
CHAPTER 6: IMPLEMENTATION & COMPATIBILITY

Introduction

The implementation and compatibility plan provides guidance on how to carry out the preferred development recommendations identified in **Chapter 5: Alternatives**. Based on the preferred development plan, the improvement projects needed at the Warren Municipal Airport (D37) over the planning period can be formulated. This chapter includes the following sections:

- Project Sequence
- Capital Improvement Plan
- Financial
- Environmental Review
- Compatibility

Background

Each project is sequenced to balance demand, schedule, other projects, environmental/agency approval, funding, and financial constraints. The project plan may change over time to react to changing conditions but is flexible so that the airport can react to change and re-prioritize projects based on actual demand.

A more detailed facility implementation and financial feasibility plan is identified for the near-term (i.e. 1-10 years), because needs are more realistically anticipated based on available funding and actual demand. There is more uncertainty in project funding, demand, and local project importance in the long-term. When reaching that point, airport planning documents should be updated.

All planning-level project costs developed are in 2022 dollars. Final project costs are subject to change based on actual construction and project formulation needs.

Many of the projects identified are demand-driven based on the Planning Activity Levels (PALs) established in the approved aviation forecasts. The timing of implementation is estimated from the approved activity forecasts. Any change from the forecasted airport activity may affect the timing of capacity-driven improvements.

Implementing a Project

The airport must go through an established process to receive the State funds to complete an airport development project. MnDOT requires long lead times to complete all project steps and incorporate projects into state funding plans. Additional coordination is required to prepare environmental documentation when required. Common steps in the project implementation process for a complex project include (steps may be shorter or longer based on complexity):

Professional Services: Select a qualified consultant for the project planning, environmental reviews, survey, engineering design, and construction administration for the project.

Five (5) Years Prior to Construction: Identify the project on the Airport Layout Plan, complete necessary airport planning studies and collect supporting documentation to demonstrate the project is justified for funding, and is compatible with the Airport Layout Plan.

Four (4) Years Prior to Construction: Update the Capital Improvement Plan (CIP) to identify the project scope, eligibility, justification, and funding. Close coordination with MnDOT is required.

Three (3) Years Prior to Construction: Initiate any aeronautical surveys, navigational aid agreements (reimbursable agreements) or special FAA coordination for flight procedures which may be necessary prior to construction. Solidify project funding plan and final justification with MnDOT.

Two (2) Years Prior to Construction: Complete required environmental documentation and analysis for the proposed action. Prepare 30 percent project design, refine cost estimates, and prepare benefit/cost analysis as necessary. Acquire land for project and initiate airspace studies.

One (1) Year Prior to Construction: Obtain environmental clearance and permits for the proposed action. Prepare funding pre-application, detailed project plans and specifications including design report, airspace studies, Safety Management Systems (SMS) and construction safety/phasing plan. Finalize project schedule.

Year of Construction: Complete final design. Solicit bid proposals from companies engaged in the project construction. Prepare grant application and accept State grant. Issue notice to proceed and monitor construction. Maintain State grant compliance and payments.

After Construction: Submit final report and close out the AIP grant.

For complex projects such as runway extensions, these steps may take up to five years prior to the issuance of a grant for construction. Less complex such as pavement rehabilitation will require less lead times, typically no less than three years prior to grant issuance.

Project Sequence

Significant individual projects are described in this section along with information about the project purpose, scope, and triggering events. The recommended project phasing at D37 is based on anticipated needs and available funding. This information provides guidance to the airport sponsor and funding agencies on future implementation steps.

Near-Term Projects (0-10 Years)

Near-term projects cover the planning period for the next ten years through 2031, generally corresponding to the forecasted Planning Activity Levels (PAL) 1 and 2. Projects in this phase address the highest priority needs justified for funding. Significant near-term projects are further described in **Table 6-1 Near-Term Projects**.

Table 6-1 - Near-Term Projects

Project	Scope	Estimated Cost	Trigger	Justification
Acquire/Control Land for Runway Object Free Area, Parallel Taxiway, Runway Protection Zones, and Clear Zones	Acquire in fee 2.10 acres of land on the Runway 30 End for the ROFA. Acquire in fee another 2.10 acres of land for the future parallel taxiway. Acquire in fee or easement roughly 21 acres of land for the RPZs and MnDOT CZs.	\$100,000	Identified part of the ROFA is not within airport property, need additional land for the taxiway placement, parts of the current RPZs are not controlled by the airport, and there are standards for the MnDOT CZs that need to be met.	Construction of the new parallel taxiway and to meet runway and state safety requirements.
Parallel Taxiway Design & Construction	Design and construction a 3,199' x 35' parallel taxiway for Runway 12-30.	\$1.7 m	Safety is a concern with the amount of UND students performing touch-and-goes and based tenants having to taxiing back on the active runway.	To reduce runway occupancy time and avoid close calls.
Snow Removal Equipment Building, T-Hangar and Taxilane Design & Construction	Design and construction for a 40' x 60' SRE building, a taxilane measuring 200' x 25', and a 10-unit T-hangar	\$3.0 m	A hangar waitlist has developed, and a proper building is needed to store SRE which is planned to be placed on the start of the taxilane.	Keeping equipment and aircraft in the proper storage facilities.

Source: KLJ Analysis

Long-Term Projects (10+ Years)

Long-term projects cover the remainder of the planning period through the next 11 to 20 years (2042). Projects are identified based on projected activity and funding. The project sequencing for demand driven projects in this phase may change because of changes in aviation activity, new standards, funding, or even new local priorities. Long-term projects are important to consider in airport master planning so appropriate steps, funding, and resources can be allocated. It also enables the airport to

react to changes in airport activity. **Table 6-2 Capital Improvement Plan** outlines these projects. The long-term project prices also include the design and construction cost.

Capital Improvement Plan (CIP)

The CIP is a key element in the implementation plan. The CIP identifies the project title, year, estimated costs, and anticipated funding for airport improvements. Larger projects are often divided into smaller elements that reflect how projects are approved, designed, and constructed. Each project is requested through the CIP project programming and grant application process. The CIP is updated and submitted to the State for funding. The proposed D37 CIP identifies over \$12 million in airport improvements over the next 20 years. See **Table 6-2 Capital Improvement Plan** for CIP.

Table 6-2 – Capital Improvement Plan

Year	Project	Scope	Estimated Cost	State Funds	Local Funds	Other
Near-Term						
2024	ROFA and Taxiway Land Acquisition*	Acquire 2.10 acres of land for the ROFA and 2.10 acres for the parallel taxiway	\$30,000	-	\$30,000	-
2024	Taxiway Design	Design for parallel taxiway	\$150,000	\$142,000	\$8,000	-
2024	RPZ & CZ Land Acquisition	Acquires 21 acres of land for RPZ & CZ easements	\$70,000	\$66,000	\$4,000	-
2025	Taxiway Construction	Construct parallel taxiway	\$1,500,000	\$1,425,000	\$75,000	-
2025	Runway 12 End Study	Study causes for airspeed drop during final approach	\$50,000	-	-	\$50,000**
2026	Runway 30 End Obstruction Removal	Remove tree obstructions within Runway 30 End approach surface	\$70,000	\$66,000	\$4,000	-
2027	SRE Building Design	Design for 40' x 60' SRE storage building	\$80,000	\$76,000	\$4,000	-
2027	Taxilane (North) Design	Design for taxilane, 200' x 25'	\$40,000	\$38,000	\$2,000	-
2028	T-Hangar Design	Design for 10-unit T-Hangar	\$100,000	\$95,000	\$5,000	-
2028	SRE Building Construction	Construct 40' x 60' SRE storage building	\$620,000	\$589,000	\$31,000	-
2028	Taxilane (North) Construction	Construct start of taxilane, 200' x 25'	\$120,000	\$114,000	\$6,000	-
2029	T-Hangar Construction	Construct 10-unit T-Hangar	\$2,000,000	\$1,900,000	\$100,000	-
2029	Storage Hangars (2)	50' x 50' hangar, privately built	\$375,000	-	-	\$375,000
2030	Apron Expansion Design	Design	\$120,000	\$114,000	\$6,000	-
2031	Apron Expansion Construction	Expand apron and taxiway connector, 6,400 SY	\$1,080,000	\$1,026,000	\$54,000	-
Sub-Total			\$6,405,000	\$5,651,000	\$ 329,000	\$ 425,000
Long-Term***						
2032	Fuel Facility	6,000 gallon above ground tank and 24-hour card reader	\$500,000	\$350,000	\$150,000	-
2033	Taxilane (South West)	260' x 25' taxilane	\$180,000	\$171,000	\$9,000	-
2034	AWOS	Install certified AWOS	\$200,000	\$200,000	-	-
2034	T-Hangar	8-unit T-hangar	\$1,800,000	\$1,710,000	\$90,000	-
2035	Taxilane (North)	Continue taxilane, 130' x 25'	\$120,000	\$114,000	\$6,000	-
2035	Storage Hangar (2)	50' x 50' hangar, privately built	\$375,000	-	-	\$375,000
2036	Taxilane (South East)	220' x 25' taxilane	\$160,000	\$152,000	\$8,000	-

2037	Hangar Removal	Remove existing T-hangar row & south box hangar	\$150,000	\$142,000	\$8,000	-
2038	Apron Addition	Fill in apron area where T-hangar was removed (1,200 SY)	\$300,000	\$270,000	\$30,000	-
2039	Large Hangar (2)	80' x 80' hangar, privately built	1,200,000	-	-	1,200,000
2039	Hangar Removal	Remove south box hangar	\$100,000	\$95,000	\$5,000	-
2040	Apron Removal	Remove 4,800 SY of apron	\$160,000	\$152,000	\$8,000	-
2041	Taxilane (North)	Finish taxilane, 170' x 25'	\$140,000	\$133,000	\$7,000	-
2042	Storage Hangar (5)	50' x 50' hangar, privately built	1,000,000	-	-	1,000,000
Sub-Total			\$ 6,385,000	\$ 3,489,000	\$ 321,000	\$ 2,575,000
TOTAL			\$ 12,790,000	\$ 9,140,000	\$ 650,000	\$ 3,000,000

Source: KLJ Analysis; values rounded to nearest \$1,000. Notes: *This cost could be reduced if the City can negotiate a land trade.

**This price will be negotiated when determining the type of study needed, teaming partner, and if it qualifies for state funding.

***The below projects include the design & construction costs as the priority of the projects may change in the long-term.

Financial

The implementation plan considers the airport's ability to fund the projects identified in this planning study. Projects in the short-term and mid-term are discussed in more detail for realistic project sequencing based on identified needs, airport priorities and available funding. Financial feasibility is a major consideration in developing the implementation plan and Capital Improvement Plan (CIP).

Airport funding for projects is derived from many sources. Funding sources can be categorized into two main categories, state funding and local or private funding

Detailed information about these funding programs can be found in the Airport Funding section of **Appendix B – General Aviation Airports 101**. A realistic project implementation plan must consider financial resources. The financing strategy for the Warren Municipal Airport provides sufficient state and local funding for future airport improvements. Projected funding sources are based on existing legislation.

State Funding

The Minnesota Department of Transportation, Office of Aeronautics (MnDOT Aeronautics) manages the State Airport's Fund and administers several grant and loan programs for eligible airports. These programs include the airport construction grant program, airport operations and maintenance program, navigational aids, equipment competitive solicitation program, and the hangar loan revolving account program.

Many of the capital improvements are funded at 95% State funding for non-NPIAS airports with populations less than 5,000 like the City of Warren. Fueling systems and trucks, which are revenue producing are funded at 70%. Hangar buildings are not usually eligible for State funding but can be on a case-by-case bases and there is an interest-free 20-year loan for 80% of the building cost is available. Then, equipment (with proper justification) such as SRE can be funded at 90%.

The State funding will be the primary source of funding to be used for airport development. This is expected to be just over \$9,000,000 through year 2042. The City of Warren should stay apprised of the State's funding programs and funding levels to determine the impact of that funding on the projects planned for the Warren Municipal Airport.

Local Funding

Local funding is an essential element of project funding for maintenance and development projects on the Warren Municipal Airport. State funded improvements currently require a local funding match typically between 5-30%. Although many projects qualify for state funding assistance, some projects must be funded entirely with local funding. Budgeting for significant capital improvements is critical to allow the airport to have enough funds to cash flow projects and provide a local matching share. Bonds are an option for debt financing, which are backed by the creditworthiness and taxing power of the municipality. See the Airport Funding section of **Appendix B – General Aviation Airports 101** for further details on airport funding options.

There is a total local funding need of over \$600,000 for the identified airport improvements through the year 2042.

Environmental Review

Introduction

The purpose behind the environmental review element of the airport master planning process is to help the airport sponsor evaluate environmental impacts of airport development alternatives, and to provide information for subsequent environmental processing. Key environmental considerations for future development at D37 were identified in the existing conditions described in **Chapter 2**.

WATER RESOURCES - WETLANDS

With the parallel taxiway planned on being developed, impacts to the wetlands listed in **Chapter 2: Airport Inventory** would require delineation to clearly identify their boundaries. A wetland delineation and coordination with applicable resource agencies would be necessary prior to project implementation to further analyze the impacts the proposed improvements would have on wetlands. Further analysis is required for future projects.

As a non-NPIAS airport, and with the plans of the parallel taxiway appearing to impact the wetlands; if the wetlands are determined jurisdictional then a 404 permit would be required and possibly mitigation if the impacts exceed 0.5 acres. If they are not jurisdictional then no mitigation for impacts would be needed.

Compatibility

Overview

Airports are community assets providing significant benefits. They facilitate the movement of people, goods, and services, promote tourism and trade, stimulate business development, and support a variety of jobs.

The objective of land use planning is to guide on-airport and off-airport land use development to be compatible with airport operations. The airport directly controls on-airport compatible land uses to primarily serve aeronautical activities. The airport does not directly control off-airport land uses. Surrounding land uses compatible with airports typically include those uses that can co-exist with a nearby airport without either constraining the safe and efficient operation of the airport or exposing people working or living nearby to unacceptable levels of noise or safety hazards. Compatible land use also considers minimizing potential hazards to aircraft and the flying public. The impact of airport planning decisions extending well beyond the airport property line must be considered.

Land use planning around airports is important to airports and communities for several reasons:

- **Safety** - Compatibility is needed to maintain safety of the general and flying public. Risk should be reduced to an acceptable level. The airport must also maintain operational utility within identified safety and risk criteria.
- **Airport Utility** - Land uses around the airport should not place undue restrictions on the airport's existing or planned future arrival and departure procedures. Opportunities for future development identified in the Airport Master Plan and shown on the approved Airport Layout Plan should be considered.

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- **Human Environment** - Balancing the human environment with airport operations is important to maintain an acceptable level of airport impacts (i.e. noise and visual exposure) with the surrounding community.
 - **Economic Development** – Operational restrictions placed on the airport because of land use compatibilities have the potential to have a trickle-down effect on the community. This reduces the community’s ability to accommodate the aviation needs of the public and local businesses, thus limiting economic development opportunities.

Incompatible land uses are one of the largest issues facing airports today, often resulting in conflicts between airports and their communities. They also may result in airport operational and grant project funding implications in certain situations. Building consistency between the recommendations in this study with airport land use compatibility standards and area-wide planning is vital for maintaining compatible land use.

The objective of this section is to assist the Warren Municipal Airport in identifying land use standards compatible with the development plan and provide recommendations so that the airport can continue to meet safety and compatibility criteria. This chapter should become the framework to future land use planning efforts between Airport and City of Warren.

Roles and Responsibilities

AIRPORT SPONSOR

As the airport sponsor, the City of Warren, is responsible for the protection of the airspace around the Warren Municipal Airport and the safe operation of aircraft using the airport. This responsibility is commonly referred to as ensuring compatible land use around the airport. This is typically accomplished through zoning regulations and easements. In most cases, these tools are a more practical and cost-effective method for a sponsor to affect compatible land use outside the airport’s property than through land acquisition.

FEDERAL AVIATION ADMINISTRATION

The FAA can provide guidance to promote compatible land development around airports; however, it has no regulatory authority for controlling land uses. State and local governments are responsible for land use planning, zoning, and regulations. In most cases, the most practical and cost-effective method for a sponsor to affect compatible land use outside of the airport’s property is through zoning or easements rather than through land acquisition.

STATE OF MINNESOTA

The State of Minnesota has adopted laws to encourage multi-jurisdictional airport zoning. Minnesota Statute 360.063 is the enabling legislation that allows airport owners to administer and enforce, under the police power, airport zoning regulations for the airport hazard area. Tools include the creation of a multi-jurisdictional joint airport zoning board, extraterritorial zoning authority, and the withholding of state funds for noncompliance airport sponsors. Airport zoning procedural steps are defined in [Minnesota Statutes Chapter 360.061 to 360.074](#).

[Minnesota Administrative Rules 8800.1200](#) defines the criteria for determining air navigation obstructions, which generally follows the federal FAR Part 77 standard. Minnesota Administrative Rules

8800.2400 defines the minimum airport zoning standards. These zones are intended to restrict land uses that may be hazardous to the operational safety of aircraft using the airport, and to protect the safety and property of people on the ground in the area near the airport.

MnDOT Office of Aeronautics advises local governments on land use compatibility issues, as well as monitors and enforces compliance with the state’s minimum airport zoning standards and related procedures. Some flexibility is given to the minimum zoning standards based on the specific details and operational uses of the airport. More information is available from the state’s Airport Land Use Compatibility Manual.

SURROUNDING JURISDICTIONS

Local jurisdictions are responsible for developing and enforcing land use planning, zoning, and regulations. Development proposals are reviewed and approved at this local level through an established process. The local authority enforces multi-jurisdictional airport zoning regulations for proposed development. For the Warren Municipal Airport, surrounding jurisdictions affected by the airport includes the City of Warren and Marshall County.

Land Use Compatibility Elements

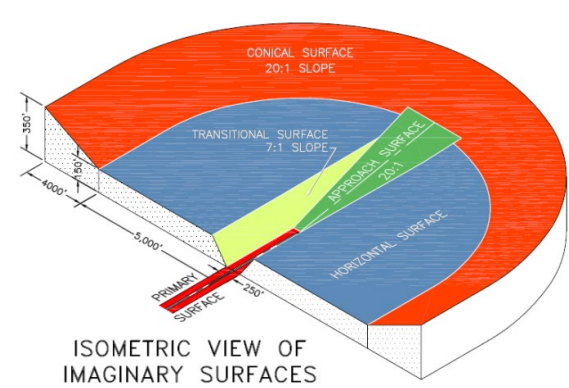
Four key elements should be considered to achieve land use compatibility at any airport.

- Airspace
- Safety
- Compliance

AIRSPACE

Guidelines & Evaluation

Airspace compatibility includes avoiding vertical development that reduces the level of safety, increases risks of aircraft accidents, or measurably reduces the operational utility of airports. 14 CFR Part 77, *Objects Affecting Navigable Airspace* defines obstructions to air navigation. Other airspace requirements are defined in FAA Advisory Circulars and Orders. All Part 77 obstructions are a hazard to air navigation unless an aeronautical study concludes otherwise.



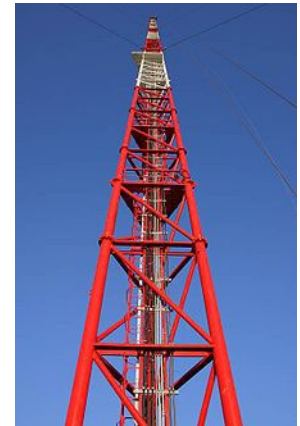
It is important to acknowledge that the FAA’s role is limited to evaluating the aeronautical effects of proposed structures; the FAA has no legal authority to stop the construction of any proposed structure.

Minnesota’s state law requiring airport zoning and associated minimum standards help protect the FAR Part 77 airspace surfaces around D37.

Recommendations

Recommendations to maintain airspace compatibility at Warren include:

- Consider provisions in building codes to require FAA Form 7460-1 *Notice of Proposed Construction or Alterations* to be submitted and reviewed by the Airport as part of the local building permit approval process.
- Follow through with clearing of obstructions identified in the Airport Layout Plan.



SAFETY

FAA design standards and regulations prescribe several zones and imaginary surfaces intended to protect aircraft and their occupants while landing or taking off. However, the safety element primarily associated with compatible land use is focused on minimizing risks to persons and property on the ground.

MnDOT Safety Zones

Please reference **Chapter 2: Airport Inventory** to review the details of the safety zones. It is important to understand these safety zones protect aircraft around the airport but also impact development of the surrounding community due to certain restrictions in place for the airport.

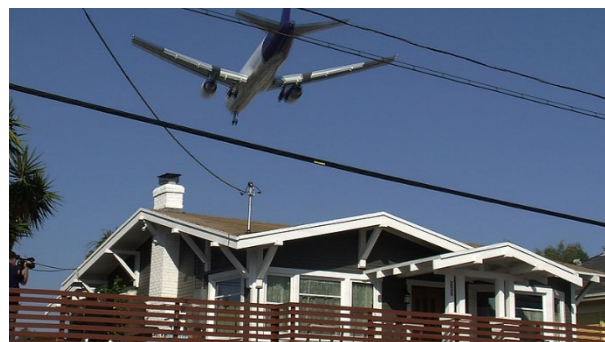
The airport sponsor was provided the information about their current zoning ordinance that was developed in 1975 along with the state standards and requirements of each safety zone. The airport sponsor decided to continue with the current zoning ordinance which has a boundary of 6,801 feet beyond the requirement for Runway 12-30 and 7,422 feet for Runway 4-22. It has been asserted by the state that it is the responsibility of the airport sponsor to enforce and maintain the restrictions set within each safety zone.

MnDOT Clear Zones

The airport sponsor must obtain control of the land within the clear zones to receive state funding in airport projects. These zones restrict land uses that may be hazardous to the operational safety of the airport while protecting life and property within a runway approach area. Specific details about the MnDOT clear zones can be found in **Chapter 2**.

FAA Runway Protection Zones

To reduce the public safety risk associated with aircraft operations, communities typically use FAA airport design standards and safety compatibility guidelines developed by state aeronautical agencies to formulate safety policies. The safety element primarily associated with compatible land use is focused on minimizing risks to the flying public, as well as persons and property on the ground. FAA has defined minimum land use standards in the form of a Runway Protection Zone (RPZ) in FAA AC 150/5300-13B *Airport Design*. See **Chapter 4: Facility**



Requirements for definitions. Certain parts of the existing RPZs at D37 need to be either owned in fee or by avigation easement. For future RPZs it is recommended that the City acquire necessary property interest to insure no incompatible land uses.

Wildlife Hazards

The FAA is also focused on minimizing safety risks associated with wildlife near an airport. Hazardous wildlife use natural or artificial habitats on or near an airport for food, water, or cover. Wildlife near airport operations may result in an aircraft-wildlife strike. The FAA guidance recommends that airport sponsors implement the standards and practices contained in FAA [AC 150/5200-33C, Hazardous Wildlife Attractants](#)



[on or Near Airports](#) to mitigate wildlife risks. The airport currently does not have a wildlife fence but if wildlife hazards become present it is recommended to enclose the airfield with a perimeter fence.

Recommendations

Recommendations to maintain safety compatibility at D37 include:

- Obtain control of the MnDOT Clear Zones.
- Request the city implements the minimum standards of the MnDOT Safety Zones.
- Obtain in fee or easement the remaining existing RPZ land needed.
- Minimize any wildlife hazards and implement a perimeter fence if wildlife becomes present.

COMPLIANCE & LICENSING

Airports that participate in the National Plan of Integrated Airports System (NPIAS) and receive FAA funds are subject to FAA grant assurances (obligations). These airports must abide by these grant assurances or they are subject to withholding of FAA grant funding. As Warren is not part of the NPIAS and does not receive federal funding, they are not held to the federal grant assurances.

MnDOT does have airport licensing requirements that need to be met. A full list of these requirements can be found in [Chapter 8800.1400 through 8800.2300](#) of the MnDOT Aeronautics Rules.