



## Vermont State Airport System Plan Project Overview

**June 24, 2019**



Developed By  
**McFarland Johnson**



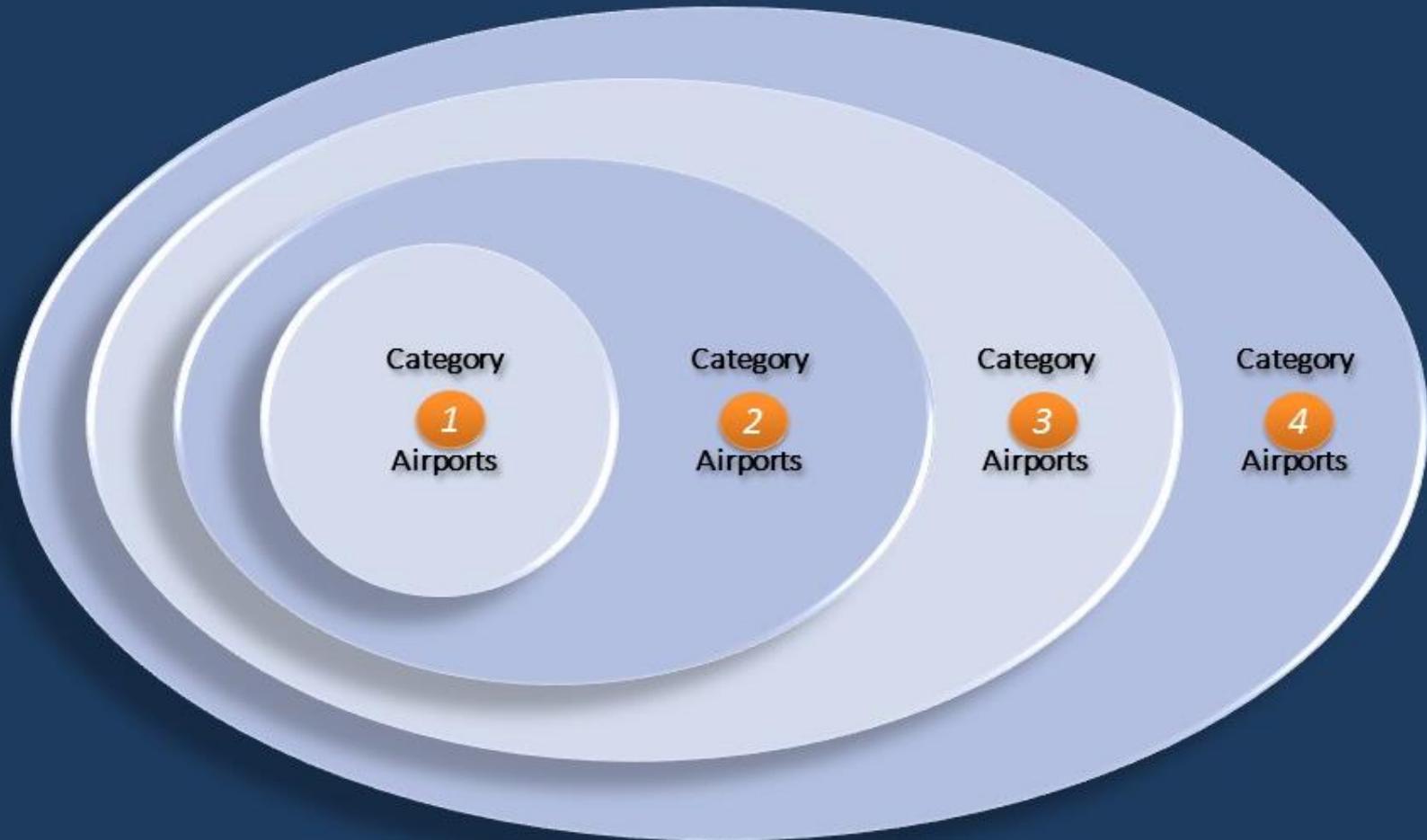
# Project Elements



- **Airport Roles**
- **Facility and Service Objectives**
- **Inventory of Facilities**
- **Forecast**
- **Current & Future Performance**
- **System Policy Guidance and Recommendations**
- **Economic Benefits**

# Facility & Service Objectives

## Vermont Aviation System



# Airport Scoring Results



<i>Airport</i>	Score	SASP Category
John H. Boylan State	7	1
Basin Harbor	9	1
Post Mills	12	1
Deerfield Valley Regional	15	1
Warren-Sugarbush	31	2
Middlebury State	36	2
Shelburne	36	2
William H. Morse State	45	3
Caledonia County State	47	3
Franklin County State	54	3
Morrisville-Stowe State	55	3
Edward F. Knapp State	85	3
Hartness State	88	3
Northeast Kingdom International	90	3
Rutland – Southern Vermont Regional	98	4
Burlington International	100	4

# Inventory Process



## Airport Inventory & Data Survey Vermont State Airport System Plan

VTRANS, Aviation Program requests your participation in this airport inventory and data survey. This information will be used as the basis for developing the Vermont State Airport System Plan, which is now underway.

**Thank you! Your contributions to the Vermont State Airport System and this System Plan are sincerely appreciated!**

If you have questions about this survey or the Vermont State Airport System Plan, please contact Scott LeCount of McFarland-Johnson, Inc. (slecount@mjinc.com; 607-238-6470.)

3-letter FAA ID:	BTV	Airport Name:	Burlington International
------------------	-----	---------------	--------------------------

SURVEY COMPLETED BY	
<b>Organization Name:</b>	
Name: Kelly Colling	Title/Position: Director of Operations
Telephone: 802-863-2874 ext 206	Mobile Phone: 802-316-2061
Fax: 802-863-7947	Email: kcolling@btv.aero

GENERAL AIRPORT INFORMATION	
<b>General Data (in addition to Airport 5010 data)</b>	
Airport Ownership (Name)	City of Burlington

AIRPORT SERVICE & ACCOMMODATIONS	
Fixed Base Operator (FBO)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Multiple # FBOs: 1
Courtesy Vehicle/Crew Car	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Based Flight Instruction	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Full-Time <input type="checkbox"/> Part-Time
Airframe Repairs	<input checked="" type="checkbox"/> Turbine <input checked="" type="checkbox"/> Piston <input type="checkbox"/> None
Power Plant Repairs	<input checked="" type="checkbox"/> Turbine <input checked="" type="checkbox"/> Piston <input type="checkbox"/> None
Avionics Repair	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
FAA Part 145 Repair Station	<input type="checkbox"/> Yes <input type="checkbox"/> No
Aircraft Sales	
Aircraft Deicing	
Aircraft Lavatory Disposal	
On-Airport Ground Transportation Access	
Notes:	

AIRCRAFT OPERATIONS ACTIVITY						
Category	Daily	Weekly	Monthly	Seasonal	Never	
Air Taxi	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
Aircraft Charter	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
Air Cargo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
Corporate/Business Activities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
Emergency Medical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
Charity Flights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input checked="" type="checkbox"/>	
Agricultural Flights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input checked="" type="checkbox"/>	
Law Enforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
Skydiving/Banner Tow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input checked="" type="checkbox"/>	
Flight Training	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
Military	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
Search and Rescue/CAP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
Aerial Inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	
State/Federal Govt. Flights	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> When: _____	<input type="checkbox"/>	

- Comprehensive Data Survey
  - Facilities, Services, Equipment
  - Airside & Landside
  - Reconcile 5010 Data vs. Actual
  - Serves as a Official Data Record for Other Planning Efforts
- Baseline Data for SASP Analysis

# Airside Facilities & Support



## ■ Runways

- 5 Runways  $\geq 5,000'$
- 5 Paved Crosswind Runways (1 Turf)
- 4 Primary Runways Turf (Island Pond State-Owned)
- 2 Privately-Owned Paved Runways

## ■ Taxiways

- 3 Airports with Full Parallels, 4 Airports with Partial Parallels
- 5 Airports Connectors/Stubs to Aprons, 5 Turnarounds

## ■ Approaches/Support

- 3 Precision, 5 Non-Precision
- 10 Airports with Weather Reporting
- 16 Airports with Wind Indicators

# Landside Facilities



## ■ Hangars

- T-Hangars (42)
  - Privately-Owned (97%)
- Conventional “Box” Hangars (154)
  - Privately-Owned (91%)

## ■ Tie-Downs

- 324 Total Spaces (60% Reported for Based Aircraft)

## ■ Hangar Waiting Lists

- 4 Airports Report Waiting Lists (45 Aircraft)

## ■ Fueling

- 11 Airports offer AvGas, 8 Airports offer Jet A

## ■ Terminal/Admin Building – 12 Airports, FBO- 10

### Popular Services:

*Flight Instruction – 8*

*Maintenance/Repairs – 9*

*Avionics – 4*

*Deicing – 7*

# Forecasts of Aviation Demand



# Airport Past/Future Performance



## ■ Airport Performance Metrics

- Population; Based Aircraft; Fuel Sales (100LL and Jet A)

## ■ Vermont State Performance vs. National Trends

- Fuel Sales; Based Aircraft; Hours Flown Benchmark

## ■ High Growth

- Franklin County (FSO), Northeast Kingdom Int'l (EFK), Burlington Int'l (BTV), Morrisville-Stowe (MVL), and Middlebury (6B0)

## ■ Baseline Growth

- Hartness (VSF), Shelburne (VT8), John Boylan (5B1), Post Mills (2B9), Deerfield Valley (4V8)

## ■ Lower Growth

- Caledonia (CDA), Rutland (RUT), William H. Morse (DDH), Basin Harbor (B06), Warren-Sugarbush (0B7)

## ■ Historic Trends

- (-1.33%) - 12 year Trend (2005: 581 -> 2017: 448)
- (-1.7%) - Nationwide 2010-2016 Piston (Single/Multi)

## ■ Future Projections

- (-0.8%) Average Annual Growth in Piston
- 1.9% Average Annual Growth in Turbine/Jet

## ■ Notable Disproportionate Aircraft Type Breakdown

- 33/501 (6.5%) are Jet or Multi, Remainder Single/Glider/Ultralight

# Fuel Sales Trends (Operations)



## ■ Jet-A

- 1.43% Statewide 2013-2016 (GA VTrans Airports Only)
- -3.9% Statewide 2006-2016
- Top Performers: FSO, EFK, MVL
- Greatest Declines: DDH, VSF, BTV (Airline Related)

## ■ Avgas

- 0.64% Statewide 2013-2016 (GA VTrans Airports Only)
- -3.24% Statewide 2006-2016
- Top Performers: VSF, MVL, EFK, BTV, MPV, FSO
- Greatest Declines: CDA, RUT

# VT vs. FAA National Forecast



Historic	Vermont	FAA Aerospace
100LL	0.025%	-1.00%
Jet A	-0.01%	0.40%
Based AC	-1.33%	-1.70%

(pistons)

Projected	Vermont	FAA Aerospace
100LL	0.038%	-0.40%
Jet A	0.048%	1.90%
Based AC	-0.626%	-0.80%

(pistons)

VT Aircraft Mix  
Consistent with VT  
Performance vs.  
National Trends  
(Higher Piston/100LL)

## ■ FAA Aerospace Forecast

- Hours Flown: Piston -0.60%, Turbine 2.4%
- GA Aircraft: Piston -0.80%; Turbine 1.9%

Industry Trends  
Favor Jet and  
Turbine Growth

# Proposed VASP Growth Rates



## Operations

Base	0.42
High	0.84
Low	0.21

Flying Clubs and Fractional Ownership in GA Aircraft Will Allow Operations to Increase While Based Aircraft Decrease

## Based Aircraft

Base	-1.61%
High	1.20%
Low	-2.39%

Decline Represents Retirement or Elimination of Older, Typically Less-Active Aircraft

# Forecast Summary



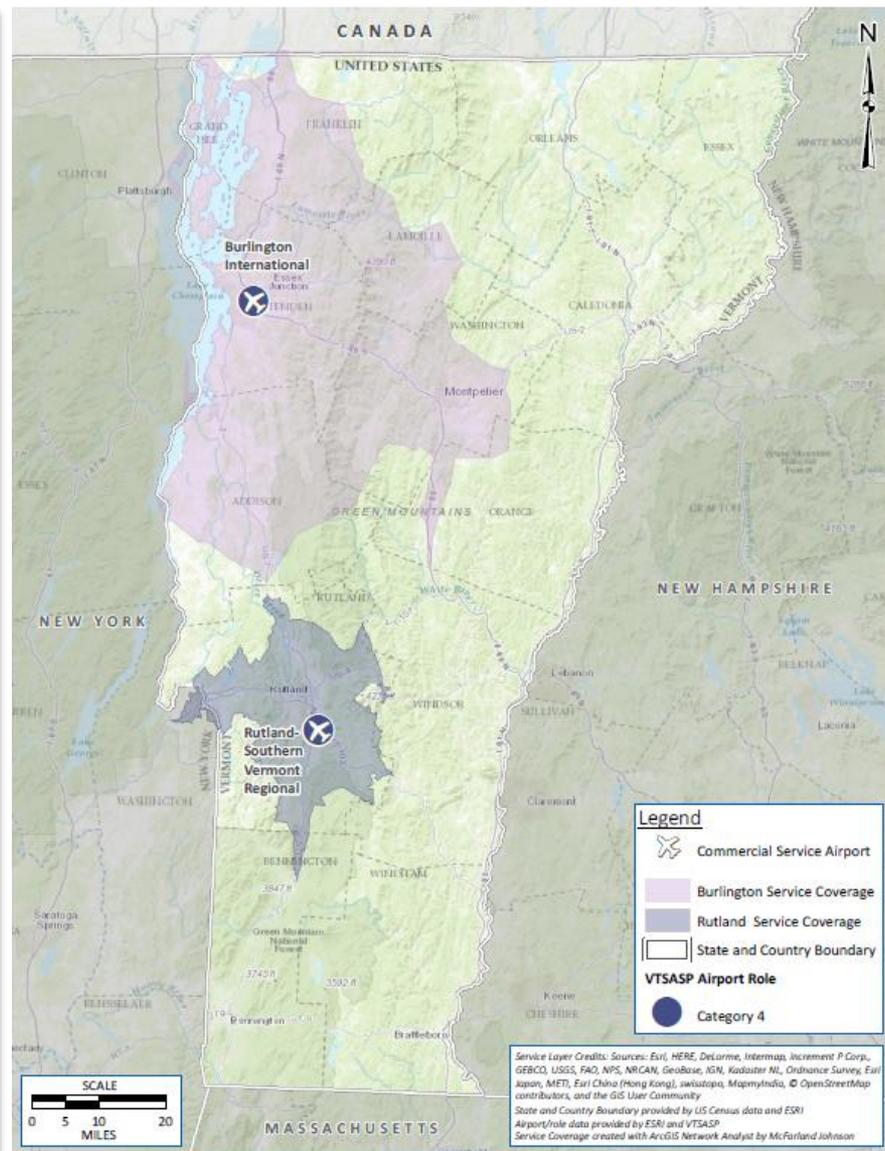
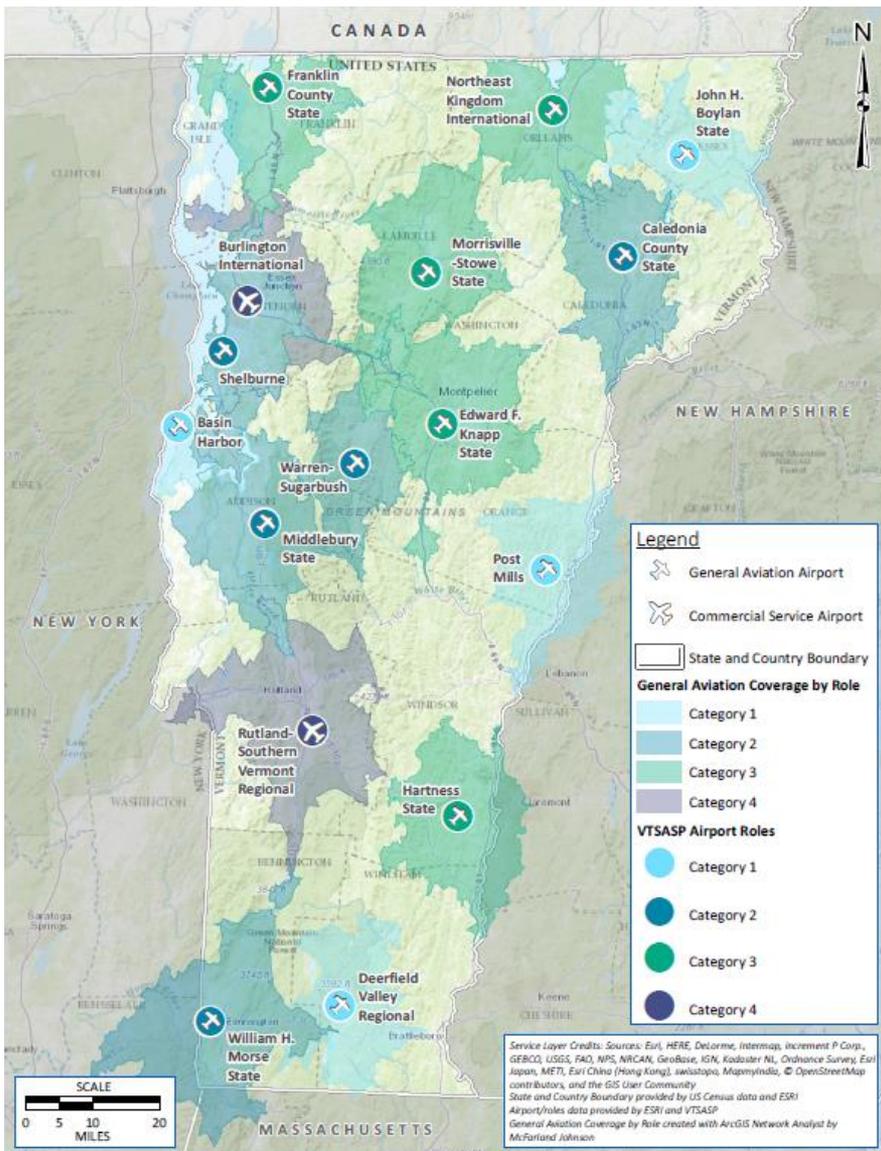
Forecast Period	Historical			20-Year			
Airport	2004	2017	CAGR	TAF	Low	Average	High
Basin Harbor	-	-	-	N/A	2,211	2,305	2,506
Burlington International	95,106	67,110	-2.25%	73,743	79,307	82,697	89,897
Caledonia County	2,050	7,380	12.35%	7,380	7,696	8,025	8,724
Deerfield Valley Regional	-	-	-	N/A	3,233	3,376	3,665
Edward F. Knapp	32,000	24,125	-2.54%	24,125	25,159	26,234	28,518
Franklin County	21,400	10,095	-6.60%	10,095	10,528	10,978	11,933
Hartness State	9,300	6,611	-3.05%	6,611	6,894	7,189	7,815
John H. Boylan	-	-	-	N/A	425	448	497
Middlebury State	35,250	10,900	-10.12%	10,900	11,367	11,853	12,885
Morrisville-Stowe	18,020	11,976	-3.65%	6,358	6,658	6,972	7,643
Northeast Kingdom International	7,140	9,452	2.58%	9,452	9,552	9,652	9,856
Post Mills	9,510	4,330	-6.90%	4,330	4,516	4,709	5,119
Rutland – S. VT Regional	29,376	31,770	0.71%	13,901	12,881	13,432	14,601
Shelburne	-	-	-	N/A	4,418	4,326	4,418
Warren-Sugarbush	22,500	17,620	-2.20%	17,620	18,375	19,161	20,829
William H. Morse	26,250	14,377	-5.33%	14,377	14,863	15,498	16,847
State Total	307,902	215,746	-2.90%	198,892	218,083	226,855	245,753

# *System Performance Analysis*



*Current & Future*

# GA and Commercial Coverage



# Current System Performance



Airport Category	Coverage	Coverage (% Total)
<b>Land Area (SQMI)</b>		
Category 1 Airports	1,070	11%
Category 2 Airports	1,008	10%
Category 3 Airports	2,892	30%
Category 4 Airports	1,019	11%
Burlington International	2,257	23%
All VTSASP Airports (30-Minute Drive Time)	5,475	57%
<b>Population</b>		
Category 1 Airports	73,560	12%
Category 2 Airports	216,636	35%
Category 3 Airports	288,690	46%
Category 4 Airports	263,423	42%
Burlington International	328,090	52%
All VTSASP Airports (30-Minute Drive Time)	583,356	93%
<b>Employment Centers</b>		
Category 1 Airports	3	6%
Category 2 Airports	19	38%
Category 3 Airports	18	36%
Category 4 Airports	23	46%
Burlington International	28	56%
All VTSASP Airports (30-Minute Drive Time)	44	88%

# System Performance Analysis



## Minimum Facility & Service Objectives Performance

### System Goals

Identifies Facility Targets within each VTSASP Category that Align with System Goals and Highlights Deficits



## Geographic Service/Coverage Area Performance

### Performance "Reach"

Identifies Land Area, Population, and Economic Centers Served and Highlights Towns/Regions, People, and Businesses of State that May be Underserved



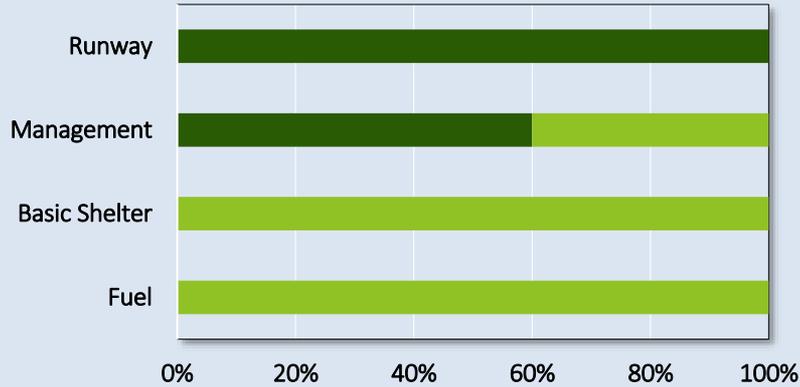
## System-Wide Airside & Landside Priorities

Airside	Runways Taxiways Lighting NAVAIDS Approaches
Landside	Terminal(s) Management/Staffing Aeronautical Businesses/Services

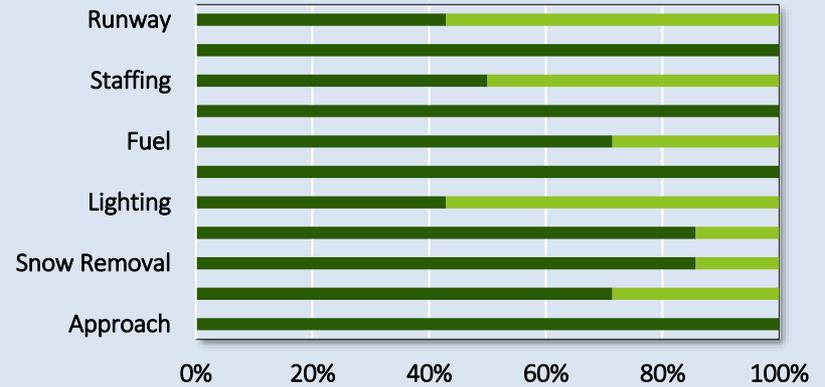
# Current Performance - Minimums



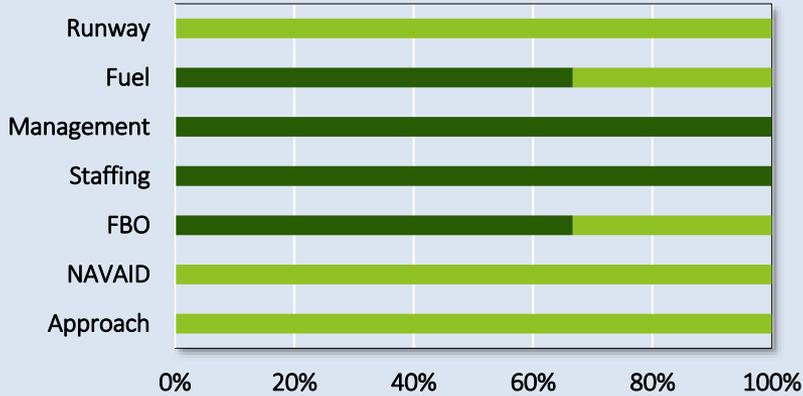
### Category 1 Performance



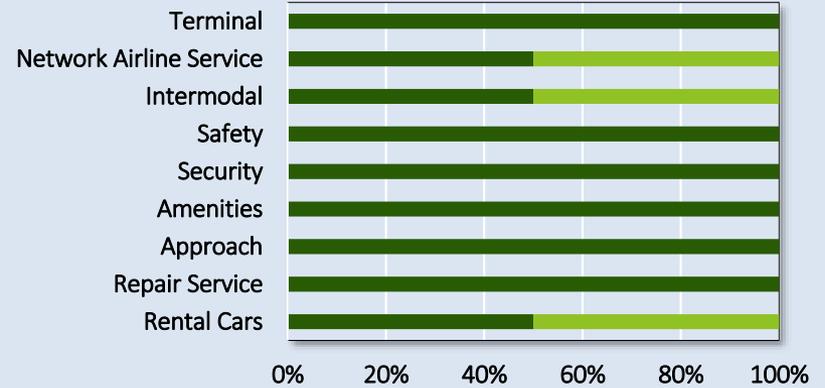
### Category 3 Performance



### Category 2 Performance



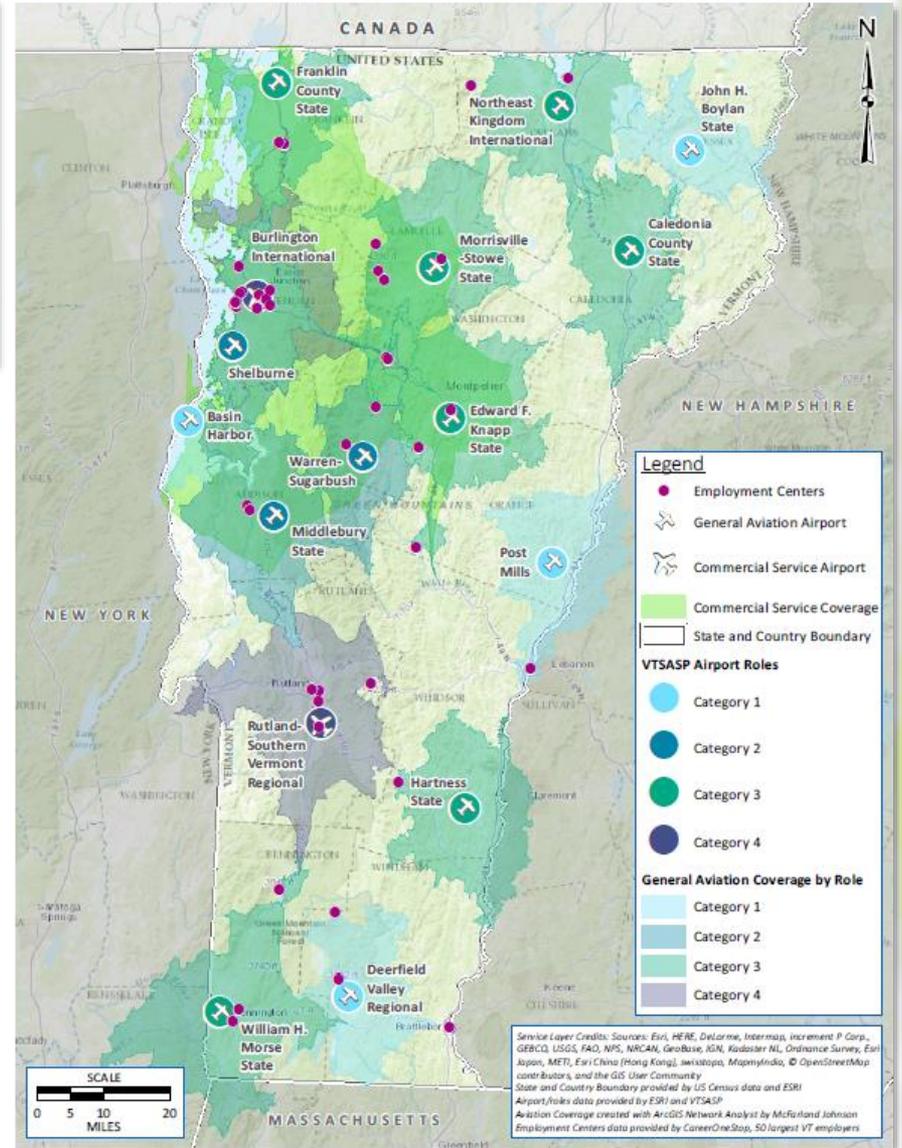
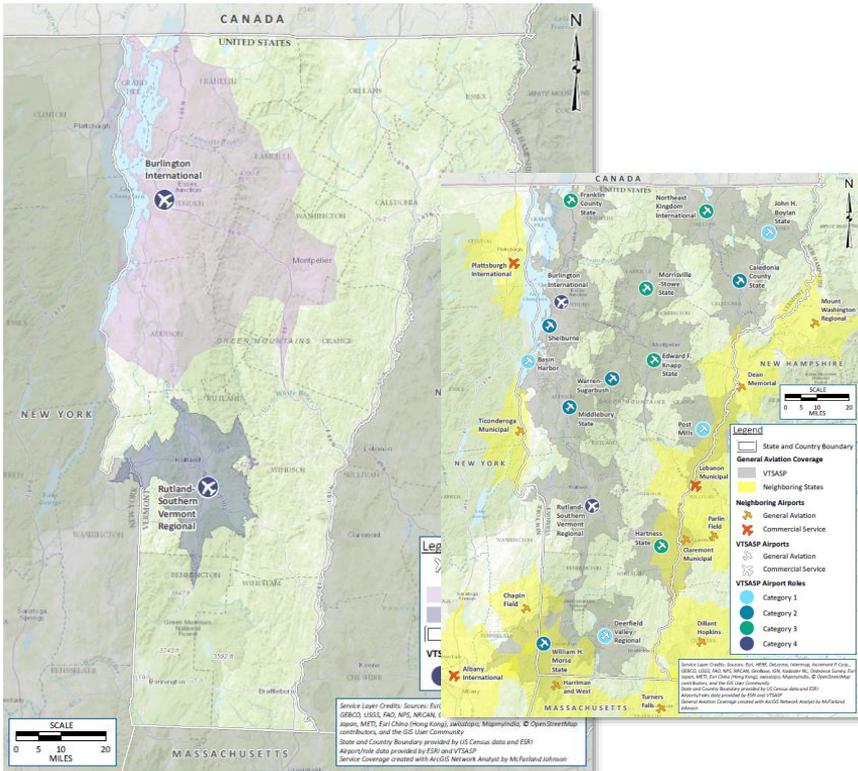
### Category 4 Performance



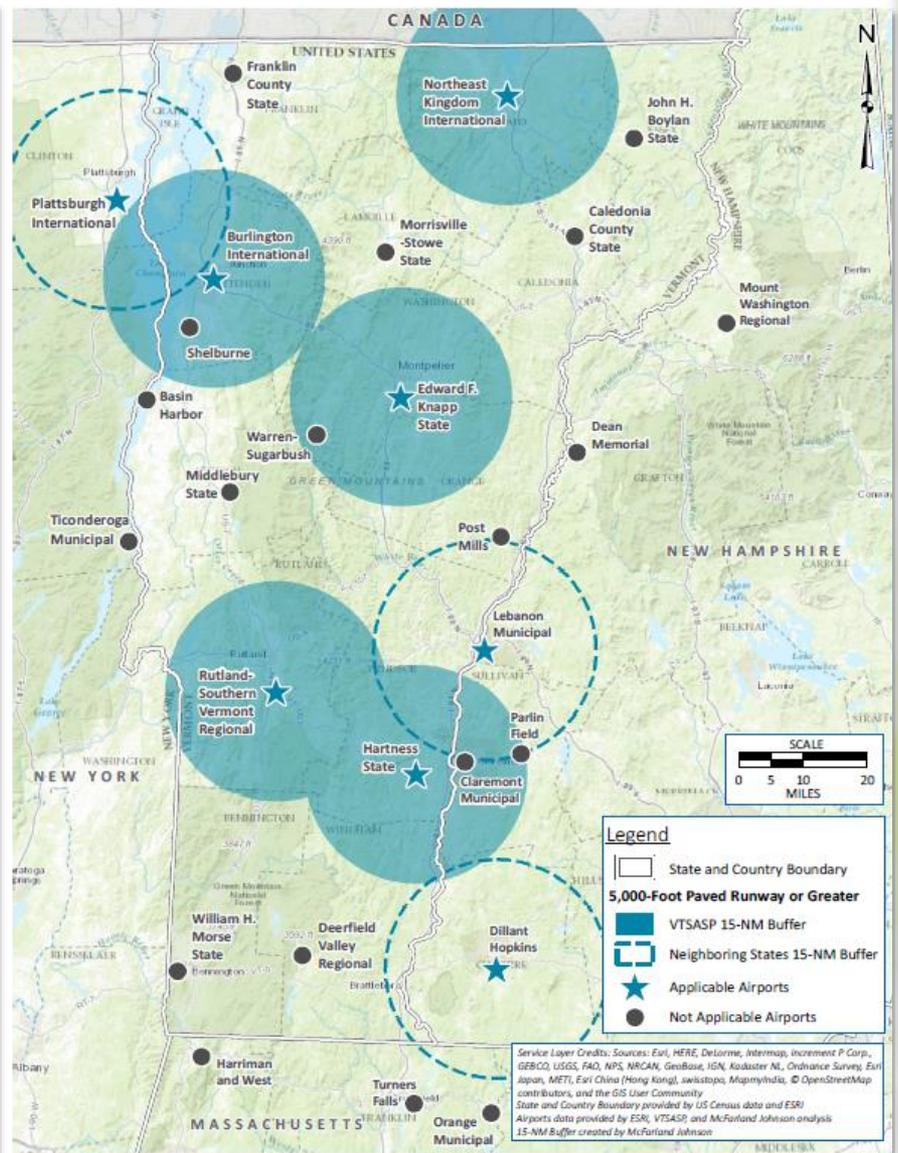
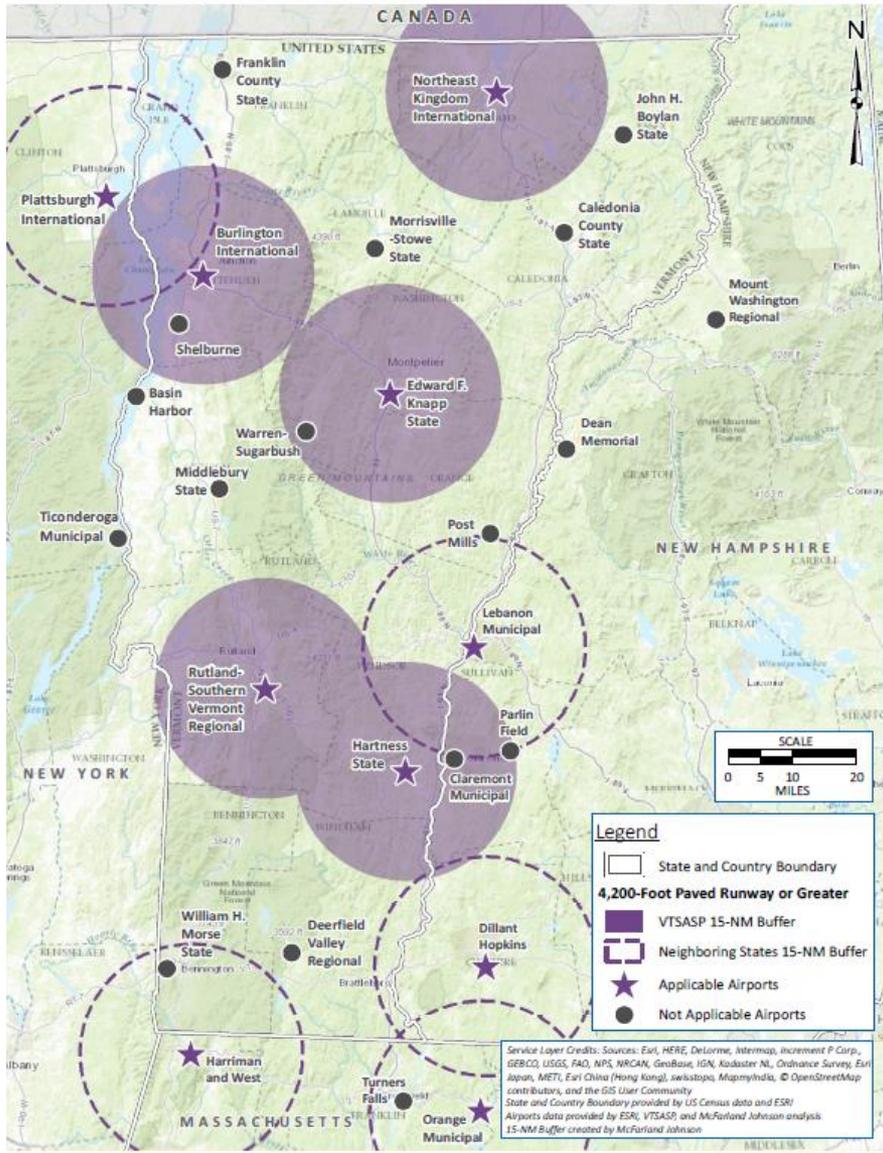
# Current Performance - Reach



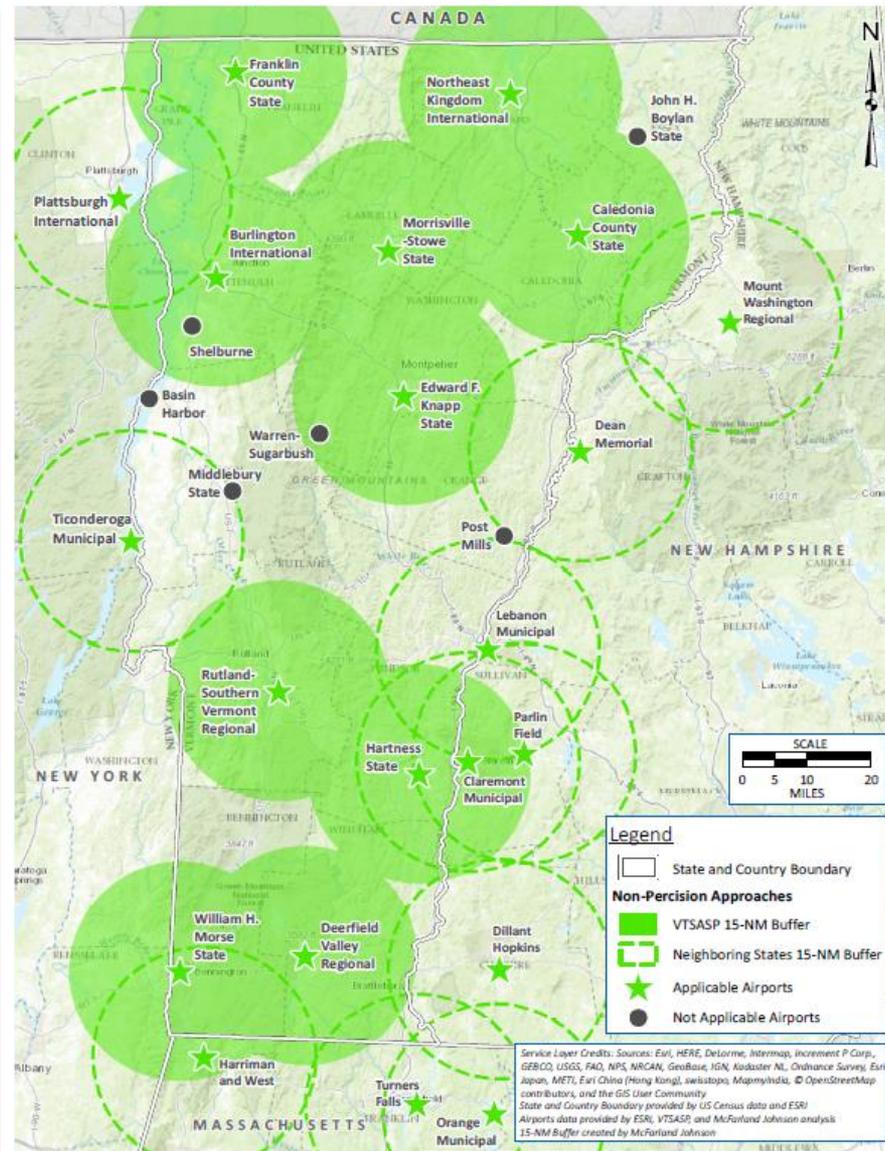
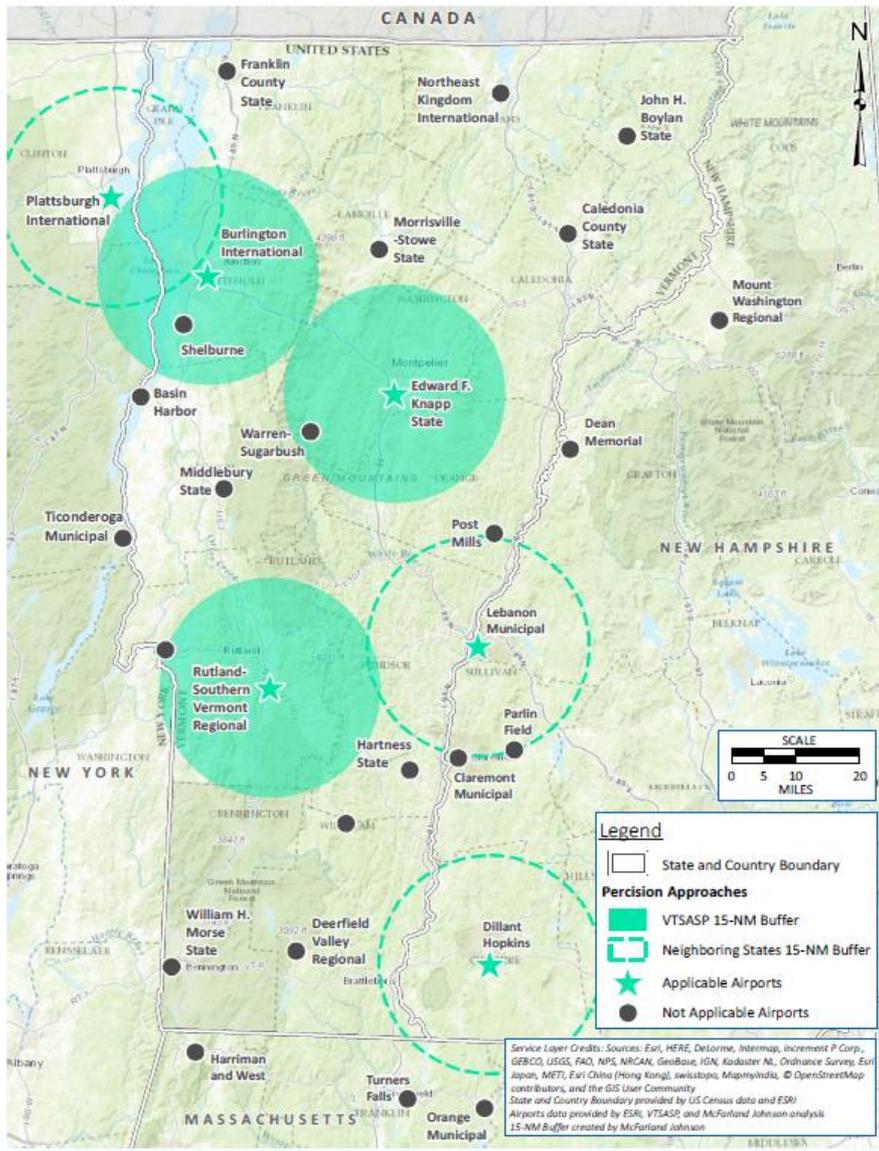
VASP Airports Coverage (30-Minute Drive Time)	Coverage (% Total)
Land Area Coverage	57%
Population Coverage	93%
Employment Center Coverage	88%



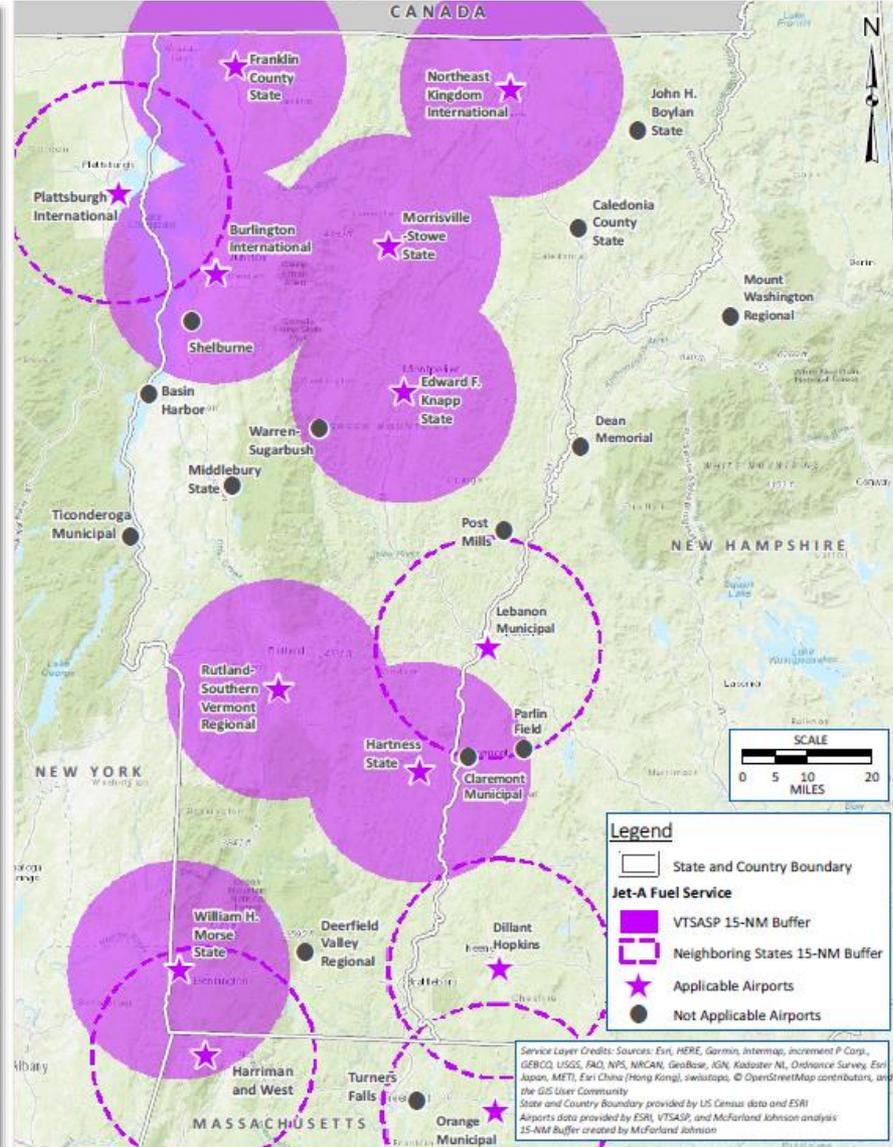
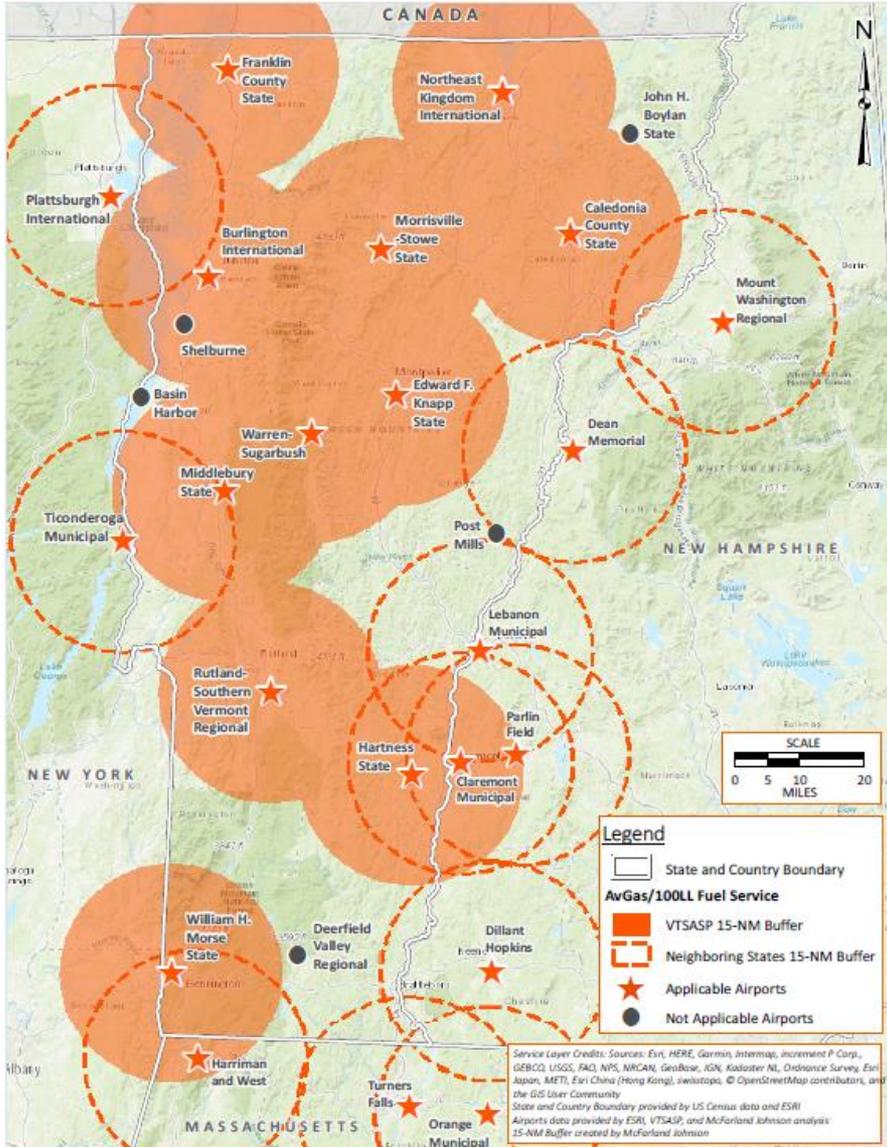
# Current Performance - Runways



# Current Performance - Approaches



# Current Performance - Fuel



# System Needs Prioritization



## ■ Priority 1

- Meeting Minimum Facility & Service Objectives

## ■ Priority 2

- Maximizing Existing Facilities and Infrastructure (Partial Credit)

## ■ Priority 3

- Facilities & Services Above/Beyond VASP
- Private Owned/Public Use Infrastructure
- Large/Comprehensive Projects

# VASP – Priority 1



Airport	<ul style="list-style-type: none"> <li>Basic Terminal Building/Shelter</li> </ul>
Basin Harbor	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>
Burlington International	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>
Caledonia County State	<ul style="list-style-type: none"> <li>Full-Time Airport Manager On-Site (Seasonal OK)</li> </ul>
Deerfield Valley Regional <sup>1/</sup>	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>
Edward F. Knapp State	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>
Franklin County State	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>
Hartness State	<ul style="list-style-type: none"> <li>Basic Terminal Building/Shelter</li> <li>Part-Time Airport Manager On-Site (Seasonal OK)</li> </ul>
John H. Boylan State	<ul style="list-style-type: none"> <li>Non-Precision Approach Capability</li> </ul>
Middlebury State	<ul style="list-style-type: none"> <li>Runway Extension/Maximize Runway Length</li> </ul>
Morrisville-Stowe State	<ul style="list-style-type: none"> <li>Precision Approach Capability</li> </ul>
Northeast Kingdom International	<ul style="list-style-type: none"> <li>Basic Terminal Building/Shelter</li> </ul>
Post Mills <sup>1/</sup>	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>
Rutland-Southern Vermont Regional	<ul style="list-style-type: none"> <li>Non-Precision Approach Capability</li> </ul>
Shelburne <sup>1/</sup>	<ul style="list-style-type: none"> <li>Non-Precision Approach Capability</li> </ul>
Warren-Sugarbush <sup>1/</sup>	<ul style="list-style-type: none"> <li>Runway Extension/Maximize Runway Length</li> </ul>
William H. Morse State	<ul style="list-style-type: none"> <li>Basic Terminal Building/Shelter</li> </ul>

<sup>1/</sup> Privately Owned

# VASP – Priority 2



Airport	Projects to Improve Future Performance	
Basin Harbor	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>	
Burlington International	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>	
Caledonia County State	<ul style="list-style-type: none"> <li>Aircraft/Avionics Maintenance Svcs. On-Site</li> <li>Full-Time Airport Manager On-Site</li> <li>Full-Time Operations Staff On-Site</li> </ul>	<ul style="list-style-type: none"> <li>Jet-A Self Service Aviation Fuel Full Service</li> <li>FBO On-Site Full-Time</li> </ul>
Deerfield Valley Regional <sup>1/</sup>	<ul style="list-style-type: none"> <li>100LL Self-Service Aviation Fuel on Site</li> <li>Single-Svc. SASO/Full-Svc. FBO on Site (Part-Time OK)</li> </ul>	<ul style="list-style-type: none"> <li>Part-Time Operations Staff On-Site or Contracted</li> <li>GPS Instrument Approach Procedure</li> </ul>
Edward F. Knapp State	<ul style="list-style-type: none"> <li>100LL and Jet-A Self Service Aviation Fuel on Site</li> </ul>	
Franklin County State	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>	
Hartness State	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>	
John H. Boylan State	<ul style="list-style-type: none"> <li>MoGas or 100LL On-Site</li> </ul>	
Middlebury State	<ul style="list-style-type: none"> <li>GPS Instrument Approach Procedure</li> </ul>	
Morrisville-Stowe State	<ul style="list-style-type: none"> <li>Full-Time Operations Staff On-Site</li> </ul>	
Northeast Kingdom International	<ul style="list-style-type: none"> <li>Meets Objectives</li> </ul>	
Post Mills <sup>1/</sup>	<ul style="list-style-type: none"> <li>MoGas or 100LL On-Site</li> </ul>	
Rutland-Southern Vermont Regional	<ul style="list-style-type: none"> <li>Rental Cars</li> </ul>	
Shelburne <sup>1/</sup>	<ul style="list-style-type: none"> <li>Full-Time Airport Manager On-Site (Seasonal OK)</li> <li>Part-Time Operations Staff On-Site or Contracted</li> </ul>	<ul style="list-style-type: none"> <li>Single-Svc. SASO/Full-Svc. FBO on Site (Part-Time OK)</li> <li>Lighted Windsock</li> <li>100LL Self-Service Aviation Fuel on Site</li> </ul>
Warren-Sugarbush <sup>1/</sup>	<ul style="list-style-type: none"> <li>GPS Instrument Approach Procedure</li> <li>100LL Self-Service Aviation Fuel on Site</li> <li>Full-Time Airport Manager On-Site (Seasonal OK)</li> </ul>	<ul style="list-style-type: none"> <li>Part-Time Operations Staff On-Site or Contracted</li> <li>Single-Svc. SASO/Full-Svc. FBO on Site (Part-Time OK)</li> <li>Lighted Windsock</li> </ul>
William H. Morse State	<ul style="list-style-type: none"> <li>Full-Service FBO On-Site FT (Enhanced Service)</li> </ul>	

<sup>1/</sup> Privately Owned

# VASP – Priority 3



Airport	Projects to Improve Future Performance
Basin Harbor	<ul style="list-style-type: none"> <li>• MoGas or 100LL On-Site</li> </ul>
Burlington International	<ul style="list-style-type: none"> <li>• Meets Objectives</li> </ul>
Caledonia County State	<ul style="list-style-type: none"> <li>• Terminal Building with Pilot and Visitor Amenities</li> <li>• Runway and Taxiway Edge Lighting</li> <li>• Runway Extension/Maximize Runway Length</li> </ul>
Deerfield Valley Regional <sup>1/</sup>	<ul style="list-style-type: none"> <li>• Runway Extension/Maximize Runway Length</li> </ul>
Edward F. Knapp State	<ul style="list-style-type: none"> <li>• Meets Objectives</li> </ul>
Franklin County State	<ul style="list-style-type: none"> <li>• Terminal Building with Pilot and Visitor Amenities</li> <li>• Runway and Taxiway Edge Lighting</li> <li>• Runway Extension/Maximize Runway Length</li> </ul>
Hartness State	<ul style="list-style-type: none"> <li>• Meets Objectives</li> </ul>
John H. Boylan State	<ul style="list-style-type: none"> <li>• Meets Objectives</li> </ul>
Middlebury State	<ul style="list-style-type: none"> <li>• Runway Extension/Maximize Runway Length</li> </ul>
Morrisville-Stowe State	<ul style="list-style-type: none"> <li>• Own/Operate Snow Removal Equipment (Additional)</li> </ul>
Northeast Kingdom International	<ul style="list-style-type: none"> <li>• Meets Objectives</li> </ul>
Post Mills <sup>1/</sup>	<ul style="list-style-type: none"> <li>• Meets Objectives</li> </ul>
Rutland-Southern Vermont Regional	<ul style="list-style-type: none"> <li>• Intermodal Transportation Connections at/near Site</li> <li>• ARFF Capability</li> <li>• Precision Approach Capability</li> <li>• ATCT</li> <li>• Improvements to Network/Legacy Airline Service</li> </ul>
Shelburne <sup>1/</sup>	<ul style="list-style-type: none"> <li>• Runway Extension/Maximize Runway Length</li> </ul>
Warren-Sugarbush <sup>1/</sup>	<ul style="list-style-type: none"> <li>• Runway Extension/Maximize Runway Length</li> </ul>
William H. Morse State	<ul style="list-style-type: none"> <li>• Terminal Building with Pilot and Visitor Amenities</li> <li>• Runway and Taxiway Edge Lighting</li> </ul>

<sup>1/</sup> Privately Owned

# **Recommended Actions** **and Policy Development**



# Challenges Facing VT Airports

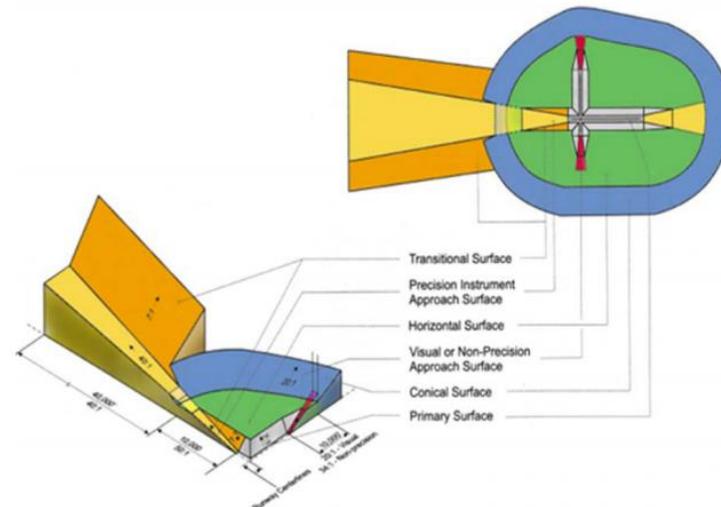


- **Changes in Future Demand**
  - Traditional Elements in Decline
  - Growing Itinerant Opportunities
  - Allowing for Multimodal Connectivity
- **Preserving Infrastructure**
  - Constrained Funding Environment Expected to Continue
  - Growing Scrutiny of Environmental Impacts
  - Need to Modify Infrastructure to Meet Changing Standards
- **Positioning for New Technologies**
  - Creating Workforce and Users of Tomorrow's System
  - Embracing New Technology Developments in Vermont

- **Runway Safety Areas (RSA's)**
  - All airports must meet RSA dimensional standards
- **Runway Protection Zones (RPZ's)**
  - Airports should control activity within their RPZ's
- **Obstruction Mitigation & Clearance**
  - Airports must maintain clear approaches or lose utility
- **Noise**
  - Airports should strive toward compatible surrounding land use

- **Ability to Maintain Clear Approaches (20:1)**
  - Failure to Maintain 20:1 Restricts Access to the Airport
- **Planning for Growth & Protecting from Encroachment**
  - Ability to Enhance Access via Improved Minimums
  - AOT Staff Working/Coordinating Part 77 Needs with:
    - Regional Planning Commissions
    - Local Towns/Municipalities to educate planners on Part 77 cones and ensure review of local planning documents account for cones

Airports with Jet Activity and Precision Approaches should Have Comprehensive Zoning Discussions with Host Communities to Ensure Airspace Needs are Met.



- **Unmanned Aerial Vehicles (UAV's)**
  - Ultimate Integration into the National Airspace
- **Phaseout of Avgas**
  - Alternative Fueling
- **Electric Aircraft**
  - Cape Air Announced First Commercial Electric Aircraft Purchase
  - Monetization
- **NextGen**
  - Harnessing ADS-B Data
- **Renewable Energy**
  - Solar Farms?



# Aviation Education Support

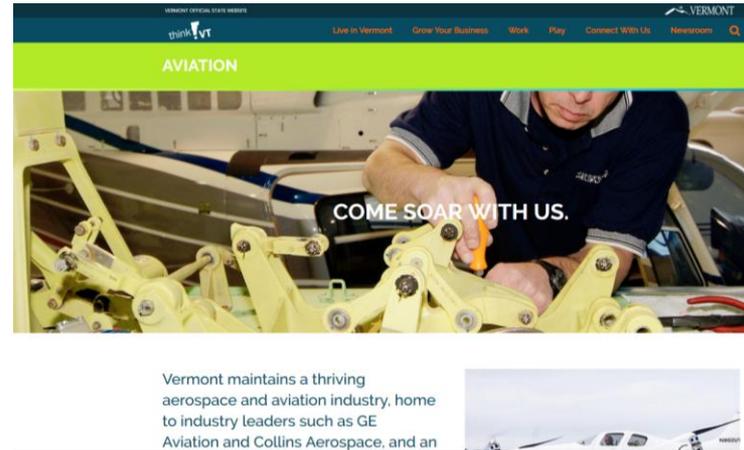


- **Flight Training**

- Future Demand
- FBO- Based
- College Programs

- **Aircraft Maintenance**

- Future Career Demand
- Community College Programs
- Economic Development Synergies (MRO Recruiting)



Growing and Enhancing Aviation Education is Essential for Supporting Aviation Based Economic Development Initiatives

# Activity Monitoring & Tracking



## ■ Based Aircraft

- Create Vermont Based Aircraft Database - Update Annually
- Utilize basedaircraft.com website
- Update Based Aircraft Forecast in 5 Years

## ■ Operations

- Utilize ADS-B Data
- Fuel Sales Tracking and Develop Metric to Correlate to Ops
- Identify Anomalies (Events, Weather, Special Considerations)
- Update Operations Forecast in 5 Years

**DO NOT be Discouraged or Afraid to Report Declining Activity -  
Economic Significance of Operations is Increasing**

- **Bus Network**
  - **Burlington International Airport**
    - 27 round trips daily on local bus network
    - 4 daily Greyhound trips linking Montreal, Boston, Montpelier, and White River Junction
- **Rental Vehicles – 11 Airports (On-site or On-Call)**
- **Taxi Services – 14 of Airports have access**
- **Ride Hailing Services – Now available in most areas**

Marketing of these services to both Airports and service providers improves ground transportation

# Ground Transportation Access



**Available Services**

- Uber
- Taxi
- Lyft

### Vermont's Service by City:

uber lyft

Addison ●●	Albany ●●	Alburlong ●	Arlington ●●
Ascutney ●●	Bakersfield ●●	Barnard ●●	Barnet ●●
Barre ●●	Barton ●●	Beecher Falls ●●	Bellows Falls ●
Bennington ●●	Benson ●●	Berlin ●●	Bethel ●●
Bolton ●●	Bradford ●●	Braintree ●●	Brandon ●●
Battleboro ●●	Bridgewater ●●	Bridport ●●	Bristol ●●
Brookfield ●●	Brownington ●●	Brownsville ●●	Burlington ●●●●
Cabot ●●	Cambridge ●●	Canaan ●●	Castleton ●●
Cavendish ●●	Charlotte ●●	Chelsea ●●	Chester ●●
Chittenden ●●	Colchester ●●	Concord ●●	Cornwall ●●
Coventry ●●	Craftsbury Common ●●	Cuttingsville ●●	Danby ●●
Danville ●●	Derby ●●	Derby Center ●●	Derby Line ●●
Dorset ●●	Duxbury ●●	East Barre ●●	East Burke ●●
East Corinth ●●	East Dover ●●	East Dummerston ●●	East Haven ●●
East Middlebury ●●	East Montpelier ●●	East Randolph ●●	Eden ●●
Enosburg Falls ●●	Essex Junction ●●	Fair Haven ●●	Fairfax ●●
Fairfield ●●	Fairlee ●●	Fayston ●●	Ferrisburgh ●●
Franklin ●●	Gilman ●	Glover ●●	Grafton ●●
Grand Isle ●	Graniteville ●●	Greensboro ●●	Greensboro Bend ●●
Groton ●●	Guilford ●	Guilford ●●	Hardwick ●●
Hartland ●●	Highgate Center ●●	Hinesburg ●●	Huntington ●●

- **Economic Impacts of Vermont Airports**
  - Over \$525 million in direct and induced impacts
  
- **Airport Development Opportunities**
  - Infrastructure-induced on-airport growth
  - Direct job creation tied to airports
  - Clearance facilities
  - Permit streamlining
  - Workforce growth and training
  - Growth of Fixed-Base Operators (scope of services / hours)
  - Recruitment of next-gen aviation technology companies and space planning for land constrained airport properties

# Maximizing Land Development



- Create Database of Development Parcels from Airport Master Plans
  - Attribute Features
    - Airport Facilities/Services
    - Design Group
    - Available Utilities
  - Maintain Shared Development Portal with AOT and Economic Development



# Economic Development/Marketing



## Building Use at Edward F. Knapp Airport

Berlin, VT





## Building Use at Morrisville-Stowe Airport

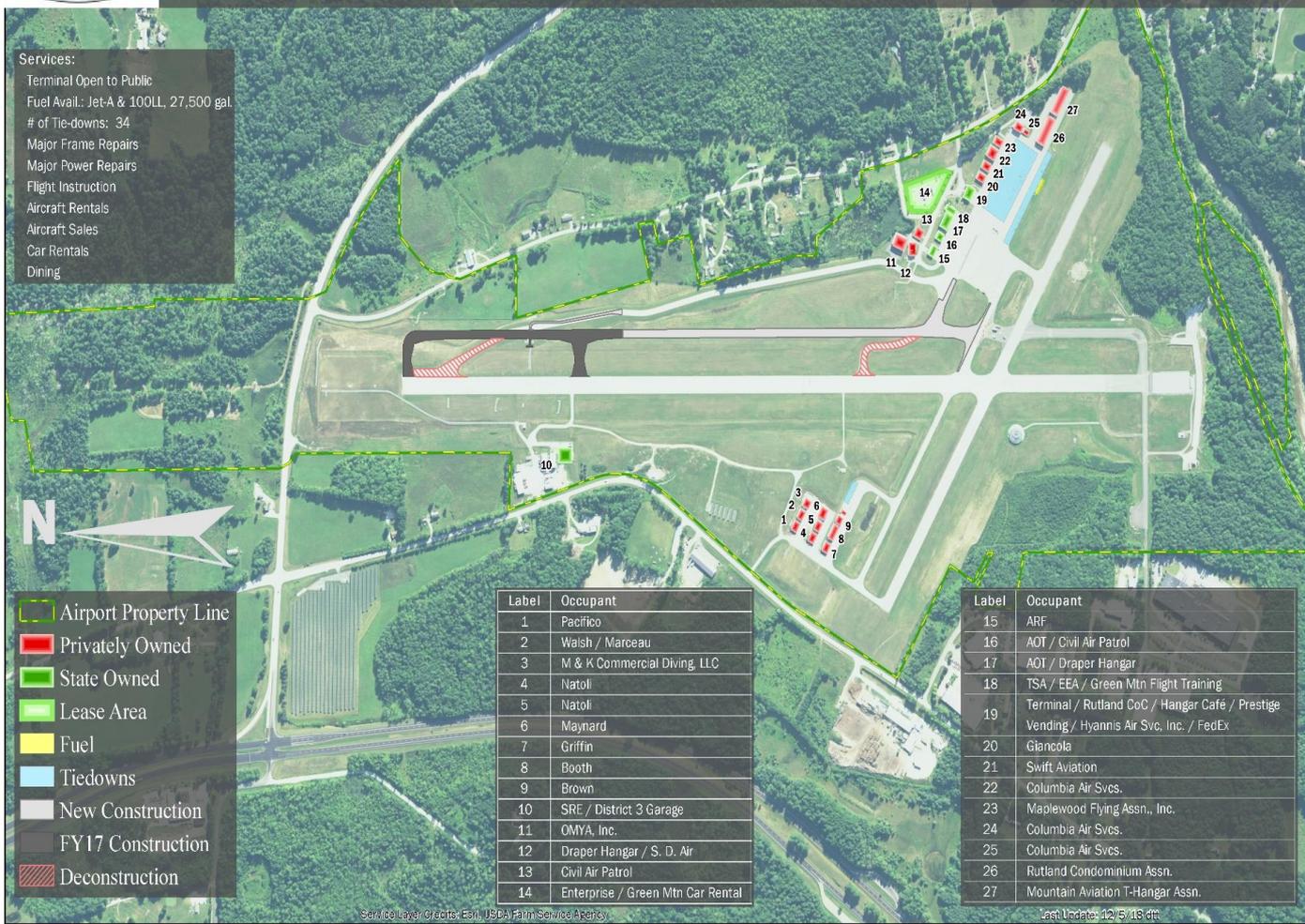
Morristown, VT



# Economic Development/Marketing



## Building Use at Rutland-Southern Airport Clarendon, VT



Services:  
 Terminal Open to Public  
 Fuel Avail: Jet-A & 100LL, 27,500 gal.  
 # of Tie-downs: 34  
 Major Frame Repairs  
 Major Power Repairs  
 Flight Instruction  
 Aircraft Rentals  
 Aircraft Sales  
 Car Rentals  
 Dining

- Airport Property Line
- Privately Owned
- State Owned
- Lease Area
- Fuel
- Tiedowns
- New Construction
- FY17 Construction
- Deconstruction

Label	Occupant
1	Pacifico
2	Walsh / Marceau
3	M & K Commercial Diving, LLC
4	Natoli
5	Natoli
6	Maynard
7	Griffin
8	Booth
9	Brown
10	SRE / District 3 Garage
11	OMYA, Inc.
12	Draper Hangar / S. D. Air
13	Civil Air Patrol
14	Enterprise / Green Mtn Car Rental

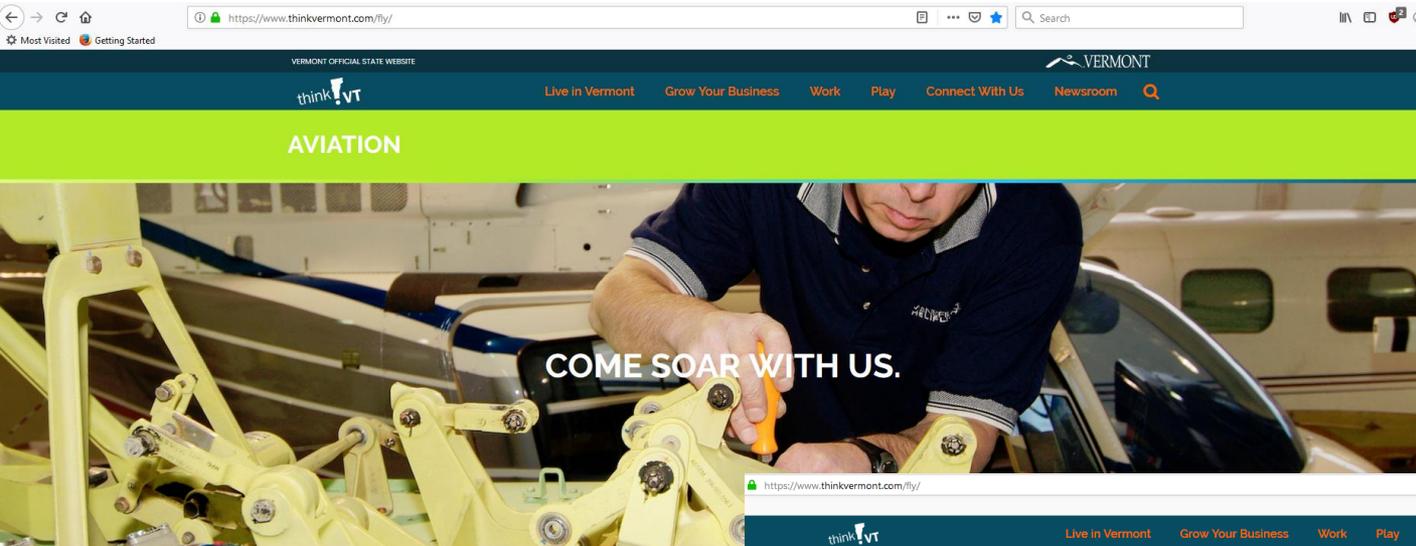
Label	Occupant
15	ARF
16	AOT / Civil Air Patrol
17	AOT / Draper Hangar
18	TSA / EEA / Green Mtn Flight Training
19	Terminal / Rutland CoC / Hangar Café / Prestige Vending / Hyannis Air Svc, Inc. / FedEx
20	Glencola
21	Swift Aviation
22	Columbia Air Svcs.
23	Maplewood Flying Assn., Inc.
24	Columbia Air Svcs.
25	Columbia Air Svcs.
26	Rutland Condominium Assn.
27	Mountain Aviation T-Hangar Assn.

Service Layer Credits: Esri, USDA Farm Service Agency

Last Update: 12/5/13 cft

- **(Act 108 Legislative Report Recommendations**
  - Canadian market travelers interested in business, foreign direct investment, and recreation/tourism
  - New England / New York travelers, including “EpicPass” ski travelers
  - Corporate aviation operators and aerospace manufacturers
  - Public Private Partnership (P3) information portal
  - Articles, blog posts, etc. about Vermont aviation industry, tourism, and aviation magazines, websites, etc.
  - Better maps on VT sites about airport options - VermontVacation.com
  - Aviation specific events such as fly-ins, hosting general aviation clubs, model clubs to meet at Vermont airports
  - Digital and print guides to available spaces, assets, and infrastructure for each airport in the system

# Marketing Strategies



Vermont maintains a thriving aerospace and aviation industry, home to industry leaders such as GE Aviation and Collins Aerospace, and an

### PUBLIC USE AIRPORTS IN VERMONT

General Information      Fueling, Storage and Service      Passenger Services

Show 12 entries      Search:

Airport ID	Associated City	Primary Runway Length / Width	Runway Lighting
<a href="#">Burlington International Airport</a>	BTV	Burlington	HIGH / ALS
<a href="#">Northeast Kingdom International Airport</a>	<a href="#">Map</a> EFK	Newport	MED / REIL
<a href="#">Franklin County State Airport</a>	<a href="#">Map</a> FSO	St. Albans / Highgate	MED / REIL
<a href="#">John Boylan State Airport</a>	<a href="#">Map</a> 5BI	Island Pond	2,650 / 120
<a href="#">Caledonia County State Airport</a>	<a href="#">Map</a> CDA	St. Johnsbury / Lyndonville	3,300 / 60
<a href="#">Morrisville-Stowe State Airport</a>	<a href="#">Map</a> MVL	Morrisville / Stowe	3,700 / 75

**Continue and Expand Existing Marketing Efforts of Airports by Other State Agencies/Programs**

- **Defining Financial Sustainability**
  - Revenues keeping up with costs
  - Return on Investment Approach (Monetary and Economic)
  
- **Rates and Charges for Airport Leases**
  - Expansion projects create additional costs which have to be accounted for
  - P3s are going to become more critical in addressing financial sustainability
  
- **Funding Opportunities Beyond FAA Sources**
  - Northern Border Regional Commission Infrastructure Grants
  - Economic Development Administration Public Works Grants

- **VTTrans Agency-Wide Project Prioritization Process (all modes)**
  - Safety
  - Asset Condition
  - Mobility / Connectivity
  - Economic Access
  - Regional
  - Resilience
  - Environment
  - Health Access
- **FAA Project Funding Based on National Priorities**
  - Focus Areas Generally Include Safety/Standards, Rehabilitation, and Capacity

# State Project Prioritization



## Category: Safety

- Safety & Standards Projects
- Obstruction removal, avigation easements
- Lighting & other critical maintenance
- Security Fencing

## Methodology

Equal priority, should all be submitted for funding

## Category: Asset Preservation

- Runway rehabilitation / reconstruction
- Taxiway rehabilitation / reconstruction
- Apron rehabilitation / reconstruction
- Fuel farm replacement
- SRE Buildings
- Terminal building rehabilitation

## Methodology

- Asset Condition (40%)
- Mobility / Connectivity (20%)
- Economic Access (15%)
- Regional (10%)
- Resilience (5%)
- Environment (5%)
- Health Access (5%)

## Category: Growth & Development

- Runway extension / expansion
- Taxiway expansion
- Apron expansion
- Fuel farms (new)
- Terminal Buildings & Hangars

## Methodology

- Economic Access (40%)
- Mobility / Connectivity (35%)
- Regional (10%)
- Resilience (5%)
- Environment (5%)
- Health Access (5%)

# *Economic Impact* *Assessment*

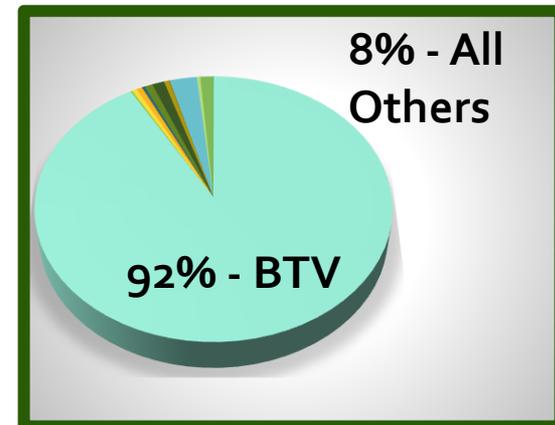


- Technical Terms
- Economic Impact Methodology
- Direct Impacts and Induced Economic Impacts
- Total Economic Impacts
- Burlington Impact Relative to Other VT Airports
- Economic Sustainability

Study Airports  
Included all Vermont  
NPIAS Airports and  
Public-Use Non-NPIAS  
Airports

- **Direct Spending:**
  - On-airport spending on employment, operations, and capital projects
  - Off-airport spending by air travelers for rental cars, hotels, restaurants, etc.
  - Represents both providers and users of airport services
- **Induced Benefits:**
  - Impacts above the direct spending created by the successive rounds of spending in the local economy until the original direct impact has been incrementally exported from the local area
- **Jobs and Income:**
  - Jobs and income generated by activity at airports in Vermont
- **Total Output in Dollars:**
  - The combined impacts of direct and induced spending
- **Taxes:**
  - Estimated tax revenue generated by Vermont airports to local and State units of government in Vermont

- **Data Gathering for Direct Impacts:**
  - Surveys Used to Gather Data
  - On-Airport Jobs – 3,457 FTE
  - Visitor Spending - \$127.2 million
  - Airport Capital Improvement Spending - \$18.5 million
- **IMPLAN Modeling:**
  - Estimates Jobs and Respending Multipliers (Induced Impacts)
  - Estimates Tax Impacts
- **Total Impacts:**
  - Direct Plus Induced Impacts



# Direct & Induced Impacts



Airport	Direct Employment	Direct Impacts	Direct Income	Induced Employment	Induced Impacts
Basin Harbor	2 Jobs	\$95,200	\$36,000	0 Jobs	\$65,900
Burlington International	3457 Jobs	\$289,513,700	\$106,404,500	1478 Jobs	\$191,951,200
Caledonia County State	3 Jobs	\$277,500	\$100,100	2 Jobs	\$217,600
Deerfield Valley Regional	1 Jobs	\$118,900	\$42,200	1 Jobs	\$90,200
Edward F. Knapp State	14 Jobs	\$1,483,500	\$511,500	9 Jobs	\$1,176,400
Franklin County State	19 Jobs	\$1,611,500	\$631,900	11 Jobs	\$1,336,300
Hartness State	8 Jobs	\$885,800	\$325,000	6 Jobs	\$706,500
John H Boylan State	0 Jobs	\$36,300	\$12,500	0 Jobs	\$28,500
Middlebury State	18 Jobs	\$2,253,000	\$796,400	14 Jobs	\$1,818,600
Morrisville- Stowe State	36 Jobs	\$3,499,900	\$1,269,500	21 Jobs	\$2,702,000
Northeast Kingdom International	11 Jobs	\$1,345,400	\$497,100	8 Jobs	\$1,064,900
Post Mills	2 Jobs	\$285,400	\$93,200	2 Jobs	\$239,200
Rutland - Southern Vermont Regional	84 Jobs	\$8,330,100	\$2,961,700	45 Jobs	\$5,890,700
Shelburne	1 Jobs	\$122,100	\$40,200	1 Jobs	\$101,500
Warren-Sugarbush	6 Jobs	\$839,600	\$277,100	6 Jobs	\$695,800
William H. Morse State	31 Jobs	\$3,724,000	\$1,536,700	23 Jobs	\$3,007,700
<b>Grand Totals</b>	<b>3,693 Jobs</b>	<b>\$314,421,900</b>	<b>\$115,535,600</b>	<b>1,627 Jobs</b>	<b>\$211,093,000</b>

# Tax and Total Impacts



Airport	State & Local Taxes	Grand Total Employment	Grand Total Income	Grand Total Impacts
Basin Harbor	\$14,700	2 Jobs	\$57,000	\$161,100
Burlington International	\$34,527,500	4935 Jobs	\$170,427,100	\$481,464,900
Caledonia County State	\$24,000	4 Jobs	\$175,100	\$495,100
Deerfield Valley Regional	\$13,500	2 Jobs	\$73,000	\$209,200
Edward F. Knapp State	\$135,100	24 Jobs	\$925,100	\$2,659,900
Franklin County State	\$112,400	30 Jobs	\$1,100,500	\$2,947,800
Hartness State	\$71,600	14 Jobs	\$570,200	\$1,592,300
John H Boylan State	\$3,500	1 Jobs	\$22,500	\$64,900
Middlebury State	\$161,700	32 Jobs	\$1,435,400	\$4,071,600
Morrisville- Stowe State	\$334,700	57 Jobs	\$2,193,500	\$6,201,900
Northeast Kingdom International	\$98,400	20 Jobs	\$862,900	\$2,410,300
Post Mills	\$18,600	4 Jobs	\$180,400	\$524,600
Rutland - Southern Vermont Regional	\$900,800	129 Jobs	\$4,904,800	\$14,220,800
Shelburne	\$8,500	2 Jobs	\$77,000	\$223,600
Warren-Sugarbush	\$59,600	12 Jobs	\$529,000	\$1,535,300
William H. Morse State	\$253,600	54 Jobs	\$2,569,000	\$6,731,700
<b>Grand Totals</b>	<b>\$36,738,200</b>	<b>5,322 Jobs</b>	<b>\$186,102,500</b>	<b>\$525,515,000</b>

- Large Business Jet - \$1.3 Million/yr., 3 FTE
- Multiengine Propeller - \$350,000/yr., 0.5 FTE
- Hangar Construction:
  - Permanent Job Creation: 3 jobs per \$1,000,000
  - Temporary Job Creation: 12 jobs per \$1,000,000 (for hangar construction)
  - Permanent Economic Output: \$1,300,000 per year (assuming hangar is occupied)
  - Temporary Economic Output: \$1,660,000 per \$1,000,000 construction expenditure
  - Hangar Space: 6,700 square feet per \$1,000,000
  - Airport Revenues: \$50,000 per year on investment of \$1,000,000
- Visitor Spending – Total Impacts \$806/Visitor (includes multiplier)

# Next Steps

- **Draft Airport System Plan Report and Forward for Stakeholder and Public Review**
- **Revise Technical Memos if Needed**
- **Hold 2 Public Meetings (northern and southern airports)**
- **Present Overview to VTrans Executive Staff**
- **Finalize Airport System Plan and Forward to FAA**
- **Testify on the Airport System Plan in the Legislature (2020 Session)**

# Questions?



## Project Contacts

Rick Lucas - [Rlucas@mjinc.com](mailto:Rlucas@mjinc.com)

Scott LeCount – [Slecount@mjinc.com](mailto:Slecount@mjinc.com)