

Airport Land-Use Compatibility

Partnering for Airspace Viability at the Watertown International Airport



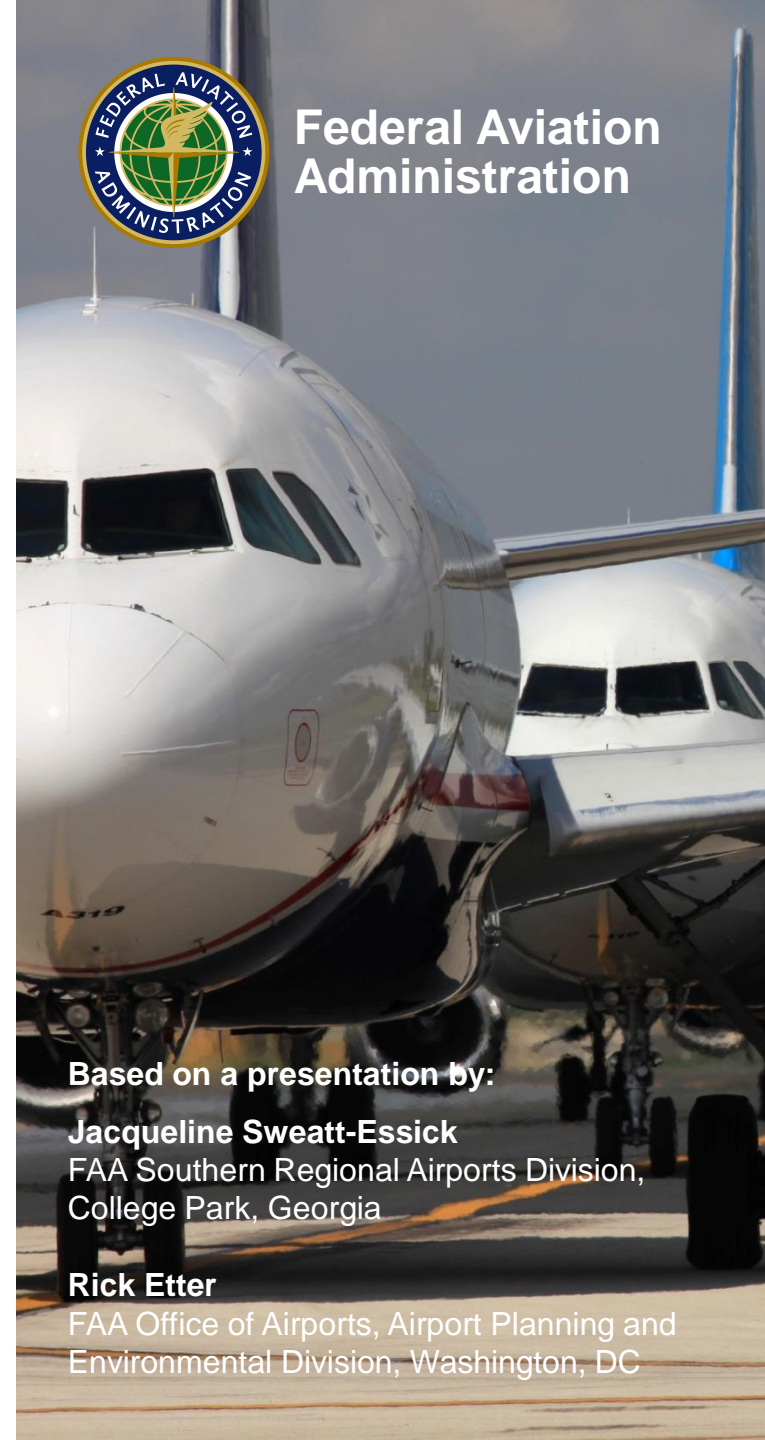
Photo by: Watertown Daily Times

Presented by:

- **Grant Sussey, Airport Manager**
Jefferson County
- **Andy R. Nevin, Senior Planner**
Jefferson County Planning Department



**Federal Aviation
Administration**



Based on a presentation by:

Jacqueline Sweatt-Essick
FAA Southern Regional Airports Division,
College Park, Georgia

Rick Etter

FAA Office of Airports, Airport Planning and
Environmental Division, Washington, DC

Agenda / Outline

- **What is Airport Compatibility?**
- **Roles for Land Use Control in New York State**
- **FAA Guidance Objectives**
- **Airport Stakeholders**
- **Community and Airport Perspectives**
- **Land Use Basics - Common Areas of Concern**
- **Need for Enhanced FAA Guidance**
- **Airport Land Use Compatibility Planning**
 - Consequences of Incompatible Development
 - Airport and Local Planning Partnerships/Coordination
 - Compatibility Tools and Techniques
 - FAA Regulations and Guidance (Noise, Safety, Airspace Protection)
- **Q & A**

Land Use Basics – Airport Compatibility

What is considered “compatible”?

- **Compatible adjacent land uses:**
 - Provide for safe aircraft movement and airport operations
 - Follow/comply with location, height, and activity restrictions
 - Preserves public health, safety, and welfare for people in close proximity
 - **For example:** industrial and commercial uses near airports may be appropriate in certain locations, while residential, schools, and churches should be discouraged in some areas



Land Use Control (Roles) in NYS

Government	Agency	Roles and Functions
Federal	Federal Aviation Administration (FAA)	Manage airspace and air traffic Airport safety and capacity Financial assistance to airports Environmental review
	Department of Defense	Military Installation Protection Joint Land Use Studies



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State	State legislature	Establish levels of local authority for land use control; e.g. zoning, land development permitting



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	Department of Defense	Military Installation Protection Joint Land Use Studies
State	State legislature	Establish levels of local authority for land use control; e.g. zoning, land development permitting
Local	Villages Towns Cities Counties Independent authorities	Establish and enforce land use and development rules: Zoning laws based on Comprehensive Plans, site plans and building code permitting



FAA Airport Land Use Compatibility Planning Guidance Objectives

- ✓ **Encourage compatible land uses around airports**
- ✓ **Inform local land use planners about airport planning and FAA requirements**
- **Facilitate coordination between entities developing airport master plans and local land use or general plans.**
- **Educate airport planners about local land use planning**



Airport Stakeholders

- Airport owners and operators
- Traveling public
- Airlines and other aviation system users
- **Neighboring and impacted communities** (*local municipal boards, planning boards, zoning board of appeals and zoning officers*)
- Elected and appointed officials (Federal, state and **local**)
- State aeronautical agencies
- Other units within the FAA (e.g., Air Traffic Organization, Runway Safety Office, Flight Standards, Flight Procedures, Policy Office)
- Other Federal agencies (e.g., FHWA, FTA, TSA, USFWS, EPA, Corps of Engineers, HUD, etc.)
- Federal oversight units (GAO, OIG, OMB)





• Aerial Photo - 2006



0 1,150 2,300 4,600 Feet

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Source: CSCIC - Aerials 2006, 2015
JC Real Property Tax Services 2016
JC Planning Department



•Aerial Photo - 2011





Dexter (V)

Brownville (T)

Brownville (V)

Watertown International Airport

Hounsfield (T)

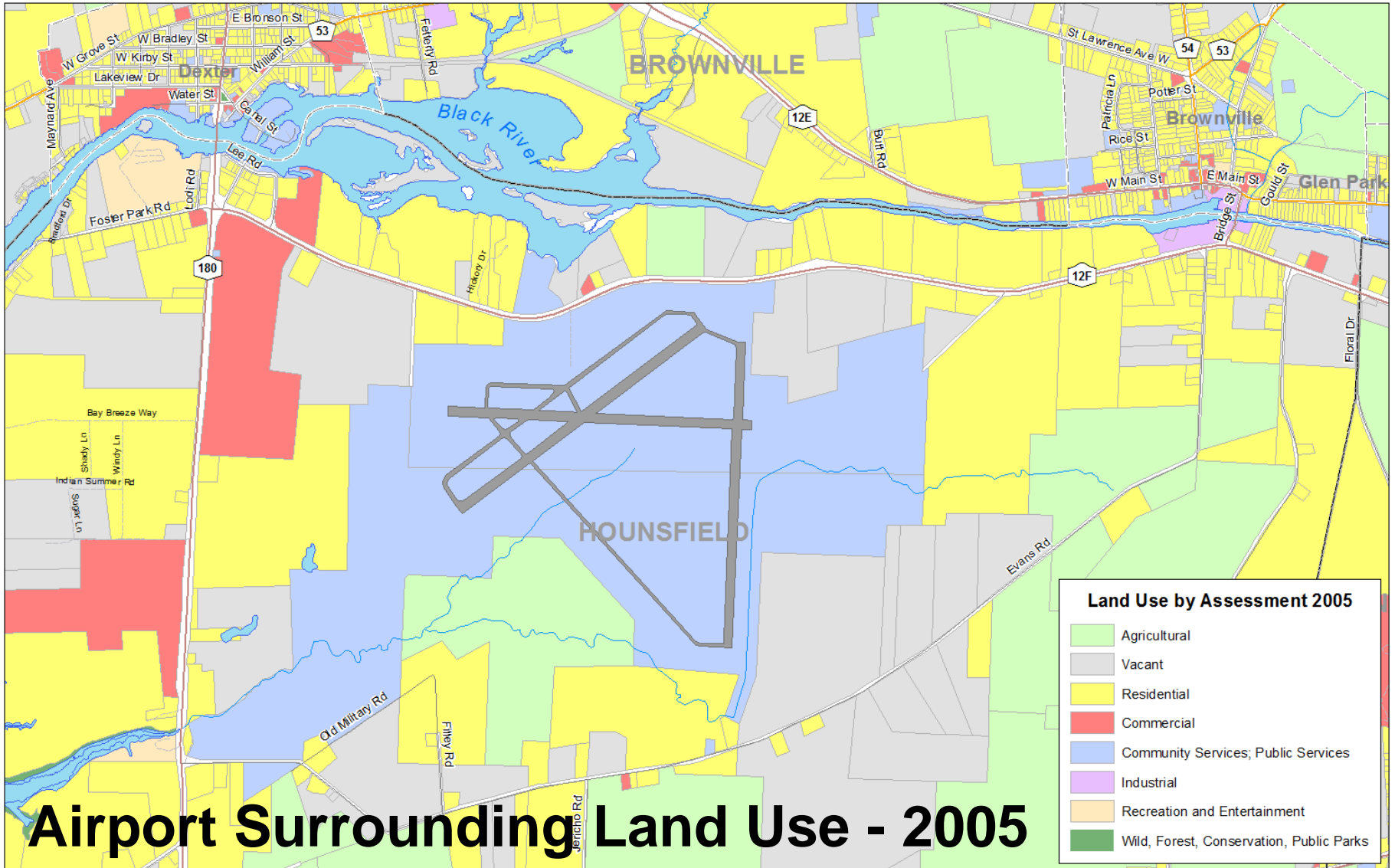
• Aerial Photo - 2015

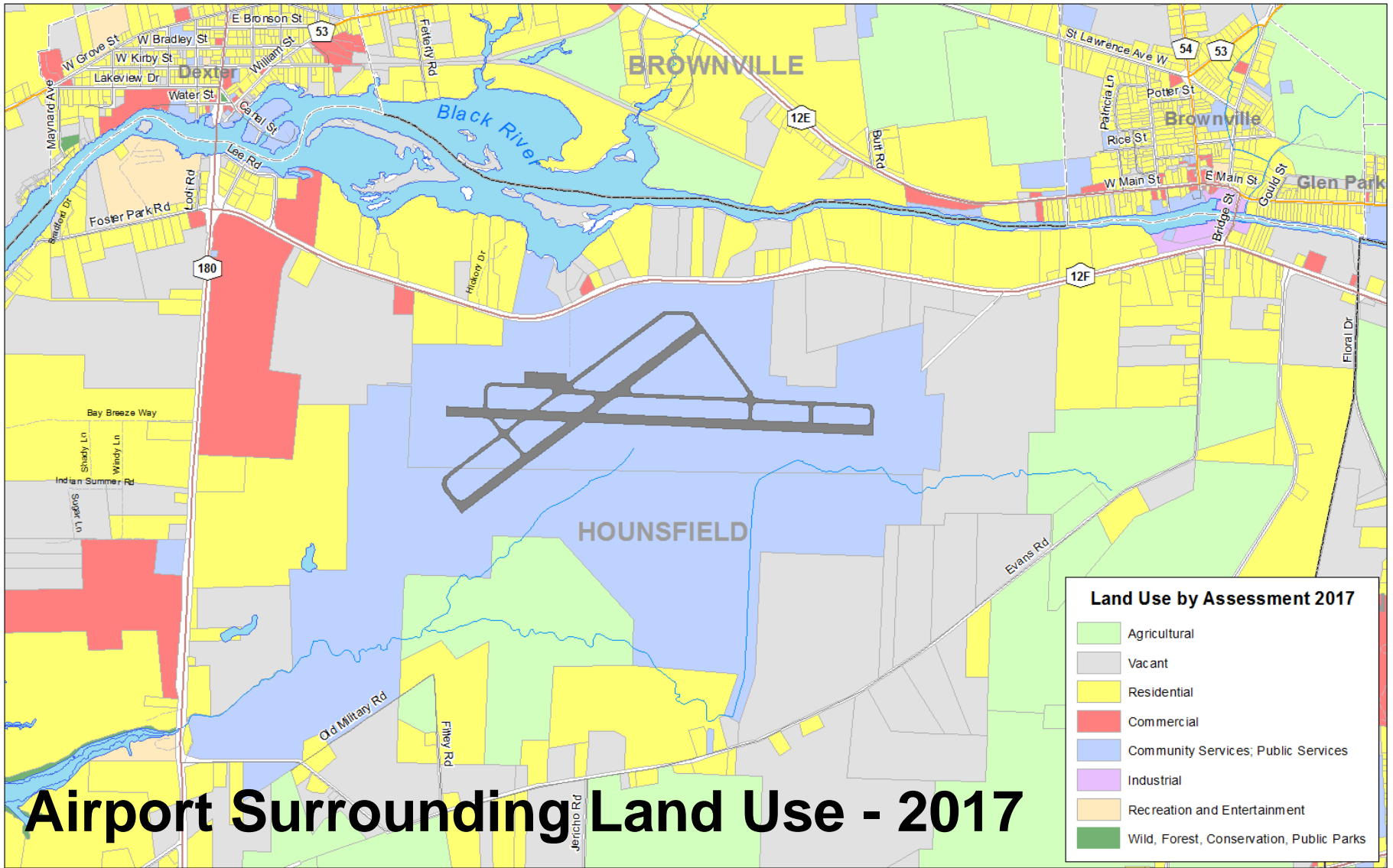


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Source: CSCIC - Aerials 2011, 2015
JC Real Property Tax Services 2016
JC Planning Department





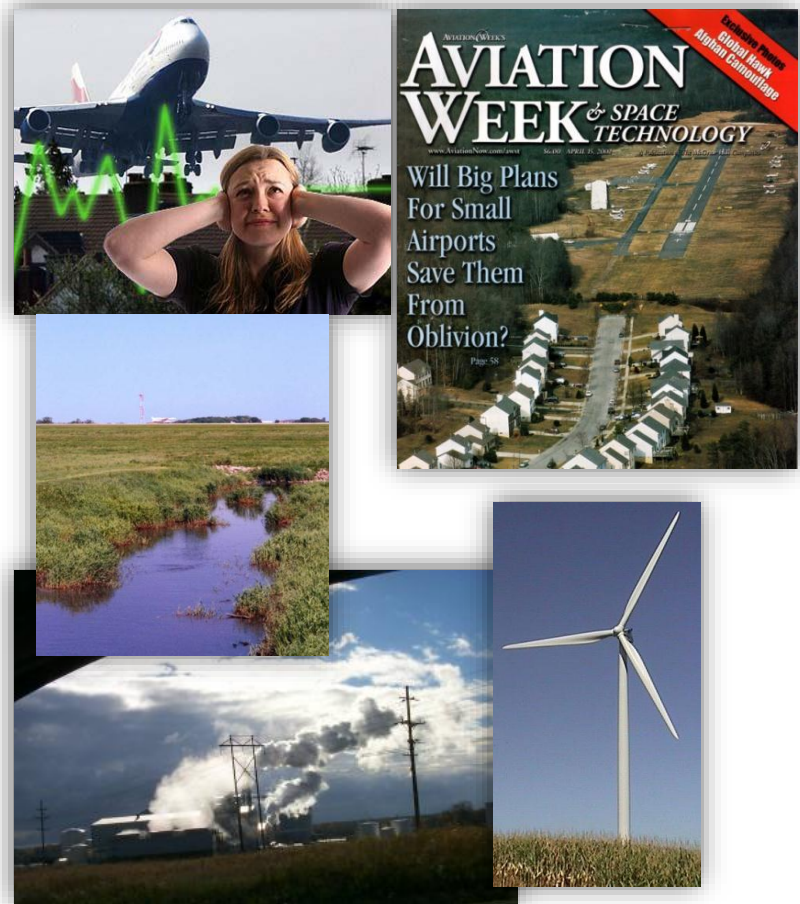
Airport Surrounding Land Use - 2017



Land Use Basics

What are the areas of concern?

- **5 common concerns:**
 - Noise
 - Concentrations of people
 - Wildlife attractants
 - Tall structures
 - Visual obstructions



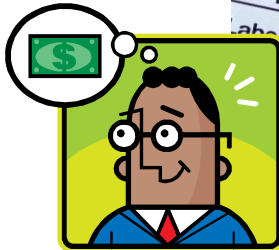
Community and Airport Perspectives

How do they differ?

■ Example: Industrial land use

What a community sees:

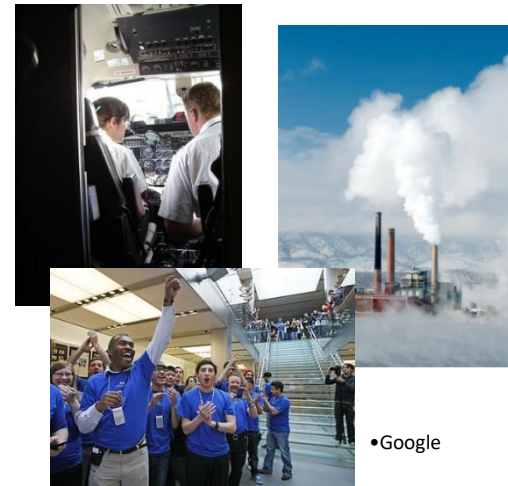
- Jobs
- Property & income taxes
- Economic impact



•Google

What the airport sees:

- Visual obstructions
- Hazards to flight
- Concentrations of people



•Google

A Difference in Perspectives

Regardless of the variables...maintaining compatibility near airports is important!



US Airways Airbus A320 (flight 1549) struck a flock of migrating Canada geese at 3,100 feet above ground level following departure from LaGuardia Airport; power was lost in both engines.



HERNDON, Va. -- Two people were taken to a hospital after a two-seat, single engine Cessna crashed into the living room of a third-story apartment...The plane crashed through the roof of the apartment building in Herndon after it had electrical problems and its engine cut off, and came to rest on the living room floor... - Huffington Post

Need for Improved FAA Guidance

- Enhance **or establish** coordination and consistency between airport master plans and **local comprehensive land use** and general plans
- Identify compatible development opportunities and preserve long term operational capability of the airport.
- Airports and airspace are often located within and influence multiple jurisdictions - **Within Jefferson County:** Hounsfield (T), Sackets Harbor (V), Dexter (V), Brownville (T & V), Lyme (T), Glen Park (V), Watertown (T), City of Watertown, LeRay (T), Pamela (T), Rutland (T), Black River (V), and Henderson (T) coincide with the runway takeoff and approach flight patterns **daily**.
- Federal government has limited authority for land use regulation



FAA's Advisory Circulars and Guidance Materials



U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Model Zoning Ordinance To Limit Height of Objects Around Airports

Subject: A MODEL ZONING ORDINANCE TO LIMIT HEIGHT OF OBJECTS AROUND AIRPORTS Date: 12/14/87 AC No: 150/5190-4A Initiated by: AAS-100 Change:

1. PURPOSE.

a. This advisory circular is intended to provide a guide to controlling the height of objects around airports. b. This advisory circular is intended to provide a guide to controlling the height of objects around airports, except as otherwise provided in this advisory circular.

2. CANCELLATION

3. FOCUS.

a. Aviation operating aircraft (such as building by limiting the these factors. ordinances to conform with those described in Sub Affecting Navigation that not all objects are a hazard to

b. The Federal Aviation Administration's (FAA) standards. If a hazard to a discussion on hazardous

c. Airport themselves ensure this objective. Planning, current planning in the

Hazardous Wildlife Attractants On or Near Airports



U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS Date: 8/28/2007 AC No: 150/5200-33B Initiated by: AAS-300 Change:

1. **PURPOSE.** This Advisory Circular (AC) provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants. Appendix 1 provides definitions of terms used in this AC.

2. **APPLICABILITY.** The Federal Aviation Administration (FAA) recommends that public-use airport operators implement the standards and practices contained in this AC. The holders of Airport Operating Certificates issued under Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports, Subpart D (Part 139), may use the standards, practices, and recommendations contained in this AC to comply with the wildlife hazard management requirements of Part 139. Airports that have received Federal grant-in-aid assistance must use these standards. The FAA also recommends the guidance in this AC for land-use planners, operators of non-certificated airports, and developers of projects, facilities, and activities on or near airports.

3. **CANCELLATION.** This AC cancels AC 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports*, dated July 27, 2004.

4. **PRINCIPAL CHANGES.** This AC contains the following major changes, which are marked with vertical bars in the margin:

- Technical changes to paragraph references.
- Wording on storm water detention ponds.
- Deleted paragraph 4-3.b, *Additional Coordination*.

5. **BACKGROUND.** Information about the risks posed to aircraft by certain wildlife species has increased a great deal in recent years. Improved reporting, studies, documentation, and statistics clearly show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem. While many species of wildlife can pose a threat to aircraft safety, they are not equally hazardous. Table 1

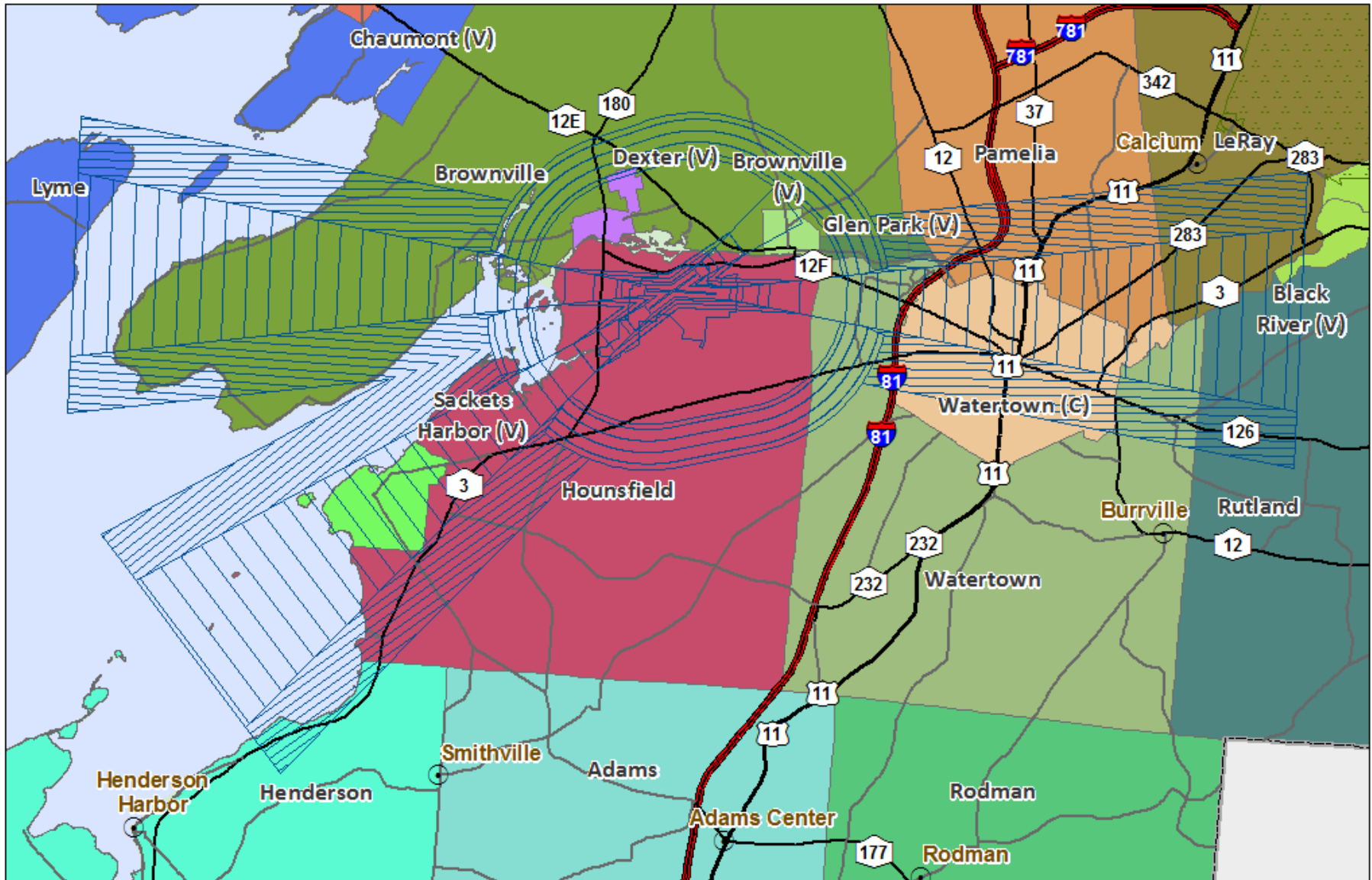
LAND USE COMPATIBILITY AND AIRPORTS

(A Guide for Effective Land Use Planning)



Federal Aviation
Administration

Part 77 Surfaces– Near the Watertown International Airport



Airport Land Use Compatibility –

- **Common Areas of Concern**
- Roles and Responsibilities of Stakeholders
- Airport and Local Land Use Planning Coordination
- Tools and Techniques for Land Use Compatibility

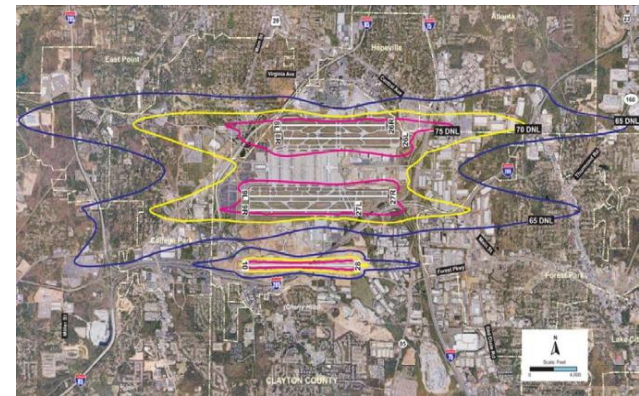


Common Areas of Concern

- **Noise Sensitive Land Uses**
- **Concentrations of People**
- **Obstructions to Airspace**
 - Tall Structures
 - Visual Obstructions
- **Wildlife Attractants**
 - Wetlands, ponds, or certain farmfield types



Source: Mead & Hunt



Noise Sensitive Land Uses

- **Normally concerned with speech interference indoors.**
- **Federal Standard of Significance**
 - DNL 65 dB
 - Based on Annoyance
- **Noise sensitive land uses include:**
 - Schools
 - Churches
 - Residences
 - Natural Areas Managed for Quiet



Schools



Residential subdivision

Source: Mead & Hunt

Runway Noise Contours - Watertown International Airport

Watertown International Airport
Jefferson County - Watertown, New York

Figure 7
2022 Runway 28 Ext Noise Contour

-  Airport Boundary
 -  Airport Runway
 -  Alternative Runway Extension
 -  Alternative Taxiway Extension
 -  Alternative 1 Noise Contours (55 - 75 dB CNL)
 -  No Action Noise Contours (55 - 75 dB CNL)
- Zoning**
-  Agricultural and Residential
 -  Industrial
 -  Marine
 -  Multi Use

0 1,000 2,000 Feet



 HARRIS MILLER MILLER & HANSON INC.



Concentrations of People Near Airports

- Concern regarding concentrations of people in close proximity to airports, and especially within runway protection zones (RPZs) and noise sensitive areas
- Land uses include:
 - Residential development
 - Hospitals
 - Schools
 - Recreational/special uses
 - Parking and other transportation facilities



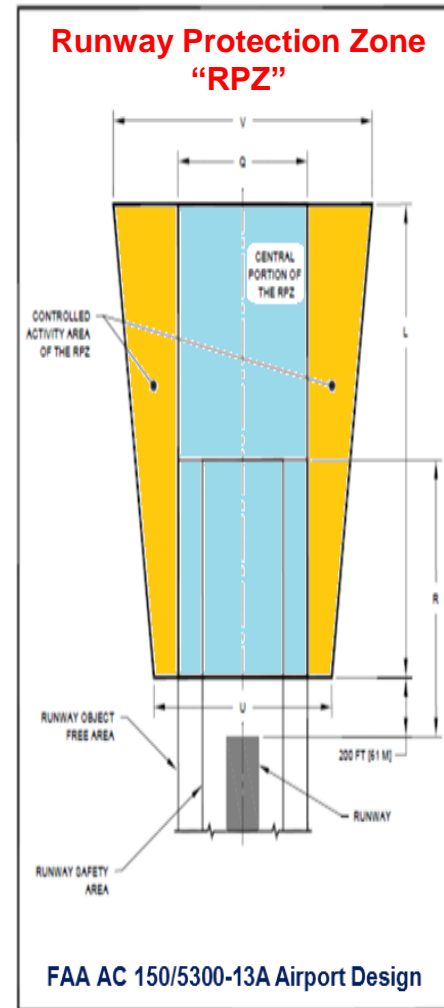
Residential



Recreational



Places of Assembly



Source: Mead & Hunt

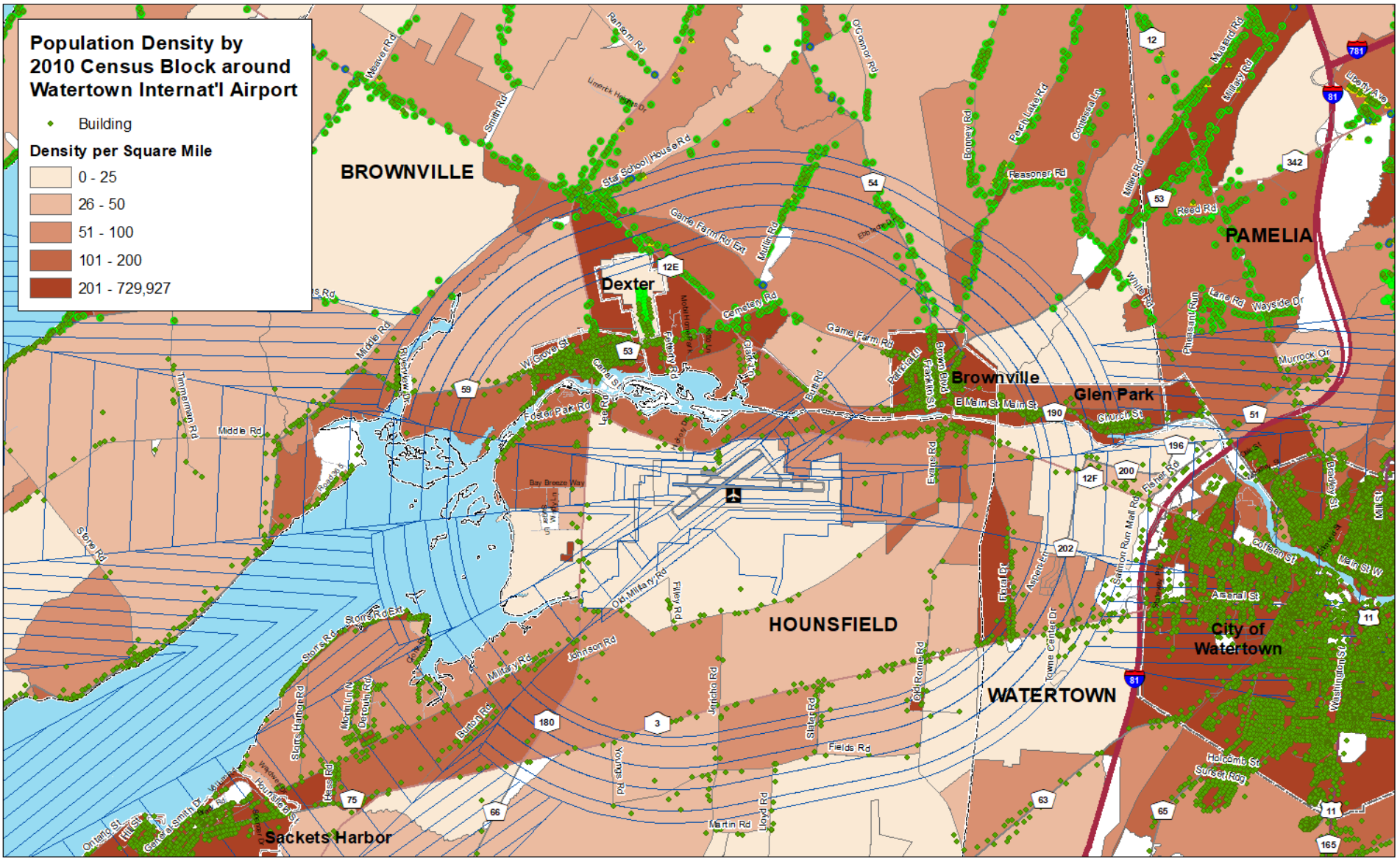
Population Density & Structures – near the Airport (Part 77 surfaces shown)

Population Density by 2010 Census Block around Watertown Internat'l Airport

- Building

Density per Square Mile

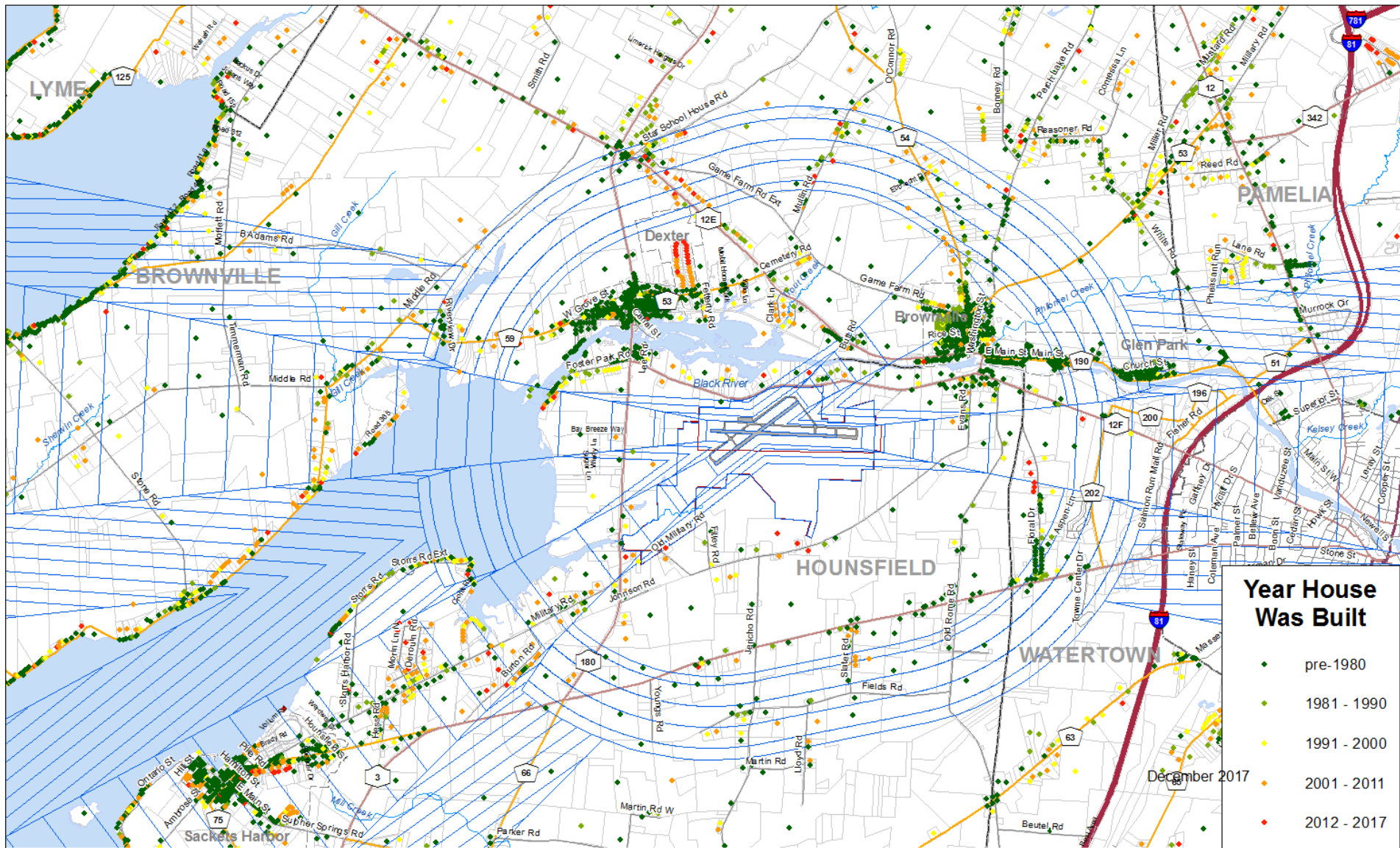
0 - 25
26 - 50
51 - 100
101 - 200
201 - 729,927



Sources: US Census Bureau, NYS Information Technology Services, NYS Cyber Security & Critical Infrastructure Coordination, Jefferson County Real Property Tax Services



Age of Housing Units – in Close Proximity to the Airport (Part 77 surfaces shown)



Sources: National Transportation Safety Board, Jefferson County Real Property Tax Services, Jefferson County Planning, NYS Cyber Security and Critical Infrastructure Coordination



Tall Structures

- **Concern regarding obstructions to flight, including penetrations of FAR Part 77 and other airspace surfaces**
- **Land uses include:**
 - Cell towers
 - Power lines
 - Vegetation
 - Wind turbines
 - Buildings (high-rises)
(in some areas, elevated buildings)
 - Transportation Structures
(elevated roadways, rail facilities)



Cell towers and trees (or towers that look like trees)



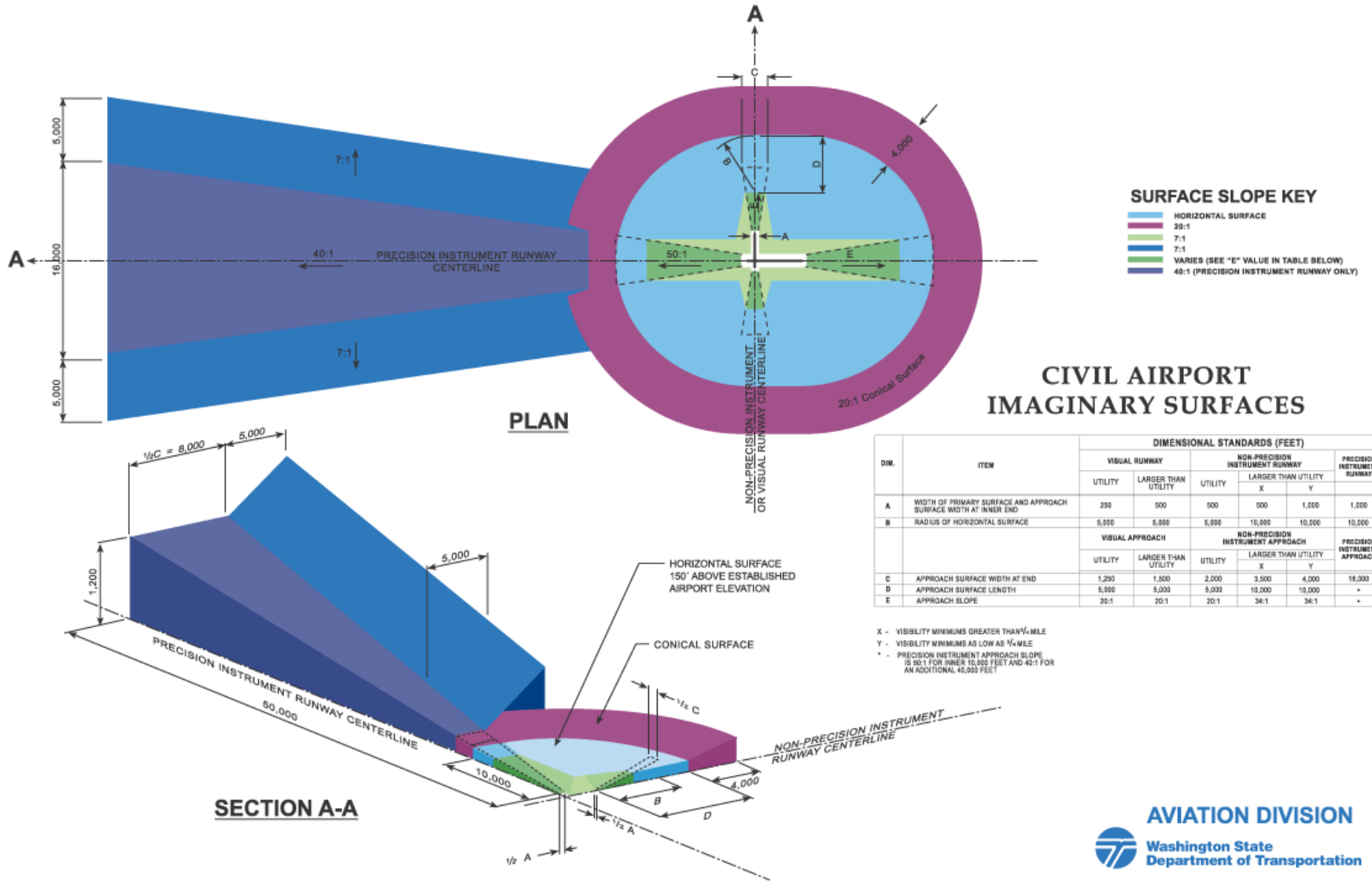
Wind turbines



Power lines

Source: Mead & Hunt

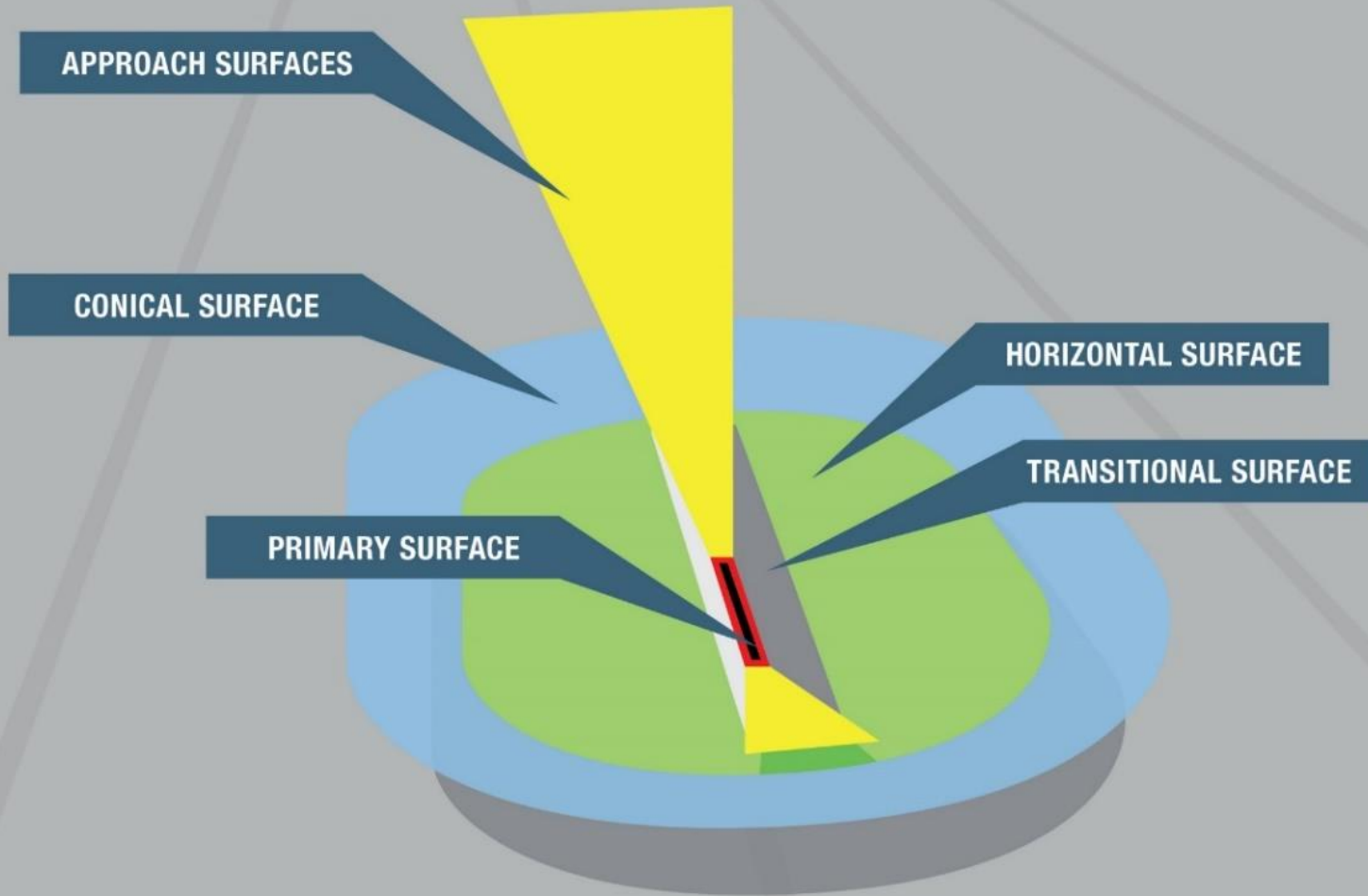
FAR Part 77 Imaginary Surfaces



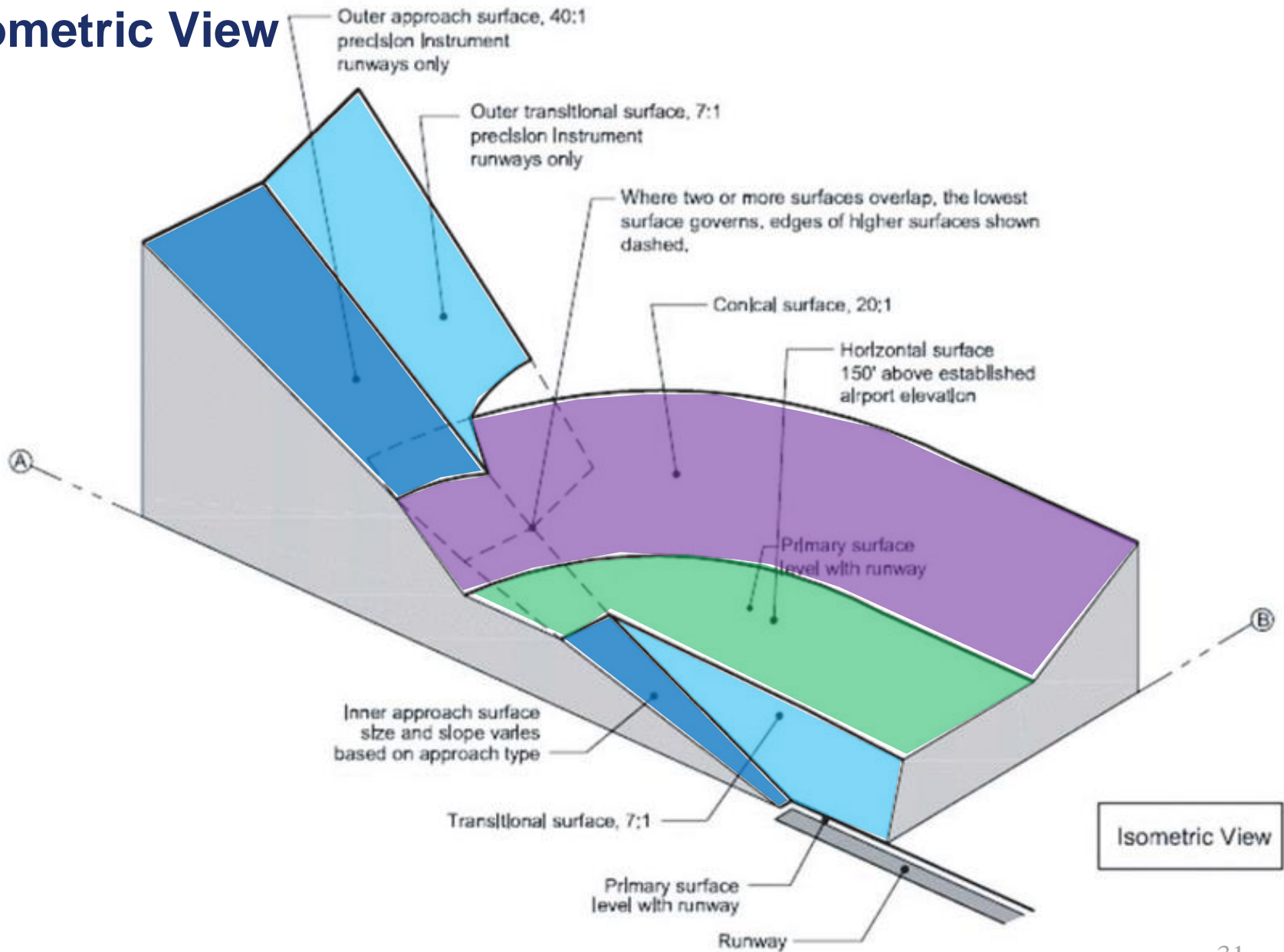
Aerial Photo with Watertown International Airport (Part 77 surfaces shown)



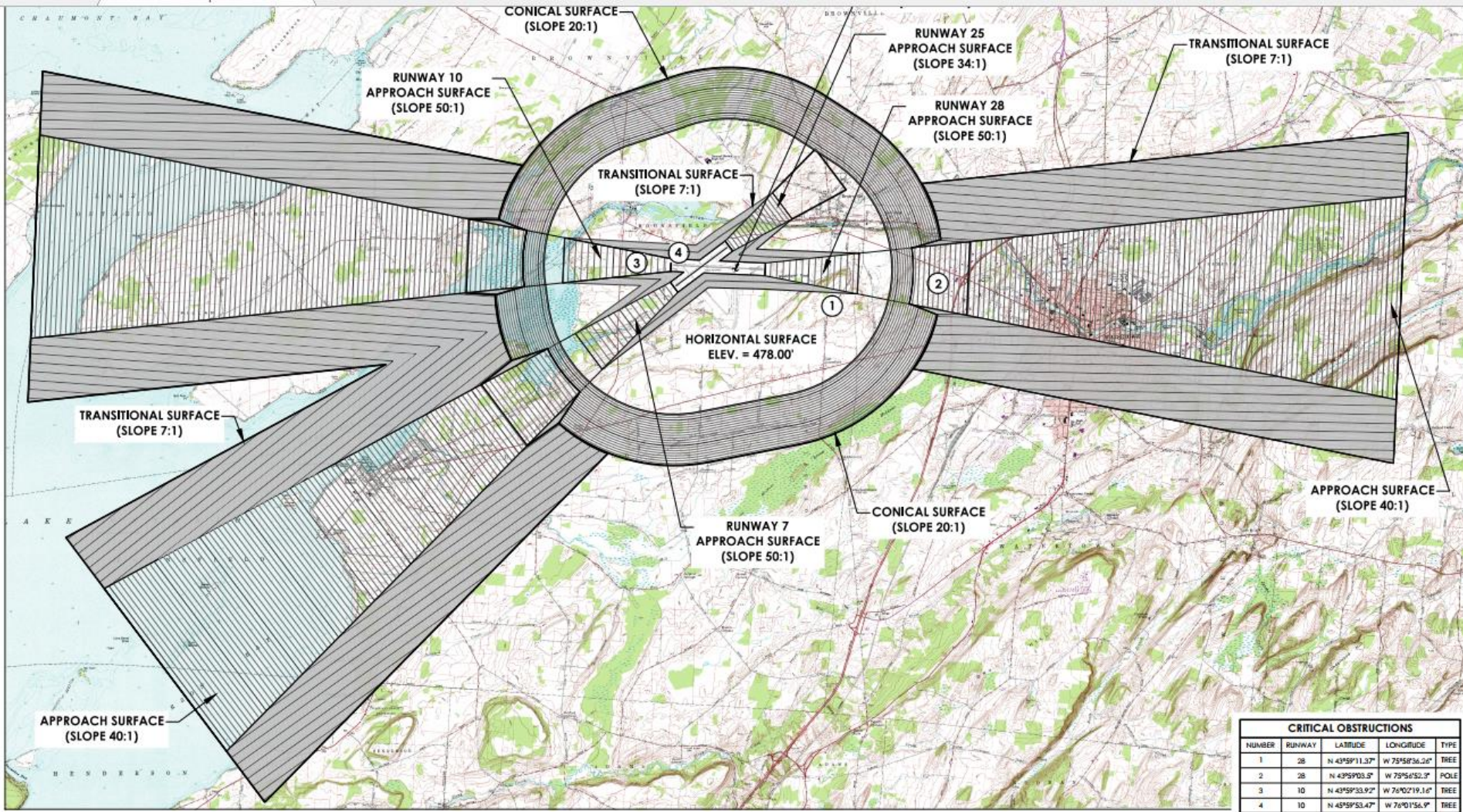
Part 77 surfaces- simplified view



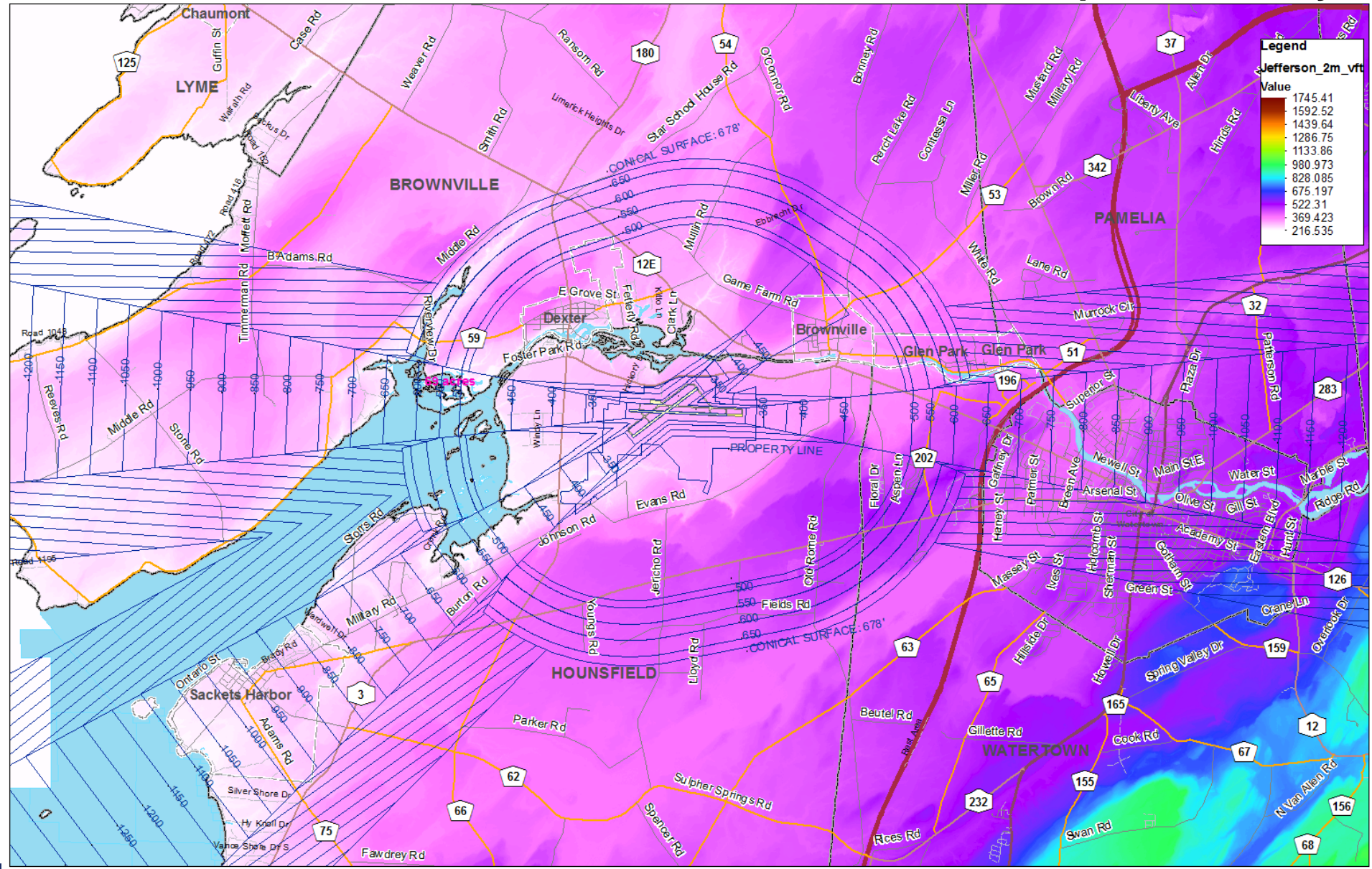
Part 77 surfaces – Isometric View



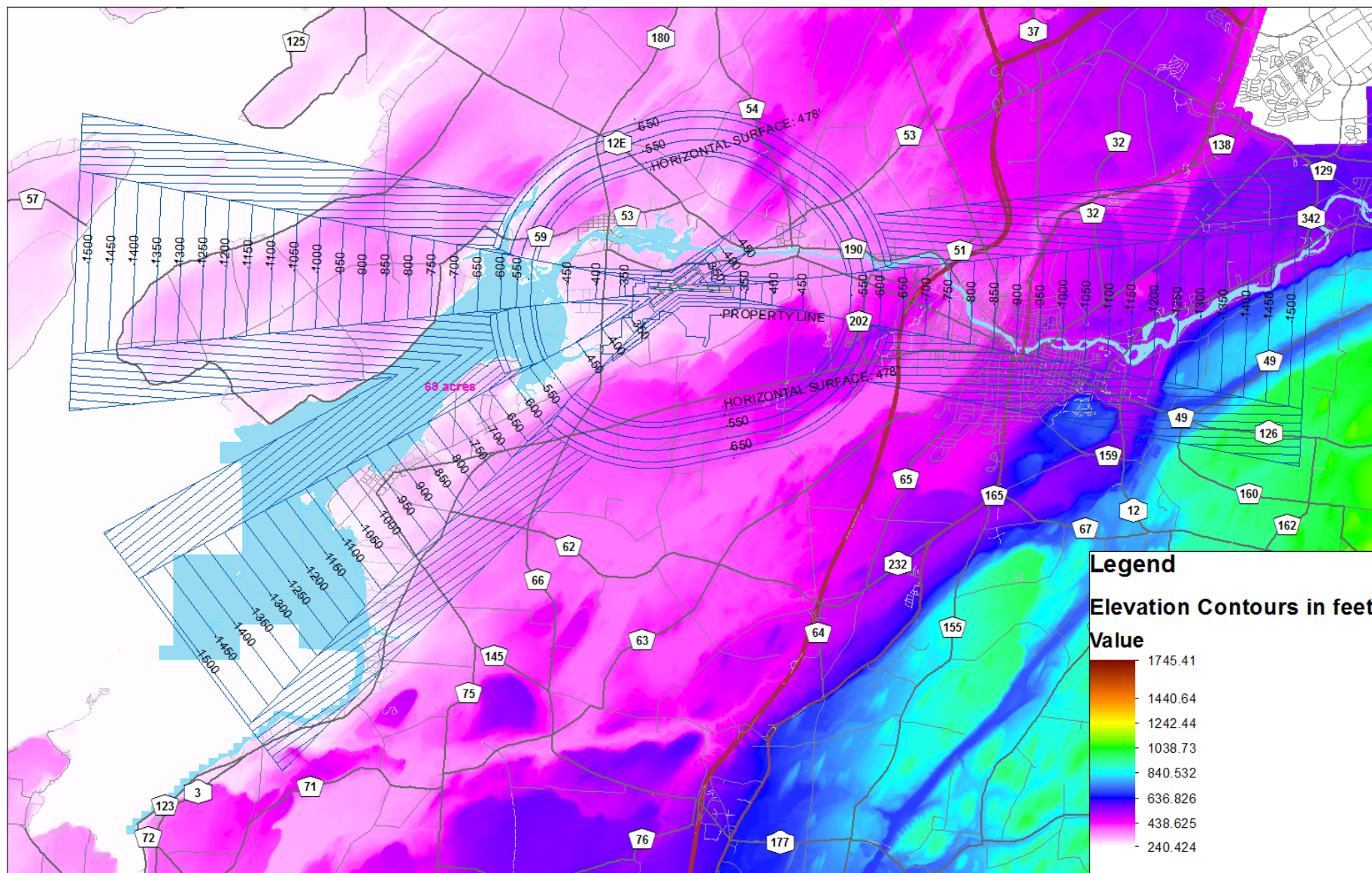
Part 77 Surfaces— displayed over the USGS Quadrangle basemap



Part 77 Surfaces & Elevation – Watertown International Airport Proximity



Part 77 Surfaces & Elevation – Watertown International Airport Region



Visual Obstructions

- **Concern regarding:**
 - Smoke/steam
 - Dust
 - Glare (from solar energy panels or tall buildings)
 - Light emissions
- **Land uses include:**
 - Tall industrial or other buildings
 - Certain Commercial
 - Water bodies
 - Solar facilities in certain locations



Glint or glare – solar panels Source: FAA



Dust – gravel extraction



Light emissions



Steam emissions – industrial

Solar Glare Hazard Analysis Tool (SGHAT) at:
www.sandia.gov/glare

Source: Mead & Hunt

Wildlife Attractants

- **Concern regarding hazards to aircraft**
- **Land uses include:**
 - Municipal solid waste facilities/landfills
 - Sewage treatment facilities
 - Farmland
 - Water bodies including retention ponds
 - Recreational uses



Land Fills



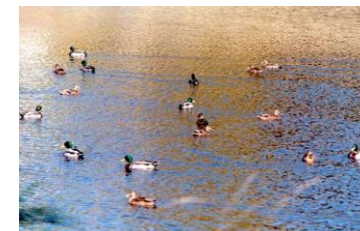
Wetlands



Recreational uses



Farmland



Ponds

Source: Mead & Hunt

Engine Ingestion of Wildlife (Miracle on the Hudson- 1/15/2009)



Consequences of Non-Compatible Uses

- **Consequences to the aviation system and users:**
 - Impacts to airport viability and air service, including constraining the airport's operations and limiting future airport development
 - Impacts to runway approach and departure surfaces
 - Increased safety risk due to obstructions or wildlife hazards
- **Consequences to people living near airports:**
 - Exposure to aircraft noise and emissions, and **potential** safety concerns
- **Consequences to local and regional jurisdictions:**
 - Unrealized local/regional economic development due to airport growth constraints **or affecting current operations**
- **Economic consequences (airport and community):**
 - Potential for litigation (and associated costs)
 - Lost revenue and development opportunities

Airport Land Use Compatibility

- Land Use Common Areas of Concern
- **Roles and Responsibilities of Planning Partners**
- Airport and Local Land Use Planning Coordination
- Tools and Techniques for Land Use Compatibility

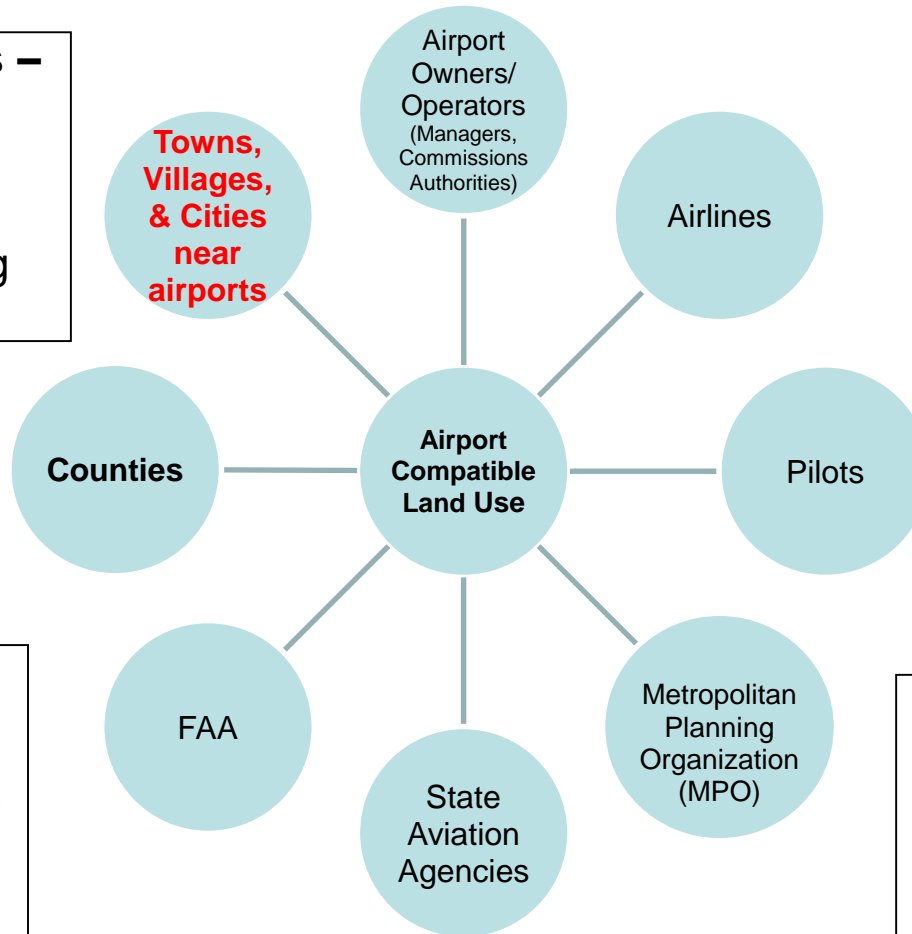


Numerous Planning Partners (Stakeholders)

Local jurisdictions –
Implement and enforce land use decisions through comprehensive planning and zoning ordinances.

• Technical assistance to local boards to consider compatible zoning uses and standards

FAA –
Reviews air space, develops standards and guidelines, funds projects with grant assurances, makes recommendations



State –
Technical assistance, may authorize zoning, develops standards and guidelines

Airport Land Use Compatibility

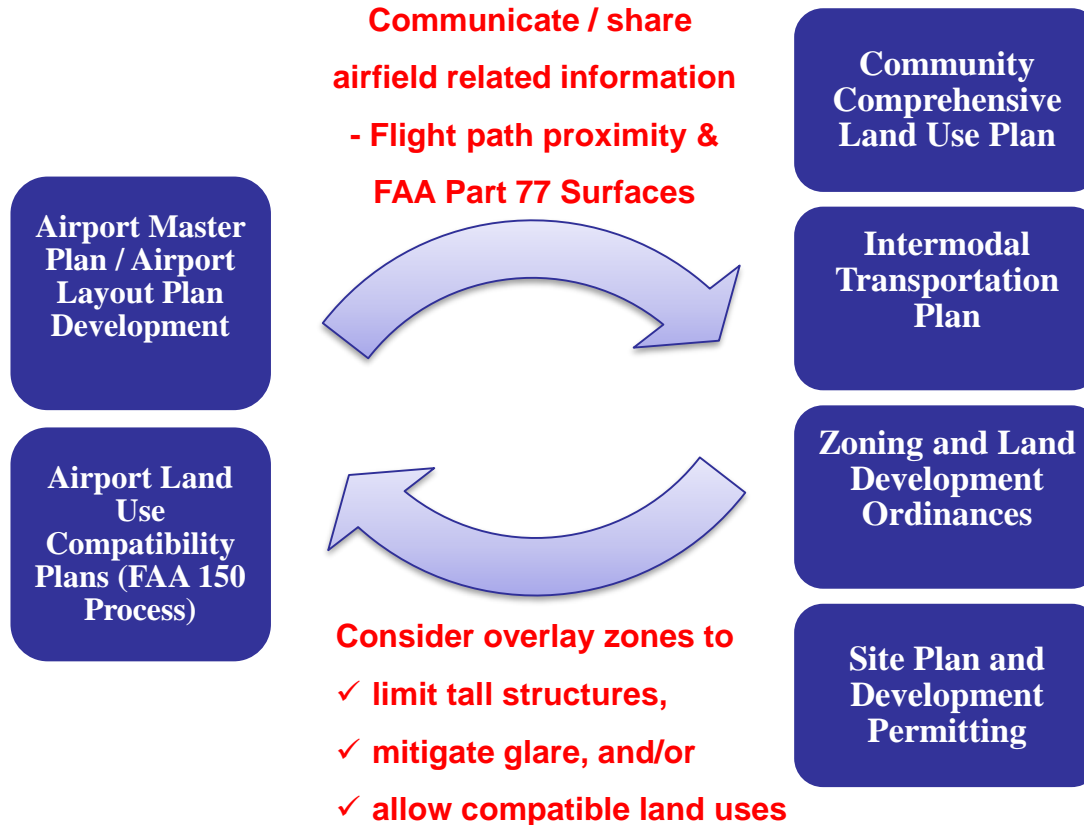
- Land Use Compatibility Concerns
- Roles and Responsibilities of Stakeholders
- **Airport and Local Land Use Planning Coordination**
- Tools and Techniques for Land Use Compatibility



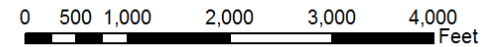
Airport and Local Land Use Coordination

Airport Planning

Local Planning









Airport Land Use Compatibility Watertown International Airport



Legend

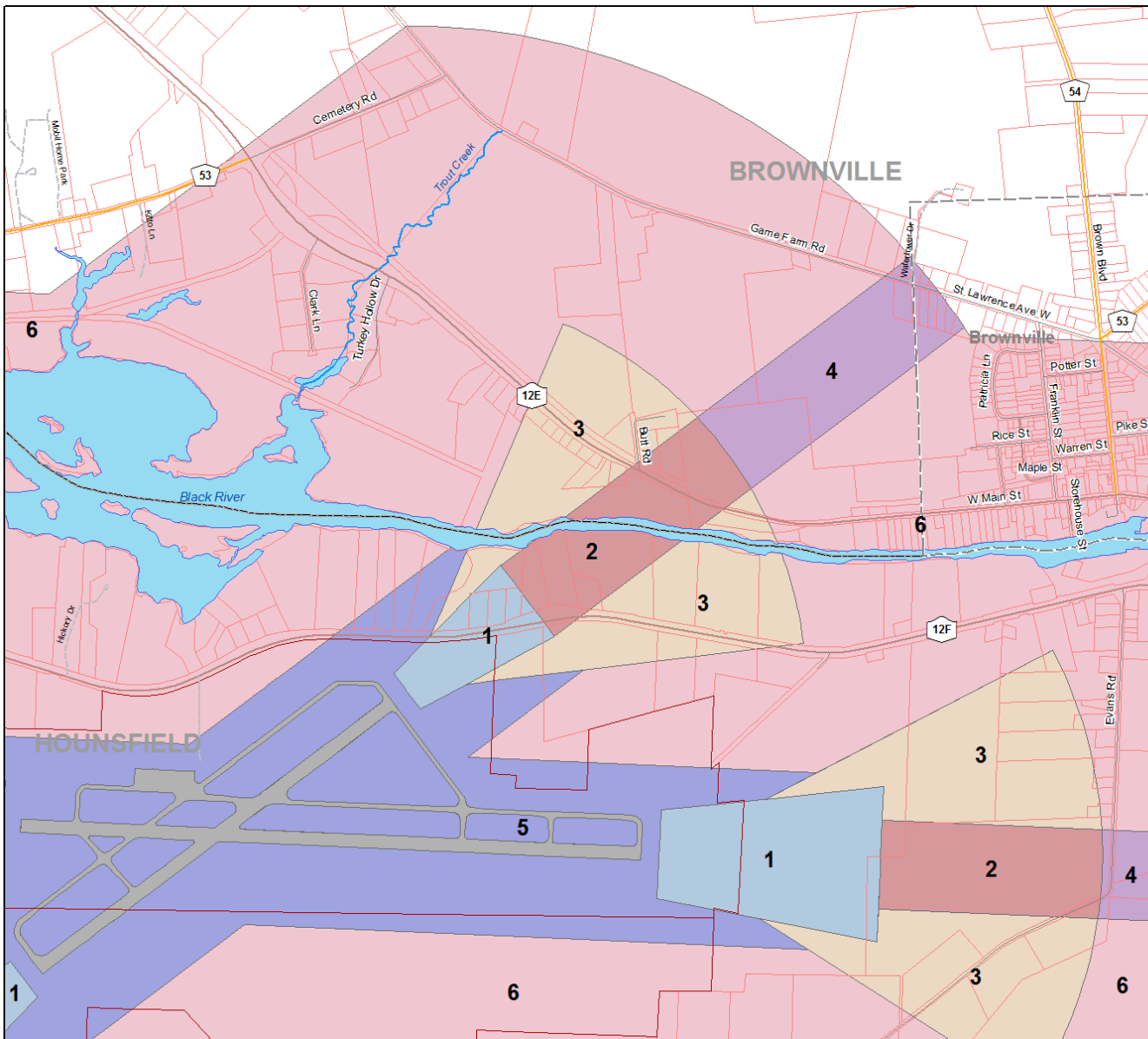
Airport Impact Zones

-  Zone 1 Runway Protection Zone
-  Zone 2 Inner Safety Zone
-  Zone 3 Inner Turning Zone
-  Zone 4 Outer Safety Zone
-  Zone 5 Sideline Safety Zone
-  Zone 6 Traffic Pattern Zone



November 2017

Sources: National Transportation Safety Board,
Jefferson County Real Property Tax Services,
Jefferson County Planning,
NYS Cyber Security and Critical Infrastructure Coordination





APT ID:	(KART)	PRIMARY MISSED APPROACH			
APT NAME:	WATERTOWN INT	FM 9	SEGMENT	OBST	ELEV
CITY:	WATERTOWN	1	ART VTAC FDR	AAO	759
STATE:	NY	3	ZIRAX 12.40 ARC	AAO	579
PCDR ID:	ILS OR LOC RWY 7	5	SYR VTAC INT	TOWER	839
AMDT #:	8	MSA	ART VTAC 020-200	TOWER	2513
SCALE:	1:500,000	MSA	ART VTAC 200-020	TOWER	1325



Airport Land Use Compatibility

- Land Use Compatibility Concerns
- Roles and Responsibilities of Stakeholders
- Airport and Local Land Use Planning Coordination
- **Tools and Techniques for Land Use Compatibility**



Tools and Techniques for Land Use Compatibility

- **Airport Land Use Compatibility Plans**
- **Airport Overlay Districts** (address tall structures and/or certain incompatible uses)
- **FAA - Solar Glare and Glint analysis tool (SGHAT)**
- **Airport Noise Compatibility Plans**
- **Zoning / Permitting Ordinance Development**
 - Zoning Amendments in key areas such as Overlay Districts
- **Natural Features – Inventory and Mitigation**
 - Install green Infrastructure to limit large detention ponds in key areas
- Tall structures, complete FAA Form 7460-1, Notice of Proposed Construction or Alteration to submit to the FAA for review/comment.
- **Real Property Acquisition and Disclosure**
 - Avigation Easements
 - Dedications, Deed Restrictions

FAA Regulations / Guidance References

Code of Federal Regulations

14 CFR Part 77 SAFE, EFFICIENT USE, AND PRESERVATION OF THE NAVIGABLE AIRSPACE

14 CFR Part 150 Airport Noise Compatibility Planning

14 CFR Part 139.337 Wildlife Hazards

40 CFR Part 258.10, Municipal Solid Waste Landfills, Location Restrictions, Airport Safety

<http://www.ecfr.gov/cgi-bin/ECFR?SID=4f29c1a8529ec46bb53bd2bd7e3948a5&page=browse>

FAA Advisory Circulars (AC)

AC 150/5190-4A A Model Zoning Ordinance to Limit Height of Objects Around Airports (Airport Compatible Land Use Planning)

AC 150/5020-1 Noise Control and Compatibility Planning for Airports

AC 150/5070 Airport System Planning Process

AC 150/5100-17 Land Acquisition and Relocation Assistance for AIP Assisted Airport Projects

AC 150/5200-33 Hazardous Wildlife Attractants on or near Airports

AC 150/5200-34 Construction or Establishment of Landfills near Public Airports

AC 150/5300-13A Airport Design

AC 70/7460-2K Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace

http://www.faa.gov/airports/resources/advisory_circulars/

FAA Interim Policy - FAA review of Solar Energy System Projects

Solar Glare Hazard Analysis Tool (SGHAT) Required for on airport property projects and strongly encouraged to consider for off-airport property or on non-federally obligated airports when siting such systems.

Ongoing Coordination, Input, and Effort

- **Aviation/Airport stakeholders, including:**
 - National Association of State Aviation Officials (NASAO)
 - American Association of Airport Executives (AAAE)
 - Airports Council International – North America (ACI-NA)
 - Airports Consultant Council (ACC)
 - Aircraft Owners and Pilots Association (AOPA)
- **American Planning Association**
- **Airport Manager/Jefferson County Planning**
 - Future planning/training sessions, advisory materials, and sharing of airfield related information
 - Airport/airspace information should trigger relevant zoning changes within affected municipalities



Questions?

Grant Sussey, Airfield Manager – Jefferson County

Andy R. Nevin, AICP, Senior Planner – Jefferson County Planning

Where to Get More Information:

<https://www.faa.gov/airports/environmental/>

Original Authors of the Presentation:

Jackie Sweatt-Essick, jackie.sweatt-essick@faa.gov

Rick Etter, rick.etter@faa.gov

