

# CHAPTER 7: AIRPORT FACILITY RECOMMENDATIONS

## 7.1 INTRODUCTION

---

The previous chapters provided the baseline data and objective analyses from which airport recommendations are developed. The inventory and forecast chapters provided the supporting data used to inform the performance analysis. The performance analysis (current and future) measured the effectiveness of the system today and with the recommended system-level changes. While previous chapters primarily reflect the state-wide system-level recommendations, this chapter focuses on recommendations for each individual airport included in the New Hampshire State Airport System Plan (NHSASP). The recommendations for each system airport are organized as follows:

- Minimum Facilities & Services
- Recommended Additional Facilities & Services
- Recommendations for Air Access Gaps
- System-Level Cost Estimates & Phasing

Recommendations presented in this chapter begin with the results of the analysis presented in *Chapter 4, Current Statewide Aviation System Performance*, which identified those minimum facilities and services that were not fully provided at each system airport. From this point, recommendations also include additional facilities and services that were established alongside minimums in *Chapter 2, Statewide Airport System Parameters*. Together, these minimums and additional facilities and services represent the infrastructure and services defined by the NHSASP as important for system airports to adequately serve users based upon each airport's specified system role.

Building upon facilities and service objectives defined at the outset of this NHSASP, the recommendations that follow also include improvements based on the gap analysis presented in *Chapter 6, Future Statewide Airport System Performance*. *Chapter 6* also identified the recommended minimum and additional facilities and services required to upgrade the role of four airports including Dean Memorial, Dillant-Hopkins, Mount Washington Regional, and Moultonboro Airports. *Chapter 6* concluded with the following recommendations, which will improve statewide coverage (in terms of land area, population, and employment centers):

Facility or Service	System Airport
<i>Runways of 3,200 Feet or Greater</i>	Dean Memorial
<i>Runways of 5,000 Feet or Greater</i>	Mt. Washington Regional
<i>On-Site Weather Reporting</i>	Claremont Municipal
<i>JetA Fueling Service</i>	Dean Memorial, Mt. Washington Regional

Source: McFarland Johnson, Inc.

These recommendations are included on each of the three airports' respective sections in the pages that follow.

For some system airports, facility and service objectives for their role dictate that a particular improvement (i.e., runway length of 3,200 feet or greater) is a minimum or recommended facility or service. However, an individual airport with such an objective may not have been identified in *Chapter 6* as a system airport that would improve system-wide geographic, population, or employment center coverage with that particular facility or service. In such cases, the NHSASP supports **both** the implementation of improvements that help system airports meet minimum facilities and service objectives identified in *Chapter 2*, **and** implementation of improvements that further advance a balanced system of airports, facilities, and services that complement each other for the State of New Hampshire. In this way, the NHSASP advocates for targeted investment at individual system airports to build an effective and efficient state airport system.

Planning-level cost estimates are included for each system airport's major recommended project items, along with suggested project phasing for use as guidance by the sponsor in their capital programming efforts. These planning level costs include engineering fees ("soft cost"), and account for other variables that will affect costs via a contingency factor. Details on these cost calculations and assumptions are in **Appendix 7-A**, which provides the detailed cost estimates developed for each airport with a breakdown of state, federal, and local funding sources at 5%, 90% and 5%, respectively, for AIP-eligible projects (discussed in more detail in *Chapter 8*). Costs are based on specific New Hampshire or New England Region projects.

Phases coincide generally with the airport master planning process, such that:

<b><i>Phase</i></b>	<b><i>Timeframe</i></b>
■ Phase 1	0-5 Years
■ Phase 2	5-10 Years
■ Phase 3	10-20 Years

Importantly, recommendations shown in Phase 1 for every system airport captures the specific minimum facility and service objectives that are not currently met by an airport. In this way, Phase 1 prioritizes a set of minimum objectives to improve the performance of the statewide system as described in *Chapter 2*. Recommended projects in Phases 2 and 3 contain recommended additional facilities and services as set forth in *Chapter 2*, and represent those areas of airport improvement where there is more flexibility in terms of project timing.

Finally, these timeframes are not intended to be applied rigidly, and should not be construed to begin with official publishing date of this NHSASP. Rather, this phasing is intended to provide general guidance to airport sponsors and New Hampshire Department of Transportation Bureau of Aeronautics (BOA) for prioritizing planning and funding processes for the benefit the NHSASP.

## **7.2 AIRPORT FACILITY RECOMMENDATIONS**

This section presents recommended facilities and services for each system airport in the NHSASP. These recommendations are the result of the analysis presented in previous chapters, and are therefore those which best represent the needs of the statewide system and are of importance to the state's interests. However, it is ultimately up to the community and airport sponsor, with support from the BOA, to implement these recommendations. Airport recommendations with known barriers to project implementation, such as terrain constraints or environmental limitations, will be noted in this chapter. However, there may be additional hurdles for the implementation of certain recommendations identified in more airport-specific studies such as a master plan or environmental study. Similarly, other airport-specific recommendations for airport specific tenants or users may warrant additional projects or improvements. Therefore, these lists should not be considered comprehensive or a replacement for traditional master planning for each airport.

### **7.2.1 ALTON BAY**

Alton Bay Ice Runway/Seaplane Base is a winter season ice runway on Lake Winnepesaukee. The BOA, which owns the facility and is run with volunteers, developed a basic Airport Layout Plan (ALP) that describes the various airside area requirements including safety areas, Runway Protection Zone, and separation standards for parked aircraft. Bureau staff work with the volunteers to ensure that the basic layout is established and that safety standards are met and maintained.

With the increase in activity over the past several years, there have been a number of projects identified for the facility. Such projects include additional equipment (cones, plow truck, etc.), marking wires in the vicinity of the ice runway, and the potential to build a dock for summer use.

## 7.2.2 ERROL AIRPORT

Recommendations for Errol Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Basic Airport

### Minimum Facilities & Services (Not Met)

- Open Year-Round
- Aircraft Parking Area
- Manager Contact Posted
- Emergency Contact Posted
- Basic Shelter – 100 Square Feet
- Public Telephone<sup>1/</sup>

### Recommended Additional Facilities & Services

- 100LL Fueling Service
- Rotating Beacon<sup>2/</sup>
- Terminal Building – Heated
- 20:1 Clear Approach Slope<sup>3/</sup>

### Recommendations for Air Access Gaps

- N/A

### System-Level Cost Estimates & Phasing

**Table 7-1 – NHSASP – Recommendations - Errol Airport**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Basic Shelter - 100 Square Feet	1	\$ 5,000	Local
Aircraft Parking Area	1	\$ 153,000	Local
<i>Recommended Additional Facilities &amp; Services</i>			
100LL Fueling Service	2	\$ 9,000	Local
20:1 Clear Approach Slope	3	\$ 100,000	Local
Terminal Building - Heated	3	\$ 18,000	Local
Total Costs		\$ 285,000	

Source: McFarland Johnson, Inc.

Note(s):

1/A cost was not developed for public telephone as adequate cellular network coverage should suffice.

2/ The cost for rotating beacon is not included as the airport does not have runway lighting.

3/ Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

### 7.2.3 FRANCONIA AIRPORT

Recommendations for Franconia Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

**Airport Role**

- Basic Airport

**Minimum Facilities & Services (Not Met)**

- Open Year-Round
- Emergency Contact Posted

**Recommended Additional Facilities & Services**

- 100LL Fueling Service
- Rotating Beacon<sup>1/</sup>
- Terminal Building – Heated
- 20:1 Clear Approach Slope<sup>2/</sup>

**Recommendations for Air Access Gaps**

- N/A

**System-Level Cost Estimates & Phasing**

**Table 7-2 – NHSASP – Recommendations - Franconia Airport**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Meets Standards	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>			
100LL Fueling Service	2	\$ 9,000	Local
20:1 Clear Approach Slope	3	\$ 100,000	Local
Terminal Building - Heated	3	\$ 18,000	Local
Total Costs		\$ 127,000	

Source: McFarland Johnson, Inc.

Note(s):

<sup>1/</sup>The cost for rotating beacon is not included as the airport does not have runway lighting.

<sup>2/</sup>Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.4 GIFFORD FIELD

Recommendations for Gifford Field are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Basic Airport

### Minimum Facilities & Services (Not Met)

- Open Year-Round
- Basic Shelter – 100 Square Feet
- Public Telephone<sup>1/</sup>

### Recommended Additional Facilities & Services

- 100LL Fueling Service
- Rotating Beacon<sup>2/</sup>
- Terminal Building – Heated
- 20:1 Clear Approach Slope<sup>3/</sup>

### Recommendations for Air Access Gaps

- N/A

### System-Level Cost Estimates & Phasing

**Table 7-3 – NHSASP – Recommendations – Gifford Field**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Basic Shelter - 100 Square Feet	1	\$ 5,000	Local
<i>Recommended Additional Facilities &amp; Services</i>			
100LL Fueling Service	2	\$ 9,000	Local
20:1 Clear Approach Slope	3	\$ 100,000	Local
Terminal Building - Heated	3	\$ 18,000	Local
Total Costs		\$ 132,000	

Source: McFarland Johnson, Inc.

Note(s):

1/ A cost was not developed for public telephone as adequate cellular network coverage should suffice.

2/ The cost for rotating beacon is not included as the airport does not have runway lighting.

3/ Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.5 GORHAM AIRPORT

Recommendations for Gorham Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Basic Airport

### Minimum Facilities & Services (Not Met)

- Open Year-Round
- Manager Contact Posted
- Emergency Contact Posted
- Basic Shelter – 100 Square Feet
- Public Telephone<sup>1/</sup>

### Recommended Additional Facilities & Services

- 100LL Fueling Service<sup>2/</sup>
- Rotating Beacon<sup>3/</sup>
- Terminal Building – Heated
- 20:1 Clear Approach Slope<sup>4/</sup>

### Recommendations for Air Access Gaps

- N/A

### System-Level Cost Estimates & Phasing

**Table 7-4 – NHSASP – Recommendations - Gorham Airport**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Basic Shelter - 100 Square Feet	1	\$ 5,000	Local
<i>Recommended Additional Facilities &amp; Services</i>			
20:1 Clear Approach Slope	3	\$ 100,000	Local
Terminal Building - Heated	3	\$ 18,000	Local
Total Costs		\$ 123,000	

Source: McFarland Johnson, Inc.

Note(s):

1/ A cost was not developed for public telephone as adequate cellular network coverage should suffice.

2/ Fueling Service is not allowed at the Airport due to its location over a protected aquifer.

3/ The cost for rotating beacon is not included as the airport does not have runway lighting.

4/ Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.6 HAWTHORNE FEATHER AIRPARK

Recommendations for Hawthorne Feather Airpark are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Basic Airport

### Minimum Facilities & Services (Not Met)

- Manager Contact Posted
- Emergency Contact Posted
- Basic Shelter – 100 Square Feet
- Public Telephone<sup>1/</sup>

### Recommended Additional Facilities & Services

- Terminal Building – Heated
- 20:1 Clear Approach Slope<sup>2/</sup>

### Recommendations for Air Access Gaps

- N/A

### System-Level Cost Estimates & Phasing

**Table 7-5 – NHSASP – Recommendations – Hawthorne Feather Airpark**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Basic Shelter - 100 Square Feet	1	\$ 5,000	Local
<i>Recommended Additional Facilities &amp; Services</i>			
100LL Fueling Service	2	\$ 9,000	Local
20:1 Clear Approach Slope	3	\$ 100,000	Local
Terminal Building - Heated	3	\$ 18,000	Local
Total Costs		\$ 132,000	

Source: McFarland Johnson, Inc.

Note(s):

1/ A cost was not developed for public telephone as adequate cellular network coverage should suffice.

2/ Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.



## 7.2.7 NEWFOUND VALLEY AIRPORT

Recommendations for Newfound Valley Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Basic Airport

### Minimum Facilities & Services (Not Met)

- Manager Contact Posted
- Public Telephone<sup>1/</sup>

### Recommended Additional Facilities & Services

- 100LL Fueling Service
- Rotating Beacon<sup>2/</sup>
- Terminal Building – Heated
- 20:1 Clear Approach Slope<sup>3/</sup>

### Recommendations for Air Access Gaps

- N/A

### System-Level Cost Estimates & Phasing

**Table 7-6 – NHSASP – Recommendations – Newfound Valley Airport**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Meets Standards	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>			
100LL Fueling Service	2	\$ 9,000	Local
20:1 Clear Approach Slope	3	\$ 100,000	Local
Terminal Building - Heated	3	\$ 18,000	Local
Total Costs		\$ 127,000	

Source: McFarland Johnson, Inc.

Note(s):

1/ A cost was not developed for public telephone as adequate cellular network coverage should suffice.

2/ The cost for rotating beacon is not included as the airport does not have runway lighting.

3/ Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.8 PLYMOUTH MUNICIPAL AIRPORT

Recommendations for Plymouth Municipal Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Basic Airport

### Minimum Facilities & Services (Not Met)

- Meets Standards

### Recommended Additional Facilities & Services

- 100LL Fueling Service
- Rotating Beacon<sup>1/</sup>
- Terminal Building – Heated<sup>2/</sup>
- 20:1 Clear Approach Slope<sup>3/</sup>

### Recommendations for Air Access Gaps

- N/A

### System-Level Cost Estimates & Phasing

**Table 7-7 – NHSASP – Recommendations – Plymouth Municipal Airport**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Meets Standards	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>			
100LL Fueling Service	2	\$ 9,000	Local
20:1 Clear Approach Slope	3	\$ 100,000	Local
Total Costs		\$ 109,000	

Source: McFarland Johnson, Inc.

Note(s):

1/ The cost for rotating beacon is not included as the airport does not have runway lighting.

2/ The airport currently has a terminal building, however, it is not heated as it is not used during the winter.

3/ Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.9 TWIN MOUNTAIN AIRPORT

Recommendations for Twin Mountain Airport are based upon minimum facility and service requirements presented in Chapter 4, Current State-wide Aviation System Performance and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Basic Airport

### Minimum Facilities & Services (Not Met)

- Open Year-Round
- Manager Contact Posted
- Emergency Contact Posted

### Recommended Additional Facilities & Services

- 100LL Fueling Service
- Rotating Beacon
- Terminal Building – Heated
- 20:1 Clear Approach Slope<sup>1/</sup>

### Recommendations for Air Access Gaps

- N/A

### System-Level Cost Estimates & Phasing

**Table 7-8 – NHSASP – Recommendations – Twin Mountain Airport**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Meets Standards	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>			
100LL Fueling Service	2	\$ 9,000	Local
Rotating Beacon	2	\$ 23,000	Local
20:1 Clear Approach Slope	3	\$ 100,000	Local
Terminal Building - Heated	3	\$ 18,000	Local
Total Costs		\$ 150,000	

Source: McFarland Johnson, Inc.

Note(s):

<sup>1/</sup>Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.10 CLAREMONT MUNICIPAL AIRPORT

Recommendations for Claremont Municipal Airport are based upon minimum facility and service requirements in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Local Airport

### Minimum Facilities & Services (Not Met)

- Emergency Contact Posted

### Recommended Additional Facilities & Services

- Runway 3,200 Feet or Greater
- One Instrument Approach Procedure<sup>1/</sup>
- Jet A Fueling Service
- Access to Rental Cars at Airport
- On-Site Weather Reporting System
- 20:1 Clear Approach Slope<sup>2/</sup>

### Recommendations for Air Access Gaps

- On-Site Weather Reporting System

### System-Level Cost Estimates & Phasing

**Table 7-9 – NHSASP – Recommendations – Claremont Municipal Airport**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Meets Standards	-	-	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>					
Runway 3,200 Feet or Greater	2	\$ 101,000	\$ 90,900	\$ 5,050	\$ 5,050
One Instrument Approach Procedure	2	\$ 50,000	\$ 45,000	\$ 2,500	\$ 2,500
20:1 Clear Approach Slope	3	\$ 100,000	\$ 90,000	\$ 5,000	\$ 5,000
On-Site Weather Reporting System	3	\$ 350,000	\$ 315,000	\$ 17,500	\$ 17,500
Jet A Fueling Service	3	\$ 300,000	\$ 270,000	\$ 15,000	\$ 15,000
<b>Total Costs</b>		<b>\$ 901,000</b>	<b>\$ 810,900</b>	<b>\$ 45,050</b>	<b>\$ 45,050</b>

Source: McFarland Johnson, Inc.

Note(s):

1/ Future study to assess instrument procedures and evaluate potential to reduce approach minima.

2/ Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.11 DEAN MEMORIAL AIRPORT

Recommendations for Dean Memorial Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*. Additionally, since Dean Memorial is recommended for a role change from a GA Basic to a GA Local Airport, minimum and recommended additional facilities and services for GA Basic and GA Local airport roles apply.

### **Airport Role**

- Local Airport

### **Minimum Facilities & Services (Not Met)**

- Emergency Contact Posted
- Public Telephone<sup>1/</sup>
- Hangar Storage for All Winter-Based Aircraft
- Rotating Beacon
- Basic Terminal Building – 250 S.F.

### **Recommended Additional Facilities & Services**

- Runway 3,200 Feet or Greater
- Pavement Strength 12,000 lbs (Single Wheel)
- Low Intensity Taxiway Lights
- Vertical Glide Slope Indicator (Primary Runway End)
- Basic Terminal Building – 500 Square Feet
- One Instrument Approach Procedure<sup>2/</sup>
- Jet A Fuel Service
- Aircraft Maintenance on Site
- Airport Owned Snow Removal Equipment
- Access to Rental Cars at Airport
- On-Site Weather Reporting System
- 20:1 Clear Approach Slope<sup>3/</sup>

### **Recommendations for Air Access Gaps**

- Runway Length of 3,200 Feet or Greater
- Jet A Fuel Service

### **System-Level Cost Estimates & Phasing**

**Table 7-10 – NHSASP – Recommendations – Dean Memorial Airport**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Hangar Storage for All Winter-Based Aircraft	1	\$ 1,200,000	\$ 1,080,000	\$ 60,000	\$ 60,000
Rotating Beacon	1	\$ 25,000	\$ 22,500	\$ 1,250	\$ 1,250
Basic Terminal Building – 250 S.F.	1	\$ 69,000	\$ 62,100	\$ 3,450	\$ 3,450
<i>Recommended Additional Facilities &amp; Services</i>					
Vertical Glide Slope Indicator (Primary Runway End)	2	\$ 321,000	\$ 288,900	\$ 16,050	\$ 16,050
Runway 3,200 Feet or Greater	2	\$ 680,000	\$ 612,000	\$ 34,000	\$ 34,000
Pavement Strength 12,000 lbs. (SW)	2	\$ 3,450,000	\$ 3,105,000	\$ 172,500	\$ 172,500
Low Intensity Taxiway Lights	2	\$ 348,000	\$ 313,200	\$ 17,400	\$ 17,400
Airport Owned Snow Removal Equipment	2	\$ 150,000	\$ 135,000	\$ 7,500	\$ 7,500
On-Site Weather Reporting System	3	\$ 350,000	\$ 315,000	\$ 17,500	\$ 17,500
Jet A Fueling Service	3	\$ 300,000	\$ 270,000	\$ 15,000	\$ 15,000
One Instrument Approach Procedure	3	\$ 50,000	\$ 45,000	\$ 2,500	\$ 2,500
Basic Terminal Building – 500 S.F.	3	\$ 75,000	\$ 67,500	\$ 3,750	\$ 3,750
<b>Total Costs</b>		<b>\$ 7,018,000</b>	<b>\$ 6,316,200</b>	<b>\$ 350,900</b>	<b>\$ 350,900</b>

Source: McFarland Johnson, Inc.

Note(s):

1/ A cost was not developed for public telephone as adequate cellular network coverage should suffice.

2/Future study to assess instrument procedures and evaluate potential to reduce approach minima.

3/Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.12 HAMPTON AIRFIELD

Recommendations for Hampton Airfield are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### **Airport Role**

- Local Airport

### **Minimum Facilities & Services (Not Met)**

- Runway Surface - Paved
- Runway 2,500 Feet or Greater
- Pavement Strength – 6,000 lbs.<sup>1/</sup>
- Paved Aircraft Parking Area – 4 Aircraft Spaces
- Hangar Storage for All Winter-Based Aircraft
- Taxiway Reflectors<sup>2/</sup>
- Rotating Beacon
- Non-Precision Instrument Approach Procedure
- Emergency Contact Posted

### **Recommended Additional Facilities & Services**

- Runway 3,200 Feet or Greater
- Pavement Strength – 12,000 lbs. (Single Wheel)
- Paved Aircraft Parking Area – 6 Spaces
- Runway Lights – Pilot Controlled
- Low Intensity Taxiway Lights
- Vertical Glide Slope Indicator (Primary Runway End)
- Basic Terminal Building – 500 Square Feet

**Table 7-11 – NHSASP – Recommendations – Hampton Airfield**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Runway Surface – Paved	1	\$ 1,450,000	Local
Runway 2,500 Feet or Greater	1	\$ 277,000	Local
Paved Aircraft Parking – 4 Spaces	1	\$ 414,000	Local
Hangar Storage for All Winter-Based Aircraft	1	\$ 2,625,000	Local
Rotating Beacon	1	\$ 23,000	Local
Non-Precision Approach Procedure	1	\$ 50,000	Local
<i>Recommended Additional Facilities &amp; Services</i>			
Runway 3,200 Feet or Greater	2	\$ 690,000	Local
Pavement Strength 12,000 lbs. (SW)	2	\$ 2,398,000	Local
20:1 Clear Approach Slope	2	\$ 100,000	Local
Paved Aircraft Parking – 6 Spaces	2	\$ 207,000	Local
Runway Lights (Pilot Controlled)	2	\$ 419,000	Local
Low Intensity Taxiway Lights	2	\$ 144,000	Local
Vertical Glide Slope Indicator (Primary Runway End)	2	\$ 289,000	Local
Basic Terminal Building – 500 S.F.	3	\$ 53,000	Local
One Instrument Approach Procedure	3	\$ 50,000	Local
Jet A Fueling Service	3	\$ 270,000	Local
Airport-Owned Snow Removal Equipment	3	\$ 135,000	Local
Snow Removal Equipment Storage Building	3	\$ 267,000	Local
On-Site Weather Reporting System	3	\$ 315,000	Local
Total Costs		\$ 10,176,000	

Source: McFarland Johnson, Inc.

Note(s):

1/Pavement Strength – 6,000 lbs. not presented separate from cost of Runway 2,500 Feet or Greater.

2/Taxiway Reflectors – Low Intensity Taxiway Lights are the preferred long-term recommendation at the Airport, therefore a cost was not developed for taxiway reflectors.

3/Access to Rental Cars - Not available; however, the Airport provides a courtesy car.

4/Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.



## 7.2.13 JAFFREY AIRPORT – SILVER RANCH

Recommendations for Jaffrey Airport – Silver Ranch are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### **Airport Role**

- Local Airport

### **Minimum Facilities & Services (Not Met)**

- Non-Precision Approach Procedure<sup>1/</sup>
- Emergency Contact Posted

### **Recommended Additional Facilities & Services**

- Runway 3,200 Feet or Greater
- Pavement Strength 12,000 lbs (Single Wheel)
- Runway Lights – Pilot Controlled
- Low Intensity Taxiway Lights
- Vertical Glide Slope Indicator (Primary Runway End)
- One Instrument Approach Procedure
- Jet A Fuel Service
- Aircraft Maintenance on Site
- Airport Owned Snow Removal Equipment
- Snow Removal Equipment Building
- Access to Rental Cars at Airport<sup>2/</sup>
- On-Site Weather Reporting System
- 20:1 Clear Approach Slope<sup>3/</sup>

### **Recommendations for Air Access Gaps**

- N/A

### **System-Level Cost Estimates & Phasing**

**Table 7-12 – NHSASP – Recommendations – Jaffrey Airport – Silver Ranch**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Non-Precision Approach Procedure	1	\$ 50,000	Local
Runway 3,200 Feet or Greater	1	\$ 341,000	Local
<i>Recommended Additional Facilities &amp; Services</i>			
Low Intensity Taxiway Lights	2	\$ 204,000	Local
One Instrument Approach Procedure	2	\$ 50,000	Local
Pavement Strength 12,000 lbs. (SW)	3	\$ 2,415,000	Local
Runway Lights (Pilot Controlled)	3	\$ 419,000	Local
20:1 Clear Approach Slope	3	\$ 100,000	Local
Vertical Glide Slope Indicator (Primary Runway End)	3	\$ 289,000	Local
On-Site Weather Reporting System	3	\$ 315,000	Local
Jet A Fueling Service	3	\$ 270,000	Local
Airport Owned Snow Removal Equipment	3	\$ 135,000	Local
Snow Removal Equipment Building	3	\$ 267,000	Local
<b>Total Costs</b>		<b>\$ 4,855,000</b>	

Source: McFarland Johnson, Inc.

Note(s):

1/Although the airport has three circling approach procedures, the recommendation is to assess a straight in approach.

2/Access to Rental Cars – Generally available; however, inventory of cars is limited and at times, unavailable.

3/Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.14 MOULTONBORO AIRPORT

Recommendations for Moultonboro Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current State-wide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*. Additionally, since Moultonboro is recommended for a role change from a GA Basic to a GA Local Airport, minimum and recommended additional facilities and services for GA Basic and GA Local airport roles apply.

### Airport Role

- Local Airport

### Minimum Facilities & Services (Not Met)

- Non-Precision Instrument Approach Procedure
- Posted Emergency Contact Listed

### Recommended Additional Facilities & Services

- Pavement Strength 12,000 lbs (Single Wheel)
- Runway Lights – Pilot Controlled

- Low Intensity Taxiway Lights
- Vertical Glide Slope Indicator (Primary Runway End)
- Basic Terminal Building – 500 S.F.
- One Instrument Approach Procedure
- Jet A Fuel Service
- Airport-Owned Snow Removal Equipment
- Snow Removal Equipment Storage Building
- Access to Rental Cars at Airport<sup>1/</sup>
- On-Site Weather Reporting System
- 20:1 Clear Approach Slope<sup>2/</sup>

**Recommendations for Air Access Gaps**

- Jet A Fuel Service

**System-Level Cost Estimates & Phasing**

**Table 7-13 – NHSASP – Recommendations – Moultonboro Airport**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
<i>Non-Precision Approach Procedure</i>	1	\$ 50,000	Local
<i>Recommended Additional Facilities &amp; Services</i>			
<i>Pavement Strength 12,000 lbs. (SW)</i>	2	\$ 2,398,000	Local
Runway Lights (Pilot Controlled)	2	\$ 419,000	Local
Low Intensity Taxiway Lights	2	\$ 144,000	Local
Jet A Fueling Service	2	\$ 270,000	Local
One Instrument Approach Procedure	2	\$ 50,000	Local
On-Site Weather Reporting System	3	\$ 315,000	Local
Vertical Glide Slope Indicator (Primary Runway End)	3	\$ 289,000	Local
Basic Terminal Building – 500 S.F.	3	\$ 53,000	Local
Airport-Owned Snow Removal Equipment	3	\$ 135,000	Local
Snow Removal Equipment Storage Building	3	\$ 267,000	Local
Total Costs		\$ 4,390,000	

Source: McFarland Johnson, Inc.

Note(s):

Note(s):

<sup>1/</sup>Access to Rental Cars not available, but the Airport has a courtesy car.

<sup>2/</sup>Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.15 PARLIN FIELD

Recommendations for Parlin Field are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### **Airport Role**

- Local Airport

### **Minimum Facilities & Services (Not Met)**

- Non-Precision Approach Procedure<sup>1/</sup>

### **Recommended Additional Facilities & Services**

- Paved Aircraft Parking – 6 Spaces
- Vertical Glide Slope Indicator (Primary Runway End)
- One Instrument Approach Procedure
- Airport Owned Snow Removal Equipment
- Snow Removal Equipment Building
- Parking for Transient Aircraft<sup>2/</sup>
- On-Site Weather Reporting System
- 20:1 Clear Approach Slope<sup>3/</sup>

### **Recommendations for Air Access Gaps**

- N/A

### **System-Level Cost Estimates & Phasing**

**Table 7-14 – NHSASP – Recommendations – Parlin Field**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Non-Precision Approach Procedure	1	\$ 50,000	Local
<i>Recommended Additional Facilities &amp; Services</i>			
Paved Aircraft Parking – 6 Spaces	2	\$ 207,000	Local
Vertical Glide Slope Indicator (Primary Runway End)	2	\$ 289,000	Local
One Instrument Approach Procedure	2	\$ 50,000	Local
On-Site Weather Reporting System	2	\$ 315,000	Local
20:1 Clear Approach Slope	2	\$ 100,000	Local
Airport-Owned Snow Removal Equipment	3	\$ 135,000	Local
Parking for Transient Aircraft	3	\$ 414,000	Local
Snow Removal Equipment Storage Building	3	\$ 267,000	Local
<b>Total Costs</b>		<b>\$ 2,097,000</b>	

Source: McFarland Johnson, Inc.

Note(s):

1/The Airport is pursuing an instrument approach (published approach anticipated in December 2015).

2/ Parking for Transient Aircraft – this project is an expansion of the existing transient apron.

3/Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.16 SKYHAVEN AIRPORT

Recommendations for Skyhaven Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Local Airport

### Minimum Facilities & Services (Not Met)

- Hangar Storage for All Winter-Based Aircraft

- Emergency Contact Posted

### Recommended Additional Facilities & Services

- One Instrument Approach Procedure<sup>1/</sup>

- Jet A Fuel Service

- 20:1 Clear Approach Slope<sup>2/</sup>

### Recommendations for Air Access Gaps

- N/A

### System-Level Cost Estimates & Phasing

**Table 7-15 – NHSASP – Recommendations – Skyhaven Airport**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Hangar Storage for All Winter-Based Aircraft	1	\$ 2,100,000	\$ 1,890,000	\$105,000	\$105,000
<i>Recommended Additional Facilities &amp; Services</i>					
Jet A Fueling Service	2	\$ 300,000	\$ 270,000	\$ 15,000	\$ 15,000
One Instrument Approach Procedure	3	\$ 50,000	\$ 45,000	\$ 2,500	\$ 2,500
20:1 Clear Approach Slope	3	\$ 100,000	\$ 90,000	\$ 5,000	\$ 5,000
<b>Total Costs</b>		<b>\$ 2,550,000</b>	<b>\$ 2,295,000</b>	<b>\$127,500</b>	<b>\$127,500</b>

Source: McFarland Johnson, Inc.

Note(s):

1/Skyhaven is currently pursuing an improved instrument approach procedure with omni-directional approach lighting.

2/Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

### 7.2.17 BERLIN REGIONAL AIRPORT

Recommendations for Berlin Regional Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current State-wide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

#### Airport Role

- Regional Airport

#### Minimum Facilities & Services (Not Met)

- Meet Standards

#### Recommended Additional Facilities & Services

- Straight-In Instrument Approach Procedure to Two Runway Ends<sup>1/</sup>
- Secure Aircraft Parking Apron – 15+ Jet/Turboprop Aircraft
- Self Serve Jet A Fuel Available 24/7
- Vertical Glide Slope Indicator on Each Runway End
- Complete Airport Property Perimeter Fencing
- Part-Time Airport Operations and Maintenance Staff
- Local Fire Department Trained in Basic ARFF Procedures
- 20:1 Clear Approach Slope<sup>2/</sup>

#### Recommendations for Air Access Gaps

- N/A

#### System-Level Cost Estimates & Phasing

**Table 7-16 – NHSASP – Recommendations – Berlin Regional Airport**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Meets Standards	-	-	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>					
Straight-In Instrument Approach Procedure to Two Runway Ends	2	\$ 50,000	\$ 45,000	\$ 2,500	\$ 2,500
Self Serve Jet A Fueling Available 24/7	2	\$ 450,000	\$ 405,000	\$ 22,500	\$ 22,500
Hangar Parking for Transient Aircraft	2	\$ 1,250,000	\$ 1,125,000	\$ 62,500	\$ 62,500
Complete Airport Property Perimeter Fencing	2	\$ 297,000	\$ 267,300	\$ 14,850	\$ 14,850
Vertical Glide Slope Indicator on Each Runway End	3	\$ 432,000	\$ 388,800	\$ 21,600	\$ 21,600
Secure Aircraft Parking Apron – 15+ Jet/Turboprop Aircraft	3	\$ 2,216,000	\$ 1,993,622	\$ 110,800	\$ 110,800
20:1 Clear Approach Slope	3	\$ 100,000	\$ 90,000	\$ 5,000	\$ 5,000
Total Costs		\$ 4,795,000	\$ 4,315,500	\$ 239,750	\$ 239,750

Source: McFarland Johnson, Inc.

Note(s):

1/ Runway 18 is the only runway end with an instrument approach. A study is proposed for Runway 36

2/ Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

## 7.2.18 CONCORD MUNICIPAL AIRPORT

Recommendations for Concord Municipal Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

### Airport Role

- Regional Airport

### Minimum Facilities & Services (Not Met)

- Meets Standards

### Recommended Additional Facilities & Services

- Straight-In Instrument Approach Procedure to Two Runway Ends<sup>1/</sup>
- Self Serve Jet A Fuel Available 24/7
- Vertical Glide Slope Indicator on Each Runway End
- 20:1 Clear Approach Slope<sup>2/</sup>

### Recommendations for Air Access Gaps

- N/A

### System-Level Cost Estimates & Phasing

**Table 7-17 – NHSASP – Recommendations – Concord Municipal Airport**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Meets Standards	-	-	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>					
Self Serve Jet A Fueling Available 24/7	2	\$ 450,000	\$ 405,000	\$ 22,500	\$ 22,500
Straight-In Instrument Approach Procedure to Two Runway Ends	3	\$ 50,000	\$ 45,000	\$ 2,500	\$ 2,500
Vertical Glide Slope Indicator on Each Runway End	3	\$ 863,000	\$ 776,700	\$ 43,150	\$ 43,150
20:1 Clear Approach Slope	3	\$ 100,000	\$ 90,000	\$ 5,000	\$ 5,000
Vertical Glide Slope Indicator on Each Runway End	3	\$ 432,000	\$ 388,800	\$ 21,600	\$ 21,600
Secure Aircraft Parking Apron – 15+ Jet/Turboprop Aircraft	3	\$ 2,216,000	\$ 1,993,622	\$ 110,800	\$ 110,800
20:1 Clear Approach Slope	3	\$ 100,000	\$ 90,000	\$ 5,000	\$ 5,000
Total Costs		\$ 1,463,000	\$ 1,316,700	\$ 73,150	\$ 73,150

Source: McFarland Johnson, Inc.

Note(s):

1/The study will evaluate an approach to Runway 30 and improvements to Runway 12 approach procedure.

2/Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

### 7.2.19 LACONIA MUNICIPAL AIRPORT

Recommendations for Laconia Municipal Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

#### Airport Role

- Regional Airport

#### Minimum Facilities & Services (Not Met)

- Meets Standards

#### ■ Recommended Additional Facilities & Services<sup>1/</sup>

- Self Serve Jet A Fuel Available 24/7
- Complete Airport Property Perimeter Fencing

#### Recommendations for Air Access Gaps

- N/A

#### System-Level Cost Estimates & Phasing



**Table 7-18 – NHSASP – Recommendations – Laconia Municipal Airport**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Meets Standards	-	-	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>					
Self Serve Jet A Fueling Available 24/7	2	\$ 450,000	\$ 405,000	\$ 22,500	\$ 22,500
Complete Airport Property Perimeter Fencing	2	\$ 225,000	\$ 202,500	\$ 11,250	\$ 11,250
Total Costs		\$ 675,000	\$ 607,500	\$ 33,750	\$ 33,750

Source: McFarland Johnson, Inc.

Note(s):

1/Presence of prime wetlands will have an impact on development at the Airport.

## 7.2.20 MOUNT WASHINGTON REGIONAL AIRPORT

Recommendations for Mount Washington Regional Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*. Additionally, since Mt. Washington is recommended for a role change from a GA Local to a GA Regional Airport, minimum and recommended additional facilities and services for GA Local and GA Regional airport roles apply.

### Airport Role

- Regional Airport

### Minimum Facilities & Services (Not Met)

- Hangar Storage for All Winter-Based Aircraft
- Emergency Contact List Posted and Distributed
- Jet A Fuel Service
- Full-Service Fixed Base Operator
- Secure Aircraft Parking Apron – 10+ Jet/Turboprop Aircraft
- Partially Fenced Airport Property Perimeter

### Recommended Additional Facilities & Services

- Runway Length of 4,600 Feet or Greater
- Straight-In Instrument Approach Procedure to Two Runway Ends<sup>1/</sup>
- Secure Aircraft Parking Apron – 15+ Jet/Turboprop Aircraft
- Self Serve Jet A Fuel Available 24/7
- Vertical Glide Slope Indicator on Each Runway End<sup>2/</sup>
- Complete Airport Property Perimeter Fencing
- Part-Time Airport Operations and Maintenance Staff

- 20:1 Clear Approach Slope<sup>3/</sup>

**Recommendations for Air Access Gaps**

- Runway Length of 5,000 Feet or Greater
- Jet A Fuel Service

**System-Level Cost Estimates & Phasing**

**Table 7-19 – NHSASP – Recommendations – Mount Washington Regional Airport**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Hangar Storage for All Winter-Based Aircraft	1	\$ 2,850,000	\$ 2,565,000	\$ 142,500	\$ 142,500
Jet A Fueling Service	1	\$ 300,000	\$ 270,000	\$ 15,000	\$ 15,000
Partially Fenced Airport Property Perimeter	1	\$ 278,000	\$ 250,200	\$ 13,900	\$ 13,900
Secure Aircraft Parking Apron – 10+ Jet/Turboprop Aircraft	1	\$ 1,034,000	\$ 930,600	\$ 51,700	\$ 51,700
<i>Recommended Additional Facilities &amp; Services</i>					
Runway Length of 4,600 Feet or Greater	2	\$ 984,000	\$ 885,600	\$ 49,200	\$ 49,200
Vertical Glide Slope Indicator on Each Runway End	2	\$ 432,000	\$ 388,800	\$ 21,600	\$ 21,600
Straight-In Instrument Approach Procedure to Two Runway Ends	2	\$ 50,000	\$ 45,000	\$ 2,500	\$ 2,500
Complete Airport Property Perimeter Fencing	3	\$ 278,000	\$ 250,200	\$ 13,900	\$ 13,900
Secure Aircraft Parking Apron – 15+ Jet/Turboprop Aircraft	3	\$ 739,000	\$ 665,100	\$ 36,950	\$ 36,950
Runway Length of 5,000 Feet or Greater	3	\$ 658,000	\$ 592,200	\$ 32,900	\$ 32,900
20:1 Clear Approach Slope	3	\$ 100,000	\$ 90,000	\$ 5,000	\$ 5,000
<b>Total Costs</b>		<b>\$ 7,703,000</b>	<b>\$ 6,932,700</b>	<b>\$ 385,150</b>	<b>\$ 385,150</b>

Source: McFarland Johnson, Inc.

Note(s):

1/ The cost estimate accounts for the existing approach to Runway 10 and recommends a study for Runway 28.

2/ The cost estimate accounts for the existing PAPI on Runway 10 and recommends a PAPI for Runway 28

3/ Approach Slope costs include an initial planning effort, which is accounted for in the above estimate. Not included are construction costs, which will vary widely and were not estimated at this time.

**7.2.21 BOIRE FIELD**

Recommendations for Boire Field are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

**Airport Role**

- National Airport

**Minimum Facilities & Services (Not Met)**

- Meets Standards

**Recommended Additional Facilities & Services**

- Terminal Building – 5,000 S.F. <sup>1/</sup>

- Full-Time On-Site Airport Security
- Intermodal Ground Transportation Options
- Access to US Customs
- Airport Emergency Plan<sup>2/</sup>

**Recommendations for Air Access Gaps**

- N/A

**System-Level Cost Estimates & Phasing**

**Table 7-20 – NHSASP – Recommendations – Boire Field**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Meets Standards	-	-	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>					
Terminal Building – 5,000 SF	2	\$ 1,875,000	\$ 1,687,500	\$ 93,750	\$ 93,750
Total Costs		\$ 1,875,000	\$ 1,687,500	\$ 93,750	\$ 93,750

Source: McFarland Johnson, Inc.

Note(s):

1/Terminal Building - 5,000 SF.

2/ Airport does not currently have an emergency plan.

**7.2.22 DILLANT-HOPKINS AIRPORT**

Recommendations for Dillant-Hopkins Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*. Additionally, since Dillant-Hopkins is recommended for a role change from a GA Regional to a GA National Airport, minimum and recommended additional facilities and services for GA Regional and GA National airport roles apply.

**Airport Role**

- National Airport

**Minimum Facilities & Services (Not Met)**

- Emergency Contact List Posted and Distributed<sup>1/</sup>
- Self Serve Jet A and 100LL Available 24/7
- Hangar Storage for All Winter-Based Aircraft

**Recommended Additional Facilities & Services**

- Vertical Glide Slope Indicator on Each Runway End
- Full-Time On-Site Airport Security
- Secure Aircraft Parking Apron – 40+ Jet/Turboprop Aircraft
- Instrument Approach to All Runways, at Least Two Vertically Guided Approaches

- Intermodal Ground Transportation Options
- Air Traffic Control Tower<sup>3/</sup>
- ARFF On-Site 24/7
- Access to US Customs
- 34:1 Clear Approach Slope

**Recommendations for Air Access Gaps**

- N/A

**System-Level Cost Estimates & Phasing**

**Table 7-21 – NHSASP – Recommendations – Dillant-Hopkins Airport**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Self Serve Jet A and 100LL Available 24/7	1	\$ 460,000	\$ 414,000	\$ 23,000	\$ 23,000
Hangar Storage for All Winter-Based Aircraft	1	\$ 2,400,000	\$ 2,160,000	\$ 120,000	\$ 120,000
Secure Aircraft Parking Apron – 40+ Jet/Turboprop Aircraft	1	\$ 2,216,000	\$ 1,994,400	\$ 110,800	\$ 110,800
<i>Recommended Additional Facilities &amp; Services</i>					
Vertical Glide Slope Indicator on Each Runway End	2	\$ 641,000	\$ 576,900	\$ 32,050	\$ 32,050
Instrument Approach to All Runways, at Least Two Vertically Guided Approaches	2	\$ 50,000	\$ 45,000	\$ 2,500	\$ 2,500
ARFF On-Site 24/7	3	\$ -	\$ -	\$ -	\$ -
34:1 Clear Approach Slope	3	\$ 100,000	\$ 90,000	\$ 5,000	\$ 5,000
Total Costs		\$ 5,867,000	\$ 5,280,300	\$ 293,350	\$ 293,350

Source: McFarland Johnson, Inc.

Note(s):

1/ Emergency services are provided through City fire and police services, but no Emergency Contact List Posted at Airport.

2/ Runway 2/20 has a PAPI on both runway ends. The cost estimate is for two PAPI's for Runway 14/32.

3/ Air Traffic Control Tower is not included and requires coordination with NHDOT to determine potential need.

### 7.2.23 LEBANON MUNICIPAL AIRPORT

Recommendations for Lebanon Municipal Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

Lebanon Municipal Airport serves the western portion of the state, providing commercial air service as well as a complement of general aviation services for both business and recreational users. As an important transportation asset and economic generator for the region, there are a number of projects and funding needs over the next 20 years and the current Airport Master Plan is the best source for information on these projects. At the time of this writing, the City is embarking on an update to the current Airport Master Plan. To more accurately quantify the overall

funding need for the State, *Section 7.3, Summary of Total New Hampshire State Airport Funding Need* discusses order of magnitude system costs, and incorporates projects currently planned for Lebanon Municipal. Historical project and funding trends were reviewed for a 12-year period to create a projection of the 20-year anticipated need.

**Airport Role**

- Primary Airport

**Minimum Facilities & Services (Not Met)**

- Runway Length of 7,000 Feet or Greater<sup>1/</sup>
- Medium Intensity Approach Light System
- Full-Time On-Site Airport Security

**Recommended Additional Facilities & Services**

- Runway and Taxiway Characteristics Determined by Users (Minimum B757/B767)<sup>2/</sup>
- Aircraft Cargo Handling Facilities<sup>3/</sup>
- U.S. Customs and Border Protection Facility On-Site<sup>4/</sup>

**Recommendations for Air Access Gaps**

- N/A

**Table 7-22 – NHSASP – Recommendations – Lebanon Municipal Airport**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Medium Intensity Approach Light System	1	\$ 500,000	\$ 450,000	\$ 25,000	\$ 25,000
Runway Length of 7,000 Feet or Greater	3	\$ 7,158,000	\$ 6,442,200	\$ 357,900	\$ 357,900
<i>Recommended Additional Facilities &amp; Services</i>					
Meets Standards	-	-	-	-	-
<b>Total Costs</b>		<b>\$ 7,658,000</b>	<b>\$ 6,892,200</b>	<b>\$ 382,900</b>	<b>\$ 382,900</b>

Source: McFarland Johnson, Inc.

Note(s):

1/ Runway Length of 7,000 Feet or Greater is placed in Phase 3 due to the variety of obstacles that would need to overcome in order for this to be a viable project at the Airport.

2/ Runway and Taxiway Characteristics at Airport are assumed to meet current and future user needs.

3/ Aircraft Cargo Handling Facilities were not included as there is no measurable demand at the Airport.

4/ U.S. Customs and Border Protection Facility On-Site is not included as current on-call access service is sufficient.

## 7.2.24 MANCHESTER-BOSTON REGIONAL AIRPORT

Recommendations for Manchester-Boston Regional Airport are based upon minimum facility and service requirements presented in *Chapter 4, Current Statewide Aviation System Performance* and recommended additional facilities by airport role as presented in *Chapter 6, Future Statewide Airport System Performance*.

As the most complex and developed airport in the state of New Hampshire, it is no surprise that there are no identified system level capital needs for the Manchester-Boston Regional Airport. However, due to the higher level of activity, specialty users, scheduled passenger and air cargo, there will be a number of projects and funding needs over the next 20 years and the current MHT Master Plan is the best source for information on these projects. To more accurately quantify the overall funding need for the state, *Section 7.3, Summary of Total New Hampshire State Airport Funding Need* discusses order of magnitude system costs, and incorporates projects currently planned for Manchester-Boston Regional. Historical project and funding trends were reviewed for a 12-year period to create a projection of the 20-year anticipated need.

### **Airport Role**

- Primary Airport

### **Minimum Facilities & Services (Not Met)**

- Meets Standards

### **Recommended Additional Facilities & Services**

- Runway and Taxiway Characteristics Determined by Users (Minimum B757/B767) <sup>1/</sup>

### **Recommendations for Air Access Gaps**

- N/A

**Table 7-23 – NHSASP – Recommendations – Manchester-Boston Regional Airport**

Capital Projects	Phase	Cost	Funding Source(s)
<i>Minimum Facilities &amp; Services</i>			
Meets Standards	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>			
Meets Standards	-	-	-
Total Costs		-	

Source: McFarland Johnson, Inc.

Note(s):

1/ Runway and Taxiway Characteristics at Airport are assumed to meet current and future user needs.

## 7.2.25 PORTSMOUTH INTERNATIONAL AIRPORT AT PEASE

Recommendations for Portsmouth International Airport at Pease are based upon minimum facility and service requirements presented in Chapter 4 Current Statewide Aviation System Performance and recommended additional facilities by airport role as presented in Chapter 6 Future Statewide Airport System Performance.

The Airport, due to its military heritage, meets many of the system level needs for a Primary Airport. However, due to the higher level of activity, specialty users, and scheduled passengers and air cargo service, there will be a number of projects and funding needs over the next 20 years and the current Portsmouth International Master Plan is the best source for information on these projects. To more accurately quantify the overall funding need for the state, *Section 7.3, Summary of Total New Hampshire State Airport Funding Need* discusses order of magnitude system costs, and incorporates projects currently planned for the Airport. Historical project and funding trends were reviewed for a 12-year period to create a projection of the 20-year anticipated need.

### Airport Role

- Primary Airport

### Minimum Facilities & Services (Not Met)

- Full-Time On-Site Airport Security

### Recommended Additional Facilities & Services

- Runway and Taxiway Characteristics Determined by Users (Minimum B757/B767) <sup>1/</sup>
- Category-III Instrument Landing System Approach to One Runway<sup>2/</sup>

### Recommendations for Air Access Gaps

- N/A

**14.7%**  
 Job growth over the 10 years in the Portsmouth area is estimated at 14.7 percent... The Portsmouth area has the fastest projected growth in good-paying fields like computer and mathematical occupations, business and finance, insurance and technical occupation... The region's proximity to large population centers and tourist destinations on the Seacoast continue to drive employment growth...  
 Source: Manchester Union Leader

**Table 7-22 – NHSASP – Recommendations – Portsmouth International Airport at Pease**

Capital Projects	Phase	Total Cost	Federal	State	Local
<i>Minimum Facilities &amp; Services</i>					
Meets Standards	-	-	-	-	-
<i>Recommended Additional Facilities &amp; Services</i>					
Category-III Instrument Landing System Approach to One Runway	3	\$ 13,129,000	\$ 11,816,100	\$ 656,450	\$ 656,450
Total Costs		\$ 13,129,000	\$ 11,816,100	\$ 656,450	\$ 656,450

Source: McFarland Johnson, Inc.

Note(s):

1/Runway and Taxiway Characteristics at Airport are assumed to meet current and future user needs.

2/The Airport retains a military component. Due to this joint use component, future civil projects costs may be shared with the military.

## 7.3 SUMMARY OF SYSTEM-WIDE CAPITAL PROJECTS

---

When planning capital resources, it is important to have a strong understanding on how and where the limited funds are being spent. Projects based on recommendations have been grouped into one of five categories and broken out by phase. **Table 7-25** categorizes all system airport projects into the following categories.

- **Airside** – Airside elements are those considered necessary for the movement and operation of aircraft without regard to aircraft base of servicing or storage needs. Elements considered under airside include runways, taxiways, airfield lighting, and aircraft parking aprons. For NPIAS airports, nearly all of these projects would likely be eligible for federal funding.
- **Landside** – Landside elements are those considered supporting in nature to the aircraft operation at the airport. These supporting elements include aircraft storage, terminal/public/operational buildings, and services such as fuel. For NPIAS airports, some of these projects may be eligible for federal funding; however, they would carry a lower priority ranking than airside projects.
- **Visual/Navigational Aids** – Visual and navigational aids are those airport features that assist a pilot in navigating to or from the airport. Visual and navigation aids can include items such as windsocks, visual glide slope indicators, weather reporting and rotating beacons.
- **Survey/Study** – Surveys and studies are non-physical items needed for an airport. Approach and obstructions surveys are one of the most common types identified in the NHSASP. Other studies can consist of airport master plans and feasibility studies.
- **Other** – Other items not included in the previously mentioned categories can vary, some common items identified in the NHSASP for New Hampshire include snow removal equipment and aircraft rescue and fire fighting vehicles.



**Table 7-25 – NHSASP – Recommendations – Capital Project Summary**

<b>PHASE 1</b>	<b>Airside</b>	<b>Landside</b>	<b>Vis/Nav aids</b>	<b>Survey/Study</b>	<b>Other</b>	<b>Total</b>
Basic	\$153,000	\$20,000	\$0	\$0	\$0	\$173,000
Local	\$2,482,000	\$6,092,000	\$89,000	\$200,000	\$0	\$8,863,000
Regional	\$1,034,000	\$3,428,000	\$0	\$0	\$0	\$4,462,000
National	\$2,216,000	\$2,860,000	\$0	\$0	\$0	\$5,076,000
Primary	\$0	\$0	\$500,000	\$0	\$13,129,000	\$13,629,000
<b>SUBTOTAL</b>	<b>\$5,885,000</b>	<b>\$12,400,000</b>	<b>\$589,000</b>	<b>\$200,000</b>	<b>\$13,129,000</b>	<b>\$32,203,000</b>
<b>PHASE 2</b>	<b>Airside</b>	<b>Landside</b>	<b>Vis/Nav aids</b>	<b>Survey/Study</b>	<b>Other</b>	<b>Total</b>
Basic	\$0	\$54,000	\$23,000	\$0	\$0	\$77,000
Local	\$12,694,000	\$945,000	\$899,000	\$300,000	\$150,000	\$14,988,000
Regional	\$2,234,000	\$1,872,000	\$432,000	\$100,000	\$0	\$4,638,000
National	\$0	\$1,875,000	\$641,000	\$50,000	\$0	\$2,566,000
Primary	\$0	\$0	\$0	\$0	\$0	\$0
<b>SUBTOTAL</b>	<b>\$14,928,000</b>	<b>\$4,746,000</b>	<b>\$1,995,000</b>	<b>\$450,000</b>	<b>\$150,000</b>	<b>\$22,269,000</b>
<b>PHASE 3</b>	<b>Airside</b>	<b>Landside</b>	<b>Vis/Nav aids</b>	<b>Survey/Study</b>	<b>Other</b>	<b>Total</b>
Basic	\$0	\$126,000	\$0	\$800,000	\$0	\$926,000
Local	\$3,248,000	\$2,389,000	\$2,538,000	\$550,000	\$540,000	\$9,265,000
Regional	\$3,613,000	\$278,000	\$432,000	\$1,213,000	\$0	\$5,536,000
National	\$0	\$0	\$0	\$100,000	\$0	\$100,000
Primary	\$7,158,000	\$0	\$0	\$0	\$0	\$7,158,000
<b>SUBTOTAL</b>	<b>\$14,019,000</b>	<b>\$2,793,000</b>	<b>\$2,970,000</b>	<b>\$2,663,000</b>	<b>\$540,000</b>	<b>\$22,985,000</b>
<b>TOTAL</b>	<b>Airside</b>	<b>Landside</b>	<b>Vis/Nav aids</b>	<b>Survey/Study</b>	<b>Other</b>	<b>Total</b>
	<b>\$34,832,000</b>	<b>\$19,939,000</b>	<b>\$5,554,000</b>	<b>\$3,313,000</b>	<b>\$13,819,000</b>	<b>\$77,457,000</b>

Source: McFarland Johnson, Inc.

## 7.4 SUMMARY OF TOTAL NEW HAMPSHIRE STATE AIRPORT FUNDING NEED

---

The previous section presents estimates developed for projects recommended by this NHSASP. However, there are additional costs that will be incurred over the next 20 years beyond those derived from facility and service objectives recommendations contained in this NHSASP. Such costs are related to both capital and non-capital projects identified in airport master plans and airport capital improvement plans (ACIP). Together, NHSASP costs presented in the previous section and costs estimated below offer an order of magnitude funding requirement toward meeting the total need for New Hampshire State Airports over the long term.

The key areas comprising additional funding requirements for ongoing project costs at statewide airports in this section include:

- Additional Airside & Landside Infrastructure
- Pavement Maintenance
- Planning/Environmental/Specialty Studies

Planning-level cost estimates for statewide airport projects in these areas were developed utilizing 10-year ACIP on file with the BOA. These ACIP were extrapolated for an additional 10 years to provide a summary of total New Hampshire statewide airport funding need for the long-term, 20-year planning period.

### 7.4.1 ADDITIONAL AIRSIDE & LANDSIDE INFRASTRUCTURE

Based on 10-year ACIP information, costs associated with additional airside and landside infrastructure needs at New Hampshire airports amounts to roughly \$372.25 million over the 20-year period. Importantly, NHDOT BOA should be able to meet a portion of the \$372.25 million need via FAA Primary and FAA Block Grant funding. This 20-year ACIP need contained here includes these projects:

- **Additional Hangars** - The hangar need identified as part of the system plan consists of a measurement against the based aircraft forecast along with a basic hangar need for transient aircraft. At busier airports, namely those in the National and Primary roles, there may be a need for additional hangars above and beyond that which is prescribed in this system plan. Additional hangars are typically necessary to support the increased corporate activity and specific user demands. Airport master plans should carefully consider the airport specific requirements for additional hangars.
- **Additional Apron Space** - Similar to hangars, airports in the National and Primary roles may need additional infrastructure to accommodate higher volumes and more demanding clientele. In addition, some airports like Laconia and Concord may warrant additional apron area

for special events like those associated with NASCAR. Airport master plans should carefully consider the airport specific requirements for additional apron space.

- **Airport-Specific Taxiway Needs** - From a system-wide perspective, only the type of taxiway infrastructure, such as a stub, turnarounds or full parallel were considered. No two airports are alike and so the necessary taxiway infrastructure to serve the terminal areas and all hangar areas will vary by airport with additional taxiways being required.
- **Crosswind/Secondary/Specialty Runways** - While no additional runways are currently proposed in the State of New Hampshire, there may be a future need for an additional or specialty runway for lighter aircraft such as gliders. No major additional runway infrastructure is anticipated; however, an additional turf or small crosswind paved runway cannot be ruled out at this time. Airport master plans will identify the need and analyze the feasibility of these runways.
- **Passenger Terminal Facilities** - While the NHSASP establishes an objective for passenger service at Primary Airports, the type and frequency of passenger service is established by the airlines and reflects business decisions related to broader market demands. A comprehensive market demand assessment and analysis of passenger terminal facility requirements should be a key part of the master planning process for each of the Primary Airports in New Hampshire. Facilities considered to be associated with passenger service include:
  - Terminal buildings (inclusive of all passenger processing, security functions and concessions)
  - Apron space dedicated to airline operations
  - Passenger auto parking
  - Terminal roadway network and access roads
  - Specialty support services (rental car servicing, catering, belly cargo, ground transportation)

Each of these items will be unique for the airport to best match the necessary infrastructure with local and regional demands.

- **Additional Vehicles and Equipment** – The NHSASP identifies the basic need for specialty vehicles for things like snow removal and fire fighting. The specific number of vehicles required for both snow removal and fire fighting will vary based on each airport’s specific needs. For airport certificated under Federal Aviation Regulation (FAR) Part 139, these requirements will be documented in the Airport Certification Manual (ACM).

## 7.4.2 PAVEMENT MAINTENANCE

One key system wide initiative for the next 20-years is to maintain the 24 airport system (Alton Bay excluded) in a state of good repair. The expected life-cycle of pavements in the New England region tends to be approximately 20 years between rehabilitations with minor servicing such as crack sealing completed several times during interim years. This level of maintenance is assumed to be true for all pavements that exist within the system today.

To estimate total system-wide funding needs for pavement maintenance over the 20-year period, a number of assumptions were made. These assumptions include a rehabilitation cost of \$3.19 per square foot for runways and taxiways at Basic, Local, Regional and National Airports, and a cost of \$6.29 per square foot for runways and taxiways at Primary Airports. When extrapolated across the existing system pavements today, it equates to an overall cost of roughly \$51.5 million to simply maintain the system as it exists today. This estimate includes a 70 percent reduction of costs for pavements at non-NPIAS airports, which can many times construct pavement projects at a lower cost. This is due to the use of NHDOT specified aggregate materials and competitive labor rates, rather than FAA-funded pavement projects that require more expensive materials and pay at prevailing wage rates.

## 7.4.3 PLANNING, ENVIRONMENTAL, & FEASIBILITY STUDIES

Another non-capital cost for the New Hampshire airport system, is that associated with the planning, environmental, and specialized feasibility studies that often preclude construction projects. These include Master Plans, Airport Layout Plan (ALP) updates, environmental assessments (EAs) and noise studies. There was no pre-determined objective for various studies spelled out in the NHSASP; however, most every airport will need some form of planning/environmental study (and several more than once) over the 20-year study period. To account for the need for these studies over the 20-year planning period, an average annual amount has been assigned to each SASP role:

■ Basic	\$25,000
■ Local	\$50,000
■ Regional	\$75,000
■ National	\$100,000
■ Primary	\$150,000

Overall the average equates to \$400,000 annually for planning, environmental and specialty studies. These numbers are not meant to be exclusive to each role or phase, but rather provide a general guide on the order of magnitude required to fund the recommended planning and environmental studies. When distributed evenly over Phases I, II and III, the dollar amounts translate to \$2 Million, \$2 Million and \$4 Million respectively, for a total of \$8M over the 20-year planning period.

#### 7.4.4 RECOMMENDATIONS CONCLUSION

These three elements (Additional Airside and Landside Infrastructure, Pavement Maintenance, and Planning/Environmental/Specialty Studies) represent up to over \$431.75 million in additional needs for the New Hampshire State Airport System. However, when combined with the NHSASP recommendations in the previous section (\$77.46 million), the overall need identified amounts to more than \$509.2 million over the 20-year planning period.

**Table 7-26** presents this estimate of total New Hampshire State Airport Funding Need for the 20-year planning period.

**Table 7-26 – NHSASP – Total 20-Year New Hampshire State Airport Funding Need**

Category	Amount
Additional Airside & Landside Infrastructure	\$372,245,000
Pavement Maintenance	\$51,500,000
Planning, Environmental, and Specialty Studies	\$8,000,000
NHSASP Recommended Need (Section 7.2)	\$77,457,000
Total New Hampshire State Airport Funding Need	\$509,202,000

Source: McFarland Johnson, Inc.



# APPENDIX 7-A