Appendix I
Public Participation

NIAGARA FALLS
INTERNATIONAL AIRPORT

SUSTAINABLE *Master Plan* UPDATE

The McFarland Johnson Team

Innovation & EXPERIENCE

What is an Airport Master Plan?

SUSTAINABLE Master Plan UPDATE

- Official FAA and NYSDOT Airport Planning Document
- Required by FAA Compliance Regulations
- Reflects Sponsor's (NFTA) Goals for the Airport
- Depicts Future Airport Development Covering 10-20 Years
- Future Projects Contingent on Funding (FAA/Other) & Environmental Approval

Master Plan Process

SUSTAINABLE Master Plan UPDATE

Goals and Objectives

- **Goals**
  - Meet Aviation Needs of the Region
  - Focused Capital Development Plan
  - Comply with Current Standards
  - Enhance Airport Economic Viability
  - Identify Future Constraints
  - Promote Sustainable Ideas & Solutions for the Airport
- **Objectives**
  - Meet Needs of Future Aircraft Fleet Mix
  - Develop Parking & Access Alternatives
  - Identify Non-Aviation Use Areas
  - Obtain Approval of the Airport Layout Plan
  - Engage Public in Planning Effort

Public Participation Process

SUSTAINABLE Master Plan UPDATE

- **Technical Advisory Committee (4)**
  - NFTA, FAA, NYSDOT, Regional Planning Agencies, Airport Tenants, FBO, Military, General Aviation Users
- **Citizens Advisory Committee (2)**
  - Local Residents, Elected Officials, Local Officials
- **Public Meetings (2)**
  - Informal, Open-House Workshop
- **University Involvement**
  - Niagara University
  - Others

Understanding NFIA's Unique Challenges & Opportunities

SUSTAINABLE Master Plan UPDATE

- **Proximity to Canada**
- **Interaction with BNIA & Other Regional Airports**
- **Ultra Low-Cost Carriers**
- **Rapidly-Changing Airline Industry**
- **Public Perceptions**
- **Strong Desire for Economic Growth**
- **Air Force / NY Air National Guard Uncertainty**
- **Need for Strategic Planning**
- **Significant Infrastructure with Minimal Developable Space**
  - Parking
  - General Aviation
  - Terminal Area
  - Economic Development (On-Airport)
  - Limited Expansion Capability

SUSTAINABLE
Master Plan
UPDATE

Dynamic Planning Approach

NIAGARA FALLS INTERNATIONAL AIRPORT

The McFarland Johnson Team

Scenario Based Forecast

Multiple Scenario Forecasts Enable Dynamic Planning

- **Multiple Scenarios for Commercial Aviation Activity**
  - **Degree & Pace of Air Service Development**
  - **Types of Service Development**
    - **Domestic Low-Cost Carriers (LCCs)**
    - **International LCCs**
  - **NFIA's Relationship to BNIA & Other Airports in the Region**
- **Air Cargo**
- **General Aviation**
- **Military Activity**
- ***Scenario-Based Forecasting is a Key Input into the Dynamic Analysis Tool***

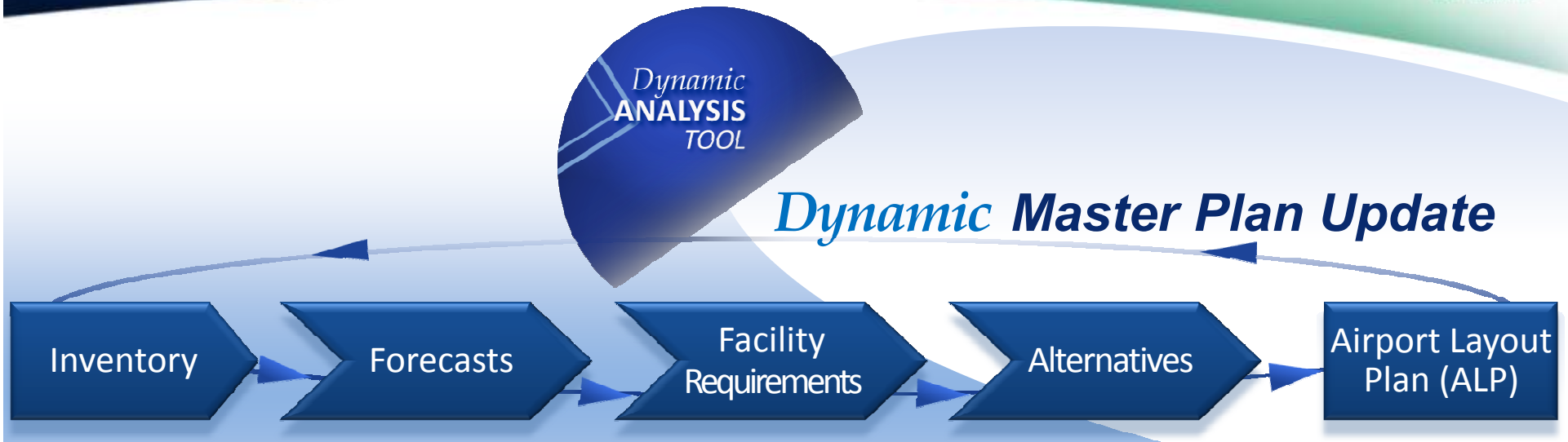
How Dynamic Planning is Different

SUSTAINABLE Master Plan UPDATE

Traditional Master Plan Update

How Dynamic Planning is Different

SUSTAINABLE Master Plan UPDATE



- Electronic Inventory
- Interactive GIS/CAD
- Financial Data

- Scenario Based
- User Input
- Adjustable

- Demand Driven
- Scenario Based
- User Input
- Instant Feedback

- Scenario Based
- User Input
- Adaptable
- Costs

DYNAMIC


Dynamic
ANALYSIS
TOOL

NIAGARA FALLS
INTERNATIONAL AIRPORT

Dynamic
ANALYSIS
TOOL

Input | Forecasts | Financial | Facility Requirements | Output | ALP

Scenario Based — Air Cargo

User Defined

Type

Aircraft Type

Anticipated Load

Start Year

Frequency — Arrivals Per

NIAGARA FALLS INTERNATIONAL AIRPORT

Dynamic ANALYSIS TOOL

Input | Forecasts | Financial | Facility Requirements | Output | ALP

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Enplanements												
Air Carrier	17,362	19,698	40,647	41,334	42,033	42,744	43,466	44,199	44,950	45,716	46,484	47,277
Baseline - Air Carrier	17,362	19,698	40,647	41,334	42,033	42,744	43,466	44,199	44,950	45,716	46,484	47,277
Commuter	79	951	9,182	9,182	9,182	9,182	9,182	9,182	9,182	9,182	9,182	9,182
Baseline - Commuter	79	951	9,182	9,182	9,182	9,182	9,182	9,182	9,182	9,182	9,182	9,182
Total Enplanements	**17,441**	**20,649**	**49,829**	**50,516**	**51,215**	**51,926**	**52,648**	**53,381**	**54,132**	**54,898**	**55,666**	**56,459**
Baseline - Total Enplanements	17,441	20,649	49,829	50,516	51,215	51,926	52,648	53,381	54,132	54,898	55,666	56,459
Operations												
Air Carrier	446	604	1,168	1,185	1,202	1,947	1,964	1,981	2,002	2,019	2,040	2,061
Baseline - Air Carrier	446	604	1,168	1,185	1,202	1,219	1,236	1,253	1,274	1,291	1,312	1,333
Commuter	1,585	1,972	1,858	1,858	1,858	1,858	1,858	1,858	1,858	1,858	1,858	1,858
Baseline - Commuter	1,585	1,972	1,858	1,858	1,858	1,858	1,858	1,858	1,858	1,858	1,858	1,858
Itinerant GA	12,345	12,713	10,627	9,945	9,951	9,957	9,963	9,969	9,975	9,981	9,987	9,993
Baseline - Itinerant GA	12,345	12,713	10,627	9,945	9,951	9,957	9,963	9,969	9,975	9,981	9,987	9,993
Itinerant Military	7,023	6,366	4,281	4,281	4,281	4,281	4,281	4,281	4,281	4,281	4,281	4,281
Baseline - Itinerant Military	7,023	6,366	4,281	4,281	4,281	4,281	4,281	4,281	4,281	4,281	4,281	4,281
Local GA	12,581	11,150	7,724	6,559	6,623	6,688	6,754	6,821	6,888	6,956	7,025	7,095
Baseline - Local GA	12,581	11,150	7,724	6,559	6,623	6,688	6,754	6,821	6,888	6,956	7,025	7,095
Local Military	3,595	3,401	2,674	2,674	2,674	2,674	2,674	2,674	2,674	2,674	2,674	2,674
Baseline - Local Military	3,595	3,401	2,674	2,674	2,674	2,674	2,674	2,674	2,674	2,674	2,674	2,674
Total Operations	**37,575**	**36,206**	**28,332**	**26,502**	**26,589**	**27,405**	**27,494**	**27,584**	**27,678**	**27,769**	**27,865**	**27,962**
Baseline - Total Operations	37,575	36,206	28,332	26,502	26,589	26,677	26,766	26,856	26,950	27,041	27,137	27,234
Based Aircraft												
Single Engine	46	32	32	32	33	33	33	33	33	34	34	34
Baseline - Single Engine	46	32	32	32	33	33	33	33	33	34	34	34
Multi-Engine	16	11	11	11	11	11	11	11	11	12	12	12
Baseline - Mulit-Engine	16	11	11	11	11	11	11	11	11	12	12	12
Jet	4	3	3	3	3	3	3	3	3	3	3	3
Baseline - Jet	4	3	3	3	3	3	3	3	3	3	3	3
Other	1	1	1	1	1	1	1	1	1	1	1	1
Baseline - Other	1	1	1	1	1	1	1	1	1	1	1	1
Total Based Aircraft	**67**	**47**	**47**	**47**	**48**	**48**	**48**	**49**	**49**	**50**	**50**	**50**
Baseline - Total Based Aircraft	67	47	47	47	48	48	48	49	49	50	50	50

NIAGARA FALLS INTERNATIONAL AIRPORT

Dynamic ANALYSIS TOOL

Input | Forecasts | Financial | Facility Requirements | Output | ALP

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Allegiant Airlines	$0	$15,647	$90,814	$152,769	$154,881	$157,056	$159,297	$161,604	$163,981	$166,430	$168,952	$171,549	$174,225	$176,980	$179,819	$182,742	$185,754	$188,855
Spirit Airlines	$0	$12,967	$74,200	$75,162	$76,154	$77,175	$78,226	$79,310	$80,425	$81,574	$82,758	$83,977	$85,233	$86,526	$87,858	$89,231	$90,644	$92,100
Automobile Parking	$175,492	$180,757	$186,179	$191,765	$197,518	$203,443	$209,547	$215,833	$222,308	$228,977	$235,847	$242,922	$250,210	$257,716	$265,447	$273,411	$281,613	$290,061
Rental Cars	$12,467	$12,841	$13,226	$13,623	$14,032	$14,453	$14,886	$15,333	$15,793	$16,267	$16,755	$17,257	$17,775	$18,308	$18,857	$19,423	$20,006	$20,606
Restaurant	$13,700	$14,111	$14,534	$14,970	$15,419	$15,882	$16,359	$16,849	$17,355	$17,875	$18,412	$18,964	$19,533	$20,119	$20,722	$21,344	$21,984	$22,644
Conventional Hangars	$35,025	$37,190	$36,804	$39,708	$40,899	$42,126	$43,390	$44,692	$46,032	$47,413	$48,836	$50,301	$51,810	$53,364	$54,965	$56,614	$58,312	$60,062
New Air Cargo Carrier	$0	$0	$0	$0	$223,940	$224,690	$225,463	$226,258	$227,078	$227,922	$228,791	$229,687	$230,609	$231,559	$232,538	$233,546	$234,584	$235,653
Niagara Falls Aviation	$89,456	$91,369	$93,281	$95,194	$1,024,206	$1,026,119	$1,028,031	$1,029,944	$1,031,856	$1,033,769	$1,035,681	$1,037,594	$1,039,506	$1,041,419	$1,043,331	$1,045,244	$1,047,156	$1,049,069
Advertising	$8,245	$8,492	$8,747	$9,010	$9,280	$9,558	$9,845	$10,140	$10,445	$10,758	$11,081	$11,413	$11,755	$12,108	$12,471	$12,845	$13,231	$13,628
TSA	$15,006	$15,006	$15,006	$15,006	$15,006	$17,506	$17,506	$17,506	$17,506	$17,506	$20,006	$20,006	$20,006	$20,006	$20,006	$22,506	$22,506	$22,506
T-Hangars	$33,600	$34,608	$35,646	$36,716	$37,817	$38,952	$40,120	$41,324	$42,563	$43,840	$45,156	$46,510	$47,906	$49,343	$50,823	$52,348	$53,918	$55,536
Total Revenue	**$382,991**	**$422,987**	**$568,438**	**$643,922**	**$1,809,151**	**$1,826,959**	**$1,842,669**	**$1,858,792**	**$1,875,342**	**$1,892,331**	**$1,912,273**	**$1,930,180**	**$1,948,567**	**$1,967,448**	**$1,986,839**	**$2,009,254**	**$2,029,708**	**$2,050,719**
Baseline Revenue	**$382,991**	**$422,987**	**$568,438**	**$641,098**	**$655,885**	**$671,801**	**$687,354**	**$701,471**	**$717,835**	**$732,695**	**$752,418**	**$768,067**	**$786,201**	**$802,686**	**$821,786**	**$841,658**	**$861,781**	**$880,095**

NIAGARA FALLS INTERNATIONAL AIRPORT

Dynamic ANALYSIS TOOL

Input | Forecasts | Financial | Facility Requirements | Output | ALP

	Existing Facility or Capacity	Ultimate Requirement	Deficit
Runways			
Runway 10L/28R Length	9,829	9,829	None
Runway 10L/28R Width	150	200	50
Runway 10L/28R RSA Length	1,000	1,000	None
Runway 10L/28R RSA Width	500	500	None
Runway 10L/28R OFA Length	1,000	1,000	None
Runway 10L/28R OFA Width	800	800	None
Runway 10R/28L Length	3,973	3,973	None
Runway 10R/28L Width	75	75	None
Runway 10R/28L RSA Length	240	240	None
Runway 10R/28L RSA Width	120	120	None
Runway 10R/28L OFA Length	240	240	None
Runway 10R/28L OFA Width	250	250	None
Runway 6/24 Length	5,188	5,188	None
Runway 6/24 Width	150	150	None
Runway 6/24 RSA Length	1,000	1,000	None
Runway 6/24 RSA Width	500	500	None
Runway 6/24 OFA Length	1,000	1,000	None
Runway 6/24 OFA Width	800	800	None
Runway Protection Zones			
Runway 10L RPZ Inner Width	500	1,000	500
Runway 10L RPZ Outer Width	1,010	1,510	500
Runway 10L RPZ Length	1,700	1,700	None
Runway 28R RPZ Inner Width	1,000	1,000	None
Runway 28R RPZ Outer Width	1,750	1,750	None
Runway 28R RPZ Length	2,500	2,500	None
Runway 10R RPZ Inner Width	250	250	None
Runway 10R RPZ Outer Width	450	450	None
Runway 10R RPZ Length	1,000	1,000	None
Runway 28L RPZ Inner Width	250	250	None
Runway 28L RPZ Outer Width	450	450	None
Runway 28L RPZ Length	1,000	1,000	None
Runway 6 RPZ Inner Width	500	500	None
Runway 6 RPZ Outer Width	700	700	None
Runway 6 RPZ Length	1,000	1,000	None
Runway 24 RPZ Inner Width	500	500	None
Runway 24 RPZ Outer Width	700	700	None
Runway 24 RPZ Length	1,000	1,000	None

	Existing Facility or Capacity	Ultimate Requirement	Deficit
Approach Procedures			
Runway 10L Approaches	None	ILS	ILS
Runway 28R Approaches	ILS, LOC, TACAN, NDB	ILS	None
Runway 6 Approaches	None	None	None
Runway 24 Approaches	None	None	None
Runway 10R Approaches	None	None	None
Runway 28L Approaches	None	None	None
Taxiways			
Taxiway "A" Width	75	100	25
Taxiway "A" Offset	800	500	None
Taxiway "D" Width	75	75	None
Taxiway "D" Offset	400	400	None
Lighting and NAVAIDs			
Runway 10L/28R	HIRL, RVR (28R), MALSR (28R), VASI (10L), Beacon	HIRL, RVR (28R), MALSR, PAPI, Centerline Lights	PAPI, Centerline Lights, MALSR (10L)
Runway 10R/28L	MIRL, PAPI, REIL, Beacon	MIRL, PAPI, REIL, Beacon	None
Runway 6/24	MIRL, PAPI, REIL, Beacon	MIRL, PAPI, REIL, Beacon	None
Landside			
Conventional Hangars	82,500 sq. ft.	80,000 sq. ft.	None
T-Hangars	36 units	36 units	None
Consolidated GA Apron Demand	62,500 sq. yd.	42,500 sq. yd.	None
Deicing Apron	10,000 sq. yd.	20,000 sq. yd.	10,000 sq. yd.
Aircraft Maintenance Area	8,000 sq. ft.	8,000 sq. ft.	None
Airline Terminal	62,500 sq. ft.	62,500 sq. ft.	None
Cargo Facility	100,000 sq. ft.	250,000 sq. ft.	150,000 sq. ft.
Airline Terminal Parking	1,200 spaces	1,200 spaces	None
Cargo Facility Parking	20 spaces	200 spaces	180 spaces
GA Area Auto Parking	20 spaces	20 spaces	None
ARFF Facility	3,000 sq. ft.	3,000 sq. ft.	None
AVGAS Storage	17,500 gal.	15,000 gal.	None
Jet-A Storage	35,000 gal.	80,000 gal.	45,000 gal.

NIAGARA FALLS
INTERNATIONAL AIRPORT

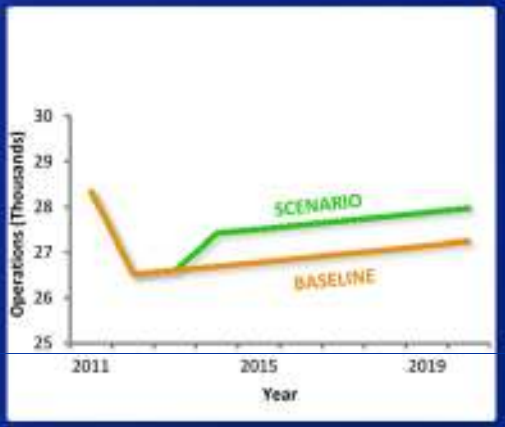
Dynamic
ANALYSIS
TOOL

Input | Forecasts | Financial | Facility Requirements | Output | ALP

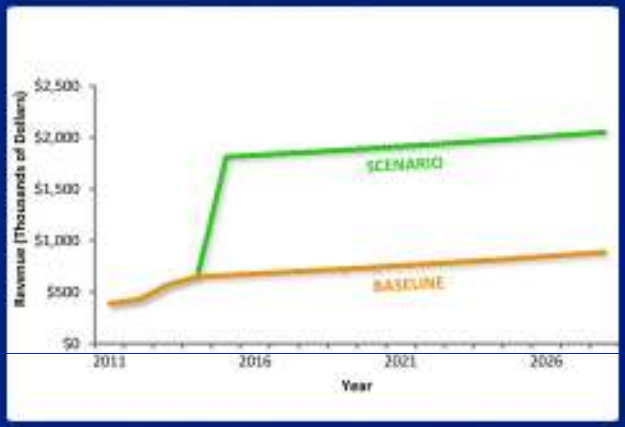
Scenario:

- (●) Scenario Based
  - Air Cargo
- ( ) User Defined

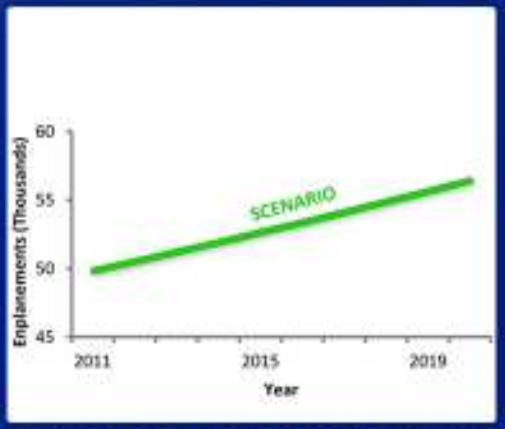
Terminal Elements	25	50	75	100	125	150
Curbside Frontage						
Airline Ticketing / Baggage Check-In						
Security Screening						
Concessions						
Gates						
Holdrooms						
Restrooms						
Other						



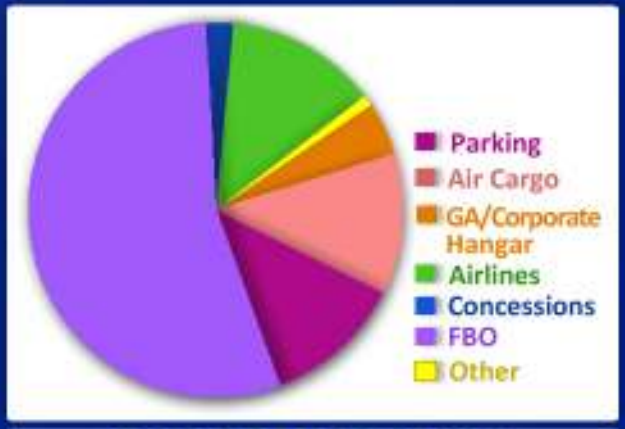
ANNUAL OPERATIONS



ANNUAL REVENUE



ANNUAL ENPLANEMENTS

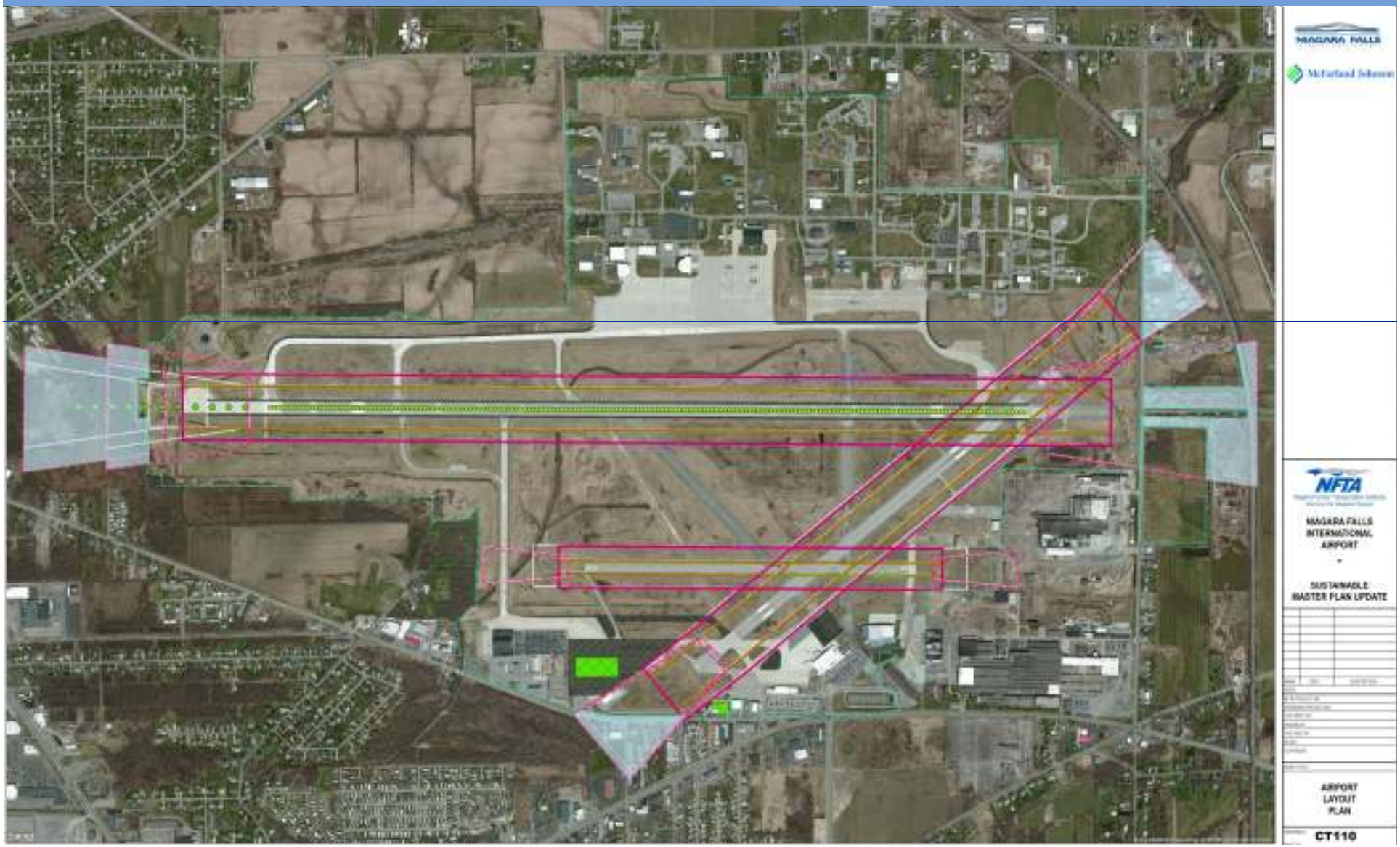


SOURCES OF REVENUE

NIAGARA FALLS
INTERNATIONAL AIRPORT

Dynamic
ANALYSIS
TOOL

Input | Forecasts | Financial | Facility Requirements | Output | ALP



SUSTAINABLE
Master Plan
UPDATE

Sustainability & Environmental Features

Sustainability

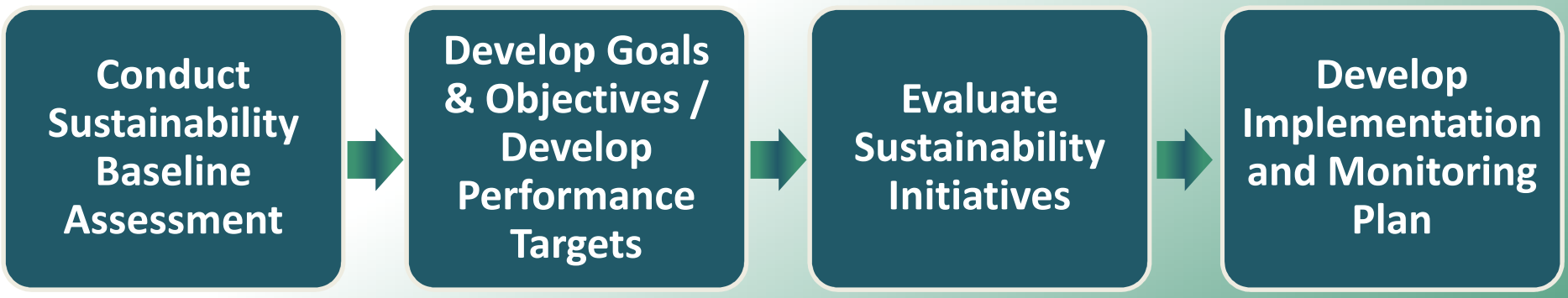
Goals :

- **Strike a Balance Between:**
  - Environmental;
  - Social;
  - and Economic Considerations
- **Meet FAA Requirement to Evaluate Waste Management and Recycling Practices**

Source: faa.gov

Sustainability

SUSTAINABLE Master Plan UPDATE



Identify Specific Areas for Enhancement

Recommend Performance Targets

Identify & Evaluate Initiatives

Plan & Monitoring Program

Sustainability

- **Sustainability Evaluation**
  - Consider Existing Facilities/Operations and MPU Alternatives
  - Categories
    - Air Quality and Greenhouse Gases
    - Waste Management/Recycling
    - Water
    - Energy
    - Natural Resources
    - Hazardous materials
    - Noise/Land Use

Environmental Considerations

Goals

- Early Identification of Environmental Constraints
- Incorporate Findings into Alternatives Analysis
  - Avoid/Minimize Impacts
  - Consider Mitigation Requirements
  - Informed Decision Making
- Basis for Future NEPA, SEQR, and Permit Processes
- Provide GIS-Based "Environmental Inventory"

Environmental Impact Categories*

- **Air Quality**
- Coastal Barriers
- Coastal Zone
- **Compatible Land Use**
- Construction Impacts
- Section 4(f)
- Farmlands
- Floodplains
- **Fish, Wildlife & Plants**
- Historical, Architectural, Archaeological, & Cultural Resources
- Light Emissions & Visual Effects
- **Hazardous Materials**
- Natural Resources & Energy Supply
- **Noise**
- Socioeconomic, Environmental Justice & Children's Health and Safety Risks
- Solid Waste
- **Water Quality**
- **Wetlands**
- Wild & Scenic Rivers

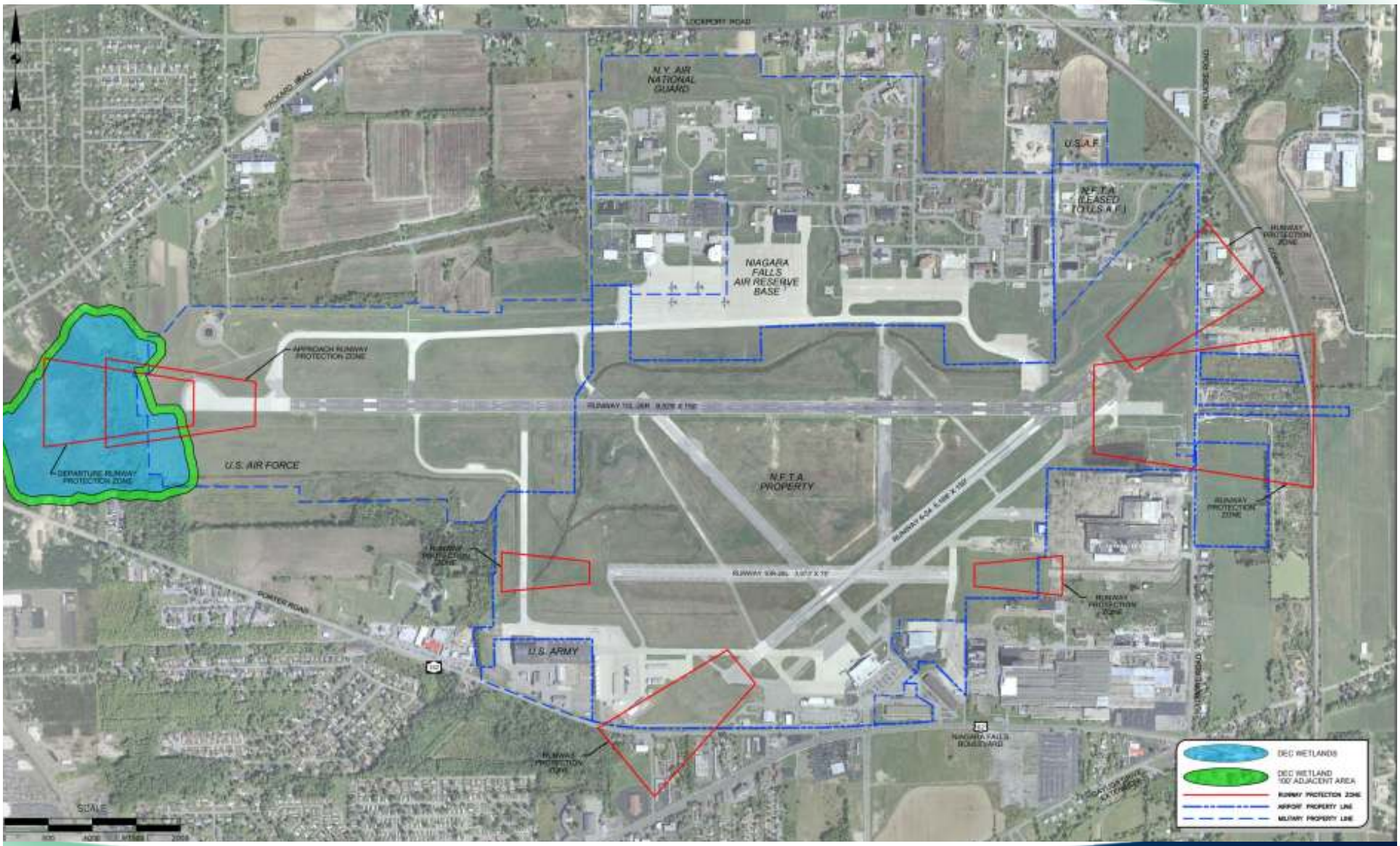
*Identified in FAA Orders 1050.1E and 5050.4B

Threatened and Endangered Species

- No Federally-Listed Threatened or Endangered Species
- Two State Listed Species on Airport
  - Northern Harrier
    - NYS Listed Endangered Species
    - Foraging Habitat Widespread on Airport
    - Unmaintained Wetlands Considered Breeding Habitat - Likely Time of Year Restrictions
  - Devil Crawfish
    - NYS Species of Conservation Concern
    - Known to Occur in Cayuga Creek
    - Relocation and Monitoring Likely Requirement

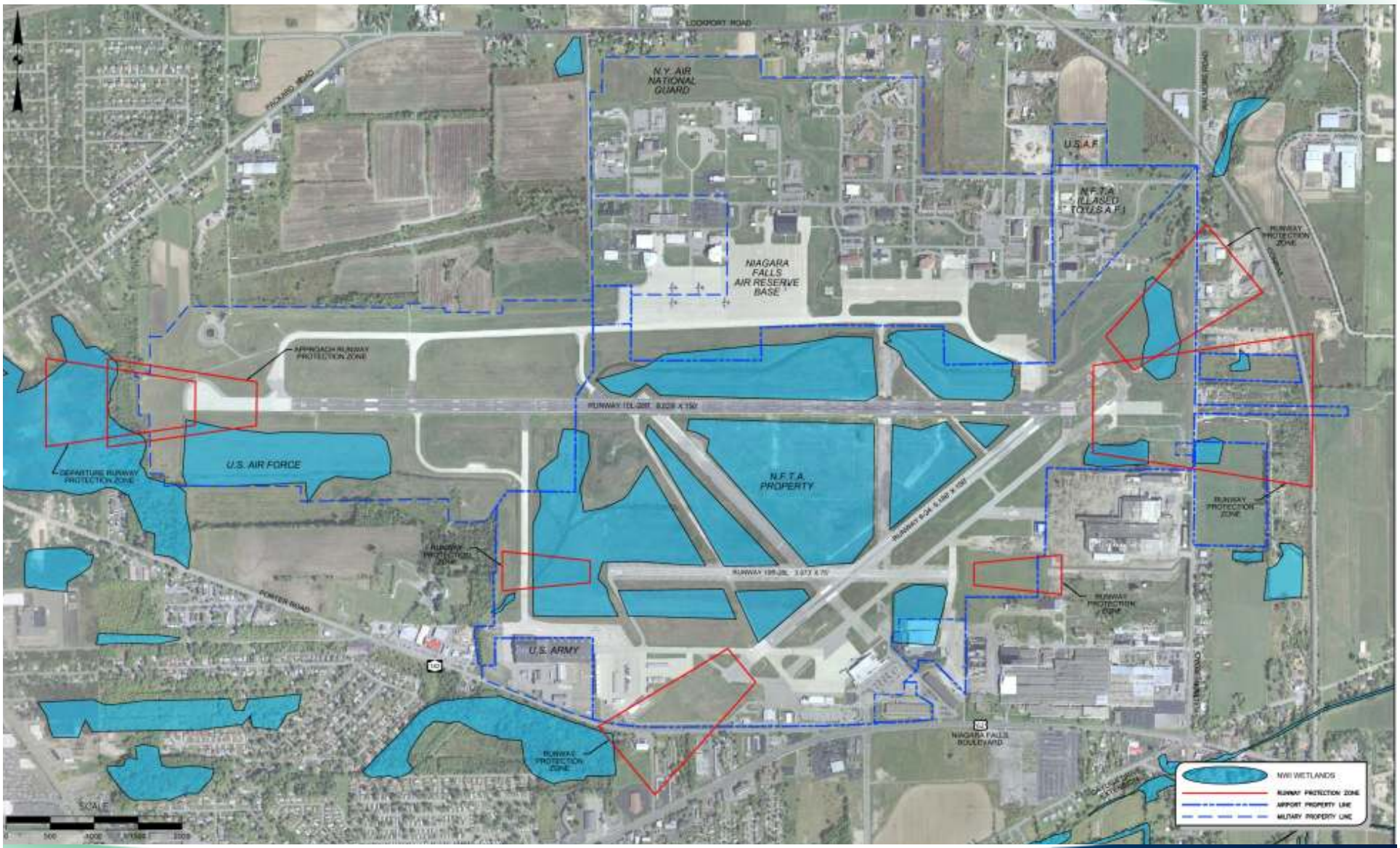
Wetlands – State Regulated

SUSTAINABLE Master Plan UPDATE



National Wetland Inventory

SUSTAINABLE Master Plan UPDATE



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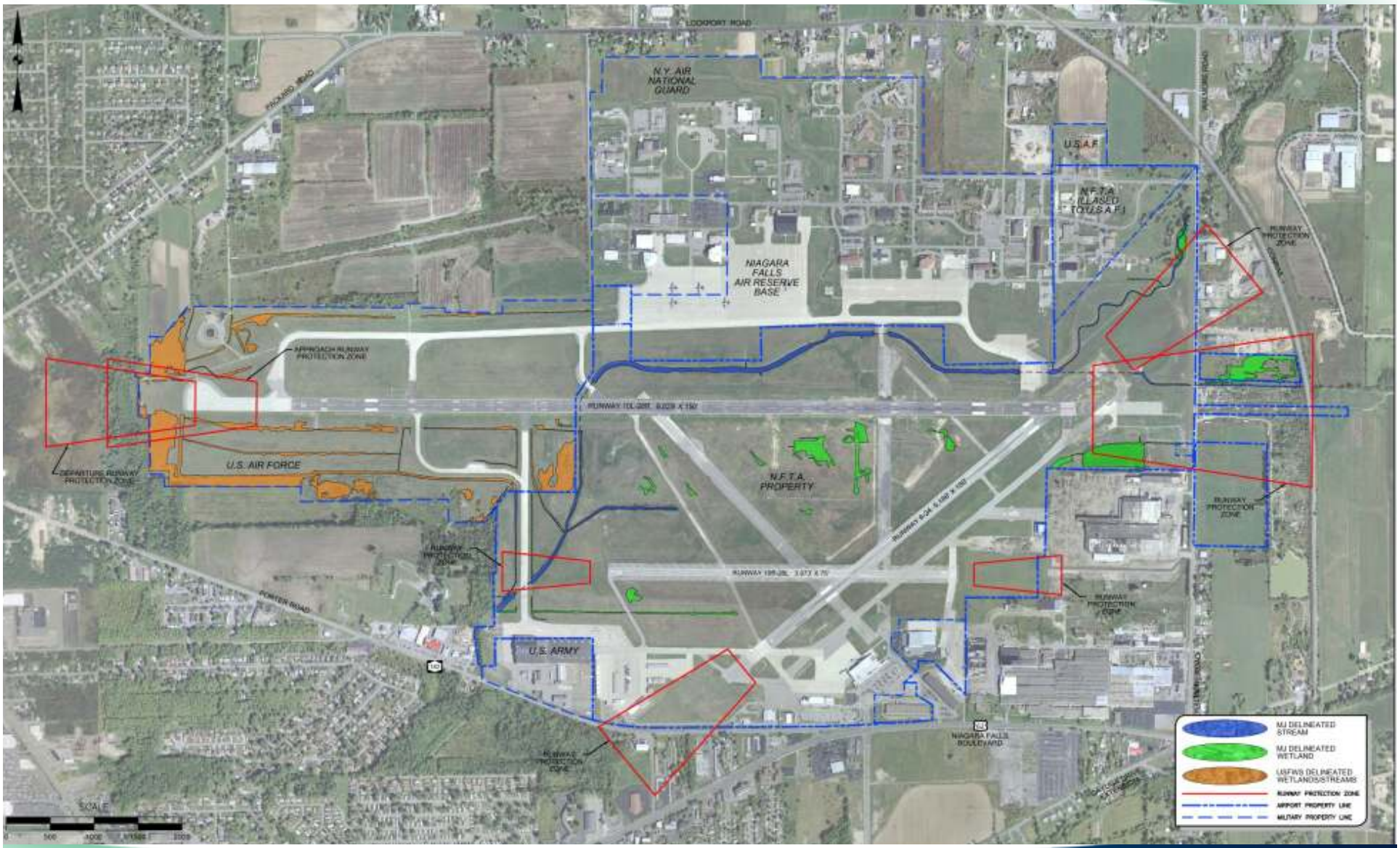
The McFarland Johnson Team

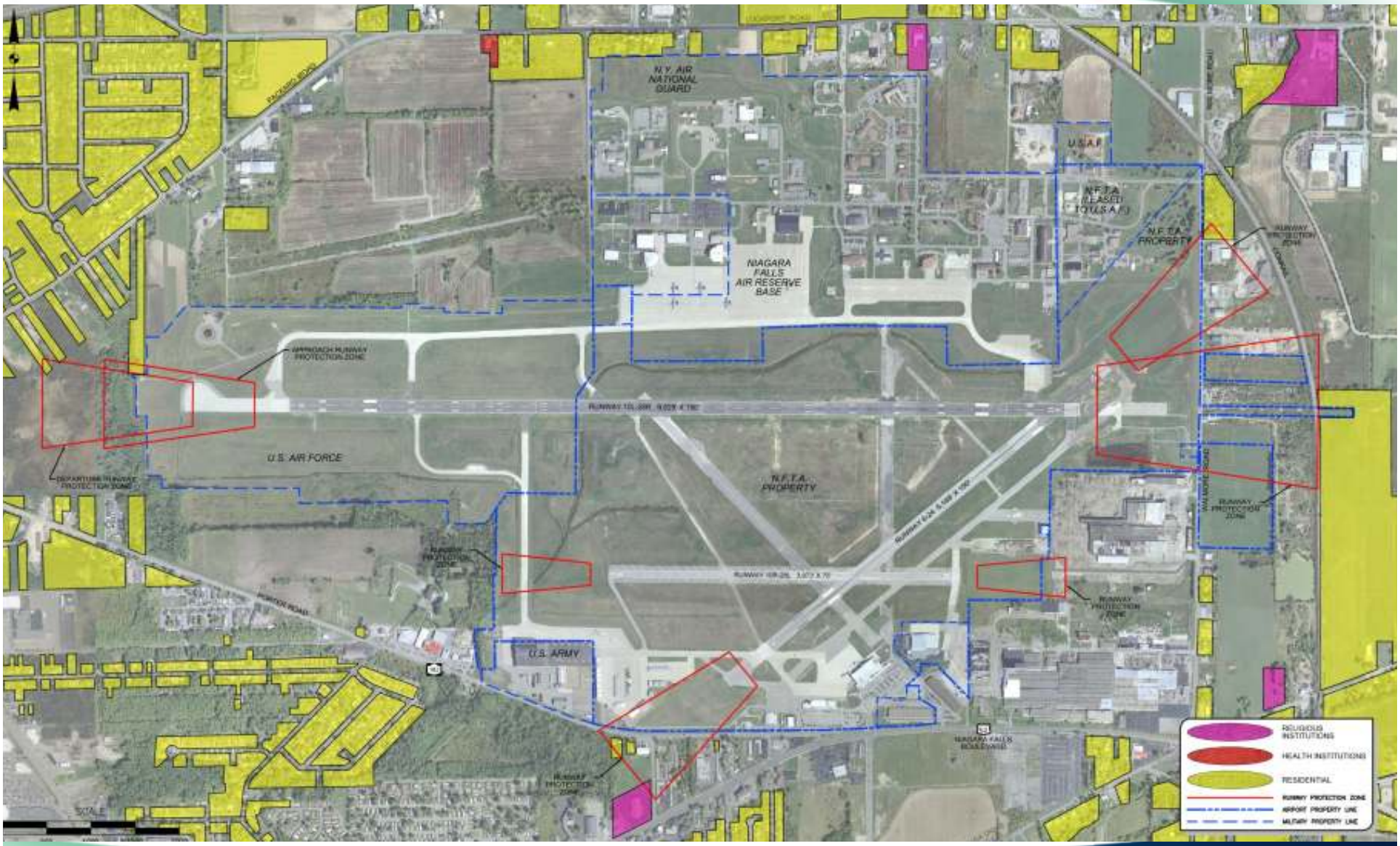
Wetland Delineation

SUSTAINABLE Master Plan UPDATE



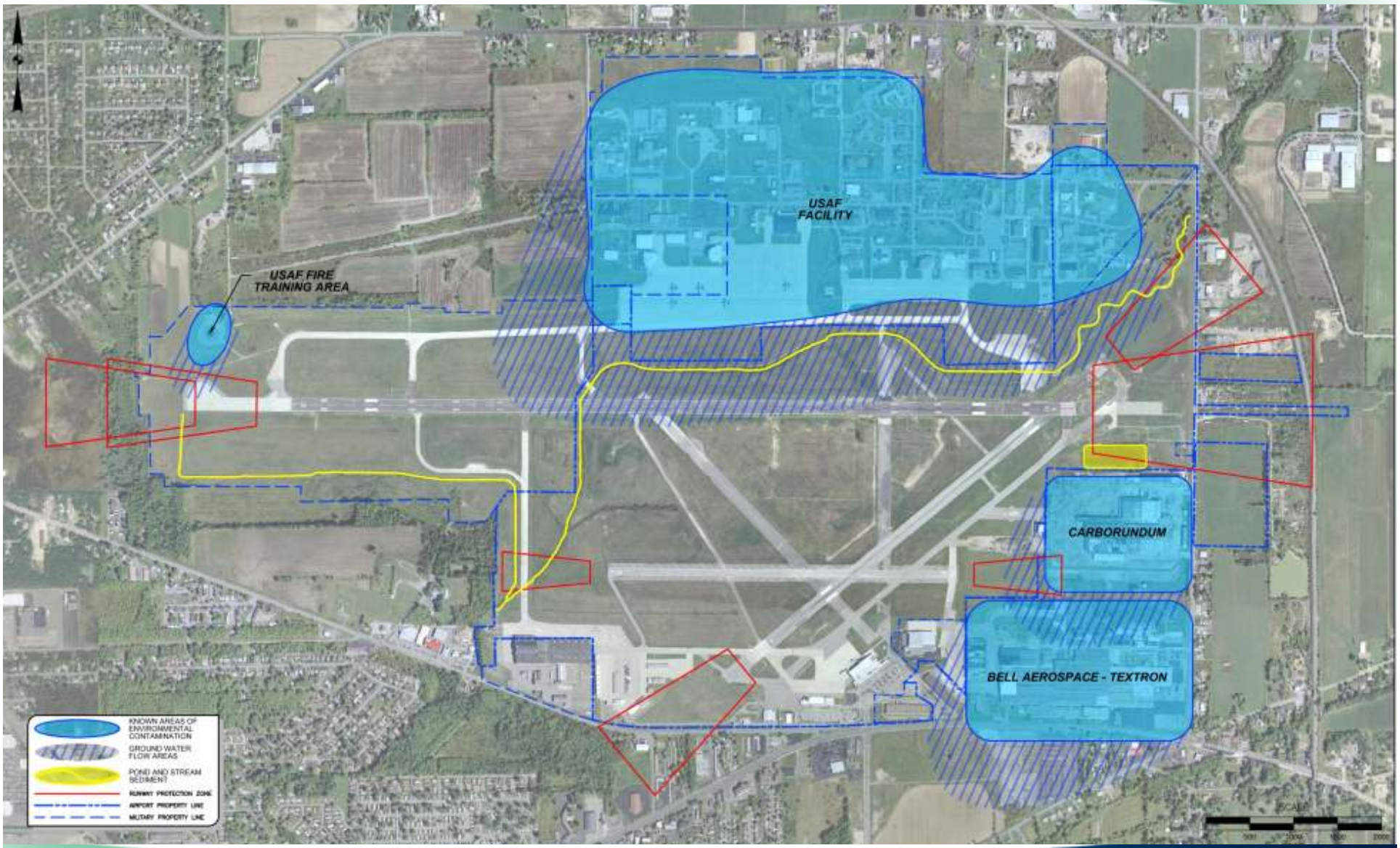
Noise/Compatible Land Use

SUSTAINABLE Master Plan UPDATE



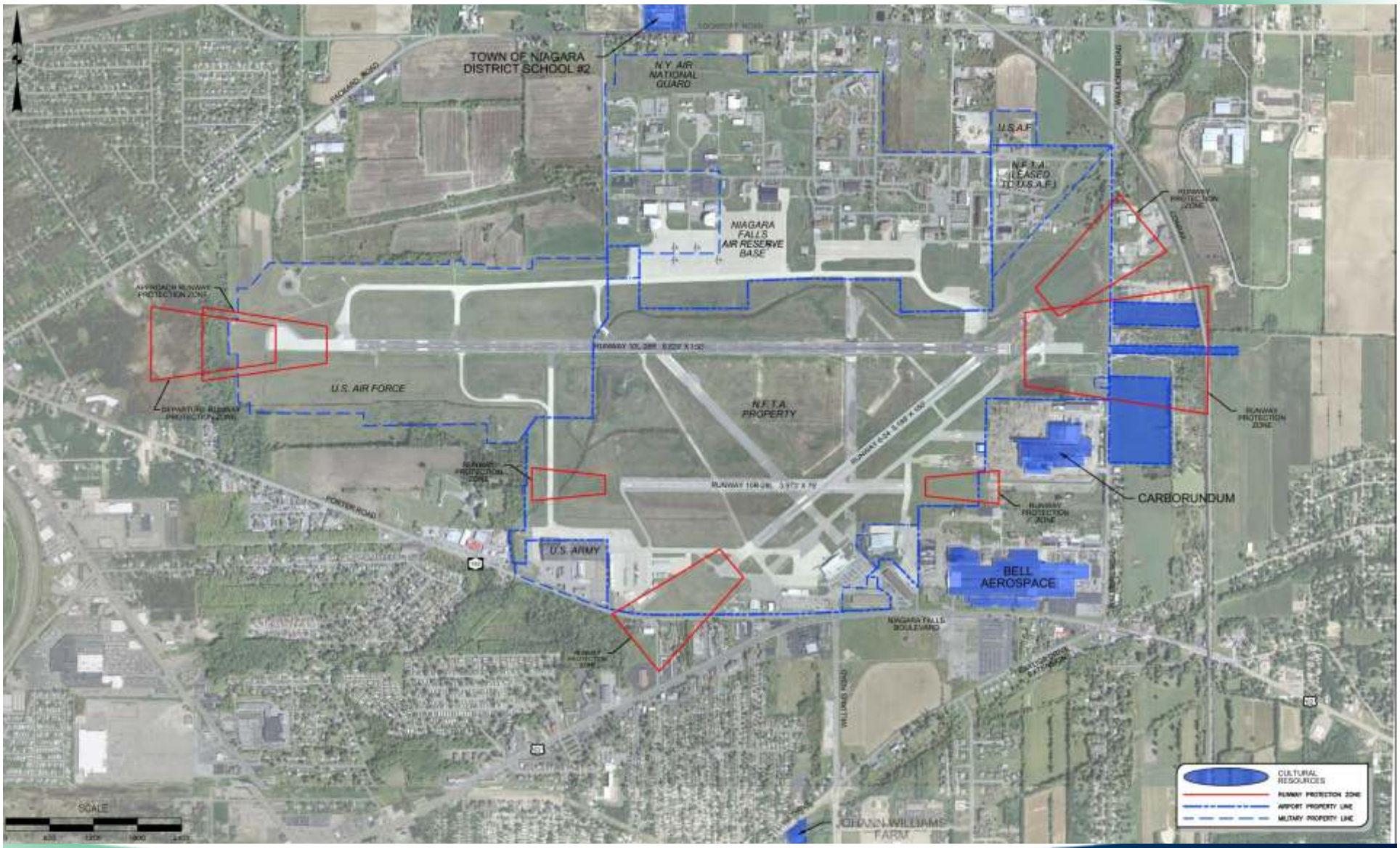
Hazardous Waste

SUSTAINABLE Master Plan UPDATE



Cultural Resources

SUSTAINABLE Master Plan UPDATE



Incorporating Local Universities

- Niagara University Environmental Science Program
- Classroom Session
  - Environmental Science, Policy, and Regulation
- Field Practicum
- Next Session - Alternatives/Environmental Impact Evaluation (Planned)

SUSTAINABLE Master Plan UPDATE

Existing Conditions and Infrastructure

NIAGARA FALLS INTERNATIONAL AIRPORT

The McFarland Johnson Team

Airside Infrastructure

- **Runway 10L-28R - Primary**
  - 9,829’ x 150’, ILS 28R, Limited Taxiway Connectivity
  - Weight Capacity of over 800,000 lbs
- **Runway 6-24 - Crosswind**
  - 5,188’ x 150’, Recently Published GPS Approaches
  - Favorable Wind Coverage Increases Utilization
- **Runway 10R-28L - Parallel**
  - 3,973’ x 75’
- **Taxiways**
  - Several Complex Intersections, Old/Abandoned Pavement
  - Taxiway A – Military Owned, Non-Movement

Airport Overview

SUSTAINABLE Master Plan UPDATE

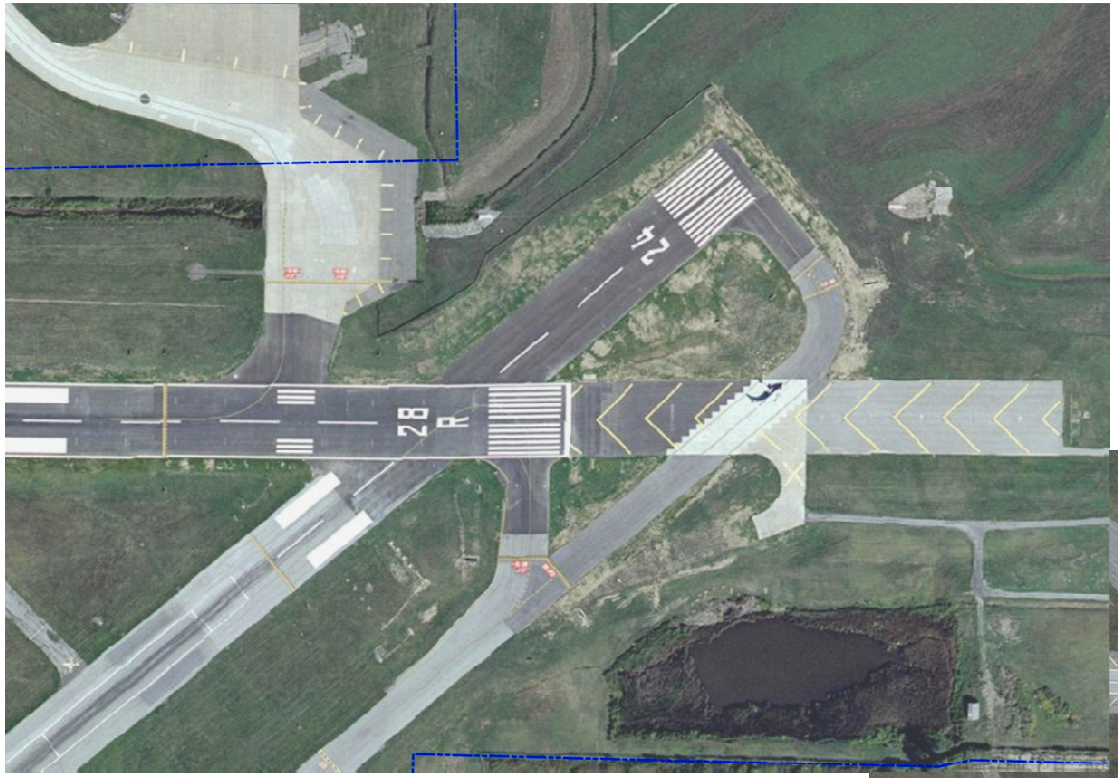
Key Issues - Airside

SUSTAINABLE Master Plan UPDATE

- New Runway/Taxiway Design Requirements
  - Taxi Routes to/from Terminal
- Crosswind Runway Capabilities
  - Existing/Future
- Physical Constraints
  - Property/Development
- Instrument Approaches
  - New Approaches to 6/24
- Canadian Airspace
  - 10L Approach

Taxiway Design Challenges

SUSTAINABLE Master Plan UPDATE



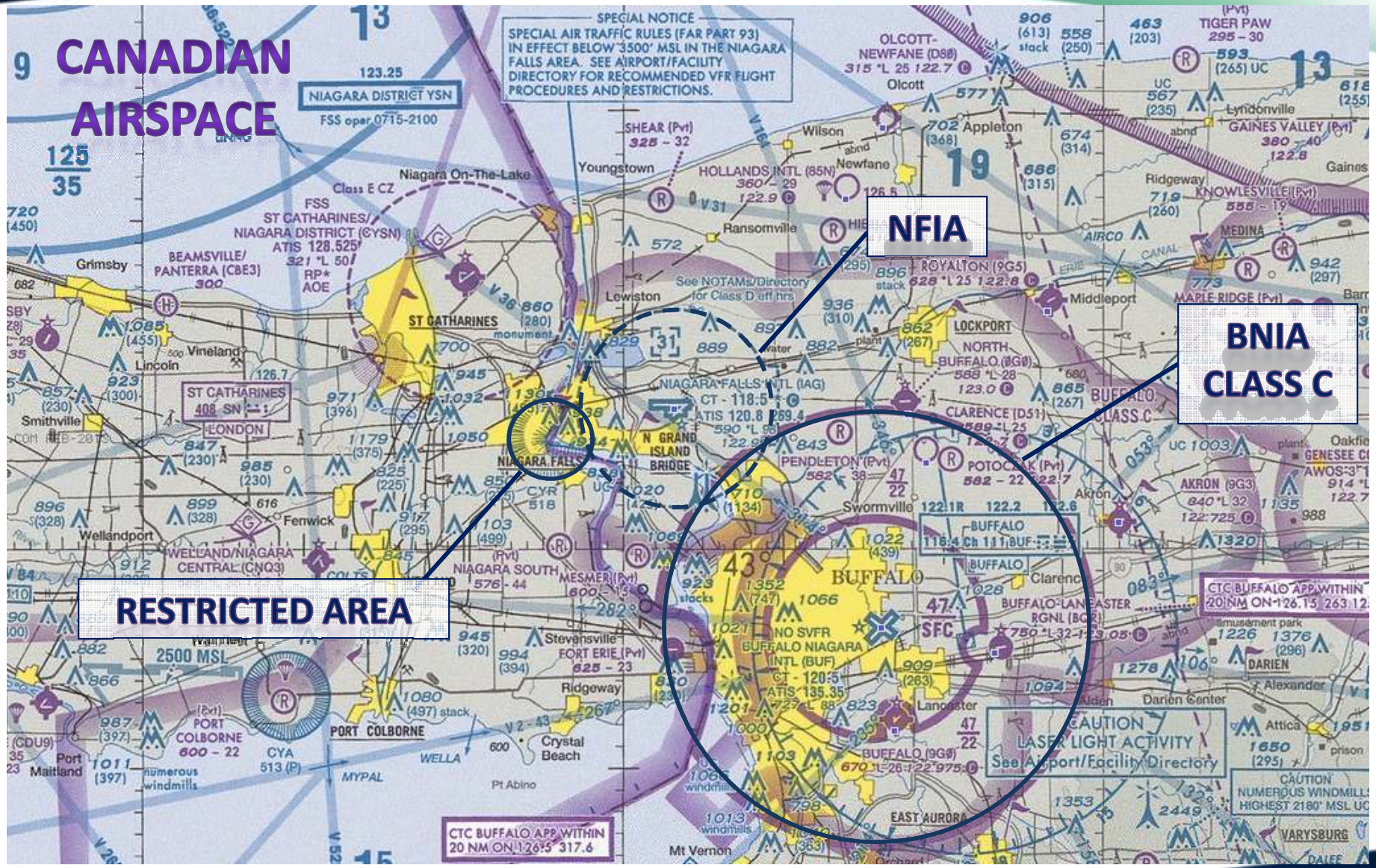
- Complex Taxiing Routes
- ATC Runway Crossing Procedures

NEW TAXIWAY DESIGN STANDARDS

- Y-Shape Taxiways Near Runway
- Direct Access to Runway

Airspace Challenges

SUSTAINABLE Master Plan UPDATE



Key Issues - Landside

SUSTAINABLE Master Plan UPDATE

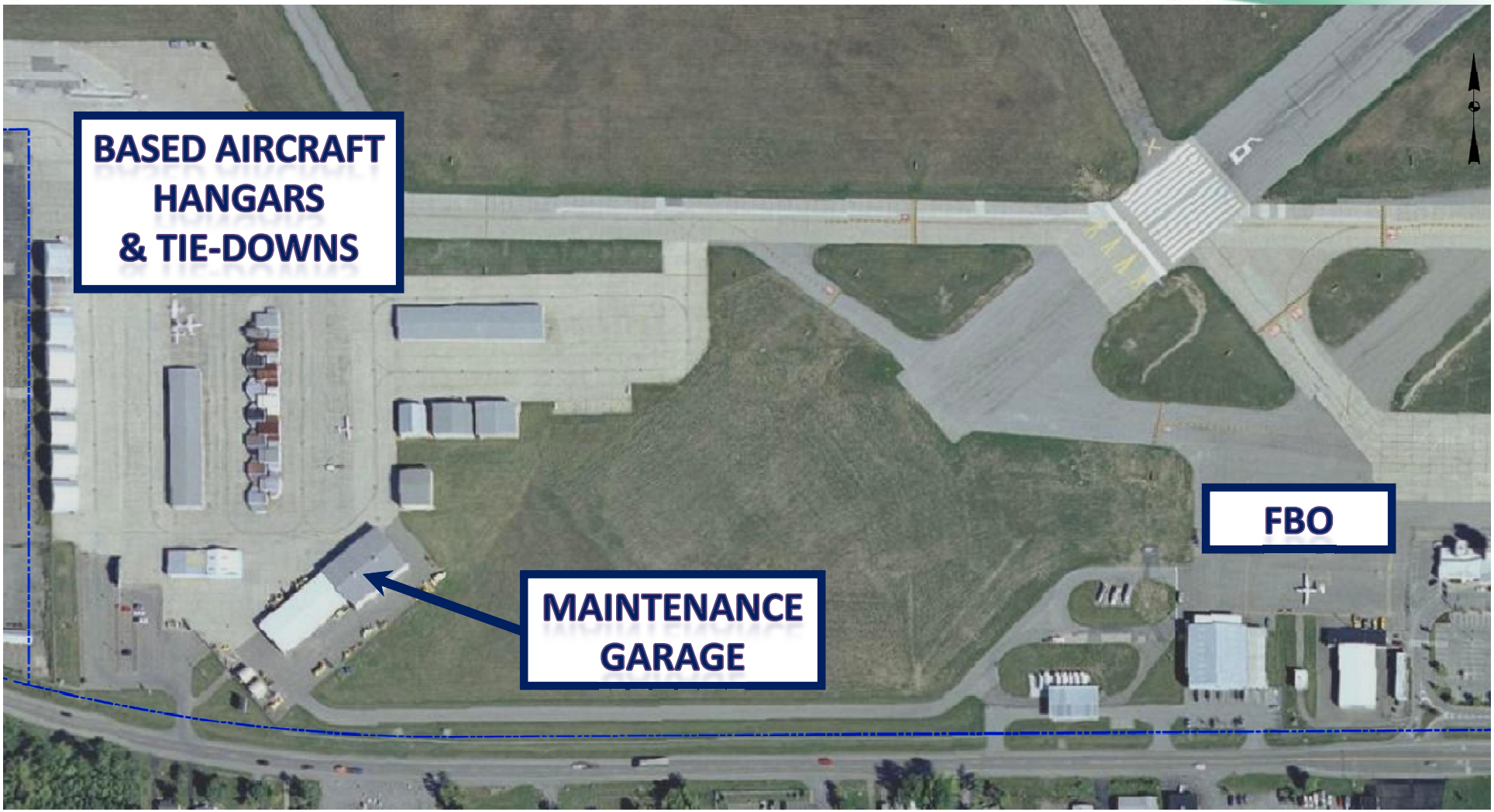
- Long Term Terminal Expansion
- Parking Demand Characteristics
- Roadway System
- Access
- Facilitating Economic Development
- Physical Constraints
- General Aviation

Terminal Area- Key Issues

SUSTAINABLE Master Plan UPDATE

General Aviation

SUSTAINABLE Master Plan UPDATE



Key Issues- Terminal

SUSTAINABLE Master Plan UPDATE

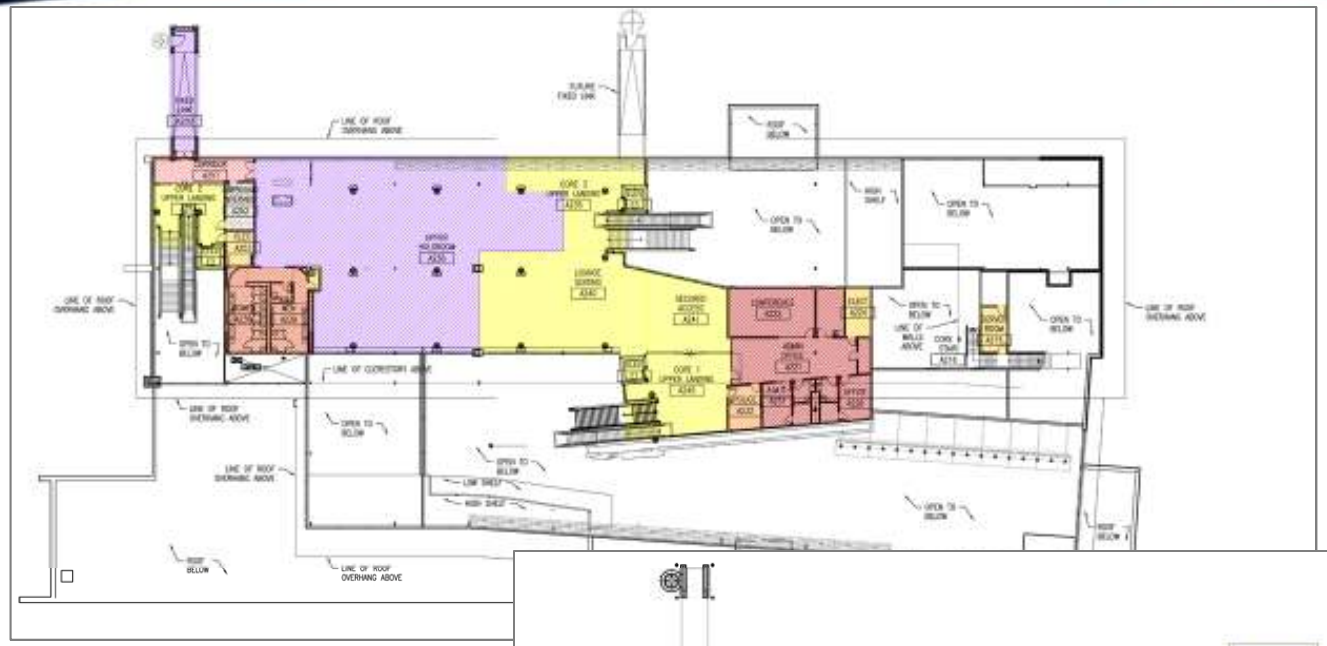
- **Capacity Capabilities**
  - Aircraft Sizes
  - International Operations
- **Demand Characteristics**
  - Seasonal Changes in Demand
- **Low-Cost Airline Considerations**
  - Inbound Travel Market Requirements
  - Common Use Technology
    - For/Against

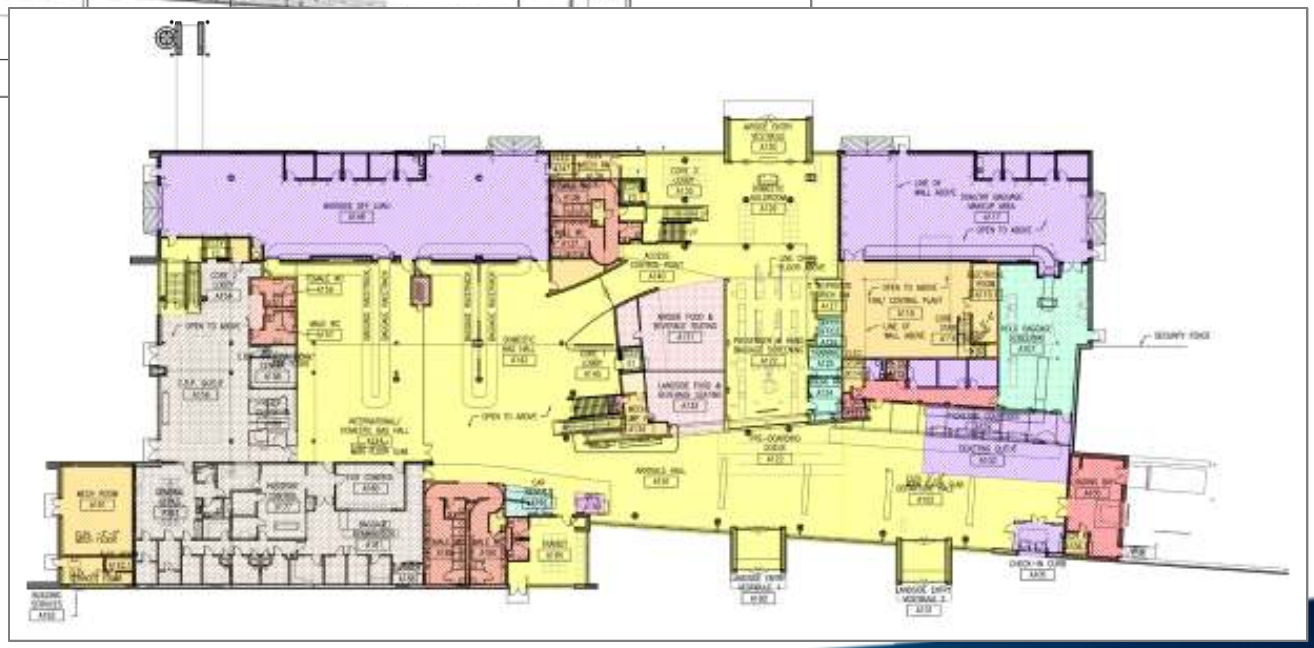
allegiant air

spirit airlines

Terminal Building

SUSTAINABLE Master Plan UPDATE





Military Facilities

- NY ANG 107 and USAF 914
  - 12 Aircraft Assigned to 914, Joint Operated with 107
- Provides ARFF Coverage for Airport
  - Index E
- Owns Taxiway A and West Portion of 10L-28R
- 4 Hangar Spaces
- Aircraft do not Fly GPS Approaches
- Keep Training Opportunities Available

Next Steps

- Finalize Existing Conditions
- Continue Sustainability Baseline Assessment
- Confirm Dynamic Scenarios
- Complete Aviation Forecasts
  - Scenario Based Forecast for Dynamic Analysis Tool
  - Submit Traditional Forecast for FAA Approval
- Determine Airport Facility Requirements
  - Dynamic Analysis Tool Development
- Stakeholder Meeting # 2 – June Timeframe

- **Project Contacts:**
  - **Chad Nixon – Project Manager**
    - **cnixon@mjinc.com 607-723-9421**
  - **Rick Lucas – Task Leader: Airside, Landside and Terminal**
    - **rlucas@mjinc.com 607-723-9421**
  - **Jeff Wood – Task Leader: Environmental and Sustainability**
    - **jwood@mjinc.com 607-723-9421**

Questions?

Q&A Overview

SUSTAINABLE Master Plan UPDATE

NIAGARA FALLS INTERNATIONAL AIRPORT

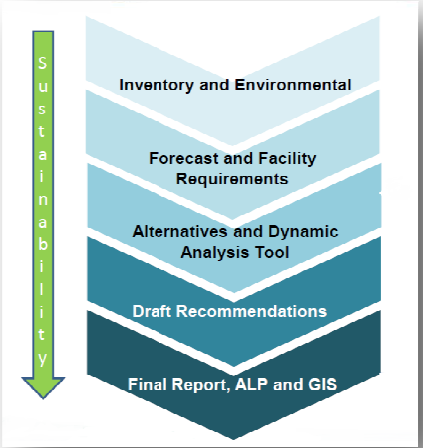
The McFarland Johnson Team

Technical Advisory Committee
Meeting Minutes/Summary
February 20th, 2013

The first Technical Advisory Meeting was held on February 20th, 2013 at 1pm in the passenger terminal at the Niagara Falls International Airport, the meeting lasted until approximately 2:15pm. Representatives from McFarland Johnson presented on the background of the project, existing conditions, environmental features as well as the sustainable approach for the project. The following sections summarize what was presented along with comments and questions received during the presentation.

What is a Master Plan?

An airport master plan is a document required by the Federal Aviation Administration (FAA) in order to be eligible to receive federal funds for airport improvements. The Niagara Falls International Airport Dynamic and Sustainable Master Plan is funded by both the FAA and New York State. An airport master plan, typically updated every 5-10 years should reflect the sponsor's (NFTA) goals for the airport. The master plan depicts airport development covering a 10-20 year span and becomes the official FAA and New York State Department of Transportation (NYSDOT) airport planning document.



Scope of Project

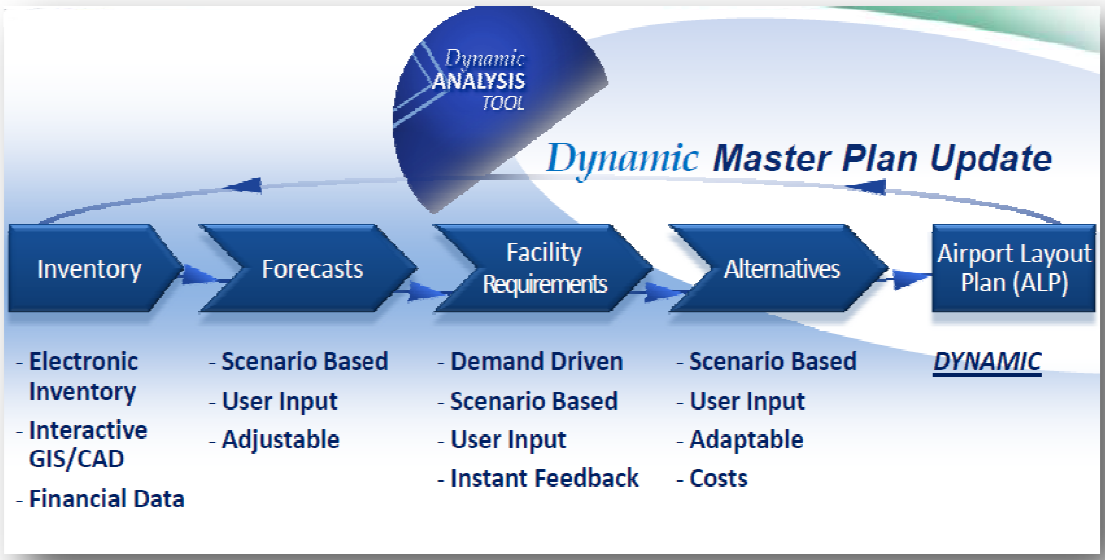
Mr. Ferraro with Niagara County Economic Development asked a question regarding the Master Plan as it related to nearby economic resources such as rail yards. Mr. Trevino with Niagara Falls Aviation also asked a question regarding development on parcels adjacent to the airport. The scope of the project was further clarified to the stakeholders by Mr. Vanecek.

An airport is an integral part of the community's economic profile and the benefits of economic potential extend far beyond the physical airport property. While the Niagara Falls Airport Master Plan does not include an in-depth analysis of off airport utilities and infrastructure, the master plan is targeted to complement local and regional plans to help facilitate economic

development. External elements will be considered as they relate to adjacent development and compatible land use.

Dynamic Planning Approach

The unique and first of its kind Dynamic Master Plan approach is being used for this project with the goal of allowing the airport to consider the planning elements and requirements for a variety of scenarios that could occur over the planning period. A sample example of the Dynamic Analysis Tools was presented as part of the meeting. Over the course of this project the forecast, financial and facility requirement data will be populated into the Dynamic Analysis Tool which will be included as a final deliverable alongside the traditional master plan elements.



Incorporating Sustainability

A key element in the Niagara Falls Airport Master Plan is the incorporation of sustainability into the planning process. The goal for this process is to have airport development strike a balance between social, economic and environmental needs for the surrounding community. Tenants and users may be asked to provide data and insight on items such as energy use, greenhouse gases, air quality and waste management throughout the course of the project.

Environmental Considerations

Environmental features are important considerations when planning future airport facilities. Early Identification of Environmental Constraints including wetland delineation was conducted this past fall, the data and findings will be used throughout the planning process. Goals for the environmental considerations include:

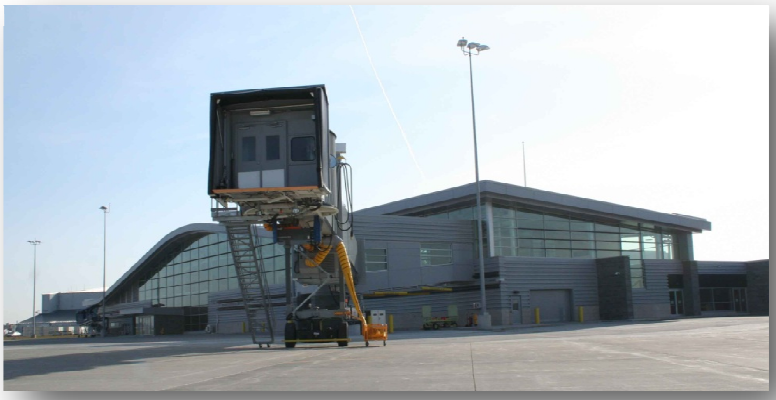
- Incorporate findings into alternatives analysis
  - Avoid/minimize impacts
  - Consider mitigation requirements
  - Informed decision making
- Basis for future National Environmental Policy Act (NEPA), State Environmental Quality Review (SEQR), and Permit Processes

Airside

Aside from the recent improvements on Runway 6-24, much of the airside infrastructure has been unchanged since the previous airport master plan conducted in 1994. In the fall of 2012 the FAA released a new design advisory circular that included sweeping changes for runway and taxiway design rationale. In addition, the FAA has recently revised operational practices for runway crossing practices within their air traffic control organization. These recent changes will have a notable impact on the airside facility requirements and development alternatives.

Terminal/Landside

With the passenger terminal being less than 3-years old, operational and capacity concerns are minimal. However the master plan will review the capacities and capabilities of the terminal building and landside features as they relate to the various forecast scenarios to help ensure that the facility can accommodate the necessary activity levels to support the community.



Public Participation Process

The Technical Advisory Committee assembled as part of this master plan will serve as a technical resource throughout the process and provide comment and insight on recommendations for NFIA. The Technical Advisory Committee meeting held on February 20th was the first of four such meetings that will occur as part of the master plan. Future meetings will discuss elements such as the forecast, facility requirements, alternatives and recommended development plan. In addition to the Technical Advisory Committee, there will be two Community Advisory Committee and two public meetings during the course of the project as well. The next Technical Advisory Committee meeting is currently planned for the June timeframe.

Organizations Represented

Calspan
City of Niagara Falls
Federal Aviation Administration
Greater Buffalo Niagara Regional Transportation Council
McFarland Johnson
New York Air National Guard 107th Air Wing
New York State Department of Environmental Conservation
New York State Department of Transportation
Niagara County
Niagara County Economic Development
Niagara Falls Aviation (FBO)
Niagara Falls Redevelopment
Niagara Frontier Transportation Authority
Standard Parking
Town of Wheatfield
Transportation Security Administration
US Customs and Boarder Protection

Organizations Invited, Not Present

Allegiant Airlines
Midwest Air Traffic (NFIA Tower)
Spirit Airlines
Town of Niagara
US Air Force 914th Air Wing

NIAGARA FALLS
INTERNATIONAL AIRPORT

SUSTAINABLE Master Plan UPDATE

The McFarland Johnson Team

TECHNICAL ADVISORY COMMITTEE
Meeting #2 September 13, 2013

Master Plan Process

SUSTAINABLE Master Plan UPDATE

Public Participation Process

- **Technical Advisory Committee (4)**
  - NFTA, FAA, NYSDOT, Regional Planning Agencies, Airport Tenants, FBO, Military, General Aviation Users
- **Citizens Advisory Committee (2)**
  - Local Residents, Elected Officials, Local Officials
- **Public Meetings (2)**
  - Informal, Open-House Workshop
- **University Involvement**
  - Niagara University
  - Others

Sustainability Baseline & Energy Audit

Sustainability Evaluation Agenda

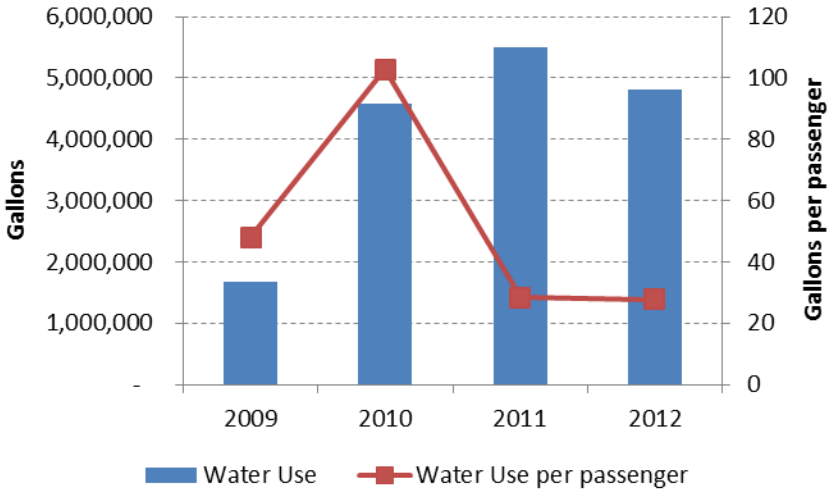
- **Baseline Assessment Overview**
  - Natural Resources
  - Air Quality / Greenhouse Gas Emissions
  - Energy
  - Waste Management / Recycling
- **Sustainability Goal Setting**

Baseline Performance - Natural Resources

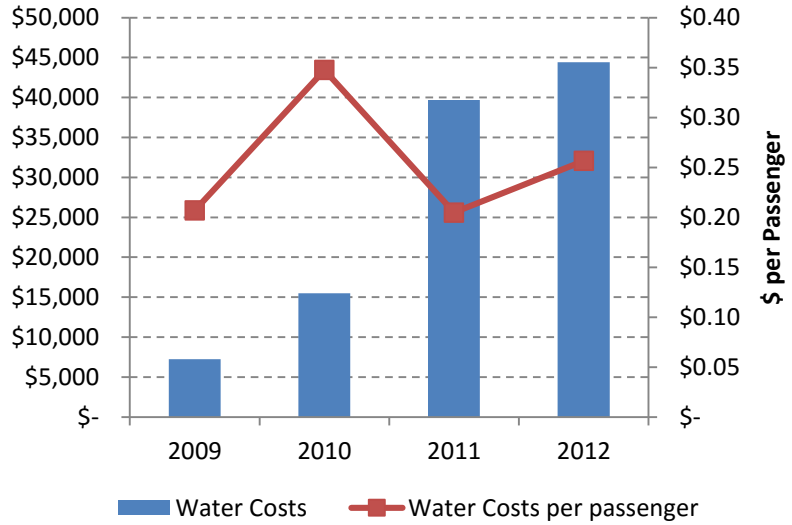
SUSTAINABLE Master Plan UPDATE

- **Water Resources**

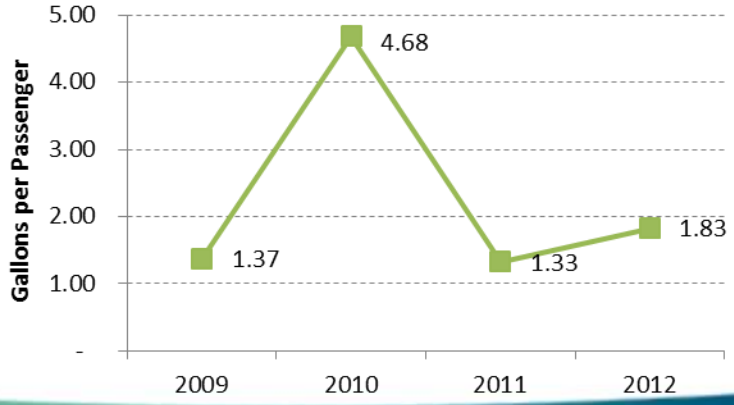
Water Use



Water Costs



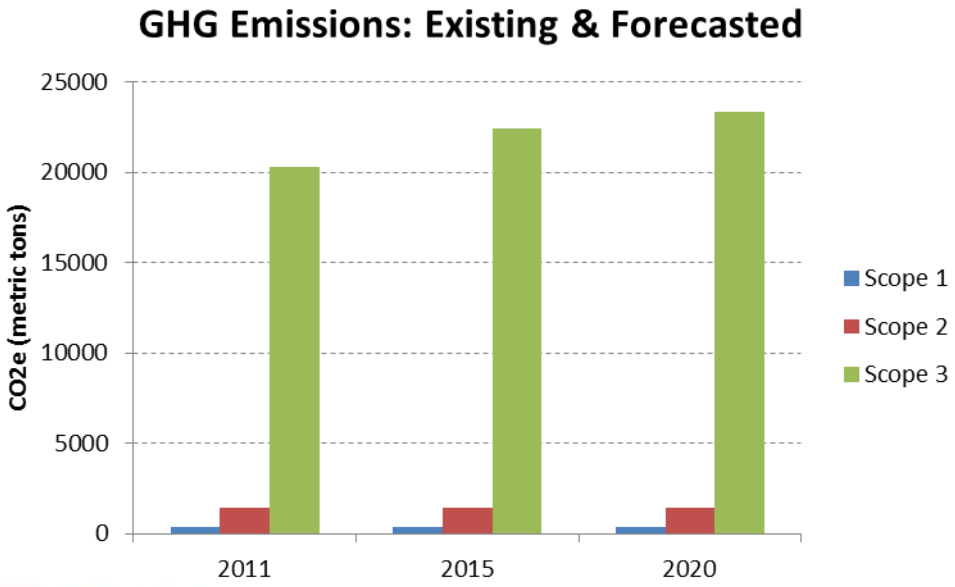
Water Use per Passenger

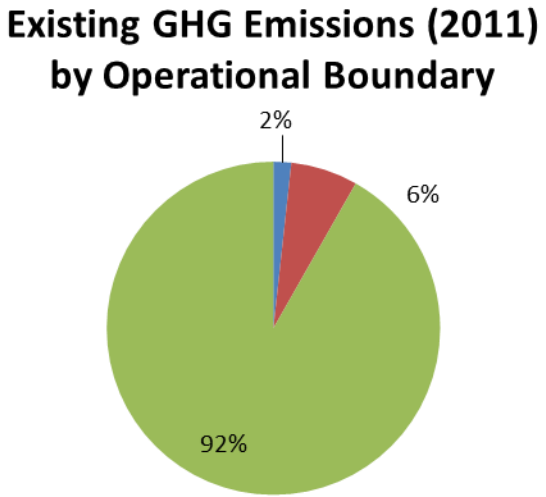


- **Water Resources – Opportunities**
  - Continue to implement deicing best practices
  - Continue to implement additional water conservation measures and look for new conservation opportunities
  - Improve monitoring/tracking of water use. This includes:
    - Tracking and reporting quarterly water use
    - Understanding meter locations
    - Accounting for variation in water use
  - Evaluate current landscaping practices and develop strategies to reduce chemical use, to plant native species, and to minimize landscaping water requirements
  - Install a water leak detection system

Baseline Performance - AQ / GHG

- **Criteria Air Pollutant Emissions**
  - Negligible contribution to statewide ozone pollutant levels
  - CO, VOC, NO_x and SO_2: aircraft are the largest contributors followed by motor vehicles, GSE and APU
- **Greenhouse Gas (GHG) Emissions**





Baseline Performance – AQ / GHG

- **Air Quality / GHG Emissions – Opportunities**
  - Conduct regular (every 2 to 5 years) calculation and reporting of GHG emissions
  - Encourage tenants to convert GSE to electric vehicles
  - Provide 400 Hz power and preconditioned air at aircraft gates
  - Restrict vehicle idling
  - Encourage single-engine taxiing
  - Phase out the use of ozone-depleting refrigerants
  - Coordinate bus service to match airline schedule to maximize convenience.

Baseline Performance - Energy

- **Building Survey/Energy Audit**
  - Evaluated building envelope, mechanical, electrical, and plumbing systems for:
    - New Terminal
    - Old Terminal
    - FBO Hangar
    - Triturator Building
    - Air Cargo Warehouse
    - NFTA Equipment Storage Building
    - Electrical Vault
    - GA Administration and Garage
  - Numerous opportunities for improved energy efficiency identified
  - Most do not have reasonable payback as standalone projects

Baseline Performance - Energy

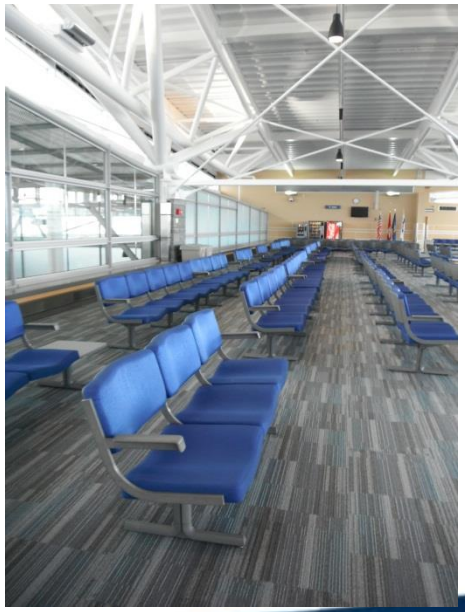
- **Opportunities**
  - **New Terminal**
    - **Install CO_2 sensors for ventilation control**
      - **Payback ≈2.3 years**
    - **Install daylighting controls**
      - **Payback ≈ 12.1 years**
    - **Replace metal halide lamps in ticket lobby with LED**
      - **Payback ≈ 9.5 years**
  - **Old Terminal**
    - **Existing systems adequate with minor upgrade for low intensity use (limited need for conditioned air)**
    - **Cost/benefit - major renovation vs. demolition/new construction**

Baseline Performance - Energy

- Other Opportunities
  - Most HVAC and lighting systems have exceeded useful life; Replace with energy efficient systems as they fail
  - Improve thermal efficiency of building shells during renovations
    - Thermal pane windows; insulation; weatherstripping
  - Lower thermostat setpoint in garage to 55° (free – saves 1703 therms ($2,200/year))
  - Other low cost, short payback opportunities noted
    - Timed fan switches
    - Zoned lighting
    - Weatherstripping

Baseline Performance – Waste Management

- NFTA recycles paper, plastic, glass and metal
- Volume of recycled materials ~ 285 gallons or 1.4 cubic yards of waste (estimated)
- NFTA pays ~$6,000 annually in waste disposal fees
- Ratio of recycling bins to trash bins is ~3:2
- Existing waste minimization/ recycling strategies at NFIA:
  - Purchasing of Recycled Materials
  - Recycling Signage
  - Waste Minimization
  - Materials Reuse



- **Waste Management - Opportunities**
  - Track waste and recycling by weight or volume
  - Include in contractor agreements a requirement to recycle a minimum percentage of C&D waste
  - Develop a waste and recycling education program (use educational materials from the NY State Department of Environmental Conservation and the Natural Resources Defense Council)
  - Coordinate with airline tenants to increase recycling of deplaned waste

NFTA Mission Statement & Performance Goals

- **NFTA Mission Statement** - Adopted March 28, 2013
  - The NFTA is a multi-modal entity encompassing a skilled and dedicated workforce. We are firmly committed to providing **efficient** and **professional** transportation services that enhance the **quality of life** in the **Buffalo Niagara region** in a manner consistent with the needs of our customers.
  - **Aviation:** serves as a **catalyst for economic growth** by maintaining **cost effective**, **customer oriented**, and **efficient** airports to attract and retain comprehensive and competitive air transportation services.

NFTA
Niagara Frontier Transportation Authority

- **NFTA Performance Goals for NFIA**
  - Continue the aggressive marketing approach to **capitalize on Air Cargo and Charter opportunities** in the most cost efficient operating manner.
  - Work closely with the FBO to assure the **performance of contracted services** and the marketing program for the airport
  - Continue to market the NFIA terminal to potential air service providers and concessionaires to **provide quality customer service** and **improve operating profits**
  - Continue to **increase satisfaction and customer service** and **enhance public and customer perception** of the airport
  - Continue to **promote and maintain a safe working environment** for NFIA employees with the goal of no lost time incidents and no workers' compensation expense.

Potential Sustainability Vision Statement

- **NFIA will serve as a sustainable catalyst for economic growth by promoting air service development and aviation-related business opportunities in an environmentally and socially responsible manner.**

Potential Sustainability Goals

- Better understand and cater to NFIA's customer base to enhance air service and terminal offerings.
- Maximize the economic potential of NFIA by providing business and employment opportunities.
- Conserve natural resources and minimize air and water pollution.
- Minimize waste and increase the rate of recycling.

Forecasts & Aviation Demand

Multiple Scenario Forecasts Enable Dynamic Planning

- **Baseline Forecast**
  - Historic trends and recent events
  - Inherently conservative
- **Multiple Scenarios for Commercial Aviation Activity**
  - Degree & Pace of Air Service Development
  - Types of Service Development
  - NFIA's Relationship to BNIA & Other Airports in the Region
- **Air Cargo**
- **General Aviation**
- **Military Activity**

Core Considerations and Outputs

- **Considerations**
  - Regional demographic and economic trends
  - Trans-border factors
  - Traffic history and trends at region's airports
  - Market segmentation
  - Access to regional traffic pool
  - Airline and airport competitive context
  - NFIA role, history and prospects
- **Outputs**
  - Annual total passenger volumes
  - Annual total aircraft movements
  - Forecast period: 2013 through 2040

The Niagara Region

Analytic Elements of the Forecast

- GDP, Exchange Rate
- Population
- US and Canada

- 2012: 34.7 million O&D pax
- Geographic markets
- Business vs leisure

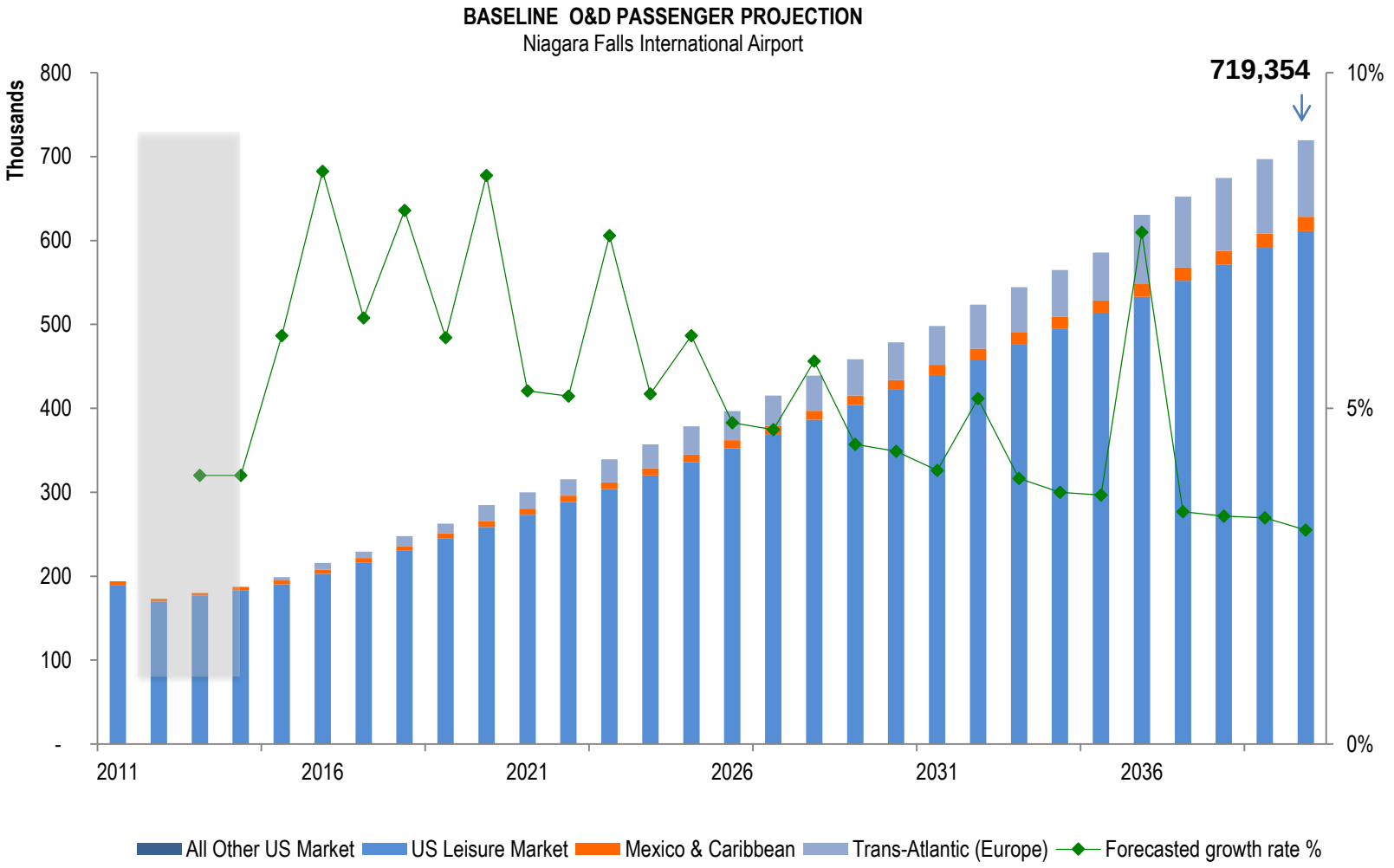
- Competitive relationships
- Air traffic trends
- Airline considerations
- Airport considerations

- Trend correlations
- Application to NFIA

- Base case forecast
- Alternative scenarios

NFIA Passenger Forecast Summary

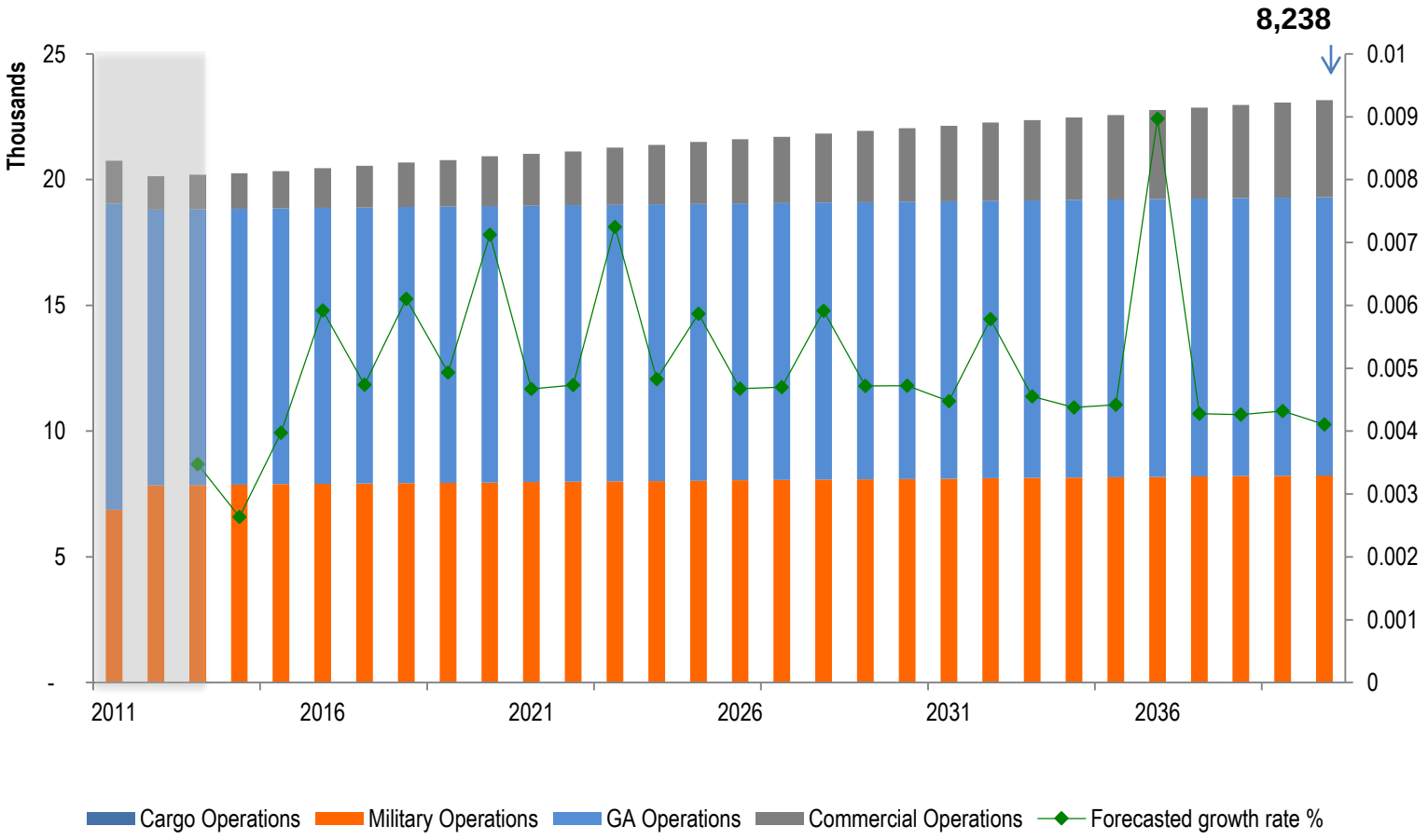
Figure 19



NFIA Aircraft Movements Forecast

Figure 20

BASELINE OPERATIONS PROJECTION
Niagara Falls International Airport



Alternative Scenarios

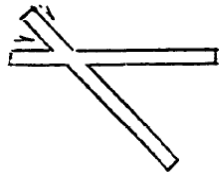
- Input for *Dynamic Analysis Tool*
  - External factors will be key driver of traffic trends at NFIA
- 5 alternative scenarios were also forecasted for dynamic master plan modeling
  1. Introduction of trans-Atlantic services
  2. Introduction of large international tour operator program
  3. Low-cost carrier continued growth
  4. Expansion of air cargo freighter operations
  5. Softened Canadian demand for NFIA service
- Scenarios are additive (or subtractive) to baseline forecast
- Scenarios are not predictive, but assist in facility and operational planning as events occur and trends unfold

Airside
Facility Requirements

Airfield Capacity Analysis

- **Multiple Factors Affect Airfield Capacity**
  - Touch-and-Go's
  - Number and Location of Taxiway Exits
  - VFR/IFR Conditions (% Each)
  - Seasonality/Peaking Characteristics
  - Runway Configuration/Utilization
- **Existing Airfield Capacity = 213,628**
  - Analysis Excluded 10R-28L
- **Year 2040 Operations 23,160 = 11% Capacity**
  - Planning for New Capacity Not Required Until 128,000 Annual Operations (60% Threshold)

9.

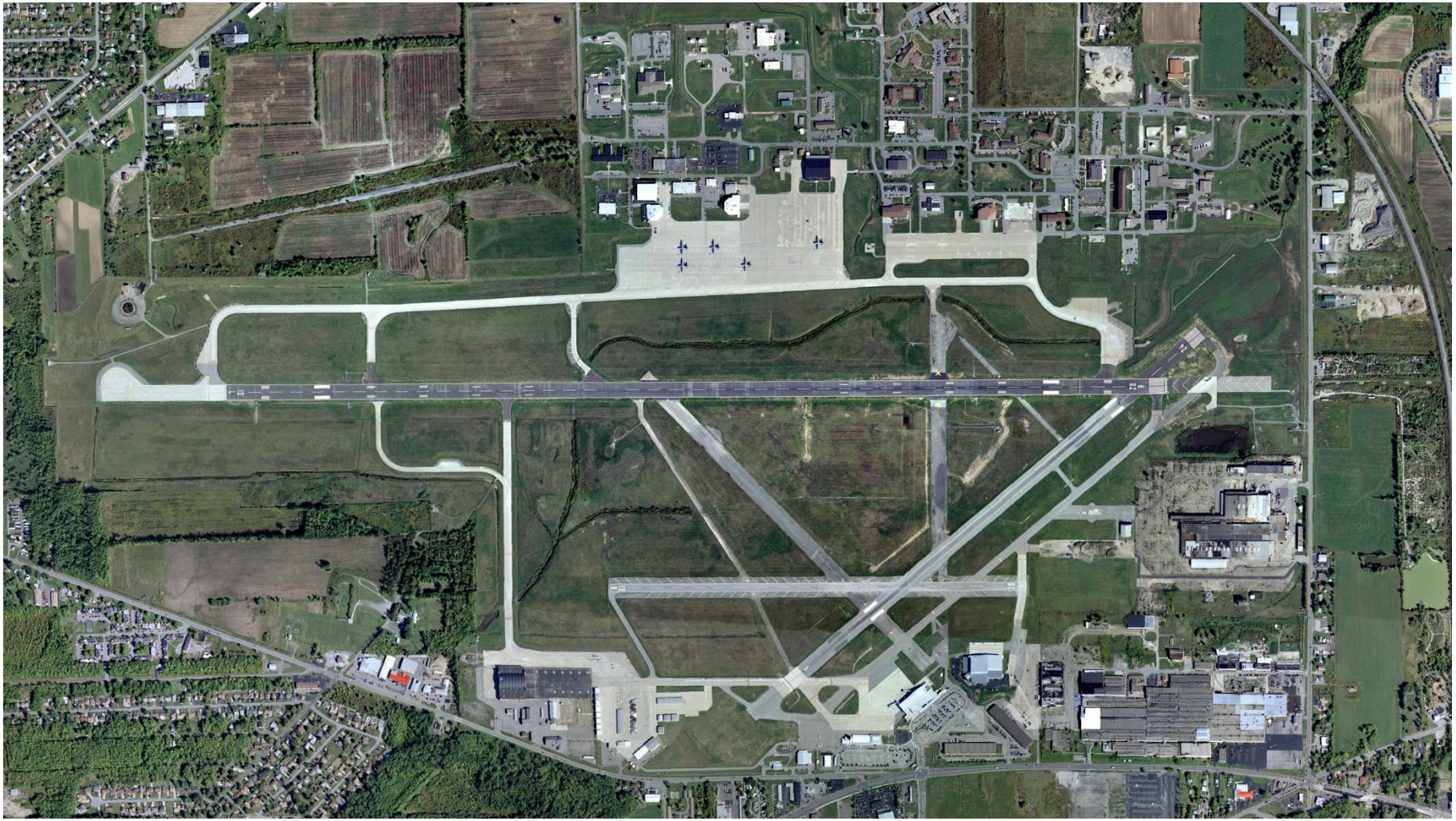


Oto 20	98	59	230,000
21 to 50	77	**57**	200,000
51 to 80	77	56	**215,000**
81 to 120	76	59	**225,000**
121 to 180	72	60	265,000

Key Issues - Airside

- **New Runway/Taxiway Design Requirements**
  - Taxi Routes to/from Terminal
- **Crosswind Runway Capabilities**
  - Existing/Future
- **Physical Constraints**
  - Property/Development
- **Instrument Approaches**
  - New Approaches to 6/24
  - 28R Glideslope
  - 10L Approach (Canadian Airspace)

Airport Overview



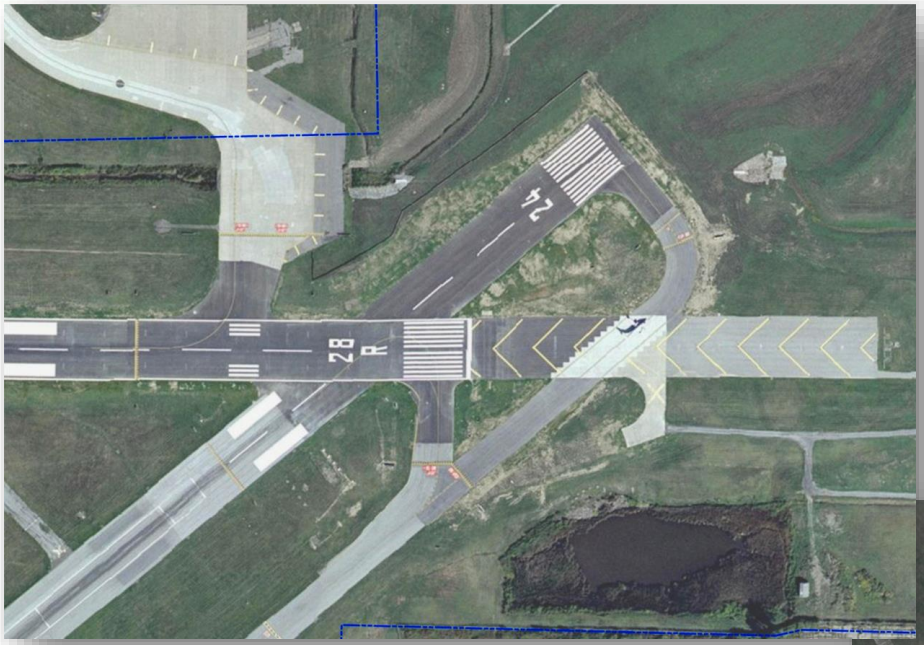
Runway Requirements

- **Extend Runway 6-24 to 6,000 feet**
  - Reclaim 402 feet of Pavement on the Runway 6 end
  - Construct 410 feet of Pavement on the Runway 24 end
  - LDA and ASDA for both runways of 5,600 feet
  - Obstruction Removal Required for Airline Utility
- **Complex Confusing Intersection Near 28L, 24 Thresholds**
- **Runway 10R-28L No Longer Needed**
  - Minimal Use, Primarily Convenience
  - Enable Additional Aviation Development
  - Alternatives will Evaluate Potential Use as Taxiway

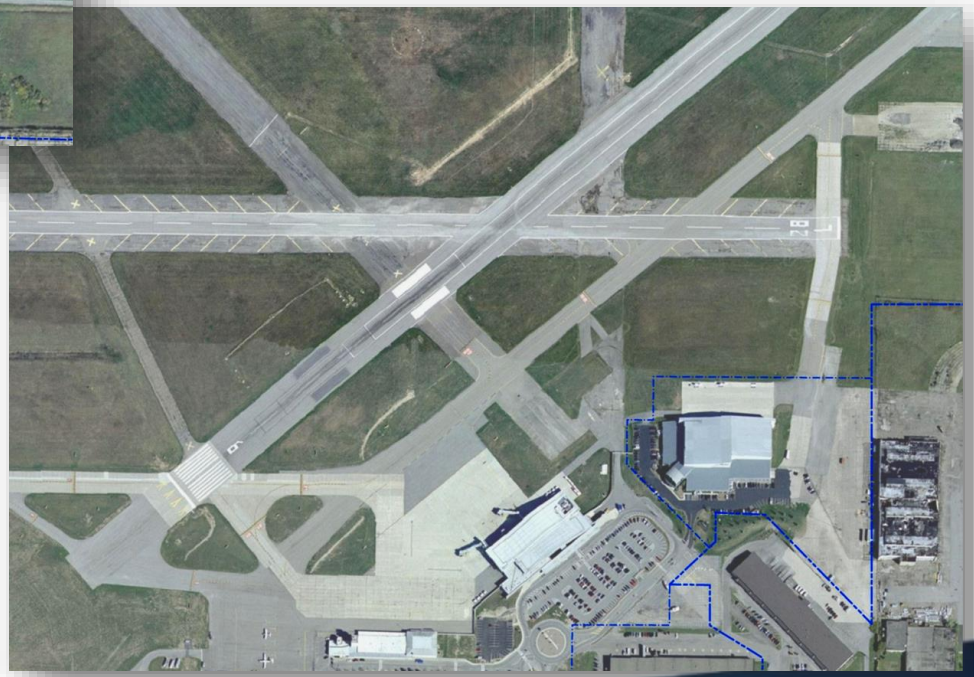
Approaches / NAVAIDS

- 28R Glideslope Improvements
- Develop Approach Procedure for Runway 10L
- Improve Approach Minimums for Runways 6 & 24
  - Existing – 1 Mile (6 – LPV/LNAV, 24 – LP/LNAV)
  - Ultimate – ¾ Mile (LPV)
- Replace Runway 28R VASI with PAPI
- Install PAPI & Approach Lights on Runway 10L
- Install REILs

Taxiway Design Challenges



- Complex Taxiing Routes
- ATC Runway Crossing Procedures
- Potential for West Side Parallel Taxiway to Runway 6/24 Based on Preferred GA Alternative



- Update taxiway system in accordance with AC 150/5300-13A
- Improve Access from Taxiway A to Runway 24 end
- Improved Access from Terminal Area to Runway 10L end

Terminal Facility Requirements

Terminal Planning

- **Non-Traditional Planning**
  - Less than Daily Service
  - High Seasonality, Peaking
  - Low Cost Airline Considerations
- **Limited Historical Data**
  - 2010 Minimal Service - 23,000 Enplanements (Up 35%)
  - 2011 Direct Air Service, High Growth
  - 2012 Direct Air Ceases (50% Share), Runway Closure
- **Capacity Capabilities**
  - Aircraft Sizes, International Operations

Focus Placed on Functional Area Constraint Thresholds

Terminal Building

Terminal - Departure Flow

- **Ticketing/Check in – Technology Changes**
  - Web/Mobile Check-in Minimizing Future Requirements
  - Leisure Oriented Service
    - More Checked Baggage, Larger Group Size
  - Ticket Counters
    - Assigned, but Flexible Use
- **Shared Baggage Makeup Area**
  - Limited Existing Space
  - 3rd Airline -> Overcrowding

Security Infrastructure

- **Passenger Screening**
  - Existing Configuration Good for up to 275 Pax/Hr
  - Intermediate/Long Term Requires 2 Lanes (550/Hr)
  - High Growth Could Ultimately Require 3 Lanes (825/Hr)
- **Baggage Screening**
  - Currently Using ETD Method
  - One EDS Allocated, Unfunded
    - 180 Bags/Hr Capacity Insufficient for Peak Ops
    - No Space for Expanded Baggage Screening Infrastructure

Terminal – Arrival Flow

- **Circulation Improvements Required for Out-Year Peak Hour Operations (Holdroom + Inbound)**
  - Restrooms/Concessions
- **Two Baggage Belts/Total Frontage Sufficient**
  - Space/Circulation Component is Controlling Factor
  - Effectiveness Dependant on Airline Operations
- **FIS Capacity 200/Hr = Boeing 757**
  - Expansion Required for Boeing 767/Airbus 330

Terminal Summary

- **Terminal Annual Capacity Based on:**
  - Constrained by Peak Season, Capacity is Greater with Stronger Off-Season Demand
  - Peak Season, 4-5 Peaks Per Day

Passengers/Hour	250	300	350	400	450	500	550	600
Aircraft Equivelent	1.5	1.8	2.1	2.4	2.6	2.9	3.2	3.5
Annual Capacity (Enplanements)	275,000	330,000	384,000	439,000	503,000	559,000	627,000	684,000
Ticket Counters								
Check-In Queuing								
Kiosks								
Baggage Screening								
Baggage Makeup								
Security Checkpoint								
Holdroom								
Concessions								
Boarding Gates								
Circulation								
Baggage Claim								
Restrooms								
Curb Frontage								

>65% 75% 85% 100% 110%

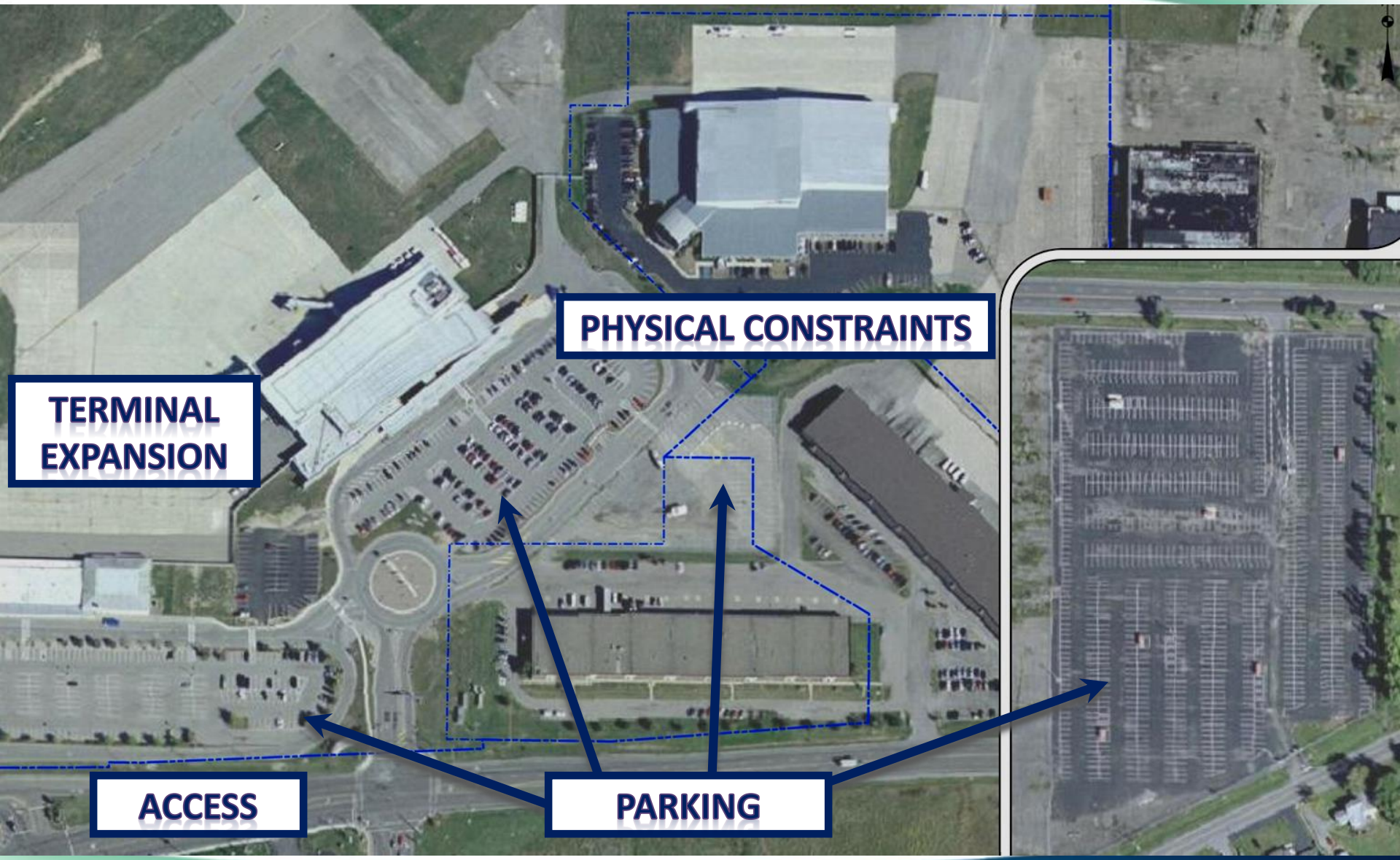
Landside Facility Requirements

Landside Requirements

- **Inefficient, Confusing Roadway Layout**
  - Old Terminal/New Terminal
  - IDA Building
  - Auto Parking Lots
- **Curb Frontage**
  - LOS Steadily Declines with Growth
- **Ground Transportation**
  - Increasing Demand for Rental Cars
    - Single Counter Overcrowding at Existing Levels
    - Rental Car Support Facilities
  - Greater Demand for Tour Busses - Staging Area

Terminal Area- Key Issues

SUSTAINABLE Master Plan UPDATE



Auto Parking

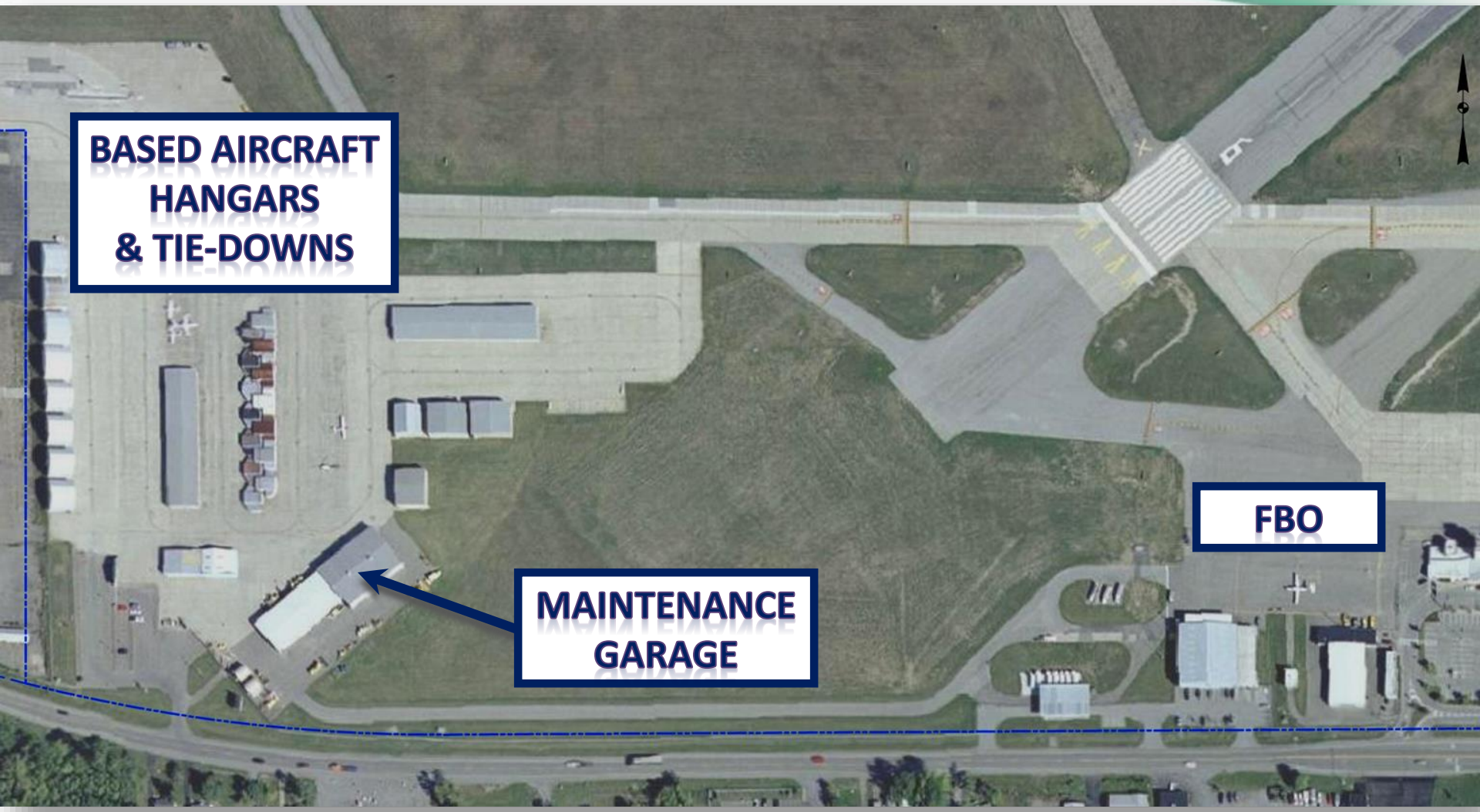
- Three (3) Primary Parking Lots,
  - Lot 1 & 2 -238/255 Spaces
  - Lot 3 (Remote) – 1,100 Spaces (Seasonal)
- Connect/Consolidate Smaller Lots
- "Peak Season" – Average of Busiest 3 Months

Enplanements	Parking Spaces
100,000	632
200,000	1,265
300,000	1,703
400,000	2,271
500,000	2,530

General Aviation

- **Consolidated General Aviation Area**
  - Existing FBO Site is Adjacent to Passenger Terminal
  - Existing Hangars/Based Aircraft Across Runway
- **Hangars not Compatible with Mid/Large Corporate Jets**
  - Existing Demand for Citation-X, Tail is too Large
- **Consolidated GA Area Requires:**
  - New Apron – Existing Apron Shared with Terminal, Direct Access to Runway 6-24
  - Taxiway Access Improvements, Potential New Parallel

General Aviation



Air Cargo

- **Size/Infrastructure Driven by Developer/Provider**
  - Limited Local Demand, yet Abundant Infrastructure
- **Alternatives will Consider Boeing 747-8F (Group VI)**
  - Allows Airport to Evaluate A380 Diversions/Operations
- **Facility Sized for Up to 100,000 SF Processing Space w/ Direct Road Access**

Support Facilities / Equipment

- **Snow Removal Equipment**
  - Expanded Facility
    - Larger Doors for Newer Equipment (3,750 SF)
  - Current SRE Fleet are adequate
    - Replace equipment as necessary
- **Current ARFF Services are adequate under present arrangement with USAF**
  - Index B required
  - USAF provides services up to Index E
- **Relocate Air Traffic Control Tower**
  - Analysis to Follow Airside Alternatives

Military Facilities

- NY ANG 107 and USAF 914
  - 12 Aircraft Assigned to 914, Joint Operated with 107
- Provides ARFF Coverage for Airport
  - Index E
- Owns Taxiway A and West Portion of 10L-28R
- 4 Hangar Spaces
- Aircraft do not Fly GPS Approaches
- Keep Training Opportunities Available

Next Steps

- Finalize Facility Requirements
- Create Development Alternatives
- Development of *Dynamic Analysis Tool*
- Alternatives Analysis
  - FAA Coordination Meeting
  - Community Advisory Committee
  - Technical Advisory Committee
- Preferred Alternative

Give Us Your Comments!

- **Review Report Documents and Provide Comments**

http://dynamic-planning.com/NiagaraFalls.html

- **Meeting Minutes, Presentations and Draft Technical Report Chapters Available for Review**
  - **Contact Project Team Member if you Require Hard Copies**
- **Provide Comments to Any Member of the Project Team by September 30, 2013**

Project Contacts

Mark Clark – Project Manager – NFTA

- Mark_clark@nfta.com 716-630-6133

Chad Nixon – Project Manager – MJ

- cnixon@mjinc.com 607-723-9421

Rick Lucas – Task Leader: Airside, Landside and Terminal

- rlucas@mjinc.com 607-723-9421

Jeff Wood – Task Leader: Environmental and Sustainability

- jwood@mjinc.com 607-723-9421

Questions?

Technical Advisory Committee
Meeting Minutes/Summary
September 12, 2013

The second Technical Advisory Meeting for the Sustainable Airport Master Plan was held on September 12, 2013 at 2pm in the passenger terminal at the Niagara Falls International Airport; the meeting lasted until approximately 4:05pm. Bill Vanecek, Director of Aviation for the NFTA and Chad Nixon, Project Manager for McFarland Johnson welcomed the committee and provided a background on the project. Representatives from the McFarland Johnson team presented on the topics of sustainability, energy consumption, forecast of demand, and airport facility requirements. The following sections summarize what was presented along with comments and questions received during the presentation.

Sustainability Baseline

Ben Siwinski (VHB) introduced the concept of sustainability and discussed its definition which includes elements of social responsibility, operational efficiency, economic viability, and natural resource conservation. Roger Trevino noted that sustainable initiatives and their costs should be matched to market demands; Bill Vanecek noted that sustainable initiatives will be practical and make fiscal sense, with further review occurring in an upcoming NFTA strategic plan.

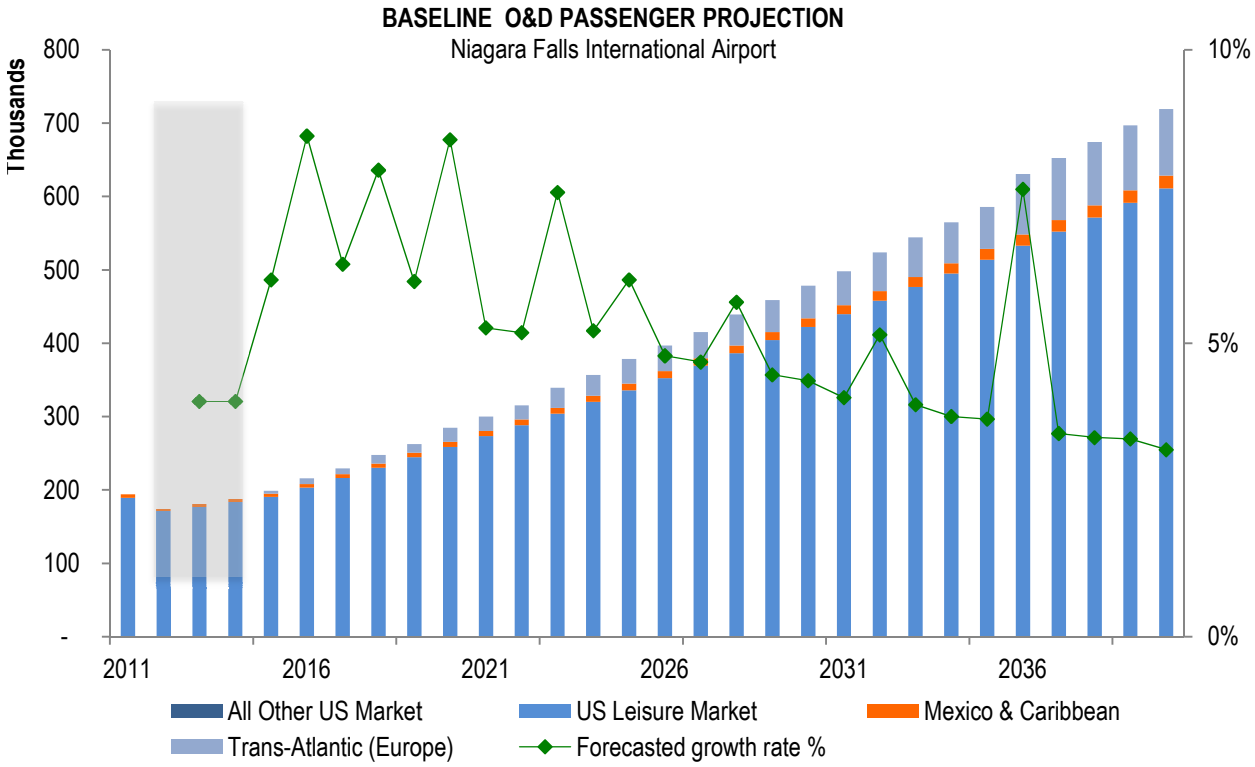
The energy audit portion of the Sustainability elements focused on air quality/greenhouse gas but the primary discussion was on water use and cost. Ben defined the charts as indicating both NFTA-wide and just at NFIA Terminal. Bill Vanecek noted that 2010/2011 spikes were most likely construction related. Ben Siwinski then discussed the NFTA mission statement, draft vision statement, and sustainability goals. Kim Minkel suggested incorporating the word “safe” into the vision/goals.

Forecasts and Aviation Demand

Barney Parella explained that the forecasts are not intended to predict the future, but rather serve as the baseline for the most likely scenario under current conditions. The forecast methodology which used the econometric model based on the multi-airport

region was discussed and what the role of NFIA is within that region. Mr. Parella noted that for military, general aviation and air cargo, growth is based on external forces and or business decisions that occur outside the airport's control.

Roger Trevino and Bill Vanecek discussed the conservative nature of the forecasts. Bill indicated that the Dynamic Analysis Tool will allow NFTA to look at future "what if" scenarios.



Facility Requirements

At approximately 3:13pm, the meeting was turned over to Rick Lucas who discussed airport facility requirements. The discussion started with the airport capacity analysis where it was noted that there are no anticipated capacity related concerns for the airfield under any of the forecast scenarios.

Mr. Lucas indicated that there was no long term capacity need, nor any specific user need for the short parallel, Runway 10R-28L. Mr. Sloma mentioned that Jamestown and Niagara College have talked to him about flight training, in which they would prefer to use Runway 10R-28L. Mr. Lucas said that no one has reported use on this runway, but this is good information and that any support for justification of the runway should be documented in the master plan. When discussing the crosswind runway length, Mr. Trevino indicated that the peak season for airlines occurs in the winter when wind favors the crosswind runway, meaning that longer length would benefit air carriers.

Taxiway requirements were discussed, however it was noted that the requirements are a function of the general aviation and air cargo facility location which will be identified in the alternatives effort.

Terminal Area Requirements

Mr. Lucas moved on to discuss the passenger terminal facility requirements where it was noted that NFIA passenger terminal requirements involve non-traditional planning due to less than daily service and high seasonality and traffic peaks. It was noted that the theoretical annual capacity of the terminal is determined by peak characteristics, where that capacity could be increased if traffic was attracted to off-peak months. Terminal functional areas were broken down where it was identified that with the exception of ticket counters, the level of service for the functional areas deteriorates at approximately two simultaneous departures.

Passengers/Hour	250	300	350	400	450	500	550	600
Aircraft Equivelent	1.5	1.8	2.1	2.4	2.6	2.9	3.2	3.5
Annual Capacity (Enplanements)	275,000	330,000	384,000	439,000	503,000	559,000	627,000	684,000
Ticket Counters								
Check-In Queuing								
Kiosks								
Baggage Screening								
Baggage Makeup								
Security Checkpoint								
Holdroom								
Concessions								
Boarding Gates								
Circulation								
Baggage Claim								
Restrooms								
Curb Frontage								

>65%	75%	85%	100%	110%

Roadway and auto parking requirements were discussed where it was noted that the roadway configuration is a function of the parking lots. The terminal area development alternatives will likely recommend connecting and consolidating the parking lots in front of the terminal which will both increase parking and change the roadway layout.

General Aviation

Mr. Sloma mentioned that historically having a new GA terminal wasn't an issue, but could be in the future. He indicated that the old Army Hangar area would be ideal, due to location and existing facilities located there now. It was noted that this facility is not currently on airport property, but that the MPU should look at this site should it become available as other sites would cost great financial expenditures to accommodate.

Roger Trevino asked about based aircraft methodology, where it was explained that since only organic growth based on existing demand can be quantified, based jets would go from 3 to 9 over the planning horizon of 20 years.

Dynamic Analysis Tool

The meeting was concluded by Mr. Nixon demonstrating a working draft of the Dynamic Analysis Tool. This tool depicted how the airport would be able to better plan for an anticipate facility needs should actions not reflected in the traditional, FAA approved forecast occur. Mr. Nixon illustrated the Air Cargo scenario where the financial and facility impactions of an air cargo operation were visually demonstrated to the committee.

Next Steps

The Technical Advisory Committee assembled as part of this master plan will serve as a technical resource throughout the process and provide comment and insight on recommendations for NFIA. The Technical Advisory Committee meeting held on September 12th was the second of four such meetings that will occur. Future meetings will discuss elements alternatives and recommended development plan. In addition to the Technical Advisory Committee, there will be two Community Advisory Committee and two public meetings during the course of the project as well. The next Technical Advisory Committee meeting is currently planned for the Winter 2013/2014 timeframe.

Organizations Represented

Calspan
Federal Aviation Administration
Greater Buffalo Niagara Regional Transportation Council
McFarland Johnson
US Air Force 914th Air Wing
Niagara County
Niagara County Economic Development
Niagara Falls Aviation (FBO)
Niagara Falls Redevelopment
Niagara Frontier Transportation Authority
Standard Parking

Organizations Invited, Not Present

Allegiant Airlines
Midwest Air Traffic (NFIA Tower)
Spirit Airlines
Town of Niagara
New York Air National Guard 107th Air Wing
City of Niagara Falls
New York State Department of Environmental Conservation
New York State Department of Transportation
Town of Wheatfield
Transportation Security Administration
US Customs and Boarder Protection

NIAGARA FALLS
INTERNATIONAL AIRPORT

SUSTAINABLE Master Plan UPDATE

The McFarland Johnson Team

TECHNICAL ADVISORY COMMITTEE
Meeting #3 June 4, 2014

Agenda

- **Progress to Date/Recap**
- **Purpose of Meeting**
- **Alternatives Analysis**
  - Airside
  - Air Cargo
  - General Aviation
  - Landside
  - Terminal
  - Sustainability
  - Evaluation Criteria
- **Next Steps**

Open Format, Ask Questions at Any Time

Purpose of Meeting

- **Present Development Alternatives for Airside, Landside, and Support Facilities**
- **Discuss Process**
  - Development of Alternatives
  - Evaluation of Alternatives
  - Discuss Selection of Preferred Alternatives
  - Planning Horizon – 20 Years
- **Obtain Feedback**
- **Concurrence of Recommended Development**

Airside Alternatives

Airside Facility Requirements

- **New Runway/Taxiway Design Requirements**
  - Taxi Routes to/from Terminal
- **Crosswind Runway Capabilities**
  - Air Carrier Upgrades, Extension, Precision Approach
- **Complex Confusing Intersection Near 28L, 24 Thresholds**
- **Runway 10R-28L Not Needed**

Airside Alternatives

- Runway 24 Precision Approach
- Taxiway Widths Dependent on Air Cargo Location
- Alternative 1
  - Partial Parallel, Convert Abandoned Pavement to Taxiway
- Alternative 2
  - Convert 10R-28L to Taxiway
- Alternative 3
  - Standard Taxiway System

Airside Alternative 1

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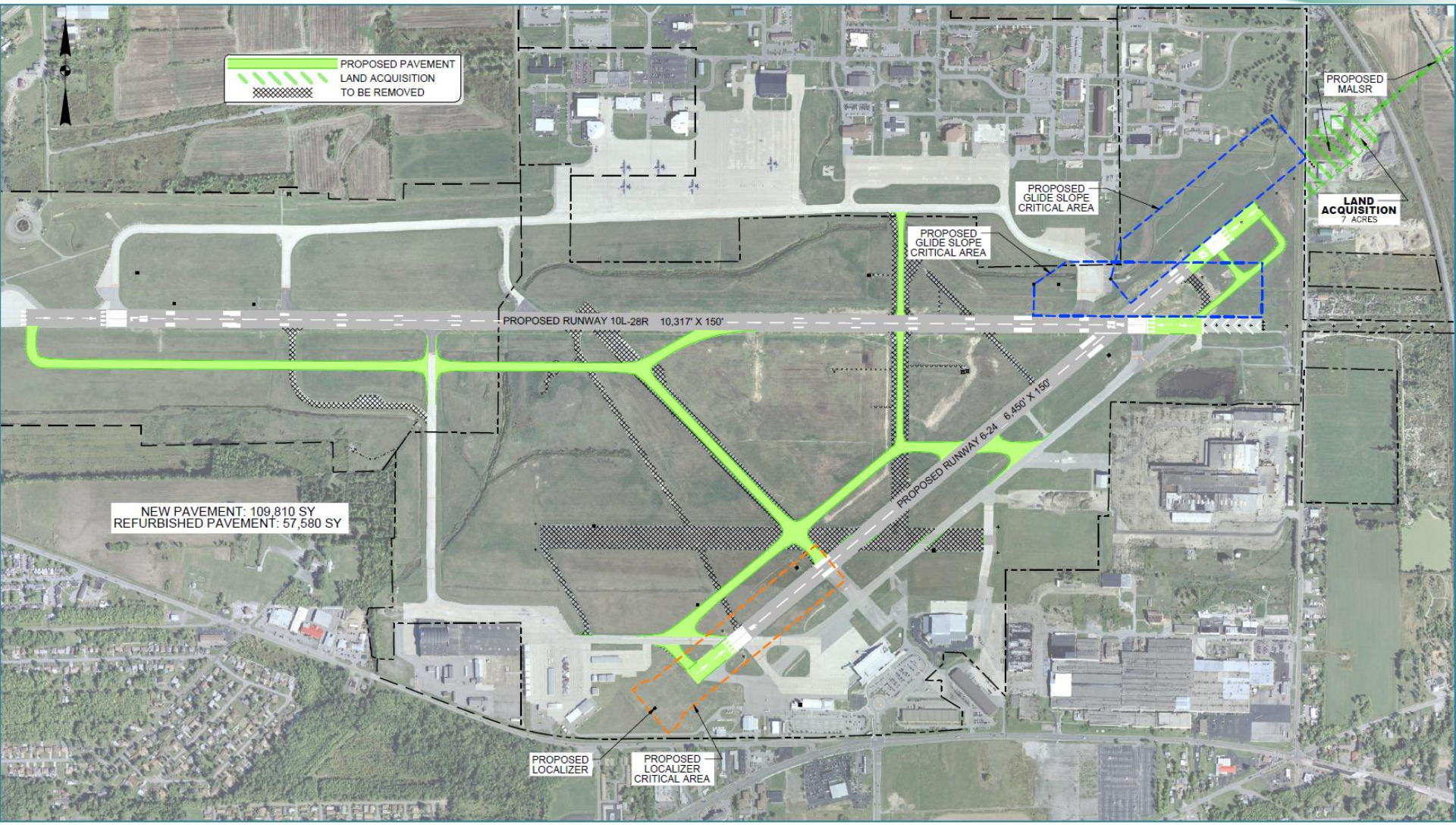

Airside Alternative 2

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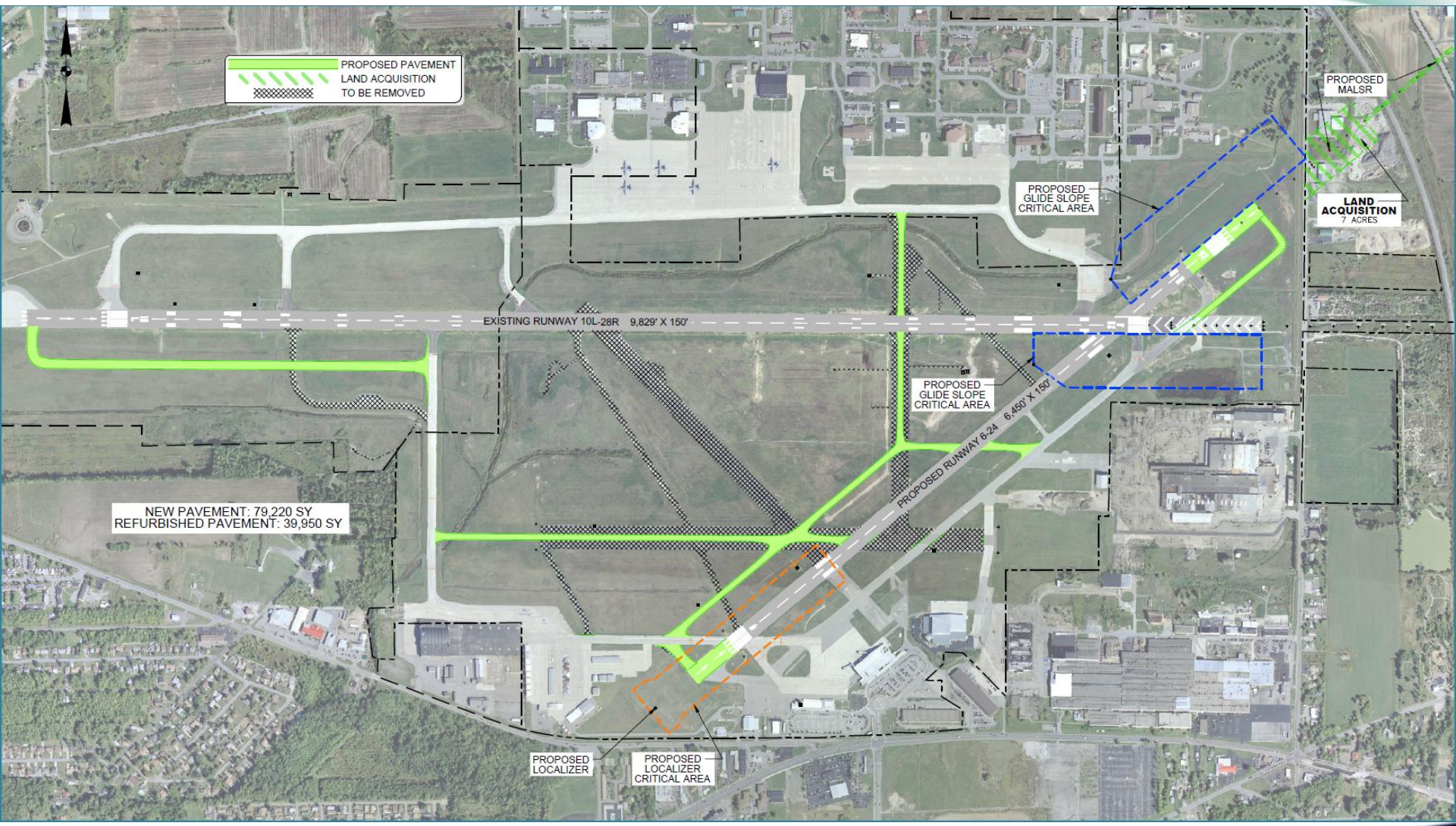

Airside Alternative 3

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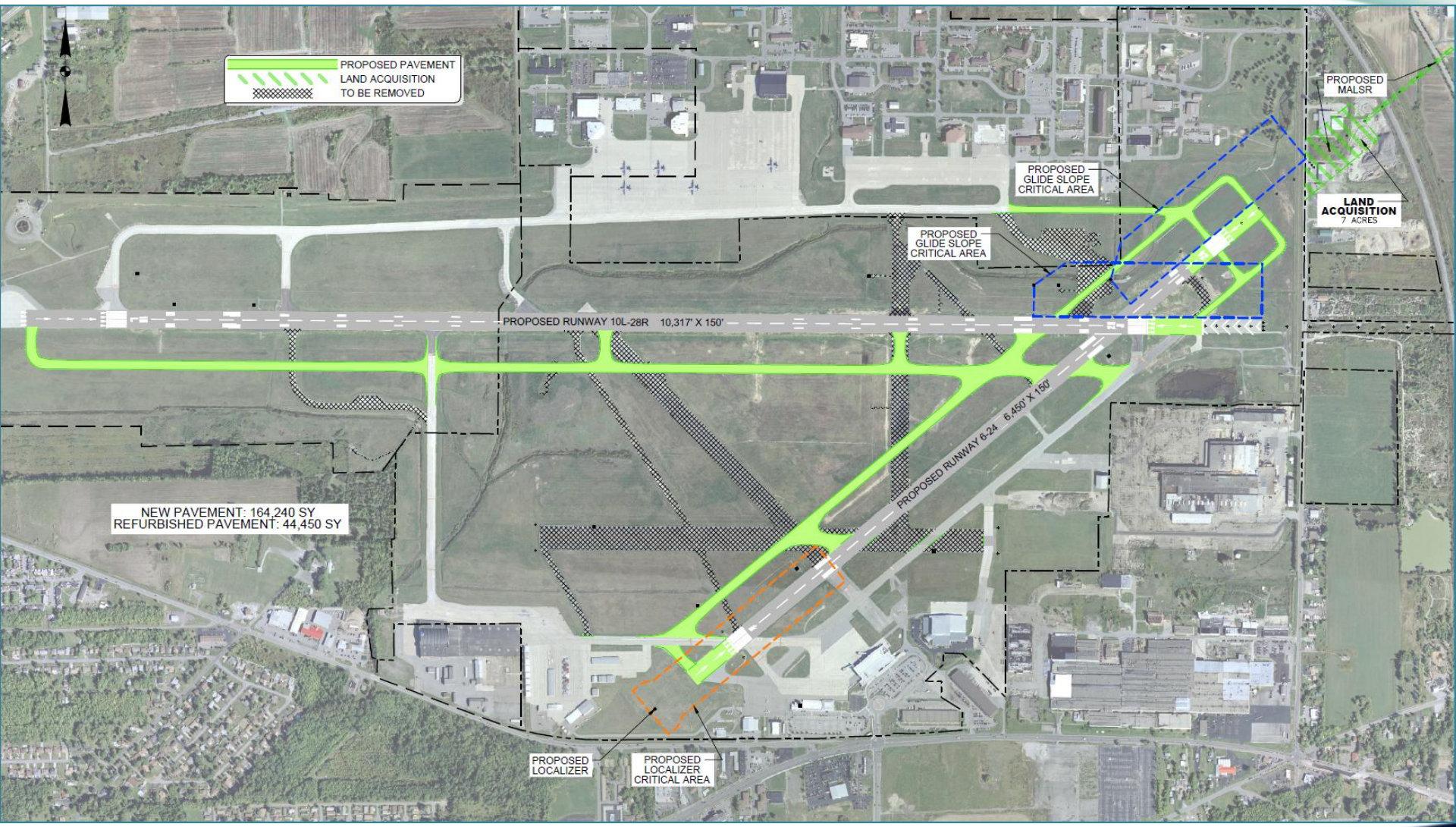

Air Cargo Alternatives

Air Cargo Facility Requirements

- **Size/Infrastructure Driven by Developer/Provider**
  - Limited Current Demand, yet Abundant Infrastructure
- **Alternatives will Consider Boeing 747-8F (Group VI)**
  - Allows Airport to Evaluate A380 Diversions/Operations
- **Facility Sized for Up to 100,000 SF Processing Space w/ Direct Road Access**

Air Cargo Alternatives

- **Alternative 1**
  - Acquire Former US Army Parcel
- **Alternative 2/2A**
  - Infield Development
  - Alternative 2 is Compatible with GA Alternative 2
  - Positioned to Avoid Environmental Impacts
- **Alternative 3**
  - Concept Only Viable if Military Mission Changes
  - Compatible with Business Park Concept

Air Cargo Alternative I

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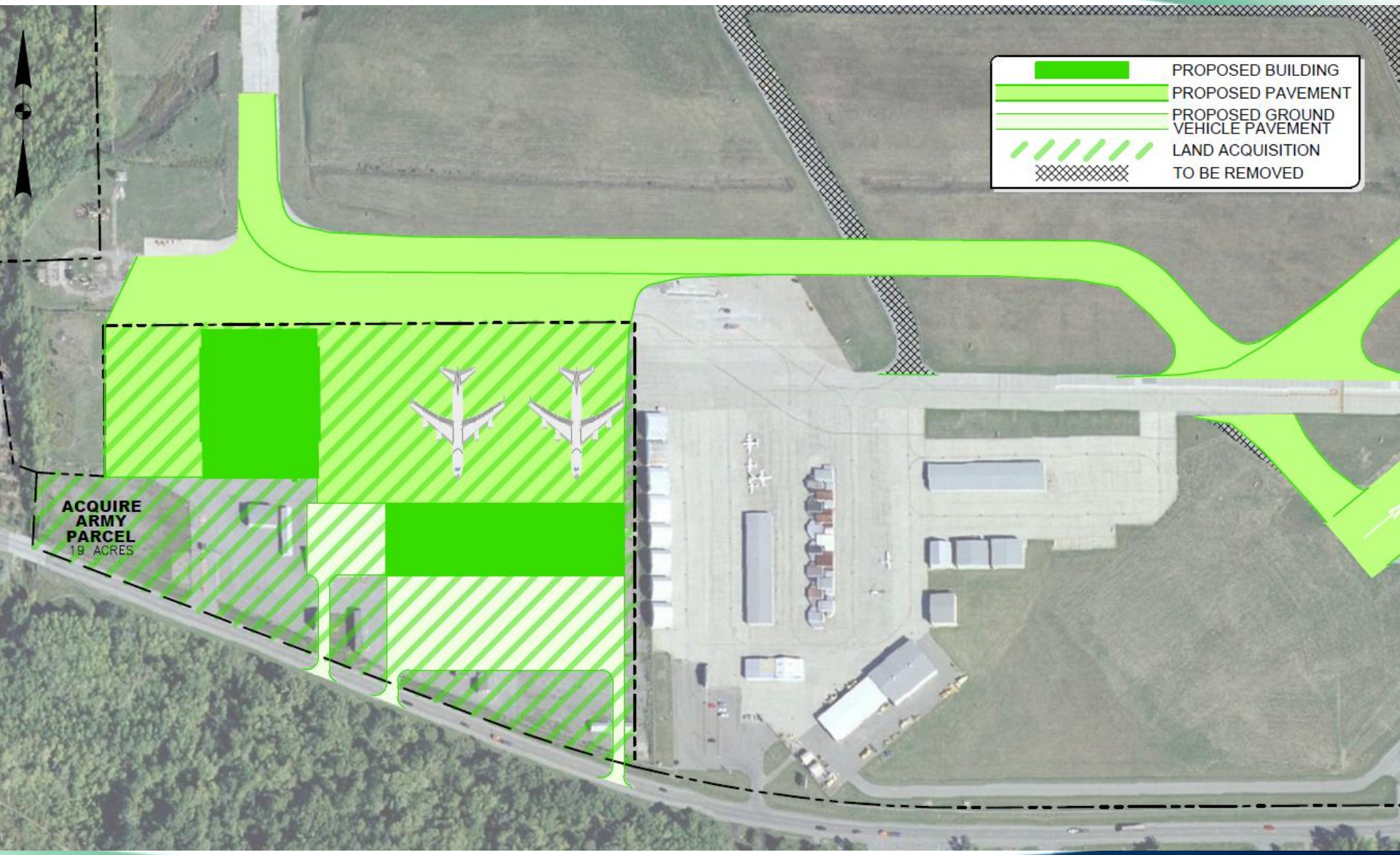
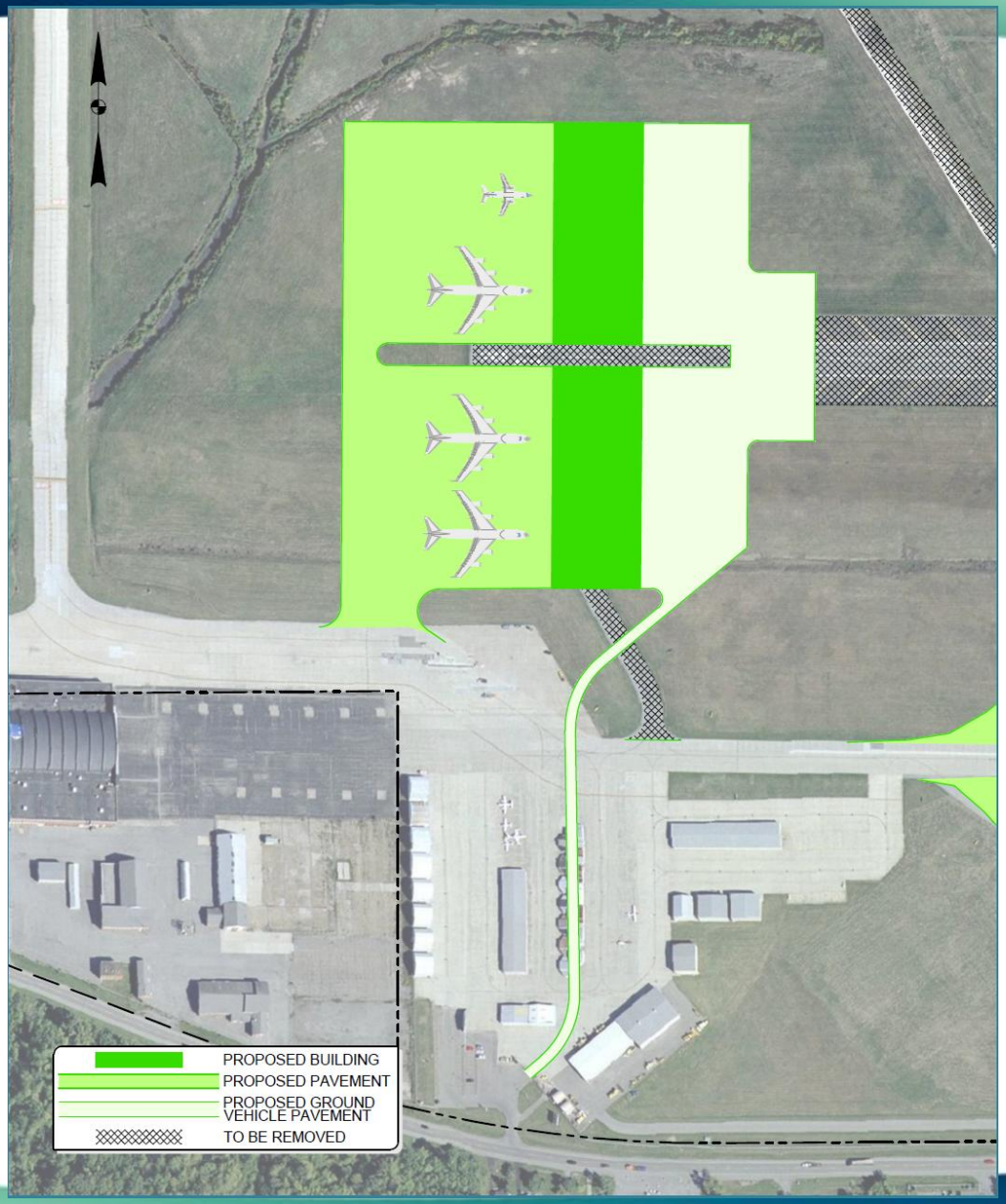
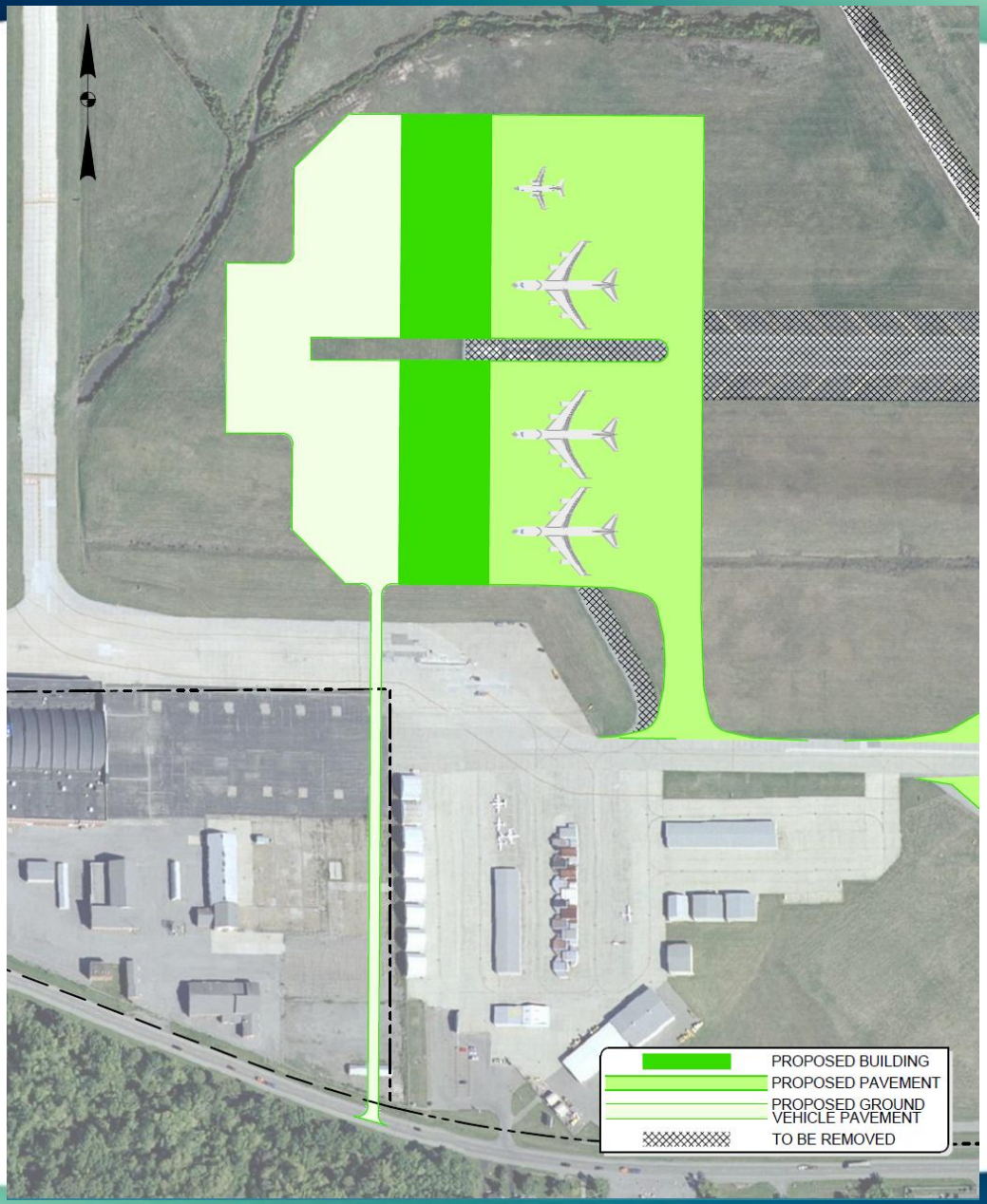


Air Cargo Alternative 2



Air Cargo Alternative 2A

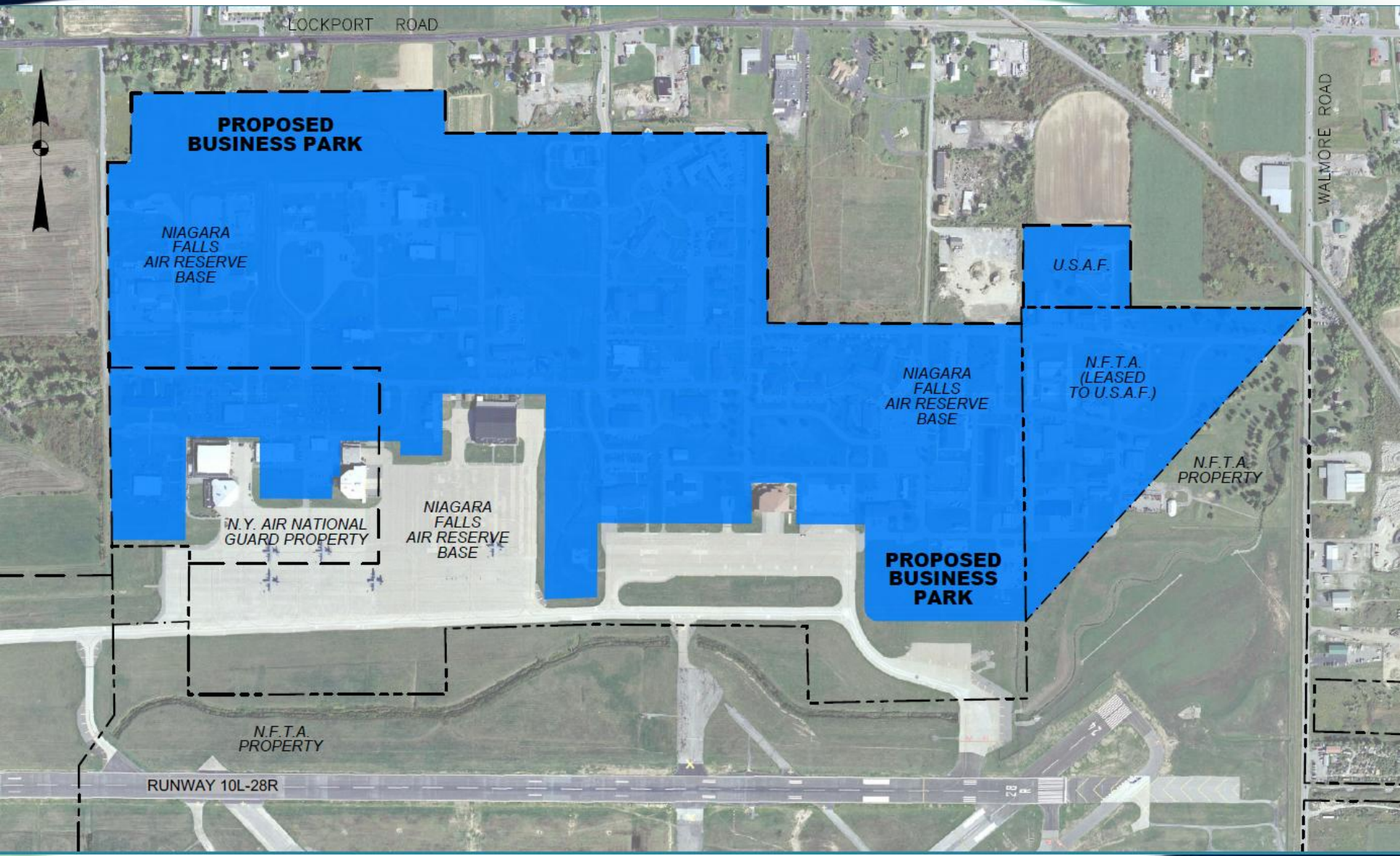


Air Cargo Alternative 3

SUSTAINABLE Master Plan UPDATE

Business Park Concept

SUSTAINABLE Master Plan UPDATE



General Aviation Alternatives

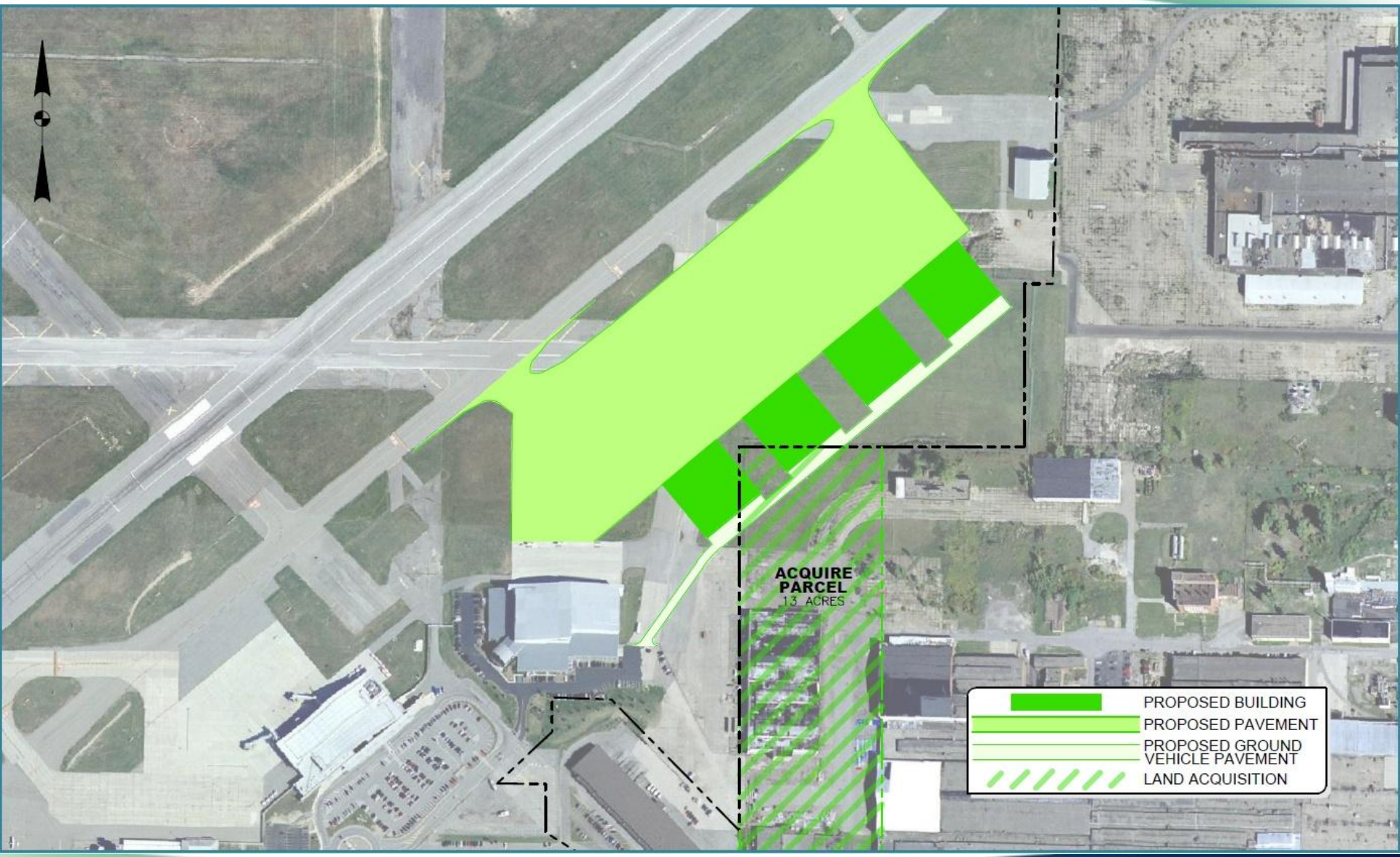
General Aviation Facility Requirements

- **Consolidated General Aviation Area**
  - Existing FBO Site is Adjacent to Passenger Terminal
  - Existing Hangars/Based Aircraft Across Runway
- **Existing Hangars Have Insufficient Tail Height Clearance**
- **Consolidated GA Area Requires:**
  - New Apron – Existing Apron Shared with Terminal, Direct Access to Runway 6-24
  - Taxiway Access Improvements, Potential New Parallel

General Aviation Alternatives

- **Alternative 1**
  - Co-located with Calspan
  - Land Acquisition for Access
- **Alternative 2**
  - Infield Development, Consolidated GA area
  - Compatible with Air Cargo Alt 2
- **Alternative 3/3A**
  - Acquire Former US Army Parcel

General Aviation Alternative 1



General Aviation Alternative 2

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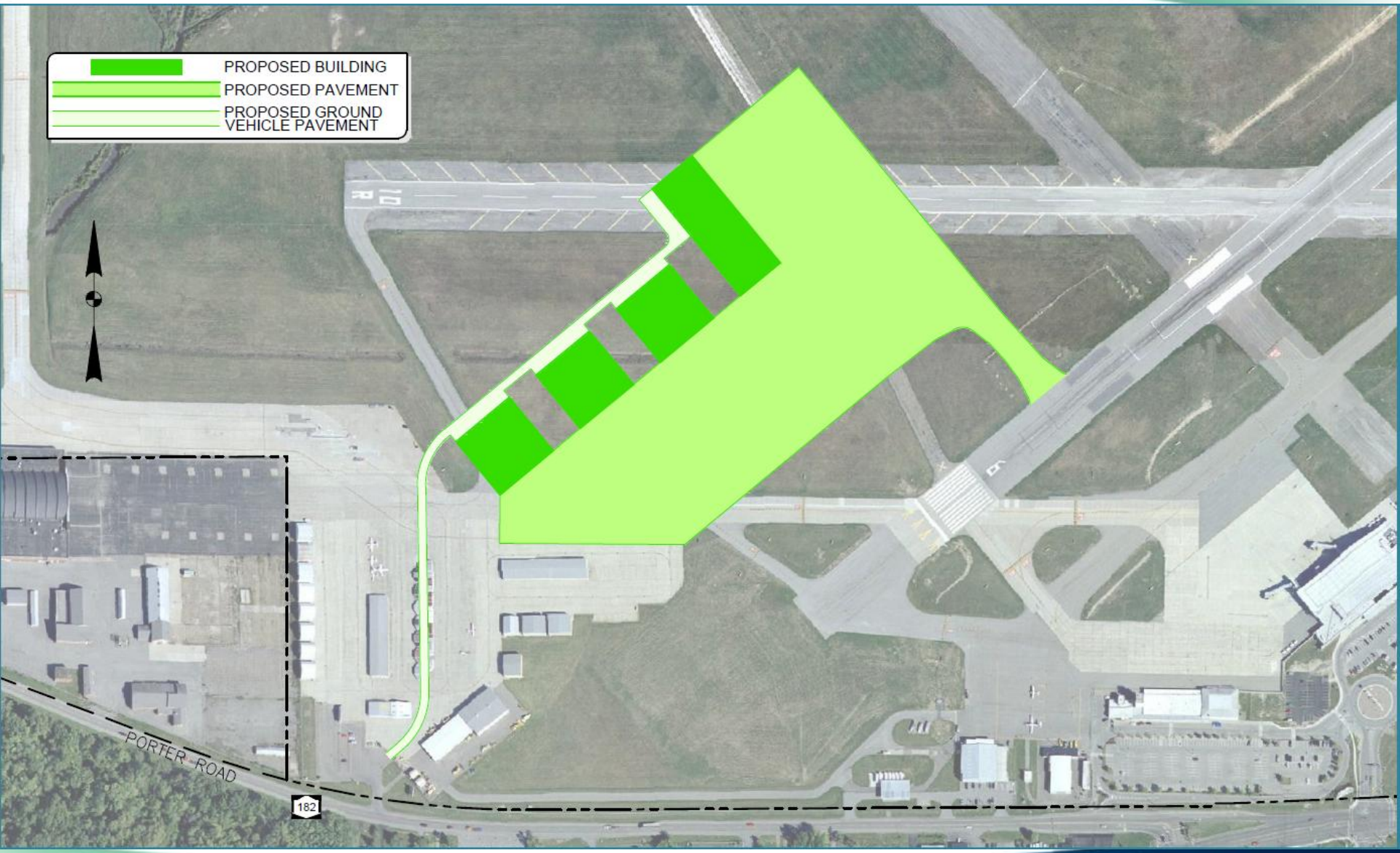

General Aviation Alternative 3

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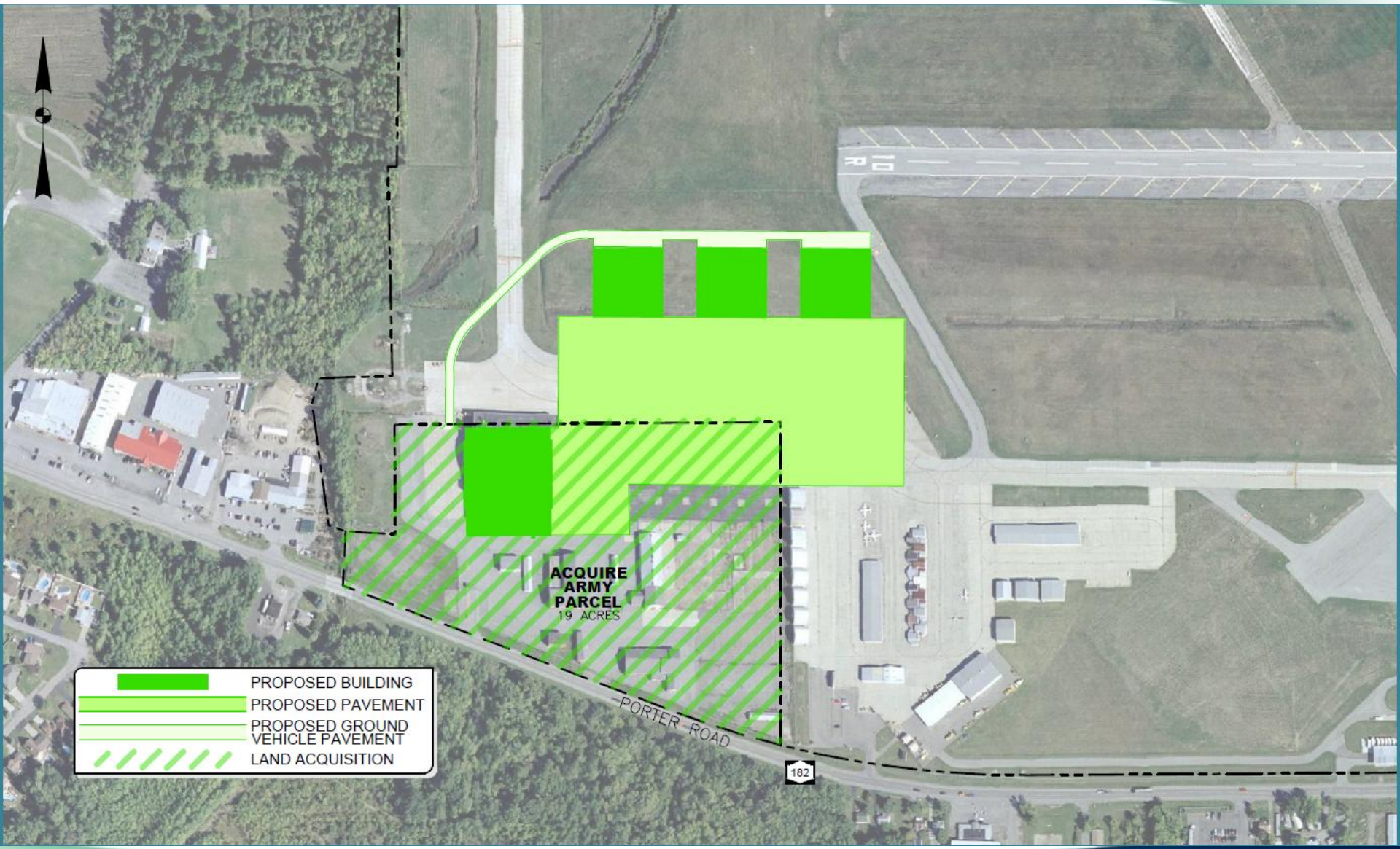

General Aviation Alternative 3A

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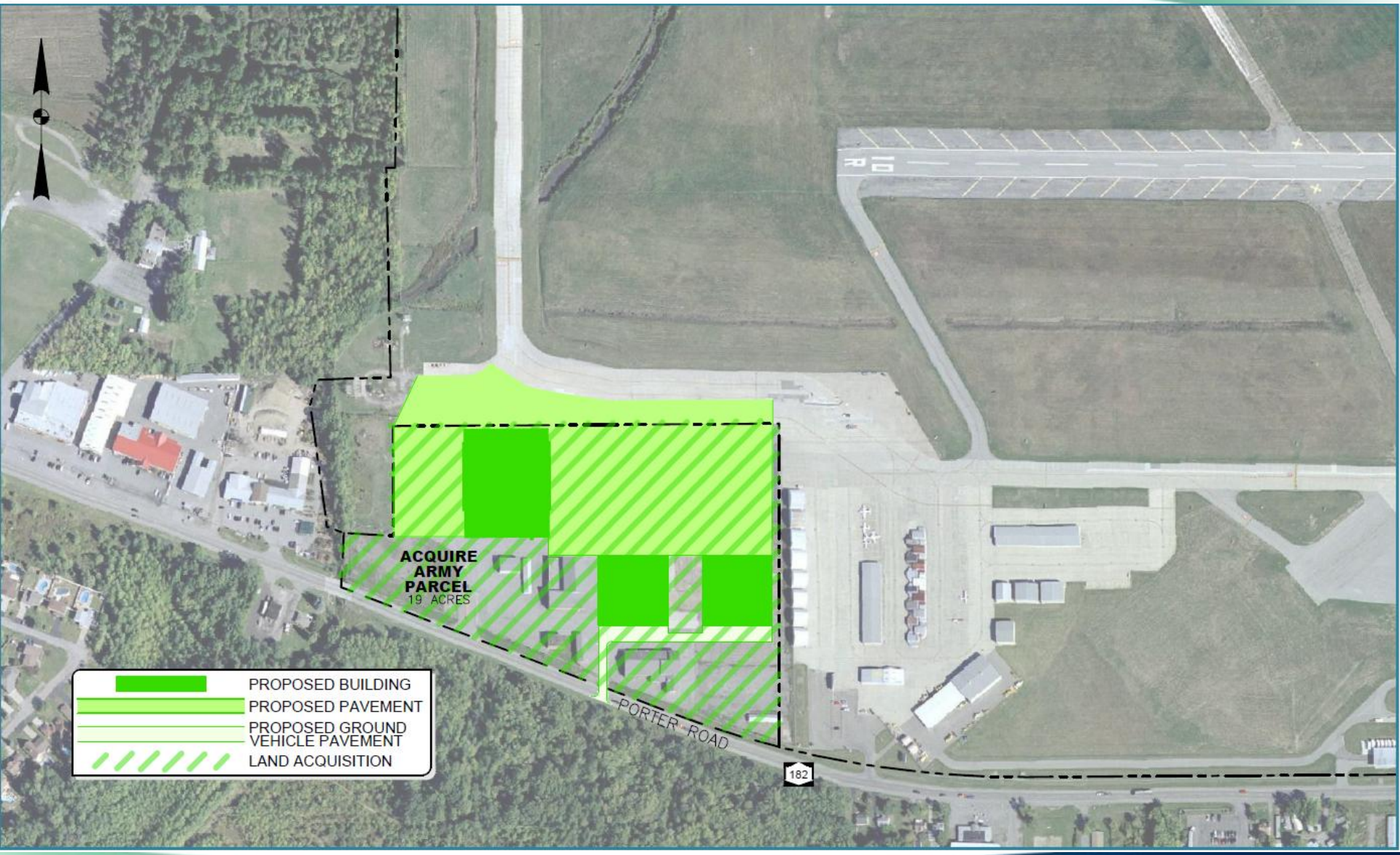

Landside Alternatives

Landside Facility Requirements

- **Inefficient, Confusing Roadway Layout**
  - Old Terminal, IDA Building, Auto Parking Lots
  - Connect/Consolidate Parking Lots
- **Ground Transportation**
  - Increasing Demand for Rental Cars
  - Greater Demand for Tour Buses - Staging Area
- **"Peak Season" – Average of Busiest 3 Months**
  - 1,593 Existing Parking Spaces

Enplanements	Parking Spaces
100,000	632
200,000	1,265
300,000	1,703
400,000	2,271
500,000	2,530

Landside Alternatives

- **Alternative 1**
  - Acquire IDA Building
  - Reconfigure/Maximize On Airport Parking
  - Connect Lot 3 to Terminal Roadway with New Intersection
- **Alternative 2**
  - Maximize Lot 1, Remove Roundabout
  - Isolate Lot 2, Credit Card or E-Z Pass Only
- **Alternative 3**
  - Maximize Lot 1, Maintain Roundabout
  - Isolate Lot 2, Credit Card or E-Z Pass Only

Landside Alternative 1

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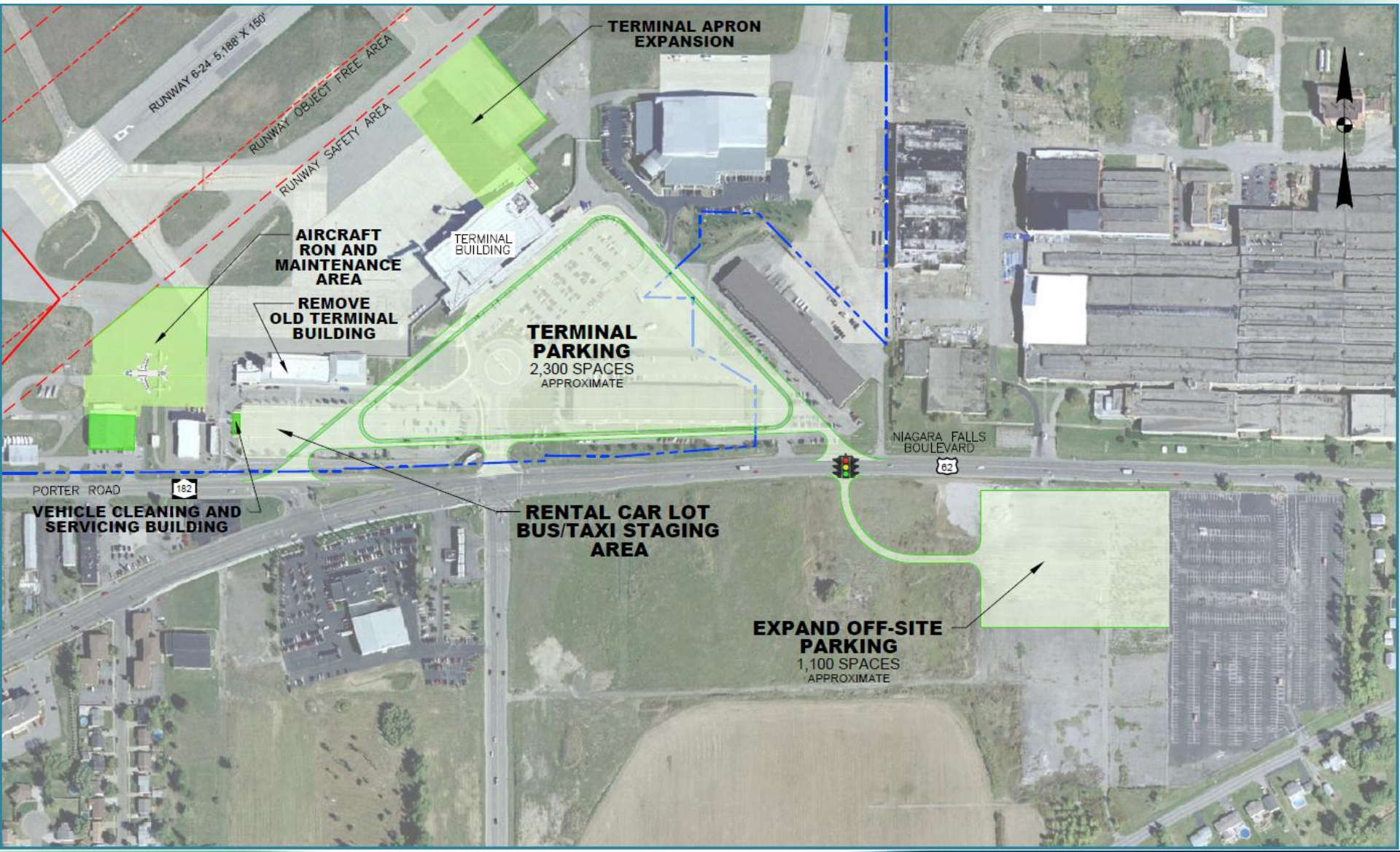

Landside Alternative 2

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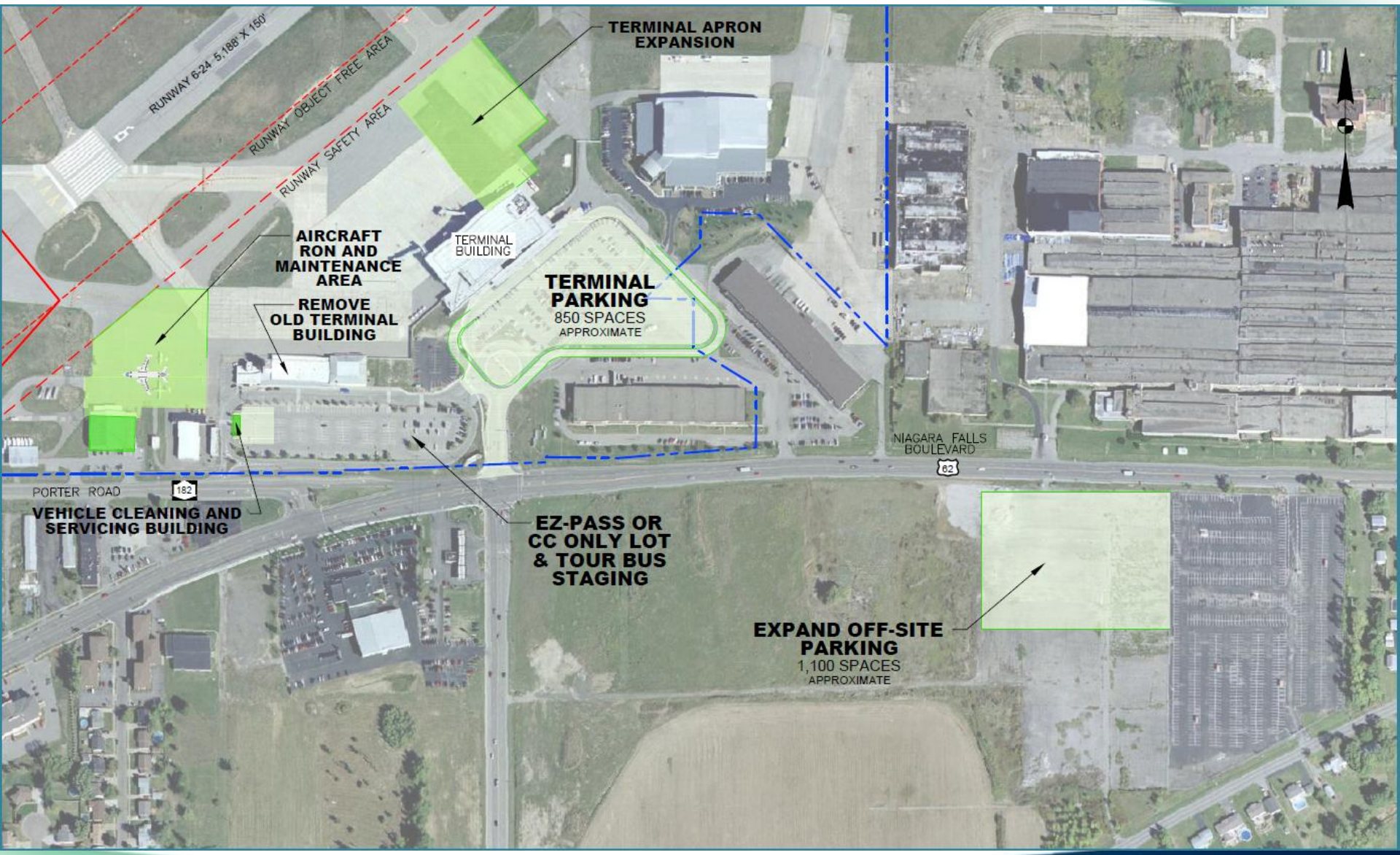

Landside Alternative 3

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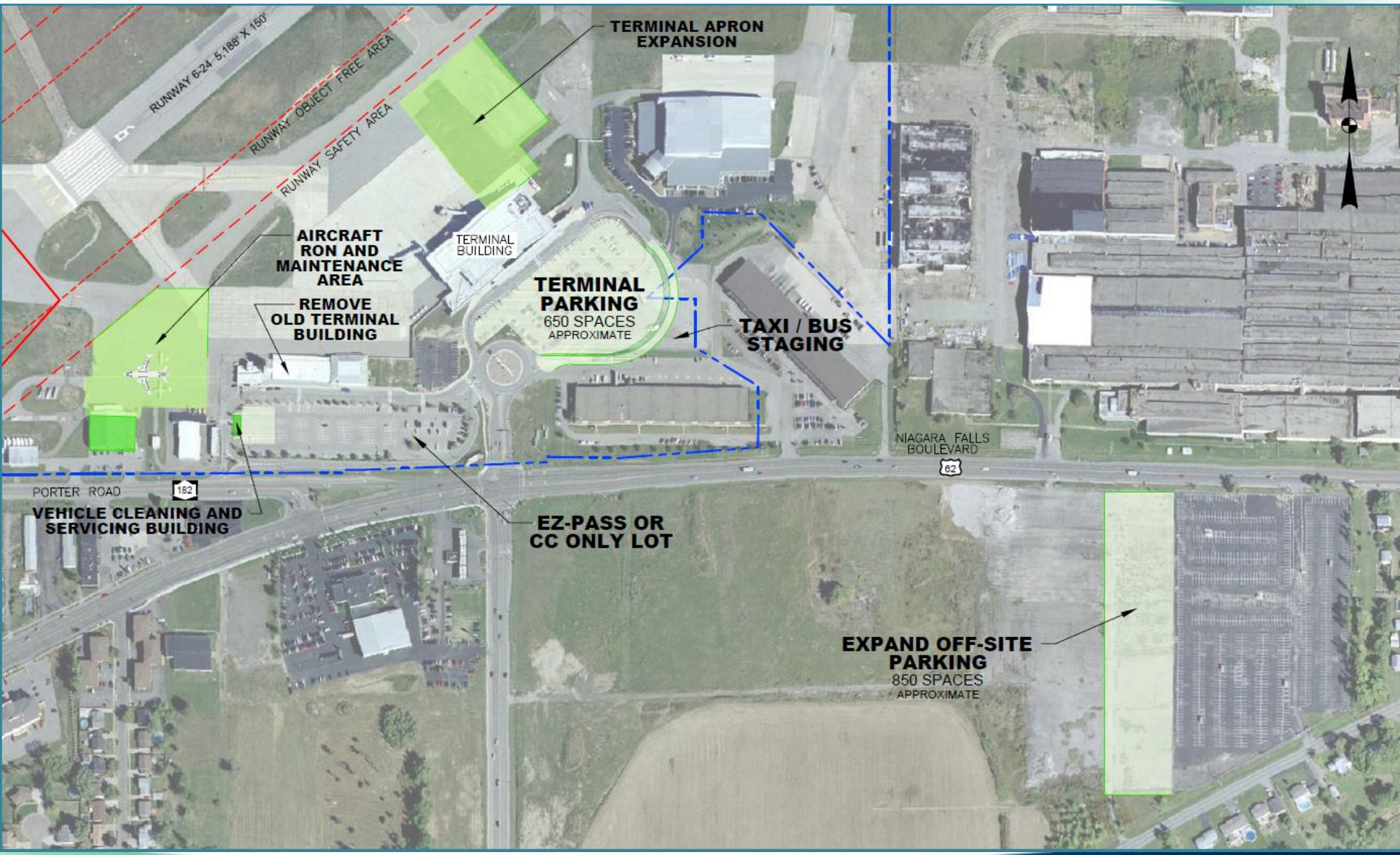

Terminal Area Alternatives

Terminal Facility Requirements

- **Departure Flow**
  - Web/Mobile Check-in Minimizing Future Requirements
  - Leisure Oriented Service
    - More Checked Baggage, Larger Group Size
    - Shared Baggage Makeup Area
    - Assigned, but Flexible Use
- **Arrival Flow**
  - Flat Plate to Sloped Plate
    - Enhances Security and Capacity
  - International Aircraft Servicing
    - Customs and Int'l Bag Claim Sizing

Functional Area Summary

- **Terminal Annual Capacity Based on:**
  - Constrained by Peak Season, Capacity is Greater with Stronger Off-Season Demand
  - Peak Season, 4-5 Peaks Per Day

Passengers/Hour	250	300	350	400	450	500	550	600
Aircraft Equivelent	1.5	1.8	2.1	2.4	2.6	2.9	3.2	3.5
Annual Capacity (Enplanements)	275,000	330,000	384,000	439,000	503,000	559,000	627,000	684,000
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Security Checkpoint								
Holdroom								
Concessions								
Boarding Gates								
Circulation								
Baggage Claim								
Restrooms								
Curb Frontage								

>65%	75%	85%	100%	110%

Terminal Area Alternatives

- **Alt 1 – No Build**
  - Baggage Claim Enhancements
    - One International Wide body (300+ seats)
    - Two Domestic
- **Alt 2**
  - Replace Two Flat Plate Carousels with Sloped Plate
- **Alt 3**
  - International Baggage Claim Sized for Wide body Aircraft
- **Alt 4**
  - Outbound Baggage Handling Improvements
  - Expanded Gate Scenario

Terminal Area Alternative 1

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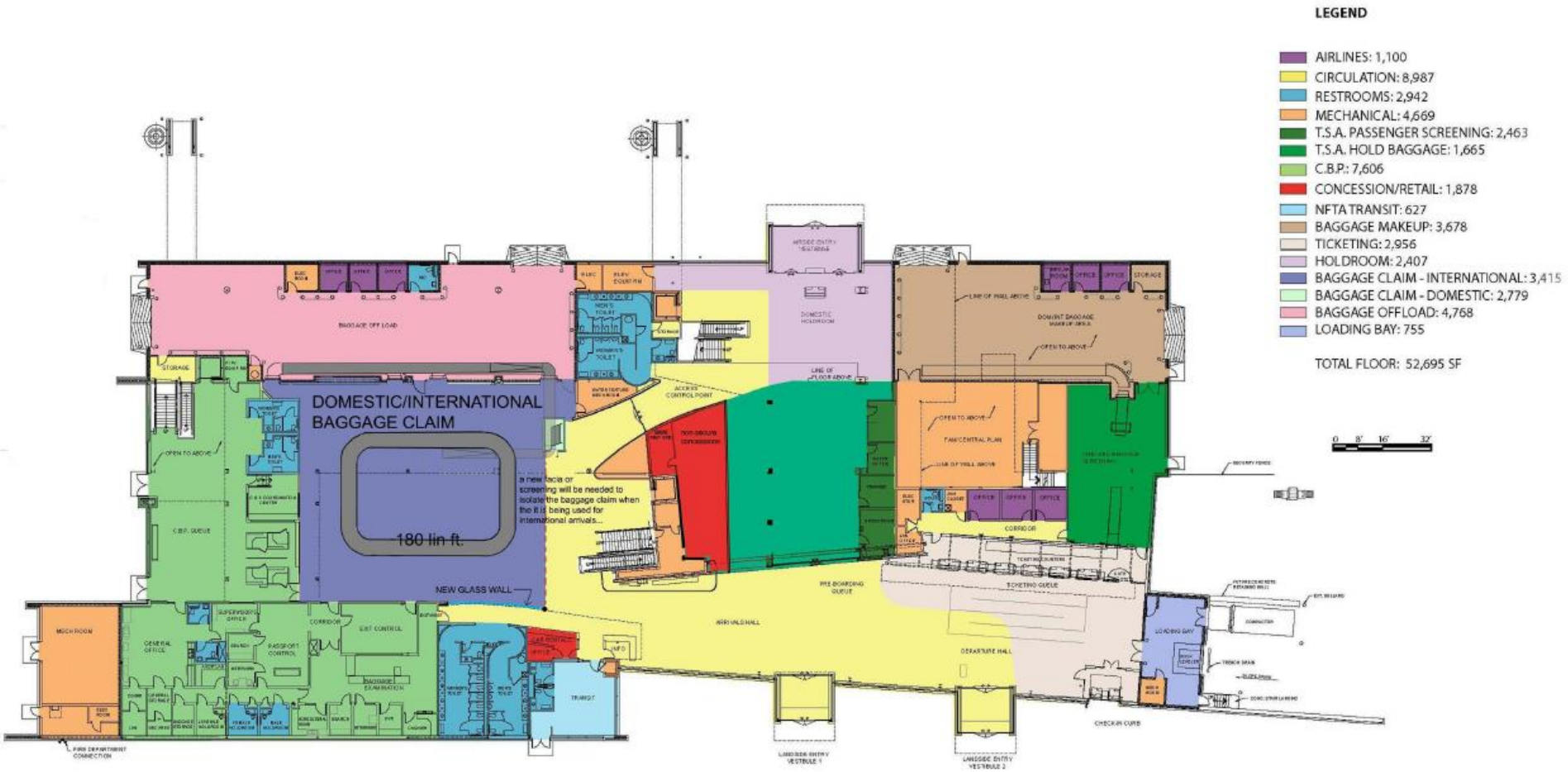
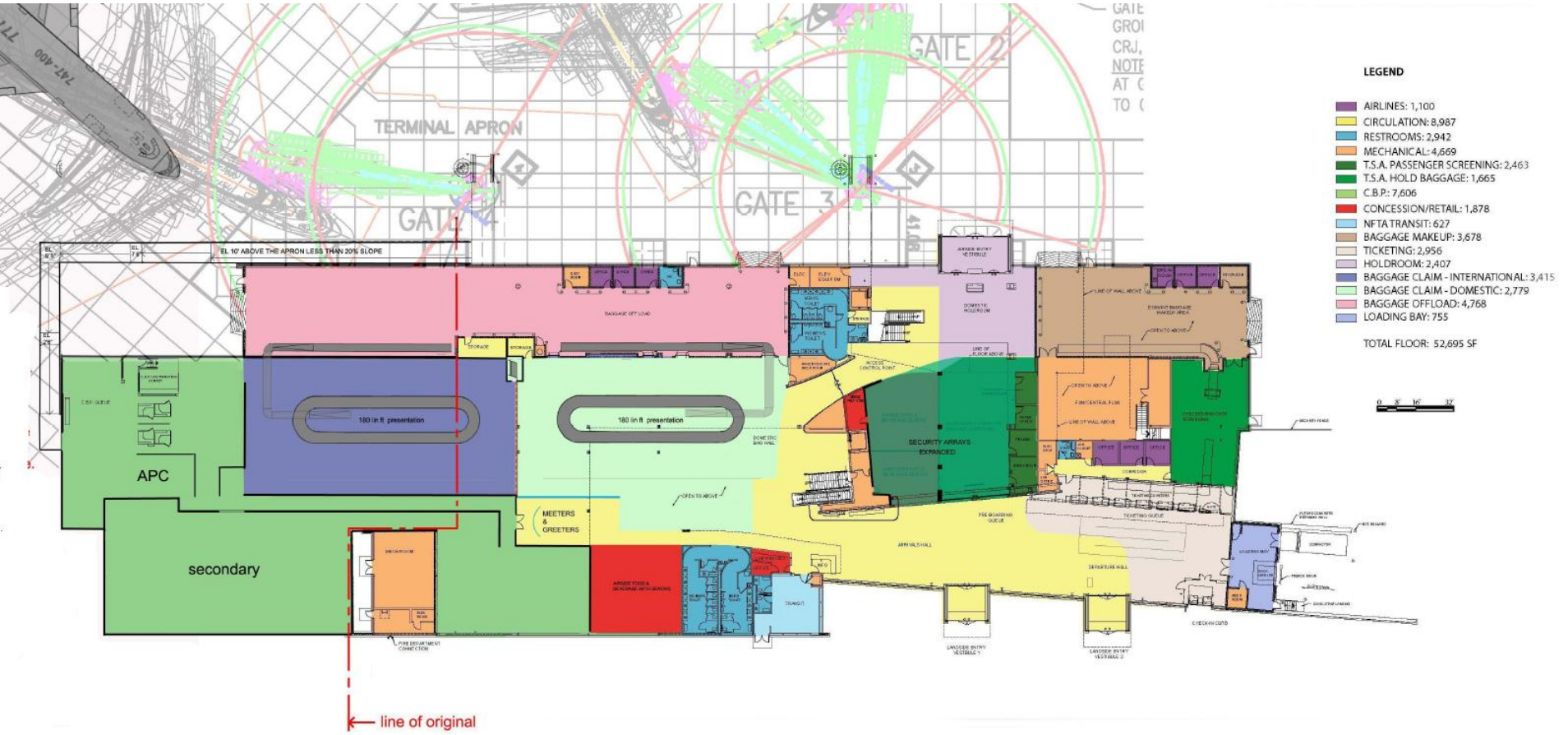


Terminal Area Alternative 2



Terminal Area Alternative 3

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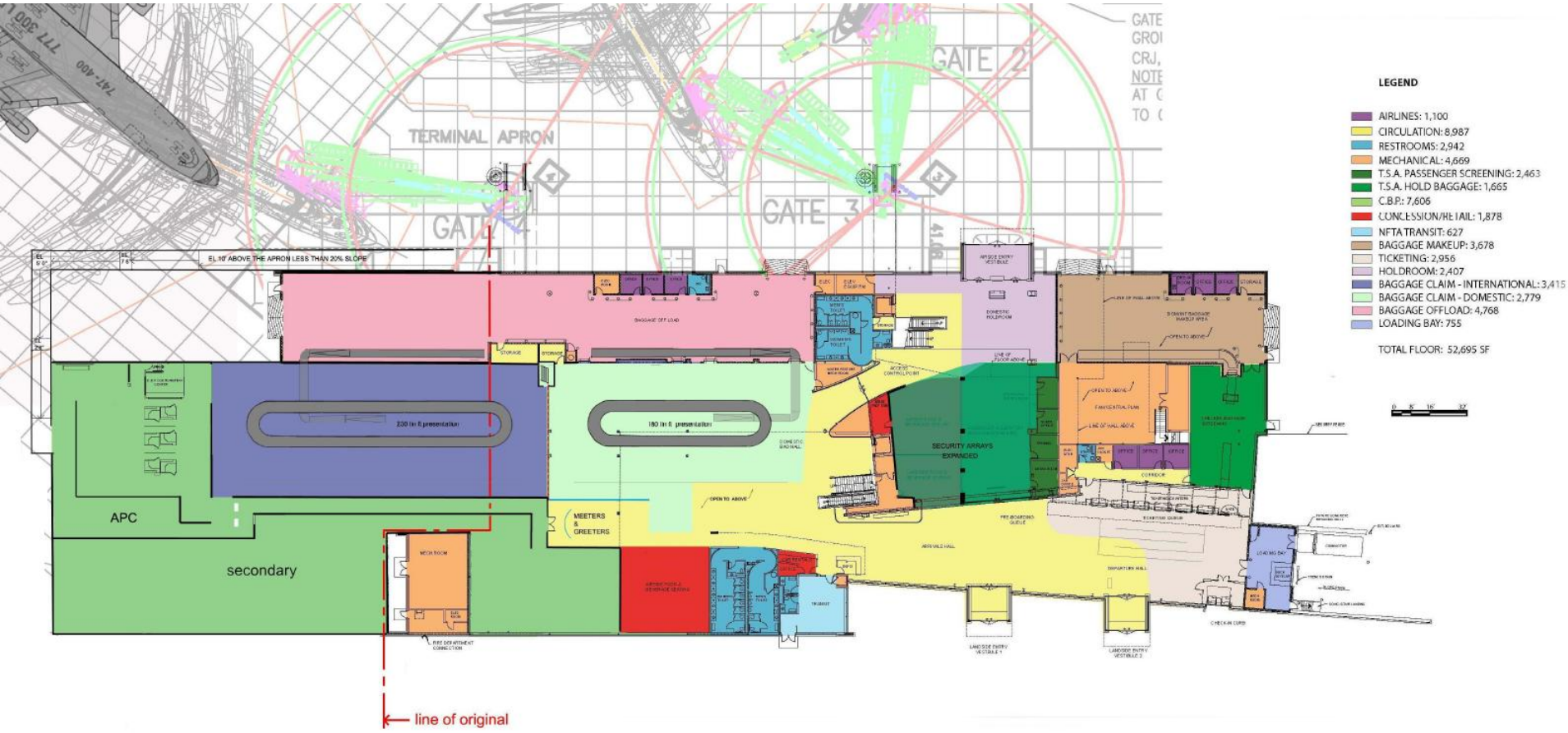

Terminal Area Alternative 4

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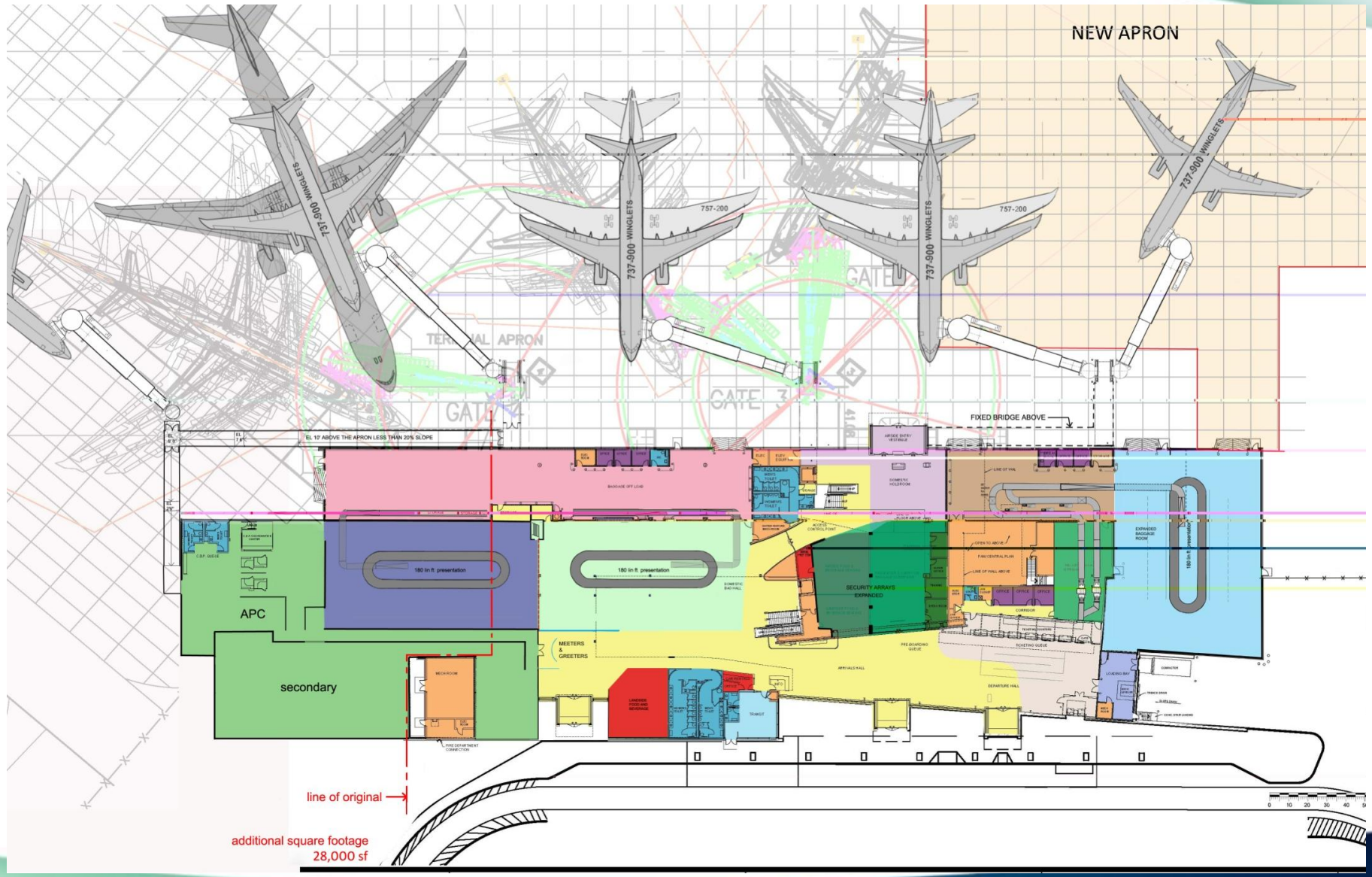
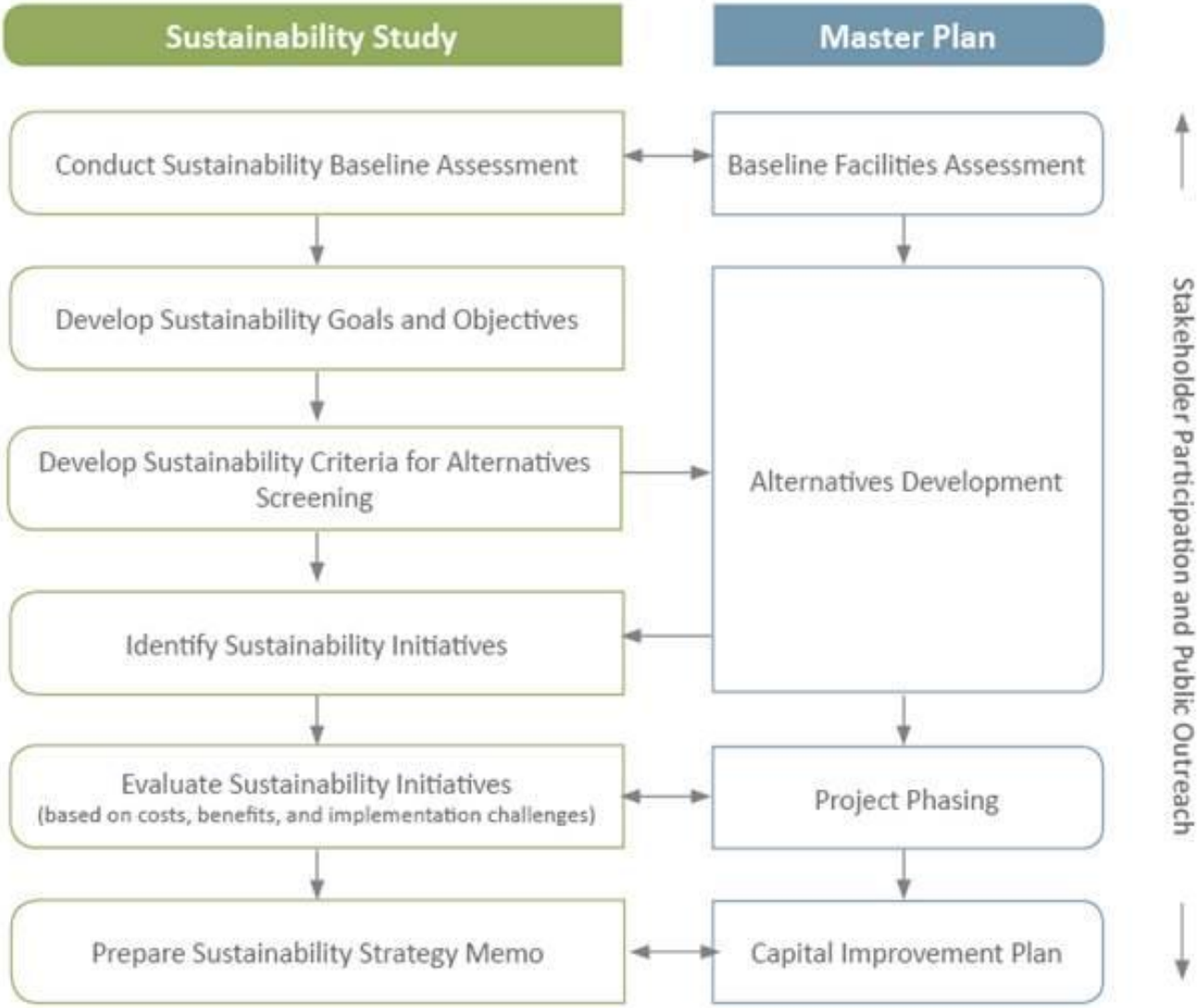


Airport Sustainability

SUSTAINABILITY

Sustainability Planning Process



Sustainability Goals

- Utilize strategies to operate existing facilities with a reasonable return on investment and design future facilities to maximize energy and water efficiency

- Maximize the economic potential of NFIA by enhancing air service offerings, and developing business and employment opportunities at the Airport.

- Conserve natural resources and minimize air and water pollution.

- Minimize waste and increase the rate of recycling.

Sustainability Strategies

- **Identify potential initiatives**
  - Baseline Assessment
  - Industry publications
  - Professional Experience
- **Screen potential initiatives- criteria:**
  - Goals & Objectives
  - Cost, including payback
  - Labor hours
  - Ability to implement
- **Recommend initiatives**
  - Review and prioritize

Alternatives Sustainability Screening

- **Purpose of incorporating sustainability criteria:**
  - Sustainability considerations becomes an element in alternatives selection
  - New sustainability opportunities may be identified
- **Goal to review and identify opportunities to implement a sustainable practice or introduce a sustainable design into a project**
- **Alternatives Screening Process**
  - Draft sustainability-specific evaluation criteria for alternatives evaluation
  - Criteria based on NFIA's sustainability goals

Draft Sustainability Screening Criteria

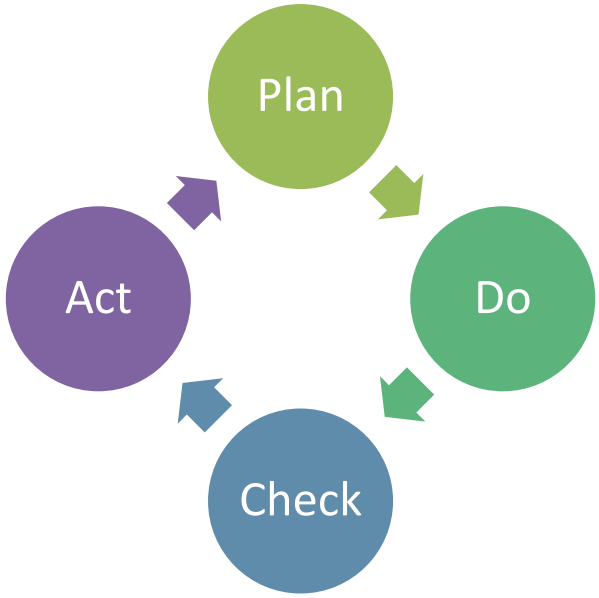
- **Economic Vitality**
  - Does the alternative maximize aeronautical and/or non-aeronautical revenue-generating opportunities?
  - Does the alternative enhance air service?
- **Natural Resources**
  - Does the alternative protect and/or conserve natural resources?
  - Does the alternative reduce overall air pollutant and greenhouse gas emissions associated with the airport?

Draft Sustainability Screening Criteria, Cont.

- **Energy and Infrastructure**
  - Does the alternative reduce overall airport energy use?
  - Does the alternative incorporate energy-saving measures and/or equipment, or an opportunity for renewable energy sources?
- **Waste**
  - Does the alternative allocate adequate space and facilities to support recycling?
  - If there is construction, does the alternative incorporate waste minimization practices?

Sustainability Planning – Next Steps

- **Develop an Implementation & Monitoring Plan**
  - **Includes prioritized initiatives**
  - **Establish metrics to measure performance**



Alternatives Evaluation Criteria

Evaluation Criteria

- **Airside**
  - **Facility Requirements:** Does the alternative meet existing/future needs?
  - **Environmental Impact:** What are the potential environmental impacts?
  - **FAA Standards:** Does the alternative meet FAA design standards?
  - **Development Costs:** Does the alternative have reasonable development costs?
  - **Development Flexibility:** To what extent are future changes accounted for?

- **Landside**
  - **Land Use Compatibility:** Is the alternative compatible with existing land uses?
  - **Environmental Impact:** What are the potential environmental impacts?
  - **Potential For Expansion:** Can this alternative accommodate future unanticipated expansion?
  - **Operational Efficiency:** Will this alternative contribute to a smoothly functioning airport with efficient landside movement?
  - **Revenue Generation Capability:** Does this alternative provide opportunities to increase revenue generation?

Next Steps

- **Public Meeting Tonight**
- **Evaluate Development Alternatives**
- **Preferred Alternative**
- **Development of *Dynamic Analysis Tool***

Give Us Your Comments!

- **Review Report Documents and Provide Comments**

  http://dynamic-planning.com/NiagaraFalls.html

- **Meeting Minutes, Presentations, and Draft Technical Report Chapters Available for Review**
  - **Contact Project Team Member if you Require Hard Copies**

- **Provide Comments to Any Member of the Project Team by July 30, 2014**

Project Contacts

Mark Clark – Project Manager – NFTA

- mark_clark@nfta.com 716-630-6133

Chad Nixon – Project Manager – MJ

- cnixon@mjinc.com 607-723-9421

Rick Lucas – Task Leader: Airside, Landside and Terminal

- rlucas@mjinc.com 978-692-0522

Jeff Wood – Task Leader: Environmental and Sustainability

- jwood@mjinc.com 607-723-9421

Technical Advisory Committee
Meeting Minutes/Summary
June 4, 2014

The third Technical Advisory Committee (TAC) Meeting for the Sustainable Airport Master Plan Update (MPU) was held on June 4th, 2014 at 2:15 pm in the passenger terminal at the Niagara Falls International Airport; the meeting lasted until approximately 3:35 pm. Bill Vanecek, Director of Aviation for the NFTA, and Chad Nixon, Project Manager for McFarland Johnson, welcomed the committee and provided a recap of the project to date. Chad Nixon explained that the purpose of the meeting was to receive feedback on the draft airport alternatives and ultimately reach a concurrence on the direction of future airport development. Representatives from the McFarland Johnson (MJ) team then presented on the proposed airport development alternatives. The following sections summarize what was presented along with comments and questions received during the presentation. A copy of the presentation is attached.

Airside Alternatives

Rick Lucas, of McFarland Johnson, began the alternatives presentation by emphasizing NFTA's forward thinking and how the sustainability component of the MPU allowed for a holistic approach to be incorporated into all airport alternatives. Mr. Lucas briefly summarized the airside facility requirements which led to the development of the airport alternatives, and also explained the evaluative process that goes into finalizing the preferred alternatives. Finally, he stressed the interdependency of the airport development options, indicating how the alternative selected in one category would affect that which is feasible in another (i.e. air cargo and general aviation).

Mr. Lucas discussed the four (4) Airside Alternatives, which are summarized below:

- **Alternative One:**
  - Partial-parallel taxiway to Runway 10L/28R
  - Use abandoned pavement for new taxiways
- **Alternative Two:**
  - Convert Runway 10R/28L to taxiway for Runway 6-24
- **Alternative Three:**
  - Implement a standard taxiway system
- **Alternative Four:**
  - No Build

Mr. Lucas pointed out that the closure of Runway 10R-28L was an assumption made in each of the Airside Alternatives, with the exception of the No-Build, under which no changes would occur. Mr. Lucas inquired about the military's perspective with regard to the standard taxiways to Runway 24 under Alternative 3. Both military representatives – Colonel Higgins and Colonel Parker - indicated that the taxiways would not be a factor

to their operations since RW 24 is hardly ever used for take offs and the military drop zones are located further west. Mr. Vanecek asked about the Glide Slope Critical Area and Mr. Lucas responded it was shifted to avoid any disturbances. Mr. Lucas did point out that the feasibility of a parallel taxiway to RW 6-24 would be dependent upon the selected General Aviation (GA) Alternatives discussed later.

Air Cargo Alternatives

Mr. Lucas continued the presentation with descriptions of the four (4) Air Cargo Alternatives, which are summarized below:

- **Alternative One:**
  - Acquire former U.S. Army Parcel
- **Alternative Two (and 2A):**
  - Infield development (assumes RW 10R-28L is closed)
  - Compatible with GA Alternative 2
  - Positioned to avoid Environmental Impacts
- **Alternative Three:**
  - Only viable if change in military mission
  - Compatible with Business Park Concept
- **Alternative Four:**
  - No Build

Mr. Lucas implied that cargo development would be driven by the needs of the cargo providers, specifically the size of aircraft and service capacity. Mr. Nixon pointed out that Air Cargo Alternatives 2 and 2A avoid impacts to the nearby creek. Mr. Vanecek inquired about road access to the potential development areas. Mr. Lucas said road access would be considered during the final design phase, but that there is potential for the Air Cargo and GA sites to share the same access road in order to reduce cost and redundancy. He also intimated that future development in this area is contingent upon the former Army parcel being acquired.

General Aviation Alternatives

The presentation transitioned to a discussion of the GA facility requirements and alternatives. Given the existing GA facilities are currently located adjacent to the passenger terminal; it would be more effective to separate the GA facilities and consolidate based and itinerant areas/services. Mr. Lucas presented the four (4) GA alternatives below:

- **GA Alternative One:**
  - Co-located with Calspan
  - Land acquisition for access road
- **GA Alternative Two:**

  - Infield Development
  - Compatible with Air Cargo Alt 2
- **GA Alternative Three (and 3A):**
  - Acquire former U.S. Army Parcel
- **GA Alternative Four**
  - No Build
  -

Mr. Lucas highlighted the complementary nature of the Air Cargo and GA Alternatives. Mr. Vanecek asked if jet blast would be a concern since smaller airplanes and vehicles could be in the same vicinity of the larger jet aircraft. Mr. Lucas said that dynamic would be taken into account during the final design stage.

Mr. Sloma pointed out that acquisition of the former U.S. Army parcel is influential to which Air Cargo and GA Alternatives can be developed. Mr. Vanecek stated that the Department of Defense (DoD) intended to turn the parcel over to the Town of Niagara Falls; however, environmental and hangar issues had precluded the exchange from taking place. The convergence is currently scheduled for Spring 2015. Mr. Lucas agreed the property plays an integral part and the timing of acquisition is crucial to the MPU. According to Ms. Minkel, the NFTA has reached out to the Town, but has not received a response or any indication of intent to engage in dialogue regarding the parcel. Mr. Clark also stated that there were attempts to reach out to Town representatives, but to no avail.

Mr. Sloma inquired about stormwater impacts from the proposed airfield development. Mr. Lucas responded that environmental considerations are included in the evaluative criteria, and as part of the sustainability component. Ms. Minkel asked if there was a specific type of pavement, perforated for example, that is used in aviation to reduce stormwater impacts. Mr. Nixon replied that similar pavement types could potentially be incorporated on the landside, but not on the airside due to the weight of aircraft and maintenance equipment. He went on to say that the design process would account for any results determined during the sustainability studies.

Landside Alternatives

Mr. Lucas steered the presentation toward the landside components of the airport, emphasizing the need for more efficient traffic flows around the terminal area, as well as increasing the number of available parking spots due to seasonal passenger peaks. The four (4) Landside Alternatives are summarized below:

- **Alternative One:**
  - Acquire IDA building
  - Reconfigure on-airport parking
  - Connect Lot 3 to terminal roadway with new intersection
- **Alternative Two:**
  - Maximize Lot 1; Remove roundabout

  - Isolate Lot 2, credit card or EZ Pass only
- **Alternative Three:**
  - Maximize Lot 1; Maintain roundabout
  - Isolate Lot 2, credit card or EZ Pass only

Mr. Lucas explained that under Landside Alternative One, approximately 2,300 parking spaces would be dedicated solely to commercial service passengers, rather than co-mingling with GA. He also said that given the cost, it is suggested that the old terminal building be demolished rather than renovated. Mr. Vanecek asked about cell-phone lots and Mr. Lucas responded they would be included in the final design considerations. Mr. Lucas also highlighted the need for better methods of ticketing and revenue control. Mr. Vanecek then suggested that acquisition of the IDA building would maximize space. Mr. Nixon said that Landside Alternative One would be ideal, but there are several contingency factors, where "if this then that." Mr. Sloma added it would be necessary to help drivers and passengers navigate the new roadway and parking areas. Mr. Lucas indicated the project(s) would be phased over 5-10 years, which would allow sufficient time for the community to get acclimated to any new traffic flows.

With the discussion centered on access to the airport, Mr. Sloma mentioned that the former U.S. Army parcel currently has Through-The-Fence (TTF) access to the airfield. Mr. Vanecek clarified that although the parcel does provide TTF, military approval is required to access both the parcel and airfield. Mr. Casale said fliers promoting the parcel advertised as having airport access. Ms. Minkel stated it is necessary to explain to the Town of Niagara and/or future developers why TTF agreements are not looked upon favorably by the FAA and assert that it is not an option. Mr. Sloma asked what the implications would be if future development on the parcel were not aviation related. Mr. Nixon said that pending the final outcome of the parcel transfer, a fence would need to be put up immediately, and unless the lease is reverted back to NFIA there would be no TTF access. Mr. Nixon went on to say that the Business Park concept would be structured similarly, if in the future there are changes to the military's missions and additional land becomes available for development.

With no further questions or comments, Mr. Lucas turned the presentation over to Mr. Dave MacLeod from Cannon to discuss the Terminal Area Alternatives.

Terminal Area Alternatives

Mr. MacLeod presented the Terminal Area Alternatives, which centered on improvements to the baggage claim area. The four (4) Alternatives addressed are summarized as follows:

- **Alternative One:**
  - No-Build
  - Baggage-claim enhancements to accommodate:
    - One international wide body (300+ seats) aircraft
    - Two domestic aircraft

- **Alternative Two:**
  - Replace two flat-plate carousels with sloped-plate
- **Alternative Three**:
  - International baggage claim sized for wide body aircraft
- **Alternative Four:**
  - Outbound baggage handling improvements
  - Expanded gate scenario

Mr. MacLeod explained that using a baggage carousel with a sloped track, instead of flat, allows for greater capacity since luggage can be stacked and there is a better use of floor space. This implies shorter wait times for passengers picking up baggage and easier lifting for elderly persons because the belt is higher. Also, with more floor space, there is increased queuing space for passengers and possibly concession areas. Mr. Vanecek mentioned that a sloped-plate would also assist with security since portions of the rear loading areas can be sealed off for TSA security reasons. Mr. Jim Celeste inquired if the cost of maintenance would be comparable between the flat and sloped-plate belts, and Mr. MacLeod indicated that the newer systems would be comparable due to the antiquated nature of the older baggage carousel.

Mr. MacLeod clarified that Terminal Area Alternative 4 is considered the 20-year build-out, assuming the airport has a five-gate configuration and more than double the number of enplanements. This option would incur an International baggage claim area and belt that could be separated from the Domestic area, including its own separate exit. Ms. Minkel asked about possible concession opportunities and space available for deplaning passengers. Mr. Lucas explained that those factors, as well as extending the exterior curb frontage in conjunction with the roadway and parking alternatives, would be considered during the design phase.

Mr. MacLeod handed the presentation over to Ms. Carol Lurie and Ms. Emmanuelle Humblet of VHB for the section on Airport Sustainability.

Airport Sustainability

Ms. Lurie presented on the sustainability component of the MPU, emphasizing that sustainability encompasses more than just environmental, but also social, economical, operational, etc. Of importance, Ms. Humblet explained that the sustainability goals and best practices would be incorporated into the overall evaluation of the aforementioned airport development alternatives to ensure the MPU's objectives are met. As part of the process, an Implementation and Monitoring Plan would be incorporated, which is intended to continue indefinitely after the planning process has been completed. With no further questions or comments, Ms. Humblet turned the presentation back to Mr. Nixon.

Next Steps

Mr. Nixon indicated that feedback on the alternatives would be solicited from the TAC, and input on the evaluation thereof would be sought at the Public Information Meeting being held later that night. The next steps of the MPU will be to select the Preferred Airport Development Alternative and develop the Dynamic Analysis Tool (DAT). The last TAC meeting is tentatively scheduled for the Fall timeframe to discuss those components and wrap-up the MPU. Mr. Vanecek closed out the meeting by thanking everyone for their participation and reminding them to provide comments on the airport alternatives.

Organizations Represented

Calspan
Federal Aviation Administration
Greater Buffalo Niagara Regional Transportation Council
McFarland Johnson
US Air Force 914th Air Wing
NY Air National Guard 107th Air Wing
Niagara County Economic Development
Niagara Falls Aviation (FBO)
Niagara Falls Redevelopment
Niagara Frontier Transportation Authority
Standard Parking
VHB

Organizations Invited, Not Present

Allegiant Airlines
Midwest Air Traffic (NFIA Tower)
Spirit Airlines
Town of Niagara
City of Niagara Falls
New York State Department of Environmental Conservation
New York State Department of Transportation
Town of Wheatfield
Transportation Security Administration
US Customs and Boarder Protection

NIAGARA FALLS
INTERNATIONAL AIRPORT

SUSTAINABLE Master Plan UPDATE

TECHNICAL ADVISORY COMMITTEE
Meeting #4 April 14, 2015

Agenda

- Master Plan Recap
- Changes Occurring During the Master Plan
- Alternatives Overview
- Recommended Plan
- Sustainable Strategies
- Next Steps

Open Format, Ask Questions at *Any* Time

Purpose of Meeting

- **Recap of Master Plan Process**
- **Review Preferred Alternatives**
- **Present Sustainable Strategies**
- **Next Steps and Review Process**

Master Plan Process

SUSTAINABLE Master Plan UPDATE

Changes During MP Process

- New Approaches to Runways 6,24, and 10L
  - 10L Approach Required Coordination with NavCanada
- EDS Baggage Scanning System Replacing ETDs
- Calspan Assuming FBO Duties from Niagara Falls Aviation
- No Resolution on Former Army Parcel
  - Master Plan Alts Exclude Army Parcel Development
- Military Mission Unchanged
  - Alternatives Maintain Training Opportunities
  - Airfield Capable of Supporting New Refueling Aircraft

Preferred Alternatives

Evaluation Criteria

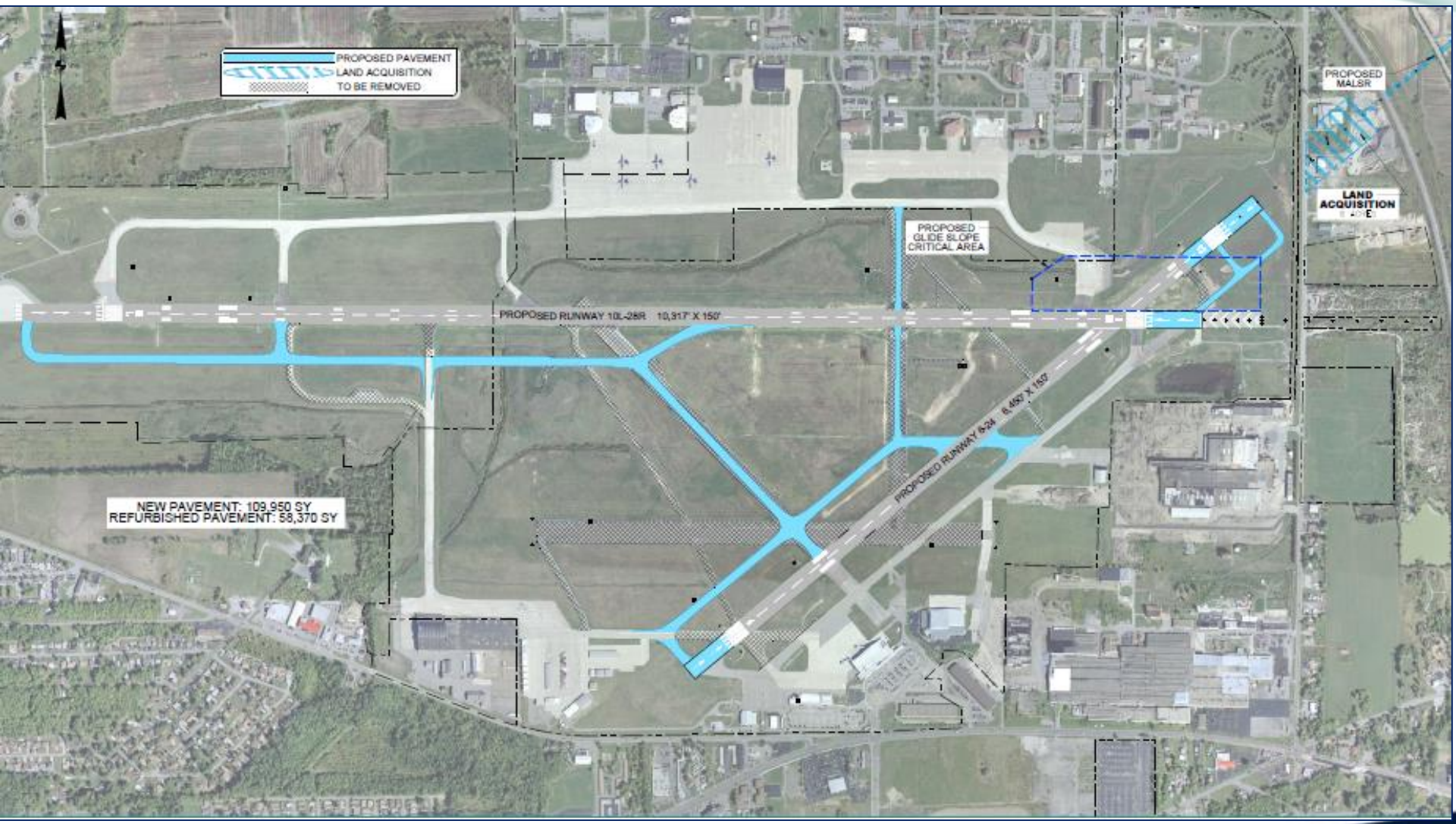
- **Facility Requirements:** Does the Alternative Meet Existing/Future Needs?
- **Environmental Impact:** What are the Potential Environmental Impacts?
- **Sustainability:** What Opportunities to Implement a Sustainable Practice or Introduce a Sustainable Design are Available with this Alternative?
  - ***Natural Resources*:** Does the Alternative Protect and/or Conserve Natural Resources?
  - ***Waste*:** Does the Alternative Allocate Adequate Space and Facilities to Support Recycling**?**
  - ***Energy & Infrastructure*:** Does the Alternative Reduce Overall Airport Energy Use? Does the Alternative Incorporate Energy-Saving Measures and/or Equipment?
  - **Economic Vitality:** Does the Alternative Maximize Aeronautical and/or Non-Aeronautical Revenue Generation?
- **FAA Standards:** Does the Alternative Meet FAA Design Standards?
- **Development Costs:** Does the Alternative have Reasonable Development Costs?
- **Development Flexibility:** To what Extent are Future Changes Accounted for?
- **Operational Efficiency:** Will this Alternative Contribute to a Smoothly Functioning Airport with Efficient Landside Movement**?**
- **Land Use Compatibility:** Is the Alternative Compatible with Existing Land Uses?

Airside Facility Requirements

- **New Runway/Taxiway Design Requirements**
  - Taxi Routes to/from Terminal
- **Crosswind Runway Capabilities**
  - Air Carrier Upgrades, Extension, Precision Approach
- **Complex Confusing Intersection Near 28L, 24 Thresholds**
- **Runway 10R-28L Not Needed**

Preferred Airside Alternative

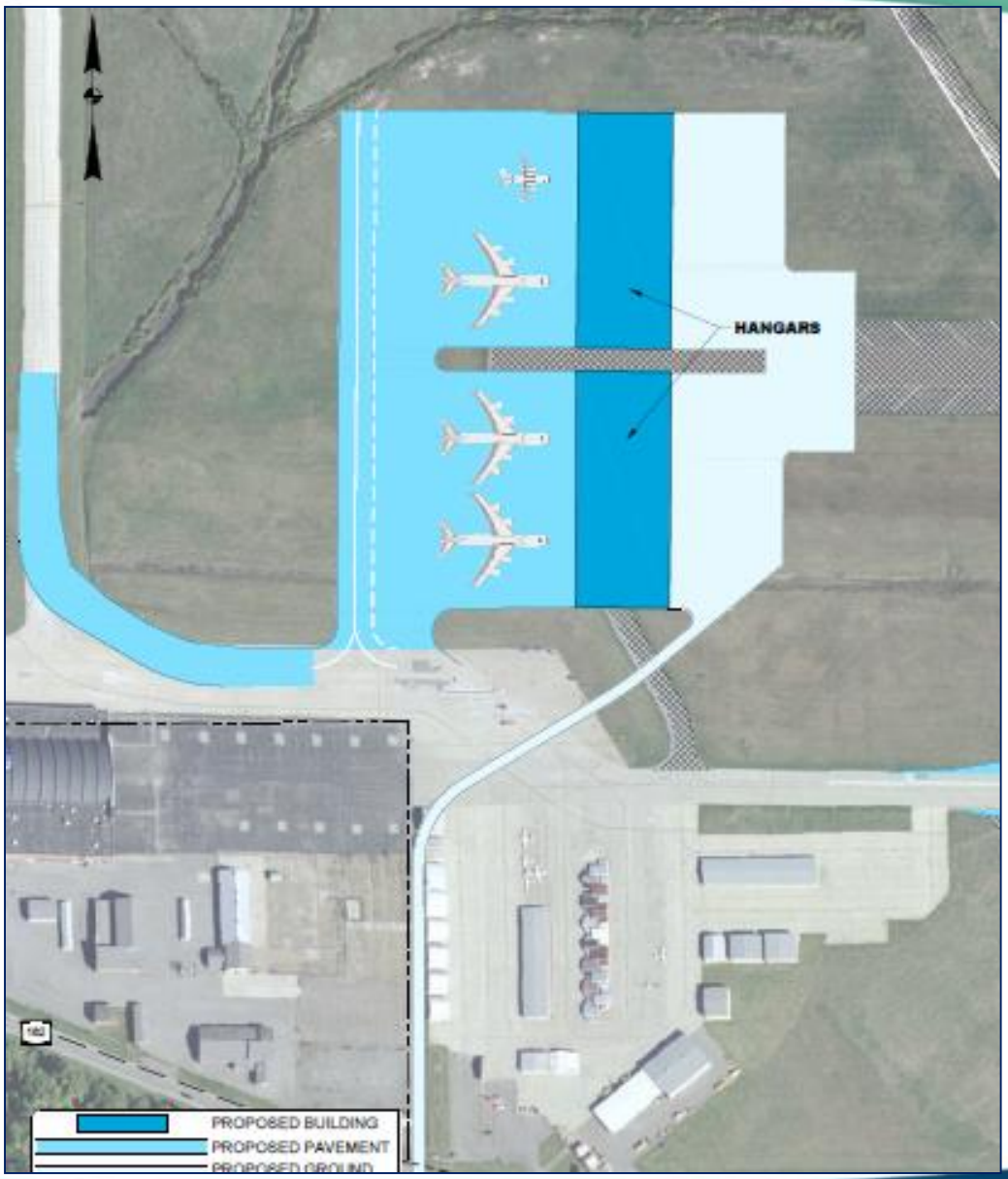
SUSTAINABLE Master Plan UPDATE



Air Cargo Facility Requirements

- **Size/Infrastructure Driven by Developer/Provider**
  - Limited Current Demand, yet Abundant Infrastructure
- **Alternatives will Consider Boeing 747-8F (Group VI)**
  - Allows Airport to Evaluate A380 Diversions/Operations
- **Facility Sized for Up to 100,000 SF Processing Space w/ Direct Road Access**

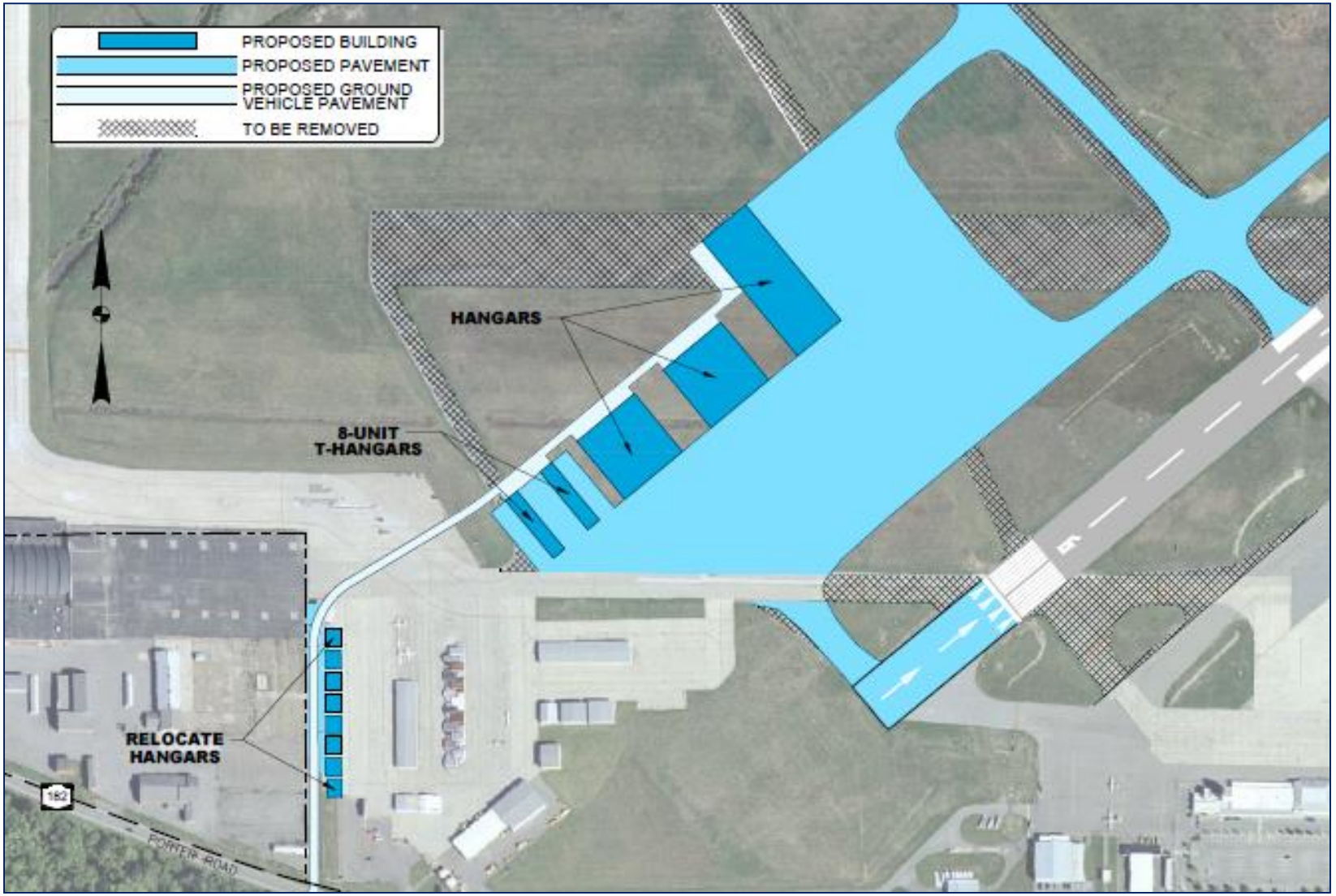
Preferred Air Cargo Alternative



General Aviation Facility Requirements

- **Consolidated General Aviation Area**
  - Existing FBO Site is Adjacent to Passenger Terminal
  - Existing Hangars/Based Aircraft Across Runway
- **Existing Hangars Have Insufficient Tail Height Clearance**
- **Consolidated GA Area Requires:**
  - New Apron – Existing Apron Shared with Terminal, Direct Access to Runway 6-24
  - Taxiway Access Improvements, Potential New Parallel

Preferred General Aviation Alternative

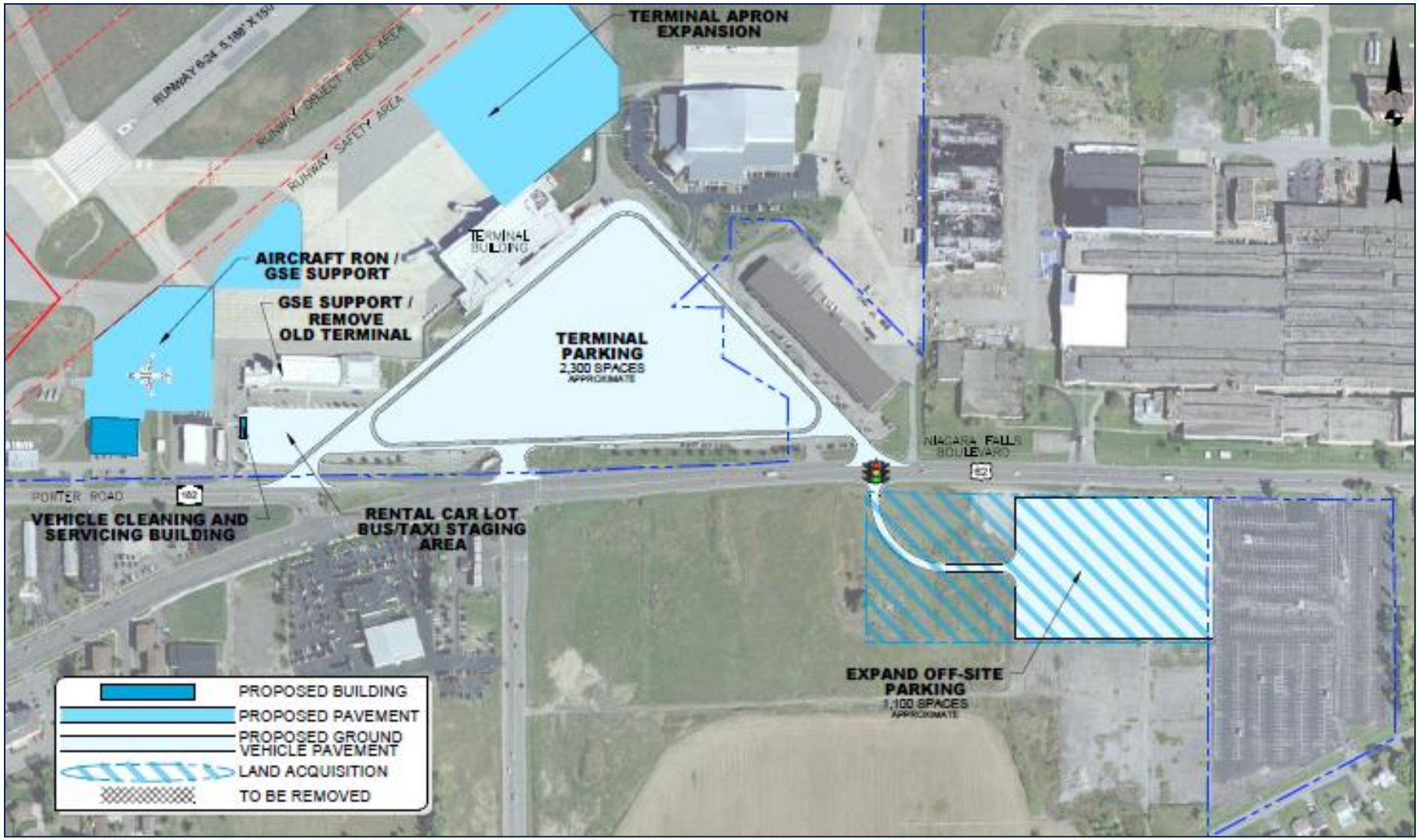


Landside Facility Requirements

- **Inefficient, Confusing Roadway Layout**
  - Old Terminal, IDA Building, Auto Parking Lots
  - Connect/Consolidate Parking Lots
- **Ground Transportation**
  - Increasing Demand for Rental Cars
  - Greater Demand for Tour Buses - Staging Area
- **"Peak Season" – Average of Busiest 3 Months**
  - 1,593 Existing Parking Spaces

Enplanements	Parking Spaces
100,000	632
200,000	1,265
300,000	1,703
400,000	2,271
500,000	2,530

Preferred Landside Alternative



Refined GA/Air Cargo Alternative

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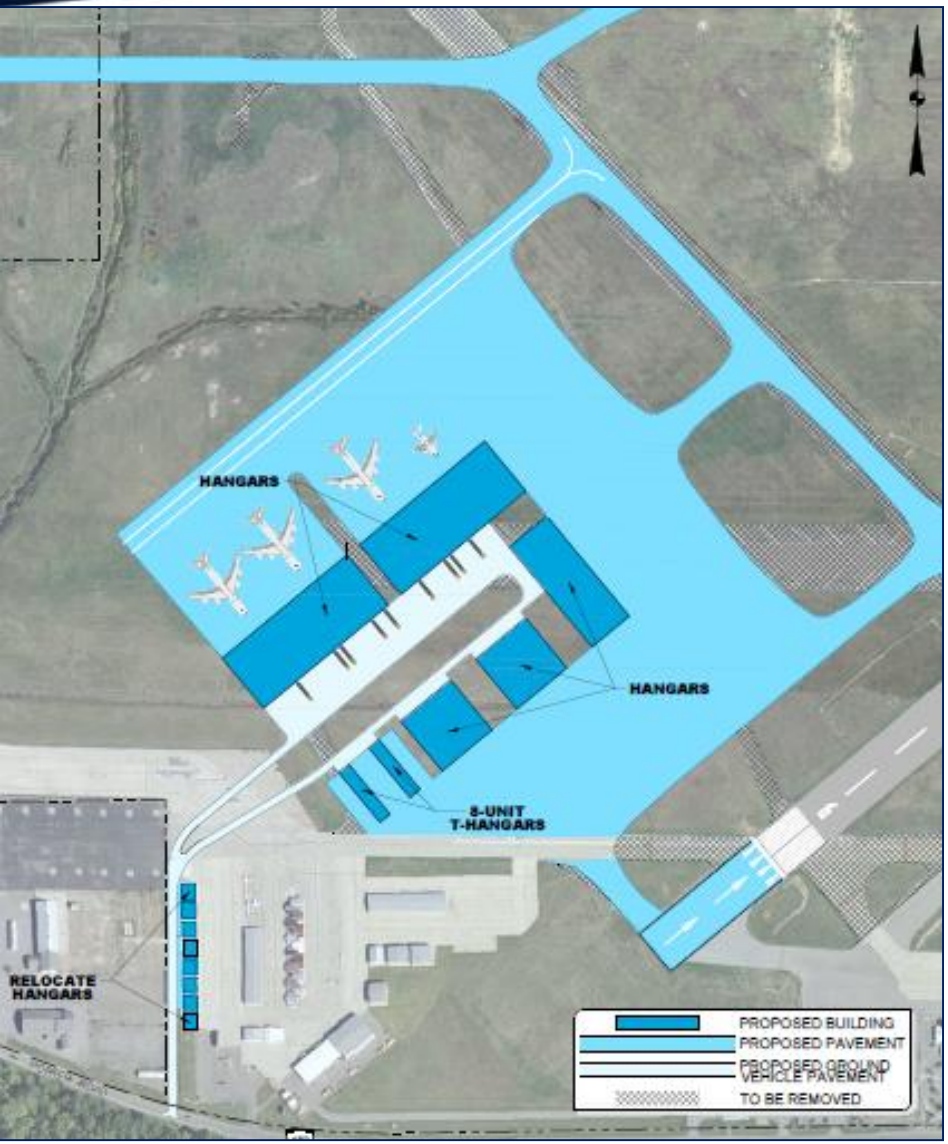

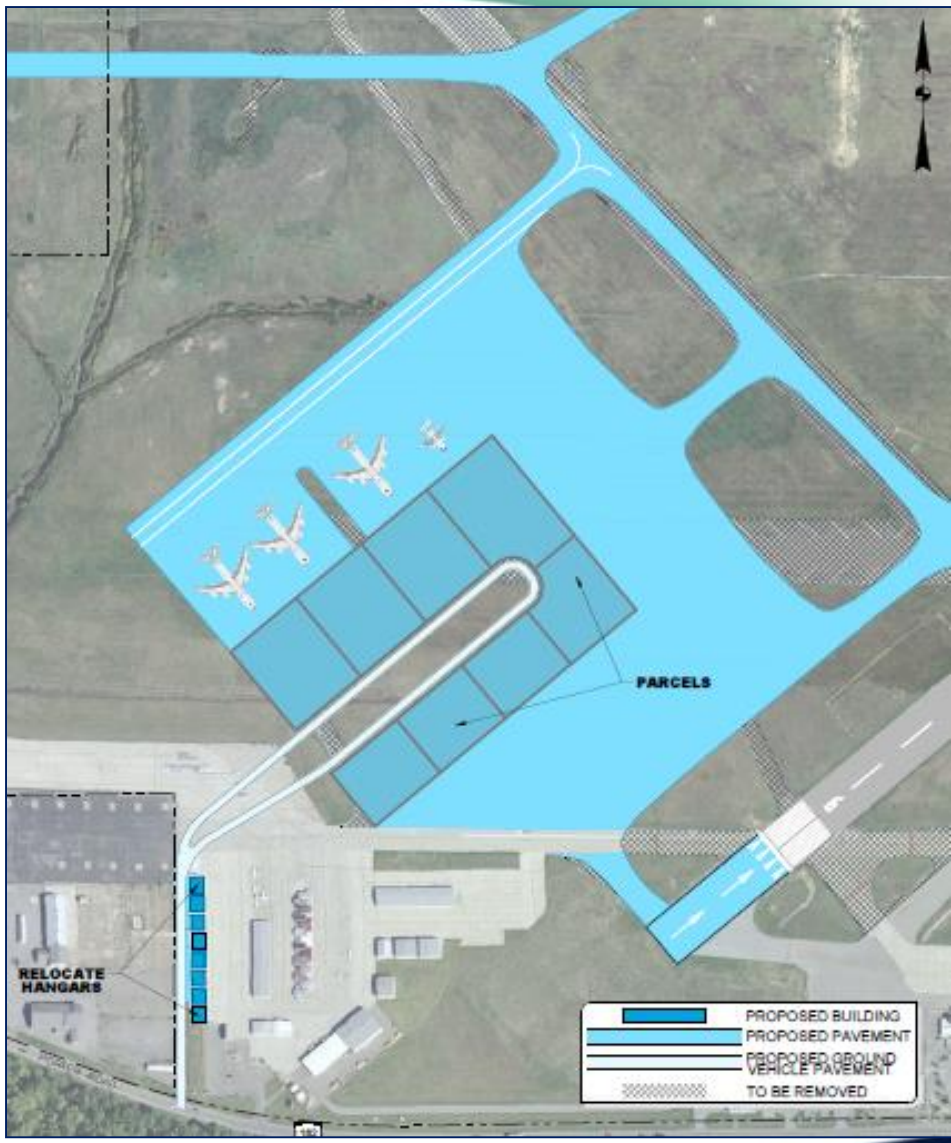

Preferred Airport Alternative

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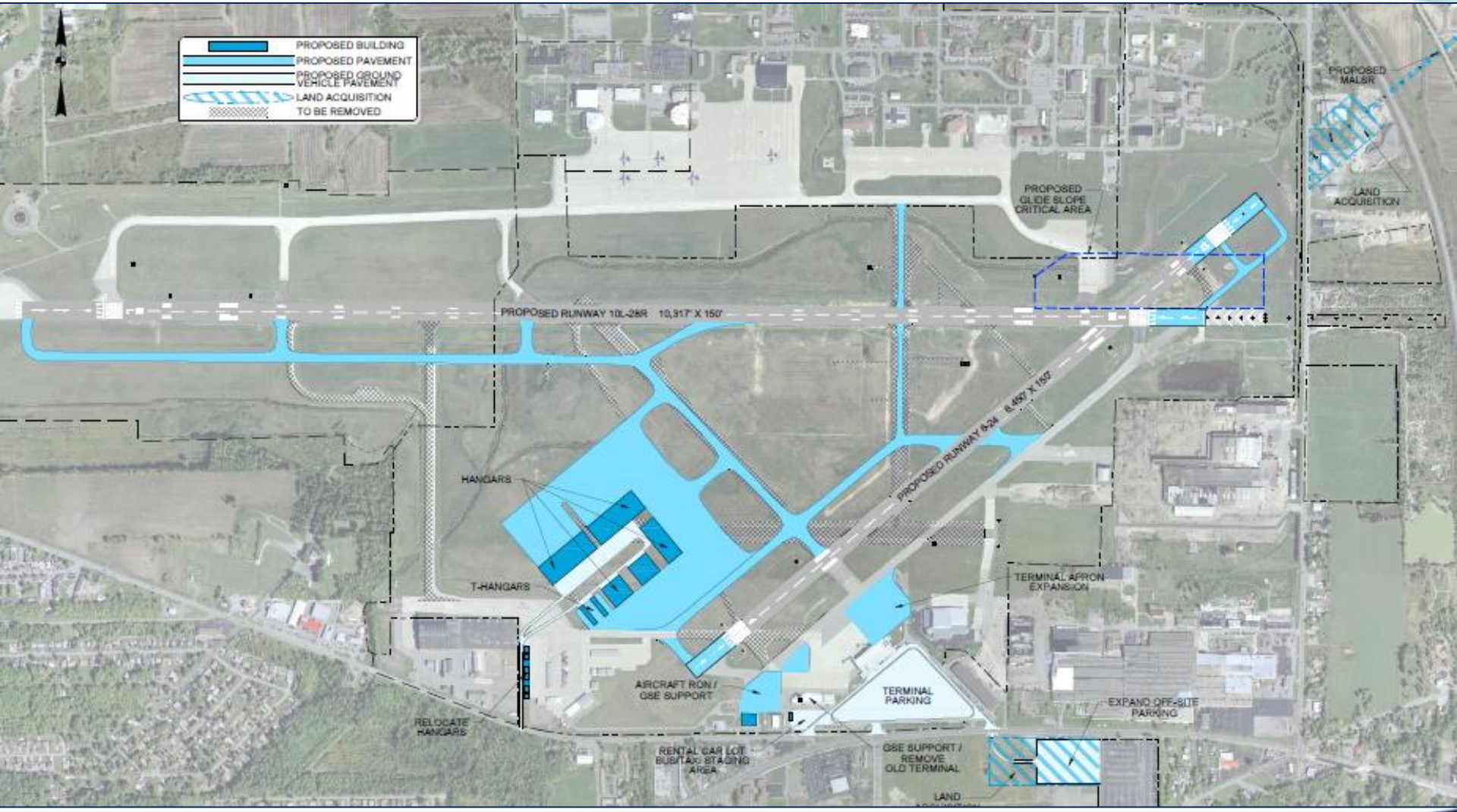

Terminal Facility Requirements

- **Departure Flow**
  - Web/Mobile Check-in Minimizing Future Requirements
  - Leisure Oriented Service
    - More Checked Baggage, Larger Group Size
    - Shared Baggage Makeup Area
    - Assigned, but Flexible Use
- **Arrival Flow**
  - Flat Plate to Sloped Plate
    - Enhances Security and Capacity
  - International Aircraft Servicing
    - Customs and Int'l Bag Claim Sizing

Functional Area Summary

- **Terminal Annual Capacity Based on:**
  - Constrained by Peak Season, Capacity is Greater with Stronger Off-Season Demand
  - Peak Season, 4-5 Peaks Per Day

Passengers/Hour	250	300	350	400	450	500	550	600
Aircraft Equivelent	1.5	1.8	2.1	2.4	2.6	2.9	3.2	3.5
Annual Capacity (Enplanements)	275,000	330,000	384,000	439,000	503,000	559,000	627,000	684,000
Ticket Counters								
Check-In Queuing								
Kiosks								
Baggage Screening								
Baggage Makeup								
Security Checkpoint								
Holdroom								
Concessions								
Boarding Gates								
Circulation								
Baggage Claim								
Restrooms								
Curb Frontage								

>65%	75%	85%	100%	110%

Preferred Terminal Alternative

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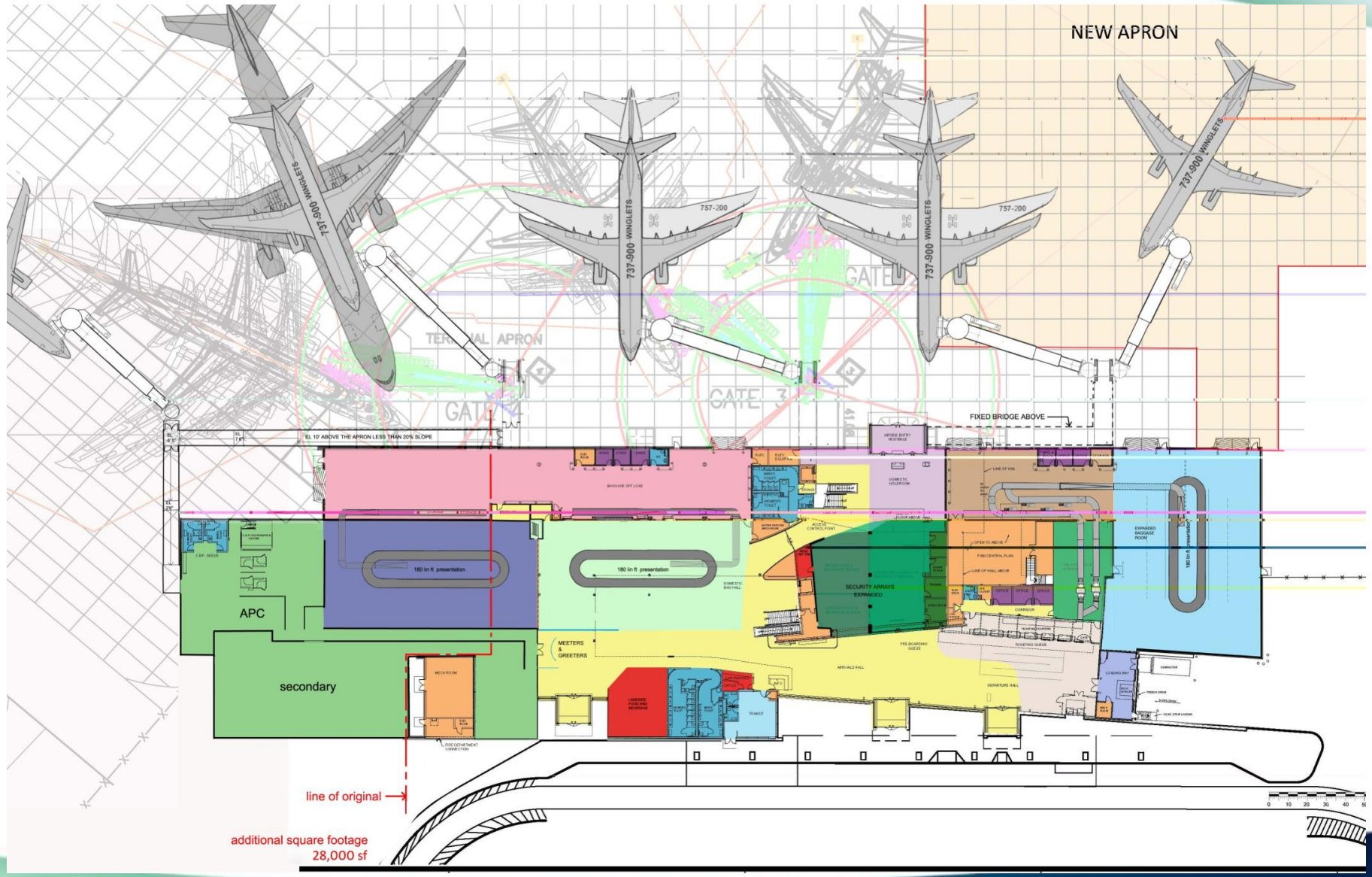


Capital Development Plan & Funding

Development Plan – Short Term

Phase I Projects (2015-2019)	Total Cost	FAA	State	NFTA
Master Plan Projects EA	$ 500,000	$ 450,000	$ 25,000	$ 25,000
Taxiway - Former E Diagonal	$ 9,800,000	$ 8,820,000	$ 490,000	$ 490,000
Runway 10-28 Extension	$ 2,420,000	$ 2,178,000	$ 121,000	$ 121,000
*Part 77 Obstruction Removal - RPZ Property Acquistion - West End 10L**	$ 750,000	$ 675,000	$ 37,500	$ 37,500
*Part 77 Obstruction Removal - Design**	$ 131,250	$ 118,125	$ 6,563	$ 6,563
*Part 77 Obstruction Removal - Construction**	$ 1,256,711	$ 1,131,040	$ 62,836	$ 62,836
Runway 28 Approach Improvements Phase I	$ 907,100	$ 816,390	$ 45,355	$ 45,355
Taxiway - South/west 6-24	$ 9,859,000	$ 8,873,100	$ 492,950	$ 492,950
GA/Air Cargo Access Road	$ 2,592,000	$ 2,332,800	$ 129,600	$ 129,600
GA Apron Phase I	$ 10,081,786	$ 9,073,607	$ 504,089	$ 504,089
Terminal Apron Expansion	$ 18,835,000	$ 16,951,500	$ 941,750	$ 941,750
*Snow Equipment Storage Building Phase I**	$ 401,646	$ 361,481	$ 20,082	$ 20,082
*Snow Equipment Storage Building Phase II**	$ 5,399,966	$ 4,859,969	$ 269,998	$ 269,998
*Snow Melter**	$ 250,000	$ 225,000	$ 12,500	$ 12,500
Total Phase I Project Costs	**$ 63,184,459**	**$ 56,866,013**	**$ 3,159,223**	**$ 3,159,223**

Development Plan –Med/Long Term

SUSTAINABLE Master Plan UPDATE

Phase II Projects (2020-2024)	Total Cost	FAA	State	NFTA
Terminal Improvements - Outbound Baggage	$ 3,100,000	$ -	$ --	$ 3,100,000
Runway 28 Approach Improvements Phase II	$ 13,510,100	$ 12,159,090	$ 675,505	$ 675,505
Runway 6-24 Extension	$ 9,484,000	$ 8,535,600	$ 474,200	$ 474,200
Runway 6 Approach Improvements (Survey and MALSR)	$ 964,000	$ 867,600	$ 48,200	$ 48,200
Pavement Removal	$ 4,893,000	$ 4,403,700	$ 244,650	$ 244,650
Taxiway - West end Parallel 10-28	$ 10,716,000	$ 9,644,400	$ 535,800	$ 535,800
GA Apron Phase II	$ 11,620,526	$ 10,458,473	$ 581,026	$ 581,026
Air Cargo Apron Phase I	$ 18,480,960	$ 16,632,864	$ 924,048	$ 924,048
Expand Remote Parking Lot and Reconfigure Entrance	$ -	$ -	$ -	$ 8,939,000
Total Phase II Project Costs	**$ 72,768,586**	**$ 62,701,727**	**$ 3,483,429**	**$ 15,522,429**

Phase III Projects (2025-2034)	Total Cost	FAA	State	NFTA
Taxiway - Military Connection	$ 4,041,000	$ 3,636,900	$ 202,050	$ 202,050
Air Cargo Apron Phase II	$ 8,404,560	$ 7,564,104	$ 420,228	$ 420,228
Terminal Improvements and Expansion	$ 14,700,000	$ -	$ -	$ 14,700,000
Reconfigure Terminal Roadway and Unite Parking Lots	$ 9,623,000	$ 1,924,600	$ 481,150	$ 7,217,250
Total Phase III Project Costs	**$ 36,768,560**	**$ 13,125,604**	**$ 1,103,428**	**$ 22,539,528**

CIP Summary

Time Frame	Total Cost	FAA	State	NFTA
Short Term (2015-2019)	$ 63,184,459	$ 56,866,013	$ 3,159,223	$ 3,159,223
Mid-Term (2019-2024)	$ 72,768,586	$ 62,701,727	$ 3,483,429	$ 15,522,429
Long Term (2025-2034)	$ 36,768,560	$ 13,125,604	$ 1,103,428	$ 22,539,528
Total Planning Period	**$ 172,721,605**	**$ 132,693,345**	**$ 7,746,080**	**$ 41,221,180**

Funding Sources

- **Federal**
  - Entitlement $1-1.2 Million, Growing with Enplanements
  - Discretionary – Nationally Competitive Projects
- **State**
  - 5% State Match on FAA Funded Projects
  - Aviation Capital Grant Program
    - 80% Up to $1 Million
- **Local**
  - NFTA Funds - (Airport/General)
  - PFC Funds - PFC Program Under Development
- **Private Investment**

Airport Sustainability

SUSTAINABILITY

Sustainability Planning Process

Sustainability Goals

- Utilize Strategies to Operate Existing Facilities with a Reasonable Return on Investment (ROI) and Design Future Facilities to Maximize Energy and Water Efficiency

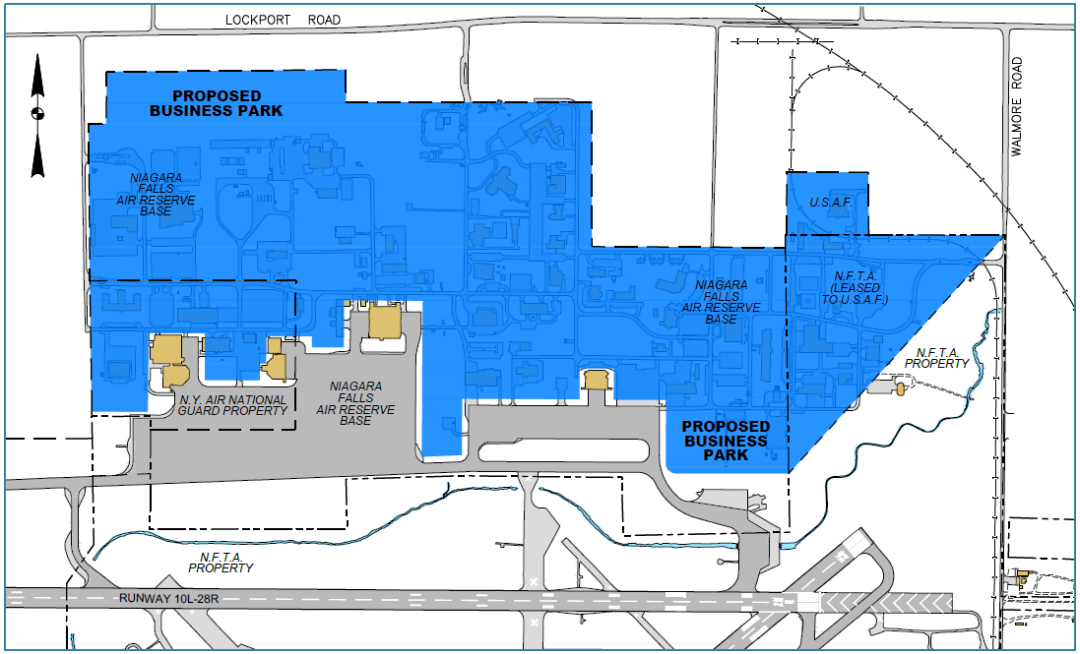
- Maximize the Economic Potential of NFIA by Enhancing Air Service Offerings and Developing Business and Employment Opportunities at the Airport

- Conserve Natural Resources and Minimize Air and Water Pollution

- Minimize Waste and Increase the Rate of Recycling

Alternatives Sustainability Screening

- **Purpose of incorporating sustainability criteria in the screening of alternatives:**
  - **Sustainability considerations becomes an element in alternatives selection**
  - **New sustainability opportunities may be identified**



Draft Sustainability Screening Criteria

- **Economic Vitality**
  - Does the Alternative Maximize Aeronautical and/or Non-Aeronautical Revenue-generating Opportunities?
  - Does the Alternative Facilitate Air Service?

- **Natural Resources**
  - Does the Alternative Protect and/or Conserve Natural Resources?
  - Does the Alternative Reduce Overall Air Pollutant and Greenhouse Gas Emissions Associated with the Airport?

Draft Sustainability Screening Criteria, Cont.

- **Energy and Infrastructure**
  - Does the Alternative Reduce Overall Airport Energy Use?
  - Does the Alternative Incorporate Energy-saving Measures and/or Equipment, or an Opportunity for Renewable Energy Sources?
- **Waste**
  - Does the Alternative Allocate Adequate Space and Facilities to Support Recycling?
  - If there is Construction, does the Alternative Incorporate Waste Minimization Practices?

Sustainability Strategies

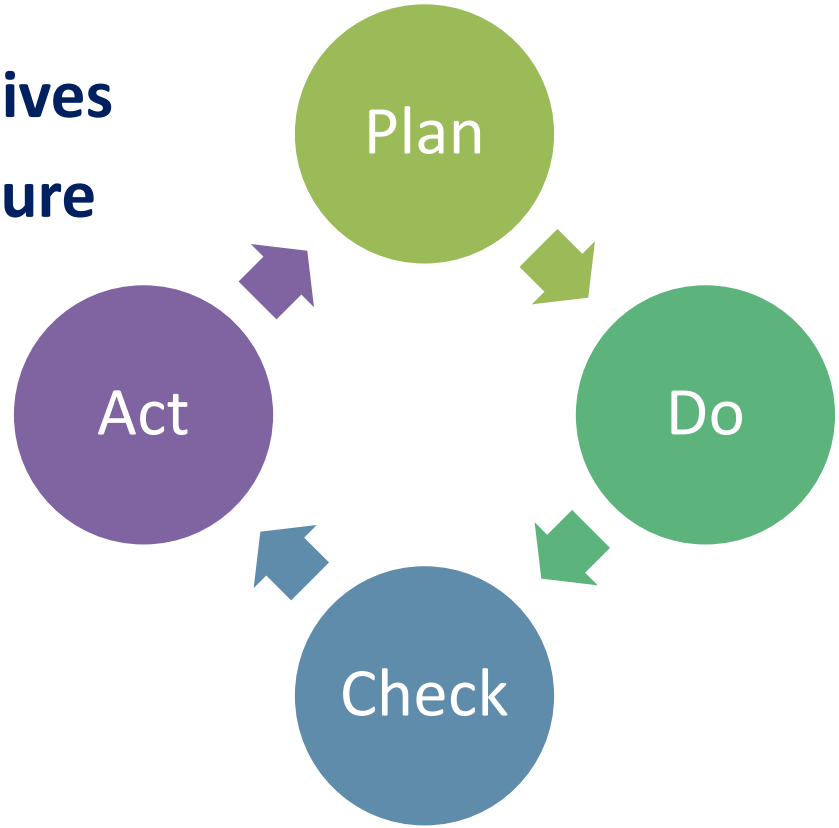
- **Identify Potential Initiatives**
  - Baseline Assessment
  - Industry Publications
  - Professional Experience
- **Screen Potential Initiatives - Criteria:**
  - Goals & Objectives
  - Cost (including ROI)
  - Labor Hours
  - Ability to Implement
- **Recommend Initiatives**
  - Review and Prioritize

Sustainability Strategies - Examples

- **Energy**
  - Replace Metal Halide Lights with LEDs (over $1,000/yr. Savings)
  - Install Manual Timer Fan Switch (ROI is less than 2 yrs.)
- **Natural Resources**
  - Conduct a Utility Master Plan
  - Install Water Leak Detection Equipment
- **Waste and Recycling**
  - Enhance Signage and Education of Recycling Program in Terminal
  - Encourage Airlines to Recycle On-Board Waste
- **Economic Vitality**
  - Promote Non-Aeronautical Land Use Development
  - Apply for NYSERDA Funding Opportunities

Sustainability Planning – Next Steps

- **Develop an Implementation & Monitoring Plan**
  - **Includes Prioritized Initiatives**
  - **Establish Metrics to Measure Performance**



Next Steps

Next Steps

- Public Meeting Tonight
- FAA Submission, Review, Approval
- Completion of *Dynamic Analysis Tool*
- Regional Resource Document

Give Us Your Comments!

- **Review Report Documents and Provide Comments**

  http://dynamic-planning.com/NiagaraFalls.html

- **Meeting Minutes, Presentations, and Draft Technical Report Chapters Available for Review**
  - **Contact Project Team Member if you Require Hard Copies**

- **Provide Comments to Any Member of the Project Team by May 14th, 2015**

Project Contacts

Mark Clark – Project Manager – NFTA

- mark_clark@nfta.com 716-630-6133

Chad Nixon – Senior Vice President – MJ

- cnixon@mjinc.com 607-723-9421

Rick Lucas – Project Manager - MJ

- rlucas@mjinc.com 978-692-0522

Jeff Wood – Task Leader: Environmental and Sustainability - MJ

- jwood@mjinc.com 607-723-9421

Questions?

Niagara Falls International Airport
Public Workshop

View and discuss the Sustainable Master Plan for the Niagara Falls International Airport.

Wednesday June 4, 6 to 8 p.m.

Niagara Falls International Airport
2035 Niagara Falls Blvd., lower level

Free parking in the general passenger lots. Refreshments will be served.

Niagara Falls International Airport – Sustainable Master Plan Update
Public Information Meeting – June 4, 2014

Welcome and thank you for joining us for the Sustainable Master Plan Public Information Meeting. The information presented tonight takes you through the development of the Sustainable Master Planning Process. You will learn:

- What a Master Plan is and its purpose
- What information is collected and how it is used for the project; and
- How the master plan is used by the airport and what it means for the surrounding area

ROOM FORMAT

The format of the room is presented with six stations that represent the steps taken to develop an airport master plan. Airport and McFarland Johnson staff will describe the process to you and answer any questions you have at each station. At the end, there are two public input stations which enable you to provide input on the next steps of the airport master plan, and we strongly encourage you to participate. After providing your input, we invite you for refreshments and offer you an opportunity to provide us with any additional thoughts via the comment sheet you received with this information. Again, we thank you for joining us this evening and look forward to speaking with you.

MASTER PLAN INFORMATION STATIONS

Background: Highlights the Goals and Objectives used to guide this process sets the direction and guiding principles for the plan.

Inventory and Forecasts: The Inventory documents and reviews all existing facilities and conditions on the airport which serves as the baseline going forward. The Forecast assesses historical data and industry trends to create projections of future aviation demand.

Facility Requirements: Facility Requirements compares the existing conditions with projected aviation demand to determine the requirements for the various elements of the airport. These elements are grouped into airside, terminal, landside and support facilities.

Sustainability: A unique component was included by the NFTA to have this master plan to take a sustainable approach with regards to future development with the goal of improving the airports social, economic and environmental standing in the community.

Environmental Overview: Environmental conditions were identified at the beginning of the process with the goal of minimizing the environmental effects of the Airport's operation and growth on the surrounding environment and community.

PUBLIC COMPONENT STATIONS

Visioning Exercise: This station offers you an opportunity to describe how you see the airport today, and how you envision the airport 20 years from now. Please use the sticky notes that are provided.

Alternative Evaluation Criteria: This input station allows you to select the factors you believe should be most important when evaluating potential airport development. Please use the dots that are provided.

NOTES

Background: _____

Inventory: _____

Forecasts: _____

Facility Requirements: _____

Sustainability: _____

Environmental Overview: _____

NAME	ADDRESS	PHONE	EMAIL
Terrell Holling	2723 22nd ST NF		terrellholling@yahoo.com
Natasha Whiteside	9455 NF blvd CO		antwonsmom@yahoo.com
Joseph Peiffer	81 Kingsbury Lane		con31126@spirit.com
John Trozzera Lis	605 Perry Ave	348 6460	
MIKE WRONA	166 CRANDON DR #3	688 1542	MIKE_WRONA@YAHOO.COM
MARYJOAN STEIN	72 GRAND EKTG	479 8092	mkstein@ymail.com
ANDREW BOLKATA	681-79th Street NF, NY 14304	361-0773	
MATT GRABAU	8438 MAIN ST 503 BUF. NY	856-2026 x 516	mgrabau@pburtz.org
Augie Iacovitti	4995 Forest Rd Lewiston	912-6889	
Robert Weber	484 Fuller PL. Lewiston	754-0892	weberGroup@roadrunner.com
Paul G Poulos	2507 Parkview Dr NFalls	3163663	
[illegible]	9803 [illegible]	NF 14304	C[illegible]
James M. Conti	134-81 Street NF	283-1916	mikeconti14304@yahoo.com
George D Maziarz	6905 Ridge Rd. Lkpt	434-0680	Maziarz@NYSenate.Gov
[illegible]	1730 Cornwall Dr #3-4 NF 14304	310 8373	mjp14304@gmail.com
Michael Costuk			
William [illegible]	2433 Stoelting St	731-3464	

Comment Sheet

Your input and participation in this process is very important. Please use the space below to provide comments on any aspect of the airport master plan. When finished, please place your sheet in the comment box located near the entrance. If you need more time, you may write your comments at home and return them to the address below. All comments must be postmarked or emailed by June 30, 2014. Thank you in advance for your participation.

McFarland Johnson
NFIA Sustainable Airport Master Plan
49 Court Street, Metrocenter, PO Box 1980
Binghamton, NY 13902-1980
NFIAMPU@mjinc.com

Please address the Problem with passengers thinking they are going to Buffalo Airport. And find out they are in Niagara Falls!

Buffalo - Niagara Name to Confusing

Comment Sheet

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PASSENGER LANDING HERE
HAVE BEEN CONFUSED THINKING
THEY WERE AT BFIA —
AND VICE-VERSA —
CITING BUFFALO-NIAGARA NAME
TO JUST BUFFALO INTERNATIONAL!

Comment Sheet

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- CAPE Air to ALBANY
- FRONTier Airlines out West
- RAMP EXPANSION A must
- INternational DIVERSION CAPABILITY Instead of Going to BUFFALO
-

Comment Sheet

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NFIAMPU@mjinc.com

I would like to see more flights that hopefully leave here daily and also fly into more states such as (Arizona, New Mexico, and Calif.

Free Baggage for 1st piece of luggage then a small fee for additional luggage.

Comment Sheet

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Should try to tie in tours with the local hotels & hotels in Holiday Inn

Comment Sheet

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- REGIONAL ACCESS AND WAYFINDING TO/FROM AIRPORT(S) - HOW TO DISTINGUISH NFIA FROM BNIA ON HWY SIGNAGE - TO EASE ACCESS TO/FROM BORDER CROSSINGS.

- CONTINUE TO ATTRACT LOW-COST CARRIERS - FLIGHTS TO WEST COAST & EUROPE


Niagara Falls International Airport
Public Workshop
Let us show you the future of NFIA
Public Workshop # 2 and FINAL
April 14th, 2015 Tuesday evening
6:00pm - 8:00pm
6:30pm Group presentation
NIAGARA FALLS
ONE WAY
Niagara Falls International Airport
2035 Niagara Falls Blvd., lower level
Free parking in the general passenger lots. Refreshments will be served.

NIAGARA FALLS
INTERNATIONAL AIRPORT

SUSTAINABLE *Master Plan* UPDATE

Public Information Meeting
April 14, 2015

What is a Master Plan?

SUSTAINABLE Master Plan UPDATE

- Official FAA and NYSDOT Airport Planning Document
- Reflects Sponsor's Goals for the Airport
- Depicts Future Airport Development Covering 10-20 Years
- Future Projects Contingent on FAA Funding and Environmental Approval

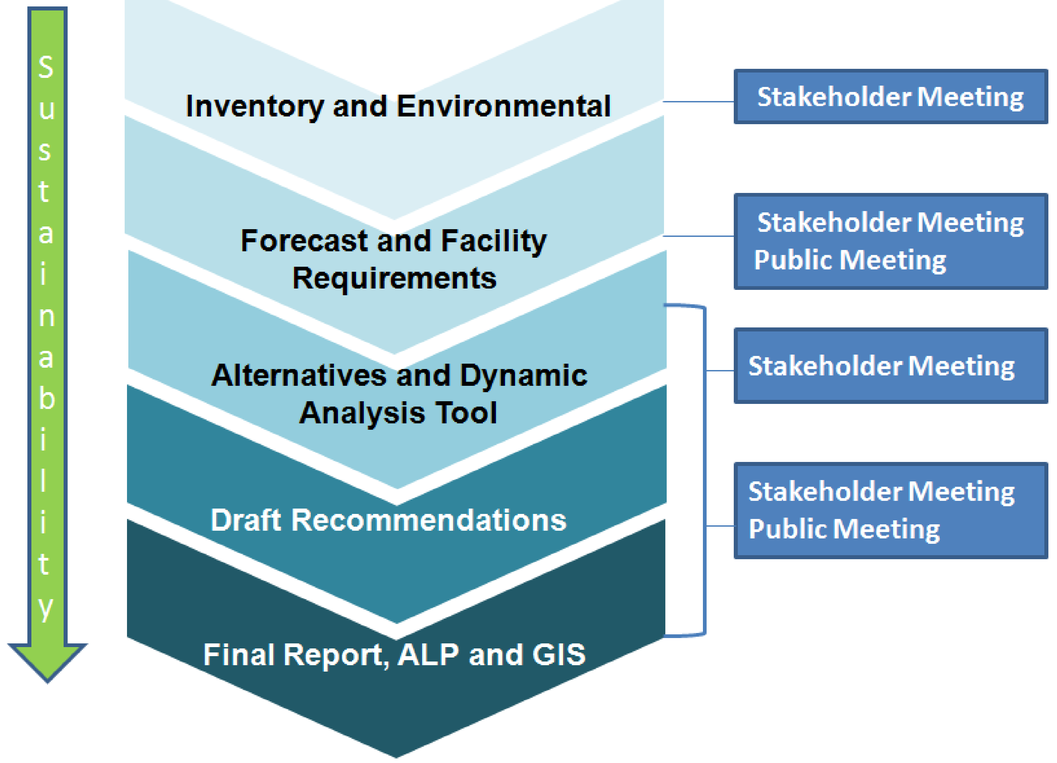
Goals

- Meet Aviation Needs of the Region
- Comply with Current Standards
- Enhance Airport Economic Viability
- Identify Future Constraints
- Promote Sustainable Ideas & Solutions For the Airport

Objectives

- Meet Needs of Future Aircraft Fleet Mix
- Develop Parking and Access Alternatives
- Identify Non-Aviation Use Areas
- Obtain Approval of the Airport Layout Plan
- Engage Public in Planning Effort

Master Plan Process

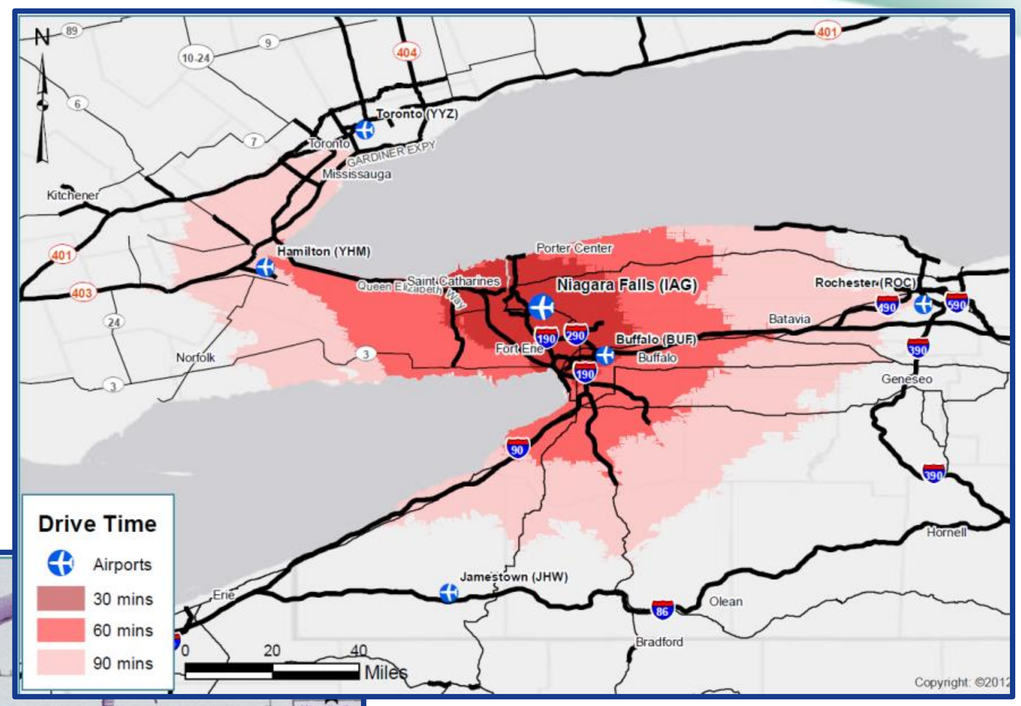


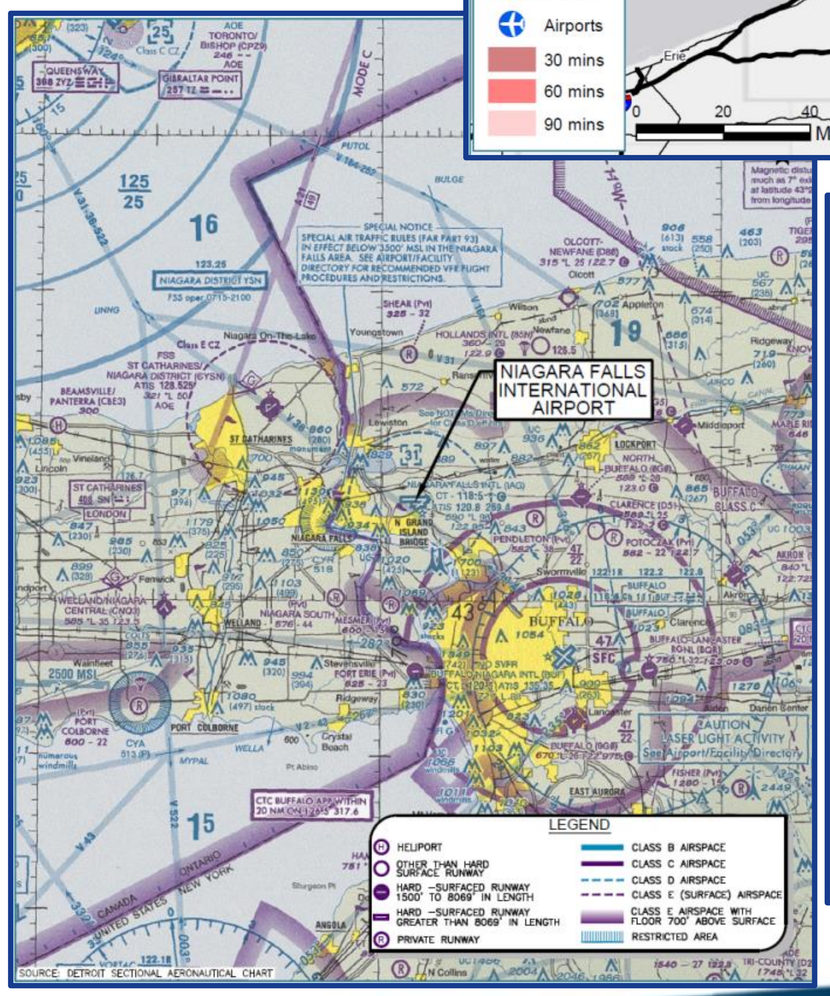
- **Stakeholder Committee**
  - Airport Sponsor (NFTA)
  - Federal Aviation Administration (FAA)
  - New York State Department of Transportation (NYSDOT)
  - Greater Buffalo Niagara Transportation Council (GBNRTC)
  - Airport Users and Businesses
  - Local Government Officials
  - Other Community Stakeholders
- **Stakeholder Committee Meetings**
- **Public Information Meeting**

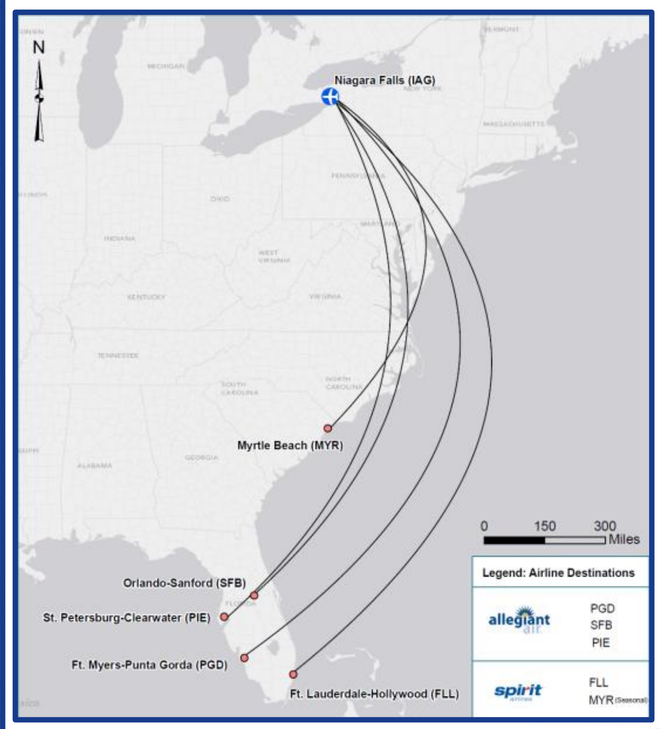
Airport Background

SUSTAINABLE Master Plan UPDATE

- **Non-Hub Primary Commercial Service Airport**
- **Passenger Service**
  - 2 Airlines, 5 Destinations
- **24,674 Operations, 58 Based Aircraft**
- **Enplanements**
  - **2011:** 98,538
  - **2012:** 88,711
  - **2013:** 95,137
- **Full Service Fixed Base Operator**
  - Calspan Air Services
- **Calspan Flight Research and Development**
- **Military Facilities**
  - US Army Reserve
  - US Air Force Reserve
  - New York Air National Guard







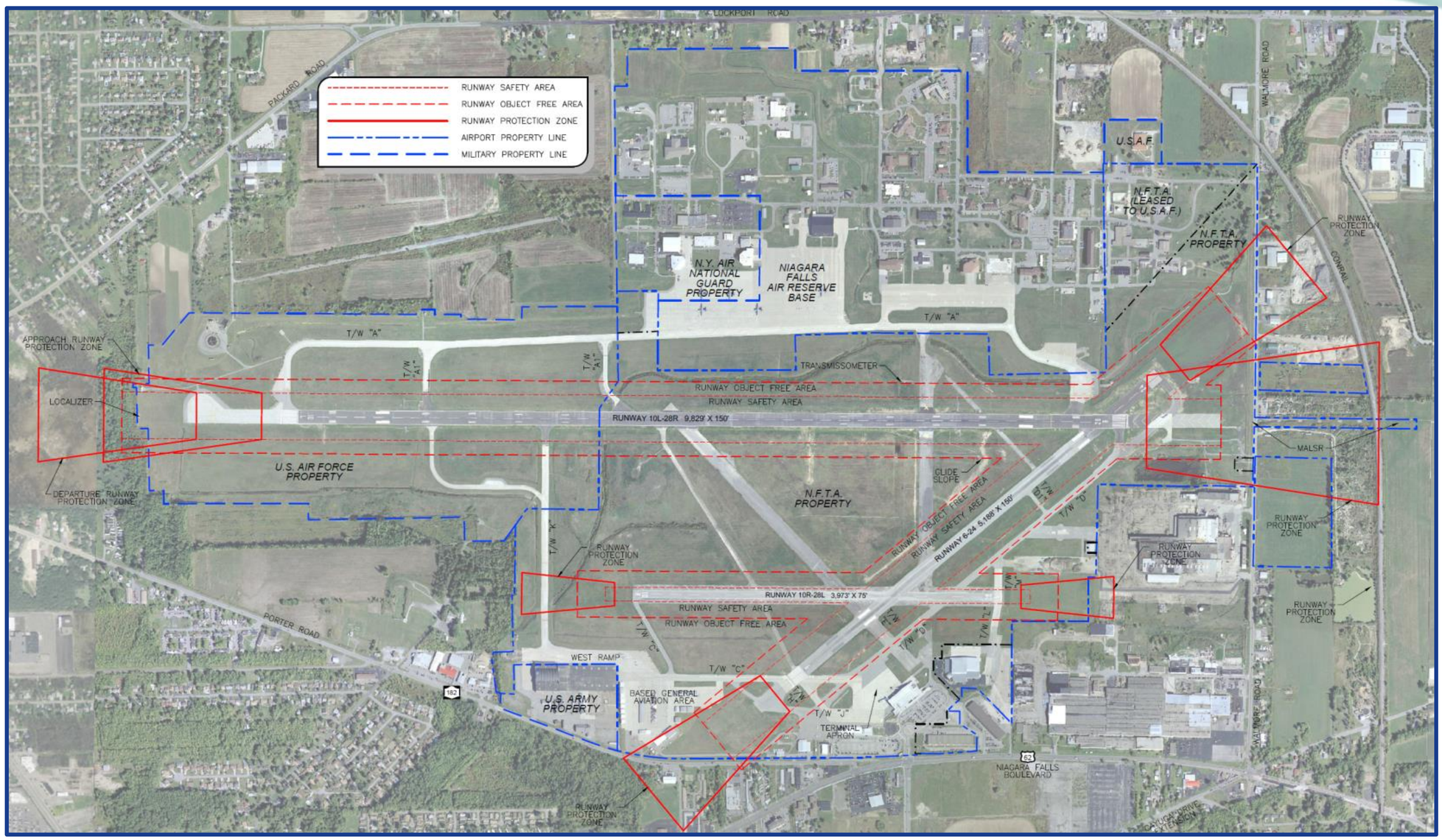
Existing Airside Conditions

SUSTAINABLE Master Plan UPDATE

- **Runway 10L-28R**
  - Primary
  - 9,829 x 150
  - MALSR
  - HIRL

- **Runway 6-24**
  - Crosswind
  - 5,188 x 150
  - MIRL

- **Runway 10R-28L**
  - Parallel/Utility
  - 3,973 x 75
  - MIRL



- **Taxiways**
  - MITLS on All
  - TW A and D Full Parallel
  - 50 ft Wide – General Aviation
  - 75 ft Wide – Air Carrier/Military

- **Visual/Navigational Aids**
  - REILs to All RW Ends
  - VASI RW 10L
  - PAPI RW 6-24; 10R-28L
  - Rotating Beacon
  - Windsock

- **Approach Procedures**
  - ILS/LOC to RW 28R
  - GPS to RW 6, 10L, 28R, 24
  - TACAN RW 28R
  - NDB RW 28R

Existing Landside Facilities

SUSTAINABLE Master Plan UPDATE

Military Facilities

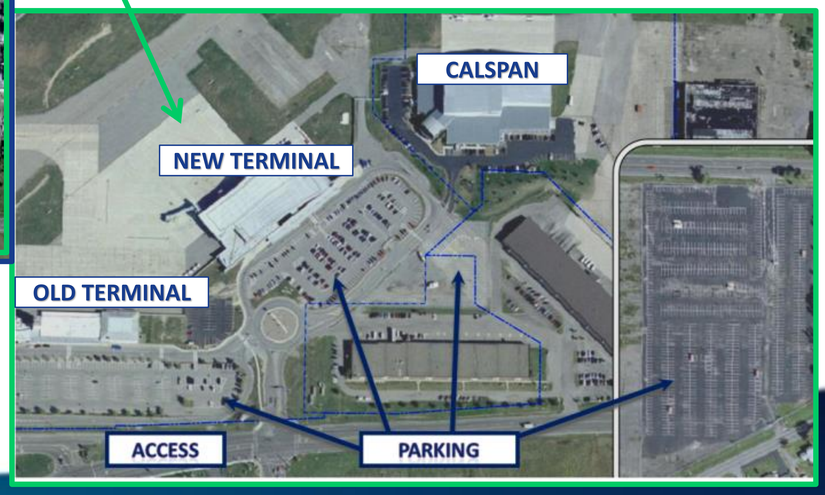
- NY ANG 107 and USAF 914
- 12 Aircraft Joint Operated
- Provides ARFF Coverage
- Owns TW A and West Portion of RW 10L-28R
- 4 Hangar Spaces
- Aircraft Do Not Fly GPS Approaches

General Aviation

- FBO Facilities
- Aircraft Maintenance Garage
- T-hangars and Conventional Hangars
- Apron Tie-downs
- Fuel Facilities

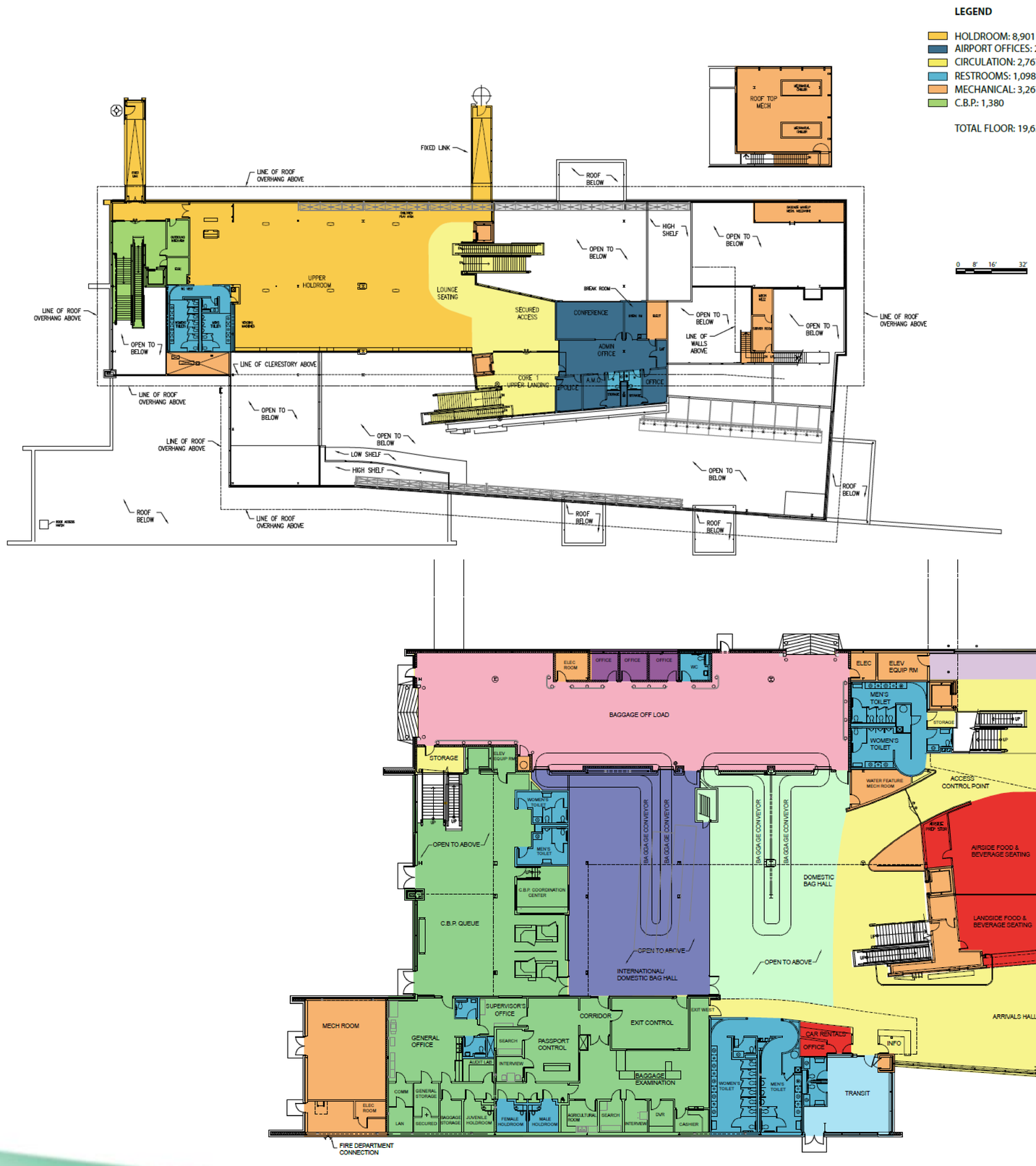
Terminal Area

- New Terminal Building
- Old Terminal Building
- Terminal Access
- Parking Facilities



Existing Terminal Facilities

SUSTAINABLE Master Plan UPDATE



Passenger Terminal Upper Level

Passenger Terminal Main Level

Aviation Forecasts

SUSTAINABLE Master Plan UPDATE

Forecast Elements

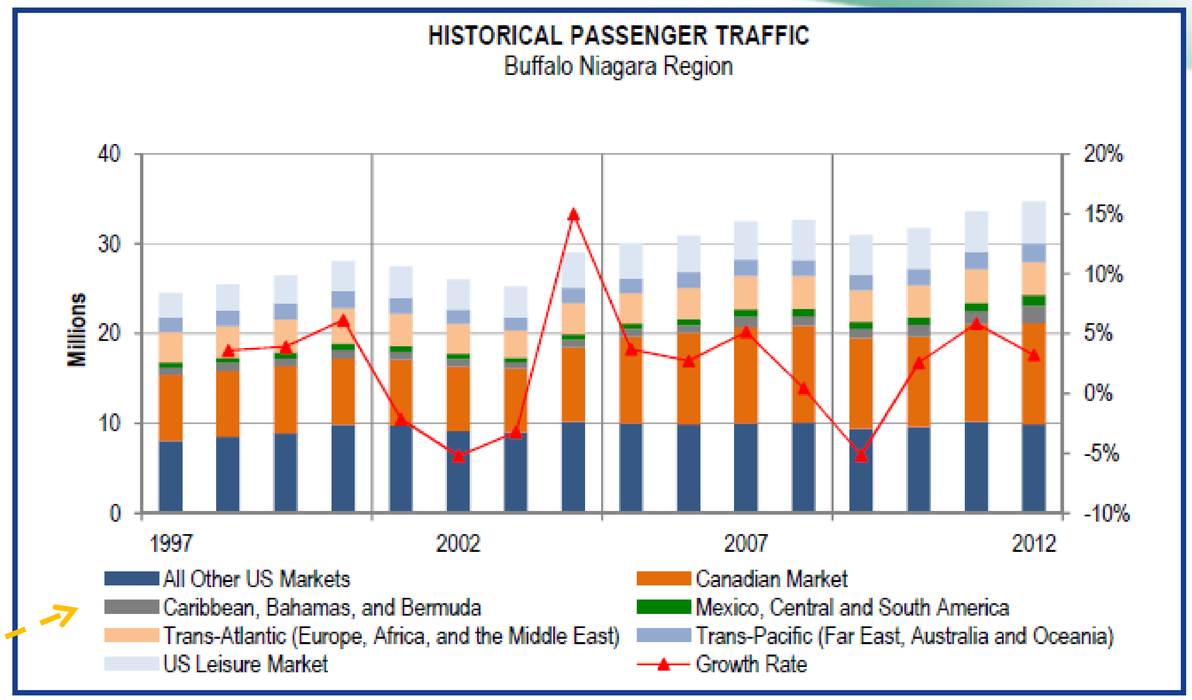
Niagara Region
- GDP, Exchange Rate
- Population
- US and Canada

Air Travel Demand
- 2012: 34.7 million O&D pax
- Geographic markets
- Business vs leisure

Airport Shares
- Competitive relationships
- Air traffic trends
- Airline considerations
- Airport considerations

Factor Relationships
- Trend correlations
- Application to NFIA

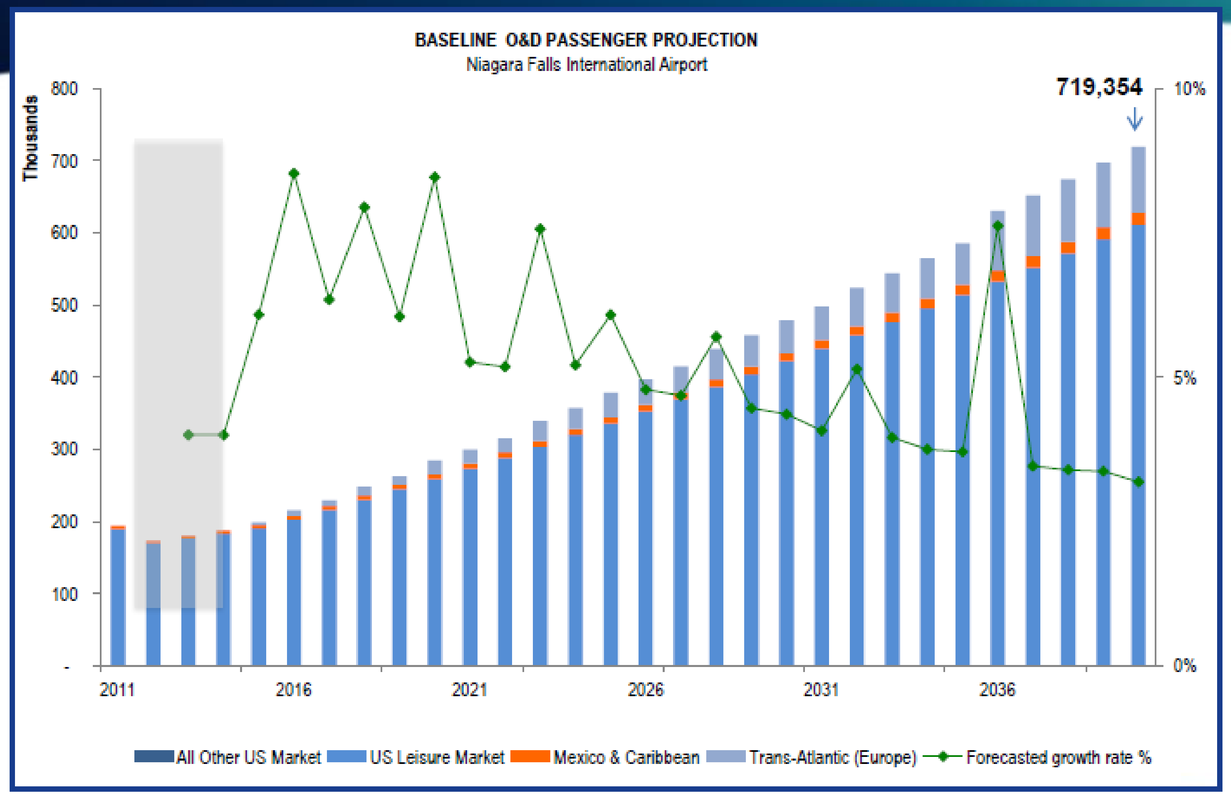
NFIA Forecast
- Base case forecast
- Alternative scenarios



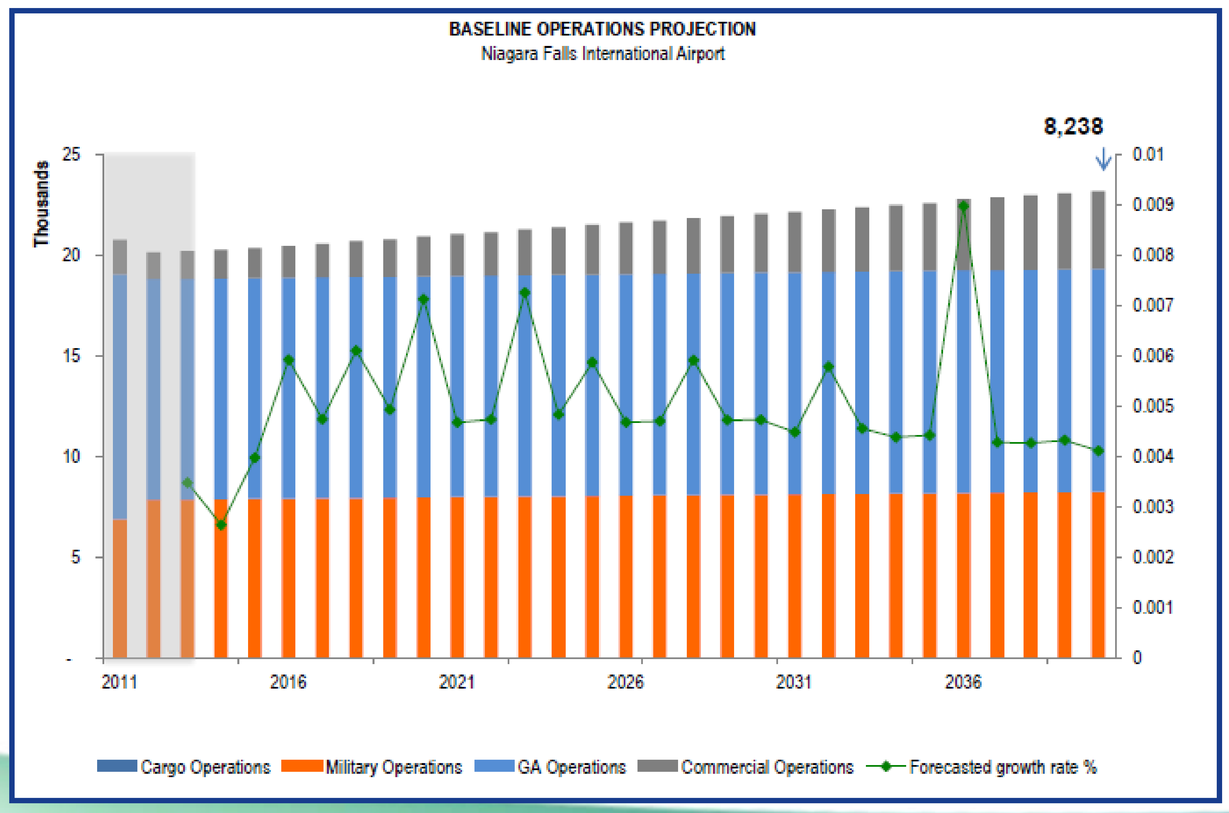
Seven primary airports and many airlines competing for air travel demand in a bi-national market

Aviation Forecasts

SUSTAINABLE Master Plan UPDATE



Projected Activity



FORECAST TOTAL AIRCRAFT MOVEMENTS
NFIA Baseline Case and A New Trans-Atlantic Service

Year	Commercial Operations	Cargo Operations	Military Operations	GA Operations	Total ATM
1997	-	-	12,328	14,906	27,234
2000	-	-	13,052	13,965	27,017
2010	-	-	9,130	14,112	23,242
2011	1,706	-	6,873	12,170	20,749
2012	1,328	-	7,846	10,957	20,131
2013	1,380	-	7,860	10,961	20,201
2014	1,415	-	7,874	10,965	20,254
2015	1,478	-	7,888	10,969	20,335
2016	1,580	-	7,902	10,973	20,455
2017	1,659	-	7,916	10,977	20,552
2018	1,767	-	7,930	10,980	20,677
2019	1,851	-	7,944	10,984	20,779
2020	1,981	-	7,958	10,988	20,927
2025	2,470	-	8,028	11,008	21,506
2030	2,917	-	8,098	11,027	22,043
2035	3,353	-	8,168	11,047	22,568
2040	3,855	-	8,238	11,067	23,160
Annual Growth Rates					
2012	-22.2%	-	14.2%	-10.0%	-3.0%
2013	3.9%	-	0.2%	0.0%	0.3%
2014	2.6%	-	0.2%	0.0%	0.3%
2015	4.4%	-	0.2%	0.0%	0.4%
2016	6.9%	-	0.2%	0.0%	0.6%
2017	5.0%	-	0.2%	0.0%	0.5%
2018	6.5%	-	0.2%	0.0%	0.6%
2019	4.8%	-	0.2%	0.0%	0.5%
2020	7.0%	-	0.2%	0.0%	0.7%
2020-2025	24.7%	-	0.9%	0.2%	2.8%
2025-2030	18.1%	-	0.9%	0.2%	2.5%
2030-2035	14.9%	-	0.9%	0.2%	2.4%
2035-2040	15.0%	-	0.9%	0.2%	2.6%
Compound Annual Growth Rates					
2011-2015	-3.5%	-	3.5%	-2.6%	-0.5%
2015-2025	5.3%	-	0.2%	0.0%	0.6%
2011-2040	2.9%	-	0.6%	-0.3%	0.4%

Airside Facility Requirements

SUSTAINABLE Master Plan UPDATE

Runway Requirements

- Extend Runway 6-24 to 6,000 feet
  - Reclaim 402 feet of Pavement on the Runway 6 end
  - Construct 410 feet of Pavement on the Runway 24 end
  - LDA and ASDA for both runways of 5,600 feet
  - Obstruction Removal Required for Airline Utility
- Complex Confusing Intersection Near 28R, 24 Thresholds
- Runway 10R-28L No Longer Needed
  - Minimal Use, Primarily Convenience
  - Enable Additional Aviation Development
  - Alternatives will Evaluate Potential Use as Taxiway

Approach/NAVAIDS Requirements

- 28R Glideslope Improvements
- Develop Approach Procedure for Runway 10L
- Improve Approach Minimums for Runways 6 & 24
  - Existing – 1 Mile (6 – LPV/LNAV, 24 – LP/LNAV)
  - Ultimate – ¾ Mile (LPV)
- Replace Runway 28R VASI with PAPI
- Install PAPI & Approach Lights on Runway 10L
- Install REILs

Taxiway Requirements

- Update taxiway system in accordance with AC 150/5300-13A
- Improve Access from Taxiway A to Runway 24 end
- Improved Access from Terminal Area to Runway 10L end

Key Issues

- New Runway/Taxiway Design Requirements
  - Taxi Routes to/from Terminal
- Crosswind Runway Capabilities
  - Existing/Future
- Physical Constraints
  - Property/Development
- Instrument Approaches
  - New Approaches to 6/24
  - 28R Glideslope
  - 10L Approach (Canadian Airspace)

Demand Capacity Analysis

- Multiple Factors Affect Airfield Capacity
  - Touch-and-Go's
  - Number and Location of Taxiway Exits
  - VFR/IFR Conditions (% Each)
  - Seasonality/Peaking Characteristics
  - Runway Configuration/Utilization
- Existing Airfield Capacity = 213,628
  - Analysis Excluded 10R-28L
- Year 2040 Operations 23,160 = 11% Capacity
  - Planning for New Capacity Not Required Until 128,000 Annual Operations (60% Threshold)

Terminal Facility Requirements

SUSTAINABLE Master Plan UPDATE

Terminal Planning

- Non-Traditional Planning
  - Less than Daily Service
  - High Seasonality, Peaking
  - Low Cost Airline Considerations
- Limited Historical Data
  - 2010 Minimal Service - 23,000 Enplanements (Up 35%)
  - 2011 Direct Air Service, High Growth
  - 2012 Direct Air Ceases (50% Share), Runway Closure
- Capacity Capabilities
  - Aircraft Sizes, International Operations

Focus Placed on Functional Area Constraint Thresholds

Security Infrastructure

- Passenger Screening
  - Existing Configuration Good for up to 275 Pax/Hr
  - Intermediate/Long Term Requires 2 Lanes (550/Hr)
  - High Growth Could Ultimately Require 3 Lanes (825/Hr)
- Baggage Screening
  - Currently Using an EDS
    - 180 Bags/Hr Capacity Insufficient for Peak Ops
    - Supplemented by ETD Method
    - No Space for Expanded Baggage Screening Infrastructure

Terminal - Departure Flow

- Ticketing/Check in – Technology Changes
  - Web/Mobile Check-in Minimizing Future Requirements
  - Leisure Oriented Service
    - More Checked Baggage, Larger Group Size
  - Ticket Counters
    - Assigned, but Flexible Use
- Shared Baggage Makeup Area
  - Limited Existing Space
  - 3rd Airline -> Overcrowding

Terminal – Arrival Flow

- Circulation Improvements Required for Out-Year Peak Hour Operations (Holdroom + Inbound)
  - Restrooms/Concessions
- Two Baggage Belts/Total Frontage Sufficient
  - Space/Circulation Component is Controlling Factor
  - Effectiveness Dependant on Airline Operations
- FIS Capacity 200/Hr = Boeing 757
  - Expansion Required for Boeing 767/Airbus 330

Landside Facility Requirements

SUSTAINABLE Master Plan UPDATE

General Aviation

- Consolidated General Aviation Area
  - Existing FBO Site is Adjacent to Passenger Terminal
  - Existing Hangars/Based Aircraft Across Runway
- Hangars not Compatible with Mid/Large Corporate Jets
  - Existing Demand for Citation-X, Tail is too Large
- Consolidated GA Area Requires:
  - New Apron – Existing Apron Shared with Terminal, Direct Access to Runway 6-24
  - Taxiway Access Improvements, Potential New Parallel

Support Facilities/Equipment

- Snow Removal Equipment
  - Expanded Facility
    - Larger Doors for Newer Equipment (3,750 SF)
  - Current SRE Fleet are adequate
    - Replace equipment as necessary
- Current ARFF Services are adequate under present arrangement with USAF
  - Index B required
  - USAF provides services up to Index E
- Relocate Air Traffic Control Tower
  - Analysis to Follow Airside Alternatives

Air Cargo

- Size/Infrastructure Driven by Developer/Provider
  - Limited Local Demand, yet Abundant Infrastructure
- Alternatives will Consider Boeing 747-8F (Group VI)
  - Allows Airport to Evaluate A380 Diversions/Operations
- Facility Sized for Up to 100,000 SF Processing Space w/ Direct Road Access

Auto Parking

- Three (3) Primary Parking Lots,
  - Lot 1 & 2 -238/255 Spaces
  - Lot 3 (Remote) – 1,100 Spaces (Seasonal)
- Connect/Consolidate Smaller Lots
- "Peak Season" – Average of Busiest 3 Months

Enplanements	Parking Spaces
100,000	632
200,000	1,265
300,000	1,703
400,000	2,271
500,000	2,530

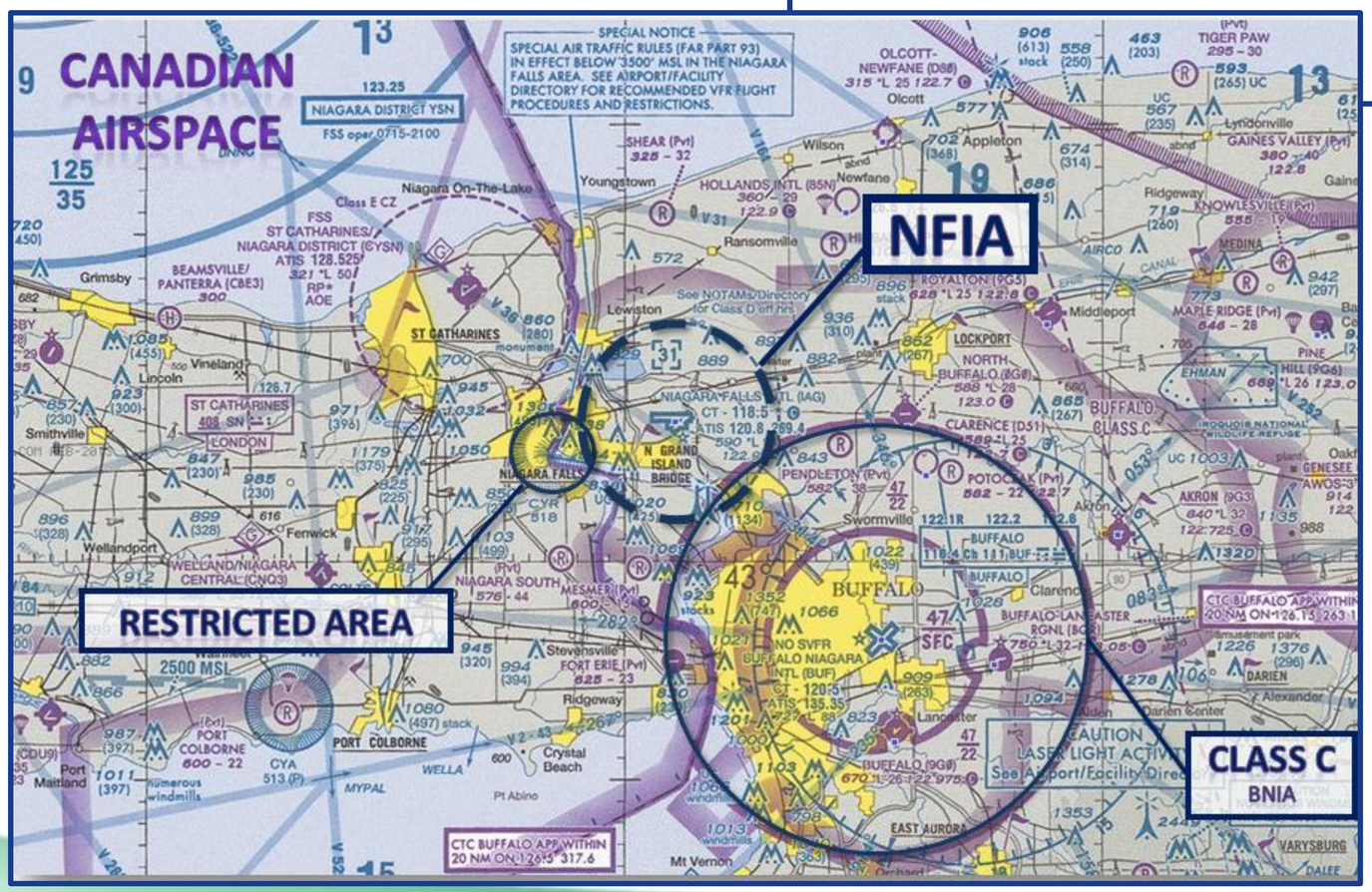
Challenges

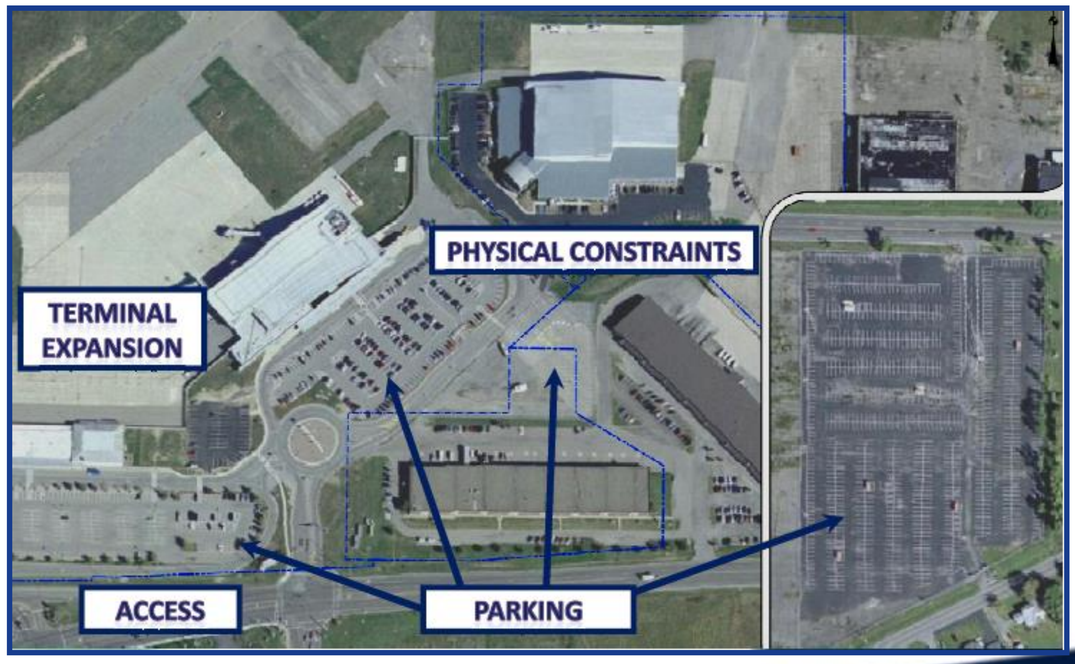
- Taxiway Layout
- Congested Airspace
- Physical Constraints

- Complex Taxiing Routes
- ATC Runway Crossing Procedures

NEW TAXIWAY DESIGN STANDARDS

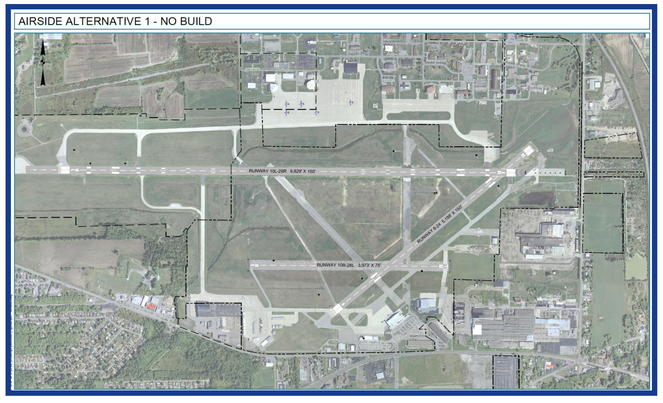
- Y-Shape Taxiways Near Runway
- Direct Access to Runway



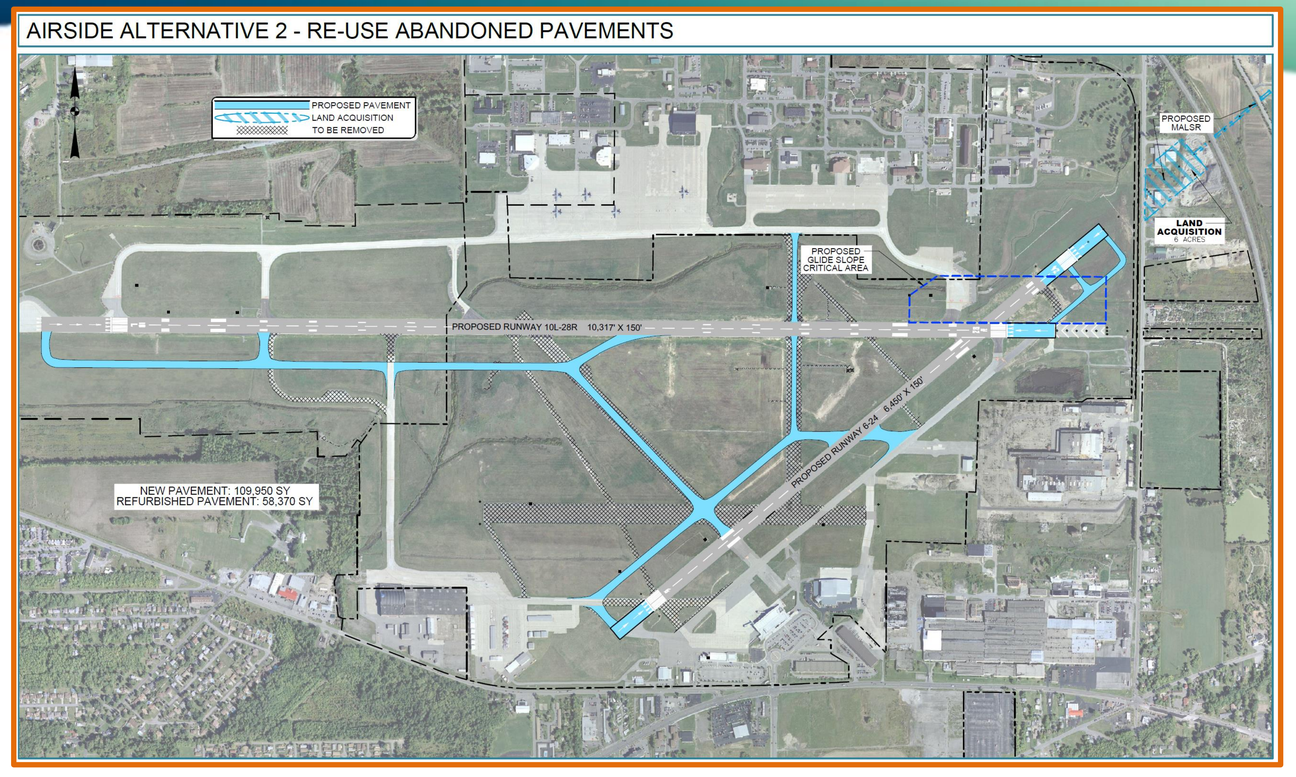


Airside Alternatives

SUSTAINABLE Master Plan UPDATE

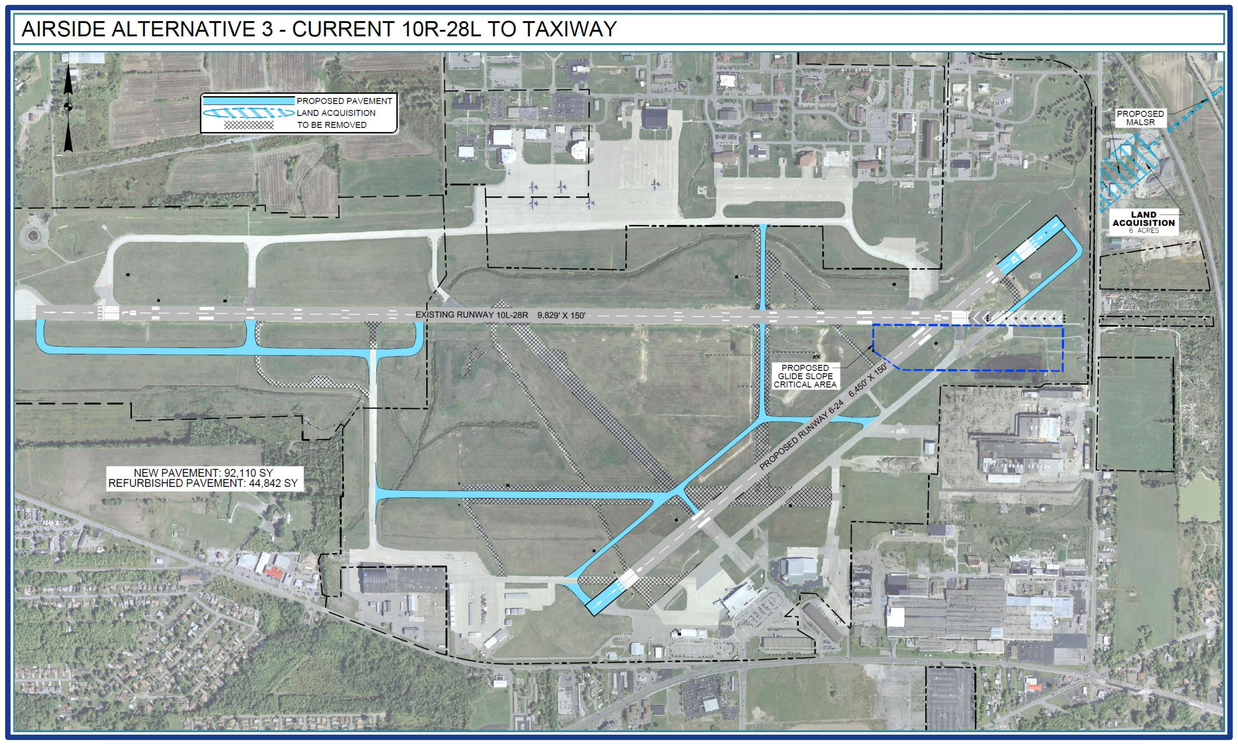


Alternative 1 - No Build
•Maintain Existing Infrastructure

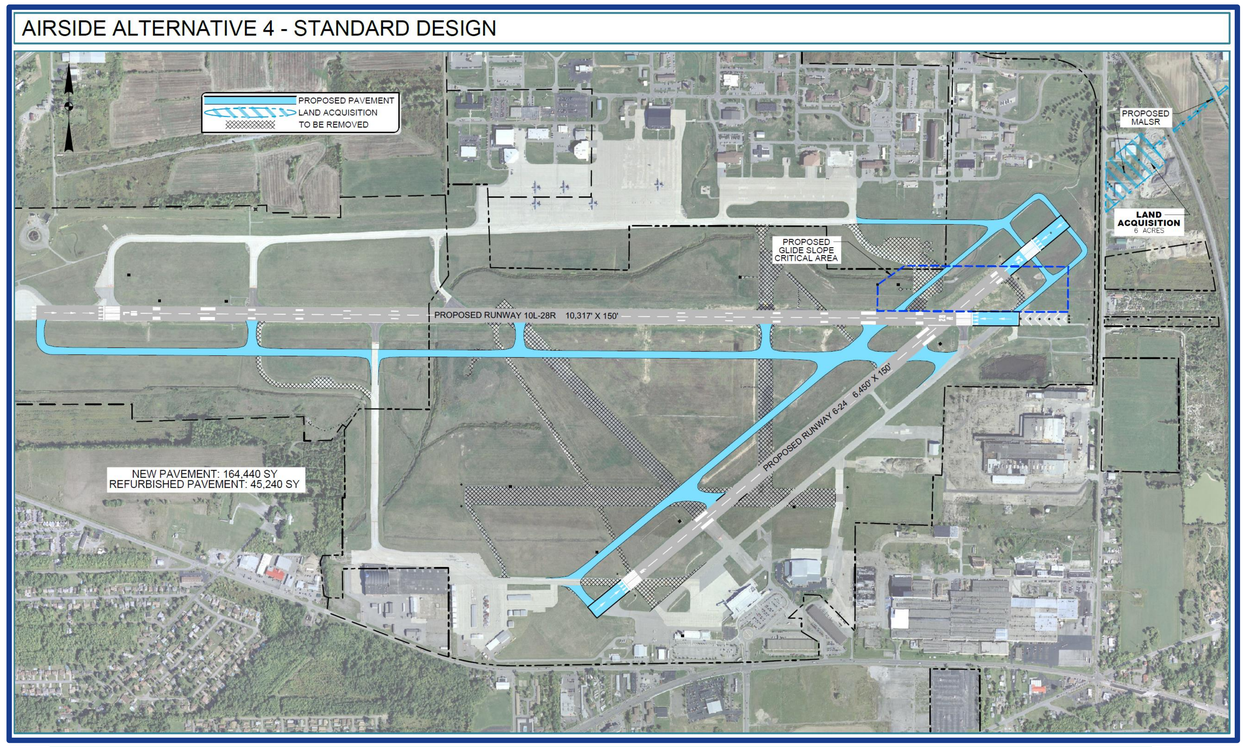


Alternative 2
•Air Carrier-Capable Crosswind Runway
•Runway 24 Approach Improvements
•Efficient Taxi Routes to/from Terminal
•Supports GA Development West of 6-24
•Eliminates Complex Intersections
•Avoids Impacts to Creek

***Orange denotes preferred option**



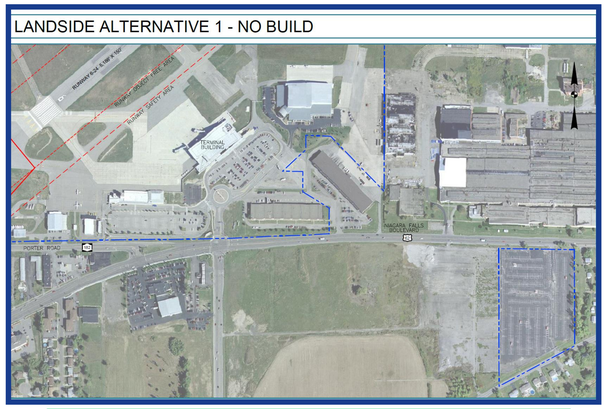
Alternative 3
•Air Carrier-Capable Crosswind Runway
•Runway 24 Approach Improvements •Eliminates Complex Intersections
•Converts Runway 10R-28L to Taxiway



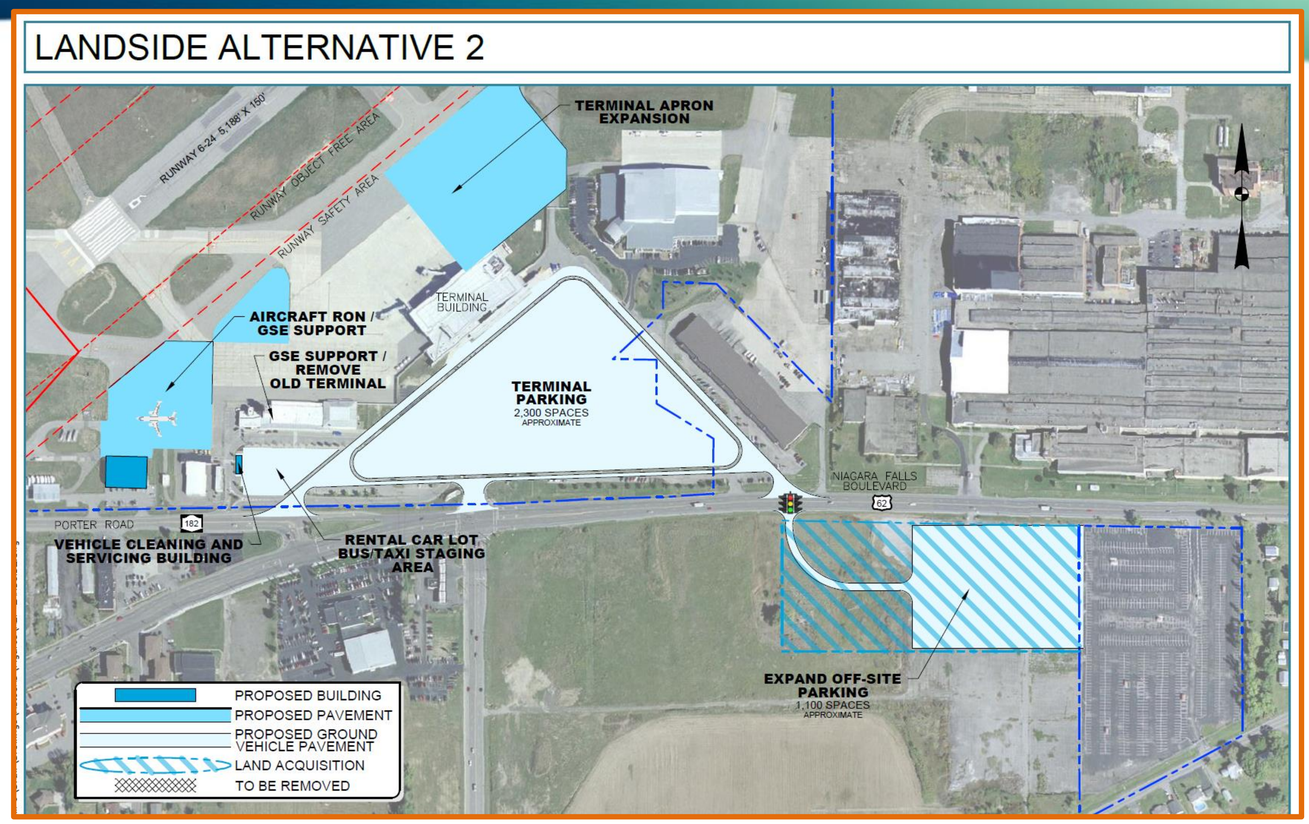
Alternative 4
•Air Carrier-Capable Crosswind Runway •Supports GA Development West of 6-24
•Runway 24 Approach Improvements
•Standard Taxiway Geometry

Landside Alternatives

SUSTAINABLE Master Plan UPDATE

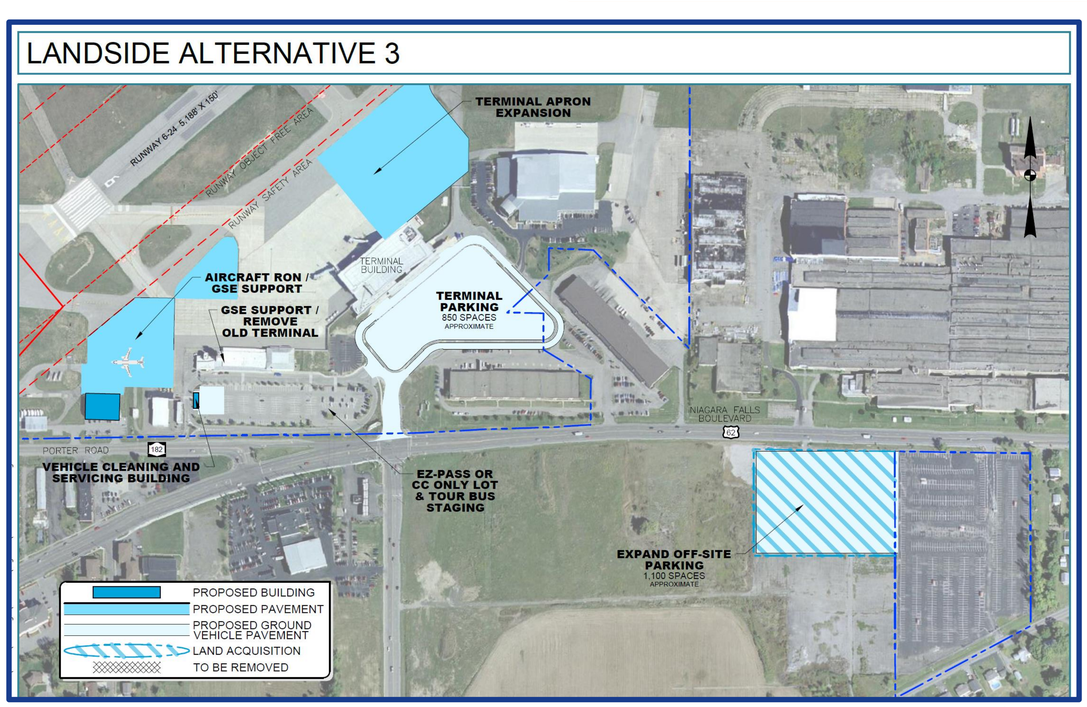


Alternative 1 - No Build
•Maintain Existing Infrastructure

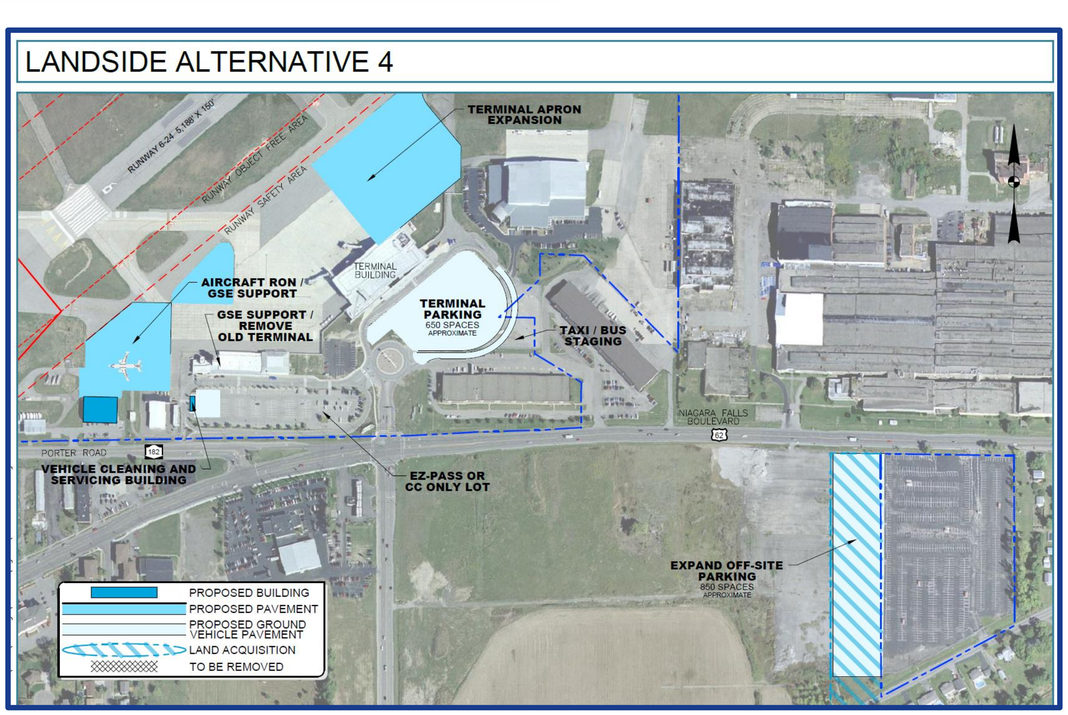


Alternative 2
•Central Parking Lot Adjacent to Passenger Terminal
•Connects Remote Lot with Terminal Roadway System (with Traffic Light)

*Orange denotes preferred option



Alternative 3
•Reconfigures Roadway Within Adjacent Buildings Footprint
•Expands Remote Parking Lot



Alternative 4
•No Building Acquisition/Demolition

Air Cargo Alternatives

SUSTAINABLE Master Plan UPDATE

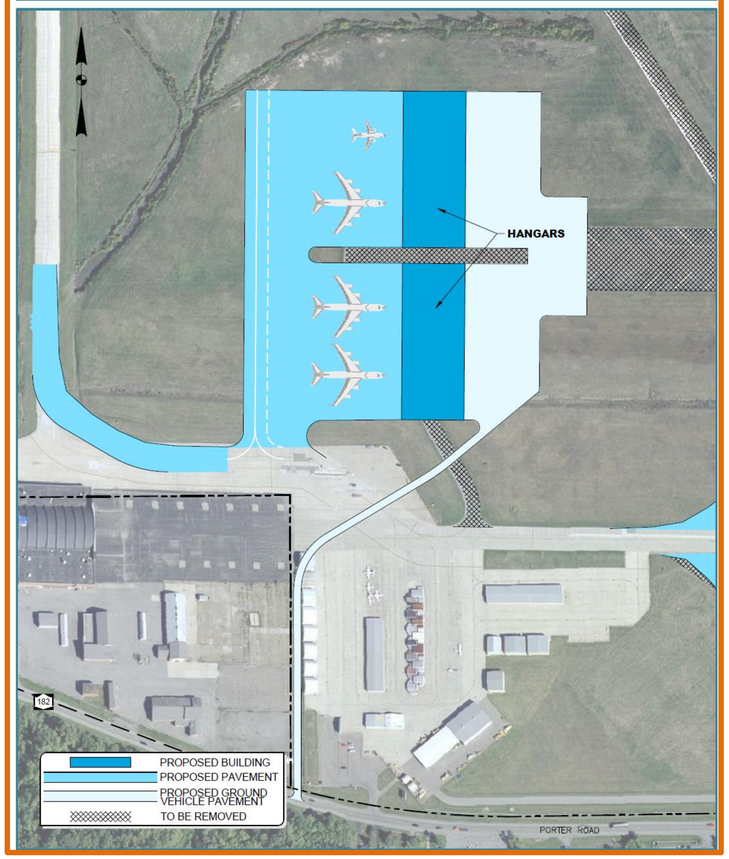
Alternative 1 – No action
No Improvements to Accommodate Air Cargo Activity

Alternative 3
•Dedicated Group VI Operating Area
•Compatible with Preferred GA Alt
•Dedicated Access Road

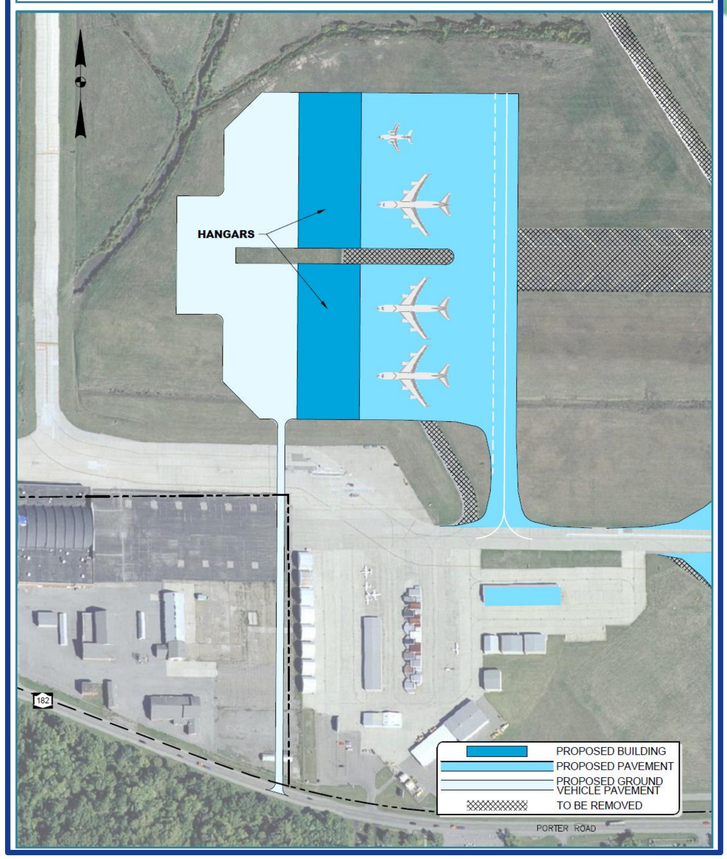
***Orange denotes preferred option**

Alternative 2
•Requires Acquisition of Army Parcel
•Limited Development Opportunities West of 6-24

AIR CARGO - ALTERNATIVE 3



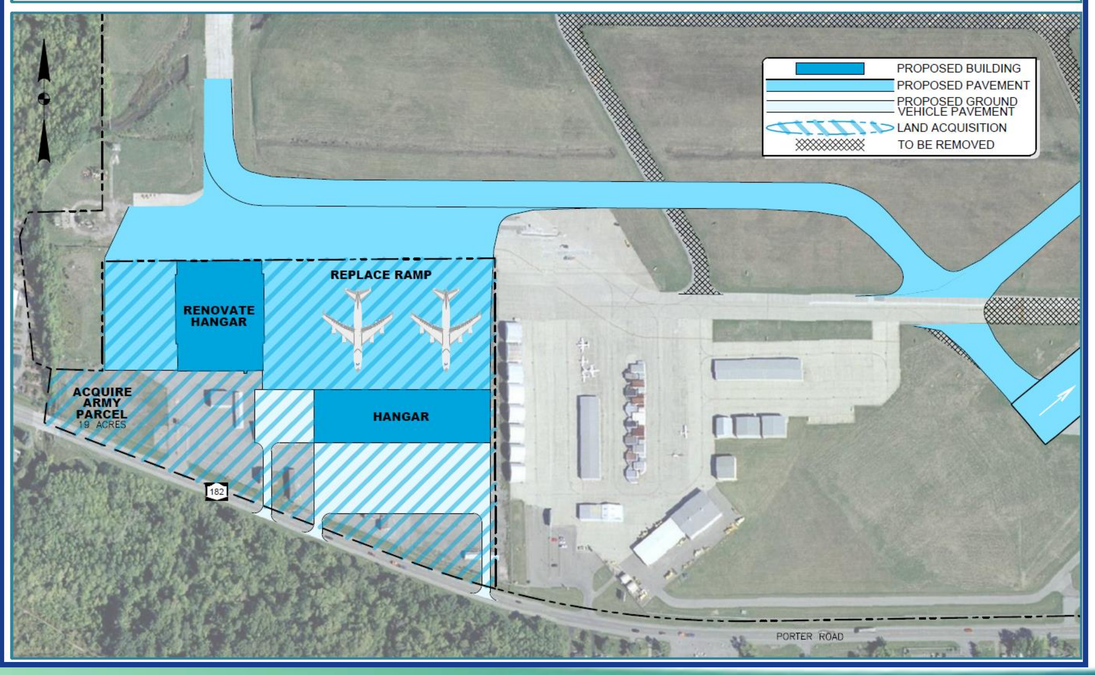
AIR CARGO - ALTERNATIVE 3A



Alternative 3A
•Dedicated Access Road
•Minimal new Taxiway Infrastructure Required

Alternative 4
•ONLY Considered if Military Role Changes on Airport
•Converts Existing Infrastructure to Air Cargo Use

AIR CARGO - ALTERNATIVE 2



AIR CARGO - ALTERNATIVE 4

General Aviation Alternatives

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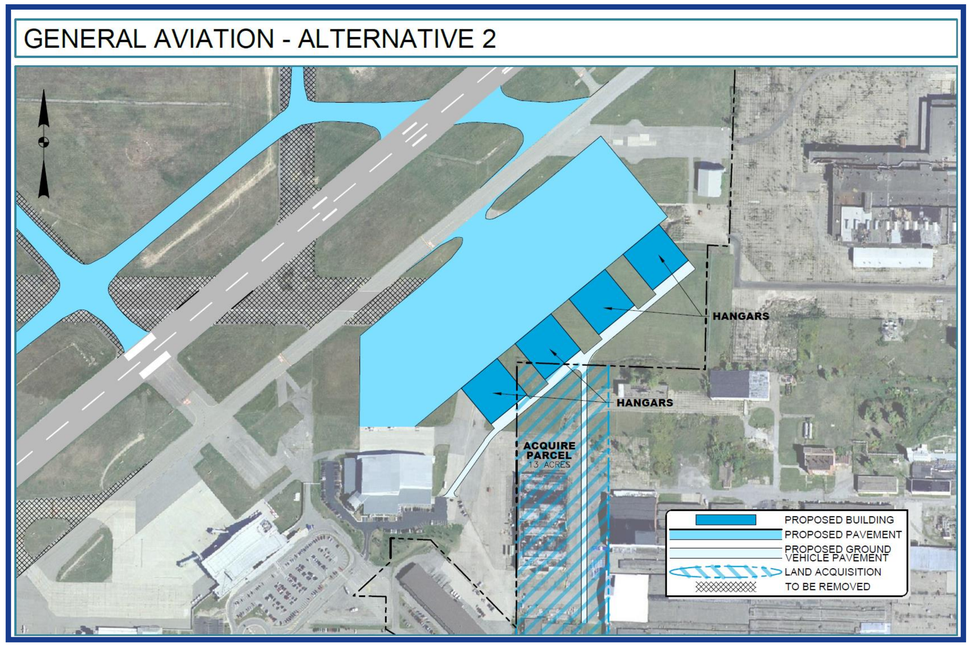
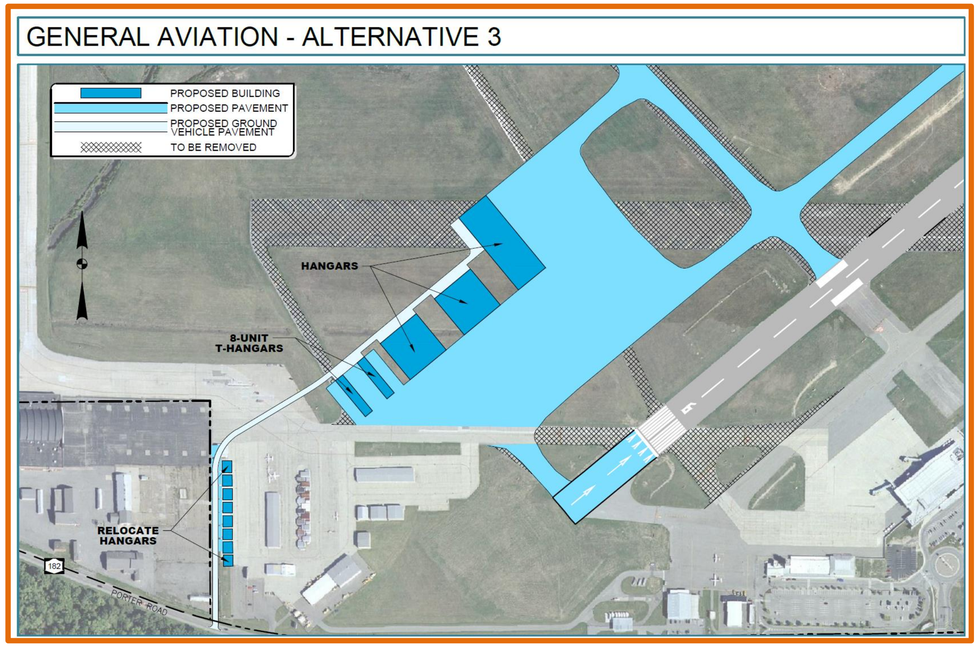
Alternative 1 - No Build
- Maintain Existing Infrastructure

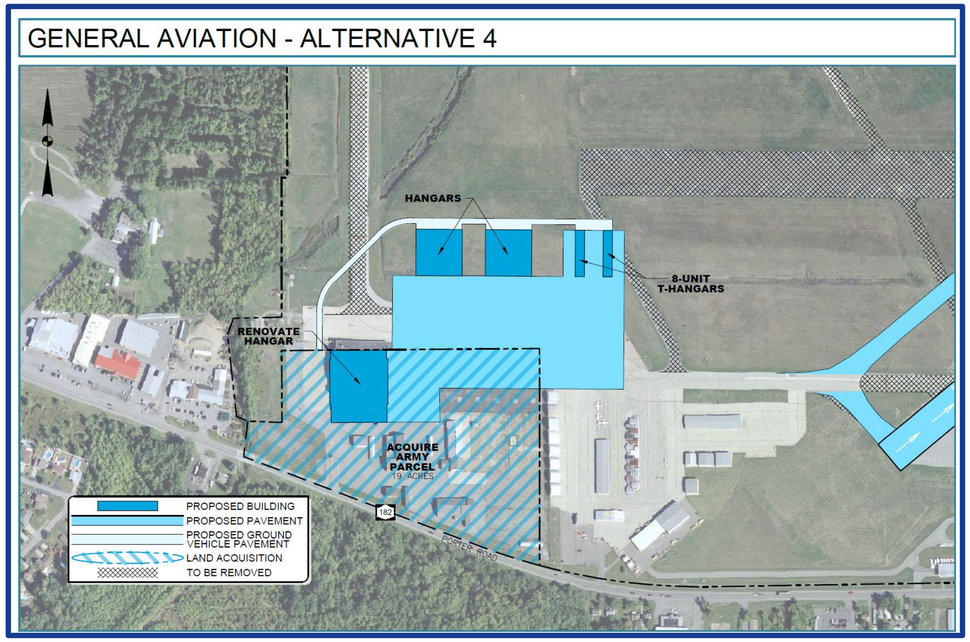
Alternative 2
- Aligns GA Development Adjacent to Calspan
- Land Acquired for New Access Road

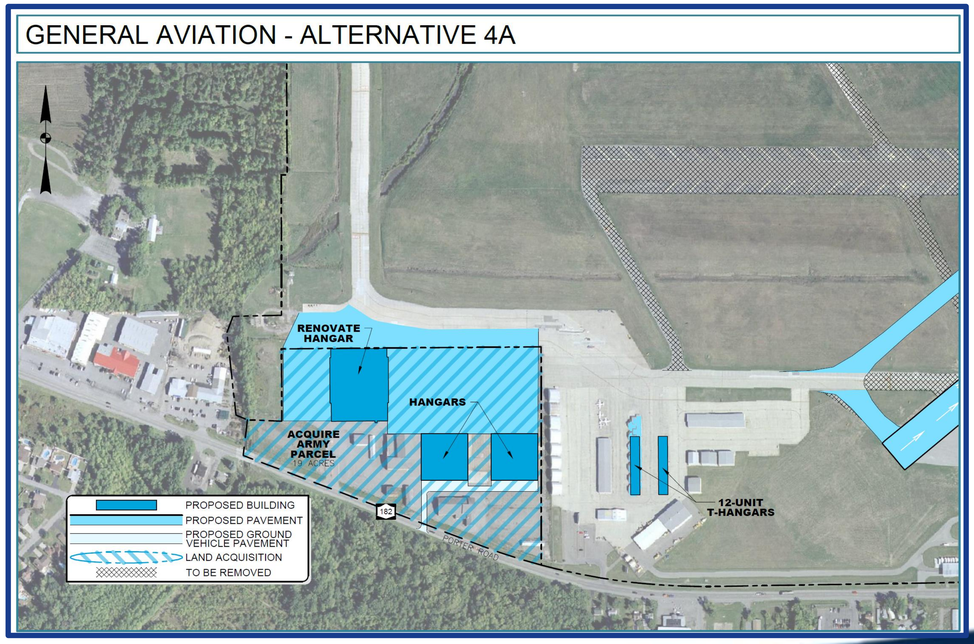


Alternative 3
- Compatible with Preferred Air Cargo Alternative
- Supports West Side Taxiway Development
- Shares Dedicated Access Road with Air Cargo



Alternative 4
- Requires Acquisition of Army Parcel





Alternative 4a
- Requires Acquisition of Army Parcel
- Limited Development Opportunities West of 6-24

*Orange denotes preferred option

Terminal Alternatives

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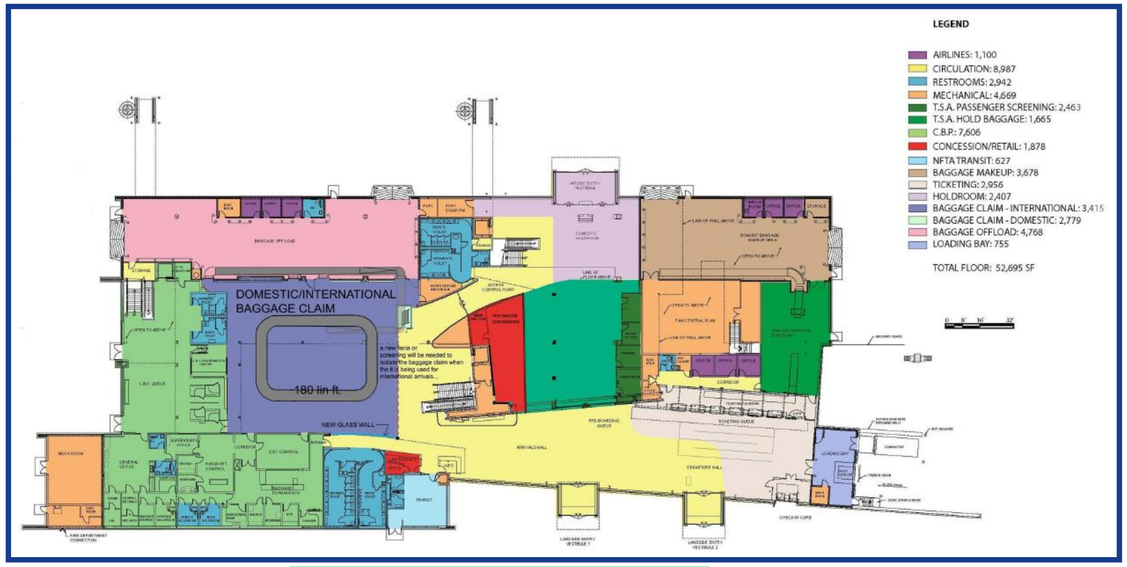
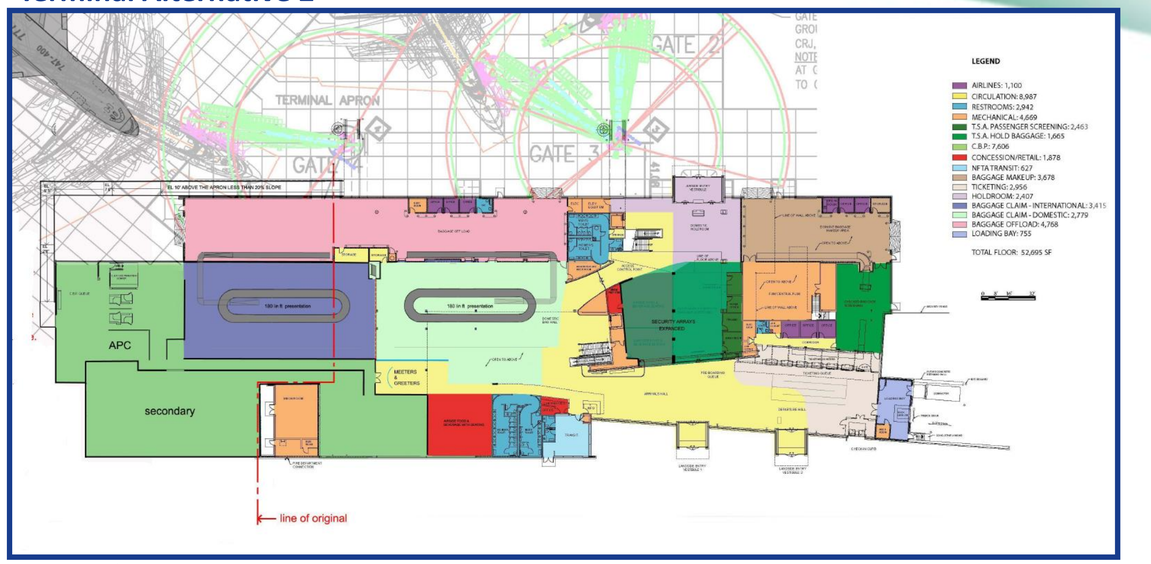
Terminal Alternative 1 – No Build



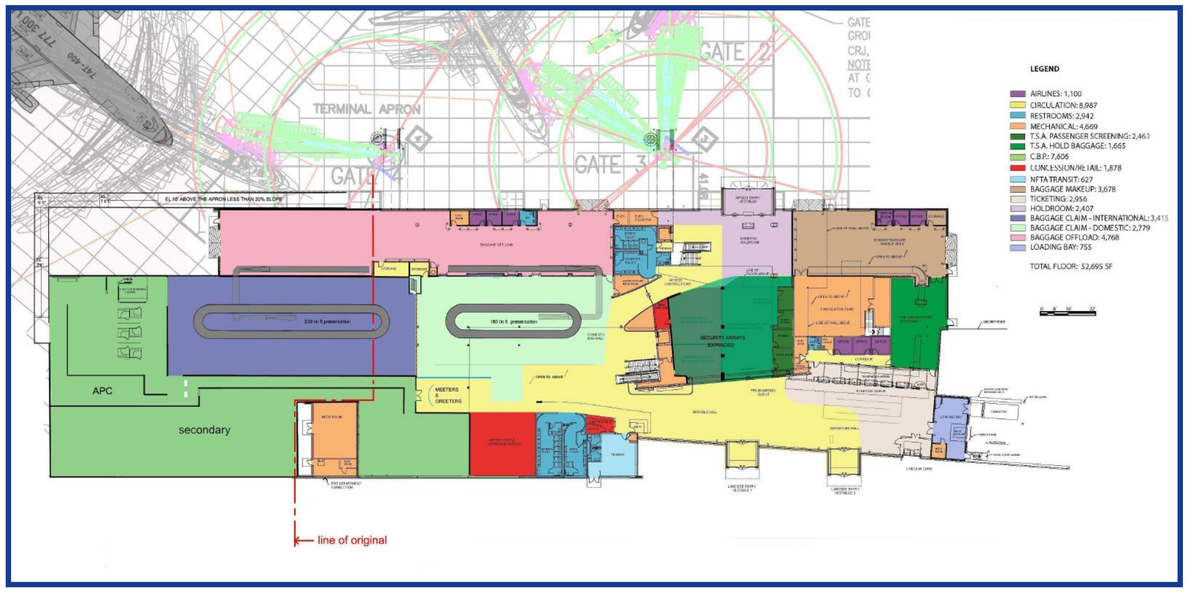
Alternative 1 - No Build
•Baggage Claim Enhancements

Terminal Alternative 2



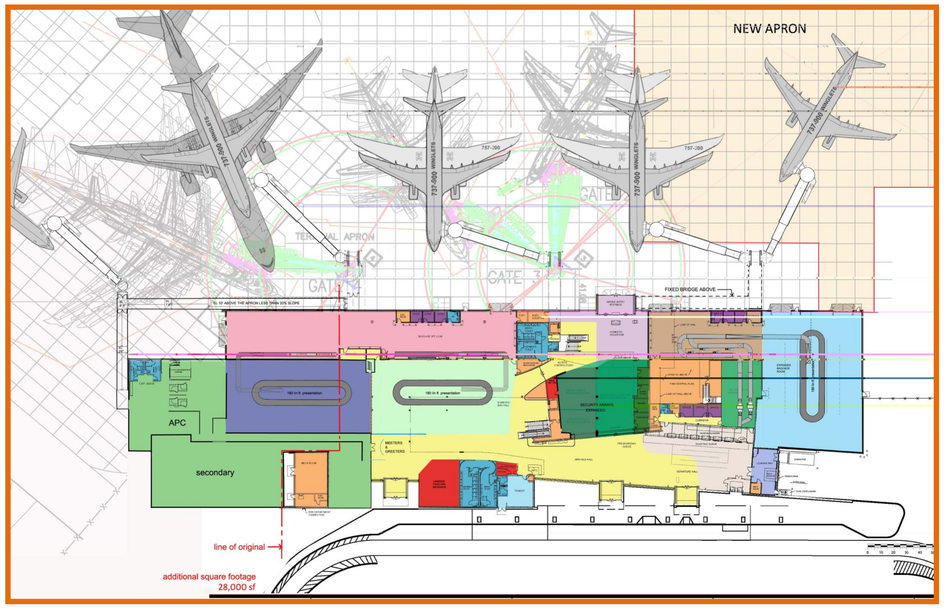
Alternative 2
•Replace Two Flat Plate Carousels with Sloped Plate Carousels

Terminal Alternative 3



Alternative 3
•International Baggage Claim Sized for Wide Body Aircraft

Terminal Alternative 4



Alternative 4
•Outbound Baggage Handling Improvements
•Expanded Gate Scenario

***Orange denotes preferred option**

Capital Improvement Program

Alternative Scoring Matrices

SUSTAINABLE Master Plan UPDATE

6.3.7 Airside Alternatives Summary and Selection of Preferred Alternative

Alternative	Meets Facility Needs	Environmental Impact	Sustainability	Meets FAA Standards	Development Flexibility	Operational Efficiency	Score
1	0	3	0	0	1	0	4
2	3	2	2	2	3	3	15
3	3	2	1	2	1	3	12
4	3	0	2	2	3	3	13

6.4.8 Air Cargo Alternatives Summary and Selection of Preferred Alternative

Alternative	Meets Facility Needs	Land Use Compatibility	Environmental Impact	Sustainability	Potential for Expansion	Operational Efficiency	Revenue Generation Capability	Score
1	1	3	3	0	2	3	0	12
2	1	3	2	2	1	3	3	15
3	3	3	2	2	2	2	2	16
3a	3	3	2	2	0	0	3	13
4	3	3	3	3	3	3	3	21*

**Alternative 4 is not the preferred air cargo alternative for the airport. Alternative 4 is presented for consideration should the military mission on the airport change.*

6.5.8 General Aviation Alternatives Summary and Selection of Preferred Alternative

Alternative	Meets Facility Needs	Land Use Compatibility	Environmental Impact	Sustainability	Potential for Expansion	Operational Efficiency	Revenue Generation Capability	Score
1	0	1	3	0	0	0	0	4
2	1	3	2	1	0	2	3	12
3	3	3	2	2	3	3	3	19
4	1	3	2	2	3	2	3	16
4a	1	3	3	2	1	2	3	15

6.7.7 Landside Alternatives Summary and Selection of Preferred Alternative

Alternative	Meets Facility Needs	Land Use Compatibility	Environmental Impact	Sustainability	Potential for Expansion	Operational Efficiency	Revenue Generation Capability	Score
1	0	3	3	0	1	0	0	7
2	2	3	3	3	3	3	3	20
3	1	3	3	1	2	1	1	12
4	1	3	3	0	2	1	1	11

**Orange denotes preferred

Preferred Alternative

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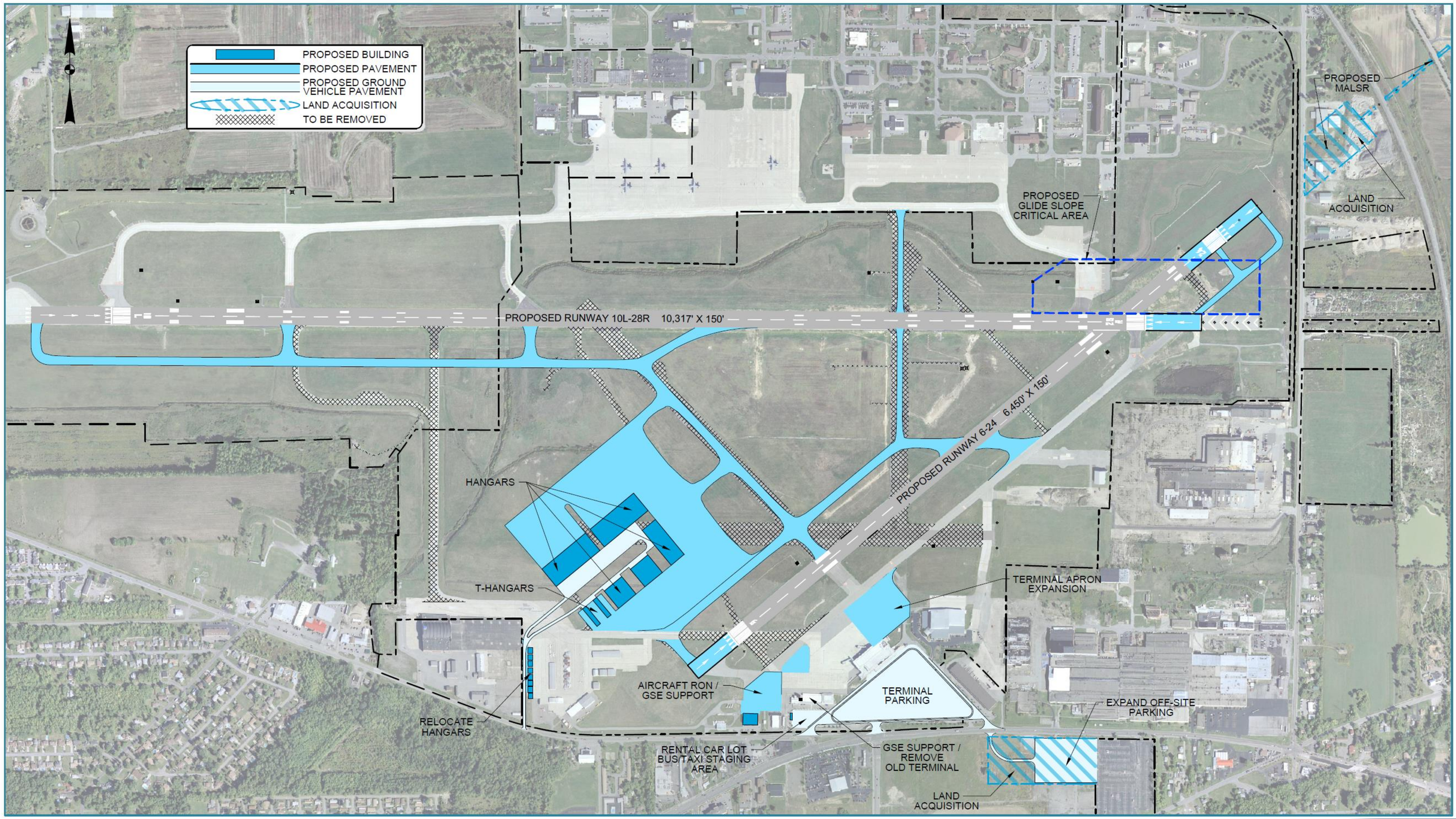
PREFERRED AIRPORT ALTERNATIVE



Sustainability

Source: FAA

Potential Sustainability Vision Statement

- **NFIA will serve as a sustainable catalyst for economic growth by promoting air service development and aviation-related business opportunities in an environmentally and socially responsible manner.**

Potential Sustainability Goals

- **Better understand and cater to NFIA's customer base to enhance air service and terminal offerings.**
- **Maximize the economic potential of NFIA by providing business and employment opportunities.**
- **Conserve natural resources and minimize air and water pollution**
- **Minimize waste and increase the rate of recycling.**

Sustainability Baseline Performance

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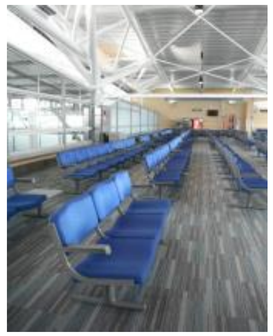
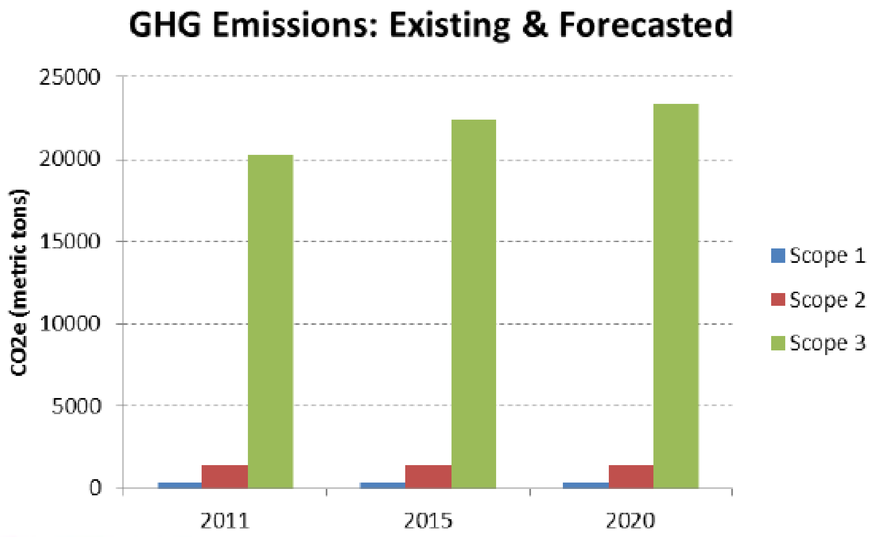
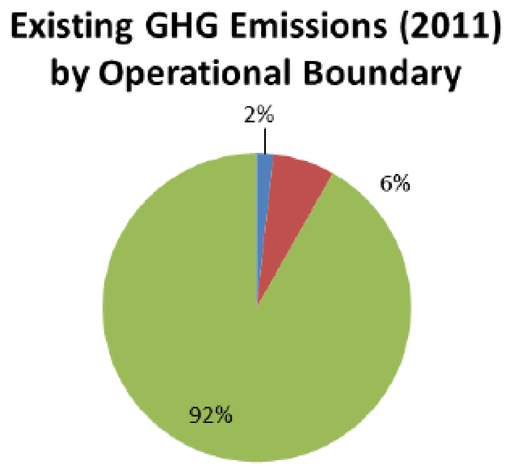
Waste Management

- NFTA recycles paper, plastic, glass and metal
- Volume of recycled materials ~ 285 gallons or 1.4 cubic yards of waste (estimated)
- NFTA pays ~$6,000 annually in waste disposal fees
- Ratio of trash bins to recycling bins is ~3:2
- Existing waste minimization/ recycling strategies at NFIA:
  - Purchasing of Recycled Materials
  - Recycling Signage
  - Waste Minimization
  - Materials Reuse



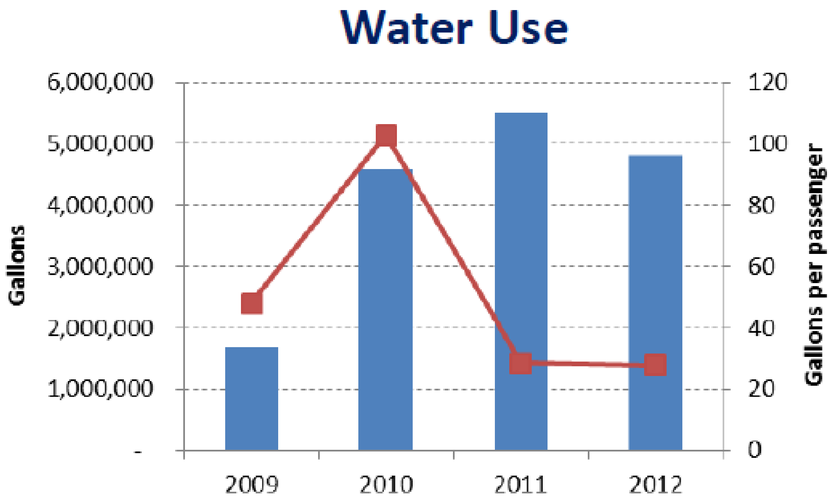
Air Quality / Greenhouse Gas

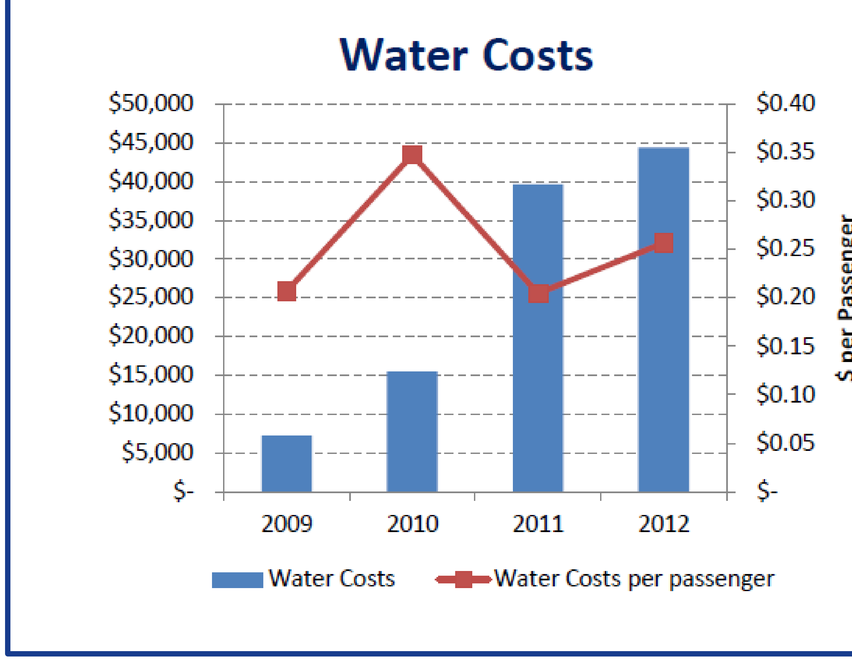




- Criteria Air Pollutant Emissions
  - Negligible contribution to statewide ozone pollutant levels
  - CO, VOC, NO_x and SO_2: aircraft are the largest contributors followed by motor vehicles, GSE and APU

Water Resources





Sustainability Opportunities

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Waste Management

- Track waste and recycling by weight or volume
- Include in contractor agreements a requirement to recycle a minimum percentage of C&D waste
- Develop a waste and recycling education program (use educational materials from the NY State Department of Environmental Conservation and the Natural Resources Defense Council)
- Coordinate with airline tenants to increase recycling of deplaned waste

Air Quality / Greenhouse Gas

- Conduct regular (every 2 to 5 years) calculation and reporting of GHG emissions
- Encourage tenants to convert GSE to electric vehicles
- Provide 400 Hz power and preconditioned air at aircraft gates
- Restrict vehicle idling
- Encourage single-engine taxiing
- Phase out the use of ozone-depleting refrigerants
- Coordinate bus service to match airline schedule to maximize convenience.

Water Resources

- Continue to implement deicing best practices
- Continue to implement additional water conservation measures and look for new conservation opportunities
- Improve monitoring/tracking of water use. This includes:
  - Tracking and reporting quarterly water use
  - Understanding meter locations
  - Accounting for variation in water use
- Evaluate current landscaping practices and develop strategies to reduce chemical use, to plant native species, and to minimize landscaping water requirements
- Install a water leak detection system

Environmental Considerations

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Goals

- Early Identification of Environmental Constraints
- Incorporate Findings into Alternatives Analysis
  - Avoid/Minimize Impacts
  - Consider Mitigation Requirements
  - Informed Decision Making
- Basis for Future NEPA, SEQR, and Permit Processes
- Provide GIS-Based "Environmental Inventory"

Environmental Impact Categories

- Air Quality
- Coastal Barriers
- Coastal Zone
- Compatible Land Use
- Construction Impacts
- Section 4(f)
- Farmlands
- Floodplains
- Fish, Wildlife & Plants
- Historical, Architectural, Archaeological, & Cultural Resources
- Light Emissions & Visual Effects
- Hazardous Materials
- Natural Resources & Energy Supply
- Noise
- Socioeconomic, Environmental Justice & Children's Health and Safety Risks
- Solid Waste
- Water Quality
- Wetlands
- Wild & Scenic Rivers

*Identified in FAA Orders 1050.1E and 5050.4B

Threatened and Endangered Species

- No Federally-Listed Threatened or Endangered Species
- Two State Listed Species on Airport
  - Northern Harrier
    - NYS Listed Endangered Species
    - Foraging Habitat Widespread on Airport
    - Unmaintained Wetlands Considered Breeding Habitat - Likely Time of Year Restrictions
  - Devil Crawfish
    - NYS Species of Conservation Concern
    - Known to Occur in Cayuga Creek
    - Relocation and Monitoring Likely Requirement

Niagara University Collaboration

- **Niagara University**
  - Environmental Science Program
- **Classroom Session**
  - Environmental Science, Policy, and Regulation
- **Field Practicum**
  - Applied Classroom Theory to NFIA Environmental Overview
  - Considered Aviation Policies and Regulations
  - Discussed Implications on Airport Planning

Give Us Your Comments!

SUSTAINABLE Master Plan UPDATE

We Are Always Open to New Ideas.
Please Share Your Perspective!

Place Your Comments in the Comment Box.

E-mail to:

NFIAMPU@mjinc.com

Mail to:
McFarland Johnson
PO Box 1980
Binghamton, NY 13902

Provide Comments by May 15, 2015

NAME	ADDRESS	PHONE	EMAIL
TIMOTHY A MIELKE	1240 N. MILITARY RD NF. NY 14304	716-595-7621	
PAUL BATTSON	8611 Hennepin Ave NF 14304	716-481-0247	pbattson@verizon.com
Philip Gambini	310 Niagara 22nd st.	716-282-2311	
Lance & Sally Henry	7285 Wilrose CT	716 743-8685	greatest-papa@roadrunner.com