General Aviation Facility Alternatives

General Aviation (GA) facility alternatives were developed based on the facility requirements in Section 5. While the evaluation indicated that the existing t-hangar and apron facilities would accommodate needs through 2040, additional bulk hangar space will be needed. **Figure 6.3.20** shows a variety of options for hangar development, along with other support facility alternatives, that provide for more than would be required through 2040, but demonstrates the capacity of various portions of the airfield for reference.

Bulk Hangars

The need for bulk hangar space is approximately 163,000 square feet of space allowing for the bulk hangar currently in design in 2018 with construction planned for 2018 and 2019. The previous master plan identified space in the west quadrant of the Airport allowing for five (5), 40,000 square foot bulk hangars with associated apron space adjacent to the Runway 13 end for a total of 200,000 square feet of hangar space, exceeding the planning period requirements. The Runway 13-31 western parallel taxiway (north segment) is a requirement for this development to be implemented. The estimated cost of this hangar and apron complex is $50.6 million, or about $10.1 million for each hangar.

As this is the least developed portion of the Airport, closer coordination with local utilities will need to occur. The areas further west are largely residential which may necessitate more utility upgrades or line construction compared to the other areas of the Airport. Order-of-magnitude utility costs, particularly for any line extensions to future development, should be considered for incorporation into the CIP.

Additional bulk hangar space development area was identified on the north side near the existing general aviation tie-down area. This alternative looked at a smaller bulk hangar complex that could be developed if cargo is not pursued on the north side of the airfield. This complex as shown would provide 39, 5,600 square foot hangars that are meant to house a single aircraft. The total complex would provide over 200,000 square feet of hangar space, also exceeding the facility requirements. The Runway 6-24 northern parallel taxiway is a requirement for this development to be implemented. The estimated cost of this hangar and apron complex is $57.7 million, or about $1.5 million for each hangar.

A smaller area to the west of the existing fuel farm looked at the ability to locate small bulk hangars perpendicular to Taxiway A. A parallel layout was evaluated, but would not work in the narrow space available. The perpendicular option shown would provide eight (8), 5,600 square foot hangars that would provide a total of 44,000 square feet of hangar space. This option does require land to be acquired in order to implement the hangar development. Since this area is currently developed, design will likely entail normal coordination with local utilities and no major upgrades of capacity. The estimated cost of this hangar and apron complex is $12.0 million, or about $1.5 million for each hangar.

A final consideration relates to cargo development at the Airport. If the entire cargo operation were to move to the north side of the airfield, the existing cargo apron in the south corner of the Airport could be re-used/purposed for general aviation hangars. The potential to re-use/purpose the cargo apron for a deicing pad is also considered in this chapter.

T-Hangars

While a need for t-hangars was not specifically identified in the facility requirements, and t-hangar development is best suited for Queen City or Braden Airpark, there is an existing t-hangar complex in the northeast quadrant of the Airport. While evaluating the land around this complex, an area to the east of the existing complex was identified for additional t-hangar development as shown in the alternatives figure. This would provide four (4) additional t-hangars about 12,500 square foot each. With existing t-hangars in the area, normal coordination with local utilities and no major upgrades are anticipated. The estimated cost of this t-hangar and taxilane complex is $14.4 million, or about $3.6 million for each hangar.

Overall, as a result of the facility requirements, only the bulk hangars in the west complex will be programmed as part of the preferred development program. In addition, the t-hangars will be shown, but not programmed in the 20-year planning period since a need was not determined.

FBO Facility

During the course of the master plan process, discussions with staff and users that participated in the tenant survey indicated the need for an improved general aviation terminal facility (see Section 5.5 for a summary of the tenant survey results). As a result, the area at the corner of Taxiway A and J was identified as a location for a new GA terminal/FBO facility. This would require some reconfiguration of auto parking, but it could be accommodated within the existing space and property. The corner of the building would be located within the existing RVZ, but would only be an issue if ATCT operations were to change. For the purposes of the master plan update, it is assumed the existing building would be rehabilitated with improvements such as HVAC upgrades, new bathrooms, and an outdoor canopy. With reconstructed and new pavement added, the total cost of this project is estimated to be $20.3 million.

Support Facility Alternatives

Based on interviews with LNAA staff, FAA staff, and Airport tenants conducted during the inventory process (see Section 5.5 for a summary of the tenant survey results), support facility requirements were identified and alternatives for their development are documented below. They are illustrated in **Figure 6.3.20**.

Airport Maintenance and Snow Removal Equipment Facility

The existing airport maintenance and snow removal equipment facilities will require expansion and equipment replacement in the 20-year planning period. A detailed evaluation to program what the size and ultimate location will be should be completed in the near-term. Two potential areas are identified to locate the facility in addition to expanding on its current location. Its current location has been identified as a facility to convert for the use of GSE maintenance and storage should a north cargo alternative be implemented. Cargo development in the north would entail the implementation of an airport maintenance facility, but timing would be dependent on the phasing aspects of the cargo development. A phased approach to cargo development in the north would leave room for GSE storage in the undeveloped cargo areas.

The two additional areas identified on **Figure 6.3.20** include an area just northwest of the existing location at the corner of Race Street and Willowbrook Road. Convenient access to public roads, as well as a continued central airfield location considering long-term development potential of the Airport make this a good

location. This alternative also ties to the potential to provide non-aeronautical development in the form of a travel plaza to support airport maintenance, but also the potential demand in this area.

The second location would be an area currently occupied by Hangars 2 and 3. This is a triangular shaped area along Airport Road and the Runway 6 end of the Airport. A key to development in this area would be the relocation of the Hangar 2 and 3 facilities. At this time, there are no plans to relocate those hangars. In addition, the odd shaped parcel does not lend itself to an efficient layout.

Regardless of the location, the project is estimated to cost $14.6 million to build a new 28,000 SF building with new pavement surrounding the building (it is assumed both the building and the pavements are increased 20% compared to existing), including demolition of the existing facility. Depending on the alternative chosen, if the existing maintenance building was converted to a GSE storage building, it is estimated to cost $5.8 million. The reuse of the building would reduce the cost associated with the new maintenance building by the estimated demolition costs (approximately $1.6 million).

Deicing

Currently, weather conditions and operations are not conducive to an investment in a dedicated deicing area. To be prepared, and while evaluating airport development options, prudent planning suggests identifying areas that could be dedicated to deicing activity. Since the primary use runway in winter is Runway 6-24, two potential options to support dedicated aircraft deicing were identified.

The first location near the Runway 6 end is an area on the existing cargo apron, if the cargo operation moves to the north side of the airfield. The proximity to the Runway 6 end makes this an ideal location and re-uses the cargo apron. Drainage and stormwater catchment improvements would be needed to address the collection of spent deicing fluid.

A second area to consider a deicing pad is a location towards the Runway 24 end, south of the runway, but just east of the Taxiway A and E intersection. While this area is farther from the Runway 6 end, it is in close proximity of the commercial passenger aircraft terminal.

When a deicing pad is needed, the estimated cost for either of the alternatives above could be in the range of $3 to 6 million. Fleet mix considerations from Group III to Group V aircraft will need to be reviewed to determine parking and space requirements.

Fuel Farm

Fuel farm capacity and available fuel can vary based on tank capacity along with fuel delivery frequencies. While the master plan review did not indicate a need for additional capacity, the increase in cargo aircraft activity that take on more fuel suggests that additional fuel farm capacity may be needed in the planning period. An area large enough to mirror the size of the existing fuel farm was identified adjacent to the fuel farm. This would allow the Airport to double its fuel farm capacity. As shown, the fuel farm expansion is estimated to cost $8.4 million.

ARFF Facility

Stakeholder discussions during the master plan process yielded the need for expansion and improvements to the Aircraft Rescue and Firefighting Facility (ARFF), specifically if the Airport moves from an Index C

to Index D. While the master plan is not programming the specific components of those improvements, the area in and around the existing ARFF station has been reserved should it be needed. Taxiway improvements that maintain airfield access are programmed under the taxiway alternatives. For the purposes of the master plan update, it is assumed this project includes a 20% increase in building size for just under $1 million.

Instrument Approach Improvement to Runway 6

As a separate project outside of this master plan, the FAA is funding the Runway 6 ILS equipment upgrade to meet Special Authorization (SA) CAT II requirements via the Enhanced Low Visibility (ELVO) Program. The scope includes design and installation of new ILS electronics and antennas at the existing locations. The FAA expects to replace the LOC shelter, and the LOC antenna foundation will need to be extended to accommodate a larger antenna. The final project scope and schedule is being confirmed, and design should be starting in early 2018. The goal of this project is to install and flight check new ILS equipment by March 2019. There are other requirements that must be met before the SA CAT II procedure is published. DOT/FAA Order 8400.13D outlines the process of evaluating and approving the SA CAT II procedures.

One of the issues that arose during SA CAT II feasibility discussions is the existing Runway 6 LOC antenna does not meet current runway safety area (RSA) siting requirements. FAA has an unfunded requirement to relocate the LOC outside the RSA. While it makes sense to complete the ELVO and LOC relocation projects together, there was not enough ELVO funding available to include relocation in the scope. The best estimate at the time of the master plan was for FAA facility and equipment funds being available to relocate the LOC is 2019 or 2020.

Airport Rotating Beacon

The airport rotating beacon is located on the Rental Car QTA building. In 2017, the light was replaced, but it was noted that if the area were to be redeveloped at some point, it would need to be relocated. Based on siting criteria guidance from AC 5300-13A, the following is an initial assessment of potential relocation areas:

- The current location northeast of the terminal is very good based on line-of-sight and distance from the ATCT. If there are locations in that general area that are feasible, they should be evaluated. If the current area is redeveloped, one option is an airport maintenance facility; the criteria should include siting a beacon as part of the facility.
- The main FBO area on the south side would normally be ideal but the density and height of buildings will likely create a poorer line-of-sight environment for the beacon.
- The north side by the T-hangars could be a good location, especially with small GA traffic on that side, but proximity to the ATCT may create visual issues for controllers.
- The west side provides the most flexibility in terms of location/suitability but is also the most remote. Given navaids in the area, power should not be a problem.

As a result, it is recommended that the airport rotating beacon be incorporated into redevelopment options in the same area where it is currently located.

(4) T-Hangar Rows
±12,500 SF Each
79 FT Wide Taxilane

Potential Areas Reserved
for Maintenance Facility
Expansion/Relocation

ARFF Expansion

(39) 70x80 FT
Conventional Hangars
5,600 SF Each
115 FT Wide Taxilane

30' BRL

Potential Area for
Maintenance Facility
Relocation, Deice Pad,
Hangar Redevelopment,
Rental Car QTA, or
Non-Aeronautical
Development

(5) 200x200 FT
Conventional Hangars
40,000 SF Each
±646,000 SF Apron

Potential RON, FIS, ARFF

100x150 FT
FBO Terminal

Potential Reuse as De-ice
Pad or Hangar Development

±45,000 SF Hangar
±97,000 SF Apron
(To be Constructed in 2018)

Fuel Farm Expansion

(8) 70x80 FT
Conventional Hangars
5,600 SF Each
115 FT Wide Taxilane

Legend

- Existing Property Line
- Proposed Property Acquisition
- Proposed Building
- Proposed Apron
- Proposed Demolition
- Runway Visibility Zone

N

Not To Scale

Lehigh Valley International Airport
Master Plan Update

General Aviation and Support Facilities Development

General Aviation Alt. 1
Figure 6.3.20