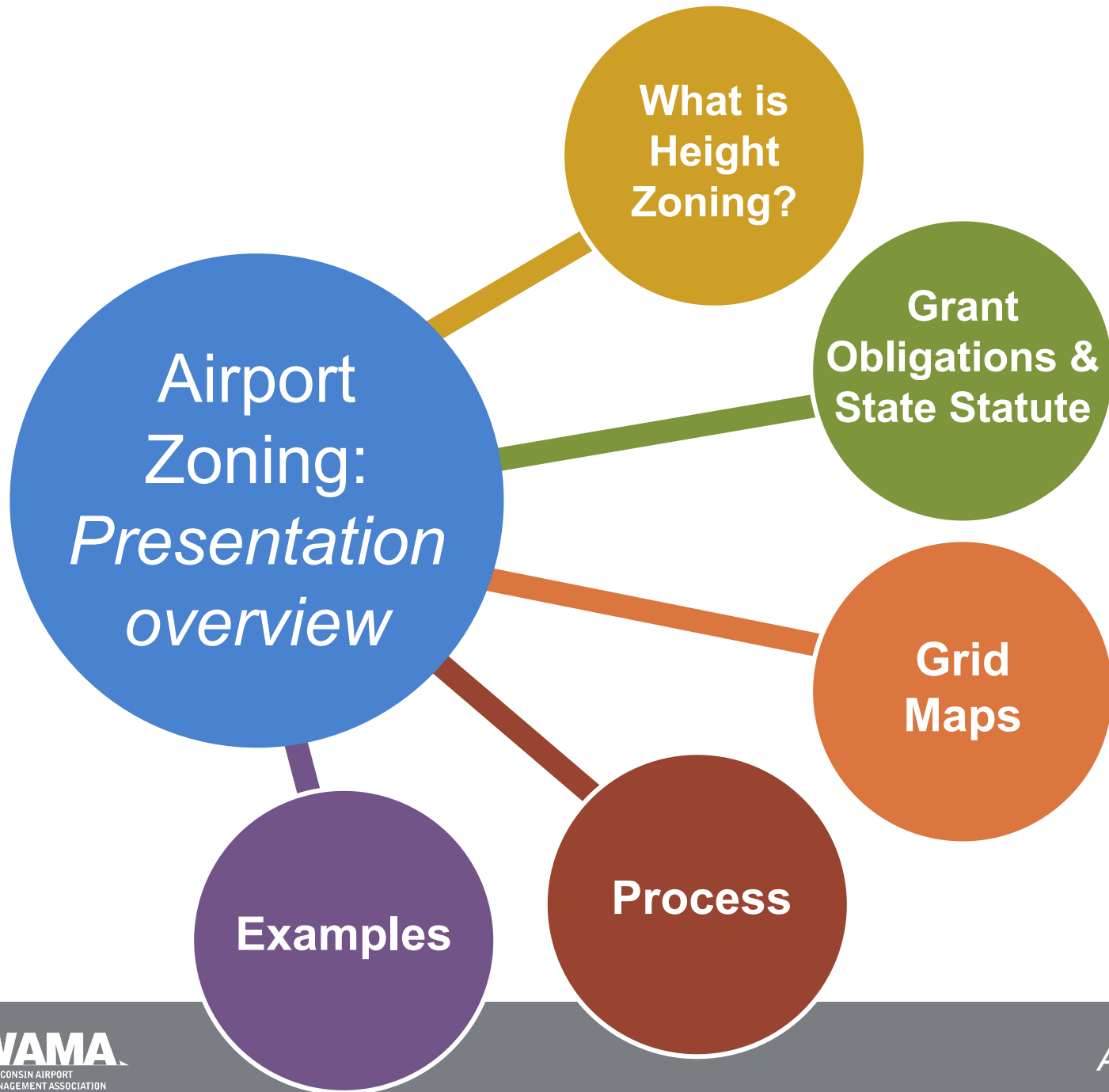




Airport Zoning

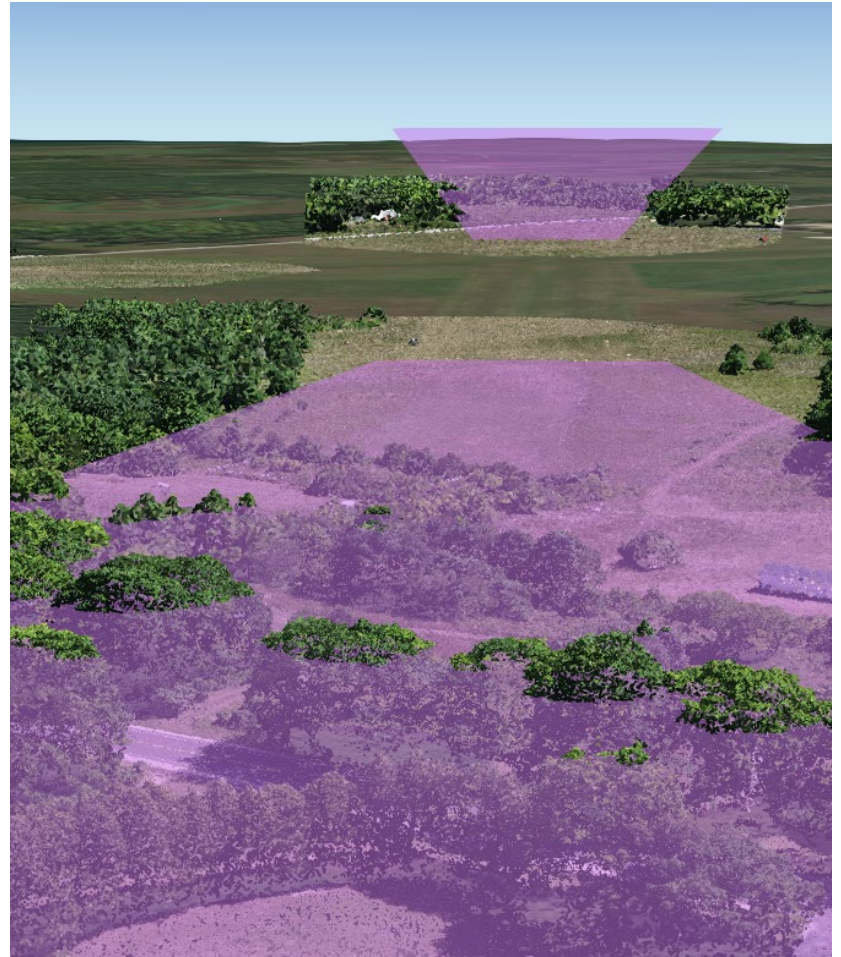
The Last Thing On Our Minds

Wisconsin Aviation Conference – September 22, 2023



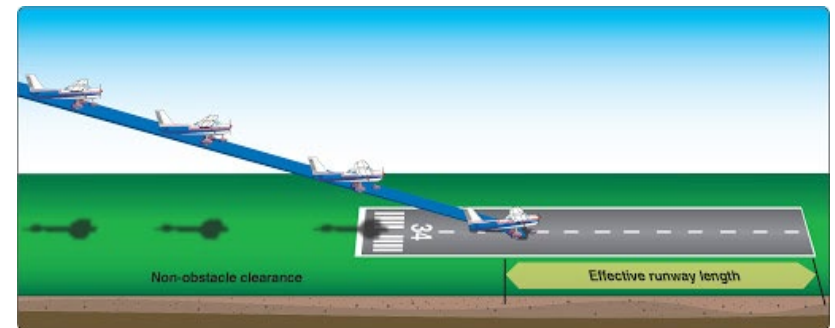
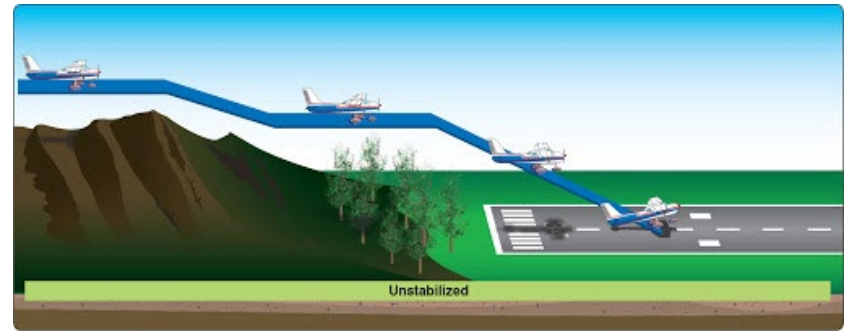
What is Height Limitation Zoning?

- Restricts the height of objects (e.g., cell towers, wind turbines, cranes, trees) near the airport to provide clear airspace for both visual and instrument aircraft operations.



Why is Height Limitation Zoning Necessary?

- Safety
 - More shallow, stable approaches
 - Greater margin of error
- Operational Impacts
 - Instrument flight procedures
 - Navaid visibility
- Local Control is Needed
 - State Tall Tower Permitting
 - FAA Aeronautical Studies (7460)



Grant Obligations

Wisconsin Administrative Code Trans 55 – Conditions of State Aid

55.06(4)(a) - A public airport owner shall adopt the following ordinances within 6 months after receipt of a sample ordinance from the secretary:

1. A height limitation zoning ordinance adequately restricting the height of objects near the airport in accordance with s. [114.136](#), Stats.

Federal Grant Assurances #20 Hazard Removal and Mitigation

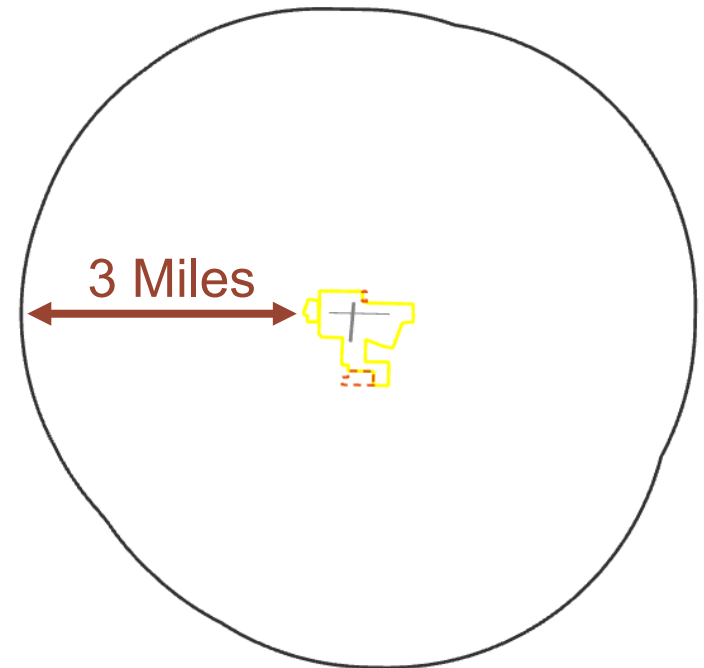
[The Airport Sponsor] will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards **and by preventing the establishment or creation of future airport hazards.**

State Statute § 114.136

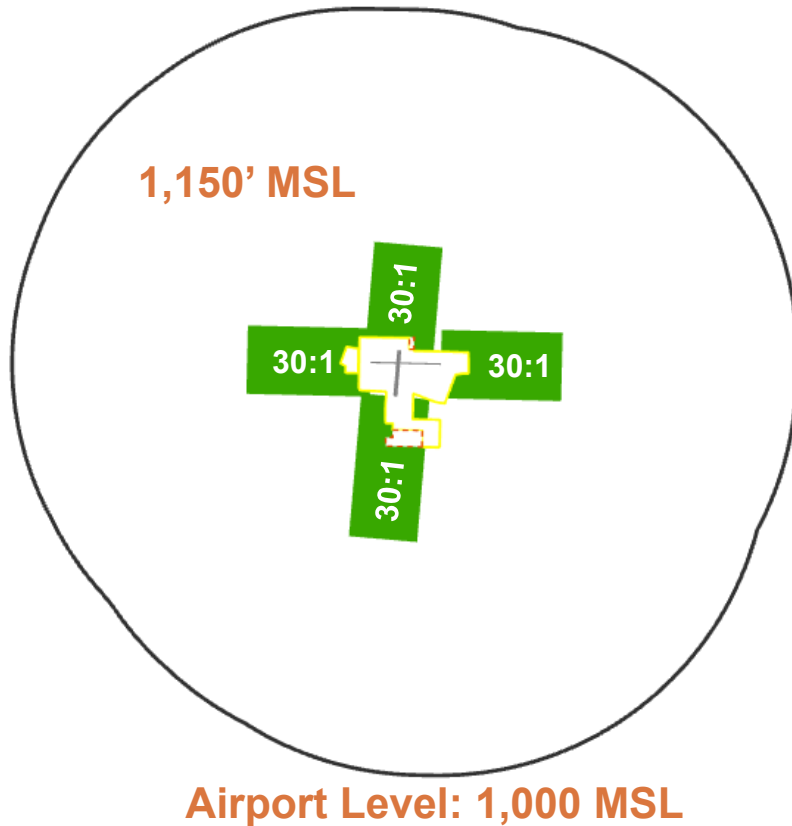
- Power granted to any county, city, village or town that owns an airport
- Allows municipality adopt an ordinance restricting:
 - Use
 - Location
 - Height
 - Number of stories
 - Sizeof buildings and structures and **objects of natural growth**.
- Ordinance shall be effective:
 - Whether the lands affected are located within or without the municipal limits of the airport owner
 - Whether or not such building, structures and objects of natural growth are in existence on the effective date of the ordinance.
 - Without the consent of any other governing body.

State Statute § 114.136

- Zoning may not exceed 3 miles from airport property.
- Height restrictions based on the Civil Aeronautics Administration's 1947 National Airport Plan
 - Longest usable runway length
 - subtract $\frac{1}{4}$ of airport elevation
 - subtract 200' if runway is turf
 - $<3,500'$ – 30:1 slope from airport boundary
 - $\geq 3,500'$ – 50:1 slope from airport boundary
- Height restrictions start at the “airport level” defined as the lowest point planned on any runway



Historical Grid Maps

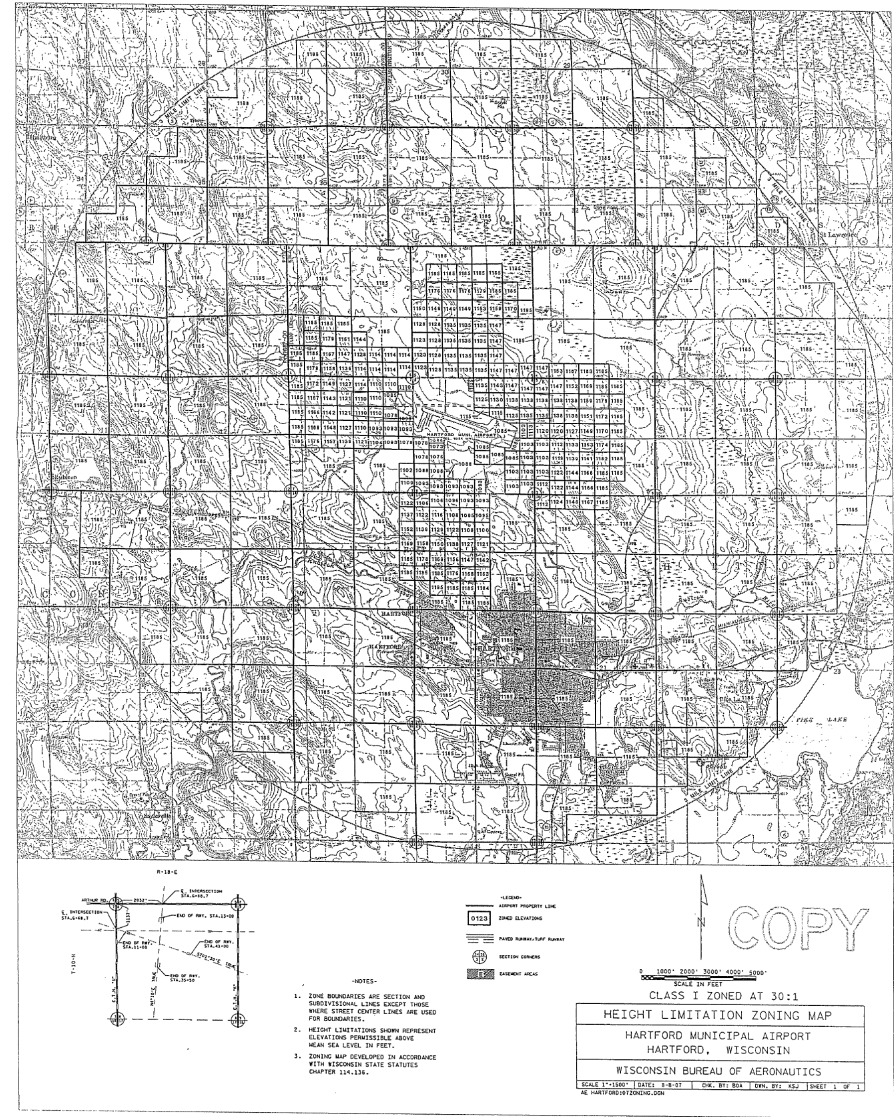


- Most were drawn by BOA in the 1970s.
 - Limited by the tools and resources available
- 3,300' “approach area” established off each runway end.
 - Sloped upward along the extended runway centerline until 150' above the airport level.
- Remaining 3-mile area restricted to 150' above the airport level.

Historical Grid Maps

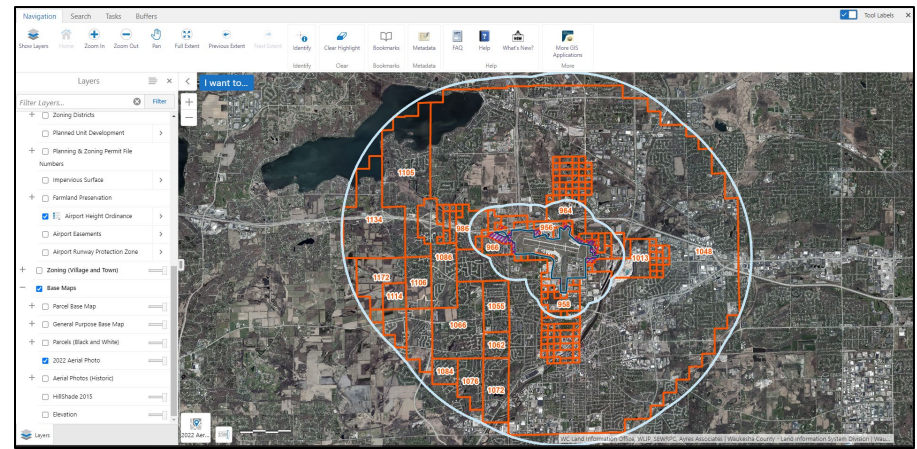
- Contours converted to a grid using Public Land Survey System (PLSS) quarter sections
- In the sloped approach area, PLSS quarter sections were quartered and quartered again.
- Grid cell elevations based on most restrictive overlapping contour
- USGS topographic maps used to make sure all cell elevations are $\geq 50'$ AGL.

– *BOA recommendation to acquire easements to restrict heights below 50' AGL.*



Best Practices

- Review and be familiar with your height limitation zoning ordinance.
 - Who has the official map?
 - Does the airport have a copy of the map?
 - Does the map accurately reflect the existing airport layout and property interests?
- Convert map to GIS and make it publicly available.
- Develop a good relationship with those responsible for zoning/permitting.
- Avoid granting variances.

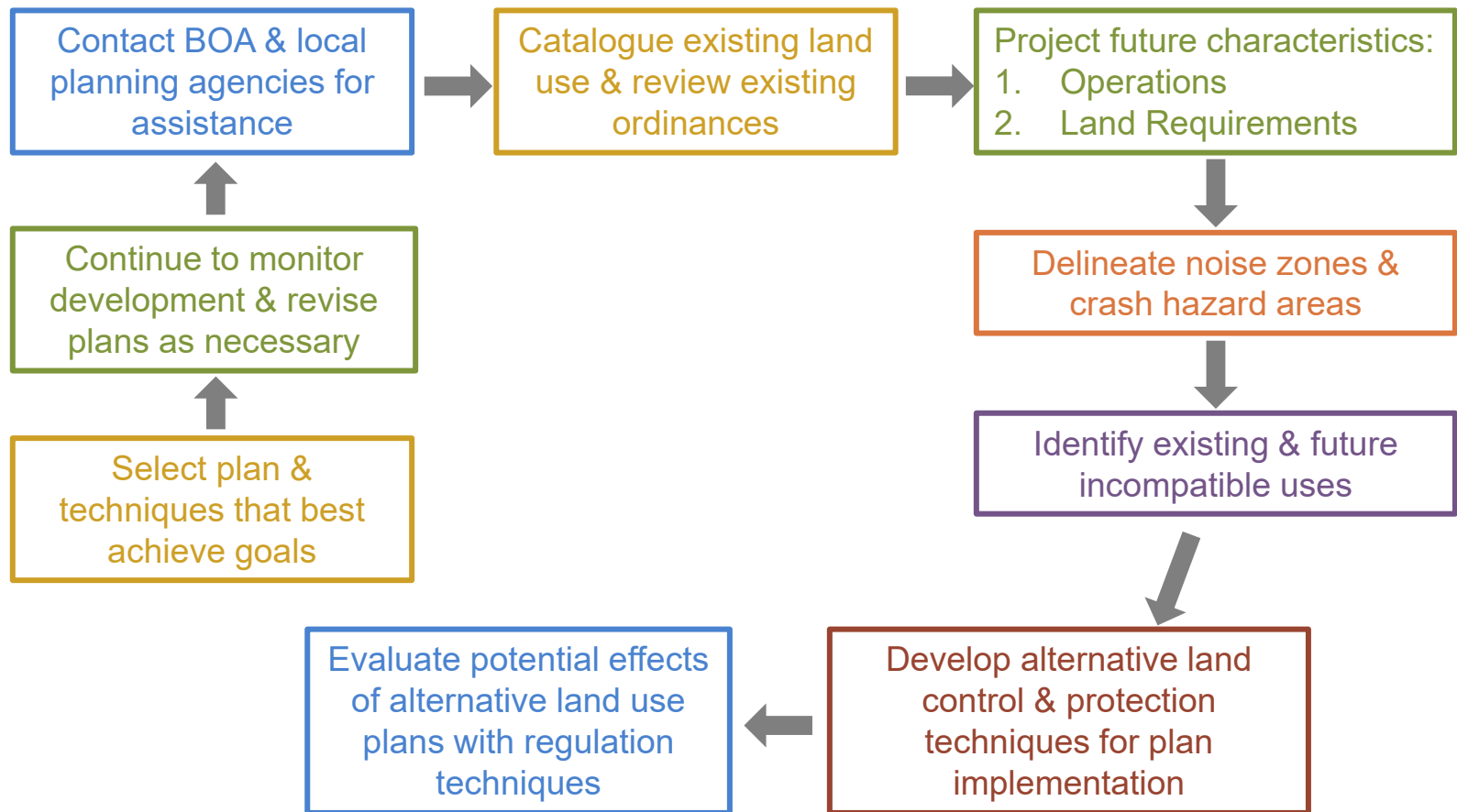


Improve your HLZO Map



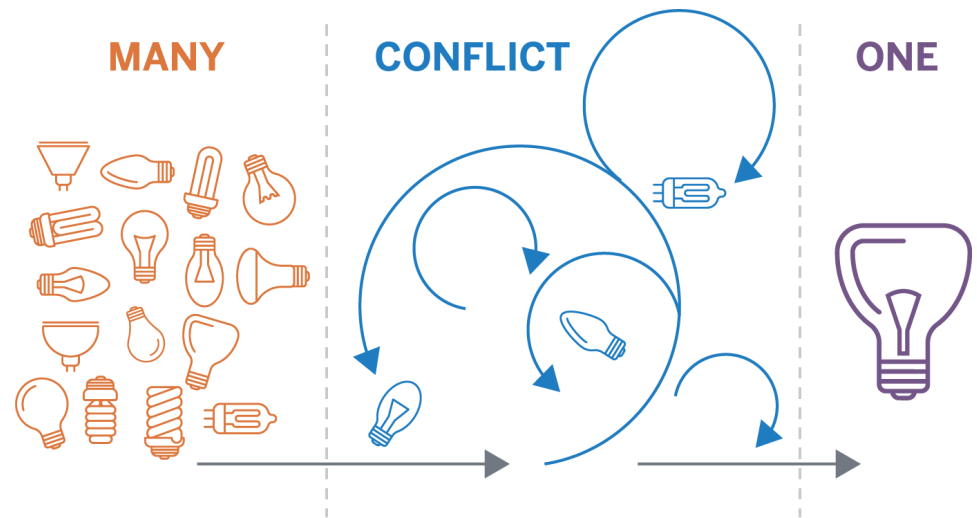
- Take advantage of GIS to improve usability and precision.
- Tailor restrictions to the specific surfaces in need of protection
 - FAR Part 77
 - AC 150/5300-13B Airport Design
 - TERPS
- Both will eliminate overly restrictive height limitations thereby reducing the need for variances and increasing development opportunity for the community.

Process - Planning Steps



Process – Community Involvement

- Stakeholder/Ordinance Committee
 - Local Municipalities/Governments
 - Airport Users & Stakeholders
 - Citizens
 - Metropolitan Planning Organizations (MPOs)
 - WisDOT Bureau of Aeronautics (BOA)
- Public Involvement
 - Open House
 - Public Hearing

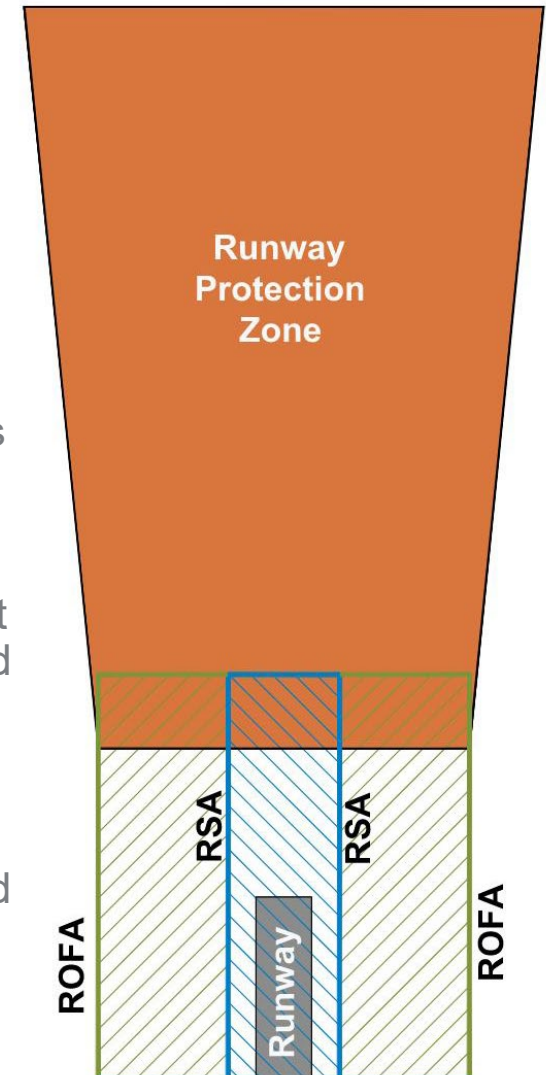


Process – Purpose

- Purpose to Reduce & Prevent Incompatible Land Uses
 - Reduce risk & increase safety for airport users and people on the ground
- Ordinances are local laws developed by communities, that can used to regulate land use.

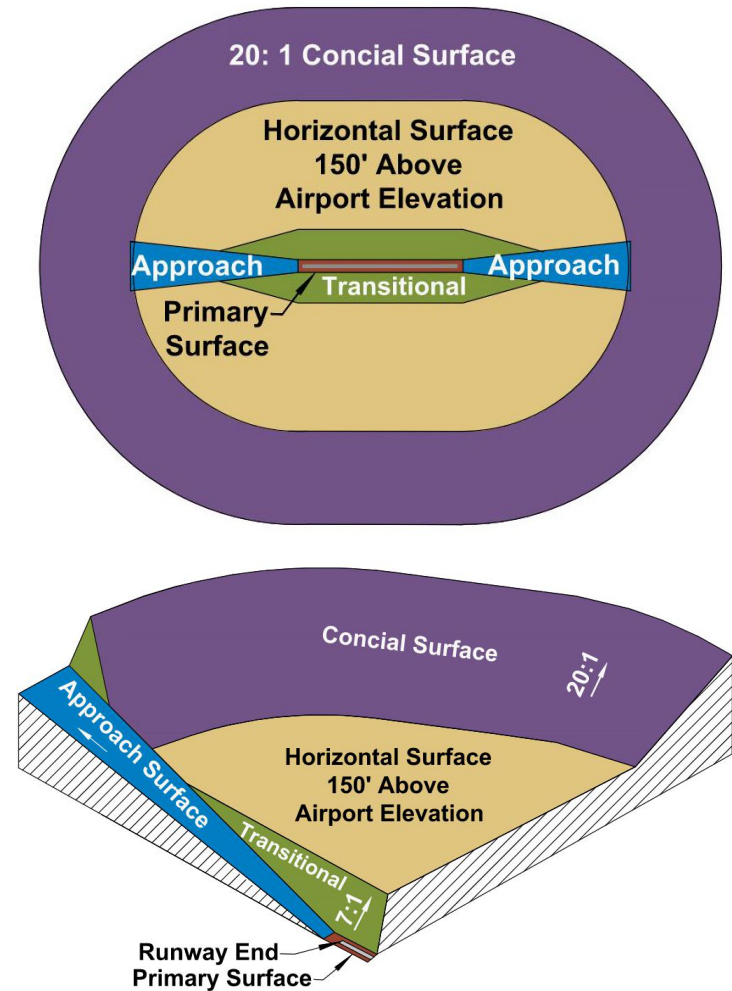
Process – Resources

- FAA Airport Design Standards (Advisory Circular 150/5300-13B)
 - Runway Protection Zones (RPZs)
 - RPZ is a trapezoidal area at each runway end meant to protect people on the ground. Should be kept free of structures and any developments that would create a place of public assembly.
 - Runway Safety Areas (RSAs)
 - Rectangular area that surrounds the runway that should be cleared, graded, properly drained, and free of potentially hazardous surface variations.
 - Runway Object Free Area (ROFAs)
 - Rectangular area that surrounds the runway where all aboveground objects must be removed unless fixed by their function.

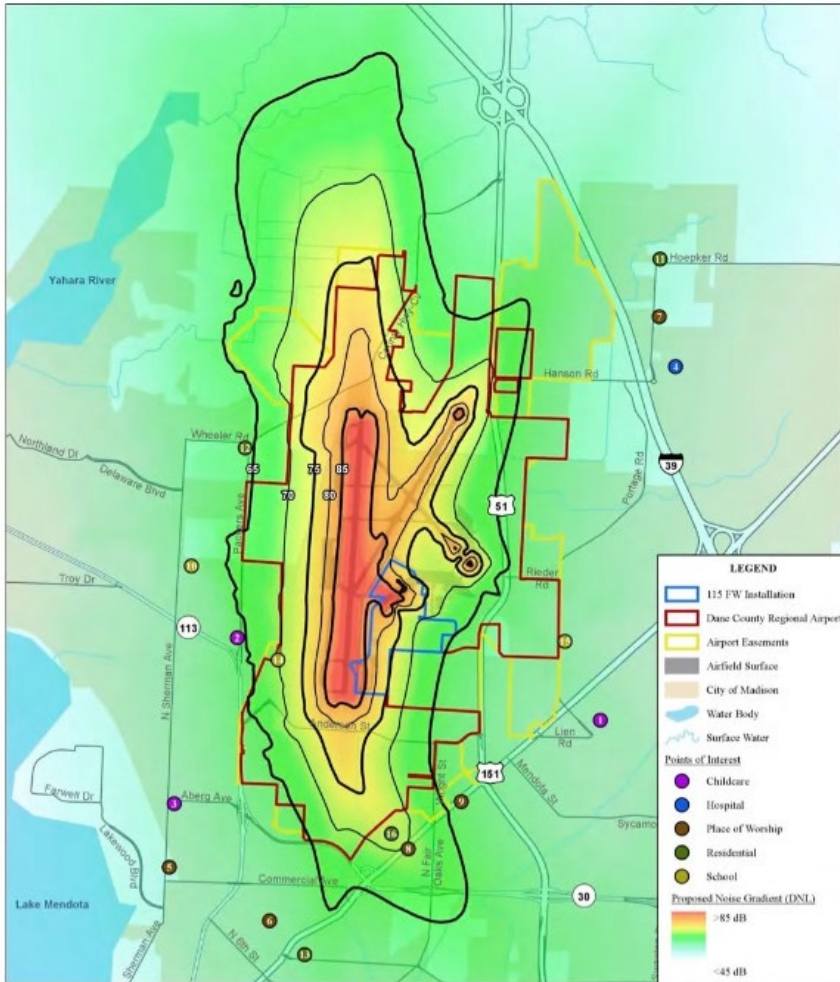


Process – Resources

- Wis Statute, Chapter 114 requires airport to protect their runway approach areas
 - 14 CFR Part 77 Imaginary (Airspace) Surfaces
 - Dimensions of surfaces are dependent on the type of approach to each runway end



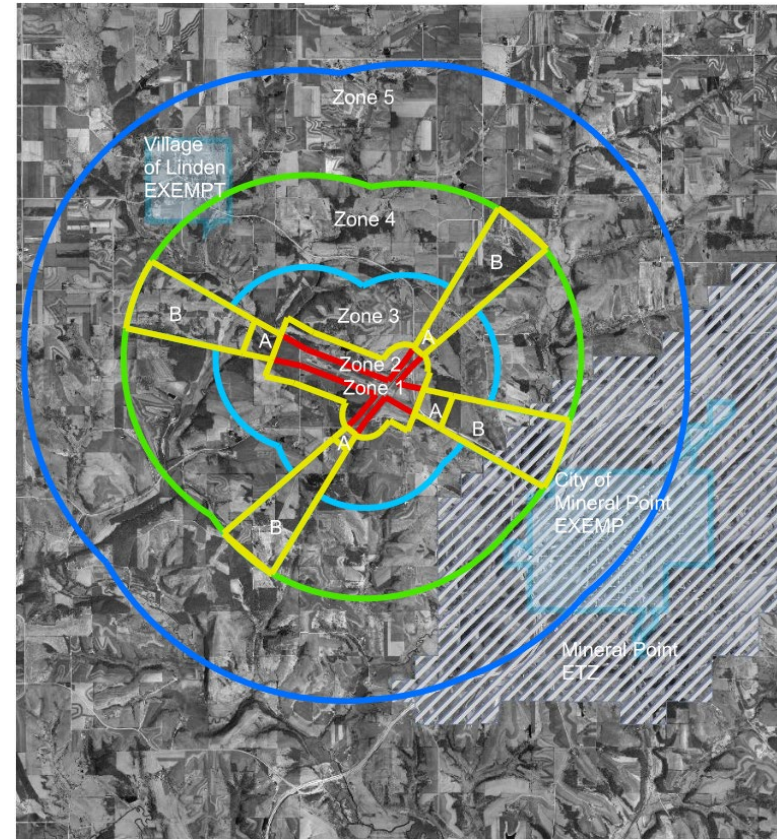
Process – Resources



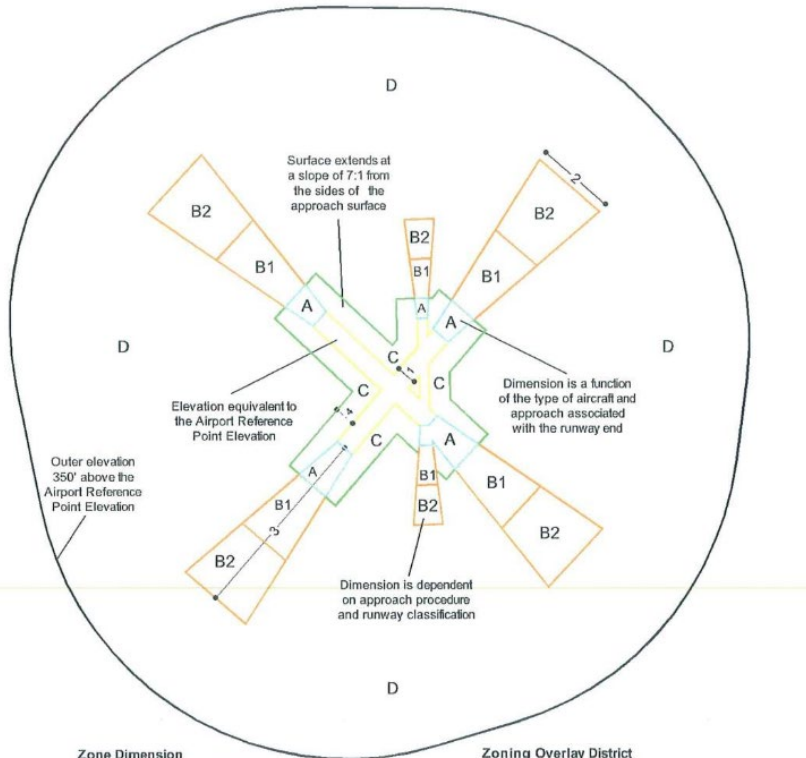
- Noise Concerns
- FAR Part 150 – Airport Noise
- Day-Night Level (DNL) as the universal noise contour measure.
 - Severe Noise: 70 DNL
 - Substantial Noise: 65 DNL
 - Moderate Noise: 55-65 DNL

Example – Iowa County

- Zone 1 – Primary Surface & RPZ
- Zone 2 – Transitional Surface
 - Sub-Zone A – Inner Approach
 - Sub-Zone B – Outer Approach
- Zone 3 – 1-Mile Radius
- Zone 4 – 2-Mile Radius
 - Horizontal Surface
- Zone 5 – 3-Mile Radius
 - Conical Surface



Example – Southwest Regional



- Primary Surface
- Zone A – RPZ
- Zone B – Approach Surface
 - B1 – Middle Approach
 - B2 – Outer Approach
- Zone C – Transitional Surface
- Zone D – 3-Mile Radius
 - Horizontal + Conical Surface

Zone Dimension

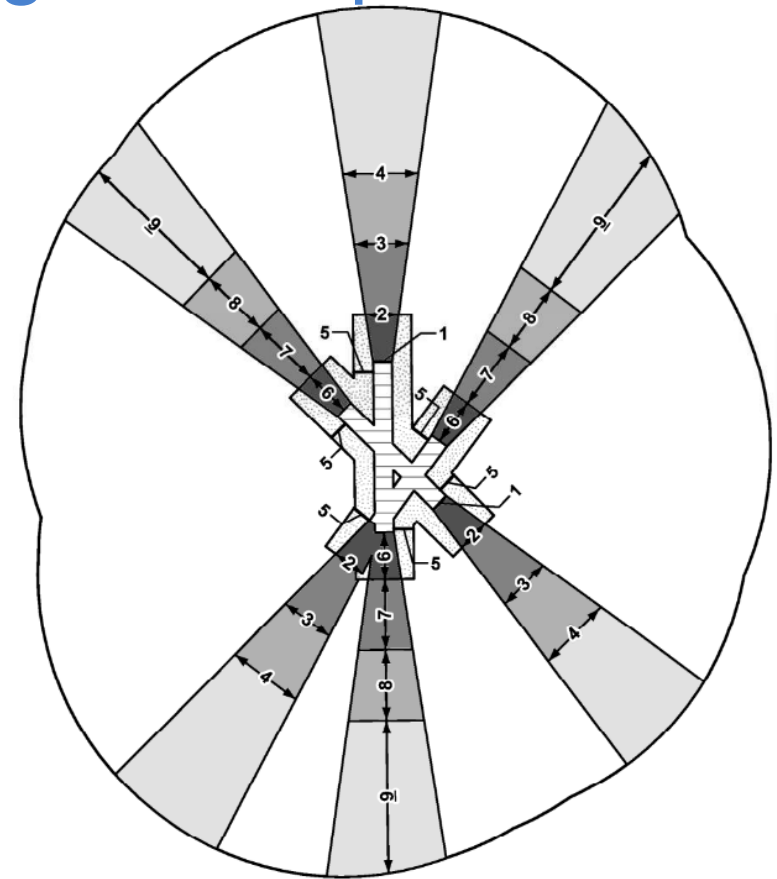
- ← 1 → Primary Surface and Zone B1 Inner Width
- ← 2 → Zone B2 End Width
- ← 3 → Zone B1 & B2 Length
- ← 4 → Zone C Width

Zoning Overlay District

- Primary Surface
- A Runway Protection Zone
- B1-B2 Runway Approach Surface
- C Transitional Surface
- D 3-Mile Radius

Example – La Crosse Regional Airport

- Primary Surface
- Zone A – RPZ
- Zone B1 – Inner Approach
- Zone B2 – Middle Approach
- Zone B3 – Outer Approach
- Zone C – Transitional Surface
- Zone D – 3-Mile Radius
 - Horizontal + Conical Surface



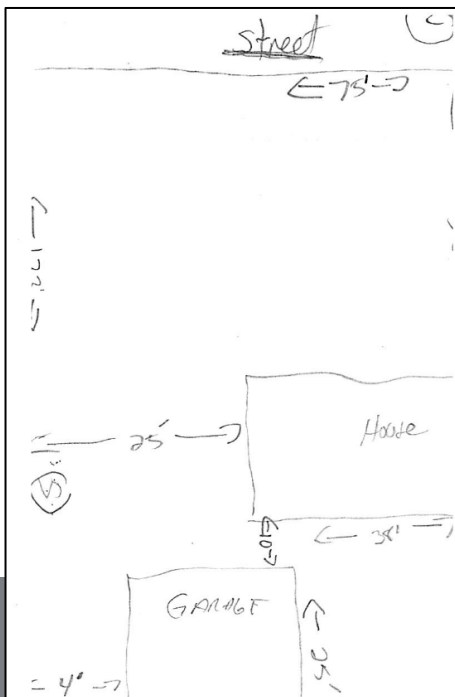
Zone Dimensions

1 = 1000' 4 = 4000' 7 = 3750'
 2 = 1750' 5 = 1050' 8 = 3750'
 3 = 2875' 6 = 2500' 9 = Varies*

Zoning Overlay Districts

Zone A
 Zone B1
 Zone B2
 Zone B3
 Zone C
 Zone D
 Primary Surface

Zoning Permit Example – La Crosse



La Crosse Fire Department

Division of Community Risk Management
inspection@cityoflacrosse.org (P) 608.789.7330 (F) 608.789.7389
http://www.cityoflacrosse.org/your-government/departments/fire-department

APPLICATION FOR HEIGHT PERMIT

Application Number _____ Date _____ Parcel Number: _____

OWNER INFORMATION

Name: JAMES MARCOV

Address of Above: Street 2542 1ST AVE W City LA CROSSE State WI Zip Code 54603

Phone: _____ Cell: 608-780-9884 Fax: _____ Email: JMARCOV@MSN.COM

CONTRACTOR INFORMATION

Name: _____

Address of Above: Street _____ City _____ State _____ Zip Code _____

Phone: _____ Cell: _____ Fax: _____ Email: _____

PROJECT INFORMATION

Project Address: 2542 1ST AVE W, LA CROSSE WI 54603

Description of Premises: pre-main Portable Building) to set a 12x20'x140" H prebuilt shed on premises.

Occupancy: NONE Maximum Height of this construction above Sea Level: 140" ABOVE GROUND LEVEL

IT IS HEREBY AGREED between the undersigned as owner, owner's agent or servant, and the City of La Crosse, that for and in consideration of the premises and of the permit to construct, erect, alter or install as above described. To be issued and granted by the City of La Crosse, that the work thereon will be done in accordance with the description herein set forth in this statement; and it is further agreed to construct, erect, alter or install in strict compliance with Chapter 8, Article IV of the Municipal Code of the City of La Crosse; and to obey any and all lawful orders of the City of La Crosse made or issued by the virtue of provisions of said ordinance.

Applicant: JAMES J MARCOV (Print) James J Marcov (Sign) 08-28-23 (Date)

Owner: JAMES J. MARCOV (Print) James J Marcov (Sign) 08-28-23 (Date)

OFFICE USE ONLY

Application: Approved Conditionally Approved Denied Inspector: _____ Date: _____

Notes/Conditions: _____

La Crosse Regional Airport – Airport Overlay Zoning District Land Use Checklist Rev. 6/9/2016

Airport Overlay Zoning District Land Use Checklist

CONTACT INFORMATION

Applicant Information

Name: JAMES J MARCOV

Contact: (SGM)

Address: 2542 1ST AVE W

City/State/Zip: LA CROSSE, WI 54603

Phone: 608-780-9884

Fax: _____

Engineer/Architect Information

Name: PREMIER PORTABLE BUILDINGS

Contact: RGK PORTABLE BUILDING

Address: RGK PORTABLE BUILDING.COM

City/State/Zip: _____

Phone: 563-402-7634

Fax: _____

STRUCTURE INFORMATION

Type of Construction

New Construction Permanent Ground Elevation _____ (NAVD88)

Alteration Temporary Height of Structure = 140" (AGL)

Top Elevation = _____ (NAVD88)

*NAVD88 = North American Vertical Datum 1988.

Description and Use of Structure (dimensions, type of construction, purpose, etc.):

Having a prebuilt 12'w x 20'L x 140" H shed dropped on existing lot

Zoning Permit Example – La Crosse

• Airport Overlay Zoning District Land Use Checklist

SITE INFORMATION	
Site Address	Township
City/State/Zip	Section
Nearest Road Intersection	Latitude
	Longitude
DRAWING INFORMATION	
Request will not be considered without an engineered drawing/plan set which illustrates the following:	
<input type="checkbox"/> Drawing Identification (file name or #) and Date	<input type="checkbox"/> Engineers Seal
<input type="checkbox"/> Scale	<input type="checkbox"/> Contact Information
<input type="checkbox"/> Site Map	<input type="checkbox"/> Profile View of Structure
REMARKS	
IDENTIFY CURRENT AND POTENTIAL COMPATIBILITY CONCERNS	
There are several primary areas of interest that need to be considered during the site planning and permitting process. The following checklist includes criteria which need to be evaluated when new development is proposed and will be used to determine whether or not a permit should be issued. This checklist should be used as a guide by a property owner as they develop a site plan.	

Airport Overlay Zoning District Land Use Checklist	
Elevation	
Ground Elevation at the Site	<input type="text"/> (NAVD88)
Height of Structure	<input type="text"/> (AGL)
Top Elevation	<input type="text"/> (NAVD88)
Allowable Elevation Per the Height Limitations Zoning Map. If the site is within the "Permit Required" hatched area, list "Permit Required" instead of a height. <input type="text"/> (NAVD88)	
* If the top elevation exceeds the allowable elevation by more than 10 feet, a permit will NOT be issued.	
* Has a 7460-1 form been submitted (Yes/No), and if so, has a response been received (Yes/No)? If so, attach the FAA letter of determination received. **If a determination of hazard has been received from the FAA, a permit will not be issued.*** **If a determination of no-hazard with a lightning recommendation has been received from the FAA, a requirement to include the lightning will be issued with the permit**	
Location	
	YES NO
Is the proposed use near an extended runway centerline?	<input type="checkbox"/> <input type="checkbox"/>
If YES, can the structure be relocated on the parcel, away from the centerline?	<input type="checkbox"/> <input type="checkbox"/>
If YES, structure should be relocated If NO, please explain why not.	
Is the proposed use compliant with allowed land uses authorized in the land use compatibility chart?	<input type="checkbox"/> <input type="checkbox"/>
Property Owner Comments (How will you address these mitigation measures?):	
Staff Comments:	

Noise Sensitivity		YES	NO
Since the 65 DNL noise contour does not leave Airport property, could a perceived noise issue develop due to aircraft overflight or proximity to the Airport?			
<input type="checkbox"/> <input type="checkbox"/>			
IF YES: The structure should be insulated to reduce noise impacts The structure should be shifted on the site, away from aircraft operations/overflight to achieve minimized impacts			
Property Owner Comments (How will you address these mitigation measures?):			
Staff Comments:			
Visual Obstructions		YES	NO
Could the land use produce upward light emissions?			
<input type="checkbox"/> <input type="checkbox"/>			
IF YES: All lighting fixtures should be down shielded The number of light fixtures should be reduced, while providing adequate illumination Light fixtures should be configured in a non-linear pattern, or be aligned differently from the Airport runways			
Does the proposed land use include reflective building materials which could create produce a glare or reflection?			
<input type="checkbox"/> <input type="checkbox"/>			
IF YES, the materials should be changed to those of a non-reflective quality			
<input type="checkbox"/> <input type="checkbox"/>			
Does the proposed land use include development/installation of solar panels? IF YES, the Solar Glare Hazard Analysis Tool (SGHAT) should be used to determine ocular impact. Attach SGHAT report findings. A solar study should also be completed if determined appropriate by airport staff.			
<input type="checkbox"/> <input type="checkbox"/>			

Does the proposed land use involve emissions of smoke, steam, or dust?	<input type="checkbox"/> <input type="checkbox"/>		
IF YES: The land use should be changed to reduce or limit smoke, steam, or dust emissions. The land use should be shifted so that prevailing winds carry smoke, steam, or dust away from the Airport.			
Property Owner Comments (How will you address these mitigation measures?):			
Staff Comments:			
Wildlife and Bird Attractants		YES	NO
Could the land use attract or create a habitat for wildlife?			
<input type="checkbox"/> <input type="checkbox"/>			
IF YES: Vegetative species should be spaced to minimize sources of food, water, and shelter Compatible vegetation species should be used (see list in the La Crosse Regional Airport Land Use Plan) Standing water bodies must be able to drain within 48 hours. If they can't be designed to accomplish this, methods to deter wildlife such as grid wires, plantings at the edge, etc. should be utilized to deter wildlife. Waste disposal areas should be maintained to minimize sources of food and opportunities for loafing and roosting			
Property Owner Comments (How will you address these mitigation measures?):			

Staff Comments:			
Concentrations of People		YES	NO
Could the land use hold a high concentration of people?			
<input type="checkbox"/> <input type="checkbox"/>			
IF YES, an evacuation plan should be developed to facilitate the evacuation of the structure.			
Property Owner Comments (How will you address these mitigation measures?):			
Staff Comments:			

Zoning Permit Example – La Crosse

City of La Crosse - GIS Mapping



1-City of La Crosse Online Map



2-Floodplain Building Inventory



2021 Open Data



3-Height Limitation Zoning



5-Housing Market Index



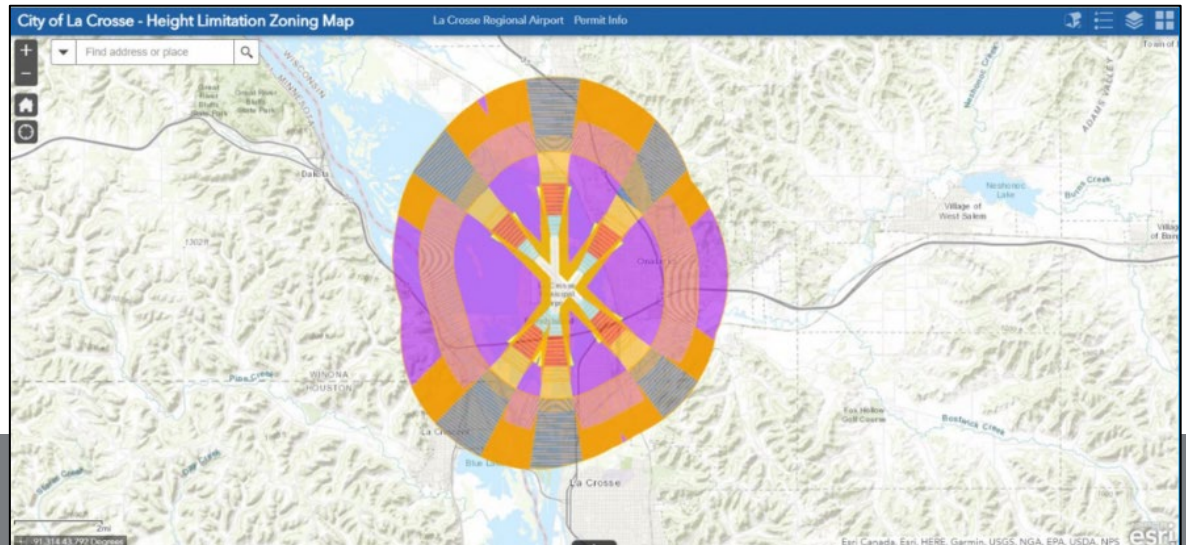
City of La Crosse Economic De...



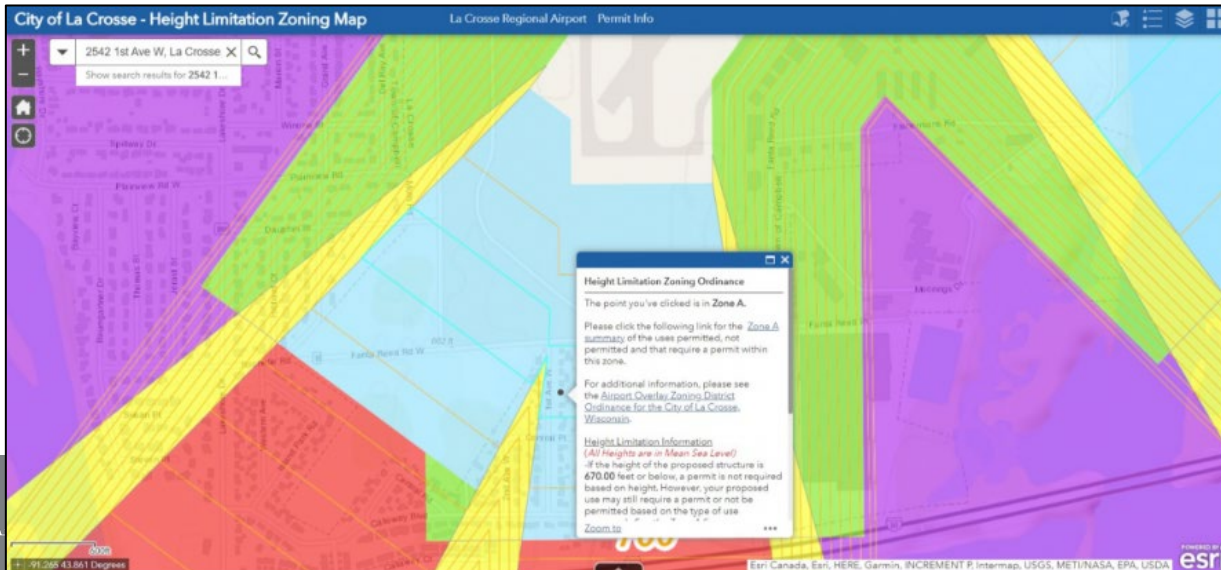
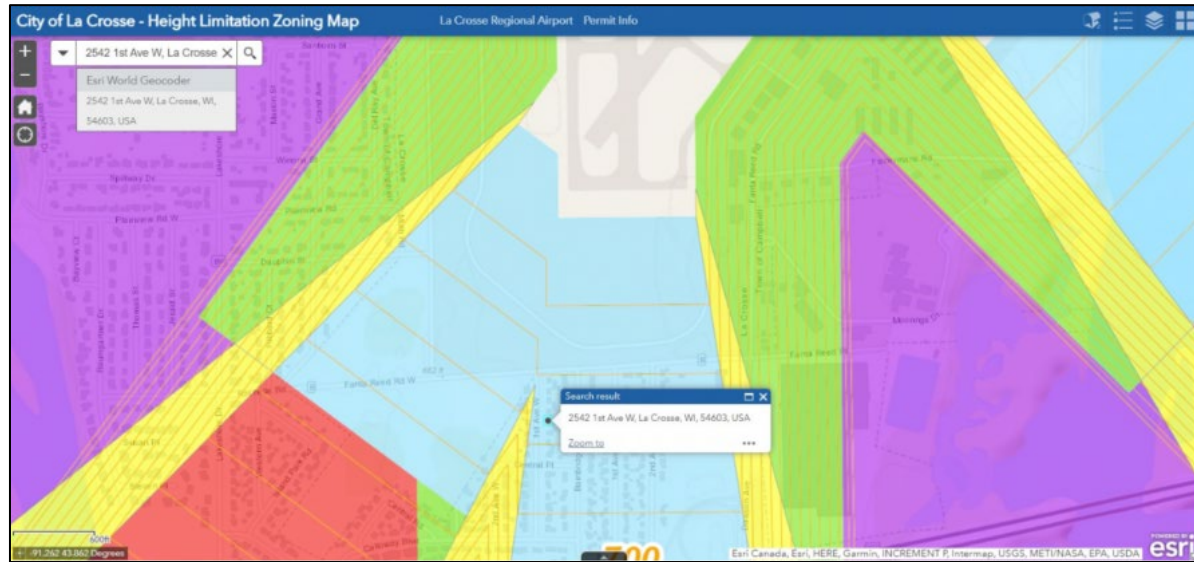
Heritage Preservation



Heritage Preservation Story Map



Zoning Permit Example – La Crosse



Zoning Permit Example – La Crosse

Table 3 - Land Use Compatibility Chart

P = Permitted R = Permit Required N = Not Permitted

Land uses ^{[1][2][3]}	Zone A	Zone B1	Zone B2	Zone B3	Zone C	Zone D
Residential Activities						
Single-family uses (1 unit per lot)	N	R	R	P	N	P
Multifamily uses (Three or more principal dwelling units within a single building on the same parcel) (e.g., apartment, condominium, townhouse-style)						
Low-rise (2 to 3 stories) or Mid-rise (4 to 12 stories)	N	R	R	P	N	P
High-rise (13+ stories)	N	N	R	P	N	P
Group living uses (e.g., assisted living, group care, independent group living, nursing and convalescent home)						
Residential group living units (1 dwelling per lot)	N	R	R	P	N	P
Low-rise (2 to 3 stories) or Mid-rise (4 to 12 stories)	N	R	R	P	N	P
High-rise (13+ stories)	N	N	R	P	N	P
Manufactured housing parks						
	N	N	R	P	N	P
Commercial Activities						
Eating and drinking establishments (e.g., restaurant, cafe, fast food restaurant, bar, nightclub)				N	R	R P N P
General office/medical office/dental office uses (e.g., professional, business, financial, governmental)						
				N	R P P R P	
				N	N R P N P	
				N	N R P N P	
Hospitality-oriented (e.g., hotel, motel, convention center, meeting hall, event facility)						
				N	R P P N P	
				N	N P P N P	
				N	N R P N P	

La Crosse Regional Airport – Airport Overlay Zoning District Land Use Checklist Rev: 6/9/2016

CERTIFICATION

I hereby certify that all statements on this application are true and correct, and I acknowledge that I have reviewed the land use criteria upon which my permit will be based on.

Owner/representative understands the permit applies only to the final elevation of the structure and all temporary construction activity is subject to the provisions of 14 CFR Part 77 – Safe, Efficient Use, and Preservation of Navigable Airspace.

Signature of Property Owner _____ Date _____

Name and Title of Person Filing the Notice _____

Phone of Person Filing Notice _____

OFFICIAL USE ONLY

Site Location _____ Zone A _____ Zone B1 _____ Zone B2
 _____ Zone B3 _____ Zone C _____ Zone D

Municipal Location* _____ City of La Crosse _____ City of Onalaska _____ Town of Onalaska
 _____ Village of Holmen _____ Town of Campbell _____ Town of Medary
 _____ City of La Crescent _____ Town of La Crescent _____ Town of Dresbach

Land Use Compatibility Chart Confirmation _____ Permitted _____ Permit Required _____ Not Permitted

Permit Mitigating Actions Required _____

"IF "YES" WAS SELECTED FOR ANY QUESTION ON THIS CHECKLIST, THE USE IS DESIGNATED AS A PERMIT REQUIRED OR NOT PERMITTED USE, OR A PERMIT IS REQUIRED FOR HEIGHT. A COPY OF THIS CHECKLIST MUST BE SUBMITTED TO THE AIRPORT FOR CONCURRENCE PRIOR TO PERMIT ISSUANCE"

Final Inspection If a use is taller than 35 feet after construction or if the height of the use falls within 20 feet (or penetrates) the allowable height per the Height Limitations Zoning Map, a finished elevation of the use must be provided by the applicant.

Does this use require a finished elevation? Yes _____ No _____
 If yes, what is the confirmed final elevation? _____ (NAVD88)

AIRPORT CONCURRENCE REVIEW

Recommend Permit Issuance Yes No
 If No – Reason Provided _____ Elevation _____ Location _____ Noise _____ Visual
 _____ Wildlife _____ Concentration of People _____ Not a Permitted Use

Comments _____

If Yes – Permit Requirements Yes No

Requirements Permit does not cover any requirements for airspace review related

Ian A. Turner
 Digitally signed by: Ian A. Turner
 DN: cn = Ian A. Turner, email = ian@airport.com, c = US, o = City of La Crosse, ou = La Crosse Regional Airport, date = 2023.09.12 10:44:35 -0500
 to any cranes used during construction or placement of shed indicated. Please see 14 CFR Part 77 and the FAA website at www.faa.gov for more details.

Thank you!



HAL DAVIS

Howard.Davis@dot.wi.gov

608-267-2142



MELISSA UNDERWOOD

munderwood@sehinc.com

763.442.2849