulting in the elimination of the Blue Lot and the adjacent Employee Lot. About 5,972 parking spaces will be lost with the elimination of these two lots. For analysis purposes, it is assumed that the new garage and the Red Lot expansion will absorb the traffic demand from these two eliminated lots. Therefore, traffic from the Blue Lot and the Employee lot were assigned to the new parking garage, keeping the usage of the existing parking garage (at the terminal) essentially the same. The 2024 Build traffic volumes at the study intersections were obtained by adding Phase 1 and Phase 2 traffic to the 2024 No-Build volumes. The resulting 2024 traffic volumes for the No-Build and Build conditions are provided in Appendix B. The results of the 2024 capacity analyses for the two conditions are shown in Figure 10. The LOS summary for the No-Build and Build conditions are also shown with the traffic volumes in Appendix B. The Synchro Reports are provided in Appendix C.

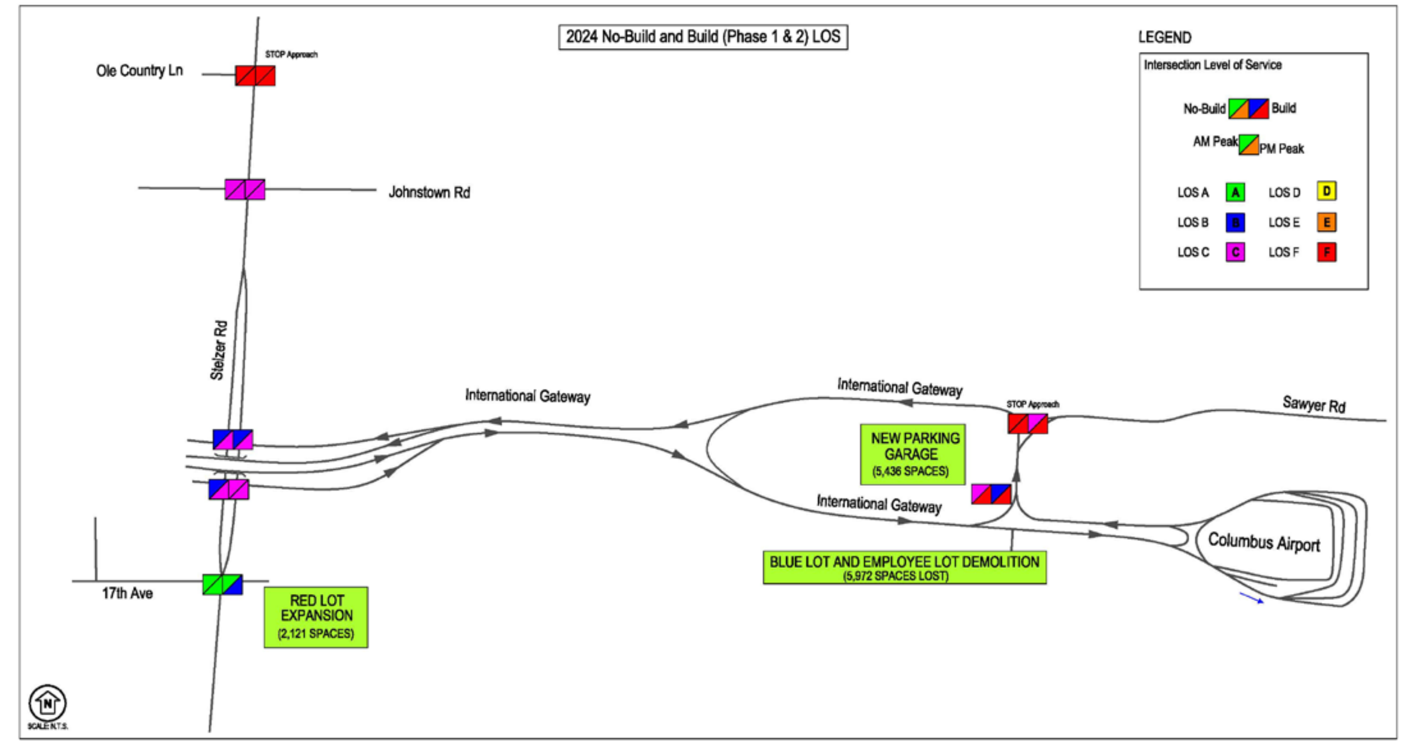

Figure 11 2024 No-Build & Build (Phases 1 & 2) LOS Summary

As shown in these figures, the LOS in the Build condition drops by a letter grade at two signalized intersections – International Gateway eastbound at Stelzer Road and at the Stelzer Road/17th Avenue intersection where a fourth leg is added to the intersection. It should be noted that although the LOS drops by a letter grade at these intersections, LOS B and C are still considered acceptable levels of service. (LOS D is considered the minimum desirable overall grade at a signal-controlled location.) At the International Gateway and Sawyer Road intersection, the operations during the Build condition will improve for the Sawyer Road approach because there is a reduction in traffic volumes at this intersection due to the new CONRAC and garage locations and the associated rerouting of vehicular traffic within the loop road area. Direct access to and from these facilities from the loop road is assumed. The Ole Country Lane approach to Stelzer Road remains unchanged at LOS F under current STOP control. As mentioned earlier, the LOS F outcome is mainly for the traffic making a left turn from Ole Country Road. Future signalization of this intersection can improve overall operations. In regard to roadway modifications, the primary network change is to accommodate access at the expanded Red Lot using Stelzer Road. Details associated with this location are provided below.

The following roadway improvements and traffic control modifications are associated with the Phase 2 implementation.

- The intersection of 17th Avenue at Stelzer Road is currently signalized. The traffic signal will be modified to account for an east leg being added to service inbound and outbound traffic at the expanded Red Lot. The access drive will be aligned opposite 17th Avenue and include one inbound lane and two outbound lanes striped as a left turn only lane and a shared through/right turn lane.
- The existing west leg on 17th Avenue includes separate left and right turn lanes approaching Stelzer Road. The right turn lane should be restriped to accommodate eastbound through and right turning traffic. From a geometric standpoint, the existing taper on the west leg should be confirmed prior to implementation to ensure the approach

lanes can be properly striped to satisfy local standards without the need to increase the pavement taper length. Conversely, the left turn lane could become the shared lane, although signal phasing changes also would be needed.

- The rightmost northbound through lane should be restriped as a shared through/right turn lane.
- A southbound left turn lane is required on Stelzer Road at the Red Lot entrance, which will be operated under signal control as a protected turn phase. Storage for the left turn lane should be 225 feet, including a 50-foot diverging taper. This lane can be constructed within the area of the existing raised concrete median.
- The current traffic signal at International Gateway eastbound and the Airport Traffic Control Tower/Employee Lot driveway can potentially be removed following the elimination of the existing employee parking area, depending on whether a pedestrian pathway (i.e., marked crosswalk) is maintained at this location in the future.

Phase 3 – Replacement Passenger Terminal (2028)

The 2028 No-Build traffic volumes include background growth for a 12-year time period at the rate of 2.3% per year along International Gateway and 1% per year along Stelzer Road. The Phase 3 developments include construction of a replacement passenger terminal and demolition of the existing terminal. Figure 12 shows the location of the replacement terminal and the future roadway network. No additional traffic is added as part of this phase since the background growth captures the projected increase in air travel, which supports the timing and need for the replacement passenger terminal. The growth in terminal traffic has been reassigned to the new roadway configuration proposed in the Loop Road Land Use Study. These changes to the roadway network are considered part of the required improvements to meet the future traffic demand. The 2028 Build traffic volumes at the study intersections were obtained by adding Phase 1 and Phase 2 traffic to the 2028 No-Build volumes. The total volumes were then reassigned to the new roadway network. The resulting 2028 traffic volumes for the No-Build and Build conditions are provided in Appendix B.

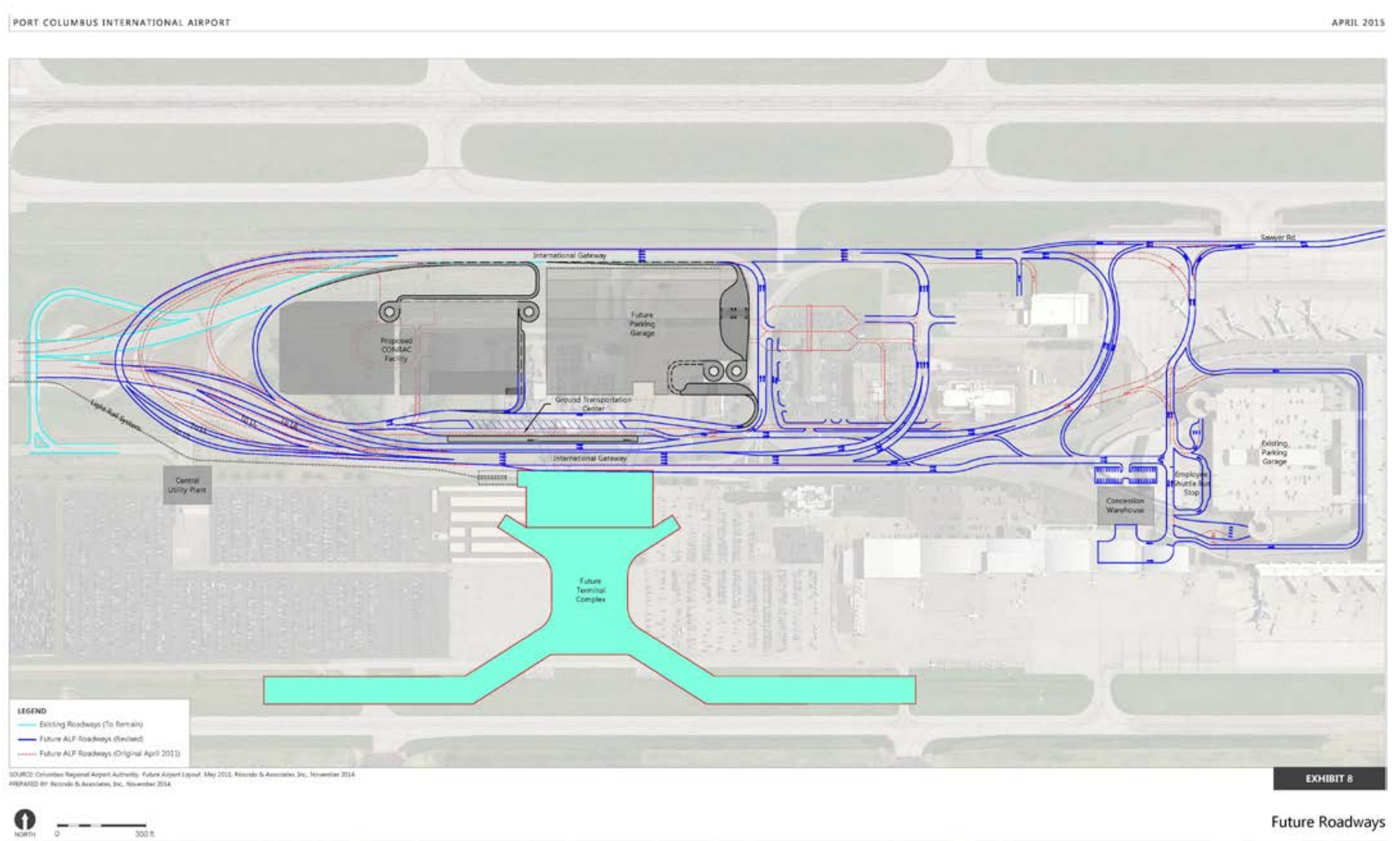

Figure 12 Phase 3 – Replacement Passenger Terminal & Future Roadway Network

Capacity analyses were performed at the key intersections and the summary of the No-Build and Build LOS is shown in Figure 13. The side by side LOS comparison is only shown for intersections along Stelzer Road since the roadway network changes along International Gateway in the Build condition. The intersection LOS in the Build condition drops by a letter grade at the Stelzer Road and 17th Avenue location. This is expected since a fourth leg was added to the intersection. LOS B is still considered an acceptable level of service and no additional improvements are required at this intersection.

In addition to the intersection LOS, two weaving sections were also analyzed as part of the Build condition analysis. These weaving areas are the result of changes to the roadway configuration, which are necessary to accommodate the arrival and departure levels of the replacement passenger terminal along with maintaining access and circulation within the loop road area and for the development residing inside the loop road. The weaving sections are evaluated by densities in the weave area. Similar to intersections, the measure of effectiveness for weave areas is described in terms of level of service letter grades between LOS A (free flow) and LOS F (congested flow conditions). Table 6 shows the level of service ranges for weaving segments based on criteria from the Highway Capacity Manual. The weave segments were analyzed in HCS 2010 software and the LOS for these weaving sections is also shown in Figure 13. HCS is a companion software to Synchro and is better suited for certain applications, in this case the evaluation of roadway weaving segments.

Table 6 LOS Criteria for Weaving Segments

Level of Service	Freeway Weaving Segment Density (pc/mi/ln)
A	0 - 10
B	> 10 - 20
C	> 20 - 28
D	> 28 - 35
E	> 35
F	Demand Exceeds Capacity

Source: Transportation Research Board, *Highway Capacity Manual 2010*

The two weaving areas have been identified as Weave 1 and Weave 2 as noted below. Weave 1 has two lanes with about 300 feet of weaving distance and operates at LOS B during both peak periods. Weave 2 has four lanes with about 1,000 feet of weaving distance and operates at LOS B or better. The weaving volumes are shown in the 2028 Build traffic volumes exhibit provided in Appendix B. The Synchro intersection LOS reports and HCS Weaving Segment reports for the 2028 No-Build and Build analyses are provided in Appendix C.

In summary, the requisite roadway configuration changes will eliminate a number of intersections creating more of a free flow network, thereby improving operations around the loop road. Consistent with the previous phases, the Ole Country Lane approach at Stelzer Road remains at LOS F under STOP–sign control. As mentioned in the Phase 1 section, intersection operations can be improved to LOS B with installation of a traffic signal at this location.

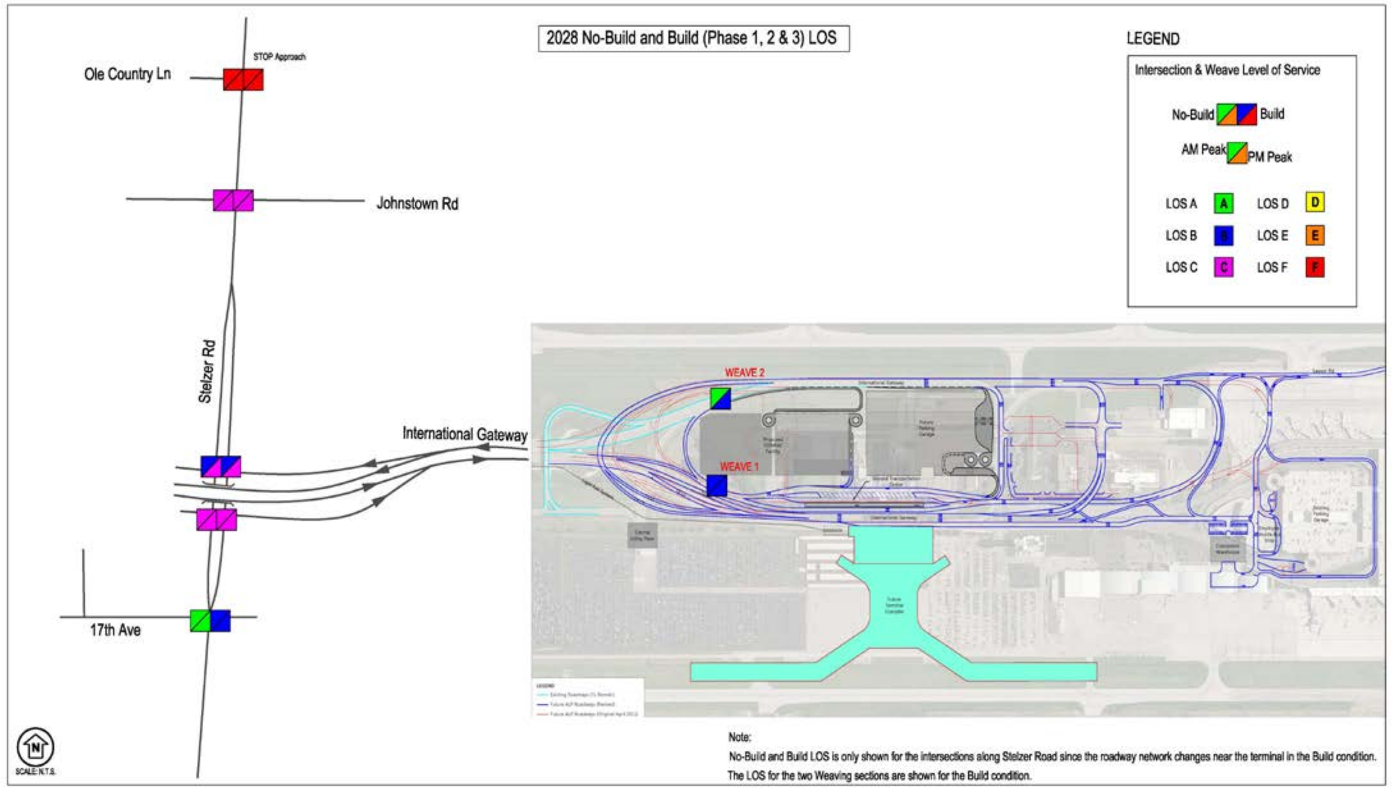

Figure 13 2028 No-Build & Build (Phases 1, 2 & 3) LOS Summary

Phase 4 – Relocation of Lane Aviation (2030)

Phase 4 or the final development phase includes relocation of Lane Aviation from its current location to where the existing terminal is located today as shown in **Figure 14**. Once the replacement terminal opens, the existing terminal can be demolished and replaced with hangars to accommodate Lane Aviation's functions.

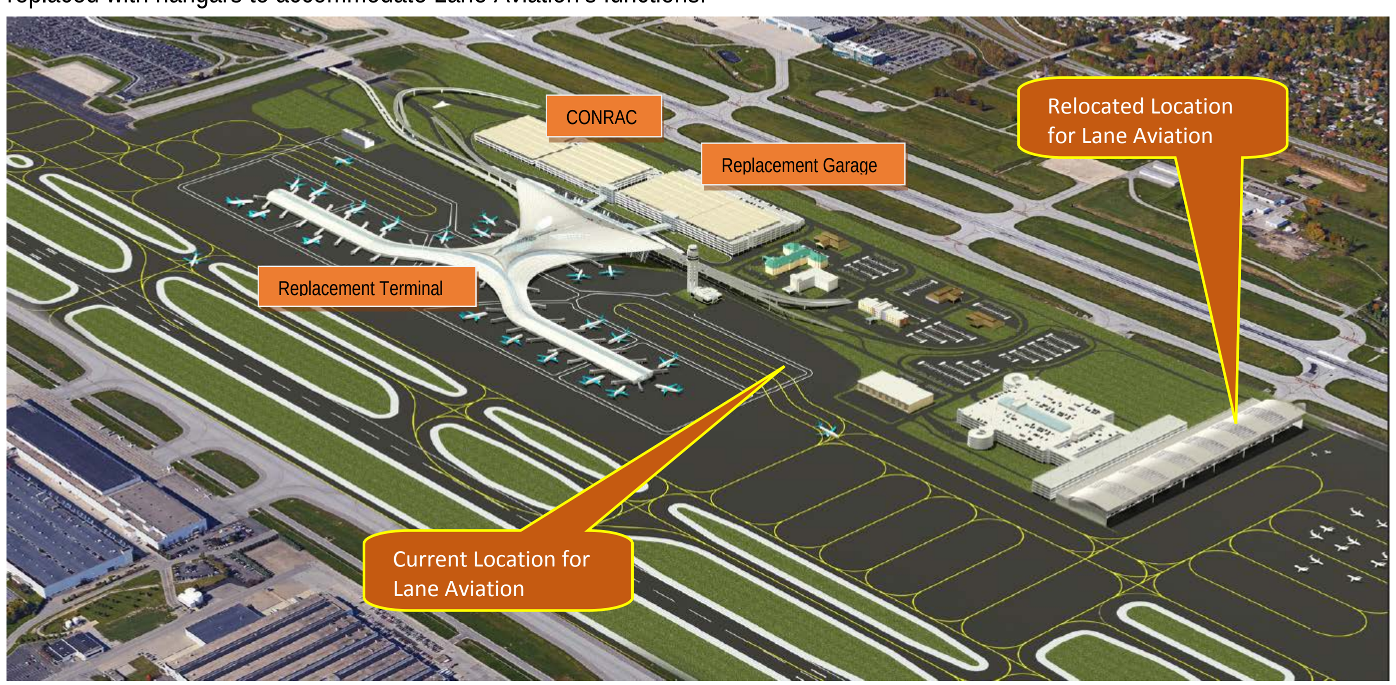

Figure 14 Phase 4 – Relocation of Lane Aviation

The 2030 No-Build traffic volumes were derived by applying background growth over a 14-year time period. The traffic volumes for Lane Aviation are already included in the No-Build volumes and no new trips were added at the study intersections to account for this relocation. Thus, the only changes in demand are associated with the background traffic growth.

The 2030 Build volumes were derived by adding the Phase 1 and 2 developments to the 2030 No-Build volumes and by reassigning the traffic to the new roadway network to account for the Phase 3 and 4 developments. The resulting 2030 traffic volumes for the No-Build and Build conditions are provided in **Appendix B**.

Capacity analyses were performed at the key intersections and the summary of the No-Build and Build LOS results is shown in **Figure 15**. The overall analysis procedure followed was similar to the 2028 analyses performed as part of Phase 3. In summary, the signalized intersections along Stelzer Road will continue to operate at LOS C or better in both the No-Build and Build conditions. The Ole Country Lane approach at Stelzer Road will remain LOS F, which is consistent through all phases as well as in the existing condition. As mentioned in the Phase I discussion, the LOS F outcome is mainly for traffic turning left from Ole Country Lane, a movement that does not include any traffic associated with the CMH rental car operation. Therefore, this is an existing deficiency that is not impacted by the proposed Build development phases, but could be improved in the future through signalization. Making the right turn movement from this approach will not be as difficult under STOP control and will operate at LOS C in the AM peak hour and LOS E in the PM peak hour. The two weaving sections near the terminal will operate at LOS B or better. The Synchro intersection LOS reports and HCS Weaving Segment reports are provided in **Appendix C**. No roadway improvements are recommended in conjunction with Phase 4.

Turn lane length calculations have been performed using the 2030 Build traffic volumes to ensure the existing storage for turn lanes at the Stelzer Road intersections can sufficiently accommodate the growth in the area. The turn lane lengths were calculated based on ODOT Location and Design Manual standards and the summary is provided in **Appendix D**. The calculated storage lengths have been compared with the existing storage as measured from Google Earth. All the turn lanes can sufficiently accommodate the future growth with the exception of northbound left turn lane at Ole Country Lane. A 300 foot turn lane is needed and it currently has a short 100 foot lane which is restricted by bridge piers under Interstate 670 and therefore cannot be lengthened. The Synchro 95th percentile queue (which is maximum back of queue with 95th percentile traffic volumes) for the northbound left turn lane is 109 feet in the 2030 PM peak hour (which is the slightly more than the available lane length). Installing a signal with a protected/permissive northbound left turn lane is a possible solution to address the storage concerns as well as improve overall intersection operations, if implemented in the future.

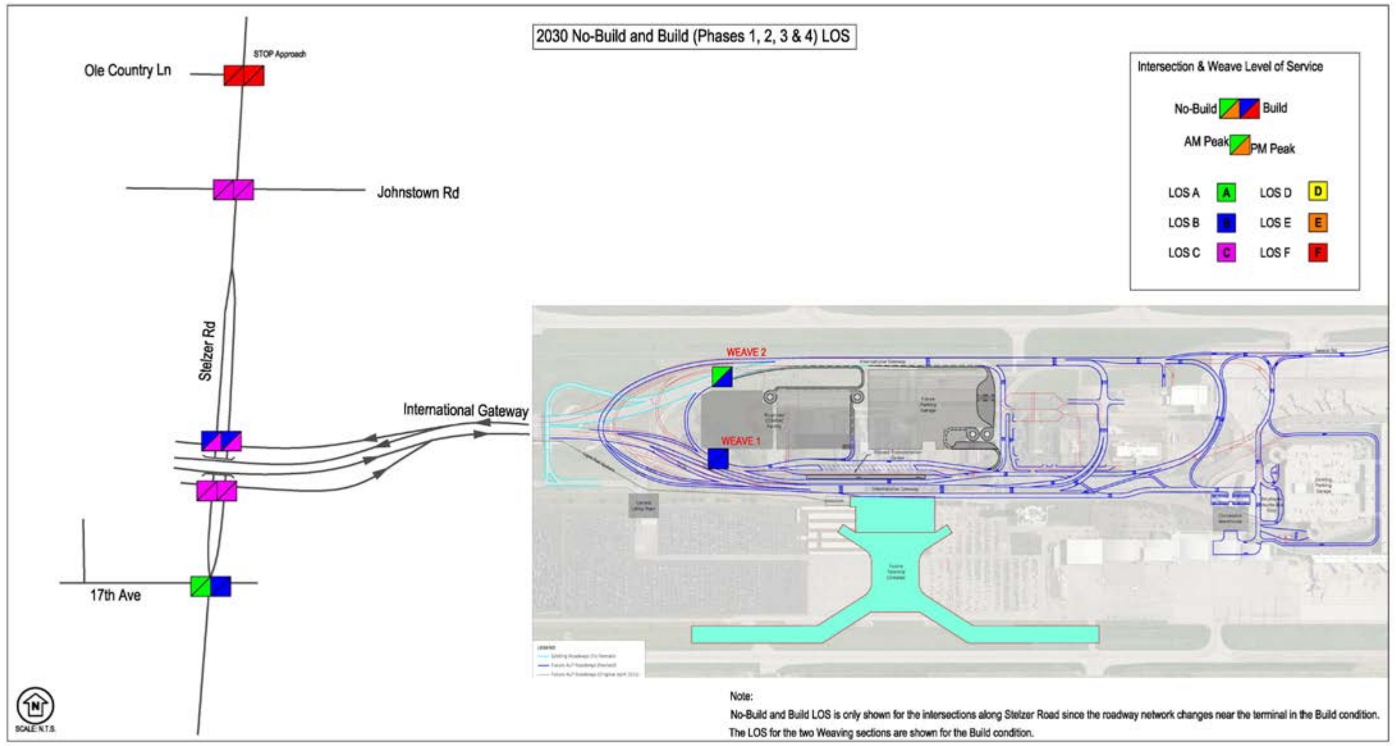

Figure 15 2030 No-Build & Build (Phases 1, 2, 3 & 4) LOS Summary

IV. Summary & Conclusion

The existing conditions and various Build phases of the planned airport redevelopment and expansion were evaluated as part of this study. The four construction phases were: Phase 1 - Opening of CONRAC (2020), Phase 2 - New Public Parking Garage and Red Lot Expansion (2024), Phase 3 – Replacement Passenger Terminal (2028) and Phase 4 - Relocation of Lane Aviation (2030).

Traffic volumes were projected and traffic operations were performed with and without the development (i.e., Build and No-Build). **Figure 16** shows the overall LOS summary for the existing (2016) condition and the various Build development phases.

In general, the existing signalized intersections will operate at LOS C or better and will not need any improvements to mitigate traffic impacts. The STOP approaches at the unsignalized intersections will experience heavy delays and will generally operate at LOS F during periods of peak traffic demand in all scenarios. It should be noted that at Ole Country Lane, the LOS F is mainly for the traffic trying to turn left, which is not traffic associated with the airport or the rental car operations. The northbound left turn movement will be at LOS C/D as shown in **Figure 16**. As mentioned earlier, a review of the OMUTCD signal warrant indicates that the peak hour signal warrant is met for the existing PM peak hour traffic volumes. Installing a signal with a protected/permissive northbound left turn lane is a potential remedy to possible overflow of the available northbound left turn storage at this intersection. Under traffic signal control, the intersection will operate at overall LOS B with all approaches at LOS C or better in the 2030 PM peak hour condition (which is the controlling condition).

The other unsignalized locations are essentially removed and replaced over time by the conversion of intersections to free-flow operations associated with the airport's planned modifications to the loop road configuration to support the planned development. In addition, the weaving sections on future roadways within the loop road area near the replacement passenger terminal will operate at good levels of service.

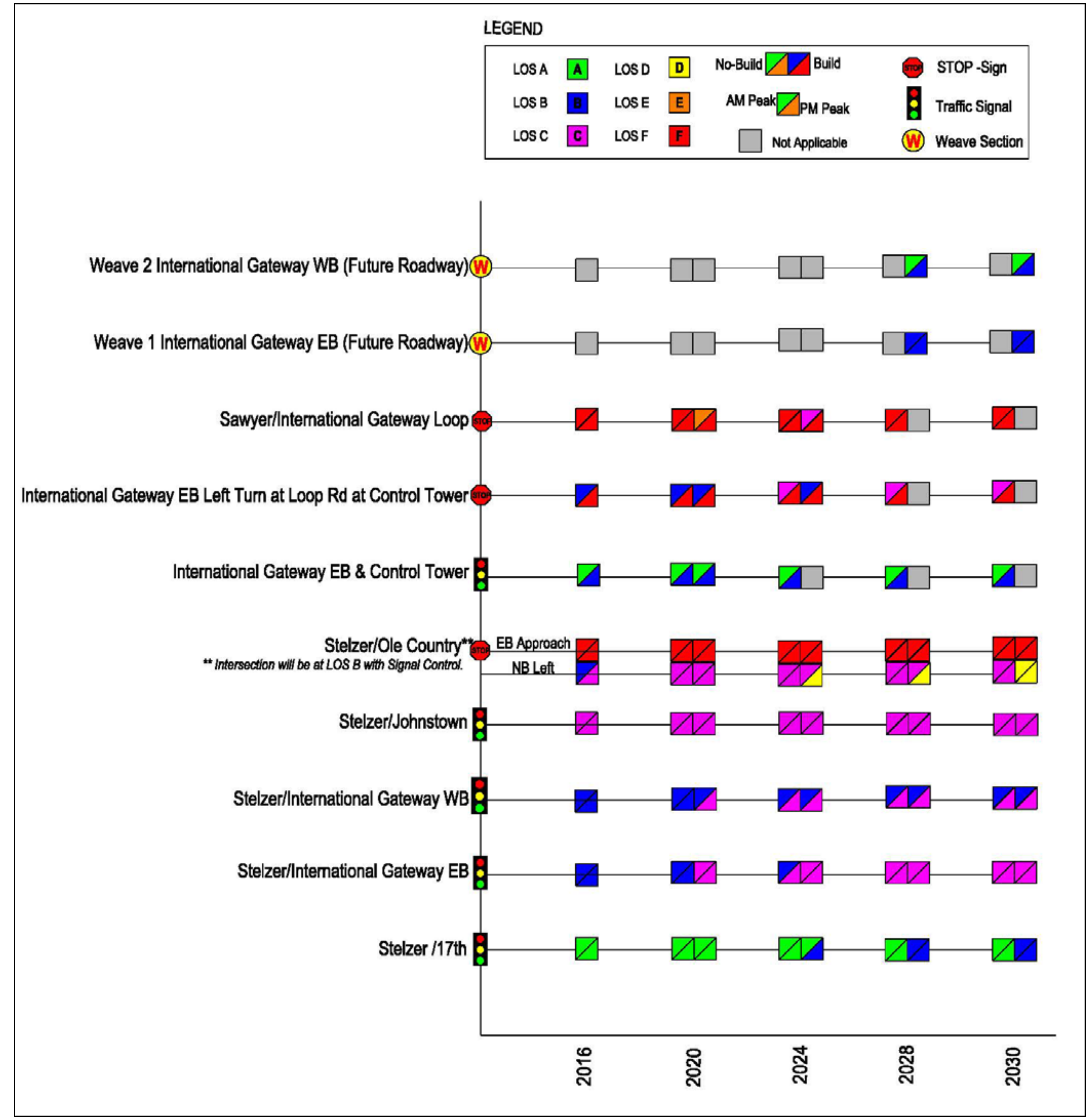

Figure 16 LOS Summary for Various Development Phases

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Appendix F

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APPENDIX F
FORECAST OF AVIATION ACTIVITY

This appendix contains a copy of the Forecast of Aviation Activity that was conducted for this EA.

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AVIATION ACTIVITY DEMAND FORECAST

PORT COLUMBUS INTERNATIONAL AIRPORT

Prepared By:
Landrum & Brown
March 2016

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1.0 PURPOSE AND CONTEXT

This document presents a comprehensive forecast of aviation demand for Port Columbus International Airport (CMH or the Airport) to support future planning efforts. Activity levels are forecast through 2045 with a base year of 2014 and actual numbers for 2015. Although actual numbers for 2015 enplanements and operations are provided by the airport, it is too early in the year to obtain economic data for 2015. Therefore, 2014 was used as the base year.

The objective of this forecast is to project the future aviation demand that will provide the basis for future planning analyses including terminal facility requirements and airside needs.

The forecast presented herein represents market driven demand for air service. The forecast is "unconstrained" and as such does not take facility constraints or other outside limiting factors into consideration. In other words, for purposes of estimating future demand, the forecast assumes facilities can be provided to meet the demand.

2.0 PRIOR FORECASTS

2.1 2014 LOOP ROAD LAND USE STUDY

In April 2014, Ricondo & Associates, Inc. (Ricondo) prepared an aviation activity forecast of enplaned passengers and aircraft operations to determine facility requirements associated with the proposed Loop Road System. The forecast used a base year of 2013, which was the last full year of data available at the time, and activity was forecast through 2044.

Ricondo attempted to forecast the enplanements at CMH using socio-economic regression to quantify the relationship of enplanements to population, employment, income, per capita personal income, and gross domestic product. However, this approach did not result in any adequate models.

Therefore, Ricondo used a market share methodology. The approach used a ratio of the historical activity at CMH with the activity in the United States as a whole. The base year ratio of 0.415 percent was assumed to remain constant through the forecast period and was applied to a national forecast for the United States enplaned passengers. The result was that enplaned passengers at CMH would grow from 3.1 million in 2013 to 5.3 million in 2044, representing a compound annual growth rate (CAGR) of 1.8 percent.

Ricondo used the enplaned passenger forecast, load factor assumptions, and estimated average seats per departure (ASPD) to determine the passenger airline operations. Ricondo projected that load factors at CMH would increase from 77.5 percent in 2013 to 81.9 percent in 2044 while ASPD were projected to increase from 84.2 seats to 115.5 seats over the same span. The result was that passenger airline departures would increase from 47,711 (95,422 operations) in 2013 to 56,470 (112,941 operations) in 2044, representing a CAGR of 0.5 percent. Other air taxi and general aviation (GA) operations were expected to grow in line with the national forecast at 0.5 percent per year through the forecast period, growing from 32,203 in 2013 to 37,330 in 2044. Military operations were assumed to remain constant at 560 operations per year through the forecast period.

In addition to the base forecast, Ricondo developed low-growth and high-growth forecast scenarios. These were developed to account for economic and industry uncertainty. The result of these scenarios was that by 2044 enplaned passengers ranged between 4.3 million and 6.4 million and operations ranged between 137,641 and 167,270. **Table 2-1, *Loop Road Forecast Summary***, provides a summary of Ricondo's forecast.

Table 2-1
Loop Road Forecast Summary

	Enplaned Passengers			Aircraft Operations		
Year	Low-Growth	Baseline	High-Growth	Low-Growth	Baseline	High-Growth
Historical						
2009		3,122,989			146,439	
2010		3,183,792			136,086	
2011		3,190,068			135,377	
2012		3,174,814			129,450	
2013	3,114,695	3,114,695	3,114,695	128,187	128,187	128,187
Forecast						
2015	3,192,600	3,218,400	3,246,600	127,723	128,223	128,820
2018	3,299,800	3,408,200	3,514,700	128,689	130,469	132,680
2023	3,483,400	3,745,100	3,987,400	130,329	134,259	139,170
2033	3,860,300	4,458,600	5,034,500	133,709	142,009	152,360
2044	4,302,100	5,344,100	6,371,000	137,641	150,831	167,270
CAGR						
2013-44	1.0%	1.8%	2.3%	0.2%	0.5%	0.9%

Source: Ricondo & Associates, Inc.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\ [Master Sheet.xlsx]Ricondo

3.0 DRIVERS OF AIR TRAFFIC DEMAND

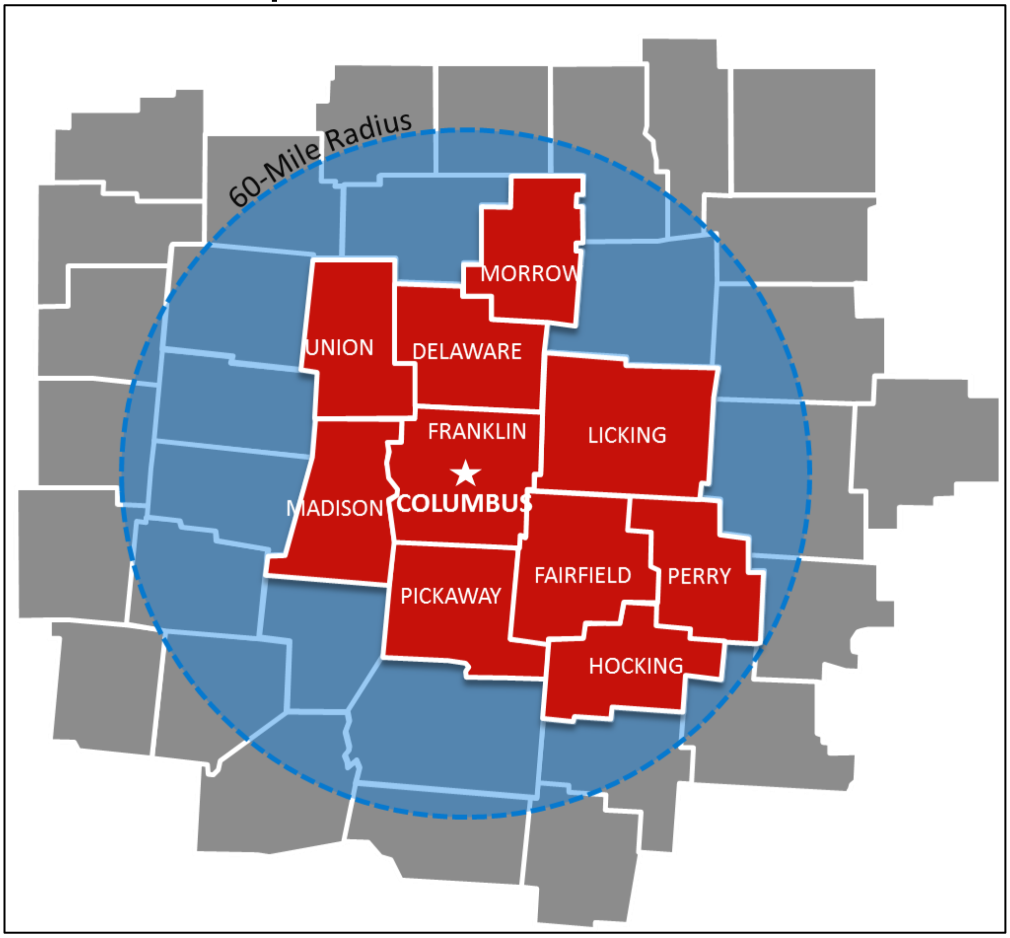
Forecasting future aviation activity is an inexact science and there are many factors that influence future aviation trends. Compounding this is the fact that the commercial passenger aviation industry is currently in an unprecedented period of uncertainty. Oil prices surged to historically high levels in 2006 through 2008, just as the U.S. airline industry as a whole returned to profitability following the 2001 economic downturn and the aftermath of the September 11, 2001 terrorist attacks. The U.S. (and much of the world) is now recovering from the worst economic downturn since the Great Depression. This recession occurred between December 2007 and June 2009. This section discusses the impact of the above events and other factors that affect aviation demand. Unless noted, all historical economic data and forecasts presented in this section were provided by Woods and Poole (W&P).

3.1 CATCHMENT AREA

The Airport is located approximately 6 miles east of downtown Columbus, Ohio in Franklin County. The majority of the Airport's air passengers originate from the primary market area defined as a 60-mile radius around the City of Columbus.[1] Just 15 miles south of CMH is Rickenbacker International Airport, a joint military-civilian airport also serving the catchment area. Rickenbacker provides air cargo capacity to the region as well as leisure flights to Florida markets, Myrtle Beach, New Orleans and Hilton Head on Allegiant.

The Columbus Metropolitan Statistical Area (MSA) has the largest socio-economic impact on the primary market area. Therefore, the socio-economic factors presented in this document will focus on the Columbus MSA which is illustrated in **Exhibit 3–1, *Columbus Metropolitan Statistical Area***.

Exhibit 3–1
Columbus Metropolitan Statistical Area



Source: Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\MSA.png

[1] Columbus Regional Airport Authority, Economic Impact Study Update: Technical Report, November 2012.

3.2 ECONOMIC CYCLES

Historically, the U.S. economy, as measured by Gross Domestic Product (GDP), grew at a relatively steady rate, averaging 3.1 percent per annum between 1960 and 2014. The rate of growth, particularly since 1985, has been remarkably stable reflecting both the size and maturity of the U.S. economy. Individual years have fluctuated around the long-term trend for a variety of reasons including pure macro-economic factors, fuel shocks, war, and terrorist attacks.

There have been two official economic recessions in the U.S. thus far in the 21st century. The first occurred between March and November of 2001 and was compounded by the September 11, 2001 terrorist attacks. The negative impact of these events on the airline industry is well documented. The recession itself was short-lived by historical standards and the economy returned to positive growth rates quite quickly, fueled in part by a gradual but prolonged reduction in interest rates.

The second recession, often referred to as the 'Great Recession', occurred between December 2007 and June 2009.[2] This was the worst financial crisis to affect the U.S. since the Great Depression; and it was the longest recession since the time the airline industry was deregulated[3] in 1978. The nation's unemployment rate rose from 5.0 percent in December of 2007 to a high of 10.0 percent in October 2009.[4] In 2009, the American Recovery and Reinvestment Act (ARRA) was implemented in response to the economic crisis. This stimulus plan invested over $800 billion, with over half of it being spent during 2010.[5]

From 2000 to 2014, the Columbus MSA's gross regional product (GRP) increased at a compound annual growth rate (CAGR) of 2.0 percent, while the State of Ohio experienced annual GRP growth at an average of 1.0 percent.

Over the next 30 years Columbus MSA's GRP is forecast to grow at an average annual rate of 2.3 percent which is above the national average of 2.0 percent and the 1.7 percent expected for the State of Ohio. **Table 3-1 *Historical and Forecast Gross Domestic/Regional Product***, provides the historical and forecast growth of the GDP and GRP of the United States, the State of Ohio and the Columbus MSA.

2 National Bureau of Economic Research, US Business Cycle Expansions and Contractions, September 20, 2010.
3 Deregulation refers to the Airline Deregulation Act of 1978 which reduced government control over the commercial aviation industry.
4 National Bureau of Economic Research, US Business Cycle Expansions and Contractions, September 20, 2010.
5 Congressional Budget Office, Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from October 2011 Through December 2011, February 2012.

Table 3-1
Historical And Forecast Gross Domestic/Regional Product

	Gross Domestic/Regional Product (in billions; 2009USD)		
Year	United States	State of Ohio	Columbus MSA
Historical			
2000	12,306,432	471,595	82,972
2001	12,059,369	451,694	81,248
2002	12,311,799	463,441	84,536
2003	12,638,401	467,815	84,687
2004	13,125,991	477,322	86,894
2005	14,116,075	505,750	92,989
2006	14,028,843	478,089	88,560
2007	14,352,564	481,095	90,189
2008	14,184,185	465,234	87,416
2009	13,869,679	451,574	86,878
2010	14,620,949	486,651	94,129
2011	14,816,834	498,403	96,976
2012	15,218,600	517,175	102,421
2013	15,514,792	527,493	105,778
2014	15,892,855	539,236	108,874
Forecast			
2015	16,261,994	550,529	111,743
2016	16,632,973	561,829	114,646
2017	17,005,442	573,146	117,579
2018	17,382,455	584,574	120,561
2019	17,765,537	596,158	123,603
2020	18,155,067	607,911	126,707
2021	18,550,436	619,786	129,871
2022	18,950,272	631,744	133,085
2023	19,353,691	643,760	136,345
2024	19,760,977	655,843	139,652
2025	20,171,743	667,970	143,005
2026	20,585,046	680,112	146,399
2027	21,001,199	692,283	149,836
2028	21,420,447	704,492	153,317
2029	21,842,960	716,747	156,846
2030	22,268,693	729,046	160,421
2031	22,688,161	741,077	163,978
2032	23,115,531	753,307	167,614
2033	23,550,951	765,738	171,331
2034	23,994,573	778,375	175,131
2035	24,446,551	791,221	179,014
2036	24,887,533	803,630	182,849
2037	25,336,469	816,234	186,766
2038	25,793,504	829,035	190,767
2039	26,258,782	842,038	194,854
2040	26,732,454	855,244	199,028
2041	27,200,130	868,154	203,191
2042	27,675,988	881,260	207,441
2043	28,160,170	894,563	211,779
2044	28,652,823	908,068	216,209
2045	29,154,096	921,776	220,731
CAGR			
2000-14	1.8%	1.0%	2.0%
2014-45	2.0%	1.7%	2.3%

Source: Woods & Poole.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\ [Socio-Economic Indicators.xlsx]GDP - W&P

3.3 POPULATION

The population in the Columbus MSA grew from 1.7 million people in 2000 to almost 2.0 million people in 2014, representing a CAGR of 1.2 percent. During this period, the population of the State of Ohio had only grown at a CAGR of 0.1 percent while the nation as a whole grew 0.9 percent annually.

The rate of growth in population for the Columbus MSA is forecast to continue to exceed that of the nation and the State of Ohio. At a CAGR of 1.1 percent over the next 30 years, the Columbus MSA is forecast to reach 2.8 million people by 2045. From 2014 to 2045, the State of Ohio is forecast to grow at a CAGR of 0.3 percent while the nation continues to grow at 0.8 percent. **Table 3-2, *Historical and Forecast Population Trends***, provides the historical and forecast population for the United States, the State of Ohio, and the Columbus MSA.

The Mid-Ohio Regional Planning Commission (MORPC) projected the population for the Central Ohio Region (Delaware, Fairfield, Franklin, Licking, Madison, Pickaway, and Union) as part of insight2050 to grow from 1.8 million people in 2010[6] to 2.3 million people in 2050, representing an average annual growth rate of 0.6 percent.

According to the current estimates from the United States Census Bureau, the population within the Central Ohio Region grew at an average of 1.2 percent annually since 2010. This growth is in-line with the historical growth exhibited in the region over the past 14 years. The recent growth also exceeds the growth forecasted by MORPC for the first ten years (2015-2025) of 0.7 percent per annum.

[6] The three counties, Morrow, Perry and Hocking, excluded from the MOPRC Central Ohio Region within the MSA had a combined population 100,254 people in 2010.

Table 3-2
Historical and Forecast Population Trends

Year	Population (in thousands)		
	United States	State of Ohio	Columbus MSA
Historical			
2000	282,162	11,364	1,682
2001	284,969	11,387	1,707
2002	287,625	11,408	1,726
2003	290,108	11,435	1,749
2004	292,805	11,452	1,770
2005	295,517	11,463	1,791
2006	298,380	11,481	1,817
2007	301,231	11,500	1,842
2008	304,094	11,515	1,866
2009	306,772	11,529	1,888
2010	309,326	11,545	1,906
2011	311,583	11,550	1,925
2012	313,874	11,553	1,945
2013	316,129	11,571	1,967
2014	318,699	11,601	1,988
Forecast			
2015	321,449	11,638	2,011
2016	324,392	11,680	2,035
2017	327,372	11,723	2,059
2018	330,383	11,767	2,083
2019	333,427	11,810	2,108
2020	336,500	11,854	2,132
2021	339,602	11,898	2,158
2022	342,734	11,942	2,183
2023	345,892	11,986	2,208
2024	349,078	12,030	2,234
2025	352,281	12,073	2,260
2026	355,498	12,117	2,286
2027	358,726	12,160	2,312
2028	361,960	12,202	2,339
2029	365,205	12,244	2,365
2030	368,462	12,285	2,392
2031	371,559	12,320	2,417
2032	374,682	12,355	2,443
2033	377,830	12,390	2,469
2034	381,006	12,425	2,495
2035	384,208	12,460	2,522
2040	399,181	12,592	2,647
2045	413,622	12,690	2,770
CAGR			
2000-14	0.9%	0.1%	1.2%
2014-45	0.8%	0.3%	1.1%

Source: Woods & Poole.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\[Socio-Economic Indicators.xlsx]POP - W&P

3.4 EMPLOYMENT

Growth in employment is an important indicator of the overall health of the local economy. Population changes and employment changes tend to be closely correlated as people migrate in and out of areas, largely depending on their ability to find work in the local economy.

3.4.1 MAJOR EMPLOYERS

The largest employer in the Columbus MSA is The Ohio State University which employed 33,157 full-time equivalent employees (FTE) in autumn 2014.[7] Additionally, the Columbus MSA is the home to the headquarters of five Fortune 500 companies and another ten Fortune 1000 companies. JPMorgan Chase & Co is the largest private employer in the Columbus MSA with 20,475 FTE, followed by Nationwide Mutual Insurance (12,433 FTE) and Honda of America Manufacturing, Inc. (10,701 FTE). Other major employers of note include L Brands, Inc. (7,100 FTE), Huntington Bancshares Incorporated (5,500 FTE) and Cardinal Health, Inc. (4,318 FTE), all of which are headquartered in the Columbus MSA.[8]

3.4.2 EMPLOYMENT GROWTH

Employment in the Columbus MSA grew at a slightly higher rate than the nation from 2000 to 2008, at 0.9 percent annually compared to 0.8 percent, while the State of Ohio had no growth in employment. During the Great Recession, employment in the United States dropped by 3.7 percent, 5.1 percent in the State of Ohio and 3.2 percent in the Columbus MSA. Since the Great Recession ended, employment in the Columbus MSA has grown at an average annual rate of 2.2 percent, faster than the United States at 1.7 percent and the State of Ohio at 1.3 percent per annum.

At 1.5 percent average annual growth, the Columbus MSA is forecast to continue to outpace the State of Ohio's projected growth of 0.9 percent and the nation's 1.2 percent through 2045.

Table 3-3, *Historical and Forecast Employment Trends*, provides the historical and forecast employment for the United States, the State of Ohio, and the Columbus MSA through 2045.

[7] The Ohio State University - Statistical Summary (Autumn 2014), Online at https://www.osu.edu/osutoday/stuinfo.php
[8] Columbus 2020, The Columbus Region: Factbook 2015, September 1, 2015.

Table 3-3
Historical and Forecast Employment Trends

	Employment (in thousands)		
Year	United States	State of Ohio	Columbus MSA
Historical			
2000	165,371	6,780	1,131
2001	165,510	6,711	1,140
2002	165,063	6,641	1,136
2003	166,019	6,630	1,135
2004	169,027	6,678	1,150
2005	172,557	6,707	1,162
2006	176,125	6,762	1,181
2007	179,900	6,811	1,207
2008	179,645	6,746	1,209
2009	174,226	6,479	1,182
2010	173,045	6,398	1,170
2011	176,287	6,500	1,198
2012	178,846	6,582	1,225
2013	182,278	6,663	1,253
2014	185,152	6,747	1,277
Forecast			
2015	188,033	6,831	1,300
2016	190,871	6,913	1,324
2017	193,656	6,993	1,347
2018	196,418	7,071	1,370
2019	199,184	7,149	1,394
2020	201,959	7,227	1,417
2021	204,739	7,304	1,441
2022	207,514	7,381	1,465
2023	210,275	7,456	1,489
2024	213,024	7,531	1,513
2025	215,757	7,604	1,537
2026	218,465	7,676	1,561
2027	221,149	7,746	1,585
2028	223,807	7,815	1,609
2029	226,442	7,883	1,633
2030	229,050	7,949	1,657
2031	231,530	8,010	1,680
2032	234,038	8,072	1,704
2033	236,572	8,134	1,728
2034	239,134	8,197	1,752
2035	241,724	8,260	1,776
2036	244,152	8,317	1,800
2037	246,604	8,375	1,823
2038	249,081	8,433	1,847
2039	251,583	8,491	1,872
2040	254,110	8,549	1,897
2041	256,530	8,604	1,920
2042	258,974	8,658	1,945
2043	261,440	8,713	1,969
2044	263,931	8,769	1,994
2045	266,445	8,824	2,019
CAGR			
2000-14	0.8%	0.0%	0.9%
2014-45	1.2%	0.9%	1.5%

Source: Woods & Poole.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\[Socio-Economic Indicators.xlsx]EMP - W&P

3.5 COLUMBUS 2020

Beginning in 2008, leaders in the Columbus Region, which includes 11 counties clustered around Franklin County, began collaboration to create an economic roadmap for the decade ahead. In 2010, the Columbus 2020 Regional Growth Strategy (Columbus 2020) was launched in an effort to strengthen and diversify the economic base of the Columbus Region. Columbus 2020 set out to achieve the following four main goals by 2020:

- Add 150,000 net new jobs
- Generate $8 billion in capital investment
- Increase per capita income by 30 percent
- Be recognized as a national leader in economic development

According to the 2015 Columbus Region Economic Development Report, there have been 81,729 new jobs added between 2010 and December 2014. From 2010 through January 2015, there has been $4.79 billion in new capital investment generation. Additionally, per capita income has increased by 14 percent as of December 2013.

3.6 PER CAPITA PERSONAL INCOME

Income statistics are broad indicators of the relative earning power and wealth of an area and inferences can be made relative to an individual's or community's ability to purchase air travel. Since 2000, the Columbus MSA has had a higher per capita personal income (PCPI) than the State, but it has been lower than that of the United States as a whole since 2004. The Columbus MSA's PCPI grew at an average rate of 0.9 percent per annum since 2000 which is the same rate as the State of Ohio and slightly less than the United States as a whole.

Current projections indicate continued growth in PCPI for the Columbus MSA and the State of Ohio, averaging 1.3 percent and 1.4 percent, respectively, per year through 2045. This growth is slightly higher than that projected for the United States as a whole at 1.2 percent. **Table 3-4, *Historical and Forecast Per Capita Personal Income Trends***, provides the PCPI for the United States, the State of Ohio, and the Columbus MSA.

Table 3-4
Historical and Forecast Per Capita Personal Income Trends

	Per Capita Personal Income (2009USD)		
Year	United States	State of Ohio	Columbus MSA
Historical			
2000	$36,794	$34,428	$37,095
2001	$36,772	$34,551	$37,477
2002	$36,661	$34,760	$37,889
2003	$36,878	$35,024	$37,745
2004	$37,802	$35,205	$37,778
2005	$38,899	$35,506	$38,179
2006	$39,825	$35,901	$38,236
2007	$40,687	$36,234	$38,329
2008	$40,921	$36,378	$37,952
2009	$38,637	$35,001	$36,888
2010	$39,492	$35,610	$37,787
2011	$40,646	$37,093	$39,313
2012	$41,674	$37,931	$40,571
2013	$41,707	$38,245	$40,870
2014	$42,365	$38,948	$41,796
Forecast			
2015	$43,021	$39,617	$42,436
2016	$43,653	$40,267	$43,058
2017	$44,287	$40,922	$43,684
2018	$44,935	$41,595	$44,326
2019	$45,602	$42,289	$44,988
2020	$46,291	$43,007	$45,673
2021	$46,978	$43,723	$46,358
2022	$47,677	$44,454	$47,058
2023	$48,369	$45,180	$47,753
2024	$49,051	$45,896	$48,441
2025	$49,744	$46,627	$49,144
2026	$50,420	$47,341	$49,832
2027	$51,073	$48,033	$50,503
2028	$51,714	$48,716	$51,166
2029	$52,345	$49,390	$51,823
2030	$52,952	$50,041	$52,460
2031	$53,506	$50,640	$53,056
2032	$54,065	$51,246	$53,659
2033	$54,630	$51,859	$54,269
2034	$55,201	$52,480	$54,886
2035	$55,778	$53,108	$55,510
2036	$56,316	$53,700	$56,112
2037	$56,859	$54,298	$56,721
2038	$57,408	$54,903	$57,336
2039	$57,962	$55,515	$57,958
2040	$58,521	$56,133	$58,587
2041	$59,084	$56,759	$59,234
2042	$59,652	$57,392	$59,888
2043	$60,225	$58,032	$60,549
2044	$60,804	$58,679	$61,217
2045	$61,389	$59,333	$61,893
CAGR			
2000-14	1.0%	0.9%	0.9%
2014-45	1.2%	1.4%	1.3%

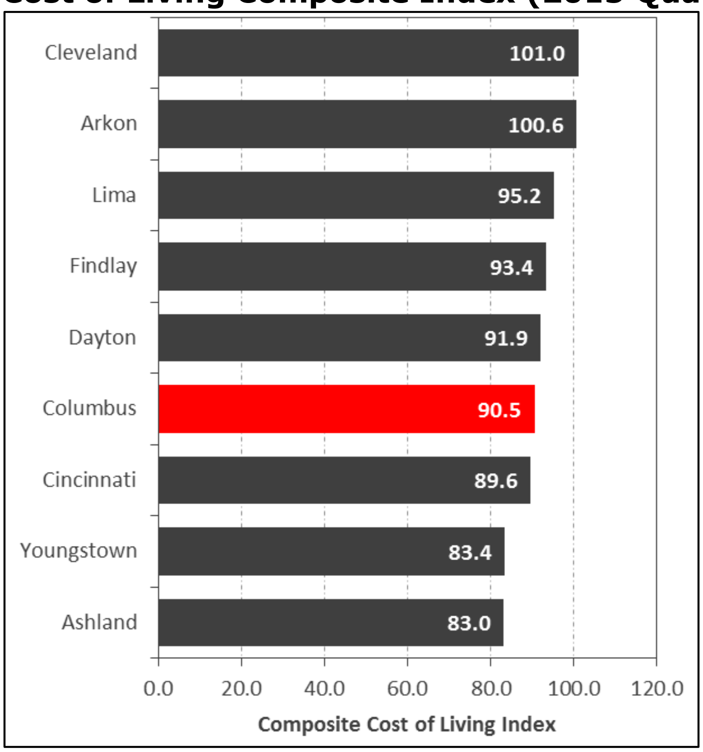
Source: Woods & Poole.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\[Socio-Economic Indicators.xlsx]PCPI - W&P

3.7 COST OF LIVING

The cost of living is the amount of money needed to sustain a certain level of living, including basic necessities such as groceries, housing, utilities, transportation, and health care. The cost of living can be used to compare the expense of living in a certain city to another. The Council for Community and Economic Research (C2ER) provides a cost of living index to measure the living cost among urban areas. The average cost of living for all locations U.S. wide, both metropolitan and nonmetropolitan, equals 100. The index for each location is the percent of the location's cost of living in relationship to the national average. C2ER uses the average price of items in an area such as price per pound of meat or price per gallon of gasoline. Each price is then multiplied by a predetermined weight aggregated into a composite index.

Exhibit 3–2, *Cost of Living Composite Index (2015 Quarter 2)*, provides C2ER's composite cost of living index for the major geographic areas in the State of Ohio. The Columbus Ohio Metro Area (as defined by C2ER) has a composite index of 90.5 which indicates the cost of living in the area is 90.5 percent the cost of living in the rest of the United States. Columbus' competitive housing rates are significantly lower, 22.5 percent, than the national average. The cost for grocery items, utilities, transportation, health care, and miscellaneous goods and services are near the national average.

Exhibit 3–2
Cost of Living Composite Index (2015 Quarter 2)

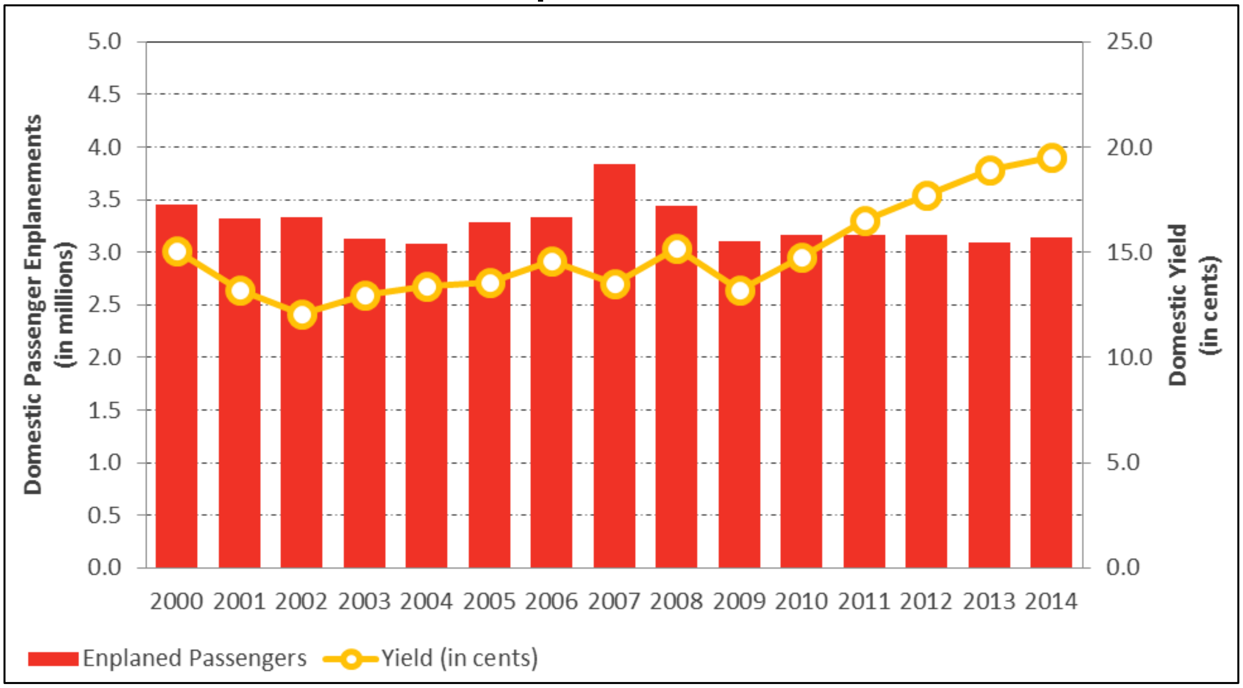


Sources: Council for Community and Economic Research (C2ER), Cost of Living Index for Second Quarter 2015.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]Yields

3.8 AIRLINE YIELD

Yields are the aviation industry's measure for average ticket prices. Yield is the average fare paid by customers to fly one mile. As prices decline, passengers can better afford to fly and traffic typically increases. **Exhibit 3–3, *Historical Yield and Domestic Enplanements***, provides a graphical representation of how domestic yields have changed over the years in relationship to domestic enplanements at CMH.

Exhibit 3–3
Historical Yield and Domestic Enplanements



Sources: Airport; FAA O&D Passenger Survey.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]Yields

The Federal Aviation Administration (FAA) projects national domestic mainline passenger real yield (adjusted for inflation) will increase 2.7 percent from 2014 to 2015. Domestic mainline air carrier real yield is expected to decline 0.2 percent annually from 2015 through 2035. Extrapolating the yield beyond 2035 up to 2045, the decline is projected to be 0.4 percent annually.

The FAA forecast for international mainline real yield is expected to decrease 0.5 percent from 2014 to 2015. For the remainder of the forecast period, international real yield is expected to decline at a rate of 0.6 percent annually through 2035. It is anticipated that the yield will decline at the same rate until 2045.

This forecast of declining yield is a result of continued penetration of the total airline market by low cost carriers and the gradual transition of the airline industry towards a lower fare structure. Local yields at CMH are expected to follow national trends over the forecast period. **Table 3-5, *FAA Aerospace Yield Forecast***, displays the yield growth rates forecast by the FAA Aerospace Forecast Fiscal Years 2015-2035. The FAA Aerospace forecast only projects through 2035. Therefore, for the purpose of this analysis, the long-term trend was carried forward through 2045.

Table 3-5
FAA Aerospace Yield Forecast

	Passenger Yield (in 2014 cents)		
Year	Domestic	International	Total
2014	15.18	15.00	14.79
2015	15.59	14.93	15.04
2020	16.01	14.43	15.15
2025	15.99	13.92	15.00
2030	15.42	13.51	14.52
2035	14.85	13.11	13.89
2040	14.36	12.69	13.40
2045	13.84	12.28	12.91
CAGR			
2014-45	-0.3%	-0.6%	-0.4%
2015-45	-0.4%	-0.6%	-0.5%

Note: System refers to all of the airports in the nation's aviation system.
The FAA Aerospace forecast only projects through 2035. For values beyond 2035, the long-term trend was extended through 2045.

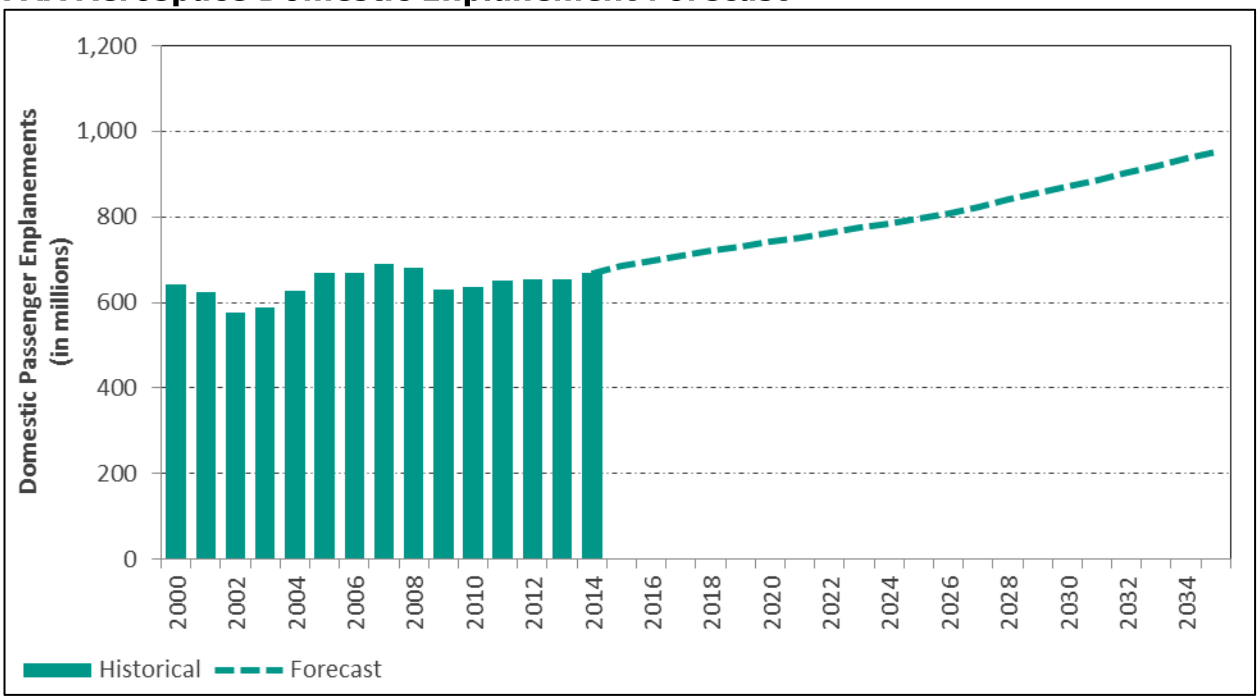
Sources: FAA Aerospace Forecast: Fiscal Years 2015-2035; Landrum & Brown Analysis.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]Yields

3.9 NATIONAL DOMESTIC ENPLANEMENT TRENDS

In Fiscal Year[9] (FAA FY) 2002, the national domestic enplanements decreased in the wake of the September 11, 2001 terrorist attacks. However, in the following years enplanements grew through 2007 where they peaked at 688.5 million. As stated previously, the Great Recession had a significant impact on the airline industry, and by FAA FY2009 the number of U.S. domestic enplanements had dropped to 630.8 million. Since then enplanements have grown at an average annual rate of 1.2 percent.

The FAA projects U.S. domestic revenue passenger enplanements will grow from 668.4 million in 2014 to 951.0 million by 2035, representing a CAGR of 1.7 percent. **Exhibit 3–4, *FAA Aerospace Domestic Enplanement Forecast***, graphically depicts the historical and forecast U.S. revenue passenger enplanements.

Exhibit 3–4
FAA Aerospace Domestic Enplanement Forecast



Source: FAA Aerospace Forecast Fiscal Years 2015-2035.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]US DOM O&D

The FAA Aerospace forecast only projects through 2035. Therefore, for the purpose of this analysis, the long-term trend was carried forward through 2045. Based on this assumption, U.S. domestic revenue passenger enplanements will reach 1.082 billion by 2045.

9 Fiscal year begins October 1 of the previous year and ends September 30 of the current calendar year.

3.10 AIRLINE INDUSTRY CHANGES

The financial health of the airlines will play a major role in the determination of future forecasts for CMH. This section contains a summary of the airline industry factors that were considered in developing the CMH Forecast.

3.10.1 LOW COST CARRIERS

When Low Cost Carriers (LCC) enter air markets, prices tend to decline and discretionary leisure travel increases. America West began hubbing operations at CMH in the 1991 but closed operations in 2003 due to financial losses. Southwest Airlines followed shortly thereafter with operations beginning in 1992. By 2006, another LCC, JetBlue Airways began service at CMH. Just a year later in 2007, Skybus Airlines, an ultra LCC, began hubbing operations at the Airport. Competition between JetBlue, Skybus and Southwest prompted the competing carriers to offer lower fares. However, in 2008 Skybus filed for Chapter 11 Bankruptcy thereby ceasing all operations. Furthermore, JetBlue also ended operations at CMH in the same year. Since then, Southwest traffic has remained steady but fares have increased and are now more in line with the Legacy Airlines such as American Airlines and Delta Air Lines. At this time, there are no true LCCs operating at the Airport. However, Frontier Airlines will be starting service in May 2016 to 4 destinations operating up to a total of 40 flights per week.

3.10.2 AIRLINE BANKRUPTCIES

There have been dramatic changes to the financial health of the airline industry in the 21st century. Numerous airlines have declared Chapter 11 bankruptcy at least once, including five of the six legacy carriers (before the latest round of mergers). There was a rash of bankruptcies between 2001 and 2005, and another more recent round in 2008 as a result of the recent economic recession. The most recent airline to declare bankruptcy was American Airlines which entered bankruptcy protection in November 2011. As shown in **Table 3-6, *Airline Bankruptcy Status***, nine airlines that operated at CMH have declared bankruptcy this century. CMH's largest carrier, Southwest, has never declared bankruptcy.

Table 3-6
Airline Bankruptcy Status

Airline	Bankruptcy Status
TWA	Filed Chapter 11 in Jan. 2001 as part of an acquisition by American.
US Airways	Filed Chapter 11 in Aug. 2002 and again in Sept. 2004; emerged in Sept. 2005 in conjunction with acquisition by America West. Acquired by American Airlines in 2013.
United Airlines	Filed Chapter 11 in Dec. 2002; emerged in Feb. 2006
Air Canada	Filed Chapter 11 in April 2003; emerged in Sept. 2004
Northwest Airlines	Filed Chapter 11 in Sept. 2005; emerged in May 2007. Acquired by Delta in 2008.
Delta Air Lines	Filed Chapter 11 in Sept. 2005; emerged in April 2007. Wholly owned subsidiary Comair Airlines taken into bankruptcy with Delta Airlines.
Skybus Airlines	Filed Chapter 11 in April 2008; ceased operations.
Frontier Airlines	Filed Chapter 11 in April 2008; emerged in Oct. 2009
American Airlines	Filed Chapter 11 in November 2011. Wholly owned subsidiary American Eagle Airlines taken into bankruptcy with American Airlines. Emerged in Dec 2013.

Source: Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\[Master Sheet.xlsx]Airline Bankruptcies

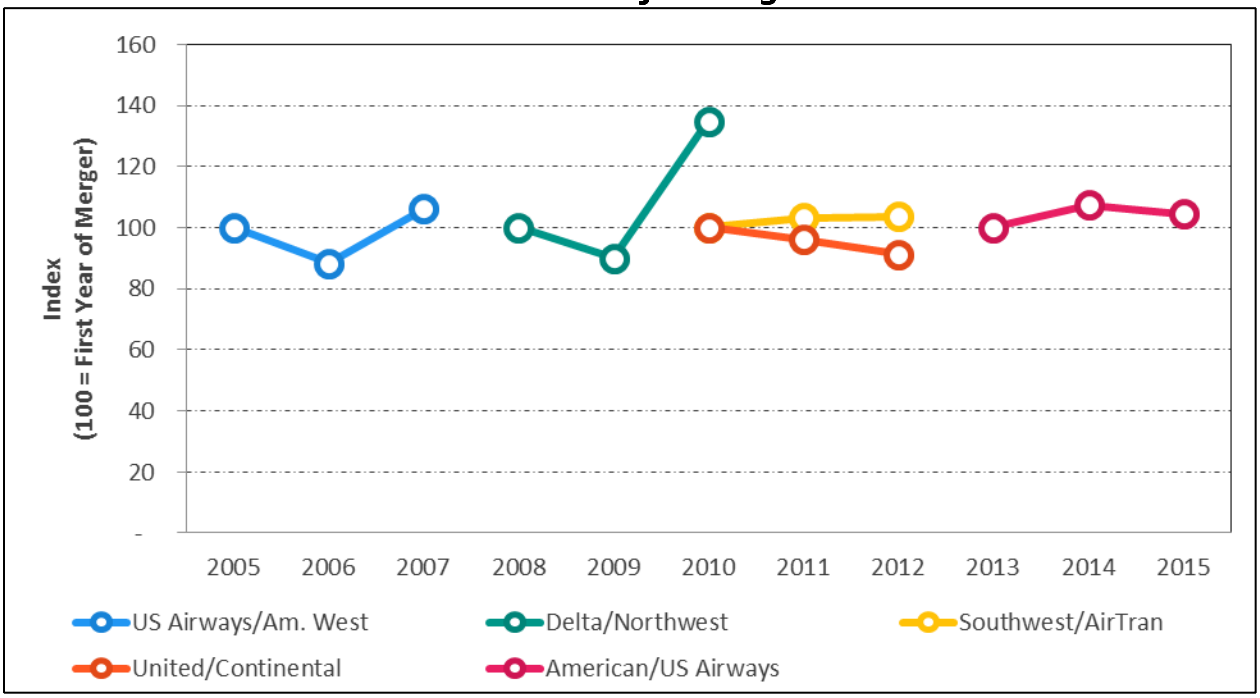
3.10.3 MERGERS AND ALLIANCES

Many airlines have merged or been acquired since the turn of the 21st century, including American/TWA in 2001, US Airways/America West in 2005, Delta/Northwest Airlines in 2008-2010, Southwest/AirTran in 2010, United/Continental Airlines in 2010-2012, and most recently American/US Airways in 2013.

In addition, airlines form alliances in order to reduce costs and improve service offerings. The alliances provide revenue generating opportunities and cost savings through the codeshare benefits of linked networks, frequent flyer programs, facilities, and services.

The acquisition of US Airways by America West in 2005, and the merger of Delta Airlines with Northwest Airlines in 2008 resulted in losses of approximately 10.0 percent of the available seats at CMH in the first year after each of the mergers. However, after each merger, seats were recovered in the following year. The United/Continental merger resulted in a slight decrease in available seats for each of the subsequent years. The opposite held true for Southwest/AirTran merger which has seen an increase in available seats for each year since the merger. The American Airlines/US Airways merger seems to be having a positive impact on CMH as the new airline has been adding new seats since the merger was announced. **Exhibit 3–5, *Scheduled Seats at CMH After Each Major Merger***, provides a graphical summary of the impact each merger had on available seats at CMH.

Exhibit 3–5
Scheduled Seats At CMH After Each Major Merger



Source: Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\OAG\[CMH OAG 2005-2015.xls.xlsx]Mergers

3.10.4 DOMESTIC CAPACITY

After five years of negative earnings, the U.S. airline industry collectively returned to profitability in 2006 after savings from labor cuts, salary concessions, and removal of many flight amenities were realized. The success of restructuring has produced an industry that is already relatively streamlined with very little additional service left to remove. The surge in oil prices in 2008 and the ensuing economic crisis pushed airlines to start raising fares and cutting capacity. To survive and be profitable, the airlines had to reduce domestic capacity (the number of scheduled seats that are offered) to avoid losing money on unprofitable routes and excessive frequencies that are not supported with sufficient demand. As evidence of this, capacity reductions at CMH occurred from 2007 through 2012 (with the exception of 2011) averaging a reduction of 2.7 percent per year in terms of domestic scheduled seats. However, in 2014 there was a slight increase in capacity. A combination of year to date numbers and current airline schedule filings for the remainder of 2015 show a significant increase of 5.3 percent in available scheduled seats in 2015.

The efforts that the airlines are making to reduce losses by cutting the number of flight options comes with additional infrastructure costs that require the retirement of less fuel-efficient aircraft and the furlough of thousands of airline employees. Although costly, higher capacity provides choices to air travelers and has an impact on the resulting demand for air travel. The short-haul market in particular is likely to suffer when air travelers are faced with fewer flight options and have the ability to simply get in their cars and drive. In the near-term, flight options are expected to decrease, and will continue to do so until the airlines find a new capacity equilibrium that works with the price of fuel, acceptable air fares, and passenger demand.

3.11 FUEL PRICES

The price of fuel is one of the biggest costs to the airlines. The price of West Texas Intermediate (WTI) crude oil increased dramatically in the 2006 to 2008 time period, posting a 290 percent increase in June 2008 compared to January 2004. After averaging $20 to $30 per barrel in the 2000 to 2003 time period, spot crude oil prices surged to about $140 per barrel in June/July 2008. Several factors drove the increase such as strong global demand, particularly in China and India, a weak U.S. dollar, commodity speculation, political unrest, and a reluctance to materially increase supply.

The price of oil subsequently declined sharply to $61 per barrel in 2009 due to reduced demand resulting from the global financial crisis and resulting economic recession. However, oil prices increased in the subsequent three years as the economic climate slowly improved and unrest in the Middle East contributed to rising oil prices. In 2012, oil averaged $94 per barrel.

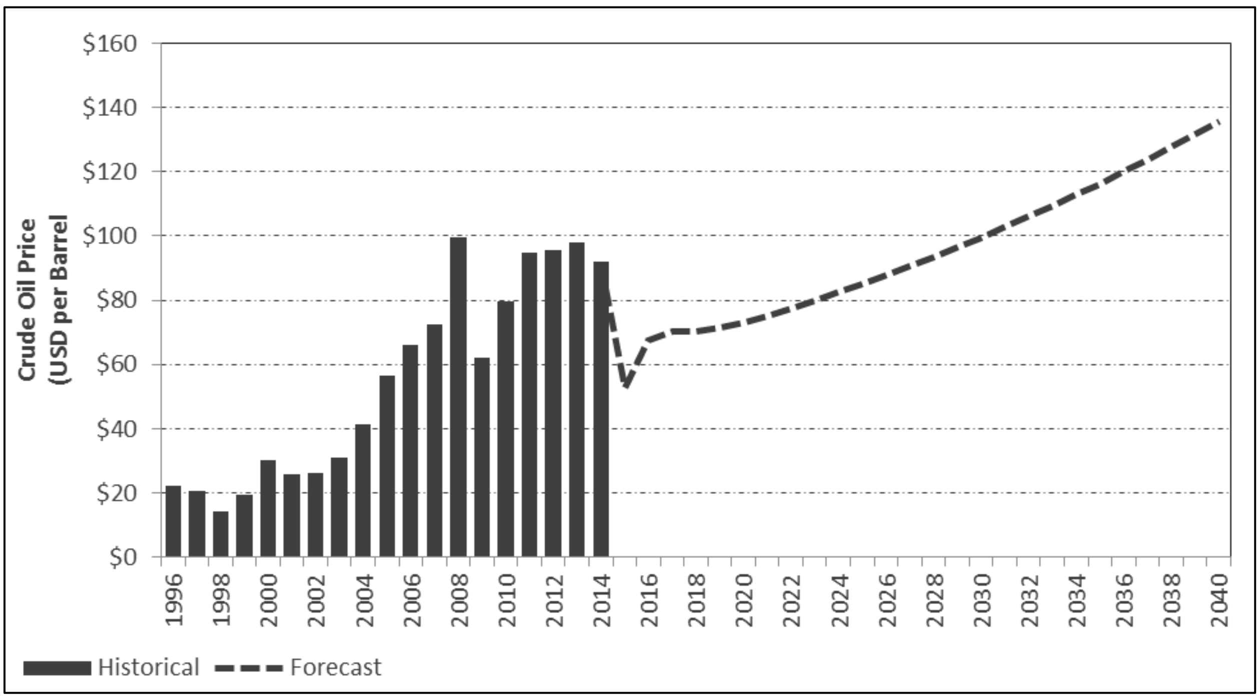
Increases in the price of jet fuel put upward pressure on airlines' operating costs. As a result, airlines are often faced with cutting capacity or increasing fares, and sometimes both. An additional impact of higher fuel prices has been a sharp increase in load factors as airlines look to make better use of their aircraft assets.

U.S. Energy Information Administration (EIA) in their long term Annual Energy Outlook (AEO) projects the price of oil to increase at an annual average of 3.9 percent reaching $136 per barrel in 2040.

Exhibit 3-6, *Crude Oil Prices*, provides the historical and forecasted price of crude oil per barrel.

However, throughout the year the EIA releases Short-Term Energy Outlook (STEO) reports. These reports provide updates to the current state of the price of oil as well as provide short-term projections. According to the most recent STEO released in February 2016, crude oil prices – WTI (West Texas Intermediate) averaged $31.68 per barrel in January 2016. The STEO forecasted that the price of crude oil will only increase to $43 per barrel by December 2016, compared to the estimated $67 per barrel presented in the 2015 AEO.

Exhibit 3–6
Crude Oil Prices



Source: U.S. Energy Information Administration, Annual Energy Outlook 2015.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\[Socio-Economic Indicators.xlsx]Fuel Prices

3.12 AIRCRAFT TRENDS

Variable fuel costs, aircraft type, and aircraft age have an impact on which aircraft the airlines choose to fly. The next-generation Boeing 737s and Airbus 320/321s have among the best fuel economy in the industry. The airlines have designated certain aircraft for retirement that have poor fuel economy compared to newer models. The MD-80/90, DC-9, and B737-300,400,500 have all been marked for reduction of use or retirement by many domestic airlines. The MD-80 and MD-90 series and DC-9 aircraft are expected to be retired by 2017 while the older variants of the B737 are expected to be retired by 2020. These aircraft are expected to be replaced with the B737-700, B737-800 and B737 MAX aircraft with similar or higher seat capacities. Small regional jets like the EMB-135/140 and the CRJ-100/200 are also under much scrutiny and going through reductions. This trend is evident at the Airport and the change in fleet structures could increase the number of seats offered in the market as the airlines will maintain frequency pre and post fleet change.

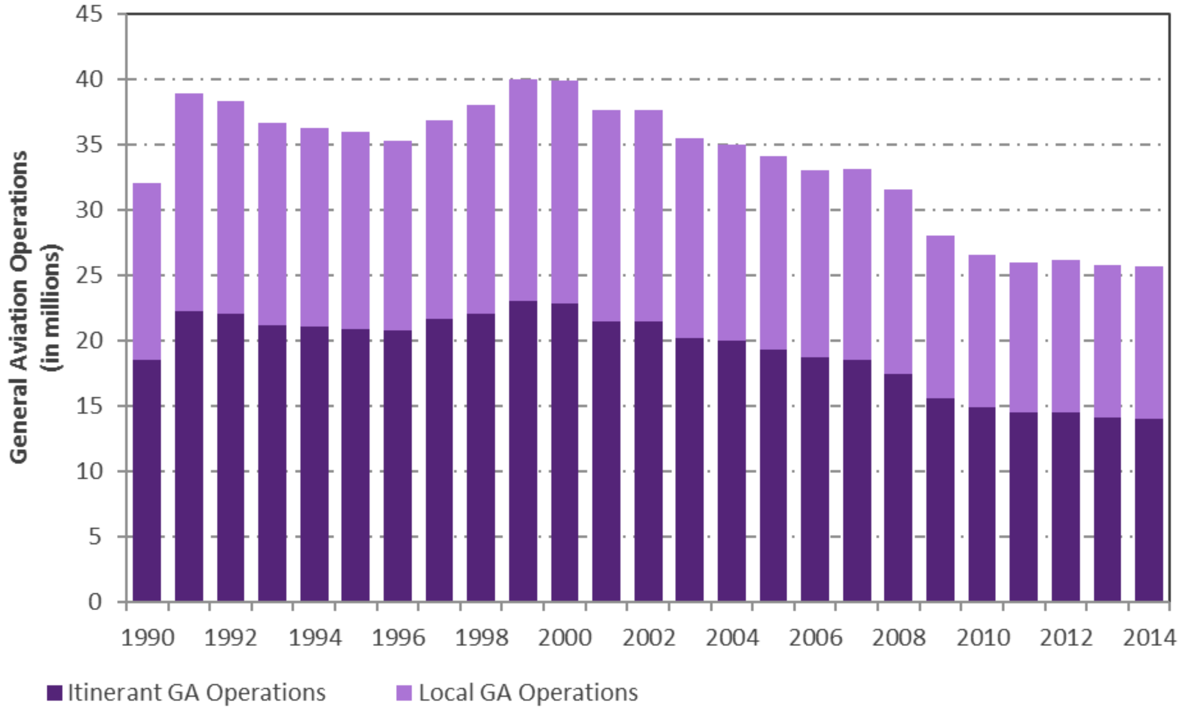
3.13 GENERAL AVIATION INDUSTRY

The general aviation (GA) industry in the U.S. has experienced major changes over the past several decades. GA activity levels were at their highest in the late 1970s through 1981. GA activity levels and new aircraft production reached all-time lows in the early 1990s due to a number of factors including increasing fuel prices, increased product liability stemming from litigation concerns, and the resulting higher cost of new aircraft. The passage of the 1994 General Aviation Revitalization Act (GARA) [10] combined with reduced new aircraft prices, lower fuel prices, resumed production of single-engine aircraft, continued strength in the production and sale of business jets, and a recovered economy led to growth in the GA industry in the latter half of the 1990s.[11]

The rebound in the U.S. GA industry that began with GARA started to subside by FY2000. GA traffic at airports with air traffic control service slowed considerably in FY2001 due largely to a U.S. economic recession and to some extent the terrorist attacks of September 11, 2001. GA traffic at airports with air traffic control service continued to decline through FY2006 as spikes in fuel costs occurred and the economy grew at a relatively even pace. For the first time since FY1999, GA traffic at airports with air traffic control service increased in FY2007, but just slightly (0.2 percent over FY2006). However, GA operations declined by 4.7 percent at airports with air traffic control service the following year. The decline in GA traffic continued due to the recent economic downturn and increases in fuel prices. GA operations decreased 11.3 percent in FY2009, 5.1 percent in FY2010, and 2.3 percent in FY2011. In FY2012, GA operations increased 0.6 percent but decreased 0.8 percent and an estimated 1.1 percent in the following years. **Exhibit 3-7, *GA Operations at U.S. Airports***, shows the number of GA operations at U.S. airports since FY1990.

[10] GARA imposes an 18-year statute of repose on product liability lawsuits for GA aircraft.
[11] Based on information from the General Aviation Manufacturers Association (GAMA).

Exhibit 3–7
GA Operations at U.S. Airports



Note: Local operations are those operations performed by aircraft that remain in the local traffic pattern, execute simulated instrument approaches or touch-and-goes at the airport, and the operations to or from the airport and a designated practice area within a 20−mile radius of the tower. Itinerant operations are operations performed by an aircraft that lands at an airport, arriving from outside the airport area, or departs an airport and leaves the airport area.

Source: FAA Air Traffic Activity Data System (ATADS).
File Location: Y:\PVA\EIS\E-L&B Work Product\5-Forecasts\2015 Update\04-Background Info\[Aircraft Industry.xlsx]ATADS

The FAA annually publishes forecasts of the U.S. aviation industry. The FAA forecast is considered to be one of the most complete and reliable forecasts available for civil activity in the U.S. The FAA forecasts[12] project the following trends in the U.S. GA industry from 2014 to 2035:

- The number of active GA aircraft is forecast to increase by 0.4 percent annually.
- Growth of 1.4 percent per annum is expected in the number of GA hours flown.
- GA operations at airports with air traffic control service are forecast to increase by 0.4 percent annually through FY2035.
- Business use of GA aircraft has experienced historically high growth rates and will continue to grow more rapidly than those for recreational use.

[12] FAA Aerospace Forecast, Fiscal Years 2015-2035.

4.0 HISTORICAL AIR TRAFFIC

This section provides a discussion of CMH's role in the region and within the U.S. transportation system in terms of serving aviation demand. This section also provides a summary of historical activity levels and current domestic and international passenger air service. The purpose of this section is to start building a context for the forecast. The past is not always a good predictor of the future, however, analysis of historical data provides the opportunity to understand those factors which have either caused traffic to increase or decrease and how they may change in the future, thus influencing the forecast. While the socioeconomic base is one of the fundamental underpinnings of the forecast, demand cannot be realized without air service at a price that induces demand. Ultimately, understanding the historical relationships between the economy and aviation activity at CMH will form the building blocks of the forecast.

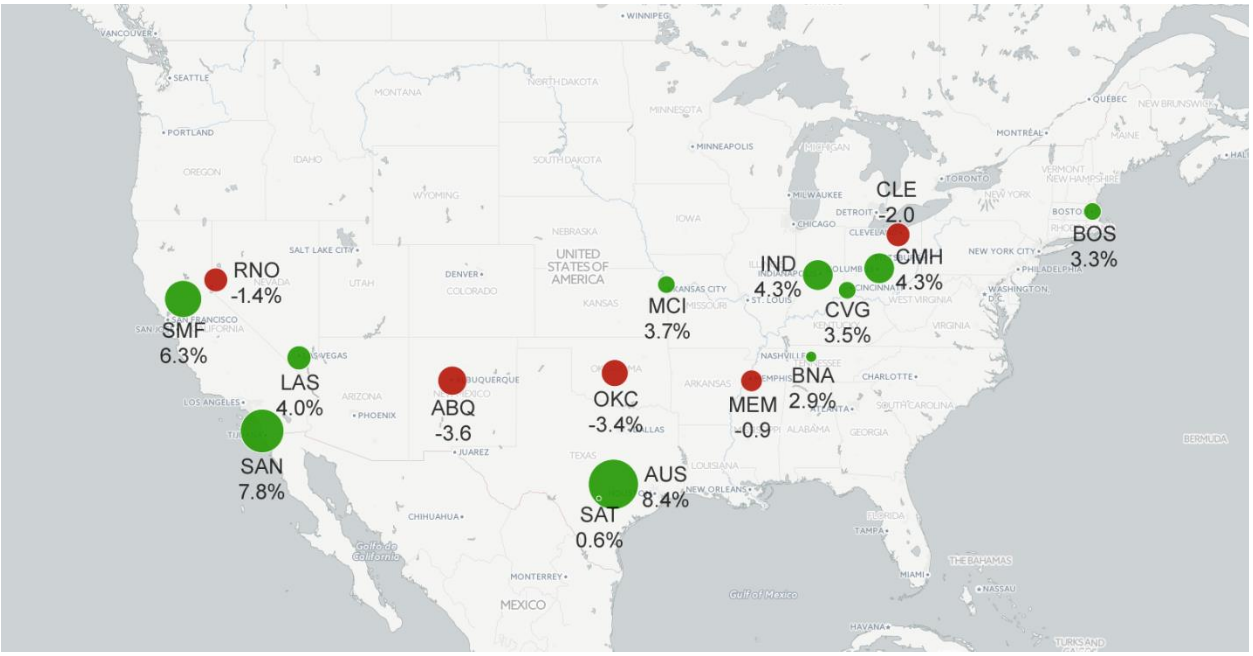
4.1 HISTORICAL ENPLANEMENTS

Over the past few years, domestic traffic across the United States has stagnated with almost zero growth from 2005 to 2014. However, international traffic grew at a CAGR of 5.7 percent during the same period. In recent years, as a result of mergers and acquisitions within the airline industry, airlines consolidated operations at their dominant hubs resulting in some airports losing their airline hub status and distributing passengers to the remaining hubs. As a result, the new consolidated hub grew at a higher rate while the previous hub declined at a sharp rate as seen at Cincinnati (CVG), St. Louis (STL), Cleveland (CLE), and Memphis (MEM). 2015 was buoyant for the airline industry due to a decrease in the price of oil, an increase in seats by airlines, and renewed confidence in the general economic situation. As seen in **Exhibit 4-1, *Domestic Traffic Growth at Medium Hub Airports in First Half of 2015***, medium hub airports U.S. wide including the neighboring airports in Indianapolis (IND) and Cincinnati (CVG) demonstrated a growth in the traffic levels. At the same time, some airports experienced a slowdown of traffic during the same period as airlines reduced flights due to ongoing mergers and acquisition related activities.

CMH is designated as a "Medium Hub Primary Commercial Service Airport" by the FAA.[13] In 2014, CMH ranked 50th among U.S. airports in terms of total passengers,[14] with passenger airlines accounting for the majority of the operational activity at CMH.

[13] 2015-2019 National Plan of Integrated Airport Systems (NPIAS)
[14] Airports Council International–North America (ACI-NA).

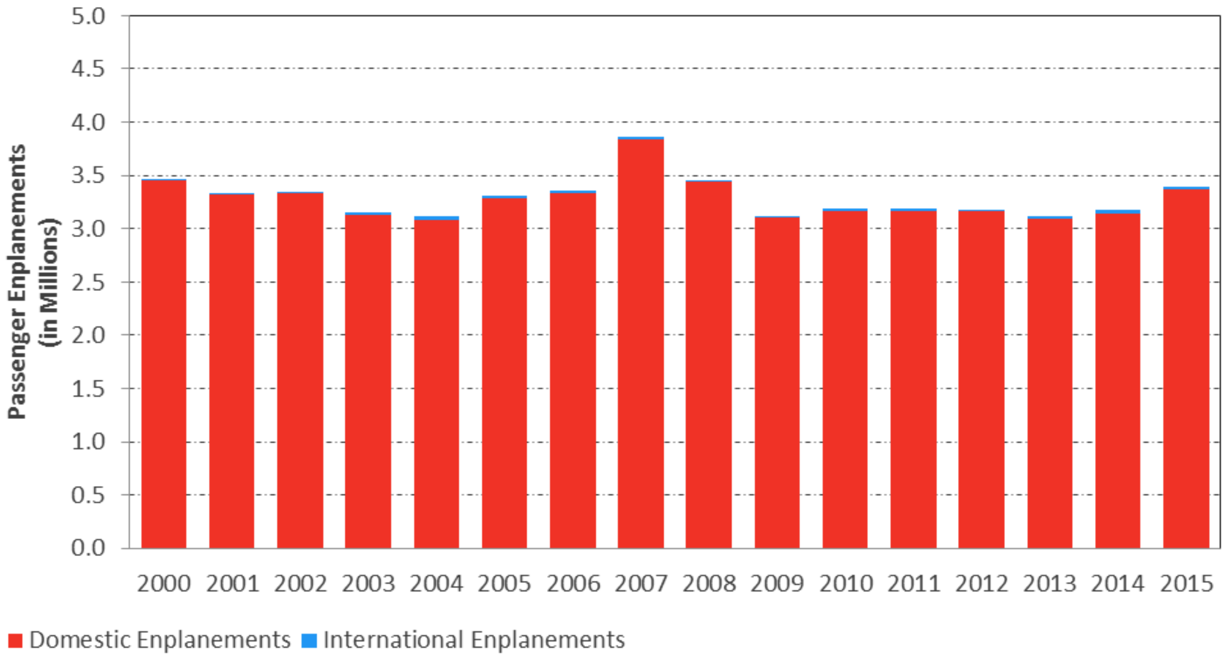
Exhibit 4–1
Domestic Traffic Growth at Medium Hub Airports in First Half of 2015



Source: U.S. DOT T100 Domestic Data

From 2000 through 2006, enplanements at CMH decreased at an average annual rate of 0.5 percent. However, in 2007 the introduction of service by LCCs Skybus and JetBlue resulted in an increase in enplanements by 14.9 percent to 3.9 million enplanements. However, this growth was short-lived because of Skybus ceasing operations and JetBlue leaving CMH. By 2009 enplanements dropped to 3.1 million. Through 2014, enplanements remained relatively flat at CMH, but starting in 2015, enplanements began to increase. Through December 2015, enplanements were up 6.9 percent over 2014. **Exhibit 4-2, *Historical Enplanements***, presents the historical passenger enplanements at CMH from 2000 to 2015.

Exhibit 4–2
Historical Enplanements



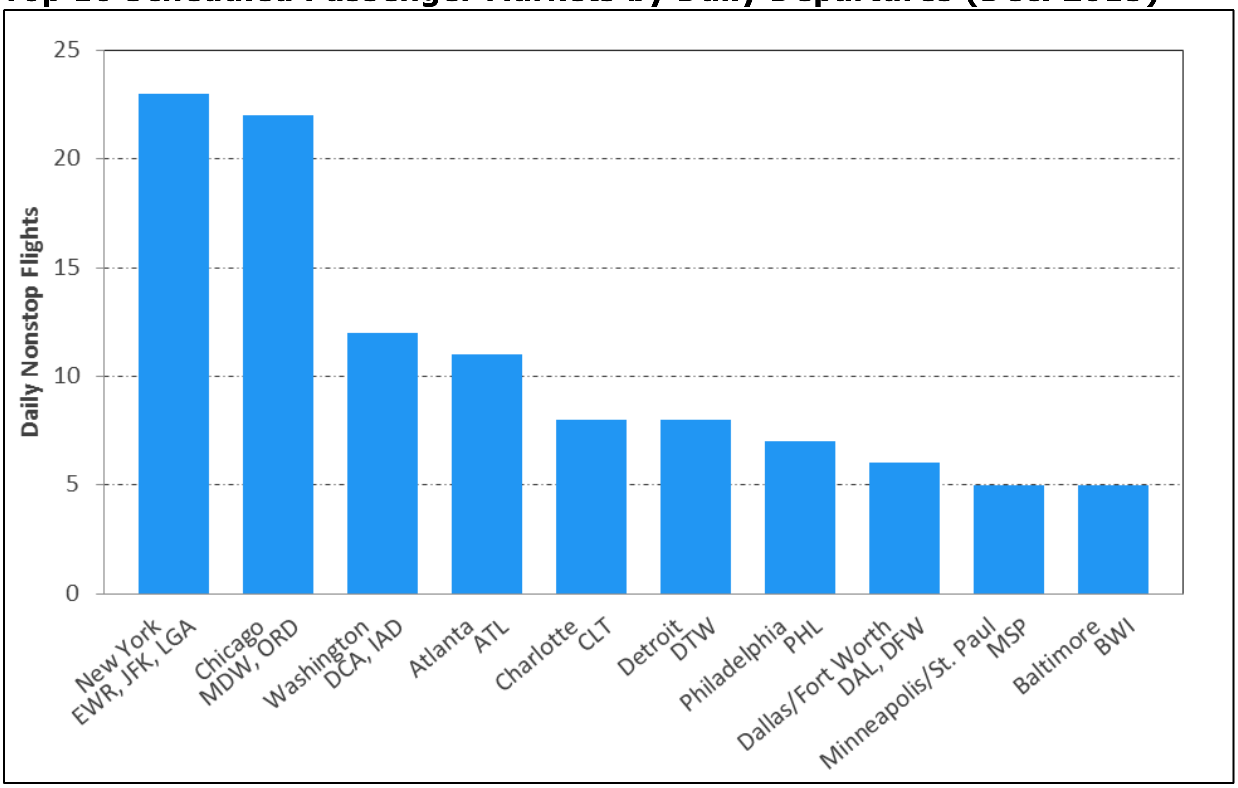
Note: The 2015 split between domestic and international is an estimate based on historical trends.
Source: CRAA.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\[Master Sheet.xlsx]Charts

Since 2000, international enplanements have accounted for only 0.5 percent of the total enplanements at the Airport. However, the percent share of enplanements on an initial domestic portion of international journeys (DPIJ) has been increasing. International traffic, as reported and recorded in traffic statistics, shows just the passenger trip segments where the origin airport is the gateway to an international airport. Increased demand for international travel from CMH is represented in the increased DPIJ traffic, although likely still too small to support airlines adding direct international flights yet. In 2000, DPIJ passenger traffic represented 4.5 percent of the domestic enplanements and by 2014 that segment had increased to 8.8 percent.

4.2 SCHEDULED PASSENGER AIR SERVICE

According to airline schedule filings with the Official Airline Guide (OAG), in 2014 the airlines operating scheduled commercial passenger service at CMH provided at least weekly service to 29 domestic destinations, representing 24 markets, and international flights to Toronto, Canada (YYZ) with seasonal service to Cancun, Mexico (CUN). In 2014, scheduled domestic air service accounted for 97.1 percent of total scheduled passenger flights and 98.7 percent of scheduled seats at CMH. In June 2014, United Airlines ceased operations to Cleveland Hopkins International Airport (CLE). In April 2015 Southwest began services to Washington National Airport (DCA) and Dallas Love Field Airport (DAL). In August 2015, Southwest expanded further at CMH to add services to Oakland International Airport (OAK) and Boston Logan International Airport (BOS). Southwest also added an additional daily flight to Washington Reagan National Airport (DCA) in November 2015. In January 2016, Frontier Airlines announced start of new services in May 2016 to Denver (DEN), Las Vegas (LAS), Orlando (MCO) and Philadelphia (PHL). **Exhibit 4–3, *Top 10 Scheduled Passenger Markets by Daily Departures (Dec. 2015)***, provides a graphical representation of the top ten markets by number of daily departures served at CMH in 2015.

Exhibit 4–3
Top 10 Scheduled Passenger Markets by Daily Departures (Dec. 2015)



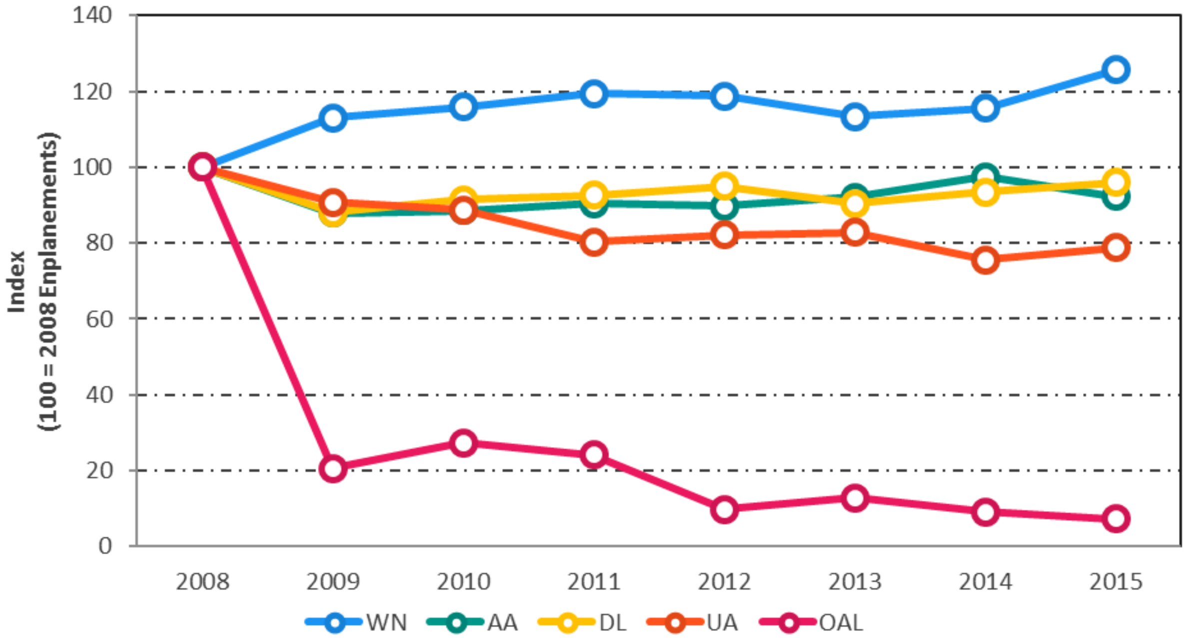
Source: CRAA.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]Top Markets

4.3 PASSENGER AIRLINE MARKET SHARE

Southwest Airlines is the largest carrier at the Airport with 1.19 million enplanements accounting for 35.0 percent of the total passenger traffic in 2015. American Airlines was the second largest carrier in 2015, accounting for 27.3 percent of the total passenger enplanements, followed by Delta Air Lines at 22.9 percent, and United Airlines at 13.5 percent. The remaining carriers, including charter services, accounted for 1.3 percent of the traffic.

Exhibit 4-4, *Historical Enplanement Growth by Airline Group*, displays the enplanement growth of the top carriers' passenger traffic at CMH from 2008 to 2015. Southwest Airlines grew from 914,695 enplanements in 2008 to 1.19 million enplanements in 2015, representing an average annual growth of 3.8 percent. In 2015, Southwest Airlines demonstrated a 12.5 percent growth in enplanements compared to 2014. The remaining carriers operated at levels below their 2008 enplanements. However, both Delta Air Lines and United Airlines have shown significant year–on-year growth from 2014, growing at 6.2 percent and 10.5 percent, respectively.

Exhibit 4–4
Historical Enplanement Growth by Airline Group



Carrier	2008	2009	2010	2011	2012	2013	2014	2015	CAGR 2008-15
Southwest Airlines	914,695	1,033,379	1,059,608	1,092,420	1,086,756	1,036,860	1,056,989	1,188,601	3.8%
American Airlines	958,141	841,610	848,122	865,615	860,519	882,569	934,094	926,883	-0.5%
Delta Air Lines	783,762	689,853	716,796	726,261	743,930	709,159	733,138	778,777	-0.1%
United Airlines	548,493	497,492	486,380	440,098	450,990	454,338	414,949	458,555	-2.5%
All Other	254,343	60,655	72,886	65,674	32,619	31,769	33,876	45,137	-21.9%
Total	3,459,434	3,122,989	3,183,792	3,190,068	3,174,814	3,114,695	3,173,046	3,397,952	-0.3%

Notes:
1. All Other = OAL
2. All Other includes Skybus in 2008 and charter services
3. Southwest includes AirTran
4. American includes US Airways
5. Delta includes Northwest
6. United includes Continental

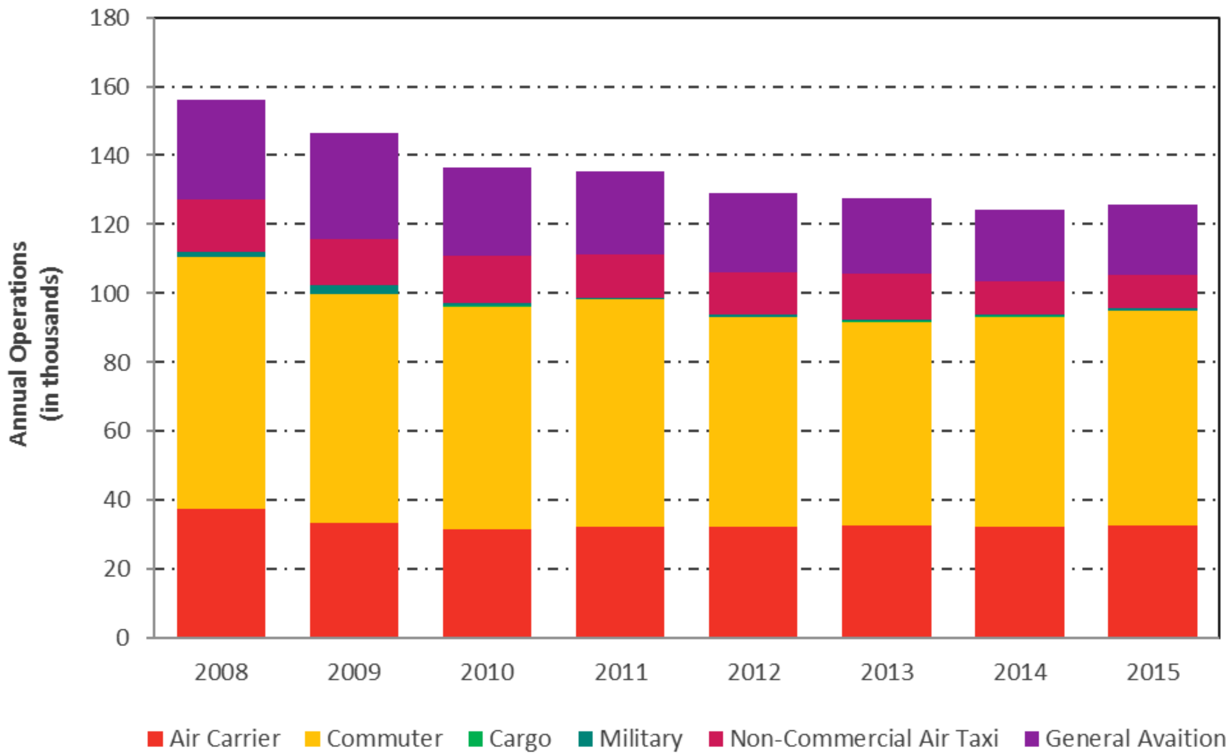
Sources: CRAA and Landrum & Brown analysis
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\01-Source Data\[Master Sheet.xlsx]Carrier Chart

4.4 HISTORICAL AIRCRAFT OPERATIONS

Since 2008, after the collapse of Skybus Airlines, total aircraft operations at the Airport declined at a CAGR of 3.0 percent, decreasing from 155,914 operations in 2008 to 125,727 operations in 2015. **Exhibit 4–5, *Historical Aircraft Operations***, provides a graphical representation of the historical aircraft operations at CMH from 2008 through 2014.

Passenger airline operations dropped from 110,348 operations in 2008 to 94,824 operations in 2015, representing a reduction of 2.1 percent CAGR. A majority of this decrease was the result of Skybus Airlines ceasing operations in April 2008.

Exhibit 4–5
Historical Aircraft Operations



Sources: CRAA; FAA Operational Network (OPSNET).
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\03-Operations Forecast\[Operations Forecast.xlsx]Chart

Non-commercial air taxi and general aviation operations decreased from a combined total of 44,161 operations in 2008 to 30,126 operations in 2015, representing an average annual rate of decline of 5.3 percent CAGR. In 2015, there were less than a third of the military operations than there were in 2008.

4.5 PASSENGER AIRCRAFT FLEET MIX

According to the schedule filed for the year 2015 in the Official Airline Guide, narrow-body aircraft formed the majority of passenger operations at the Airport followed by large regional jets and small regional jets. **Table 4-1, *2015 Passenger Aircraft Fleet Mix***, gives a breakdown of the passenger fleet mix. A narrow-body aircraft is an airliner with seating arranged 4 to 6 across with a single aisle. A regional jet describes short to medium haul aircraft. A large regional jet can accommodate between 60 and 100 passengers while small regional jets handle less.

Table 4-1
2015 Passenger Aircraft Fleet Mix

Aircraft Category	Operations	% Share
Narrow-body	35,526	37.5%
Large RJ	31,092	32.8%
Small RJ	25,276	26.7%
Turboprops	2,930	3.1%
Total	**94,824**	**100.0%**

Sources: OAG; FAA; Landrum & Brown analysis.

5.0 PASSENGER FORECAST

This section presents the forecast of passenger enplanements for CMH through 2045 including the methodology and assumptions used to develop these forecasts. The enplanement forecast provides the basis for estimating the commercial passenger operations forecast by applying assumptions of average aircraft size and load factor.

5.1 ENPLANEMENT FORECAST METHODOLOGY

The first step in developing the passenger forecast model was to collect and analyze demographic data, socioeconomic data, and trends in the airline industry as described in Section 3.0, Drivers of Air Traffic Demand. The enplanement forecast was guided by an approach that quantifies the relationship between passengers and these independent variables. The forecast models were developed using the classical technique of linear regression, where the relationship of the dependent variable (passenger enplanements) to one or more independent variables is modeled through a linear function. This methodology recognizes that the key independent variables will change over time but assumes their fundamental relationships to the dependent variables will remain and support the forecasts.

5.2 DOMESTIC ENPLANEMENT FORECAST

The domestic enplanements were developed using a combination of multivariate modelling and a bottom-up approach based on the new services planned by Frontier Airlines due to begin in mid-2016.

A number of potential independent variables were tested against the dependent variable. The historical domestic enplanements at CMH were used in the regression models.

A multivariate model using the FAA's U.S. domestic passenger enplanements, airline yield, and a dummy variable for the year 2007 was selected to forecast a portion of the domestic enplanements at the Airport. The regression inputs used in the model are displayed in **Table 5-1, *Domestic Regression Inputs***. The model equation is provided below:

$$\hat{Y} = -179730.0 + 5950.4 * X_{US\ Dom\ Enp} - 32511.4 * X_{Yield} + 374369.9 * X_{Dummy}$$

A dummy variable, also known as an indicator or Boolean indicator, is a variable that will take the value of either 0 or 1 to indicate the presence of an effect that may result in a shift of the outcome. The variable is used to categorize data into mutually exclusive categories. Typically, in modelling enplanements, these dummy variables are used to indicate an event such as the terrorist attacks on September 11, 2001 or the SARS epidemic that impacted passenger traffic but is not reflected in the socio-economic variables. In these cases, the event would have a negative impact on the number of passengers at an airport. In the instance of CMH, the dummy variable was used to explain the sharp increase in passenger enplanements in 2007 resulting from the introduction of additional capacity at low fares by the then start-up Skybus Airlines at CMH.

Table 5-1
Domestic Regression Inputs

Year	Domestic Enplanements (in millions)	U.S. Domestic Enplanements (in millions)	CMH Average Airline Yield (in cents)	Dummy Variable
2005	3.3	669.2	13.6	0
2006	3.3	673.4	14.6	0
2007	3.8	688.5	13.5	1
2008	3.4	680.7	15.2	0
2009	3.1	630.8	13.2	0
2010	3.2	634.8	14.8	0
2011	3.2	650.1	16.5	0
2012	3.2	653.8	17.7	0
2013	3.1	654.4	18.9	0
2014	3.1	668.4	19.5	0

Note: The dummy variable represents Skybus effect on enplanements.
Sources: CRAA; FAA Aerospace Forecast: Fiscal Years 2015-2035; Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]Regression Inputs

The summary output from the regression model is shown below. The model exhibits relatively strong regression statistics (coefficient of determination, t-statistics, and p-values) compared to the models using other combinations of independent variables.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.97
R Square	0.93
Adjusted R Square	0.90
Standard Error	71898.13
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*P-value*
Regression	3	4.32608E+11	1.44203E+11	27.9	0.0006
Residual	6	31016048195	5169341366		
Total	9	4.63624E+11			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-179730.0	1122603.2	-0.16	0.88	-2926641.1	2567181.2
Domestic	5950.4	1769.2	3.36	0.02	1621.3	10279.6
Yield	-32511.4	11688.0	-2.78	0.03	-61110.8	-3912.0
Dummy	374369.9	100692.8	3.72	0.01	127983.6	620756.2

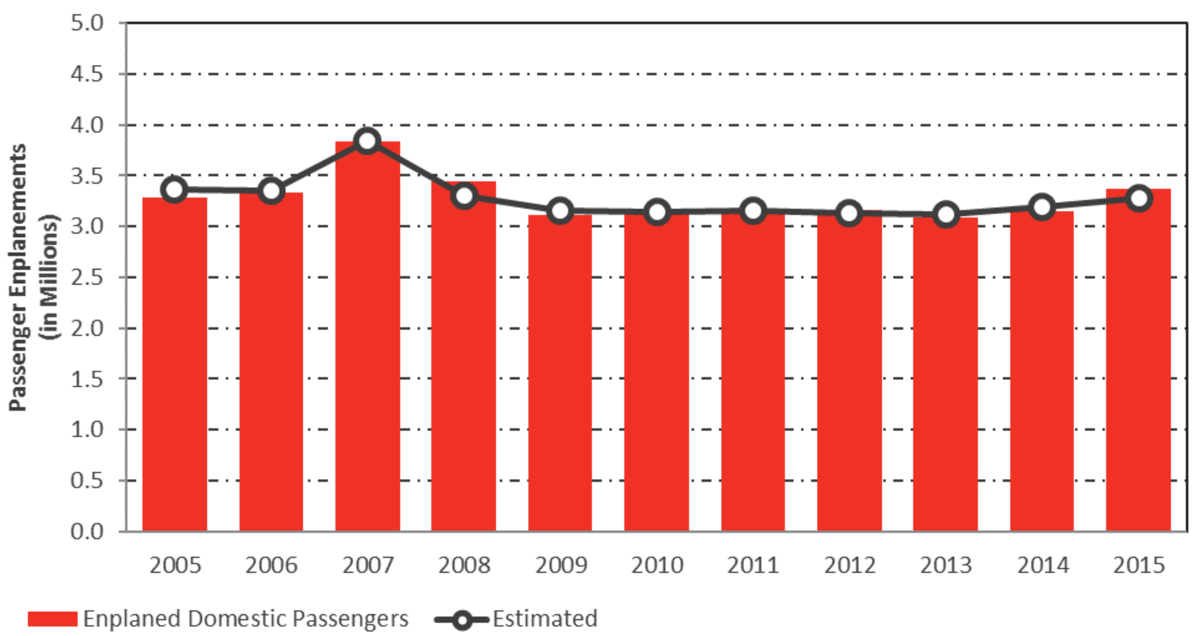
Exhibit 5-1, *Domestic Enplanement Model*, illustrates the model fit when plotted against the actual historical traffic at CMH. The model predicted traffic compares well to the actual traffic.

The regression statistics and model-predicted traffic comparison indicate that the model provides a reasonable basis from which to forecast passenger traffic for CMH. The model equation was applied to the forecasts of U.S. revenue passengers and yield to determine the growth rates for the Airport's domestic passenger demand.

The plans by Frontier Airlines to operate a total of 40 flights per week to Denver, Las Vegas, Orlando and Philadelphia combined, offering low fares is forecast to stimulate new traffic that otherwise would not have occurred. It is also assumed that the new services will cannibalize a portion of traffic from existing carriers on the routes.

Based on the model, domestic enplanements for the Airport are forecast to increase from nearly 3.4 million in 2015 to 6.7 million in 2045 without adjusting for the shift of domestic portion of international journey (DPIJ) passengers to international passengers as discussed in Sections 5.2.1 and 5.3.

Exhibit 5–1
Domestic Enplanement Model

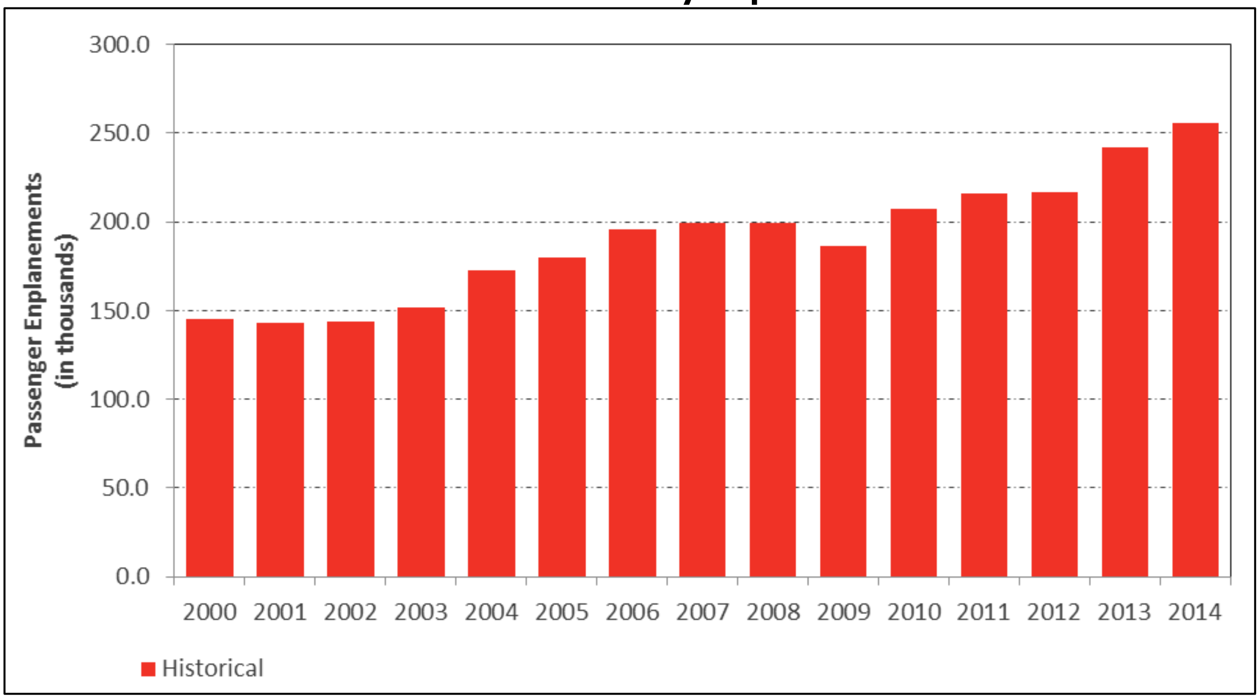


Sources: CRAA; Landrum & Brown
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]R7

5.2.1 SHIFT OF DOMESTIC PORTION OF INTERNATIONAL JOURNEY

Since 2000, the fastest growing segment at CMH has been domestic enplanements departing on a DPIJ. **Exhibit 5-2, *Domestic Portion of International Journey Enplanements***, provides a graphical representation of the DPIJ enplanements at CMH since 2000. In 2014, 8.1 percent of the domestic enplanements totaling to 255,533 were DPIJ and it was assumed that this growing segment would eventually provide sufficient demand for direct international service.

Exhibit 5–2
Domestic Portion of International Journey Enplanements

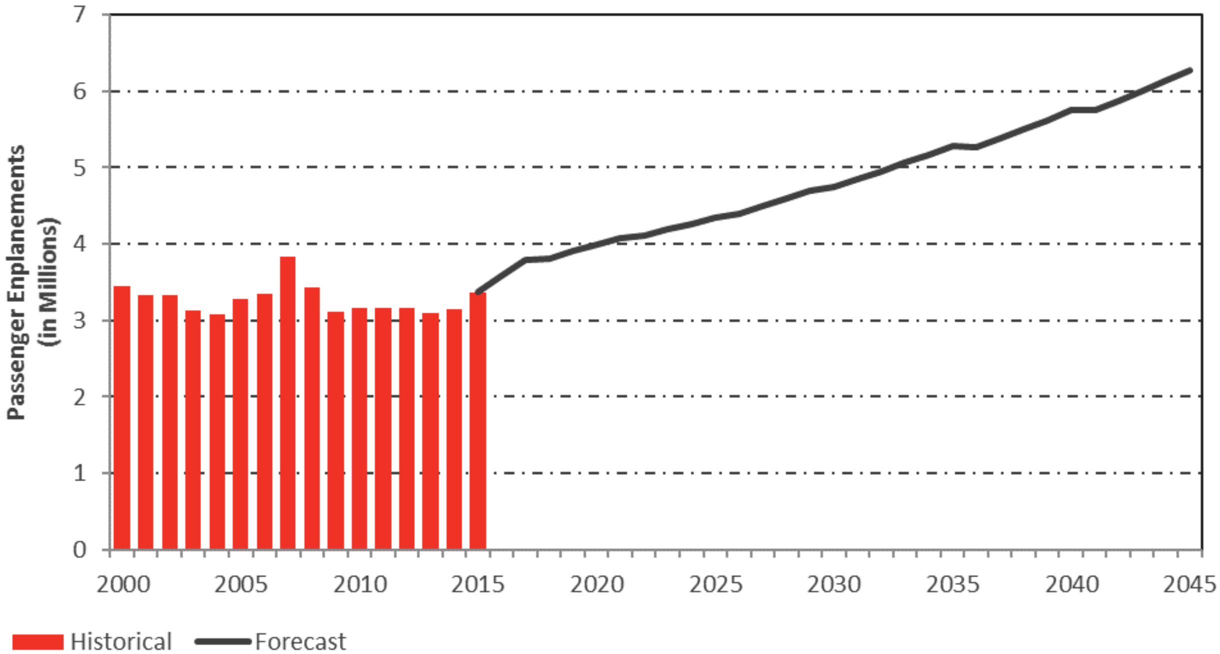


Sources: CRAA; U.S. DOT, Schedule T-100; Landrum & Brown
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]DOM Forecast

After stakeholder interviews and data analysis, it is assumed that beginning in 2018, international flights utilizing wide-body aircraft will commence with a limited frequency per week to destinations in North East Asia or Europe, and as the market matures further the services will increase to daily operations. It was assumed that the new international service will begin with 310 annual operations and additional flights will be added through 2045 as demand dictates. The DPIJ passengers utilizing these overseas international flights will result in a reallocation from domestic passengers to international passengers. As such, 6.3 million domestic enplaned passengers and 523,200 international enplaned passengers are projected in 2045.

Exhibit 5-3, *Domestic Enplanement Forecast*, displays the result of the domestic enplanement forecast.

Exhibit 5–3
Domestic Enplanement Forecast



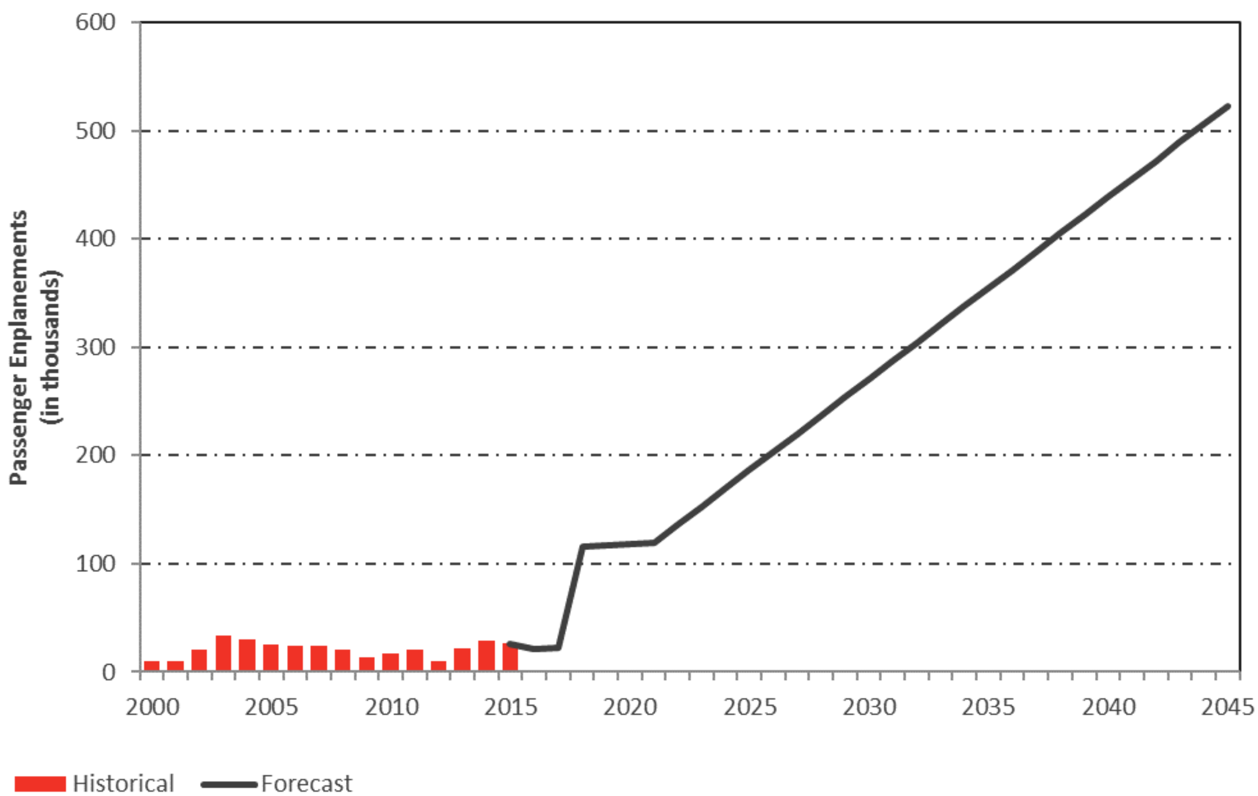
Sources: CRAA; Landrum & Brown
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]DOM Forecast

5.3 INTERNATIONAL ENPLANEMENT FORECAST

International enplanements have historically been erratic at CMH. As such, an acceptable model obtained through linear regression was not possible. Since 2005, international enplanements have accounted for approximately 0.6 percent of total enplanements at CMH. Therefore, it was assumed international enplanements would continue to account for about 0.6 percent of the total enplanements at the Airport until 2018 when new international service using wide-body aircraft is assumed to commence operation.

International enplanements for the Airport are forecast to increase from an estimated 26,352 in 2015 to 523,200 in 2045, representing a CAGR of 10.5 percent. **Exhibit 5-4, *International Enplanement Forecast***, displays the result of the international enplanement forecast. It is assumed that the international wide-body operations will increase from 3 flights a week in 2018 to 2 flights per day by 2045.

Exhibit 5–4
International Enplanement Forecast



Sources: CRAA; Landrum & Brown
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]INT Forecast

5.4 ENPLANEMENT FORECAST SUMMARY

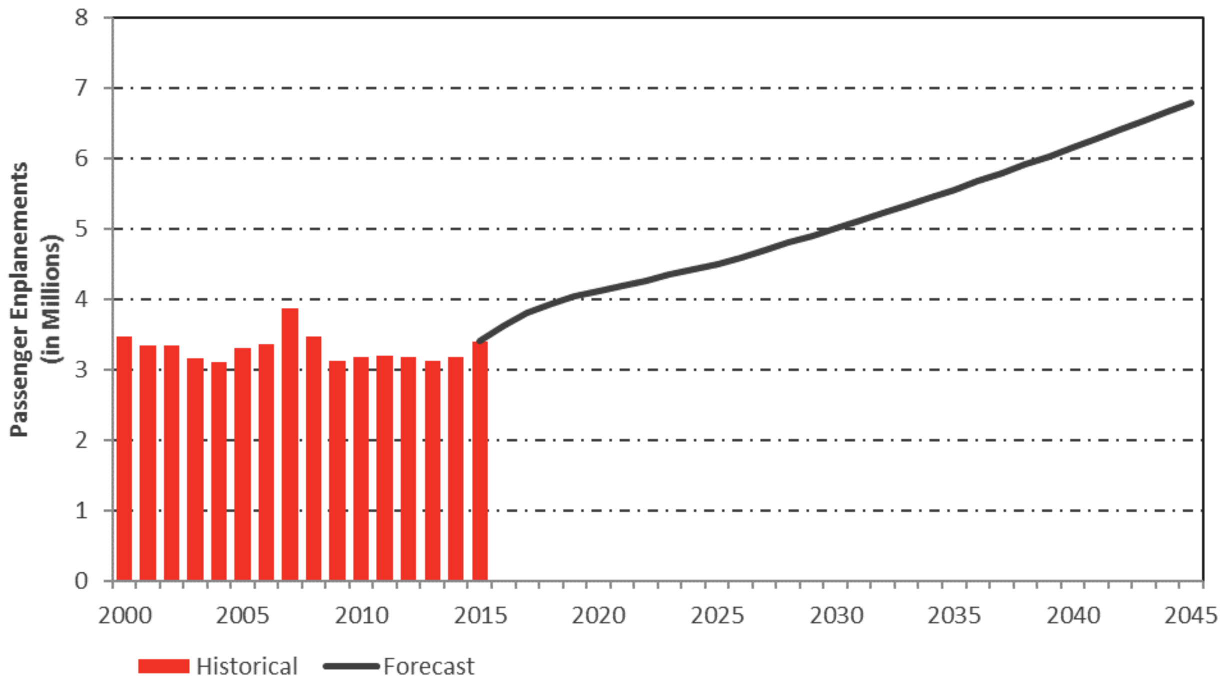
The total enplanement forecast is the aggregation of the domestic and international enplaned passenger demand forecasts. Overall, the total enplaned passengers at CMH are forecast to increase from 3.4 million in 2015 to 6.8 million by 2045, averaging growth of 2.3 percent per year. **Table 5-2, *Total Enplanement Forecast***, and **Exhibit 5-5, *Total Enplanement Forecast***, provide the result of the enplaned passenger forecast.

Table 5-2
Total Enplanement Forecast

	Enplanements		
Year	Domestic	International	Total
Historical			
2000	3,452,627	10,293	3,462,920
2001	3,326,605	9,422	3,336,027
2002	3,327,680	20,776	3,348,456
2003	3,123,550	32,970	3,156,520
2004	3,082,360	30,510	3,112,870
2005	3,281,964	24,789	3,306,753
2006	3,339,325	23,675	3,363,000
2007	3,840,993	24,488	3,865,481
2008	3,438,618	20,816	3,459,434
2009	3,109,731	13,258	3,122,989
2010	3,166,387	17,405	3,183,792
2011	3,169,469	20,599	3,190,068
2012	3,165,245	9,569	3,174,814
2013	3,093,217	21,478	3,114,695
2014	3,144,690	28,356	3,173,046
2015	3,371,600	26,352	3,397,952
Forecast			
2016	3,595,000	20,900	3,615,900
2017	3,783,800	21,800	3,805,600
2018	3,815,300	116,300	3,931,600
2019	3,917,700	117,400	4,035,100
2020	4,000,800	118,500	4,119,300
2021	4,072,400	119,400	4,191,800
2022	4,110,500	136,200	4,246,700
2023	4,187,800	153,000	4,340,800
2024	4,261,000	169,800	4,430,800
2025	4,340,800	186,600	4,527,400
2026	4,396,900	203,400	4,600,300
2027	4,495,900	220,200	4,716,100
2028	4,600,300	237,000	4,837,300
2029	4,705,300	253,800	4,959,100
2030	4,742,400	270,600	5,013,000
2031	4,846,000	287,400	5,133,400
2032	4,954,300	304,200	5,258,500
2033	5,062,700	321,000	5,383,700
2034	5,170,800	337,800	5,508,600
2035	5,282,200	354,600	5,636,800
2036	5,274,400	371,400	5,645,800
2037	5,389,600	388,200	5,777,800
2038	5,506,900	405,000	5,911,900
2039	5,626,300	421,800	6,048,100
2040	5,747,800	438,600	6,186,400
2041	5,750,400	455,400	6,205,800
2042	5,876,200	472,200	6,348,400
2043	6,004,300	489,000	6,493,300
2044	6,134,600	505,800	6,640,400
2045	6,267,200	523,200	6,790,400
CAGR			
2000-14	-0.7%	7.5%	-0.6%
2015-45	2.1%	10.5%	2.3%

Sources: CRAA and Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]Document Table

Exhibit 5–5
Total Enplanement Forecast



Sources: CRAA; Landrum & Brown
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]TOT Forecast

6.0 AIRCRAFT OPERATIONS FORECAST

Aircraft operations, defined as arrivals plus departures, were forecast for five major categories of users at CMH: passenger airlines, non-commercial air taxi, general aviation, cargo, and military.

6.1 PASSENGER AIRLINE OPERATIONS

Passenger aircraft operations were derived from a combination of the enplaned passenger forecast and bottom-up approach based on planned operations by Frontier Airlines. The aggregate number of commercial passenger operations at an airport depends on three factors: total passengers, average aircraft size (number of available seats), and average load factor (percent of seats occupied). The relationship is shown in the equation below.

$$Operations = \frac{TotalPassengers}{AverageLoadFactor * AverageAircraftSize}$$

This relationship permits literally infinite combinations of load factors, average aircraft size, and operations to accommodate a given number of passengers. The fundamental approach to deriving the passenger operations forecast is essentially the same at all airports. However, the underlying assumptions at each airport are inherently different due to how airlines choose to serve the demand for air travel to, from, and over each airport. These differences may result if there is a strategic focus on unit revenues versus unit costs, or an emphasis on a hub-and-spoke operation versus a point-to-point operation.

Average seats per departure (ASPD) for each of the major groups of passenger activity was calculated from total departures and total departing seats. Aircraft load factors were calculated for each group of passenger operations by dividing total enplaned passengers by total departing seats. To calculate total operations, the total number of departures was multiplied by a factor of two.

6.1.1 AVERAGE SEATS PER DEPARTURE AND LOAD FACTOR ASSUMPTIONS

Table 6-1, *Average Seats Per Departure and Load Factor Assumptions*, presents the ASPD and load factor assumptions, respectively, for each segment of passenger activity at the Airport. The following sections provide discussions on the assumptions used to develop the average seats per departure and load factor forecasts.

Table 6-1
Average Seats Per Departure and Load Factor Assumptions

Year	ASPD Air Carrier	Load Factor Air Carrier	ASPD Commuter	Load Factor - Commuter
Historical				
2008	140.7	73.0%	56.3	71.7%
2009	141.0	75.5%	57.7	70.1%
2010	140.4	79.4%	58.6	75.5%
2011	141.4	80.0%	58.3	69.6%
2012	143.8	79.9%	59.6	72.6%
2013	147.8	74.9%	58.6	69.1%
2014	144.5	75.8%	57.2	75.2%
2015	144.4	77.0%	57.9	77.0%
Forecast				
2016	144.3	77.4%	60.4	77.4%
2017	148.1	77.8%	62.1	77.8%
2018	150.1	78.1%	63.6	78.1%
2019	150.2	78.5%	65.2	78.5%
2020	150.4	78.8%	66.6	78.8%
2021	151.0	79.2%	68.1	79.2%
2022	152.4	79.5%	69.5	79.5%
2023	153.1	79.9%	71.0	79.9%
2024	153.8	80.3%	72.3	80.3%
2025	153.5	80.6%	73.5	80.6%
2026	154.0	81.0%	73.4	81.0%
2027	154.9	81.4%	73.6	81.4%
2028	155.1	81.7%	73.8	81.7%
2029	155.1	82.1%	74.0	82.1%
2030	157.0	82.5%	74.1	82.5%
2031	155.3	82.9%	74.0	82.9%
2032	155.4	83.2%	73.9	83.2%
2033	155.4	83.6%	73.9	83.6%
2034	155.5	84.0%	73.9	84.0%
2035	157.8	84.0%	74.1	84.0%
2036	157.5	84.1%	74.0	84.1%
2037	158.3	84.2%	74.0	84.2%
2038	159.1	84.3%	74.0	84.3%
2039	159.8	84.4%	74.0	84.4%
2040	160.6	84.5%	74.3	84.5%
2041	162.1	84.6%	74.3	84.6%
2042	162.7	84.7%	74.3	84.7%
2043	163.4	84.8%	74.3	84.8%
2044	163.7	84.9%	74.3	84.9%
2045	163.6	85.0%	74.3	85.0%
CAGR				
2008-15	0.4%	0.8%	0.4%	1.0%
2015-45	0.4%	0.3%	0.8%	0.3%

Note: CAGR = Compound Annual Growth Rate.

Sources: Airport Records; Official Airline Guide; U.S. DOT, Schedule T-100; Landrum & Brown analysis.
Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\03-Operations Forecast\Operations Forecast v2.xlsx [Operations Forecast (Base Case)]

Over the seven year period, from 2008 to 2015, passenger aircraft operations at CMH decreased from 110,348 operations to 94,824 operations at -2.1 percent per annum. The load factors for air carrier operations fluctuated up and down between 2008 and 2011, from 73.0 percent to 80.0 percent respectively before stabilizing at 77.0 percent in 2015. The load factors for commuter passenger operations fluctuated between 2008 and 2015, reaching 77.0 percent in 2015. The average aircraft size increased at 0.4 percent per annum between 2008 and 2015 from 140.7 seats in 2008 to 144.4 seats by 2015 for air carriers and 0.8 percent for commuters, increasing from 56.3 seats in 2008 to 57.9 seats in 2015.

Narrow-body aircraft, which accounted for all of the air carrier operations account for 37.5 percent of the passenger operations in 2015. It consisted of a mix of B737-300,700,800; MD80 series, MD90 and the A320 family. Considering the following fleet plans by airlines it is assumed that the narrow-body ASPD will increase from 144.4 seats in 2015 to 163.6 seats in 2045:

- American Airlines retiring the MD80 and MD90 series and A320 aircraft and replacing them with B737-800 by the year 2018.
- Southwest Airlines retiring B737-300 aircraft by 2020 and replacing them with a combination of B737-700, B737-800, and B-737 MAX.

Commuter operations consist of large and small regional jets. Large regional jets accounted for 32.8 percent of passenger operations at CMH in 2015 and are anticipated to increase in share of the total passenger operations as small regional jets are being progressively phased out and replaced by large regional jets. Typically, ERJ 170s, CRJ-700s and CRJ-900s are being deployed at the Airport. It is anticipated that the commuter ASPD will increase from 57.9 seats in 2015 to 74.3 seats in 2045, and the average load factor will increase from 77.0 percent in 2015 to 85.0 percent in 2045.

Frontier Airlines has planned 40 operations per week starting from mid-2016. It is forecast that the annual operations will grow from 2,080 in 2017 to 2,178 in 2045.

6.1.2 PASSENGER OPERATIONS FORECAST

While air carrier operations are forecast to grow from 32,869 in 2015 to 50,300 in 2045 growing at 1.4 percent CAGR, the commuter operations are forecast to grow at 1.3 percent from 61,955 in 2015 to 92,200 in 2045.

The result of the foregoing assumptions regarding load factors and ASPD is that total passenger operations are forecast to grow from 94,824 operations in 2015 to 142,500 operations by 2045, representing average annual growth of 1.4 percent. **Table 6-2, *Total Aircraft Operations Forecast***, provides a summary of the operations forecast for the Airport.

Table 6-2
Total Aircraft Operations Forecast

		Annual Operations							
		Air Carrier	Commuter	Total Passenger Operations	Cargo	Military	Non-Commercial Air Taxi	General Aviation	Total
Historical	2008	37,597	72,751	110,348	54	1,451	15,445	28,716	155,914
	2009	33,326	66,272	99,598	68	2,559	13,648	30,674	146,437
	2010	31,666	64,310	95,976	354	931	13,511	25,583	136,081
	2011	32,184	65,949	98,133	172	349	12,624	24,096	135,374
	2012	32,366	60,681	93,047	108	540	12,232	23,263	129,190
	2013	32,538	59,224	91,762	134	559	13,364	21,792	127,611
	2014	32,200	61,012	93,212	200	609	9,457	20,636	124,114
	2015	32,869	61,955	94,824	200	577	9,565	20,561	125,727
Forecast	2016	36,200	66,800	103,000	200	600	10,700	20,200	134,700
	2017	37,800	68,900	106,700	200	600	11,000	20,300	138,800
	2018	38,500	70,400	108,900	200	600	11,400	20,400	141,500
	2019	39,100	71,400	110,500	200	600	11,800	20,500	143,600
	2020	39,400	72,000	111,400	200	600	12,100	20,600	144,900
	2021	39,700	72,300	112,000	200	600	12,500	20,700	146,000
	2022	39,700	72,400	112,100	200	600	12,900	20,900	146,700
	2023	40,100	73,100	113,200	200	600	13,300	21,100	148,400
	2024	40,500	73,800	114,300	200	600	13,800	21,100	150,000
	2025	40,900	74,600	115,500	200	600	14,200	21,400	151,900
	2026	41,000	74,900	115,900	200	600	14,700	21,500	152,900
	2027	41,600	75,900	117,500	200	600	15,200	21,700	155,200
	2028	42,200	77,000	119,200	200	600	15,700	21,900	157,600
	2029	42,700	78,000	120,700	200	600	16,300	22,100	159,900
	2030	42,600	77,900	120,500	200	600	16,800	22,200	160,300
	2031	43,200	78,900	122,100	200	600	17,400	22,400	162,700
	2032	43,700	79,900	123,600	200	600	17,900	22,700	165,000
	2033	44,200	80,800	125,000	200	600	18,500	22,900	167,200
	2034	44,700	81,800	126,500	200	600	19,200	23,100	169,600
	2035	45,400	83,100	128,500	200	600	19,900	23,300	172,500
	2036	45,100	82,500	127,600	200	600	20,600	23,600	172,600
	2037	45,800	83,800	129,600	200	600	21,300	23,800	175,500
	2038	46,400	85,000	131,400	200	600	22,000	24,000	178,200
	2039	47,100	86,300	133,400	200	600	22,700	24,300	181,200
	2040	47,800	87,500	135,300	200	600	23,600	24,500	184,200
	2041	47,600	87,100	134,700	200	600	24,400	24,700	184,600
	2042	48,200	88,300	136,500	200	600	25,200	25,000	187,500
	2043	48,900	89,600	138,500	200	600	26,100	25,200	190,600
	2044	49,600	90,900	140,500	200	600	26,900	25,500	193,700
	2045	50,300	92,200	142,500	200	600	27,900	25,800	197,000
Growth									
2008-15		-1.9%	-2.3%	-2.1%	20.6%	-12.3%	-6.6%	-4.7%	-3.0%
2015-45		1.4%	1.3%	1.4%	0.0%	0.1%	3.6%	0.8%	1.5%

Sources: Airport Records; FAA OPSNET; Landrum & Brown analysis.

6.2 NON-COMMERCIAL AIR TAXI

The Airport has two fixed base operators (FBO), Lane Aviation and Landmark Aviation. In addition, the Airport also houses hangars for NetJets and Nationwide.

Since 2008, the non-commercial air taxi operations have been on a decline which could be attributed to the general decline in the financial markets and the rising cost of fuel. In spite of the U.S. economy improving and the price of fuel dropping since July 2014, there has been no significant increase in non-commercial air taxi operations at the Airport. Operations in 2015 grew by 1.1 percent compared to 2014.

Based on projections by the FAA in the FAA Aerospace Forecast Fiscal Years 2015-2035 and the 2014 General Aviation Statistical Databook & 2015 Industry Outlook produced by General Aviation Manufacturers Association (GAMA) it is forecast that non-commercial air taxi operations will grow at 3.6 percent per annum to reach 27,900 by 2045.

6.3 GENERAL AVIATION

General aviation operations at the Airport have declined since 2008, which has been a general trend U.S. wide. This is attributed to a decline in piston engine operations. In 2008, there were 28,716 general aviation operations which increased to 30,674 operations in 2009. Since then the operations decreased to 20,561 operations in 2015 representing -4.7 percent CAGR between 2008 and 2015.

It is anticipated that there could be a recovery in the general aviation market triggered by private business jet operations, which constituted around 75 percent of the general aviation operations in 2015.

Based on projections by the FAA in the Aerospace Forecast Fiscal Years 2015-2035 and the 2014 General Aviation Statistical Databook & 2015 Industry Outlook produced by GAMA it is forecast that general aviation operations will grow at 0.8 percent per annum up to 2035 and will continue to grow at the same rate up to 2045 to reach 25,800 operations by 2045.

6.4 CARGO OPERATIONS

Rickenbacker International Airport serves as the main airport for cargo operations in the Columbus area. As a result, there are very few cargo operations at CMH. In 2008, CMH had 54 operations which grew up to 354 operations in 2010 and declined to 200 movements in 2015. It is forecast that the cargo operations will remain constant through 2045 at 200 operations.

6.5 MILITARY OPERATIONS

Military operations at the airport have been declining since 2008 as well, and saw a small growth in the operations in 2014. In 2015, the total military operations were 577 operations and are forecast to remain steady through 2045 at 600 operations.

6.6 TOTAL OPERATIONS

The total operations are forecast to grow at 1.5 percent per year from 125,727 in 2015 to 197,000 in 2045.

6.7 FLEET MIX FORECAST

Considering the aforementioned aircraft fleet plans announced by airlines and general trends in the industry, the fleet mix forecast was prepared, and is presented in **Table 6-3, *Fleet Mix Forecast***.

Table 6-3
Fleet Mix Forecast

Operation Type	Seats	2014	2015	2020	2025	2030	2035	2040	2045
Air Carrier									
B737	140	12,435	12,962	17,700	18,000	18,100	17,900	17,900	17,900
B733	140	5,582	5,578	-	-	-	-	-	-
B738	170	4,357	4,437	11,490	12,000	12,600	13,800	13,200	12,200
MD88	150	2,049	2,049	-	-	-	-	-	-
A319	120	1,924	1,959	2,200	1,900	1,300	1,200	700	-
MD82	150	1,578	1,578	-	-	-	-	-	-
MD83	150	1,521	1,521	-	-	-	-	-	-
MD90	150	1,011	1,011	-	-	-	-	-	-
B712	120	937	954	1,100	-	-	-	-	-
A320ceo	154	804	819	2,380	2,380	2,380	2,380	2,380	2,380
B737 MAX series	162	-	-	4,200	6,201	7,500	9,350	12,500	16,300
B787/A350	275	-	-	310	420	730	730	1,100	1,500
Total Air Carrier		32,200	32,869	39,400	40,900	42,600	45,400	47,800	50,300
Commuter									
E145	45	19,007	18,092	9,700	1,800	-	-	-	-
E170	68	16,590	17,594	25,600	31,800	33,800	36,200	37,800	40,100
CRJ7	68	7,250	7,872	15,800	20,500	22,500	24,100	25,200	26,700
CRJ2	30	5,335	5,175	3,000	-	-	-	-	-
DH8 series	76	4,221	4,300	4,310	4,110	3,950	3,950	4,000	4,000
CRJ9	94	3,232	3,699	10,500	15,800	16,900	18,100	20,200	21,200
E135	35	3,158	3,060	1,500	-	-	-	-	-
E45X	45	1,561	1,514	800	-	-	-	-	-
Other	50	407	400	400	300	300	300	300	200
E190	100	251	250	300	300	400	400	-	-
Total Commuter		61,012	61,955	72,000	74,600	77,900	83,100	87,500	92,200
Cargo									
B727		200	200						
B757				200	200	200	200	200	200
Military									
GLEX		609	577	600	600	600	600	600	600
Non-Com AT									
C56M, C65, C75, GL4, L35,LJ3, LJ4		9,457	9,565	12,100	14,200	16,800	19,900	23,600	27,900
Gen'l Aviation									
B36, B56, BE2, B24, BE9, C17, C56,FA5,SW3		20,636	20,561	20,600	21,400	22,200	23,300	24,500	25,800
Airport Total		124,114	125,727	144,900	151,900	160,300	172,500	184,200	197,000

Sources: Airport Records; Official Airline Guide; Landrum & Brown analysis.

7.0 COMPARISON TO FAA TERMINAL AREA FORECAST

The FAA publishes its own forecasts annually for each U.S. airport including CMH. The Terminal Area Forecast (TAF) is "prepared to meet the budget and planning needs of FAA and provide information for use by state and local authorities, the aviation industry, and the public."[15] If the Sponsor forecast will be used for FAA decision making (i.e., LOIs, BCAs, ALPs, or environmental approvals), the FAA requires that the Sponsor enplanement and operations forecasts be compared with the most current TAF. If the Sponsor forecast deviates by more than 10 percent from the TAF in the 5-year time period or by more than 15 percent in the 10-year time period, differences have to be resolved before proceeding.

The TAF is prepared on a federal fiscal year (FFY) basis (October to September). The forecast presented in this document was developed on a calendar year (CY) basis. When an airport's traffic is growing rapidly, a timing difference between the FFY base year and the CY base year can be significant. This timing difference distorts a straight future year comparison between the two forecasts. The true comparison that needs to be made is between the projected growth rate of the TAF and the projected growth rate of the Sponsor forecast.

Table 7-1 presents a summary of CMH's forecast under the FAA classification. **Table 7-2** presents a comparison of CMH's passenger enplanements and aircraft operations forecast with the 2015 FAA TAF (released in February 2016) which assumes an average annual growth rate of 1.6 percent for operations at CMH over the next fifteen years. **Exhibit 7-1** and **Exhibit 7-2** present a graphical comparison of the forecast for passenger enplanements and total operations with the most recent the FAA TAF, respectively.

[15] http://aspm.faa.gov/main/taf.asp

Table 7-1
Forecast Summary Under FAA Definition
Port Columbus International Airport

	2015	2016	2020	2025	2030	Average Annual Compound Growth Rates			
	Base Yr. Level	Base Yr.+1 Yr	Base Yr. +5 Yrs.	Base Yr. +10 Yrs.	Base Yr. +15 Yrs.	Base Yr.+1 Yr	Base Yr. +5 Yrs.	Base Yr. +10 Yrs.	Base Yr. +15 Yrs.
Passenger Enplanements									
Air Carrier	1,839,196	2,020,888	2,335,520	2,531,069	2,758,403	9.9%	4.9%	3.2%	2.7%
Commuter	1,558,756	1,595,012	1,783,780	1,996,331	2,254,597	2.3%	2.7%	2.5%	2.5%
TOTAL	3,397,952	3,615,900	4,119,300	4,527,400	5,013,000	6.4%	3.9%	2.9%	2.6%
Operations									
Itinerant									
Air Carrier	33,069	36,200	39,400	40,900	42,600	9.5%	3.6%	2.1%	1.7%
Commuter/Air Taxi	61,955	66,800	72,000	74,600	77,900	7.8%	3.1%	1.9%	1.5%
Total Commercial Operations	95,024	103,000	111,400	115,500	120,500	8.4%	3.2%	2.0%	1.6%
Cargo	200	200	200	200	200	0.0%	0.0%	0.0%	0.0%
General Aviation	30,126	30,900	32,700	35,600	39,000	2.6%	1.7%	1.7%	1.7%
Military	577	600	600	600	600	4.0%	0.8%	0.4%	0.3%
Local									
General Aviation	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Military	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
TOTAL OPERATIONS	125,727	134,700	144,900	151,900	160,300	7.1%	2.9%	1.9%	1.6%

B. Operational Factors

	2015	2016	2020	2025	2030
	Base Yr. Level	Base Yr.+1 Yr	Base Yr. +5 Yrs.	Base Yr. +10 Yrs.	Base Yr. +15 Yrs.
Average Aircraft Size (seats)					
Air Carrier	144.4	144.3	150.4	153.5	157.0
Commuter	57.9	60.4	66.6	73.5	74.1
Average Enplaning Load Factor					
Air Carrier	77.0%	77.4%	78.8%	80.6%	82.5%
Commuter	77.0%	77.4%	78.8%	80.6%	82.5%
GA Operations Per Based Aircraft					

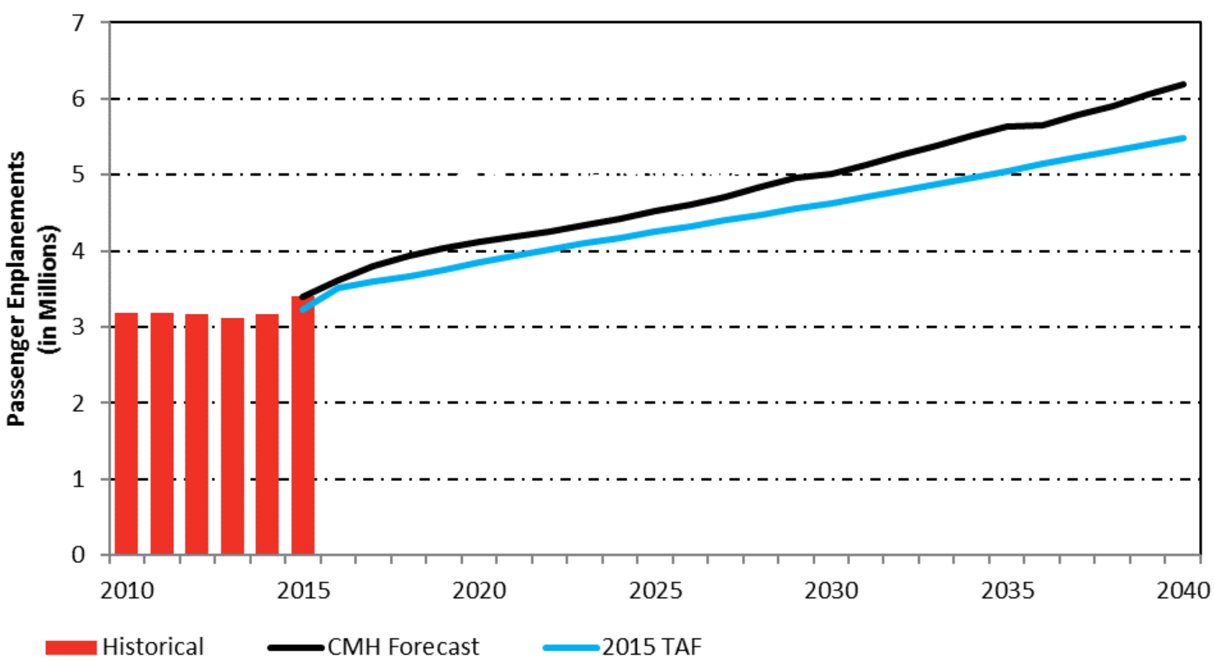
Sources: Airport Records, Landrum & Brown analysis.

Table 7-2
Forecast vs FAA TAF
Port Columbus International

	Year	Airport Forecast	2015 TAF	AF/TAF (% Difference)
Passenger Enplanements				
Base Yr.	2015	3,397,952	3,220,437	5.5%
Base Yr. + 5 Yrs.	2020	4,119,300	3,843,953	7.2%
Base Yr. + 10 Yrs.	2025	4,527,400	4,249,034	6.6%
Base Yr. + 15 Yrs.	2030	5,013,000	4,632,302	8.2%
Commercial Operations				
Base Yr.	2015	95,024	103,942	-8.6%
Base Yr. + 5 Yrs.	2020	111,600	113,088	-1.3%
Base Yr. + 10 Yrs.	2025	115,700	118,946	-2.7%
Base Yr. + 15 Yrs.	2030	120,700	129,056	-6.5%
Total Operations				
Base Yr.	2015	125,727	125,050	0.5%
Base Yr. + 5 Yrs.	2020	144,900	134,061	8.1%
Base Yr. + 10 Yrs.	2025	151,900	140,124	8.4%
Base Yr. + 15 Yrs.	2030	160,300	150,439	6.6%

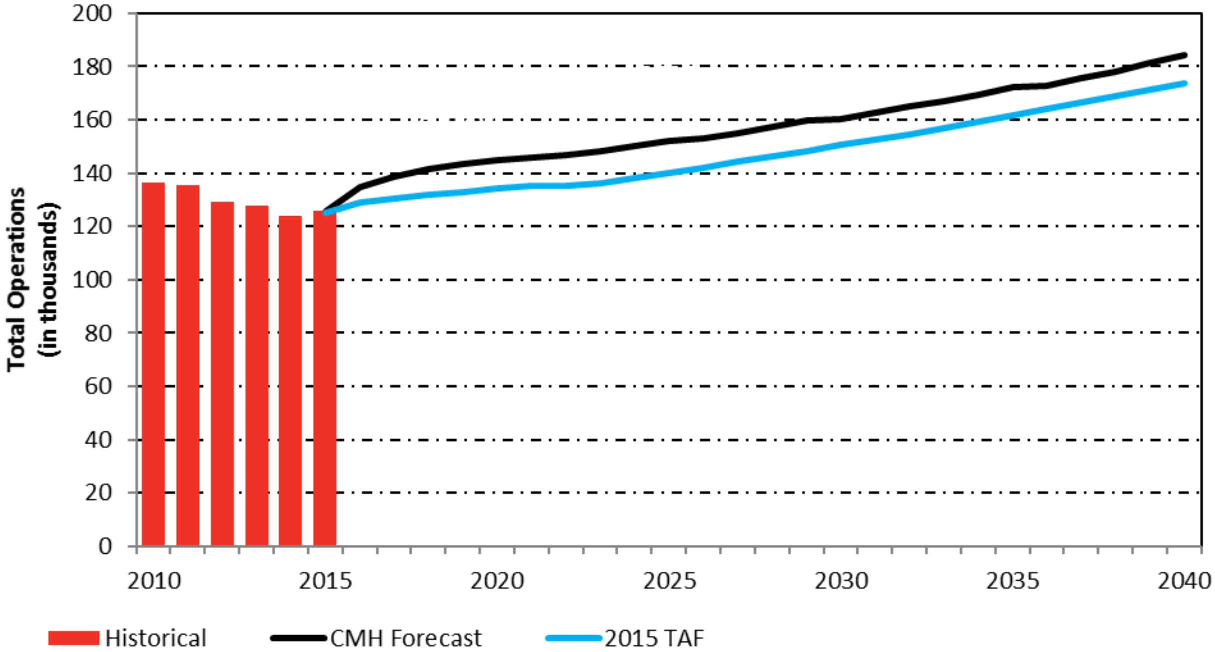
Sources: Airport Records, FAA TAF 2015, Landrum & Brown analysis.

Exhibit 7-1
Passenger Enplanement Forecast vs FAA TAF
Port Columbus International Airport



Sources: Airport Records, FAA TAF 2015, Landrum & Brown analysis.

Exhibit 7-2
Aircraft Operations Forecast vs FAA TAF
Port Columbus International Airport



Sources: Airport Records, FAA TAF 2015, Landrum & Brown analysis.

8.0 PEAK ACTIVITY FORECAST

The traffic demand patterns imposed upon an airport are subject to seasonal, monthly, daily, and hourly variations. Peaking characteristics are critical in the assessment of existing facilities and airfield components to determine their ability to accommodate forecast increases in passenger and operational activity throughout the forecast period. The objective of developing peak activity forecasts is to provide a design level that allows for sizing facilities so they are neither underutilized nor overcrowded too often.

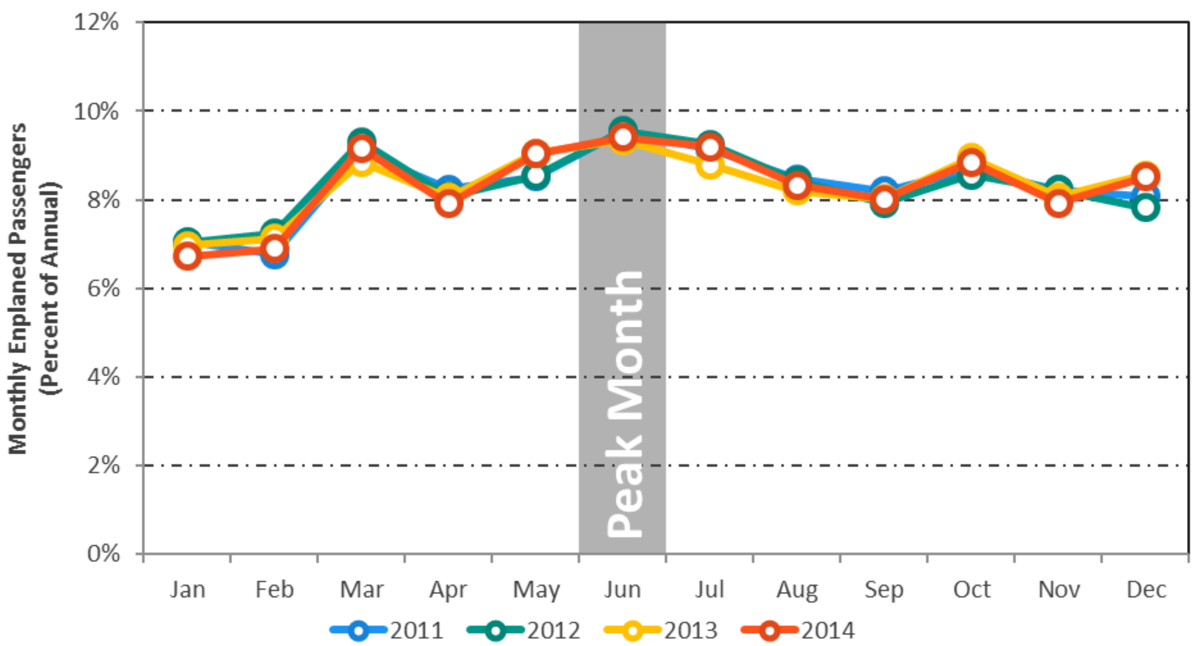
The annual passenger and operations forecasts for CMH were converted into peak month, daily, and peak hour equivalents. Peak period factors were developed using FAA Operations Network (OPSNET), passenger airline schedules published in the OAG, and the Airport records.

8.1 MONTHLY SEASONALITY

Actual monthly enplanements data from the Airport were collected to determine the peak month for enplanements. **Exhibit 8–1, *Monthly Enplaned Passengers***, provides a graphical representation of the percent of annual enplanements for each month. Since 2011, June has consistently been the peak month in terms of enplanements, averaging 9.5 percent of the annual enplanements.

For the reasons detailed above, June was used as the basis for developing peak period forecasts for airline passenger, business aviation, GA, and total operations.

Exhibit 8–1
Monthly Enplaned Passengers

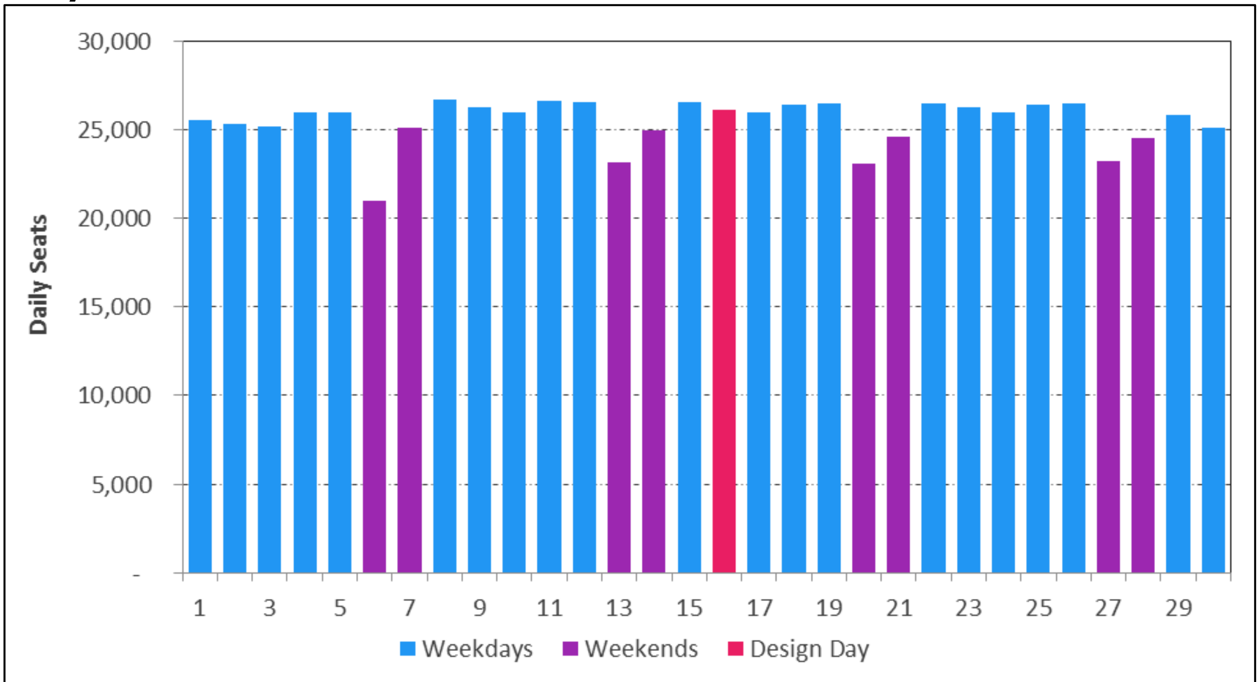


Source: CRAA.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\04-Peak Period Forecast\[Peak Period Forecast.xlsx]Monthly Passengers

8.2 DAILY PATTERNS

OAG scheduled seats data was used to determine the passenger peaking patterns at CMH. OAG seat data was used as a proxy for passengers because historical passenger data was not available in the level of detail needed for this analysis. As shown in **Exhibit 8–2, *Daily Seats for Peak Month***, traffic at CMH tends to be lower during the weekends, particularly Sunday. Therefore, an average weekday is the best definition for the design day at CMH. June 16, 2015 was determined to be the design day at CMH for 2015 as it represents the peak month average weekday (PMAWD).

Exhibit 8–2
Daily Seats for Peak Month

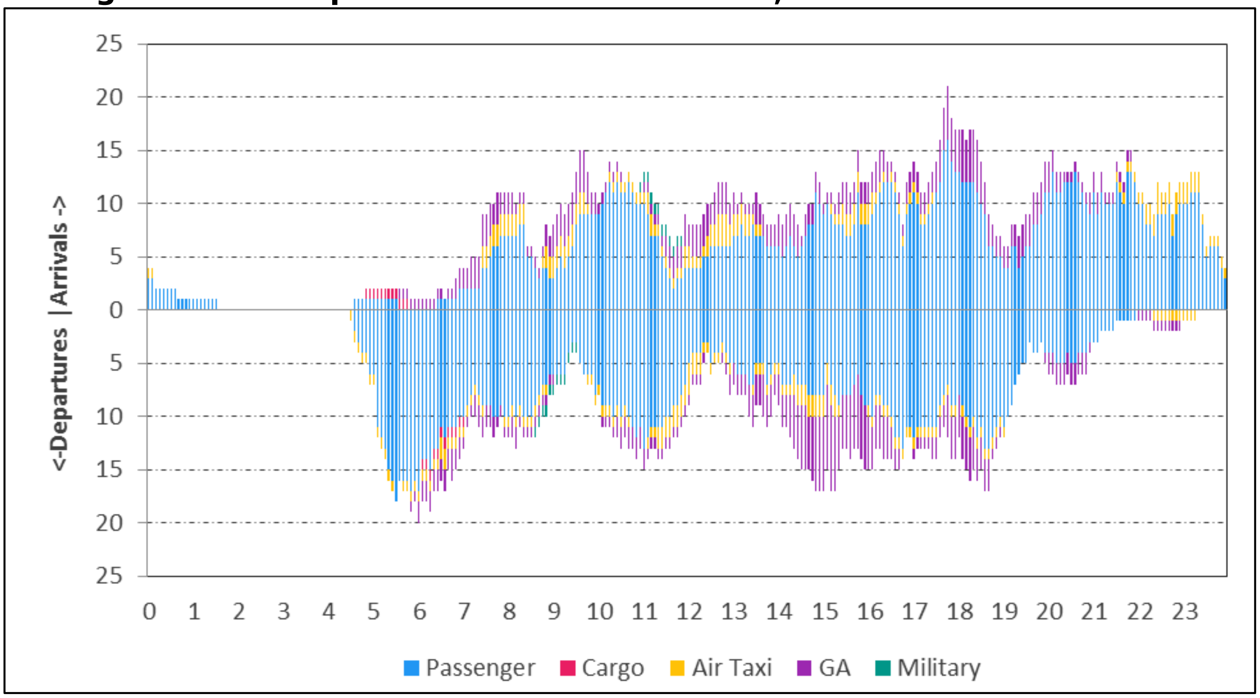


Source: OAG, June 2015.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\04-Peak Period Forecast\[Peak Period Forecast.xlsx]AVG Day 2015

8.3 HOURLY PROFILE

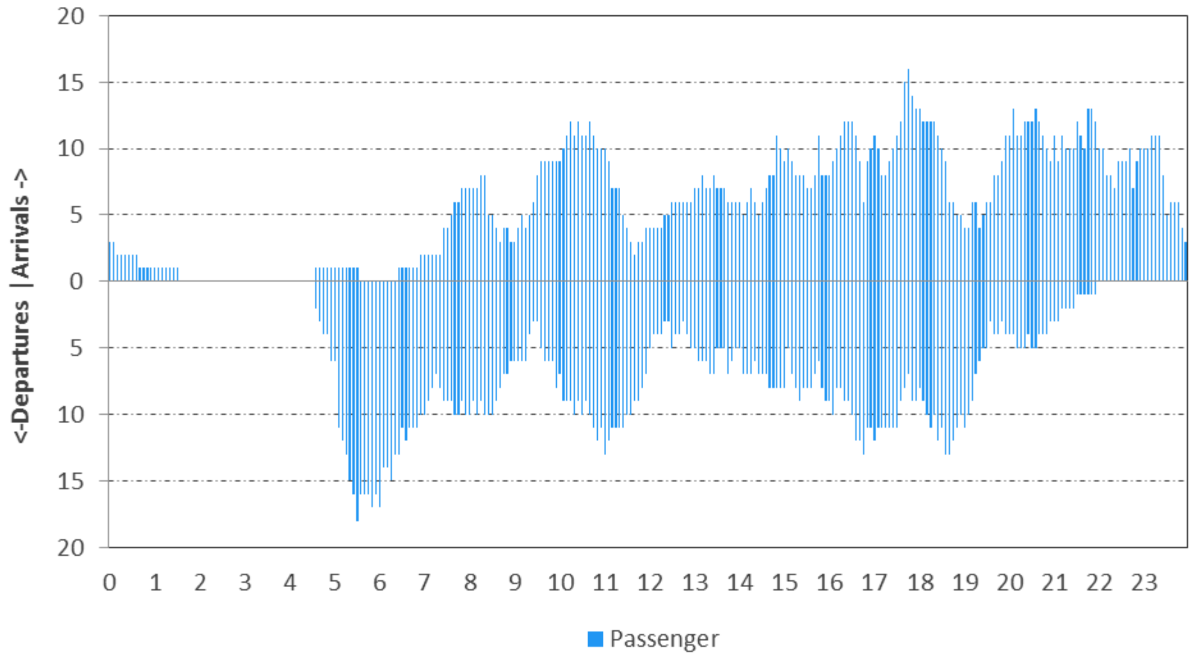
A combination of OAG schedules for passenger airline operations and historical radar data for other operations was used to develop the design day schedule. Using a clock hour as the basis for peak periods does not allow for peak periods of traffic that occur across clock hours to be identified. Therefore, a rolling 60-minute hour approach was used to determine the design day's profile. In this case, operations were categorized into one of the 288 five-minute buckets that occur during a given day. The sum of twelve sequential buckets represents a rolling 60-minute hour. **Exhibit 8–3, 8-4, 8-5 and 8-6** show the operations for rolling 60-minute hours for June 16, 2015 for different types of operations.

Exhibit 8–3
Rolling 60-Minute Operations Profile – June 16, 2015



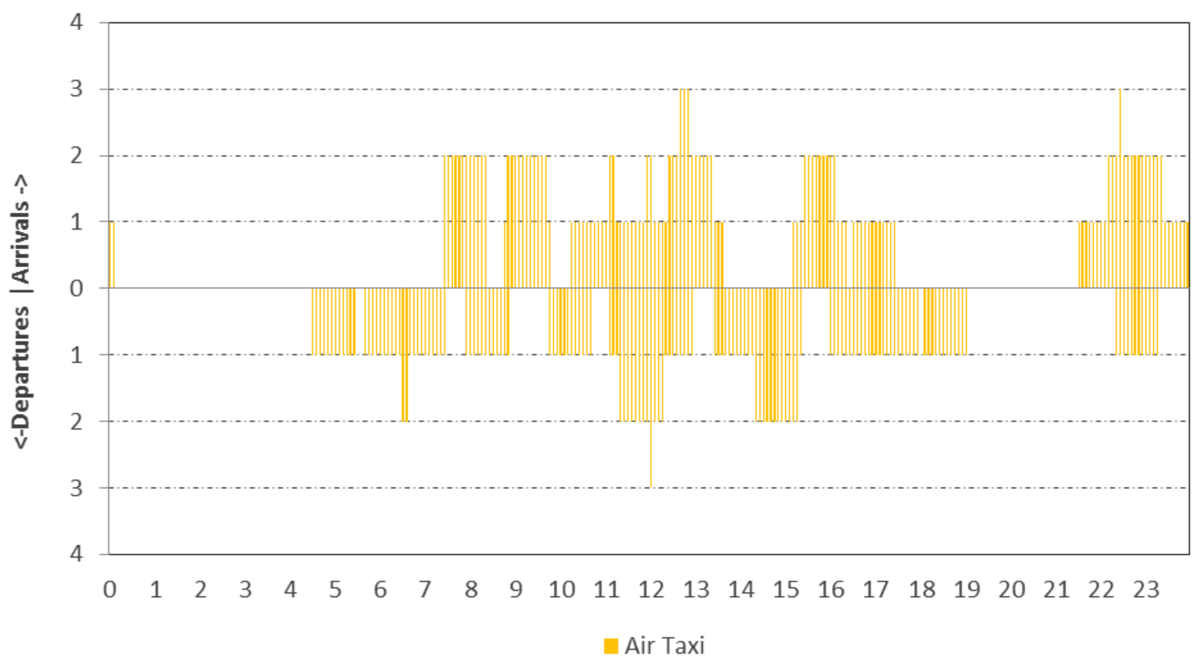
Sources: OAG; FAA OPSNET; Airport Radar Data.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\05-Flight Schedules\[Design Day Flight Schedules.xlsx]2015 R60

Exhibit 8–4
Rolling 60-Minute Passenger Operations Profile – June 16, 2015



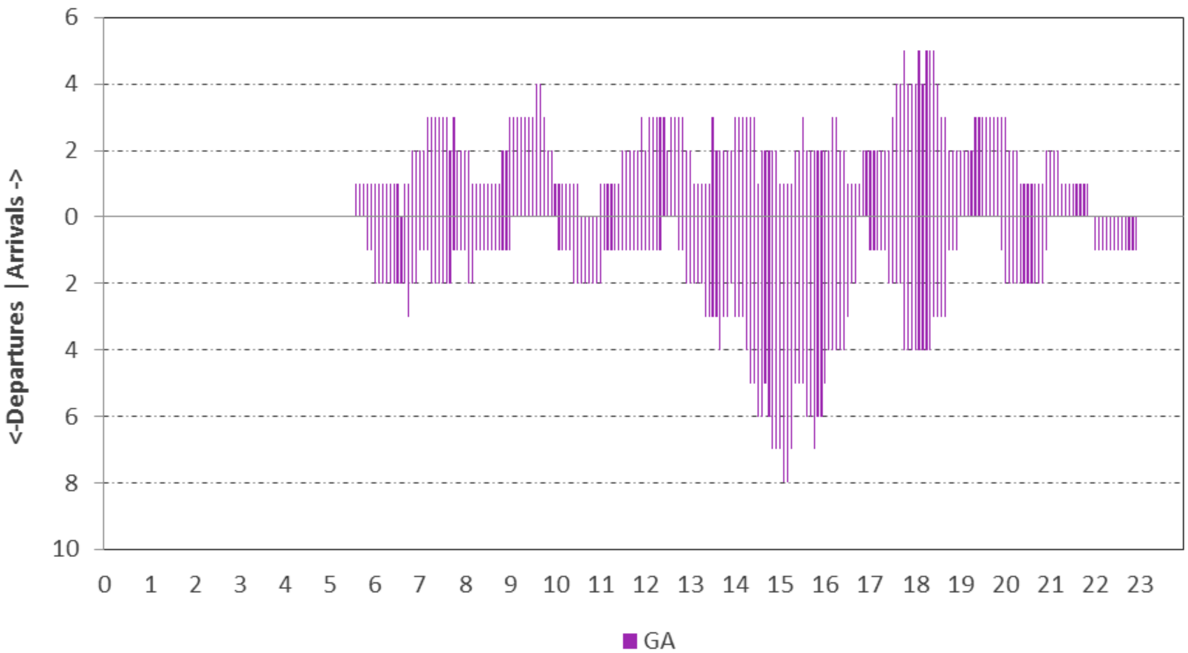
Sources: OAG; FAA OPSNET; Airport Radar Data.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\05-Flight Schedules\[Design Day Flight Schedules.xlsx]2015 R60

Exhibit 8–5
Rolling 60-Minute Air Taxi Operations Profile – June 16, 2015



Sources: OAG; FAA OPSNET; Airport Radar Data.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\05-Flight Schedules\[Design Day Flight Schedules.xlsx]2015 R60

Exhibit 8–6
Rolling 60-Minute GA Operations Profile – June 16, 2015



Sources: OAG; FAA OPSNET; Airport Radar Data.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\05-Flight Schedules\[Design Day Flight Schedules.xlsx]2015 R60

8.4 PEAK PERIOD FORECAST

Information regarding the peak month, average weekday, and peak hour were used to formulate metrics to determine the peak period forecast. These metrics include the peak month as a percent of the annual, the design day as a percent of the peak month, and the peak hour as a percent of the design day. It should be noted that peak hour metrics are specific to the Airport's design day. As airlines begin to add future flights, more flights will likely be added outside of the peaks thereby reducing the peak month, design day, and peak hour metrics.

8.4.1 PEAK OPERATIONS

Based on OAG fillings and airport data, June represented 8.5 percent (8,097 divided by 94,824) of the annual passenger operations in 2015. June 16th was selected as the design day. As a result, the design day passenger operations from the OAG fillings were estimated to account for 3.4 percent (279 divided by 8,097) of the monthly passenger activity in 2015. Based on a rolling 60-minute analysis, peak hour passenger operations as a percent of the design day were 8.2 percent (23 divided by 279) in 2015. Peak hour passenger operations are expected to increase from 23 in 2015 to 35 in 2045.

According to the Airport's monthly reports, there were 14 total cargo landings (28 total operations) in June of 2015. This represents an estimated 14.0 percent (28 divided by 200) of the total operations for 2015. However, in June 2014 there were only 12 total cargo operations representing only 6.0 percent (12 divided by 200) of the total cargo operations that year. Due to the fluctuations from month to month, it was assumed that the future levels in the peak month would equate to an average month (8.3 percent) of the annual cargo operations. There were two cargo operations on the design day and it was assumed that no more than two flights would occur during the design day through the forecast period.

Based on the airport's monthly reports, 12.8 percent (of the 2014 military operations occurred in June, but in 2015, June represented 4.3 percent (26 divided by 600). Due to variations in the monthly levels of activity during the year, an average monthly factor (8.3 percent) was used to evaluate the design day operations. Based on a rolling 60-minute analysis, peak hour military operations on the design day was 1 in 2015. Peak hour military operations are expected to remain at 1 through the forecast period.

Non-commercial air taxi operations in June 2015 represented approximately 9.4 percent (895 divided by 9,565) of the annual business aviation operations. The design day for 2015 had 31 non-commercial air taxi operations. Based on a rolling 60-minute analysis, peak hour non-commercial air taxi operations as a percent of the design day was 16.1 percent (5 divided by 31) in 2015. This percent value is expected to decrease as the operations begin to grow and operations are added outside of the peak period. As such, peak hour non-commercial air taxi operations are expected to increase from 5 in 2015 to 9 in 2045.

According to Airport data, there were 1,729 general aviation operations in June 2015 which represents approximately 8.4 percent (1,729 divided by 20,561) of the total general aviation operations. The radar data provided identified 66 general aviation operations on the design day or 3.8 percent (66 divided by 1,729) of the monthly total. During the peak hour for general aviation operations, there were 9 general aviation operations or 13.6 percent (9 divided by 66) of the daily operations.

The annual, monthly, daily, and hourly peak operations forecasts are presented in **Table 8-1, *Peak Period Operations Forecast***. The total of annual, monthly, and design day operations is the aggregation of the individual segments. However, each of the individual segments peak at different periods of the day. For example, during the design day the passenger operations peak at 17:45 while non-commercial air taxi operations peak at 12:00. As a result, total peak hour operations at the Airport do not equal the sum of the segments. The total peak hour operations will grow from 33 in 2015 to 50 in 2045.

Table 8-1
Peak Period Operations Forecast

Operations	2014	2015	2020	2025	2030	2035	2040	2045
Passenger Airline								
Annual	93,212	94,824	111,400	115,500	120,500	128,500	135,300	142,500
Peak Month	8,113	8,097	9,550	9,900	10,330	11,020	11,600	12,220
Design Day	285	279	324	336	351	374	394	415
Peak Hour Arrivals	13	16	18	19	20	22	23	24
Peak Hour Departure	16	18	21	22	23	24	26	27
Peak Hour Total	24	23	27	28	29	31	33	35
Peak Month % of Annual	*8.7%*	*8.5%*	*8.6%*	*8.6%*	*8.6%*	*8.6%*	*8.6%*	*8.6%*
Design Day % of Peak Month	*3.5%*	*3.4%*	*3.4%*	*3.4%*	*3.4%*	*3.4%*	*3.4%*	*3.4%*
Peak Hour % of Design Day	*8.4%*	*8.2%*	*8.3%*	*8.2%*	*8.3%*	*8.3%*	*8.4%*	*8.4%*
Cargo								
Annual	200	200	200	200	200	200	200	200
Peak Month	12	28	17	17	17	17	17	17
Design Day	2	2	2	2	2	2	2	2
Peak Hour Arrivals	1	1	1	1	1	1	1	1
Peak Hour Departure	0	1	1	1	1	1	1	1
Peak Hour Total	1	2	2	2	2	2	2	2
Peak Month % of Annual	*6.0%*	*14.0%*	*8.3%*	*8.3%*	*8.3%*	*8.3%*	*8.3%*	*8.3%*
Design Day % of Peak Month	*16.7%*	*7.1%*	*12.0%*	*12.0%*	*12.0%*	*12.0%*	*12.0%*	*12.0%*
Peak Hour % of Design Day	*50.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Military								
Annual	609	577	600	600	600	600	600	600
Peak Month	78	26	50	50	50	50	50	50
Design Day	3	2	2	2	2	2	2	2
Peak Hour Arrivals	1	1	1	1	1	1	1	1
Peak Hour Departure	1	1	1	1	1	1	1	1
Peak Hour Total	1	1	1	1	1	1	1	1
Peak Month % of Annual	*12.8%*	*4.5%*	*8.3%*	*8.3%*	*8.3%*	*8.3%*	*8.3%*	*8.3%*
Design Day % of Peak Month	*3.8%*	*7.7%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*	*4.0%*
Peak Hour % of Design Day	*33.3%*	*50.0%*	*50.0%*	*50.0%*	*50.0%*	*50.0%*	*50.0%*	*50.0%*

Sources: CRAA; FAA OPSNET; Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\04-Peak Period Forecast\[Peak Period Forecast v3 30YR.xlsx]Peak Operations v2

Table 8-1
Peak Period Operations Forecast (*Continued*)

Operations	2014	2015	2020	2025	2030	2035	2040	2045
Non-Commercial Air Taxi								
Annual	9,457	9,565	12,100	14,200	16,800	19,900	23,600	27,900
Peak Month	721	895	1,130	1,330	1,570	1,860	2,210	2,610
Design Day	29	31	37	43	57	67	80	94
Peak Hour Arrivals	3	3	4	4	4	4	4	5
Peak Hour Departure	4	3	4	4	4	5	5	5
Peak Hour Total	4	5	6	6	7	8	8	9
Peak Month % of Annual	*7.6%*	*9.4%*	*9.3%*	*9.4%*	*9.3%*	*9.3%*	*9.4%*	*9.4%*
Design Day % of Peak Month	*4.0%*	*3.5%*	*3.3%*	*3.2%*	*3.6%*	*3.6%*	*3.6%*	*3.6%*
Peak Hour % of Design Day	*13.8%*	*16.1%*	*16.1%*	*14.0%*	*12.4%*	*11.9%*	*10.0%*	*9.6%*
General Aviation								
Annual	20,636	20,561	20,600	21,400	22,200	23,300	24,500	25,800
Peak Month	1,899	1,729	1,810	1,880	1,950	2,050	2,160	2,270
Design Day	69	66	68	71	74	78	82	87
Peak Hour Arrivals	5	5	5	5	6	6	6	6
Peak Hour Departure	7	8	8	8	9	9	9	10
Peak Hour Total	11	9	9	9	10	10	10	11
Peak Month % of Annual	*9.2%*	*8.4%*	*8.8%*	*8.8%*	*8.8%*	*8.8%*	*8.8%*	*8.8%*
Design Day % of Peak Month	*3.6%*	*3.8%*	*3.8%*	*3.8%*	*3.8%*	*3.8%*	*3.8%*	*3.8%*
Peak Hour % of Design Day	*15.9%*	*13.6%*	*13.2%*	*12.7%*	*12.7%*	*12.8%*	*12.1%*	*12.7%*
Total								
Annual	124,114	125,727	144,900	151,900	160,300	172,500	184,200	197,000
Peak Month	10,823	10,775	12,557	13,177	13,917	14,997	16,037	17,167
Design Day	388	380	433	454	486	523	560	600
Peak Hour Arrivals	17	21	22	23	25	28	30	32
Peak Hour Departure	19	20	21	22	24	27	28	30
Peak Hour Total	35	33	35	36	40	44	47	50
Peak Month % of Annual	*8.7%*	*8.6%*	*8.7%*	*8.7%*	*8.7%*	*8.7%*	*8.7%*	*8.7%*
Design Day % of Peak Month	*3.6%*	*3.5%*	*3.4%*	*3.4%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*
Peak Hour % of Design Day	*9.0%*	*8.7%*	*8.1%*	*7.9%*	*8.0%*	*8.4%*	*8.4%*	*8.3%*

Sources: CRAA; FAA OPSNET; Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\04-Peak Period Forecast\[Peak Period Forecast v3 30YR.xlsx]Peak Operations v3

8.4.2 PEAK PASSENGER ENPLANEMENTS

Peak hour enplanements were calculated using a similar methodology as peak hour operations. The annual and monthly enplanements were determined from Airport records. The design day enplanements are the peak month divided by 30 (June has 30 days). Peak hour enplanements were determined from peak hour passenger departures and the average enplanements per departure in the peak month. Peak hour enplanements as a percentage of the design day are projected to decline over time. **Table 8-2, *Peak Period Enplanement Forecast***, presents the peak enplanement forecasts for CMH.

Table 8-2
Peak Period Enplanement Forecast

Enplanements	2014	2015	2020	2025	2030	2035	2040	2045
Annual	3,173,046	3,397,952	4,119,300	4,527,400	5,013,000	5,636,800	6,186,400	6,790,400
Peak Month	298,641	310,618	377,300	414,620	459,150	516,480	566,690	622,150
Design Day	9,955	10,354	12,577	13,821	15,305	17,216	18,890	20,738
Peak Hour	1,068	1,207	1,348	1,450	1,533	1,659	1,841	2,035
Peak Month % of Annual	*9.4%*	*9.1%*	*9.2%*	*9.2%*	*9.2%*	*9.2%*	*9.2%*	*9.2%*
Design Day % of Peak Month	*3.3%*	*3.3%*	*3.3%*	*3.3%*	*3.3%*	*3.3%*	*3.3%*	*3.3%*
Peak Hour % of Design Day	*10.7%*	*11.7%*	*10.7%*	*10.5%*	*10.0%*	*9.6%*	*9.7%*	*9.8%*

Sources: CRAA; Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\04-Peak Period Forecast\[Peak Period Forecast v3 30YR.xlsx]Peak Passenger Forecast

9.0 AVERAGE ANNUAL DAY FORECAST

The average annual day forecast by operations category is presented in **Table 9-1, *Average Annual Day Aircraft Operations***. Average annual day operations represent the annual operations in each category divided by 365 (the number of days in a given year). Average day total aircraft operations are projected to increase from 344 daily operations in 2015 to 540 daily operations in 2045.

Table 9-1
Average Annual Day Aircraft Operations

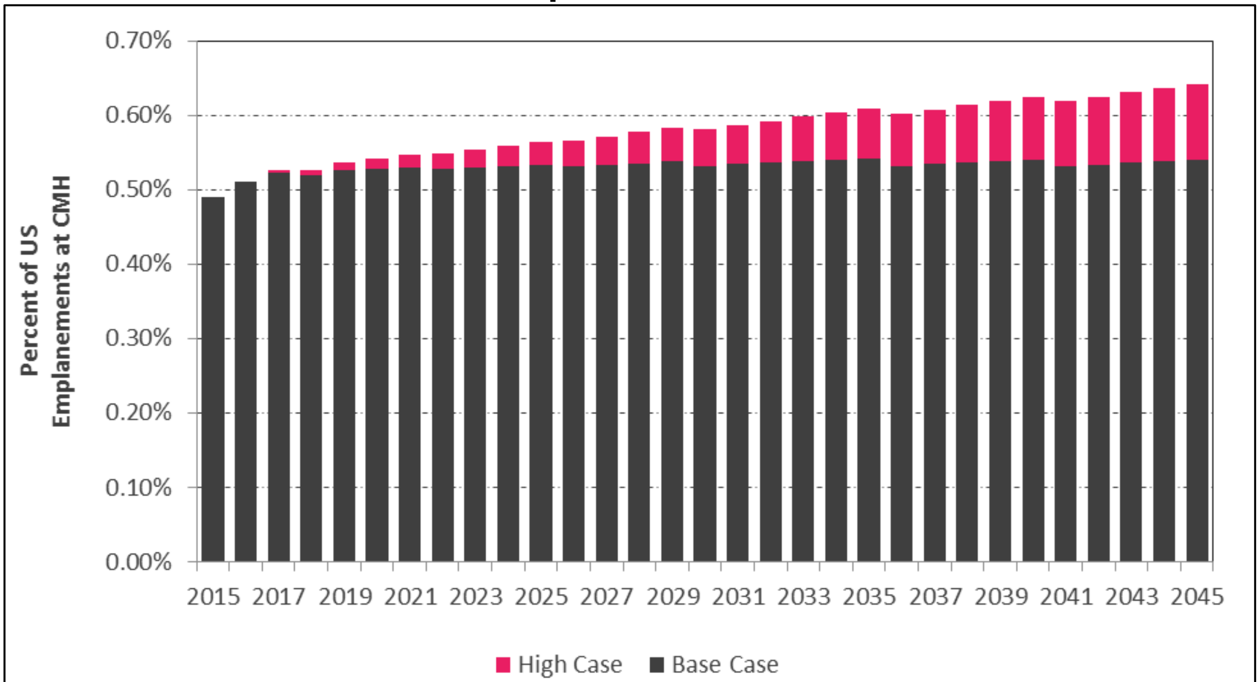
Operations	2014	2015	2020	2025	2030	2035	2040	2045
Passenger Airline								
Annual	93,212	94,824	111,400	115,500	120,500	128,500	135,300	142,500
Average Annual Day	255	260	305	316	330	352	371	390
Cargo								
Annual	200	200	200	200	200	200	200	200
Average Annual Day	1	1	1	1	1	1	1	1
Military								
Annual	609	577	600	600	600	600	600	600
Average Annual Day	2	2	2	2	2	2	2	2
Non-Commercial Air Taxi								
Annual	9,457	9,565	12,100	14,200	16,800	19,900	23,600	27,900
Average Annual Day	26	26	33	39	46	55	65	76
General Aviation								
Annual	20,636	20,561	20,600	21,400	22,200	23,300	24,500	25,800
Average Annual Day	57	56	56	59	61	64	67	71
Total								
Annual	124,114	125,727	144,900	151,900	160,300	172,500	184,200	197,000
Average Annual Day	340	344	397	416	439	473	505	540

Sources: CRAA; FAA OPSNET; Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\04-Peak Period Forecast\[Average Annual Day Forecastv2 30YR.xlsx]Peak Operations

10.0 HIGH CASE FORECAST SCENARIO

In addition to the baseline passenger and operations forecasts presented thus far, a high scenario was developed. The high case assumes that CMH will account for an ever increasing portion of the total U.S. domestic O&D enplanements. The baseline forecast indicates that domestic O&D enplanements at CMH will account for approximately 0.48 percent of the U.S. domestic O&D enplanements in 2015. This relationship was forecast to gradually increase over the forecast period due to the forecasted changes in yield. However, the high case scenario assumes that the domestic O&D enplanements at CMH would account for a larger portion of the U.S. traffic, growing to 0.64 percent by 2045. **Exhibit 10–1, *Ratio of CMH to U.S. Domestic Enplanements***, provides the ratio of CMH domestic O&D enplanement to the U.S. domestic O&D enplanements for the baseline and high case scenario through the forecast period.

Exhibit 10–1
Ratio of CMH to U.S. Domestic Enplanements



Sources: FAA; Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast.xlsx]Percent of US

Under the high case forecast, passenger enplanements at CMH are forecast to increase from 3.4 million in 2015 to 7.9 million in 2045, representing an average annual growth of 2.9 percent. A comparison of the enplanement forecast for the high case scenario and the base case is provided in **Table 10-1, *Enplanement Forecast Comparison***.

Table 10-1
Enplanement Forecast Comparison

	Enplanements	
Year	Base Case	High Case
Historical		
2000	3,462,920	3,462,920
2001	3,336,027	3,336,027
2002	3,348,456	3,348,456
2003	3,156,520	3,156,520
2004	3,112,870	3,112,870
2005	3,306,753	3,306,753
2006	3,363,000	3,363,000
2007	3,865,481	3,865,481
2008	3,459,434	3,459,434
2009	3,122,989	3,122,989
2010	3,183,792	3,183,792
2011	3,190,068	3,190,068
2012	3,174,814	3,174,814
2013	3,114,695	3,114,695
2014	3,173,046	3,173,046
2015	3,397,952	3,397,952
Forecast		
2016	3,615,900	3,626,500
2017	3,805,600	3,834,400
2018	3,931,600	3,983,500
2019	4,035,100	4,112,800
2020	4,119,300	4,223,500
2021	4,191,800	4,323,100
2022	4,246,700	4,424,500
2023	4,340,800	4,532,000
2024	4,430,800	4,636,500
2025	4,527,400	4,748,700
2026	4,600,300	4,870,200
2027	4,716,100	5,005,100
2028	4,837,300	5,146,800
2029	4,959,100	5,290,500
2030	5,013,000	5,435,700
2031	5,133,400	5,581,100
2032	5,258,500	5,732,300
2033	5,383,700	5,885,500
2034	5,508,600	6,039,500
2035	5,636,800	6,197,000
2036	5,645,800	6,351,300
2037	5,777,800	6,513,800
2038	5,911,900	6,679,900
2039	6,048,100	6,849,500
2040	6,186,400	7,022,700
2041	6,205,800	7,199,700
2042	6,348,400	7,380,300
2043	6,493,300	7,564,900
2044	6,640,400	7,753,200
2045	6,790,400	7,945,800
CAGR		
2000-15	-0.1%	-0.1%
2015-45	2.3%	2.9%

Sources: CRAA; Landrum & Brown.
File Location: Y:\CMH\20 Year Forecast\E-L&B Work Product\5-Forecast\02-Passenger Forecast\[Enplanement Forecast - High Case 30YR.xlsx]Document Table

The high case operations forecast is split into passenger operations, non-commercial air taxi, general aviation, cargo and military. For the passenger operations it was assumed that the ASPD and load factor assumptions will remain the same as that in the base case. For non-commercial air taxi and general aviation operations it has been assumed that the growth will be driven by the total business aviation forecast as presented in the FAA Aerospace Forecast 2015-2035 and extrapolated to 2045. The cargo and military operations are assumed to remain the same as in the base case. Total operations are forecast to grow from 125,727 operations in 2015 to 231,800 in 2045 growing at 2.1 percent annually

Table 10-2
High Case Aircraft Operations Forecast

		Annual Operations							
		Air Carrier	Commuter	Total Passenger Operations	Cargo	Military	Non-Commercial Air Taxi	General Aviation	Total
Historical	2008	37,597	72,751	110,348	54	1,451	15,445	28,716	155,914
	2009	33,326	66,272	99,598	68	2,559	13,648	30,674	146,437
	2010	31,666	64,310	95,976	354	931	13,511	25,583	136,081
	2011	32,184	65,949	98,133	172	349	12,624	24,096	135,374
	2012	32,366	60,681	93,047	108	540	12,232	23,263	129,190
	2013	32,538	59,224	91,762	134	559	13,364	21,792	127,611
	2014	32,200	61,012	93,212	200	609	9,457	20,636	124,114
	2015	32,869	61,955	94,824	200	577	9,565	20,561	125,727
Forecast	2016	36,400	67,300	103,700	200	600	10,800	20,300	135,600
	2017	38,400	70,000	108,400	200	600	11,300	20,400	140,900
	2018	39,300	72,000	111,300	200	600	11,800	20,500	144,400
	2019	40,200	73,400	113,600	200	600	12,200	20,700	147,300
	2020	40,800	74,500	115,300	200	600	12,800	20,800	149,700
	2021	41,400	75,300	116,700	200	600	13,300	20,900	151,700
	2022	41,800	76,300	118,100	200	600	13,800	21,100	153,800
	2023	42,300	77,200	119,500	200	600	14,400	21,300	156,000
	2024	42,800	78,100	120,900	200	600	15,000	21,500	158,200
	2025	43,300	79,100	122,400	200	600	15,700	21,600	160,500
	2026	43,900	80,200	124,100	200	600	16,300	21,800	163,000
	2027	44,600	81,500	126,100	200	600	17,000	22,100	166,000
	2028	45,400	82,700	128,100	200	600	17,800	22,200	168,900
	2029	46,100	84,100	130,200	200	600	18,500	22,500	172,000
	2030	46,700	85,500	132,200	200	600	19,300	22,600	174,900
	2031	47,500	86,700	134,200	200	600	20,100	22,900	178,000
	2032	48,200	88,100	136,300	200	600	21,000	23,100	181,200
	2033	48,900	89,400	138,300	200	600	21,900	23,300	184,300
	2034	49,600	90,700	140,300	200	600	22,800	23,500	187,400
	2035	50,500	92,500	143,000	200	600	23,800	23,700	191,300
	2036	51,400	93,900	145,300	200	600	24,800	24,000	194,900
	2037	52,200	95,600	147,800	200	600	25,900	24,200	198,700
	2038	53,100	97,300	150,400	200	600	26,900	24,500	202,600
	2039	54,000	98,900	152,900	200	600	28,100	24,700	206,500
	2040	54,900	100,600	155,500	200	600	29,300	25,000	210,600
	2041	55,900	102,200	158,100	200	600	30,500	25,200	214,600
	2042	56,800	104,000	160,800	200	600	31,800	25,400	218,800
	2043	57,700	105,700	163,400	200	600	33,200	25,600	223,000
	2044	58,700	107,500	166,200	200	600	34,500	25,800	227,300
	2045	59,600	109,300	168,900	200	600	36,000	26,100	231,800
Growth									
2008-15		-1.9%	-2.3%	-2.1%	20.6%	-12.3%	-6.6%	-4.7%	-3.0%
2015-45		2.0%	1.9%	1.9%	0.0%	0.1%	4.5%	0.8%	2.1%

Sources: CRAA; Landrum & Brown.

Appendix G

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APPENDIX G
AIR QUALITY

G.1 INTRODUCTION

This Air Quality and Climate Technical Report provides additional information associated with the proposed Midfield Development Program (MDP) and enabling projects (the Proposed Action) at the John Glenn Columbus International Airport (CMH or Airport) in Franklin County, Ohio. The Proposed Action is described in detail in Chapter One, *Proposed Action*. The Columbus Regional Airport Authority (CRAA), the owner and operator of CMH, provided data regarding the timing, size, and dimensions of the various elements of the Proposed Action. Several elements are proposed to occur in 2017 with construction activities continuing through 2030. The timeframe for the various elements of the Proposed Action is described in detail in Chapter Two, *Purpose and Need*.

G.2 REGULATORY SETTING

G.2.1 NATIONAL AMBIENT AIR QUALITY STANDARDS

The Clean Air Act, including the 1990 Amendments, (CAA) provides for the establishment of standards and programs to evaluate, achieve, and maintain acceptable air quality in the U.S. Under the CAA, the USEPA established a set of standards, or criteria, for six pollutants determined to be potentially harmful to human health and welfare.[1] The USEPA considers the presence of the following six criteria pollutants to be indicators of air quality:

- Ozone (O_3);
- Carbon monoxide (CO);
- Nitrogen dioxide (NO_2);
- Particulate matter (PM_{10} and $PM_{2.5}$);[2]
- Sulfur dioxide (SO_2); and,
- Lead (Pb).[3]

The National Ambient Air Quality Standards for the criteria pollutants, known as the NAAQS, are summarized in **Table G-1**. For each of the criteria pollutants, the USEPA established primary standards intended to protect public health, and secondary standards for the protection of other aspects of public welfare, such as preventing

1 USEPA, Code of Federal Regulations, Title 40, Part 50 (40 CFR Part 50) *National Primary and Secondary Ambient Air Quality Standards (*NAAQS), July 2011.

2 PM_{10} and $PM_{2.5}$ are airborne inhalable particles that are less than ten micrometers (coarse particles) and less than 2.5 micrometers (fine particles) in diameter, respectively.

3 Airborne lead in urban areas is primarily emitted by vehicles using leaded fuels. The chief source of lead emissions at airports would be the combustion of leaded aviation gasoline in small piston-engine general aviation aircraft.

materials damage, preventing crop and vegetation damage, and assuring good visibility. Areas of the country where air pollution levels consistently exceed these standards may be designated nonattainment by the USEPA.

A nonattainment area is a homogeneous geographical area[4] (usually referred to as an air quality control region) that is in violation of one or more NAAQS and has been designated as nonattainment by the USEPA as provided for under the CAA. Some regulatory provisions, for instance the CAA conformity regulations, apply only to areas designated as nonattainment or maintenance.

A maintenance area describes the air quality designation of an area previously designated nonattainment by the USEPA and subsequently redesignated attainment after emissions are reduced. Such an area remains designated as maintenance for a period up to 20 years at which time the state can apply for redesignation to attainment, provided that the NAAQS were sufficiently maintained throughout the maintenance period.

Table G-1
NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide[(1)]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead[(2)]		primary and secondary	Rolling 3 month average	0.15 μg/m3 [(3)]	Not to be exceeded
Nitrogen Dioxide[(4)]		primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	Annual	53 ppb[(5)]	Annual Mean
Ozone[(6)]		primary and secondary	8-hour	0.075 ppm [(7)]	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particulate Matter	PM2.5	primary	Annual	12 μg/m^3	annual mean, averaged over 3 years
		secondary	Annual	15 μg/m^3	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 μg/m^3	98th percentile, averaged over 3 years
	PM10	primary and secondary	24-hour	150 μg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide[(8)]		primary	1-hour	75 ppb [(9)]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

[4] A homogeneous geographical area, with regard to air quality, is an area, not necessarily bounded by state lines, where the air quality characteristics have been shown to be similar over the whole area. This may include several counties, encompassing more than one state, or may be a very small area within a single county.

Table G-1, *Continued*
NATIONAL AMBIENT AIR QUALITY STANDARDS

[1] 76 FR 54294, Aug 31, 2011
[2] 73 FR 66964, Nov 12, 2008
[3] Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
[4] 75 FR 6474, Feb 9, 2010 and 61 FR 52852, Oct 8, 1996
[5] The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.
[6] 73 FR 16436, Mar 27, 2008
[7] Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.
[8] 75 FR 35520, Jun 22, 2010 and 38 FR 25678, Sept 14, 1973.
[9] Final rule signed June 2, 2010. The 1971 annual and 24-hour SO2 standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Notes: ppm is parts per million; ppb is parts per billion, and µg/m^3 is micrograms per cubic meter

Sources: USEPA, 40 CFR Part 50.4 through Part 50.13 and http://www3.epa.gov/ttn/naaqs/criteria.html.

G.2.2 FRANKLIN COUNTY AIR QUALITY STATUS

CMH is located within Franklin County, Ohio, which is included in the Metropolitan Columbus Intrastate Air Quality Control Region (Columbus AQCR).[5] The U.S. Environmental Protection Agency (USEPA) has designated the Columbus AQCR as marginal non-attainment for ozone (O_3) and maintenance for fine particulate matter ($PM_{2.5}$). Franklin County is designated attainment for all other Federally-regulated pollutants, which are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), coarse particulate matter (PM_{10}), and lead (Pb).[6]

The use of construction equipment for the Proposed Action will cause emissions of nitrogen oxides (NO_x), and volatile organic compounds (VOC), the precursors to ozone development; and will also emit $PM_{2.5}$, and CO. As such, the Proposed Action at CMH would be subject to the General Conformity provisions under the Clean Air Act (CAA, including the 1990 Amendments), which are required to ensure compliance with the Ohio State Implementation Plans (SIP).[7] In addition to the CAA, the impacts of the Proposed Action would require assessment under the provisions of the National Environmental Policy Act (NEPA) to determine compliance to the NAAQS.

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[5] U.S. Environmental Protection Agency (USEPA), 40 CFR § 81.200, *Metropolitan Columbus Intrastate Air Quality Control Region*, (e-CFR data current as of November 28, 2016).
[6] USEPA, Nonattainment Status for Each county by Year for Ohio, (Current as of September 22, 2016). Accessed on 1/10/2017 via http://www.epa.gov/airquality/greenbook/anayo_oh.html
[7] The State Implementation Plan (SIP) is the State air agency document that sets forth the strategy intended to reduce air emissions in an area of poor air quality and maintain the quality of the air relevant to the Federal air quality standards.

G.2.3 GENERAL CONFORMITY RULE APPLICABILITY

The General Conformity Rule under the CAA establishes minimum values, referred to as the *de minimis* thresholds, for the criteria and precursor pollutants[8] for the purpose of:

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

The *de minimis* rates vary depending on the severity of the nonattainment area and further depend on whether the general Federal action is located inside an ozone transport region.[9] An evaluation relative to the General Conformity Rule (the Rule), published under 40 CFR Part 93,[10] is required only for general Federal actions that would cause emissions of the criteria or precursor pollutants, and are:

- Federally-funded or Federally-approved;
- Not a highway or transit project[11];
- Not identified as an exempt project[12] under the CAA;
- Not a project identified on the approving Federal agency's Presumed to Conform list;[13] and,
- Located within a nonattainment or maintenance area.

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8 Precursor pollutants are pollutants that are involved in the chemical reactions that form the resultant pollutant. Ozone precursor pollutants are NO_x and VOC, whereas $PM_{2.5}$ precursor pollutants include NO_x, VOC, SO_2, and ammonia (NH_3).

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

10 USEPA, 40 CFR Part 93, Subpart B, *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*, July 1, 2006.

11 Highway and transit projects are defined under Title 23 U.S. Code and the Federal Transit Act.

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

13 The provisions of the CAA allow a Federal agency to submit a list of actions demonstrated to have low emissions that would have no potential to cause an exceedence of the NAAQS and are presumed to conform to the CAA conformity regulations. This list would be referred to as the "Presumed to Conform" list. The FAA Presumed to Conform list was published in the Federal Register on February 12, 2007 (72 FR 6641-6656) and includes airport projects that would not require evaluation under the General Conformity regulations.

The Proposed Action at CMH is included in a nonattainment area for ozone and maintenance area for $PM_{2.5}$. Further, the Proposed Action meets the remaining criteria for requiring an evaluation under the General Conformity Rule. When the action requires evaluation under the General Conformity regulations, the net total direct and indirect emissions due to the Federal action may not equal or exceed the relevant *de minimis* thresholds unless:

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

The Federal *de minimis* thresholds established under the CAA are given in **Table G-2**. Conformity to the *de minimis* thresholds is relevant only with regard to those pollutants and the precursor pollutants for which the area is nonattainment or maintenance. Notably, there are no *de minimis* thresholds to which a Federal agency would compare ozone emissions. This is because ozone is not directly emitted from a source. Rather, ozone is formed through photochemical reactions involving emissions of the precursor pollutants NO_x and volatile organic compounds (VOC) in the presence of abundant sunlight, and heat. Therefore, emissions of ozone on a project level are evaluated based on the rate of emissions of the ozone precursor pollutants, NO_x and VOC. Similar to ozone, the precursor pollutants[14] of $PM_{2.5}$ are SO_x, NO_x, and VOC.

If the General Conformity evaluation for this air quality assessment were to show that any of the applicable thresholds were equaled or exceeded due to the Proposed Action, further, more detailed analysis to demonstrate conformity would be required, which is referred to as a General Conformity Determination.[15] Conversely, if the General Conformity evaluation were to show that none of the relevant thresholds were equaled or exceeded, the Proposed Action at CMH would be presumed to conform to the applicable Ohio SIPs and no further analysis would be required under the CAA.

[14] Emissions of ammonia (NH_3) are generally associated with commercial animal agriculture, including feeding operations. Therefore, emissions of NH_3 were not included in this analysis.

[15] 40 CFR Part 93.153.

Table G-2
DE MINIMIS THRESHOLDS

CRITERIA AND PRECURSOR POLLUTANTS	TYPE AND SEVERITY OF NONATTAINMENT AREA	TONS PER YEAR THRESHOLD
Ozone (VOC or NO_x)[1]	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NO_x)[1]	Marginal and moderate nonattainment inside an ozone transport regions (OTR)[2]	100
	Maintenance	100
Ozone (VOC)[1]	Marginal and moderate nonattainment inside an ozone transport region[2]	50
	Maintenance within an ozone transport region[2]	50
	Maintenance outside an ozone transport region[2]	100
Carbon monoxide (CO)	All nonattainment & maintenance	100
Sulfur dioxide (SO_2)	All nonattainment & maintenance	100
Nitrogen dioxide (NO_2)	All nonattainment & maintenance	100
Coarse particulate matter (PM_{10})	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
Fine particulate matter ($PM_{2.5}$) (VOC, NO_x, NH_3, and SO_x)[3]	All nonattainment and maintenance	100
Lead (Pb)	All nonattainment and maintenance	25

1 The rate of increase of ozone emissions is not evaluated for a project-level environmental review because the formation of ozone occurs on a regional level and is the result of the photochemical reaction of NO_x and VOC in the presence of abundant sunlight and heat. Therefore, USEPA considers the increasing rates of NO_x and VOC emissions to reflect the likelihood of ozone formation on a project level.

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

3 For the purposes of General Conformity applicability, VOC's and NH_3 emissions are only considered $PM_{2.5}$ precursors in nonattainment areas where either a State or USEPA has made a finding that the pollutants significantly contribute to the $PM_{2.5}$ problem in the area. In addition, NO_X emissions are always considered a $PM_{2.5}$ precursor unless the State and USEPA make a finding that NO_X emissions from sources in the State do not significantly contribute to $PM_{2.5}$ in the area. Refer to 74 FR 17003, April 5, 2006.

Notes:
1. Federal thresholds that are shaded are applicable to this project.
2. Code of Federal Regulations (CFR), Title 40, *Protection of the Environment*.
3. USEPA defines *de minimis* as emissions that are so low as to be considered insignificant and negligible.Volatile organic compounds (VOC); Nitrogen oxides (NO_x); Ammonia (NH_3);
4. Sulfur oxides (SO_x).

Sources: USEPA, 40 CFR Part 93.153(b)(1) & (2).

G.2.4 TRANSPORTATION CONFORMITY RULE APPLICABILITY

Although airport improvement projects are usually considered under the General Conformity regulations, there can be elements of a Federal action or its alternatives that may require an analysis to demonstrate Transportation Conformity, such as actions relating to transportation plans, programs, projects developed, funded, or approved under Title 23 United States Code (U.S.C.) or the Federal Transit Act (FTA),[16] or involve Federal highways. In such cases, the sponsoring Federal agency would be required to coordinate with the Federal Highway Administration (FHWA), the state Department of Transportation (DOT), and the local metropolitan planning organization (MPO) to assist in completing a Transportation Conformity evaluation.

As with General Conformity, Transportation Conformity regulations apply only to Federal actions located within a nonattainment or maintenance area. The Proposed Action under consideration at CMH would not be developed, funded, or approved by the FHWA or FTA. Therefore, the Transportation Conformity regulations would not apply.

G.2.5 INDIRECT SOURCE REVIEW

Some states require an air quality review when a Federal action has the potential to cause an increase in net emissions from indirect sources. Indirect sources cause emissions that occur later in time or are farther removed from the Federal action. Depending on the state, indirect sources may be identified as motor vehicles on highways, parking at sports and entertainment facilities, or an increase in aircraft operations. The state requirement may be referred to as the indirect source review (ISR) and each state requiring an ISR sets thresholds for increased operation of the indirect sources. When a Federal action has the potential to exceed these thresholds, an air quality review is required to assess the character and impact of the additional emissions and determine whether a permit is required, which is separate from the analyses required under NEPA or the CAA. Ohio does not require an ISR.

G.3 EMISSIONS INVENTORY

The impacts to air quality due to the Proposed Action were determined in accordance with the guidelines provided in FAA, *Aviation Emissions and Air Quality Handbook Version 3*,[17] and FAA Order 5050.4B[18], *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, which together with the guidelines of FAA Order 1050.1F,[19] *Environmental Impacts: Policies and Procedures*, constitute compliance with all the relevant provisions of NEPA and the CAA.

16 USEPA, 40 CFR Part 93.153, *Applicability*, July 1, 2006.
17 FAA, *Aviation Emissions and Air Quality Handbook Version 3,* July 2014.
18 FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, April 28, 2006.
19 FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 16, 2015.

In order to evaluate the net emissions due to the Proposed Action, an emission inventory was prepared. With the No Action Alternative, the existing conditions would remain in place. Therefore, all the potential Proposed Action emissions would be considered the net emissions increase. This analysis was prepared using the Airport Construction Emissions Inventory Tool (ACEIT). The ACEIT uses U.S. EPA NONROAD and MOVES emission factors to calculate emissions from construction equipment. The ACEIT was developed by the Transportation Research Board (TRB) Airport Cooperative Research Program (ACRP) for preparing a construction emissions inventory for NEPA documents.

The emissions estimated to occur during construction of the Proposed Action at CMH is given in **Table G-3**. A shortening of any of the construction activities assumed or pushing a construction activity to a different year could result in higher emissions and would require a re-analysis of the emission impacts.

Table G-3
CONSTRUCTION EMISSIONS INVENTORY SUMMARY
John Glenn Columbus International Airport

ANNUAL EMISSIONS SUMMARY						
CONSTRUCTION YEAR	**CRITERIA AND PRECURSOR POLLUTANTS** (tons per year)					
	CO	**VOC**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
	CAA *DE MINIMIS* THRESHOLDS					
	100	***100***	***100***	***100***	***100***	***100***
2017	3.61	1.12	1.35	0.01	0.14	0.07
2018	20.53	32.38	8.24	0.07	1.40	0.43
2019	29.92	27.95	6.13	0.06	1.65	0.30
2020	5.29	10.55	2.30	0.02	0.48	0.11
2021	6.47	10.18	2.14	0.02	0.69	0.11
2022	21.14	20.15	3.61	0.06	1.07	0.16
2023	31.08	88.17	12.93	0.15	3.53	0.57
2024	76.06	91.41	16.23	0.25	5.48	0.68
2025	70.80	82.41	15.34	0.25	5.18	0.64
2026	39.08	83.22	14.28	0.20	5.08	0.60
2027	14.07	61.81	7.00	0.10	3.25	0.29
2028	16.03	62.49	8.70	0.11	4.00	0.35
2029	6.56	4.63	5.65	0.04	1.13	0.22
2030	3.27	0.66	1.53	0.01	0.10	0.06

Source: Landrum & Brown Analysis, 2017.

G.4 SIGNIFICANCE DETERMINATION

The air quality assessment demonstrates that the Proposed Action would not cause an increase in air emissions above the applicable *de minimis* thresholds. Therefore, the Proposed Action conforms to the SIPs and the CAA and would not create any new violation of the NAAQS, delay the attainment of any NAAQS, nor increase the frequency or severity of any existing violations of the NAAQS. As a result, no adverse impact on local or regional air quality is expected by construction or operation of the Proposed Action. No further analysis or reporting is required under the CAA or NEPA.

Construction of the Proposed Action would result in short term air quality impacts from exhaust emissions from construction equipment and from fugitive dust emissions from vehicle movement and soil excavation. While emissions due to construction equipment would not exceed applicable thresholds, the Columbus Regional Airport Authority would ensure that all possible measures would be taken to reduce fugitive dust emissions by adhering to guidelines included in FAA Advisor Circular, *Standards for Specifying Construction of Airports*.[20]

Methods of controlling dust and other airborne particles will be implemented to the maximum possible extent and may include, but not limited to, the following:

- Exposing the minimum area of erodible earth.
- Applying temporary mulch with or without seeding.
- Using water sprinkler trucks.
- Using covered haul trucks.
- Using dust palliatives or penetration asphalt on haul roads.
- Using plastic sheet coverings.

G.5 CLIMATE

G.5.1 AFFECTED ENVIRONMENT

Greenhouse gases (GHG) are gases that trap heat in the earth's atmosphere. Both naturally occurring and man-made GHGs primarily include water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). These gases have different potentials for trapping heat in the atmosphere, called global warming potential (GWP). For example, one pound of methane has 25 times more heat capturing potential than one pound of carbon dioxide. When dealing with an array of emissions, the gases are converted to carbon dioxide equivalents (CO_2E) for comparison purposes. Sources that require fuel or power at an airport are the primary sources that would generate GHGs. Aircraft are probably the most often cited air pollutant source, but they produce the same types of emissions as ground access vehicles.

[20] FAA Advisory Circular, *Standards for Specifying Construction of Airports*, Item P-156, *Temporary Air and Water Pollution, Soil Erosion, and Siltation Control*, AC 150/5370-10G (July 21, 2014).

Research has shown there is a direct correlation between fuel combustion and GHG emissions. In terms of U.S. contributions, the General Accounting Office (GAO) reports that "domestic aviation contributes about three percent of total carbon dioxide emissions, according to EPA data," compared with other industrial sources including the remainder of the transportation sector (20 percent) and power generation (41 percent).[21] The International Civil Aviation Organization (ICAO) estimates that GHG emissions from aircraft account for roughly three percent of all anthropogenic GHG emissions globally.[22] Climate change due to GHG emissions is a global phenomenon, so the affected environment is the global climate.[23]

The scientific community is continuing efforts to better understand the impact of aviation emissions on the global atmosphere. The FAA is leading and participating in a number of initiatives intended to clarify the role that commercial aviation plays in GHG emissions and climate. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies (e.g., National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA), and Department Of Energy (DOE)), has developed the Aviation Climate Change Research Initiative (ACCRI) in an effort to advance scientific understanding of regional and global climate impacts of aircraft emissions. FAA also funds the Partnership for Air Transportation Noise & Emissions Reduction (PARTNER) Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and U.S. climate and atmospheric composition. Similar research topics are being examined at the international level by the International Civil Aviation Organization.[24]

G.5.2 CLIMATE ENVIRONMENTAL CONSEQUENCES

Although there are no federal standards for aviation-related GHG emissions, it is well-established that GHG emissions can affect climate.[25] The Council on Environmental Quality (CEQ) has indicated that climate should be considered in NEPA analyses.

The following provides an estimate of GHG emissions. These estimates are provided for information only as no federal NEPA standard for the significance of GHG emissions from individual projects on the environment has been established. **Table G-4** provides the GHG emissions inventory from construction activities for the Proposed Action.

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[21] *Aviation and Climate Change.* GAO Report to Congressional Committees, (2009).

[22] Alan Melrose, "European ATM and Climate Adaptation: A Scoping Study," in *ICAO Environmental Report.* (2010).

[23] As explained by the U.S. Environmental Protection Agency, "greenhouse gases, once emitted, become well mixed in the atmosphere, meaning U.S. emissions can affect not only the U.S. population and environment but other regions of the world as well; likewise, emissions in other countries can affect the United States." Climate Change Division, Office of Atmospheric Programs, U.S. Environmental Protection Agency, *Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act* 2-3 (2009).

[24] Lourdes Q. Maurice and David S. Lee. *Chapter* 5: *Aviation Impacts on Climate.* Final Report of the International Civil Aviation Organization (ICAO) Committee on Aviation and Environmental Protection (CAEP) Workshop. October 29th November 2nd 2007, Montreal.

[25] See *Massachusetts* v. *E.P.A.,* 549 U.S. 497, 508-10, 521-23 (2007).

Table G-4
CONSTRUCTION GHG EMISSIONS INVENTORY SUMMARY
John Glenn Columbus International Airport

ANNUAL EMISSIONS SUMMARY				
CONSTRUCTION YEAR	**GREENHOUSE GAS POLLUTANTS** (metric tons per year)			
	CO_2	**CH_4**	**N_2O**	**CO_2E**
2017	749.49	0.08	0.00	752.80
2018	5,536.47	0.29	0.04	5,557.05
2019	4,386.95	0.36	0.04	4,407.26
2020	1,749.02	0.08	0.01	1,754.53
2021	1,867.82	0.12	0.01	1,874.97
2022	4,225.71	0.40	0.04	4,247.84
2023	14,020.44	0.37	0.10	14,058.85
2024	21,296.07	1.21	0.16	21,373.98
2025	21,074.95	1.17	0.16	21,150.53
2026	18,639.12	0.58	0.11	18,686.22
2027	9,443.46	0.13	0.05	9,461.52
2028	11,662.86	0.13	0.06	11,684.84
2029	7,194.70	0.07	0.02	7,202.17
2030	1,946.45	0.01	0.00	1,947.01

CO_2: Carbon Dioxide
CH_4: Methane
N_2O: Nitrous oxide
CO_2E: Carbon Dioxide equivalent

Note: GWP for CO_2=1; CH_4= 25; N_2O=298

Source: Landrum & Brown Analysis, 2017.

G.5.3 CLIMATE CUMULATIVE IMPACTS

The cumulative impact of this Proposed Action on the global climate when added to other past, present, and reasonably foreseeable future actions is not currently scientifically predictable. Aviation has been calculated to contribute approximately 3 percent of global carbon dioxide (CO_2) emissions; this contribution may grow to 5 percent by 2050. Actions are underway within the U.S. and by other nations to reduce aviation's contribution through such measures as new aircraft technologies to reduce emissions and improve fuel efficiency, renewable alternative fuels with lower carbon footprints, more efficient air traffic management, market-based measures and environmental regulations including an aircraft CO_2 standard. The U.S. has ambitious goals to achieve carbon-neutral growth for aviation by 2020 compared to a 2005 baseline, and to gain absolute reductions in GHG emissions by 2050. At present there are no calculations of the extent to which measures individually or cumulatively may affect aviation's CO_2 emissions. Moreover, there are large uncertainties regarding aviation's impact on climate. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies (e.g. NASA, NOAA, EPA, and DOE), has developed the Aviation Climate Change Research Initiative (ACCRI) in an effort to advance scientific understanding of regional and global climate impacts of aircraft emissions, with quantified uncertainties for current and projected aviation scenarios under changing atmospheric conditions.[26]

G.5.4 CLIMATE ADAPTATION

The potential for flooding, increases in temperature, and erosion associated with climate change pose no threat to CMH. The Proposed Action would not have an adverse impact to climate change nor would the potential changes in climate have an impact on the Proposed Action.

G.6 DESCRIPTION OF POLLUTANTS

Ozone (O_3) - Ozone is a pollutant, which is not directly emitted, rather, ozone is formed in the atmosphere through photochemical reaction with nitrogen oxides (NO_X), volatile organic compounds (VOC), sunlight, and heat. It is the primary constituent of smog and problems can occur many miles away from the pollutant sources.

People with lung disease, children, older adults, and people who are active can be affected when ozone levels are unhealthy. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including:

- lung irritation that can cause inflammation much like a sunburn;
- wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities;
- permanent lung damage to those with repeated exposure to ozone pollution; and
- aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Carbon Monoxide (CO) - Carbon monoxide is a colorless, odorless gas primarily associated with the incomplete combustion of fossil fuels in motor vehicles. Carbon monoxide combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High carbon monoxide concentrations can lead to headaches, aggravation of cardiovascular disease, and impairment of central nervous system functions. Carbon monoxide concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections, along heavily used roadways carrying slow-moving traffic, and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of carbon monoxide are limited to locations within a relatively short distance of heavily traveled roadways. Overall carbon monoxide emissions are decreasing as a result of the Federal Motor

[26] Nathan Brown, et. al. *The U.S. Strategy for Tackling Aviation Climate Impacts,* (2010). 27th International Congress of the Aeronautical Sciences.

Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

Volatile Organic Compound (VOC) – Volatile Organic Compounds are gases that are emitted from solids or liquids, such as stored fuel, paint, and cleaning fluids. VOCs include a variety of chemicals, some that can have short and long-term adverse health effects. As previously stated, VOCs are precursor pollutants that react with heat, sunlight and nitrogen oxides (NO_X) to form ozone (O_3). VOC can also mix with other gases to form particulate matter $PM_{2.5}$ as referenced below.

Nitrogen Dioxide (NO_2) – Nitrogen gas, normally relatively inert (unreactive), comprises about 80% of the air. At high temperatures (i.e., in the combustion process) and under certain other conditions it can combine with oxygen, forming several different gaseous compounds collectively called nitrogen oxides (NO_x). Nitric oxide (NO) and nitrogen dioxide (NO_2) are the two most important compounds. Nitric oxide is converted to nitrogen dioxide in the atmosphere. Nitrogen dioxide (NO_2) is a red-brown pungent gas. Motor vehicle emissions are the main source of NO_x in urban areas.

Nitrogen dioxide is toxic to various animals as well as to humans. Its toxicity relates to its ability to form nitric acid with water in the eye, lung, mucus membrane and skin. In animals, long-term exposure to nitrogen oxides increases susceptibility to respiratory infections lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO_2 can suffer lung irritation and potentially, lung damage. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

While the NAAQS only addresses NO2, NO and the total group of nitrogen oxides is of concern. NO and NO2 are both precursors in the formation of ozone and secondary particulate matter. Because of this and that NO emissions largely convert to NO_2, NOx emissions are typically examined when assessing potential air quality impacts.

Sulfur Dioxide (SO_2) - Sulfur oxides (SO_x) constitute a class of compounds of which sulfur dioxide (SO_2) and sulfur trioxide (SO_3) are of greatest importance. SO_2 is commonly expressed as SO_X since it is a larger subset of sulfur dioxides (SO_2). SO_2 is a colorless gas that is typically identified as having a strong odor and is formed when fuel containing sulfur, like coal, oil and jet fuel, is burned. SO_2 combines easily with water vapor, forming aerosols of sulfurous acid (H_2SO_3), a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air, forming the even more irritating and corrosive sulfuric acid (H_2SO_4). Peak levels of SO_2 in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures to high levels of SO_2 gas and particles cause respiratory illness and aggravate existing heart disease.

Particulate Matter (PM_{10} and $PM_{2.5}$) - Particulate matter includes both aerosols and solid particles of a wide range of size and composition. PM_{10} is considered coarse particles with a diameter of 10 micrometers or less, and $PM_{2.5}$, fine particles with a diameter of 2.5 micrometers or less. Emissions of $PM_{2.5}$ are a subset of emissions of PM_{10}. Particulate matter can be any particle of these sizes, including dust, dirt, and soot. Smaller particulates are of greater concern because they can penetrate deeper into the lungs than large particles.

$PM_{2.5}$ is directly emitted in combustion exhaust and formed from atmospheric reactions between various gaseous pollutants including nitrogen oxides (NO_x) sulfur oxides (SO_x) and volatile organic compounds (VOC). PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or the resuspension of dusts, most typically through construction activities and vehicular movements. $PM_{2.5}$ can remain suspended in the atmosphere for days and weeks and can be transported over long distances. PM_{10} generally settles out of the atmosphere rapidly and is not readily transported over large distances.

The principal health effect of airborne particulate matter is on the respiratory system. Short-term exposures to high $PM_{2.5}$ levels are associated with premature mortality, increased hospital admissions, and emergency room visits. Long-term exposures to high $PM_{2.5}$ levels are associated with premature mortality and development of chronic respiratory disease.

Carbon Dioxide (CO_2) - Carbon dioxide is a colorless, odorless gas produced through the incomplete combustion of fossil fuels. Carbon dioxide is considered to be the most significant greenhouse gas (GHG) that trap heat in the earth's atmosphere. Both naturally occurring and man-made greenhouse gases primarily include CO_2, water vapor (H_2O), methane (CH_4), and nitrous oxide (N_2O). These different chemical species that are emitted have a different effect on climate. The carbon dioxide equivalent (CO_2E) method is a way to show relative impacts on climate change of different chemical species.

Lead (Pb) - Lead is a stable compound, which persists and accumulates both in the environment and in animals. In humans, it affects the blood-forming or hematopoletic, the nervous, and the renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological, and gastrointestinal systems, although there is significant individual variability in response to lead exposure. Since 1975, lead emissions have been in decline due in part to the introduction of catalyst-equipped vehicles, and decline in production of leaded gasoline. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (i.e. lead smelters) and are generally not applied to transportation projects.

Appendix H

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APPENDIX H
DEPARTMENT OF TRANSPORTATION SECTION 4(F) RESOURCES

There were several Department of Transportation (DOT) Section 4(f) properties[1] that were evaluated for impacts that would occur as a result of the Proposed Action. There was one property where impacts were identified, the Elam Drake Farmstead, which is listed on the National Register of Historic Places. Therefore, this EA includes evaluation and agency coordination related to this property. Additional information on the Elam Drake Farmstead is included in Chapter Four, Sections 4.3.4 and 4.3.6; and Chapter Five, Sections 5.1.4 and 5.1.6. Coordination with the U.S. Department of the Interior related to impacts to this property is ongoing. Additional information related to this coordination will be included in this appendix in the final EA document.

1 Section 4(f) of the Department of Transportation Act of 1966 is currently codified as 49 U.S.C. Section 303(c). Consistent with the FAA Order 1050.1F Desk Reference, Section 303(c) is referred to as Section 4(f).

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DOT SECTION 4(F) COORDINATION

This information will be included in the final EA document.

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Appendix I

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APPENDIX I
NOISE METHODOLOGY

This Appendix contains information regarding the properties of noise and the methodology used for describing noise impacts per Federal Aviation Administration guidelines.

I.1 CHARACTERISTICS OF SOUND

Sound is created by a source that induces vibrations in the air. The vibration produces alternating bands of relatively dense and sparse particles of air, spreading outward from the source like ripples on a pond. Sound waves dissipate with increasing distance from the source. Sound waves can also be reflected, diffracted, refracted, or scattered. When the source stops vibrating, the sound waves disappear almost instantly and the sound ceases.

Sound conveys information to listeners. It can be instructional, alarming, pleasant, relaxing, or annoying. Identical sounds can be characterized by different people or even by the same person at different times, as desirable or unwanted. Unwanted sound is commonly referred to as “noise.”

Sound can be defined in terms of three basic components:

1. Level (amplitude)
2. Pitch (frequency)
3. Duration (time pattern)

I.1.1 SOUND LEVEL

The level or amplitude of sound is measured by the difference between atmospheric pressure (without the sound) and the total pressure (with the sound). Amplitude of sound is like the relative height of the ripples caused by the stone thrown into the water. Although physicists typically measure pressure using the linear Pascal scale, sound is measured using the logarithmic decibel (dB) scale. This is because the range of sound pressures detectable by the human ear can vary from *1 to 100 trillion units*. A logarithmic scale allows us to discuss and analyze noise using more manageable numbers. The range of audible sound ranges from approximately 1 to 140 dB, although everyday sounds rarely rise above about 120 dB.

I.1.2 SOUND FREQUENCY

The pitch (or frequency) of sound can vary greatly from a low-pitched rumble to a shrill whistle. If we consider the analogy of ripples in a pond, high frequency sounds are vibrations with tightly spaced ripples, while low rumbles are vibrations with widely spaced ripples. The rate at which a source vibrates determines the frequency.

The rate of vibration is measured in units called "Hertz" -- the number of cycles, or waves, per second. One's ability to hear a sound depends greatly on the frequency composition. Humans hear sounds best at frequencies between 1,000 and 6,000 Hertz. Sound at frequencies above 10,000 Hertz (high-pitched hissing) and below 100 Hertz (low rumble) are much more difficult to hear.

When attempting to measure sound in a way that approximates what our ears hear, we must give more weight to sounds at the frequencies we hear well and less weight to sounds at frequencies we do not hear well. Acousticians have developed several weighting scales for measuring sound. The A-weighted scale was developed to correlate with the judgments people make about the loudness of sounds. The A-weighted decibel scale (dBA) is used in studies where audible sound is the focus of inquiry.

I.1.3 DURATION OF SOUNDS

The duration of sounds – their patterns of loudness and pitch over time – can vary greatly. Sounds can be classified as *continuous* like a waterfall, *impulsive* like a firecracker, or *intermittent* like aircraft overflights. Intermittent sounds are produced for relatively short periods, with the instantaneous sound level during the event roughly appearing as a bell-shaped curve. An aircraft event is characterized by the period during which it rises above the background sound level, reaches its peak, and then recedes below the background level.

I.2 DAY-NIGHT AVERAGE SOUND LEVEL (DNL)

Given the multiple dimensions of sound, a variety of descriptors, or metrics, have been developed for describing sound and noise. For environmental noise studies in the U.S. the Day-Night Average Sound Level (DNL) metric is the approved metric for use in environmental noise studies.

The Day-Night Average Sound Level (DNL) metric describes the total noise exposure during a given period. Unlike Leq, however, DNL, by definition, can only be applied to a 24-hour period. In computing DNL, an extra weight of 10 dB is assigned to any sound levels occurring between the hours of 10:00 p.m. and 7:00 a.m. This is intended to account for the greater annoyance that nighttime noise is presumed to cause for most people. Due to the logarithmic nature of the dB scale, this extra weight treats one nighttime noise event as equivalent to 10 daytime events of the same magnitude.

As with Leq, DNL values are strongly influenced by the loud events. For example, 30 seconds of sound of 100 dB, followed by 23 hours, 59 minutes, and 30 seconds of silence would compute to a DNL value of 65 dB. If the 30 seconds occurred at night, it would yield a DNL of 75 dB.

This example can be roughly equated to an airport noise environment. Recall that an SEL is the mathematical compression of a noise event into one second. Thus, 30 SELs of 100 dB during a 24-hour period would equal DNL 65 dB, or DNL 75 dB if they occurred at night. This situation could actually occur in places around a real airport. If the area experienced 30 overflights during the day, each of which produced an SEL of 100 dB, it would be exposed to DNL 65 dB. Recalling the relationship of SEL to the peak noise level (Lmax) of an aircraft overflight, the Lmax recorded for each of those overflights (the peak level a person would actually hear) would typically range from 90 to 95 dB.

All land uses within areas below 65 DNL are considered to be compatible with airport operations. Residential and noise-sensitive public land uses; including schools, churches, hospitals, libraries and nursing homes; are generally incompatible with noise levels above 65 DNL unless treated with proper mitigation such as sound insulation to reduce interior noise levels to acceptable levels.

Noise levels measured using the DNL metric are typically depicted on exhibits showing noise contours, which are lines connecting points of equal noise level. Typically, for Part 150 and other environmental noise studies, noise contours are shown at 65, 70, and 75 DNL. Per FAA requirements, noise contours are developed using the FAA-approved noise modeling software, the Integrated Noise Model (INM).

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