



## Maintenance and Other Projects

Maintenance related projects for pavement and obstructions have also been identified since they are part of the capital program and need to be integrated into the preferred program for implementation and cost purposes.

### Airside Pavement Maintenance

As noted in Section 5, an airside pavement management plan (PMP) was completed in 2017 by Airport Design Consultants, Inc. (see **Appendix F**). **Table 6.3.7** highlights the recommended capital improvement program for the next 10 years, from 2019 through 2028, associated with maintaining airside pavement. The Year 10 projects are a combination of localized preventative maintenance, global maintenance, and major rehabilitation. See the plan itself for more detailed information for each project, including figures and tables identifying specific pavement branches and segments. Project locations generally described in this table.

**Table 6.3.7: Airside Pavement Priority Projects**

Year	Description	Cost (2016 Dollars)
1	Rehabilitate northwestern portion of TW E and portion of main terminal apron	\$1.5 million
2	Rehabilitate southeast portion of main terminal apron	\$2.0 million
3	Rehabilitate northwest portion of main terminal apron	\$2.0 million
4	Rehabilitate southwest portion of main terminal apron and Apron 3 near Hangars 2 & 3	\$1.9 million
5	Rehabilitate southeast portion of Apron 1 near Hangar 9	\$1.9 million
6	Rehabilitate Taxiway A from the cargo apron to Runway 13/31 and the portion of Apron 9 in front of Hangar 8	\$1.2 million
7	Rehabilitate Runway 13/31	\$2.8 million
8	Rehabilitate Taxiway A from Runway 13/31 to Runway 24 end	\$1.4 million
9	Rehabilitate Taxiway B from Runway 6/24 to Runway 13 end and the southeast portions of Taxiway E	\$0.8 million
10	Various areas of localized preventative maintenance	\$1.0 million
Total Cost =		\$ 16.5 million

Source: Airside Pavement Management Plan, ADCI, February 2018

### Landside Pavement Maintenance

Similarly, a landside PMP was conducted in October 2016 and updated in December 2017 to evaluate and analyze the landside pavement networks at the Airport. **Table 6.3.8** highlights the recommended capital improvement program associated with maintaining landside pavement through 2027. See the plan itself, included as **Appendix G**, for more detailed information.



**Table 6.3.8: Landside Pavement Priority Project Types/Costs**

Year	Seal Coat/ Crack Seal	Mill & Overlay	Reconstruction	Totals
2018			\$870,000	\$870,000
2019		\$880,000		\$880,000
2020			\$1,280,000	\$1,280,000
2021		\$190,000	\$450,000	\$640,000
2022		\$1,000,000		\$1,000,000
2023		\$1,200,000		\$1,200,000
2024		\$860,000		\$860,000
2025	\$410,000	\$120,000	\$100,000	\$630,000
2026		\$2,800,000		\$2,800,000
2027	\$73,000	\$340,000		\$413,000
<b>Totals</b>	<b>\$483,000</b>	<b>\$7,390,000</b>	<b>\$2,700,000</b>	<b>\$10,573,000</b>

Source: Landside Pavement Management Plan, ADCI/Arora, October 2016/December 2017

### Obstruction Removal

Code of Federal Regulations, Title 14, (14 CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace* establishes several imaginary surfaces that are used as a guide to provide a safe and unobstructed operating environment for aviation. The primary, approach, transitional, horizontal, and conical surfaces identified in 14 CFR Part 77 are applied to each runway and the specific Part 77 runway category criteria. Runway end siting requirements are outlined in FAA AC 150/5300-13A, *Airport Design*. This document identifies specific dimensions and slopes for all runway ends based on the type of aircraft operations and instrumentation associated with that runway.

As a result of the obstruction analysis completed as part of this Master Plan, the following findings should be incorporated into the Airport’s Obstacle Action & Disposition Plan. A summary of each runway end is below that looks at existing runway conditions, which are relevant for the next 5-10 year period with Runway 24 as the most immediate need.

#### Runway 6

- Runway 6 has no obstruction clearing needs, as it has the lowest ILS approach minimums LVIA would need with ½-mile visibility. See also ILS upgrade to Category II which is underway.

#### Runway 24

- Runway 24’s main issue is that the Race Street alignment northwest of the runway threshold is the controlling obstruction. Therefore, until the road is relocated, lowered, and/or removed, it is unlikely that instrument procedure criteria can be improved. Otherwise, the other obstructions of note are in the CVS/Gregory’s Steakhouse property area with trees and poles penetrating the 40:1 departure surface. This area is already in or near the existing RPZ, and entirely within the previous ALP’s ultimate RPZ. The existing CIP already notes a 2019 planned acquisition of the RPZ. As this project progresses, it needs to be confirmed whether this is the existing RPZ or future, larger RPZ, and whether it is purely land acquisition or whether demolition of buildings, trees, and poles will be included. Since this



obstruction mitigation would involve removal of buildings and poles/utility lines, an engineer or similar expert would need to determine an order-of-magnitude cost of this should this be determined a feasible option. Should obstruction mitigation be needed outside the existing RPZ (i.e., no acquisition/demolition to a larger ultimate RPZ), aviation easements should be added to those areas. In short, the Runway 24 RPZ acquisition project should have demolition/obstruction removal associated with it. This area is also impacted by a roadway improvements project along Race Street. As part of this roadway widening project, multiple obstructions have been removed and/or lowered along Airport Road and Schoenersville Road.

To summarize, significant improvement in instrument procedure criteria is unlikely without mitigation of the Race Street controlling obstruction, but subsequent obstruction mitigation efforts should be associated with construction or similar improvements within at least the Part 77 approach surface, and particularly within or near the RPZ, similar to recent efforts near Airport and Schoenersville Roads.

### Runway 13

- Runway 13 is fine as it only has minor tree penetrations to Part 77. With ½-mile ILS approach on this end, only periodic monitoring of tree growth is needed. The terrain off the runway end falls considerably lower into a valley, which also helps.

### Runway 31

- Runway 31 mainly has a few (10 currently) poles associated with the Airport Road area northeast of the Route 22 PennDOT interchange. The runway has an LPV approach with ¾ mile visibility, which considering the other ends' minimums, is acceptable. The Obstacle Disposition Plan already notes some trees/poles being removed or lowered by 12/31/2018. As the removal of these trees and poles are already in the disposition plans, there is no additional planning needed for obstruction mitigation on this end, assuming the plan is progressed.

## 6.4 Preferred Development Concept

The top ranking alternatives by opportunity area evaluated previously have been incorporated into an airport wide overall development concept shown in **Figure 6.4.1**. Throughout the evaluation of the alternatives, input from the LVIAA and the project advisory group further refined some of the individual projects as the preferred development concept was created. Therefore, the projects as shown in the preferred development concept may vary from the original alternatives noted in the relevant portion of Section 6.3. For example, the FAA advised that, depending upon the age and condition of the existing glide slope just north of the Runway 24 end, the relocation of the glide slope may be considered which would eliminate the need to design the northside parallel taxiway to Runway 6-24 around the existing glide slope.

Tables 6.4.1 through 6.4.4 show the preferred development concept projects by phase based on the facility requirements evaluations in Section 5 and feedback from the Authority. The plan will be finalized based on a comprehensive financial analysis as described in Section 7. While shown in Figure 6.4.1 and provided in the list below, the projects identified in Phase 4 are not included as part of the development program or financial analysis for this master plan, but shown for future consideration and the preservation of potential development areas. Phase 1 and 2 also include pavement maintenance projects with their anticipated project year as identified in the airside and landside pavement management plans, but are not shown on Figure 6.4.1.



**Table 6.4.1: Phase 1 (2018-2023) Project List**

Project Number	Year	Description
1-1		Runway 6-24 Reconstruction & Projects
1-2		Terminal Vertical Circulation Improvements
1-3		Expand Cargo Existing Area
1-4		Landside Circulation Improvements
1-5		Land Use Development (hotel, retail, travel plaza as indicated in Appendix H)
1-6		Taxiway Stub Projects
1-7		Hangar 11
1-8		Parking & Ticket Booth Improvements
1-9		FBO Building & Improvements
1-10		Terminal Security Checkpoint Improvements
	2018	Reconstruct 995 Postal Road west parking lot/loading dock, Hangar 7 parking lot, Hangar 9 parking lots, & 997 Postal Road driveway
	2019	Rehabilitate northwestern portion of TW E & portion of main terminal apron
	2019	4” Mill & overlay of long-term Parking Lot A (northeast corner) & long-term east parking
	2020	Rehabilitate southeast portion of main terminal apron
	2020	Reconstruct Hangar 3 parking lot & Gate 8 access road
	2021	Rehabilitate northwest portion of main terminal apron
	2021	Reconstruct employee parking lot & Hertz QTA; mill & overlay 997 Postal Road parking lot & driveway
	2022	Rehabilitate southwest portion of main terminal apron & Apron 3 near Hangars 2 & 3
	2022	Mill & overlay terminal roadways
	2023	Rehabilitate southeast portion of Apron 1 near Hangar 9
	2023	Mill & overlay maintenance lot



**Table 6.4.2: Phase 2 (2024-2028) Project List**

Project Number	Year	Description
2-1		Terminal IAF Facility
2-2		Northside Parallel Taxiway for Runway 6-24
2-3		New Northside Cargo Facility
2-4		Compatible Development (Maintenance, GSE Area, Land Use Development)
2-5		Runway 13-31 West Side Parallel Taxiway
2-6		Bulk Hangars (2)
	2024	Rehabilitate Taxiway A from the cargo apron to Runway 13-31 & the portion of Apron 9 in front of Hangar 8
	2024	Mill & overlay Hangar 2/Rental QTA access road; AVIS QTA & parking lot; hangar 7 & 10 parking lots & driveways
	2025	Rehabilitate Runway 13-31
	2025	Mill & overlay FedEx parking lot & driveway; Reconstruct Hangar 2 parking lot; Crack seal short & long-term parking/express exit
	2026	Rehabilitate Taxiway A from Runway 13-31 to Runway 24 end
	2026	Mill & overlay economy/other parking lot
	2027	Rehabilitate Taxiway B from Runway 6-24 to Runway 13 end and the southeast portions of Taxiway E
	2027	Mill & overlay contractor staging area, Enterprise parking lot, Hertz parking lot; Seal coat Enterprise QTA, 995/997 Postal Road parking lot/loading dock, Hangar 9 driveway
	2028	Various areas of localized preventative maintenance

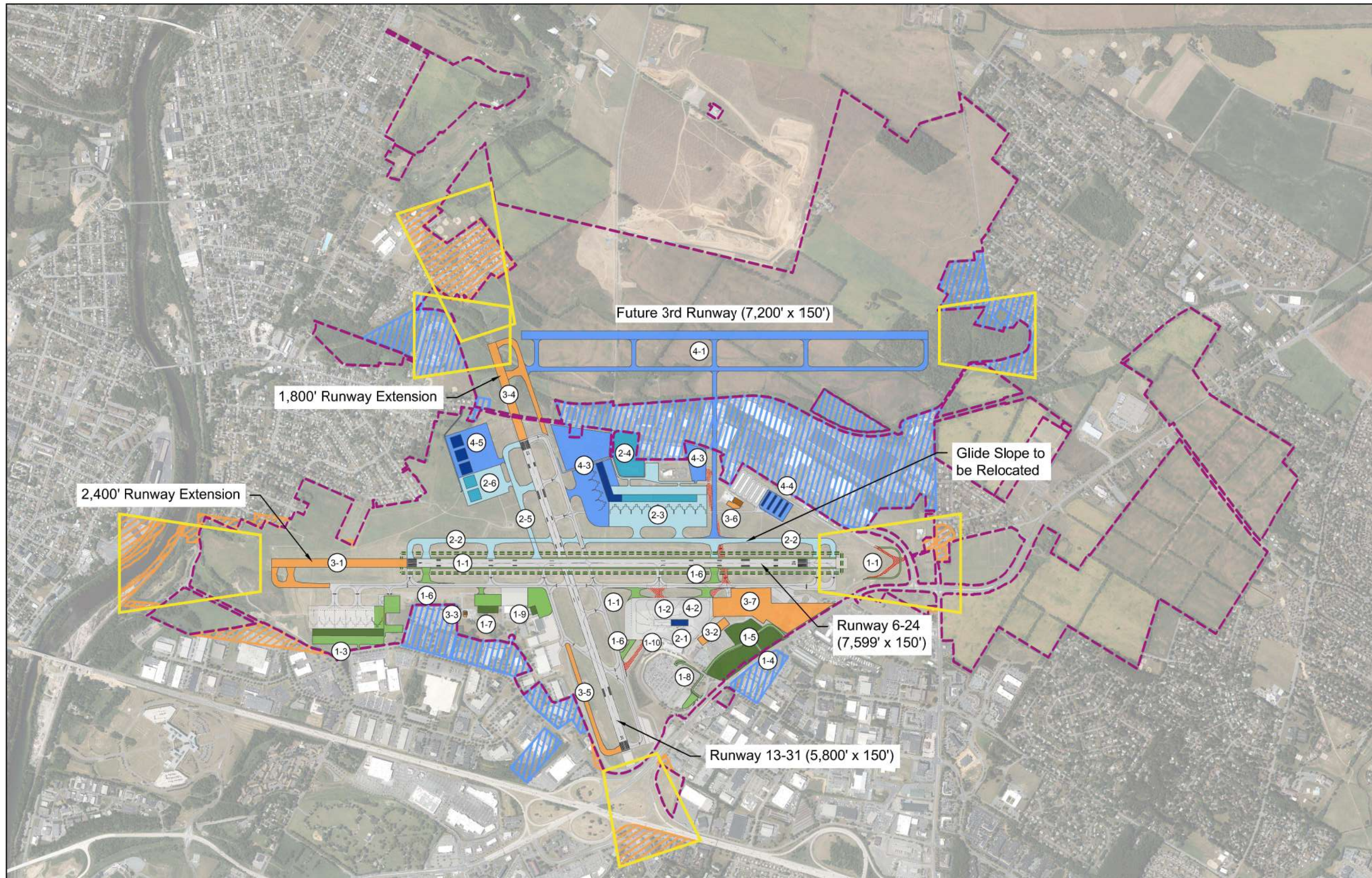
**Table 6.4.3: Phase 3 (2029-2039) Project List**

Project Number	Description
3-1	Runway 6-24 Extension
3-2	Remain Overnight (RON) Parking Area
3-3	Fuel Farm Expansion
3-4	Runway 13-31 Extension
3-5	Runway 13-31 East Side Parallel Taxiway
3-6	ARFF Building Expansion
3-7	Deicing pad, hangars, QTA

**Table 6.4.4: Phase 4 (2040 +) Project List**

Project Number	Description
4-1	3rd Runway & Connecting Taxiways
4-2	Terminal Concourse Expansion
4-3	Northside Cargo Expansion
4-4	T-hangars (4)
4-5	Bulk Hangars (3)





- Phase 1: 0 - 5 Years (2018 - 2023)**
- 1-1 Runway 6-24 Reconstruction & Projects
  - 1-2 Terminal Vertical Circulation Improvements
  - 1-3 Expand Existing Cargo Area
  - 1-4 Landside Circulation Improvements
  - 1-5 Land Use Development (Hotel, Retail, Travel Plaza)
  - 1-6 Taxiway Stub Projects
  - 1-7 Hangar 11 (To Be Constructed in 2018-2019)

- 1-8 Parking and Ticket Booth Improvements
  - 1-9 FBO Building and Improvements (1) 100x150 FT
  - 1-10 Terminal Security Checkpoint Improvements
- Phase 2: 6 - 10 Years (2024 - 2028)**
- 2-1 Terminal IAF Facility
  - 2-2 Northside Parallel Taxiway for Runway 6-24
  - 2-3 New Northside Cargo Facility
  - 2-4 Compatible Development

- 2-5 Runway 13-31 West Side Parallel Taxiway
  - 2-6 Bulk Hangars (2) 200x200 FT
- Phase 3: 11 - 22 Years (2029 - 2040)**
- 3-1 Runway 6-24 Extension (2,400 FT)
  - 3-2 RON
  - 3-3 Fuel Farm Expansion
  - 3-4 Runway 13-31 Extension (1,800 FT)
  - 3-5 Runway 13-31 West Side Parallel Taxiway

- 3-6 ARFF Building Expansion
  - 3-7 Deice Pad, Hangars, Rental QTA
- Phase 4: 23+ Years (2040+)**
- 4-1 3rd Runway and Connecting Taxiways
  - 4-2 Terminal Concourse Extension
  - 4-3 Northside Cargo Expansion
  - 4-4 T-Hangar Rows (4) 12,500 SF Each
  - 4-5 Bulk Hangars (3) 200x200 FT



Lehigh Valley International Airport  
Master Plan Update

**Preferred Development  
Concept**  
Figure 6.4.1