Chapter 7
Airport Layout Plan & Capital Improvement Plan

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

7.1 PUBLIC PARTICIPATION PROCESS

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

Two Public Workshops were held during the planning process. The first workshop presented general information about the Airport to the public, and also detailed the aviation forecasts, environmental overview, facility requirements, and sustainability assessment. The second workshop was held provided an overview on the information presented in the first workshop, but also presented the draft airport alternatives and the final recommendations of the Master Plan Update. Public Workshop notices were published by the Niagara Frontier Transportation Authority (NFTA) in local newspapers to publicize the meeting. Copies of the information presented at each of the workshops, as well as a sign-in sheet to identify attendees, are provided in Appendix I.

The aforementioned meetings were held on the following dates:

- Stakeholder Meeting No. 1 — February 20, 2013
- Stakeholder Meeting No. 2 — September 12, 2013
- Stakeholder Meeting No. 3 — June 4, 2014
- Public Workshop No. 1 — June 4, 2014
- Stakeholder Meeting No. 4 — April 14, 2015
- Public Workshop No. 2 — April 14, 2015

7.2 AIRPORT LAYOUT PLAN DRAWING SET

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

- FAA Advisory Circular 150/5300-13A (Change 1), *Airport Design*
- FAA Advisory Circular 150/5070-6B (Change 2), *Airport Master Plans*
- Federal Aviation Regulations, Part 77, *Objects Affecting Navigable Airspace*
- FAA Standard Operating Procedures (SOP) 2.00, *Standard Procedure for Review and Approval of Airport Layout Plans (ALPs)*
- FAA SOP 3.00, *Standard Operating Procedure for FAA Review of Exhibit 'A' Airport Property Inventory Maps*

The ALP Drawing Set for NFIA consists of 18 drawing sheets as follows:

Sheet	Title
1.	Cover Sheet
2.	Existing Airport Layout
3.	Airport Layout Plan
4.	Terminal Area Plan
5.	Airport Airspace Plan
6.	Airport Airspace Plan – Outer Approach Surfaces
7.	Runway 10L-28R Existing Inner Approach Drawing
8.	Runway 10L-28R Existing ADAS #9 Inner Approach Drawing
9.	Runway 10L-28R Proposed Inner Approach Drawing
10.	Runway 10L-28R Proposed ADAS #9 Inner Approach Drawing
11.	Runway 6-24 Existing Inner Approach Drawing
12.	Runway 6-24 Existing ADAS #9 Inner Approach Drawing
13.	Runway 6-24 Proposed Inner Approach Drawing
14.	Runway 6-24 Proposed ADAS #9 Inner Approach Drawing
15.	Runway 10R-28L Existing Inner Approach Drawing
16.	Airport Land Use and RPZ Control Plan
17.	Airport Property Map – "Exhibit A"
18.	Airport Environmental Inventory Map

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

7.2.1 Cover Sheet

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

7.2.2 Existing Airport Layout

The Existing Airport Layout (Sheet 2), depicts the current facilities at NFIA. This sheet is intended to present the Airport in its current configuration and serves as a base upon which the proposed development is placed. The sheet includes the current dimensions of the airside and landsides facilities as well as applicable FAA safety and object free areas and zones along with other dimensions significant to airport design criteria. There are several tables included within the sheet that include relevant information about NFIA, facilities at the Airport, and other

information as required by the FAA. These tables include an Airport Data Table, a Runway Data Table, a Facilities Table, and tables depicting Wind Coverage, Runway Safety Area Determinations, Declared Distances, and Modifications to Standards, as well as a title block, legend, and revisions table.

Frandina Engineering and Land Surveying, PC and Aerometric, Inc. (now known as Quantum Spatial, Inc.) provided aerial photography and photogrammetric mapping for this MPU. The airport's existing property boundaries are derived from parcel data provided by Niagara County. A property boundary survey was not completed for this project.

7.2.3 Airport Layout Plan

The Airport Layout Plan (Sheet 3) illustrates the recommended development at NFIA over the 20-year planning period. The ALP serves as the officially approved planning document for the Airport and is used by the FAA to allocate federal grant funding for projects. As a result, this sheet is a key deliverable as part of the MPU. The major recommended airside and landside improvements depicted on the Airport Layout Plan are discussed in further detail below. The tables included on the ALP sheet are similar to those included within Sheet 2, but also include information for future conditions. The sheet also includes signature boxes for the acceptance of the ALP by the NFTA, NYSDOT, and the FAA. The major recommended airside and landside (including air cargo, general aviation, terminal, and support facilities) improvements depicted on the ALP Sheet are described in Sections 7.2.3.1 and 7.2.3.2 respectively.

7.2.3.1 Airside Improvements

The airside development presented on this sheet is derived from the recommended alternative selected in Chapter 6, *Alternatives.* The major airside alternatives address:

- Meeting or exceeding all current FAA design standards, to the extent practicable;
- Providing a sufficient runway length on Runway 6-24 to accommodate aircraft currently using and projected to utilized the Airport, including the installation of an approach light system
- Improving taxiway access to both Runway 10L-28R and 6-24, including the provision of more direct routes to each runway end, the reduction in the necessity to back taxi or utilize Taxiway A.

The primary airside development components are described below:

Extend Runway 6-24

An extension to Runway 6-24 is proposed meeting the NFTA goal to provide an alternate runway at NFIA for air carrier aircraft during crosswind conditions and when Runway 10L-28R is unavailable, as well as providing a crosswind capable runway for aircraft with an RDC of A-I, B-I, A-II, and B-II, when wind coverage does not favor Runway 10L-28R. A usable length of 6,000 feet has been identified consistent with several geographical constraints surrounding the airport, including numerous roads and railroads. The length is a commonly referred to industry standard for minimum length to accommodate narrowbody commercial aircraft such as the Airbus 320 and Boeing 737, and is within the facility requirement identified to accommodate aircraft where a wind coverage of 95% is not met by Runway 10L-28R.

A portion of this runway extension will include the conversion of a former 450-foot inline taxiway (now prohibited geometry) at the Runway 6 approach end to a displaced threshold for approaches to Runway 6. The remainder of the extension would be accomplished through the construction of a 1,262 foot extension to the Runway 24 approach end. This extension would allow for aircraft larger than A-I to hold short of Runway 24 without obstructing the Runway 28R approach. Multi engine and jet aircraft that commonly use Runway 24 are not able to hold short without obstructing the Runway 28R approach.

Declared distances would be published to provide the required safety areas for a runway designated with a Runway Design Group (RDG) of C-III.

Extend Runway 10L-28R

The proposed extension to Runway 10L-28R would not require the construction of any additional pavement but would require remarking and possible strengthening of 489 feet of pavement currently utilized as a stopway for departures from Runway 10L. The Runway 28R approach threshold would remain at its current location, and the extension would be marked as a displaced threshold. The relocation of the Runway 28R threshold would enable aircraft taxiing on Taxiway D to turn directly onto the runway at the new threshold and would eliminate the use of Taxiway D1, which leads aircraft to the existing threshold at the intersection of Runway 10L-28R and Runway 6-24, for aircraft preparing to depart on Runway 28R.

A key benefit of this project is the elimination of the confusing airfield geometry associated with the Taxiway D crossing the blast pad of Runway 28R.

Closure of Runway 10R-28L

The third runway at NFIA, Runway 10R-28L, is 3,973 feet and has a limited number of annual operations. Interviews with airport management and airport users both noted a lower number of operations on the runway with most operations occurring due to the convenient location of the runway with regards to the based general aviation area. With peak operations at NFIA forecast to reach approximately 60 per day, the need to maintain a third runway to serve as a parallel to Runway 10L-28R was identified as not necessary, particularly when reviewing additional safety areas, obstacle free areas, and obstruction surfaces that must be accommodated to maintain the runway. Future use of the site that encompasses the existing runway will be discussed later in this chapter.

Taxiway System Modifications

A significant aspect of the proposed airside improvements includes modifications to the taxiway system at NFIA. A key improvement is the construction of a new partial parallel taxiway to the south of Runway 10L-28R extending from the Runway 10L threshold to the former Taxiway E. The pavement associated with the former Taxiway E would also be reconstructed and reopened to provide direct taxi access to the partial parallel taxiway from the terminal area. The construction of these taxiways provides several benefits, including a provision of a partial parallel taxiway on the civilian side of the Airport (utilization of Taxiway A presently requires permission by the U.S. Air Force and requires taxiing on a portion of Runway 10L-28R), and also will enable the provision of direct access from the terminal area to the Runway 10L end without requiring aircraft to utilize Taxiway C and Taxiway K through the based general aviation area and the west ramp.

Other taxiway improvements proposed include the construction of a partial parallel taxiway on the western side of Runway 6-24. This proposed taxiway is intended to accommodate general aviation and cargo traffic and to separate those aircraft from the terminal apron. The partial parallel taxiway would also provide access to a new taxiway proposed on the site of the former North-South Runway, which would provide access to Taxiway A. Aircraft based at the Niagara Falls Air Reserve Base are regular users of Runway 6-24 and the construction of a taxiway connection from Taxiway A to the western partial parallel taxiway will eliminate the need for military aircraft to taxi on Runway 10L-28R to access Taxiway D on the eastern side of Runway 6-24.

7.2.3.2 Landside Improvements

The landside developments presented on this sheet are derived from the recommended alternatives selected in Chapter 6, *Alternatives,* for air cargo, general aviation, terminal, and landside facilities.

The primary improvements recommended within each of the landside development components are described below:

Air Cargo

As demand increases for air cargo services at NFIA, the recommended improvements will ensure that the Airport is in a position to accommodate the additional development necessary. The ALP sheet depicts the proposed development of air cargo facilities north and east of the existing Taxiway K at NFIA. The facilities proposed include the development of up to two (2) air cargo buildings, each measuring approximately 100,000 square feet in size. The buildings would be accompanied by aircraft aprons, each measuring approximately 55,000 square yards and able to accommodate up to two (2) Boeing 747-8F aircraft. Aircraft access to the site would be provided via the reconstructed Taxiway E. While the Boeing 747-8 is not the design aircraft for this master plan, the NFTA goal for air cargo and future potential should be considered in this and other airside infrastructure projects.

Automobile access would be provided from Porter Road via a new access road. The new access road would require the relocation of up to eight (8) single unit conventional hangars within the based general aviation area. Each air cargo building will be provided sufficient parking for both employee and customer automobiles, as well as tractor trailers.

General Aviation

General aviation development on the ALP sheet is separated into two separate areas at NFIA. A general aviation area is proposed southeast of the proposed air cargo development sites. Within this area, sites have been identified for the development of two (2) conventional hangars measuring up to 40,000 square feet each, as well as for the development of an FBO/Terminal Building and associated hangar space, also measuring up to 40,000 square feet. At the southwestern corner of this development site, space is also reserved for the development of up to two (2) 8-unit T-hangars. To serve these hangars, approximately 72,000 square yards of apron space is proposed for the staging and maneuvering of aircraft utilizing the hangars, as well as for aircraft parking space for transient aircraft. Aircraft access to the site would be via the reconstructed Taxiway E, as well as from the proposed partial parallel taxiway to Runway 6-24

and from the existing Taxiway C. Vehicle access to the site would also utilize the access constructed from Porter Road for the air cargo facility.

A second general aviation area has been identified northeast of the current Calspan hangar. The site includes the construction of up to four (4) conventional hangars measuring up to 40,000 square feet each. Access to the site via aircraft could be provided from Taxiway D. Approximately 78,000 square yards of apron space would be constructed to accommodate the staging and maneuvering of aircraft utilizing the hangars, as well as to provide space for parking of transient aircraft. Vehicle access to the site would be provided via the existing Calspan parking lot, as well as via a new access road connecting the site to Niagara Falls Boulevard over a portion of land formerly utilized as part of the Bell Aerospace facility.

Terminal

An expansion of the passenger terminal is depicted on the ALP sheet. The expanded areas will improve upon areas that are identified to be deficient during the planning period as enplanements increase at NFIA. Specific uses of the expanded area will include reconfiguration and expansion of the baggage claim area, including maintenance of a Federal Inspection Station (FIS) within the terminal, as well as an expansion of the outbound baggage processing area to eliminate constraints during peak periods. A significant benefit of the terminal expansion will also include the ability to provide expanded passenger holdrooms and an expanded security checkpoint.

Within the terminal apron, the expansion of the passenger terminal will also require an expansion of the terminal apron of up to 12,500 square yards, including the reclamation of existing pavement and the construction of up to 6,000 square yards of new impervious surface.

Landside

Improvements to the landside facilities at NFIA include significant modifications to the airport access and terminal parking facilities. A key component of the improvements includes the construction of a new terminal circulation road and the combination and expansion of Parking Lots 1 & 2. The new circulation would add a new access point along Niagara Falls Boulevard while maintaining the main entrance at the intersection of Williams Road and Niagara Falls Boulevard and a secondary entrance along Porter Road. The construction of the new circulation road will enable the combination of Parking Lots 1 & 2, and also the expansion of the lot from a total of 500 spaces between the two lots to a combined approximately 1,650 spaces. An expansion of Parking Lot 3 is also identified, expanding the lot from 1,100 spaces to 1,900 spaces, while also utilizing the new airport access from Niagara Falls Boulevard to provide improved access to the parking lot.

7.2.4 Terminal Area Plan

The Terminal Area Plan (Sheet 4) depicts an expanded view of the terminal area and provides a more detailed layout of the terminal development being proposed for this master plan and is utilized to clearly illustrate all of the changes proposed in the terminal area, which is of a small scale when compared to the larger expanse of land that constitutes NFIA and the Niagara Falls Air Reserve. The Terminal Area Plan clearly depicts the improvements proposed within the terminal area, including the expansion of the passenger terminal and terminal apron, as well as the modifications to airfield access and the terminal parking lots. Due to the close proximity of the terminal to the existing and proposed general aviation and air cargo facilities, these areas

are also detailed within the Terminal Area Plan.

7.2.5 Airport Airspace Plan

Title 14 of the Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*, regulates the airspace surrounding airports through the establishment of "Imaginary Surfaces," which include the Primary, Approach, Transitional, Horizontal and Conical Surfaces. These surfaces are defined and discussed in Chapter 4, *Facility Requirements*.

Sheets 5 and 6 depict the 14 CFR Part 77 Imaginary Surfaces for NFIA, including the ultimate precision approach for Runway 24. The purpose of the second sheet is to show the outer areas of the Precision Approach surfaces to Runways 28 (formerly 28R) and 24, which extend out 50,000 feet from the ends of those runways. The intent of the Airport Airspace Plan is to identify obstructions to all of the 14 CFR Part 77 surfaces outside of the inner approach surfaces, which are detailed in later sheets.

The 14 CFR Part 77 surfaces are shown over the United States Geological Survey (USGS) map to orient the surfaces over the Airport and surrounding community. USGS quadrangles that make up this area are shown on the plan. Additionally, an isometric view of the 14 CFR Part 77 surfaces are shown to provide an understanding of what is being depicted in a three dimensional view.

Based on the analysis of the 14 CFR Part 77 surfaces identified on this sheet, there are no major penetrations to the outer surfaces depicted. Potential obstructions to the inner approach surfaces will be assessed in later sheets.

7.2.6 Existing and Future Inner Approach Drawings

Multiple sheets have been utilized to depict close-in obstructions to the existing and future 14 CFR Part 77 Primary, Approach, and Transitional Surfaces, as well as obstructions to the appropriate surfaces identified in FAA's Airport Design Approach Surface (ADAS) Approach/Departure Standards. The sheets include both plan and profile views of the runway, the RPZ, and the various surfaces. A composite view of obstructions in the profile view illustrates the height of obstructions relative to the runway elevations. Obstructions to the various imaginary surfaces are identified with a symbol and a numeric identifier. Sheets 7, 11, and 15 all provide Inner Approach Plans under current conditions, while Sheets 9 and 13 provide Inner Approach Plans based on the preferred alternatives depicted on the ALP sheet.

The obstruction tables included on each of the sheets list the obstructions, elevation of the surface and object, and the degree of each penetration (or near penetration). A recommended action is also presented for each obstruction. The obstruction tables indicate that the majority of existing and proposed obstructions are trees or other vegetation under both existing and future conditions. These obstructions should be removed where feasible, with avigation easements acquired on parcels where NFTA does not presently have the availability to remove obstructions.. In instances where removal of vegetation obstructions may not be feasible, as well as for fences, poles, buildings, railroad, vehicle, and ground obstructions identified, the installation of obstruction lights should be considered.

7.2.7 Existing and Future ADAS #9 (Departure Surface) Drawings

The development of plan sheets assessing ADAS #9 (Departure Surface) is considered optional and depicts departure surfaces associated with instrument departures. Sheets 8 and 12 depict the close-in obstructions to the Departure Surface based on the existing runway configuration for Runways 10L-28R and 6-24. A plan has not been prepared for Runway 10R-28L as the runway has not been designated for instrument departures. Sheets 10 and 14 depict the departure surface based on the preferred alternatives for both Runways 10L-28R and 6-24. Obstructions identified within the departure surfaces affect departure minimums (cloud height and visibility). Objects within the surface should be removed, if possible, to maintain the lowest possible departure minimums.

Obstructions to the departure surface can be addressed in two ways at NFIA per FAA guidelines. If an obstacle cannot be removed, non-standard climb rates and/or non-standard departure minimums can be established to mitigate the obstacles. All obstacles to the departure surfaces for each runway end are identified within the tables on the plan, including the type of obstruction, the elevation of the object, the elevation of the surface, the level of penetration, and the proposed action. Obstructions identified to the existing and future departure surface to Runway 10L-28R are primarily vegetation. Obstructions to the existing Runway 6-24 departure surface include vegetation, as well as several areas of fencing and light poles. However, additional obstructions are presented to the future Runway 6-24 departure surface, including several buildings and railroad equipment utilizing tracks near the proposed Runway 24 approach end.

7.2.8 Airport Land Use and RPZ Plan

The Airport Land Use and RPZ Control Plan (Sheet 16) provides general guidance for future land development on airport property and in the vicinity of the airport. Since aircraft noise is a major factor influencing land use compatibility, FAA's Integrated Noise Model (INM), Version 7.0d was used to predict noise levels in the year 2033 based upon the forecasted activity. The forecast chapter of this MPU predicted an estimated 29,378 total operations by the end of the forecast period and the noise modeling accounts for each of these operations.

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

As shown on Sheet 16, the 65 dB noise contours extend off airport property at the approach ends for Runway 6, 24, and 28R. While the noise contours within the Runway 24 and 28R approaches do not encroach upon land uses that would be identified as noise sensitive and non-compatible by the FAA, such as residential, places of worship, schools, and parks, there are several of these land uses present off the Runway 6 approach end. The 65 db DNL contour off this end covers small portions of two parcels that include residential land uses. However, none of the residential structures on either of the parcels are within the contour. These parcels, as well as other adjacent parcels, are also within the Runway Protection Zone and have been identified for the acquisition of easements to protect against the future development of other non-compatible land uses. Potential noise impacts will need to be addressed in greater detail in environmental documents prior to any development actions.

In addition to land use, this sheet also contains the RPZ Control Plan. Of the four future RPZ's depicted on Sheet 16, all four include portions of parcels that extend beyond the airports current boundary. RPZ's off the Runway 10L and Runway 28R approaches both encompass land that is vacant, industrial, or portions of residential parcels that are not developed, and are typically compatible within an RPZ. While land within the RPZ's for Runways 6 and 24 primarily include compatible vacant, industrial, and commercial land uses, there are also a number of non-compatible land uses within the RPZ's including residential uses, as well as a place of worship. Guidance included within FAA Advisory Circular 150/5300-13A notes that residential land uses and places of worship are not considered compatible within an RPZ. It is recommended that the airport pursue the acquisition of avigation easements, at a minimum, to improve future control within the RPZ's.

7.2.9 Airport Property Map – "Exhibit A"

Sheet 17, the Airport Property Map (Exhibit "A") identifies the airport's current property boundaries as obtained through the NFTA and Niagara County. The property map shows all of the individual properties that make up the entire airport, as well as lands that are owned by federal government and branches of the military as part of the Niagara Air Reserve Base. A table is provided that lists all of the properties that were acquired to date. Information in the table includes a numerical identifier, tax parcel number, the grantor (or the owner for military parcels), acreage and the AIP grant number (for parcels that were acquire through funding received from the FAA).

NFIA is comprised of thirteen parcels owned by NFTA totaling approximately 782 acres. Of these parcels, four parcels totaling approximately 644 acres were transferred to NFTA from the City of Niagara Falls, the airport's previous owner, in 1969. An additional approximately 603 acres are owned by the U.S. Government and branches of the military. To complete the improvements identified on the ALP during the planning period, approximately 26 acres of land acquisition would be required and is identified on this sheet, as well as information regarding the existing owner and the tax parcel number. In addition, to enable improved control of the RPZ's and the removal of obstructions, the acquisition of approximately 308 acres through avigation easements is also recommended to ensure both land use compatibility and obstructions.

7.2.10 Airport Environmental Inventory Map Airport

The Environmental Inventory Map (Sheet 18) provides a map of the airport and the surrounding area and highlights major environmental areas on and off the airport. This information includes wetlands delineated as part of the Master Plan Update, as well as wetlands identified a New York State Department of Environmental Conservation (NYSDOT) state wetland areas. Also included are the Federal Emergency Management Agency floodplain data.

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

7.3 CAPITAL IMPROVEMENT PROGRAM AND PROJECT PHASING PLAN

The phasing plan presents a phased implementation of 20-year planning projects identified on the ALP as well as other major projects such as design and environmental projects. Projects

that are not included in the phasing plan are projects such as basic airfield maintenance long term pavement rehabilitation projects.

The phasing recommendations have been developed to coordinate with the aviation forecasts presented in Chapter 4 of this report. The forecasts project aviation demand through 2033 and used a base year of 2011. Because funding for Fiscal Year (FY) 2016 has already been allocated, the projects shown in the Capital Improvement Program begin with FY 2017 projects. The Phasing Plan has been divided into three phases as follows:

- Phase I covers the short-range airport growth (2017 to 2021)
- Phase II covers the mid-range airport growth (2022 to 2026)
- Phase III covers the long-range airport growth (2027 to 2036)

Table 7-1 presents the proposed phasing of projects over the 20-year planning period. Projects were phased such that high priority projects addressing immediate needs were included in Phase I. Key projects include taxiway improvements, obstruction removal, expansion of the terminal apron, and the removal of excess airfield pavements. Mid-term projects represent projects that meet future forecasted needs. Key projects identified in this timeframe include additional taxiway improvements, the closure of Runway 10R-28L, the relocation of hangars in the based general aviation area, and the construction of access roads to enable development of the air cargo area and the western general aviation area. The Long-term phase represents projects that address long term needs and meet long term aviation demand. Key projects in this timeframe include the construction of an expansion to the passenger terminal, an extension to Runway 6-24, the installation of a MALSR to the Runway 24 approach, the construction of an expansion to the remote parking facilities, and the construction of additional general aviation facilities including hangars, T-hangars, and aprons. The phasing plan is presented in Table 7-1.

It should be noted that the phasing plan may change if forecasted demand changes. If aviation demand is less than forecasted, then demand based projects will be deferred to a later date. However, should demand increase, then demand based projects would be moved to an earlier timeframe. The phasing plan may also be altered if federal, state or local monies are not available.

7.4 CAPITAL IMPROVEMENT PLAN

The CIP for NFIA for the years 2017 through 2036 is summarized in **Table 7-2** with a more detailed cost breakdown for Short Term projects presented at the end of the chapter in **Table 7-3**. The CIP lists the Short, Mid- and Long-term projects over the 20-Year planning period. It also provides a breakdown of funding between the FAA, the State of New York, the NFTA and private funding under the “Other” column.

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

It should be noted that the CIP does not constitute a commitment on behalf of either FAA or the airport sponsor to fund any of the projects. Further, CIP does not assume any required local or environmental approvals. Further, many projects in Phase II and Phase III, will occur as a result

to anticipated changes in fleet mix and service levels at the Airport. Additional documentation to reflect these changes, and the need and justification fo the construction of these projects, will need to be developed and presented to the FAA and NYSDOT as grant funding is requested.

Table 7-1: Phased Capital Improvement Program

Phase I Projects (2017-2021)
Conduct Environmental Assessment (Phase I Projects)
Land Acquisition – Bell Aerospace Property
Design and Construct On & Off Airport Obstruction Removal
Design and Construct Snow Removal Equipment Building*
Design and Construct Parallel Taxiway Program (Phases I – III)
Design and Construct Eastern GA Access Road
Design and Construct Terminal Apron Expansion
Land Acquisition – RPZ/Part 77/TERPS/Departure Surface Avigation Easements
Phase II Projects (2022-2026)
Construct Parallel Taxiway Program (Phases IV West Paralel 6-24 & V Removal of Excess Pavements)
Design and Construct Connector Taxiway Between Taxiway A and Runway 6-24 Western Partial Parallel Taxiway
Design and Construct Terminal Access & Parking Reconfiguration & Expansion
Close and Remove Runway 10R-28L
Relocate Eight (8) Hangars in the Based General Aviation Area
Design and Construct Air Cargo & Western General Aviation Access Road
Design and Construct Two (2) 40,000 SF General Aviation Hangars
Design and Construct One (1) 60,000 SF FBO & General Aviation Terminal Hangar
Design and Construct Western General Aviation Apron
Design and Construct Runway 10-28 Extension
Phase III Projects (2027-2036)
Design and Construct Terminal Expansion
Design and Conduct Environmental Assessment (Runway 6-24 Extension, Taxiway D Extension, Land Acquisition, MALSR Installation)
Design and Construct Runway 6-24 Extension
Acquire Land for MALSR Installation & Remote Parking Expansion
Install MALSR
Design and Construct Five (5) 40,000 SF General Aviation Hangar
Design and Construct Two (2) 8-Unit T-Hangars
Design and Construct Eastern General Aviation Apron
Design and Construct Two (2) 100,000 SF Air Cargo Buildings
Design and Construct Air Cargo Apron
Design and Construct Remote Parking Expansion

Source: NFTA and McFarland Johnson.
**Note: Projects are from existing Airport CIP, not Master Plan projects.*

Table 7-2: Capital Improvement Plan Summery

Time Frame	Total Cost	FAA	State	NFTA	Other
Short Term (2017-2021)	$ 51,741,220	$ 41,167,098	$ 2,287,061	$ 8,287,061	$0
Mid-Term (2022-2026)	$ 76,321,500	$ 37,189,350	$ 2,066,075	$ 9,066,075	$28,000,000
Long Term (2027-2036)	$ 146,300,000	$ 49,920,000	$ 3,915,000	$ 12,465,000	$80,000,000
Total Planning Period	$ 274,362,720	$ 128,276,448	$ 8,268,136	$ 29,818,136	$108,000,000

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

- FAA Share - 90%
- State Share - 5%
- NFTA Share - 5%

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

Federal Funding

For public-use facilities, including NFIA, the FAA Airport Improvement Program (AIP) provides up to 90% funding for public, non-revenue generating elements of the airport such as runways, taxiways, aprons, and lighting, as well as necessary planning and environmental studies. The remaining 10% is typically split between NFTA and the New York State Department of Transportation (NYSDOT). For purposes of this section, the focus will be the federal share. The options are summarized below:

- The airport receives entitlement funding from the FAA based on the number of passengers that are enplaned at the airport annually. Current entitlement levels are between $1 Million and $1.2 Million annually and are slated to gradually increase with the projected rise in enplanements. Entitlement funding is applied to projects eligible for federal funding.

- Funding above the entitlement amount is then obtained from the FAA through discretionary funding. It should be noted that discretionary funding is competitive and as such, NFIA competes for these funds nationally as well as with the regional airports.

State Funding

NYSDOT provides funding for airports in New York State. In addition to the NYSDOT Aviation Capital Grant Program, NYSDOT also typically provides a grant for half of the local match required by the FAA (50% of the non-FAA share) for AIP projects. A summary of the NYSDOT Aviation Capital Grant Program includes:

- Aviation Capital Grant program funds are available for construction or reconstruction of facilities, pavement maintenance, the purchase of airport equipment, and the purchase of navigational aids, and are typically geared for projects that may not be eligible for AIP funds (i.e., hangars, revenue parking facilities, etc.)

- At a commercial service airport with greater than 50,000 enplanements, such as NFIA, projects can historically receive up to 80% funding, up to a total of $1 Million, from NYSDOT with the remaining 20% to be provided by NFTA.

Local Share

The local share for federally-funded projects is 5%. NFIA has several options to fund their local share:

- Passenger Facility Charges (PFC): With oversight from the FAA, NFIA has the ability to charge a fee of up to $4.50 to each passenger enplaning at NFIA. PFCs are collected by the air carriers on behalf of the airport and are remitted monthly. PFCs can be utilized on projects that are considered AIP eligible, as well as for additional improvements to the passenger terminal. PFC funds can be utilized to provide the local match to eligible AIP and Aviation Capital Grants, or can provide 100% funding for projects.

  All uses of PFCs must be approved by the FAA, with coordination required through a public comment period and notifications to the air carriers serving NFIA. As of August 2016, a PFC is not charged to passengers enplaning at NFIA. However, NFTA plans to consider the implementation of a PFC program in the short term at NFIA and would utilize those funds to reimburse for NFTA expenses of eligible projects previously completed at NFIA.

- NFTA Funds: Funds collected through airport revenue or other NFTA general funds could be utilized to complete airport improvements, particularly for improvements that are not eligible for AIP or Aviation Capital Grants, or for the use of PFCs.

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

- Private Investment: There are several projects within the CIP that will be privately funded because they are decisions driven by private sector business demands. They include the hangar development, the air cargo development and the general aviation development. As such, NFIA's involvement is limited to lease agreements and providing specific design requirements for pavements or buildings that will be incorporated into the overall project. Tenant development typically lead to increases in operations, utilization of other on-airport maintenance providers, and fuel sales. Other examples of tenant development include buildings for fixed based operators, fuel facilities, hangars, as well as other aviation service providers and non-aviation commercial development.

Table 7-3: Short Term Projects (2017-2021)

Year	Project	Project Cost	FAA Entitl/Disc	State	NFTA (PFC/Bond)
2017	Conduct Environmental Assessment (Phase I Projects)	$250,000	$225,000	$12,500	$12,500
2017	Land Acquisition – Bell Aerospace Property	$1,000,000	$900,000	$50,000	$50,000
2018	Obstruction Removal – On & Off-Airport (Part 77/TERPS/Departure Surface)	$1,540,000	$1,386,000	$77,000	$77,000
2018	Design Snow Equipment Storage Building	$600,000	$0	$0	$600,000
2019	Parallel Taxiway Program Phase I – Design Taxiway Program	$3,837,020	$3,453,318	$191,851	$191,851
2019	Eastern GA Access Road Design	$530,000	$477,000	$26,500	$26,500
2019	Acquire Easements (RPZ/Part 77/TERPS/Departure Surface)	$1,500,000	$1,350,000	$75,000	$75,000
2020	Design Terminal Apron Expansion	$1,250,000	$1,125,000	$62,500	$62,500
2020	Parallel Taxiway Program Phase II Reconstruct Former Taxiway E	$11,956,000	$10,760,400	$597,800	$597,800
2020	Design Snow Equipment Storage Building	$600,000	$0	$0	$600,000
2021	Parallel Taxiway Program Phase III - Construct Southern Partial Parallel Taxiway (Runway 10-28)	$10,528,200	$9,475,380	$526,410	$526,410
2021	Eastern GA Access Road Construction	$2,100,000	$1,890,000	$105,000	$105,000
2021	Construct Terminal Apron Expansion	$11,250,000	$10,125,000	$562,500	$562,500
2021	Construct Snow Equipment Storage Building	$5,400,000	$0	$0	$5,400,000