

TABLE OF CONTENTS**CHAPTER 1 – INTRODUCTION**

1.0	Project Background	1-1
1.1	Mission Statement and Goals	1-1
1.2	Objectives of this Sustainable Master Plan	1-2

CHAPTER 2 – INVENTORY

2.0	Airport Background	2-1
2.0.1	Airport Sponsor	2-1
2.0.2	Airport History	2-1
2.0.3	Recent Airport Developments	2-2
2.0.4	Airport Location, Role, Classification	2-3
2.0.5	Nearby Airports (Facility Comparison)	2-3
2.0.6	Airport Service Area	2-3
2.0.7	Meteorological Conditions / Climate	2-9
2.0.8	Airport Tenants	2-10
2.0.9	Airport Access	2-12
2.1	Airport Activity	2-12
2.1.1	Commercial Airline Service	2-12
2.1.2	Based Aircraft / Users	2-15
2.1.3	Existing / Recent Operational Activity	2-15
2.2	Airside Facilities	2-17
2.2.1	Runways	2-17
2.2.2	Taxiways	2-17
2.2.3	Airfield Signage, Marking and Lighting	2-20
2.2.4	Apron Space	2-20
2.2.5	Pavement Management Study	2-20
2.2.6	Visual / Navigational Aids	2-22
2.2.7	Instrument Approach Procedures	2-23
2.3	Landside Facilities	2-31
2.3.1	Fixed Base Operations	2-31
2.3.2	Mercy Flight	2-33
2.3.3	Vehicle Access and Parking (Non-Terminal)	2-33
2.3.4	Airport Buildings (Non-Terminal)	2-33

TABLE OF CONTENTS (CONT.)

2.4	Passenger Terminal	2-40
2.4.1	Departure Lobby.....	2-41
2.4.2	Arrivals Lobby.....	2-41
2.4.3	Security Infrastructure.....	2-45
2.4.4	Concourse	2-45
2.4.5	Concessions	2-45
2.4.6	Terminal Support Facilities	2-46
2.5	Passenger Terminal Landside	2-46
2.5.1	Auto Parking	2-46
2.5.2	Rental Car Facilities.....	2-48
2.5.3	Terminal Roadways	2-50
2.5.4	Ground Transportation.....	2-51
2.6	Airport Support Infrastructure	2-53
2.6.1	Airport Utilities	2-53
2.6.2	Airfield Maintenance	2-56
2.6.3	Snow Removal	2-57
2.6.4	Airport Deicing	2-58
2.6.5	Airport Fueling Facilities	2-58
2.7	Land Use.....	2-60
2.7.1	BNIA Noise Compatibility.....	2-60
2.7.2	Existing Land Use.....	2-60
2.7.3	Zoning	2-60
2.8	Air Traffic Control and Airspace	2-64
2.8.1	Air Traffic Control.....	2-64
2.8.2	Airspace	2-64
2.8.3	Obstructions	2-67
2.9	Airport Safety and Security	2-67
2.9.1	Airport Rescue and Fire Fighting (ARFF).....	2-67
2.9.2	NFTA Police	2-68
2.9.3	Perimeter Roads.....	2-68
2.9.4	Perimeter Fencing	2-68
2.9.5	Security Systems.....	2-68

TABLE OF CONTENTS (CONT.)**CHAPTER 3 – AVIATION DEMAND FORECASTS**

3.0	Introduction	3-1
3.1	Purpose.....	3-1
3.2	Aviation Demand Elements	3-1
3.3	Forecast Framework.....	3-4
	3.3.1 Canadian Demand.....	3-4
	3.3.2 Airline Merger Activity and BNIA	3-7
3.4	Consensus Forecast Approach.....	3-7
	3.4.1 Market Share Project	3-7
	3.4.2 Socioeconomic Regression Analysis	3-8
	3.4.3 Trend Analysis.....	3-8
3.5	Aviation Demand Forecasts.....	3-9
	3.5.1 Consensus Forecasts of Airline Demand	3-9
	3.5.2 Air Cargo Demand Forecasts	3-18
	3.5.3 General Aviation Demand Forecasts	3-20
	3.5.4 Military Aircraft Operations.....	3-25
3.6	Alternative Scenario Projections of Demand.....	3-25
	3.6.1 Price Differences	3-26
	3.6.2 Canadian Travel Time	3-28
	3.6.3 Summary of Alternatives Scenario Porjections	3-31
3.7	Aviation Demand Forecast Summary: Consensus Forecast	3-31
3.8	Comparison with FAA Terminal Area Forecasts	3-32

CHAPTER 4 – ENVIRONMENTAL OVERVIEW

4.0	Introduction	4-1
4.1	Airport Environmental Setting	4-3
4.2	Air Quality.....	4-3
4.3	Biotic Resources	4-6

TABLE OF CONTENTS (CONT.)

4.4	Coastal Barriers and Coastal Zone Management	4-6
4.5	Compatible Land Use	4-6
4.6	Construction Impacts.....	4-7
4.7	Department of Transportation Section 4(F) Resources.....	4-7
4.8	Federally Listed Threatened and Endangered Species	4-7
4.9	Energy Supplies, Natural Resources, and Sustainable Design.....	4-8
4.10	Environmental Justice	4-8
4.11	Farmlands	4-9
4.12	Floodplains.....	4-10
4.13	Hazardous Materials.....	4-10
4.14	Historic, Architectural, Archeological, and Cultural Resources.....	4-13
4.15	Light	4-13
4.16	Noise	4-14
4.17	Induced Socioeconomic Impacts	4-17
4.18	Solid Waste	4-17
4.19	Water Quality.....	4-18
4.20	Wetlands	4-21
4.21	Wild and Scenic Rivers.....	4-24
4.22	Cumulative Impacts.....	4-24

CHAPTER 5 – FACILITY REQUIREMENTS

5.0	Introduction	5-1
5.1	Airfield Capacity Analysis	5-1
	5.1.1 Meteorological Conditions.....	5-2
	5.1.2 Aircraft Fleet Mix.....	5-3
	5.1.3 Runway Use	5-9

TABLE OF CONTENTS (CONT.)

5.1.4 Percent Touch and Go Operations	5-10
5.1.5 Percentage Arrivals	5-11
5.1.6 Exit Taxiway Locations	5-11
5.1.7 Handbook Methodology Capacities	5-12
5.2 Airspace Capacity Analysis	5-17
5.2.1 Nearby Airfields	5-17
5.2.2 Physical Constraints	5-17
5.2.3 Regulatory Constraints	5-17
5.3 Airfield Facility Requirements	5-17
5.3.1 Critical Design Aircraft	5-18
5.3.2 Airport Reference Code	5-18
5.3.3 Airfield Design Standards	5-20
5.3.4 Runway Length.....	5-20
5.3.5 Runway Width	5-22
5.3.6 Runway Strength	5-22
5.3.7 Runway Safety Areas	5-23
5.3.8 Runway Object Free Areas.....	5-23
5.3.9 Declared Distances.....	5-23
5.3.10 Runway Pavement Markings	5-24
5.3.11 Taxiways	5-24
5.3.12 Holding Bays	5-25
5.3.13 Airfield Lighting	5-25
5.3.14 Navigational and Approach Aids	5-26
5.3.15 Summary of Airfield Facility Requirements	5-27
5.4 Terminal Facility Requirements	5-27
5.4.1 Basis of Analysis	5-27
5.4.2 Assumptions	5-29
5.4.3 Results of Analysis	5-31
5.4.4 Airline Check-in Counters	5-32
5.4.5 Airline Ticket Office Space	5-33
5.4.6 Passenger Security Screening Checkpoint	5-34
5.4.7 Outbound Baggage System.....	5-34
5.4.8 Concessions	5-37
5.4.9 Public Restrooms	5-39
5.4.10 Holdroom Space Requirements	5-39
5.4.11 Gate Expansion	5-42
5.4.12 Remain Overnight (RON) Parking.....	5-45
5.4.13 Inbound Baggage Systems.....	5-46
5.4.14 Federal Inspection Service Facility	5-48
5.4.15 Support Functions	5-49
5.4.16 Airport Administration	5-50
5.4.17 Rental Car Office Requirements	5-50
5.4.18 Ground Transportation Office Requirements.....	5-50

TABLE OF CONTENTS (CONT.)

5.4.19 Passenger Terminal Facility Requirements Summary.....	5-51
5.5 Landside Facility Requirements.....	5-53
5.5.1 Auto Parking Requirements	5-53
5.5.2 Rental Car Facilities.....	5-56
5.5.3 Terminal Access and Roadway System.....	5-57
5.6 Air Cargo Requirements	5-63
5.7 General Aviation Requirements	5-65
5.7.1 Aircraft Hangars.....	5-65
5.7.2 Aircraft Parking Apron.....	5-66
5.7.3 General Aviation Terminal	5-67
5.7.4 General Aviation Auto Parking.....	5-67
5.8 Support Facility Requirements.....	5-67
5.8.1 Fuel Storage	5-68
5.8.2 Air Traffic Control.....	5-69
5.8.3 Aircraft Rescue and Fire Fighting.....	5-69
5.8.4 Airfield Maintenance	5-70

CHAPTER 6 – ALTERNATIVES

6.0 Introduction	6-1
6.1 Evaluation Process and Criteria.....	6-1
6.2 Airside Alternatives.....	6-2
6.2.1 Runways and Runway Safety Areas	6-2
6.2.2 Instrument Approaches/NAVAIDS	6-10
6.2.3 Taxiways	6-14
6.2.4 Remain Overnight Aircraft Parking.....	6-19
6.3 Passenger Terminal	6-26
6.3.1 Level 1	6-26
6.3.2 Level 2	6-35
6.3.3 Ticket Lobby	6-44
6.3.4 Holdrooms	6-48
6.4 Terminal Roadway and Parking.....	6-51
6.4.1 Terminal Roadway an Parking Considerations	6-51

TABLE OF CONTENTS (CONT.)

6.4.2 Terminal Roadway and Parking Alternatives	6-52
6.4.3 External and Long Range Considerations.....	6-61
6.5 Support Facility Alternatives	6-61
6.5.1 Airport Rescue and Firefighting	6-62
6.5.2 Airfield Maintenance/Operations/Snow Removal Equipment Facilities.....	6-68
6.5.3 Air Cargo	6-73
6.5.4 General Aviation	6-75
6.5.5 Fuel Farm	6-77

CHAPTER 7 - AIRPORT LAYOUT PLAN DRAWING SET, 20-YEAR PHASING PLAN and AIRPORT CAPITAL IMPROVEMENT PROGRAM

7.0 Introduction	7-1
7.1 Public Participation Process	7-1
7.2 Airport Layout Plan Drawing Set.....	7-1
7.2.1 Cover Sheet	7-2
7.2.2 Existing Airport Layout.....	7-2
7.2.3 Airport Layout Plan	7-3
7.2.4 Data Sheet	7-9
7.2.5 Terminal Area Plan.....	7-9
7.2.6 Airport Airspace Plan	7-9
7.2.7 Inner Approach Surface and RPZ Control Plan.....	7-10
7.2.8 Departure Surface Control Plan.....	7-11
7.2.9 Land Use Plan.....	7-12
7.2.10 Airport Property Map ("Exhibit A")	7-13
7.2.11 Airport Environmental Inventory Map	7-13
7.3 Capital Improvement Program and Project Phasing Plan	7-13
7.4 Capital Improvement Plan	7-15
7.5 Sustainable Development.....	7-17

Appendices

Appendix A	FAA Acronyms
Appendix B	Airline Schedule 2008-2010
Appendix C	Building Inventory
Appendix D	Terminal Floor Plans

TABLE OF CONTENTS (CONT.)

- Appendix E Sustainable Strategies
- Appendix F Environmental Documentation
- Appendix G Ground Vehicle Traffic Data
- Appendix H Public Participation

LIST OF TABLES

Table 2-1 Recent Airport Developments.....	2-2
Table 2-2 Nearby Airports	2-6
Table 2-3 Weather Summary	2-9
Table 2-4 Airport Tenants	2-10
Table 2-5 NFTA Lease Agreement Information	2-11
Table 2-6 Airlines and Non-Stop Destinations.....	2-13
Table 2-7 Based Aircraft	2-15
Table 2-8 BNIA Terminal Area Forecast (TAF).....	2-16
Table 2-9 Summary of Existing Taxiway Facilities.....	2-19
Table 2-10 Summary of Existing Apron Facilities	2-20
Table 2-11 Published Instrument Approach Landing Minimums	2-23
Table 2-12 Landside Facilities.....	2-31
Table 2-13 FBO Hangar Usage.....	2-32
Table 2-14 Terminal Facilities (Square Feet)	2-41
Table 2-15 Public Parking Facilities	2-48
Table 2-16 Airfield Maintenance Vehicle	2-57
Table 2-17 Snow Removal Equipment	2-57
Table 2-18 BNIA Monthly Glycol Usage (Gallons) 2009 – 2010	2-59
Table 2-19 Airport Rescue and Firefighting Fleet	2-67
Table 3-1 Historical Aviation Operations	3-3
Table 3-2 Growing Canadian Use of BNIA	3-4
Table 3-3 Service Area Socioeconomic Variables	3-5
Table 3-4 Canadian Income and Exchange Rates	3-6
Table 3-5 Forecast of Airline Enplanements.....	3-6
Table 3-6 Mainline and Regional Carrier Enplanements Shares	3-11
Table 3-7 Mainline and Regional Carrier Operations and Enplanements	3-13
Table 3-8 Forecast of Airline Fleet Mix	3-14
Table 3-9 Peak Period Air Carrier Operations	3-16
Table 3-10 Peak Hour Enplanements	3-17
Table 3-11 Historical Air Cargo Enplaned Tonnage	3-18
Table 3-12 Forecast of All-Cargo Enplaned Tonnage.....	3-19
Table 3-13 Forecast of Registered Aircraft.....	3-20
Table 3-14 Forecast of Based Aircraft	3-21
Table 3-15 Forecast of Based Aircraft Fleet Mix.....	3-22
Table 3-16 Forecast of Local and Itinerant General Aviation Operations.....	3-23
Table 3-17 Forecast of General Aviation Operational Fleet Mix	3-23
Table 3-18 Forecast of General Aviation Peak Period Operations.....	3-24
Table 3-19 Forecast of General Aviation Enplanements	3-24
Table 3-20 Alternative Scenario Projections of Demand	3-25
Table 3-21 Potential Impacts of Pricing on BNIA Passenger Demand.....	3-25
Table 3-22 Potential Impacts of Increased Bridge Traffic Delay	3-28
Table 3-23 Aviation Demand Forecast Summary	3-31
Table 3-24 Aviation Demand Forecast Summary	3-32
Table 3-25 Aviation Demand Forecast Summary	3-33

LIST OF TABLES (CONT.)

Table 4-1 Demographic Profile of Surrounding Area	4-9
Table 4-2 Typical Outdoor Day-Night Noise Levels.....	4-14
Table 4-3 Land Use Compatibility	4-15
Table 5-1 Wind Coverage	5-3
Table 5-2 Aircraft Classifications	5-9
Table 5-3 Runway Operational Configurations and Use.....	5-10
Table 5-4 Number of Exit Taxiways in Optimal Locations.....	5-12
Table 5-5 Hourly Airfield Capacities	5-13
Table 5-6 Estimated Annual Service Volume	5-16
Table 5-7 Comparison of Base Forecast to Annual Service Volume	5-16
Table 5-8 FAA Design Standards.....	5-20
Table 5-9 Runway Length Requirements	5-21
Table 5-10 Declared Distances	5-24
Table 5-11 Summary of Airfield Facility Requirements	5-27
Table 5-12 IATA Space Standards with LOS Definitions	5-29
Table 5-13 Airline Check-in Operations.....	5-30
Table 5-14 Outbound Baggage and Screening Assumptions	5-30
Table 5-15 Inbound Baggage System	5-31
Table 5-16 Number and Type of Airline Check-in Counters	5-33
Table 5-17 Airline Ticket Office Space	5-34
Table 5-18 Passenger Security Screening Checkpoint.....	5-34
Table 5-19 Peak Hour Baggage Volume	5-35
Table 5-20 Baggage Volume Surged	5-35
Table 5-21 Outbound Baggage Screening Equipment	5-36
Table 5-22 Outbound Baggage Make-up Perimeter	5-37
Table 5-23 Future Concession Space Requirements	5-38
Table 5-24 Public Restroom Area	5-39
Table 5-25 Holdroom Space Requirements	5-41
Table 5-26 Annual Enplanements per Gate	5-43
Table 5-27 Required Gates at 275,000 Annual Enplanements per Gate	5-44
Table 5-28 Baggage Claim Population.....	5-46
Table 5-29 Baggage Claim Space.....	5-47
Table 5-30 Summary of Terminal Facility Requirements	5-52
Table 5-31 Parking Lot Occupancy Rates	5-54
Table 5-32 Vehicle Space Storage/Surplus.....	5-55
Table 5-33 Garage Parking Comparison	5-56
Table 5-34 Trip Generation	5-59
Table 5-35 Signalized Intersection Levels of Service	5-60
Table 5-36 Capacity Analysis Genesee St at Cayuga/Dick Roads	5-61
Table 5-37 Capacity Analysis Genesee St at West BNIA Drive/Rt 33	5-61
Table 5-38 Capacity Analysis Genesee St at East BNIA Drive/Site Driveway	5-62
Table 5-39 Capacity Analysis Genesee St at Holtz Road/Sonwil Drive	5-63
Table 5-40 Air Cargo Buildings	5-64
Table 5-41 Air Cargo Building Space Requirements	5-64
Table 5-42 Hangar Space Requirements	5-66
Table 5-43 Apron Space Requirements	5-66

LIST OF TABLES (CONT.)

Table 5-44 General Aviation Auto Parking Spaces.....	5-67
Table 5-45 Jet Fuel Use Projection	5-68
Table 5-46 Avgas Fuel Use.....	5-69
Table 5-47 Summary of ARFF Equipment Requirements.....	5-70
Table 6-1 Average Annual IFR Hours by Month and Approach Category.....	6-13
Table 6-2 Proposed Correction of Deficient Holdroom Areas	6-48
Table 7-1 Phased Capital Improvement Program.....	7-15
Table 7-2 Capital Improvement Program.....	7-16
Short Term Projects (2011-2014)	7-20
Mid-Term Projects (2015-2019)	7-21
Long Term Project (2020-2030)	7-22

LIST OF FIGURES

Figure 2-1 Location Map	2-4
Figure 2-2 Vicinity Map	2-5
Figure 2-3 Airport Service Area (Commercial).....	2-7
Figure 2-4 Airport Service Area (General Aviation)	2-8
Figure 2-5 Airline Destinations Served	2-14
Figure 2-6 Existing Airside Facilities.....	2-18
Figure 2-7 Existing Apron Facilities	2-21
Figure 2-8 Runway 5 ILS and GPS Approach Procedures	2-26
Figure 2-9 Runway 23 ILS and GPS Approach Procedures	2-27
Figure 2-10 Runway 14 GPS Approach Procedures	2-28
Figure 2-11 Runway 32 ILS and GPS Approach Procedures	2-29
Figure 2-12 Departure Procedures.....	2-30
Figure 2-13 General Aviation Area.....	2-34
Figure 2-14 Airport Buildings.....	2-35
Figure 2-15 Air Cargo Complex.....	2-36
Figure 2-16 Terminal Facilities	2-42
Figure 2-17 Terminal Floor Plan – 1s Floor	2-43
Figure 2-18 Terminal Floor Plan – 2 nd Floor	2-44
Figure 2-19 Auto Parking Facilities.....	2-49
Figure 2-20 Terminal Roadway System	2-52
Figure 2-21 Airport Support Infrastructure	2-54
Figure 2-22 Land Use	2-61
Figure 2-23 Zoning.....	2-63
Figure 2-24 Regional Airspace	2-66
Figure 3-1 Historical Enplanements	3-3
Figure 3-2 Forecast of Enplanements	3-12
Figure 4-1 Topographic Map	4-4
Figure 4-2 Floodplains	4-11
Figure 4-3 Noise Contours Map 2008	4-16
Figure 4-4 National Wetlands Inventory Map	4-22
Figure 4-5 New York State Wetlands Map	4-23
Figure 4-6 Delineated Wetlands Map	4-25
Figure 5-1 All Weather Windrose and Persistency Graph	5-4
Figure 5-2 IFR Windrose and Persistency Graph.....	5-5
Figure 5-3 CAT I ILS Windrose and Persistency Graph	5-6
Figure 5-4 CAT II Windrose and Persistency Graph.....	5-7
Figure 5-5 CAT III Windrose and Persistency Graph.....	5-8
Figure 5-6 Hourly Operations (August 2010).....	5-12
Figure 5-7 Single Runway Capacity Graphs.....	5-14
Figure 5-8 Crossing Runway Capacity Graphs.....	5-15
Figure 6-1 Declared Distance on Runway 5-23	6-5
Figure 6-2 Declared Distance on Runway 14-23	6-6

LIST OF FIGURES (CONT.)

Figure 6-3 Potential EMAS Installations on Runway 14-32 and Runway 5-23.....	6-8
Figure 6-4 Threshold Siting Surface – Runway 14	6-12
Figure 6-5 Glide Path Qualification Surface – Runway 14	6-17
Figure 6-6 Improvements for CAT II Approach to Runway 23	6-21
Figure 6-7 Recommended Taxiway Improvements	6-24
Figure 6-8 Ron Parking – Alternative 1 and 2.....	6-31
Figure 6-9 Ron Parking Alternative 3 and 4.....	6-34
Figure 6-10 Level 1 – Alternative 3.....	6-36
Figure 6-11 Level 1 – Alternative 4A	6-39
Figure 6-12 Level 1 – Long Term A Expansion	6-41
Figure 6-13 Level 2 – Alternative 1A	6-43
Figure 6-14 Level 2 – Alternative 2B	6-44
Figure 6-15 Level 2 – Alternative 2B – Long Term Expansion.....	6-47
Figure 6-16 Level 2 – Ticket Lobby – Alternative 1.....	6-50
Figure 6-17 Level 2 – Ticket Lobby – Alternative 2.....	6-54
Figure 6-18 Level 2 – Holdroom Expansion	6-56
Figure 6-19 Landside No-Build Alternative	6-59
Figure 6-20 Landside Alternative 1.....	6-64
Figure 6-21 Landside Alternative 2.....	6-66
Figure 6-22 ARFF Alternative 1.....	6-69
Figure 6-23 ARFF Alternative 2.....	6-71
Figure 6-24 Airfield Maintenance/Snow Removal Building Alternative 1.....	6-73
Figure 6-25 Airfield Maintenance/Snow Removal Building Alternative 2.....	6-75
Figure 6-26 Air Cargo Preferred Development Option.....	6-77
Airport Layout Plan Drawing Set	7-23

