# Airport Master Plan Update

Source: VTrans

## Middlebury State Airport (6B0)

### Public Information Meeting #1

### June 30, 2022

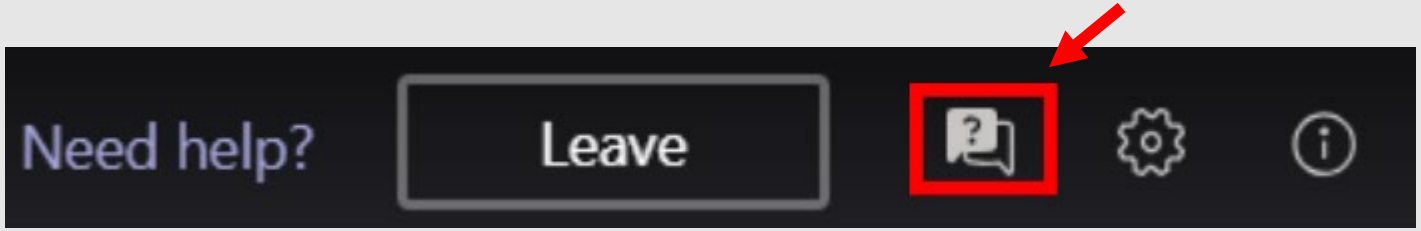
VERMONT AGENCY OF TRANSPORTATION

CELEBRATING CIAO 1952-2022

# Questions/Comments

**ASK A QUESTION (upper right corner)**

**“Click Q&A icon & “Ask a Question”**




**SUBMIT QUESTIONS/COMMENTS:**

VTrans Project Manager: Shaun.Corbett@vermont.gov

# Today's Agenda

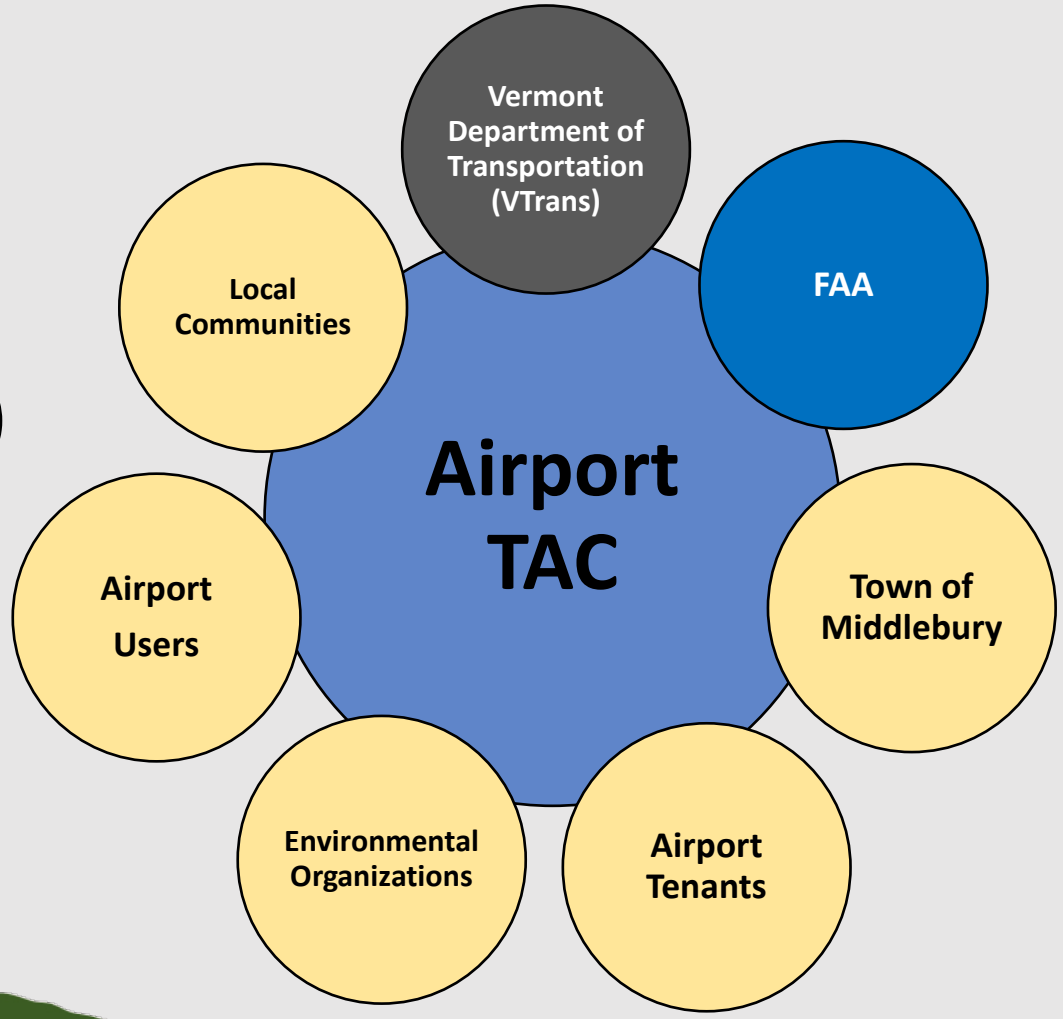
- Overview of Master Plan Process
- Airport Inventory
- Activity Forecasts
- Facility Requirements
- Development Alternatives
- Next Steps:
  - Airspace/Obstruction Analysis
  - Draft Reports and ALP
  - Final Meetings

# What is the Purpose of this Meeting?

- **Community Engagement:**
  - Present the study findings
  - Answer questions
  - Collection input/comments
- **Public Outreach Activities:**
  - 2 Public Meetings
  - 3 Technical Advisory Committee (TAC) meetings

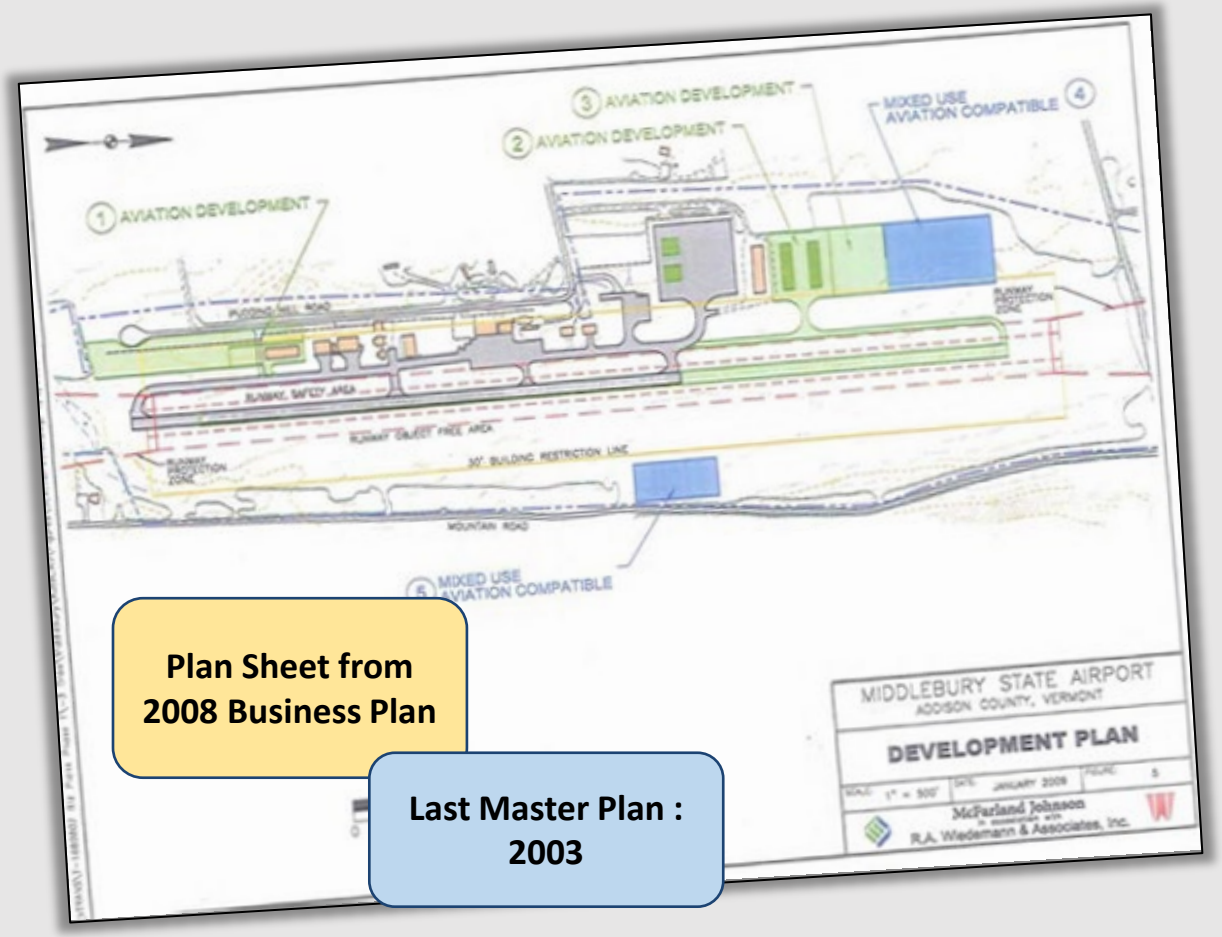
# Airport Master Plan Team

- Airport / VTrans Staff
- Federal Aviation Administration
- Technical Advisory Committee (TAC)
- CHA (Airport Consultant)
- General Public



# What is an Airport Master Plan?

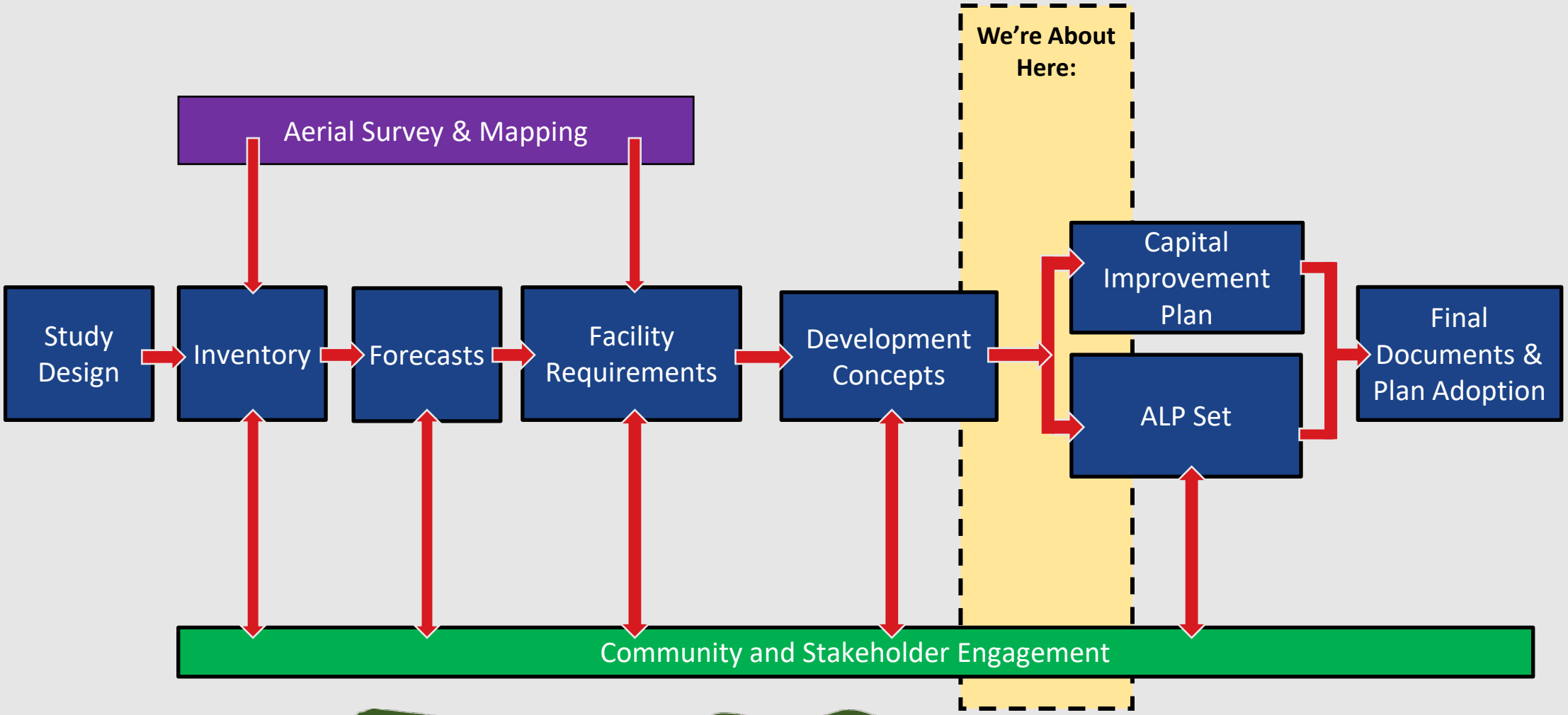
- A study that guides short and long-term Airport Improvements
- Two Parts:
  - *Master Plan Report*
  - *Airport Layout Plan (ALP) (Drawing Set)*
- Includes Community Engagement
- Reviews FAA Guidance and Standards
- **Required by FAA for federal funding**




**Plan Sheet from 2008 Business Plan**

**Last Master Plan : 2003**

# Airport Master Planning Process



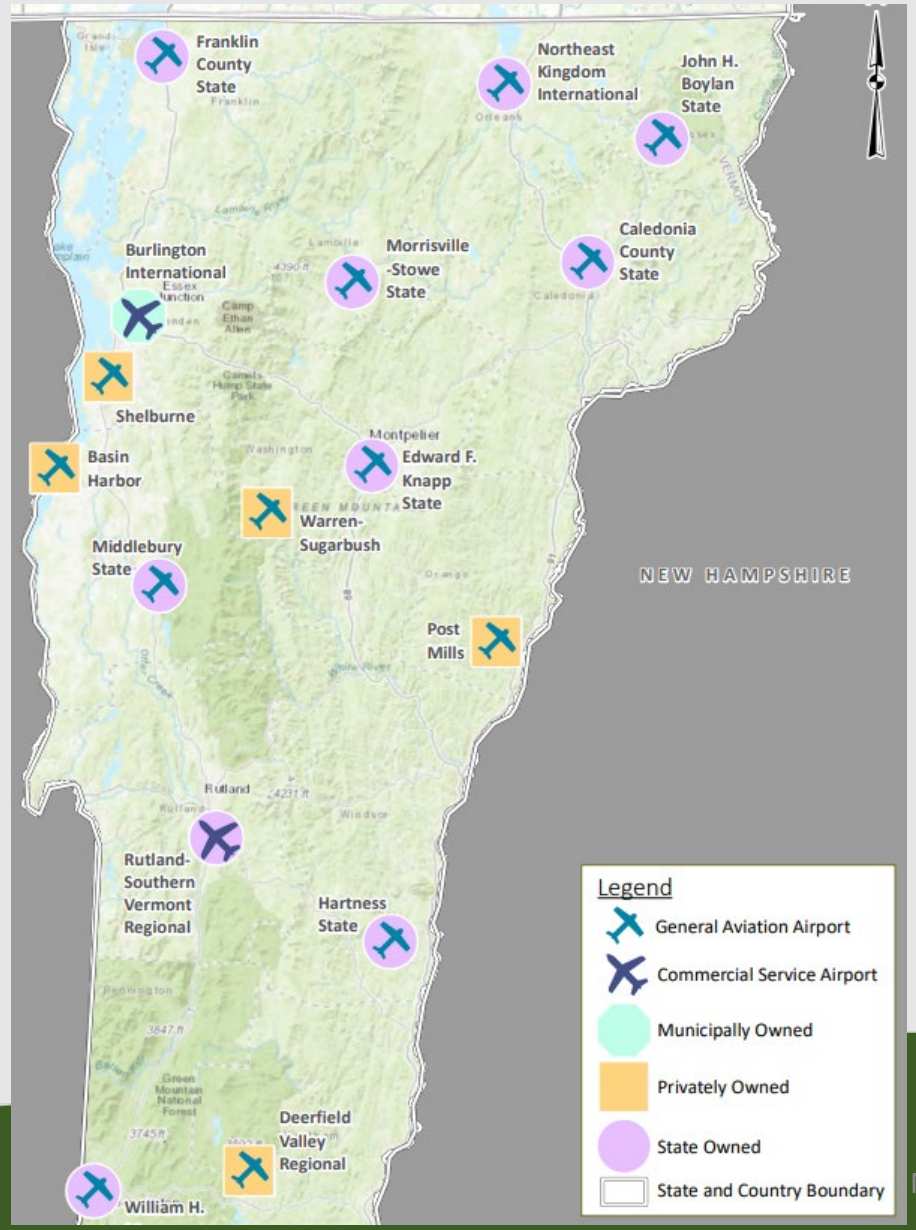
# Airport Master Plan – Focus Areas

- Focus Areas:
  - Airport Survey & Mapping (i.e., AGIS)
  - Airfield Needs & FAA Design Standards
  - Airspace Obstruction Considerations
  - Potential Improvements
    - Airfield
    - Hangars/Terminal Concepts
  - Financial Considerations / Costs
- **Follow up to the Vermont Aviation System Plan (VASP)**

Image Courtesy of Terry Fletcher at Airport-Data.com


Source: VTrans

# Vermont Aviation System Plan (VASP)




- Statewide Aviation Study (2021)
- Identified recommendations for all public-use airports
  - Considering location/distribution
  - Project Needs/Justifications
  - Feasibility

# Airport Inventory

# Key Airport Features

- Approximately 156 acres
- Runway: *1-19 (3,206’ in length)*
- Parallel Taxiway
- 30 Based Aircraft
- 13 Aircraft Hangars
- 40 Aircraft Tie-Down Positions
- Automated Weather Station
- Aviation Fuel
- Business Tenants
  - Green Mountain Avionics
  - J & M Aviation


# Existing Facilities


| No. | Facility | Area |
|---|---|---|
| 1 | T-Hangar | 8 Stalls |
| 2 | AWOS-III | - |
| 3 | Fuel Farm | - |
| 4 | Equipment Storage | 2,750 SF |
| 5 | Box Hangar | 1,850 SF |
| 6 | Box Hangar | 1,850 SF |
| 7 | Box Hangar | 2,275 SF |
| 8 | Terminal Building/Hangar | 5,400 SF |
| 9 | Equipment Storage | 400 SF |

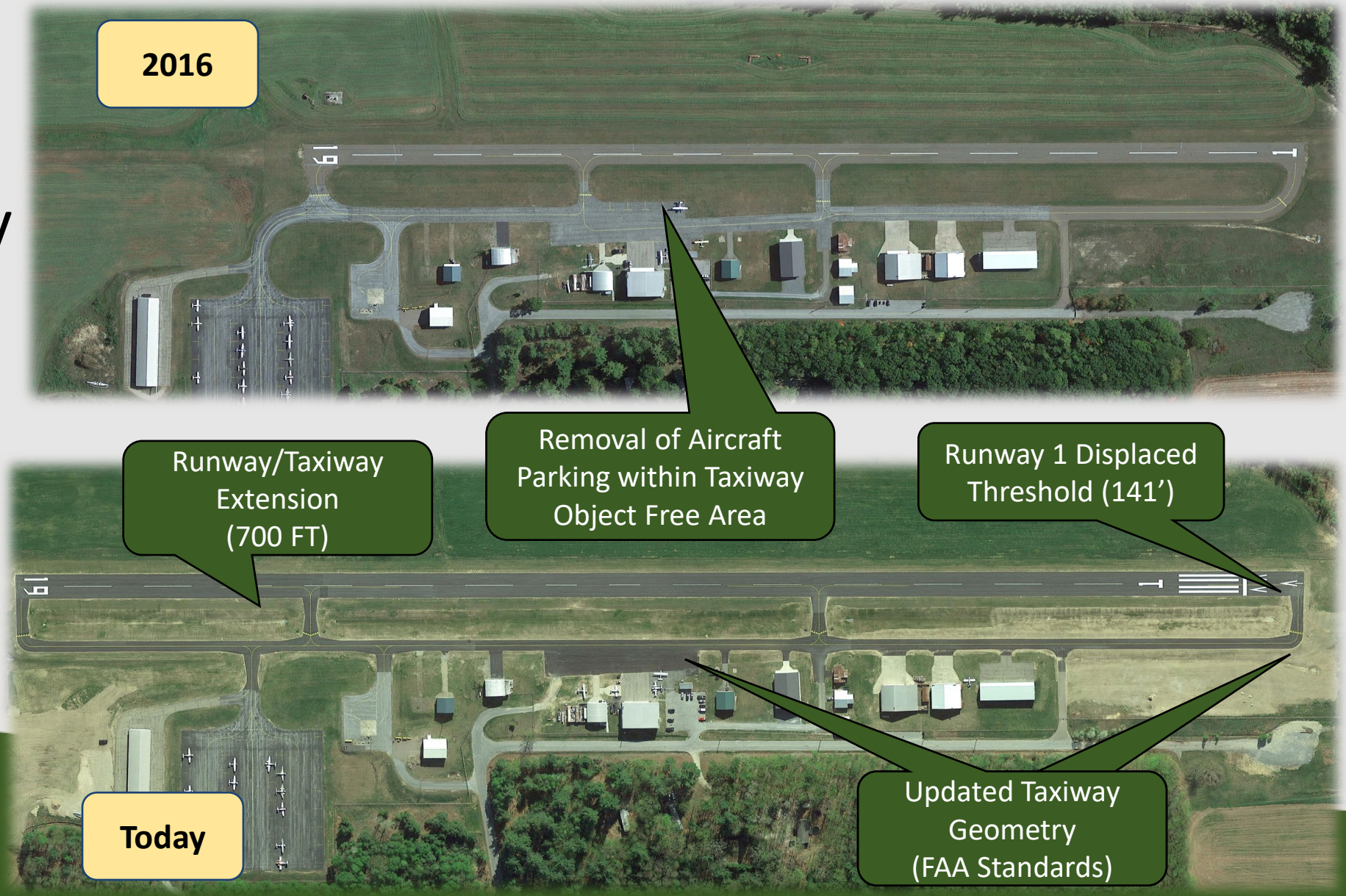
Building area is approximated from aerial imagery

| No. | Facility | Area |
|---|---|---|
| 10 | Segmented Circle | - |
| 11 | Box Hangar | 2,000 SF |
| 12 | Box Hangar | 5,000 SF |
| 13 | T-Hangar | 1,000 SF |
| 14 | T-Hangar | 1,675 SF |
| 15 | T-Hangar | 1,500 SF |
| 16 | Box Hangar | 5,575 SF |
| 17 | Box Hangar | 4,350 SF |
| 18 | T-Hangar | 3 Stalls |

# Recent Airfield Improvements

Runway/Taxiway Extension:

700 feet



# Airport Reference Code (ARC)

- FAA System to Classify Airports
  - Based on Approach Speed & Wingspan
  - Identifies Airfield Requirements
- Operations are mostly A-I or B-I, with occasional A-II and B-II

| Approach Category | |
|---|---|
| | Airspeed (knots) |
| A | < 91 |
| B | 91 ≤ 121 |
| C | 121 ≤ 141 |
| D | 141 ≤ 166 |
| E | 166+ |

| Design Group | |
|---|---|
| | Wingspan (feet) |
| I | < 49 |
| II | 49 ≤ 79 |
| III | 79 ≤ 118 |
| IV | 118 ≤ 171 |
| V | 171 ≤ 214 |
| VI | 214 ≤ 262 |

**A-I**

Piper Cherokee

Cessna 172


**B-I**

Cessna 421


Socata TBM

**A-II**

Cessna 208

Pilatus PC-12

**B-II**

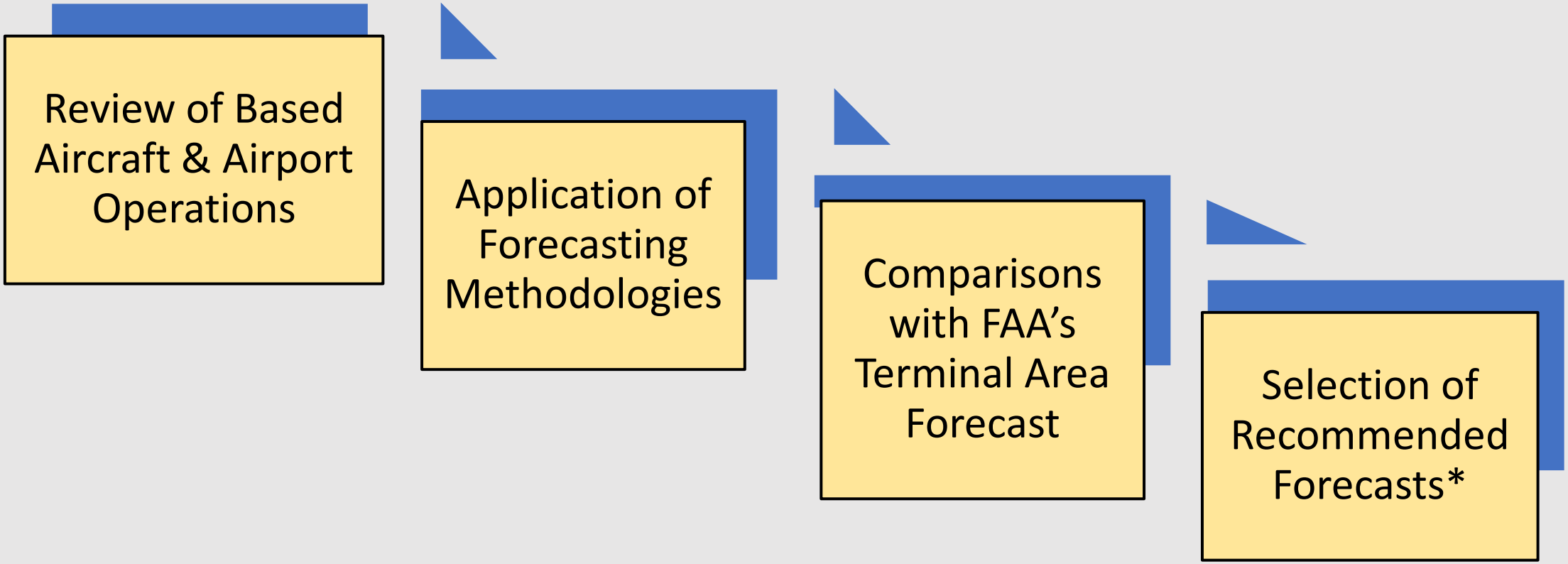
King Air 200

Cessna Citation XL

# Airport Forecast

# Forecasts of Aviation Demand

## *Forecasting Process*




* FAA Approval is Required

# TAF Based Aircraft & Airport Operations

- FAA Terminal Area Forecast (TAF)
  - Based aircraft & Operations
  - Static Forecast
- Master Plan Forecast must be consistent with TAF:
  - Within 15% at 10-years

| Year | Based Aircraft | Airport Operations |
|---|---|---|
| 2010 | 46 | 10,900 |
| 2011 | 31 | 10,900 |
| 2012 | 32 | 10,900 |
| 2013 | 32 | 10,900 |
| 2014 | 32 | 10,900 |
| 2015 | 36 | 10,900 |
| 2016 | 37 | 10,900 |
| 2017 | 36 | 10,900 |
| 2018 | 29 | 10,900 |
| 2019 | 17 | 6,350 |
| 2020 | 17 | 6,350 |
| **TAF Projected** | | |
| ***2021*** | ***17*** | ***6,350*** |
| ***2026*** | ***17*** | ***6,350*** |
| ***2031*** | ***17*** | ***6,350*** |
| ***2036*** | ***17*** | ***6,350*** |
| ***2041*** | ***17*** | ***6,350*** |

Base Year
Actual

**Excludes military operations*

# 6B0 Master Plan Forecasts

## *Based Aircraft & Operations Methodologies*

- VT Airport System Plan (VASP) Forecasts
  - Apply growth parameters of the 2021 VASP
- Socioeconomic Forecasts
  - Addison County population growth (-0.12%)
  - Addison County household income growth (2.5%)
- Operations per Based Aircraft (OPBA)

Selected Recommended Forecast

# 6B0 Master Plan Forecasts

## *Recommended Forecasts**

- **Based Aircraft**
  - VASP High Growth forecast, 9 additional aircraft by 2041

- **Airport Operations**
  - VASP High Growth forecast projects:
  - 1,220 additional annual operations
  - Does not exceed FAA parameters

### *Based Aircraft*

| Year | Recommended Forecast |
|---|---|
| 2020 | 30 |
| 2021 | 30 |
| 2026 | 32 |
| 2031 | 34 |
| 2036 | 36 |
| 2041 | 39 |

### *Airport Operations*

| Year | 6B0 TAF | Recommended Forecast | Recommended Forecast vs. FAA TAF |
|---|---|---|---|
| 2020 | 6,350 | 6,350 | 0.0% |
| 2021 | 6,350 | 6,403 | 0.8% |
| 2026 | 6,350 | 6,677 | 5.1% |
| 2031 | 6,350 | 6,962 | **9.6%** |
| 2036 | 6,350 | 7,259 | 14.3% |
| 2041 | 6,350 | 7,569 | 19.2% |

# Aircraft Fleet Mix

- Fleet Mix Forecast
  - *Used the FAA Aerospace Forecast Report (FY 2020 – 2040)*
- Determines Potential Space/Sizing Needs

***Based Aircraft Fleet Mix Forecast***

| Year | Single-Engine | Multi-Engine | Turbine Engine | Rotor-Craft | Total |
|---|---|---|---|---|---|
| 2020 | 29 | 0 | 1 | 0 | 30 |
| 2021 | 29 | 0 | 1 | 0 | 30 |
| 2026 | 30 | 1 | 1 | 0 | 32 |
| 2031 | 32 | 1 | 1 | 0 | 34 |
| 2036 | 32 | 1 | 3 | 0 | 36 |
| 2041 | 34 | 2 | 3 | 0 | 39 |

# Critical Aircraft Determination

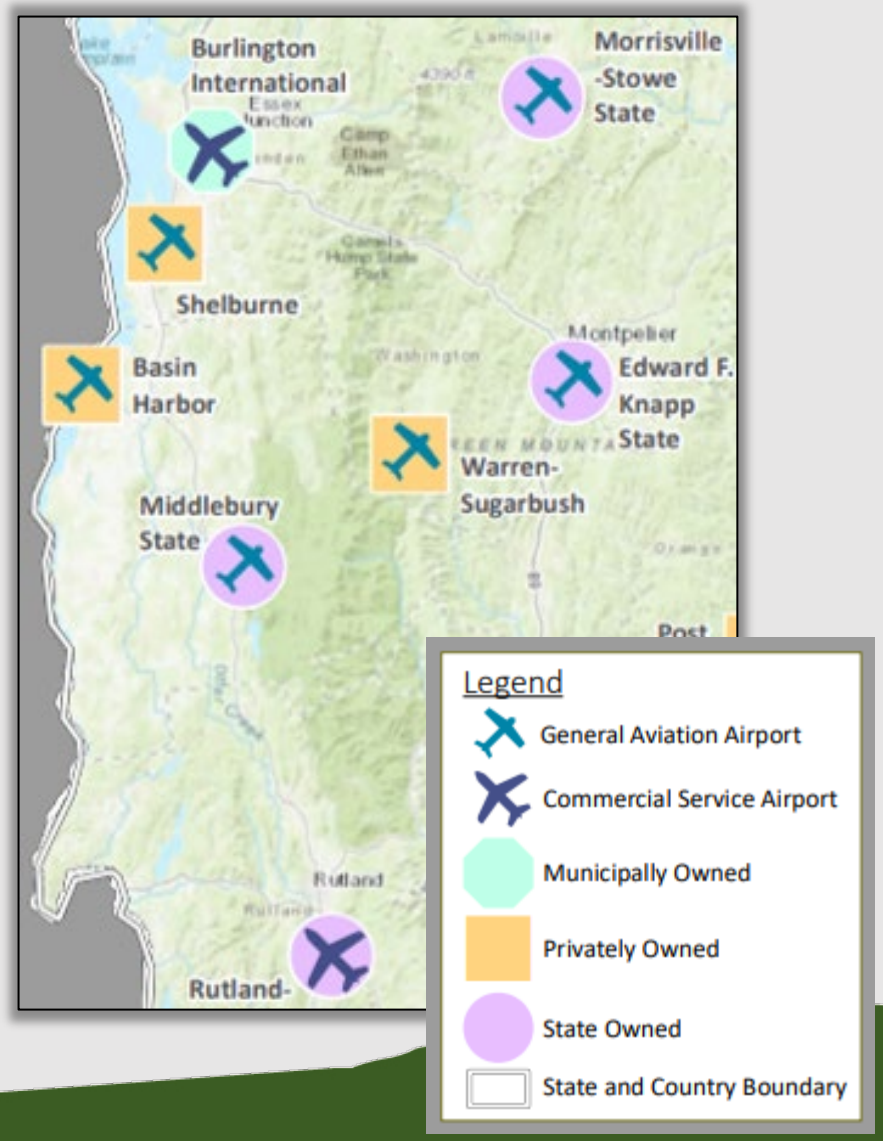
- Critical Aircraft
  - Type or family of aircraft with 500 or more annual operations at the airport
- Most Activity is of ARC A-I & B-I Aircraft, with Occasional A-II & B-II Aircraft
- Retain Existing A-I / B-I Designation: **No Change**
- Sample Critical Aircraft: **Cessna 421**

# Airport Facility Requirements

# Runway & Taxiway Requirements

- Existing: 3,200’ Long by 60’ wide:
  - Adequate for Critical Aircraft & ARC B-I
  - No expansion required
- Full Parallel Taxiway: 25’ wide

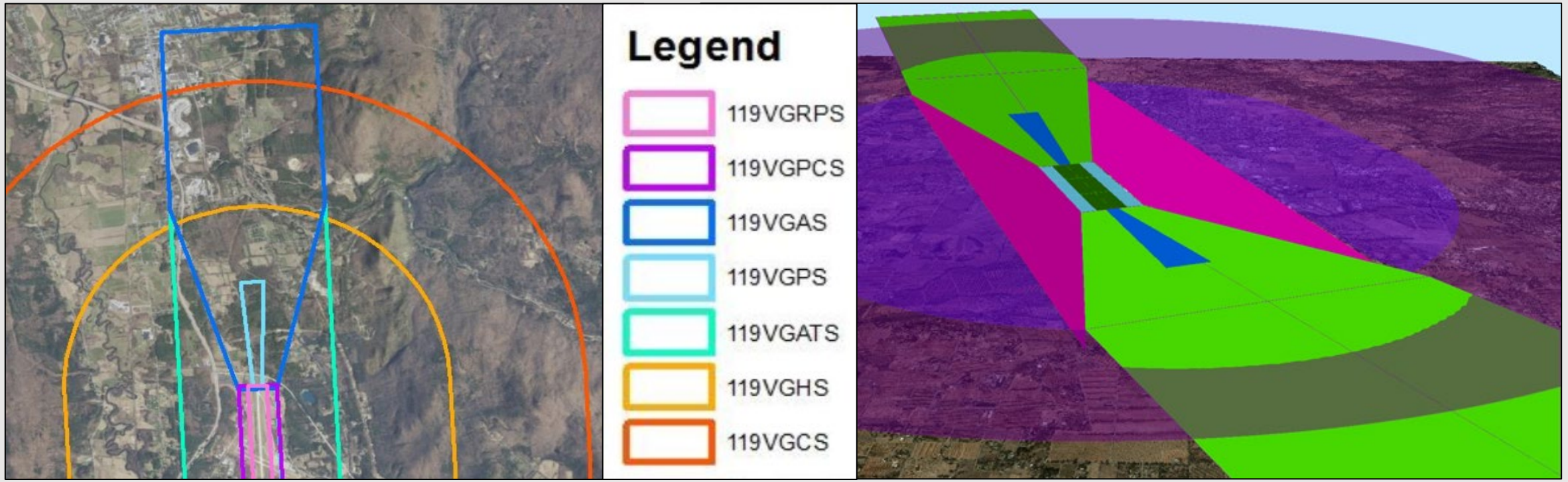
# Runway Length Requirements




- Statewide airport system already provides longer runways at other airports:
  - Burlington
  - Rutland
  - Montpelier/Barre
- 3,200’ is adequate for most light aircraft

# Airport Geographic Information System (AGIS)

## An FAA required ground & aerial survey to gather pertinent aeronautical data

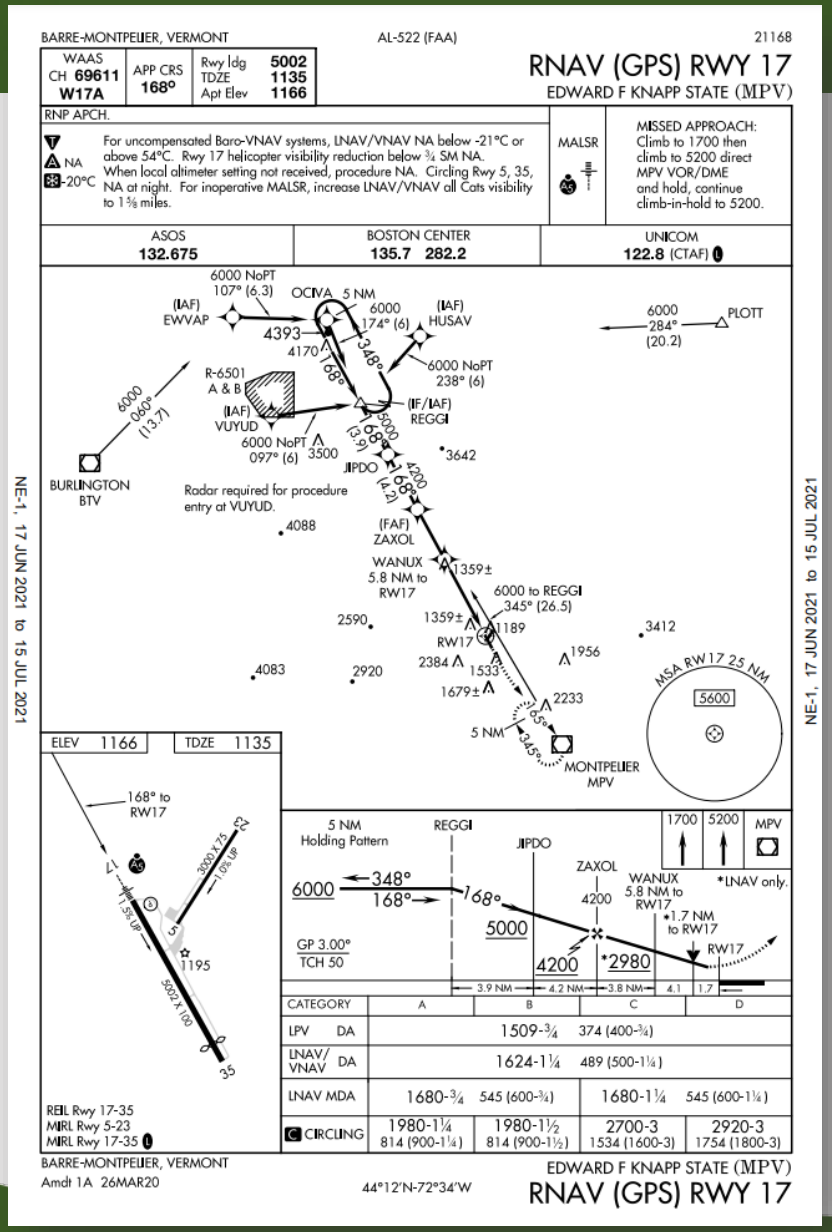



Example of AGIS Airspace Survey

# Instrument Approaches

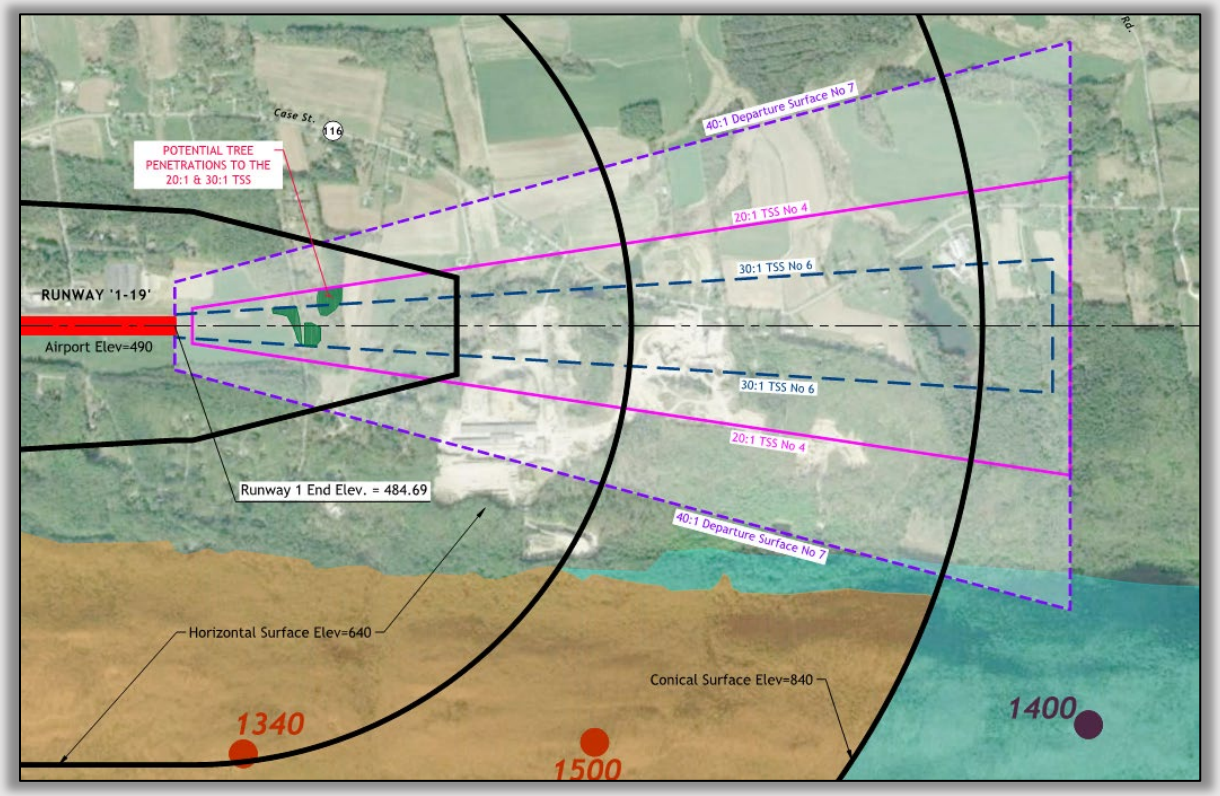
- No Current Instrument Approach Procedure (IAP):
  - Provides electronic guidance to the airport
  - Use during low clouds or visibility <3 miles
  - With GPS, no ground equipment is needed


***Sample:***
***GPS Procedure at***
***E.F. Knapp Airport***



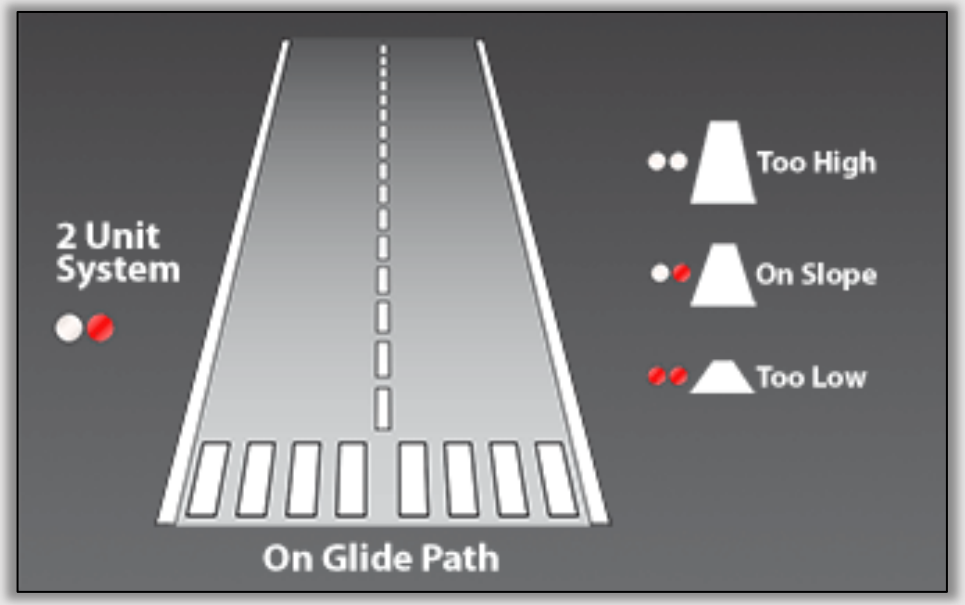
# Instrument Approach & Lighting Study

- Instrument Approach Procedure Findings:
  - Daytime only
  - High terrain may result in high ‘minimums’ decent altitudes
- Instrument Approach Options:
  - *North & West Approach:* Feasible
  - *South Approach:* Possible
  - *East Approach:* Not feasible



# Precision Approach Path Indicator

- 2-Box Precision Approach Path Indicator – PAPI-2
  - Visual aid for pilots
  - Indicates if aircraft is on the ideal glide path to the runway end

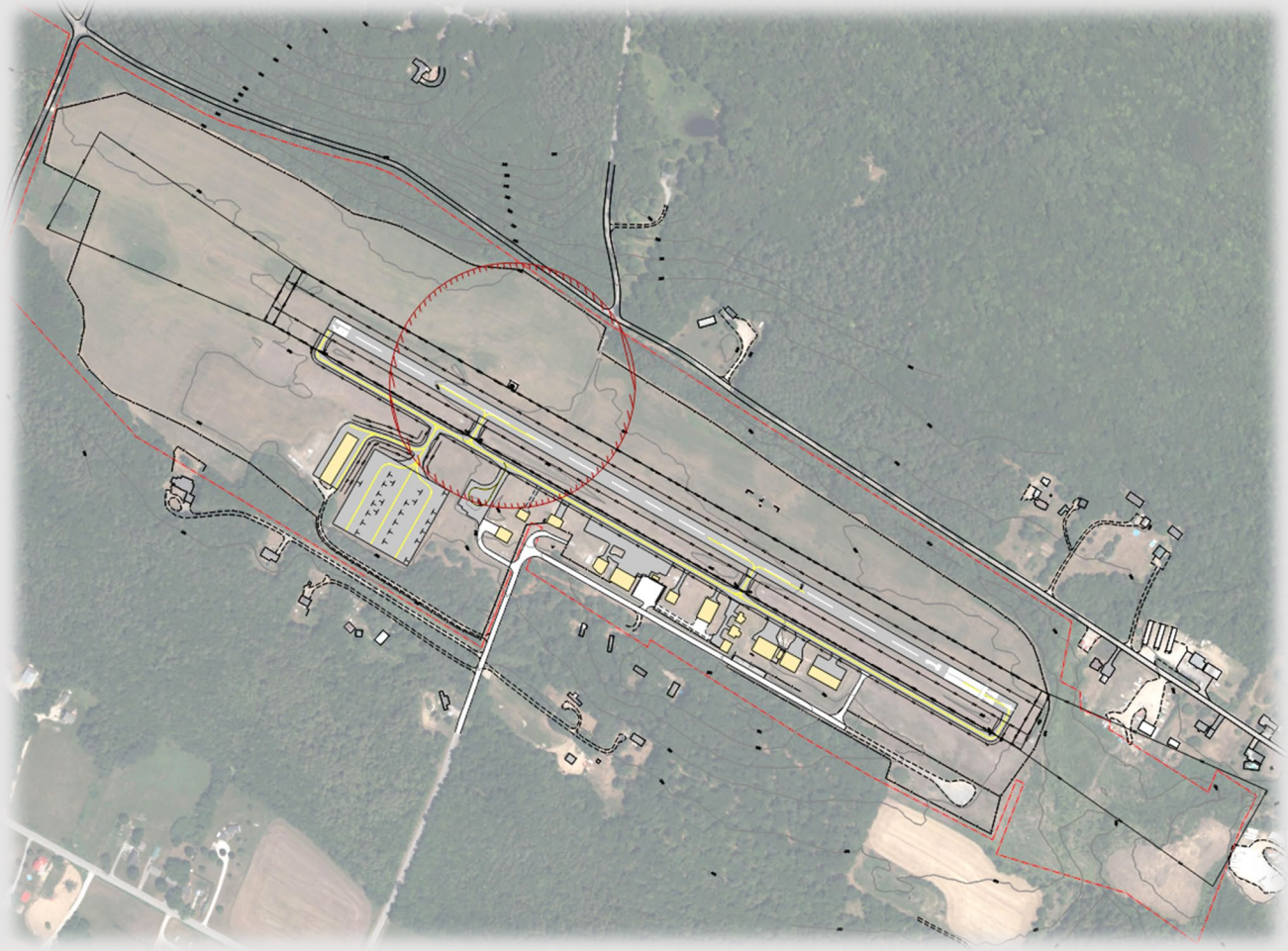




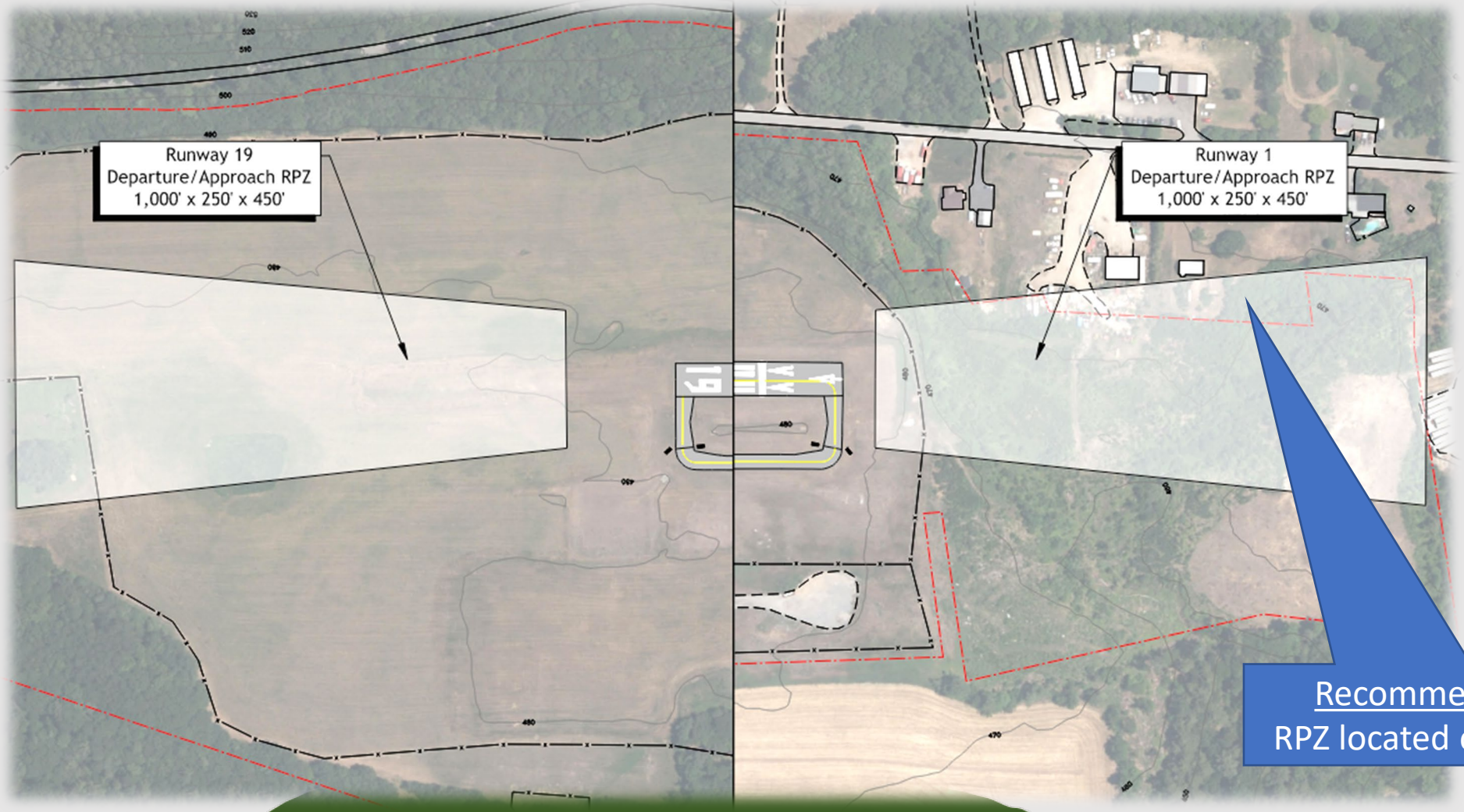
**Sample PAPI Unit** (Source Flight Light, Inc.)

# Runway Safety Evaluation

- Runway Safety Area (RSA)
  - Width: 120 Feet
  - Length: 240 Feet beyond end
  - Graded to support and aircraft
- Runway Object Free Area (ROFA)
  - Width: 250 Feet
  - Length: 240 Feet beyond end
  - Clear of objects
- Airport meets all FAA Runway Safety Standards

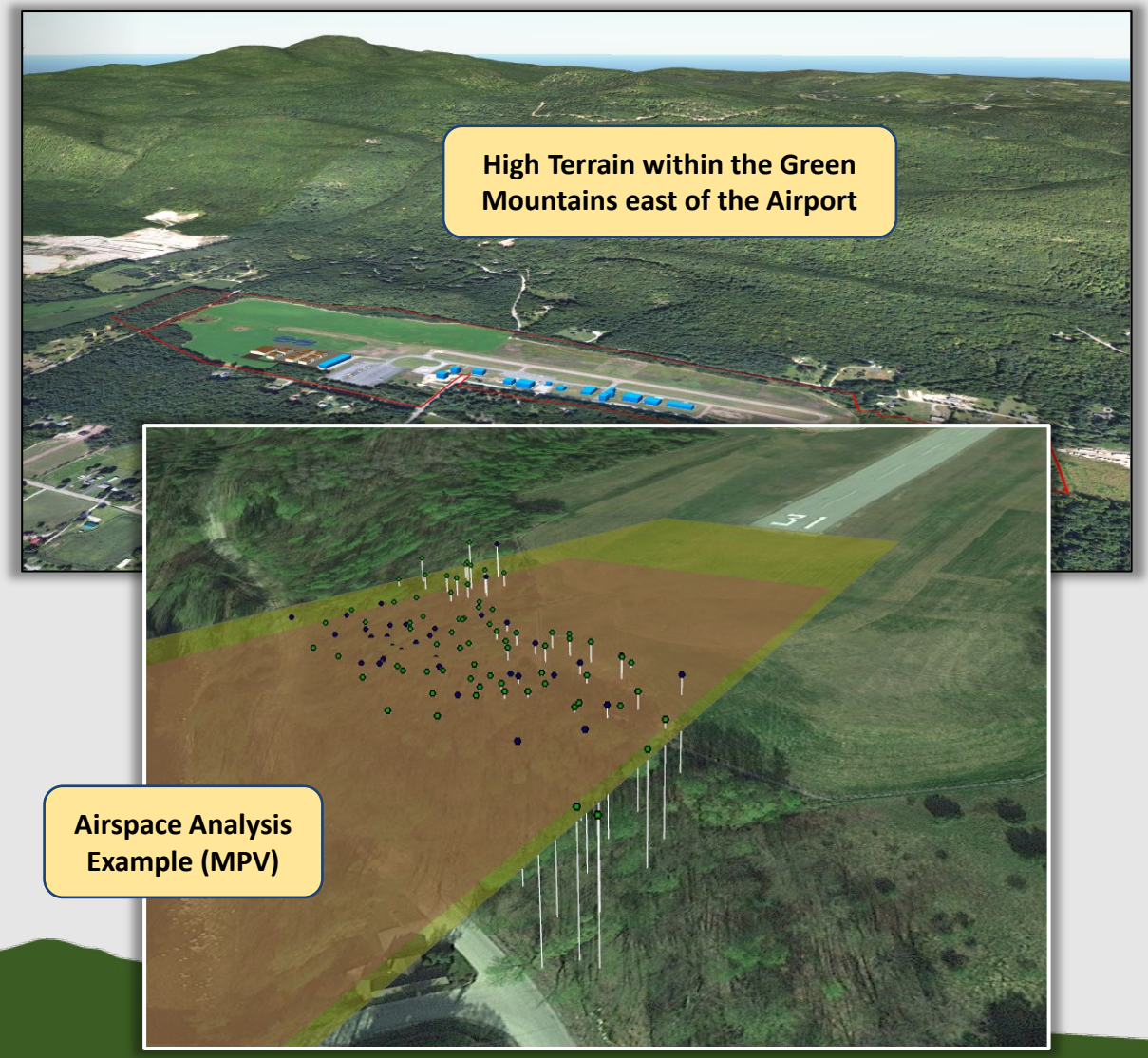


# Runway Protection Zone (Avigation Easements)



# Airspace Obstruction Analysis

- Wooded Areas & Hills
- Green Mountain to the East
- Approach Surfaces
  - FAR Part 77 Surface (Regulated Airspace)
  - Threshold Siting Surface (FAA Standards)
- Identify Obstruction& Mitigation



# Hangar and Apron Requirements

- Hangars:
  - Existing Hangars are at Capacity (i.e., full)
  - Based Aircraft Growth is Anticipated
  - Several Hangars in design/application phase
  - Conclusion:  Additional Hangars Recommended
- Aircraft Parking Apron:
  - Adequate positions available

# Terminal Building

- Airport does not have a general aviation Terminal Building
- Desired Uses:
  - Flight planning & instruction
  - Passenger waiting area
  - Pilot lounge
  - Offices/conference/management space
  - Public Restrooms

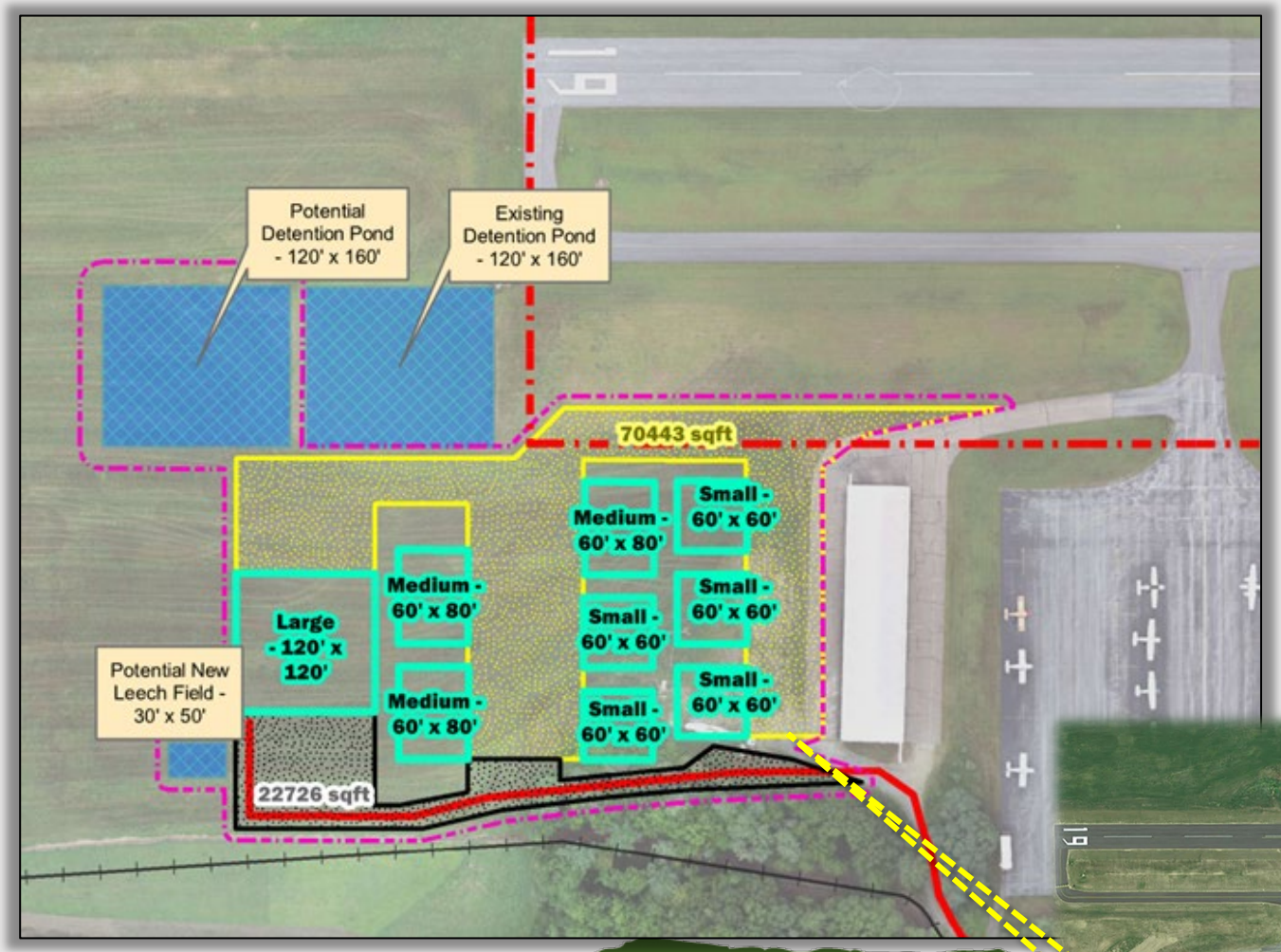
**Sample**: Morrisville-Stowe State Airport

# Airport Facility Requirements Summary

- **Airfield:**
  - Publish Instrument Approach Procedures
  - Add PAPI system (both runway ends)
  - Additional tree removal (as needed)
- **Landside/Terminal Area:**
  - New GA Terminal Building
  - Additional Vehicle Parking
  - Additional Hangars

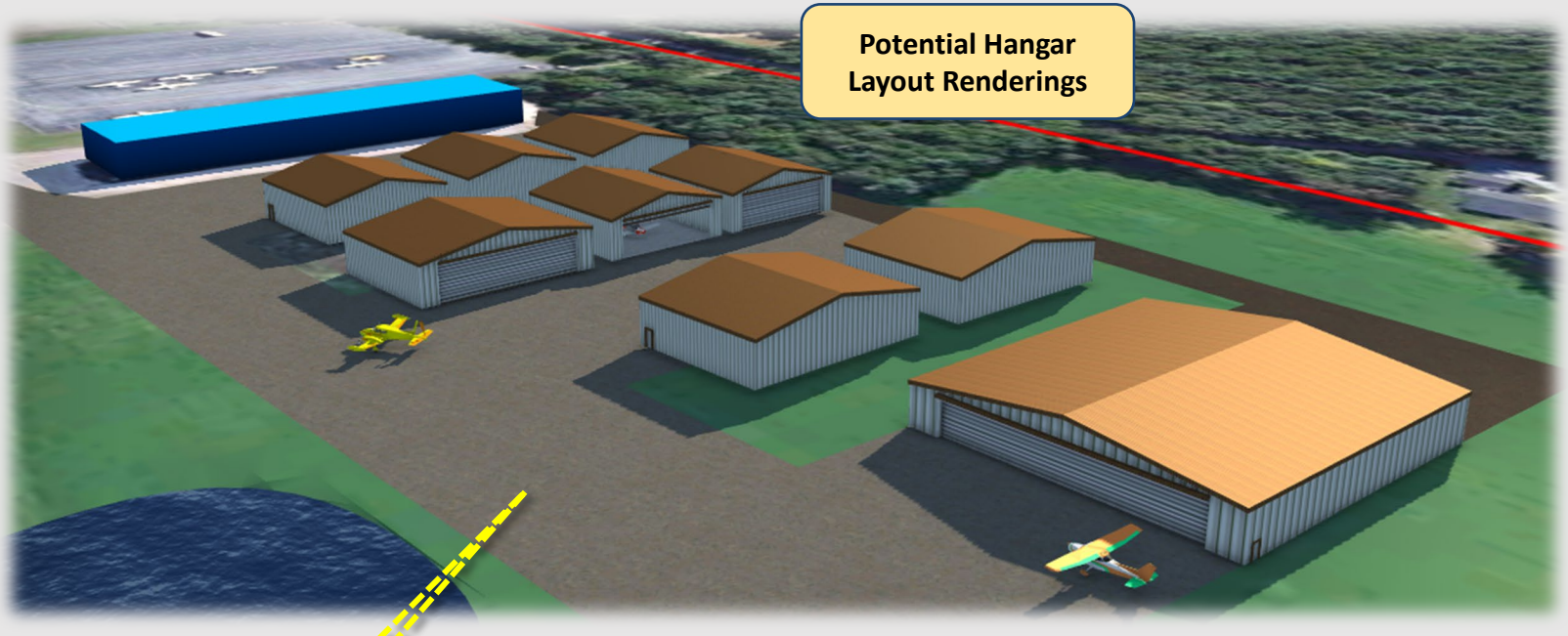
# Airport Development Concepts

# Airport Development Concepts



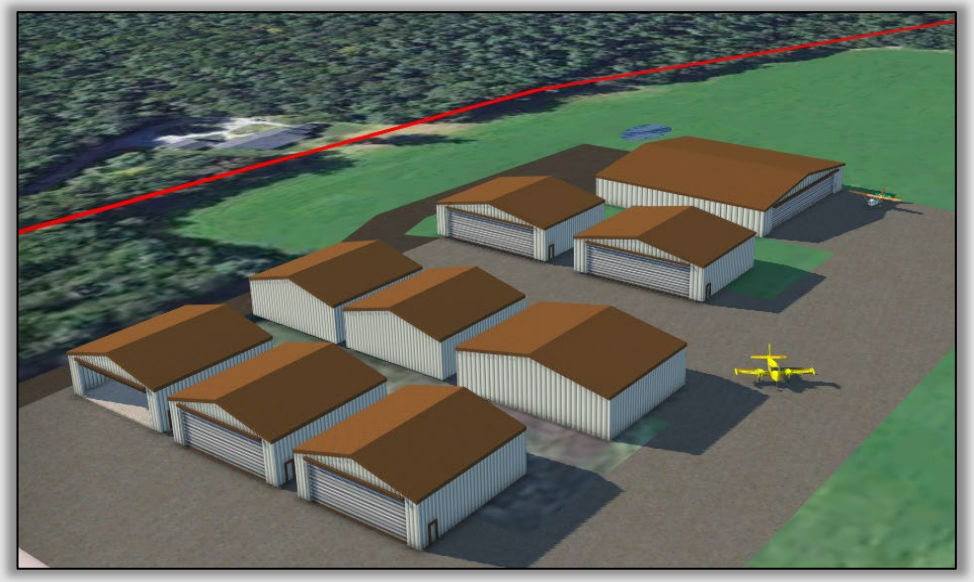

VTrans is advancing a statewide effort to "pre-permit" hangar sites to foster private investment.

# Airport Development Concepts

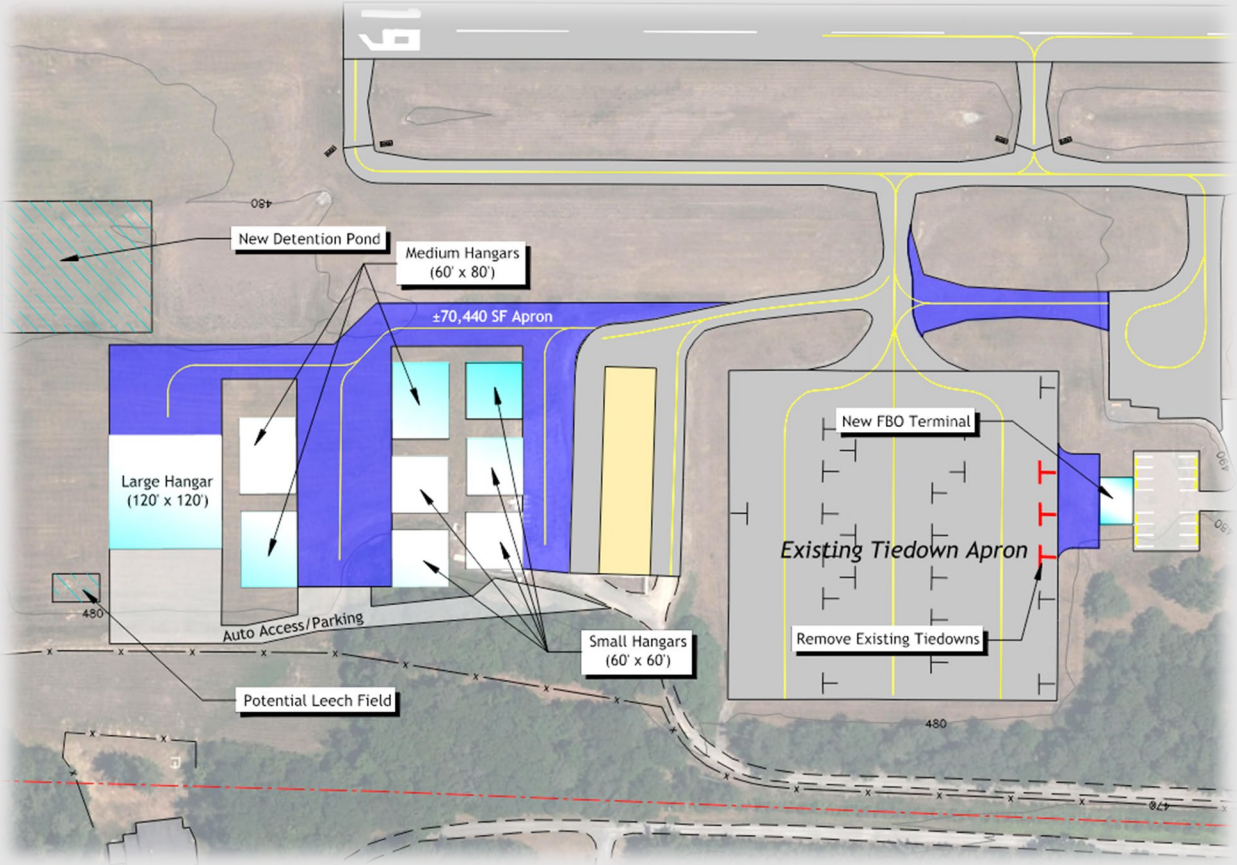



# Act 250 Permitting Process – for Hangars

- **Statewide Program for Airports:**
  - Identify potential hangar locations
  - Sites for small, medium & large hangars
  - Complete '**Master Permitting**':
    - General & Construction Stormwater
    - Water & Wastewater
    - Act 250
- **Status for Middlebury Airport**
  - Act 250 Amendment submitted (No. 9A0158-12)
  - A 'major determination' is likely with a public hearing

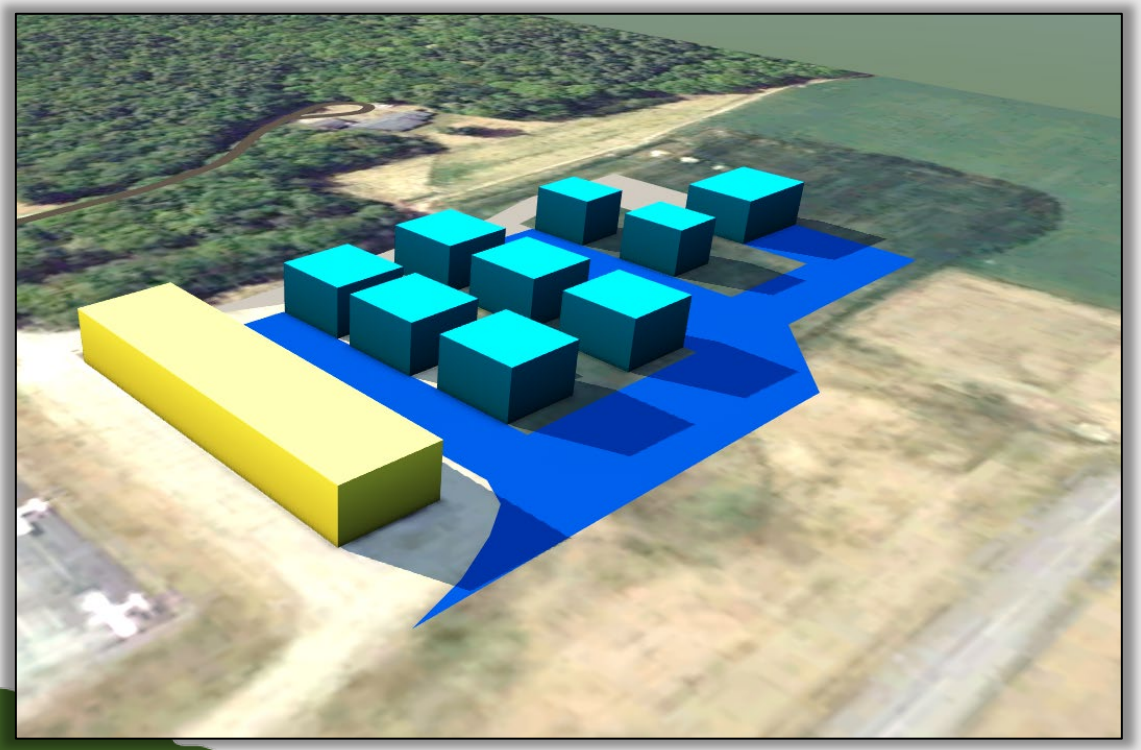


# Master Plan Concepts




*Lease sites; actual development would be by tenant

- North Hangar Development
  - Additional hangars for corporate and small GA aircraft*
  - On-going Master Permitting Process



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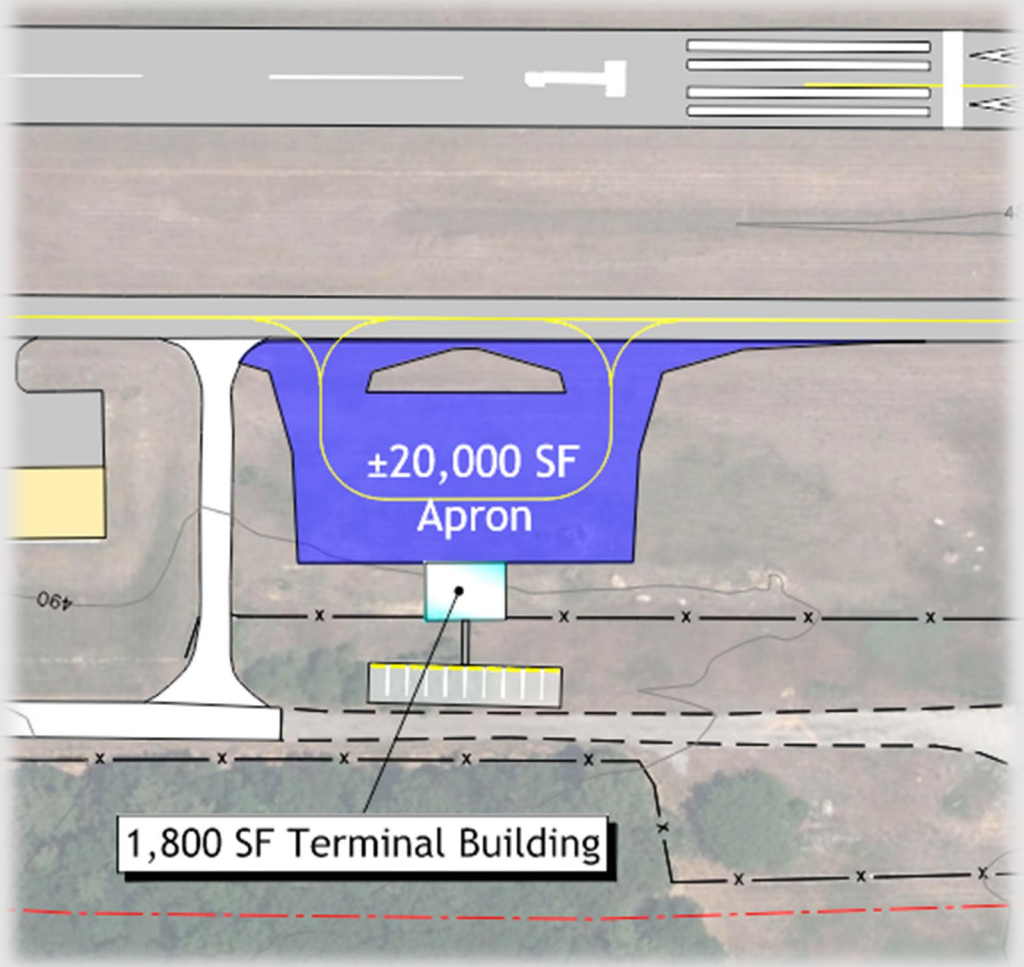
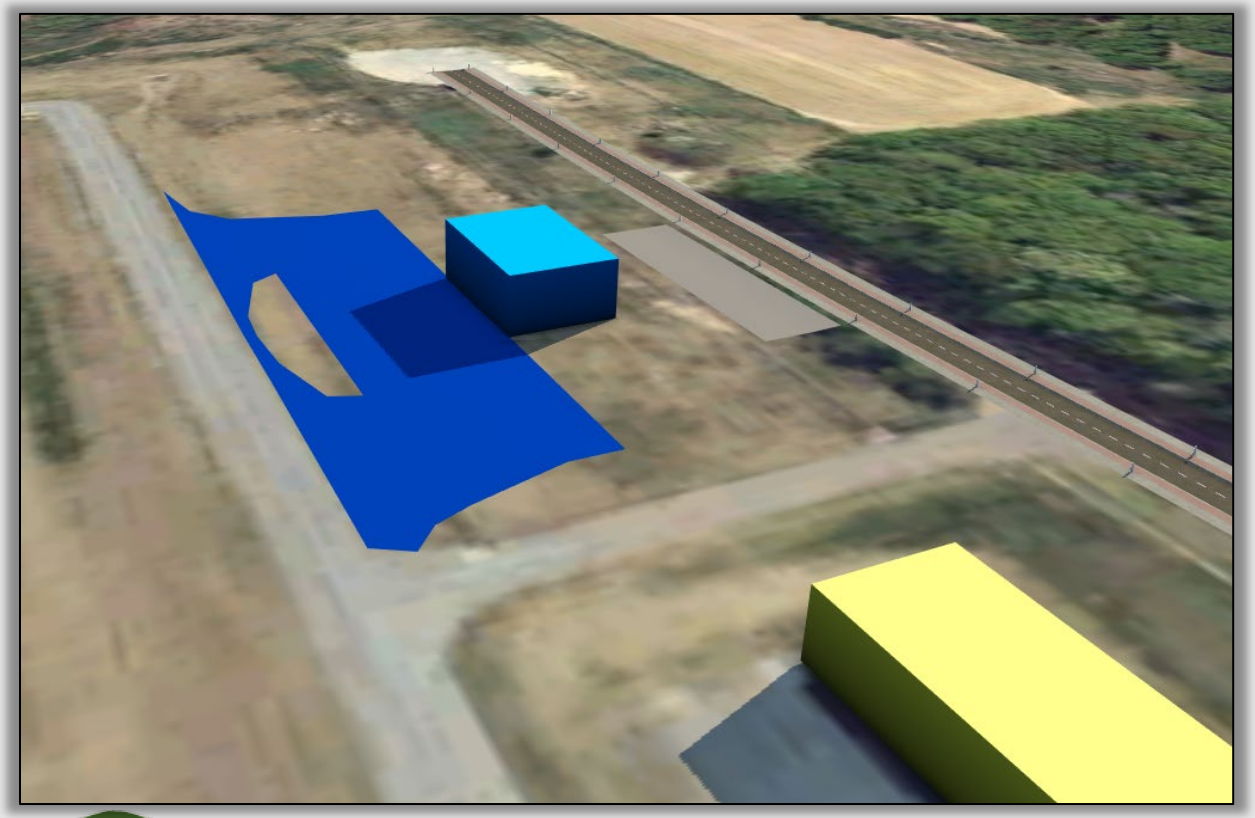



- South Development Area Concepts
  - Terminal Building Concept



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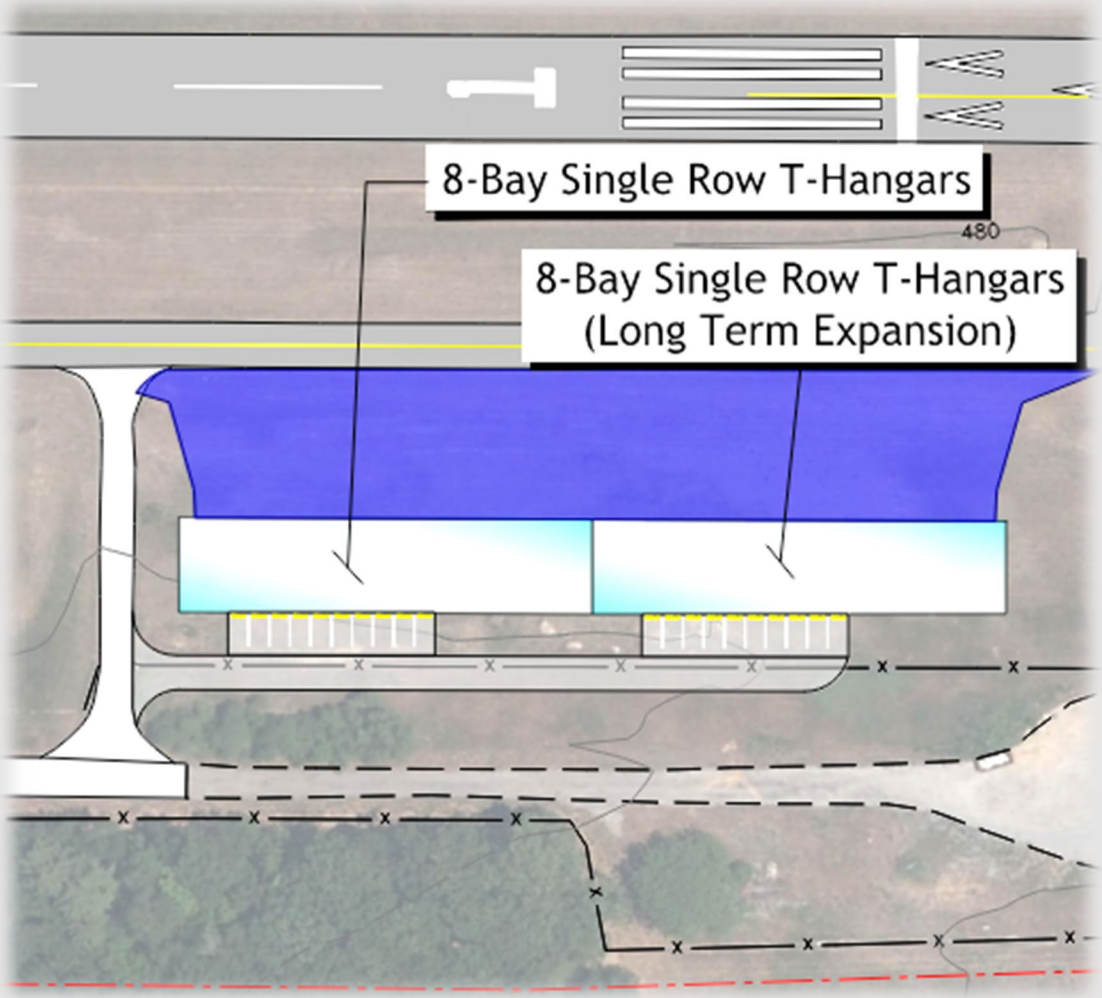
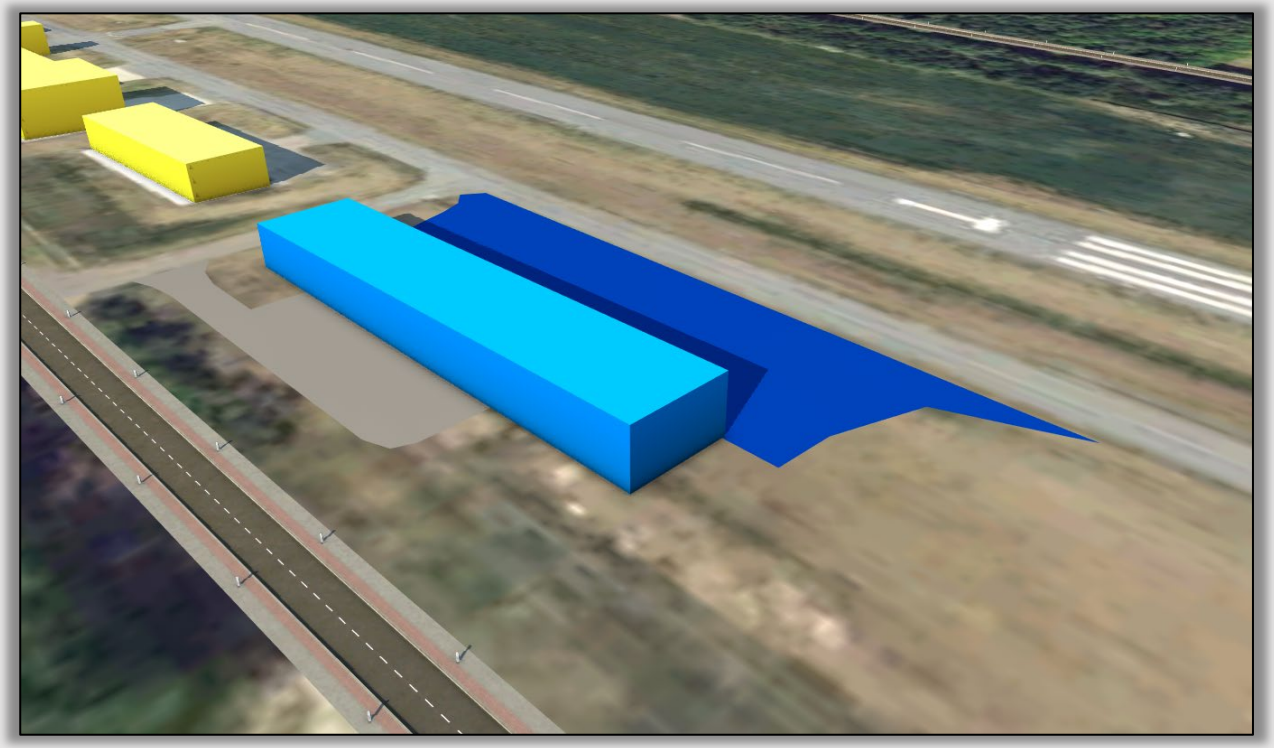



- South Development Area
  - Hangar Concept



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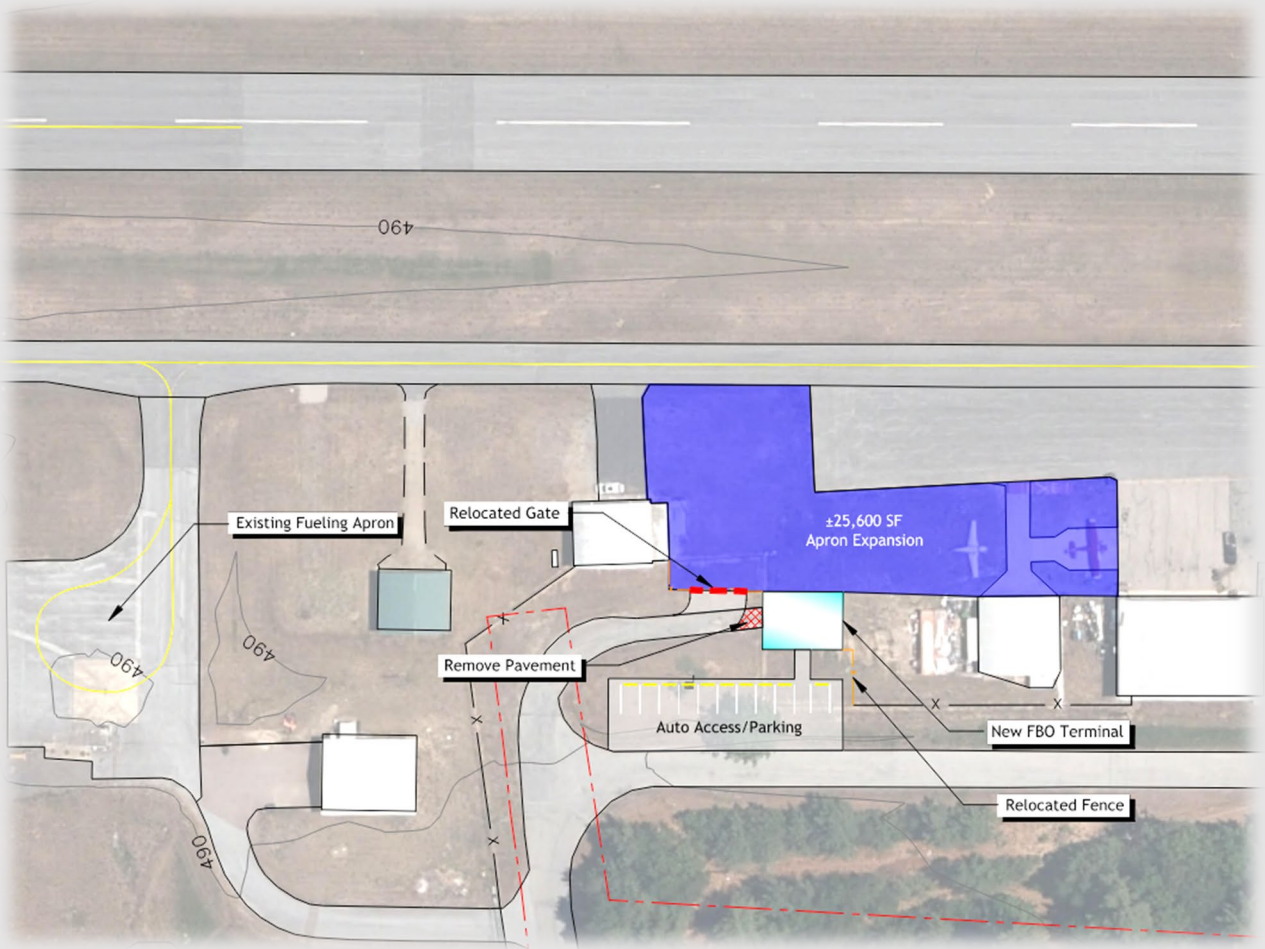
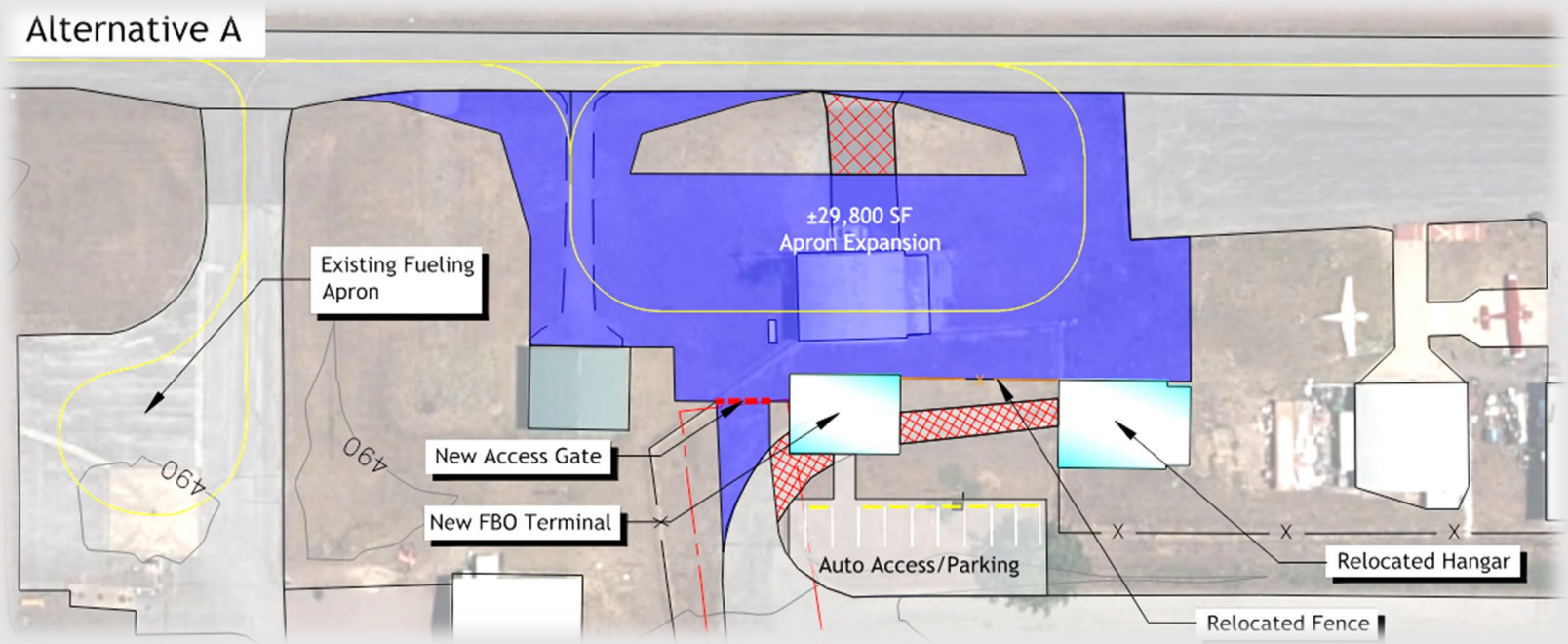
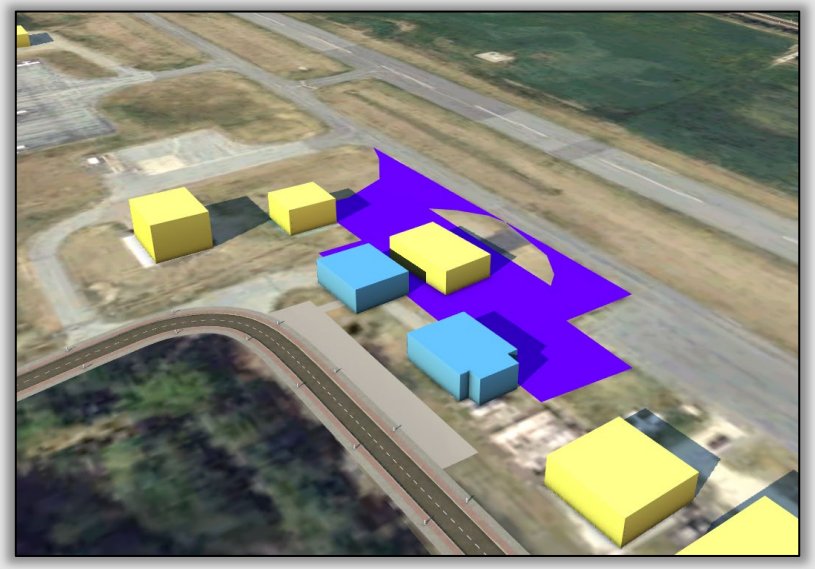



- Terminal Development Site 1
  - Provides GA Terminal
  - Retains existing facilities

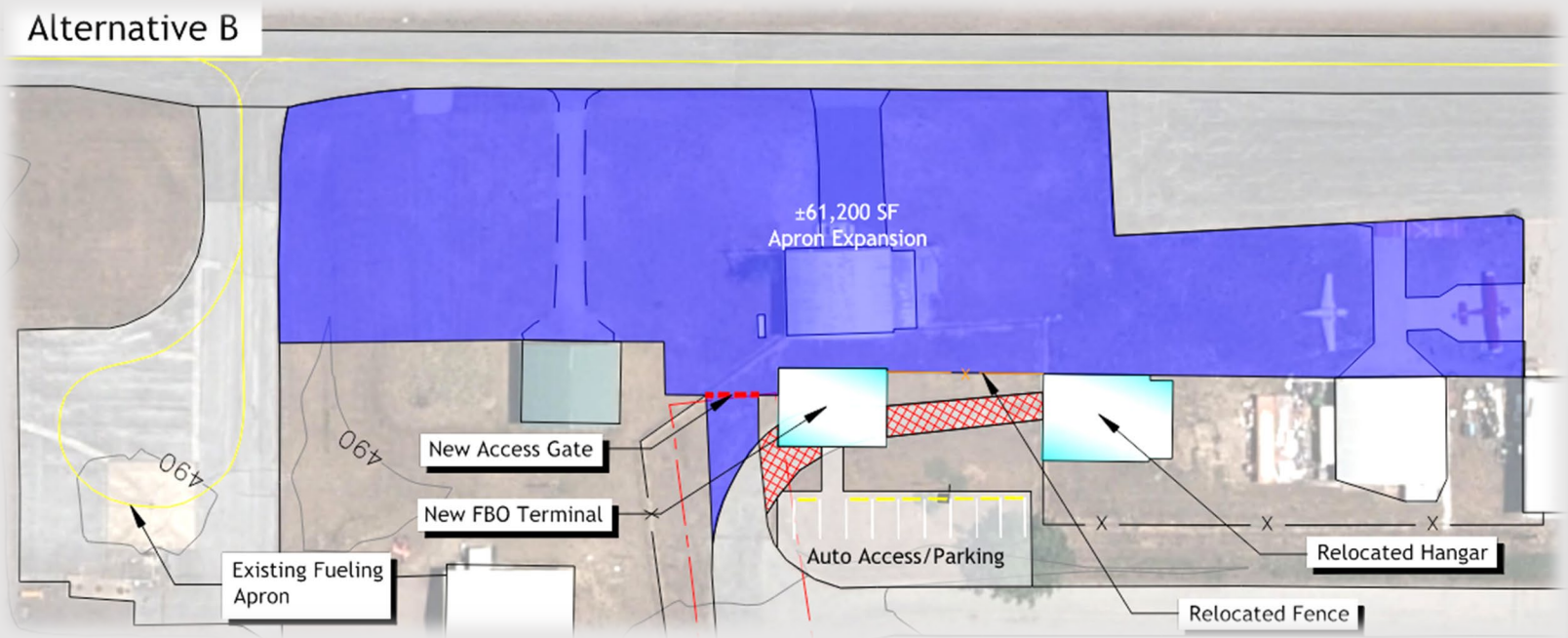
# Master Plan Concepts

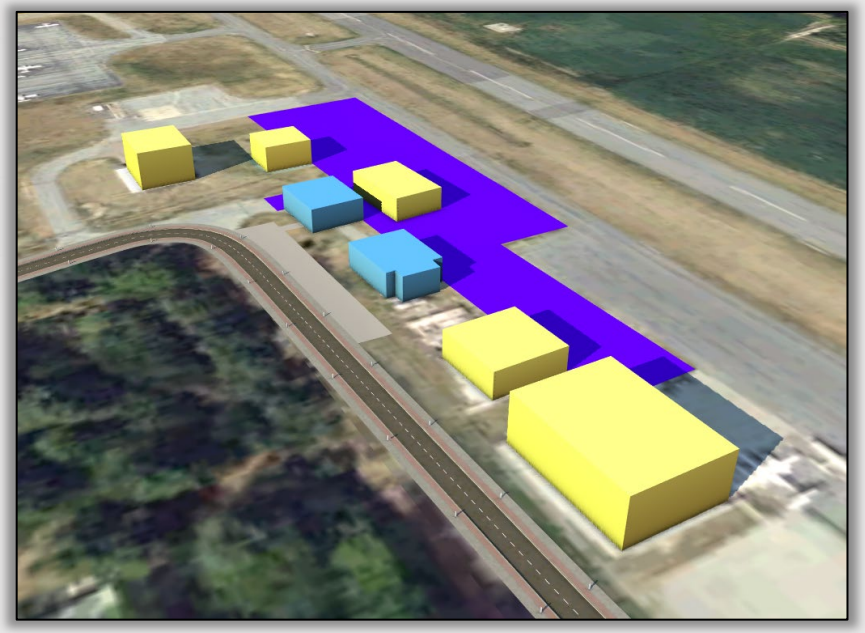


- Terminal Development Site 2 (Option 1)
  - Provides GA Terminal
  - Requires Relocation of Existing Hangar
  - Minimizes Additional Pavement Areas

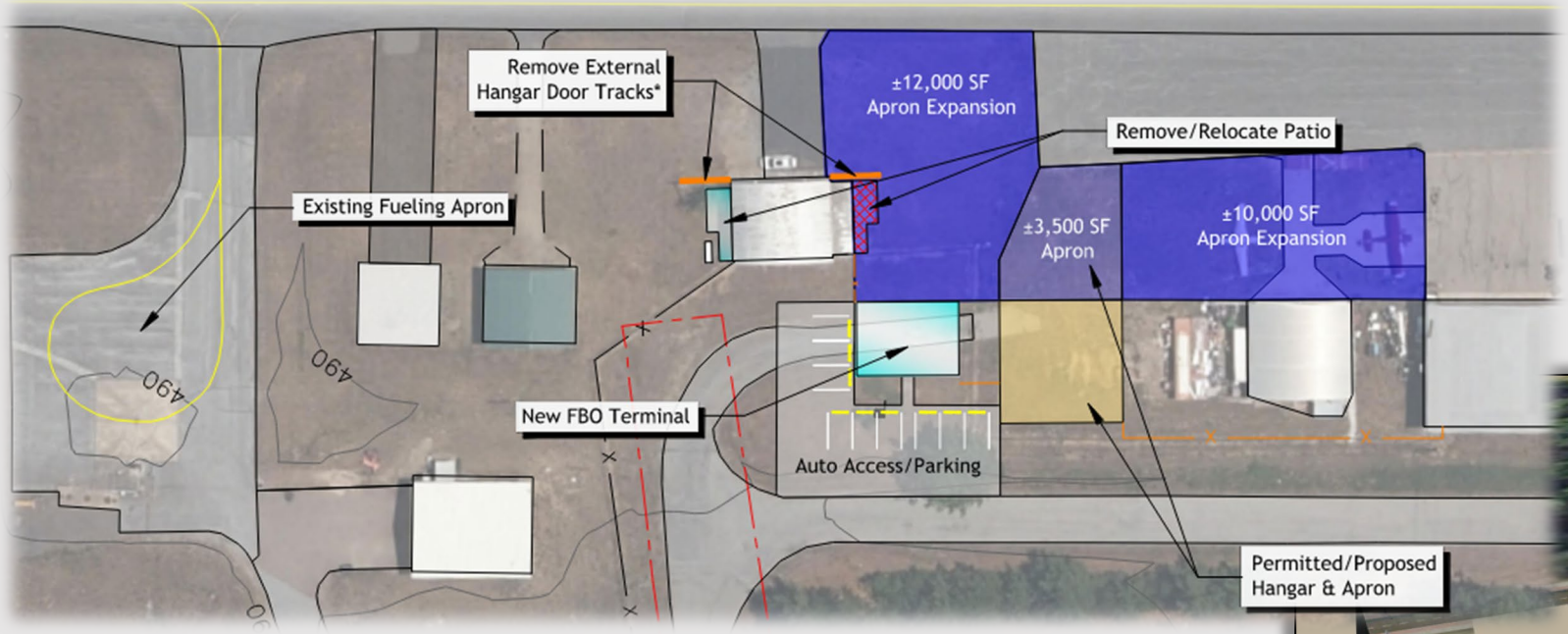
# Master Plan Concepts

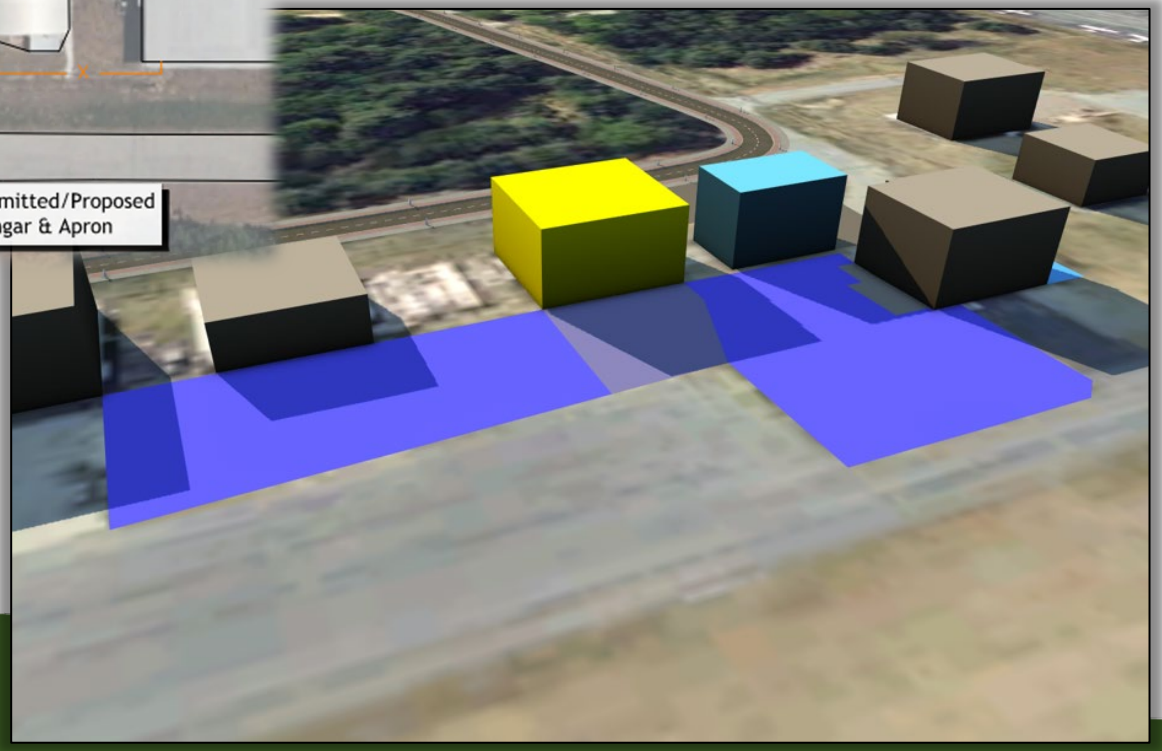


- Terminal Development Site 2 (Option 2)
  - Provides GA Terminal
  - Requires Relocation of Existing Hangar
  - Expands Pavement Area for Visiting Aircraft

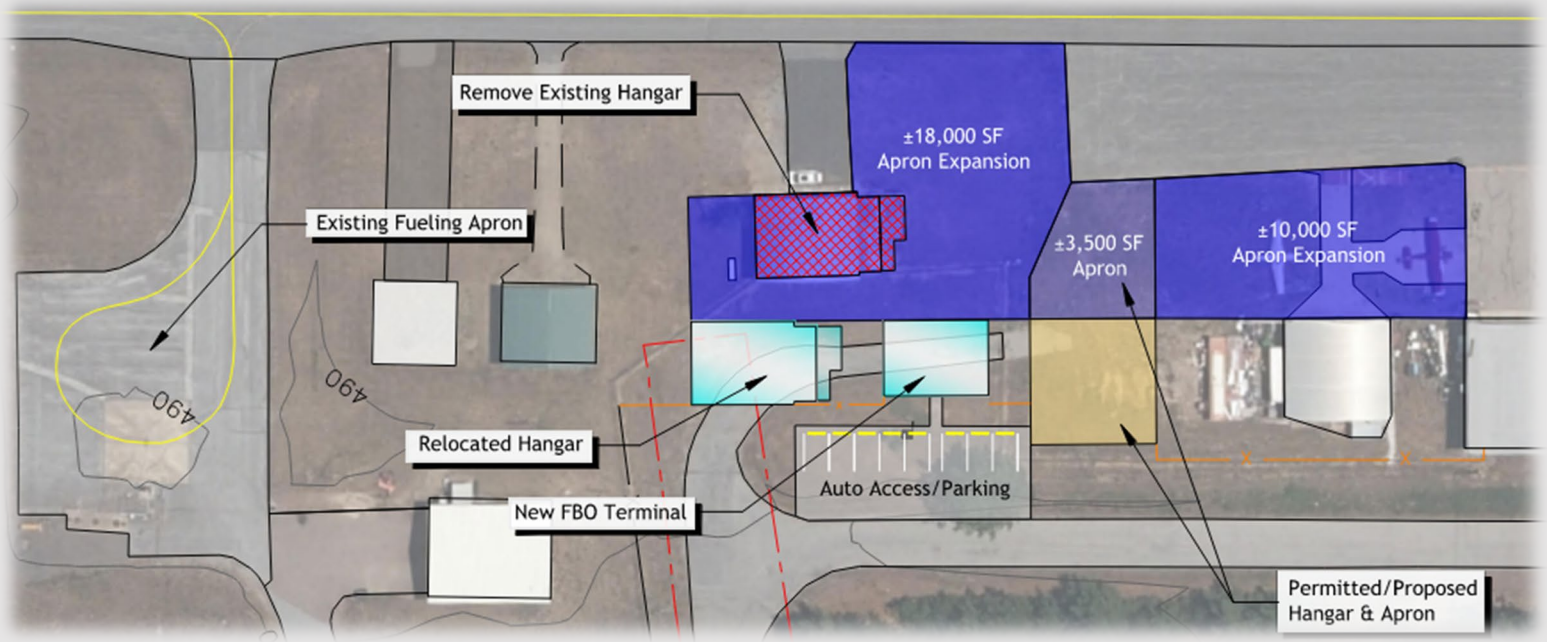
# Master Plan Concepts

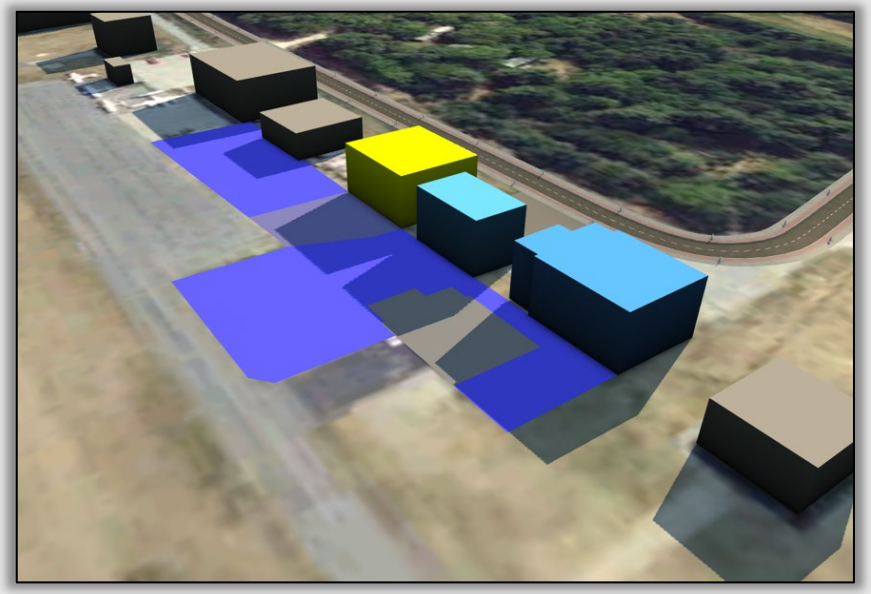


- Incorporate Permitted Site (Option 1)
  - Requires Removal of Patio and Replacement of Bay Doors of Existing Hangar

# Master Plan Concepts

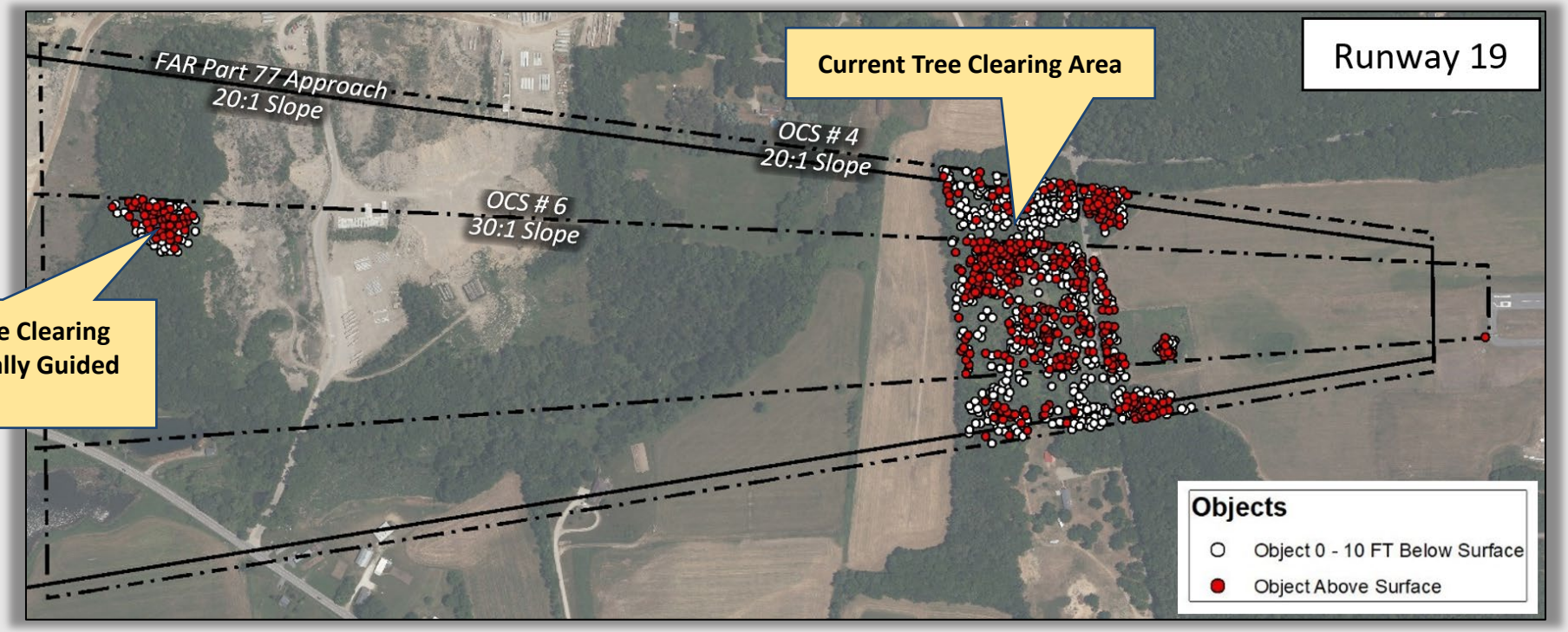


- Incorporating Permitted Site (Option 2)
  - Requires Relocation of Existing Hangar
  - Expands Pavement Area for Visiting Aircraft

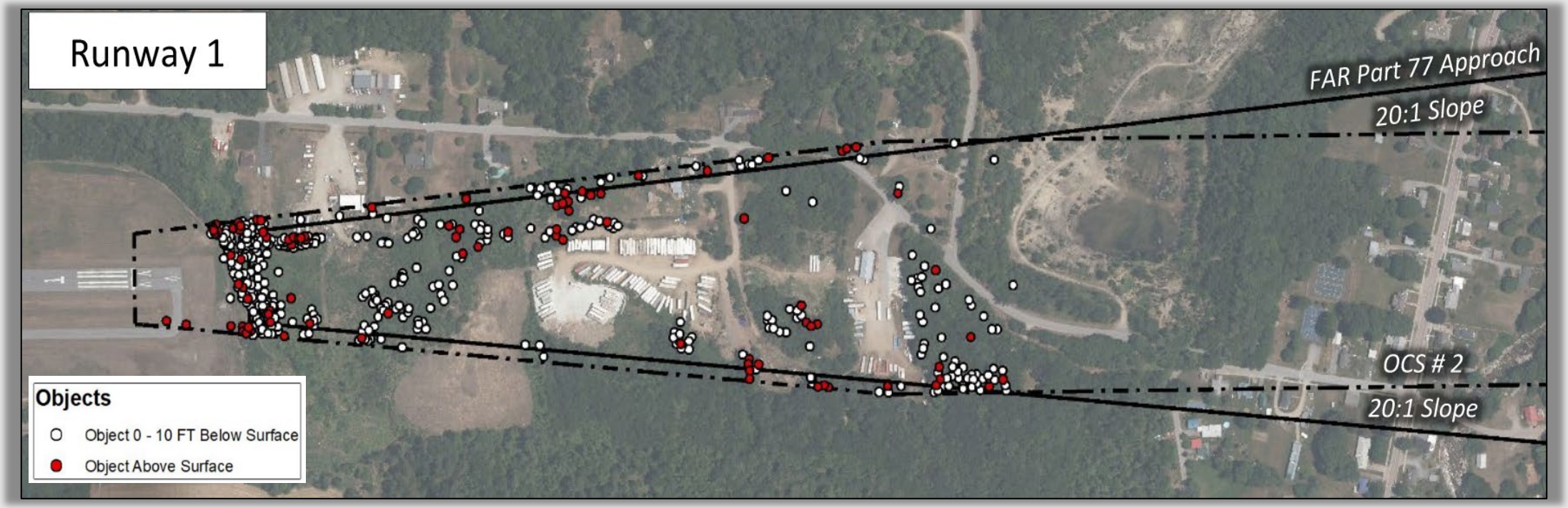
# Runway 19 Tree Obstructions – North End

- Ongoing tree obstruction removal project along Munson Road.
- Addition of a vertically guided IAP would require additional clearing further North.



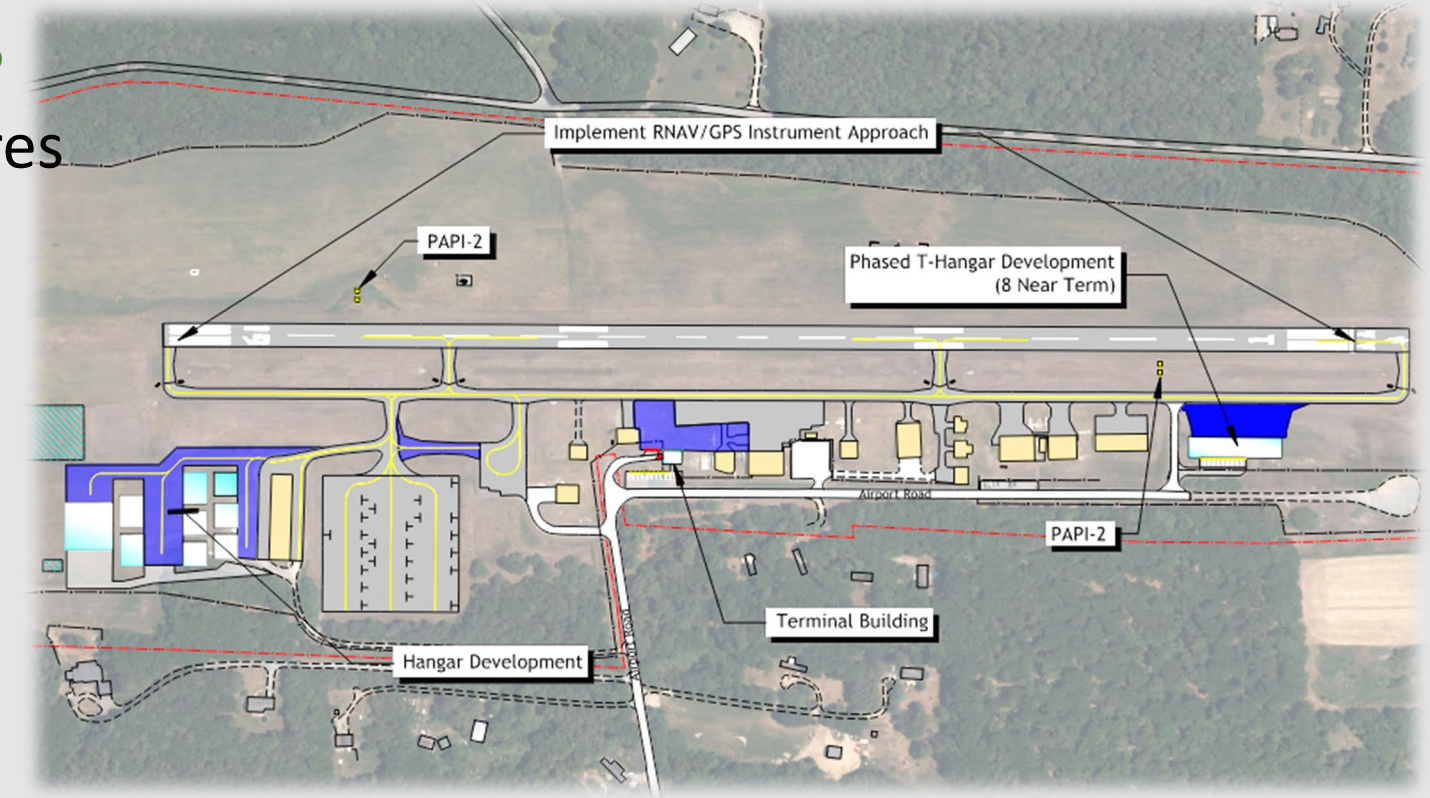
# Runway 1 Tree Obstructions – South End

- Currently no design standard penetrations to the Runway 1 Approach Surfaces
- Addition of an IAP would may require some tree clearing to the south



# Draft Recommended Plan

- **Draft Recommendations**
  - Instrument Approach Procedures
  - PAPI-2 Installation
  - Tree Obstruction Removal
  - Incorporate Proposed Hangars
  - North Hangar Development
  - South Hangar Development
  - New Terminal Building, with vehicle parking and apron



# NEXT STEPS

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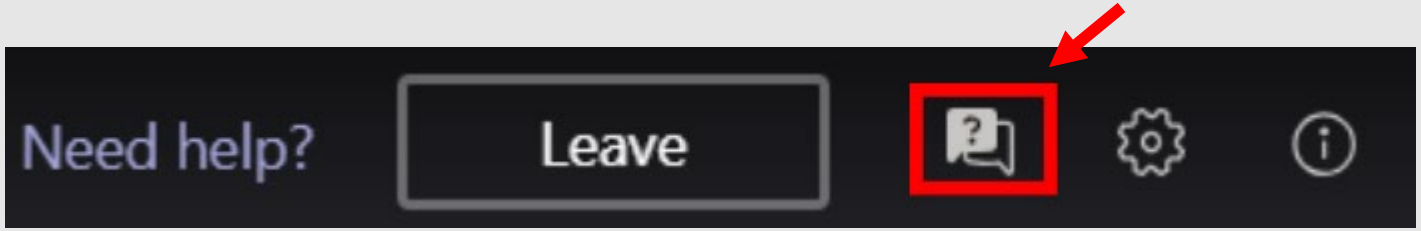
- Collect & Review Comments – **July 2022**
  - Available at: http://vtrans.vermont.gov/aviation/airports/middlebury
  - Comments by *July 29 (please)*
- Airport Layout Plan (ALP) – **Fall 2022**
- Prepare Draft Master Plan Report – **Fall 2022**
- Final Meetings – Review & Comments: **Late 2022**
  - TAC Meeting #3
  - Public Meeting #2

# Question/Comments

**ASK A QUESTION (upper right corner)**

**“Click Q&A icon & “Ask a Question”**




**SUBMIT QUESTIONS/COMMENTS:**

VTrans Project Manager: Shaun.Corbett@vermont.gov

# Questions/Comments

**Questions or comments regarding the Airport Master Plan?**
**Available for contact:**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