Chapter 7
Airport Layout Plan and Airport Capital Improvement Plan

7.0 INTRODUCTION

This chapter presents the Airport Layout Plan (ALP) Drawing Set, Project Phasing Plan, and Airport Capital Improvement Plan (ACIP), which comprise the final recommendations of the Sustainable Airport Master Plan Update (MPU) for Buffalo Niagara International Airport (BNIA). The ALP Drawing Set incorporates the Preferred Airport Development that was presented in Chapter 6 along with modifications that resulted from recommendations of the Stakeholder Advisory Committee and agency review. The Project Phasing Plan presents a recommended phasing schedule for implementing the proposed improvements for the 20-year planning period. The ACIP details the funding mechanisms and costs for implementing the program over the twenty year period, with an emphasis on the first five year projects. These documents will become the final recommendations of the MPU.

7.1 PUBLIC PARTICIPATION PROCESS

The ALP Drawing Set, Project Phasing Plan, and ACIP are the culmination of a planning process that was designed to permit comment from interested parties. The planning process included four Stakeholder Advisory Committee meetings held at key stages in the planning process. A series of interim reports, documenting the various stages of the planning process, were presented to the Stakeholder Advisory Committee for their review/comment. At the fourth Stakeholder Advisory Committee meeting, the draft final recommendations were discussed. Minutes of the meetings are provided in **Appendix H**.

The Public Workshop was held to present the final recommendations and the complete draft ALP Drawing Set. Public Workshop notices were published by the Niagara Frontier Transportation Authority (NFTA) in three local Buffalo area newspapers to publicize the meeting.

The aforementioned meetings were held on the following dates:

- Stakeholder Meeting No. 1 — December 15, 2011
- Stakeholder Meeting No. 2 — May 5, 2011
- Stakeholder Meeting No. 3 — September 28, 2011
- Stakeholder Meeting No. 4 — November 17, 2011
- Public Workshop — November 17, 2011

7.2 AIRPORT LAYOUT PLAN DRAWING SET

The ALP Drawing Set has been prepared in accordance with generally accepted planning practices and with the following FAA guidance materials:

- FAA Advisory Circular 150/5300-13, *Airport Design*
- FAA Advisory Circular 150/5070-6B, *Airport Master Plans*
- Federal Aviation Regulations, Part 77, *Objects Affecting Navigable Airspace*
- FAA Eastern Region ALP Checklist

The ALP Drawing Set for BNIA consists of 13 drawing sheets as follows:

Sheet	Title
1.	Cover Sheet
2.	Existing Airport Layout
3.	Airport Layout Plan
4.	Airport Layout Plan Tables
5.	Terminal Area Plan
6.	Airport Airspace Plan
7.	Airport Airspace Plan – Outer Approach Surfaces
8.	Runway 5-23 Inner Approach Surface and RPZ Control Plan
9.	Runway 5-23 Departure Surface
10.	Runway 14-32 Inner Approach Surface and RPZ Control Plan
11.	Runway 14-32 Departure Surface
12.	Airport Land Use Plan
13.	Airport Property Map – “Exhibit A”
14.	Airport Environmental Inventory Map

The ALP Drawing Set is provided at the end of this Master Plan Report. Narrative descriptions of the drawings prepared for BNIA are provided below.

7.2.1 Cover sheet

The Cover Sheet (Sheet 1 of 14) provides a listing of the sheets comprising the ALP set. It also provides both a location map showing BNIA’s Western New York setting and a vicinity map that shows the airport and surrounding towns. Also presented on this sheet is information stating the Federal Aviation Administration’s (FAA) Airport Improvement Program project number, the Niagara Frontier Transportation Authority project number and the New York State Department of Transportation PIN number.

7.2.2 Existing Airport Layout

The Existing Airport Layout (Sheet 2 of 14) illustrates the existing airport facilities at BNIA. This drawing depicts the airport as it exists today and provides a comparison to the ALP. The drawing is based upon photogrammetric information collected from aerial photography collected at the beginning of the project. The sheet depicts the entire airport as well as neighborhoods, business and industrial areas and local roads and highways that are adjacent to the airport. Both airside and landside facilities are shown on the drawing. Buildings and other airport related facilities are shows and numbers keyed to the Airport Facilities Table are used to identify each facility.

Airside facilities include the runways, taxiways, apron areas and lighting and navigational aids serving each of the runways. Areas protected for safety and airspace include the Runway Safety Areas, Runway Object free Areas and the Runway Protection Zones are also shown as well. Landside areas include the terminal building, support facilities including the maintenance complex, General Aviation, Air Cargo and passenger parking areas.

The existing airport property boundary is shown prominently to define the airport proper and other parcels owned by BNIA. The airport property boundaries were determined using readily available data from the NFTA; however, no “boundary survey” was completed for this project.

The Existing Airport Layout Sheet also includes the All Weather and IFR Wind Roses, Runway Data Table, Facilities Table, Airport Data Table and a Legend. A Modification to Design Standards Table is also included providing a list of modifications approved by the FAA.

7.2.3 Airport Layout Plan

The ALP (Sheet 3 of 14) illustrates the recommended development at BNIA over the 20-year planning period. The ALP sheet is the most important sheet in the Master Plan Drawing Set as it is approved by the Airport Sponsor, NYSDOT and FAA. The ALP serves as the officially approved planning document for the airport. In order to be eligible for federal funding, all future airport projects should be depicted on the ALP.

Due to the extensive detail on Sheet 2, and to minimize clutter, a separate sheet (Sheet 4 of 14) was incorporated into the ALP Drawing Set to present several of the ALP tables and is described further in the next section. Tables shown on the ALP include the Legend, Airport Facilities Table, including future facilities, signature blocks for FAA, NYSDOT and NFTA, and wind rose data. The major recommended airside and landside improvements depicted on the ALP Sheet are described in the following sections.

Airside Improvements

The preferred airside alternative as presented in Chapter 6, *Alternatives*, focuses on taxiway improvements, enhancement to the Runway 23 Instrument Landing System (ILS) critical area, support facility recommendations for the Maintenance Complex and Airport Rescue and Fire Fighting (ARFF), Remain Overnight (RON) parking, and reserving future development area for the General Aviation area, Air Cargo, and Fuel Farm. As noted in the previous chapter, the runway length is adequate and associated Runway Safety Areas meet current standards through the use of declared distance. The proposed development is summarized below.

Taxiway Improvements

Taxiway improvements were proposed to further enhance operational safety by reducing the number of runway crossings, reduction in taxi routes and times, which reduces overall aircraft emissions, and more efficient taxi routing from various areas of the airport including Air Cargo and General Aviation areas. The taxiway Improvements are described below.

Parallel Taxiway "S"

As shown on the ALP, a new full length parallel taxiway is proposed on the east side of Runway 14-32. This taxiway provides access to the General Aviation area and creates a more efficient taxi routing for aircraft accessing or egressing this area. A key benefit of the taxiway is the reduction of runway crossings when aircraft in the General Aviation area must depart Runway 23. The taxi time savings is also significant and reduces the overall aircraft emissions when aircraft operate from this area.

For purposes of this master plan, construction of this taxiway is proposed in two phases. The first phase is the segment between Taxiway "Q" and Taxiway "A" (crossing Runway 5-23). This segment allows quick access to the from the General Aviation area when using Runway 5-23. The second phase includes connecting the ends of the runway. The first segment that is proposed is between Taxiway "A" to the end of Runway 32. This segment further enhances

access to and from the General Aviation area to Runway End 32. The second segment completes the full parallel taxiway between Taxiway "Q" and Runway End 14. Both of these segments are envisioned as a long term project.

Partial Parallel Taxiway "T"

This partial parallel taxiway is proposed to enhance access to and from the Air Cargo area as well as provide taxi efficiencies by segregating Air Cargo aircraft and General Aviation aircraft from commercial service aircraft. It will be built between Taxiway "M" and the new parallel Taxiway "S" described above. This taxiway allows Air Cargo aircraft and General Aviation aircraft to bypass the western portion of Taxiway "A", which is the busiest element of Taxiway "A" used by commercial aircraft accessing or egressing the terminal.

Stub Taxiway "N"

This stub taxiway connects Taxiway "M" to Taxiway "A" and allows aircraft to cross Runway 5. It is intended to provide Air Cargo and General Aviation aircraft easier access to Runway End 5 and eliminates the difficult turn now encountered when turning from Taxiway "F" to Taxiway "A". This stub taxiway also provides a new exit point from Runway 23 landings offering reduced runway occupancy times for larger aircraft unable to make a turn off at Taxiway E.

Instrumentation/Navigational Aids

All but Runway 14 have precision Instrument Landing Systems (ILS) Category I instrumented approaches providing approach minimums of 200' above the runway threshold and ½ mile visibility minima. A Category II instrument approach providing lower minima was assessed given Runway 23 has advanced lighting aids including Touchdown Zone (TDZ) lighting and an advanced Approach Lighting System with Flashers (ALSF-2) that would allow a Cat II approach with minimal upgrades to the current Cat I ILS equipment.

In order to accomplish this upgrade, the current ILS glide slope antenna needs to be moved out, thus requiring the enlargement of the critical area to provide the necessary area to allow proper operation of the Glide Slope Antenna signal. As Runway 23 is built on fill, additional fill would be required to expand the ILS critical area. Approximately 400,000 cubic yards of fill material would be required to provide the additional area. The current vehicle service road would need to be modified to go around the new perimeter of the critical area and the existing electrical building would need to be relocated. This project is seen as a mid-term project.

Remain Overnight Parking

Remain Overnight (RON) aircraft parking is currently provided on the south side of Taxilane K1 and at the far west end of the terminal beyond Gate 1. A formal parking plan was not established for RON parking although seven concrete hard stands (for the main gear of the aircraft) were constructed at the K1 location previously to protect flexible pavements from rutting due to wheel loads. It was noted by the airlines and BNIA that RON is a critical need, as growth over the past several years has increased need of RON parking at the airport. Forecasted demand suggests that up to 16 parking spaces will be needed in the future.

Two sites were identified for RON parking and shown on the ALP. The first site is the current area used for RON along Taxilane K1. With some minor changes to taxiway centerline paint

and an eighth full depth concrete hardstand, eight B737-800 aircraft can be parked along Taxilane K1.

The second area is located immediately west of the western terminal concourse. This area is currently used to park several aircraft and is also used for deicing during the winter. The proposed layout in this area would require the relocation of the employee parking lot and using the space to park aircraft and to relocate the existing deicing fluid holding tank. Because of the Federal Aviation Regulation Part 77 Transition Surface to Runway 5, there are height limitations which dictate the types of aircraft that can be parked and where they must parked. The Transition Surface limits the front row of aircraft to six Regional Jet (RJ) sized aircraft. Using the automobile parking area provides a significant level of flexibility to park larger aircraft within this area. Under this scenario, three RJ aircraft can be parked to the west while three B737-800 aircraft can be parked to the east. In either scenario, six aircraft can be parked in this area.

Support Facilities

This section addresses support facilities that serve the airfield as well as the airport. Proposed development is detailed below.

Maintenance Facility

Maintenance is a complex of buildings located northwest of Runway 05 currently. The decentralized complex is not highly efficient and in a number of cases, the buildings and office space is inadequate to handle materials, equipment and vehicles. Today, much of the snow removal equipment is stored on a large snow pad, subjecting the equipment to the elements and reducing their overall lifespan. In order to address the shortfalls, a new facility was proposed and sited northeast of the runway intersection just south of the Fuel Farm.

This new maintenance facility would combine all functions, office and crew space, maintenance, vehicle storage, and some of the materials storage. The facility would have access to the internal vehicle service road for access and staging needs. Direct access to the runways is possible should that need be required, however, the Operations Supervisor indicated that during snow events, there are several designated staging areas to access runways for snow removal operations.

The facility would encompass approximately 95,000 sf of space. The building would contain storage areas for materials, maintenance and wash bays, offices, maintenance equipment and tool areas and 36 parking positions for vehicles.

Airport Rescue and Fire Fighting

The current Airport Rescue and Fire Fighting (AFFF) facility was built in the 1970's and is now outdated. As ARFF equipment has become larger over the years, the existing bays are now inadequate for the existing ARFF vehicles and there is limited space around the vehicles for turnout gear, equipment, and circulation area. Storage of materials is also limited and some of that storage area is located on a second level, thus limiting what can be stored. There are also significant crew area inadequacies and given the limited area available, many of the rooms have been improvised to meet crew needs, office space, workout areas, and split gender locker and shower/restroom facilities. Compounding this, the crew bunks are located on the westerly side of the facility and face the air cargo apron. Air cargo operations noise at night has become an issue.

A new facility was proposed and the new location was moved to the southeast quadrant of the airport just south of the Mercy Flight facility. The new location improves response times to the terminal, which is the majority of the ARFF responses, and may also provide synergies between Mercy Flight and ARFF personnel.

The new facility will have six vehicle bays sized for current and future vehicles, locker and turnout space, and equipment storage between vehicles. Storage of materials will be provided adjacent to the bays as well. Personnel space was sized at 15,800 sf and will include area for office space, training rooms, crew areas, bunks and overnight rooms, showers and locker areas for both genders.

Air Cargo

The Air Cargo complex is adequate for the 20 year planning period. However, additional area was identified to reserve potential space should expansion be necessary for a new air cargo entrant, a business decision among existing tenants, or unforeseen change in the industry. The area reserved for future development includes an expanded apron to the east of the existing apron, which comprises approximately 350,000 sf, and a new 100,000 sf building proposed along the northerly edge of the apron area. There is adequate area to park several large cargo aircraft on the new apron and the building could accommodate a large scale sorting facility similar to the existing facilities for Federal Express and United Parcel Service.

General Aviation

The General Aviation (GA) complex is adequate to meet future GA needs. As with the Air Cargo facility, area was also reserved for future development that is either unforeseen, development related to business decisions, or a new entrant. The current Fixed Based Operator is planning to expand and build a new hangar and that facility has been shown on the ALP. In addition to this development, area has been reserved to expand the GA area to the south of the existing complex. A new 570,800 sf apron is proposed as well as two 30,000 sf hangars that are large enough for corporate use or as storage. Larger hangars can also be built within this reserved area should demand warrant.

Fuel Farm

The Fuel Farm is also adequate to meet future fuel storage needs for the airport. Additional space was reserved should it be necessary to expand the facility with new tanks for additional fuel storage or alternate fuel types such as biofuels which may need their own separate fuel storage tanks. The area reserved is located on the southerly side of the facility.

Mercy Flight Hangar Expansion

Mercy Flight indicated to BNIA that they may consider building a fixed wing hangar to house one or several of their aircraft. As such, area has been reserved south of their existing facility to build a new hangar that can meet their aircraft storage needs. The hangar will be adjacent to the new ARFF facility.

CNG Station

NFTA is looking into the feasibility of developing a Compressed Natural Gas (CNG) filling station on the airport for both landside and airside vehicles. After evaluating the needs, a

location was identified in the current employee parking area that could provide a good location to locate the facility. The area along the southerly portion of the parking lot provides direct access to Cayuga Road and can be accessed by any sized vehicle including busses, shuttles, and cars. The location is also proximate to the internal service road and there is adequate area to provide a location to fuel a vehicle with a dispenser.

Landside Improvements

The preferred landside development focuses on internal roadway circulation improvements and parking needs. In addition to these projects, there are also terminal improvements which focus on improved baggage claim devices in the lower level and terminal space recommendations that will address the security checkpoint on the second level.

Airline Terminal

Enhancements to the terminal were identified for Level 1 (lower level) which contains the baggage claim area and airline baggage offices and Level 2 (upper level) which contains the airline counters, security checkpoint, and the terminal concourse and concessions.

Improvements to the terminal building enhance several areas in the terminal to better accommodate future passenger demand over the twenty year planning period. As noted in the previous chapter, no additional gates are recommended to accommodate demand. Areas of enhancement within the terminal focused on baggage claim, the airport's existing security checkpoint, and potentially relocating the airport administration offices from the secure side of the terminal to a publicly accessible location on the non-secure side. Enhancements to each level are briefly described below.

Level 1

The proposed improvements consist of the replacement of the three existing flat plate baggage carousels with up to four new slope plate carousels to meet the 20-year baggage claim demand. The phasing requirements associated replacing the existing flat plate carousels with slope plate carousels dictates that a westward expansion of the first floor occur prior to the replacement of the three flat plate carousels with two slope plate carousels. This is because two existing flat plate carousels cannot be removed from service (to install a slope-plate carousel) and maintain an acceptable level of service for existing operations. Consequently, a new slope plate carousel needs to be installed in the proposed westward expansion first along with proposed relocations of the baggage service offices. Once this improvement is completed, there will then be sufficient excess baggage claim capacity to undertake the replacement of the first two existing flat plate carousels with one slope plate carousel. When that improvement is completed, the last existing flat plate carousel can be removed and replaced with a third slope plate carousel. Once complete, the two new slope plate carousels will provide the necessary capacity for both existing conditions as well as the short term. If long-term demand dictates, a fourth slope plate carousel could be installed in the westward expansion of the first floor.

The addition of the new slope plate carousels also enhances baggage cart operations on the secure side of the wall. New roadway lanes and longer curb areas for the tugs and carts and remote baggage conveyors all provide significant enhancements for baggage personnel to operate efficiently and safety. In addition, this new layout is also secure in that the current wall openings for the flat place carousels are eliminated, thus eliminating an access point to the secure side of the terminal.

Level 2

Enhancements to Level 2 were focused on providing adequate security checkpoint lanes to efficiently process passengers and to also provide efficient passenger movement from the east and west concourse to the Level 1 baggage claim area. With the expansion of the Level 1 baggage claim area to the west, a new area is available to develop a set of security lanes to process passengers through security on this level. This will provide additional capacity in the future as the existing central checkpoint will eventually reach capacity.

The new area also provides a way to get passengers to the Level 1 baggage claim area by providing a new vertical access point (descending escalator) to the new lower level baggage claim area described in the preceding section. The proposed development significantly improves both passenger processing efficiencies and two points in which to get passengers to the lower baggage claim levels.

In the long term, the proposed development expands the east side of the terminal and relocates the central securing checkpoint to the east side. The area vacated by the central checkpoint allows the addition of new concessions as well as the relocation of the BNIA offices to the upper floor providing both secure and non-secure access to these offices. A new vertical access point (down escalator) is also recommended to allow passengers from the east concourse to access the baggage claim are on the lower level.

Roadway and Parking

The current internal roadway system has a number of deficiencies which affect the flow of traffic arriving or departing the airport. There are several merge area that require vehicles to weave in or out of the traffic flow and sight lines that are inadequate. As such, a new internal roadway system was proposed to limit weaving and to improve access to and from the terminal and parking areas.

The main focus of the roadway improvement is on the western side of the parking area. Here, a new roadway system is proposed that eliminates weaving and provides direct exit routes to Genesee Street and the Kensington Highway. A roundabout is used to recirculate traffic back to parking for people who drop passengers at the terminal or are entering the airport from the West Entrance. A new flyover bridge is proposed to provide direct access to the airport from the Kensington Highway, reducing traffic congestion at west entrance intersection.

Proposed along with the new roadway improvements is the addition of a 4,000 car parking garage. The airport has a small two level garage used for rental cars on the lower level and short term parking on the top level. With this, there is almost no covered parking for the airport. It was determined by BNIA that covered parking was a need, especially during the winter months. As such, a new garage was proposed south of the existing garage to provide covered parking for the airport. The facility would be built in phases; the first phase would accommodate 2,000 cars and then two additional 1,000 car expansions as demand warrants.

In order to accommodate the initial development of the roadway and garage development, a relocation of about 1,000 parking spaces would be required. As such, a 1,000 car expansion of the Long Term B lot was proposed. Once the roadway and garage work is done, the new garage will be able to reabsorb the 1,000 cars. At that point, the parking area can be used for a number of revenue generating options such as overflow rental car storage or leasing area for construction equipment and material storage..

Area Reserved for Non-Aviation Development

Two Areas were identified for potential future non-aviation development. The first area identified is located in the area currently occupied by the Maintenance Complex. When the new Maintenance Facility is built, this area can be redeveloped for non-aviation use to enhance revenue generation. This development should be limited to commercial or industrial related land uses that do not produce smoke or excess light emissions.

The second area reserved for future non-aviation development is located on land between the Long Term B expansion and the area east of the Mercy Flight facility. The primary use for this area is additional parking in the short to mid-term and as demand warrants, compatible non-aviation development such as commercial or industrial land uses.

7.2.4 Data Sheet

The Data Sheet (Sheet 4 of 14) provides data tables normally shown on the ALP, however, because of the size of the tables, they are provided on this separate sheet to minimize clutter on the ALP. Data tables included on this plan include the Runway Data Table, Runway Safety Area Determination, Modification of Standards Table, the Airport Data Table and the Wind Roses. It should be noted that tables shown on this plan include columns for existing as well as proposed development, thus any changes that occur with regard to facilities can be easily discerned.

7.2.5 Terminal Area Plan

The Terminal Area Plan (Sheet 5 of 14) depicts an expanded view of the terminal area and provides a more detailed layout of the terminal development being proposed for this master plan. On the airside, the plan shows the proposed RON areas in detail and how aircraft would be parked in these areas. With regard to the terminal building, this plan provides more detail on the terminal expansion for the baggage claim devices and the proposed second security screening point. Ultimate development to the east is also shown for long term development. A dashed outline is used to show the potential for a terminal concourse expansion in the long term should the need for additional gates be needed. The purpose for showing this is to reserve this area. Finally, the plan also shows in detail the proposed roadway improvements, the new proposed garage and associated toll plazas, and the east and west access points.

7.2.6 Airport Airspace Plan

Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*, regulates the airspace surrounding airports through the establishment of “Imaginary Surfaces,” which include the Primary, Approach, Transitional, Horizontal and Conical Surfaces. These surfaces are defined and discussed in Chapter 4, *Facility Requirements*.

Sheets 6 of 14 and 7 of 14 depict the FAR Part 77 Imaginary Surfaces for BNIA, including the ultimate Category II ILS approach for Runway 23. The purpose of the second sheet is to show the outer areas of the Precision Approach surfaces to Runways 5, 23 and 32, which extend out 50,000 feet from the ends of those runways. The intent of the Airport Airspace Plan is to identify obstructions to all FAR Part 77 surfaces.

The FAR Part 77 surfaces are shown over the United States Geological Survey (USGS) map to orient the surfaces over the airport and surrounding community. USGS quadrangles that make

up this area are shown on the plan. Additionally, an isometric view of the FAR Part 77 surfaces are show to provide an understanding of what is being depicted in a three dimensional view.

Based on the analysis of the Part 77 surfaces, there are no major penetrations to the surfaces in the outer surface areas. The airport has a relatively clear set of Part 77 surfaces. The next set of sheets depicting the inner approach surfaces, do show some close in penetrations and they are further addressed in these sheets.

7.2.7 Inner Approach Surface and RPZ Control Plan

The inner approach surface and RPZ control plans provide plan and profiles of the inner Part 77 Approach and Transition surfaces as well as Runway End Siting Surfaces (RESS) outlined in AC 150/5300-13 *Airport Design*. The intent of these plans are to identify close in obstructions to these surfaces and actions to address these obstructions, including removal or placing an obstruction light on the object. It should be noted that the Airport Sponsor must remove obstructions to these surfaces within three years or a prohibition of night landings will be implemented. As Buffalo has two runways, there are two plans, Sheet 8 of 14 presents Runway 5-23 and Sheet 10 of 14 presents Runway 14-32.

In these plans, each runway is shown in plan and profile. The plan view is an overhead view of the runway while the profile view shows a side view of the runway end. Both Part 77 and RESS surfaces are show for each runway end and obstructions to the various surfaces are shown. The profile view, looking at the runway from the side, shows how the surfaces extend upwards and outwards from the each runway end and the locations of various obstructions within the approach areas. The surfaces have variable slopes based on the type of approach to each runway. The more precise the approach, the shallower the surface.

Tables are presented that provide a listing of obstructions shown in the plan and profile view. Each obstruction is identified (tree, pole, etc.) and designated by a number, elevations of the object and the surface at that point are provided, and the amount of penetration is shown. It should be noted that obstructions are identified 10 feet below each surface and are shown as either being under the surface, a negative difference between object elevation and surface elevation, and a positive value identified the amount of penetration above the surface.

Disposition of obstructions is based on several factors. On airport obstructions can be easily addressed. However, off airport obstructions can be more challenging to address. With that in mind, when evaluating obstructions, the preference is to clear to the Part 77 surfaces, however, if an obstruction cannot be removed, FAA uses the RESS surfaces as an evaluation tool to identify the surface that must be clear to maintain or add a new approach. As described in Appendix 2 of AC 150/5300-13 *Airport Design*, FAA notes that objects penetrating most RESS surfaces should be removed. If they cannot be removed, there is a potential to displace runway thresholds, raise the minimums of an existing or new approach, increase the threshold crossing height of an existing instrument approach, or the prohibition of night activity. As a note, an aeronautical study was completed at the start of this project and obstructions data was compiled as part of the effort. As such, this is a new analysis of close in obstruction as such; they will be treated as new within the scope of the analysis presented herein.

Sheet 8 of 14 presents Runway 5-23. For Runway 5, there are no proposed changes to this runway, thus the surfaces shown are for existing conditions. As seen in the profile view, there are a number of trees within both Part 77 surfaces and the RESS surfaces. Based on the information, there are four trees that affect the RESS surface for this runway end and they are

all on BNIA owned land and can be removed. With the RESS surface clear, there should be no major issues related to penetrations of the Part 77 surfaces. This should be coordinated with FAA to ensure that no other actions will be necessary.

For Runway End 23, the RESS surfaces for both the existing Category 1 and the proposed Category II Instrument Landing System are clear and no further action is necessary. There are trees that affect the Part 77 surfaces; approximately eight are on BNIA property can be removed. Remaining trees do not have significant penetrations and if these objects do not affect existing approaches, many of the obstructions may not require action. This should be coordinated with FAA to ensure that no other actions will be necessary.

Sheet 10 of 14 depicts the plan and profiles for Runway 14-32. Runway 14 has a non-precision approach as compared to Runway 32 which has a precision approach. Both the RESS and Part 77 surfaces have penetrations of either runway end.

The RESS surface for Runway 14 has numerous trees that affect this approach. However, only four of the trees exceed a 10 foot penetration, the remaining trees either underlie the approach surface or penetrate by only a few feet. As such, the airport should focus on removing these four trees. The remaining obstructions should be evaluated further to determine their impact on the existing approach. Once that assessment is complete, a final determination for a clear approach can be made.

For the Runway 32 approach, there are only two trees that affect the RESS surface to this runway end. One tree has a seven foot penetration while the other tree is about 8 feet below the surface. BNIA should move to remove both trees. The remaining penetrations are Part 77 surface penetrations and likely will not have any major effects to existing or proposed approaches.

7.2.8 Departure Surface Control Plan

The Departure Surface Control plans depict the 40:1 (slope) Departure Surface and the 62.5:1 One Engine Inoperative (OEI) surface for runways that have commercial operations. These surfaces are used to clear departure areas for commercial service aircraft. Obstructions in these surfaces affect departure minimums (cloud height and visibility) as well as airline specific departure requirements that may impose a fuel weight penalty, that is restrict either passengers or cargo in order to fly to a specific destination. Objects in the 40:1 Departure surface should be removed to provide a clear surface and the lowest departure minimums for the airport. A clear departure surface also maximizes airline operational needs and ensures they are able to operate efficiently. The OEI surfaces are shown as well, however, the FAA Airport Design Circular notes that these surfaces are advisory and are not considered clearing surfaces. These surfaces, however, will be evaluated by airlines to determine operational procedures in the event of an engine loss during takeoff. Between writing this section and final approval of the Master Plan, AC 150/5300-13A, *Airport Design*, was updated and removed the OEI surface from the document until a national policy is developed. The discussion remains in this section, however, no further actions are required by the Airport Sponsor.

Obstructions to the departure surfaces can be address in two ways per FAA guidelines. If they cannot be removed, there is a potential to reduce the Takeoff Distance Available (TODA) and FAA provides a formula to determine this. Alternatively, if there is an existing instrument approach, FAA states that if the penetration is less than 35 feet, no action may be required, however, there could still be an impact to departure procedures or minimum climb gradients

(existing and proposed). As such, objects exceeding 35' are called out in these plans. The disposition of all others will have to be further assessed, which is beyond the scope of this master plan. As a note, the obstructions identified as part of the aerial survey that was conducted does identify new obstructions that may not have been identified when existing instrument approaches were developed and as such, the obstructions are being treated as new within the scope of the analysis presented here.

Sheet 9 of 14 presents the Departure and OEI surfaces for Runway 5-23. The Departure Surface to Runway 5 has only a few tree obstructions and most of those tree lie on BNIA owned and should be removed. There is also a stand of trees that appear to be on State owned land that BNIA can work with the State to remove. Numerous trees and poles affect the Departure Surface for Runway 23. There are approximately 10 trees that affect the Departure Surface that are on BNIA owned land and should be removed. The remaining trees, building and poles are on privately owned property and several close in obstructions along Cayuga Road and Genesee Street may already be lighted or accounted for in current departure procedures. As such, an assessment should be completed to determine the effects of these obstructions and develop a plan to remove or light the obstructions.

With regard to both OEI surfaces are several trees under either OEI surface that lie on BNIA owned land. Those trees should be removed to lessen the number of trees affecting the OEI surfaces. Removal of obstructions on non-airport land could be determined through a study that identifies and recommends removal of the critical obstruction(s) if, with the new information, airlines start to take weight penalties.

Sheet 11 of 14 depicts the Runway 14-32 Departure and OEI surfaces. Both Runway ends have trees, building and poles affecting both surfaces. The majority of these obstructions lie off airport and will require an approach to address these obstructions. It is assumed that some of the critical obstructions have already been identified and are taken into account with regard to current departure minimums and airline operating procedures. If they are not, then the primary objective would be to develop a study to determine the critical obstructions to the departure surface and their effects on departure minimums and airline operations. Once determined, a plan can move forward to address how to remove the obstruction. Further analysis should be accomplished to address the various obstructions off either runway end. As with the Runway 5-23, a similar approach to addressing OEI surfaces could also be taken to identify and remove critical obstructions.

7.2.9 Land Use Plan

Sheet 12 of 14, *Airport Land Use Plan* provides general guidance for future land development on airport property and in the vicinity of the airport. Since aircraft noise is a major factor influencing land use compatibility, FAA's Integrated Noise Model (INM), Version 7.0b was used to predict noise levels in the year 2030 based upon the forecasted activity. The forecast chapter of this MPU predicted an estimated 167,000 total operations by the end of the forecast period and the noise modeling accounts for each of these operations.

The INM estimates aircraft noise levels (in decibels – dB) at ground level. Noise levels were quantified according to the A-weighted scale (which approximates the range of human hearing) using the Day-Night Average Noise Level (DNL). A DNL of 65 dB is considered by the FAA to be the threshold of impact for noise sensitive areas. The INM output includes noise contours, which are lines of equal loudness, with higher levels centered on the runway and quieter levels expanding outward.

As shown on Sheet 12 of 14, the 65 and 70 dB noise contours for Runway 5-23 extend beyond the airport into the approaches of either runway end while Runway 14-32 noise contours remain on airport. BNIA has an active noise compatibility program ongoing to address noise issues in the community. The program includes either purchase of properties or the sound insulation of homes within the 65 DNL contours. Potential noise impacts will need to be addressed in greater detail in environmental documents prior to development.

Related to noise, the airport currently maintains a Noise Compatibility Model home that includes noise mitigation measures that are used in home to reduce noise impacts as part of the noise insulation program. As the Noise Compatibly Program winds down, the need for this home will no longer be needed. It is anticipated that the home may be retained for use as sleep quarters for winter operations personnel or another use for NFTA personnel. If it is found that the home in not required and does not serve an alternate use, the building will be removed.

7.2.10 Airport Property Map ("Exhibit A")

Sheet 13 of 14, *Airport Property Map*, shows the airport's current property boundaries as obtained through the NFTA. The property map shows all of the individual properties that make up the entire airport as well as easements owned by BNIA. A table is provided that lists all of the properties that were acquired to date. Information in the table includes a numerical identifier, tax parcel number, the grantor, acreage and if the AIP grant number if the property was acquired through FAA funding.

As there are no properties identified to acquire in the future, the Exhibit A represents current conditions. There are no modifications to be made to the property map at this time.

7.2.11 Airport Environmental Inventory Map

The Environmental Inventory Map provides a map of the airport and the surrounding area and highlights major environmental areas on and off the airport. This information includes both federal National Wetland Inventory data as well as New York State Department of Environmental Conservation (NYSDOT) state wetland areas. Also included are the Federal Emergency Management Agency floodplain data. And finally, the location of the War of 1812 cemetery is also located and called out on this map as it represents an important historical site.

The purpose of the map is to provide a reference for key environmental features around the airport. It will serve as an informative document for future reference related to future development that may occur at the airport beyond those projects outlined in the master plan.

7.3 CAPITAL IMPROVEMENT PROGRAM AND PROJECT PHASING PLAN

The phasing plan presents a phased implementation of 20-year planning projects identified on the ALP as well as other major projects such as design and environmental projects. Projects that are not included in the phasing plan are projects such as basic airfield maintenance long term pavement rehabilitation projects.

The phasing recommendations have been developed to coordinate with the aviation forecasts presented in Chapter 3 of this report. The forecasts project aviation demand through 2030 and used a base year of 2010. Because funding for Fiscal Year (FY) 2010 and 2011 has already

been allocated, the projects shown in the Capital Improvement Program begin with FY 2012 projects. The Phasing Plan has been divided into three phases as follows:

- Phase I covers the short-range airport growth (2011 to 2014)
- Phase II covers the mid-range airport growth (2015 to 2019)
- Phase III covers the long-range airport growth (2020 to 2030)

Table 7-1 presents the proposed phasing of projects over the twenty year planning period. Projects were phased such that high priority projects addressing immediate needs were included in Phase I. Key projects include terminal improvements, a Compressed Natural Gas fueling facility, a new ARFF station and new west side water main. Mid-term projects represent projects that meet future forecasted needs. Key projects identified in this timeframe include the completion of the ARFF building and terminal baggage improvements, implementation of terminal roadway improvements and parking garage, a new Snow Removal Storage building and a new partial parallel taxiway. The Long-term phase represents projects that address long term needs and meet long term aviation demand. Key projects in this timeframe include the implementation of Category II Instrument Approach improvements, completion of mid-term terminal improvements, and the completion of taxiway improvements on Taxiway S. Two other projects, the expansion of Air Cargo and General Aviation, were presented and are expected to be developed by private entities. As the forecasts and demand capacity analysis did not identify the need to expand these two areas, development would be based on a business opportunity of if by the current FBO, a capacity project. The phasing plan is presented in Table 7-1.

It should be noted that the phasing plan may change if forecasted demand changes. If aviation demand is less than forecasted, then demand based projects will be differed to a later date. However, should demand increase, then demand based projects would be moved to an earlier timeframe. The phasing plan may also be altered if federal, state or local monies are not available. As the past few years have shown, the lack of a long term FAA grant program has required projects to be phased over multiple years as opposed to one or two. With a new federal program, multi- year projects will no longer be used.

Table 7-1 Phased Capital Improvement Program

Phase I Projects (2011-2014)	
1.	Noise Compatibility Program (continuation and closeout of the noise program)
2.	Property Acquisition and Building Removal (Wetzel Parcel)
3.	Design/Construction of Terminal Restroom Improvements
4.	Design/Construction of a Salt Storage Barn
5.	Design/Construction of West Side Water Main Replacement
6.	Design/Construction of a Compressed Natural Gas (CNG) Fueling Facility
7.	Design and Initial Construction of Terminal Level 1 Baggage Claim Improvements
8.	Design of New ARFF Facility
9.	Section 512 Solar Panel Project
10.	Design/Construction of FBO Hangar and Apron Project (Private Development)
11.	Design/Construction of East Side Remain Over Night Aircraft Parking Along Taxilane K1
Phase II Projects (2015-2019)	
1.	Environmental Assessment For Next 5 Year Capital Improvement Program
2.	Design/Construction of Remain Over Night aircraft Parking - West Side
3.	Construction of New ARFF Facility
4.	Design/Construction of Terminal Roadway Improvements
5.	Design/Construction of New Snow Removal Equipment Storage Building
6.	Design/Construction of Level 1 and 2 Baggage Claim Expansion
7.	Design/Construction of Taxiway S Between TW Q and TW A - East Side of Runway 14/32
8.	Design/Construction of Taxiway T (North of RW 14/32) and Taxiway N
9.	Design of 4,000 Space Parking Garage
10.	Design/Construction of Expansion of Engineered Wetlands
11.	Design of Category II Instrument Landing System Approach Improvements
Phase III Projects (2020-2030)	
1.	Construction of Category II Instrument Landing System Approach Improvements
2.	Construction of Parking Garage – 4,000 spaces
3.	Design/Construction of Level 2 Mid Term Terminal Enhancements
4.	Design/Construction of Level 2 Holdroom Expansion
5.	Design/Construction of Taxiway S Between TW Q and RW 14 and TW A and RW 32
6.	Design/Construction of Air Cargo Apron Expansion (Private Development)
7.	Design/Construction of General Aviation Expansion (Private Development)
8.	Design/Construction of Level 2 Long Term Terminal Enhancements

Source: NFTA and McFarland Johnson.

7.4 CAPITAL IMPROVEMENT PLAN

The CIP for BNIA for the years 2011 through 2030 is summarized in Table 7-2 with a more detailed cost breakdown presented at the end of the chapter. The CIP lists the Short, Mid- and Long-term projects over the twenty year planning period. It also provides a breakdown of funding between the FAA, the State of New York, the NFTA and private funding under the "Other" column.

Table 7-2 Capital Improvement Program

Time Frame	Total Cost	FAA	State	NFTA	Other
Short Term (2011-2014)	$31,817,298	$20,081,296	$2,743,001	$2,743,001	$6,250,000
Mid Term (2015-2019)	$108,087,510	$73,565,633	$12,260,939	$12,260,939	$10,000,000
Long Term (2020-2030)	$217,126,500	$77,344,875	$12,890,813	$12,890,813	$114,000,000
Total Planning Period	$357,031,308	$170,991,804	$27,894,752	$27,894,752	$130,250,000

Source: NFTA and McFarland Johnson.

The highest priority projects are over the next five years in the short term. Any airport that desires funding from FAA must submit and/or update its five-year CIP to the FAA on an annual basis. The annual CIP update process is used by FAA to prioritize its funding program on a State-wide basis in light of system-wide considerations, which include both safety and capacity. As such, these planning-level cost estimates are used for program development.

It should be noted that the CIP does not, constitute a commitment on behalf of either FAA or the airport sponsor to fund any of the projects, nor does it assume any required local or environmental approvals.

The breakdown of funding as shown in Table 7-2 represents the following breakdown for projects eligible for funding through the FAA Airport Improvement Program (AIP) for BNIA:

- FAA Share - 75 percent
- State Share - 12.5 %
- NFTA Share - 12.5%.

Noise Compatibility projects associated with the ongoing home sound insulation projects have a slightly different breakdown as they are distributed from a different FAA environmental funding source as follows:

- FAA Share - 80 percent
- State Share - 10 %
- NFTA Share - 10%.

To cover project costs as well as the local share, BNIA has several ways in which to fund projects. They are summarized below:

Federal Funding

The airport has a number of options provided through the FAA to pay for the federal as well as the local share. For purposes of this section, the focus will be the federal share. The options are summarized below:

- The airport receives entitlement funding from the FAA based on the number of passengers that are enplaned at the airport annually. Entitlement funding is applied to projects eligible for federal funding.
- Funding above the entitlement amount is then obtained from the FAA through discretionary funding. It should be noted that discretionary funding is available to all airports with New York and the Eastern Region of the FAA and as such, BNIA competes for these funds nationally as well as with the regional airports.

- Finally, BNIA also has the ability to collect Passenger Facility Charges (PFC) for FAA eligible projects when discretionary funding is unavailable. Projects are identified by BNIA and a PFC application is filed with the FAA to collect PFC's to cover these projects. PFC's are funded through a $4.50 tax on passenger tickets.

State Funding

The State of New York Aviation Bureau provides funding for airports in New York State. The program provides 12.5% of the grant amount for federally eligible projects. As with federal discretionary funding, Buffalo competes for funding with all New York State Airports.

Local Share

The local share for federally eligible projects is 12.5%. As with Federal funding, BNIA also has several options to fund their local share:

- PFC's are an option to cover the local share of a project.
- NFTA specific funding sources identified in the overall budget are an option when no PFC is available.

Bonding Authority

If projects are ineligible for federal funding, such a parking lots or the proposed parking garage, those projects can be funded through NFTA's Bonding authority. This will typically be used when the projects are high cost projects that cannot be funded thought other NFTA funding sources.

There are several projects within the CIP that will be privately funded. They include the FBO Hangar development, the Air Cargo development and the General Aviation Development. Projects such as these are typically business decisions to expand or refurbish existing facilities. Project such as these are tenant related and are typically funded privately. As such, BNIA's involvement is limited to lease agreements and providing specific design requirements for pavements or buildings that will be incorporated into the overall project.

7.5 SUSTAINABLE DEVELOPMENT

Sustainability has been a key initiative for this Master Plan Update. A sustainability plan identifying potential short and long term initiatives to improve the environmental, financial, and social position of the airport was developed at the beginning of the project through a charrette process. A diverse stakeholder group participated in the charette process, which resulted in identification of potential opportunities to move BNIA's sustainability initiative forward. Several initiatives identified included:

- Implementing photo-voltaic solar arrays to generate electricity
- Small wind turbines to develop electricity
- Enhancing the ongoing waste reduction and recycling program for the airport
- Initiating sustainability policies in future facility development requirements such as the U.S. Green Building Council's "Leadership in Energy and Environmental Design" program
- Recommendations to airlines to use single engine taxi operations to reduce fuel consumption and emissions

In addition to this process, a second document was developed as a "how-to" approach to initiating a baseline process to define, track and reduce such factors as energy consumption, reduced air quality emissions, and other such factors. The document outlined the following:

- Identifying areas to baseline
- Developing improvement goals
- Tracking data over a period of time
- Implementing technology or programs to aid in the reduction goals

The implementation process, as originally outlined by BNIA, should be done with existing staff and within existing budgets at the outset. The program will be specific to the needs of BNIA and manageable from a staffing and budgeting standpoint. As this program is developed, the opportunity to build an authority wide program is also possible as the basic sustainability principles are similar.

There will be sustainability projects that may meet the sustainability goals, but may not be financially feasible or would not provide a reasonable return on investment. In such cases, consideration should be made to seek outside grant sources to fund these projects. There are both federal and State of New York programs that fund various projects.

For example, BNIA is currently seeking FAA Voluntary Airport Low Emissions (VALE) funding for alternative fuel vehicles and potential funding for a Compressed Natural Gas fueling facility. Another option is the development of solar arrays in the parking lots such as Long Term B. Such facilities can generate supplemental energy for the airport, but are expensive to build. The New York State Energy Research Development Authority offers grant funding for alternative and renewable energy development projects such as wind and solar. BNIA should consider this program and others to help fund such projects, thus minimizing financial impacts. BNIA staff should continue to seek these and other potential federal and state funding programs to move sustainability projects forward.

As part of the planning process, several development alternatives considered ways in which to reduce various environmental components such as air quality impact. For instance, the proposed roadway improvements incorporate traffic movement efficiencies and idling reduction through the elimination of intersections and allowing direct access via use of flyovers to get traffic to the airport quickly and without the need to stop at traffic lights. The roadway system enhancements play a role in the reduction of the airport's overall carbon footprint and with additional changes on airside; the overall impact of the airport will be reduced over time.

The next steps for BNIA should comprise the following:

1. Develop airport specific mission statement outlining the program.
2. Identify specific goals and objectives that can be accomplished with existing staff and budgets.
3. Outline potential areas to develop a baseline program.
4. Identify other programs or technologies that can achieve sustainable goals such as solar or wind power.
5. Identify sources of funding outside of the Authority that can reduce financial outlays for projects.
6. Work to develop an Authority wide sustainability program based upon the program developed for BNIA.

BNIA has developed a good base on which to build the sustainably program for BNIA that will reduce the overall environmental footprint of the airport, reduce costs, and serve as a model to develop a larger sustainably program for the Niagara Frontier Transportation Authority.

Short Term Projects (2011-2014)

Year	Project	Grant Type	Project Cost	FAA Entitl/Disc.	State (12.5%)	NFTA PFC/Bond	Other (Private)
2012	NCP (150 Homes)	Design, Const.	$7,199,582	$5,759,666	$719,958	$719,958	
	Property Acquisition RPZ RW 14 (Wetzel Parcel)	Prop. Acqu.	$591,826	$443,870	$73,978	$73,978	
	Terminal Upgrades - Restrooms	Design	$96,463	$72,347	$12,058	$12,058	
		Totals	**$7,887,871**	**$6,275,882**	**$805,994**	**$805,994**	**$0**
2013	NCP (Design 56 parcels, Const./CM 200 parcels)	Design, Const.	$8,263,023	$6,610,418	$826,302	$826,302	
	Salt Barn	Design	$70,539	$52,904	$8,817	$8,817	
	Terminal Upgrades - Restrooms	Construction	$1,199,808	$899,856	$149,976	$149,976	
	West Side Water Main Replacement	Design	$103,432	$77,574	$12,929	$12,929	
	CNG Project (VALE)	VALE	$2,390,000	$1,792,500	$298,750	$298,750	
	Property Acquisition RPZ RW 14 (Wetzel Parcel)	Construction	$200,000	$150,000	$25,000	$25,000	
			$12,226,802	**$9,583,253**	**$1,321,775**	**$1,321,775**	**$0**
2014	NCP (Construction/CM 56 Parcels - project closeout)	Construction	$2,653,854	$2,123,083	$265,385	$265,385	
	New ARFF Facility	Design	$439,000	$329,250	$54,875	$54,875	
	Salt Barn	Construction	$458,532	$343,899	$57,317	$57,317	
	Section 512 Solar Panel Project	Design, Const.	$1,000,000	$750,000	$125,000	$125,000	
	West Side Water Main Replacement	Construction	$774,939	$581,204	$96,867	$96,867	
	RON Improvements TW K1	Design, Const.	$126,300	$94,725	$15,788	$15,788	
	FBO Hangar Rehabilitation and Expansion	Design, Const.	$6,250,000				$6,250,000
			$11,702,625	**$4,222,161**	**$615,232**	**$615,232**	**$6,250,000**
	Subtotal Short Term (2012-2014)		***$31,817,298***	***$20,081,296***	***$2,743,001***	***$2,743,001***	***$6,250,000***

Source: NFTA and McFarland Johnson.

Mid-Term Projects (2015-2019)

Year	Project	Grant Type	Project Cost	FAA Entitl/Disc.	State (12.5%)	NFTA PFC/Bond	Other (Private)
2015	EA Master Plan Projects	Study	$350,000	$262,500	$43,750	$43,750	
	Remain Overnight Improvements West	Design, Const.	$2,369,300	$1,776,975	$296,163	$296,163	
	New ARFF Facility	Construction	$3,562,100	$2,671,575	$445,263	$445,263	
	Terminal Roadway Improvements (Alt 2)	Design	$1,240,000	$930,000	$155,000	$155,000	
			$7,521,400	**$5,641,050**	**$940,175**	**$940,175**	**$0**
2016	New SRE Building	Design	$2,433,800	$1,825,350	$304,225	$304,225	
	Terminal Upgrades - Level 1 and 2 Baggage Claim Expansion	Design, Const.	$2,984,800	$2,238,600	$373,100	$373,100	
	Terminal Roadway Improvements (Alt 2)	Construction	$12,400,000	$9,300,000	$1,550,000	$1,550,000	
			$17,818,600	**$13,363,950**	**$2,227,325**	**$2,227,325**	**$0**
2017	TW S (Northeast of RW 14-32) between TW Q and TW A	Design	$1,479,700	$1,109,775	$184,963	$184,963	
	Terminal Upgrades - Level 1 and 2 Baggage Claim Expansion	Construction	$17,162,310	$12,871,733	$2,145,289	$2,145,289	
	New SRE Building	Construction	$21,593,000	$16,194,750	$2,699,125	$2,699,125	
	Expansion of Engineered Wetlands	Design, Const.	$7,500,000	$5,625,000	$937,500	$937,500	
			$47,735,010	**$35,801,258**	**$5,966,876**	**$5,966,876**	**$0**
2018	TW S (Northeast of RW 14-32) between TW Q and TW A	Construction	$12,330,800	$9,248,100	$1,541,350	$1,541,350	
	Partial Parallel Taxiway T (North of RW 14-32) and T/W N	Design	$1,145,100	$858,825	$143,138	$143,138	
			$13,475,900	**$10,106,925**	**$1,684,488**	**$1,684,488**	**$0**
2019	Partial Parallel Taxiway T (North of RW 14-32) and T/W N	Construction	$9,542,500	$7,156,875	$1,192,813	$1,192,813	
	Cat II Approach Improvements	Design	$1,994,100	$1,495,575	$249,263	$249,263	
	Parking Garage (2000 spaces)	Design	$10,000,000				$10,000,000
			$21,536,600	**$8,652,450**	**$1,442,075**	**$1,442,075**	**$10,000,000**
	Subtotal Mid Term (2015-2019)		***$108,087,510***	***$73,565,633***	***$12,260,939***	***$12,260,939***	***$10,000,000***

Source: NFTA and McFarland Johnson.

Long Term Projects (2020-2030)

Year	Project	Grant Type	Project Cost	FAA Entitl/Disc.	State (12.5%)	NFTA PFC/Bond	Other (Private)
2020	Cat II Approach Improvements	Construction	$12,463,400	$9,347,550	$1,557,925	$1,557,925	
	Parking Garage (2000 spaces)	Construction	$45,000,000				$45,000,000
	Level 2 Terminal Enhancements (Alt 1A) Mid Term	Design	$1,141,700	$856,275	$142,713	$142,713	
			$58,605,100	**$10,203,825**	**$1,700,638**	**$1,700,638**	**$45,000,000**
2021	Parking Garage (1000 spaces)	Construction	$22,500,000				$22,500,000
	Level 2 Terminal Enhancements (Alt 1A) Mid Term	Construction	$13,129,700	$9,847,275	$1,641,213	$1,641,213	
			$35,629,700	**$9,847,275**	**$1,641,213**	**$1,641,213**	**$22,500,000**
2022	Parking Garage (1000 spaces)	Construction	$22,500,000				$22,500,000
			$22,500,000	**$0**	**$0**	**$0**	**$22,500,000**
2023	Level 2 Holdroom Expansion	Design, Const.	$5,222,400	$3,916,800	$652,800	$652,800	
			$5,222,400	**$3,916,800**	**$652,800**	**$652,800**	**$0**
2024							
			$0	**$0**	**$0**	**$0**	**$0**
2025							
			$0	**$0**	**$0**	**$0**	**$0**
2026	Taxiway S (Q to R/W 14 and T/W A to R/W 32) Phase 1B	Design	$1,564,000	$1,173,000	$195,500	$195,500	
			$1,564,000	**$1,173,000**	**$195,500**	**$195,500**	**$0**
2027	Taxiway S (Q to R/W 14 and T/W A to R/W 32) Phase 1B	Construction	$13,033,000	$9,774,750	$1,629,125	$1,629,125	
			$13,033,000	**$9,774,750**	**$1,629,125**	**$1,629,125**	**$0**
2028	Air Cargo Expansion	Design, Const.	$25,500,000				$25,500,000
			$25,500,000	**$0**	**$0**	**$0**	**$25,500,000**
2029	Level 2 Terminal Enhancements (Alt 2B) Long Term	Design	$4,525,800	$3,394,350	$565,725	$565,725	
			$4,525,800	**$3,394,350**	**$565,725**	**$565,725**	**$0**
2030	General Aviation Expansion	Design, Const.	$21,000,000				$21,000,000
	Level 2 Terminal Enhancements (Alt 2B) Long Term	Construction	$52,046,500	$39,034,875	$6,505,813	$6,505,813	
			$73,046,500	**$39,034,875**	**$6,505,813**	**$6,505,813**	**$21,000,000**
	Subtotal Long Term (2020-2030)		***$217,126,500***	***$77,344,875***	***$12,890,813***	***$12,890,813***	***$114,000,000***

Source: NFTA and McFarland Johnson.

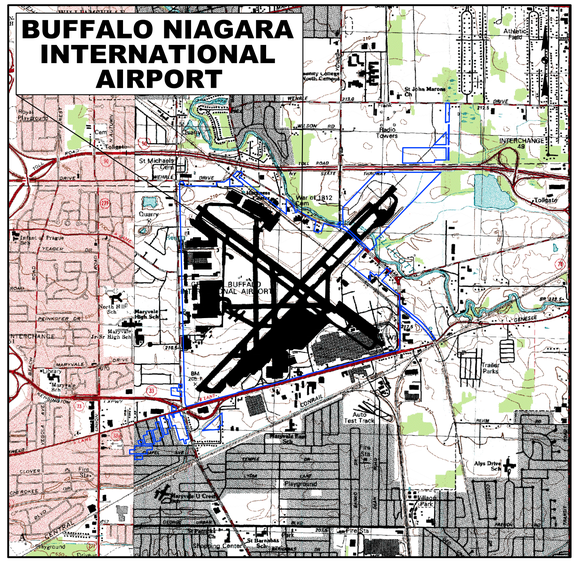
BUFFALO NIAGARA INTERNATIONAL AIRPORT
SUSTAINABLE MASTER PLAN UPDATE

ERIE COUNTY
NEW YORK

Location Map

MAY 2013

DRAWING INDEX



Vicinity Map

Prepared For:

NFTA
Niagara Frontier Transportation Authority

FAA AIP PROJECT NO. 3-36-0009-70-10
NYS PIN: 5913.11
NFTA PROJECT NO. 30BG0916
McFARLAND JOHNSON PROJECT NO. 17493.00

Prepared By:

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SUSTAINABLE MASTER PLAN UPDATE

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NFTA PROJECT NO:	30BG0916
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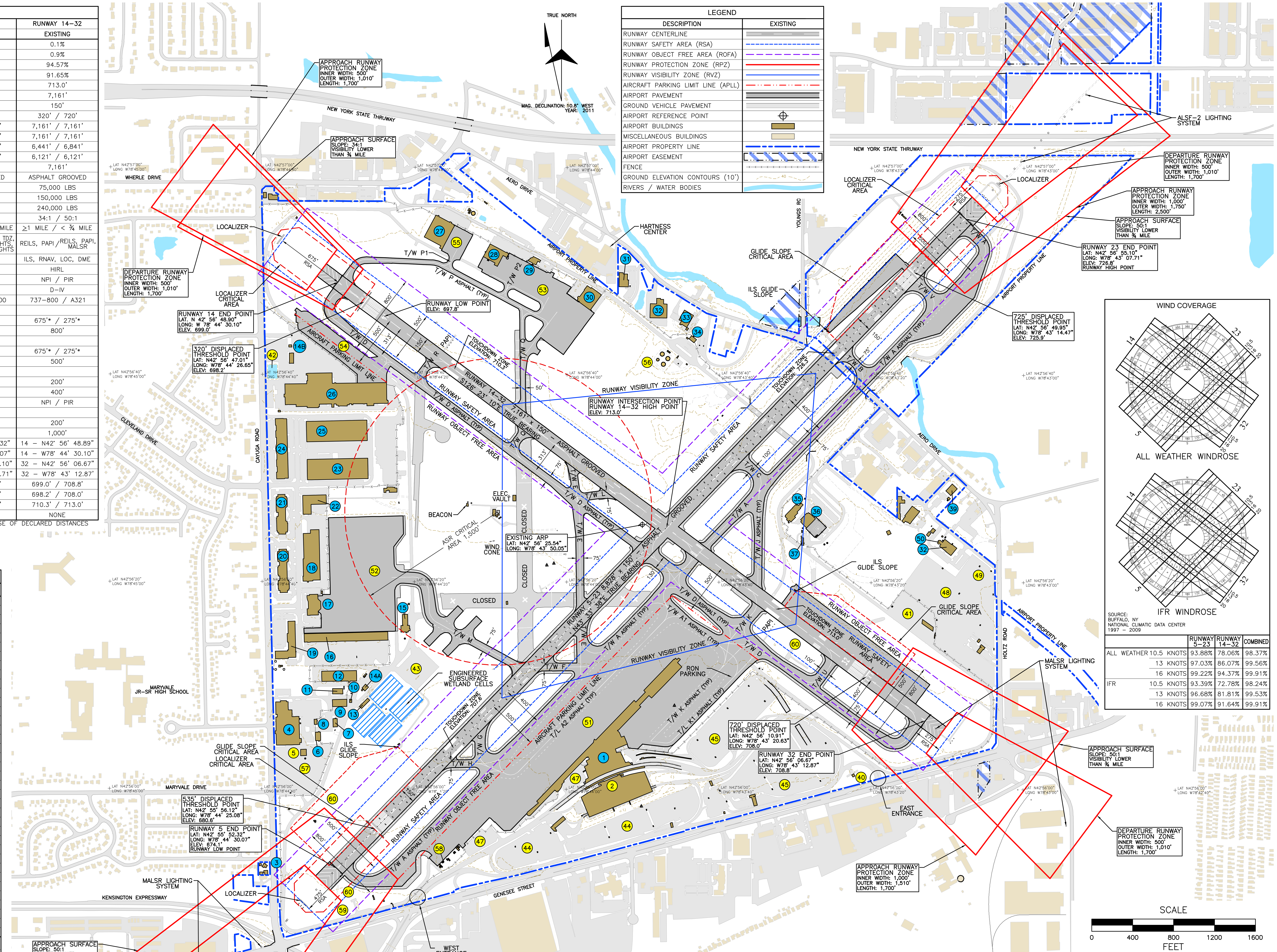
SHEET# 1 OF 14

RUNWAY DATA TABLE			
ITEM		RUNWAY 5–23	RUNWAY 14–32
		EXISTING	EXISTING
EFFECTIVE RUNWAY GRADIENT		0.6%	0.1%
MAXIMUM GRADE CHANGE		1.4%	0.9%
WIND COVERAGE (%) 16 KNOTS	ALL WEATHER	99.22%	94.57%
	IFR	99.07%	91.65%
MAX. ELEVATION (MSL)		726.8'	713.0'
RUNWAY LENGTH		8,828'	7,161'
RUNWAY WIDTH		150'	150'
DISPLACED THRESHOLD		535' / 725'	320' / 720'
DECLARED DISTANCES	TORA	8,828' / 8,828'	7,161' / 7,161'
	TODA	8,828' / 8,828'	7,161' / 7,161'
	ASDA	8,103' / 8,293'	6,441' / 6,841'
	LDA	7,568' / 7,568'	6,121' / 6,121'
USABLE RUNWAY LENGTH		8,828'	7,161'
SURFACE TYPE		ASPHALT GROOVED	ASPHALT GROOVED
PAVEMENT STRENGTH	SINGLE WHEEL	75,000 LBS	75,000 LBS
	DUAL WHEEL	195,000 LBS	150,000 LBS
	DUAL TANDEM	450,000 LBS	240,000 LBS
APPROACH SURFACE SLOPE		50:1 / 50:1	34:1 / 50:1
APPROACH MINIMUMS		< ¾ MILE / < ¾ MILE	≥1 MILE / < ¾ MILE
VISUAL APPROACH AIDS		MALSR TDZ, CL LIGHTS, TDZ LIGHTS / ALSF–2 TDZ, CL LIGHTS, TDZ LIGHTS	REILS, PAPI / REILS, PAPI, MALSR
INSTRUMENT APPROACH AIDS		ILS, RNAV, LOC	ILS, RNAV, LOC, DME
RUNWAY LIGHTING		HIRL	HIRL
RUNWAY MARKING		PIR / PIR	NPI / PIR
AIRPORT REFERENCE CODE (ARC)		D–IV	D–IV
CRITICAL AIRCRAFT		AIRBUS A300–A600	737–800 / A321
RUNWAY OBJECT FREE AREA (ROFA)			
	LENGTH BEYOND RUNWAY	475'* / 275'*	675'* / 275'*
	WIDTH	800'	800'
RUNWAY SAFETY AREA (RSA)			
	LENGTH BEYOND RUNWAY	475'* / 275'*	675'* / 275'*
	WIDTH	500'	500'
OBSTACLE FREE ZONE (OFZ)			
	LENGTH BEYOND RUNWAY	200'	200'
	WIDTH	400'	400'
FAR PART 77 CATEGORY		PIR / PIR	NPI / PIR
FAR PART 77 PRIMARY SURFACE			
	LENGTH BEYOND RUNWAY	200'	200'
	WIDTH	1,000'	1,000'
RWY END COORDINATES	LATITUDE	5 – N42° 55' 52.32"	14 – N42° 56' 48.89"
	LONGITUDE	5 – W78° 44' 30.07"	14 – W78° 44' 30.10"
	LATITUDE	23 – N42° 56' 55.10"	32 – N42° 56' 06.67"
	LONGITUDE	23 – W78° 43' 07.71"	32 – W78° 43' 12.87'
RUNWAY END ELEVATIONS (MSL)		674.1' / 726.8'	699.0' / 708.8'
DISPLACED THRESHOLD ELEVATION (MSL)		680.6' / 725.9'	698.2' / 708.0'
TDZ ELEVATION (MSL)		707.6' / 725.9'	710.3' / 713.0'
LINE OF SIGHT VIOLATIONS		NONE	NONE

* LENGTH COMPLIES WITH DESIGN STANDARDS WITH THE USE OF DECLARED DISTANCES

AIRPORT FACILITIES TABLE	
ID	EXISTING – BUILDING
1	PASSENGER TERMINAL
3	68 CAYUGA RD. (NOISE MITIGATION MODEL HOME)
4	247 CAYUGA RD. – INC.
6	251C CAYUGA RD. (AIRPORT OPERATIONS CENTER)
7	251 CAYUGA RD. #3 (ELECTRICAL MAINTENANCE FACILITIES)
8	251 CAYUGA RD. #4 (ADMINISTRATIVE/RECORDS STORAGE)
9	GROUND SUPPORT EQUIPMENT BUILDING
10	TRITURATOR BUILDING
11	NFTA FLEET MAINTENANCE BUILDING/AIRFIELD STORAGE
12	NFTA MAINTENANCE GARAGE
13	GLYCOL TREATMENT UTILITY BUILDING
14A–B	SALT STORAGE BUILDINGS
15	AIRPORT RESCUE AND FIRE FIGHTING
16	283 CAYUGA RD. (AIR CARGO FACILITY)
17	285 CAYUGA RD. (USPS AIR MAIL FACILITY)
18	299 CAYUGA RD. (FedEx)
19	301 CAYUGA RD.
20	303 CAYUGA RD.
21	305 CAYUGA RD.
22	307 CAYUGA RD.
23	425 CAYUGA RD.
24	455 CAYUGA RD.
25	475 CAYUGA RD.
26	485 CAYUGA RD. (DRS TECHNOLOGIES)
27	PRIOR AVIATION HANGAR #3
28	PRIOR AVIATION HANGAR #1
29	50 N. AIRPORT DR. (PRIOR AVIATION EXECUTIVE TERMINAL)
30	PRIOR AVIATION HANGAR #2
31	175 AERO DR. (NFTA POLICE)
32	199 AERO DR. (NFTA FMD/DOCUMENT STORAGE)
33	235 AERO DR. (EVOLUTION DENTAL LAB)
34	275 AERO DR. (FUEL FARM CONTROL BUILDING)
35	100 AMHERST VILLA RD. (MERCY FLIGHT)
36	MERCY FLIGHT HANGAR
37	NATIONAL WEATHER SERVICE OBSERVATORY
39	587 AERO DR. (NATIONAL WEATHER SERVICE)
50	FAA CONTROL TOWER
ID	EXISTING
2	PARKING STRUCTURE – SHORT TERM 1,355 SPACES
5	BNIA EMPLOYEE PARKING SHELTER
40	GROUNDWATER TESTING FACILITY
41	REMOTE FUEL DISPENSING FACILITY
42	FIRE PROTECTION RESERVOIR
43	SNOW MELT PAD
44	LONG TERM PREFERRED – 1,439 SPACES
45	LONG TERM "A" – 2,693 SPACES
46	LIMO LOT – 28 SPACES
47	WEST LOT – 128 SPACES
48	LONG TERM "B" – 1,874 SPACES
49	PARK & RIDE CELL PHONE LOT – 22 SPACES
51	MAIN TERMINAL APRON
52	AIR CARGO APRON
53	GENERAL AVIATION APRON
54	GENERAL AVIATION APRON
55	GENERAL AVIATION APRON
56	AIRPORT FUEL FARM
57	EMPLOYEE PARKING
58	GLYCOL STORAGE FARM
59	UNDERGROUND STORM WATER RETENTION BASIN
60	UNDERGROUND GLYCOL STORAGE TANKS

NOTE: BUILDING #38 SOLD 12–11–2002



		RUNWAY 5–23	RUNWAY 14–32	COMBINED
ALL WEATHER	10.5 KNOTS	93.88%	78.06%	98.37%
	13 KNOTS	97.03%	86.07%	99.56%
	16 KNOTS	99.22%	94.37%	99.91%
IFR	10.5 KNOTS	93.39%	72.78%	98.24%
	13 KNOTS	96.68%	81.81%	99.53%
	16 KNOTS	99.07%	91.64%	99.91%

SCALE

0 400 800 1200 1600

FEET

DECLARED DISTANCES								
RUNWAY END ID	TORA	TODA	ASDA	LDA	LDA APPROACH END RSA LENGTH	LDA STOP END RSA LENGTH	LDA RSA LENGTH	DATE APPROVED
5	8,828'	8,828'	8,103'	7,568'	475'	275'	1,000'	5–13
23	8,828'	8,828'	8,293'	7,568'	275'	475'	1,000'	5–13
14	7,161'	7,161'	6,441'	6,121'	675'	275'	1,000'	5–13
32	7,161'	7,161'	6,841'	6,121'	275'	675'	1,000'	5–13

RUNWAY SAFETY AREA DETERMINATION					
RUNWAY END ID	STANDARD RSA LENGTH BEYOND RUNWAY END	ACTUAL RSA LENGTH BEYOND RUNWAY END	ACTUAL RSA VIOLATIONS TO RSA ALONG SIDE OF RUNWAY	RSA DETERMINATION	DATE APPROVED
5	1,000'	475'*	NONE	DECLARED DIST.	9–16–01
23	1,000'	275'*	NONE	DECLARED DIST.	9–16–01
14	1,000'	675'*	NONE	DECLARED DIST.	9–16–01
32	1,000'	275'*	NONE	DECLARED DIST.	9–16–01

* MITIGATED USING DECLARED DISTANCES.

MODIFICATION TO DESIGN STANDARDS					
NO.	STANDARD MODIFIED	FAA STANDARDS	EXISTING CONDITION	FAA STANDARDS	DATE APPROVED
1	TAXILANE K1 TSA	ABILITY TO SUPPORT PASSAGE OF AIRCRAFT	EXISTING 12,500 GAL WATER SEPARATION TANK 8' BELOW GROUND NOT RATED FOR AIRCRAFT LOADING		3–28–01
2	R/W 5 ROFA	1,000'	804' ROFA AT THE APPROACH END OF R/W 5	USE OF DECLARED DISTANCES	9–16–01
3	R/W 5 ROFA	NO ROADWAY OR OBJECT PENETRATIONS	ROADWAY AND FENCE PENETRATIONS		
4	R/W 14 ROFA	1,000'	833' ROFA AT THE APPROACH END OF R/W 14	USE OF DECLARED DISTANCES	9–16–01
5	R/W 14 ROFA	NO ROADWAY OR OBJECT PENETRATIONS	ROADWAY AND FENCE PENETRATIONS		
6	R/W 32 ROFA	1,000'	899' ROFA AT THE APPROACH END OF R/W 32	USE OF DECLARED DISTANCES	9–16–01
7	R/W 32 ROFA	NO ROADWAY OR OBJECT PENETRATIONS	ROADWAY AND FENCE PENETRATIONS		
9	APRON GRADIENT		2.0% APRON GRADIENT IN THE RON / DE–ICING APRON		10–23–01
10	T/W 'D' RUNWAY SEPARATION BETWEEN THE APPROACH END OF R/W 14 AND T/W A	400'	313'		12–14–01
11	R/W 14–32 RSA		TRENCH DRAIN		4–10–03
12	R/W 14–32 RSA		TRANSVERSE GRADE NEAR APPROACH END OF R/W 32		4–10–03

AIRPORT DATA TABLE				
AIRPORT DATA		EXISTING		
AIRPORT ELEVATION/RUNWAY HIGH POINT (M.S.L.)		726.8'		
AIRPORT REFERENCE POINT (NAD 83)	LATITUDE	N42° 56' 25.54"		
	LONGITUDE	W78° 43' 50.05"		
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH		80° F		
AIRPORT TERMINAL AREA NAVAIDS		LOC, ILS, ASR, MALS, ALSF		
MAGNETIC VARIATION		10.8° WEST		
DATE OF MAGNETIC VARIATION		2011		
NPIAS SERVICE LEVEL		COMMERCIAL SERVICE		
STATE SERVICE LEVEL		COMMERCIAL SERVICE		
COMBINED WIND COVERAGE (%)	KNOTS	10.5	13	16
	ALL WEATHER	98.37%	99.56%	99.91%
	IFR	98.24%	99.53%	99.91%
AIRPORT REFERENCE CODE		D–IV		
DESIGN AIRCRAFT		B–757		
TAXIWAY LIGHTING		MITL		
TAXIWAY MARKING		STANDARD		

BUFFALO NIAGARA INTERNATIONAL AIRPORT

McFarland Johnson
49 COURT STREET, METROCENTER, PO BOX 1980 BINGHAMTON, NEW YORK 13902 www.mjinc.com

NFTA
Niagara Frontier Transportation Authority
Serving Buffalo Niagara

BUFFALO NIAGARA INTERNATIONAL AIRPORT
–
SUSTAINABLE MASTER PLAN UPDATE

MARK	DATE	DESCRIPTION

ISSUE:	
NFTA PROJECT NO:	30BG0916
DESIGNER PROJECT NO:	17493.00
CAD DWG FILE:	CT–102.DWG
DRAWN BY:	RGT
CHECKED BY:	JEP
SCALE:	AS NOTED
COPYRIGHT:	

SHEET TITLE

EXISTING AIRPORT LAYOUT

DRAWING# **CT102**

SHEET# 2 OF 14

LEGEND		
DESCRIPTION	EXISTING	PROPOSED
RUNWAY CENTERLINE		N/A
RUNWAY SAFETY AREA (RSA)		N/A
RUNWAY OBJECT FREE AREA (ROFA)		N/A
RUNWAY PROTECTION ZONE (RPZ)		
RUNWAY VISIBILITY ZONE (RVZ)		N/A
AIRCRAFT PARKING LIMIT LINE (APLL)		N/A
AIRPORT PAVEMENT		
GROUND VEHICLE PAVEMENT		
AIRPORT REFERENCE POINT		N/A
AIRPORT BUILDINGS		
MISCELLANEOUS BUILDINGS		N/A
TO BE REMOVED	N/A	
AIRPORT PROPERTY LINE		N/A
AIRPORT EASEMENT		
FENCE		N/A
GROUND ELEVATION CONTOURS (10')	40	N/A
RIVERS / WATER BODIES		N/A

AIRPORT FACILITIES TABLE

ID	PROPOSED – BUILDING
D	TERMINAL EXPANSION
E	AIR CARGO BUILDING EXPANSION
G	GENERAL AVIATION HANGAR
H	GENERAL AVIATION HANGAR
K	GENERAL AVIATION HANGAR
N	PARKING GARAGE (4,000 SPACES)
P	PROPOSED ARFF BUILDING
Q	PROPOSED AIRFIELD MAINTENANCE / SRE BUILDING
R	PROPOSED AIRFIELD MAINTENANCE / SRE BUILDING
BB	REPLACEMENT SALT BARN (DEMO 14A)

ID	PROPOSED
A	PROPOSED RUNWAY 14–32 PARALLEL T/W S
B	PROPOSED RUNWAY 5–23 PARTIAL PARALLEL T/W T
C	PROPOSED RUNWAY 5–23 ACCESS T/W N
F	AIR CARGO APRON EXPANSION
J	GENERAL AVIATION APRON EXPANSION
L	RELOCATED GLYCOL FACILITIES
M	RON PARKING AREA
S	PROPOSED EARTH PLATFORM FOR CAT II ILS SYSTEM
T	RELOCATED SERVICE ROAD
U	RELOCATED ALSF–2
W	RELOCATED TERMINAL ACCESS ROADWAYS
X	PROPOSED FUEL FARM EXPANSION
Y	PROPOSED CNG FILLING STATION
Y1	PROPOSED CNG FILLING STATION – ALTERNATE SITE
Z	PROPOSED LONG TERM "B" PARKING EXPANSION
AA	PROPOSED ENGINEERED SUBSURFACE WETLAND CELLS

ID	EXISTING – BUILDING
1	PASSENGER TERMINAL
3	68 CAYUGA RD. (NOISE MITIGATION MODEL HOME)
4	247 CAYUGA RD. – INC.
6	251C CAYUGA RD. (AIRPORT OPERATIONS CENTER)
7	251 CAYUGA RD. #3 (ELECTRICAL MAINTENANCE FACILITIES)
8	251 CAYUGA RD. #4 (ADMINISTRATIVE/RECORDS STORAGE)
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10	TRITURATOR BUILDING
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14A–B	SALT STORAGE BUILDINGS
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18	299 CAYUGA RD. (FedEx)
19	301 CAYUGA RD.
20	303 CAYUGA RD.
21	305 CAYUGA RD.
22	307 CAYUGA RD.
23	425 CAYUGA RD.
24	455 CAYUGA RD.
25	475 CAYUGA RD.
26	485 CAYUGA RD. (DRS TECHNOLOGIES)
27	PRIOR AVIATION HANGAR #3
28	PRIOR AVIATION HANGAR #1
29	50 N. AIRPORT DR. (PRIOR AVIATION EXECUTIVE TERMINAL)
30	PRIOR AVIATION HANGAR #2
31	175 AERO DR. (NFTA POLICE)
32	199 AERO DR. (NFTA FMD/DOCUMENT STORAGE)
33	235 AERO DR. (EVOLUTION DENTAL LAB)
34	275 AERO DR. (FUEL FARM CONTROL BUILDING)
35	100 AMHERST VILLA RD. (MERCY FLIGHT)
36	MERCY FLIGHT HANGAR
37	NATIONAL WEATHER SERVICE OBSERVATORY
39	587 AERO DR. (NATIONAL WEATHER SERVICE)
50	FAA CONTROL TOWER

ID	EXISTING
2	PARKING STRUCTURE – SHORT TERM 1,355 SPACES
5	BNIA EMPLOYEE PARKING SHELTER
40	GROUNDWATER TESTING FACILITY
41	REMOTE FUEL DISPENSING FACILITY
42	FIRE PROTECTION RESERVOIR
43	SNOW MELT PAD
44	LONG TERM PREFERRED – 1,439 SPACES
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51	MAIN TERMINAL APRON
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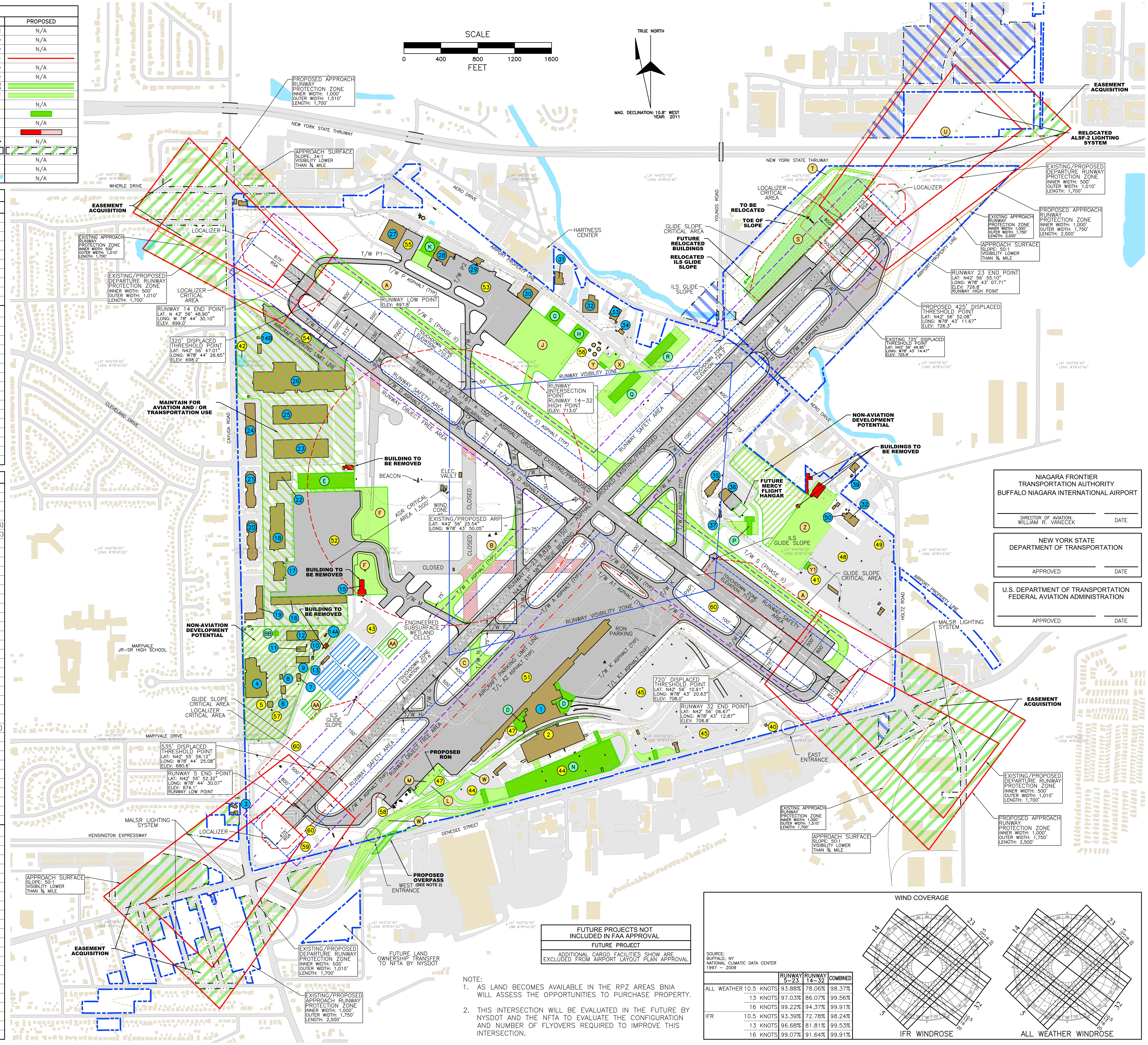
53	GENERAL AVIATION APRON
54	GENERAL AVIATION APRON
55	GENERAL AVIATION APRON
56	AIRPORT FUEL FARM
57	EMPLOYEE PARKING
58	GLYCOL STORAGE FARM
59	UNDERGROUND STORM WATER RETENTION BASIN
60	UNDERGROUND GLYCOL STORAGE TANKS

NOTE: BUILDING #38 SOLD 12–11–2002



FUTURE PROJECTS NOT INCLUDED IN FAA APPROVAL
FUTURE PROJECT
ADDITIONAL CARGO FACILITIES SHOW ARE EXCLUDED FROM AIRPORT LAYOUT PLAN APPROVAL

NOTE:
1. AS LAND BECOMES AVAILABLE IN THE RPZ AREAS BNIA WILL ASSESS THE OPPORTUNITIES TO PURCHASE PROPERTY.
2. THIS INTERSECTION WILL BE EVALUATED IN THE FUTURE BY NYSDOT AND THE NFTA TO EVALUATE THE CONFIGURATION AND NUMBER OF FLYOVERS REQUIRED TO IMPROVE THIS INTERSECTION.

WIND COVERAGE

SOURCE: BUFFALO, NY NATIONAL CLIMATIC DATA CENTER 1997 – 2009

		RUNWAY 5–23	RUNWAY 14–32	COMBINED
ALL WEATHER	10.5 KNOTS	93.88%	78.06%	98.37%
	13 KNOTS	97.03%	86.07%	99.56%
	16 KNOTS	99.22%	94.37%	99.91%
IFR	10.5 KNOTS	93.39%	72.78%	98.24%
	13 KNOTS	96.68%	81.81%	99.53%
	16 KNOTS	99.07%	91.64%	99.91%

BUFFALO NIAGARA INTERNATIONAL AIRPORT

McFarland Johnson
49 COURT STREET, METROCENTER, PO BOX 1980 BINGHAMTON, NEW YORK 13902 www.mjinc.com

NIAGARA FRONTIER TRANSPORTATION AUTHORITY
BUFFALO NIAGARA INTERNATIONAL AIRPORT

DIRECTOR OF AVIATION: WILLIAM R. VANECEK — DATE

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

APPROVED — DATE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

APPROVED — DATE

NFTA
Niagara Frontier Transportation Authority Serving Buffalo Niagara

BUFFALO NIAGARA INTERNATIONAL AIRPORT – SUSTAINABLE MASTER PLAN UPDATE

MARK	DATE	DESCRIPTION

ISSUE:	
NFTA PROJECT NO:	30BG0916
DESIGNER PROJECT NO:	17493.00
CAD DWG FILE:	CT–103.DWG
DRAWN BY:	RGT
CHECKED BY:	JEP
SCALE:	AS NOTED
COPYRIGHT:	

SHEET TITLE

AIRPORT LAYOUT PLAN

DRAWING# **CT103**

SHEET# 3 OF 14

RUNWAY DATA TABLE

ITEM		RUNWAY 5–23 EXISTING	RUNWAY 14–32 EXISTING	RUNWAY 5–23 PROPOSED	RUNWAY 14–32 PROPOSED
EFFECTIVE RUNWAY GRADIENT		0.6%	0.1%	SAME	SAME
MAXIMUM GRADE CHANGE		1.4%	0.9%	SAME	SAME
WIND COVERAGE (%) 16 KNOTS	ALL WEATHER	99.22%	94.57%	SAME	SAME
	IFR	99.07%	91.65%	SAME	SAME
MAX. ELEVATION (MSL)		726.8'	713.0'	SAME	SAME
RUNWAY LENGTH		8,828'	7,161'	SAME	SAME
RUNWAY WIDTH		150'	150'	SAME	SAME
DISPLACED THRESHOLD		535' / 725'	320' / 720'	535' / 425'	SAME
DECLARED DISTANCES	TORA	8,828' / 8,828'	7,161' / 7,161'	SAME	SAME
	TODA	8,828' / 8,828'	7,161' / 7,161'	SAME	SAME
	ASDA	8,103' / 8,293'	6,441' / 6,841'	SAME	SAME
	LDA	7,568' / 7,568'	6,121' / 6,121'	SAME / 7,868'	SAME
USABLE RUNWAY LENGTH		8,828'	7,161'	SAME	SAME
SURFACE TYPE		ASPHALT GROOVED	ASPHALT GROOVED	SAME	SAME
PAVEMENT STRENGTH	SINGLE WHEEL	75,000 LBS	75,000 LBS	SAME	SAME
	DUAL WHEEL	195,000 LBS	150,000 LBS	SAME	SAME
	DUAL TANDEM	450,000 LBS	240,000 LBS	SAME	SAME
APPROACH SURFACE SLOPE		50:1 / 50:1	34:1 / 50:1	SAME	SAME
APPROACH MINIMUMS		< ¾ MILE / < ¾ MILE	≥1 MILE / < ¾ MILE	SAME	SAME
VISUAL APPROACH AIDS		MALSR TDZ, CL LIGHTS, TDZ LIGHTS / ALSF–2 TDZ, CL LIGHTS, TDZ LIGHTS	REILS, PAPI / REILS, PAPI, MALSR	SAME	SAME
INSTRUMENT APPROACH AIDS		ILS, RNAV, LOC	ILS, RNAV, LOC, DME	SAME	SAME
RUNWAY LIGHTING		HIRL	HIRL	SAME	SAME
RUNWAY MARKING		PIR / PIR	NPI / PIR	SAME	SAME
AIRPORT REFERENCE CODE (ARC)		D–IV	D–IV	SAME	SAME
CRITICAL AIRCRAFT		AIRBUS A300–A600	737–800 / A321	SAME	SAME
RUNWAY OBJECT FREE AREA (ROFA)					
	LENGTH BEYOND RUNWAY	475'* / 275'*	675'* / 275'*	SAME	SAME
	WIDTH	800'	800'	SAME	SAME
RUNWAY SAFETY AREA (RSA)					
	LENGTH BEYOND RUNWAY	475'* / 275'*	675'* / 275'*	SAME	SAME
	WIDTH	500'	500'	SAME	SAME
OBSTACLE FREE ZONE (OFZ)					
	LENGTH BEYOND RUNWAY	200'	200'	SAME	SAME
	WIDTH	400'	400'	SAME	SAME
FAR PART 77 CATEGORY		PIR / PIR	NPI / PIR	SAME	SAME
FAR PART 77 PRIMARY SURFACE					
	LENGTH BEYOND RUNWAY	200'	200'	SAME	SAME
	WIDTH	1,000'	1,000'	SAME	SAME
RWY END COORDINATES	LATITUDE	5 – N42° 55' 52.32"	14 – N42° 56' 48.89"	SAME	SAME
	LONGITUDE	5 – W78° 44' 30.07"	14 – W78° 44' 30.10"	SAME	SAME
	LATITUDE	23 – N42° 56' 55.10"	32 – N42° 56' 06.67"	SAME	SAME
	LONGITUDE	23 – W78° 43' 07.71"	32 – W78° 43' 12.87'	SAME	SAME
RUNWAY END ELEVATIONS (MSL)		674.1' / 726.8'	699.0' / 708.8'	SAME	SAME
DISPLACED THRESHOLD ELEVATION (MSL)		680.6' / 725.9'	698.2' / 708.0'	680.6' / 726.3'	SAME
TDZ ELEVATION (MSL)		707.6' / 725.9'	710.3' / 713.0'	707.6' / 726.3'	SAME
LINE OF SIGHT VIOLATIONS		NONE	NONE	SAME	SAME

* LENGTH COMPLIES WITH DESIGN STANDARDS WITH THE USE OF DECLARED DISTANCES

AIRPORT DATA TABLE

AIRPORT DATA		EXISTING			PROPOSED		
AIRPORT ELEVATION/RUNWAY HIGH POINT (M.S.L.)		726.8'			SAME		
AIRPORT REFERENCE POINT (NAD 83)	LATITUDE	N42° 56' 25.54"			SAME		
	LONGITUDE	W78° 43' 50.05"			SAME		
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH		80° F			SAME		
AIRPORT TERMINAL AREA NAVAIDS		LOC, ILS, ASR, MALSR, ALSF			SAME		
MAGNETIC VARIATION		10.8° WEST			SAME		
DATE OF MAGNETIC VARIATION		2011			SAME		
NPIAS SERVICE LEVEL		COMMERCIAL SERVICE			SAME		
STATE SERVICE LEVEL		COMMERCIAL SERVICE			SAME		
COMBINED WIND COVERAGE (%)	KNOTS	10.5	13	16	10.5	13	16
	ALL WEATHER	98.37%	99.56%	99.91%	SAME	SAME	SAME
	IFR	98.24%	99.53%	99.91%	SAME	SAME	SAME
AIRPORT REFERENCE CODE		D–IV			SAME		
DESIGN AIRCRAFT		B–757			SAME		
TAXIWAY LIGHTING		MITL			SAME		
TAXIWAY MARKING		STANDARD			SAME		

DECLARED DISTANCES -EXISTING CONDITIONS

RUNWAY END ID	TORA	TODA	ASDA	LDA	LDA APPROACH END RSA LENGTH	LDA STOP END RSA LENGTH	LDA RSA LENGTH	DATE APPROVED
5	8,828'	8,828'	8,103'	7,568'	475'	275'	1,000'	5–13
23	8,828'	8,828'	8,293'	7,568'	275'	475'	1,000'	5–13
14	7,161'	7,161'	6,441'	6,121'	675'	275'	1,000'	5–13
32	7,161'	7,161'	6,841'	6,121'	275'	675'	1,000'	5–13

RUNWAY SAFETY AREA DETERMINATION

RUNWAY END ID	STANDARD RSA LENGTH BEYOND RUNWAY END	ACTUAL RSA LENGTH BEYOND RUNWAY END	ACTUAL RSA VIOLATIONS TO RSA ALONG SIDE OF RUNWAY	RSA DETERMINATION	DATE APPROVED
5	1,000'	475'*	NONE	DECLARED DIST.	9–16–01
23	1,000'	275'*	NONE	DECLARED DIST.	9–16–01
14	1,000'	675'*	NONE	DECLARED DIST.	9–16–01
32	1,000'	275'*	NONE	DECLARED DIST.	9–16–01

* MITIGATED USING DECLARED DISTANCES.

MODIFICATION TO DESIGN STANDARDS

NO.	STANDARD MODIFIED	FAA STANDARDS	EXISTING CONDITION	PROPOSED ACTION	DATE APPROVED
1	TAXILANE K1 TSA	ABILITY TO SUPPORT PASSAGE OF AIRCRAFT	EXISTING 12,500 GAL WATER SEPARATION TANK 8' BELOW GROUND NOT RATED FOR AIRCRAFT LOADING		3–28–01
2	R/W 5 ROFA	1,000'	804' ROFA AT THE APPROACH END OF R/W 5	USE OF DECLARED DISTANCES	9–16–01
3	R/W 5 ROFA	NO ROADWAY OR OBJECT PENETRATIONS	ROADWAY AND FENCE PENETRATIONS		
4	R/W 14 ROFA	1,000'	833' ROFA AT THE APPROACH END OF R/W 14	USE OF DECLARED DISTANCES	9–16–01
5	R/W 14 ROFA	NO ROADWAY OR OBJECT PENETRATIONS	ROADWAY AND FENCE PENETRATIONS		
6	R/W 32 ROFA	1,000'	899' ROFA AT THE APPROACH END OF R/W 32	USE OF DECLARED DISTANCES	9–16–01
7	R/W 32 ROFA	NO ROADWAY OR OBJECT PENETRATIONS	ROADWAY AND FENCE PENETRATIONS		
8	APRON GRADIENT		2.0% APRON GRADIENT IN THE RON / DE–ICING APRON		10–23–01
9	T/W 'D' RUNWAY SEPARATION BETWEEN THE APPROACH END OF R/W 14 AND T/W A	400'	313'		12–14–01
10	R/W 14–32 RSA		TRENCH DRAIN		4–10–03
11	R/W 14–32 RSA		TRANSVERSE GRADE NEAR APPROACH END OF R/W 32		4–10–03

DECLARED DISTANCES -FUTURE CONDITIONS

RUNWAY END ID	TORA	TODA	ASDA	LDA	LDA APPROACH END RSA LENGTH	LDA STOP END RSA LENGTH	LDA RSA LENGTH	DATE APPROVED
5	8,828'	8,828'	8,103'	7,568'	475'	275'	1,000'	N/A
23	8,828'	8,828'	8,293'	7,868'	275'	475'	1,000'	N/A
14	7,161'	7,161'	6,441'	6,121'	675'	275'	1,000'	N/A
32	7,161'	7,161'	6,841'	6,121'	275'	675'	1,000'	N/A

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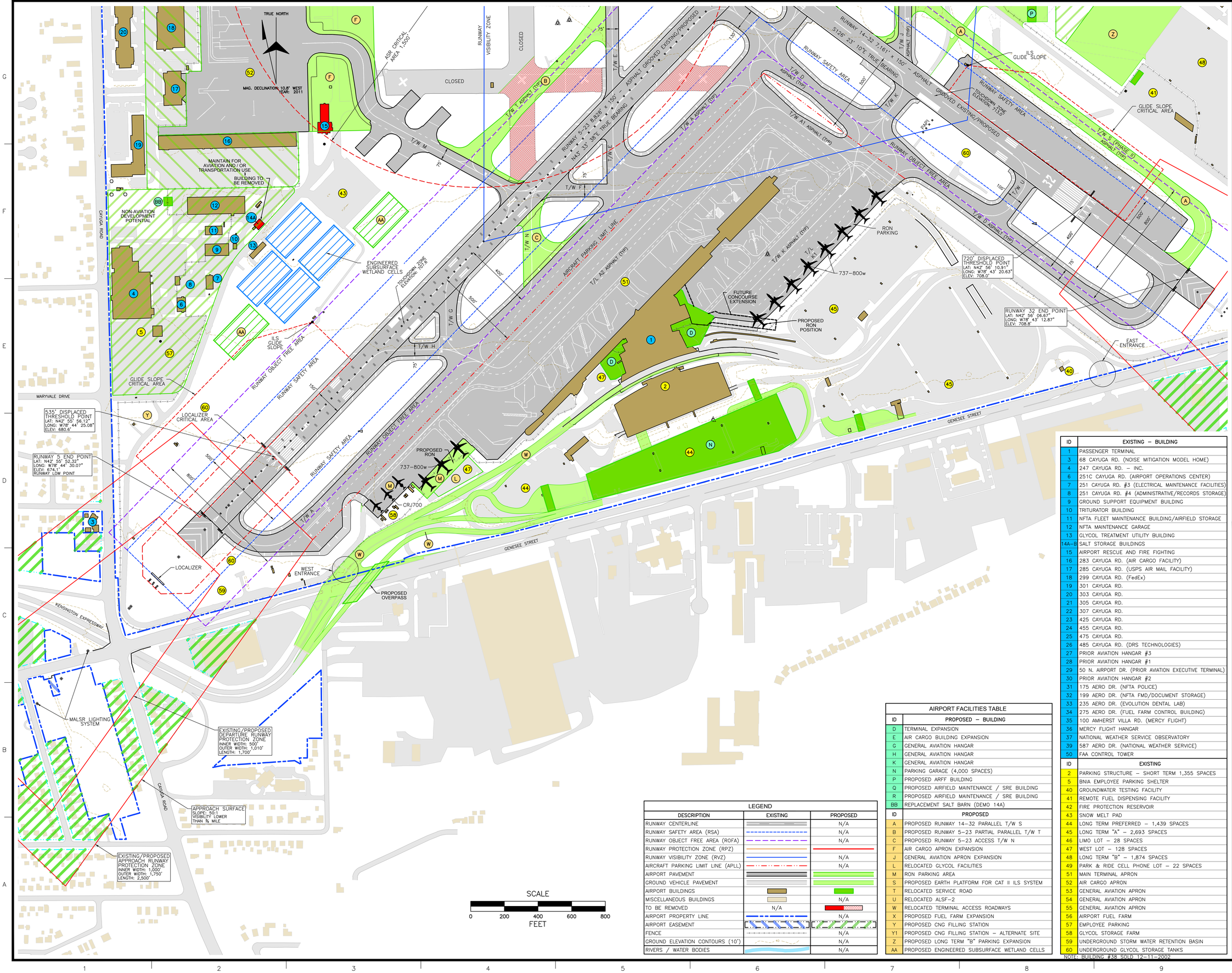
SHEET TITLE

AIRPORT LAYOUT PLAN TABLES

DRAWING# **CT104**

SHEET# 4 OF 14



LEGEND		
DESCRIPTION	EXISTING	PROPOSED
RUNWAY CENTERLINE		N/A
RUNWAY SAFETY AREA (RSA)		N/A
RUNWAY OBJECT FREE AREA (ROFA)		N/A
RUNWAY PROTECTION ZONE (RPZ)		
RUNWAY VISIBILITY ZONE (RVZ)		N/A
AIRCRAFT PARKING LIMIT LINE (APLL)		N/A
AIRPORT PAVEMENT		
GROUND VEHICLE PAVEMENT		
AIRPORT BUILDINGS		
MISCELLANEOUS BUILDINGS		N/A
TO BE REMOVED	N/A	
AIRPORT PROPERTY LINE		N/A
AIRPORT EASEMENT		
FENCE		N/A
GROUND ELEVATION CONTOURS (10')		N/A
RIVERS / WATER BODIES		N/A

AIRPORT FACILITIES TABLE	
ID	PROPOSED – BUILDING
D	TERMINAL EXPANSION
E	AIR CARGO BUILDING EXPANSION
G	GENERAL AVIATION HANGAR
H	GENERAL AVIATION HANGAR
K	GENERAL AVIATION HANGAR
N	PARKING GARAGE (4,000 SPACES)
P	PROPOSED ARFF BUILDING
Q	PROPOSED AIRFIELD MAINTENANCE / SRE BUILDING
R	PROPOSED AIRFIELD MAINTENANCE / SRE BUILDING
BB	REPLACEMENT SALT BARN (DEMO 14A)
ID	PROPOSED
A	PROPOSED RUNWAY 14–32 PARALLEL T/W S
B	PROPOSED RUNWAY 5–23 PARTIAL PARALLEL T/W T
C	PROPOSED RUNWAY 5–23 ACCESS T/W N
F	AIR CARGO APRON EXPANSION
J	GENERAL AVIATION APRON EXPANSION
L	RELOCATED GLYCOL FACILITIES
M	RON PARKING AREA
S	PROPOSED EARTH PLATFORM FOR CAT II ILS SYSTEM
T	RELOCATED SERVICE ROAD
U	RELOCATED ALSF–2
W	RELOCATED TERMINAL ACCESS ROADWAYS
X	PROPOSED FUEL FARM EXPANSION
Y	PROPOSED CNG FILLING STATION
Y1	PROPOSED CNG FILLING STATION – ALTERNATE SITE
Z	PROPOSED LONG TERM "B" PARKING EXPANSION
AA	PROPOSED ENGINEERED SUBSURFACE WETLAND CELLS

ID	EXISTING – BUILDING
1	PASSENGER TERMINAL
3	68 CAYUGA RD. (NOISE MITIGATION MODEL HOME)
4	247 CAYUGA RD. – INC.
6	251C CAYUGA RD. (AIRPORT OPERATIONS CENTER)
7	251 CAYUGA RD. #3 (ELECTRICAL MAINTENANCE FACILITIES)
8	251 CAYUGA RD. #4 (ADMINISTRATIVE/RECORDS STORAGE)
9	GROUND SUPPORT EQUIPMENT BUILDING
10	TRITURATOR BUILDING
11	NFTA FLEET MAINTENANCE BUILDING/AIRFIELD STORAGE
12	NFTA MAINTENANCE GARAGE
13	GLYCOL TREATMENT UTILITY BUILDING
14A–B	SALT STORAGE BUILDINGS
15	AIRPORT RESCUE AND FIRE FIGHTING
16	283 CAYUGA RD. (AIR CARGO FACILITY)
17	285 CAYUGA RD. (USPS AIR MAIL FACILITY)
18	299 CAYUGA RD. (FedEx)
19	301 CAYUGA RD.
20	303 CAYUGA RD.
21	305 CAYUGA RD.
22	307 CAYUGA RD.
23	425 CAYUGA RD.
24	455 CAYUGA RD.
25	475 CAYUGA RD.
26	485 CAYUGA RD. (DRS TECHNOLOGIES)
27	PRIOR AVIATION HANGAR #3
28	PRIOR AVIATION HANGAR #1
29	50 N. AIRPORT DR. (PRIOR AVIATION EXECUTIVE TERMINAL)
30	PRIOR AVIATION HANGAR #2
31	175 AERO DR. (NFTA POLICE)
32	199 AERO DR. (NFTA FMD/DOCUMENT STORAGE)
33	235 AERO DR. (EVOLUTION DENTAL LAB)
34	275 AERO DR. (FUEL FARM CONTROL BUILDING)
35	100 AMHERST VILLA RD. (MERCY FLIGHT)
36	MERCY FLIGHT HANGAR
37	NATIONAL WEATHER SERVICE OBSERVATORY
39	587 AERO DR. (NATIONAL WEATHER SERVICE)
50	FAA CONTROL TOWER
ID	EXISTING
2	PARKING STRUCTURE – SHORT TERM 1,355 SPACES
5	BNIA EMPLOYEE PARKING SHELTER
40	GROUNDWATER TESTING FACILITY
41	REMOTE FUEL DISPENSING FACILITY
42	FIRE PROTECTION RESERVOIR
43	SNOW MELT PAD
44	LONG TERM PREFERRED – 1,439 SPACES
45	LONG TERM "A" – 2,693 SPACES
46	LIMO LOT – 28 SPACES
47	WEST LOT – 128 SPACES
48	LONG TERM "B" – 1,874 SPACES
49	PARK & RIDE CELL PHONE LOT – 22 SPACES
51	MAIN TERMINAL APRON
52	AIR CARGO APRON
53	GENERAL AVIATION APRON
54	GENERAL AVIATION APRON
55	GENERAL AVIATION APRON
56	AIRPORT FUEL FARM
57	EMPLOYEE PARKING
58	GLYCOL STORAGE FARM
59	UNDERGROUND STORM WATER RETENTION BASIN
60	UNDERGROUND GLYCOL STORAGE TANKS

NOTE: BUILDING #38 SOLD 12–11–2002

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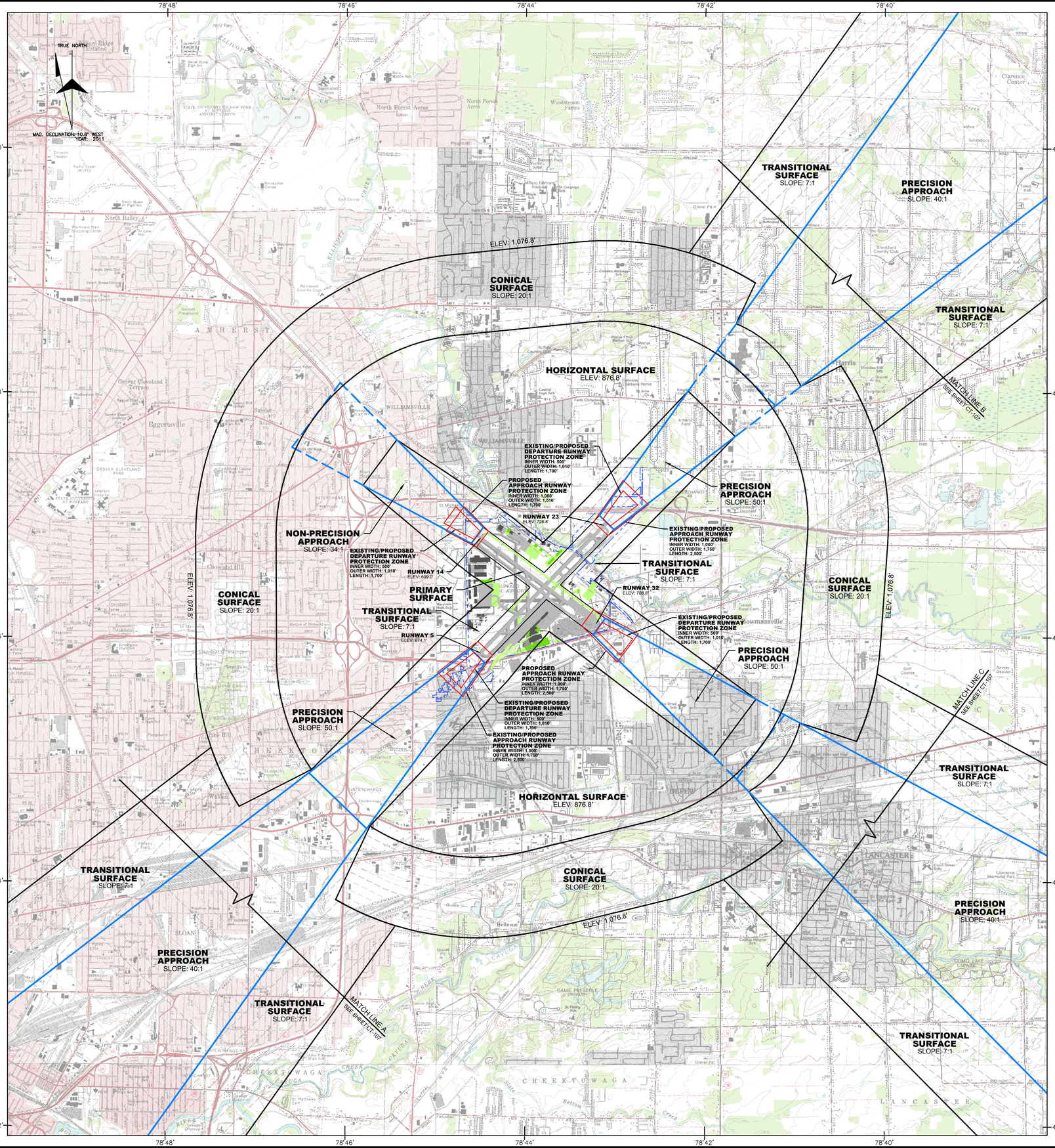
SHEET TITLE

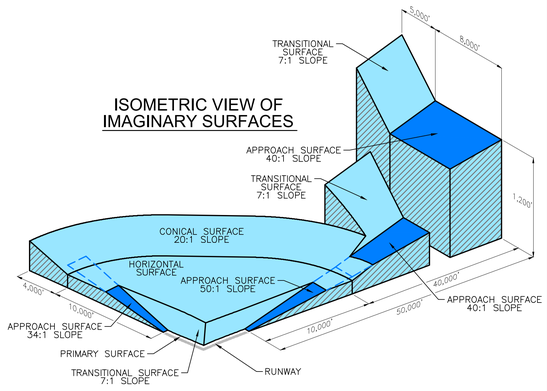
TERMINAL AREA PLAN

DRAWING# **CT105**

SHEET# 5 OF 14



ISOMETRIC VIEW OF IMAGINARY SURFACES



SOURCE: USGS QUADRANGLES

TONAWANDA EAST, NEW YORK	CLARENCE CENTER, NEW YORK	WOLCOTTSVILLE, NEW YORK
BUFFALO NE, NEW YORK	LANCASTER, NEW YORK	
BUFFALO SE, NEW YORK	ORCHARD PARK, NEW YORK	EAST AURORA, NEW YORK

NOTES:
- FOR INNER APPROACH OBSTRUCTIONS PLEASE REFER TO SHEETS 8, 9, 10, AND 11 OF 14.
- NO OBSTRUCTIONS FOUND TO OUTER FAR PART 77 SURFACES.
- PRIMARY SURFACE DIMENSIONS FOR BOTH RUNWAYS: 1,000' WIDE, 200' BEYOND RUNWAY END

SCALE
0 2000 4000 6000 8000
FEET

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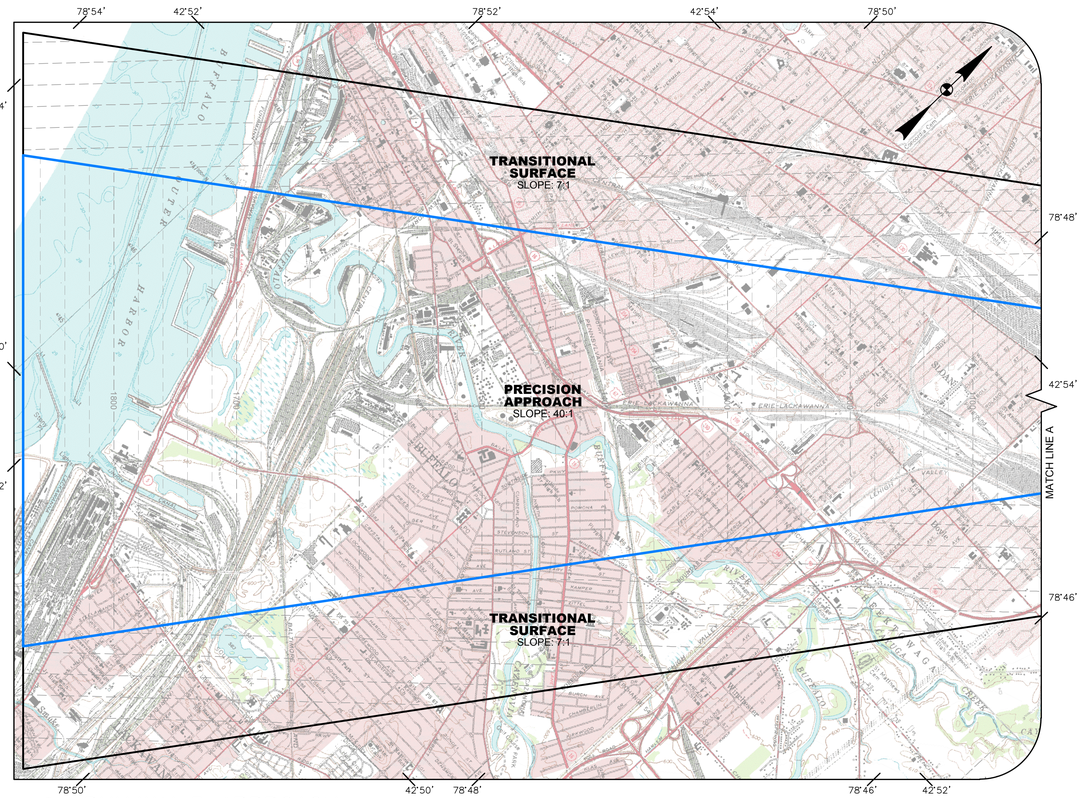
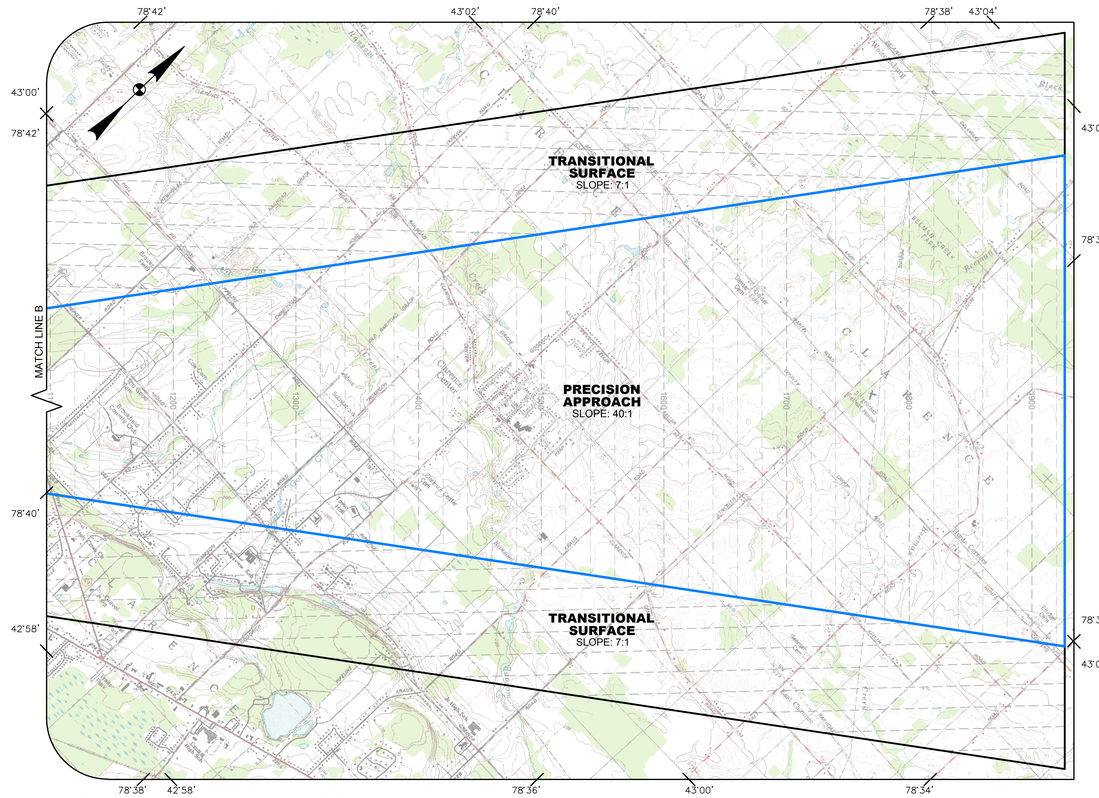
AIRPORT AIRSPACE PLAN

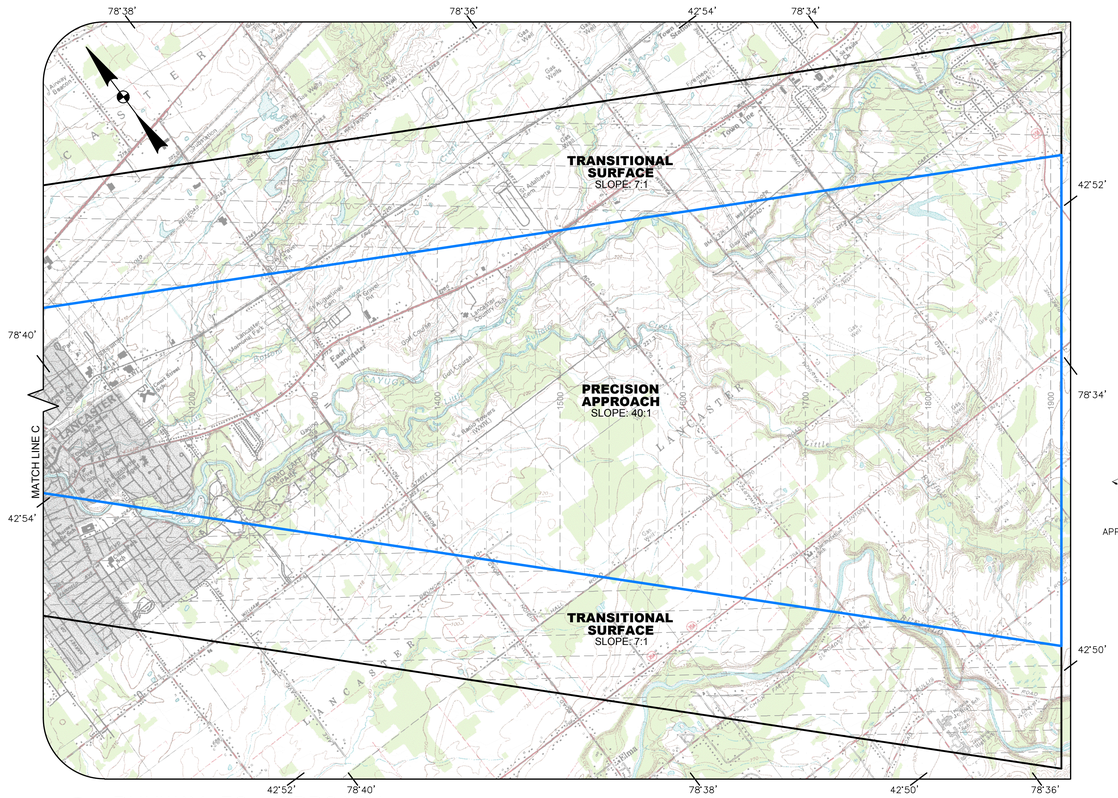
DRAWING#
CT106
SHEET# 6 OF 14



A RUNWAY 5 APPROACH
1" = 2,000'



B RUNWAY 23 APPROACH
1" = 2,000'



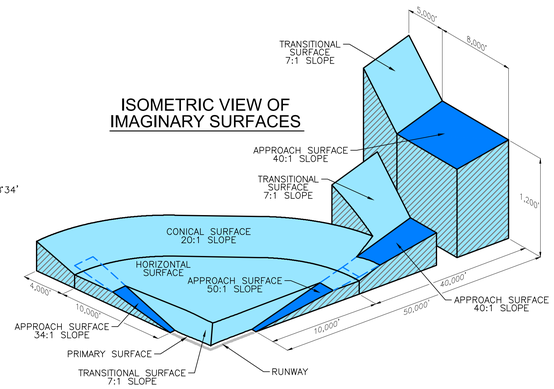
C RUNWAY 32 APPROACH
1" = 2,000'

SOURCE: USGS QUADRANGLES

TONAWANDA EAST, NEW YORK	CLARENCE CENTER, NEW YORK	WOLCOTTSVILLE, NEW YORK
BUFFALO NE, NEW YORK	LANCASTER, NEW YORK	
BUFFALO SE, NEW YORK	ORCHARD PARK, NEW YORK	EAST AURORA, NEW YORK

SCALE
0 2000 4000 6000 8000
FEET

ISOMETRIC VIEW OF IMAGINARY SURFACES



NOTES:
- FOR INNER APPROACH OBSTRUCTIONS PLEASE REFER TO SHEETS 8, 9, 10, AND 11 OF 14.
- NO OBSTRUCTIONS FOUND TO OUTER FAR PART 77 SURFACES.

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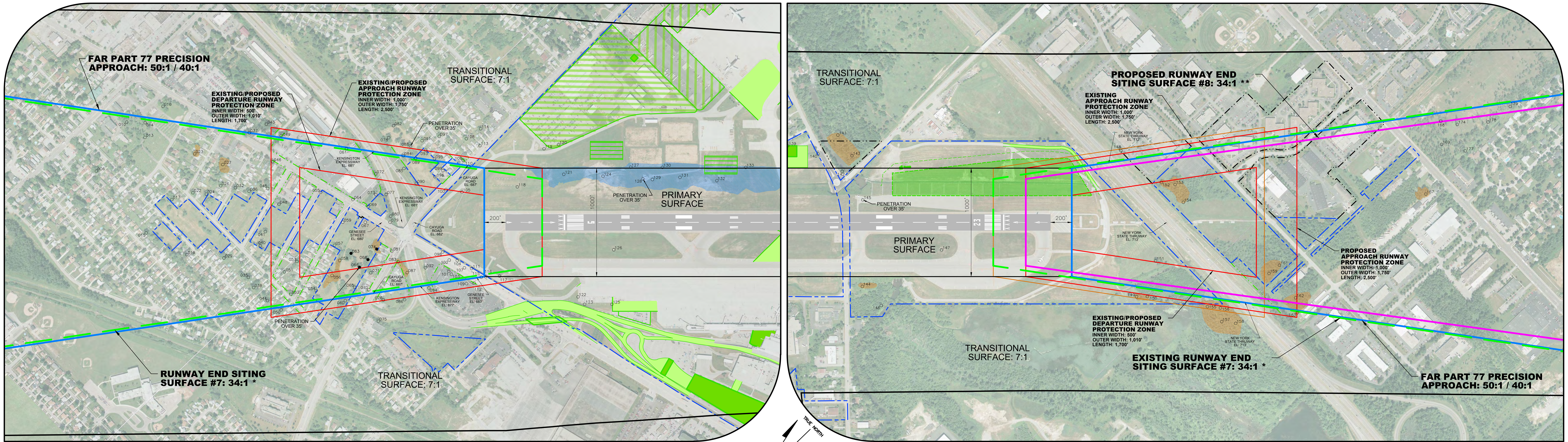
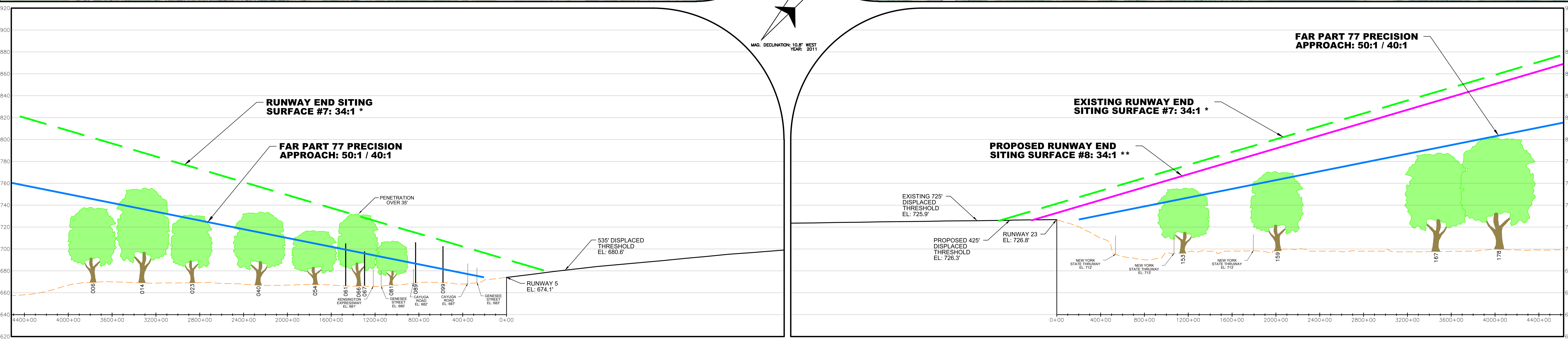
AIRPORT AIRSPACE PLAN OUTER APPROACH SURFACES

DRAWING# CT107
SHEET# 7 OF 14





APPROACH SURFACE: RUNWAY 5					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
006	TREES	738.1	745.6	−7.5	REMOVE
010	TREES	741.8	740.0	1.8	REMOVE
013	TREES	745.7	736.6	9.1	REMOVE
014	TREES	755.7	736.6	19.1	REMOVE
015	TREES	727.6	736.4	−8.8	REMOVE
017	TREES	728.5	731.7	−3.2	REMOVE
019	TREES	725.1	729.0	−3.9	REMOVE
022	TREES	723.4	727.8	−4.4	REMOVE
023	TREES	731.2	727.4	3.8	REMOVE
024	TREES	722.0	725.3	−3.3	REMOVE
026	TREES	724.5	722.7	1.8	REMOVE
027	TREES	722.2	722.3	−0.1	REMOVE
029	TREES	724.1	722.1	2.0	REMOVE
032	TREES	724.3	720.0	4.3	REMOVE
035	TREES	726.6	717.5	9.1	REMOVE
036	TREES	725.9	717.4	8.5	REMOVE
037	TREES	712.7	717.4	−4.7	REMOVE
038	TREES	712.7	716.6	−3.9	REMOVE
040	TREES	733.8	715.4	18.4	REMOVE
041	TREES	715.0	714.5	0.5	REMOVE
044	TREES	715.1	714.0	1.1	REMOVE
045	TREES	715.2	714.0	1.2	REMOVE
046	TREES	707.3	713.0	−5.7	REMOVE
048	TREES	707.9	711.9	−4.0	REMOVE
051	TREES	708.0	710.9	−2.9	REMOVE
052	TREES	719.6	709.7	9.9	REMOVE
053	TREES	708.7	708.6	0.1	REMOVE
054	TREES	716.8	705.1	11.7	REMOVE
055	TREES	699.0	704.2	−5.2	REMOVE
056	TREES	723.0	702.1	20.9	REMOVE
057	TREES	711.5	701.7	9.8	REMOVE
058	TREES	710.2	700.7	9.5	REMOVE
059	LIGHT	701.5	700.2	1.3	LIGHT
061	BILLBOARD	705.1	699.5	5.6	LIGHT
063	TREES	727.8	698.7	29.1	REMOVE
064	UTILITY POLE	701.5	698.2	3.3	LIGHT
065	TREES	716.4	697.9	18.5	REMOVE
066	TREES	732.1	697.1	35.0	REMOVE
067	LIGHT	697.9	696.0	1.9	LIGHT
068	TREES	726.6	695.5	31.1	REMOVE
069	UTILITY POLE	697.8	695.5	2.3	LIGHT
070	TREES	705.0	695.4	9.6	REMOVE
071	TREES	704.2	695.0	9.2	REMOVE
072	TREES	695.4	694.1	1.3	REMOVE
073	BILLBOARD	694.5	694.0	0.5	LIGHT
074	TREES	716.9	693.9	23.0	REMOVE
077	TREES	685.5	692.1	−6.6	REMOVE
079	LIGHT	694.6	691.5	3.1	LIGHT
080	TREES	682.6	691.4	−8.8	REMOVE
081	TREES	707.3	691.2	16.1	REMOVE
083	TREES	690.1	690.0	0.1	REMOVE
085	UTILITY POLE	693.2	688.9	4.3	LIGHT
087	TREES	689.4	688.3	1.1	REMOVE
089	UTILITY POLE	706.0	686.7	19.3	LIGHT
090	TREES	682.4	686.6	−4.2	REMOVE
092	TREES	689.4	684.9	4.5	REMOVE
096	TREES	686.0	683.2	2.8	REMOVE
098	LIGHT POLE	682.2	681.8	0.4	LIGHT
099	BUILDING	702.5	681.7	20.8	LIGHT
100	ROAD	682.5	681.2	1.3	LIGHT
101	TREES	680.8	680.7	0.1	REMOVE
102	ROAD	681.6	680.5	1.1	LIGHT
103	BUILDING	690.7	680.1	10.6	LIGHT
104	LIGHT POLE	682.4	679.1	3.3	LIGHT
105	BUILDING	679.3	678.1	1.2	LIGHT
107	ROAD	681.9	677.7	4.2	LIGHT
110	ROAD	686.7	677.0	9.7	LIGHT
111	LIGHT POLE	682.4	676.5	5.9	LIGHT

EXISTING RUNWAY END SITING SURFACE #7: RUNWAY 5					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
063	TREES	727.8	732.5	−4.7	REMOVE
066	TREES	732.1	730.2	1.9	REMOVE
068	TREES	726.6	727.9	−1.3	REMOVE
074	TREES	716.9	725.5	−8.6	REMOVE

PRIMARY SURFACE: RUNWAY 5-23					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
117	SIGN	676.6	674.1	2.5	LIGHT
118	HYDRANT	676.9	675.4	1.5	LIGHT
121	GROUND	684.0	680.6	3.4	N/A
124	GROUND	687.1	684.6	2.5	N/A
126	WINDCONE	704.2	685.6	18.6	LIGHT
128	TOWER	729.5	688.0	41.5	LIGHT
129	NAVAID	696.9	688.9	8.0	LIGHT
131	NAVAID	703.4	691.2	12.2	LIGHT
132	GROUND	698.6	694.4	4.2	N/A
142	TREES	738.9	724.3	14.6	REMOVE
145	TOWER	761.0	724.5	36.5	LIGHT
147	WINDCONE	742.8	725.6	17.2	LIGHT

* RUNWAY END SITING SURFACE (#7)
FROM TABLE 2A−1 IN AC 150/5300−13 CHG 17 APPROACH END OF RUNWAYS EXPECTED TO ACCOMMODATE INSTRUMENT APPROACHES HAVING VISIBILITY MINIMUMS <3/4 STATUTE MILE OR PRECISION APPROACH (ILS, GLS, OR MLS), DAY OR NIGHT.

** RUNWAY END SITING SURFACE (#8)
FROM TABLE 2A−1 IN AC 150/5300−13 CHG 17 APPROACH RUNWAY ENDS HAVING CATEGORY II APPROACH MINIMUMS OR GREATER.

TRANSITIONAL SURFACE: RUNWAY 5-23					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
016	TREES	751.1	750.9	0.2	REMOVE
043	TREES	731.4	728.9	2.5	REMOVE
049	TREES	708.1	714.1	−6.0	REMOVE
050	TREES	717.6	715.3	2.3	REMOVE
060	TREES	717.9	703.8	14.1	REMOVE
075	TREES	724.5	731.5	−7.0	REMOVE
076	TREES	704.1	703.7	0.4	REMOVE
078	TREES	703.7	712.9	−9.2	REMOVE
082	TREES	725.4	728.5	−3.1	REMOVE
084	BILLBOARD	706.3	689.3	17.0	LIGHT
086	TREES	703.6	703.6	0.0	REMOVE
088	TREES	740.8	702.3	38.5	REMOVE
091	TREES	718.4	709.2	9.2	REMOVE
093	POLE	713.5	696.8	16.7	LIGHT
094	TREES	683.8	688.4	−4.6	REMOVE
095	POLE	705.5	685.5	20.0	LIGHT
097	TREES	723.2	715.1	8.1	REMOVE
106	TREES	704.6	683.8	20.8	REMOVE
108	TREES	725.4	712.4	13.0	REMOVE
109	BUILDING	695.1	683.3	11.8	LIGHT
112	POLE	688.5	682.4	6.1	LIGHT
113	TREES	703.7	703.4	0.3	REMOVE
114	TREES	722.0	725.7	−3.7	REMOVE
115	ROAD	682.7	675.0	7.7	LIGHT
116	LIGHT POLE	682.9	674.3	8.6	LIGHT
119	UTILITY POLE	710.4	703.9	6.5	LIGHT
120	UTILITY POLE	711.5	710.9	0.6	LIGHT
122	LIGHT POLE	722.0	708.8	13.2	LIGHT
123	LIGHT POLE	722.7	719.3	3.4	LIGHT
125	LIGHT POLE	724.6	721.9	2.7	LIGHT
127	POST	698.4	688.0	10.4	LIGHT
130	POST	698.8	690.6	8.2	LIGHT
133	GROUND	701.1	697.4	3.7	LIGHT
139	TREES	752.0	753.0	−1.0	REMOVE
140	TREES	736.1	742.4	−6.3	REMOVE
141	TREES	759.0	767.5	−8.5	REMOVE
143	TREES	753.7	740.8	12.9	REMOVE
144	TREES	742.4	737.5	4.9	REMOVE
146	TREES	755.7	762.9	−7.2	REMOVE
148	TREES	750.1	748.8	1.3	REMOVE
149	TREES	751.6	752.5	−0.9	REMOVE
150	TREES	744.7	752.0	−7.3	REMOVE
155	TREES	769.8	764.7	5.1	REMOVE
156	TREES	767.5	766.1	1.4	REMOVE
157	TREES	784.4	784.2	0.2	REMOVE
158	TREES	783.3	786.3	−3.0	REMOVE
163	TREES	764.3	771.3	−7.0	REMOVE

APPROACH SURFACE: RUNWAY 23					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
151	TREES	745.1	742.2	2.9	REMOVE
152	TREES	744.5	743.4	1.1	REMOVE
153	TREES	755.6	745.8	9.8	REMOVE
154	TREES	745.2	747.4	−2.2	REMOVE
159	TREES	770.7	763.2	7.5	REMOVE
161	TREES	757.2	765.0	−7.8	REMOVE
162	TREES	764.6	768.1	−3.5	REMOVE
167	TREES	787.7	792.1	−4.4	REMOVE
168	TREES	785.6	794.8	−9.2	REMOVE
169	TREES	788.3	795.0	−6.7	REMOVE
174	TREES	795.7	797.9	−2.2	REMOVE
177	TREES	795.5	799.4	−3.9	REMOVE
178	TREES	801.9	803.5	−1.6	REMOVE
179	TREES	799.2	807.6	−8.4	REMOVE

SCALE
1" = 400' HORIZONTAL
1" = 40' VERTICAL
0 400 800 FEET
0 40 80

LEGEND		
DESCRIPTION	EXISTING	PROPOSED
RUNWAY PROTECTION ZONE (RPZ)		
AIRPORT PAVEMENT	N/A	
GROUND VEHICLE PAVEMENT	N/A	
AIRPORT BUILDINGS		
AIRPORT PROPERTY LINE		N/A
AIRPORT EASEMENT		
FAR PART 77 OBSTRUCTIONS	XX	N/A
FAR PART 77 VEGETATION OBSTRUCTIONS		N/A
FAR PART 77 TERRAIN OBSTRUCTIONS		N/A
RUNWAY END SITING SURFACE (#7) OBSTRUCTIONS	XX	N/A
RUNWAY END SITING SURFACE (#7) VEGETATION OBSTRUCTIONS		N/A

NOTES:

1. RUNWAY 23 EXISTING CAT I, PROPOSED CAT II.
2. TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
3. ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER PART 77 (15' FOR ROAD, 17' FOR INTERSTATE).
4. COMPOSITE GROUND ELEVATION PROFILE LIMITED TO APPROACH SURFACE.

BUFFALO NIAGARA INTERNATIONAL AIRPORT

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BUFFALO NIAGARA INTERNATIONAL AIRPORT
–
SUSTAINABLE MASTER PLAN UPDATE

MARK	DATE	DESCRIPTION

ISSUE:

NFTA PROJECT NO:	30BG0916
DESIGNER PROJECT NO:	17493.00
CAD DWG FILE:	CT−108.DWG
DRAWN BY:	RGT
CHECKED BY:	JEP
SCALE:	AS NOTED
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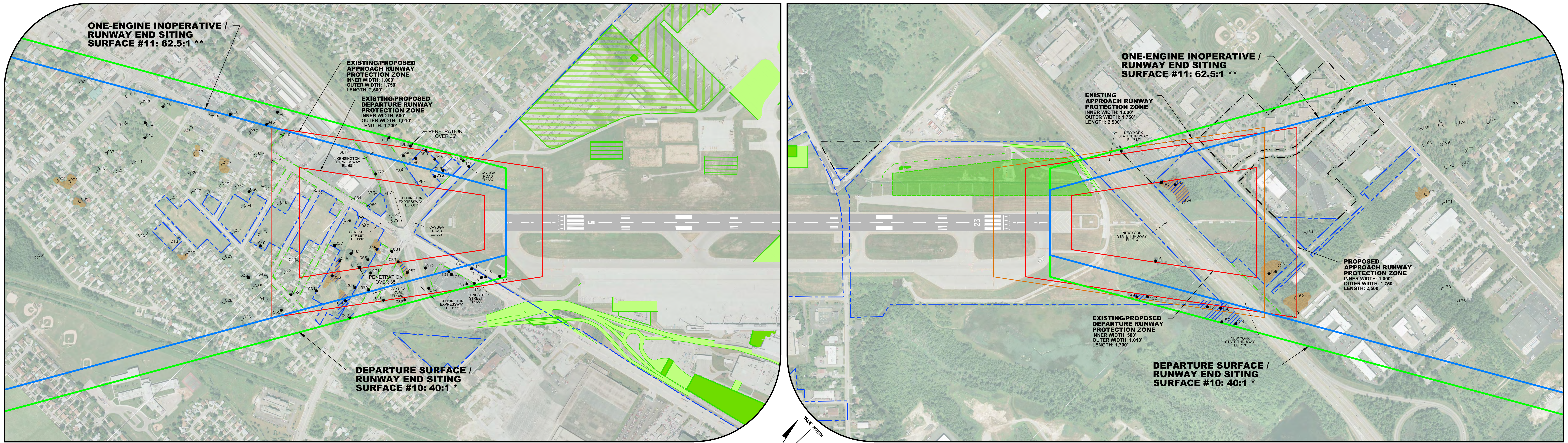
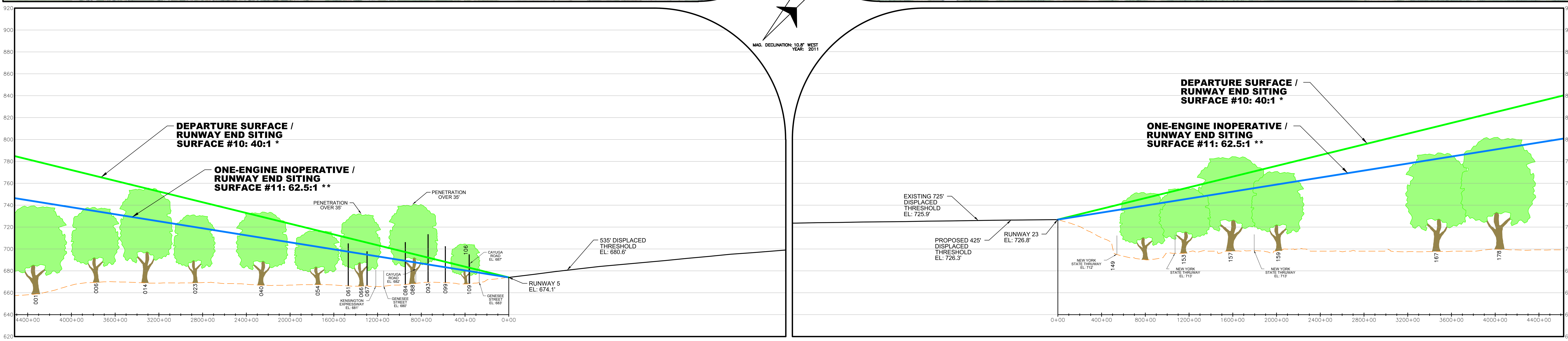
SHEET TITLE

INNER APPROACH SURFACE AND RPZ CONTROL PLAN RUNWAY 5−23

DRAWING# **CT108**

SHEET# 8 OF 14





RUNWAY END SITING SURFACE #10: RUNWAY 23					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
013	TREES	745.7	755.6	−9.9	REMOVE
014	TREES	755.7	755.6	0.1	REMOVE
016	TREES	751.1	751.5	−0.4	REMOVE
030	TREES	728.4	736.3	−7.9	REMOVE
035	TREES	726.6	732.2	−5.6	REMOVE
036	TREES	725.9	732.1	−6.2	REMOVE
040	TREES	733.8	729.6	4.2	REMOVE
043	TREES	731.4	728.2	3.2	REMOVE
047	TREES	719.0	725.7	−6.7	REMOVE
050	TREES	717.6	724.9	−7.3	REMOVE
052	TREES	719.6	722.6	−3.0	REMOVE
054	TREES	716.8	716.9	−0.1	REMOVE
056	TREES	723.0	713.3	9.7	REMOVE
057	TREES	711.5	712.8	−1.3	REMOVE
058	TREES	710.2	711.6	−1.4	REMOVE
060	TREES	717.9	710.3	7.6	REMOVE
062	TREES	706.7	709.3	−2.6	REMOVE
063	TREES	727.8	709.1	18.7	REMOVE
065	TREES	716.4	708.2	8.2	REMOVE
066	TREES	732.1	707.2	24.9	REMOVE
068	TREES	726.6	705.3	21.3	REMOVE
070	TREES	705.0	705.1	−0.1	REMOVE
071	TREES	704.2	704.6	−0.4	REMOVE
072	TREES	695.4	703.5	−8.1	REMOVE
074	TREES	716.9	703.3	13.6	REMOVE
076	TREES	704.1	701.8	2.3	REMOVE
078	TREES	703.7	700.6	3.1	REMOVE
081	TREES	707.3	699.9	7.4	REMOVE
083	TREES	690.1	698.5	−8.4	REMOVE
084	BILLBOARD	706.3	697.3	9.0	LIGHT
086	TREES	703.6	697.0	6.6	REMOVE
087	TREES	689.4	696.4	−7.0	REMOVE
088	TREES	740.8	695.7	45.1	REMOVE
089	UTILITY POLE	706.0	694.4	11.6	LIGHT
092	TREES	689.4	692.3	−2.9	REMOVE
093	POLE	713.5	692.2	21.3	LIGHT
094	TREES	683.8	691.5	−7.7	REMOVE
095	POLE	705.5	690.2	15.3	LIGHT
096	TREES	686.0	690.1	−4.1	REMOVE
099	BUILDING	702.5	688.3	14.2	LIGHT
101	TREES	680.8	687.0	−6.2	REMOVE
103	BUILDING	690.7	686.4	4.3	LIGHT
106	TREES	704.6	683.7	20.9	REMOVE
109	BUILDING	695.1	683.0	12.1	LIGHT
110	ROAD	686.7	682.5	4.2	LIGHT
111	LIGHT POLE	682.4	681.9	0.5	LIGHT
112	POLE	688.5	681.3	7.2	LIGHT
115	ROAD	682.7	679.7	3.0	LIGHT
116	LIGHT POLE	682.9	678.7	4.2	LIGHT
117	SIGN	676.6	675.5	1.1	LIGHT

RUNWAY END SITING SURFACE #11: RUNWAY 23					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
001	TREES	739.4	743.3	−3.9	REMOVE
002	TREES	730.7	740.2	−9.5	REMOVE
003	TREES	729.9	738.5	−8.6	REMOVE
004	TREES	727.2	736.9	−9.7	REMOVE
005	TREES	730.9	736.9	−6.0	REMOVE
006	TREES	738.1	734.5	3.6	REMOVE
007	TREES	725.7	733.0	−7.3	REMOVE
008	TREES	722.4	731.8	−9.4	REMOVE
009	TREES	732.0	730.0	2.0	REMOVE
010	TREES	741.8	730.0	11.8	REMOVE
011	TREES	727.3	729.0	−1.7	REMOVE
012	TREES	733.5	727.8	5.7	REMOVE
013	TREES	745.7	727.3	18.4	REMOVE
014	TREES	755.7	727.3	28.4	REMOVE
015	TREES	727.6	727.2	0.4	REMOVE
016	TREES	751.1	724.7	26.4	REMOVE
017	TREES	728.5	723.4	5.1	REMOVE
018	TREES	716.6	722.3	−5.7	REMOVE
019	TREES	725.1	721.2	3.9	REMOVE
020	TREES	716.9	720.8	−3.9	REMOVE
021	TREES	716.1	720.5	−4.4	REMOVE
022	TREES	723.4	720.3	3.1	REMOVE
023	TREES	731.2	720.0	11.2	REMOVE
024	TREES	722.0	718.2	3.8	REMOVE
025	TREES	707.8	717.6	−9.8	REMOVE
026	TREES	724.5	716.2	8.3	REMOVE
027	TREES	722.2	715.9	6.3	REMOVE
028	TREES	706.9	715.6	−8.7	REMOVE
029	TREES	724.1	715.7	8.4	REMOVE
031	TREES	706.6	714.3	−7.7	REMOVE
032	TREES	724.3	714.0	10.3	REMOVE
033	TREES	711.9	712.9	−1.0	REMOVE
034	TREES	708.2	712.9	−4.7	REMOVE
035	TREES	726.6	712.0	14.6	REMOVE
036	TREES	725.9	712.0	13.9	REMOVE
037	TREES	712.7	711.9	0.8	REMOVE
038	TREES	712.7	711.3	1.4	REMOVE
039	TREES	701.6	711.0	−9.4	REMOVE
040	TREES	733.8	710.4	23.4	REMOVE
041	TREES	715.0	709.6	5.4	REMOVE
042	TREES	703.6	709.4	−5.8	REMOVE
044	TREES	715.1	709.3	5.8	REMOVE
045	TREES	715.2	709.2	6.0	REMOVE
046	TREES	707.3	708.4	−1.1	REMOVE
048	TREES	707.9	707.6	0.3	REMOVE
049	TREES	708.1	707.3	0.8	REMOVE
050	TREES	717.6	707.3	10.3	REMOVE
051	TREES	708.0	706.8	1.2	REMOVE
052	TREES	719.6	705.8	13.8	REMOVE
053	TREES	708.7	704.9	3.8	REMOVE
054	TREES	716.8	702.1	14.7	REMOVE
055	TREES	699.0	701.4	−2.4	REMOVE
056	TREES	723.0	699.7	23.3	REMOVE
057	TREES	711.5	699.4	12.1	REMOVE
058	TREES	710.2	698.6	11.6	REMOVE
059	LIGHT	701.5	698.2	3.3	LIGHT
061	BILLBOARD	705.1	697.6	7.5	LIGHT
063	TREES	727.8	697.0	30.8	REMOVE
064	UTILITY POLE	701.5	696.6	4.9	LIGHT
065	TREES	716.4	696.3	20.1	REMOVE
066	TREES	732.1	695.7	36.4	REMOVE
067	LIGHT	697.9	694.9	3.0	LIGHT
068	TREES	726.6	694.4	32.2	REMOVE
069	UTILITY POLE	697.8	694.4	3.4	LIGHT
070	TREES	705.0	694.3	10.7	REMOVE
071	TREES	704.2	694.0	10.2	REMOVE
072	TREES	695.4	693.3	2.1	REMOVE
073	BILLBOARD	694.5	693.2	1.3	LIGHT
074	TREES	716.9	693.1	23.8	REMOVE
077	TREES	685.5	691.7	−6.2	REMOVE
079	LIGHT	694.6	691.2	3.4	LIGHT
080	TREES	682.6	691.1	−8.5	REMOVE
081	TREES	707.3	691.0	16.3	REMOVE
083	TREES	690.1	690.0	0.1	REMOVE
085	UTILITY POLE	693.2	689.1	4.1	LIGHT
087	TREES	689.4	688.7	0.7	REMOVE
090	TREES	682.4	687.3	−4.9	REMOVE
092	TREES	689.4	686.0	3.4	REMOVE
096	TREES	686.0	684.6	1.4	REMOVE
104	LIGHT POLE	682.4	681.3	1.1	LIGHT

* RUNWAY END SITING SURFACE (#10)
FROM TABLE 2A-1 IN AC 150/5300-13 CHG 17 DEPARTURE RUNWAY ENDS FOR ALL INSTRUMENT OPERATIONS.

** RUNWAY END SITING SURFACE (#11)
FROM TABLE 2A-1 IN AC 150/5300-13 CHG 17 DEPARTURE RUNWAY ENDS SUPPORTING AIR CARRIER OPERATIONS.

LEGEND		
DESCRIPTION	EXISTING	PROPOSED
RUNWAY PROTECTION ZONE (RPZ)		
AIRPORT PAVEMENT	N/A	
GROUND VEHICLE PAVEMENT	N/A	
AIRPORT BUILDINGS		
AIRPORT PROPERTY LINE		N/A
AIRPORT EASEMENT		
RUNWAY END SITING SURFACE (#10) OBSTRUCTIONS	XX	N/A
RUNWAY END SITING SURFACE (#10) VEGETATION OBSTRUCTIONS		N/A
RUNWAY END SITING SURFACE (#11) OBSTRUCTIONS	XX	N/A
RUNWAY END SITING SURFACE (#11) VEGETATION OBSTRUCTIONS		N/A

SCALE
1" = 400' HORIZONTAL
1" = 40' VERTICAL
0 400 800 FEET
0 40 80

NOTES:

1. TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
2. ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER PART 77 (15' FOR ROAD, 17' FOR INTERSTATE).
3. COMPOSITE GROUND ELEVATION PROFILE LIMITED TO APPROACH SURFACE.
4. THE ONE-ENGINE INOPERATIVE (OEI) SURFACE (RUNWAY END SITING SURFACE #11) IS ADVISORY ONLY AND TAKES EFFECT JANUARY 1, 2012.
5. RUNWAY END DEPARTURE SURFACE STARTS AT OPPOSING END OF RUNWAY.

RUNWAY END SITING SURFACE #10: RUNWAY 5					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
148	TREES	750.1	742.8	7.3	REMOVE
149	TREES	751.6	746.3	5.3	REMOVE
150	TREES	744.7	748.7	−4.0	REMOVE
151	TREES	745.1	750.6	−5.5	REMOVE
152	TREES	744.5	752.0	−7.5	REMOVE
153	TREES	755.6	755.0	0.6	REMOVE
155	TREES	769.8	762.3	7.5	REMOVE
156	TREES	767.5	765.3	2.2	REMOVE
157	TREES	784.4	765.6	18.8	REMOVE
158	TREES	783.3	768.7	14.6	REMOVE
159	TREES	770.7	776.3	−5.6	REMOVE

RUNWAY END SITING SURFACE #11: RUNWAY 5					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
151	TREES	745.1	742.3	2.8	REMOVE
152	TREES	744.5	743.3	1.2	REMOVE
153	TREES	755.6	745.2	10.4	REMOVE
154	TREES	745.2	746.4	−1.2	REMOVE
159	TREES	770.7	759.1	11.6	REMOVE
160	TREES	751.9	760.5	−8.6	REMOVE
161	TREES	757.2	760.6	−3.4	REMOVE
162	TREES	764.6	763.0	1.6	REMOVE
163	TREES	764.3	763.2	1.1	REMOVE
164	TREES	758.8	764.4	−5.6	REMOVE
165	TREES	773.9	781.5	−7.6	REMOVE
166	TREES	772.9	781.8	−8.9	REMOVE
167	TREES	787.7	782.2	5.5	REMOVE
168	TREES	785.6	784.4	1.2	REMOVE
169	TREES	788.3	784.5	3.8	REMOVE
170	TREES	774.8	784.7	−9.9	REMOVE
171	TREES	776.6	784.9	−8.3	REMOVE
172	TREES	776.1	785.1	−9.0	REMOVE
173	TREES	781.6	785.5	−3.9	REMOVE
174	TREES	795.7	786.9	8.8	REMOVE
175	TREES	778.2	786.9	−8.7	REMOVE
176	TREES	781.7	787.7	−6.0	REMOVE
177	TREES	795.5	788.1	7.4	REMOVE
178	TREES	801.9	791.3	10.6	REMOVE
179	TREES	799.2	794.6	4.6	REMOVE

BUFFALO NIAGARA INTERNATIONAL AIRPORT

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BUFFALO NIAGARA INTERNATIONAL AIRPORT
–
SUSTAINABLE MASTER PLAN UPDATE

MARK	DATE	DESCRIPTION

ISSUE:	
NFTA PROJECT NO:	30BG0916
DESIGNER PROJECT NO:	17493.00
CAD DWG FILE:	CT-109.DWG
DRAWN BY:	RGT
CHECKED BY:	JEP
SCALE:	AS NOTED
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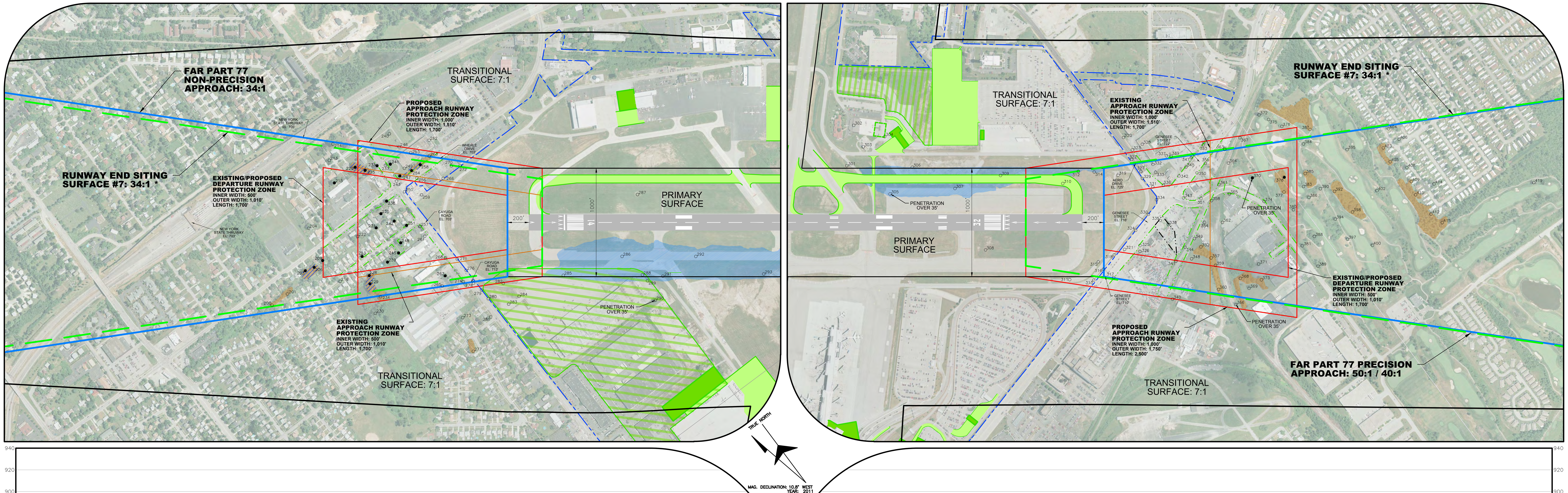
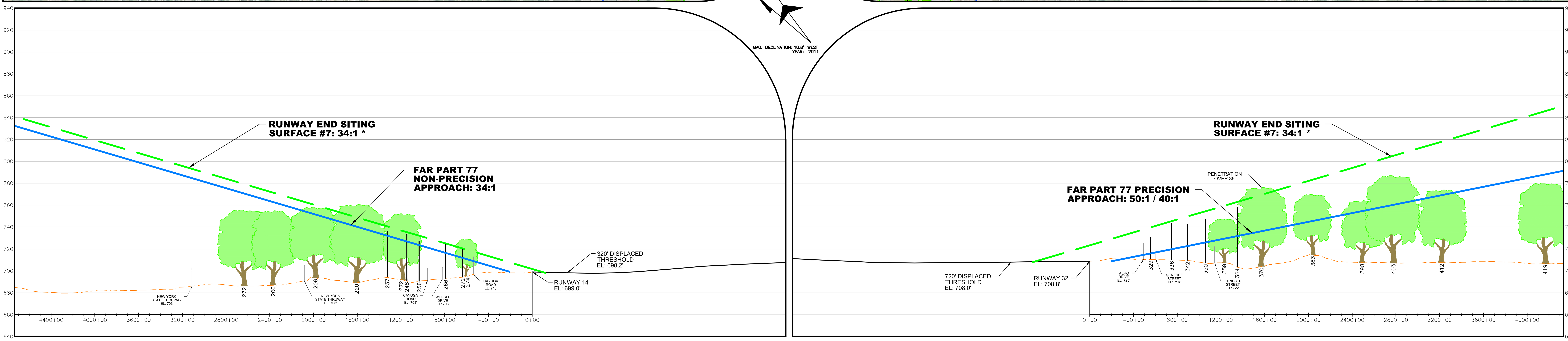
SHEET TITLE

DEPARTURE SURFACE CONTROL PLAN RUNWAY 5–23

DRAWING#
CT109

SHEET# 9 OF 14





APPROACH SURFACE: RUNWAY 14					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
200	TREES	755.0	762.8	−7.8	REMOVE
201	TREES	754.1	758.7	−4.6	REMOVE
203	TREES	758.0	753.9	4.1	REMOVE
204	TREES	747.0	752.9	−5.9	REMOVE
206	TREES	758.2	751.5	6.7	REMOVE
209	TREES	753.0	749.1	3.9	REMOVE
213	TREES	737.8	747.3	−9.5	REMOVE
214	TREES	758.1	746.4	11.7	REMOVE
215	TREES	745.5	745.9	−0.4	REMOVE
216	TREES	736.6	744.4	−7.8	REMOVE
220	TREES	760.6	740.3	20.3	REMOVE
222	TREES	737.5	739.7	−2.2	REMOVE
223	TREES	738.6	738.4	0.2	REMOVE
225	TREES	746.6	737.6	9.0	REMOVE
228	TREES	746.6	736.5	10.1	REMOVE
229	TREES	744.2	736.3	7.9	REMOVE
231	TREES	751.0	734.6	16.4	REMOVE
233	TREES	745.1	734.4	10.7	REMOVE
235	TREES	745.5	733.4	12.1	REMOVE
237	POLE	736.6	732.1	4.5	LIGHT
238	TREES	741.1	731.8	9.3	REMOVE
239	TREES	741.8	731.6	10.2	REMOVE
241	TREES	737.5	730.8	6.7	REMOVE
242	TREES	740.2	729.8	10.4	REMOVE
243	POLE	733.0	729.1	3.9	LIGHT
245	TREES	739.5	728.6	10.9	REMOVE
247	TREES	737.1	728.2	8.9	REMOVE
248	TREES	752.3	728.0	24.3	REMOVE
249	BUILDING	728.1	727.0	1.1	LIGHT
250	POLE	733.4	726.9	6.5	LIGHT
251	TREES	732.9	726.4	6.5	REMOVE
254	TREES	744.3	725.0	19.3	REMOVE
256	UTILITY POLE	727.0	723.6	3.4	LIGHT
257	TREES	720.3	722.8	−2.5	REMOVE
258	TREES	746.2	722.7	23.5	REMOVE
259	UTILITY POLE	723.9	722.3	1.6	LIGHT
261	POLE	724.5	721.5	3.0	LIGHT
265	BUILDING	719.5	716.7	2.8	LIGHT
266	UTILITY POLE	724.5	716.5	8.0	LIGHT
267	TREES	728.4	715.9	12.5	REMOVE
268	TREES	706.1	715.9	−9.8	REMOVE
270	TREES	707.0	714.3	−7.3	REMOVE
271	LIGHT POLE	717.1	712.7	4.4	LIGHT
272	UTILITY POLE	721.0	711.8	9.2	LIGHT
274	TREES	729.1	711.0	18.1	REMOVE
276	UTILITY POLE	715.4	710.2	5.2	LIGHT

EXISTING RUNWAY END SITING SURFACE #7: RUNWAY 14					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
203	TREES	758.0	762.5	−4.5	REMOVE
206	TREES	758.2	760.1	−1.9	REMOVE
209	TREES	753.0	757.7	−4.7	REMOVE
215	TREES	745.5	754.5	−9.0	REMOVE
220	TREES	760.6	748.9	11.7	REMOVE
223	TREES	738.6	747.0	−8.4	REMOVE
225	TREES	746.6	746.2	0.4	REMOVE
228	TREES	746.6	745.1	1.5	REMOVE
229	TREES	744.2	744.9	−0.7	REMOVE
231	TREES	751.0	743.2	7.8	REMOVE
233	TREES	745.1	743.0	2.1	REMOVE
235	TREES	745.5	742.0	3.5	REMOVE
238	TREES	741.1	740.4	0.7	REMOVE
239	TREES	741.8	740.1	1.7	REMOVE
241	TREES	737.5	739.4	−1.9	REMOVE
242	TREES	740.2	738.4	1.8	REMOVE
245	TREES	739.5	737.2	2.3	REMOVE
247	TREES	737.1	736.8	0.3	REMOVE
248	TREES	752.3	736.6	15.7	REMOVE
251	TREES	732.9	734.9	−2.0	REMOVE
254	TREES	744.3	733.6	10.7	REMOVE
258	TREES	746.2	731.3	14.9	REMOVE
267	TREES	728.4	724.5	3.9	REMOVE

PRIMARY SURFACE: RUNWAY 14-32					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
285	GROUND	702.0	698.2	3.8	N/A
286	GROUND	705.1	698.7	6.4	N/A
287	WINDCONE	716.2	699.6	16.6	LIGHT
288	WALL	714.8	699.9	14.9	LIGHT
291	SIGN	713.3	701.5	11.8	LIGHT
292	GROUND	707.3	704.1	3.2	N/A
293	GROUND	711.1	707.1	4.0	N/A
305	TOWER	756.7	707.4	49.3	LIGHT
307	GROUND	710.1	707.7	2.4	N/A
308	WINDCONE	726.5	707.9	18.6	LIGHT
309	GROUND	711.1	708.0	3.1	N/A
310	GROUND	711.2	708.7	2.5	N/A
312	MISCELLANEOUS	712.4	708.7	3.7	LIGHT
314	MISCELLANEOUS	712.2	708.8	3.4	LIGHT
315	WALL	713.5	708.8	4.7	LIGHT
316	POLE	722.6	708.7	13.9	LIGHT

* RUNWAY END SITING SURFACE (#7)
FROM TABLE 2A–1 IN AC 150/5300–13 CHG 17 APPROACH END OF RUNWAYS EXPECTED TO ACCOMMODATE INSTRUMENT APPROACHES HAVING VISIBILITY MINIMUMS <3/4 STATUTE MILE OR PRECISION APPROACH (ILS, GLS, OR MLS), DAY OR NIGHT.

TRANSITIONAL SURFACE: RUNWAY 14-32					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
230	TREES	748.7	756.9	−8.2	REMOVE
234	TREES	743.4	734.8	8.6	REMOVE
240	TREES	753.3	752.9	0.4	REMOVE
246	TREES	741.3	735.1	6.2	REMOVE
253	BUILDING	728.1	726.6	1.5	LIGHT
262	BUILDING	746.9	741.3	5.6	LIGHT
263	TREES	732.7	720.4	12.3	REMOVE
273	TREES	778.9	756.3	22.6	REMOVE
277	TREES	800.0	799.9	0.1	REMOVE
278	ROAD	713.1	709.9	3.2	LIGHT
279	UTILITY POLE	735.9	718.5	17.4	LIGHT
280	UTILITY POLE	733.9	729.5	4.4	LIGHT
281	TREES	745.6	753.4	−7.8	REMOVE
282	SIGN	708.9	708.2	0.7	LIGHT
283	UTILITY POLE	736.1	735.1	1.0	LIGHT
284	UTILITY POLE	735.3	725.2	10.1	LIGHT
289	HYDRANT	709.3	705.6	3.7	LIGHT
290	TREES	776.6	731.9	44.7	REMOVE
301	POST	714.3	711.6	2.7	LIGHT
302	BUILDING	768.4	764.7	3.7	LIGHT
303	BUILDING	748.4	735.9	12.5	LIGHT
304	TOWER	749.7	748.8	0.9	LIGHT
306	GROUND	710.5	708.4	2.1	LIGHT
311	WALL	714.7	712.6	2.1	LIGHT
313	LIGHT POLE	714.6	713.5	1.1	LIGHT
320	POLE	755.9	748.7	7.2	LIGHT
322	ROAD	725.9	719.8	6.1	LIGHT
323	POLE	747.1	732.3	14.8	LIGHT
328	BUILDING	740.5	739.7	0.8	LIGHT
337	TREES	718.4	724.2	−5.8	REMOVE
339	BUILDING	740.2	723.2	17.0	LIGHT
340	POLE	743.4	737.6	5.8	LIGHT
353	POLE	750.4	738.1	12.3	LIGHT
363	POLE	747.3	732.1	15.2	LIGHT
366	TREES	780.9	743.7	37.2	REMOVE
367	POLE	766.4	747.0	19.4	LIGHT
372	TREES	782.6	776.5	6.1	REMOVE
375	TREES	779.4	770.4	9.0	REMOVE
376	TREES	771.3	761.2	10.1	REMOVE
387	TREES	790.5	756.9	33.6	REMOVE

LEGEND		
DESCRIPTION	EXISTING	PROPOSED
RUNWAY PROTECTION ZONE (RPZ)		
AIRPORT PAVEMENT	N/A	
GROUND VEHICLE PAVEMENT	N/A	
AIRPORT BUILDINGS		
AIRPORT PROPERTY LINE		N/A
AIRPORT EASEMENT		
FAR PART 77 OBSTRUCTIONS	XX	N/A
FAR PART 77 VEGETATION OBSTRUCTIONS		N/A
FAR PART 77 TERRAIN OBSTRUCTIONS		N/A
RUNWAY END SITING SURFACE (#7) OBSTRUCTIONS	XX	N/A
RUNWAY END SITING SURFACE (#7) VEGETATION OBSTRUCTIONS		N/A

NOTES:

1. TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
2. ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER PART 77 (15' FOR ROAD, 17' FOR INTERSTATE).
3. COMPOSITE GROUND ELEVATION PROFILE LIMITED TO APPROACH SURFACE.

APPROACH SURFACE: RUNWAY 32					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
317	POLE	720.3	710.6	9.7	LIGHT
318	LIGHT POLE	717.9	710.7	7.2	LIGHT
319	BUILDING	720.7	711.4	9.3	LIGHT
321	ROAD	713.5	712.6	0.9	LIGHT
324	LIGHT POLE	722.0	714.7	7.3	LIGHT
325	POLE	720.7	715.5	5.2	LIGHT
326	TREES	706.7	715.5	−8.8	REMOVE
327	ROAD	724.1	715.6	8.5	LIGHT
329	TRAFFIC SIGNAL	730.6	715.9	14.7	LIGHT
330	SIGN	725.9	717.1	8.8	LIGHT
331	ROAD	720.2	717.9	2.3	LIGHT
332	VEGETATION	716.3	717.8	−1.5	REMOVE
333	POLE	742.4	718.3	24.1	LIGHT
334	TRAFFIC SIGNAL	741.2	718.5	22.7	LIGHT
335	POLE	731.0	719.2	11.8	LIGHT
336	POLE	744.1	719.8	24.3	LIGHT
338	TREES	717.7	720.7	−3.0	REMOVE
341	POLE	735.6	722.2	13.4	LIGHT
342	POLE	742.9	722.7	20.2	LIGHT
343	TRAFFIC SIGNAL	741.3	723.5	17.8	LIGHT
344	POLE	727.5	723.8	3.7	LIGHT
345	POLE	745.8	724.0	21.8	LIGHT
347	TREES	732.4	724.9	7.5	REMOVE
348	POLE	747.9	725.0	22.9	LIGHT
349	POLE	729.7	725.5	4.2	LIGHT
350	POLE	747.6	725.9	21.7	LIGHT
351	POLE	730.4	726.7	3.7	LIGHT
352	TREES	742.0	726.7	15.3	REMOVE
354	LIGHT SUPPORT	738.5	727.3	11.2	LIGHT
355	POLE	739.3	727.5	11.8	LIGHT
357	TREES	734.9	728.6	6.3	REMOVE
358	POLE	733.1	728.7	4.4	LIGHT
359	TREES	747.5	729.4	18.1	REMOVE
360	TREES	728.9	729.9	−1.0	REMOVE
361	CATENARY	747.5	730.0	17.5	LIGHT
362	LIGHT SUPPORT	738.7	730.7	8.0	LIGHT
364	POLE	758.2	731.8	26.4	LIGHT
365	TREES	727.4	731.9	−4.5	REMOVE
368	TREES	754.7	734.0	20.7	REMOVE
369	TREES	754.3	735.6	18.7	REMOVE
370	TREES	776.2	736.2	40.0	REMOVE
371	TREES	731.5	737.3	−5.8	REMOVE
373	TREES	752.6	737.9	14.7	REMOVE
374	TREES	736.7	738.3	−1.6	REMOVE
377	TREES	765.9	742.0	23.9	REMOVE
378	TREES	770.3	742.1	28.2	REMOVE
380	TREES	745.2	743.8	1.4	REMOVE
381	TREES	749.6	745.4	4.2	REMOVE
383	TREES	769.9	745.6	24.3	REMOVE
384	TREES	762.3	745.6	16.7	REMOVE
385	TREES	754.0	746.0	8.0	REMOVE
386	TREES	757.9	746.6	11.3	REMOVE
388	TREES	750.7	747.7	3.0	REMOVE
389	TREES	739.2	748.2	−9.0	REMOVE
390	TREES	765.5	748.7	16.8	REMOVE
392	TREES	765.5	751.3	14.2	REMOVE
394	TREES	760.0	751.5	8.5	REMOVE
395	TREES	743.8	753.6	−9.8	REMOVE
397	TREES	753.9	753.7	0.2	REMOVE
398	TREES	764.2	754.7	9.5	REMOVE
400	TREES	756.1	758.3	−2.2	REMOVE
402	TREES	751.2	759.2	−8.0	REMOVE
403	TREES	787.1	760.4	26.7	REMOVE
404	TREES	753.7	761.3	−7.6	REMOVE
405	TREES	759.4	761.6	−2.2	REMOVE
406	TREES	760.4	763.2	−2.8	REMOVE
408	TREES	764.5	764.7	−0.2	REMOVE
409	TREES	765.9	765.5	0.4	REMOVE
410	TREES	769.9	766.3	3.6	REMOVE
412	TREES	774.1	769.2	4.9	REMOVE
414	TREES	772.9	769.7	3.2	REMOVE
415	TREES	771.8	771.3	0.5	REMOVE
419	TREES	780.3	788.1	−7.8	REMOVE

EXISTING RUNWAY END SITING SURFACE #7: RUNWAY 32					
OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
370	TREES	776.2	769.5	6.7	REMOVE
378	TREES	770.3	778.2	−7.9	REMOVE

BUFFALO NIAGARA INTERNATIONAL AIRPORT

McFarland Johnson
49 COURT STREET, METROCENTER, PO BOX 1980
BINGHAMTON, NEW YORK 13902 www.mjinc.com

NFTA
Niagara Frontier Transportation Authority
Serving Buffalo Niagara

BUFFALO NIAGARA INTERNATIONAL AIRPORT
–
MASTER PLAN UPDATE

MARK	DATE	DESCRIPTION

ISSUE:

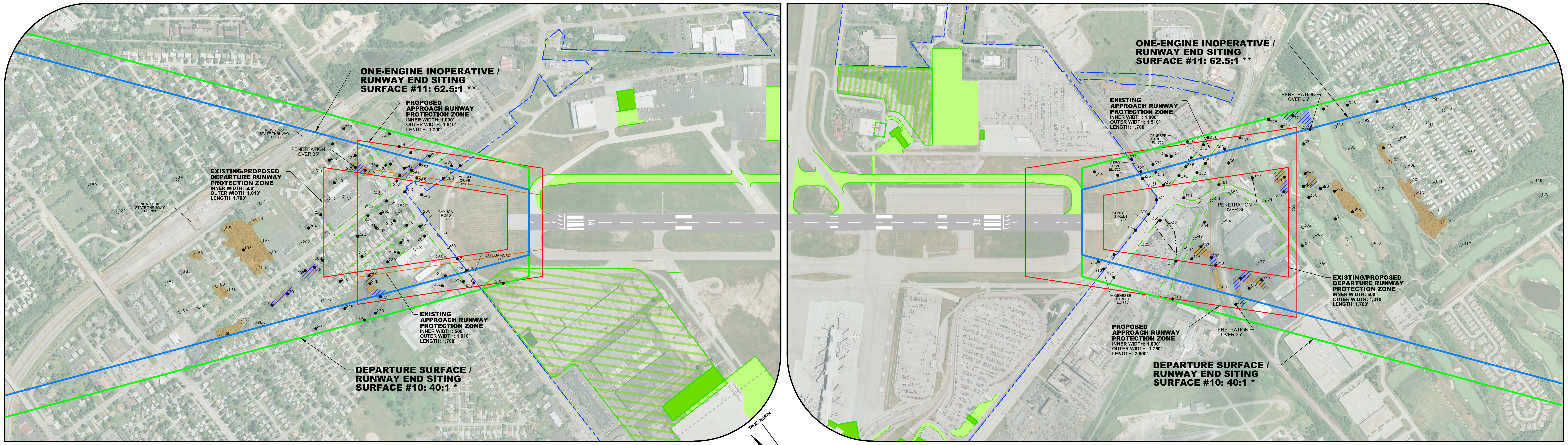
NFTA PROJECT NO:	30BG0916
DESIGNER PROJECT NO:	17493.00
CAD DWG FILE:	CT–108.DWG
DRAWN BY:	RGT
CHECKED BY:	JEP
SCALE:	AS NOTED
COPYRIGHT:	

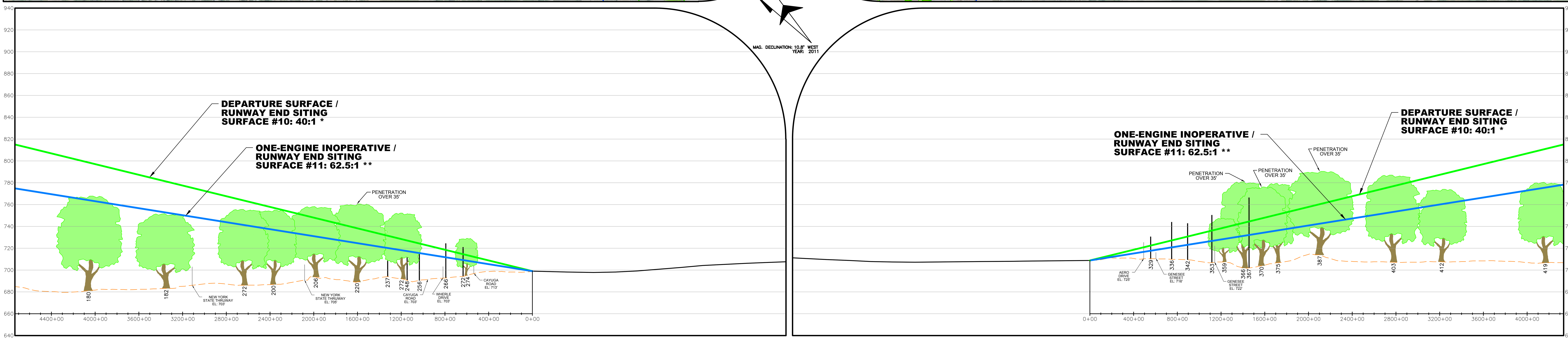
SHEET TITLE

INNER APPROACH SURFACE AND RPZ CONTROL PLAN RUNWAY 14–32

DRAWING# CT110

SHEET# 10 OF 14





RUNWAY END SITING SURFACE #10: RUNWAY 32

OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
193	TREES	755.7	763.6	−7.9	REMOVE
200	TREES	755.0	757.1	−2.1	REMOVE
201	TREES	754.1	753.6	0.5	REMOVE
203	TREES	758.0	749.7	8.3	REMOVE
204	TREES	747.0	748.9	−1.9	REMOVE
206	TREES	758.2	747.7	10.5	REMOVE
207	TREES	752.4	747.2	5.2	REMOVE
208	TREES	737.6	746.1	−8.5	REMOVE
209	TREES	753.0	745.7	7.3	REMOVE
213	TREES	737.8	744.2	−6.4	REMOVE
214	TREES	758.1	743.4	14.7	REMOVE
215	TREES	745.5	743.0	2.5	REMOVE
216	TREES	736.6	741.7	−5.1	REMOVE
217	TREES	738.8	740.9	−2.1	REMOVE
218	TREES	734.4	740.7	−6.3	REMOVE
220	TREES	760.6	738.3	22.3	REMOVE
221	TREES	728.4	738.4	−10.0	REMOVE
222	TREES	737.5	737.8	−0.3	REMOVE
223	TREES	738.6	736.8	1.8	REMOVE
224	TREES	754.6	736.3	18.3	REMOVE
225	TREES	746.6	736.1	10.5	REMOVE
227	TREES	726.8	735.5	−8.7	REMOVE
228	TREES	746.6	735.2	11.4	REMOVE
229	TREES	744.2	735.0	9.2	REMOVE
230	TREES	748.7	733.8	14.9	REMOVE
231	TREES	751.0	733.6	17.4	REMOVE
233	TREES	745.1	733.4	11.7	REMOVE
234	TREES	743.4	732.7	10.7	REMOVE
235	TREES	745.5	732.6	12.9	REMOVE
237	POLE	736.6	731.5	5.1	LIGHT
238	TREES	741.1	731.3	9.8	REMOVE
239	TREES	741.8	731.0	10.8	REMOVE
240	TREES	753.3	730.6	22.7	REMOVE
241	TREES	737.5	730.4	7.1	REMOVE
242	TREES	740.2	729.6	10.6	REMOVE
243	POLE	733.0	729.0	4.0	LIGHT
245	TREES	739.5	728.6	10.9	REMOVE
246	TREES	741.3	728.4	12.9	REMOVE
247	TREES	737.1	728.2	8.9	REMOVE
248	TREES	752.3	728.1	24.2	REMOVE
249	BUILDING	728.1	727.3	0.8	LIGHT
250	POLE	733.4	727.2	6.2	LIGHT
251	TREES	732.9	726.7	6.2	REMOVE
253	BUILDING	728.1	725.8	2.3	LIGHT
254	TREES	744.3	725.6	18.7	REMOVE
256	UTILITY POLE	727.0	724.4	2.6	LIGHT
257	TREES	720.3	723.8	−3.5	REMOVE
258	TREES	746.2	723.7	22.5	REMOVE
259	UTILITY POLE	723.9	723.3	0.6	LIGHT
261	POLE	724.5	722.7	1.8	LIGHT
263	TREES	732.7	721.6	11.1	REMOVE
265	BUILDING	719.5	718.6	0.9	LIGHT
266	UTILITY POLE	724.5	718.5	6.0	LIGHT
267	TREES	728.4	718.0	10.4	REMOVE
270	TREES	707.0	716.6	−9.6	REMOVE
271	LIGHT POLE	717.1	715.3	1.8	LIGHT
272	UTILITY POLE	721.0	714.6	6.4	LIGHT
274	TREES	729.1	713.9	15.2	REMOVE
276	UTILITY POLE	715.4	713.3	2.1	LIGHT
278	ROAD	713.1	711.6	1.5	LIGHT
282	SIGN	708.9	704.8	4.1	LIGHT

RUNWAY END SITING SURFACE #11: RUNWAY 32

OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
180	TREES	767.9	764.0	3.9	REMOVE
181	TREES	751.9	759.8	−7.9	REMOVE
182	TREES	751.6	752.7	−1.1	REMOVE
183	TREES	743.1	751.0	−7.9	REMOVE
184	TREES	741.1	750.5	−9.4	REMOVE
185	TREES	750.6	750.2	0.4	REMOVE
186	TREES	750.2	748.3	1.9	REMOVE
187	TREES	740.7	747.7	−7.0	REMOVE
188	TREES	735.3	745.1	−9.8	REMOVE
189	TREES	746.0	744.5	1.5	REMOVE
190	TREES	735.6	744.0	−8.4	REMOVE
191	TREES	742.0	743.6	−1.6	REMOVE
192	TREES	737.7	741.5	−3.8	REMOVE
193	TREES	755.7	741.2	14.5	REMOVE
194	TREES	739.1	739.5	−0.4	REMOVE
195	TREES	744.7	739.1	5.6	REMOVE
196	TREES	734.4	738.6	−4.2	REMOVE
197	TREES	732.3	738.5	−6.2	REMOVE
198	TREES	733.6	738.2	−4.6	REMOVE
199	TREES	737.0	737.2	−0.2	REMOVE
200	TREES	755.0	736.9	18.1	REMOVE
201	TREES	754.1	734.7	19.4	REMOVE
202	TREES	738.6	732.6	6.0	REMOVE
203	TREES	758.0	732.1	25.9	REMOVE
204	TREES	747.0	731.6	15.4	REMOVE
205	TREES	724.8	730.9	−6.1	REMOVE
206	TREES	758.2	730.8	27.4	REMOVE
208	TREES	737.6	729.8	7.8	REMOVE
209	TREES	753.0	729.5	23.5	REMOVE
210	TREES	730.1	729.5	0.6	REMOVE
211	TREES	726.5	728.9	−2.4	REMOVE
212	TREES	731.3	728.8	2.5	REMOVE
213	TREES	737.8	728.5	9.3	REMOVE
214	TREES	758.1	728.0	30.1	REMOVE
215	TREES	745.5	727.7	17.8	REMOVE
216	TREES	736.6	726.9	9.7	REMOVE
219	BUILDING	726.4	725.6	0.8	LIGHT
220	TREES	760.6	724.7	35.9	REMOVE
221	TREES	728.4	724.7	3.7	REMOVE
222	TREES	737.5	724.4	13.1	REMOVE
223	TREES	738.6	723.7	14.9	REMOVE
225	TREES	746.6	723.2	23.4	REMOVE
226	POLE	724.6	723.0	1.6	LIGHT
227	TREES	726.8	722.9	3.9	REMOVE
228	TREES	746.6	722.6	24.0	REMOVE
229	TREES	744.2	722.5	21.7	REMOVE
231	TREES	751.0	721.6	29.4	REMOVE
232	POLE	727.6	721.5	6.1	LIGHT
233	TREES	745.1	721.5	23.6	REMOVE
235	TREES	745.5	721.0	24.5	REMOVE
236	POLE	727.6	720.9	6.7	LIGHT
237	POLE	736.6	720.3	16.3	LIGHT
238	TREES	741.1	720.1	21.0	REMOVE
239	TREES	741.8	719.9	21.9	REMOVE
241	TREES	737.5	719.5	18.0	REMOVE
242	TREES	740.2	719.0	21.2	REMOVE
243	POLE	733.0	718.6	14.4	LIGHT
244	POLE	723.5	718.6	4.9	LIGHT
245	TREES	739.5	718.3	21.2	REMOVE
247	TREES	737.1	718.1	19.0	REMOVE
248	TREES	752.3	718.0	34.3	REMOVE
249	BUILDING	728.1	717.5	10.6	LIGHT
250	POLE	733.4	717.4	16.0	LIGHT
251	TREES	732.9	717.1	15.8	REMOVE
252	POLE	722.7	717.0	5.7	LIGHT
254	TREES	744.3	716.4	27.9	REMOVE
255	BUILDING	720.5	715.9	4.6	LIGHT
256	UTILITY POLE	727.0	715.6	11.4	LIGHT
257	TREES	720.3	715.2	5.1	REMOVE
258	TREES	746.2	715.1	31.1	REMOVE
259	UTILITY POLE	723.9	714.9	9.0	LIGHT
260	UTILITY POLE	716.5	714.8	1.7	LIGHT
261	POLE	724.5	714.5	10.0	LIGHT
264	UTILITY POLE	717.0	712.3	4.7	LIGHT
266	UTILITY POLE	724.5	711.7	12.8	LIGHT
267	TREES	728.4	711.4	17.0	REMOVE
268	TREES	706.1	711.4	−5.3	REMOVE
269	UTILITY POLE	711.9	710.9	1.0	LIGHT
271	LIGHT POLE	717.1	709.6	7.5	LIGHT
275	ROAD	709.0	708.7	0.3	LIGHT
276	UTILITY POLE	715.4	708.3	7.1	LIGHT

* RUNWAY END SITING SURFACE (#10)
FROM TABLE 2A-1 IN AC 150/5300-13 CHG 17 DEPARTURE RUNWAY ENDS FOR ALL INSTRUMENT OPERATIONS.

** RUNWAY END SITING SURFACE (#11)
FROM TABLE 2A-1 IN AC 150/5300-13 CHG 17 DEPARTURE RUNWAY ENDS SUPPORTING AIR CARRIER OPERATIONS.

LEGEND

DESCRIPTION	EXISTING	PROPOSED
RUNWAY PROTECTION ZONE (RPZ)		
AIRPORT PAVEMENT	N/A	
GROUND VEHICLE PAVEMENT	N/A	
AIRPORT BUILDINGS		
AIRPORT PROPERTY LINE		N/A
AIRPORT EASEMENT		
RUNWAY END SITING SURFACE (#10) OBSTRUCTIONS	XX	N/A
RUNWAY END SITING SURFACE (#10) VEGETATION OBSTRUCTIONS		N/A
RUNWAY END SITING SURFACE (#11) OBSTRUCTIONS	XX	N/A
RUNWAY END SITING SURFACE (#11) VEGETATION OBSTRUCTIONS		N/A

SCALE
1" = 400' HORIZONTAL
1" = 40' VERTICAL
0 400 800
FEET

NOTES:

1. TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
2. ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER PART 77 (15' FOR ROAD, 17' FOR INTERSTATE).
3. COMPOSITE GROUND ELEVATION PROFILE LIMITED TO APPROACH SURFACE.
4. THE ONE-ENGINE INOPERATIVE (OEI) / RUNWAY END SITING SURFACE #11 IS ADVISORY ONLY AND TAKES EFFECT JANUARY 1, 2012.
5. RUNWAY END DEPARTURE SURFACE STARTS AT OPPOSING END OF RUNWAY.

RUNWAY END SITING SURFACE #10: RUNWAY 14

OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
314	MISCELLANEOUS	712.2	711.5	0.7	LIGHT
315	WALL	713.5	712.5	1.0	LIGHT
316	POLE	722.6	713.5	9.1	LIGHT
317	POLE	720.3	715.9	4.4	LIGHT
318	LIGHT POLE	717.9	716.0	1.9	LIGHT
319	BUILDING	720.7	716.8	3.9	LIGHT
322	ROAD	725.9	720.0	5.9	LIGHT
324	LIGHT POLE	722.0	720.9	1.1	LIGHT
327	ROAD	724.1	722.1	2.0	LIGHT
329	TRAFFIC SIGNAL	730.6	722.4	8.2	LIGHT
330	SIGN	725.9	723.8	2.1	LIGHT
332	VEGETATION	716.3	724.8	−8.5	REMOVE
333	POLE	742.4	725.4	17.0	LIGHT
334	TRAFFIC SIGNAL	741.2	725.6	15.6	LIGHT
335	POLE	731.0	726.5	4.5	LIGHT
336	POLE	744.1	727.2	16.9	LIGHT
337	TREES	718.4	727.9	−9.5	REMOVE
339	BUILDING	740.2	728.9	11.3	LIGHT
340	POLE	743.4	729.2	14.2	LIGHT
341	POLE	735.6	730.1	5.5	LIGHT
342	POLE	742.9	730.7	12.2	LIGHT
343	TRAFFIC SIGNAL	741.3	731.7	9.6	LIGHT
345	POLE	745.8	732.3	13.5	LIGHT
346	TREES	727.5	732.5	−5.0	REMOVE
347	TREES	732.4	733.5	−1.1	REMOVE
348	POLE	747.9	733.6	14.3	LIGHT
350	POLE	747.6	734.7	12.9	LIGHT
352	TREES	742.0	735.7	6.3	REMOVE
353	POLE	750.4	736.2	14.2	LIGHT
354	LIGHT SUPPORT	738.5	736.4	2.1	LIGHT
355	POLE	739.3	736.6	2.7	LIGHT
356	TREES	734.7	737.2	−2.5	REMOVE
357	TREES	734.9	738.0	−3.1	REMOVE
359	TREES	747.5	739.0	8.5	REMOVE
361	CATENARY	747.5	739.7	7.8	LIGHT
363	POLE	747.3	741.0	6.3	LIGHT
364	POLE	758.2	741.9	16.3	LIGHT
366	TREES	780.9	743.5	37.4	REMOVE
367	POLE	766.4	744.5	21.9	LIGHT
368	TREES	754.7	744.6	10.1	REMOVE
369	TREES	754.3	746.5	7.8	REMOVE
370	TREES	776.2	747.2	29.0	REMOVE
373	TREES	752.6	749.3	3.3	REMOVE
375	TREES	779.4	751.0	28.4	REMOVE
376	TREES	771.3	753.9	17.4	REMOVE
377	TREES	765.9	754.4	11.5	REMOVE
378	TREES	770.3	754.5	15.8	REMOVE
379	TREES	764.5	756.4	8.1	REMOVE
381	TREES	749.6	758.6	−9.0	REMOVE
383	TREES	769.9	758.8	11.1	REMOVE
384	TREES	762.3	758.8	3.5	REMOVE
385	TREES	754.0	759.2	−5.2	REMOVE
386	TREES	757.9	760.0	−2.1	REMOVE
387	TREES	790.5	760.3	30.2	REMOVE
390	TREES	765.5	762.7	2.8	REMOVE
391	TREES	769.0	763.3	5.7	REMOVE
392	TREES	765.5	765.8	−0.3	REMOVE
394	TREES	760.0	766.0	−6.0	REMOVE
396	TREES	771.7	768.8	2.9	REMOVE
398	TREES	764.2	769.9	−5.7	REMOVE
401	TREES	767.8	775.4	−7.6	REMOVE
403	TREES	787.1	776.9	10.2	REMOVE

RUNWAY END SITING SURFACE #11: RUNWAY 14

OBSTRUCTION NUMBER	OBSTRUCTION TYPE	ELEV. OF OBJECT	ELEV. OF SURFACE	PENETRATION	ACTION
318	LIGHT POLE	717.9	713.5	4.4	LIGHT
324	LIGHT POLE	722.0	716.7	5.3	LIGHT
325	POLE	720.7	717.3	3.4	LIGHT
329	TRAFFIC SIGNAL	730.6	717.7	12.9	LIGHT
330	SIGN	725.9	718.6	7.3	LIGHT
331	ROAD	720.2	719.3	0.9	LIGHT
333	POLE	742.4	719.6	22.8	LIGHT
334	TRAFFIC SIGNAL	741.2	719.8	21.4	LIGHT
335	POLE	731.0	720.3	10.7	LIGHT
336	POLE	744.1	720.8	23.3	LIGHT
338	TREES	717.7	721.5	−3.8	REMOVE
341	POLE	735.6	722.7	12.9	LIGHT
342	POLE	742.9	723.1	19.8	LIGHT
343	TRAFFIC SIGNAL	741.3	723.7	17.6	LIGHT
344	POLE	727.5	724.0	3.5	LIGHT
345	POLE	745.8	724.1	21.7	LIGHT
348	POLE	747.9	725.0	22.9	LIGHT
349	POLE	729.7	725.3	4.4	LIGHT
350	POLE	747.6	725.7	21.9	LIGHT
351	POLE	730.4	726.3	4.1	LIGHT
352	TREES	742.0	726.4	15.6	REMOVE
354	LIGHT SUPPORT	738.5	726.8	11.7	LIGHT
355	POLE	739.3	726.9	12.4	LIGHT
357	TREES	734.9	727.9	7.0	REMOVE
358	POLE	733.1	727.9	5.2	LIGHT
359	TREES	747.5	728.5	19.0	REMOVE
360	TREES	728.9	728.9	0.0	REMOVE
361	CATENARY	747.5	729.0	18.5	LIGHT
362	LIGHT SUPPORT	738.7	729.5	9.2	LIGHT
364	POLE	758.2	730.4	27.8	LIGHT
365	TREES	727.4	730.5	−3.1	REMOVE
368	TREES	754.7	732.2	22.5	REMOVE
369	TREES	754.3	733.4	20.9	REMOVE
370	TREES	776.2	733.9	42.3	REMOVE
371	TREES	731.5	734.8	−3.3	REMOVE
373	TREES	752.6	735.3	17.3	REMOVE
374	TREES	736.7	735.6	1.1	REMOVE
377	TREES	765.9	738.6	27.3	REMOVE
378	TREES	770.3	738.6	31.7	REMOVE
380	TREES	745.2	740.0	5.2	REMOVE
381	TREES	749.6	741.3	8.3	REMOVE
382	TREES	731.7	741.3	−9.6	REMOVE
383	TREES	769.9	741.5	28.4	REMOVE
384	TREES	762.3	741.4	20.9	REMOVE
385	TREES	754.0	741.7	12.3	REMOVE
386	TREES	757.9	742.2	15.7	REMOVE
387	TREES	790.5	742.4	48.1	REMOVE
388	TREES	750.7	743.1	7.6	REMOVE
389	TREES	739.2	743.5	−4.3	REMOVE
390	TREES	765.5	744.0	21.5	REMOVE
392	TREES	765.5	746.0	19.5	REMOVE
393	TREES	746.3	746.1	0.2	REMOVE
394	TREES	760.0	746.2	13.8	REMOVE
395	TREES	743.8	747.9	−4.1	REMOVE
397	TREES	753.9	747.9	6.0	REMOVE
398	TREES	764.2	748.7	15.5	REMOVE
399	TREES	753.6	749.9	3.7	REMOVE
400	TREES	756.1	751.6	4.5	REMOVE
402	TREES	751.2	752.3	−1.1	REMOVE
403	TREES	787.1	753.3	33.8	REMOVE
404	TREES	753.7	754.0	−0.3	REMOVE
405	TREES	759.4	754.2	5.2	REMOVE
406	TREES	760.4	755.6	4.8	REMOVE
407	TREES	752.1	756.4	−4.3	REMOVE
408	TREES	764.5	756.7	7.8	REMOVE
409	TREES	765.9	757.4	8.5	REMOVE
410	TREES	769.9	758.0	11.9	REMOVE
411	TREES	752.3	759.8	−7.5	REMOVE
412	TREES	774.1	760.3	13.8	REMOVE
413	TREES	764.2	760.7	3.5	REMOVE
414	TREES	772.9	760.7	12.2	REMOVE
415	TREES	771.8	762.0	9.8	REMOVE
416	TREES	761.8	762.1	−0.3	REMOVE
417	TREES	757.8	764.9	−7.1	REMOVE
418	TREES	756.2	765.5	−9.3	REMOVE
419	TREES	780.3	775.4	4.9	REMOVE
420	TREES	778.6	776.3	2.3	REMOVE

BUFFALO NIAGARA INTERNATIONAL AIRPORT

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Niagara Frontier Transportation Authority
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BUFFALO NIAGARA INTERNATIONAL AIRPORT
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SUSTAINABLE MASTER PLAN UPDATE

MARK	DATE	DESCRIPTION

ISSUE:	
NFTA PROJECT NO:	30BG0916
DESIGNER PROJECT NO:	17493.00
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SCALE:	AS NOTED
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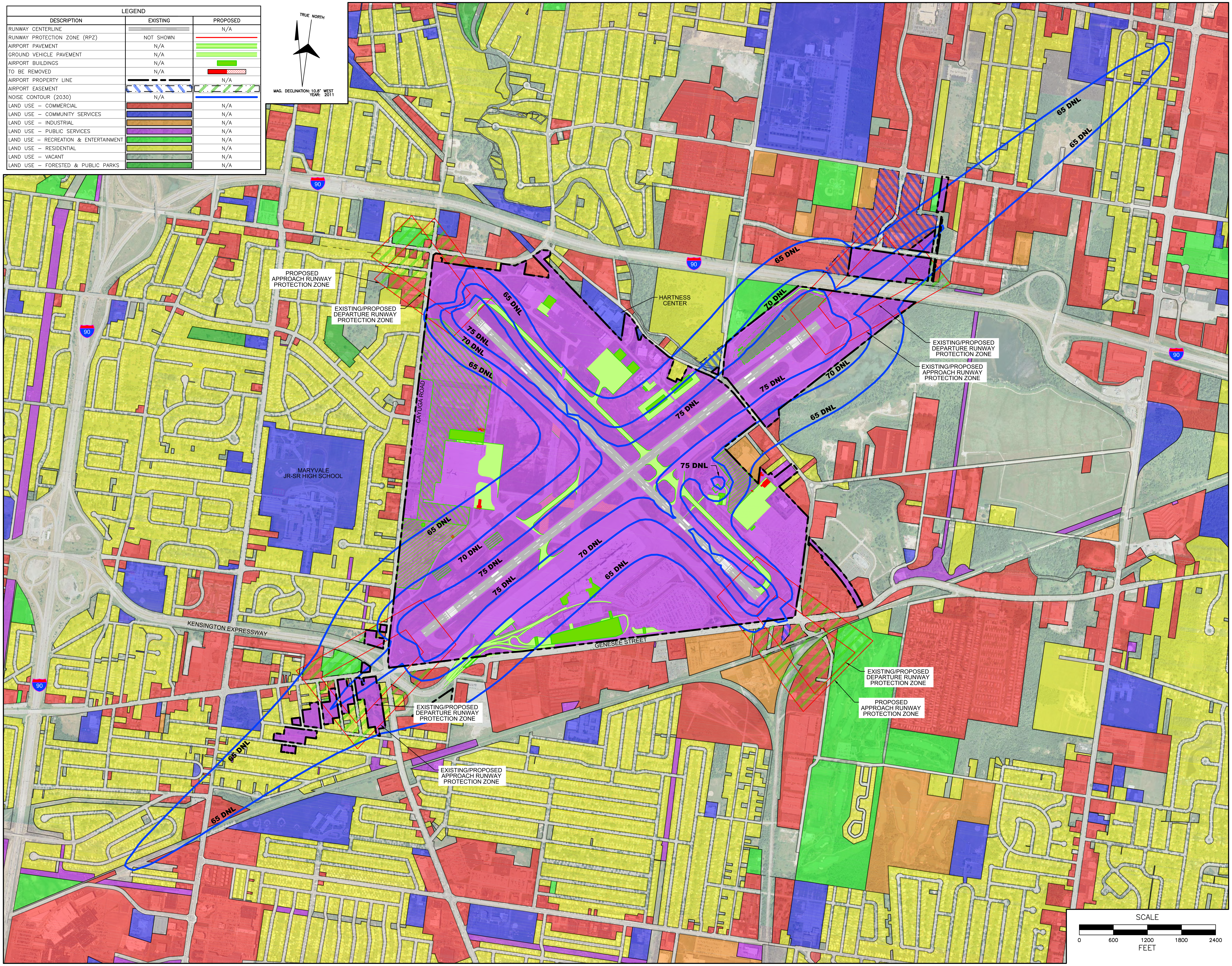
SHEET TITLE
DEPARTURE SURFACE CONTROL PLAN RUNWAY 14–32

DRAWING# CT111

SHEET# 11 OF 14

LEGEND		
DESCRIPTION	EXISTING	PROPOSED
RUNWAY CENTERLINE		N/A
RUNWAY PROTECTION ZONE (RPZ)	NOT SHOWN	
AIRPORT PAVEMENT	N/A	
GROUND VEHICLE PAVEMENT	N/A	
AIRPORT BUILDINGS	N/A	
TO BE REMOVED	N/A	
AIRPORT PROPERTY LINE		N/A
AIRPORT EASEMENT		
NOISE CONTOUR (2030)	N/A	
LAND USE – COMMERCIAL		N/A
LAND USE – COMMUNITY SERVICES		N/A
LAND USE – INDUSTRIAL		N/A
LAND USE – PUBLIC SERVICES		N/A
LAND USE – RECREATION & ENTERTAINMENT		N/A
LAND USE – RESIDENTIAL		N/A
LAND USE – VACANT		N/A
LAND USE – FORESTED & PUBLIC PARKS		N/A



BUFFALO NIAGARA INTERNATIONAL AIRPORT

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SUSTAINABLE MASTER PLAN UPDATE

MARK	DATE	DESCRIPTION

ISSUE:	
NFTA PROJECT NO:	30BG0916
DESIGNER PROJECT NO:	17493.00
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SHEET TITLE

AIRPORT LAND USE MAP

DRAWING#
CT112

SHEET# 12 OF 14

LEGEND		
DESCRIPTION	EXISTING	PROPOSED
RUNWAY CENTERLINE		N/A
RUNWAY SAFETY AREA (RSA)		N/A
RUNWAY OBJECT FREE AREA (ROFA)		N/A
RUNWAY PROTECTION ZONE (RPZ)	NOT SHOWN	
AIRPORT PAVEMENT		
GROUND VEHICLE PAVEMENT		
AIRPORT BUILDINGS		
MISCELLANEOUS BUILDINGS		N/A
TO BE REMOVED	N/A	
AIRPORT PROPERTY LINE		N/A
AIRPORT PARCEL BOUNDARY		N/A
OFF-AIRPORT PARCEL BOUNDARY		N/A
AIRPORT EASEMENT		
RIVERS / WATER BODIES		N/A

EXISTING AIRPORT PROPERTY - FEE SIMPLE

REFERENCE NUMBER	TAX PARCEL NUMBER	GRANTOR	ACREAGE	ACQUISITION DATE	AIP NUMBER
1	92.01-1-3.11	CITY OF BUFFALO	586.2	1957	
2	81.03-1-1	HOREY	4.2	1968	9-30-009-14
3	81.03-1-2	BONA	2.8	1968	9-30-009-14
4	92.01-1-2.2	NYSDOT***	4.6	1980	
5	92.01-1-2.1	BUFFALO TRAP AND FIELD CLUB, INC.	38.7	1979	
6	92.01-1-3.11	CITY OF BUFFALO	0.4	1957	
7	81.04-1-3	CORNELL AERONAUTICAL LABORATORY, INC.	4.2	1967	
8	81.04-1-2	CITY OF BUFFALO	7.6	1957	
9	81.03-3-10	CITY OF BUFFALO	0.5	1957	
10	81.03-3-9	CITY OF BUFFALO	0.5	1957	
11	81.03-3-11.1	BAKER	12.7	1964	
12	81.03-4-3	FRIEDRICH	1.3	1969	
13	92.13-1-3	NYSDOT***	1.7	2001	
14	92.13-1-4	URBANSKI	0.6	1968	
16	92.13-3-1.1	NYSDOT***	7.3	1966	
17	92.13-2-1.1	KLEIN	2.4	1966	
18	91.16-3-7.1	GIMTROWSKY	2.9	1966	
19	91.16-4-10.1	STEMPNIAK	2.5	1967	
20	91.16-5-14	DEUTCH	0.4	1965	
21	91.16-7-8.1	DOVE	3.4	1967	
22	91.20-2-20	FRANK	0.7	1967	
23	81.04-1-2	CITY OF BUFFALO	92.6	1957	
24	81.02-3-7.11	HENSELING	20.0	1965	
25	92.02-1-15	CONSOLIDATED RAIL CORPORATION	5.6	1984	3-36-0009-01-82
26	81.03-3-12.2		9.2	1984	3-36-0009-01-82
27	81.14-1-1		0.4	1984	3-36-0009-01-82
28	81.13-2-3.2		0.6	1984	3-36-0009-01-82
29	92.02-2-14.2	CONSOLIDATED RAIL CORPORATION	3.1	1984	3-36-0009-01-82
30	81.03-3-5	INGERSOLL RAND	5.1	1984	3-36-0009-02-83
31	92.02-1-16.2	WESTINGHOUSE CORPORATION	10.6	1984	3-36-0009-04-84
32	92.01-1-1	SCHECHTMAN, SCHRUTT, NORRY, RONNEN, GREENFIELD, GOLDMAN, FAITELSON, CHAPIN, FAGIN	20.8	1986	3-36-0009-10-86
33	81.14-1-2		0.2	1986	3-36-0009-10-86
34	81.13-2-8		0.8	1986	3-36-0009-10-86
35	81.03-3-3	CALANDRA	4.3	1998	PIN 5913.99*
36	92.02-1-14.1	AIRPORT PARK ASSOC.	7.0	1988	3-36-0009-13-87
37	92.01-1-3.11	NYSDOT***	2.5	1905	3-36-0009-19-91
38	92.02-1-8.111	O'TOOLS REST, INC.	1.4	1993	SEGREGATED REV.**
39	92.02-1-16.1	BUFFALO AIRPORT CENTER ASSOCIATES	117.9	1999	3-36-0009-39-99
				1999	3-36-0009-42-99
				1999	3-36-0009-43-99
				1999	3-36-0009-44-99
				1999	PIN 5913.04*
				2000	3-36-0009-46-00
40	92.13-2-22	HORA	0.1	2001	3-36-0009-50-01
41	92.13-2-21		0.2	2001	3-36-0009-50-01
43	92.09-6-14	GREINER, LASKOWSKI, GEORGE	0.2	2006	3-36-0009-62-06
44	92.09-6-15		0.2	2006	3-36-0009-62-06
45	81.03-4-5.11	WETZEL	0.5	2012	3-36-0009-80-12
46	92.04-1-12	NYSDOT****	3.6	2013	
		TOTAL	992.5		

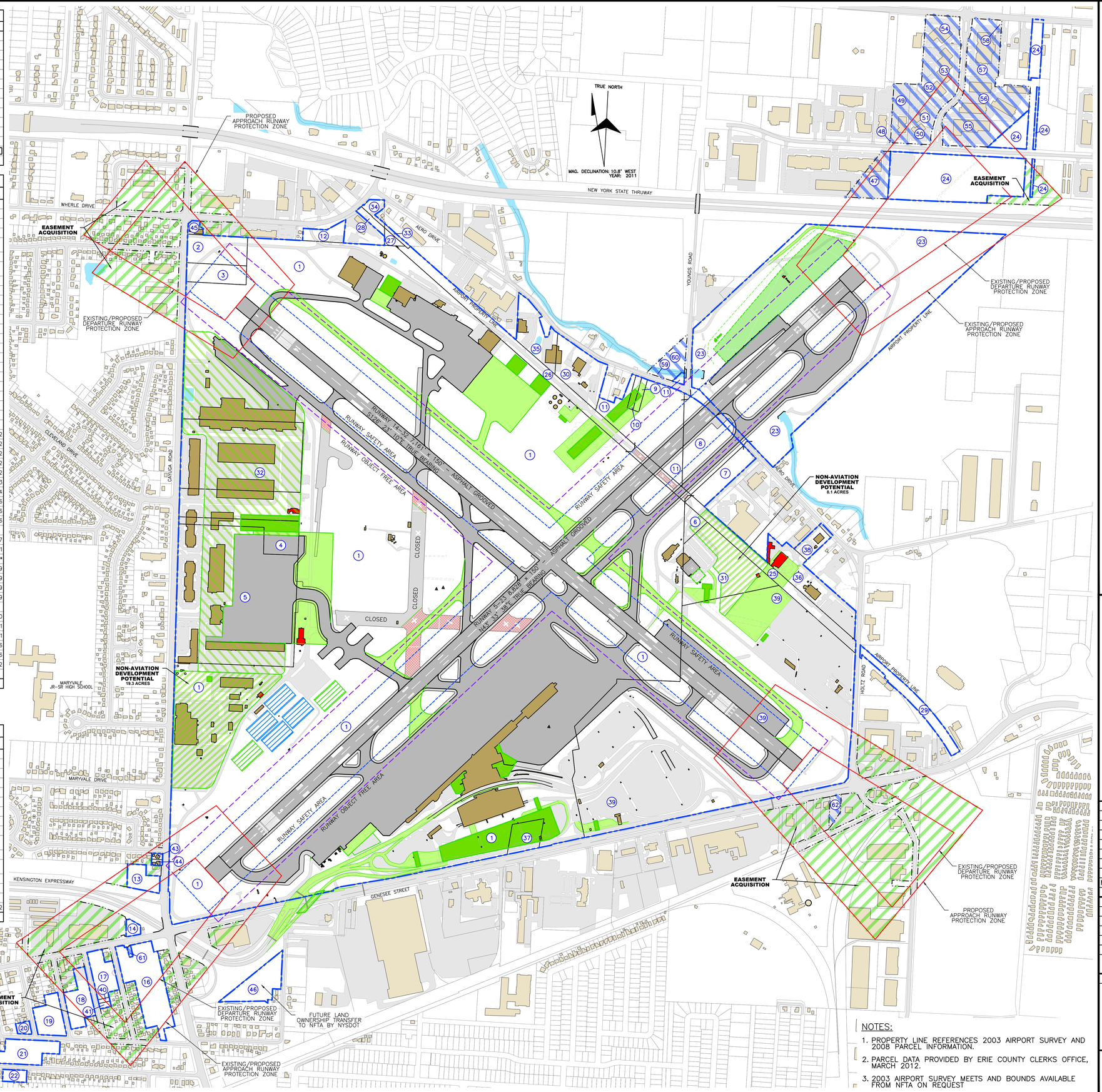
* ACQUIRED UNDER A STATE GRANT (NO FEDERAL FUNDS).
** PURCHASED WITH SEGREGATED REVENUES FROM PROPERTY ACQUIRED UNDER FEDERAL GRANT.
*** ACQUIRED BY NYSDOT FOR PROJECT PURPOSES, LAND TO BE REVERTED BACK TO NFTA UPON COMPLETION.
**** FUTURE LAND OWNERSHIP TRANSFER TO NFTA BY NYSDOT.

EXISTING AIRPORT PROPERTY - EASEMENT

REFERENCE NUMBER	TAX PARCEL NUMBER	GRANTOR	ACREAGE	ACQUISITION DATE	AIP NUMBER
47	81.02-3-44.11	TOWN OF AMHERST IDA	3.0	2002	
48	81.02-3-38.2	UNILAND	<0.1	1998	
49	81.02-3-33.3		2.5	1998	
50	81.02-3-33.2		1.2	1998	
51	81.02-3-33.3		2.0	1998	
52	81.02-3-31.3		1.9	1997	
53	81.02-3-31.2		3.4	2003	
54	81.02-3-31.1		2.6	1997	
55	81.02-3-35	LINDREW PROPERTIES	3.9	2001	
56	81.02-3-34	WEST WILLOWS AMHERST PORTFOLIO EQUITIES	6.9	2007	
57	81.02-3-32	UNILAND	4.4	2001	
58	81.02-3-30	NATIONAL FUEL GAS SUPPLY CORP.	0.2	1965	
59	81.03-2-12	669 YOUNGS ROAD	0.4	2008	
60	81.03-5-20		1.6	2008	
61	92.13-3-2	NIAGARA MOHAWK	0.1	1999	
62	92.04-1-12	NIAGARA MOHAWK	0.7	2002	3-36-0009-54-02
		TOTAL	34.8		

AIRPORT PROPERTY	
TYPE	ACREAGE
TOTAL AIRPORT PROPERTY	992.5
TOTAL AVIATION AREA	961.8
TOTAL NON-AVIATION AREA	30.7

SCALE
0 400 800 1200 1600
FEET



NOTES:

1. PROPERTY LINE REFERENCES 2003 AIRPORT SURVEY AND 2008 PARCEL INFORMATION.
2. PARCEL DATA PROVIDED BY ERIE COUNTY CLERKS OFFICE, MARCH 2012.
3. 2003 AIRPORT SURVEY MEETS AND BOUNDS AVAILABLE FROM NFTA ON REQUEST

BUFFALO NIAGARA INTERNATIONAL AIRPORT

McFarland Johnson
49 COURT STREET, METROCENTER, PO BOX 1980
BINGHAMTON, NEW YORK 13902 www.mjinc.com

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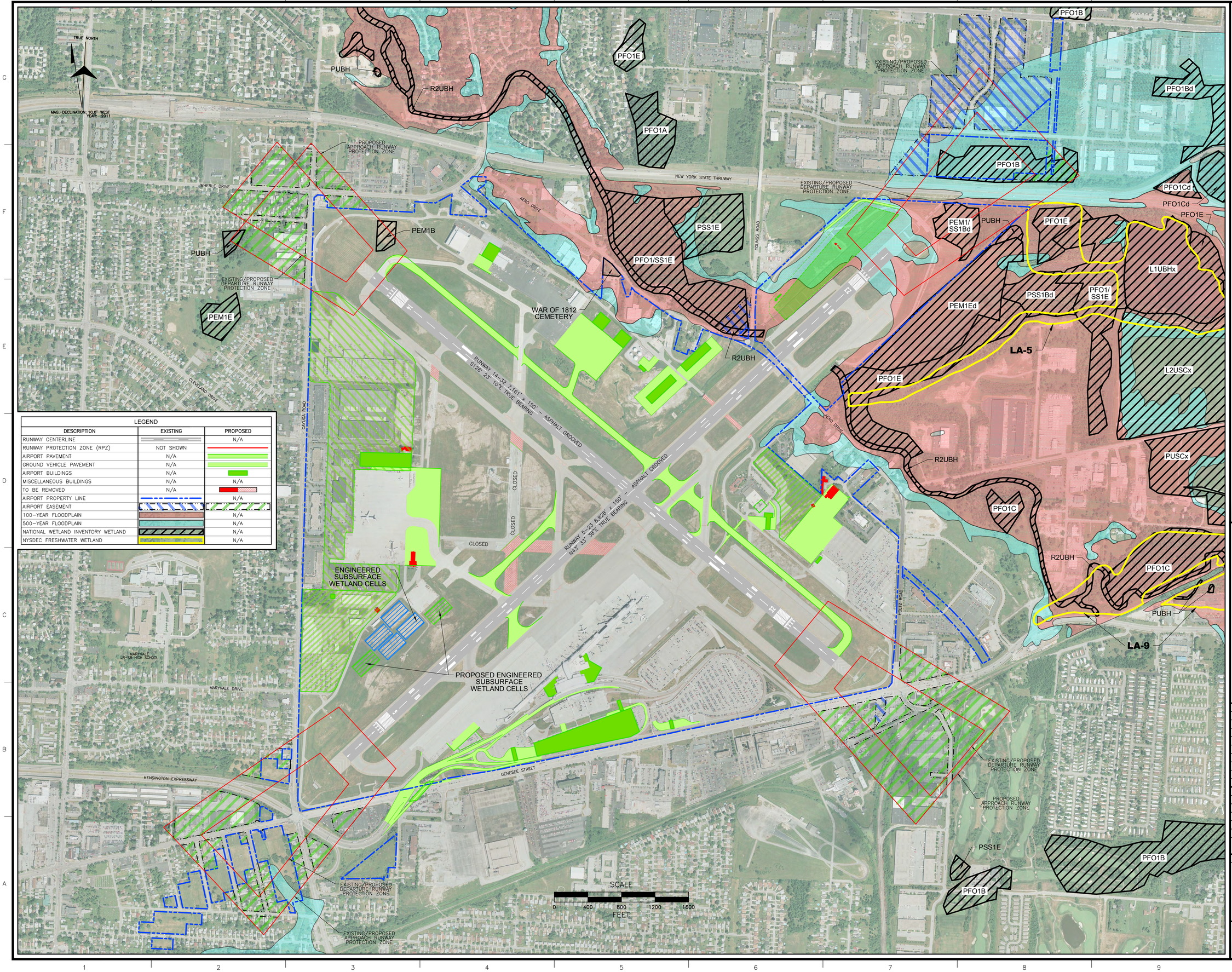
AIRPORT PROPERTY MAP "EXHIBIT A"

DRAWING# **CT113**

SHEET# 13 OF 14



LEGEND		
DESCRIPTION	EXISTING	PROPOSED
RUNWAY CENTERLINE		N/A
RUNWAY PROTECTION ZONE (RPZ)	NOT SHOWN	
AIRPORT PAVEMENT	N/A	
GROUND VEHICLE PAVEMENT	N/A	
AIRPORT BUILDINGS	N/A	
MISCELLANEOUS BUILDINGS	N/A	N/A
TO BE REMOVED	N/A	
AIRPORT PROPERTY LINE		N/A
AIRPORT EASEMENT		
100-YEAR FLOODPLAIN		N/A
500-YEAR FLOODPLAIN		N/A
NATIONAL WETLAND INVENTORY WETLAND		N/A
NYSDEC FRESHWATER WETLAND		N/A

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AIRPORT ENVIROMENTAL INVENTORY MAP

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