

Appendix B

Master Plan Cargo Alternatives



Cargo Facility Alternatives

Cargo facility alternatives were developed based on facility requirements and located to meet FAA design standards for parking position sizing, aircraft tail heights, taxiway centerline, etc. Cargo operations encompass large areas so development alternatives are limited to certain areas of the Airport. As a result, two main areas were identified for the cargo facility alternatives: developing the existing cargo area in the southwest quadrant of the Airport; and the area north of Runway 6-24 and east of Runway 13-31 between Taxiways B and E. The alternative options meet the facility requirements for apron and building space. The alternatives also show space for truck dock/maneuvering, ground service equipment (GSE) storage, and employee parking.

Cargo Alternative 1

This alternative builds on the existing cargo operation on the airfield. All integrated cargo is processed through the existing cargo ramp located in the south quadrant of the Airport. There are six (6) aircraft parking positions on the existing ramp, one of which was built in 2017. This alternative expands the cargo apron adding two (2) aircraft parking positions to the west, and one (1) aircraft parking position to the east for a total apron square footage of approximately 740,000 square feet and nine parking positions. Two (2) 83,000 square foot cargo processing buildings are added as well as truck dock/maneuvering space. An employee parking lot and GSE storage lot are added to the east side (see **Figure 6.3.16**).

The primary benefits to this alternative include a continuation and build out of the existing cargo operation, and it accommodates the forecasted space needed in the planning period. The primary challenges include limited space for additional growth, a gas line just south of the existing ramp that would likely need to be relocated, as well as operational limitations for large aircraft ingress and egress to the area on Taxiway A. The estimated cost of Cargo Alternative 1 is \$51.1 million.

Cargo Alternative 2

This alternative considers a relocated cargo operation on the north side of Runway 6-24 between Taxiway B and E. The alternative provides a cargo operation perpendicular to Runway 6-24 with the concept that the facility continues to grow to the north towards Race Street. This alternative provides six (6) aircraft parking positions, three (3) on each side of two (2) cargo processing buildings that are each 83,000 square feet. Each aircraft parking apron is approximately 383,000 square feet. The alternative provides truck dock/maneuvering space, an employee parking lot, and assumes the existing airport maintenance garage would be converted to a covered GSE storage and maintenance area. This cargo alternative assumes a new/relocated/parallel Taxiway C for aircraft ingress and egress to the area. Truck and auto access would be from a new signalized intersection at Race Street (see **Figure 6.3.17**).

Since the Airport is currently operational with a 24-hour ATCT, maintaining a clear RVZ is not a requirement, but the RVZ was considered to understand how development or the RVZ could be affected in the future if the ATCT operations changed. This alternative maintains a clear RVZ for the existing runway configuration, but if Runway 13-31 was extended, portions of the apron and the building could be within the RVZ.

Utility planning and design will require more coordination and lead-times compared to the existing air cargo



area, but it can be mitigated if development transpires in a phased manner. Since some industrial and commercial development already exists along the Race Street corridor to the north, greenfield development of this area should be able to be accommodated. This is also applicable for Cargo Alternatives 3 and 4 as noted below.

The primary benefits to this alternative include an improved location on the airfield for the operation of large aircraft to and from the runway system and it accommodates the forecasted space needed in the planning period and the potential beyond the 20-year planning period. The primary challenges include a cargo operation that is bisected with the two aprons and buildings, limited aircraft parking space because of Part 77 primary surface setbacks. The long-term expansion options assume the relocation of the ATCT is not currently required. The estimated cost of Cargo Alternative 2 is \$79.6 million.

Cargo Alternative 3

This alternative also considers a relocated cargo operation on the north side of Runway 6-24 between Taxiway B and E. This alternative provides a cargo operation that is mostly parallel to Runway 6-24, but accommodates the existing and potential future RVZ. This alternative provides nine (9) aircraft parking positions for a total of 927,000 square feet of apron space, and one linear cargo processing building (building notches to the north to accommodate the RVZ) that is 166,000 square feet. The alternative provides truck dock/maneuvering space, an employee parking lot, and assumes the existing airport maintenance garage would be converted to a covered GSE storage and maintenance area. This cargo alternative assumes a new/relocated/parallel Taxiway C for aircraft ingress and egress to the area. Truck and auto access would be from a new signalized intersection at Race Street (see **Figure 6.3.18**).

The primary benefits to this alternative include:

- An improved location for the operation of large aircraft to and from the runway system,
- The potential for long-term expansion beyond the 20-year planning period,
- A fully connected cargo apron and building, and
- The accommodation of the forecasted space needed in the planning period.

The primary challenges are limited to the kink in the building that can limit the operational efficiency of cargo processing and some additional apron and taxiway stubs. The estimated cost of Cargo Alternative 3 is \$64.9 million.

Cargo Alternative 4

This alternative is the same as Cargo Alternative 3 except that it provides a true parallel/linear facility. As with Alternative 3, the alternative accommodates the existing and future RVZ. This alternative provides nine (9) aircraft parking positions for a total of 885,000 square feet of apron space, and one linear cargo processing building that is 166,000 square feet. The alternative provides truck dock/maneuvering space, an employee parking lot, and assumes the existing airport maintenance garage would be converted to a covered GSE storage and maintenance area. This cargo alternative assumes a new/relocated/parallel Taxiway C for aircraft ingress and egress to the area. Truck and auto access would be from a new signalized intersection at Race Street (see **Figure 6.3.19**).



The primary benefits to this alternative are similar to Cargo Alternative 3. It includes an improved location on the airfield for the operation of large aircraft to and from the runway system, a greater potential for long-term expansion beyond the 20-year planning period (utilizes property otherwise protected for the RVZ), a fully connected cargo apron and building that is the most efficient for processing cargo, and it accommodates the forecasted space needed in the planning period. There were no primary challenges identified. The estimated cost of Cargo Alternative 4 is \$61.8 million.

Evaluation Summary

As stated in Section 6.2, the alternatives were evaluated and rated against a number of criteria in order to determine which alternative would best serve the Airport and their strategic, financial, and environmental goals, see **Table 6.3.6**.

Table 6.3.6: Cargo Facility Alternatives Evaluation Summary

Cargo Facilities Criteria	Alternatives			
	1	2	3	4
Economic/Strategic Factors	1	4	6	6
Order-of-magnitude costs	0	1	3	3
Readily developable area	1	3	3	3
Operational/Maintenance Factors	5	9	8	9
Meets design standards	2	3	3	3
Operational efficiency and support considerations	1	3	2	3
Ability to meet cargo facility forecasted demand	2	3	3	3
Natural Resources/Sustainability	2	8	8	8
Impacts to the environment	1	3	3	3
Potential for long-term sustainability/not impact future development	1	2	2	2
Soil considerations for development	0	3	3	3
Social/Community Impacts/Passenger Experience	4	4	4	4
Potential to change noise activity	2	3	3	3
Impacts to local roadway network	2	1	1	1
Total Score	12	25	26	27
Ranking	4	3	2	1

Source: C&S Engineers, Inc.

Alternative 4 is the highest ranked alternative. Alternative 4 scored very close to Alternatives 2 and 3 which shows that cargo development on the north side is preferred. As a result of recent investments in the existing cargo area, development on the north side could occur in phases and use both sites in a hybrid manner. If or when the entire cargo operation moves to the north side, the existing cargo apron could be reused to support deicing or general aviation hangar development.

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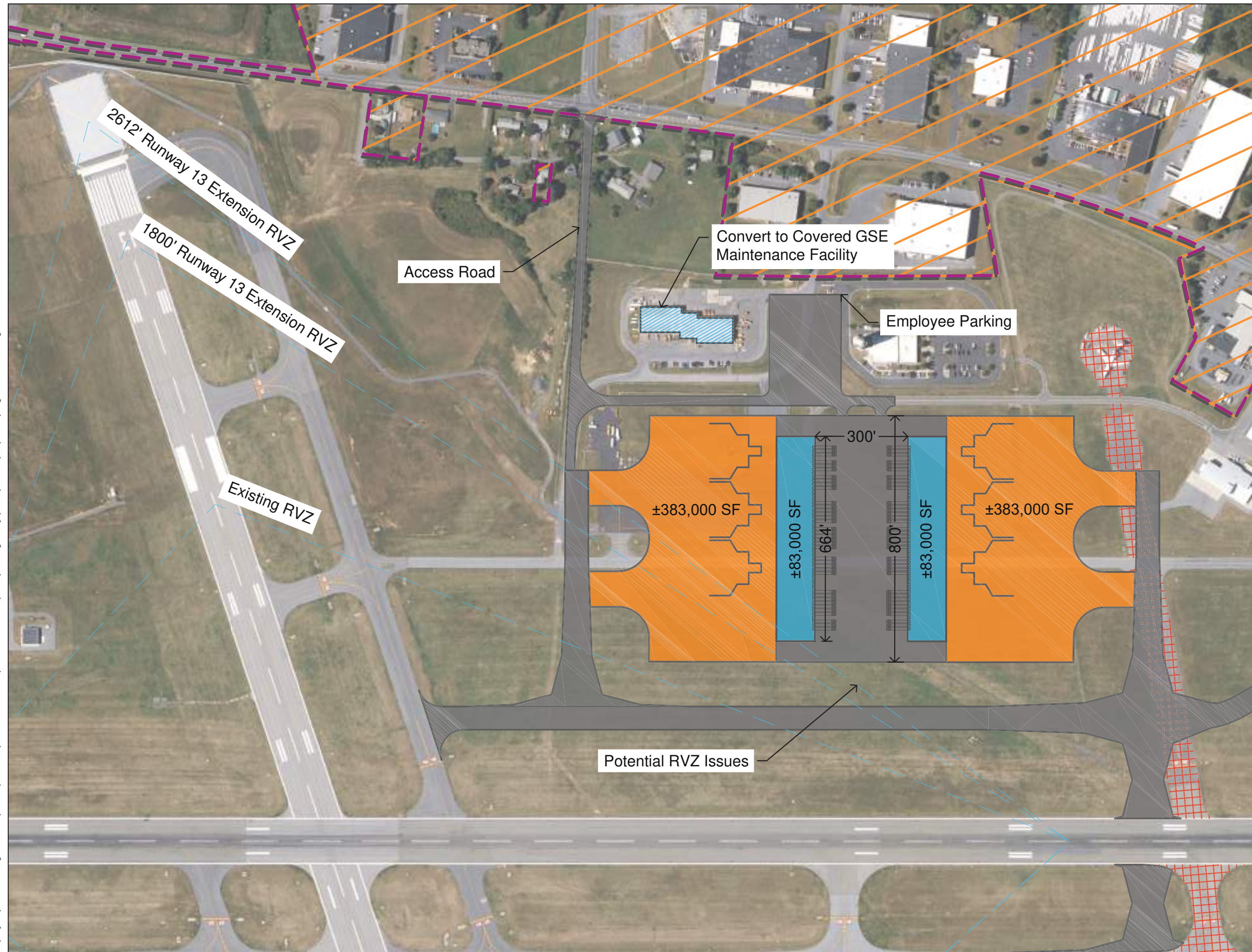
Legend

- Existing Property Line
- Proposed Property Acquisition
- Proposed Building
- Proposed Apron
- Proposed Taxiway/Road
- Proposed Demolition

Not To Scale



Lehigh Valley International Airport
Master Plan Update
**Expansion of
Existing Facilities**
Cargo Alt. 1
Figure 6.3.16



Legend

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

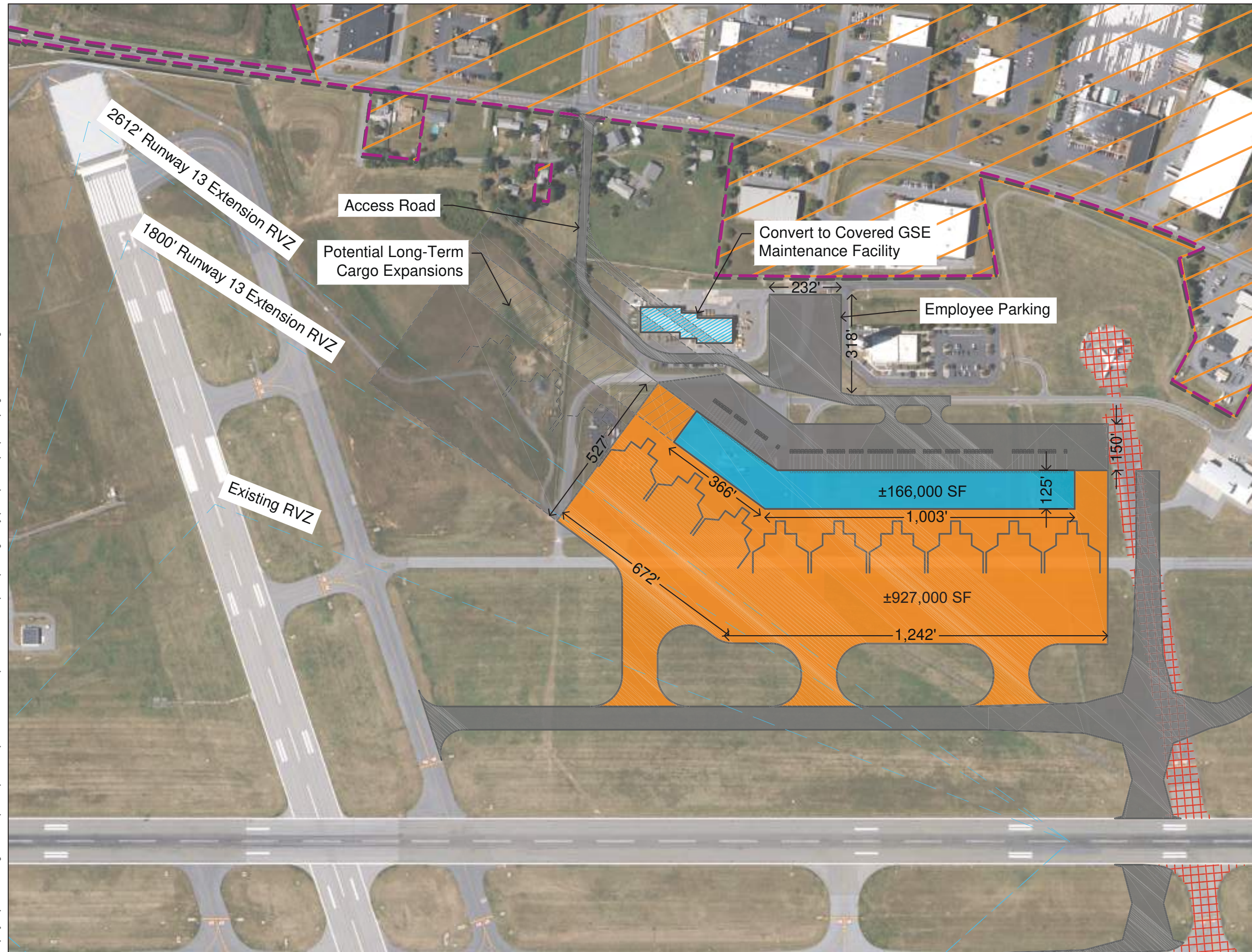
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Lehigh Valley International Airport
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**Cargo Relocation
Split Facility**
Cargo Alt. 2
Figure 6.3.17

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Legend

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

Not To Scale



Lehigh Valley International Airport
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**Cargo Relocation
Consolidated Facility**
Cargo Alt. 3
Figure 6.3.18

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Legend

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

Not To Scale



Lehigh Valley International Airport
Master Plan Update

Cargo Relocation Consolidated Linear Facility

Cargo Alt. 4
Figure 6.3.19