Airlake Airport
2035 Long-Term Comprehensive Plan (LTCP)

Metropolitan Council Determination – March 2018
Final MAC Adoption – April 2018

Prepared jointly by the Airport Development , Environment, and Reliever Departments

TABLE OF CONTENTS

TABLE OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

EXECUTIVE SUMMARY

PAGE INTENTIONALLY LEFT BLANK

ES EXECUTIVE SUMMARY

ES.1 INTRODUCTION

Airlake Airport is one of seven airports owned and operated by the Metropolitan Airports Commission (MAC). The airport is located in Dakota County, approximately 17 miles south of the Minneapolis–St. Paul International Airport (MSP), 20 miles south of the City of Minneapolis, and approximately 25 miles southwest of the City of St. Paul. It lies within the borders of Eureka Township and abuts the southern border of the City of Lakeville. A small portion of the airport does lie within the City of Lakeville municipal boundary.

Airlake Airport plays an important role in the MAC system of airports and serves to relieve congestion at MSP by attracting general aviation traffic away from this larger airport.

Airlake Airport began operating in 1967 as a privately-owned airfield serving the Airlake Industrial Park. The MAC acquired the airport in 1981 to provide a training facility for conducting general aviation instrument approaches, which had been occurring at MSP Airport.

In 2015, approximately 137 aircraft were based at Airlake Airport. The facility also accommodated approximately 37,000 aircraft operations (takeoffs and landings). It encompasses 595 acres and has one (1) paved runway (Runway 12-30) that is 4,099 feet long and 75 feet wide. The current airport layout is depicted in **Figure ES-1**.

The most recent Long-Term Comprehensive Plan (LTCP) for Airlake Airport is dated December 2008, with a planning year of 2025 (2025 LTCP). It was prepared by the MAC and approved by the Metropolitan Council. However, none of the recommendations have been implemented. The 2025 LTCP recommended extending the airport's one runway from an existing length of 4,099 feet to 5,000 feet. This plan required rerouting Cedar Avenue - with corresponding land acquisition - and relocation of a township road. As part of the runway extension, the instrument landing system (ILS) approach minimums were proposed to be reduced to ½ mile. This reduction would have required the runway to be widened to 100 feet.

The purpose of the Airlake Airport 2035 Long-Term Comprehensive Plan is to update, as needed, the findings of the 2025 LTCP, and to extend the planning horizon an additional ten years.

An LTCP is an infrastructure planning tool that is updated on a regular basis. It is forward-looking in nature and does not authorize actual construction. The 2035 Airlake Airport LTCP aims to:

- Better accommodate business aircraft needs by maximizing the airfield's operational capabilities and property footprint;
- Maintain or improve Runway Protection Zone (RPZ) land use compatibility;
- Mitigate existing issues with airspace penetrations, such as trees and buildings, to the extent practical; and

- Update the taxiway layout to reflect current industry best practices and thus enhance airfield safety.

The 2035 plan will provide a "road map" to guide the MAC's development of Airlake Airport over the next 5-10 years. To accomplish this, the plan will provide updated activity (operations) forecasts, confirm facility needs and refine alternatives identified from the previous LTCP to meet those needs.

ES.2 AIRPORT ROLE

Operating within a diverse system of metropolitan area airports, Airlake Airport's primary role is to serve personal, recreational, and business aviation users in the southern metropolitan areas of Dakota and Scott Counties. Examples of business services provided at Airlake Airport include flight training, aircraft rentals, charter flights, aircraft management services, and medical flight transportation.

The primary role of Airlake Airport is not expected to change between now and 2035. The Airport's classification will **continue** to be that of:

- A Complimentary Reliever in the Metropolitan Airports Commission (MAC) system;
- An Intermediate Airport per Minnesota Department of Transportation/Office of Aeronautics (MnDOT); and
- A Minor Airport per the Metropolitan Council Regional Aviation System Plan.

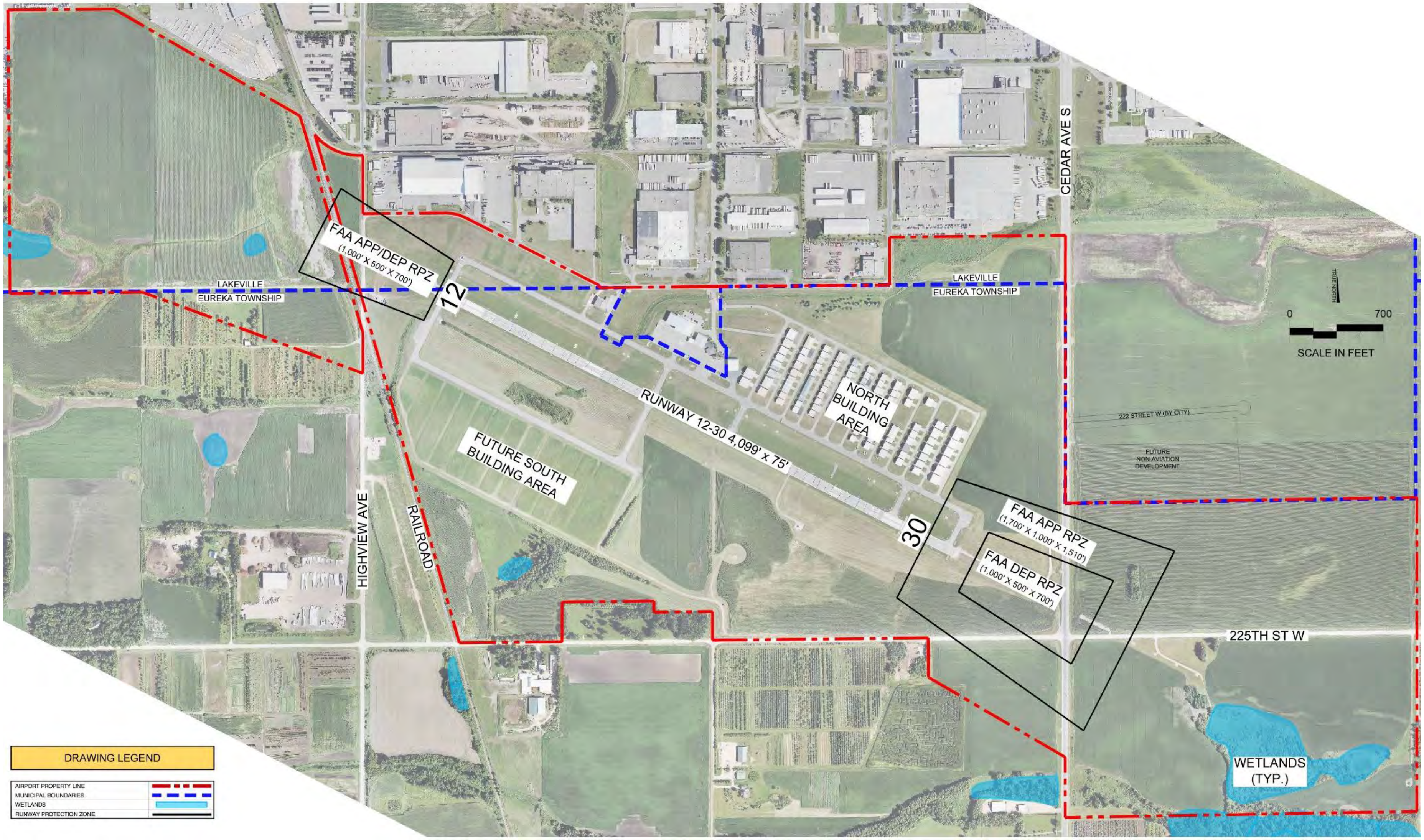
The aircraft anticipated to use Airlake Airport will **continue** to range from small single-engine piston airplanes used primarily for personal, recreational, and flight training purposes up to mid-size corporate jets used primarily for business purposes.

Airlake Airport is unique in that it is the only Intermediate-category airport in Minnesota with an Instrument Landing System (ILS) precision instrument approach[1].

The proposed 2035 plan **does not** recommend changing the airport's role to accommodate larger aircraft or scheduled passenger or cargo flights.

[1] A precision instrument approach system that is based on two radio beams which together provide pilots with both vertical and horizontal guidance during an approach to landing.

Figure ES-1: Existing Airport Layout



ES.3 FORECASTS

For this draft LTCP, forecasts were prepared for the number of aircraft based at the airport and for total expected operations.

Forecast calculations take into account assumptions related to the economy, fuel costs, trends in aircraft ownership, trends in general aviation aircraft fleets, and general aviation taxes and fees. The forecasts assume reasonable growth in all of these categories.

For both based aircraft and total operations forecasts, there is a Base Case, a High and Low forecast, and a forecast associated with an Extended Runway. The same forecast approach used for the Base Case was also used for the High and Low scenarios, but alter assumptions related to socioeconomic conditions to reflect either a more aggressive or more conservative outlook. The Extended Runway scenario was prepared to evaluate the potential impact associated with lengthening the runway at Airlake Airport from 4,099 feet to 5,000 feet.

Table ES-1 compares the total number of based aircraft and operations under different scenarios.

Table ES-1: Airlake Airport 2035 LTCP Forecast Summary

Year	Total Based Aircraft				Total Number of Operations			
	Base Case	High Range	Low Range	Extended Runway	Base Case	High Range	Low Range	Extended Runway
2015 (a)	137	137	137	137	36,757	36,757	36,757	36,757
2020	135	137	131	135	34,811	35,230	33,761	34,811
2025	134	141	128	137	34,642	36,333	33,739	35,900
2030	133	143	126	136	35,106	37,917	33,303	37,373
2035	131	145	120	135	35,658	39,219	32,712	38,410
	Average Annual Growth Rate							
	-0.2%	0.3%	-0.7%	-0.1%	-0.2%	0.3%	-0.6%	0.2%

Notes:

(a) 2015 operations represent twelve months ending June 2015. Includes estimate of nighttime activity.

Sources: HNTB Analysis.

Recent activity levels at Airlake Airport indicate that the number of based aircraft and aircraft operations have started to grow again after stabilizing in 2012. Based on the economic outlook for Dakota and Scott counties, as well as the Seven-County Metropolitan Area, and given projected trends for general aviation, the forecasts predict a stable (Base Case scenario) to slow growth (Extended Runway scenario) activity levels at Airlake Airport.

The forecast scenarios indicate that future economic growth, fuel prices, technology, and national aviation policy could have a significant impact – either up or down – on the development of general aviation.

Minor fluctuations in activity levels above or below the long-term forecast will not affect the overall recommendations of the LTCP, just possibly how quickly the proposed improvements need to be made.

ES.4 FACILITY REQUIREMENTS

Airside Facilities

Based on forecasts, a future that includes an extended runway at Airlake Airport would provide facilities for regular use by small to mid-size aircraft used for business aviation purposes that weigh more than 12,500 pounds but less than 60,000 pounds. This family of aircraft is best represented by the Cessna Citation III/650 business jet.

Based on guidance from the Federal Aviation Administration (FAA) regarding runway length, Airlake Airport's runway should be approximately 4,700 feet if it is to accommodate most of the aircraft designed for the runway at a 60 percent useful load[2]. Adjusting for effective runway gradient during takeoff operations or wet and slippery conditions during landing operations, yields a suggested runway length of 4,800 to 5,400 feet for takeoff and landing, respectively.

However, Minnesota Statutes Section 473.641, Subdivision 4 prohibits the MAC from extending runway lengths at its minor airports (like Airlake Airport) beyond 5,000 feet without prior legislative authorization. Thus, the maximum feasible runway length at this time is 5,000 feet.

While the FAA's guidance serves as a good baseline, detailed information related to runway length requirements can be derived from aircraft manufacturer performance charts. An assessment of these charts for several aircraft types expected to operate at Airlake Airport suggests that, while a length of 5,000 feet would be ideal, a runway that is less than 5,000 feet but more than 4,099 feet could yield significant operational benefits and enhance the airfield's utility for business operators.

As for runway width, the FAA requires a minimum of 75 feet for runways with ¾ mile or more visibility. Runway 12-30 is currently 75 feet wide. An increase in width to 100 feet would only be justified if the runway's visibility minimums were to decrease to below ¾ mile. Unlike in the 2025 plan, this plan does not include a recommendation to upgrade the instrument approach capabilities to provide minimums of less than ¾ mile.

Runway grooving could also be considered to improve friction and braking performance when the runway is wet, particularly given the shortened landing distance available on Runway 30 due to its displaced threshold.

---

[2] Useful load is defined as the aircraft maximum takeoff weight minus the aircraft empty weight. An aircraft's useful load can be used to transport either fuel or payload (passengers, baggage, and/or cargo).

The Runway 12-30 alignment provides adequate wind coverage during all weather conditions. Therefore, the addition of a crosswind runway is not justified at Airlake Airport.

From an airspace perspective, train cars on the railroad track along the west side of the Airport penetrate the Runway 12 airspace obstacle clearance surfaces. While this falls into a low risk category it will still require long-term mitigation. A proposed interim solution is the installation of a new Precision Approach Path Indicator (PAPI) system on Runway 12. This would provide a clear obstacle clearance surface over the railroad tracks. From a longer-term perspective, the most comprehensive solution is to displace the Runway 12 threshold by an additional 120 feet to provide the necessary clearance over the railroad tracks. This displacement will be considered as an element of the preferred airfield development concept[3].

Landside Facilities

Airlake Airport currently has one primary hangar storage area (North Building Area) on the northeast side of the airport that provides approximately 136 indoor aircraft storage spaces. This number includes an assumption that some, but not all, airport tenants sublease extra space for additional aircraft within their hangar.

According to the aviation activity forecast results, the number of based aircraft is anticipated to decline slightly through 2035. By 2035, the number of based aircraft is forecasted to be between 131 and 135 aircraft in the Base Case and Extended Runway scenarios, respectively.

It appears that nearly all available hangar capacity at Airlake Airport is occupied today and will continue to be so throughout the planning horizon. In addition, there could be demand for construction of certain hangar types and/or sizes that are not currently available. Once utilities are established, it is envisioned that construction of new hangars will occur in the South Building Area. It is important to note that including additional hangar space in this LTCP is not a commitment to build or fund such a development.

The existing Fixed Base Operator (FBO) apron is relatively small and often congested. According to the activity forecasts, peak-hour operations at Airlake Airport could increase to 28 within the planning period. Assuming that 60% of these aircraft are itinerant, the apron should be sized to accommodate approximately 17 aircraft simultaneously. To accommodate this number of aircraft, the apron size at Airlake Airport should be approximately 14,700 square yards. The existing apron area is approximately 9,400 square yards, approximately 5,300 square yards below this recommendation.

The existing MAC Maintenance facility is in good condition, particularly after the improvements made to it in 2014, and provides adequate capacity to accommodate newer-generation snow removal equipment that in many cases are longer and taller than older models. According to a recently-completed building assets report, the facility will require just over $1,000,000 of renewal investments through 2035.

---

[3] A displaced threshold directs pilots to land further down a runway – allowing them to stay higher in the air longer - than typical so as to avoid obstacles associated with landing at the closer approach end of a runway.

ES.5 ALTERNATIVES ANALYSIS

The 2025 LTCP for Airlake Airport was finalized in December 2008 and evaluated several concepts for future airfield improvements:

- Leave the airport as is with only hangar area development;
- Leave the runway length as is but reduce the ILS approach minimums to 1/2 mile visibility, with hangar area development; and,
- Extend Runway (12-30) from 4,099 feet to 5,000 feet, with hangar area development.

After reviewing all of the concepts, costs, benefits and negative considerations, the preferred alternative formally adopted by the Commission for the Airlake Airport in December 2008 was to:

- Construct new hangar area to accommodate the 2025 needs;
- Extend Runway 12-30 and Taxiway A to 5,000 feet, including runway lighting and PAPI systems;
- Reduce the ILS approach minimums to ½ mile, including runway widening and runway light relocation; and
- Reconstruct the existing runway pavement.

The runway extension contemplated in the 2025 LTCP study identified that Cedar Avenue would be impacted and realigned around the relocated runway end. Although the runway extension and roadway realignment were not imminent, the owners of currently undeveloped property along Cedar Avenue desired to know the future alignment in order to consider it in their property development plans. Since a State Environmental Impact Statement (EIS) is required by state law for a runway length of 5,000 feet or longer, an EIS Final Scoping Decision Document was completed by MAC in 2011 to establish a vision for the corridor needed to relocate Cedar Avenue around the extended runway end and account for its future expansion into a four lane divided highway without negatively impacting the Vermillion River. The Vermillion River and its associated wetlands are located approximately ½ mile south of the airport and the river is a DNR-protected trout stream tributary. The current river bridge crossing would be used in order to limit the impacts on the river. The estimated cost to relocate Cedar Avenue and 225th Street was between \$5.9 and \$6.8 million in 2010 dollars, not including property acquisition costs.

The 2025 LTCP Preferred Alternative concept is shown in **Figure ES-2**.

The FAA issued a memorandum for *Interim Guidance on Land Uses within an RPZ* dated September 27, 2012. This memorandum clarifies the FAA's current position on allowable land use compatibilities within the RPZ. The memorandum describes the coordination and processes that are required to determine whether new or modified land uses in the RPZ are allowable. Included within the process is a comprehensive alternatives analysis that assesses the benefits, costs, and implications of the alternatives.

The recommended development plan from the 2025 LTCP to extend the runway to a length of 5,000 feet would realign both Cedar Avenue and 225th Street through the relocated RPZ, which would represent a triggering event to necessitate an RPZ Alternatives Analysis under the current FAA guidance. With the 2025 LTCP plan, MAC staff believes that FAA would expect the realignment of Cedar Avenue completely around the outside of the RPZ as an alternative, along with justification as to why that option is or is not feasible.

Relocating Cedar Avenue completely outside the extended runway RPZ to comply with FAA guidance would be an extensive undertaking. A high-level review suggests that the cost for this relocation would be upwards of $16,000,000, not including the nearly 40 acres of property acquisition that would be required for right-of-way. For context, relocating the railroad and Highview Avenue on the west side to clear the Runway 12 RPZ are costly propositions as well – approximately $5,000,000 for the railroad and $1,500,000 for Highview Avenue.

In addition, the FAA has issued new or clarified guidance on several matters pertinent to the airfield configuration at Airlake. The previous LTCP Preferred Alternative does not account for the following FAA guideline changes:

- The Alternative did not address the Railroad penetration to the Runway 12 airspace obstacle clearance surfaces and may introduce new penetrations to other approach/departure surfaces; and
- Based upon the update to the FAA's Airport Design Advisory Circular (AC), there are taxiway geometry issues that need to be addressed to comply with current industry best practices.

Given the extensive costs and community disruption required to implement the previous plan, this LTCP takes a fresh look at some available options to provide additional runway length that do not require changes to RPZ locations or require moving Cedar Avenue, Highview Avenue, or the railroad track. These options are described below.

Provide Stopways for Runway 12-30

Pavement designated as stopway can be considered as useable length for decelerating an aircraft during an aborted takeoff. Stopway pavement can be used for accelerate-stop distance calculations, but not for other takeoff or landing distance calculations.

Providing stopways on both ends of Runway 12-30 may allow some aircraft to depart at a higher takeoff weight when accelerate-stop distance is a limiting factor, and would promote safety by formally making this pavement available for use in the event of an aborted takeoff attempt. Stopways do not change the published runway length.

By providing stopways, the accelerate-stop distance would increase to approximately 4,400 feet for Runway 30 and nearly 4,600 feet for Runway 12. The published runway length would remain as 4,099 feet. Providing stopways would include the addition of stopway edge lighting (red unidirectional lights), relocating the existing runway threshold lights to be outboard of the pavement footprint, and grading the Runway Safety Area (RSA) beyond the stopway ends.

While this concept would provide an improvement over the existing condition, it would have limited usefulness for the majority of operators at the airport for whom accelerate-stop distance is not typically a limiting factor. This concept is shown in **Figure ES-3**.

Extend Runway 12-30 with Declared Distances

Another concept evaluated for the 2035 LTCP proposes to use declared distances to maximize runway length for existing users in a manner that does not require the relocation of Cedar Avenue on the east side of the airfield, or Highview Avenue and the railroad track on the west side.

This concept considers runway extensions of 271 feet on the Runway 12 end and 480 feet on the Runway 30 end – the maximum extensions that can be provided while meeting all Runway Safety Area (RSA) and Runway Object Free Area (ROFA) standards. The published runway length would be 4,850 feet. Declared distances would be applied and published, meaning that not all of the published pavement would be available for landing and takeoff movements in each direction. Taxiway extensions would be added to the ends of the extended runway pavement.

In this case, the runway extensions would be available for all aircraft beginning the takeoff roll or completing the landing rollout. It would also be available to accommodate accelerate-stop distance requirements. The existing Runway 30 displaced landing threshold would not change. The end result would be an 872-foot displaced threshold and no change to the existing approach RPZ location.

Similarly, to avoid moving the departure RPZs off each end, declared distances will be used so that the designated end of takeoff run distance does not change from the existing condition. This will result in the designated takeoff run distance ending before the physical end of the pavement in the direction of the takeoff roll.

The existing roads that traverse the Runway 30 RPZ – Cedar Avenue and 225th Street – predate the FAA's current RPZ compatibility guidance. The FAA's guidance only addresses the introduction of new or modified land uses to an RPZ and proposed changes to the RPZ size or location. Under this guidance, the existing roads are acceptable to remain in the RPZ as an existing condition. The triggering action for having to consider removing Cedar Avenue from the RPZ would be when the roadway needs to be widened or otherwise expanded to provide additional capacity. Based on existing and projected future traffic levels, there is no current plan to widen or expand the capacity of this section of Cedar Avenue within the planning period. Rehabilitation of the existing roadway footprint would not constitute a triggering event for an RPZ analysis.

In order to clear the Part 77 Primary Surface, a portion of 225th Street would have to be relocated to a new intersection with Cedar Avenue. New turn lanes would be constructed on Cedar Avenue to serve the intersection.

As noted, this alternative does not provide 5,000 feet of runway length, but provides nearly 4,600 feet of takeoff run distance and 4,850 feet of accelerate-stop distance for Runway 30. In the Runway 12 direction, it provides nearly 4,400 feet of takeoff run distance but preserves 4,850 feet for accelerate-stop.

An assessment of available aircraft performance chart data, along with input from users, confirms that while 5,000 feet of runway would be ideal, even a lesser improvement in available runway length could yield significant operational benefits and enhance the airfield's utility for corporate operators. This concept is shown in **Figure ES-4**.

Taxiway Configurations

For the 2035 LTCP, the following taxiway changes are being considered:

- Relocate the western-most apron access taxilane to eliminate direct access from the apron to the runway;
- Adjust hold position markings on connector taxiways to be 200 feet from the Runway 12-30 centerline to provide more space to hold on the connectors and install Precision Obstacle Free Zone (POFZ) hold position markings and signs on Taxiway A near the Runway 30 end;
- Install lighting on Taxiway A to promote situational awareness during low-visibility conditions. In addition, the installation of runway guard lights, enhanced centerline markings, and/or surface painted markings at select locations may help to further mitigate the risk of pilot confusion and incursion potential.

Apron Expansion

An expansion to the existing FBO apron to better accommodate existing and future itinerant aircraft activity appears warranted. The existing apron has an estimated deficiency of approximately 5,300 square yards. The costs for expanding the apron would be borne by the tenant.

Expanding the existing apron further to the northwest is constrained by the existing protected trout stream buffer area. However, as a first phase, the apron could be expanded approximately 45 feet towards the stream while still retaining the required 50-foot stream buffer. This would yield approximately 1,000 square yards of additional apron area for aircraft storage. Any subsequent apron expansion would require relocating the stream or enclosing an additional section of it in a culvert and expanding the apron over the top. This would require coordination with and approvals from the appropriate water quality agencies, including the Vermillion River Watershed Joint Powers Organization (VRWJPO), U.S. Army Corps of Engineers, DNR, Dakota County Soil and Water Conservation District, and the City of Lakeville.

If expansion of the existing apron to the west is not feasible beyond the first phase described above, another potential site for additional apron area is adjacent to the access taxiways in the South Building Area. This site offers the most flexibility and least number of constraints to construct an efficient apron. However, it would require crossing Runway 12-30 to travel between the FBO and the apron. Also, there is no existing landside access to this site, so all vehicular traffic to the apron would have to cross the airfield until landside access via 225th Street is provided. Alternatively, an airfield access roadway around the Runway 12 end could be considered to minimize runway crossings.

2035 LTCP Preferred Alternative Summary

The 2035 LTCP Preferred Alternative for airfield improvements at Airlake Airport includes the following items, as shown in Figure **ES-5**:

- Displace Runway 12 threshold to provide airspace clearance over railroad tracks.
- Extend Runway 12-30 with declared distances to maximize overall airfield utility for existing users in a manner that does not require the relocation of Cedar Avenue or the railroad tracks.
- Taxiway configuration changes noted above.
- Apron Expansion area to better accommodate itinerant aircraft.

This recommendation does not preclude the eventual extension of Runway 12-30 to 5,000 feet as recommended in the 2025 LTCP. The appropriate time to evaluate the need for an extension to 5,000 feet will be when Dakota County proposes to widen or otherwise improve the section of Cedar Avenue that runs through the Runway 30 Runway Protection Zone (RPZ).

Finally, it is important to note that the LTCP is a planning document and does not authorize any construction. Adoption of the LTCP is only the first step in the project implementation process. Before any construction can begin, the project(s) must first be evaluated through an environmental review process and then compete for funding through Federal Aviation Administration and/or State grant programs. In order to compete effectively for funding, the project(s) must have solidly documented justification. Once funding is secured, final project engineering and design will take approximately one year to complete. Based on this timeline, it is feasible that construction could occur sometime during the 2022-2023 timeframe (subject to change).

Figure ES-2: 2025 LTCP Preferred Development Alternative

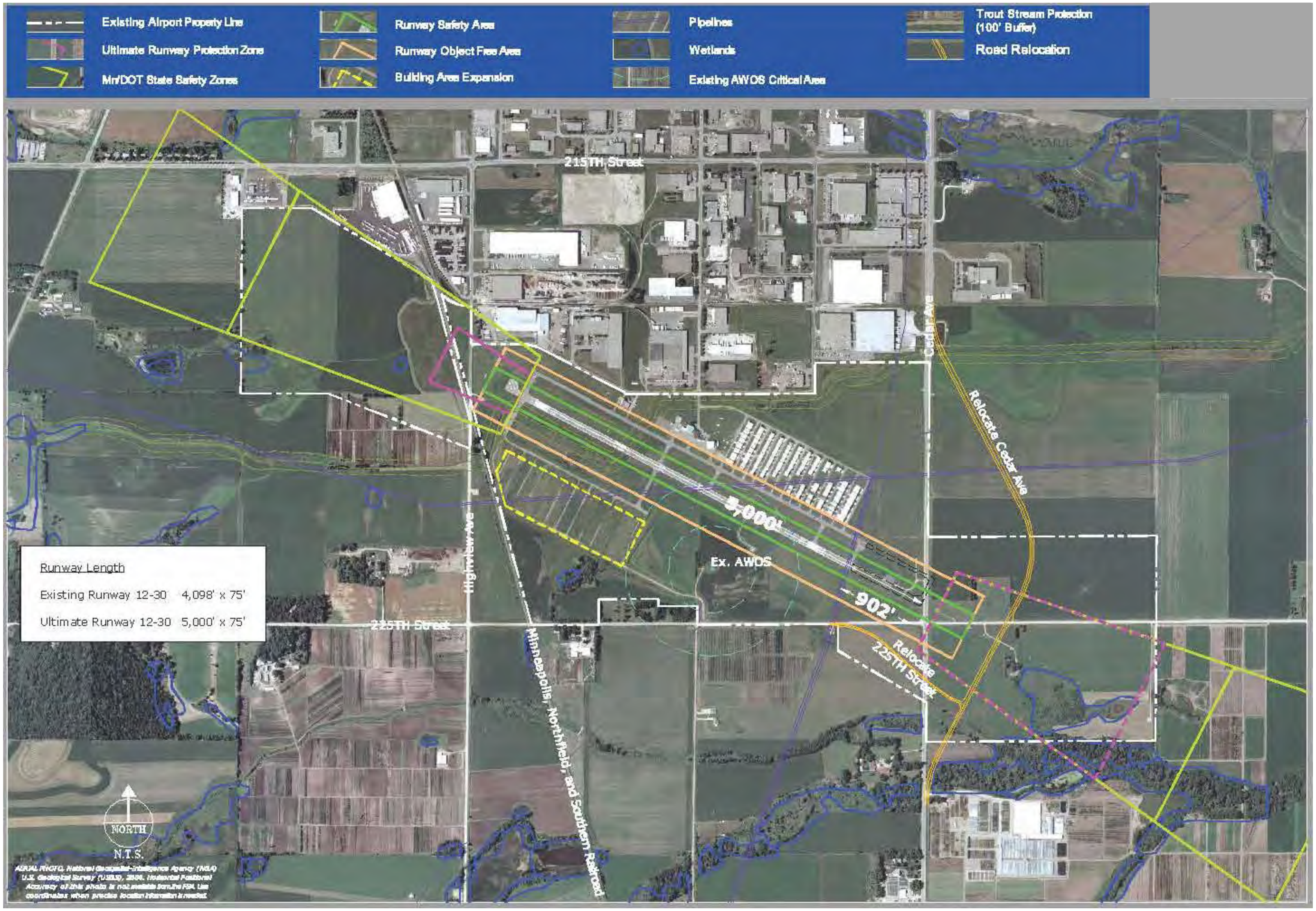


Figure ES-3: Runway 12-30 Stopway Concept

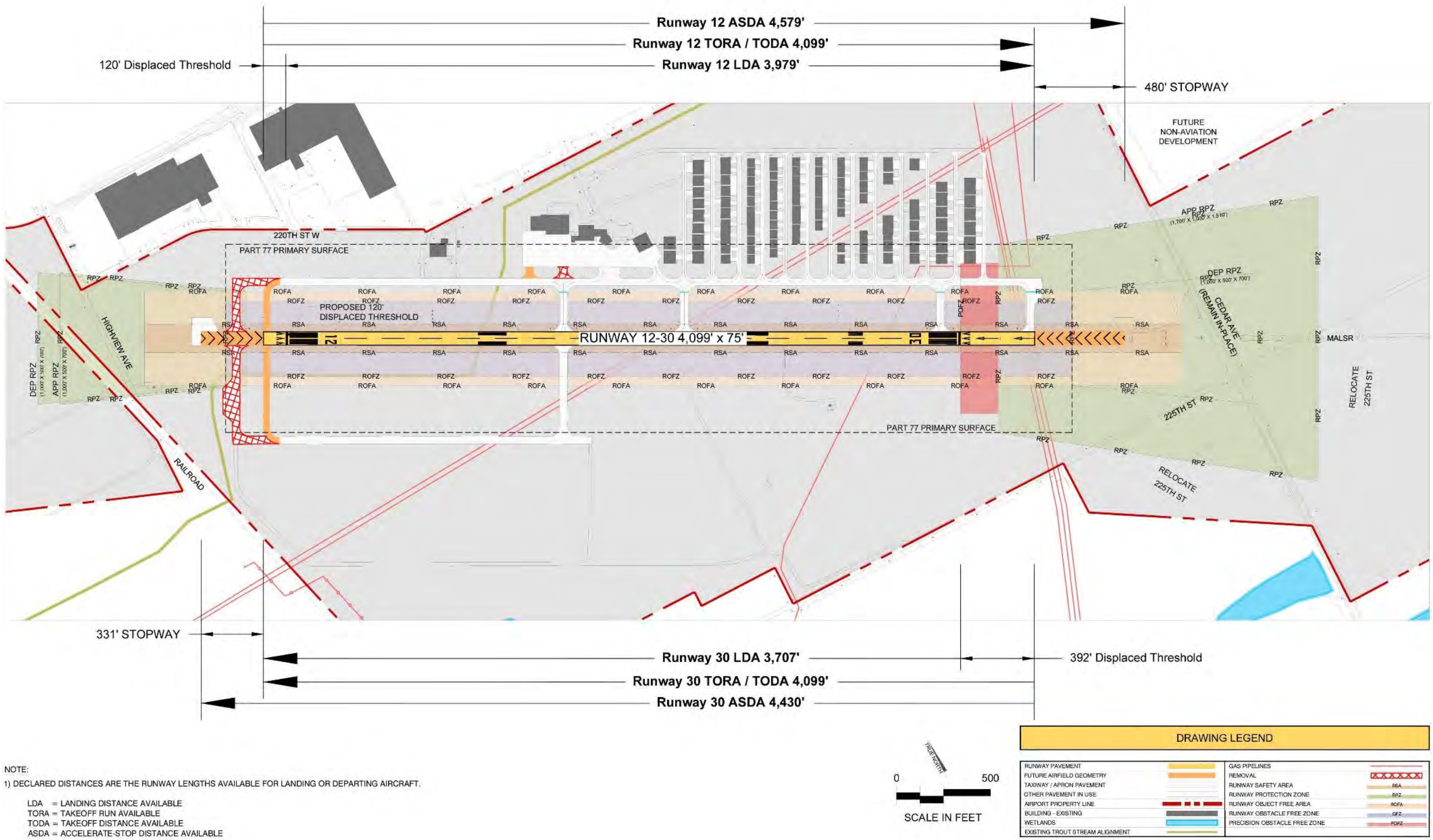
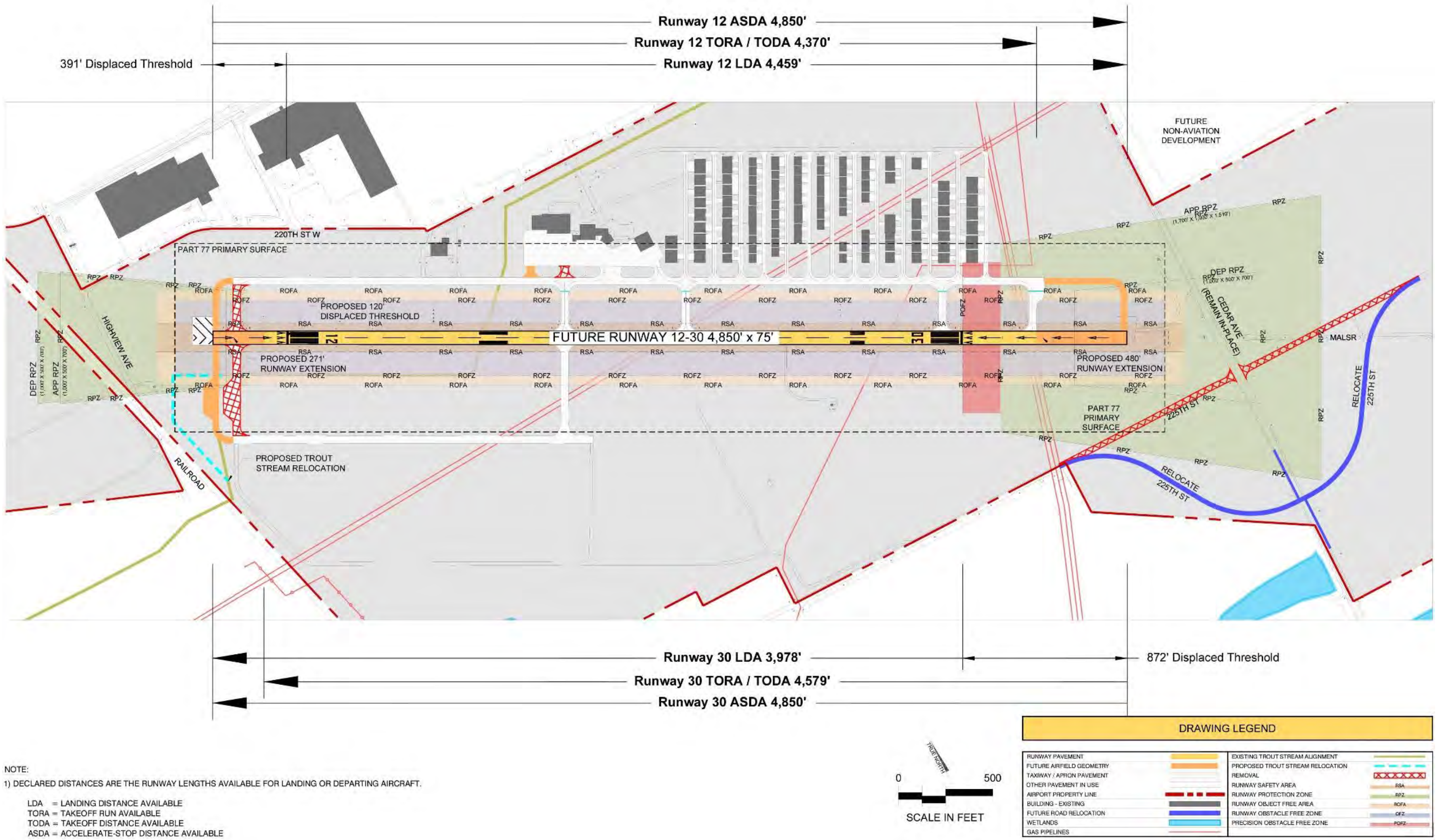


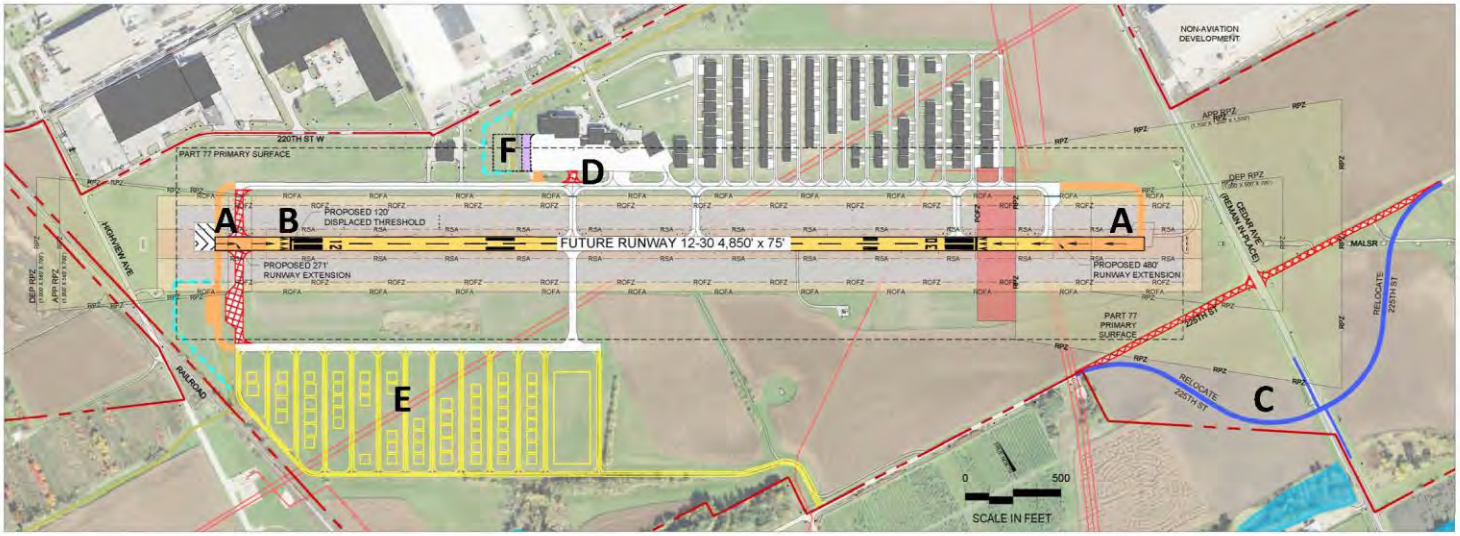
Figure ES-4: Extended Runway 12-30 with Declared Distance Concept



NOTE:
1) DECLARED DISTANCES ARE THE RUNWAY LENGTHS AVAILABLE FOR LANDING OR DEPARTING AIRCRAFT.

LDA = LANDING DISTANCE AVAILABLE
TORA = TAKEOFF RUN AVAILABLE
TODA = TAKEOFF DISTANCE AVAILABLE
ASDA = ACCELERATE-STOP DISTANCE AVAILABLE

Figure ES-5: 2035 LTCP Preferred Development Alternative



DRAWING LEGEND

RUNWAY PAVEMENT	TAXIWAY / APRON PAVEMENT	WETLANDS	RUNWAY SAFETY AREA (RSA)
FUTURE AIRFIELD GEOMETRY	OTHER PAVEMENT IN USE	GAS PIPELINES	RUNWAY PROTECTION ZONE (RPZ)
FUTURE APRON EXPANSION (PHASE I)	AIRPORT PROPERTY LINE	EXISTING TROUT STREAM ALIGNMENT	RUNWAY OBJECT FREE AREA (ROFA)
FUTURE APRON EXPANSION (PHASE II)	BUILDING - EXISTING	PROPOSED TROUT STREAM RELOCATION	RUNWAY OBSTACLE FREE ZONE (OFZ)
FUTURE SOUTH BUILDING AREA	FUTURE ROAD RELOCATION	REMOVAL	PRECISION OBSTACLE FREE ZONE (POFZ)

WHAT AIRPORT IMPROVEMENTS ARE PROPOSED IN THE PLAN?

The following improvements are recommended and are illustrated on the map.

A. Extend both runway ends for a runway length of 4,850 feet (including connector taxiway extensions and rehabilitating the existing runway pavement)

B. Displace Runway 12 end for additional airspace clearance over railroad track

C. Relocate 225th Street to accommodate runway changes

D. Modify some taxiway configurations

E. Develop the South Building Area and access roadway

F. Expand the aircraft parking apron

ES.6 ENVIRONMENTAL CONSIDERATIONS

Prior to any construction taking place, the MAC will complete an Environmental Assessment (EA) and/or an Environmental Assessment Worksheet (EAW) in compliance with state statutes and FAA requirements for utilizing Airport Improvement Program (AIP) grant funds.

Noise

To evaluate potential aircraft noise impacts associated with the 2035 LTCP Preferred Development Alternative, the MAC prepared Baseline Condition noise contours for Airlake Airport, along with 2035 Final Preferred Alternative Condition noise contours for comparison. The contours represent noise levels, expressed in the Day-Night Average Sound Level (DNL) metric. The FAA requires the DNL noise metric for determining and analyzing noise exposure to aid in the determination of aircraft noise and land use compatibility issues around United States airports.

The FAA suggests three different DNL levels (65, 70, and 75 DNL) be modeled but considers the 65 dB DNL contour line as the threshold of significance for noise impact. As such, sensitive land use areas (e.g., residential) around airports that are located in the 65 dB or greater DNL contours are considered by the FAA as incompatible.

The Metropolitan Council suggests that the 60 DNL contour be included for airports in an urban environment and the 55 DNL in cases where airports are located outside the Metropolitan Urban Service Area (MUSA). Currently, Airlake Airport lies outside of the MUSA, so the 55 DNL noise contour will be shown for advisory purposes. However, it is not linked to any requirements for noise attenuation or mitigation.

In summary, when the 2035 Preferred Alternative Condition contours are compared to the Baseline (existing) Condition contours:

- For the 65 DNL contour, the acreage contained within the contour increases by 60 acres, with no residential parcels contained in the contour under either condition. The 65 DNL contour is contained on airport property in the Baseline Condition, but extends off airport property in the 2035 Preferred Alternative Condition. This change is largely due to the increased flight activity forecasted in 2035.
- For the 60 DNL contour, the acreage contained within the contour increases by 148 acres, with no residential parcels contained in the contour under either condition. The 60 DNL contour extends off airport property in both conditions. Again, this change is largely due to the increased flight activity forecasted in 2035.
- For the 55 DNL contour, the acreage contained within the contour increases by 422 acres, with no residential parcels contained in the contour under either condition.

The 2035 LTCP Preferred Alternative noise contours are shown in **Figure ES-6**. A comparison of the Baseline and 2035 Preferred Alternative Condition noise contours is shown in **Figure ES-7**.

Figure ES-6: 2035 Preferred Alternative Noise Contour

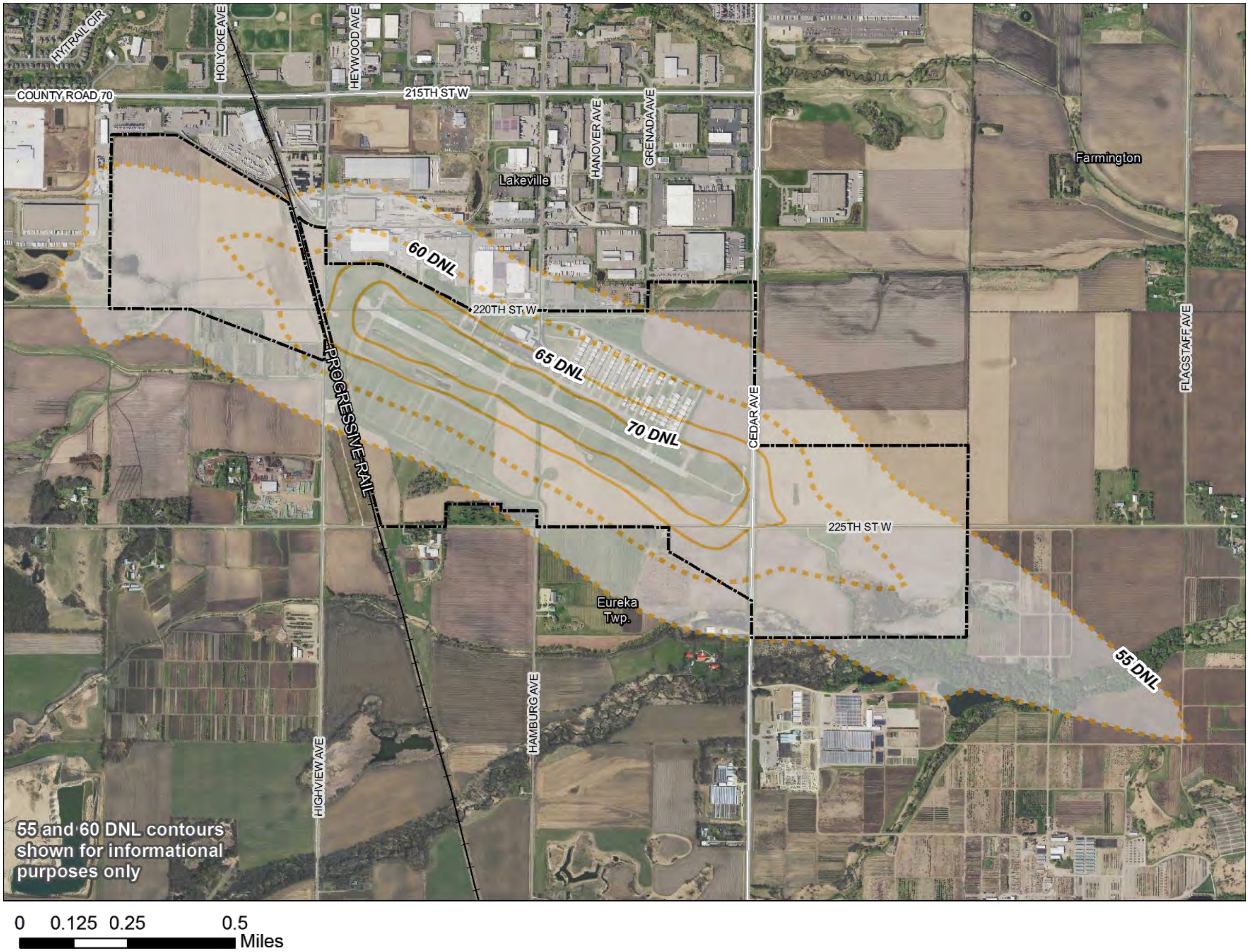
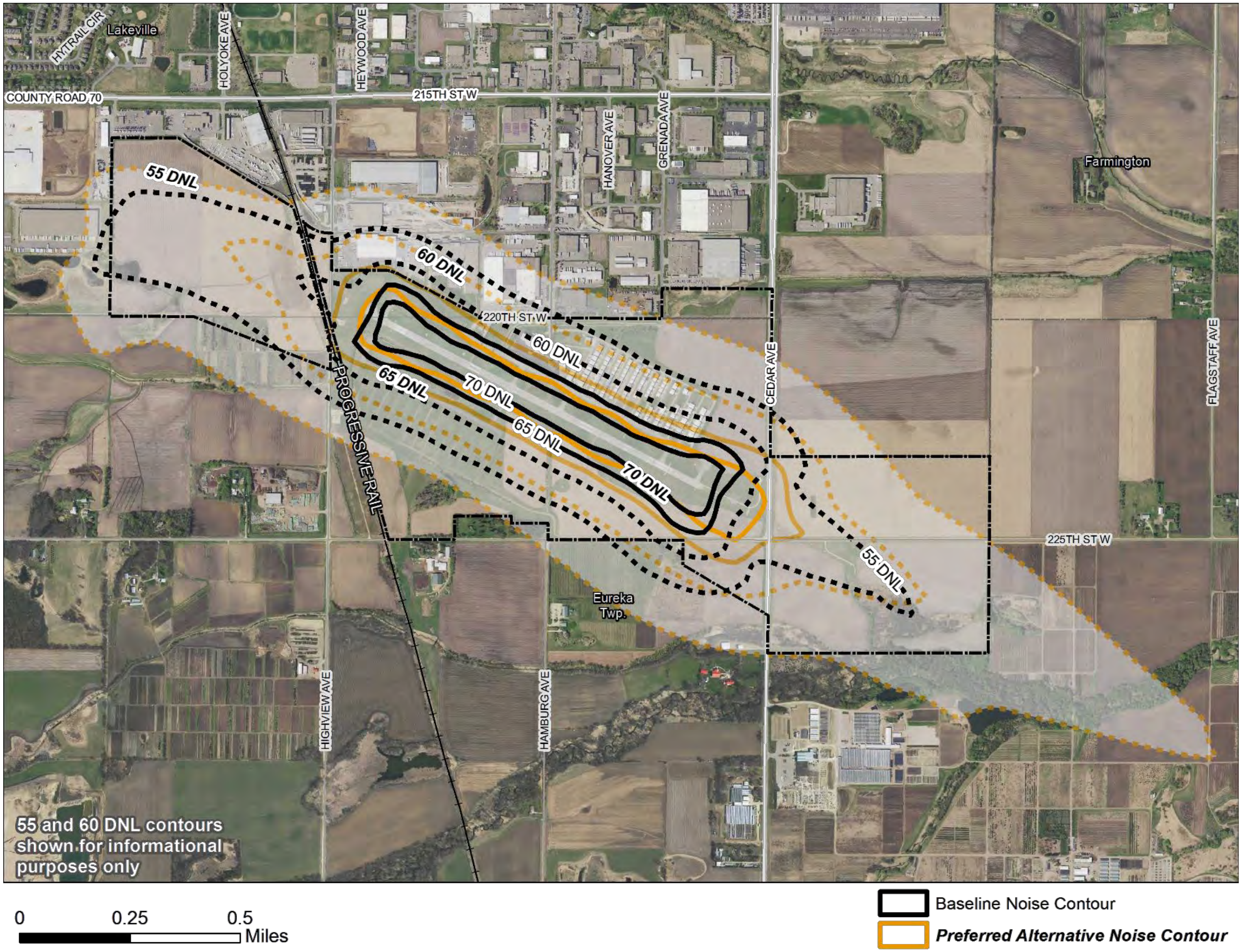


Figure ES-7: Noise Contour Comparison



Drainage

Airlake Airport lies within the Vermillion River Watershed, which is managed by the Vermillion River Watershed Joint Powers Organization (VRWJPO). While the Vermillion River is located approximately one-half mile south of Runway 30, one of its tributaries runs directly through airport property. This channel is named the South Tributary of South Creek. It is a designated trout stream. In 1998 when the grading for a new building area was started south of the runway, this intermittent stream was relocated via a permit from the Department of Natural Resources (DNR). The tributary still exists on airport property, but now routes around a new detention basin for storm water runoff from the future building area. The detention pond is intended to allow an area for infiltration of storm water versus direct runoff into the stream.

Municipal Utilities

The majority of Airlake Airport currently lies outside the city limits of Lakeville, with the exception of the area immediately surrounding the FBO facilities. Therefore, the majority of the airport does not have municipal services available for sanitary sewer or water. The MAC maintenance building and the FBO were connected to the city system many years ago, and are billed directly from the City. When these buildings were connected to the system, stubs for both the watermain and the sanitary sewer were extended to the south under the runway. In 1990, a watermain pipe was allowed by the City to be extended into the North Building Area as a fire protection line. There are no private services off of this line. It serves only fire hydrants. In 1994, this fire protection watermain line was extended when the building area was expanded.

Existing tenants that have legal wells and septic holding tanks have been allowed to keep them. The MAC maintenance building also has a well and holding tank. Tenants with illegal sandpoint wells or drain fields were required to remove or abandon them after MAC adopted its Sanitary Sewer and Water Policy in 1998, and subsequent revision in October 2000. Consistent with that policy, no new wells or holding tanks have been allowed at the airport. Once utilities are established, it is envisioned that construction of new hangars will occur in the South Building Area.

The installation of domestic water and sanitary sewer utilities to areas not within the Lakeville city boundary, including the future South Building Area, will not be feasible until the airport is annexed into the City of Lakeville or a Joint Powers or Cooperative Agreement is established for the extension of utilities beyond the Lakeville city boundary. In September 2017, the MAC Board approved staff’s request to petition the City of Lakeville to annex the approximately 120-acre parcel associated with the South Building Area. The petition requesting annexation by ordinance for this property was submitted to the City of Lakeville on October 27, 2017. The annexation ordinance was approved on March 9, 2018.

Other Environmental Considerations

The MAC will conduct an environmental review per federal National Environmental Policy Act (NEPA) and Minnesota Environmental Policy Act (MEPA) requirements to more specifically identify the environmental footprint of the proposed improvements before construction can begin. During this process, alternatives must be reviewed and any potential impacts must be avoided if possible. If impacts cannot be avoided, they must be minimized to the extent possible and mitigated in full compliance with federal and state requirements.

The following impact categories will be assessed during the environmental review:

- Air Quality;
- Biological resources (including fish, wildlife, and plants);
- Climate;
- Department of Transportation Section 4(f) Properties (park and recreational lands, wildlife and waterfowl refuges, and historic sites);
- Farmlands;
- Hazardous materials, solid waste, and pollution prevention;
- Historical, architectural, archeological, and cultural resources;
- Land use;
- Natural resources and energy supply;
- Noise and compatible land use;
- Socioeconomics, environmental justice, and children's environmental health and safety risks;
- Visual effects (including light emissions);
- Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers);
- Construction impacts; and
- Cumulative effects.

An environmental review process cannot begin until there is a sufficiently detailed plan available to evaluate. MAC envisions initiating the environmental review for the proposed Airlake Airport improvements soon after the plan is reviewed by the Metropolitan Council and formally adopted by the MAC Board. A full study of these environmental impact items at this time falls outside the scope of this long-term planning document.

ES.7 LAND USE COMPATIBILITY

The proposed improvements at Airlake Airport will result in changes to the noise contour (described in **Section ES.6**), along with the locations of the Model State Safety Zones, which are described below.

The State of Minnesota Department of Transportation, Office of Aeronautics (MnDOT) has established regulations that control the type of development allowed off runway ends in order to prevent incompatible development. These guidelines are meant to be used to establish zoning ordinances to protect areas around an airport.

The most restrictive areas created by MnDOT regulations are called Safety Zones A and B. The recommended safety zones should exist off each runway end and follow the approach zones out to the total length of the respective runway. The length of Safety Zone A is 2/3 of the total runway length; Safety Zone B is 1/3 of the total runway length and extends from Safety Zone A. There is also an area called Safety Zone C, which is a horizontal plane established 150 feet above the established airport elevation for a specified distance from each runway end.

A complete description and copy of the Minnesota Rules Chapter 8800 Department of Transportation Aeronautics Section 2400 Airport Zoning Standards can be accessed via the following website link: https://www.revisor.mn.gov/rules/?id=8800.2400.

MnDOT has undertaken efforts to update the state's airport zoning regulations. It is anticipated that revisions to the statutes governing airport zoning will be considered during a future Minnesota Legislative session. The administrative rules used to implement the zoning regulations and define the particulars of the Safety Zones will likely be updated after the statutory changes are complete.

Once Airlake Airport's future development plan is finalized, and the process to update the state's airport zoning regulations is complete, MAC intends to establish a Joint Airport Zoning Board (JAZB) that will include the respective Responsible Governmental Units that control land use development around Airlake Airport. Through a collaborative process, the JAZB will seek to develop an Airport Zoning ordinance, in accordance with state statutes and administrative rules, that considers land uses around Airlake Airport to achieve a balance between providing a reasonable level of public safety and facilitating compatible off-airport development.

For this report, the existing MnDOT models for the size and shape of State Safety Zones A and B were used for the purpose of analyzing land use compatibility. The sizes, shapes and/or locations of these zones may be revised by the JAZB during development of the Airport Zoning Ordinance for Airlake Airport. However, it should be noted that these zones are not currently in effect at Airlake Airport.

In summary, when the 2035 Preferred Alternative Condition is compared to the Baseline Condition from a land use compatibility perspective:

- The Baseline Condition RPZs and the 2035 Preferred Alternative RPZs both have 1.2 acres off-airport property – a change of less than 0.1 acres. As a result of displacing the Runway 12 landing threshold to mitigate airspace penetrations, approximately 0.1 acres of off-airport property would be introduced into the Approach RPZ. This includes additional sections of 220th Street and Highview Avenue being introduced into the RPZ, along with a small section of an off-airport truck staging lot associated with an adjacent industrial land use.
- The Baseline Condition Model State Safety Zones have 79.1 acres of off-airport property, while 188.7 acres are off-airport property in 2035 Preferred Alternative Condition – an increase of 109.6 acres.
- Existing land uses surrounding Airlake Airport are compatible with both the Baseline and 2035 Preferred Alternative Condition and the resultant aircraft

operations considering airport noise impacts as outlined in the FAA and Metropolitan Council guidelines.

Figure ES-8 shows the 2035 Preferred Alternative RPZs, Model State Safety Zones, and Noise Contours over planned future land use data. A comparison of the Baseline and 2035 Final Preferred Alternative RPZs, Model State Safety Zones, and Noise Contours is shown in **Figure ES-9**.

Figure ES-8: 2035 Preferred Alternative RPZs, Model State Safety Zones, and Noise Contours

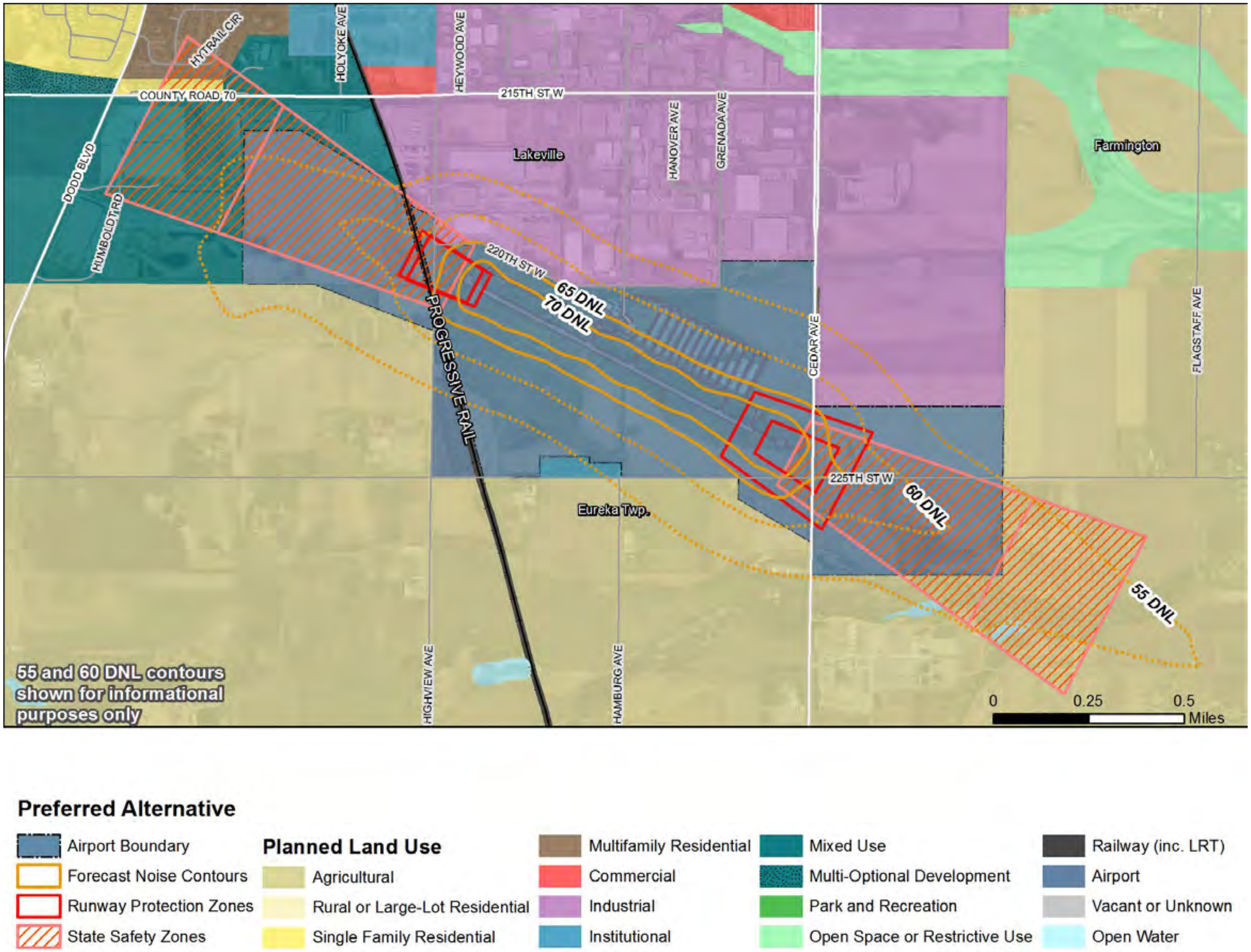
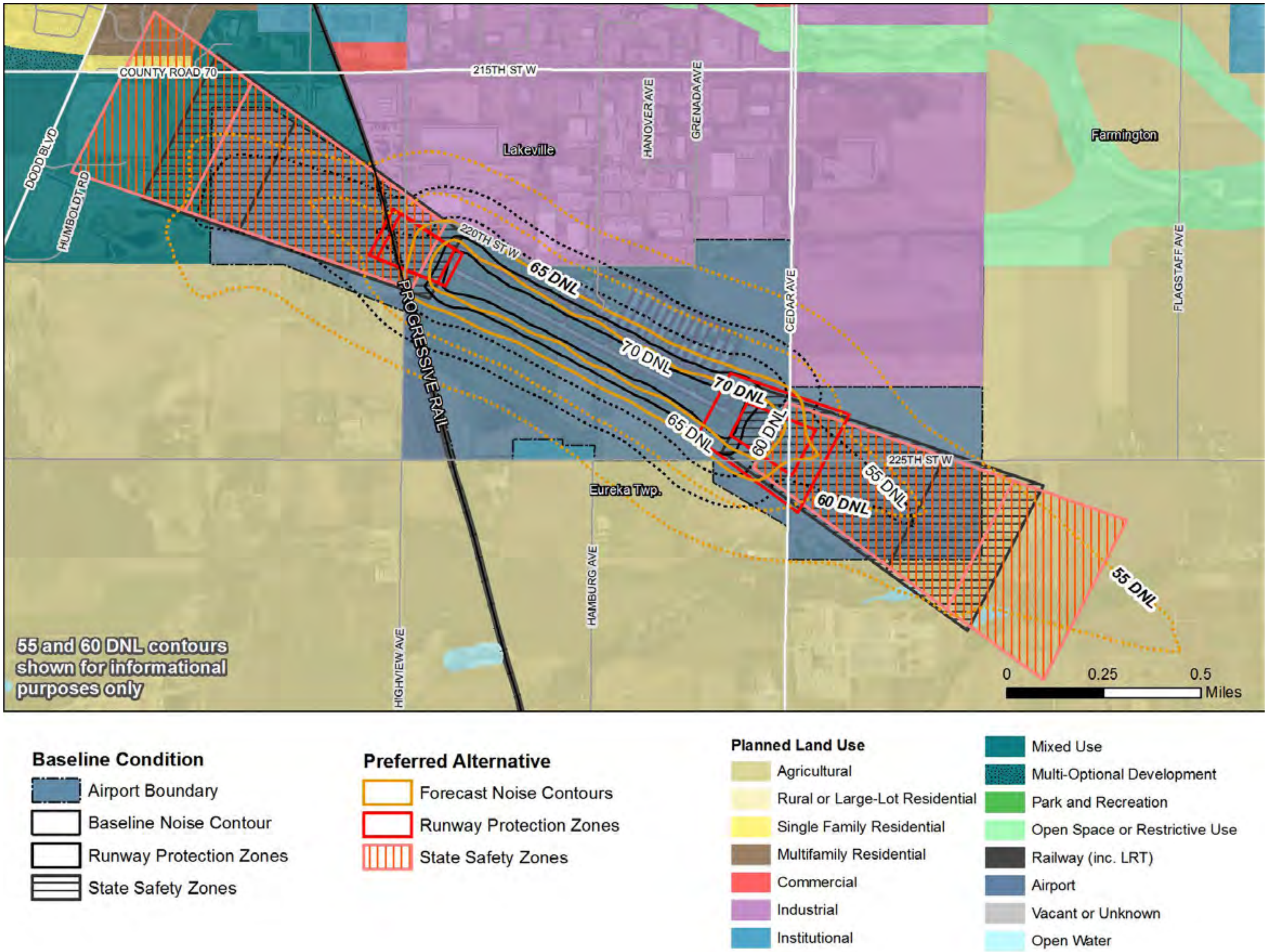


Figure ES-9: Baseline to 2035 Preferred Alternative RPZ, Model State Safety Zone, and Noise Contour Comparison



ES.8 IMPLEMENTATION PLAN

The LTCP is a planning document and does not authorize construction. Adoption of the LTCP is simply the first step in the project implementation process. Before any construction can begin, the project(s) must first be depicted on an approved Airport Layout Plan (ALP), evaluated via an environmental review process, and then compete for funding through FAA and/or State grant programs. Once funding is secured, final project engineering and design will take approximately one year to complete with contractor bidding and construction following thereafter.

Near-Term Development encompasses the project elements necessary to maintain the existing facility within the next five years.

MAC maintains an ongoing Capital Improvement Program (CIP) which assigns projects to a given year, currently looking out to 2023. Projects in the current CIP include:

- Runway 12 Precision Approach Path Indicator (PAPI) system and Hangar Obstruction Light installations in 2017; and
- Materials Storage Building construction in 2018; and
- MAC Maintenance Building improvements in 2019; and
- Public Restroom Facility and Aircraft Wash Pad construction in 2019; and
- South Building Area Development - Phase 1 in 2020.

However, these timelines may vary according to the environmental review process and availability of funding sources.

Mid to Long-Term Development encompasses the project elements necessary to extend Runway 12-30 and make the other recommended airfield improvements. It is anticipated that this development may occur in the 6-20 year timeframe (from a 2017 base year). The current CIP includes projects to reconstruct and extend Runway 12-30 in 2022.

A combination of traditional airport funding sources and financing mechanisms including federal Airport Improvement Program (AIP) grants, state Airport Construction Program grants, and local MAC monies could be used to fund implementation of the Preferred Alternative. It is anticipated that a majority of the funding would come in the form of AIP discretionary grants, which are awarded to airports on the basis of priority and available funding.

Project cost estimates for the 2035 Preferred Alternative are summarized in **Table ES-2**.

Table ES-2: Preferred Alternative Cost Estimates

Item #	Project Element	Estimated Cost
Near-Term Development (Plan Years 1 - 5)		
1	Runway 12 PAPI and Hangar Obstruction Lights	$150,000
2	Materials Storage Building	$200,000
3	MAC Building Improvements	$400,000
4	Public Restroom Facility and Plane Wash Pad	$450,000
5	South Building Area Development - Phase 1	$3,200,000
	Near-Term Development Total:	***$4,400,000***
Mid/Long-Term Development (Plan Years 6 - 20)		
6	Reconstruct Existing Runway 12-30	$2,150,000
7	Runway 12-30 Extension and Associated Taxiways, including electrical	$1,850,000
8	Relocate 225th Street	$1,700,000
9	South Building Area Development - Phase 2	$3,200,000
10	Expand FBO Apron (Tenant Cost)	---
11	Hangar Development (Tenant Cost)	---
12	Obstacle Removal	$300,000
	Mid/Long-Term Development Total:	***$9,200,000***
	Total Development Cost:	***$13,600,000***

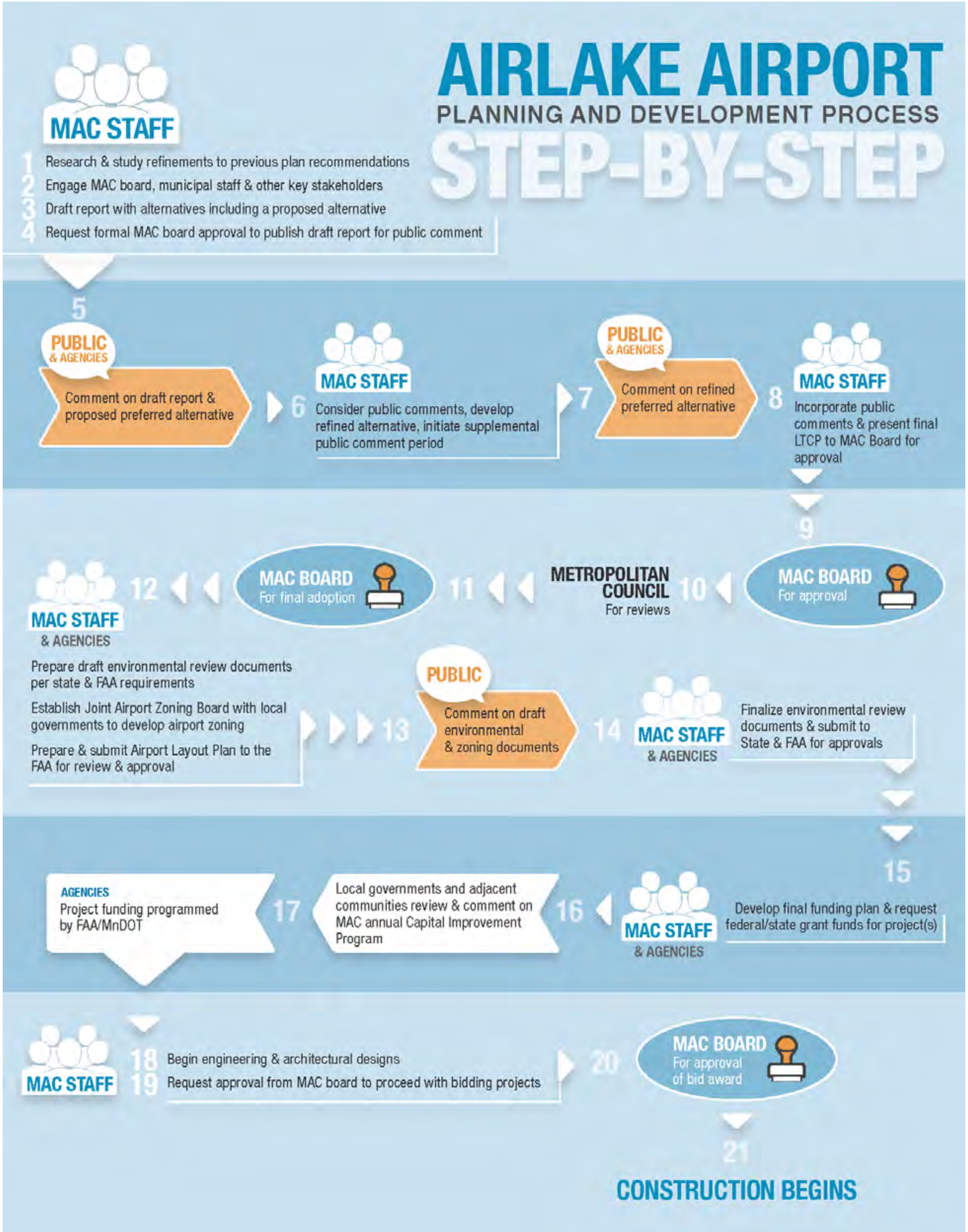
Notes: Cost estimates reflect 2017 pricing and include engineering costs and contingencies.

Source: SEH and MAC cost estimates

This summary provides a guide for the MAC when planning the CIP, which is updated on an annual basis. Costs for Reliever Airport projects must be programmed carefully to ensure all necessary funding is available. Those projects that will be eligible for federal or state funding will be placed in years when the opportunity to receive such funds is greatest. Projects that are not eligible for federal or state funds must have other funding sources identified prior to implementation.

Figure ES-10 illustrates the next steps for the planning and project implementation process, including at what points additional approvals are needed and at what points public feedback will be solicited.

Figure ES-10: Planning and Project Implementation Process



ES.9 PUBLIC INVOLVEMENT PROCESS

Initial stakeholder outreach efforts involved meeting with partner agencies, municipal representatives, and airport tenants before the draft LTCP report was finalized in order to provide information about the plan’s purpose, process, preliminary findings, and timeline.

The next phase consisted of the first formal public review period after the draft plan was completed and the MAC Board approved it for public distribution.

The Draft 2035 LTCP for Airlake Airport was issued for public review and comment on Monday, July 17, 2017. Two public information meetings were held in August 2017 to provide information about the draft plan to interested stakeholders. Materials from stakeholder outreach meetings are reproduced in **Appendix 8**. The public comment period closed on Wednesday, August 30, 2017.

During the public comment period, MAC received a total of ten written comments. Of the comments received, four were from airport tenants and users, four from members of the public, and two from municipal representatives.

Waypoint Flight Services, the full-service Fixed Base Operator (FBO) at the Airlake Airport, submitted comments in support of the proposed plan. The City of Lakeville submitted comments stating they do not have any objections or concerns with the plan. Dakota County submitted a few technical comments for consideration, including a statement that the proposed relocation of 225th Street and its intersection with Cedar Avenue will need to be evaluated to ensure they do not increase the likelihood of traffic safety issues compared to the roadway system as it exists today.

Throughout the public process, MAC made a commitment to consider the concerns voiced by stakeholders and evaluate if any related adjustments to the proposed plan were feasible. In this case, the volume of comments expressed on any particular theme was very small. Regardless, MAC staff has evaluated the concerns most frequently expressed by commenters and prepared the responses presented in **Appendix 9**. **Appendix 9** also includes a reproduction of each public comment received in its entirety.

The themes that were expressed multiple times during the comment period are summarized below:

- Support of No Concern for Runway Extension (4 mentions)
- Concern with Relocating 225th Street (3 mentions)
- Opportunity for Community Partnerships (2 mentions)
- Support for South Building Area (2 mentions)
- Concern with Property Annexation (2 mentions)
- Aircraft Operations Counts Not Accurate (2 mentions)
- Concern with Noise and Land Use Impacts (2 mentions)

After reviewing the body of public comments, MAC staff has affirmed its position that the proposed preferred development alternative represents a reasonable, practical, and cost-effective way to address the stated planning goals.

The Final Draft 2035 Airlake Airport LTCP narrative report was submitted to the Metropolitan Council for review on November 27, 2017. Under MS 473.165 and MS 473.611, the Metropolitan Council reviews LTCP's for each airport owned and operated by MAC. The Council reviews and comments on all plans for consistency with the metropolitan development guide including Thrive MSP 2040 and the Transportation Policy Plan. Metropolitan Council staff concluded that since the preferred development alternative for Airlake Airport retains its system role as a Minor general aviation facility, supports the regional aviation system, and is responsive to the needs and conditions of the airport, it is consistent with the Thrive MSP 2040 and the Transportation Policy Plan. The Full Metropolitan Council provided its determination of consistency on March 21, 2018.

The MAC Board voted to formally adopt the Airlake Airport 2035 LTCP on April 23, 2018.

PAGE INTENTIONALLY LEFT BLANK

SECTION 1:

INTRODUCTION AND BACKGROUND

PAGE INTENTIONALLY LEFT BLANK

1. INTRODUCTION AND BACKGROUND

1.1 OVERVIEW

The Metropolitan Airports Commission (MAC) was created in 1943 by the Minnesota Legislature to promote air transportation in the seven-county metropolitan area. The MAC's 15-member board of commissioners, which sets the MAC's policies, consists of 13 appointments by Minnesota's Governor and one appointment each by the mayors of Minneapolis and St. Paul. The MAC's policies are implemented by the MAC's Executive Director/Chief Executive Officer and staff.

Airlake Airport is one of seven airports owned and operated by the MAC (**Figure 1-1**). The airport identifier is LVN. The airport is located in Dakota County, approximately 17 miles south of the Minneapolis–St. Paul International Airport (MSP), 20 miles south of the City of Minneapolis, and approximately 25 miles southwest of the City of St. Paul. It lies within the borders of Eureka Township and abuts the southern border of the City of Lakeville. A small portion of the airport does lie within the City of Lakeville municipal boundary. County Road 23, otherwise known as Cedar Avenue, runs along the eastern border of the airport, and 220th Street W. borders the airport on the north. The south boundary is set by 225th Street W., and both Highview Avenue and railroad tracks run on the western side of the airport. MAC does own property to the east of County Road 23/Cedar Avenue and to the west of the railroad tracks as approach protection. (**Figure 1-2**). Airlake Airport consists of approximately 595 acres of land.

Airlake Airport plays an important role in the MAC system of airports and serves to relieve congestion at MSP by attracting general aviation traffic away from this larger airport.

Airlake Airport began operating in 1967 as a privately-owned airfield serving the Airlake Industrial Park. The MAC acquired the airport in 1981 to provide a training facility for conducting general aviation instrument approaches, which had been occurring at MSP Airport.

MAC prepared a Comprehensive Development Plan for Airlake Airport in 1989, and then updated it with a Long-Term Comprehensive Plan (LTCP) in 1997. Since a full plan had been prepared in 1989, the 1997 document focused only on updating the aviation forecasts and facility requirements for the airport, including some analysis of environmental related issues of noise and water quality.

The most recent Long Term Comprehensive Plan (LTCP) for Airlake Airport is dated December 2008, with a planning year of 2025 (2025 LTCP). It was prepared by the MAC and approved by the Metropolitan Council. However, none of the recommendations have been implemented. . The 2025 LTCP recommended extending the airport's one runway from an existing length of 4,099 feet to 5,000 feet. This plan required rerouting Cedar Avenue - with corresponding land acquisition - and relocation of a township road. As part of the runway extension, the instrument landing system (ILS) approach minimums were proposed to be reduced to ½ mile. This reduction would have required the runway to be widened to 100 feet.

The purpose of the Airlake Airport 2035 Long-Term Comprehensive Plan is to update, as needed, the findings of the 2025 LTCP, and to extend the planning horizon an additional ten years. The LTCP is an infrastructure planning tool updated on a regular basis. It is forward-looking in nature, and does not authorize actual construction.

The 2035 plan will provide a "road map" to guide the MAC's development of Airlake Airport over the next 5-10 years. To accomplish this, the plan will provide updated activity (operations) forecasts, confirm facility needs and refine alternatives identified from the previous LTCP to meet those needs.

A glossary of terms used throughout this report is provided in **Appendix 1**.

1.2 GUIDING PRINCIPLES

Guiding principles establish a foundation for and parameters against which planning-related decisions are evaluated. These principles provide focus and direction in formulating a recommended development plan – in this case, for Airlake Airport. The principles also act as a high-level explanation of the purpose and objectives of the planning process.

By nature, these guiding principles are dynamic and may be adjusted over time.

Airport Role

Operating within a diverse system of metropolitan area airports, Airlake Airport's primary role is to serve personal, recreational, and business aviation users in the south metropolitan areas of Dakota and Scott Counties. Examples of business services provided at Airlake Airport include flight training, aircraft rentals, charter flights, aircraft management services, and medical flight transportation.

The primary role of Airlake Airport is not expected to change between now and 2035. The Airport's classification will **continue** to be that of:

- A Complimentary Reliever in the Metropolitan Airports Commission (MAC) system;
- An Intermediate Airport per Minnesota Department of Transportation/Office of Aeronautics (MnDOT); and
- A Minor Airport per the Metropolitan Council Regional Aviation System Plan.

The aircraft anticipated to use Airlake Airport will **continue** to range from small single-engine piston airplanes used primarily for personal, recreational, and flight training purposes up to mid-size corporate jets used primarily for business purposes.

The proposed 2035 plan **does not** recommend changing the airport's role to accommodate larger aircraft or scheduled passenger or cargo flights

Airport Infrastructure
Key airfield improvement objectives for Airlake Airport are to:

- Better accommodate business aircraft needs by maximizing the airfield's operational capabilities and property footprint;
- Maintain or improve Runway Protection Zone (RPZ) land use compatibility;
- Mitigate existing issues with airspace penetrations, such as trees and buildings, to the extent practical; and
- Update the taxiway layout to reflect current industry best practices and thus enhancing airfield safety.

The planning process will ensure proposed airfield development conforms to Federal Aviation Administration (FAA) and MnDOT regulations, design standards, and system plans to the extent practical and feasible.

Wherever prudent, development plans will make use of existing facilities through renewal, modernization and/or infill development.

Stakeholder and Community Engagement
The planning process will seek to foster consensus among stakeholders, including tenants and users, the FAA, MnDOT, the Metropolitan Council, the Metropolitan Airports Commission, and local governmental bodies.

Airport development and maintenance plans should consider the objectives of local governmental bodies, including partnering with these bodies to promote regional economic development and local land use compatibility.

The planning process will include a public involvement program to inform and educate interested parties of possible plans for Airlake Airport's future and any associated community impacts, and to consider community feedback received.

Land Use Compatibility & Environmental Considerations
A significant investment has been made in Airlake Airport, warranting the need to protect the facility from new non-compatible off-airport developments that could impact existing and future operations at the Airport.

Zoning and land use controls should be implemented to facilitate the long-term plan implementation in a manner that acknowledges the rural character of the neighborhoods surrounding Airlake Airport and encourages compatible development.

In service to all parties, operation and development of Airlake Airport will promote initiatives to incorporate environmental stewardship and infuse sustainable thinking.

Financial Viability
Development at Airlake Airport will continue to be self-funded by users of the airport and aviation system; no local sales or property taxes will be used to fund airport improvements.

- All facility improvements will be funded through pursuing FAA and MnDOT grants first, with MAC funding as a secondary source.
- Future development at Airlake Airport should promote financial self-sufficiency to the maximum extent practical, including strategies to encourage tenant investments in facility improvements and/or new facilities, and other non-aeronautical revenue generation.

1.3 AIRPORT HISTORY

Airlake Airport was constructed by Hitchcock Industries as an integral part of the Airlake Industrial Park. Originally, farms and farmland occupied the area now occupied by the industrial park and airport. Hitchcock Industries acquired approximately 1,500 acres of land from 17 different property owners to facilitate the development. The airport opened in 1967 as a privately owned/private use facility with a paved runway that was 5,000 feet long to accommodate aircraft associated with business park activities. In 1969, Hitchcock Industries further improved the airport with the establishment of a Fixed Base Operator (FBO) to provide tie-down areas and provide fueling services. Later, Hitchcock Industries changed the designation of the airport to that of a privately owned, public use facility, opening up the facility to aircraft not associated with the industrial park as well.

In August 1979, the Federal Aviation Administration (FAA) announced the Satellite Airport Development Program which was intended to upgrade air safety by improving satellite airports in major metropolitan areas. The purpose was to relieve congestion and reduce the mix of commercial and non-commercial aircraft at major hub airports by making neighboring satellite fields more attractive to private and business flyers. The Minneapolis metropolitan area was included in this program, with MSP as its hub airport. The FAA stated that the new program would give priority to short-term development projects that would yield the quickest benefits in terms of increasing capacity and capabilities of satellite airfields. Included in the priority items was the installation of an Instrument Landing System (ILS) at the satellite fields as the ILS's at major hub airports were being utilized for training purposes. ILS training is incompatible with normal operations at air carrier airports due to the interaction of larger, faster commercial jetliners with single and twin-engine propeller aircraft used for flight training. Reducing ILS training activity at MSP was expected to diminish airspace conflicts between faster jet airliners and small aircraft, resulting in a safer airport environment for all users.

The FAA and the Minnesota Department of Transportation, Division of Aeronautics, evaluated potential locations for a training ILS in the metropolitan area. Due to existing airspace, physical or environmental constraints, it was determined that none of the then-present reliever airports were suitable locations for this instrumentation. The evaluation then considered alternate ways to achieve the same goal, and the conclusion was reached that Airlake Airport showed the greatest potential. This was based on the following factors:

- Airlake was an existing airport which would only require a change in ownership rather than the development of a new airport;
- The airfield was physically capable of accommodating the ILS;

- The airport was included in the Metropolitan Council's Airport Development Guide, in a role compatible with its potential function; and
- Acquisition would help to maintain the capacity of the metropolitan airport system by ensuring that Airlake Airport continued in operation.

In January 1981, MAC purchased approximately 565 acres of land in and around the airport from the Airlake Industrial Park (Hitchcock Industries) and various landowners to avoid encroachment and maintain approach and clear zones. At the time of acquisition, it was estimated that there were approximately 8,000 annual aircraft operations at Airlake Airport.

In 1982, the runway length was reduced from 5,000 to approximately 4,100 feet. The reduction in length was required to provide clear approach surfaces to the extent required by FAA to provide proper clearances over Cedar Avenue and 225th Street to the southeast and the railroad tracks to the northwest without relocating these existing transportation features. The ILS and associated approach lighting system was installed in 1984, allowing Airlake Airport to fulfill its intended purpose.

Throughout its history, there has been a single full-service FBO in operation at Airlake Airport. Originally operated by Hitchcock Industries as a part of the Airlake Industrial Park, the FBO was later operated by Flytline Services before being acquired by Aircraft Resource Center (ARC) in 2003. In 2016, ARC changed its name to Waypoint Flight Services (Waypoint).

In 2016, the City of Lakeville prepared a video that summarized the development history of Airlake Industrial Park. This video can be viewed from the link below:

http://www.ci.lakeville.mn.us/606/History-of-Lakeville-segments

Several additional historical airport planning records are reproduced in **Appendix 2**.

Table 1-1 summarizes key airfield development milestones at Airlake Airport.

Table 1-1: Airfield Development Timeline

Year	Development
1966	Runway constructed with Airlake Industrial Park at 5,000 feet long with a partial parallel taxiway 200 feet from runway, approximately 1,000 feet long.
1969	FBO constructed with its own access to runway.
1969-1980	Hangars and buildings along northwest end of runway constructed.
1981	Airport purchased by MAC.
1982	Runway rehabilitated and thresholds displaced to 4,098 feet. Project included grading for new ILS and installation of MALSR system.
1983-1984	Northeast Building area constructed with 6 hangar rows, access road and a partial parallel taxiway at 300 feet from runway connecting the building area to the FBO and SE runway end.
1984	ILS installed.
1986	FBO relocated to allow for full parallel taxiway construction (connecting the two pieces at either end). Four taxiway connectors were also built.
1981 – 1990	MAC purchases most of the buildings on the northwest end of the runway. These are ultimately demolished prior to 1990 because they are obstructions.
1994	Northeast building area extended, along with access road and watermain.
1998	South building area grading completed, including 13 hangar rows. Project also included payment to Northern Natural Gas for the lowering-in-place of the two existing pipelines so construction could take place.
1999	Runway 11-29 renumbered to 12-30 for changed magnetic declination.
2001	Runway pavement reconstructed.
2000-2002	Last two remaining obstructions (buildings) on northwest end are demolished.
2003	South partial parallel taxiway paved with two connectors. Project did not include the rest of the building area.
2008	New FBO aircraft storage hangar constructed and tiedown area alleyway paved

Source: MAC records

1.4 AIRPORT CLASSIFICATION AND CONTEXT

The definition of “classification” for an airport differs slightly between the MAC, FAA, MnDOT, and the Metropolitan Council.

1.4.1 MAC Classification

In January 2006, the MAC accepted the *Recommendations Regarding the Future Operation and Development of the Reliever Airport System* prepared by the MAC Reliever Airports Task Force. That document identifies Airlake Airport as a “complimentary reliever” in the MAC-owned airport system. Other “complimentary reliever” airports listed are Crystal Airport and Lake Elmo Airport in Washington County. The other MAC-owned relievers, the St. Paul Downtown Airport, the Anoka County – Blaine Airport and the Flying Cloud Airport in Eden Prairie, are "primary relievers". By the MAC's definition, this "primary reliever" classification identifies them as better equipped to serve small business jets and corporate aircraft in addition to general aviation.

1.4.2 FAA Classification

The FAA's *National Plan of Integrated Airport Systems (NPIAS)*[4] identifies airports that are significant to national air transportation. Airports designated as part of the *NPIAS* are eligible for FAA Airport Improvement Program (AIP) funding. The *NPIAS* is updated by the FAA every two years and comprises all commercial airline service airports, reliever airports and qualifying general aviation airports.

In cooperation with the aviation community, the FAA completed two top-down reviews of the existing network of general aviation facilities included in the *NPIAS*. The results of these efforts are contained in the May 2012 report titled *General Aviation Airports: A National Asset (ASSET 1)* and the March 2014 report entitled *ASSET 2: In-Depth Review of 497 Unclassified Airports*[5].

As part of these efforts, the FAA documented the important airport roles and aeronautical functions these facilities provide to their communities and the national airport system. These functions include emergency preparedness and response, direct transportation of people and freight, commercial applications such as agricultural spraying, aerial surveying and oil exploration, and many others. Many of these functions cannot be supported efficiently or economically at larger commercial service airports.

The latest version of the *NPIAS*, which was released in October 2016 and covers the five-year period between 2017 and 2021, identifies both a Service Level and Asset Role for each airport in the plan. The Service Level describes the type of service the airport currently provides to the community and is anticipated to provide at the end of the five-year planning period. The Asset Role was assigned using operational categories developed in the *ASSET 1* report.

In the 2017-2021 *NPIAS*, the FAA classifies Airlake Airport as follows:

- Service Level: Reliever

  The FAA has encouraged the development of high-capacity general aviation airports in major metropolitan areas. These specialized airports, called relievers, provide pilots with attractive alternatives to using congested commercial airports. They also provide general aviation access to the surrounding area. To be eligible for reliever designation, these airports must be open to the public, have 100 or more based aircraft, or have 25,000 annual itinerant operations.

[4] Additional information is available at: http://www.faa.gov/airports/planning_capacity/npias/reports/

[5] Additional information is available at: http://www.faa.gov/airports/planning_capacity/ga_study/

- Asset Role: Regional

  Regional airports support regional economies by connecting communities to statewide and interstate markets. These airports accommodate a full range of regional and local business activities. They serve corporate and multi-engine aircraft, as well as single-engine propeller aircraft.

Definitions for other FAA airport classification categories are provided in the Glossary of Terms (**Appendix 1**) under the term "Airport Classifications".

1.4.3 MnDOT Classification

MnDOT classifies Airlake Airport as an Intermediate Airport. Intermediate Airports have a paved and lighted primary runway that is less than 5,000 feet in length. These airports are capable of accommodating all single-engine aircraft, some multi-engine aircraft (including turboprops), and some business jets. Intermediate Airports serve as landing facilities for flight training, aircraft maintenance, and general aviation aircraft up to the smaller business jet size.

Of the other relievers in the MAC system, Crystal and Lake Elmo are also classified as Intermediate Airports per MnDOT criteria. Definitions for other MnDOT airport classification categories are provided in the Glossary of Terms (**Appendix 1**) under the term "Airport Classifications".

1.4.4 Metropolitan Council Classification

The Metropolitan Council has been involved in aviation system planning since the 1970s. The Council develops a regional development framework every 10 years, the most recent being Thrive MSP 2040, which was adopted in 2014. The regional Transportation Policy Plan (TPP), which provides transportation policy guidance to regional governmental units, is updated every four years. Included in the TPP is the aviation system plan, which is updated every eight years. The Council prepares and maintains the plan, which provides strategies to help the Twin Cities enhance access to domestic and international markets. The last update to the Regional Aviation System Plan was the 2030 Twin Cities Aviation System Technical Report (December 2009). The Council works closely with the Metropolitan Airports Commission (MAC) and other airport owners to ensure that the region's airports provide state-of-the-art, secure and affordable services for business and leisure travelers, freight transport and general aviation activities. The Council coordinates aviation planning and community development with local, state and federal governmental units, airport users and citizens.

The Metropolitan Council classifies Airlake Airport as a Minor Airport. Under this definition, the airport has a primary runway length between 2,500 and 5,000 feet, with either a precision or non-precision approach. The airport can accommodate personal use and recreational aircraft, business general aviation and air taxi traffic, flight training and military operations. All of the other relievers in the MAC system, with the exception of the St. Paul Downtown Airport, are classified as Minor Airports per Metropolitan Council criteria. Definitions for other Metropolitan Council airport classification categories are provided in the Glossary of Terms (**Appendix 1**) under the term "Airport Classifications".

1.4.5 Airport Context

According to the latest *Minnesota State Aviation System Plan (SASP)*[6] published in 2013, Airlake Airport is one of 83 Intermediate Airports in the state. Of these 83 Intermediate Airports, Airlake Airport ranked:

- 4th in terms of the number of total based aircraft; and
- 4th in terms of the number of general aviation aircraft operations.

[6] Additional information available at: http://www.dot.state.mn.us/aero/planning/sasp.html

Figure 1-1: Metropolitan Airports Commission Airports in the Seven-County Area

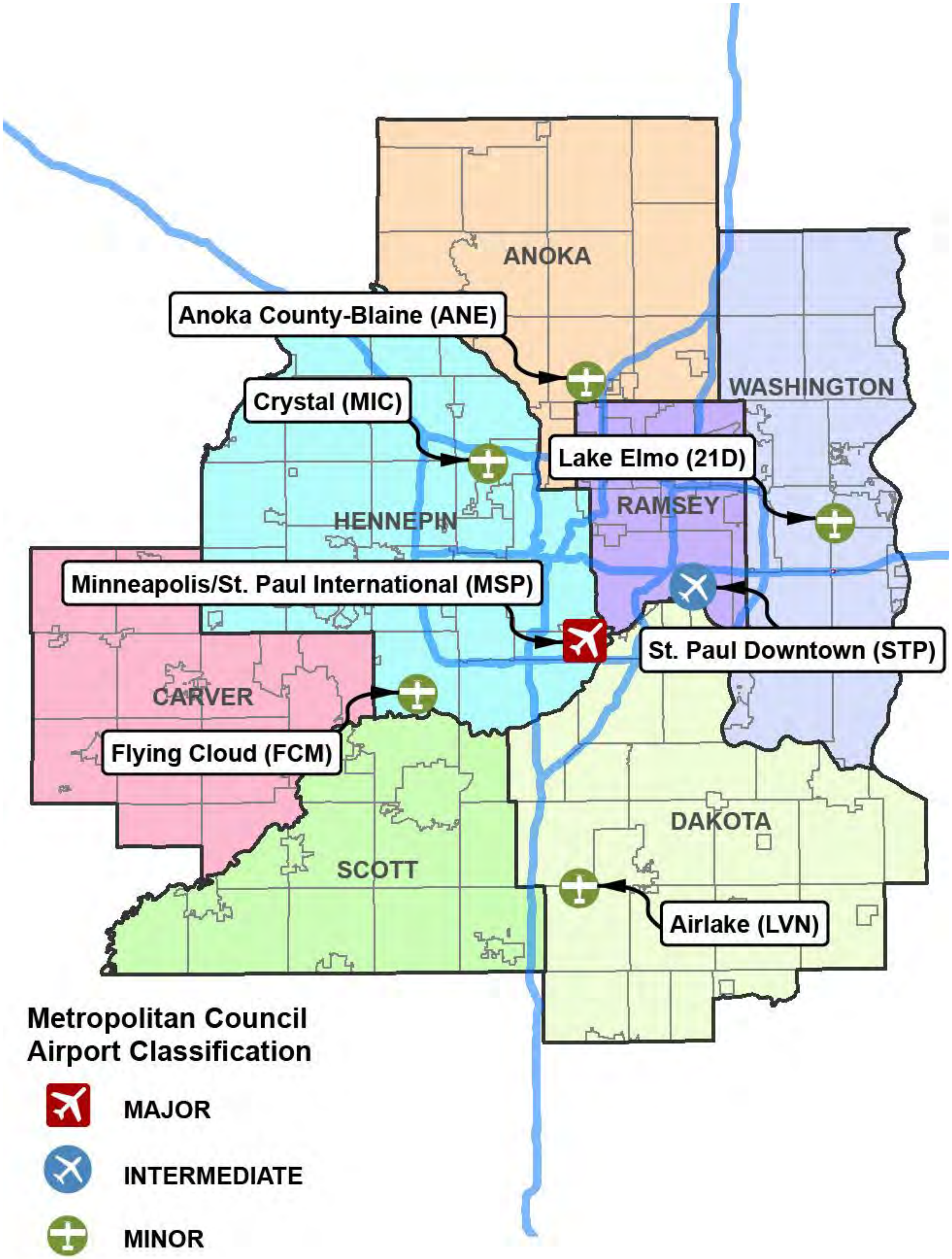
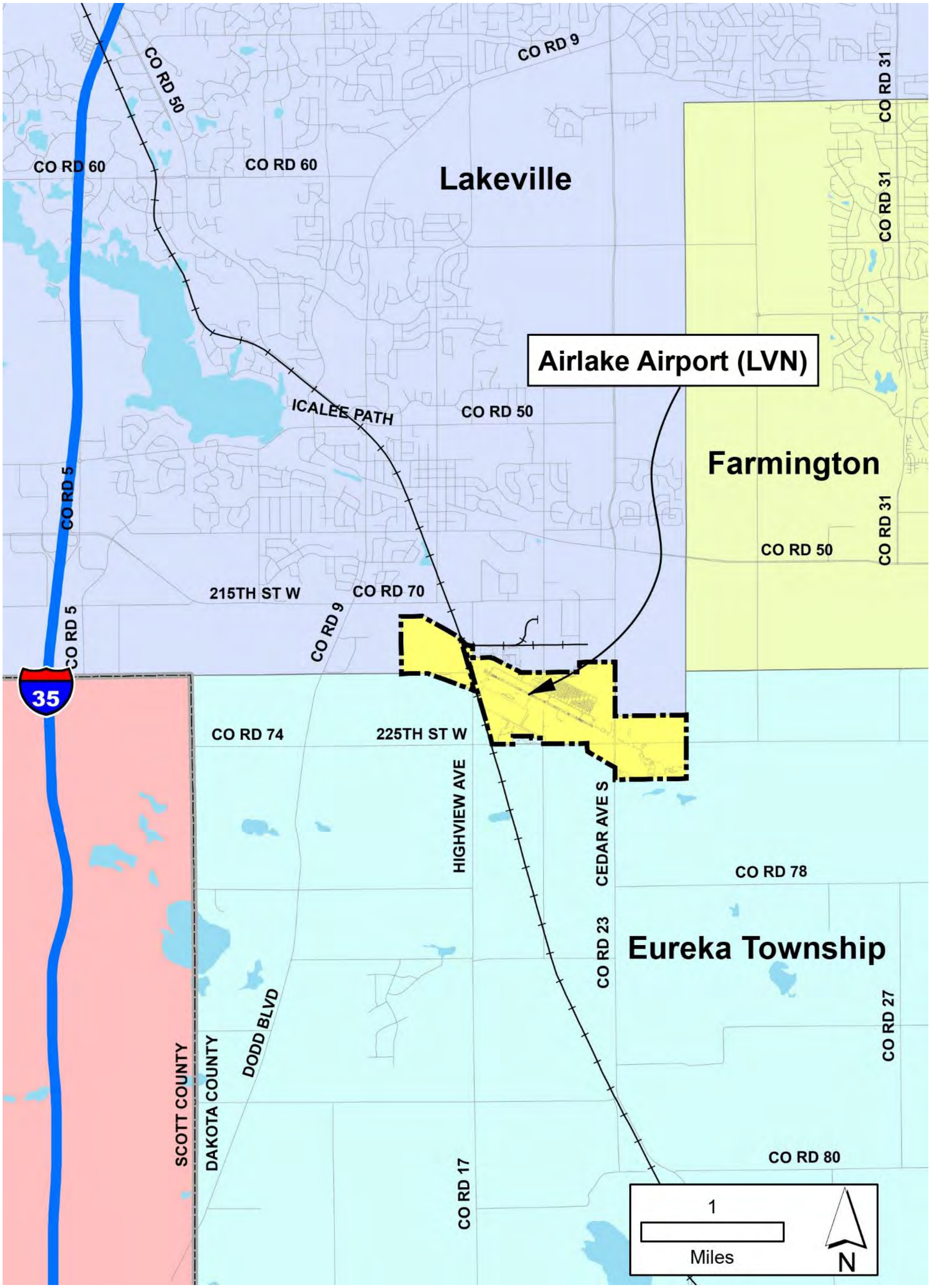


Figure 1-2: Airport Vicinity



PAGE INTENTIONALLY LEFT BLANK

SECTION 2:

EXISTING CONDITIONS

PAGE INTENTIONALLY LEFT BLANK

2. EXISTING CONDITIONS

2.1 INTRODUCTION

This chapter summarizes the existing facility, land use, infrastructure, and environmental data that are relevant to the preparation of this LTCP. The information presented in this chapter is current as of October 2016, except where noted.

2.2 IMPROVEMENTS SINCE LAST LTCP

The following facility improvements have been completed at Airlake Airport since the completion of the last LTCP:

- Airfield pavement rehabilitation in 2013 (full depth crack repairs and crack sealing of the runway and taxiway pavements);
- MAC Maintenance Building improvements in 2014; and
- Taxiway A pavement rehabilitation in 2016.

2.3 EXISTING AIRSIDE FACILITIES

Airside facilities include the operational aircraft areas of runways, taxiways, and aprons. These are areas where vehicular traffic is generally not allowed due to safety concerns of mixing with aircraft. Airside facilities also include airfield lighting and navigational aids.

2.3.1 Pavement Areas and Design Standards

Airlake Airport has one paved runway, Runway 12-30, that is 4,099 feet long and 75 feet wide. It has a full length parallel taxiway 40 feet wide with five connector taxiways.

The runway was originally constructed at 5,000 feet long. Due to obstructions and the planned installation of an instrument landing system (ILS), the runway was shortened to 4,099 feet. Portions of the bituminous pavement were kept in place beyond the new threshold as blast pad.

The airport has one apron area that is under the control of the Fixed Base Operator (FBO) as part of their leased property. Run-ups and pilot checks can also be performed in the two pavement areas at each end of the runway.

The existing airport layout is depicted in **Figure 2-1**.

All of the airfield areas at Airlake are asphalt, but vary in pavement age, thickness, and typical section. Over time, pavement overlays, rehabilitation, reconstruction and/or crack repair methods have changed the characteristics of the pavement from section to section.

The Airport Pavement Management Program for the MAC Relievers has included periodic pavement condition inspections, most recently in 2016. The inspections utilized the Pavement Condition Index (PCI) method. PCI evaluation includes a visual inspection of pavements and assignment of a numerical indicator that reflects the structural and operational condition of the pavement, including the type, severity, and quantity of pavement distress. The numerical PCI value range for a specific, distinct section of airfield pavement can be defined as follows:

- PCI 81-100: Pavement in Excellent Condition (No or Minor Stress) – 27 percent of existing pavement areas;
- PCI 61-80: Pavement in Satisfactory Condition (Minor Stress) – 42 percent of existing pavement areas;
- PCI 41-60: Pavement in Fair Condition (Moderate Stress) – 31 percent of existing pavement areas;
- PCI 21-40: Pavement in Poor Condition (Major Stress) – No airfield pavement areas fall within this classification; and
- PCI 0-20: Pavement in Serious Condition (Failed) – No airfield pavement areas fall within this classification.

An exhibit depicting the condition of pavements by PCI at Airlake Airport is provided in **Figure 2-2**.

Table 2-1 provides a summary of existing runway characteristics at Airlake Airport.

Table 2-1: Existing Runway Characteristics

Runway Characteristics	12-30	
Runway Length (feet)	4,099	
Runway Width (feet)	75	
Published Pavement Strength (lbs.)		
Single-Wheel Loading (SW)	31,000	
Dual-Wheel Loading (DW)	47,000	
Pavement Classification Number (PCN)	11	
Pavement Type	Asphalt	
Effective Gradient	0.22%	
	12	30
Runway End Elevation (ft. AMSL)	960.6	951.4

Note:

Source: AGIS Aeronautical Survey (2013); FAA Airport Master Record; MAC Records

FAA Design Standards

FAA airport design standards provided in Advisory Circular (AC) 150/5300-13A, Change 1, *Airport Design,* provide basic guidelines for a safe and efficient airport system. Conformity to the FAA's standards ensures that aircraft in a particular category can safely operate at the airport.

Planning improvements to an existing airport requires the selection of one or more "design aircraft" that represent a collection, or composite family, of aircraft that are intended to be accommodated by the airport on a regular basis[7]. In the case of an airport with multiple runways, a design aircraft is selected for each runway.

For the purposes of airport geometric design, the design aircraft is classified by three parameters:

- Aircraft Approach Category (AAC): A classification of aircraft based on a referenced approach landing speed;
- Airplane Design Group (ADG): A classification of aircraft based on wingspan and tail height; and
- Taxiway Design Group (TDG): A classification of aircraft based on main landing gear width and cockpit-to-main-gear distance.

The selected AAC, ADG, and desired approach visibility minimums (generally expressed in statute miles or feet) are combined to form the Runway Design Code (RDC) for a particular runway. The RDC is used to determine the standards that apply to a specific runway and parallel taxiway to allow unrestricted operations by the design aircraft under defined meteorological conditions.

The Airport Reference Code (ARC) is a designation that signifies the airport's highest RDC. The ARC is used for planning and design only and does not limit the aircraft that may be able to operate safely on the airport. In the case of Airlake Airport, the existing design aircraft is represented by a composite family of turbine-powered aircraft used for business aviation purposes. From an airfield facility requirements perspective, this composite aircraft family is represented by the Beechcraft King Air 350 (ARC B-II), Pilatus PC-12 (ARC A-II), Cessna Citation Jet 525 (ARC B-I), and the Cessna Citation 650/III (ARC B-II).

Design parameters associated with this composite aircraft family are as follows:

- AAC: A/B (approach speed less than 121 knots);
- ADG: I/II (wingspan up to but not including 79 feet and tail height less than 30 feet);
- TDG: 2 (main landing gear width 20 feet or less and cockpit-to-main gear distance less than 64 feet); and
- Approach visibility minimums: 4,000 feet, which corresponds to visibility minimums of lower than one statute mile but not lower than ¾ mile.

[7] Regular use is considered as at least 500 or more annual itinerant operations of the runway by the critical design aircraft.

The corresponding RDC for Runway 12-30 is B-II-4,000. **Table 2-2** summarizes selected FAA runway design standards for RDC A/B-II-4,000 facilities.

Table 2-2: FAA Runway Design Standards

Design Standard	RDC A/B-II-4,000	Dimension (Fig. 2-3)
Runway Protection		
Runway Safety Area (RSA)		
Length Beyond Departure End (feet)	300	R
Length Prior to Threshold (feet)	300	R
Width (feet)	150	B
Runway Object Free Area (ROFA)		
Length Beyond Runway End (feet)	300	R
Length Prior to Threshold (feet)	300	R
Width (feet)	500	A
Runway Obstacle Free Zone (ROFZ)		
Length Beyond Runway End (feet)	200	n/a
Width (feet)	400	C
Runway Separation		
Centerline to Holding Position (feet)	200	n/a
Centerline to Parallel Taxiway (feet)	240	n/a
Centerline to Aircraft Parking (feet)	250	n/a

Notes:

Standards listed are for visibility minimums not less than 3/4 mile

See Figure 2-3 for a graphical depiction of these dimensions

Source: FAA Advisory Circular 150/5300-13A, Change 1

Runway Safety Areas, Object Free Areas, and Obstacle Free Zones

The Runway Safety Area (RSA) is a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway.

Existing RSAs at Airlake Airport extend 300 feet beyond each runway end and are 150 feet wide. The existing RSAs meet FAA standards for the specified RDC.

The Runway Object Free Area (ROFA) is an area centered on the runway provided to enhance the safety of aircraft operations by remaining clear of objects, except for objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes.

Existing ROFAs at Airlake Airport extend 300 feet beyond each runway end and are 500 feet wide. The existing ROFAs meet FAA requirements for the specified RDC.
The Runway Obstacle Free Zone (ROFZ) is three-dimensional airspace along the runway and extended runway centerline that is required to be clear of obstacles, including aircraft, for protection of landing takeoff operations from the runway and for missed approaches.

Existing ROFZs at Airlake Airport extend 200 feet beyond each runway end and are 400 feet wide. The existing ROFZs meet FAA requirements for the specified RDC.

The RSA, ROFA, and ROFZ layout is depicted in **Figure 2-3**.

In addition, Airlake Airport has an Inner-Approach Obstacle Free Zone (OFZ) for Runway 30 because this runway has an approach lighting system. The Inner Approach OFZ begins 200 feet from the runway threshold at the same elevation as the runway threshold and extends 200 feet beyond the last light unit in the approach light system. Its width is the same as the ROFZ and it rises at a slope of 50 (horizontal) to 1 (vertical) from its beginning. FAA design standards also include an Inner Transitional OFZ; however, as this standard only applies to runways with lower than ¾ mile visibility minimums, it does not apply to Airlake Airport.

Finally, Airlake Airport has a Precision Obstacle Free Zone (POFZ) for Runway 30 that is in effect when:

- The approach includes vertical guidance (both the ILS and LPV approaches to Runway 30 provide vertical guidance);
- The reported ceiling is below 250 feet or visibility is less than ¾ statute mile (the LPV approach to Runway 30 provides minimums down to 200 feet); and
- An aircraft is on final approach within two miles of the runway threshold.

The POFZ is the volume of airspace beginning at the runway threshold at the threshold elevation and centered on the runway centerline that is 200 feet long and 800 feet wide. When the POFZ is in effect, a wing of an aircraft holding on a taxiway waiting for runway clearance may penetrate the POFZ; however, neither the fuselage nor the tail may penetrate. At Airlake, Taxiway A traverses the POFZ adjacent to the eastern-most hangar row. All of the hangar structures are clear of the POFZ. Vehicles up to 10 feet in height necessary for maintenance are also permitted in the POFZ.

The runway hold short markings on the connector taxiways are currently positioned 250 feet from the runway centerline, meeting FAA criteria for approach visibility minimums of less than ¾ mile. FAA criteria for placement of runway hold short markings for runways with visibility minimums not lower than ¾ mile (the current condition at Airlake Airport) is 200 feet from the runway centerline.

Runway Protection Zones

The Runway Protection Zone (RPZ) is an area at ground level prior to the threshold or beyond the departure runway end to enhance the safety and protection of people and property on the ground. According to the FAA, this is best achieved through airport owner control over RPZs. Control is preferably exercised through the acquisition of sufficient property interest in the RPZ and includes clearing of RPZ areas and maintaining them clear of incompatible objects and activities. The FAA expects airport sponsors to take all possible measures to protect against and remove or mitigate incompatible land uses in the RPZ.

The RPZ is trapezoidal in shape and centered about the extended runway centerline. It is comprised of two components. The Central Portion of the RPZ extends from the beginning to the end of the RPZ at a width equal to the width of the ROFA. The Controlled Activity Area is the remaining area of the RPZ on either side of the Central Portion. The RPZ dimension for a given runway end is defined by the RDC. The RPZ layout is depicted in **Figure 2-3**.

Runway 30 has both approach and departure RPZs in place due to the threshold displacement.

RPZs at Airlake Airport have dimensions as listed in **Table 2-3**:

Table 2-3: Existing RPZ Dimensions

Runway End	Distance from End/Threshold (feet)	Inner Width (feet)	Outer Width (feet)	Length (feet)
Runway 12 RPZ	200	500	700	1,000
Runway 30 RPZ				
Approach RPZ	200	1,000	1,510	1,700
Departure RPZ	200	500	700	1,000

Source: FAA Advisory Circular 150/5300-13A, Change 1; FAA Airport Master Record

In 2012, the FAA issued Interim Guidance to clarify its policy on what constitutes a compatible land use within an RPZ and how to evaluate proposed land uses that would reside in an RPZ[8]. Coordination with the FAA in the form of an Alternatives Analysis is required when any of the following land uses would enter the limits of the RPZ due to a triggering airfield project, an off-airport development proposal, or other operational change at the airport:

- Buildings and Structures;
- Recreational Land Uses;
- Transportation Facilities, including rail facilities, public roadways, and vehicular parking facilities;
- Fuel storage facilities;
- Hazardous materials storage;

[8] Additional information available at: https://www.faa.gov/airports/planning_capacity/media/interimLandUseRPZGuidance.pdf

- Wastewater treatment facilities; and
- Above-ground utility infrastructure, including solar panel installations.

The existing RPZ's at Airlake Airport include several land uses that are not automatically considered compatible under the FAA's current guidance. However, since these land uses predate the FAA's current guidance, they are acceptable to remain as an existing condition.

- Runway 12 End
  - o Two low-volume public roadways (Highview Avenue and 220th Street), Progressive Rail railroad track, and a private drive providing access to an agricultural field;
  - o Highview Avenue is a local north/south road in Eureka Township located to the east of Runway 12 that accommodates an estimated 2,000 vehicles per day;
  - o 220th Street is an east/west city street located north of the airport that accommodates approximately 1,500 vehicles per day; and
  - o Progressive Rail operates almost 80 miles of track in the south Twin Cities Metro Area. In the Lakeville area where Airlake Airport is located, it moves a wide variety of commodities – everything from heavy equipment to building products. Its lines are a mix of former Union Pacific and Canadian Pacific lines and it continues to interchange with both. According to the MnDOT Rail Office, two trains operate per weekday and operations are occasional on weekends.
- Runway 30 End
  - o County Road 23 / Cedar Avenue is located on the east side of airport property. It is an important north/south arterial road that serves the southeast quadrant of the Twin Cities Metropolitan Area by providing mobility and connectivity across and through the region. This corridor crosses the Minnesota River and provides accessibility to the MSP Airport.

    According to the 2030 Transportation Plan for Dakota County, traffic on the two-lane section of Cedar Avenue (County State Aid Highway 23) in the vicinity of the Runway 30 RPZ accommodates approximately 6,800 vehicles per day, and is projected to reach about 12,000 vehicles per day by 2030. There is no current plan to widen or expand the capacity of this section of Cedar Avenue adjacent to Airlake Airport within the planning period.
  - o 225th Street is an east/west corridor that borders airport property on the south. It is a gravel-surfaced township road that provides local land access and connectivity to other roadways, such as Cedar Avenue, that serve a mobility function. This road is currently the controlling obstacle for the Runway 30 displaced threshold.

Runway Separation Standards

For Runway 12-30, the separation distance to north parallel Taxiway A is currently 300 feet, while the separation to partial parallel Taxiway B (South Building Area) is 540 feet, meeting FAA design criteria for approach minimums lower than ¾ mile.

Runway Shoulders

Runway shoulders are intended to provide a transition surface between the runway pavement and the adjacent surface, to support aircraft running off the pavement, provide blast protection, and enhance erosion control and drainage. For RDC A/B-II-4,000, the required runway shoulder width is 10 feet. Airlake Airport provides 10-foot wide stabilized turf shoulders.

Taxiway Standards

The FAA design standard for TDG-2 width is 35 feet. Taxiways at Airlake Airport are currently 40 feet wide. These taxiways exceed FAA width criteria for the specified RDC[9].

The Taxiway Safety Area (TSA) width for ADG II aircraft is 79 feet, which is met for all taxiways.

The Taxiway Object Free Area (TOFA) width for ADG II aircraft is 131 feet (65.5 feet each side of centerline), which is met for all taxiways.

The FAA-recommended Taxilane OFA width is 115 feet for ADG II. However, the majority of the hangar areas at Airlake Airport were designed for smaller ADG I aircraft, and therefore, the paved alleyways between hangar buildings offer less clearance (79 feet).

Paved or stabilized shoulders are recommended along taxiways. ADG II aircraft require 15-foot shoulders. Existing taxiways at Airlake Airport provide 15-foot stabilized turf shoulders.

Table 2-4 summarizes selected FAA taxiway design standards for Taxiway Design Group 2/Airplane Design Group II facilities.

[9] The current MAC standard for minimum taxiway width at the Reliever Airports is 40 feet.

Table 2-4: FAA Taxiway Design Standards

Taxiway Design Standard	TDG-2 / ADG-II
Taxiway Width (feet)	35
Taxiway Edge Safety Margin (feet)	7.5
Taxiway Shoulder Width (Turf) (feet)	15
Taxiway Protection	
Taxiway/Taxilane Safety Area Width (feet)	79
Taxiway Object Free Area Width (feet)	131
Centerline to Object (feet)	65.5
Wingtip Clearance (feet)	26
Taxilane Object Free Area Width (feet)	115
Centerline to Object (feet)	57.5
Wingtip Clearance (feet)	18
Taxiway To Taxiway/Taxilane Centerline Separation (feet)	105
Taxilane to Taxilane Centerline Separation (feet)	97

Notes:

Taxilanes provide access from taxiways to aircraft parking areas.

Taxilanes are designed for low speed and precise taxiing, making reduced clearances acceptable.

Source: FAA Advisory Circular 150/5300-13A, Change 1

Airfield Geometry

Improving runway safety continues to be one of the FAA's highest priorities, and the agency is working with airport sponsors to further reduce runway risks through risk-based decision making. Risk factors that contribute to runway incursions[10] may include unclear taxiway markings, airport signage, and more complex issues such as the runway or taxiway layout.

Although the airfield geometry at Airlake Airport is relatively straight forward due to the one-runway configuration, there is an aligned taxiway at the Runway 12 end that does not comply with the latest guidelines. There is also a connector taxiway that leads directly from the FBO aircraft parking apron to the runway, which can lead to a loss of situational

[10] Runway incursions occur when an aircraft, vehicle, or person enters the protected area of an airport designated for aircraft landings and take offs.

awareness. Options to improve these geometry items will be considered when preparing airfield development concepts.

2.3.2 Lighting and Visual Approach Aids

Runway lighting and visual approach aids are intended to guide pilots from point to point, increase the visibility of runway features, and control runway activity both on the ground and in the air.

The runway has High Intensity Runway Edge Lights (HIRLs). These lights increase the visibility of runway edges during nighttime or restricted-visibility conditions when instrument approach procedures are in use. The runway edge lights are white, except where yellow replaces white on the last 2,000 feet or half the runway length, whichever is less, to form a caution zone for landings. The lights marking the ends of the runway emit red light toward the runway to indicate the end of the pavement to a departing aircraft and emit green outward from the pavement end to indicate the threshold to landing aircraft. The runway lights are radio controlled, and can be clicked to low, medium or high intensity by the pilots.

Runway 30 is equipped with a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR), which extends 2,400 feet prior to the landing threshold. This system consists of a combination of flashing and steady burning lights and gives visual indicators during landing at the facility to transition from instrument flight to visual conditions.

Runway 12 has Runway End Identifier Lights (REILs). These synchronized flashing lights help pilots visually acquire the runway end as they approach for landing.

There is currently no taxiway lighting at Airlake, with the exception of the taxiway connector exits from Runway 12-30, which are lit. The remaining sections of taxiway have blue guidance reflectors.

Runway 30 is equipped with a Precision Approach Path Indicator (PAPI), while Runway 12 is equipped with an older-technology VASI (Visual Approach Slope Indicator). These systems use a combination of red and white lights visible at certain angles that help pilots determine an appropriate descent glide slope that will result in the aircraft crossing the landing threshold at a height of approximately 20 to 45 feet. These visual glide slope indicators are owned and maintained by FAA. **Table 2-5** provides information about the units at Airlake.

Finally, the airport has a lighted airfield beacon and a lighted wind cone.

Table 2-5: Visual Glideslope Indicators

Runway	Visual Glide Slope Indicator Type	Visual Glide Slope Angle (degrees)	Threshold Crossing Height (feet)
Runway 12	VASI	3.25	37
Runway 30	PAPI	3.00	36

Source: FAA records

2.3.3 Airspace

The national airspace structure is complex and requires the use of highly technical air traffic control (ATC) procedures. Airspace is either controlled or uncontrolled. Controlled airspace is managed by ground-to-air communications, NAVAIDS and air traffic services. **Figure 2-4** provides a graphical overview of the National Airspace System.

Airlake Airport is located in what is considered Class E controlled airspace. Class E airspace is a general category of controlled airspace that is intended to provide air traffic service and separation for Instrument Flight Rules (IFR) aircraft from other aircraft. IFR means that the pilot is certified to fly under Instrument Meteorological Conditions (IMC) (under three miles visibility and 1,000 foot ceilings). Pilots rated only for Visual Flight Rules (VFR) can operate in Class E airspace only when visibility is three statute miles and above and cloud heights are 1,000 feet above ground level (AGL) and higher. These pilots are not required to maintain contact with ATC. Class E is a common classification for airports without air traffic control towers (ATCTs). Class E airspace extends to 18,000 feet mean sea level (MSL) and generally fills in the gaps between other classes of airspace in the United States.

Airlake Airport lies under Minneapolis-St. Paul International Airport's (MSP) Class B Airspace which consists of controlled airspace extending upward from different floor elevations to a ceiling height of 10,000 feet MSL. There are very specific operating instructions and rules pilots must follow when flying within this airspace. Airlake Airport lies under the area where the floor elevation is 4,000 feet MSL. As long as pilots stay below 4,000 feet they remain outside this MSP airspace.

Enroute navigational aids utilize ground-based transmission facilities to provide navigational fix information to properly-equipped aircraft. There are two Very High Frequency Omni-Directional Range (VOR) stations in the area; one located near the Airlake Airport called Farmington and the other at the Flying Cloud Airport in Eden Prairie. A VOR transmits radio signals 360 degrees in azimuth on a designated frequency. This information provides a tool for pilots to navigate point-to-point within the National Airspace System (NAS). This is particularly useful for low altitude and high altitude airway vectoring through the airspace surrounding the airport, as well as transition navigation into or out of the enroute airspace structure at Airlake Airport. In addition to providing enroute navigational assistance to aircraft, VORs also allow for non-precision approaches thereby enhancing the capability of the airport.

Figure 2-5 shows the airports, airspace and navigational aids in the vicinity of Airlake Airport.

Airlake Airport does not have its own Air Traffic Control Tower (ATCT). Instead, air traffic control services are provided by Minneapolis Approach/Departure Control at Minneapolis-St. Paul International Airport, Minneapolis Route Traffic Control Center (ARTCC) at Farmington and the Flight Service Station (FSS) at Princeton, Minnesota.

Aircraft operating at Airlake are advised to broadcast their intentions and monitor Common Traffic Advisory Frequency (CTAF) frequency, which is also the UNICOM frequency (123.0). Pilots can also use this frequency to control the intensity of the airfield lighting. Pilots making instrument approaches to Runway 30 are in contact with Minneapolis Approach Control.

The local traffic pattern altitude at Airlake Airport is 1,760 feet Mean Sea Level (MSL), which is 800 feet above the airport elevation. The Runway 30 traffic pattern operates in a standard left hand flow, while the Runway 12 traffic pattern operates in a non-standard right hand flow to avoid flying over the City of Lakeville.

When the winds are calm (less than 5 knots), the preferred runway is Runway 30. Intersection takeoffs at Airlake Airport are discouraged at all times, as are training flights in the traffic pattern between the hours of 2400 and 0700 local time.

A voluntary Noise Abatement Plan is in place to promote aircraft operating procedures that help reduce aircraft noise and overflights for residents living near Airlake Airport. Pilots may also reference the pilot guide for easy access to noise abatement information. The pilot guide is available at:

http://www.macnoise.com/pdf/LVNpilot-guide-2015.pdf

2.3.4 Approach Instrumentation

Runway 30 is equipped with an Instrument Landing System (ILS). There are two main ground-based components to an ILS – a localizer (LOC) providing horizontal approach information and a glide slope indicator (GS) providing vertical slope information. Using the ILS, a pilot can determine position relative to the runway centerline and angle of approach. Other components help a pilot determine when to begin the descent (outer marker beacon) and to visually acquire the runway (approach lighting system). The ILS visibility minimums at Airlake are 3/4 mile[11]. Runway 30 is also equipped with a GPS-based Localizer Performance with Vertical Guidance (LPV) instrument approach with 3/4 mile visibility minimums.

The ILS qualifies as a precision instrument approach because it provides both course and glidepath deviation information meeting international standards. Airlake is unique in that it is the only Intermediate-category airport in Minnesota with an ILS precision instrument

[11] At the time of the previous LTCP, the ILS approach minimums were 1 mile.

approach. As originally intended, the ILS continues to be used heavily by flight training operations[12]. Although an LPV approach provides similar course and glideslope deviation information when compared to an ILS, it is not categorized as a precision approach because it does not meet international precision approach standards.

The MALSR approach light system allows visibility minimums to be decreased for the published approaches to Runway 30.

Runway 12 is equipped with two non-precision instrument approaches that provide 1-mile visibility minimums. The first is a GPS-based LPV approach, and the second is a VOR approach[13].

Table 2-6 summarizes the approach minimums for these approaches. The instrument approach charts for these procedures are reproduced in **Figure 2-6**.

Airlake Airport has standard IFR takeoff minimums (one statute mile for aircraft having two or less engines). No specific Obstacle Departure Procedures are published.

2.3.5 14 CFR Part 77 Airspace Surfaces

Regulations for the protection of airspace around a public-use civilian or military airport are specified in 14 CFR Part 77 *Safe, Efficient Use, and Preservation of the Navigable Airspace* (Part 77). These defined surfaces are used by the FAA to identify obstructions to airspace around an airport facility. Part 77 surfaces are comprised of primary, approach, transitional, horizontal and conical three-dimensional imaginary surfaces.

Figure 2-7 illustrates these surfaces in a general nature; their exact configuration varies based upon the category and type of approach to the runway. Obstructions are defined as objects that penetrate these surfaces. Mitigation measures such as obstruction marking/lighting, removal or relocation may be required for obstructions that are studied and not determined to be a hazard to air navigation.

The requirements for filing an aeronautical study with the Federal Aviation Administration (FAA) for proposed structures in the vicinity of Airlake Airport vary based on a number of factors: site elevation, structure height, proximity to an airport, and frequencies emitted from the structure, etc. The FAA provides a “Notice Criteria Tool” on its Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) website that can be used to determine if an aeronautical study is warranted. The OE/AAA website can be accessed via the following link: https://oeaaa.faa.gov/oeaaa/external/portal.jsp

---

[12] The check ride for an ATP rating, instrument rating, or instrument proficiency check must include a precision approach. Even though two other airports in the south metro also have ILS approaches (STP and FCM), pilots training and on check rides at those airports are often times not able to fully fly the ILS and are usually instructed to “break off” before completing the approach or missed approach. These two airports have more complicated airspace because of multiple runways and proximity to MSP. These training flights primarily occur during VFR weather conditions, so VFR traffic also becomes a factor. Also, the ILS allows LVN to be filed as an alternate airport with lower ceilings than an LPV-only approach would offer.

[13] Because train cars on the railroad track along the west side of the Airport penetrate the Runway 12 airspace obstacle clearance surfaces, the FAA has determined that the Runway 12 LPV and LNAV/VNAV instrument approach procedures are not authorized for use until further notice; further, no straight-in instrument or circling approaches are authorized during nighttime hours. MAC is seeking to remedy these restrictions by installing a new PAPI visual glideslope indicator for Runway 12 that will provide a clear obstacle clearance surface over the railroad track.

Table 2-6: Instrument Approach Minimums

Runway Approach	Ceiling (ft. MSL)	Ceiling (ft. AGL)	Visibility (Miles)
RWY 30 ILS			
Straight-In	1,208	250	3/4
Circling	1,500	540	1.0
RWY 30 RNAV GPS			
LPV Straight-In	1,158	200	3/4
Circling	1,500	540	1.0
RWY 12 RNAV GPS			
LPV Straight-In	1,210	250	1.0
Circling	1,500	540	1.0
RWY 12 VOR			
Straight-In	1,660	700	1.0
Circling	1,660	700	1.0

Notes: Minimums listed for Approach Category B aircraft
MSL - above Mean Sea Level; AGL - Above Ground Level

Source: FAA Instrument Approach Procedure Charts

The Airport Layout Plan (ALP) for Airlake Airport, which will be developed and published separately from this report, depicts the location and future disposition of known obstructions to Part 77 surfaces.

Based on Part 77 criteria, all runways are categorized as either Utility or Other-Than-Utility (OTU). A Utility Runway is a runway that is constructed for, and intended to be used by, propeller-driven aircraft of 12,500 pounds maximum gross weight and less. An OTU Runway is a runway that is intended to be used by propeller-driven aircraft with a maximum gross weight greater than 12,500 pounds and/or jet aircraft of any gross weight. Runway 12-30 at Airlake Airport is currently designated as OTU.

The primary surface is longitudinally centered on a runway and extends 200 feet beyond each runway end. Since Runway 12-30 has a precision approach and is designated as OTU, the primary surface is 1,000 feet wide (500 feet on either side of the runway centerline).

There are currently 23 buildings on the north side of Runway 12-30 that are partially or fully within the primary surface, with penetrations ranging from 4 to 29 feet. The original configuration for the airport, prior to MAC ownership and ILS installation, was based on a 500-foot wide primary surface (250 feet either side of the runway centerline). Thus, a number of structures, both on the airport and immediately adjacent to it, were encompassed in the primary surface when it was widened from 500 to 1,000 feet for installation of the ILS. Several of the buildings closest to the runway were removed; however, based on airport design standards in place at the time of MAC acquisition, it was determined that structures were allowable in the primary surface so long as they were clear of a designated building restriction line[14] and determined by the FAA not to be a hazard to air navigation or interfere with ILS electronic signals. Based on this criteria, one of the existing FBO hangars within the primary surface was not relocated.

The north hangar area was developed with the first row of hangars located 400 feet from the runway centerline, within the primary surface. Subsequent FAA reviews confirmed that hangar development within the primary surface was safe provided that buildings were constructed not less than 400 feet from the runway centerline and did not penetrate an instrument approach surface.

Several of the "no objection" airspace determinations for hangars within the primary surface contained a condition for the installation of obstruction lighting on the hangars as a mitigation measure. However, the obstruction lights were not installed. MAC has included a project in its 2017 Capital Improvement Program (CIP) to remedy this by installing solar-powered obstruction lighting on the row of hangar buildings closest to the runway.

Table 2-7 provides dimensional information for selected 14 CFR Part 77 surfaces.

Table 2-7: Existing 14 CFR Part 77 Surface Dimensions

Part 77 Surface	RWY 12	RWY 30
Primary Surface		
Width (feet)	1,000	
Length Beyond End (feet)	200	
Approach Surface		
Inner Width (feet)	1,000	1,000
Outer Width (feet)	3,500	16,000
Length (feet)	10,000	50,000
Slope	34:1	50:1 / 40:1
Part 77 Category	OTU-NP	OTU-P

Notes: OTU - Other Than Utility; NP - Non-Precision Approach; P - Precision Approach
Precision Approach slope is 50:1 for 10,000 feet, then 40:1 for 40,000 feet

Source: 14 CFR Part 77

14 Based on then-current Advisory Circular 150/5300-4B, the building restriction line was to be located such that it would preclude any part of a building, tree or parked aircraft from penetrating surfaces originating 300 feet from the runway centerline and sloping laterally outward at a 4:1 slope. Thus, the building restriction line was set at 380 feet from the runway centerline.

2.4 EXISTING LANDSIDE FACILITIES

Landside facilities include aircraft storage hangar areas, aprons, Fixed Base Operator (FBO) areas, terminal buildings, airport maintenance equipment storage areas, roadway access to the airport, and vehicle parking areas.

2.4.1 Fixed Base Operator (FBO)

Throughout its history, there has been a single full-service FBO in operation at Airlake Airport. Originally operated by Hitchcock Industries as a part of the Airlake Industrial Park, the FBO was later operated by Flytline Services before being acquired by Aircraft Resource Center (ARC) in 2003. In 2016, ARC changed its name to Waypoint Flight Services (Waypoint). The FBO is located on the north side centered along the runway, to the west of the north building area (**Figure 2-8**). Traditional FBO services offered by Waypoint include fueling, aircraft maintenance, aircraft storage and line services, aircraft rental, charters, and pilot accessory sales. Waypoint's business model is evolving, however, to also include an increasing number of aircraft sales and corporate aircraft management accounts.

In addition to the general aviation terminal/office building (chalet), the FBO complex includes two aircraft storage hangars. Additional tenants co-located with the FBO include AirTrek North (flight school operator), North Memorial (helicopter medical flight services), and Wentworth Aircraft Recovery and Storage (aircraft recovery services).

Aircraft fueling is provided by Waypoint. Waypoint owns and maintains two 12,000 gallon underground tanks, one for 100LL avgas and one for Jet A fuel. An additional 5,000-gallon tank is also available but not currently in use. The fuel tanks and dispensing equipment are located just to the west of the FBO building, near the center of the apron. Waypoint provides both into-plane fueling via trucks and self-service fueling options.

Waypoint offers aircraft parking and storage as one of its services with both indoor storage and outdoor apron/tie-down parking available. Outdoor apron storage typically accommodates short-term parking for transient aircraft or for parking of planes awaiting maintenance or other services. It can also be used for long-term storage of aircraft.

The existing apron at Airlake can be divided into two functional areas – the east and west aprons, with the dividing point being the fueling island. The west apron provides approximately 4,500 square yards of apron area[15] and is primarily used to maneuver aircraft to and from the large FBO hangar, and for North Memorial medical helicopter operations. Due to the fluid nature of these activities, transient aircraft generally are not parked on the west apron. Further expansion of the west apron to the west is constrained by the adjacent trout stream and its associated buffer area.

The east apron provides approximately 4,900 square yards of apron area and is primarily used for transient aircraft circulation and short-term parking. Circulation is provided by means of an internal apron taxilane marked with a continuous yellow centerline that connects to Taxiway A on both ends. The east apron is relatively small and is often congested due to its configuration. Constraints include:

[15] Excludes pavement areas associated with the fueling island and in front of the North Memorial operations area

- A hangar not under FBO lease at the east side of the apron;
- Location of the fueling island, which can result in fueling aircraft impeding efficient circulation to and from the internal apron circulation taxilane; and
- The south edge of the apron was established using the legacy Building Restriction Line (BRL), which was set at 380 feet from the runway centerline. This limits the depth of the apron in front of the FBO. The area between the apron edge and Taxiway A also contains storm water drainage swales, further limiting expansion potential.

The capacity of the east apron is limited to approximately 10 single or small twin-engine aircraft simultaneously, and even fewer if a larger twin-engine piston, turboprop, or jet is parked or fueling.

For outdoor parking, a turf area northeast of the FBO is reserved for longer-term tie-down storage. This area can accommodate approximately 20 small single or twin-engine aircraft simultaneously, although not all parking positions are equipped with tie-downs. Tie-downs are small metal rings set into the grass with ropes that tie to the underside of wings and the aircraft tail. Most planes being stored outdoors want tie-downs to protect the aircraft from wind damage. In Minnesota, pilots prefer indoor storage for both long and short-term periods because of the summer storms with wind and hail, and in the winter because of cold and snow. A paved taxilane was added through the middle of the turf tie-down area in 2008, further improving access to the tie-downs and opening up additional space for hangar development.

2.4.2 Hangar Storage Areas

Airlake Airport currently has one primary hangar storage area (North Building Area) on the northeast side of the airport (**Figure 2-8**).

The west half of the North Building Area contains six hangar rows and was originally constructed in 1983-1984. The east half of the north building area contains another six hangar rows, which were constructed between 1994 and 2000. A fuel pipeline runs under the North Building Area, precluding the construction of hangars within a buffer area above the pipeline. This area contains five T-hangars with 15 single aircraft storage units, and 86 conventional storage hangars of various sizes. In total, the North Building Area contains 91 buildings that provide storage spaces for approximately 114 aircraft.

There are six additional hangars in the vicinity of the FBO facility. Two of these hangars are on Waypoint's leasehold and are used for traditional aircraft storage. Three hangars are on Wentworth's leasehold and are used to support their aircraft recovery and storage business. The remaining hangar in this area is conventional in nature and was constructed in 2013. In total, the FBO area contains six buildings that provide storage spaces for approximately 22 aircraft.

MAC allows tenants to sublease space within a hangar if they choose. However, not all tenants sub-lease extra hangar space, nor is it required for them to do so. For this reason, the number of aircraft storage spaces is presented as a range. The low occupancy scenario assumes minimal sub-leasing of available space in conventional hangars, while the maximum occupancy scenario assumes that all available space in conventional hangars is sub-leased. The practical capacity scenario is an average of the low and high scenarios to represent the variance in tenant hangar occupancy practices.

Table 2-8 summarizes the aircraft hangar storage capacity at Airlake Airport.

Table 2-8: Indoor Aircraft Storage Summary

Hangar Types	Buildings	Spaces - Low Occupancy	Spaces - Maximum Occupancy	Spaces - Practical Capacity
North Building Area				
T-Hangars	5	15	15	15
Conventional Hangars	86	86	112	99
Subtotal	*91*	*101*	*127*	*114*
FBO Area				
FBO Conventional Hangars	2	14	17	16
Tenant Conventional Hangars	4	5	7	6
Subtotal	*6*	*19*	*24*	*22*
Total T-Hangars	**5**	**15**	**15**	**15**
Total Conventional Hangars	**92**	**105**	**136**	**121**
Total Hangars	**97**	**120**	**151**	**136**

Notes:

Two tenant conventional hangars are used to support aeronautical business functions other than aircraft storage

Source: MAC Data and Field Observations

Site preparation in the South Building Area was completed in 1998, and connector taxiways were added in 2003. Items remaining to be completed in this area include access taxilanes/alleyways, paved landside access, and water/sewer utilities. When built-out, this area will provide space for 70 to 80 additional aircraft hangars.

2.4.3 Maintenance and Equipment Areas

MAC operates one maintenance and equipment storage building at Airlake. It is located on the north side of the runway, west of the FBO, and contains six bays for equipment and an office area. Included within the office is a restroom and shower facility for the maintenance crew. The restroom and shower facilities were upgraded in 2014.

There is a fuel farm in this location which contains diesel and unleaded fuel for MAC equipment. There is also a contained recycling area for tenants to dispose of used aircraft oil.

2.4.4 Roadway Access and Vehicle Parking Areas

As shown in **Figure 1-2**, Airlake Airport lies in Dakota County, with most of the facility adjacent to the City of Lakeville in Eureka Township. Roadway access from 215th Street/County Road 70 and Hamburg Avenue in Lakeville leads to the FBO and existing building area. Primary roadway access to the airport is from County Road 23, otherwise known as Cedar Avenue, from the east, and from the west via Interstate 35. These main roads link the airport to the metropolitan area and the entire region. The south side of the airport can be accessed from a township road, 225th Street W.

The FBO parking lots are accessible to the public and can accommodate approximately 60 vehicles. There is space available adjacent to the maintenance building for three vehicles, but given the location of the building, it is only useful for visitors to the MAC building.

All privately owned hangars are accessed via paved alleyways, with tenants parking inside or adjacent to their individual hangars.

2.5 AIRPORT ENVIRONMENT

This section highlights the airport environment, including available utilities, drainage, and local services provided.

2.5.1 Drainage

Airlake Airport is located on former farmland. Soils are generally described as well-drained to excessively-drained silty and loamy sediments. The airport lies within the Vermillion River Watershed, which is managed by the Vermillion River Watershed Joint Powers Organization (VRWJPO).

While the Vermillion River is located approximately one-half mile south of Runway 30, one of its tributaries runs directly through airport property. This channel is named the South Tributary of South Creek, and it has only intermittent flows. South Tributary of South Creek is formally designated as a trout stream by DNR (waters of the state). The trout stream designation does not extend beyond the airport boundary to the west.

There are two types of buffers that affect designated trout streams:

- VRWJPO Watershed Buffer Standards:
  - Aquatic Corridor – Principal Connector with Trout Stream Designation requires a 100 foot vegetated buffer on either side of stream;
  - Buffer provisions do not apply to any lot of record as of March 22, 2007 until such lot is subdivided; and
  - This buffer is not currently in effect at Airlake Airport as the property has not been subdivided since March 22, 2007
- 2015 Minnesota Buffer Law:
  - Applies to public waters, which the stream is by virtue of the trout stream/waters of the state designation;
  - Requires the more restrictive of the following:
    - 50-foot average width, 30-foot minimum width, continuous buffer of perennially rooted vegetation; or
    - State Shoreland standards and criteria:

- State Shoreland standards are implemented through the Dakota County Shoreland and Floodplain Management Ordinance; and
- Requires 50-foot vegetative buffer on either side of the stream (buffer averaging not allowed).

The State Shoreland standards, as implemented through the Dakota County Shoreland and Floodplain Management Ordinance, are the more restrictive criteria and thus define the current 50-foot buffer in place around the tributary stream at Airlake.

In 1998, when the grading for the South Building Area was started south of the runway, this intermittent stream was relocated via a permit from the Department of Natural Resources (DNR). The tributary still traverses airport property, but now routes around a new detention basin for storm water runoff from the future building area. The detention pond is intended to allow an area for infiltration of storm water versus direct runoff into the stream.

The airport site drains primarily from south to north. Most of the airfield drainage infiltrates into the ground or is routed into ditches. These ditches outlet into the trout stream tributary on airport property, which doubles as the local ditch system that runs to the north and east, eventually to South Creek and the Vermillion River. Approximately 85 percent of the site flows in this direction. The remaining MAC-owned parcels are either undeveloped raw land or leased out for farming. These areas drain to the south through ditches or drain tile ultimately to the Vermillion River.

In addition to airport drainage, portions of the adjacent industrial park also drain onto the airport. Through an agreement with MAC, the City designed and built an infiltration basin on airport property to collect and infiltrate storm water runoff from the industrial park. Only overflows from a large storm event exit this pond and drain through the South Tributary.

There are a few wetland areas around the airport. Unlike the trout stream that is regulated by the DNR, the wetlands are regulated under the Wetland Conservation Act (WCA). The City of Lakeville and Eureka Township currently serve as the local government unit (LGU) for administering the WCA wetlands within their respective boundaries. A field delineation of on-airfield wetlands was completed in 1998. Approximately 33 acres of wetlands were identified within airport property, with varying wetland types. **Figure 2-9** shows the general ditch drainage, direction of flows, and inventoried wetland areas.

There is a designated flood plain area on the Airport associated with the intermittent trout stream tributary. A small portion of the southern parcel east of Cedar Avenue also lies within the 100-year floodplain of the Vermillion River.

The MAC has a Multi-Sector General stormwater discharge Permit (MSGP) from the Minnesota Pollution Control Agency (MPCA) and maintains a Stormwater Pollution Prevention Plan (SWPPP) and a voluntary Spill Prevention Control and Countermeasure (SPCC) Plan. These documents include Best Management Practices (BMPs) for protecting the stormwater conveyances, wetlands, and groundwater related to MAC industrial activity. Permit details along with water quality results for Airlake Airport (Permit MNR0539XL) can be found on the following website:

http://cf.pca.state.mn.us/water/stormwater/isw/search.cfm

Depending on FBO and tenant activities, they may be required to obtain and maintain their own MSGP from the MPCA, along with other requirements, such as an SPCC plan.

Chemicals used in deicing activities at airports is of concern because of the potential effects on receiving water bodies. There is little to no aircraft deicing at Airlake. Most aircraft can be stored inside heated hangars prior to takeoff or cannot fly when icing conditions exist, which eliminates the need for glycol use. MAC uses minor amounts of urea or other types of pavement deicing materials applied only on runways during icing conditions. The amount is, on average, less than approximately 500 pounds annually. Salt is not used due to its corrosive nature. Sand is used on a limited basis depending on weather conditions. Stormwater runoff from paved surfaces is routed through on-airport ditches that act as infiltration and sediment basins. This provides some treatment in addition to rate and volume control of flow off the airport. Given these efforts and minor use of deicers, the potential impact on water quality from the airport is minimal.

2.5.2 Utilities

Most of Airlake Airport currently lies outside the city limits of Lakeville, with the exception of the area immediately surrounding the FBO facilities. Therefore, the majority of the airport does not have services available for sanitary sewer or water. The MAC maintenance building and the FBO were connected to the city system many years ago, and are billed directly from the City. When these buildings were connected to the system, stubs for both the watermain and the sanitary sewer were extended to the south under the runway. In 1990, a watermain pipe was allowed by the City to be extended into the North Building Area as a fire protection line. There are no private services off of this line. It serves only fire hydrants. In 1994, this fire protection watermain line was extended when the building area was expanded.

The installation of domestic water and sanitary sewer utilities to areas not within the Lakeville city boundary, including the future South Building Area, will not be feasible until the airport is annexed into the City of Lakeville or a Joint Powers or Cooperative Agreement is established for the extension of utilities beyond the Lakeville city boundary. In September 2017, the MAC Board approved staff’s request to petition the City of Lakeville to annex the approximately 120-acre parcel associated with the South Building Area. The petition requesting annexation by ordinance for this property was submitted to the City of Lakeville on October 27, 2017. The annexation ordinance was approved on March 9, 2018.

A sanitary sewer interceptor pipe was installed along the northern boundary of the Airport by Metropolitan Council Environmental Services in 2011. Airport facilities are not currently tied into this system.

Existing tenants that have legal wells and septic holding tanks have been allowed to keep them. The MAC maintenance building also has a well and holding tank. Tenants with illegal sandpoint wells or drain fields were required to remove or abandon them after MAC adopted its Sanitary Sewer and Water Policy in 1998, and subsequent revision in October 2000. Consistent with that policy, no new wells or holding tanks have been allowed at the airport.

Most tenants at the Airport have either electric or natural gas service. The electrical lines are above ground in some locations at the airport, and below ground in others. The tenants are billed directly by the utility companies.

There are several underground natural gas pipelines within airport property. The ownership varies, and the ability to construct hangars is limited by their locations. MAC has paid to relocate some of these pipelines in the past to facilitate hangar development. In other areas, vacant land remains where pipeline easements still exist between hangars. **Figure 2-8** shows the locations of these pipelines in the vicinity of the hangar areas.

The City of Lakeville and Eureka Township both offer emergency services for the Airport, including fire and rescue. Response is based on the location of the emergency. Police and law enforcement are provided by the Dakota County Sheriff's Office.

2.6 OFF-AIRPORT LAND USE

One of the most significant challenges facing airports today is the presence of incompatible land use, either adjacent to the airport or in runway flight paths. Working closely with municipal officials, airport users, developers, and any nearby residents, airports can reduce these types of conflicts through the use of zoning regulations that disallow certain types of nearby development.

In general, land use around Airlake Airport is compatible with aircraft operations. Existing land uses parallel to the Runway 12-30 on the north side are primarily industrial. There is a small section of commercial use and some undeveloped areas within the industrial park. Surrounding the rest of the airport, land use is primarily agricultural with scattered farmsteads and single family rural residential. A new area of industrial park development is under construction to the east of the airport, across Cedar Avenue. There is a cemetery located adjacent to the South Building Area.

The City of Lakeville and Eureka Township have zoning jurisdiction in and around the airport. Both municipalities have adopted Comprehensive Plans that address land uses in the vicinity of Airlake Airport. Links to these Comprehensive Plans are provided in **Section 7.3**.

Existing land uses in the vicinity of Airlake Airport are depicted on **Figure 2-10**.

2.7 ECONOMIC IMPACTS

Development at Airlake Airport will continue to be self-funded by users of the airport and aviation system; no local sales or property taxes are or will be used to fund airport improvements.

MAC expends approximately $300,000 annually to operate and maintain Airlake Airport to a high level of safety and operational efficiency with no direct cost to local taxpayers.

MAC-owned land that is not leased to airport users or tenants is exempt from property taxes under State law. Leaseholds and the structures located within those leases are subject to property taxes which are paid by the tenants.

Dakota County assesses property taxes on hangar owners based on the taxable market value of the hangars. For 2016, the total property tax billed on hangars at Airlake Airport was approximately $230,000.00[16]. Of these tax revenues, the largest recipient is School District 194, which received approximately $117,000.00 from airport tenants. Dakota County received approximately $69,000.00 in revenue as well, and Eureka Township approximately $30,000.00. The remaining tax revenues supported the City of Lakeville, Metropolitan Council, and Mosquito Control.

MnDOT Aeronautics provides an Airport Economic Impact Calculator to estimate the economic value of airports in the State:
(http://www.dot.state.mn.us/aero/econimpactcalc.html).

According to output obtained from this tool, the total economic impact from activity occurring at Airlake Airport is nearly $1,800,000.00 annually and accounts for approximately 50 jobs in the county.

This is based on the following activity inputs:

- $298,000.00 average annual operations and maintenance (O&M) expenses;
- $201,000.00 average annual capital expenses;
- Tenant activities: 9 full-time employees, 31 part-time employees, 9 owned aircraft;
- 416 annual transient overnight aircraft;
- 260 annual charter visitors; and
- One non-profit organization aircraft (Civil Air Patrol).

[16] Not including state general tax and fiscal disparity tax payments

Figure 2-1: Airport Layout

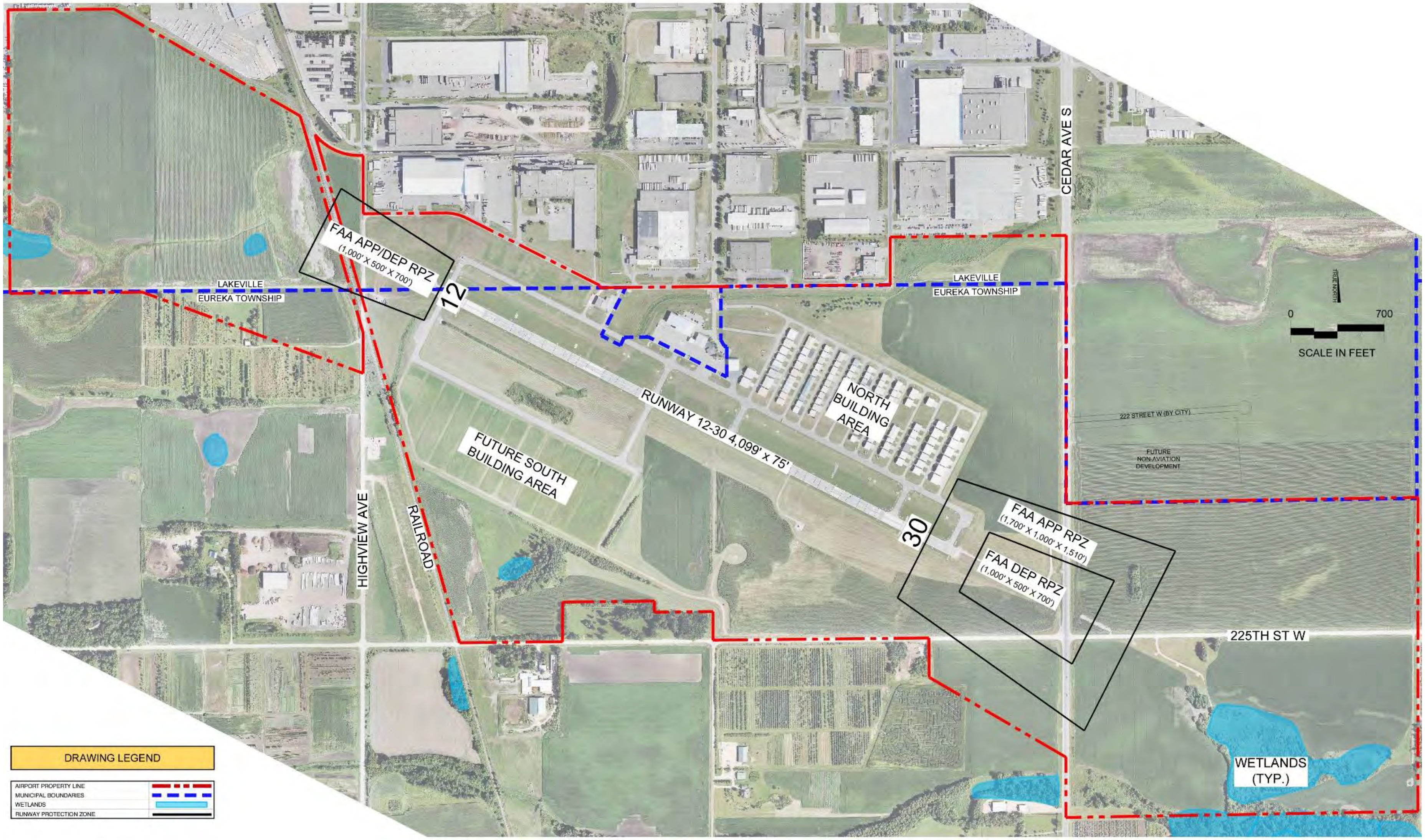


Figure 2-2: Airlake Airport Pavement Condition Index (2016 PCI)

Figure 2-3: Runway Safety Area, Object Free Area, and Protection Zone Key Map

(See Table 2-2 for dimensions)

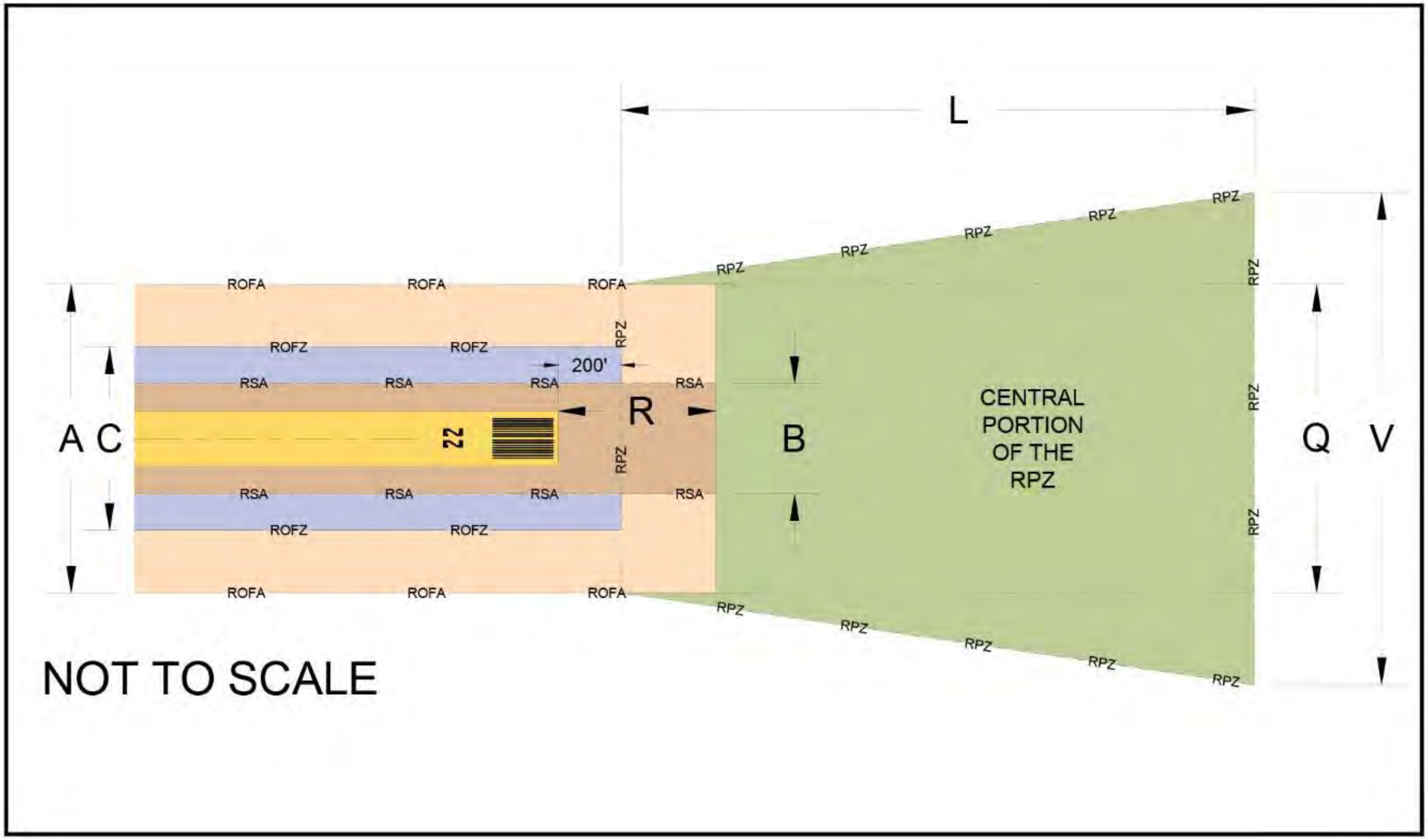


Figure 2-4: National Airspace System Overview

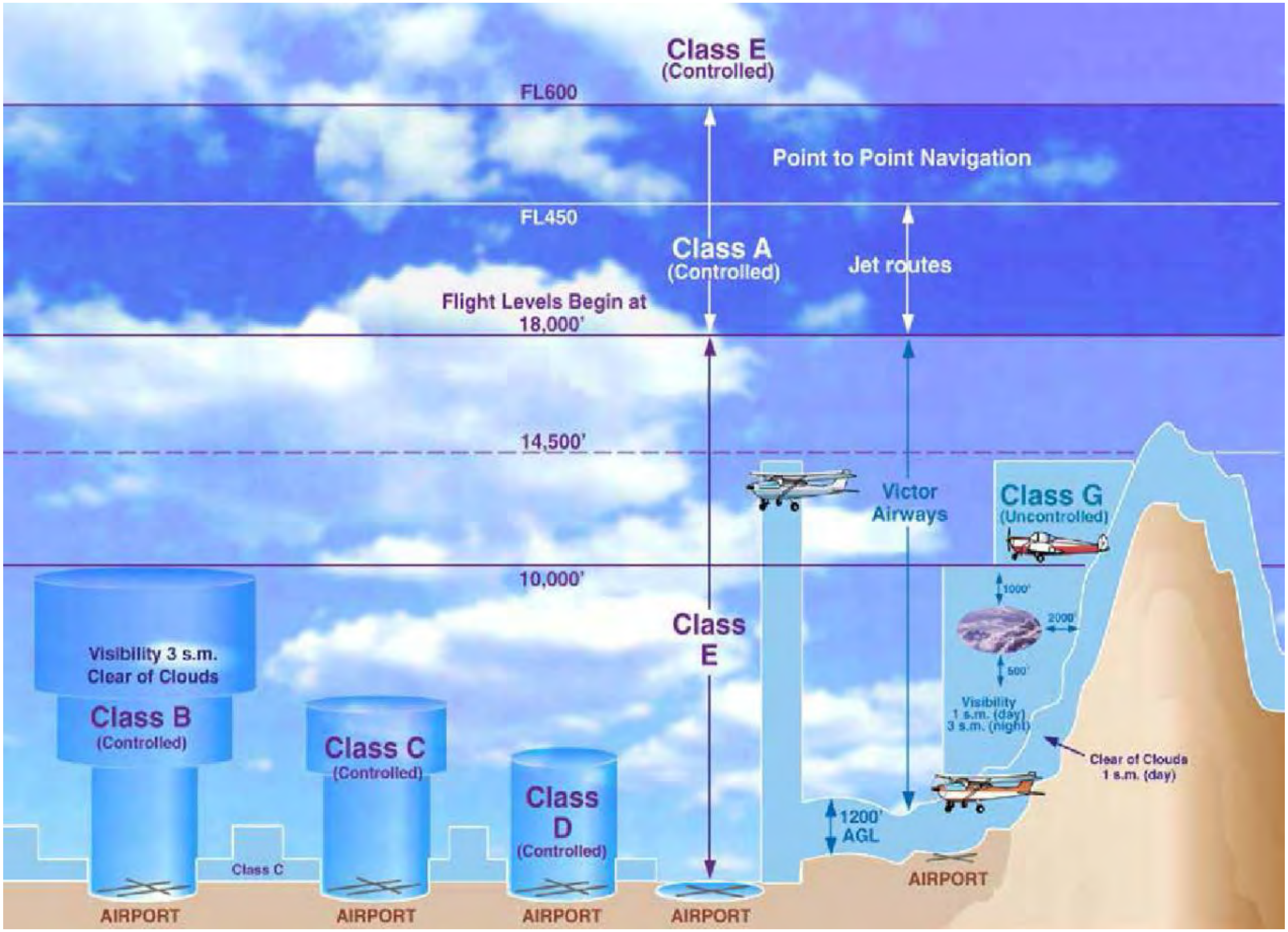


Figure 2-5: Regional Airspace

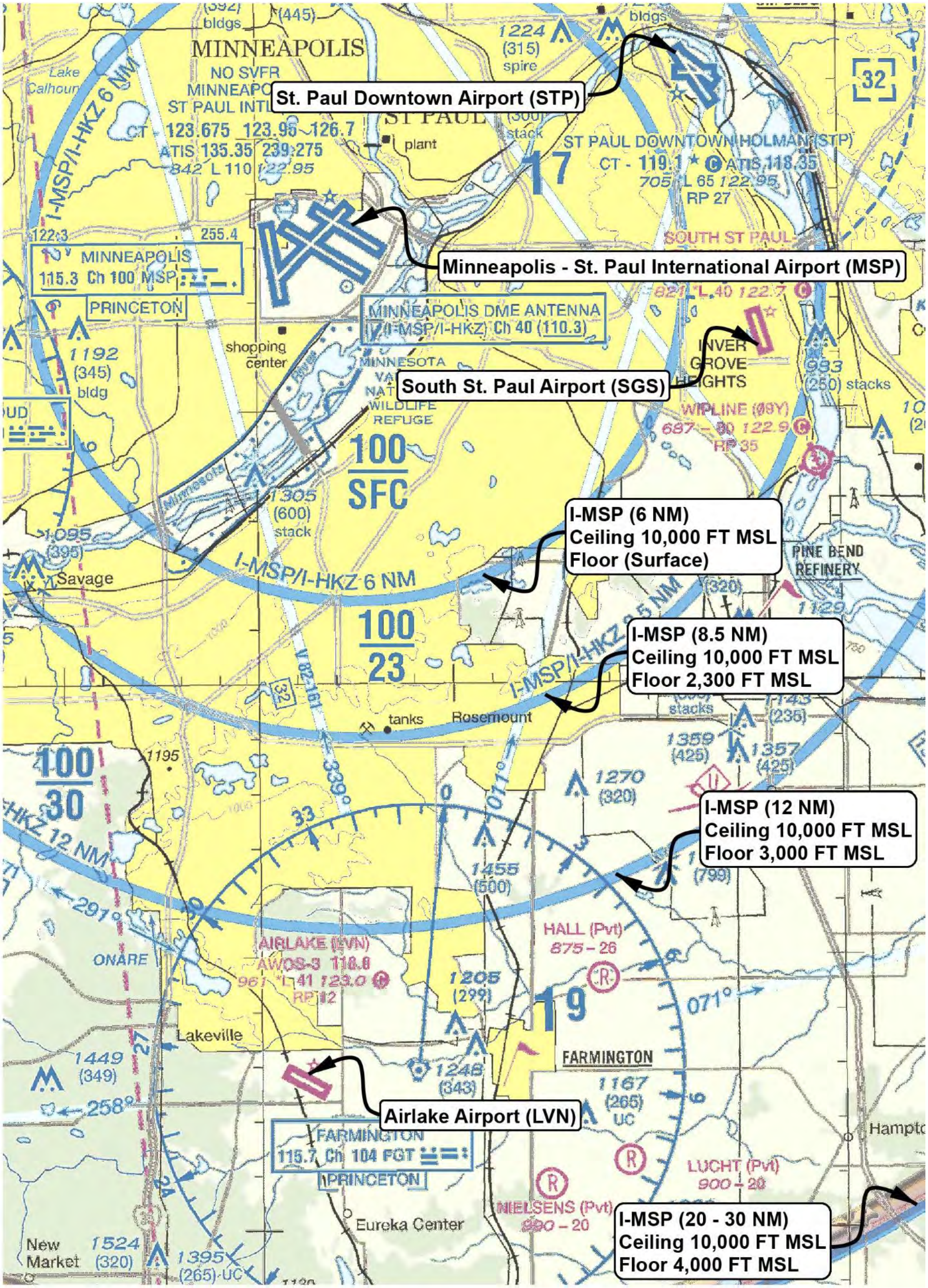
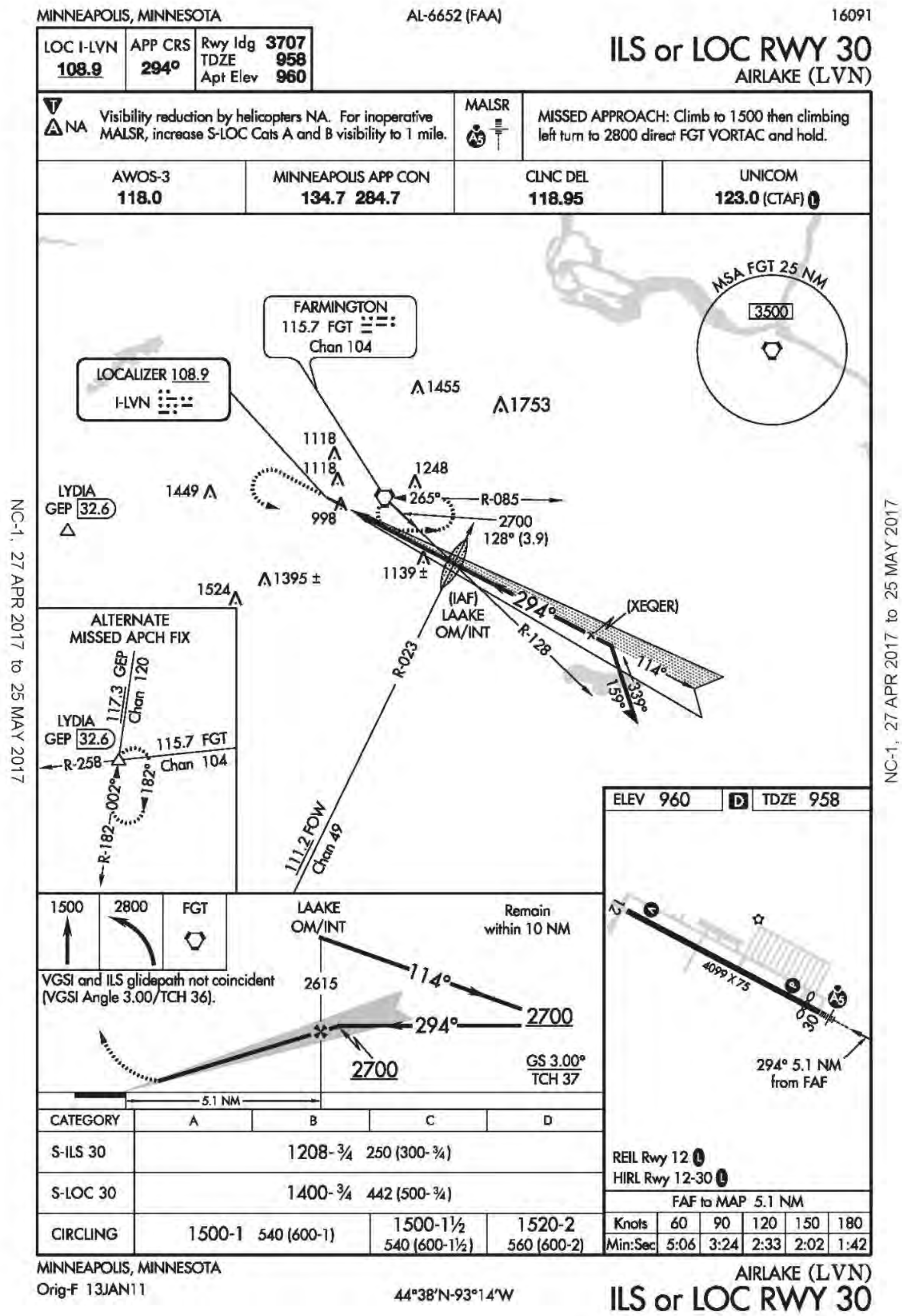
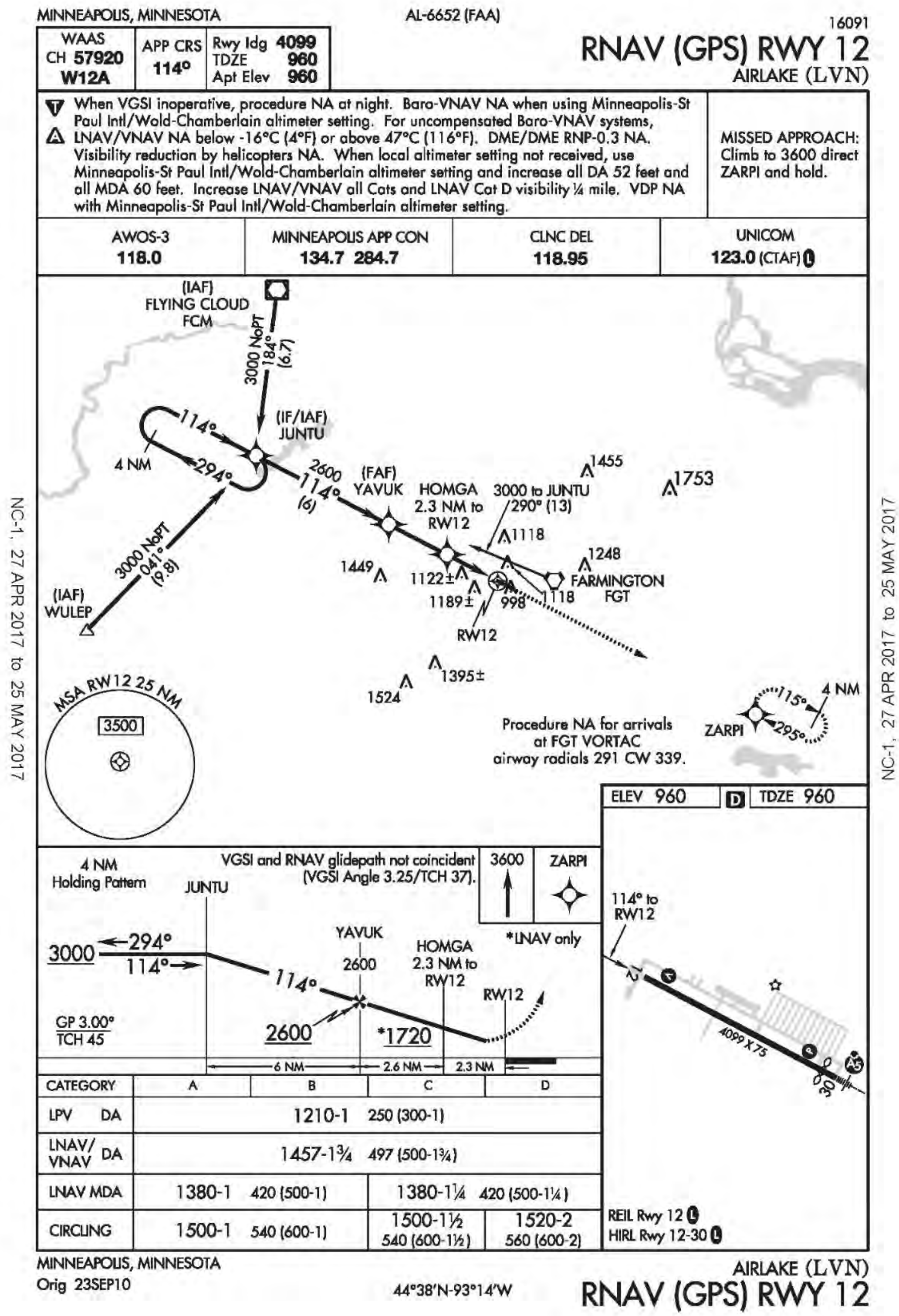


Figure 2-6: Instrument Approach Procedures

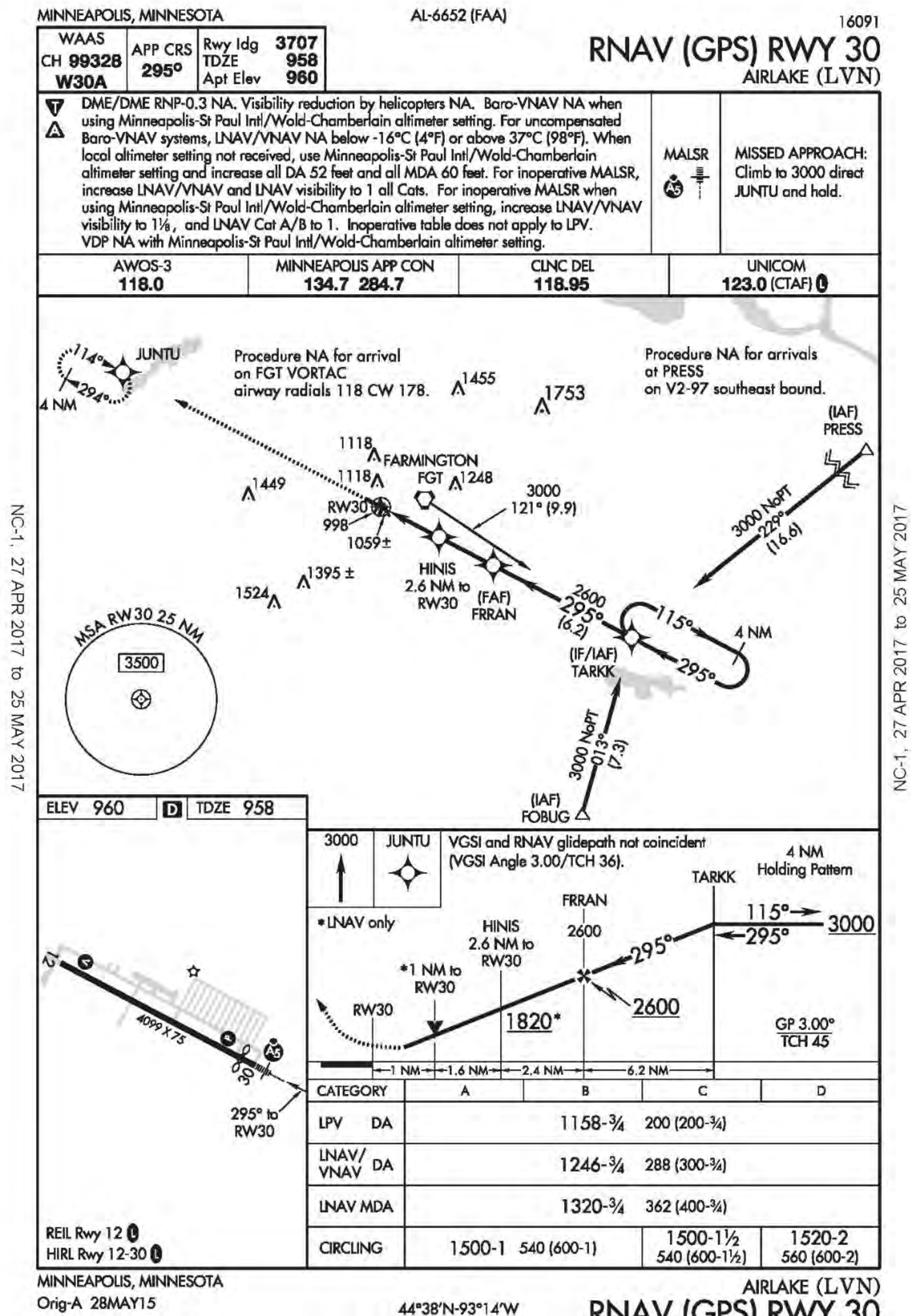


CATEGORY	A	B	C	D
S-ILS 30	1208-¾ 250 (300-¾)			
S-LOC 30	1400-¾ 442 (500-¾)			
CIRCLING	1500-1 540 (600-1)		1500-1½ 540 (600-1½)	1520-2 560 (600-2)

Knots	60	90	120	150	180
Min:Sec	5:06	3:24	2:33	2:02	1:42



CATEGORY	A	B	C	D
LPV DA	1210-1 250 (300-1)			
LNAV/VNAV DA	1457-1¾ 497 (500-1¾)			
LNAV MDA	1380-1 420 (500-1)		1380-1¼ 420 (500-1¼)	
CIRCLING	1500-1 540 (600-1)		1500-1½ 540 (600-1½)	1520-2 560 (600-2)


MINNEAPOLIS, MINNESOTA
AL-6652 (FAA)
16091
RNAV (GPS) RWY 30
AIRLAKE (LVN)
WAAS CH 99328 W30A
APP CRS 295°
Rwy ldg 3707
TDZE 958
Apt Elev 960
DME/DME RNP-0.3 NA. Visibility reduction by helicopters NA. Baro-VNAV NA when using Minneapolis-St Paul Intl/Wold-Chamberlain altimeter setting. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -16°C (4°F) or above 37°C (98°F). When local altimeter setting not received, use Minneapolis-St Paul Intl/Wold-Chamberlain altimeter setting and increase all DA 52 feet and all MDA 60 feet. For inoperative MALSR, increase LNAV/VNAV and LNAV visibility to 1 all Cats. For inoperative MALSR when using Minneapolis-St Paul Intl/Wold-Chamberlain altimeter setting, increase LNAV/VNAV visibility to 1⅛, and LNAV Cat A/B to 1. Inoperative table does not apply to LPV. VDP NA with Minneapolis-St Paul Intl/Wold-Chamberlain altimeter setting.
MALSR
MISSED APPROACH: Climb to 3000 direct JUNTU and hold.
AWOS-3 118.0
MINNEAPOLIS APP CON 134.7 284.7
CLNC DEL 118.95
UNICOM 123.0 (CTAF)
JUNTU
114°
294°
4 NM
Procedure NA for arrival on FGT VORTAC airway radials 118 CW 178.
Procedure NA for arrivals at PRESS on V2-97 southeast bound.
(IAF) PRESS
3000 NoPT 229° (16.6)
FARMINGTON FGT
3000 121° (9.9)
RW30
HINIS 2.6 NM to RW30
(FAF) FRRAN
2600 295° (6.2)
115°
295°
4 NM
(IF/IAF) TARKK
3000 NoPT 013° (7.3)
(IAF) FOBUG
MSA RW30 25 NM
3500
NC-1, 27 APR 2017 to 25 MAY 2017
ELEV 960
TDZE 958
3000
JUNTU
VGSI and RNAV glidepath not coincident (VGSI Angle 3.00/TCH 36).
4 NM Holding Pattern
*LNAV only
*1 NM to RW30
1820*
2600
GP 3.00° TCH 45
4099 X 75
295° to RW30
CATEGORY A B C D
LPV DA 1158-¾ 200 (200-¾)
LNAV/VNAV DA 1246-¾ 288 (300-¾)
LNAV MDA 1320-¾ 362 (400-¾)
CIRCLING 1500-1 540 (600-1) 1500-1½ 540 (600-1½) 1520-2 560 (600-2)
REIL Rwy 12
HIRL Rwy 12-30
MINNEAPOLIS, MINNESOTA
Orig-A 28MAY15
44°38'N-93°14'W
AIRLAKE (LVN)
RNAV (GPS) RWY 30

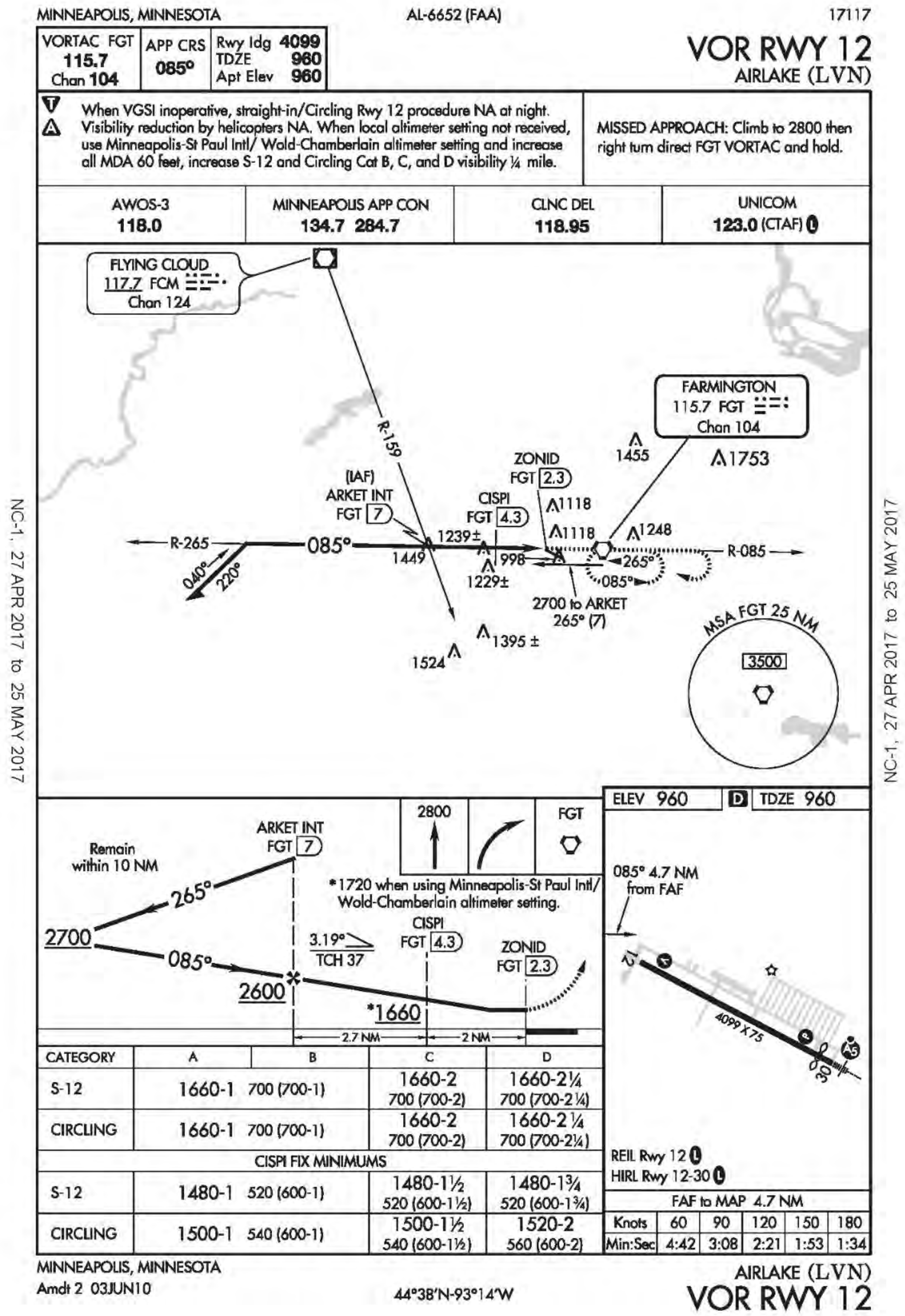

MINNEAPOLIS, MINNESOTA
AL-6652 (FAA)
17117
VORTAC FGT 115.7 Chan 104
APP CRS 085°
Rwy ldg 4099
TDZE 960
Apt Elev 960
VOR RWY 12
AIRLAKE (LVN)
When VGSI inoperative, straight-in/Circling Rwy 12 procedure NA at night.
Visibility reduction by helicopters NA. When local altimeter setting not received, use Minneapolis-St Paul Intl/ Wold-Chamberlain altimeter setting and increase all MDA 60 feet, increase S-12 and Circling Cat B, C, and D visibility ¼ mile.
MISSED APPROACH: Climb to 2800 then right turn direct FGT VORTAC and hold.
AWOS-3 118.0
MINNEAPOLIS APP CON 134.7 284.7
CLNC DEL 118.95
UNICOM 123.0 (CTAF)
FLYING CLOUD 117.7 FCM Chan 124
FARMINGTON 115.7 FGT Chan 104
R-159
R-265
R-085
085°
040°
220°
(IAF) ARKET INT FGT 7
ZONID FGT 2.3
CISPI FGT 4.3
1455
1753
1118
1118
1248
1239±
1449
998
1229±
265°
085°
2700 to ARKET 265° (7)
1395 ±
1524
MSA FGT 25 NM
3500
ELEV 960
TDZE 960
Remain within 10 NM
ARKET INT FGT 7
2800
FGT
265°
2700
085°
3.19° TCH 37
2600
*1720 when using Minneapolis-St Paul Intl/ Wold-Chamberlain altimeter setting.
CISPI FGT 4.3
ZONID FGT 2.3
*1660
2.7 NM
2 NM
085° 4.7 NM from FAF
12
4099 X 75
30
CATEGORY | A | B | C | D
S-12 | 1660-1 700 (700-1) | 1660-2 700 (700-2) | 1660-2¼ 700 (700-2¼)
CIRCLING | 1660-1 700 (700-1) | 1660-2 700 (700-2) | 1660-2¼ 700 (700-2¼)
CISPI FIX MINIMUMS
S-12 | 1480-1 520 (600-1) | 1480-1½ 520 (600-1½) | 1480-1¾ 520 (600-1¾)
CIRCLING | 1500-1 540 (600-1) | 1500-1½ 540 (600-1½) | 1520-2 560 (600-2)
REIL Rwy 12
HIRL Rwy 12-30
FAF to MAP 4.7 NM
Knots 60 90 120 150 180
Min:Sec 4:42 3:08 2:21 1:53 1:34
MINNEAPOLIS, MINNESOTA
Amdt 2 03JUN10
44°38'N-93°14'W
AIRLAKE (LVN)
VOR RWY 12
NC-1, 27 APR 2017 to 25 MAY 2017

Figure 2-7: FAR Part 77 Airspace Surfaces

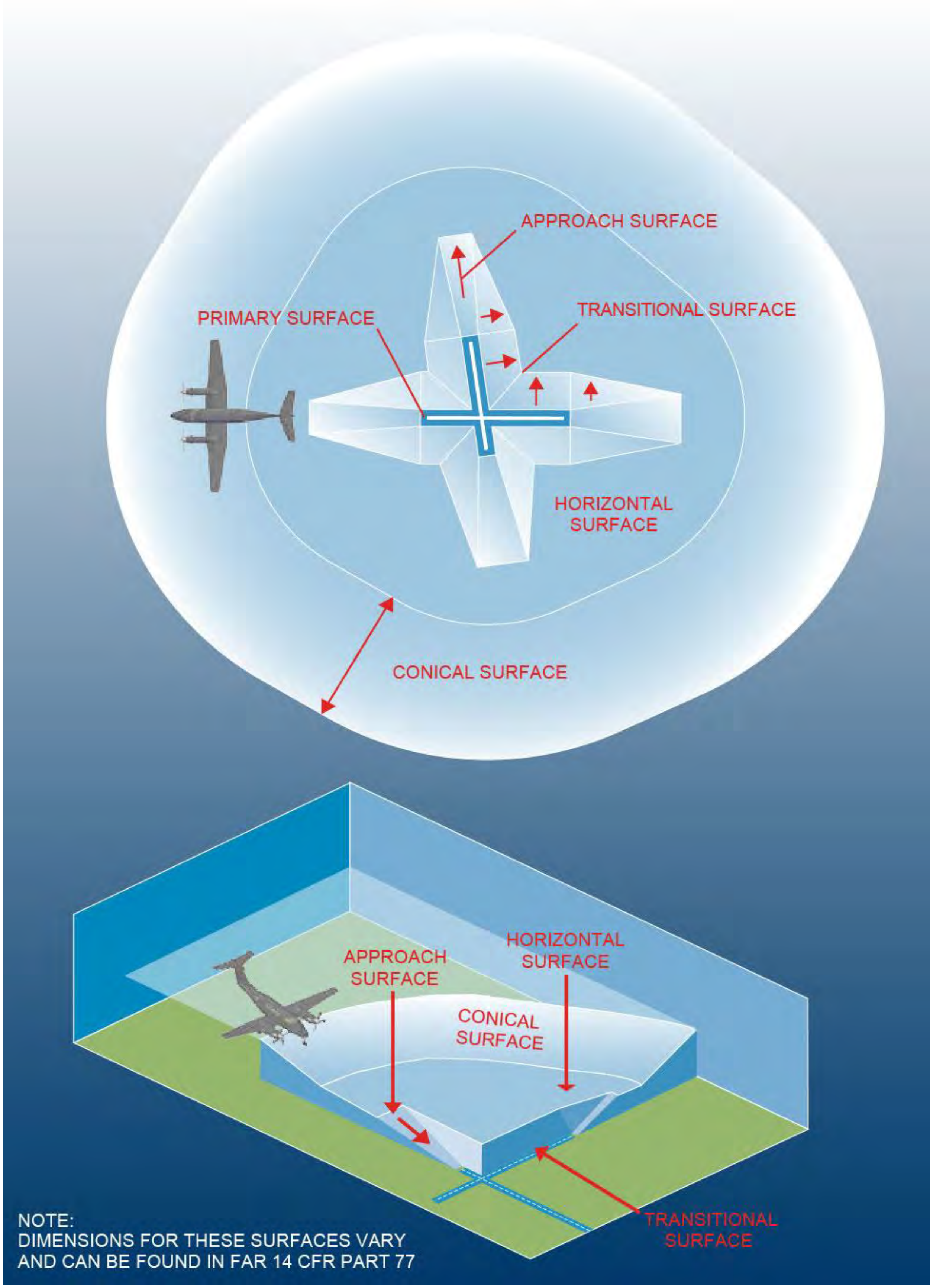
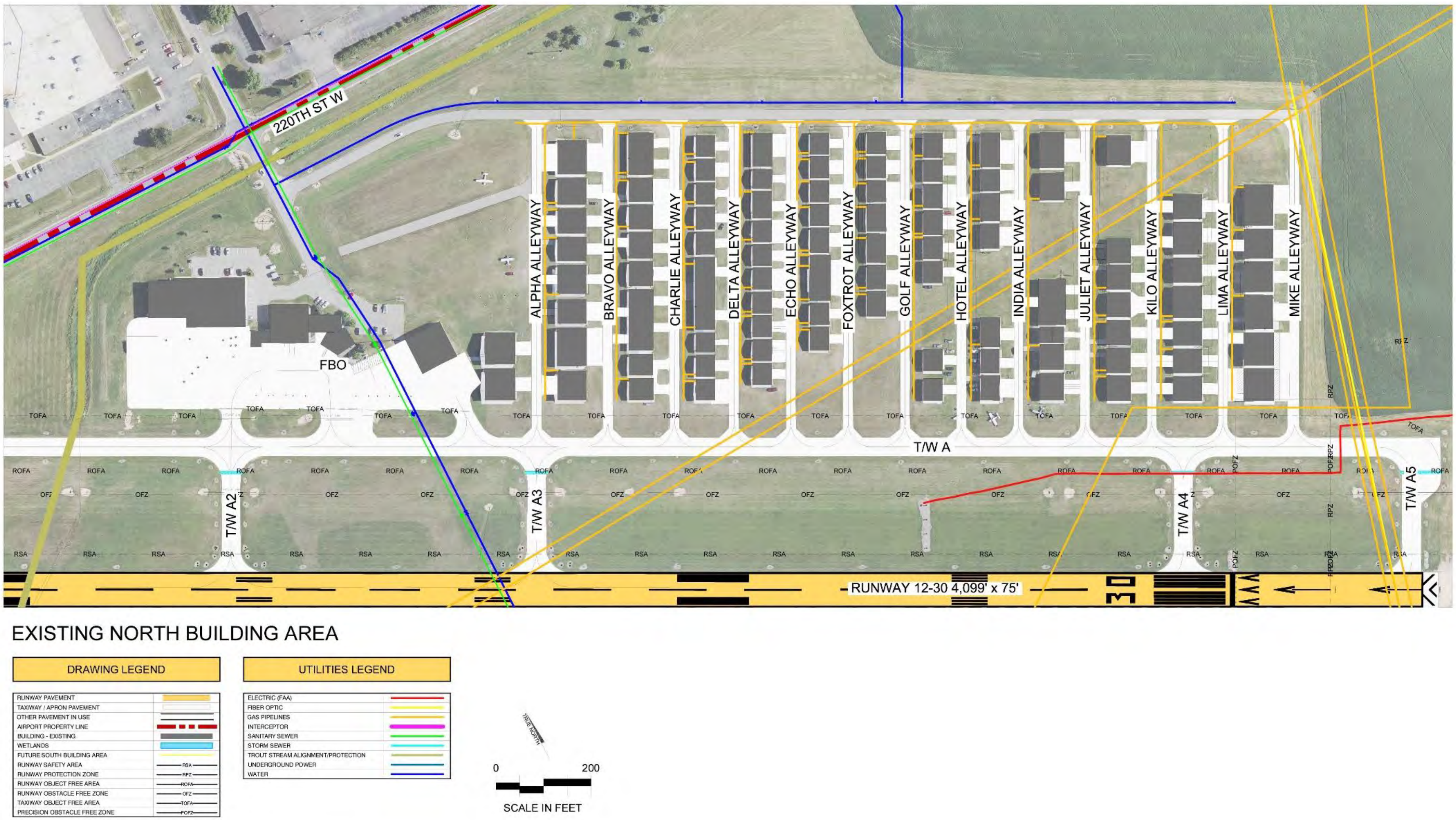


Figure 2-8: Airlake Airport Building Areas

North Building Area



South Building Area

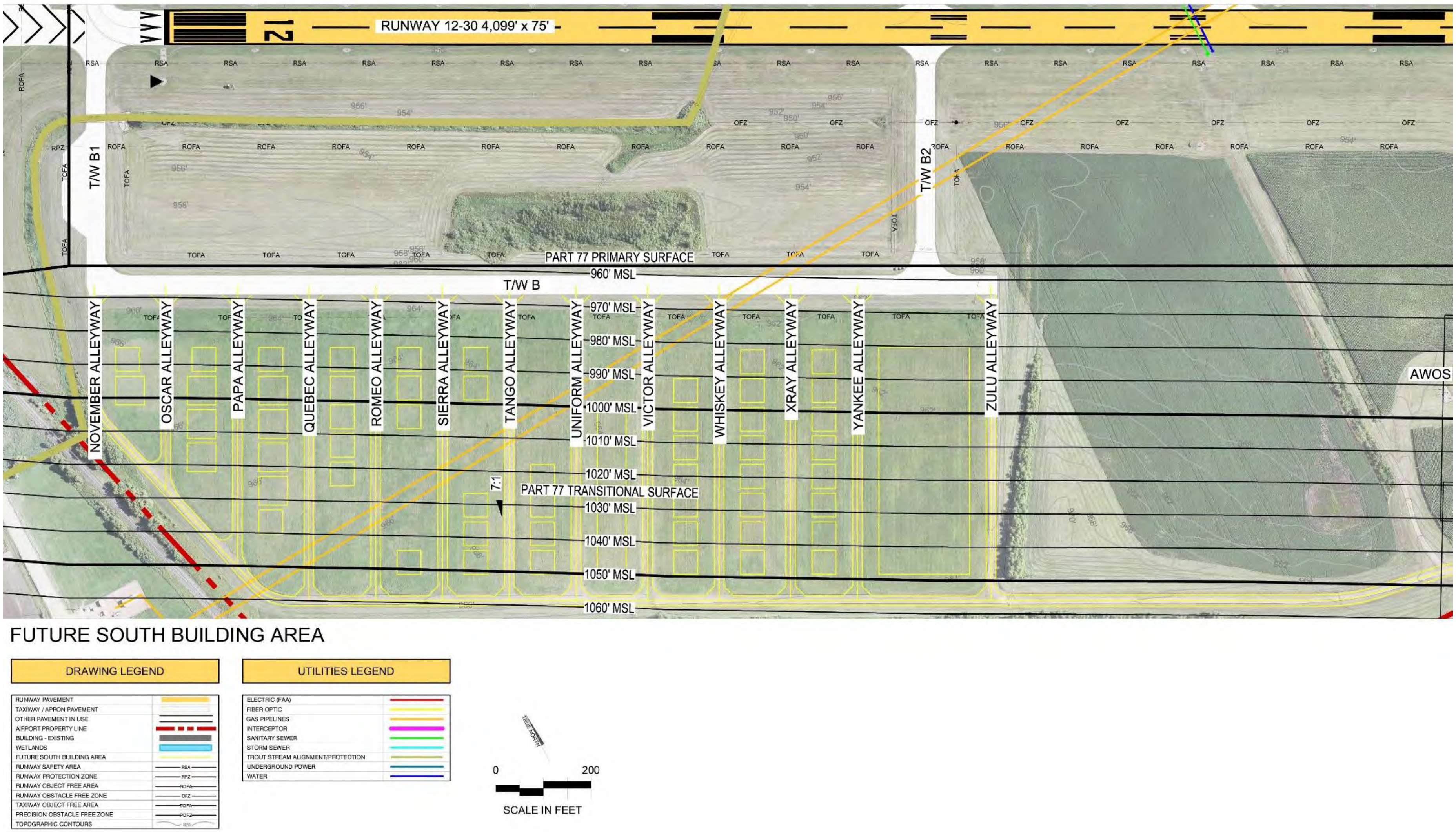


Figure 2-9: Airport Drainage and Wetlands

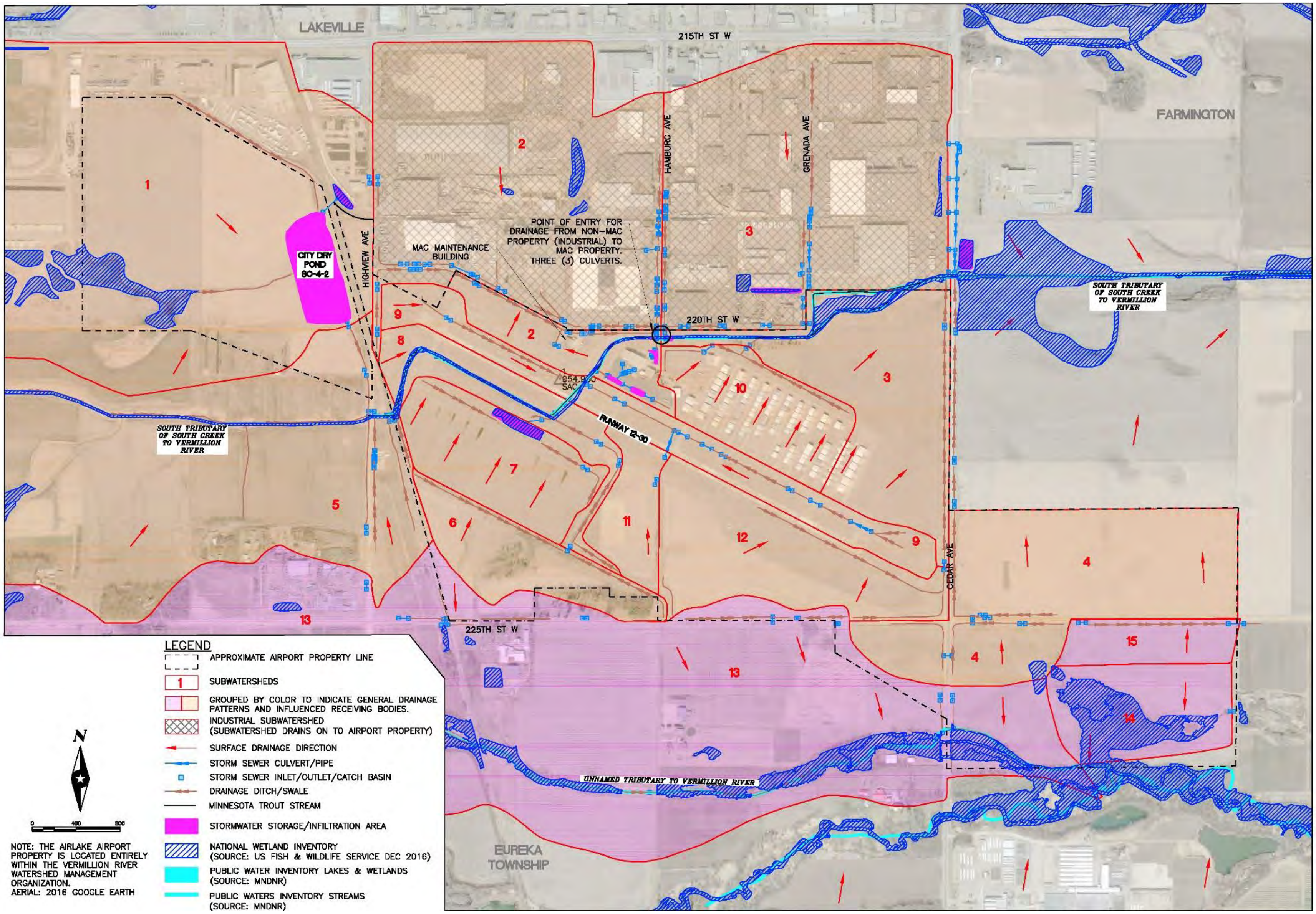
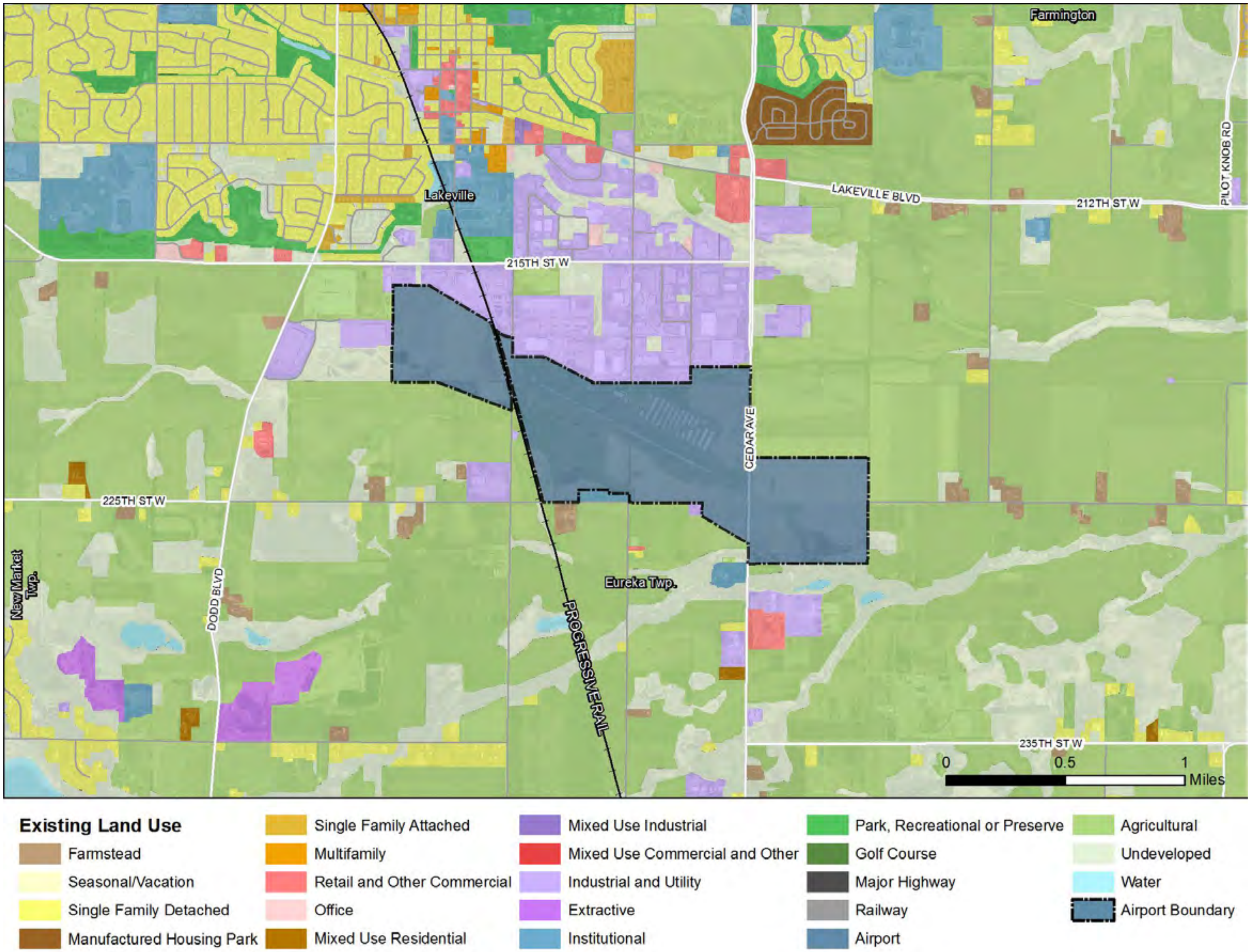


Figure 2-10: Existing Off-Airport Land Use



PAGE INTENTIONALLY LEFT BLANK

SECTION 3:

AVIATION FORECASTS

PAGE INTENTIONALLY LEFT BLANK

3. AVIATION FORECASTS

3.1 INTRODUCTION

This chapter summarizes the LTCP activity forecast for Airlake Airport. The base year is represented by the twelve months ending June 2015 and forecasts were prepared for 2020, 2025, 2030, and 2035. These forecasts assume an unconstrained demand for aviation services but assume that the type of aircraft that can fly in and out of the airport is constrained by the lengths of the existing runways. The chapter begins with a description of the forecast approach, followed by a discussion of the forecasts for based aircraft and aircraft operations, and then concludes with a set of alternative forecast scenarios.

The assumptions inherent in the following calculations are based on data provided by the MAC, federal and local sources, and professional experience. Forecasting, however, is not an exact science. Departures from forecast levels in the local and national economy and in the aviation industry would have a significant effect on the forecasts presented herein.

A summary of the methodology used to prepare the aviation activity forecasts is presented in **Appendix 3**. The complete *Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report (October 2015)* that contains full forecast development documentation can be downloaded from the MAC website through the following link:

https://metroairports.org/General-Aviation/General-Aviation-Documents/MSP-Reliever-Technical-Report-10-30-2015.aspx

3.2 HISTORICAL ACTIVITY LEVELS

The total number of aircraft based at Airlake Airport rose from 1990 to 2003, and then began to decline before stabilizing after 2012. Based aircraft at Airlake currently stand at 137. Aircraft operations fell more rapidly than based aircraft over the same period, but are recovering as well. A number of factors have contributed to the decline during the 2000's, including the slowing economy, increased fuel prices and other operating costs, and reduced interest in recreational flying by younger generations.

Table 3-1 summarizes historical based aircraft and aircraft operations at Airlake Airport.

Table 3-1: Historical Activity Levels

Year	Based Aircraft	Aircraft Operations
1990	140	67,980
1995	179	75,397
2000	175	76,418
2003	190	58,108
2005	163	51,678
2010	147	35,662
2011	131	34,270
2012	147	34,560
2013	127	31,346
2014	129	34,327
2015	137	36,757(a)

Notes:

(a) Twelve months ending June 2015. Includes estimate of nighttime activity.

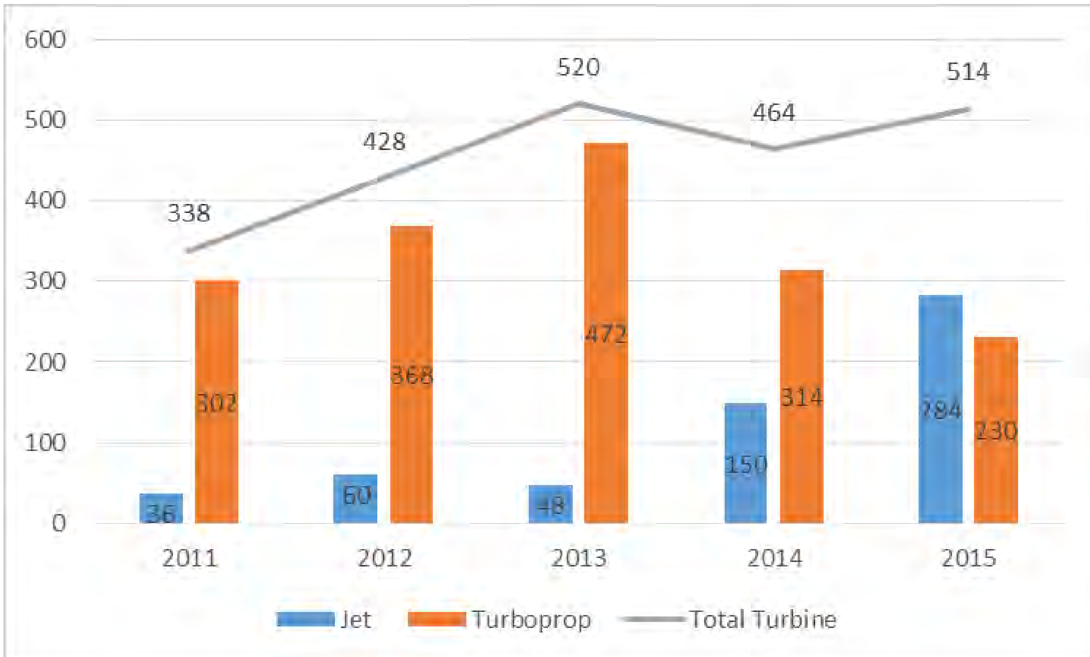
Source: MAC Records, HNTB Activity Forecasts

Airlake Airport is experiencing an upward trend in high-performance corporate and general aviation itinerant activity with turbine equipment. During 2015 there were 4 jets and 1 turboprop aircraft based at Airlake Airport:

- One Cessna Citation I/SP (C501)
- One Cessna CitationJet/CJ1 (C525)
- Two Cessna Citation IIIs (C650)
- One Piper Malibu Meridian (P46T)

To document the existing fleet mix at Airlake, FAA Traffic Flow Management System Counts (TFMSC) were collected for CY2015. Traffic Flow Management System Counts (TFMSC) collect data for Instrument Flight Rules (IFR) flights captured by the FAA's enroute computers. VFR (Visual Flight Rules) flights are not included in the TFMSC data set. For CY2015, there were approximately 2,000 operations identified that contain known aircraft types. Of these recorded operations, 284 were jets and 230 were turboprops, for a combined total of 514 turbine operations. Operational trends for turbine aircraft at Airlake between 2011 and 2015 are illustrated on the following graphic.

Airlake Airport Turbine Aircraft Operations Trend (2011-2015)



This graphic illustrates the growth realized in jet aircraft operations over the past five years, showcasing an evolution in the fleet mix at Airlake Airport and the emerging demand for business-related aviation services. While the existing runway length is generally adequate for most turboprop operations, it is marginal for many jet operations, particularly for takeoff and Part 135 landing requirements. As the demand for jet operations grows, the runway length will become an increasing constraint on the airport's ability to fully fulfill its designated role as a south-metro area reliever.

The steady increase in jet operations is largely attributable to an evolving business model by the airport's Fixed Based Operator (FBO), but also reflects improved economic conditions and growth in the demand for business-related flying in the south metropolitan area. However, it is doubtful that jet aircraft operations will reach a threshold of 500 annually with the existing runway length.

In discussions with the owner of the FBO who offers aircraft management, aircraft sales, and charter services at Airlake Airport, the aircraft types most in demand from their clientele are mid-sized corporate jets such as the Cessna Citation III and Dassault Falcon 20. The operational capabilities of these aircraft types are constrained by the existing runway length at Airlake Airport. At times, aircraft based at Airlake Airport must reposition to another area airport with a longer runway in order to depart with enough fuel and payload to reach destinations beyond an approximately 500 nautical mile stage length. Based on flight track data, it appears that several flights per month (approximately 80 total flights in CY2015) are repositioning from Airlake Airport to another airport due to runway length limitations. Operating in this manner is both inefficient and unproductive for users of the regional airport system.

During 2015, FAA records indicate that approximately 1,900 flights at Airlake Airport, or about 5% of total operations, filed an instrument flight plan. Aircraft operating on an instrument flight plan are more likely flying for a business-related purpose than aircraft filing visual flight plans. However, user input suggests that the number of instrument approaches conducted at Airlake is significantly higher because many approaches conducted for flight training are conducted in visual flight rule (VFR) conditions and thus no instrument flight plan is filed.

3.3 SOCIOECONOMIC PROJECTIONS

Population forecasts from the Metropolitan Council and per capita income forecasts from Woods & Poole Economics were used to develop hybrid income forecasts for each county in the metropolitan area. The income forecasts were used to estimate the share of based aircraft growth accounted for by each county. A summary of key socioeconomic projections for Dakota County and adjacent Scott County is provided in **Table 3-2**.

Table 3-2: Dakota & Scott County Socioeconomic Growth Trends

	Dakota County 2013 - 2035			
Socioeconomic Indicator	2013	2035	Change	% Growth
Population	408,509	502,076	93,567	23%
Employment	240,467	314,826	74,359	31%
Real Personal Income	$20,982,319	$32,508,327	$11,526,008	55%
Per Capita Personal Income	$51,363	$64,748	$13,385	26%

Source: HNTB Activity Forecasts

	Scott County 2013 - 2035			
Socioeconomic Indicator	2013	2035	Change	% Growth
Population	137,232	188,738	51,506	38%
Employment	58,151	82,506	24,355	42%
Real Personal Income	$6,560,047	$10,923,245	$4,363,198	67%
Per Capita Personal Income	$47,803	$57,875	$10,073	21%

Source: HNTB Activity Forecasts

A comparison of the projected socioeconomic indicator growth rates for Dakota County, adjacent Scott County, the Seven-County Metropolitan Area, and the United States as a whole is presented in **Table 3-3**.

Table 3-3: Comparison of Project Socioeconomic Growth Rates

Socioeconomic Indicator	Average Annual Growth Rates 2013 - 2035			
	Dakota County	Scott County	7-County Metro	United States
Population	0.8%	1.3%	0.8%	0.9%
Employment	1.3%	1.5%	1.1%	1.2%
Real Personal Income	2.0%	2.2%	2.2%	2.2%
Per Capita Personal Income	1.0%	0.8%	1.3%	1.3%

Source: HNTB Activity Forecasts

Based on this analysis, Dakota County is expected to experience near-average growth in population, real personal income, and per capita personal income, and above-average growth in employment throughout the forecast period. Also, adjacent Scott County is expected to experience above-average growth in population and employment.

Meanwhile, the City of Lakeville is one of the fastest-growing cities in the metropolitan area. Between 2010 and 2014, the population of Lakeville grew by nearly seven percent to 59,866, and it is expected to grow to over 80,000 by 2040. Likewise, steady growth is anticipated in both the number of households and employment. Commercial development is surging as well, with several recent business expansions or developments in the vicinity of the Airport including Menasha Packaging and FedEx Freight.

These trends can be viewed as an overall positive indicator for the continued viability of aviation demand in the vicinity of Airlake Airport.

3.4 BASE CASE FORECAST

Forecasts include based aircraft and operations for each major category: single-engine piston, multi-engine piston, turboprop, jets, helicopters, sport aircraft, experimental, and other. It was assumed that the share of each county's registered aircraft in every aircraft category based at all of the airports under study will remain constant.

In the Base Case forecast scenario, the number of based aircraft at Airlake Airport is projected to decline slightly, from 137 aircraft in 2015 to 131 aircraft in 2035. The dominant aircraft in the fleet, piston engine aircraft, are projected to decline, consistent with the *FAA Aerospace Forecast Fiscal Years 2015-2035*. Jets, helicopters, sport, and experimental aircraft are expected to increase but not fast enough to offset the decline in the piston category. **Table 3-4** provides a summary of the based aircraft forecast.

Operations at Airlake Airport are projected to decrease slightly from 36,757 in 2015 to 35,658 in 2035. Increases are projected in all categories except single-engine and multi-engine piston aircraft, for which the anticipated decrease in the based aircraft offsets slightly higher utilization forecasted by the FAA. Jet, helicopter and sport operations are expected to increase the fastest.

Table 3-5 provides a summary of the aircraft operations forecast.

Table 3-4: Summary of Based Aircraft Forecast (Base Case)

Aircraft Category	2015	2020	2025	2030	2035	AAG
Single-Engine Piston	99	96	92	89	87	-0.6%
Multi-Engine Piston	10	10	9	9	8	-1.1%
Turboprop	1	1	1	1	1	0.0%
Jets	4	4	6	6	7	2.8%
Helicopter	0	0	0	0	0	0.0%
Other	23	24	26	28	28	1.0%
Total	*137*	*135*	*134*	*133*	*131*	-0.2%

Notes:

AAG - Average Annual Growth Rate from 2015 to 2035

Other category includes experimental and light sport aircraft types

Source: HNTB Activity Forecasts

Table 3-5: Summary of Aircraft Operations Forecast (Base Case)

Aircraft Category	2015	2020	2025	2030	2035	AAG
Single-Engine Piston	31,865	29,406	28,208	27,629	27,722	-0.7%
Multi-Engine Piston	834	814	731	754	707	-0.8%
Turboprop	271	276	285	304	331	1.0%
Jets	202	221	347	349	408	3.6%
Helicopter	1,525	1,843	2,100	2,359	2,650	2.8%
Other	2,059	2,251	2,971	3,711	3,840	3.2%
Total	*36,756*	*34,811*	*34,642*	*35,106*	*35,658*	-0.2%

Notes:

AAG - Average Annual Growth Rate from 2015 to 2035

Other category includes experimental and light sport aircraft types

Source: HNTB Activity Forecasts

The peak month operations percentage at Airlake was assumed to be the average for ANE, MIC, FCM, and STP from 2011 to 2014. Average Day Peak Month (ADPM) operations were estimated by dividing by 31 days. Peak hour operations were estimated at 19.2 percent of ADPM operations based on MAC aircraft operations counts. As shown in **Table 3-6**, peak hour operations are projected to fluctuate between 25 and 26 operations.

Table 3-6: Peak Period Forecasts (Base Case)

Peak Periods	2015	2020	2025	2030	2035
Annual Operations	36,757	34,811	34,642	35,106	35,658
Peak Month Operations	4,241	4,016	3,997	4,050	4,114
ADPM Operations	137	130	129	131	133
Peak Hour Operations	26	25	25	25	26

Notes:

ADPM - Average Day of the Peak Month

Source: HNTB Activity Forecasts

3.5 FORECAST SCENARIOS

Historically, general aviation activity has been difficult to forecast, since the relationships with economic growth and pricing factors are more tenuous than in other aviation sectors, such as commercial aviation. This uncertainty is likely to carry over into the near future, given the volatility of fuel prices and the continued shift in General Aviation from personal and recreational use to business use. To address these uncertainties, and to identify the potential upper and lower bounds of future activity at the study airports, detailed high and low scenarios are presented. These scenarios use the same forecast approach that was used in the Base Case, but alter the assumptions to reflect either a more aggressive or more conservative outlook.

The high forecast scenario is based on the assumption that income would grow 0.5 percent per year faster than in the Base Case. All other assumptions are the same as in the Base Case. The low forecast scenario is based on the assumption that income would grow 0.5 percent more slowly each year than under the Base Case.

An extended runway scenario was prepared to evaluate the potential impact associated with lengthening the main runway at Airlake from 4,099 feet to 5,000 feet[17]. All other forecast assumptions are the same as in the Base Case. An examination of registered jets within Airlake's current catchment area for piston aircraft indicated that there were several that could operate at reasonable payloads with a 5,000 foot runway. Based on this analysis, it was estimated that the number of based jet aircraft at Airlake Airport would increase from 7 under the baseline forecast to 10 under the extended runway scenario, and turboprops from 1 to 2.

The current ratio of operations to based aircraft for jets at Airlake is unusually low. Based aircraft account for the majority of all jet operations, with a relatively small amount of activity from transient operators.

It was considered unlikely that the ratio would remain at its current level if the runway were extended to 5,000 feet, as both based and transient operators would be more likely to take advantage of the facility. As a result, using the current ratio of jet operations to based aircraft would probably understate noise and other environmental impacts associated with a 5,000 foot scenario.

Due to the existing runway length, it is not possible to use historical data to estimate an operations to based aircraft ratio that is defensible. Absent useful historical data, the next best option is to identify airports with characteristics similar to Airlake after a runway extension to 5,000 feet. Flying Cloud (FCM) and Anoka County (ANE) were determined to be the most similar airports since they currently have 5,000 foot runways and, along with Airlake, serve the Minneapolis-St. Paul metropolitan area. In addition, since these airports have air traffic control towers, more accurate operations data is available.

Airlake, Flying Cloud and Anoka County have overlapping service areas since they all serve the Minneapolis-St. Paul metropolitan area. Airlake is slightly more distant at approximately 23 miles from the downtown St. Paul center and 24 miles from the downtown Minneapolis center. Flying Cloud is about 14 miles from the downtown Minneapolis center and about 20 miles from the downtown St. Paul center, while Anoka County is about 12 miles from the downtown St. Paul center and about 15 miles from the downtown Minneapolis center.

Airlake is located in Dakota County, and owners of aircraft based at Airlake live primarily in Dakota (46%), Scott (20%), Ramsey (14%), and Hennepin Counties (11%). Flying Cloud is located in Hennepin County and owners of aircraft based at FCM live primarily in Hennepin (67%), Scott (6%), and Dakota Counties (4%). Anoka County is located in Anoka County, and owners of aircraft based at Anoka County live primarily in Hennepin (37%), Ramsey (24%) and Anoka Counties (20%). Although each of the airports tend to serve the communities that are closest, they all serve residents located throughout the metropolitan area and serve as reliever airport to MSP. Average per capita income in 2013 ranged from a low of $42,799 in Anoka County (where ANE is located) to a high of

[17] Minnesota Statutes Section 473.641 subdivision 4 prohibits the MAC from extending runway length at its minor airports beyond 5,000 feet without prior legislative authorization.

$61,409 in Hennepin County (where FCM is located). As a comparison, the per capita income in Dakota County (where Airlake Airport is located) was $51,363, approximately midway between Anoka and Hennepin Counties.

In order to estimate impact of a runway extension at Airlake Airport on aircraft operations, data was used from FCM and ANE airports because of the anticipated similarity in facilities and shared socioeconomic characteristics. Based on the above analysis, it was anticipated that the extended runway at Airlake would attract more itinerant operations by high performance turboprops and jets. After the extension at Airlake, the maximum runway lengths at Airlake, Flying Cloud, and Anoka County would be equivalent and it was therefore assumed that the ratios of turboprop and jet operations to based aircraft at Airlake would become the same as the regional average for airports with 5,000-foot runways. The forecast operations fleet mix for jets and turboprops also assumes FBO and other GA amenities, including sufficient apron parking space, comparable to Flying Cloud and Anoka County, would be in place at Airlake. **Tables 3-7**, **3-8, and 3-9** show the extended runway condition forecast for based aircraft, aircraft operations, and peak hour activity levels at Airlake.

Table 3-7: Summary of Based Aircraft Forecast (Extended Runway)

Aircraft Category	2015	2020	2025	2030	2035	AAG
Single-Engine Piston	99	96	92	89	87	-0.6%
Multi-Engine Piston	10	10	9	9	8	-1.1%
Turboprop	1	1	2	2	2	3.5%
Jets	4	4	8	8	10	4.7%
Helicopter	0	0	0	0	0	0.0%
Other	23	24	26	28	28	1.0%
Total	*137*	*135*	*137*	*136*	*135*	-0.1%

Notes:

AAG - Average Annual Growth Rate from 2015 to 2035

Other category includes experimental and light sport aircraft types

Source: HNTB Activity Forecasts

Table 3-8: Summary of Aircraft Operations Forecast (Extended Runway)

Aircraft Category	2015	2020	2025	2030	2035	AAG
Single-Engine Piston	31,865	29,406	28,208	27,629	27,722	-0.7%
Multi-Engine Piston	834	814	731	754	707	-0.8%
Turboprop	271	276	576	739	757	5.3%
Jets	202	221	1,314	2,181	2,734	13.9%
Helicopter	1,525	1,843	2,100	2,359	2,650	2.8%
Other	2,059	2,251	2,971	3,711	3,840	3.2%
Total	*36,756*	*34,811*	*35,900*	*37,373*	*38,410*	0.2%

Notes:

AAG - Average Annual Growth Rate from 2015 to 2035

Other category includes experimental and light sport aircraft types

Source: HNTB Activity Forecasts

Table 3-9: Peak Period Forecasts (Base Case)

Peak Periods	2015	2020	2025	2030	2035
Annual Operations	36,757	34,811	35,900	37,373	38,410
Peak Month Operations	4,241	4,016	4,142	4,312	4,432
ADPM Operations	137	130	134	139	143
Peak Hour Operations	26	25	26	27	28

Notes:

ADPM - Average Day of the Peak Month

Source: HNTB Activity Forecasts

Table 3-10 compares the total number of aircraft and operations under different scenarios for Airlake, including the FAA's Terminal Area Forecast (TAF) that was released in January 2017. FAA has determined that the LTCP forecast is consistent[18] with the TAF and concurs with its use for planning purposes. Additional forecast details are presented in **Appendix 3**.

[18] An airport's forecast is considered to be consistent with the FAA TAF if it differs by less than 10% in the 5-year forecast period and less than 15% in the 10-year and beyond forecast periods.

Table 3-10: Forecast Comparison by Scenario

Year	Total Based Aircraft				Total Number of Operations					Variance from TAF (Operations)	
	Base Case	High Range	Low Range	Extended Runway	Base Case	High Range	Low Range	Extended Runway	TAF	Base Case	Extended Runway
2015	137	137	137	137	36,757	36,757	36,757	36,757	34,174	8%	8%
2020	135	137	131	135	34,811	35,230	33,761	34,811	36,305	-4%	-4%
2025	134	141	128	137	34,642	36,333	33,739	35,900	38,570	-10%	-7%
2030	133	143	126	136	35,106	37,917	33,303	37,373	40,996	-14%	-9%
2035	131	145	120	135	35,658	39,219	32,712	38,410	43,575	-18%	-12%
	Average Annual Growth Rate										
	-0.2%	0.3%	-0.7%	-0.1%	-0.2%	0.3%	-0.6%	0.2%	1.2%		

Notes:

TAF - 2017 Terminal Area Forecast published by FAA

The LTCP forecast is considered to be consistent with the FAA TAF if it differs by less than 10% in the 5-year forecast period and less than 15% in the 10-year and beyond forecast periods

Sources: HNTB Analysis.

3.6 FORECAST SUMMARY

Recent activity levels at Airlake Airport indicate that the number of based aircraft and aircraft operations have started to grow again after stabilizing in 2012. Based on the economic outlook for Dakota and Scott counties, as well as the Seven-County Metropolitan Area, and given projected trends for general aviation, the forecasts predict a stable (Base Case scenario) to slow growth (Extended Runway scenario) activity levels at Airlake Airport.

The forecast scenarios indicate that future economic growth, fuel prices, technology, and national aviation policy could have a significant impact – either up or down – on the development of general aviation.

Minor fluctuations in activity levels above or below the long-term forecast will not affect the overall recommendations of the LTCP, just possibly how quickly the proposed improvements need to be made.

SECTION 4:

FACILITY REQUIREMENTS

PAGE INTENTIONALLY LEFT BLANK

4. FACILITY REQUIREMENTS

4.1 INTRODUCTION

This chapter describes the facility requirements needed to accommodate the demand forecasts for year 2035. The sections of this chapter are intended to:

- Describe relevant design criteria;
- Present airfield requirements in context of the critical aircraft;
- Review NAVAID requirements;
- Identify general aviation facility requirements;
- Review parking and airport access needs;
- Review obstruction issues; and
- Present miscellaneous requirements for the airport.

4.2 CRITICAL AIRCRAFT FAMILY DESIGN CRITERIA

The future critical aircraft expected to use Airlake Airport on a regular basis with a runway extension in place is a composite ARC B-II aircraft family used for business aviation purposes. **Table 4-1** highlights physical characteristics for several representative types, while **Figure 4-1** at the end of this section depicts several aircraft within this family by their Approach Category and Design Group.

Table 4-1: Representative Types in Critical Aircraft Family

Aircraft Type	Configuration	Wingspan	Maximum Takeoff Weight (lbs.)	Typical Passenger Seats
Beechcraft King Air 350	Turboprop	57' 11"	15,000	9-11
Cessna Citation II/550	Jet	52' 02"	14,100	7-9
Cessna Citation Excel/560	Jet	55' 08"	20,000	8-11
Cessna Citation III/650	Jet	53' 06"	22,000	7-13
Dassault Falcon 20/200	Jet	53' 06"	28,660	8-10
Dassault Falcon 50	Jet	61' 10"	40,780	9-19
Dassault Falcon 900	Jet	63' 05"	45,500	12-19

Source: Aircraft Manufacturer Data

From an airfield facility requirements perspective, this composite aircraft family is represented by the Cessna Citation III/650 and/or the Dassault Falcon 20/200. Letters of support obtained from airport users to document the likelihood of Airlake Airport accommodating at least 500 annual operations of these, or similar, aircraft types within the first five years of an extended runway being in place are provided in **Appendix 4**.

Based upon this fleet mix, Chapter 3 of AC 150/5325-4B runway length requirements for Airplanes within a Maximum Certificated Takeoff Weight of More than 12,500 Pounds Up To and Including 60,000 Pounds would be the critical aircraft grouping to use for future runway length requirements. This is the same grouping that was used in the 2025 LTCP analysis. Design parameters associated with this aircraft family will be as follows:

- Aircraft Approach Category (AAC): B (approach speed less than 121 knots);
- Airplane Design Group (ADG): II (wingspan up to but not including 79 feet and tail height less than 30 feet); and
- Taxiway Design Group (TDG): 2 (main landing gear width 20 feet or less and cockpit-to-main gear distance less than 64 feet); and
- Approach visibility minimums: 4,000 feet, which corresponds to visibility minimums of lower than one statute mile but not lower than ¾ mile.

FAA airfield design standards for this family of critical aircraft are summarized in **Table 2-2** of the Existing Conditions chapter.

4.3 METEOROLOGICAL DATA, WIND COVERAGE, AND RUNWAY ORIENTATION

Weather conditions have a significant influence on the operational capabilities at an airport. Wind speed and direction help determine runway orientation. Temperature plays a role in determining runway length; higher temperatures in the summer months result in longer runway length requirements. Cloud cover and low visibility are factors used to determine the need for navigation aids and instrument approaches.

Aircraft generally take off and land directly into the wind, or at least as directly into the wind as a given runway alignment allows. The FAA recommends that the primary runway provide at least 95 percent wind coverage for the aircraft anticipated to use the airport. If the primary runway does not provide this level of coverage, a crosswind runway may be justified.

Because larger, heavier and more powerful aircraft need a crosswind runway less often than smaller, lighter and less powerful ones, different wind speeds are used in the crosswind runway analysis for different aircraft. These different wind speeds are called crosswind components. Crosswind components are defined by wind direction and speed taken at a right angle to a runway.

Per FAA criteria, the maximum allowable crosswind component for Reference Code A/B-I aircraft is 10.5 knots and 13 knots for Reference Code A/B-II aircraft.

Data from the Airlake Airport Automated Weather Observing System (AWOS) was obtained to analyze the amount of wind coverage provided by the current runway system. **Table 4-2** summarizes the wind coverage of runways for the applicable crosswind components and weather conditions:

Table 4-2: Wind Coverage Summary

Wind Coverage	All Weather Conditions	VFR Conditions	IFR Conditions
10.5 Kt. Crosswind Component			
Runway 12-30	**96.3%**	**96.4%**	**95.3%**
13 Kt. Crosswind Component			
Runway 12-30	**98.4%**	**98.5%**	**97.8%**
Total Number of Hourly Observations	256,416	234,266	22,644

Notes: Bold numbers reflect 95% or greater wind coverage

Source: LVN AWOS Wind Data 2006 - 2015

This analysis indicates that the Runway 12-30 alignment provides the desired 95 percent wind coverage for both crosswind component categories and during all weather conditions. Since the single-runway configuration provides the desired 95 percent wind coverage in all configurations, construction of a crosswind runway is not justified at Airlake.

Table 4-3 evaluates the wind coverage provided by the specific runway end orientations.

Table 4-3: Wind Coverage By Runway End

Wind Coverage	All Weather Conditions	VFR Conditions	IFR Conditions
10.5 Kt. Crosswind Component			
Runway 12	56.0%	55.0%	**65.8%**
Runway 30	**64.1%**	**65.1%**	52.5%
13 Kt. Crosswind Component			
Runway 12	57.3%	56.3%	**66.9%**
Runway 30	**65.0%**	**65.9%**	53.8%
Total Number of Hourly Observations	256,416	234,266	22,644

Notes: Bold numbers reflect 60% or greater wind coverage

Source: LVN AWOS Wind Data 2006 - 2015

This data indicates that during VFR conditions, the best wind coverage is provided by the Runway 30 alignment. However, during IFR conditions, this reverses and the best wind coverage is provided by the Runway 12 alignment. As indicated in **Section 2.3.4**, Runway 30 currently provides better approach capabilities than Runway 12, primarily due to the approach lighting system supporting the ILS.

The all-weather wind rose for Airlake Airport is shown in **Figure 4-2**.

As indicated in **Table 4-4**, Visual Flight Rule (VFR) conditions occur at Airlake Airport nearly 92 percent of the time. Instrument Flight Rule (IFR) conditions occur during the remaining 8 percent of the time. During IFR conditions, cloud ceilings or visibility minimums preclude use of the best approach to Runway 30 approximately 1% of the time, and the best approach to Runway 12 approximately 1.5% of the time.

Table 4-4: Weather Condition Occurrences

Weather Condition	% of Time
VFR >= 1,000' and >= 3 SM	**91.9%**
IFR < 1,000' or < 3 SM	**8.1%**
Below existing RWY 12 LPV (< 250' or < 1 SM)	1.5%
Below existing RWY 30 ILS (< 250' or < 0.75 SM)	1.3%
Below existing RWY 30 LPV (< 200' or < 0.75 SM)	1.0%

Notes: Time period 1/1/2006 to 11/30/2015. SM = statute mile

Source: HNTB analysis of NOAA NCDC Integrated Surface Database, Hourly, Global

Another important factor to consider when planning facilities at airports is temperature. The standard used is the mean daily maximum temperature of the hottest month at the Airport. For Airlake Airport, the hottest month of the year is typically July. Based on long-term temperature trends available from the nearest National Climatic Data Center (NCDC) reporting station (Farmington 3 NW) for the 30-year period between 1981 and 2010, the mean maximum daily temperature in the month of July is 82.3° F (27.9° C)[19].

4.4 AIRFIELD CAPACITY

Airfield capacity is defined as the maximum number of operations that can be accommodated by a particular airfield configuration during a specified interval of time when there is constant demand. Annual Service Volume (ASV) is one capacity measure and the average hourly capacity is another.

The ASV for a given airport is the annual level of aircraft operations that can be accommodated with minimal delay. For an airport with annual operations below its ASV, delay is minimal within one to four minutes per operation. Anything above four minutes of delay per operation can result in increased congestion that can adversely impact airfield capacity.

[19] This compares to a mean maximum daily temperature in the month of July of 83.6° (28.7° C) for the previous 20-year reporting period (1971-2000).

An airfield system's capacity is determined by a multitude of various factors, including prevailing winds and associated orientation of runways, number of runways, taxiway system, fleet mix, operational characteristics of based aircraft and weather conditions.

Airlake Airport's ASV is currently estimated to be between approximately 150,000 and 190,000 operations annually, which is well above its current and projected future levels of annual operations. Even if the high forecast level of operations materializes (approximately 39,000), the airport will operate well below its annual service volume.

Using a spreadsheet-based airfield capacity modeling tool recently developed by the Airport Cooperative Research Program (ACRP)[20], Airlake Airport's average hourly capacity is estimated to be between approximately 60 and 85 operations during VFR conditions and approximately 42 operations during IFR conditions. Peak activity forecasts show 28 average day peak month hourly operations for the year 2035 under the Extended Runway scenario.

Thus, Airlake Airport has adequate runway capacity to support all of the forecast scenarios. This means that additional runway capacity will not be a contributing factor to any airport improvements throughout the planning period.

4.5 AIRFIELD FACILITY REQUIREMENTS

4.5.1 Runway Requirements

Runway length requirements are based on several factors, including the type of aircraft using or expected to use an airport, temperature, airport elevation, wind direction and velocity, and runway gradient. In addition, runway surface conditions also impact runway requirements. This last factor is an important consideration for determining runway lengths at airports in northern climates where wet and icy conditions exist.

FAA Advisory Circular (AC) 150/5325-4B, *Runway Length Requirements for Airport Design*, recommends identifying a critical family of aircraft. Although this methodology is general in nature, it recognizes that there is uncertainty about the precise composition of the airport's fleet mix during the forecast period. Determining runway length based on an aircraft family ensures the greatest measure of flexibility.

As outlined in **Section 4.2**, the airplane weight category of over 12,500 pounds but less than 60,000 pounds is the critical grouping used to calculate runway length requirements based upon the forecasts. The design objective for the runway is to provide a length that will not result in operational weight restrictions for this family of aircraft.

According to Figures 3-1 and 3-2 of AC 150/5325-4B (reproduced in **Appendix 4**), the runway length should be approximately 4,700 feet to accommodate 75 percent of the fleet at a 60 percent useful load[21]. An adjustment is added for effective runway gradient of 10 feet per foot of elevation difference for takeoff operations or 15 percent is added for wet and slippery conditions for landing operations, yielding an adjusted runway length of

[20] Per ACRP Report 79, *Evaluating Airfield Capacity*

[21] Useful load is defined as the aircraft maximum takeoff weight minus the aircraft empty weight. An aircraft's useful load can be used to transport either fuel or payload (passengers, baggage, and/or cargo).

approximately 4,800 to 5,400 feet for takeoff and landing, respectively. To accommodate 75 percent of the fleet at a 90 percent useful load, the runway length should be approximately 6,300 feet adjusted to a length of approximately 6,400 to 7,200 feet.

For illustrative purposes, **Table 4-5** summarizes takeoff length requirements for several representative aircraft types in the critical aircraft family for Airlake Airport. Takeoff distance requirements are presented for several different takeoff weights representing percentages of the aircraft's total useful load. Representative aircraft performance charts used for this analysis are reproduced in **Appendix 4**.

Table 4-5: Typical Takeoff Length Requirements

Aircraft Type	Maximum Takeoff Weight (lbs.)	Takeoff Distance (ft.) for % Useful Load			
		100%	90%	75%	60%
Cessna Citation Excel/XLS	20,000	4,233	4,001	3,577	3,205
Cessna Citation III	22,000	7,058	5,751	5,247	4,689
Dassault Falcon 20/200	28,660	5,843	5,133	4,513	4,012
Dassault Falcon 900	45,500	6,500	6,000	5,200	4,500
	Average Length	*5,908*	*5,221*	*4,634*	*4,102*
Runway Gradient Adjustment (+92')		*6,000*	*5,313*	*4,726*	*4,194*
Wet/Slippery Runway Adjustment (115%)		*6,794*	*6,005*	*5,329*	*4,717*

Notes: Takeoff Distance based on Balanced Field length from aircraft performance manuals.
Takeoff distance calculations based on the following conditions:
Temperature = 82.3°F, Field Elevation = 960 feet MSL, Flaps = Typical takeoff

Source: Aircraft Performance Manuals/Data

It should be noted that Minnesota Statutes Section 473.641, Subdivision 4 prohibits MAC from extending runway length at its minor airports beyond 5,000 feet without prior legislative authorization. Thus, the maximum feasible length at Airlake is 5,000 feet. Further, an assessment of aircraft performance charts for several representative aircraft types expected to operate at Airlake suggests that while a length of 5,000 feet would be ideal, even an extension to nearly 5,000 feet could yield significant operational improvements.

The FAA establishes 75 feet as the required width for RDC B-II-4,000 runways with ¾ mile visibility minimums. Runway 12-30 is currently 75 feet wide. This width should be maintained in the future. An increase in width to 100 feet is only justified when a runway's visibility minimums decrease to below ¾ mile.

Runway grooving could also be considered as a safety enhancement to improve friction and braking performance when the runway is wet, particularly given the shortened landing distance available on Runway 30 due to the displaced threshold.

Runway Separation Standards
In the future, a minimum of 240 feet of separation should be provided between runways and parallel taxiways. The current runway-to-taxiway separations exceed this standard and should be maintained.

Runway Shoulders
For RDC B-II-4,000, the required shoulder width is 10 feet. The airport provides 10-foot wide turf shoulders on both runways. All future conditions should continue to meet or exceed FAA standards.

Runway Safety Areas, Object Free Areas, and Obstacle Free Zones
The existing Runway Safety Areas (RSAs) and Runway Object Free Areas (ROFAs) at Airlake Airport meet FAA standards for RDC B-II-4000. All future conditions should continue to meet or exceed FAA standards.

The existing Runway Object Free Zones (ROFZs) for Runway 30 meet FAA requirements for the specified RDC. All future conditions should continue to meet or exceed FAA standards. The Precision Obstacle Free Zone (POFZ) for Runway 30 meets FAA requirements; however, POFZ hold position markings and signs should be installed on Taxiway A.

Runway Protection Zones
As described in **Section 2.3.1**, the FAA issued a memorandum for *Interim Guidance on Land Uses within an RPZ* dated September 27, 2012. This memorandum clarifies the FAA's current position on allowable land use compatibilities within the RPZ.

The existing RPZs at Airlake contain a railroad and public roads. Both of these land uses require coordination with the FAA per the guidance in the above memorandum. Incompatible land uses should be minimized or avoided when reviewing alternatives for the proposed runway extension.

The recommended development plan from the 2025 LTCP to extend the runway to a length of 5,000 feet would realign both Cedar Avenue and 225th Street through the relocated RPZ, which would represent a triggering event to necessitate an RPZ Alternatives Analysis under the current FAA guidance. In order to obtain approval, MAC would need to study a full range of concepts to avoid impacts to the RPZ, including re-routing Cedar Avenue around the RPZ in its entirety.

Figure 4-3 depicts a conceptual layout to realign Cedar Avenue completely outside of the Runway 30 RPZ (blue line), versus through it as previously proposed. A high-level cost estimate for this realignment is approximately $16,000,000, not including 47 acres of land acquisition.

Based on Dakota County's current transportation plan, the existing and forecasted volumes on Cedar Avenue will not likely warrant expansion from two lanes to four before the 2030 timeframe. So, there is no pressing demand to expand or improve this section of Cedar Avenue that would qualify as a triggering event for an RPZ alternatives analysis.

For context, **Figure 4-3** also shows conceptual realignments of the railroad and Highview Avenue on the west side to clear the Runway 12 RPZ as well. The estimated costs for these relocations are approximately $5,000,000 for the railroad and $1,500,000 for Highview Avenue.

Given the extensive costs and community disruption required to realign these existing traverse ways outside of the RPZs, this LTCP will take a fresh look at some available options to provide additional runway length that do not require changes to RPZ locations or require moving Cedar Avenue, Highview Avenue, or the railroad track.

Runway Edge Lighting

It is recommended that the existing High-Intensity Runway Lights (HIRL) be maintained on Runway 12-30 to support the existing instrument approach procedures with visibility minimums down to ¾ mile and ceiling heights to 200 feet.

Navigational Aids

Currently, there is a PAPI system on Runway 30. The existing VASI on Runway 12 is scheduled to be replaced with a PAPI during 2017. The MALSR at the Runway 30 end should remain in place to serve both the ILS and LPV approaches.

Airfield Geometry

Concepts to remove the existing aligned taxiway at the Runway 12 end should be considered when evaluating future airfield development concepts.

4.5.2 Taxiway Requirements

As noted in **Section 4.2**, the existing and future critical design aircraft family for Airlake Airport is within the parameters of the FAA's Taxiway Design Group (TDG) 2 (main landing gear width 20 feet or less and cockpit-to-main gear distance less than 64 feet).

Taxiway Width

The FAA design standard for TDG-2 width is 35 feet. Taxiways A and B are 40 feet wide. This means these taxiway widths exceed FAA design standards for width. This is a conscientious decision by MAC to provide an additional five feet of taxiway pavement width beyond the FAA standard. MAC acknowledges that FAA funding participation is limited to a pavement width of 35 feet.

Taxiway Safety and Object Free Areas

The existing Taxiway Safety Areas (TSAs) and Taxiway/Taxilane Object Free Areas (TOFAs) at Airlake Airport meet or exceed FAA standards. All future conditions should meet or exceed FAA standards.

Taxiway Shoulders

Paved or stabilized shoulders are recommended along taxiways. TDG II aircraft require 15-foot stabilized shoulders. Airlake Airport has 15-foot-wide turf shoulders on its taxiways, which should be maintained.

Taxiway Connectors
Taxiway connectors should be present to facilitate efficient aircraft exit off of the supported runway, to reduce incursions and to minimize time on the runway. However, one of the connector taxiways provides direct access from the FBO apron to the runway. FAA has issued guidance stating that it is not desirable to design taxiways that lead directly from an apron to a runway without requiring a turn, as these configurations can lead to confusion when a pilot typically expects to encounter a parallel taxiway but instead accidently enters a runway. Options to improve this geometry item will be considered when preparing airfield development concepts.

Taxiway Lighting
There is currently no taxiway lighting at Airlake, with the exception of the taxiway connector exits from Runway 12-30, which are lit. The remaining sections of taxiway have blue guidance reflectors. It is recommended that the potential for installation of taxiway lighting be considered in the future. This would improve safety during the evening and after a light snowfall and also aid pilots who are unfamiliar with the airport.

4.5.3 Instrument Approaches

As outlined in **Section 2.3.4**, Airlake Airport has instrument approaches for both runway ends that can be used during Instrument Meteorological Conditions. The lowest visibility minimums available are ¾ mile.

Upgrading instrument approach capabilities to provide minimums of less than ¾ mile are not contemplated with this plan due to the corresponding increase in the dimensions of the RSAs, ROFAs, and RPZs that would have to be provided. The required runway width would increase from 75 feet to 100 feet as well.

Similarly, the feasibility of improving the Runway 12 approach minimums to match the Runway 30 end (down to ¾ mile) is not contemplated due to the corresponding increase in the dimensions of the Runway 12 Approach RPZ that would have to be provided.

4.5.4 Obstacles

The FAA recently consolidated its position, notification process, and mitigation process for obstacles identified as penetrations to the 20:1 Visual Area Surface. The FAA has long maintained the position that airports should keep obstacles clear, marked, or lit for those that penetrate a variety of surfaces including Part 77, Threshold Siting Surface, and TERPS Departure Surface, among others. While these other surfaces are dealt with as instrument procedures are developed, the 20:1 Visual Surface Area can be widely applied to all airports. As such, a formal procedure and process was outlined to notify airports of the obstacles that the FAA identifies that penetrate the 20:1, and required a period of review and mitigation to enable procedures to remain in place.

Train cars on the railroad track along the west side of the Airport penetrate the Runway 12 20:1 straight-in Visual Approach Surface by less than 3 feet, falling into a low risk category but still requiring long-term mitigation.

Installation of a PAPI on Runway 12 that provides a clear obstacle clearance surface over the railroad tracks has been proposed as an interim mitigation strategy for these low-risk penetrations and is programmed for installation in 2017. From a longer-term perspective, the most comprehensive solution is to displace the Runway 12 threshold by an additional 120 feet to provide the necessary clearance over the railroad tracks. This displacement should be considered as an element of the preferred airfield development concept.

FAA has also established requirements for airport sponsors to develop an "Obstacle Action Plan" (OAP) that details how and when each of the approach and departure surfaces will be cleared and maintained. As this is a new requirement, the OAP for Airlake Airport will be developed along with the Airport Layout Plan (ALP).

4.6 LANDSIDE FACILITY REQUIREMENTS

4.6.1 Hangar Facilities

Airlake Airport, like all of the MAC airports, has a wide variety of hangar sizes. Over the years, the MAC has attempted to standardize the size of hangars within new hangar areas. However, aircraft also come in many different sizes, and trying to accommodate every one leads to variability. As depicted in **Table 2-8**, Airlake Airport is estimated to have approximately 136 indoor aircraft storage spaces. This number includes an assumption that some, but not all, airport tenants sublease extra space for additional aircraft within their hangar.

Tenants own their hangars and lease the ground space from the MAC. Currently, it is the MAC's policy that no tenant can lease more space than they can justify with actual aircraft ownership. This practice has reduced the number of large hangar demands, and subsequently, reduces some of the subleasing opportunities at the airport.

According to the forecast results reported in **Table 3-10**, the number of based aircraft is anticipated to decline slightly through 2035. By 2035, the number of based aircraft is forecasted to be between 131 and 135 aircraft in the Base Case and Extended Runway scenarios, respectively.

It appears that nearly all available hangar capacity at Airlake Airport is occupied today and will continue to be so throughout the planning horizon. In addition, there could be demand for construction of certain hangar types and/or sizes that are not currently available. Once utilities are established, it is envisioned that construction of new hangars will occur in the South Building Area. The issues related to establishing sanitary sewer and water services in the South Building Area are discussed in **Section 6.3**.

4.6.2 Fixed Base Operator/Apron

The updated forecasts do not suggest that existing or anticipated future demand levels are sufficient to support more than one full-service FBO facility at Airlake Airport.

As noted in **Section 2.4.1**, the existing FBO apron is relatively small and often congested. According to the activity forecasts provided in Section 3, peak-hour operations at Airlake Airport could increase to 28 within the planning period. Assuming that 60% of these aircraft are itinerant, the apron should be sized to accommodate approximately 17 aircraft simultaneously. Assuming that three-quarters (13) of these aircraft would be smaller Design Group I aircraft, and that the remaining one-quarter (4) would be larger Design Group II aircraft, the apron size at Airlake Airport should be approximately 14,700 square yards[22]. The existing apron area is approximately 9,400 square yards, approximately 5,300 square yards below this recommendation. An evaluation of potential sites to accommodate approximately 5,300 square yards of additional apron area is included in **Section 5**.

4.6.3 Airport Access, Roadway Circulation, and Parking

At this time, airport access and parking facilities appear to be adequate.

Local roadway access from 215th Street W/County Road 70 and Hamburg Avenue in Lakeville leads to the FBO and existing building area. According to the City of Lakeville's Comprehensive Plan, County Road 70 is a roadway that has the potential to be upgraded to a four-lane principal arterial in the future due to the growth expected in this portion of the City and County. The County's Comprehensive Plan also identifies County Road 70 north of the Airport as a section of roadway that will likely approach its capacity within the planning period without expansion.

The County's plan also indicates that traffic on the two-lane section of Cedar Avenue (County Road 23) adjacent to Airlake Airport accommodates approximately 6,800 vehicles per day, and is projected to reach about 12,000 vehicles per day by 2030. According to the County, the threshold for expanding a roadway from two to four lanes is when traffic exceeds approximately 15,000 vehicles per day. There is no current plan to expand or improve this section of Cedar Avenue.

The proposed South Building Area will gain access from the township road, 225th Street. It is anticipated that the section of this road leading to the South Building Area will be paved to accommodate airport-generated traffic.

4.6.4 Maintenance and Fuel Storage Areas

The existing MAC Maintenance facility is in good condition, particularly after the improvements made to it in 2014, and provides adequate capacity to accommodate newer-generation snow removal equipment that in many cases are longer and taller than older models.

According to a recently-completed building assets report, the facility will require just over $1,000,000 of renewal investments through 2035. Major investments are predicted to be needed in 2025 and 2035. **Appendix 5** includes a listing of the specific renewal investment items identified for the Airlake Maintenance facility.

Aircraft fueling facilities provided by Waypoint, which include two 12,000 gallon underground tanks, one for 100LL avgas and one for Jet A fuel, along with an additional 5,000-gallon tank, available but not currently in use, are expected to provide adequate capacity throughout the planning period.

4.6.5 Security Requirements

There is no security fence or access gates at the Airlake Airport. At this time, there is no known demand or requirement for security related improvements at the airport. This

[22] An apron area of 700 square yards is assumed for Design Group I aircraft (wingspan <49 feet), and an apron area of 1,400 square yards is assumed for Design Group II aircraft (wingspan 49-79 feet).

should be monitored, however, in future long term plan updates if there are any changes to national aviation security recommendations or local issues generate a need for such improvements. In particular, the introduction of security fencing and access gates may be warranted during construction of the South Building Area.

Figure 4-1: Representative Aircraft Types

Airport Reference Code A-I

Aircraft	MTOW (lbs.) [1]	Approach Speed (knots)	Wingspan	Tail Height	Aircraft Type
Cessna 172	2,550	62	36'-1"	8'-11"	Single-Engine
Cirrus SR22 	3,400	78	38'-4"	8'-11"	Single-Engine
Diamond DA42	4,189	79	44'-4"	8'-2"	Multi-Engine
Eclipse 550	6,000	77	37'-11"	11'-0"	Very Light Jet
TBM 850	7,394	85	41'-7"	14'-4"	Single-Engine Turbo

Airport Reference Code A-II

Aircraft	MTOW (lbs.) [1]	Approach Speed (knots)	Wingspan	Tail Height	Aircraft Type
Cessna Caravan 208	8,000	79	52'-1"	14'-11"	Single-Engine Turbo
Pilatus PC-12 	10,450	87	53'-4"	14'-0"	Single-Engine Turbo

Airport Reference Code B-I

Aircraft	MTOW (lbs.) [1]	Approach Speed (knots)	Wingspan	Tail Height	Aircraft Type
Piper PA-31-350 Chieftain	7,000	96	40'-8"	13'-0"	Multi-Engine
Cessna 421C	7,450	96	41'-1"	11'-5"	Multi-Engine
Cessna Citation Mustang 	8,645	95	43'-2"	13'-5"	Very Light Jet
Piper PA-31T Cheyenne	9,000	98	42'-8"	12'-9"	Multi-Engine Turbo

Airport Reference Code B-II

Aircraft	MTOW (lbs.) [1]	Approach Speed (knots)	Wingspan	Tail Height	Aircraft Type
Cessna 441	9,850	99	49'-4"	13'-2"	Multi-Engine Turbo
Raytheon Beechcraft King Air 200/250 	12,500	103	57'-11"	14'-10"	Multi-Engine Turbo
Cessna Citation II/550 	14,100	112	52'-2"	15'-0"	Jet
Raytheon Beechcraft King Air 300/350	15,000	100	57'-11"	14'-4"	Multi-Engine Turbo
Cessna Citation Excel/560	20,000	107	55'-8"	17'-3"	Jet
Cessna Citation III/650 	22,000	114	53'-6"	16'-10"	Jet
Falcon 50	40,780	113	61'-10"	22'-11"	Jet

[1] Small Aircraft = Maximum Takeoff Weight (MTOW) less than or equal to 12,500lbs.

Figure 4-2: Airlake Airport All-Weather Wind Rose (2006-2015)

10.5 Knot Crosswind Component

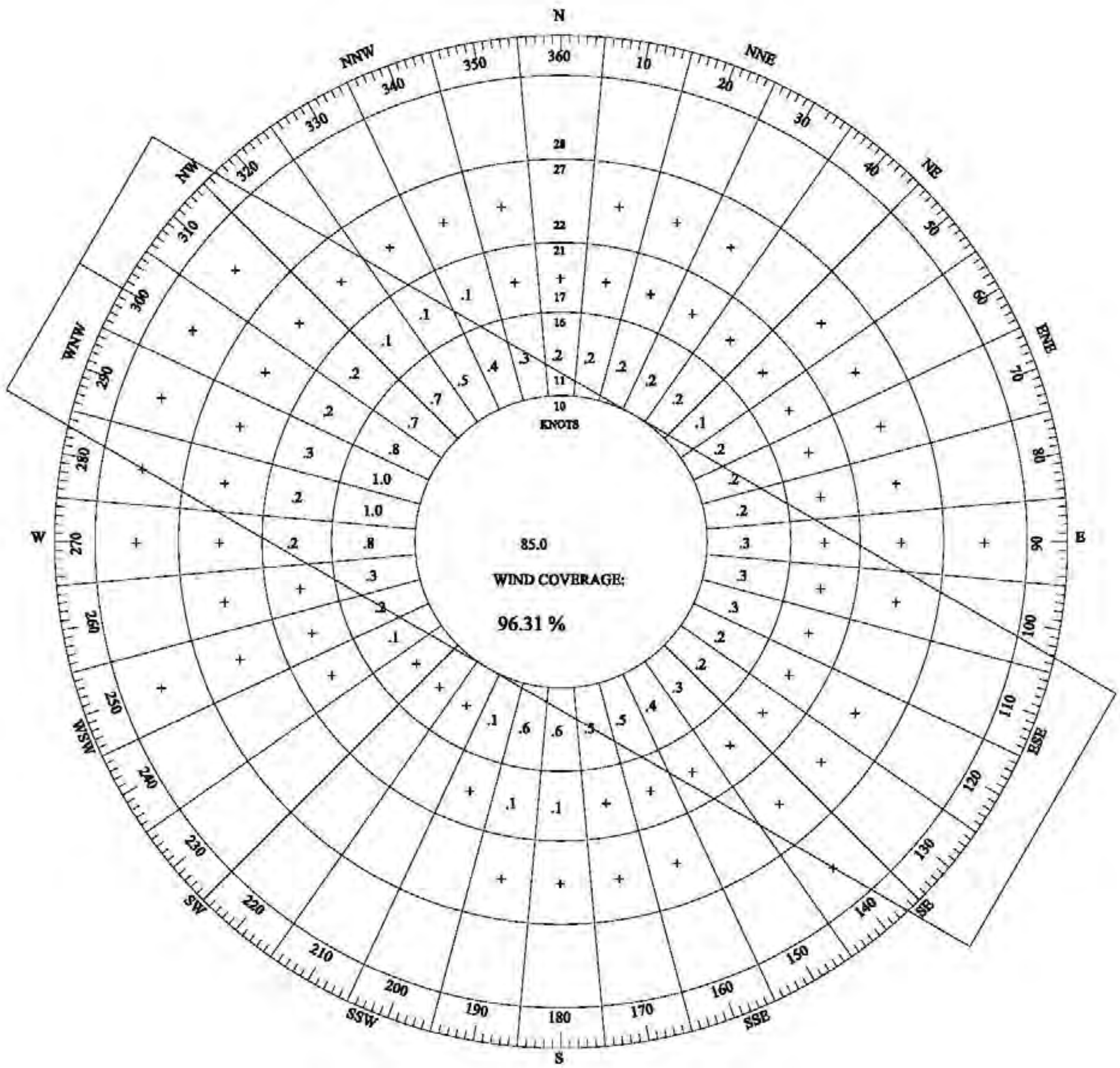
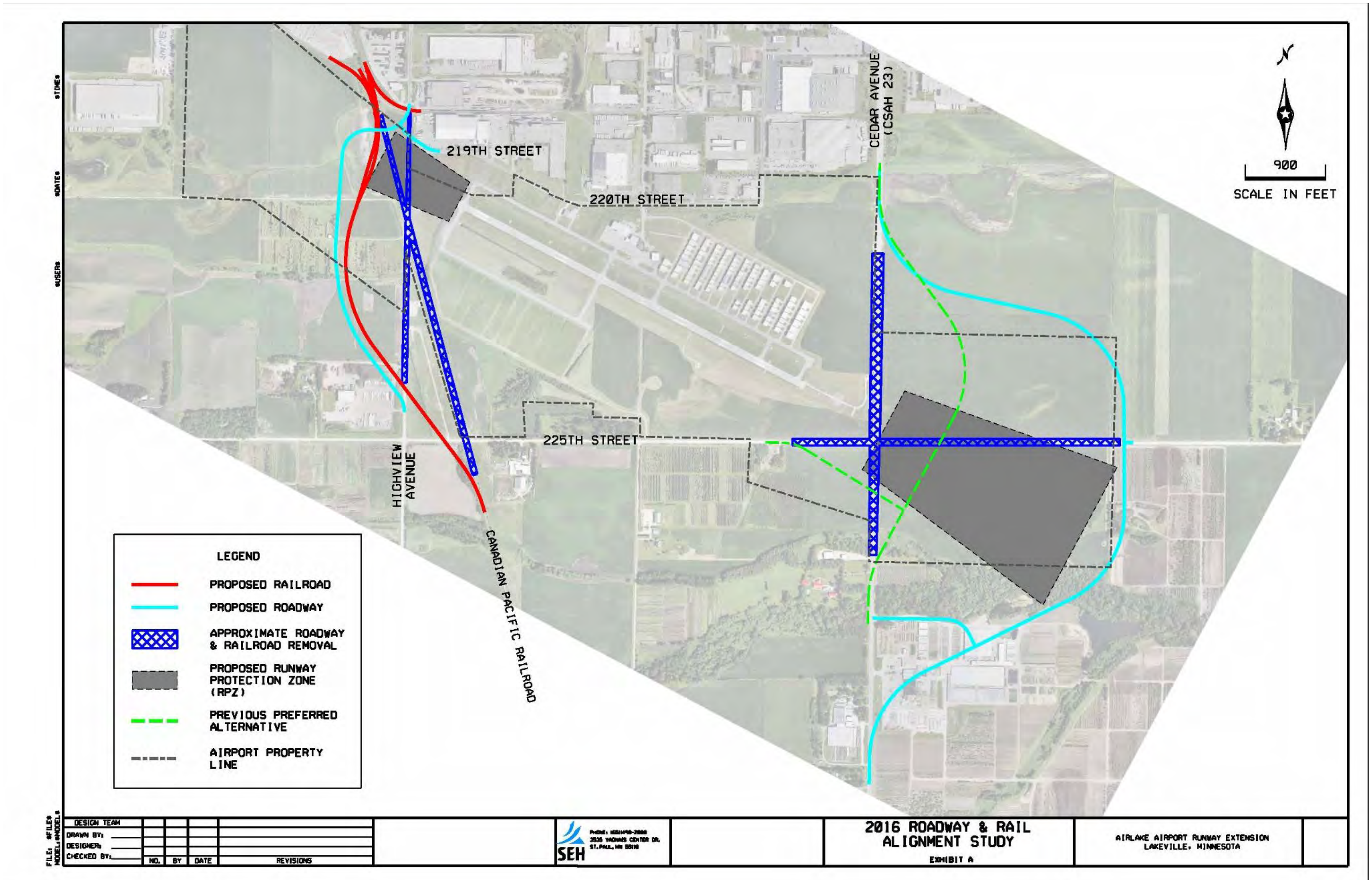


Figure 4-3: Conceptual Roadway/Railroad Relocations to Clear RPZs



PAGE INTENTIONALLY LEFT BLANK

SECTION 5:

ALTERNATIVES ANALYSIS

PAGE INTENTIONALLY LEFT BLANK

5. ALTERNATIVES ANALYSIS

5.1 INTRODUCTION

Within this chapter, several potential development options are analyzed for Airlake Airport. While the number of concepts could be infinite, those included in this chapter have been developed taking into consideration existing facilities and constraints, facility requirements, and forecasted activity levels.

5.1.1 Development Alternative Objectives

Key objectives behind the analysis of refinements to the preferred development alternative include the following:

- Maintain ARC B-II large aircraft design standards and ¾ mile ILS visibility minimums;
- Maintain or improve RPZ compatible land use;
- Clear, improve, and/or mitigate approach and departure surface penetrations where feasible; at a minimum, maintain existing conditions;
- Mitigate the aligned taxiway on the Runway 12 end;
- Mitigate direct ramp access connector taxiway;
- Improve runway length for design aircraft family;
- No impacts to existing ILS approach procedure or minimums; and
- No future development within the Part 77 Primary Surface.

5.2 DEVELOPMENT ALTERNATIVES CONSIDERED

5.2.1 2025 LTCP Preferred Alternative

The 2025 LTCP for Airlake Airport was finalized in December 2008 and evaluated several concepts for future airfield improvements:

- Leave the airport as is with only hangar area development;
- Leave the runway length as is but reduce the ILS approach minimums to 1/2 mile visibility, with hangar area development; and,
- Extend Runway (12-30) from 4,099 feet to 5,000 feet, with hangar area development.

After reviewing all of the concepts, costs, benefits and negative considerations, the preferred alternative formally adopted by the Commission for the Airlake Airport in December 2008 was to:

- Construct a new South Building Area to accommodate the 2025 needs;
- Extend Runway 12-30 and Taxiway A to 5,000 feet, including runway lighting and PAPI systems;

- Reduce the ILS approach minimums to ½ mile, including runway widening and runway light relocation; and
- Reconstruct the existing runway pavement.

The runway extension contemplated in the 2025 LTCP study identified that Cedar Avenue would be impacted and realigned around the relocated runway end. Although the runway extension and roadway realignment were not imminent, the owners of currently undeveloped property along Cedar Avenue desired to know the future alignment in order to consider it in their property development plans. Since a State Environmental Impact Statement (EIS) is required by state law for a runway length of 5,000 feet or longer, an EIS Final Scoping Decision Document was completed by MAC in 2011 to establish a vision for the corridor needed to relocate Cedar Avenue around the extended runway end and account for its future expansion into a four lane divided highway without negatively impacting the Vermillion River. The Vermillion River and its associated wetlands are located approximately ½ mile south of the airport and the river is a DNR-protected trout stream tributary. The current river bridge crossing would be used in order to limit the impacts on the river. The estimated cost to relocate Cedar Avenue and 225th Street was between $5.9 and $6.8 million in 2010 dollars, not including property acquisition costs.

The 2025 LTCP Preferred Alternative concept is shown in **Figure 5-1**.

The FAA issued a memorandum for *Interim Guidance on Land Uses within an RPZ* dated September 27, 2012. This memorandum clarifies the FAA's current position on allowable land use compatibilities within the RPZ. The memorandum describes the coordination and processes that are required to determine whether new or modified land uses in the RPZ are allowable. Included within the process is a comprehensive alternatives analysis that assesses the benefits, costs, and implications of the alternatives.

The recommended development plan from the 2025 LTCP to extend the runway to a length of 5,000 feet would realign both Cedar Avenue and 225th Street through the relocated RPZ, which would represent a triggering event to necessitate an RPZ Alternatives Analysis under the current FAA guidance. With the 2025 LTCP plan, MAC staff believes that FAA would expect the realignment of Cedar Avenue completely around the outside of the RPZ as an alternative, along with justification as to why that option is or is not feasible.

Relocating Cedar Avenue completely outside the extended runway RPZ to comply with FAA guidance would be an extensive undertaking. A high-level review suggests that the cost for this relocation would be upwards of $16,000,000, not including the nearly 40 acres of property acquisition that would be required for right-of-way.

In addition, the FAA has issued new or clarified guidance on several matters pertinent to the airfield configuration at Airlake. The previous LTCP Preferred Alternative does not account for the following FAA guideline changes:

- The Alternative did not address the Railroad penetration to the 20:1 Visual Approach Surface and may introduce new penetrations to other approach/departure surfaces

- Based upon the update to the FAA's Airport Design AC 150/5300-13A, Change 1, there are taxiway geometry issues that need to be addressed, including the aligned taxiway at the Runway 12 approach end.

The extended runway concept proposed in the 2025 LTCP results in the following:

2025 LTCP Preferred Alternative – Extend Runway 12-30 to 5,000 feet	
Advantages • Provides maximum runway length available per state statute (5,000 feet) • Reduced ILS approach minimums (down to ½ mile)	**Disadvantages** • There are incompatible land uses proposed in the RPZ that would trigger an Alternatives Analysis review and require FAA approval. • The Alternative did not address the Railroad penetration to the 20:1 Visual Approach Surface and may introduce new penetrations to other approach/departure surfaces • Based upon the update to the FAA's Airport Design AC 150/5300-13A, Change 1, there are taxiway geometry issues that need to be addressed, including the aligned taxiway at the Runway 12 approach end.
Estimated Development Cost: $10,300,000.00 - $12,600,000.00[23]	

5.2.2 Additional Alternatives Evaluated

Runway 12 End Displaced Threshold

As outlined in **Section 4.5.4**, train cars on the railroad track along the west side of the Airport penetrate the Runway 12 20:1 straight-in Visual Approach Surface. Additionally, the aligned taxiway leading up to the Runway 12 end no longer meets airport design standards (**Section 4.5.1**).

If the Runway 12 landing threshold were displaced by an additional 120 feet, the 20:1 Visual Area Surface would clear the adjacent railroad tracks. The pavement leading up to the threshold could be designated as runway pavement available for takeoff roll in the Runway 12 direction and landing rollout in the Runway 30 direction, eliminating the section of aligned taxiway.

This concept would reduce the landing distance available on Runway 12 from 4,099 feet to 3,979 feet. Reducing available landing length does not fit within the objectives of this LTCP, so this concept is not recommended as a stand-alone improvement. However, it should be incorporated into a subsequent alternative that provides additional runway length.

As a result of displacing the runway threshold to mitigate the 20:1 Visual Approach Surface, approximately 2,000 square feet of off-airport area would be introduced into the

[23] Cost estimate range does not consider the impact of relocating Cedar Avenue fully around the extended Runway 30 end RPZ.

Runway 12 Approach RPZ. Of this area, approximately 90 square feet is within an off-airport truck staging lot associated with an adjacent industrial land use.

As an interim measure, MAC is proposing to replace the existing visual glideslope indicator equipment (VASI) with a new PAPI unit that is located so the visual glideslope clears the railroad tracks. Efforts should also be made to site the new PAPI so that it can serve the future displaced runway end without having to be relocated.

The Runway 12 Displaced Threshold concept is shown in **Figure 5-2**.

Provide Stopways for Runway 12-30

Pavement designated as stopway can be considered as useable length for decelerating an aircraft during an aborted takeoff. Stopway pavement can be used for accelerate-stop distance calculations, but not for other takeoff or landing distance calculations.

Providing stopways on both ends of Runway 12-30 may allow some aircraft to depart at a higher takeoff weight when accelerate-stop distance is a limiting factor, and will promote safety by formally making this pavement available for use in the event of an aborted takeoff attempt. Stopways do not change the published runway length.

By providing stopways, the accelerate-stop distance would increase to approximately 4,400 feet for Runway 30 and nearly 4,600 feet for Runway 12. The published runway length will remain as 4,099 feet. Providing stopways will include the addition of stopway edge lighting (red unidirectional lights), relocating the existing runway threshold lights to be outboard of the pavement footprint, and grading the Runway Safety Area (RSA) beyond the stopway ends.

<table>
<tr><th colspan="2">Provide Stopways for Runway 12-30</th></tr>
<tr><td>Advantages
Increases ASDA to nearly 4,600 feet
No change to existing runway ends (published runway length does not change)
No change to Runway 30 Approach/Departure RPZ or Runway 12 Departure RPZ locations
Does not change the existing departure surfaces or procedures
Limited operational impacts during construction
Does not impact the existing ILS approach procedure</td><td>Disadvantages
Does not improve RPZ incompatibilities
Limited usefulness as stopways do not increase Landing Distance Available (LDA), Takeoff Run Available (TORA), or Takeoff Distance Available (TODA)
Capital costs to construct stopway pavement, add stopway lighting, and conduct additional RSA and ROFA grading.</td></tr>
<tr><td colspan="2">Estimated Development Cost: $3,100,000.00[24]</td></tr>
</table>

The Runway 12-30 Stopway concept is shown in **Figure 5-3**.

[24] Includes cost to reconstruct existing Runway 12-30 pavement

Extend Runway 12-30 with Declared Distances

Another concept evaluated for the 2035 LTCP proposes to use declared distances to maximize runway length for existing users in a manner that does not require the relocation of Cedar Avenue on the east side of the airfield, or Highview Avenue and the railroad track on the west side.

This concept considers runway extensions of 271 feet on the Runway 12 end and 480 feet on the Runway 30 end – the maximum extensions that can be provided while meeting all Runway Safety Area (RSA) and Runway Object Free Area (ROFA) standards. The published runway length would be 4,850 feet. Declared distances would be applied and published, meaning that not all of the published pavement would be available for landing and takeoff movements in each direction. Taxiway extensions would be added to the ends of the extended runway pavement.

In this case, the runway extensions would be available for aircraft beginning the takeoff roll or completing the landing rollout. It would also be available to accommodate accelerate-stop distance requirements. The existing Runway 30 displaced landing threshold would not change. The end result would be an 872-foot displaced threshold and no change to the existing approach RPZ location.

Similarly, to avoid moving the departure RPZs off each end, declared distances will be used so that the designated end of takeoff run distance does not change from the existing condition. This will result in the designated takeoff run distance ending before the physical end of the pavement in the direction of the takeoff roll.

The existing roads that traverse the Runway 30 RPZ – Cedar Avenue and 225th Street – predate the FAA's current RPZ compatibility guidance. The FAA's guidance only addresses the introduction of new or modified land uses to an RPZ and proposed changes to the RPZ size or location. Under this guidance, the existing roads are acceptable to remain in the RPZ as an existing condition. The triggering action for having to consider removing Cedar Avenue from the RPZ would be when the roadway needs to be widened or otherwise expanded to provide additional capacity. Based on existing and projected future traffic levels, there is no current plan to widen or expand the capacity of this section of Cedar Avenue within the planning period. Rehabilitation of the existing roadway footprint would not constitute a triggering event for an RPZ analysis.

A comparison of existing and proposed runway lengths by movement is provided in **Table 5-1** below:

Table 5-1: Comparison of Runway Lengths

Aircraft Movement	Existing Runway		Declared Distance Concept	
	12	30	12	30
Landing Distance Available (LDA)	4,099'	3,707'	4,579'	3,978'
Takeoff Run Available (TORA)	4,099'	4,099'	4,370'	4,579'
Takeoff Distance Available (TODA)	4,099'	4,099'	4,370'	4,579'
Accelerate-Stop Distance Available (ASDA)	4,099'	4,099'	4,850'	4,850'

Source: HNTB Analysis

<table>
<tr><th colspan="2">Extend Runway 12-30 with Declared Distances</th></tr>
<tr><td>Advantages
• No relocation of Cedar Avenue, Highview Avenue, or railroad track
• No change to Runway 30 Approach/ Departure RPZ or Runway 12 Departure RPZ locations
• Improves Runway 30 RPZ incompatibilities by relocating 225th St. entirely outside of the RPZ
• Improves Runway 30 Threshold Siting Surface (TSS) approach and Runway 12 departure by removing the controlling obstacle (225th Street)
• Does not change the existing departure surfaces or procedures
• Increases ASDA to approximately 4,850 feet
• Increases all landing and takeoff distances available; optimizes operational capability for airport users
• Does not impact the existing ILS approach procedure</td>
<td>Disadvantages
• Implements declared distances, increasing complexity for pilots
• May require National Change Program (NCP) approval since the localizer does not provide the recommended 600 feet of jet blast protection from the departure end of runway. Actual distance proposed is 370 feet from the end of the pavement.
• Increases existing pavement maintenance burden by adding taxiway extensions
• Capital costs to construct runway and parallel taxiway extensions, runway lighting, signage, and marking adjustments, additional RSA and ROFA grading, 225th St relocation, etc.
• Increases operational impacts during construction
• May require the holding position to be located further away from the runway due to a need to keep aircraft out of approach surfaces
• Requires tributary stream relocation near South Building Area</td></tr>
<tr><td colspan="2">Estimated Development Cost: $5,700,000.00[25]</td></tr>
</table>

[25] Includes cost to reconstruct existing Runway 12-30 pavement

The Runway 12-30 Extended Runway with Declared Distance concept is shown in **Figure 5-4**.

As noted, this alternative does not provide 5,000 feet of runway length, but provides nearly 4,600 feet of takeoff run distance and 4,850 feet of accelerate-stop distance for Runway 30. In the Runway 12 direction, it provides nearly 4,400 feet of takeoff run distance but preserves 4,850 feet for accelerate-stop.

In order to assess the magnitude of difference in utility between runway lengths, an assessment of aircraft performance charts for several of the more demanding aircraft expected to use the airport was completed to determine the percentage of an aircraft's total useful load that could be carried by aircraft departing Airlake Airport on a typical summer day (82.3° F at field elevation) under four runway conditions – the existing length of 4,099 feet, 4,579 feet (Runway 30 TORA/TODA maximum), 4,850 feet (Runway 12 and 30 ASDA maximum), and 5,000 feet. **Table 5-2** provides the results of this assessment.

Table 5-2: Percent Useful Load at Departure by Runway Length

Aircraft Type	Maximum Takeoff Weight (lbs.)	% of Useful Load (UL) by Runway Length			
		4,099'	**4,579'**	**4,850'**	**5,000'**
Cessna Citation II	14,100	78%	90%	100%	100%
Dassault Falcon 10	18,740	65%	79%	86%	90%
Cessna Citation III	22,000	42%	57%	64%	68%
Dassault Falcon 20	28,660	56%	72%	79%	82%
	Group Average	*60%*	*74%*	*82%*	*85%*

Notes: Takeoff Distance based on Balanced Field length from aircraft performance manuals.

Takeoff distance calculations based on the following conditions:

Temperature = 82.3°F, Field Elevation = 960 feet MSL, Flaps = Typical takeoff

Source: Aircraft Performance Manuals/Data

The results indicate that even with a runway length of 5,000 feet, only the smaller Cessna Citation II would be able to depart at its maximum useful load. Assuming that ASDA is the critical balanced field length for many corporate jet takeoff calculations, the loss in useful load capability at 4,850 feet versus 5,000 feet is approximately 3% on average for this aircraft grouping. Meanwhile, the gain in useful load capability at 4,850 feet is approximately 22% percent over the existing runway length.

At a typical small business jet fuel burn rate, the departure payload gain facilitated by a 4,850-foot runway could equate to an additional 1 to 1.5 hours of flight time when fuel reserves are considered.

This assessment confirms that while 5,000 feet of runway would be ideal, even a lesser improvement in available runway length could yield significant operational benefits and enhance the airfield's utility for corporate operators.

In October 2016, MAC submitted a formal Runway Protection Zone (RPZ) Alternatives Analysis to FAA seeking favorable consideration of this Declared Distance concept even though the RPZs for both runway ends maintain existing land uses and will not be clear in a manner that fully complies with FAA guidance. In the analysis, MAC's rationale for pursuing an airfield development concept that extends Runway 12-30 through the use of declared distances and maintains existing land uses in the RPZs is as follows:

- While additional pavement is being added to the Runway 30 end, the approach and departure RPZs are not changing based on the proposed use of declared distances. Traffic volumes on Cedar Avenue do not warrant expansion of the corridor from two to four lanes. The risk of an airplane crash within the RPZ when a vehicle would be present is no greater than it would be today. Removing Cedar Avenue from the RPZ can be reevaluated if/when the corridor is proposed for expansion.
- Highview Avenue and 220th Street are low volume, local roads. The risk of an airplane crash within the RPZ when a vehicle is present is low. Realignment outside of the RPZ is not viable given the existing industrial development and location of the Progressive Rail line.
- The Progressive Rail line has, at most, two trains a day on the line. It serves an adjacent spur line and industrial development. Realigning the railroad to required design standards would cause significant impacts due to the built up urban area to the north and agricultural area to the south and west of Airlake Airport.
- MAC is willing to consider the installation of "Low Flying Aircraft/No Parking" signage on Cedar Avenue, Highview Avenue, and 220th Street at the edges of the RPZ as a mitigating strategy, but this will require coordination with and approval from the municipalities with roadway jurisdiction.
- At an estimated cost of less than \$6,000,000 (including reconstruction of the existing runway), the proposed concept is much less costly than any alternative that involves relocating Cedar Avenue or the adjacent Progressive Rail tracks. At the same time, input from turbine aircraft operators suggests that the longer runway as proposed would ease current operational constraints and open the door for additional mid-size corporate jet operators that bypass Airlake Airport today for other area airports with additional runway length.

In January 2017, the FAA provided its concurrence with MAC's RPZ Alternatives Analysis.

Both the RPZ Alternatives Analysis and the FAA response are reproduced in **Appendix 6**.

The proposed use of declared distances at Airlake Airport was subjected to an Operational Assessment as a formalized and proactive approach to manage safety and for continued maintenance of stakeholder confidence. A panel of subject matter experts (SME) conducted an assessment on Thursday September 8th, 2016.

First the panel evaluated the effectiveness and suitability of declared distances aimed at identification of defects, gaps, and areas of risk. Second, it provided a realistic forecasted measure of expected output should the proposed change be implemented. The assessment was limited in scope to discuss risks and opportunities associated with implementation of the change. The panel did recognize concerns, but did not consider feasibility or possible environmental impacts of the proposed change. At the conclusion of the panel, members stated their position referencing the implementation of declared distances at Airlake Airport. The panel was said to be either neutral or in favor of the proposed change. There were none in opposition to the change.

A copy of the Operational Assessment Report is included within the RPZ Alternatives Analysis documentation included in **Appendix 6**.

In order to clear the Part 77 Primary Surface, a portion of 225th Street would have to be realigned to a new intersection with Cedar Avenue. **Figure 5-5** illustrates a feasible concept for the realignment.

Taxiway Configurations

For the 2035 LTCP, the following taxiway changes are being considered:

- Relocate the western apron access taxilane to eliminate direct access from the apron to the runway (Detail “A” on **Figure 5-6**);
- Install POFZ hold position markings and signs on Taxiway A (Detail “B” on **Figure 5-6**);
- Adjust hold position markings on connector taxiways to be 200 feet from the Runway 12-30 centerline to provide more space to hold on the connectors (Detail “C” on **Figure 5-6**); and
- Install lighting on Taxiway A to promote situational awareness during low-visibility conditions (Detail “D” on **Figure 5-6**).

Apron Expansion

An expansion to the existing FBO apron to better accommodate existing and future itinerant aircraft activity appears warranted. The existing apron has an estimated deficiency of approximately 5,300 square yards. The costs for expanding the apron would be borne by the tenant.

Locations that could be considered for construction of additional apron for itinerant aircraft parking include the following:

- Site A: Expanding the existing apron to the northwest. This concept is constrained by the existing trout stream that is located adjacent to the apron. However, as a first phase, the apron could be expanded approximately 45 feet towards the stream while still retaining the required 50-foot stream buffer. This would yield approximately 1,000 square yards of additional apron area for aircraft storage. Any subsequent apron expansion would require relocating the stream or enclosing an additional section of it in a culvert and expanding the apron over the top. This would require coordination with and approvals from the appropriate water quality agencies, including the Vermillion River Watershed Joint Powers Organization (VRWJPO), U.S. Army Corps of Engineers, DNR, Dakota County Soil and Water Conservation District, and the City of Lakeville.

- Site B: Adjacent to Taxiway A on the west side of the trout stream. The site between the trout stream and the MAC Maintenance Building is too small when the stream buffer is accounted for. This leaves the area to the west of the Maintenance Building. From a layout perspective, this site would only allow construction of a long, linear apron with limited operational flexibility due to the adjacency of a public roadway (219th Street); furthermore, it is not contiguous to or visible from the FBO. The lack of security fencing may make some pilots reluctant to leave their aircraft there if unattended.
- Site C: Adjacent to the access taxiways in the South Building Area. This site offers the most flexibility and least number of constraints to construct an efficient apron. While not contiguous to the existing FBO, aircraft on the apron would still be visible from the existing site. However, there is no existing landside access to this site, so all vehicular traffic to the remote apron would have to cross the airfield until landside access via 225th Street is provided. Alternatively, an airfield access roadway around the Runway 12 end could be considered to minimize runway crossings.

The apron expansion locations described above are shown on **Figure 5-7**. If agency coordination reveals that expanding the existing apron to the northwest beyond the first phase described above is not feasible due to the trout stream, the next best option appears to be developing a new apron in the South Building Area.

5.3 PREFERRED DEVELOPMENT ALTERNATIVE

The 2035 LTCP Preferred Alternative for airfield improvements at Airlake Airport includes the following items:

- Displace Runway 12 threshold to provide airspace clearance over railroad tracks;
- Extend Runway 12-30 with declared distances to maximize overall airfield utility for existing users in a manner that does not require the relocation of Cedar Avenue or the railroad tracks;
- Taxiway configuration changes noted above; and
- Apron Expansion area to better accommodate itinerant aircraft.

The improvements associated with the 2035 LTCP Preferred Alternative are shown together on **Figure 5-8**.

This recommendation does not preclude the eventual extension of Runway 12-30 to 5,000 feet as recommended in the 2025 LTCP. The appropriate time to evaluate the need for an extension to 5,000 feet will be when Dakota County proposes to widen or otherwise improve the section of Cedar Avenue that runs through the Runway 30 Runway Protection Zone (RPZ).

Finally, it is important to note that the LTCP is a planning document and does not authorize any construction. Adoption of the LTCP is only the first step in the project implementation process. Before any construction can begin, the project(s) must first be evaluated through an environmental review process and then compete for funding through Federal Aviation Administration and/or State grant programs. In order to compete effectively for funding, the project(s) must have solidly documented justification. Once funding is secured, final project engineering and design will take approximately one year to complete. Based on this timeline, it is feasible that construction could occur sometime during the 2022-2023 timeframe (subject to change).

Figure 5-1: 2025 LTCP Preferred Alternative

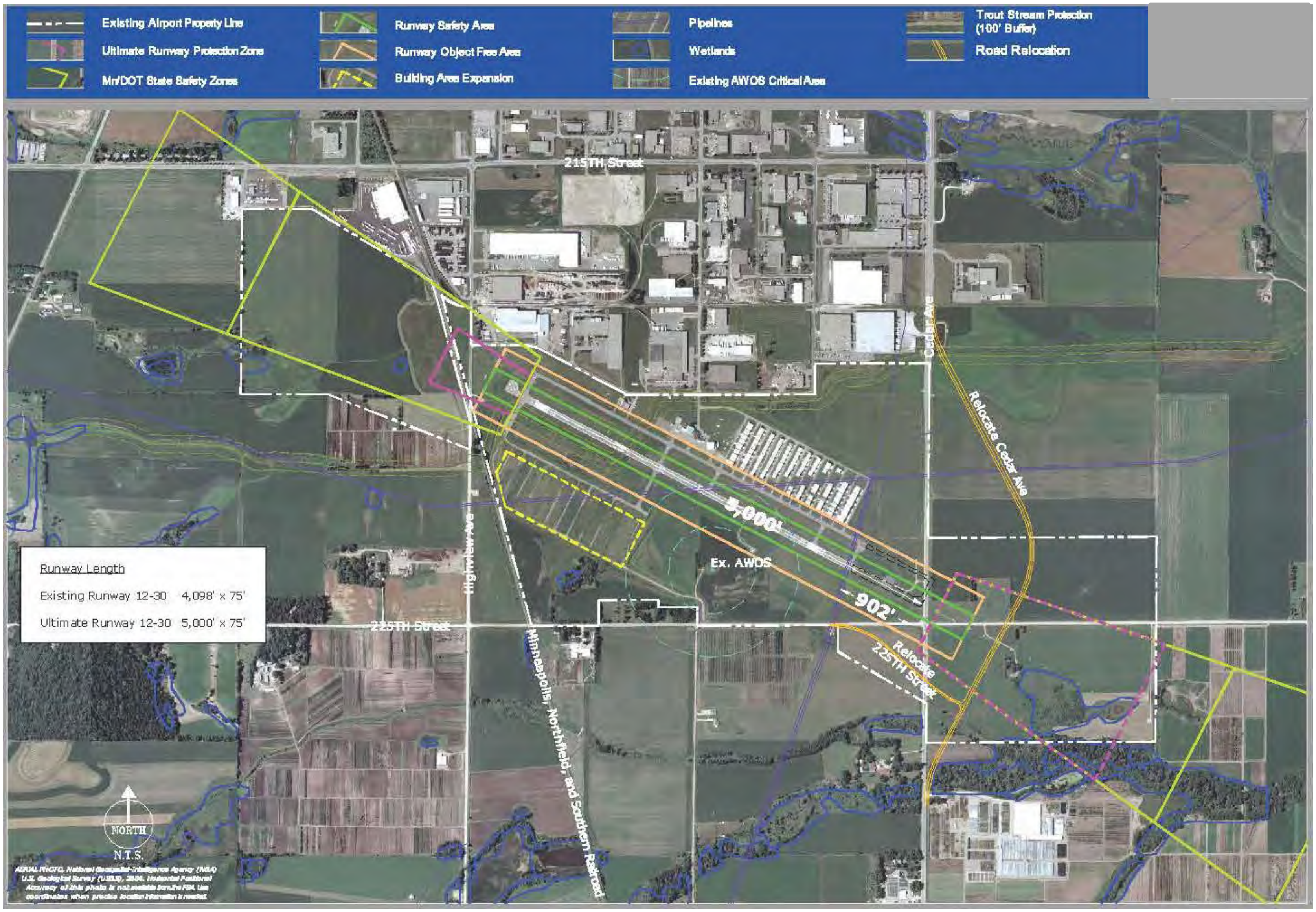


Figure 5-2: Runway 12 Displaced Threshold Concept

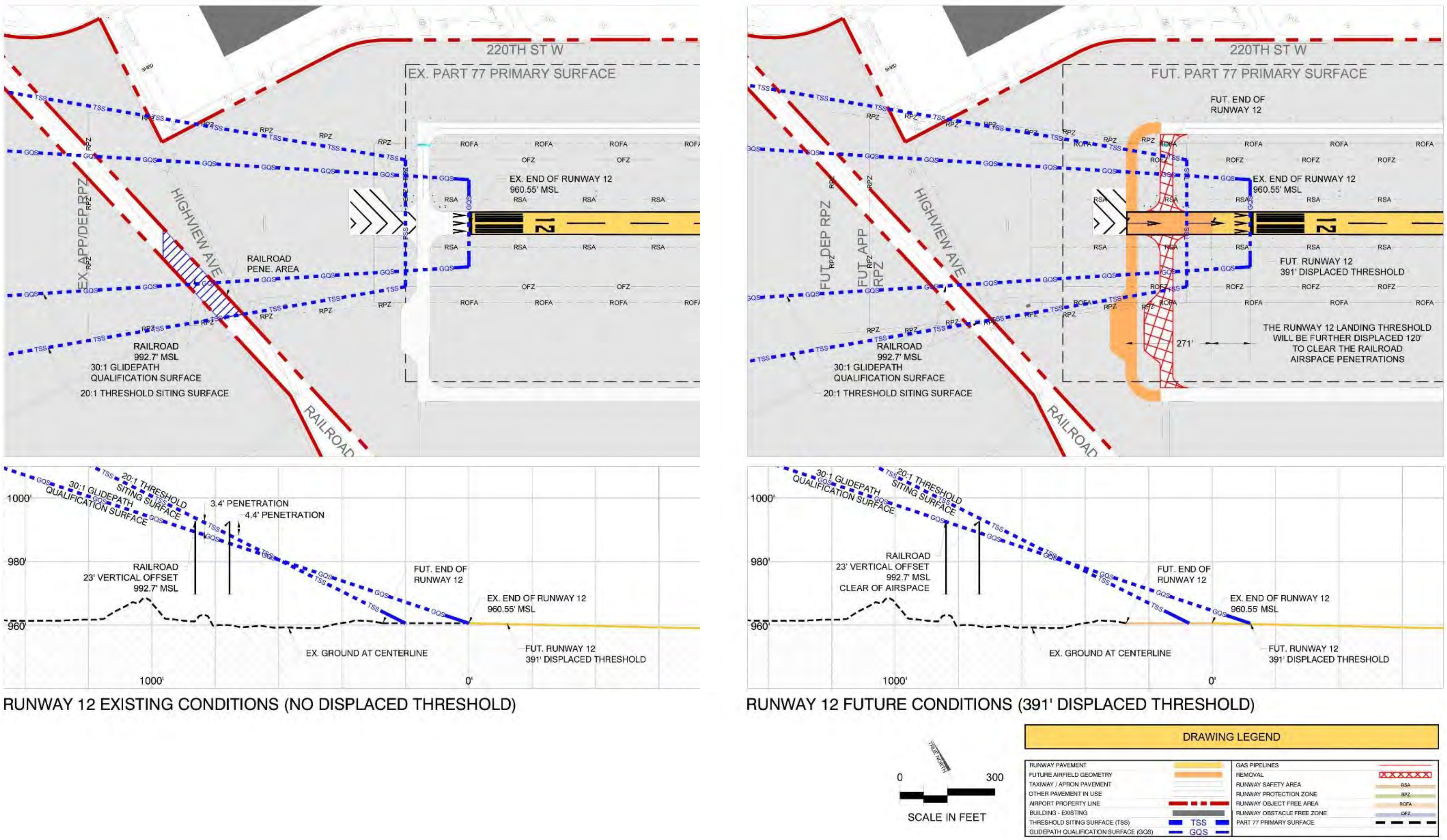


Figure 5-3: Runway 12-30 Stopway Concept

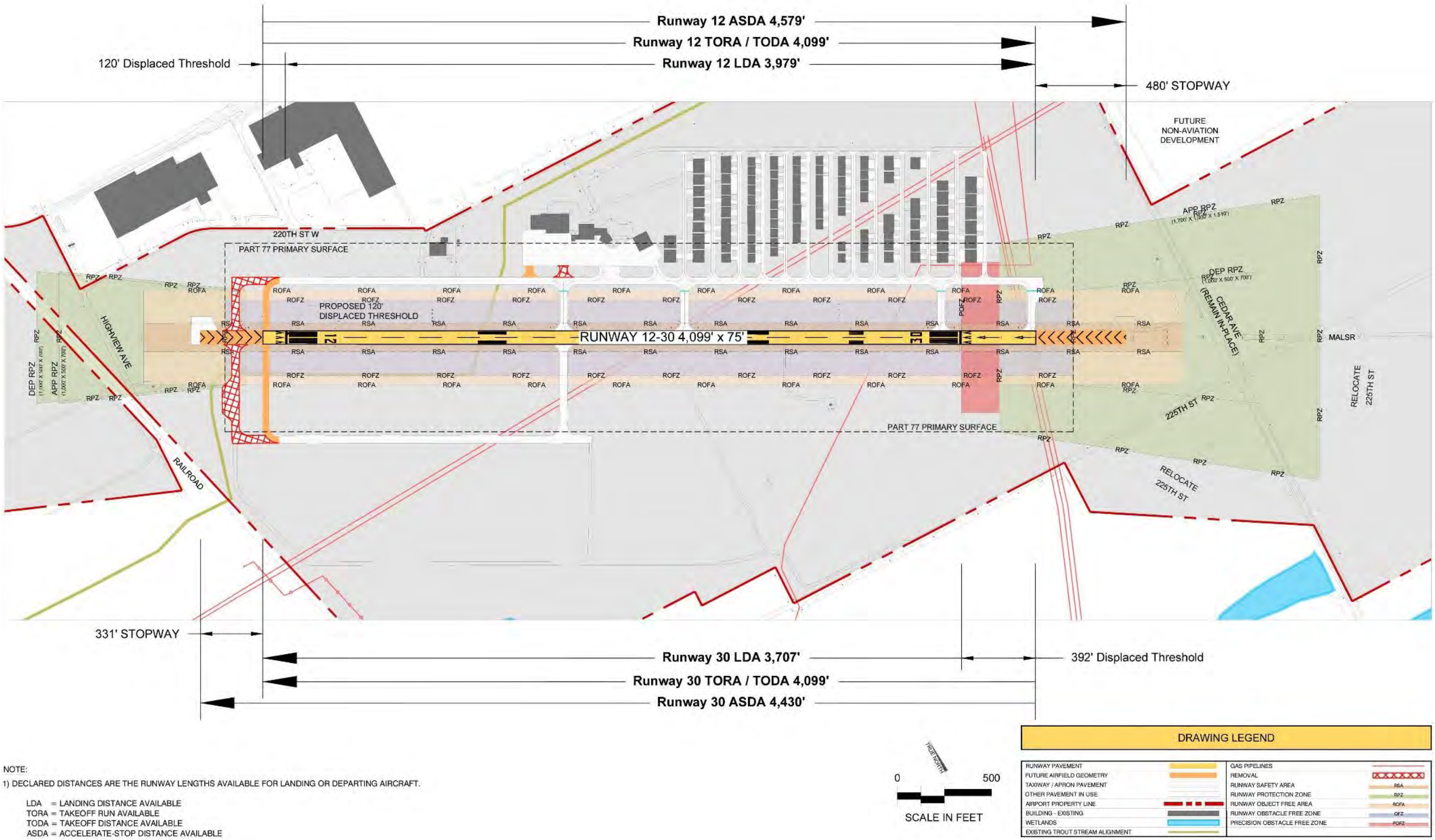
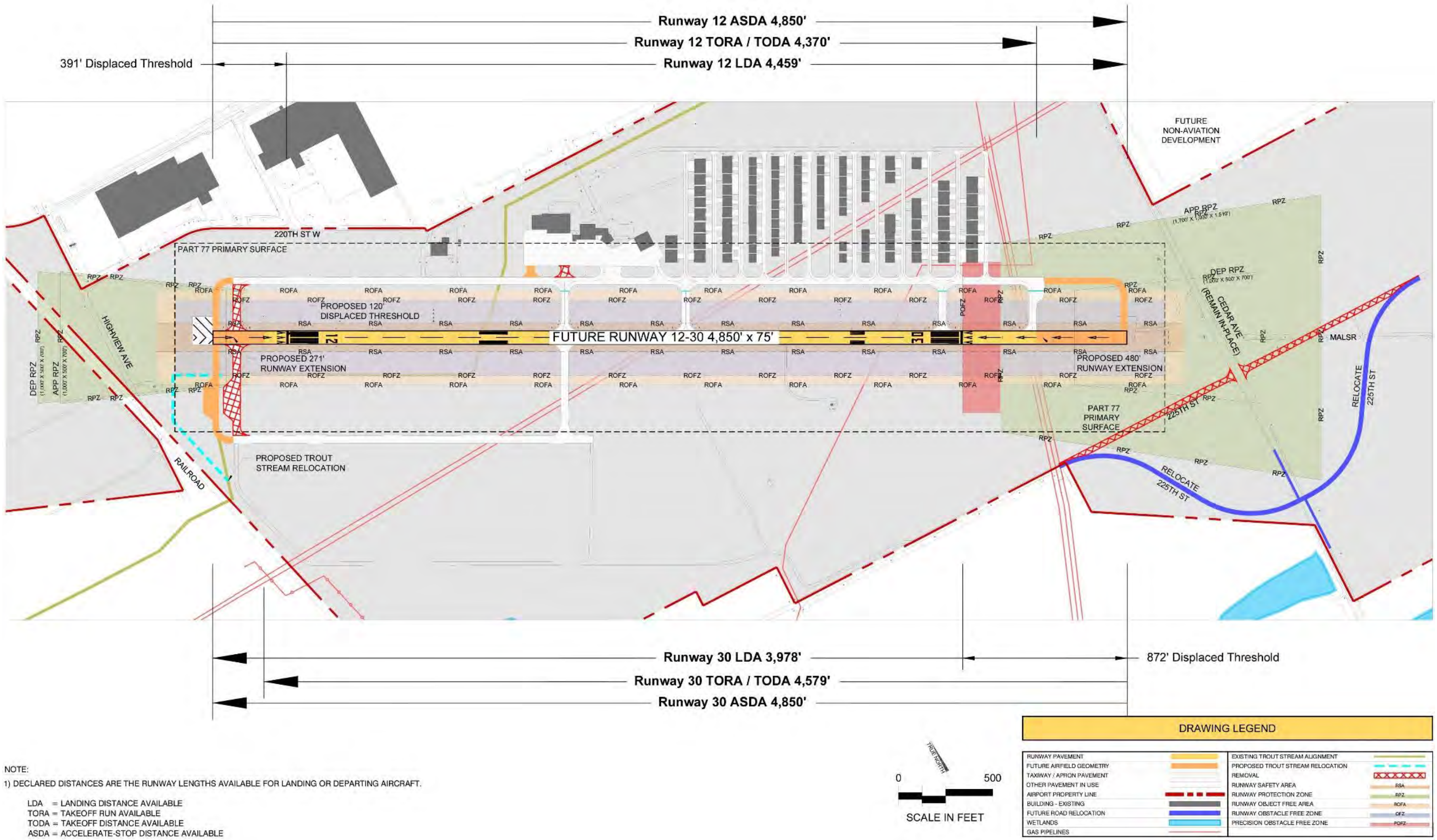


Figure 5-4: Runway 12-30 Extended Runway with Declared Distance Concept



NOTE:
1) DECLARED DISTANCES ARE THE RUNWAY LENGTHS AVAILABLE FOR LANDING OR DEPARTING AIRCRAFT.

LDA = LANDING DISTANCE AVAILABLE
TORA = TAKEOFF RUN AVAILABLE
TODA = TAKEOFF DISTANCE AVAILABLE
ASDA = ACCELERATE-STOP DISTANCE AVAILABLE

Figure 5-5: 225th Street Realignment Concept

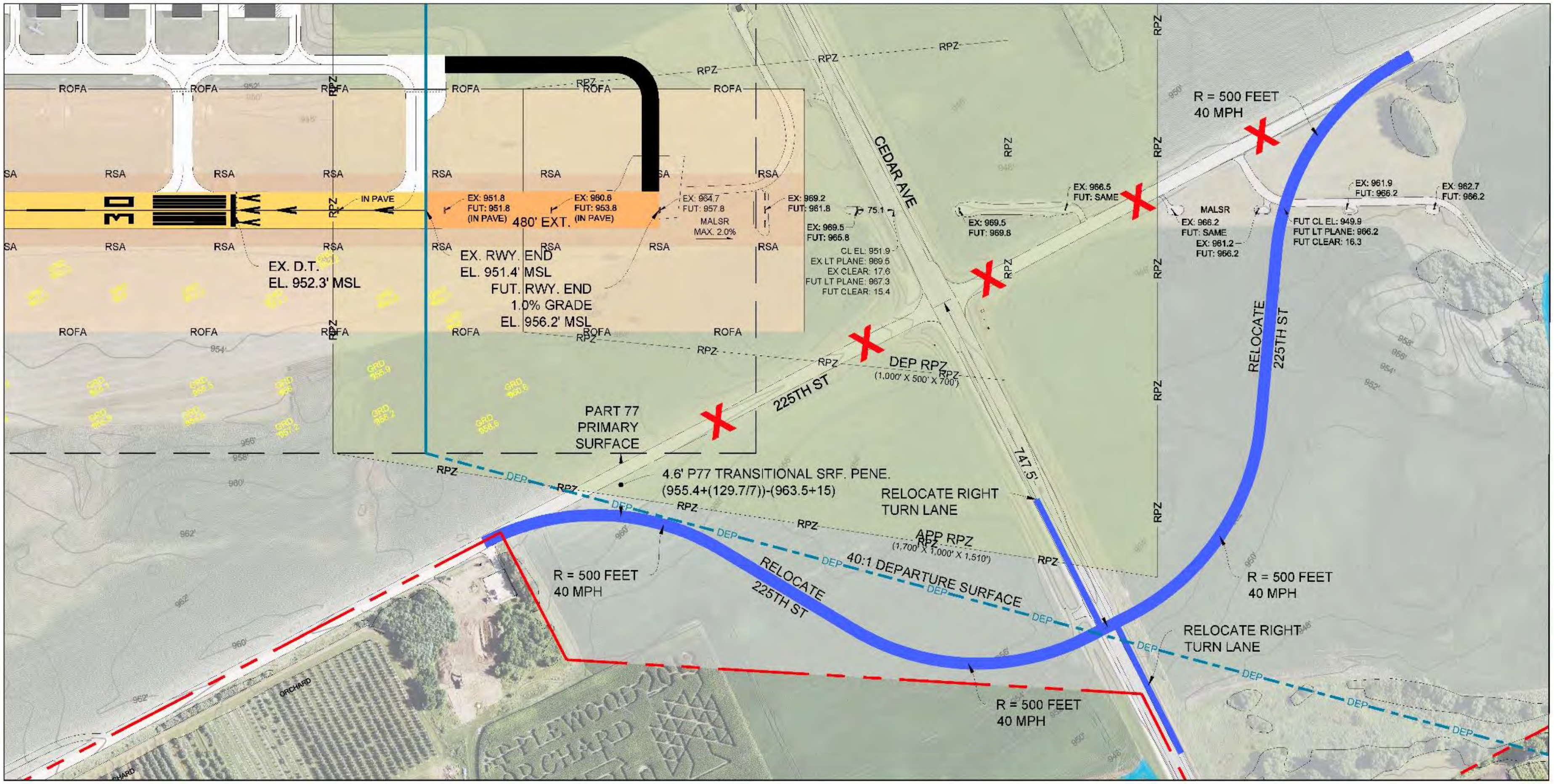


Figure 5-6: Taxiway Configuration Changes

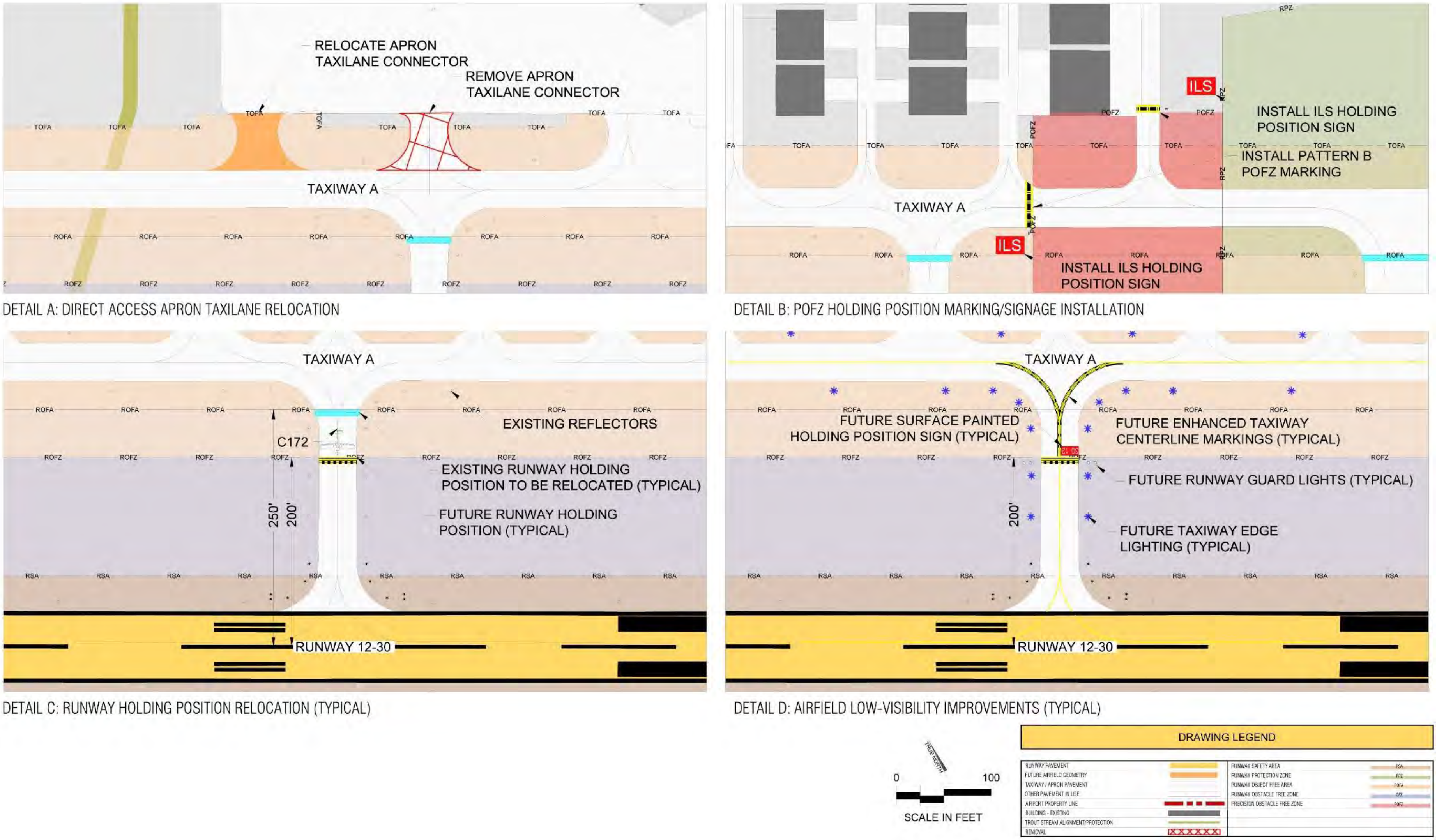


Figure 5-7: Apron Expansion Areas

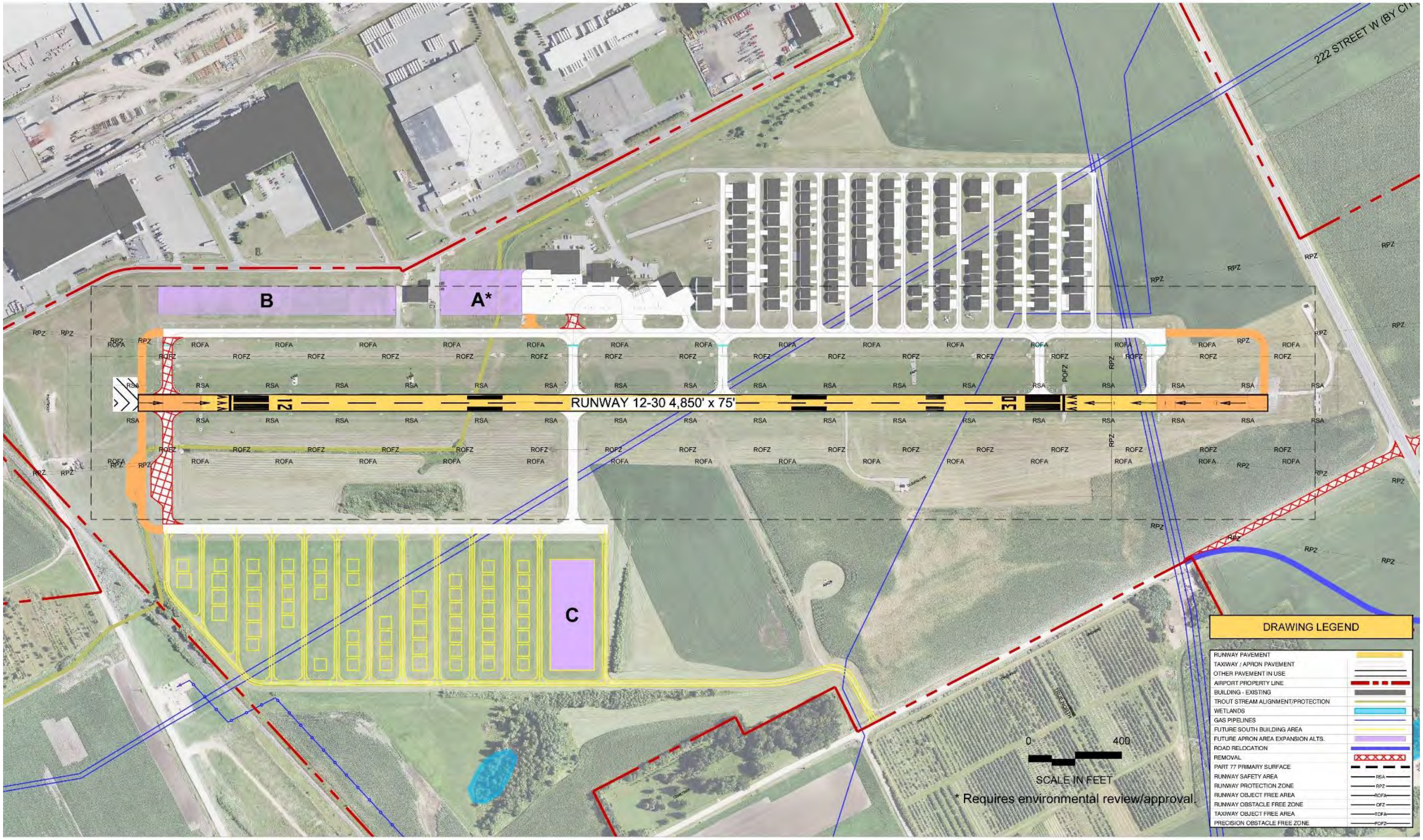
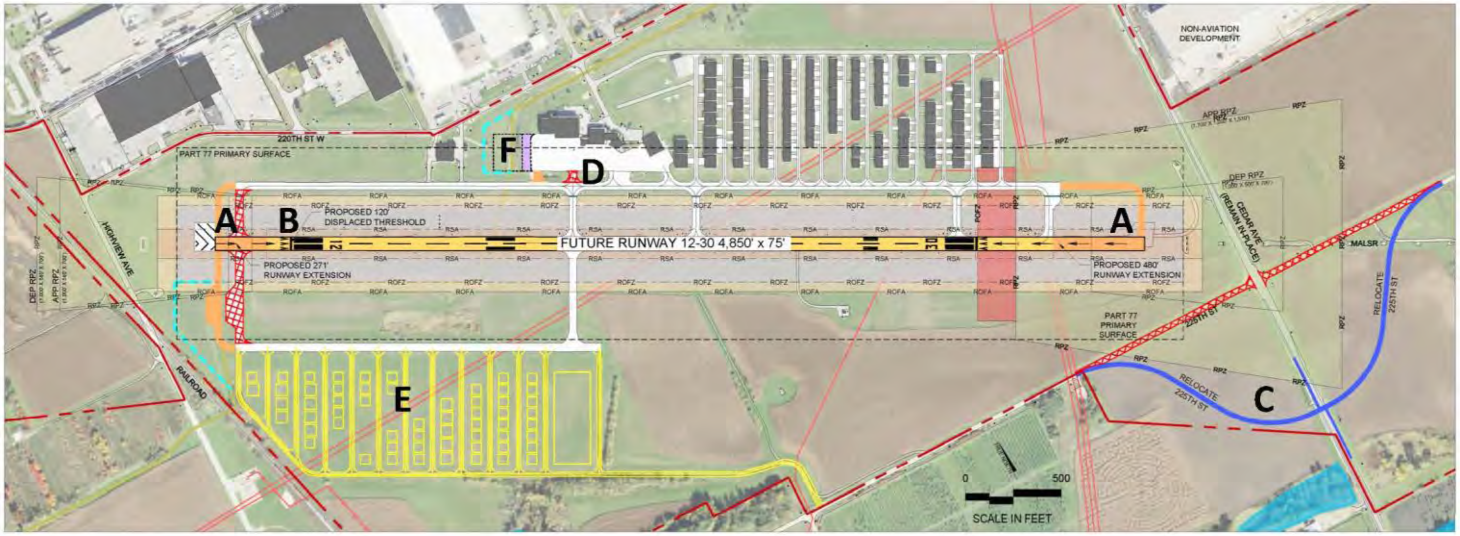


Figure 5-8: 2035 Preferred Development Alternative



DRAWING LEGEND

RUNWAY PAVEMENT	TAXIWAY / APRON PAVEMENT	WETLANDS	RUNWAY SAFETY AREA (RSA)
FUTURE AIRFIELD GEOMETRY	OTHER PAVEMENT IN USE	GAS PIPELINES	RUNWAY PROTECTION ZONE (RPZ)
FUTURE APRON EXPANSION (PHASE I)	AIRPORT PROPERTY LINE	EXISTING TROUT STREAM ALIGNMENT	RUNWAY OBJECT FREE AREA (ROFA)
FUTURE APRON EXPANSION (PHASE II)	BUILDING - EXISTING	PROPOSED TROUT STREAM RELOCATION	RUNWAY OBSTACLE FREE ZONE (OFZ)
FUTURE SOUTH BUILDING AREA	FUTURE ROAD RELOCATION	REMOVAL	PRECISION OBSTACLE FREE ZONE (POFZ)

WHAT AIRPORT IMPROVEMENTS ARE PROPOSED IN THE PLAN?

The following improvements are recommended and are illustrated on the map.

A. Extend both runway ends for a runway length of 4,850 feet (including connector taxiway extensions and rehabilitating the existing runway pavement)

B. Displace Runway 12 end for additional airspace clearance over railroad track

C. Relocate 225th Street to accommodate runway changes

D. Modify some taxiway configurations

E. Develop the South Building Area and access roadway

F. Expand the aircraft parking apron

PAGE INTENTIONALLY LEFT BLANK

SECTION 6:

ENVIRONMENTAL CONSIDERATIONS

PAGE INTENTIONALLY LEFT BLANK

6. ENVIRONMENTAL CONSIDERATIONS

6.1 INTRODUCTION

An integral part of the airport planning process focuses on the manner in which the airport and any planned enhancements to the facility pose environmental impacts. This chapter provides a high-level introductory assessment of potential environmental implications of the planned operation and development of Airlake Airport. Prior to any construction taking place, the MAC will complete an Environmental Assessment (EA) and/or an Environmental Assessment Worksheet (EAW) in compliance with state statutes and FAA requirements for utilizing Airport Improvement Program (AIP) grant funds.

6.2 AIRCRAFT NOISE

6.2.1 Quantifying Aircraft Noise

Basics of Sound

Sound is a physical disturbance in a medium; a pressure wave typically moving through a fluid - air. A sound source vibrates or otherwise disturbs the air immediately surrounding the source, causing variations in pressure above and below the static (at-rest) value of atmospheric pressure. These disturbances force air to compress and expand setting up a wavelike movement of air particles that move away from the source. Sound waves, or fluctuations in pressure, vibrate the eardrum creating audible sound.

The decibel, or dB, was introduced as a measure of sound pressure level that is compressed into a convenient range, the tremendous span of human sensitivity to pressure. Using a logarithmic relationship, and the ratio of sensed pressure compared against a fixed reference pressure value, the dB scale accounts for the range of hearing with values from 0 to around 200. Most human sound experience falls into the 30 dB - 120 dB range.

Decibels are logarithmic, and thus cannot be added directly. Two identical noise sources each producing 70 dB do not add to a total of 140 dB, but to 73 dB. Each time the number of sources is doubled, the sound pressure level is increased 3 dB.

- 2 sources: 70 dB + 70 dB = 73 dB
- 4 sources: 73 dB + 73 dB = 76 dB
- 8 sources: 76 dB + 76 dB = 79 dB

The just-noticeable change in loudness for normal hearing adults is about 3 dB. That is, changes in sound level of 3 dB or less are difficult to notice. A doubling of loudness for the average listener of A-weighted sound is about 10 dB[26]. Measured, A-weighted sound levels changing by 10 dBA effect a subjective perception of being "twice as loud".[27]

Figure 6-1 provides the noise levels for various common sources.

[26] A-weighted decibels represent noise levels that are adjusted relative to the frequencies that are most audible to the human ear.

27 Peppin and Rodman, Community Noise, p. 47-48; additionally, Harris, Handbook, Beranek and Vér, Noise and Vibration Control Engineering, among others.

Day-Night Average Sound Level (DNL)

In 1979 the United States Congress passed the Aviation Safety and Noise Abatement Act. The Act required the Federal Aviation Administration (FAA) to develop a single methodology for measuring and determining airport noise impacts. In January 1985 the FAA formally implemented the Day-Night Average Sound Level (DNL) as the noise metric descriptor of choice for determining long-term community noise exposure in the airport noise compatibility planning provisions of 14 CFR Part 150. Additionally, FAA Order 1050.1, *"Environmental Impacts: Policies and Procedures"* and FAA Order 5050.4, *"National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions,"* outline DNL as the noise metric for measuring and analyzing aircraft noise impacts.

As detailed above, the FAA currently requires the DNL noise metric to determine and analyze noise exposure and aid in the determination of aircraft noise and land use compatibility issues around United States airports. Because the DNL metric correlates well with the degree of documented community annoyance from aircraft noise, DNL has been formally adopted by most federal agencies dealing with noise exposure. In addition to the FAA, these agencies include the U.S. Environmental Protection Agency (EPA), U.S. Department of Defense, U.S. Department of Housing and Urban Development, and Veterans Administration.

The DNL metric is calculated by cumulatively averaging sound levels over a 24-hour period. This average cumulative sound exposure includes the application of a 10-decibel penalty to sound exposures occurring during the nighttime (10:00 PM to 7:00 AM). The night sound exposures are increased by 10 decibels because nighttime noise is more intrusive.

Figure 6-2 provides examples of typical DNL levels in various environments.

The FAA currently considers the 65 dB DNL contour line as the threshold of significance for noise impact. As such, sensitive land use areas (e.g., residential) around airports that are located in the 65 dB or greater DNL contours are considered by the FAA as incompatible structures.

Integrated Noise Model (INM)

The FAA's Integrated Noise Model (INM) version 7.0d was used for evaluating aircraft noise impacts in this plan.

The model utilizes flight track information, runway use information, operation time of day data, aircraft fleet mix, standard and user-defined aircraft profiles, and terrain as inputs. The INM model produces DNL noise exposure contours that are used for land use compatibility maps.

The INM considers multiple airport and aircraft operational and noise propagation variables. The primary inputs into the model include aircraft activity levels, fleet mix, day/night split of operations, runway use and flight tracks.

6.2.2 Noise Contour Development

The noise contours presented in this document were developed using INM Version 7.0d. The contours represent noise contours, expressed in DNL. The FAA currently suggests that three different DNL levels (65, 70, and 75 DNL) be modeled but considers the 65 dB DNL contour line as the threshold of significance for noise impact. The Metropolitan Council suggests that the 60 DNL contour be included for airports in an urban environment and the 55 DNL in cases where airports are located outside the Metropolitan Urban Service Area (MUSA). Currently, Airlake Airport lies outside of the MUSA, so the 55 DNL noise contour will be shown for advisory purposes. However, it is not linked to any requirements for noise attenuation or mitigation.

The Metropolitan Airports Commission (MAC) owns and operates a Noise and Operations Monitoring System (MACNOMS) at Minneapolis-St. Paul International Airport (MSP). In addition to monitoring noise levels at 39 remote noise monitoring towers located around MSP, the system collects flight track data to approximately 40 miles around MSP up to 20,000 feet. Airlake Airport is located approximately 17 miles from MSP. As such, flight track data in the vicinity of Airlake Airport were provided by MACNOMS to aid in the INM input file development process.

MACNOMS flight track data from the 12-month period ending in June 2015 was used to develop the Baseline Condition INM Inputs. Due to the existing constraints in the flight tracking system in the vicinity of Airlake Airport, acquisition and availability of detailed flight track data is reduced. However, for the year ending June 2015, MACNOMS reported approximately 27,407 aircraft operations in the vicinity of Airlake Airport which represents approximately 74.6 percent of total estimated operations in 2015. This provided an adequate data sample for purposes of contributing to the construction of the INM inputs.

The following details the methodology utilized in developing the data inputs for the INM contour modeling.

<u>Aircraft Activity Levels</u>

As summarized in **Table 3-10** in **Chapter 3**, the total number of Airlake Airport operations in the Baseline Condition is estimated to be 36,757 and the 2035 Preferred Alternative Condition forecast number of total operations is 38,410.

<u>Fleet Mix</u>

Using the MACNOMS flight track data available in the vicinity of Airlake Airport for a 12-month period ending June 2015, various data processing steps were taken to develop the Baseline Condition fleet mix. The flight track analysis process began by first excluding all MSP air carrier jet flight tracks. Then all flight tracks with a start point or end point that did not fall within a 5km (3.1 mile) radius and 1km (0.6 mile) ceiling (above ground level) around Airlake Airport were filtered out of the data. If the starting point of a track was within the radius and ceiling thresholds, it was considered a departure operation. If the endpoint of a track was within the radius and ceiling thresholds, it was considered an arrival operation. If both start and end points of a track were within the radius and ceiling thresholds, it was considered a touch and go operation. The aircraft type information from the MACNOMS flight track system was then adjusted to reflect the number of operations per aircraft category from the Base Case Year 2015 operations estimates, as described in **Appendix 3** to develop the Baseline Condition fleet mix. The Baseline Condition fleet mix was then scaled to reflect the forecast assumptions outlined in **Chapter 3** to arrive at the projected Forecast 2035 fleet mix.

A summary of the Baseline Condition and Forecast 2035 fleet mixes is provided in **Table 6-1**. A more detailed presentation of the Baseline Condition and 2035 Preferred Alternative Condition aircraft fleet mixes is provided in **Appendix 7**.

Day/Night Split of Operations

Based on the MACNOMS flight track data for Airlake Airport, the split of day and nighttime operations was determined. Daytime hours are defined as 7:00 AM to 9:59:59 PM and nighttime hours are 10:00 PM to 6:59:59 AM.

The day/night operations distribution derived from the MACNOMS flight track data was then applied to the total number of operations to develop the Baseline Condition day/night split.

The Baseline Condition day/night split was used to arrive at the 2035 Preferred Alternative Condition day/night split. The day/night split is not expected to change significantly throughout the forecast period.

A summary of the Baseline Condition and 2035 Preferred Alternative Condition day/night splits is also provided in **Table 6-1**. A more detailed presentation of the Baseline Condition and 2035 Preferred Alternative Condition day/night splits is provided in **Appendix 7**.

Table 6-1: Summary of Average Daily Flight Operations

Average Daily Flight Operations	Day	Night	Total	% of Total Operations
Baseline Condition				
Helicopter	3.1	0.7	3.8	4.8%
Multi-Engine Piston	1.9	0.1	2.0	2.5%
Single-Engine Piston	71.1	2.3	73.4	91.2%
Turboprop	0.7	0.1	0.7	0.9%
Jet	0.5	0.1	0.6	0.7%
Total	*77.2*	*3.3*	*80.5*	*100.0%*
% of Total Operations	*95.9%*	*4.1%*	*100.0%*	
2035 Preferred Alternative Condition				
Helicopter	5.4	1.3	6.7	7.7%
Multi-Engine Piston	1.6	0.1	1.7	2.0%
Single-Engine Piston	66.3	2.0	68.3	79.2%
Turboprop	1.8	0.2	2.1	2.4%
Jet	6.7	0.8	7.5	8.7%
Total	*81.7*	*4.5*	*86.2*	100.0%
% of Total Operations	*94.8%*	*5.2%*	*100.0%*	

Notes: Totals may not add due to rounding

Source: MACNOMS Data Analysis, HNTB Activity Forecasts

Runway Use

Using the Airlake Airport flight track data, a runway use analysis was conducted. Runway assignments were made utilizing trapezoids off the end of each runway to determine on which runway a flight operated. Each trapezoid runs along the axis of the centerline beginning at the runway end and extending 5km (3.1 miles). The trapezoid is 500m (.31 miles) wide at the runway end and 1,800m (1.1 miles) wide at the extent furthest from the runway. For the purpose of the runway use analysis, the last five or first five data points of each flight track in the vicinity of Airlake Airport were analyzed relative to the runway trapezoids.

In cases when the last five radar points of a track were in the vicinity of Airlake Airport, and at least one of the radar points was located within a respective runway trapezoid, the track was assigned as an arrival operation on that runway. Conversely, in cases when the first five radar points were in the vicinity of Airlake Airport, and at least one of the radar points was located within a respective runway trapezoid, the track was assigned as a departure operation on that runway. In cases when the last five and first five radar points were in the vicinity of Airlake Airport, and at least one of the last and at least one of the first radar points were located within a respective runway trapezoid, the track was assigned as a touch and go operation on the respective runway(s).

The Baseline Condition runway use assumptions were then adjusted to arrive at the projected 2035 Preferred Alternative runway use.

A summary of the Baseline Condition and 2035 Preferred Alternative Condition runway use percentages is provided in **Table 6-2**. A more detailed presentation of the Baseline Condition and 2035 Preferred Alternative Condition runway use is provided in **Appendix 7**.

Flight Tracks

The Baseline Condition INM flight track locations were developed based on the trends established by the MACNOMS flight tracks that met the fleet mix data sample criteria for Airlake Airport.

The Baseline Condition INM flight tracks were then adjusted to reflect the final airfield configuration per the Preferred Alternative, as detailed in **Section 5**.

Figures depicting flight track locations and additional detail related to flight track use for the Baseline and 2035 Preferred Alternative Conditions are provided in **Appendix 7**.

Table 6-2: Summary of Average Annual Runway Use

Average Annual Runway Use %	Arrivals			Departures			Touch and Gos		
	Day	Night	Total	Day	Night	Total	Day	Night	Total
Baseline Condition									
Runway 12	36.4%	22.2%	35.6%	37.8%	35.5%	37.7%	50.7%	50.0%	50.7%
Runway 30	63.6%	77.8%	64.4%	62.2%	64.5%	62.3%	49.3%	50.0%	49.3%
2035 Preferred Alternative Condition									
Runway 12	38.0%	20.8%	36.8%	38.1%	36.2%	38.0%	50.6%	-	50.6%
Runway 30	62.0%	79.2%	63.2%	61.9%	63.8%	62.0%	49.4%	-	49.4%

Notes: Totals may not add due to rounding

Source: MACNOMS Data Analysis

6.2.3 Baseline Condition Noise Impacts

In the Baseline Condition noise contours, there are no residential parcels located within the 65, 60, or 55 DNL noise contours around Airlake Airport. The 65 DNL contour contains approximately 86 acres, all on airport property, while the 60 DNL contour contains approximately 169 acres and the 55 DNL contour contains approximately 391 acres. The entire 75, 70 and 65 DNL contours are contained on the airport property, essentially overlying the areas immediately adjacent to the runways. The 75 and 70 DNL contours contain approximately 10 and 42 acres respectively.

The Baseline Condition noise contours are shown in **Figure 6-3**.

A summary of the Baseline Condition noise impact is provided in **Table 6-3**.

Table 6-3: Baseline Condition Noise Impact Summary

Noise Impact Summary by Contour	75 DNL	70 DNL	65 DNL	60 DNL	55 DNL
Baseline Condition					
Contour Overall Area (Acres)	10.2	41.8	86.3	168.9	391.1
Contour Contained on Airport?	Yes	Yes	Yes	No	No
Number of Residential Parcels	0	0	0	0	0

Source: MAC Analysis

6.2.4 2035 Preferred Alternative Condition Noise Impacts

In the 2035 Preferred Alternative noise contours there are no residential parcels located within the 65, 60, or 55 DNL noise contours around Airlake Airport. The 65 DNL contour contains approximately 146 acres, mostly but not fully on airport property, while the 60 DNL contour contains approximately 317 acres and the 55 DNL contour contains approximately 813 acres. The entire 75 and 70 DNL contours are contained on the airport property, essentially overlying the areas immediately adjacent to the runways. The 75 and 70 DNL contours contain approximately 22 and 70 acres respectively.

The 2035 Preferred Alternative noise contours are shown in **Figure 6-4**.

A summary of the 2035 Preferred Alternative noise impact is provided in **Table 6-4**.

Table 6-4: 2035 Preferred Alternative Condition Noise Impact Summary

Noise Impact Summary by Contour	75 DNL	70 DNL	65 DNL	60 DNL	55 DNL
2035 Preferred Alternative Condition					
Contour Overall Area (Acres)	22.2	70.1	145.9	316.9	813.0
Contour Contained on Airport?	Yes	Yes	No	No	No
Number of Residential Parcels	0	0	0	0	0

Source: MAC Analysis

A comparison of the Baseline and 2035 Preferred Alternative noise contours is shown in **Figure 6-5**. **Table 6-5** provides a comparison of noise impacts from the Baseline to the 2035 Preferred Alternative Condition.

Table 6-5: Noise Contour Comparison (Baseline to 2035 Preferred Alternative)

Noise Impact Comparison by Contour	75 DNL	70 DNL	65 DNL	60 DNL	55 DNL
Change from Baseline to 2035 Preferred Alternative Conditions					
Contour Overall Area (Acres)	12.0	28.3	59.6	148.0	421.9
Percentage Change	118%	68%	69%	88%	108%
Number of Residential Parcels	0	0	0	0	0

Source: MAC Analysis

In summary, when the 2035 Preferred Alternative Condition contours are compared to the Baseline Condition contours:

- For the 65 DNL contour, the acreage contained within the contour increases by approximately 60 acres, with no residential parcels contained in the contour under either condition. The 65 DNL contour is contained on airport property in the Baseline Condition, but extends off airport property in the 2035 Preferred Alternative Condition. This change is largely due to the increased flight activity forecasted in 2035.
- For the 60 DNL contour, the acreage contained within the contour increases by approximately 148 acres, with no residential parcels contained in the contour under either condition. The 60 DNL contour extends off airport property in both

conditions. Again, this change is largely due to the increased flight activity forecasted in 2035.

- For the 55 DNL contour, the acreage contained within the contour increases by approximately 422 acres, with no residential parcels contained in the contour under either condition.

6.3 SANITARY SEWER AND WATER

Most of Airlake Airport, including the North and South Building Areas, currently lie outside of the Metropolitan Urban Services Area (MUSA). However, the Metropolitan Council Environmental Services (MCES) agency has requested that the MAC provide sanitary sewer and water services for all of the hangar areas in the Reliever system, including Airlake Airport. This request was primarily related to concerns about the possibility of noncompliant well and septic systems that may be in existence at the airports.

Existing tenants that have legal wells and septic holding tanks have been allowed to keep them. The MAC maintenance building also has a well and holding tank. Tenants with illegal sandpoint wells or drain fields were required to remove or abandon them after MAC adopted its Sanitary Sewer and Water Policy in 1998, and subsequent revision in October 2000. Consistent with that policy, no new wells or holding tanks have been allowed at the airport.

The FBO and MAC maintenance building are connected to sewer and water as they are within the Lakeville municipal boundary. When these buildings were connected to the system, stubs for both the watermain and the sanitary sewer were extended to the south under the runway. The North Building Area at Airlake does not have services available for tenant connection, but does have a watermain line and hydrants installed for fire protection.

In 1997, the MAC prepared a Water and Sanitary Sewer Master Plan for the Airlake Airport. The alternatives discussed in the report included the construction of public restroom facilities, fire protection via a hydrant line, and installing sanitary sewer and water services.

The 2025 LTCP identified the following steps for installation of sanitary sewer and water facilities at Airlake:

- Pursue an agreement with the City of Lakeville and Eureka Township for the provision of sanitary sewer and water to the airport;
- Provide sanitary sewer and water services to a portion of the South Building Area, construct a stand-alone restroom facility, and designate the remaining hangar spots as a non-service area. This should accommodate those tenants that want connection and any corporate hangars constructed, along with reducing the overall cost of installation;
- As part of South Building Area installation, loop the watermain such that hydrants can be installed throughout the hangar area for fire protection;

- Designate the existing north hangar area as a non-service area, but construct a stand-alone restroom for tenant use that is connected to the sanitary sewer and water system.

Discussions about the process and timeline for extending utilities to areas not currently within the Lakeville city boundary are underway between MAC, Lakeville, and Eureka Township.

The Capital Improvement Program (CIP) for Airlake Airport includes the following projects that are dependent upon water and sanitary sewer service:

- Construction of a Public Restroom Facility and Aircraft Wash Pad in 2019

  MAC provides stand-alone public restroom facilities within hangar areas at several of its airports, including Anoka County – Blaine, Flying Cloud, and Crystal that can be used by tenants who do not have sewer and water at their hangar. A site selection study was completed in 2014 to identify a location for a similar stand-alone restroom facility at Airlake Airport. Of several options considered, the preferred site for a stand-alone public restroom facility to serve hangars in the North Building Area was identified north of Hangar Row Charlie along the vehicle access road. This site provided the best balance between overall cost and proximity to the Hangar Area. However, as this site is not within the City, an agreement will need to be reached with Lakeville to provide water and sewer services at this site. The preliminary concept for the public restroom facility is shown in **Figure 6-6**.

  It is anticipated that the Aircraft Wash Pad will be located in the vicinity of the existing FBO site.

- South Building Area Development - Phase 1 in 2020

  This project involves extension of sanitary sewer and water mains to a portion of the South Building Area, along with construction of two hangar access taxilanes and the south entrance road connecting to 225th Street W. A site concept is shown in **Figure 6-7**.

6.4 WETLANDS

As noted in **Section 2.5.1**, Airlake Airport lies within the Vermillion River Watershed, which is managed by the Vermillion River Watershed Joint Powers Organization (VRWJPO). While the Vermillion River is located approximately one-half mile south of Runway 30, one of its tributaries runs directly through airport property. This channel is named the South Tributary of South Creek, and it has only intermittent flows. It is a designated trout stream.

As described in **Section 2.5.1**, the Minnesota Buffer Law requires 50 feet of permanent vegetation on either side of the stream bank. The South Building Area grading and stream/ditch relocation was completed in 1998 under a permit received from the DNR. Additionally, the intermittent stream flows through an existing culvert under Runway 12-

30. Coordination with the VRWJPO, the City of Lakeville, Eureka Township, Dakota County Soil and Water Conservation District, the Army Corps of Engineers, and the Department of Natural Resources will be required for projects in the vicinity of the tributary to ensure there are no impacts to the stream.

There are also wetland areas on airport property. The wetlands are regulated under the Wetland Conservation Act (WCA). The City of Lakeville and Eureka Township currently serve as the Local Government Unit (LGU) for administering the WCA wetlands within their respective boundaries. Approximately 33 acres of wetlands were identified within airport property, with varying wetland types. **Figure 2-9** contains a graphic showing the wetland areas.

A small portion of the MAC-owned southern parcel east of Cedar Avenue lies within the 100-year floodplain of the Vermillion River. There may also be designated floodplain areas on the airport associated with the South Tributary.

Any projects completed at the airport require conformance with the VRWJPO, Army Corps of Engineers, WCA and/or DNR regulations regarding wetlands. The projects proposed in the preferred alternative require environmental review, at which time, avoidance, minimization and any required mitigation efforts will be discussed if wetland impacts are suspected. Appropriate mitigation will also be discussed should wetland impacts arise from any of the proposed projects.

Any environmental review will also include plans for storm water quality. Previous airport projects have required rate and volume controls, infiltration or other means to enhance water quality. These and other best management practices will continue with future projects identified as the preferred alternative.

6.5 OTHER ENVIRONMENTAL CONSIDERATIONS

The MAC will conduct an environmental review per federal National Environmental Policy Act (NEPA) and Minnesota Environmental Policy Act (MEPA) requirements to more specifically identify the environmental footprint of the proposed improvements before construction can begin. During this process, alternatives must be reviewed and any potential impacts must be avoided if possible. If impacts cannot be avoided, they must be minimized to the extent possible and mitigated in full compliance with federal and state requirements.

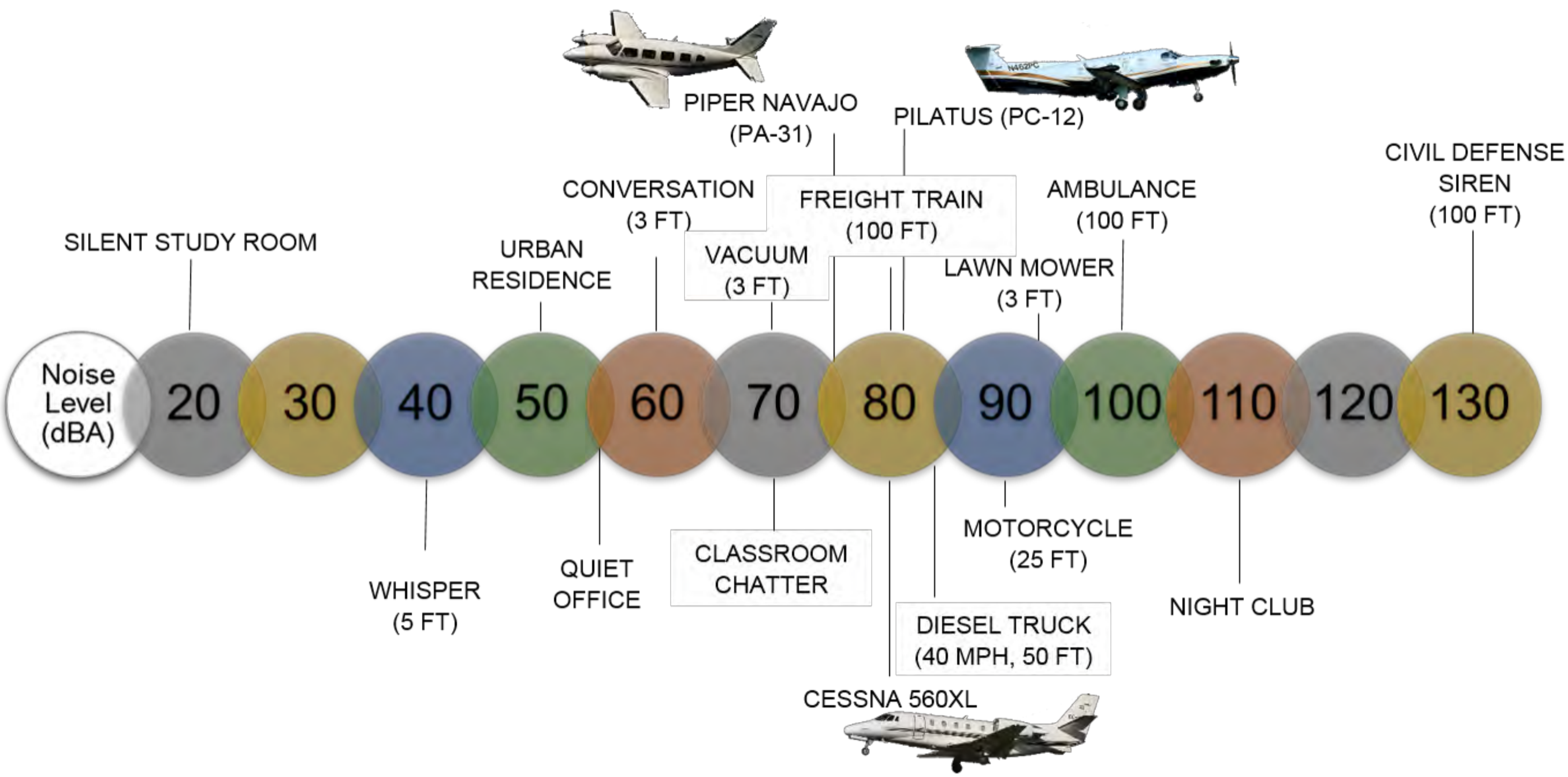
The following impact categories will be assessed during the environmental review:

- Air Quality;
- Biological resources (including fish, wildlife, and plants);
- Climate;
- Department of Transportation Section 4(f) Properties (park and recreational lands, wildlife and waterfowl refuges, and historic sites);
- Farmlands;
- Hazardous materials, solid waste, and pollution prevention;

- Historical, architectural, archeological, and cultural resources;
- Land use;
- Natural resources and energy supply;
- Noise and compatible land use;
- Socioeconomics, environmental justice, and children's environmental health and safety risks;
- Visual effects (including light emissions);
- Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers);
- Construction impacts; and
- Cumulative effects.

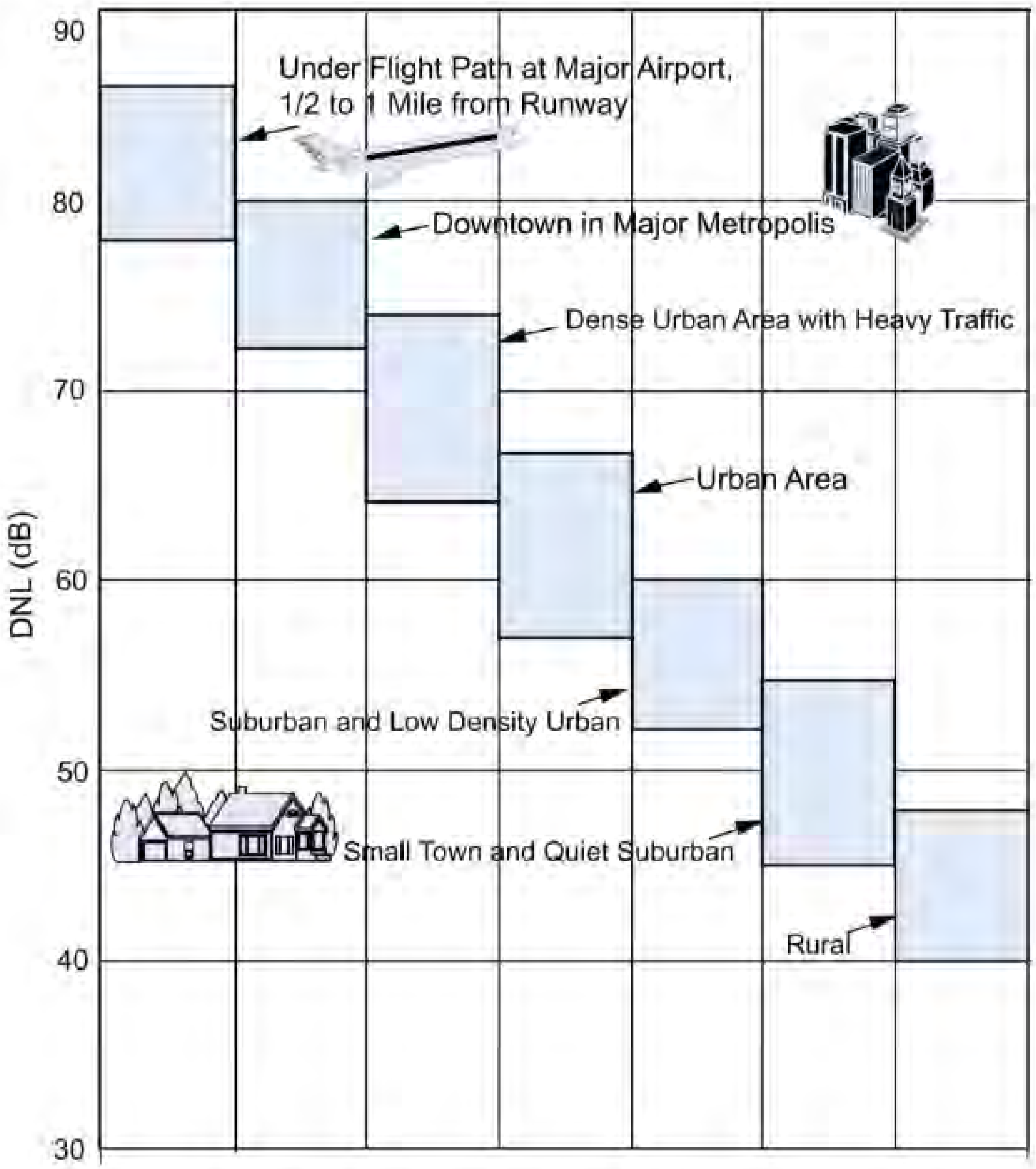
An environmental review process cannot begin until there is a sufficiently detailed plan available to evaluate. MAC envisions initiating the environmental review for the proposed Airlake Airport improvements after the plan is reviewed by the Metropolitan Council and formally adopted by the MAC Board. A full study of these environmental impact items at this time falls outside the scope of this long-term planning document.

Figure 6-1: Sound Levels of Typical Noise Sources



Source: Aircraft sound levels are average measured L_{max} values for arrival events at MSP remote monitoring towers 5 and 6 between January 2010 and May 2017 for the aircraft type depicted. RMT 5 is 1.28 miles from the arrival threshold of Runway 12R. RMT 6 is .90 miles from the arrival threshold of Runway 12L.

Figure 6-2: Typical Outdoor Community Day-Night Average Sound Levels



Source: U.S. Department of Defense. Departments of the Air Force, the Army, and the Navy, 1978. *Planning in the Noise Environment.* AFM 19-10. TM 5-803-2, and NAVFAC P-970. Washington, D.C.: U.S. DoD.

Figure 6-3: Baseline Condition Noise Contours

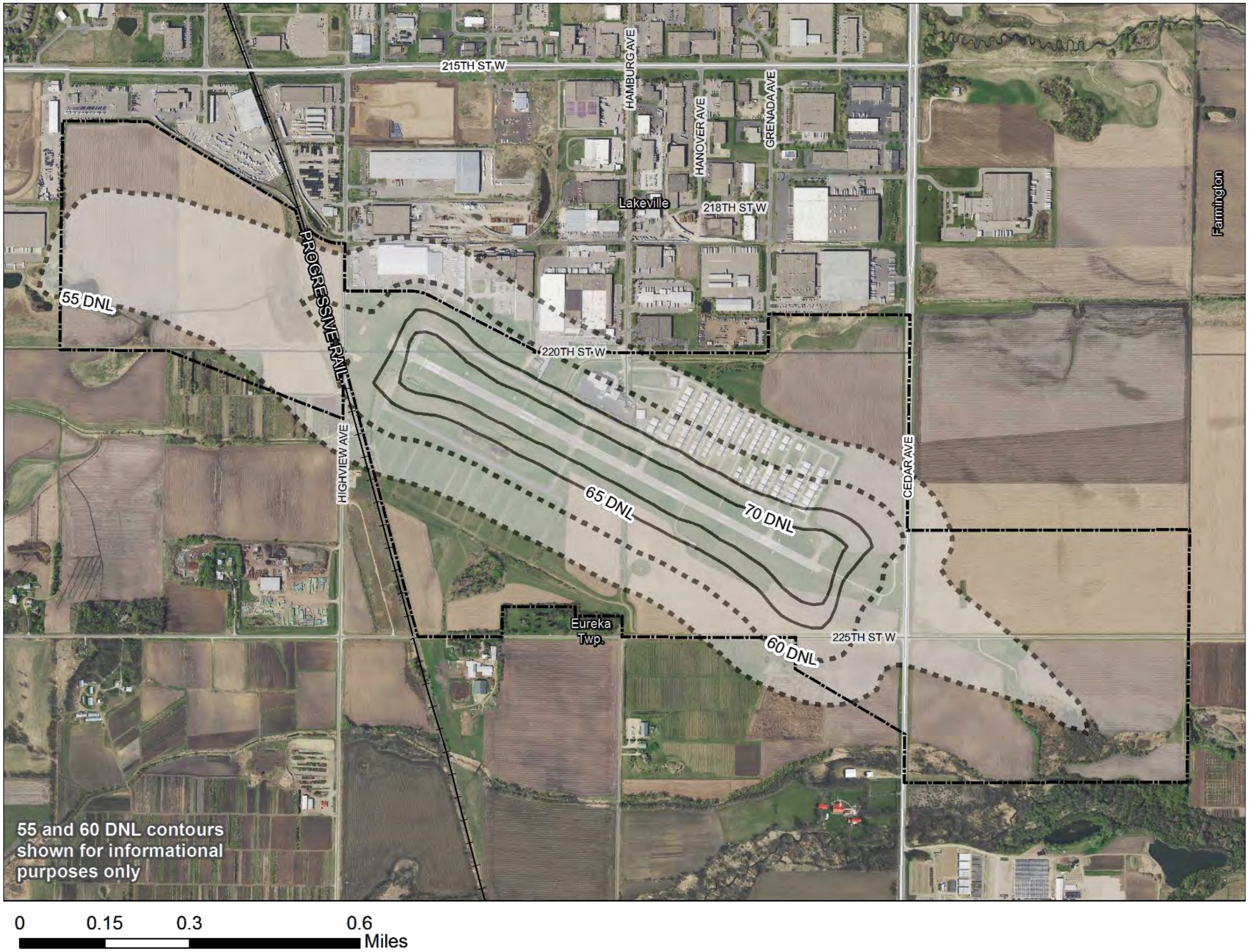


Figure 6-4: 2035 Preferred Alternative Noise Contour

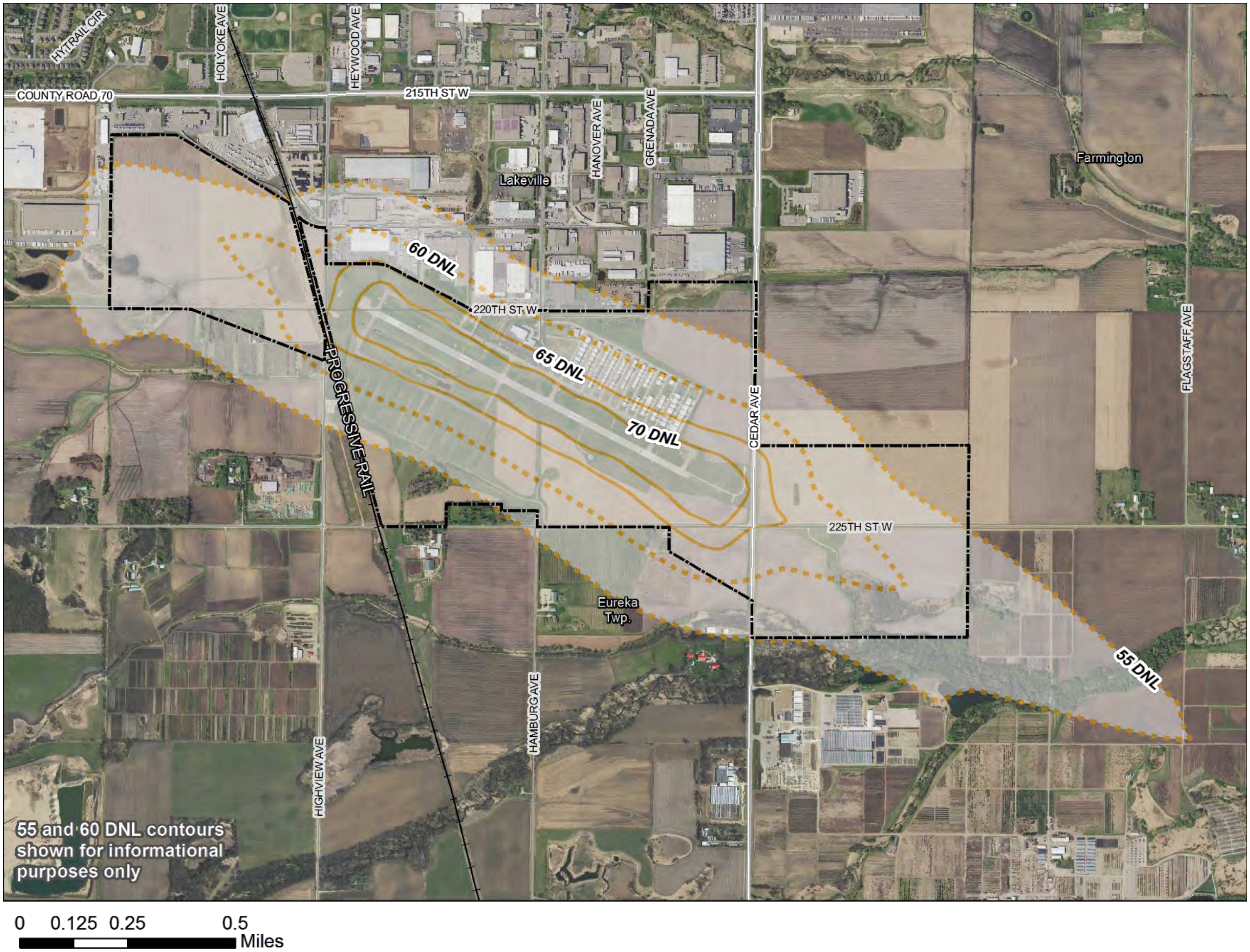


Figure 6-5: Baseline to 2035 Preferred Alternative Noise Contour Comparison

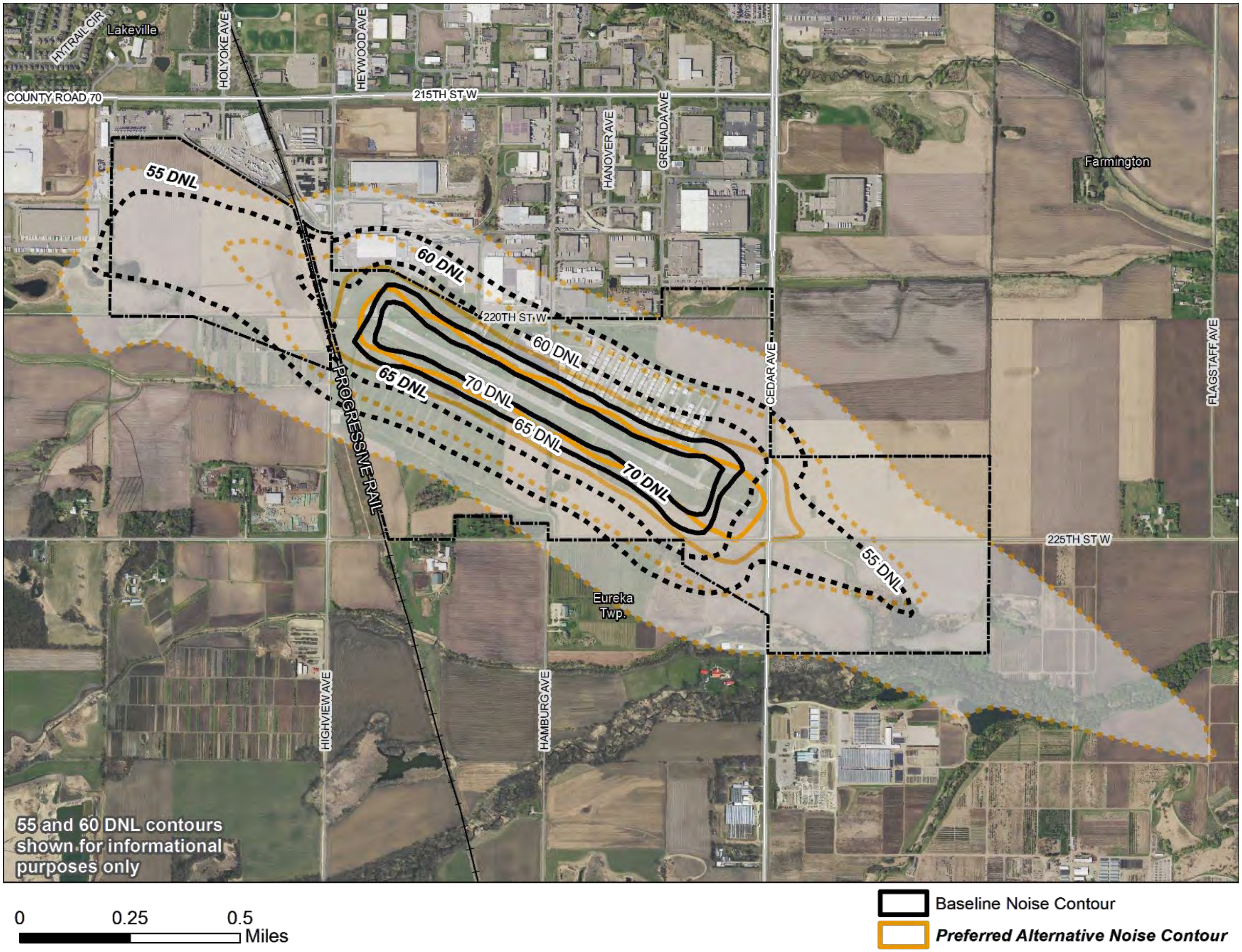
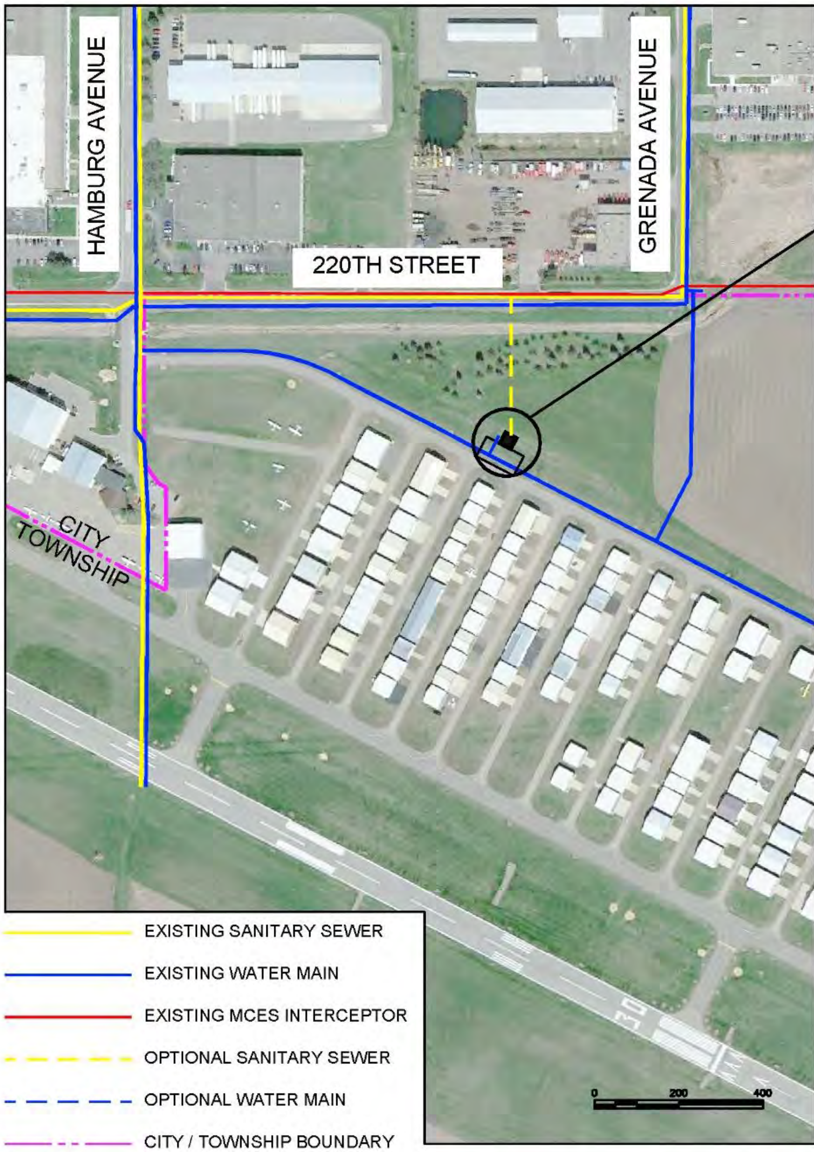
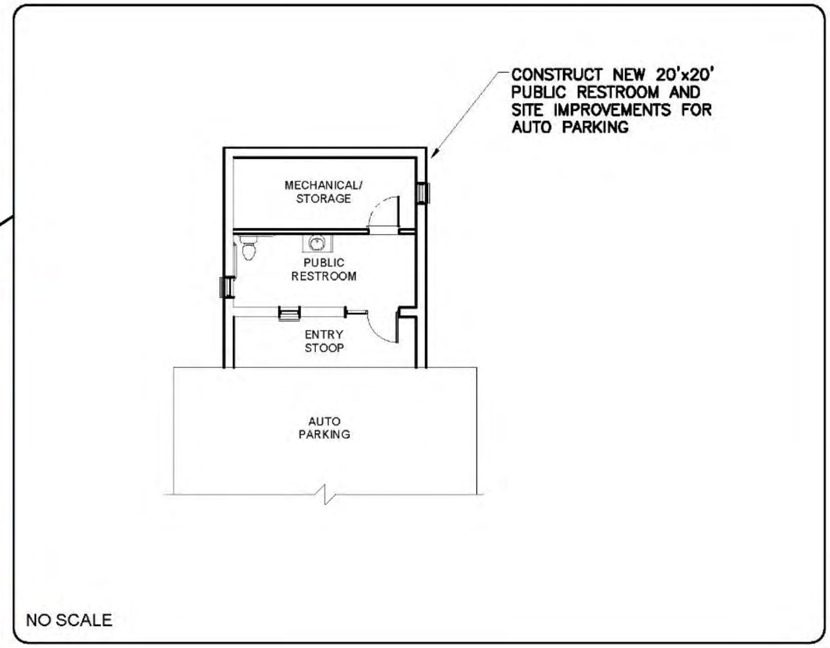


Figure 6-6: North Building Area Public Restroom Conceptual Layout





ALTERNATIVE 2

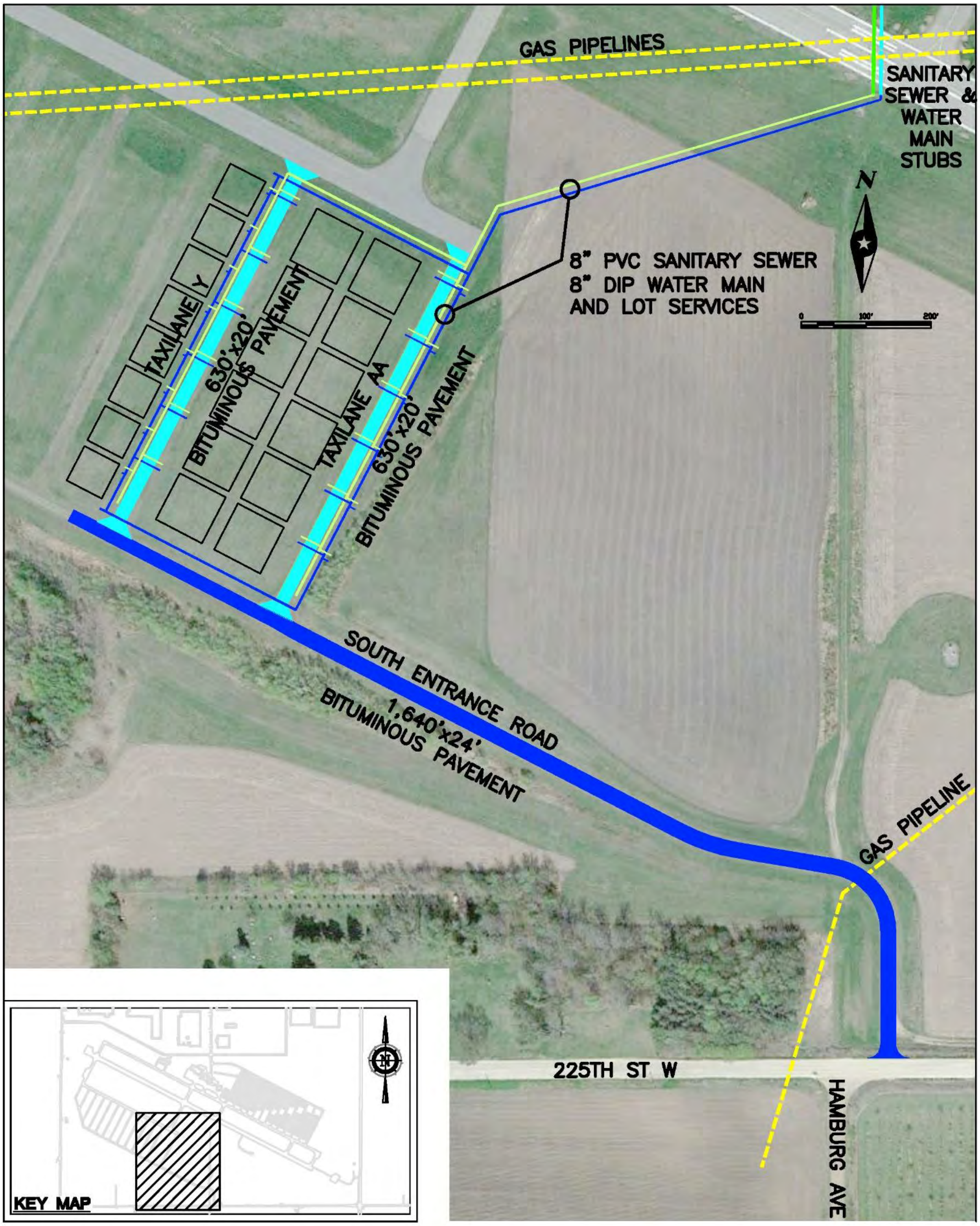
PROJECT ELEMENTS:
- CONSTRUCTION OF A PERMANENT CENTRAL PUBLIC RESTROOM
- CONSTRUCTION OF SITE IMPROVEMENTS TO ALLOW PUBLIC ACCESS

PROJECT BENEFITS:
- PROVIDES PUBLIC RESTROOM LOCATED IN HANGAR AREA
- LOW PROJECT COST

PROJECT CHALLENGES:
- MAY REQUIRE CITY OF LAKEVILLE ANNEXATION
- DOES NOT PROVIDE SERVICES TO HANGARS

ESTIMATED PROJECT COST = $225,000

Figure 6-7: South Building Area – Phase 1 Layout



SECTION 7:

LAND USE COMPATIBILITY

PAGE INTENTIONALLY LEFT BLANK

7. LAND USE COMPATIBILITY

7.1 INTRODUCTION

Planning for the maintenance and development of airport facilities is a complex process. Successfully developing airports requires insightful decision-making predicated on various facts that drive the need for the development of additional airport infrastructure. Furthermore, these efforts should consider surrounding community land uses. Airports cannot be developed in a vacuum; the development effort must consider the needs of the surrounding populations and the land uses in the area surrounding the airport. The success of airport planning relies on close consideration and coordination of surrounding land use to ensure compatibility with the community surrounding the airport.

As city governments are responsible for the development and enhancement of city infrastructure, airport proprietors are responsible for the federally-endorsed enhancement of our nation's airport system. Airport operators would be remiss in their duties if such efforts did not consider the land use consequences of decisions made regarding airport development.

This chapter evaluates the land use implications of the planned operation and development of Airlake Airport.

7.2 LAND USE COMPATIBILITY CRITERIA

The Federal Aviation Administration (FAA) has established Land Use Compatibility criteria in 14 CFR Part 150 detailing acceptable land uses around airports considering noise impacts in terms of DNL. In the case of airports located in the Minneapolis-St. Paul Metropolitan Area, additional criteria also must be evaluated in relation to noise exposure as established by the Metropolitan Council's Transportation Policy Plan (TPP).

7.2.1 Federal Aviation Administration Land Use Compatibility Guidelines

Federal guidelines for compatible land use that take into account the impact of aviation noise have been developed for land near airports. They were derived through an iterative process that started before 1972. Independent efforts by the FAA, U.S. Department of Housing and Urban Development, U.S. Air Force, U.S. Navy, U.S. Environmental Protection Agency and other Federal agencies to develop compatible land use criteria were melded into a single effort by the Federal Interagency Committee on Urban Noise in 1979, and resulted in the FICUN *Guidelines* document (1980). The *Guidelines* document adopted DNL as its standard noise descriptor, and the Standard Land Use Coding Manual (SLUCM) as its standard descriptor for land uses. The noise-to-land use relationships were then expanded for FAA's Advisory Circular (AC) 150/5020-1, *Noise Control and Compatibility Planning for Airports*. The current individual agency compatible land use criteria have been, for the most part, derived from those in the FICUN *Guidelines*. Only certain categories of these guidelines[28] pertain to airport environments.

[28] Federal Interagency Committee On Noise (FICON), "Federal Agency Review of Selected Airport Noise Analysis Issues" (1992), pp. 2-6 to 2-7.

In 1985 the FAA adopted 14 CFR Part 150 outlining land use compatibility guidelines around airports. **Table 7-1** provides the land use compatibility guidelines as established by the FAA.

According to FAA standards, areas with noise levels less than 65 DNL are considered compatible with residential development.

Table 7-1: FAA Aircraft Noise and Land Use Compatibility Guidelines

Land Use	Yearly day-night average sound level (DNL) in decibels					
	Below 65	65-69	70-74	75-79	80-84	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient Lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	Y
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail–building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade–general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y

Land Use	Yearly day-night average sound level (DNL) in decibels					
	Below 65	**65-69**	**70-74**	**75-79**	**80-84**	**Over 85**
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

**The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.*

Table Key

SLUCM	Standard Land Use Coding Manual.
Y (Yes)	Land use and related structures compatible without restrictions.
N (No)	Land use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35	Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Table Notes on Following Page

Table Notes

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(4) Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

(7) Residential buildings require an NLR of 30.

(8) Residential buildings not permitted.

Source: 14 CFR Part 150

7.2.2 Metropolitan Council Land Use Compatibility Guidelines

The Metropolitan Council has developed a set of land use planning guidelines for responsible community development in the Minneapolis-St. Paul Metropolitan Area. The intent is to provide city governments with a comprehensive resource with regard to planning community development in a manner that considers adequacy, quality and environmental elements of planned land uses.

Specifically, the Minnesota State Land Planning Act, the underlying law that requires local units of government to prepare a comprehensive plan and submit it for Metropolitan Council review, was enacted in 1976. By 1980, all community plans had been approved. The 1973 Aviation Chapter of the Metropolitan Development Guide was updated in 1977. In 1983, the Metropolitan Council amended the Aviation Policy Plan to include “Land Use Compatibility Guidelines for Aircraft Noise.”

In 1994, the Land Planning Act of 1976 had been amended to require communities to update their comprehensive plans at least every 10 years. Therefore, all Metropolitan Development Guide chapters were updated by December 1996.

Under the 1976 legislation, communities designated land uses and defined the zoning applicable to the particular land use parcel; the zoning took precedence. The land use measure was a request that local jurisdictions review existing zoning in Airport Noise Zones to determine their consistency with the regional compatibility guidelines, and rezone the property for compatible development if consistent with other development factors. This policy changed in 1994.

Under the amended Land Planning Act, communities determine the land use designation, and the zoning must be consistent with that designation. Thus, the communities had to re-evaluate designated use, permitted uses within the designation, zoning classifications, and adequacy.

In 2004 the Aviation Policy Plan was incorporated into the Transportation Policy Plan (TPP) of the Metropolitan Development Guide. In January 2015 the Metropolitan Council adopted the 2040 TPP land use compatibility guidelines for all metropolitan system airports that are included in the TPP.

In the case of airports located in the Minneapolis-St. Paul Metropolitan Area, the Metropolitan Council Development Guidelines in relation to airport noise exposure need to be considered. The TPP provides land use guidelines based on four noise zones around an airport. The following provides the Metropolitan Council’s description of each noise zone:

- Zone 1 – Occurs on and immediately adjacent to the airport property. Existing and projected noise intensity in the zone is severe and permanent. It is an area affected by frequent landings and takeoffs and subjected to aircraft noise greater than 75 DNL. Proximity of the airfield operating area, particularly runway thresholds, reduces the probability of relief resulting from changes in the operating characteristics of either the aircraft or the airport. Only new, non-sensitive land uses should be considered – in addition to preventing future noise problems the severely noise-impacted areas should be fully evaluated to determine alternative land use strategies including eventual changes in existing land uses.[29]

- Zone 2 – Noise impacts are generally sustained, especially close to runway ends. Noise levels are in the 70 to 74 DNL range. Based upon proximity to the airfield, the seriousness of the noise exposure routinely interferes with sleep and speech activity. The noise intensity in this area is generally serious and continuing. New development should be limited to uses that have been constructed to achieve certain exterior-to-interior noise attenuation and that discourage certain outdoor uses.[30]
- Zone 3 – Noise impacts can be categorized as sustaining. Noise levels are in the 65 to 69 DNL range. In addition to the intensity of the noise, location of buildings receiving the noise must also be fully considered. Aircraft and runway use operational changes can provide some relief for certain uses in this area. Residential development may be acceptable if it is located outside areas exposed to frequent landings and takeoffs, is constructed to achieve certain exterior-to-interior noise attenuation, and is restrictive as to outdoor use. Certain medical and educational facilities that involve permanent lodging and outdoor use should be discouraged.[31]
- Zone 4 – Defined as a transitional area where noise exposure might be considered moderate. Noise levels are in the 60 to 64 DNL range. The area is considered transitional since potential changes in airport and aircraft operating procedures could lower or raise noise levels. Development in this area can benefit from insulation levels above typical new construction standards in Minnesota, but insulation cannot eliminate outdoor noise problems.[32]
- Noise Buffer Zones: Additional area that can be protected at the option of the affected community; generally, the buffer zone becomes an extension of noise zone 4. At MSP, a one-mile buffer zone beyond the DNL 60 has been established to address the range of variability in noise impact, by allowing implementation of additional local noise mitigation efforts. A buffer zone out to DNL55 is optional at those reliever airports with noise policy areas outside the MUSA.[33]

The listed noise zones also use the DNL noise exposure metric. The Metropolitan Council Land Use Compatibility Guidelines for Aircraft Noise are provided in **Table 7-2**.

The Metropolitan Council suggests that the 60 DNL contour be used for planning purposes in areas inside the MUSA. However, Airlake Airport is located outside the MUSA; as such, the 55 DNL contour is provided in the context of evaluating Land Use Compatibility considerations.

---

[29] Metropolitan Council 2040 Transportation Policy Plan, Appendix L, January 2015.

[30] Ibid.

[31] Ibid.

[32] Ibid.

[33] Ibid.

Table 7-2: Metropolitan Council Land Use Compatibility Guidelines for Aircraft Noise

Land Use Category	New Development and Major Redevelopment – Noise Exposure Zones 1 DNL 75+	2 DNL 74-70	3 DNL 69-65	4 DNL 64-60	Buffer Zone	Infill Development and Reconstruction or Additions to Existing Structures – Noise Exposure Zones 1 DNL 75+	2 DNL 74-70	3 DNL 69-65	4 DNL 64-60	Buffer Zone
Residential										
Single / Multiplex with Individual Entrance	INCO	INCO	INCO	INCO		COND	COND	COND	COND	
Multiplex / Apartment with Shared Entrance	INCO	INCO	COND	PROV		COND	COND	PROV	PROV	
Mobile Home	INCO	INCO	INCO	COND		COND	COND	COND	COND	
Educational, Medical, Schools, Churches, Hospitals, Nursing Homes	INCO	INCO	INCO	COND		COND	COND	COND	PROV	
Cultural / Entertainment / Recreational										
Indoor	COND	COND	COND	PROV		COND	COND	COND	PROV	
Outdoor	COND	COND	COND	COND		COND	COND	COND	COMP	
Office / Commercial / Retail	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Services										
Transportation-Passenger Facilities	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Transient Lodging	INCO	COND	PROV	PROV		COND	COND	PROV	PROV	
Other Medical, Health & Educational	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Other Services	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Industrial / Communication / Utility	PROV	COMP	COMP	COMP		PROV	COMP	COMP	COMP	
Agriculture Land / Water Areas / Resource Extraction	COMP	COMP	COMP	COMP		COMP	COMP	COMP	COMP	

Notes: Table Key on Following Page

<u>Table Key:</u>

COMP - "Compatible" - Uses are acoustically acceptable for both indoors and outdoors.
PROV - "Provisional" - Uses that should be discouraged if at all feasible; if allowed, must meet certain structural performance standards to be acceptable according to MS 473.192 (Metropolitan Area Aircraft Noise Attenuation Act). Structures built after December 1983 shall be acoustically constructed so as to achieve interior sound levels as follows (per Metropolitan Council's 2040 Transportation Policy Plan, Appendix L, Table L-4)::

Residential, Educational and Medical = 45 dBA Interior Sound Level

Cultural, Entertainment, Recreational, Office, Commercial, Retail and Services = 50 dBA Interior Sound Level

Industrial, Communications, Utility, Agricultural Land, Water Areas, Resource Extraction = 60 dBA Interior Sound Level

Each local government unit having land within the airport noise zones is responsible for implementing and enforcing the structure performance standards in its jurisdiction.

COND - "Conditional" - Uses that should be strongly discouraged; if allowed, must meet the structural performance standards, and requires a comprehensive plan amendment for review of the project under the factors described in the Metropolitan Council's 2040 Transportation Policy Plan, Appendix L, Table L-3.

INCO - "Incompatible" - Land uses that are not acceptable even if acoustical treatment were incorporated in the structure and outsides uses restricted.

Source: Metropolitan Council 2040 Transportation Policy Plan, Appendix L - January 2015.

7.2.3 MnDOT Aeronautics Model State Safety Zones

The State of Minnesota Department of Transportation, Office of Aeronautics (MnDOT) has established regulations that control the type of development allowed off runway ends in order to prevent incompatible development. These guidelines are meant to be used to establish zoning ordinances to protect areas around an airport.

The most restrictive areas created by MnDOT regulations are called Safety Zones A and B. The recommended safety zones should exist off each runway end and follow the approach zones out to the total length of the respective runway. The length of Safety Zone A is 2/3 of the total runway length; Safety Zone B is 1/3 of the total runway length and extends from Safety Zone A. There is also an area called Safety Zone C, which is a horizontal plane established 150 feet above the established airport elevation for a specified distance from each runway end.

A complete description and copy of the Minnesota Rules Chapter 8800 Department of Transportation Aeronautics Section 2400 Airport Zoning Standards can be accessed via the following website link: https://www.revisor.mn.gov/rules/?id=8800.2400.

MnDOT has undertaken efforts to update the state's airport zoning regulations. It is anticipated that revisions to the statutes governing airport zoning will be considered during a future Minnesota Legislative session. The administrative rules used to implement the zoning regulations and define the particulars of the Safety Zones will likely be updated after the statutory changes are complete.

Once Airlake Airport's future development plan is finalized, and the process to update the state's airport zoning regulations is complete, MAC intends to establish a Joint Airport Zoning Board (JAZB) that will include the respective Responsible Governmental Units that control land use development around Airlake Airport. Through a collaborative process, the JAZB will seek to develop an Airport Zoning ordinance, in accordance with state statutes and administrative rules, that considers land uses around Airlake Airport to achieve a balance between providing a reasonable level of public safety and facilitating compatible off-airport development.

For this report, the existing MnDOT models for the size and shape of State Safety Zones A and B were used for the purpose of analyzing land use compatibility. The sizes, shapes and/or locations of these zones may be revised by the JAZB during development of the Airport Zoning Ordinance for Airlake Airport. However, it should be noted that these zones are not currently in effect at Airlake Airport.

MnDOT Aeronautics promotes the preservation of Clear Zones off runway ends to enhance operational safety of aircraft and to protect life and property in runway approach areas. The MnDOT Clear Zones are shown in **Figure 7-1**. MnDOT Clear Zones should be kept clear of incompatible land uses to the extent practical.

7.3 LAND USE COMPATIBILITY ANALYSIS

Airlake Airport lies within the borders of Eureka Township and abuts the southern border of the City of Lakeville. A small portion of the airport does lie within the City of Lakeville municipal boundary. Eureka Township, the City of Lakeville, and Dakota County all maintain comprehensive plans that address land use and transportation infrastructure in the vicinity of Airlake Airport.

Eureka Township

The Eureka Township 2030 Comprehensive Plan was updated in 2008 and contains a section in Chapter 5 on aviation pertaining to Airlake Airport. Eureka's plan illustrates the State Model Safety Zone A and B areas included in the 2025 Airport LTCP for informational purposes. The plan reiterates the Township's support of general airspace protection provisions, including Township review of all applications for development. If proposed structures trigger notification to the FAA or MnDOT, applicants are required to do so.

The full Eureka Township 2030 Comprehensive Plan can be accessed via the following website link:

http://eurekatownship-mn.us/comprehensive-plan/

Eureka Township is currently in the process of updating its Comprehensive Plan to the 2040 planning horizon. The Draft 2040 Comprehensive Plan document is available via the following website link:

http://eurekatownship-mn.us/2017/02/02/draft-2040-comprehensive-plan/

In addition, Eureka Township has recently completed a Boundary Protection Study that was commissioned in part due to concerns about the potential impacts of a regional sewer extension to serve Airlake Airport. The study states the Township is concerned that the regional sewer extension to the Airport may lead adjacent cities or landowners to annex portions of the Township including the airport and adjacent area to the City of Lakeville. The study recommends that the Town Board should seek a Joint Powers Agreement with the City of Lakeville to address the potential extension of municipal sewer service to Airlake Airport that would include provisions that the Airport remain in the Township while permitting extension of municipal sewer and water services to the Airport.

The Eureka Township Boundary Protection Study document can be accessed via the following website link:

http://eurekatownship-mn.us/2017/05/30/eureka-township-boundary-protection-study/

City of Lakeville

The City of Lakeville maintains a Comprehensive Land Use Plan that address land uses and transportation infrastructure in the vicinity of Airlake Airport. Last updated in 2008, the plan includes the following policies regarding Airlake Airport:

- Regulate land uses within and surrounding the Airlake Airport to ensure they are compatible with its function and where incompatibility exists, affected agencies and jurisdictions should jointly participate in developing a program to mitigate the incompatibility;

- State and Federal environmental standards and adopted Metropolitan Council policies shall be major considerations in the planning, design and operation of Airlake Airport;
- Cooperate with Metropolitan Airports Commission to regulate airport land uses in a manner consistent with the 2030 Comprehensive Land Use Plan and Zoning Ordinance;
- Prevent the construction, erection, alteration, or growth of any structure, tree or other object in the approach areas of the runway of the airport that would constitute an airport hazard;
- Restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft;
- Guide land uses surrounding Airlake Airport to maximize compatibility with normal airfield noise and airport operations;
- Maintain Airlake Airport as a minor reliever airport and do not improve the facility beyond the design criteria of this functional classification;
- Focus airport improvements on the improvement of public safety and the potential for economic development in Lakeville; and
- Establish limits for airport operations and noise levels and a commitment that these projections will not be exceeded should be agreed upon between the City and Metropolitan Airports Commission.

Further, the 2008 plan states that Lakeville supports continued operation and planned expansion of Airlake Airport as an amenity for planned Office Park and Industrial uses in the community as follows:

- The City of Lakeville currently provides water and sanitary sewer service for the area of Airlake Airport (Aircraft Resource Center as the Fixed Base Operations Center) that is within the corporate limits of the City. Any future extension of urban water and sanitary sewer services to the Airlake Airport property currently outside the corporate limits of the City will only be allowed with the annexation of the area being serviced into the City of Lakeville.
- There is support for the preferred alternative for Airlake Airport to extend the existing runway to 5,000 feet. However, if the runway extension is to be pursued, the Metropolitan Airports Commission should commit to the project and an agreement to secure or reserve the additional land area needed for the realignment of Cedar Avenue east of the airport should be reached with the affected property owners in the near term.
- Airport noise should be monitored in the future to ensure compliance with the noise level contours indicated in the Airlake Airport Comprehensive Plan after the runway extension has been completed. If, in the near future, the boundaries of the 55 DNL expand beyond what is shown in the plan and include more residential structures, Lakeville would request that homeowners be provided noise mitigation assistance for their homes.

The full 2008 Land Use Comprehensive Plan can be accessed from the website link below:

http://www.ci.lakeville.mn.us/DocumentCenter/View/572

The City has initiated efforts to update its Comprehensive Plan to the 2040 planning horizon.

Dakota County

Finally, Dakota County also maintains a Comprehensive Plan that was last updated in 2008. As County Road 23 / Cedar Avenue is a County roadway, this plan contains activity projections for the section of this road adjacent to Airlake Airport. According to the plan, the two-lane section of Cedar Avenue in the vicinity of the Airport accommodates approximately 6,800 vehicles per day, and is projected to reach about 12,000 vehicles per day by 2030. There is no current plan to widen or expand the capacity of this section of Cedar Avenue adjacent to Airlake Airport within the planning period.

The full Dakota County Comprehensive Plan can be accessed from the website link below:

https://www.co.dakota.mn.us/Government/Planning/CompPlan

The County has initiated efforts to update its Comprehensive Plan to the 2040 planning horizon.

7.3.1 Existing Condition Land Use Compatibility

In general, the area around the airport consists of compatible land uses. Existing land use parallel to Runway 12-30 on the north side is industrial. There is a small section of commercial use and some undeveloped areas within the industrial park. Surrounding the rest of the airport land use is primarily agricultural with scattered farmsteads and single family rural residential. There is a cemetery located adjacent to the south building area.

Land Use Compatibility and Airport Noise Considerations

Figure 7-2 illustrates the Baseline Condition 55 and greater DNL noise contours around Airlake Airport (from **Section 6.2.3**) with existing RPZs and Model State Safety Zones over existing land use data provided by the Metropolitan Council.

Existing land uses around Airlake Airport are compatible with airport operations considering airport noise impacts as outlined in the FAA land use guidelines in **Table 7-1** and the Metropolitan Council land use guidelines in **Table 7-2**.

The Baseline Condition 65 and greater DNL noise contours are fully contained on airport property. The 55 and 60 DNL contours encompass additional areas of industrial and agricultural uses to the northwest and southeast of the airport.

Land Use Compatibility and Existing Runway Protection/Safety Zones

The existing RPZs and Model State Safety Zones A and B for Runway 12-30 at Airlake Airport encompass areas of airport property in addition to commercial/industrial, agricultural, and undeveloped land uses.

The existing RPZ's at Airlake Airport include several land uses that would not be considered compatible under the FAA's current guidance. However, since these land uses predate the FAA's current guidance, they are acceptable to remain as an existing condition.

- Runway 12 End: Two low-volume public roadways (Highview Avenue and 220th Street), Progressive Rail railroad track, and a private drive providing access to an agricultural field.
  - Highview Avenue is a local north/south road in Eureka Township located to the east of Runway 12 that accommodates an estimated 2,000 vehicles per day.
  - 220th Street is an east/west city street located north of the airport that accommodates approximately 1,500 vehicles per day.
  - Progressive Rail operates almost 80 miles of track in the south Twin Cities Metro Area. In the Lakeville area where Airlake Airport is located, it moves a wide variety of commodities – everything from heavy equipment to building products. Its lines are a mix of former Union Pacific and Canadian Pacific lines and it continues to interchange with both. According to the MnDOT Rail Office, two trains operate per weekday and operations are occasional on weekends.
- Runway 30 End: County Road 23 / Cedar Avenue and 225th Street
  - County Road 23 / Cedar Avenue is located on the east side of airport property. It is an important north/south arterial road that serves the southeast quadrant of the Twin Cities Metropolitan Area by providing mobility and connectivity across and through the region. This corridor crosses the Minnesota River and provides accessibility to the MSP Airport. As noted above, this section of Cedar Avenue in the vicinity of the Runway 30 RPZ accommodates approximately 6,800 vehicles per day, and is projected to reach about 12,000 vehicles per day by 2030.
  - 225th Street is an east/west corridor that borders airport property on the south. It is a gravel-surfaced township road that provides local land access and connectivity to other roadways, such as Cedar Avenue, that serve a mobility function. This road is currently the controlling obstacle for the Runway 30 displaced threshold.

Table 7-3 provides existing land use acreages encompassed by the Baseline Condition RPZs and Safety Zones.

Table 7-3: Baseline Condition Land Use Impacts

Land Use Acreage	RWY 12	RWY 30	Total
Baseline Condition			
Runway Protection Zone (Acres)	**13.8**	**49.0**	**62.8**
Agricultural	2.8	27.1	29.9
Airport	10.8	21.8	32.6
Industrial and Utility	0.2	0.0	0.2
Undeveloped	0.0	0.1	0.1
On-Airport	*12.6*	*49.0*	*61.6*
Off-Airport	*1.2*	*0.0*	*1.2*
Model State Safety Zone A (Acres)	**88.5**	**88.5**	**176.9**
Agricultural	63.4	62.2	125.6
Airport	18.7	13.7	32.4
Industrial and Utility	6.3	0.0	6.3
Undeveloped	0.0	12.6	12.6
On-Airport	*79.8*	*88.0*	*167.7*
Off-Airport	*8.7*	*0.5*	*9.2*
Model State Safety Zone B (Acres)	**63.5**	**63.5**	**127.0**
Agricultural	37.8	37.1	74.9
Industrial and Utility	21.7	0.0	21.7
Open Water	0.0	0.6	0.6
Undeveloped	4.0	25.8	29.8
On-Airport	*29.7*	*27.5*	*57.1*
Off-Airport	*33.8*	*36.0*	*69.9*

Notes:

Totals may not add due to rounding.

Acreage calculations based on existing land use data.

Source: MAC Analysis

7.3.2 2035 Preferred Alternative Land Use Compatibility

The 2035 Preferred Alternative for Airlake Airport includes the extension of Runway 12-30 to a published length of 4,850 feet with declared distances in effect. This development, coupled with changes in the aircraft fleet mix, will result in changes to the noise contour, RPZs and Model State Safety Zone considerations.

2035 Preferred Alternative Land Use Compatibility and Airport Noise Considerations

Figure 7-3 provides the 2035 Preferred Alternative forecast 55 and greater DNL noise contours around Airlake Airport (from **Section 6.2.4**) with forecast RPZs and Model State Safety Zones over planned land use data provided by the Metropolitan Council.

There are minor changes proposed in future land uses within the 2035 noise contours: industrial and utility, undeveloped and some agricultural land to the northwest of the airport are planned to become mixed use; undeveloped areas to the south and southeast are planned to become agricultural.

The Preferred Development Alternative does not include residential structures in recognized airport noise areas.

Land Use Compatibility and 2035 Preferred Alternative Runway Protection/Safety Zones

The 2035 Preferred Alternative RPZs and model State Safety Zones A and B for Runway 12-30 at Airlake Airport continue to encompass areas of airport property in addition to commercial/industrial, agricultural, and undeveloped land uses.

Additional analysis was conducted relative to the planned land uses around Airlake Airport as provided by the Metropolitan Council. The proposed changes in land uses within the Preferred Alternative RPZs and Model State Safety Zones include industrial and utility, undeveloped and agricultural land to the northwest of the airport are planned to become mixed use and undeveloped area to the southeast are planned to become agricultural.

Table 7-4 provides existing land use acreages encompassed by the 2035 Preferred Alternative Condition RPZs and Model State Safety Zones.

Table 7-5 provides a comparison of on-airport and off-airport land use impacts from the Baseline to the 2035 Preferred Alternative Condition.

A comparison of the Baseline and Preferred Alternative RPZs, Model State Safety Zones, and noise contours is shown in **Figure 7-4**.

Table 7-4: 2035 Preferred Alternative Land Use Impacts

Land Use Acreage	RWY 12	RWY 30	Total
<u>**2035 Preferred Alternative Condition**</u>			
Runway Protection Zone (Acres)	**15.7**	**49.0**	**64.6**
Agricultural	2.9	27.1	30.0
Airport	12.6	21.8	34.4
Industrial and Utility	0.2	0.0	0.2
Undeveloped	0.0	0.1	0.1
On-Airport	*14.4*	*49.0*	*63.4*
Off-Airport	*1.2*	*0.0*	*1.2*
Model State Safety Zone A (Acres)	**110.2**	**110.2**	**220.4**
Agricultural	87.5	78.4	165.9
Airport	12.2	4.3	16.5
Industrial and Utility	8.6	0.0	8.6
Open Water	0.0	0.1	0.1
Undeveloped	1.9	27.5	29.4
On-Airport	*97.3*	*95.4*	*192.7*
Off-Airport	*12.9*	*14.9*	*27.7*
Model Safety Zone B (Acres)	**82.1**	**82.1**	**164.3**
Agricultural	43.6	54.1	97.8
Industrial and Utility	20.1	0.0	20.1
Open Water	0.0	2.2	2.2
Undeveloped	11.9	25.8	37.8
Single Family Detached	4.9	0.0	4.9
Park, Recreational, or Preserve	1.7	0.0	1.7
On-Airport	*3.0*	*0.3*	*3.3*
Off-Airport	*79.1*	*81.8*	*161.0*

Notes:

Totals may not add due to rounding.

Acreage calculations based on existing land use data.

Source: MAC Analysis

Table 7-5: Change in Land Use Impacts (Baseline to 2035 Preferred Alternative)

Land Use Impacts	RWY 12	RWY 30	Total
<u>**Change from Baseline to 2035 Preferred Alternative Condition**</u>			
Runway Protection Zone (Acres)	**1.9**	**0.0**	**1.9**
On-Airport	*1.8*	*0.0*	*1.8*
Off-Airport	*0.1*	*0.0*	*0.1*
Model State Safety Zone A (Acres)	**21.8**	**21.8**	**43.5**
On-Airport	*17.6*	*7.4*	*24.9*
Off-Airport	*4.2*	*14.4*	*18.6*
Model State Safety Zone B (Acres)	**18.6**	**18.6**	**37.3**
On-Airport	*-26.7*	*-27.2*	*-53.8*
Off-Airport	*45.3*	*45.8*	*91.1*

Notes:

Totals may not add due to rounding.

Acreage calculations based on existing land use data.

Source: MAC Analysis

In summary, when the 2035 Preferred Alternative Condition is compared to the Baseline Condition from a land use compatibility perspective:

- The Baseline Condition RPZs and the 2035 Preferred Alternative RPZs both have 1.2 acres off airport property – a change of less than 0.1 acres. As a result of displacing the Runway 12 landing threshold to mitigate airspace penetrations, approximately 0.1 acres of off-airport property would be introduced into the Approach RPZ. This includes additional sections of 220th Street and Highview Avenue being introduced into the RPZ, along with a small section of an off-airport truck staging lot associated with an adjacent industrial land use.
- The Baseline Condition Model State Safety Zones have 79.1 acres off airport property, while 188.7 acres are off airport property in 2035 Preferred Alternative Condition – an increase of 109.6 acres.
- Existing land uses surrounding Airlake Airport are compatible with both the Baseline and 2035 Preferred Alternative Condition and the resultant aircraft operations considering airport noise impacts as outlined in the FAA and Metropolitan Council guidelines.

7.4 NON-AERONAUTICAL LAND USE AREAS AVAILABLE ON AIRPORT PROPERTY

MAC continues to analyze the potential for non-aeronautical revenue-generating development at Airlake Airport. Any parcels reviewed by the MAC at Airlake Airport will be compatible with ongoing airport operations and the MAC will work with the surrounding communities to ensure proper zoning exists. Also, in order to maintain compliance with Grant Assurances, FAA review and approval is required prior to the release of property or execution of any agreements for development. An update to the Exhibit A Airport Property Map showing the parcels released for non-aeronautical development would be required as well.

Figure 7-6 illustrates potential non-aeronautical development parcels.

If MAC pursues non-aeronautical development, discussions will be initiated with the surrounding municipalities to discuss the potential uses and how the cities feel the parcels could best be utilized. If a modification is required for zoning, MAC will work with the cities to make changes as appropriate. The development of non-aeronautical uses will not only benefit MAC, but it will also generate a tax base for the local municipality in which the parcel lies.

Figure 7-1: MnDOT Clear Zones

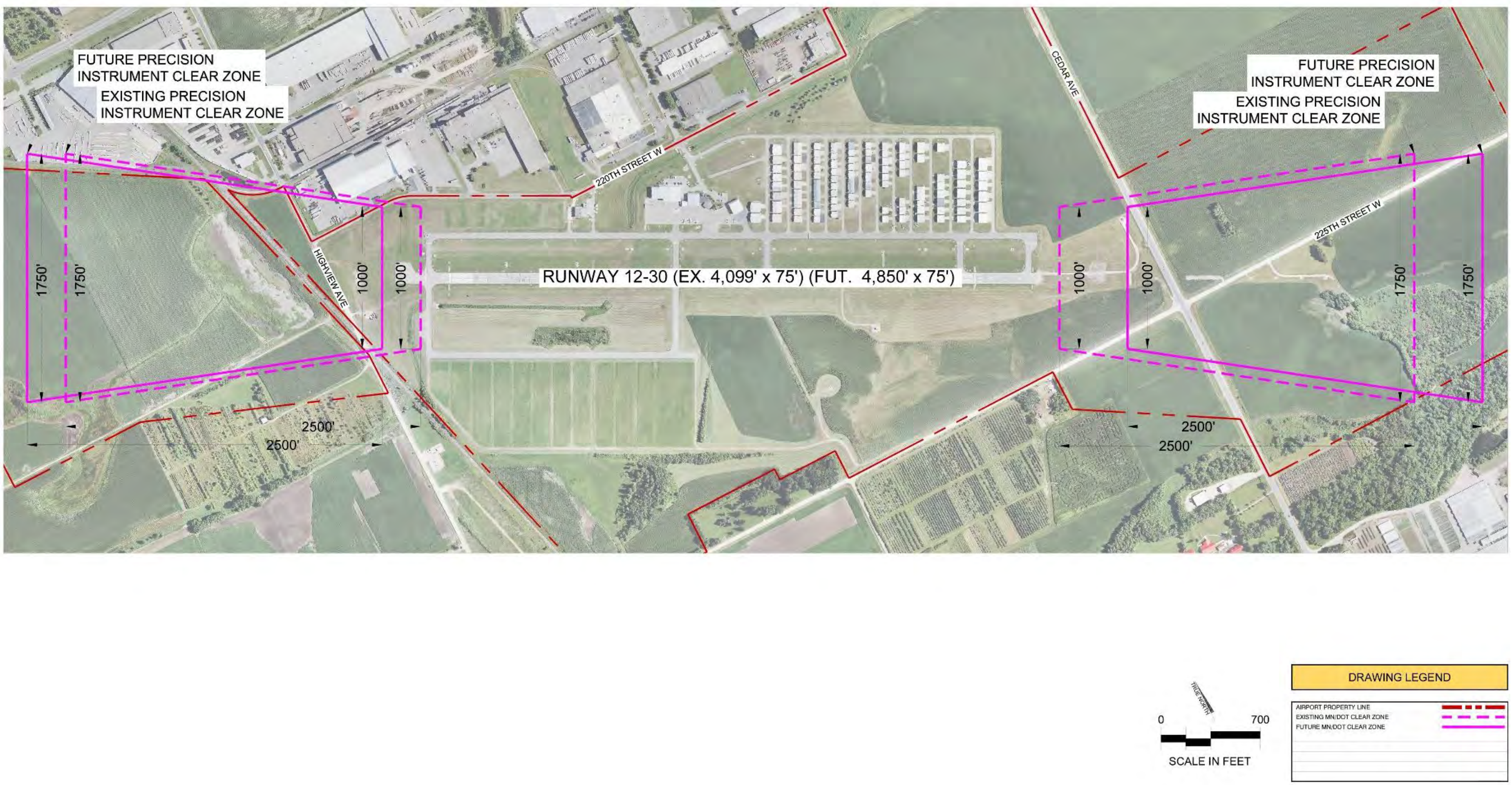
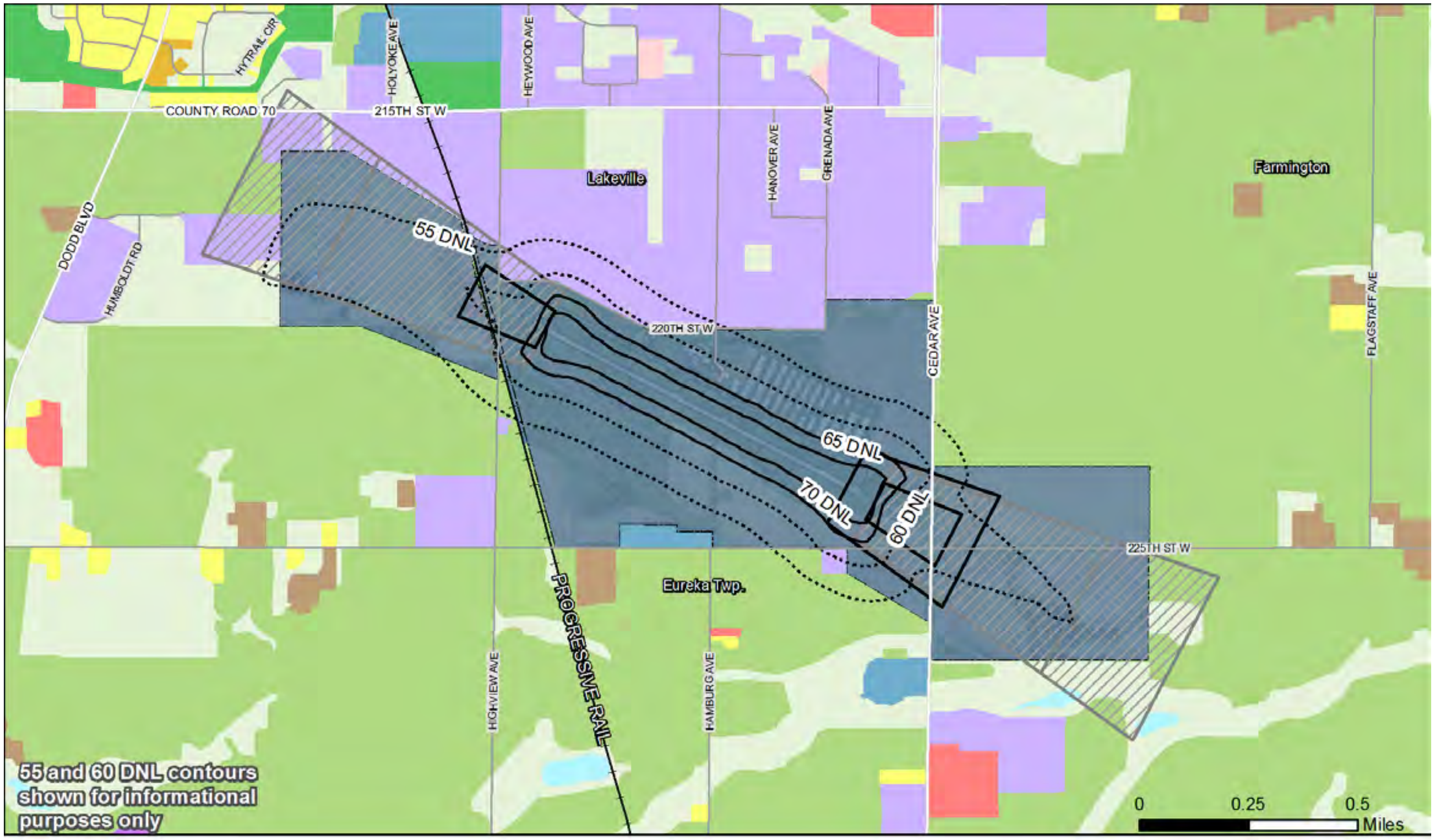


Figure 7-2: Baseline Condition RPZs, Model State Safety Zones, and Noise Contours



Baseline Condition

- Airport Boundary
- Baseline Noise Contour
- Runway Protection Zones
- State Safety Zones
- Farmstead
- Seasonal/Vacation
- Single Family Detached
- Manufactured Housing Park
- Single Family Attached
- Multifamily
- Retail and Other Commercial
- Office
- Mixed Use Residential
- Mixed Use Industrial
- Mixed Use Commercial and Other
- Industrial and Utility
- Extractive
- Institutional
- Park, Recreational or Preserve
- Golf Course
- Major Highway
- Railway
- Airport
- Agricultural
- Undeveloped
- Water

Figure 7-3: 2035 Preferred Alternative RPZs, Model State Safety Zones, and Noise Contours

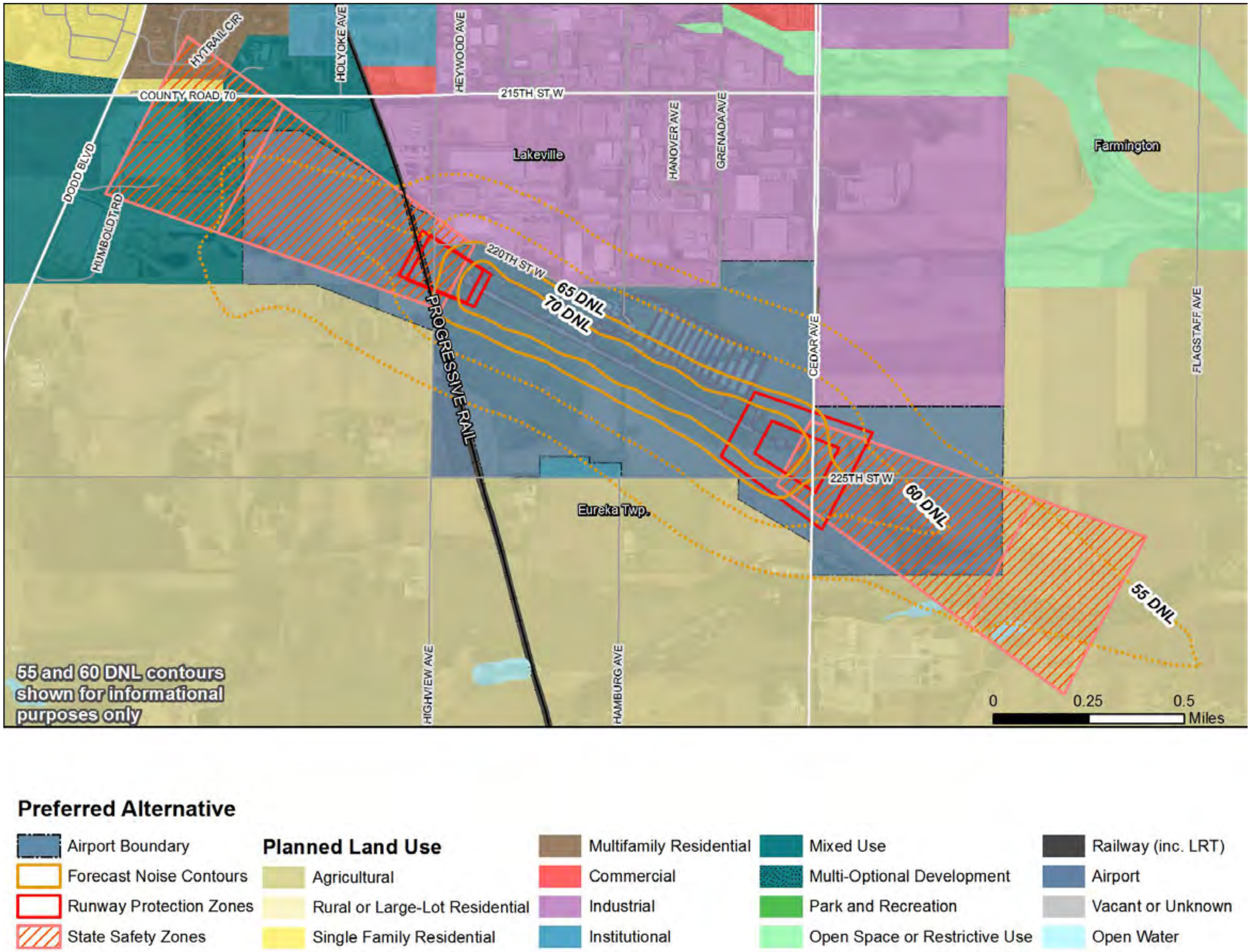


Figure 7-4: Baseline to 2035 Preferred Alternative RPZ, Model State Safety Zone, and Noise Contour Comparison

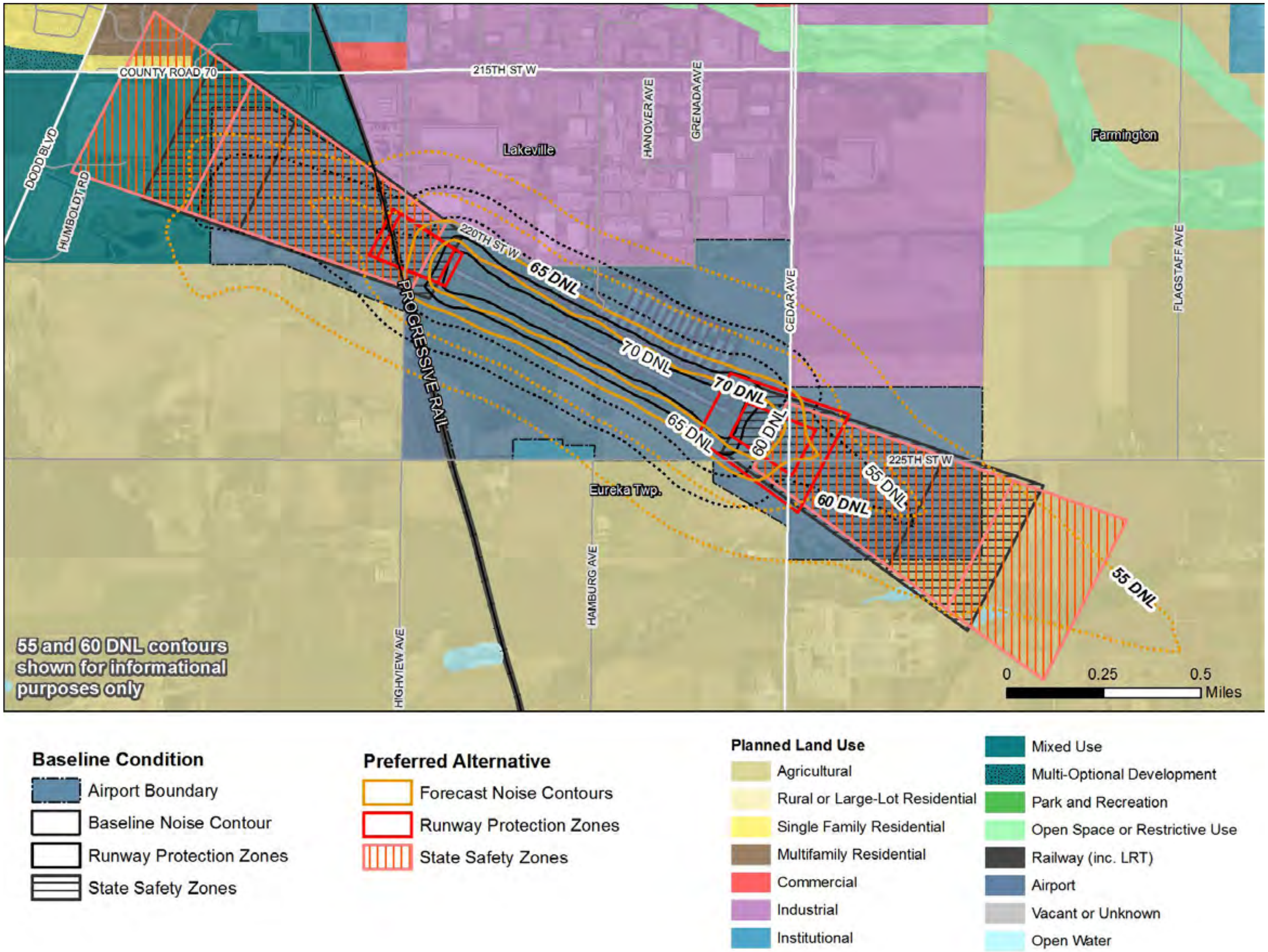
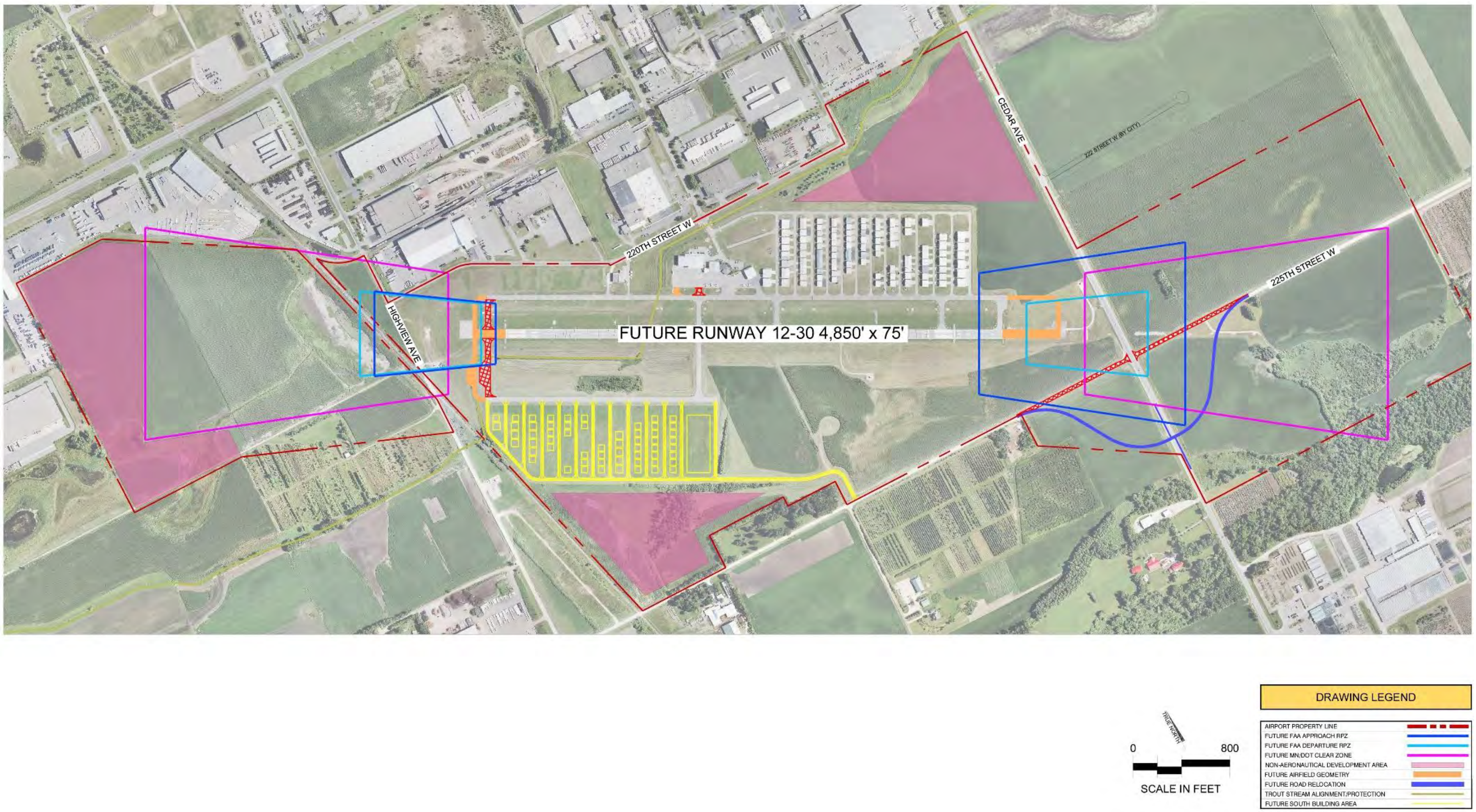


Figure 7-5: Potential Non-Aeronautical Development Parcels



SECTION 8:

IMPLEMENTATION PLAN

PAGE INTENTIONALLY LEFT BLANK

8. IMPLEMENTATION PLAN

8.1 INTRODUCTION

This chapter provides information related to the estimated costs and potential phasing for the 2035 Preferred Alternative at Airlake Airport.

The LTCP is a planning document and does not authorize construction. Adoption of the LTCP is simply the first step in the project implementation process. Before any construction can begin, the project(s) must first be depicted on an FAA-approved Airport Layout Plan (ALP), evaluated via an environmental review process, and then compete for funding through FAA and/or State grant programs. Once funding is secured, final project engineering and design will take approximately one year to complete with contractor bidding and construction following thereafter.

8.2 CAPITAL IMPROVEMENT PROGRAM COSTS AND FUNDING SOURCES

Near-Term Development encompasses the project elements necessary to maintain the existing facility within the next five years.

MAC maintains an ongoing Capital Improvement Program (CIP) which assigns projects to a given year, currently looking out to 2023. Projects in the current CIP include:

- Runway 12 Precision Approach Path Indicator (PAPI) system and Hangar Obstruction Light installations in 2017;
- Materials Storage Building construction in 2018;
- MAC Maintenance Building improvements in 2019;
- Public Restroom Facility and Aircraft Wash Pad construction in 2019; and
- South Building Area Development - Phase 1 in 2020.

However, these timelines may vary according to the environmental review process, availability of funding sources, and status of providing municipal utilities.

Mid to Long-Term Development encompasses the project elements necessary to extend Runway 12-30 and make the other recommended airfield improvements. It is anticipated that this development may occur in the 6-20 year timeframe (from a 2017 base year). The current CIP includes projects to reconstruct and extend Runway 12-30 in 2022.

A combination of traditional airport funding sources and financing mechanisms including federal Airport Improvement Program (AIP) grants, state Airport Construction Program grants, and local MAC monies could be used to fund implementation of the Preferred Alternative. It is anticipated that a majority of the funding would come in the form of AIP discretionary grants, which are awarded to airports on the basis of priority and available funding.

Project cost estimates for the 2035 Preferred Alternative are summarized in **Table 8-1**.

Table 8-1: Preferred Alternative Cost Estimates

Item #	Project Element	Estimated Cost
Near-Term Development (Plan Years 1 - 5)		
1	Runway 12 PAPI and Hangar Obstruction Lights	$150,000
2	Materials Storage Building	$200,000
3	MAC Building Improvements	$400,000
4	Public Restroom Facility and Plane Wash Pad	$450,000
5	South Building Area Development - Phase 1	$3,200,000
	Near-Term Development Total:	***$4,400,000***
Mid/Long-Term Development (Plan Years 6 - 20)		
6	Reconstruct Existing Runway 12-30	$2,150,000
7	Runway 12-30 Extension and Associated Taxiways, including electrical	$1,850,000
8	Relocate 225th Street	$1,700,000
9	South Building Area Development - Phase 2	$3,200,000
10	Expand FBO Apron (Tenant Cost)	---
11	Hangar Development (Tenant Cost)	---
12	Obstacle Removal	$300,000
	Mid/Long-Term Development Total:	***$9,200,000***
	Total Development Cost:	***$13,600,000***

Notes: Cost estimates reflect 2017 pricing and include engineering costs and contingencies.

Source: SEH and MAC cost estimates

This summary provides a guide for the MAC when planning the CIP, which is updated on an annual basis. Costs for Reliever Airport projects must be programmed carefully to ensure all necessary funding is available. Those projects that will be eligible for federal or state funding will be placed in years when the opportunity to receive such funds is greatest. Projects that are not eligible for federal or state funds must have other funding sources identified prior to implementation.

8.3 STAKEHOLDER ENGAGEMENT AND PUBLIC INFORMATION PROCESS

In order to fulfill a Guiding Principle related to Stakeholder and Community Engagement, a series of meetings have been conducted throughout the development of the 2035 LTCP for Airlake Airport.

Initial stakeholder outreach efforts involved meeting with partner agencies, municipal representatives, and airport tenants before the draft LTCP report was finalized in order to provide information about the plan's purpose, process, preliminary findings, and timeline.

Initial stakeholder outreach meetings are listed in **Table 8-2**.

Table 8-2: Initial Stakeholder Engagement Meetings

Audience	Materials Covered	Date	Location
FAA, MnDOT, Met Council	LTCP Review of Runway Alternatives	4/13/2016	FAA
Tenants/Users, Agencies	Proposed Airfield Configuration Operational Assessment (full day facilitated panel)	9/8/2016	Airport
Civil Air Patrol	LTCP Process, Review of Alternatives, Preliminary Findings	10/11/2016	Airport
MAC Reliever Advisory Council	LTCP Update Briefing	3/14/2017	MAC
Pilot Group/Tenant Meeting	LTCP Process, Review of Alternatives, Preliminary Findings	3/23/2017	Airport
Municipal Planners (City, County, Township)	LTCP Process, Review of Alternatives, Preliminary Findings	3/27/2017	Lakeville City Hall
MAC PD&E Committee	LTCP Process, Review of Alternatives, Preliminary Findings	5/1/2017	MAC

The next phase consisted of the first formal public review period after the draft plan was completed and the MAC Board approved it for public distribution.

The Draft 2035 LTCP for Airlake Airport was issued for public review and comment on Monday, July 17, 2017. Two public information meetings were held in August 2017 to provide information about the draft plan to interested stakeholders. Materials from these public informational meetings are reproduced in **Appendix 8**. The public comment period closed on Wednesday, August 30, 2017.

During the public comment period, MAC received a total of ten written comments. Of the comments received, four were from airport tenants and users, four from members of the public, and two from municipal representatives.

Waypoint Flight Services, the full-service Fixed Base Operator (FBO) at the Airlake Airport, submitted comments in support of the proposed plan. The City of Lakeville submitted comments stating they do not have any objections or concerns with the plan. Dakota County submitted a few technical comments for consideration, including a statement that the proposed relocation of 225th Street and its intersection with Cedar Avenue will need to be evaluated to ensure they do not increase the likelihood of traffic safety issues compared to the roadway system as it exists today.

Throughout the public process, MAC made a commitment to consider the concerns voiced by stakeholders and evaluate if any related adjustments to the proposed plan were feasible. In this case, the volume of comments expressed on any particular theme was very small. Regardless, MAC staff has evaluated the concerns most frequently expressed by commenters and prepared the responses presented in **Appendix 9**.

The themes that were expressed multiple times during the comment period are summarized below:

- Support of No Concern for Runway Extension (4 mentions)
- Concern with Relocating 225th Street (3 mentions)
- Opportunity for Community Partnerships (2 mentions)
- Support for South Building Area (2 mentions)
- Concern with Property Annexation (2 mentions)
- Aircraft Operations Counts Not Accurate (2 mentions)
- Concern with Noise and Land Use Impacts (2 mentions)

After reviewing the body of public comments, MAC staff has affirmed its position that the proposed preferred development alternative represents a reasonable, practical, and cost-effective way to address the stated planning goals.

Appendix 9 includes a reproduction of each public comment received in its entirety.

Table 8-3 provides a summary of the stakeholder engagement and public meetings that have occurred since the initial outreach phase.

Table 8-3: Additional Stakeholder Engagement Meetings

Audience	Materials Covered	Date	Location
Water Quality Agency Briefing	LTCP Overview and Water Resource Protections/Buffers	6/19/2017	Airport
Public	LTCP Public Informational Meeting	8/9/2017	Lakeville City Hall
Public	LTCP Public Informational Meeting	8/10/2017	Eureka Township Hall
Lakeville City Council	LTCP Overview	9/25/2017	Lakeville City Hall
MAC PD&E Committee	LTCP Summary and Recommendation	10/2/2017	MAC

Figure 8-1 illustrates the next steps for the planning and project implementation process, including at what points additional approvals are needed and at what points public feedback will be solicited.

The Final Draft 2035 Airlake Airport LTCP narrative report was submitted to the Metropolitan Council for review on November 27, 2017. Under MS 473.165 and MS 473.611, the Metropolitan Council reviews LTCP's for each airport owned and operated by MAC. The Council reviews and comments on all plans for consistency with the metropolitan development guide including Thrive MSP 2040 and the Transportation Policy Plan. Metropolitan Council staff concluded that since the preferred development alternative for Airlake Airport retains its system role as a Minor general aviation facility, supports the regional aviation system, and is responsive to the needs and conditions of the airport, it is consistent with the Thrive MSP 2040 and the Transportation Policy Plan.

Obtaining the full Council's determination of consistency involved presentations to four standing committees as well as the Full Council, as outlined in **Table 8-4**. The Full Metropolitan Council provided its determination of consistency on March 21, 2018 (**Figure 8-2**).

Table 8-4: Metropolitan Council Consistency Determination Meetings

Council Body	Date	Action Requested	Result
TAC Planning	January 25, 2018	Review & Recommend	Passed unanimously
Technical Advisory Committee	February 7, 2018	Review & Recommend	Passed unanimously
Transportation Advisory Board	February 21, 2018	Review & Recommend	Passed unanimously
Transportation Committee	March 12, 2018	Review & Recommend	Passed unanimously
Full Council	March 21, 2018	Review & Determine	Passed unanimously

Notes: Agendas, background materials, and public comments from these meetings are available at http://www.metrocouncil.org. Enter "Airlake Airport" into the search menu for a list of available meeting/agenda items.

The MAC Board voted to formally adopt the Airlake Airport 2035 LTCP on April 23, 2018.

Figure 8-1: Planning and Project Implementation Process

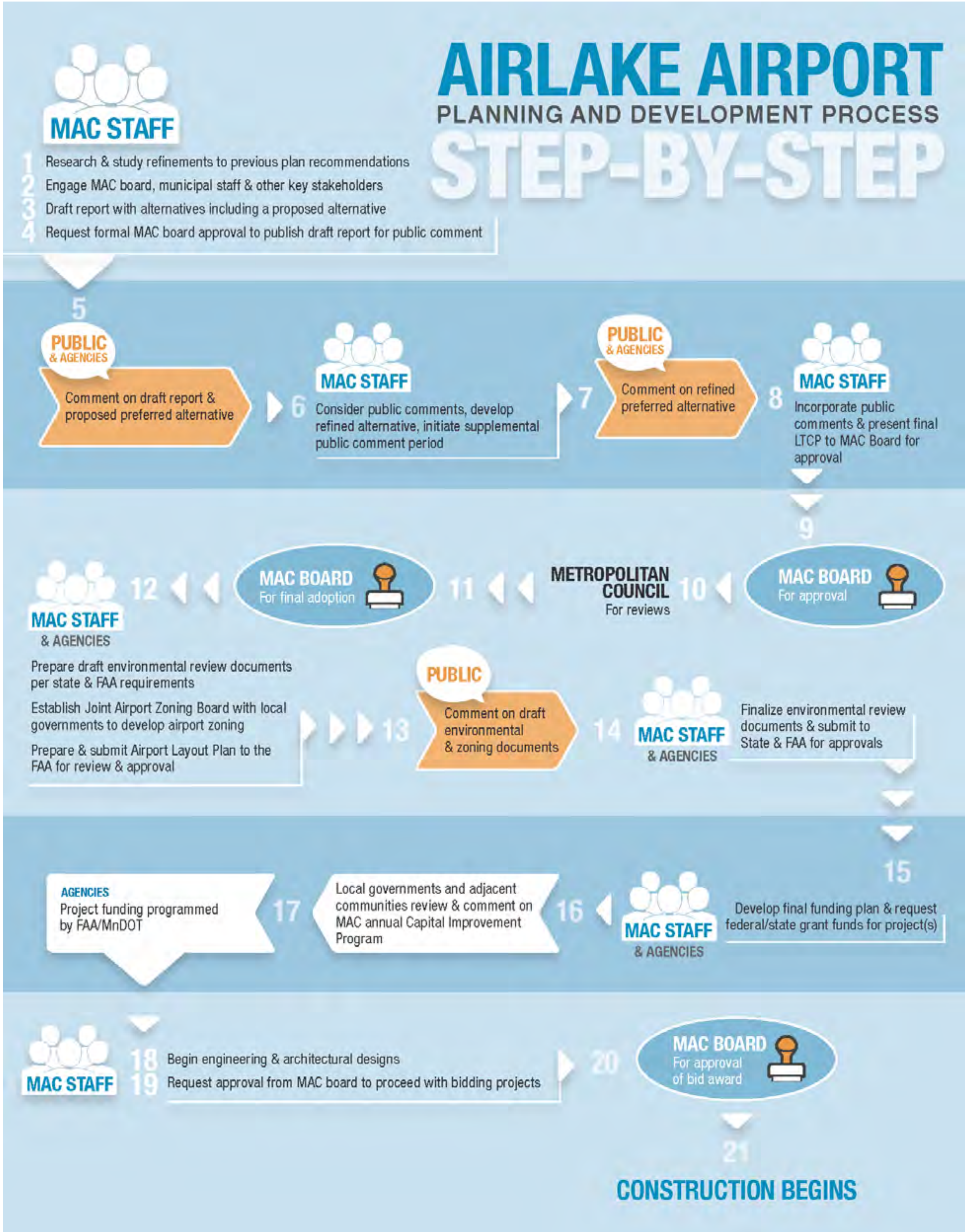


Figure 8-2: Metropolitan Council Consistency Determination Letter

March 22, 2018

Mr. Brian Ryks, Executive Director
Metropolitan Airports Commission
6040 28th Ave. South
Minneapolis, MN 55450-2799

RE: Airlake Airport Long Term Comprehensive Plan
Business Item 2018-58

Dear Mr. Ryks:

The Metropolitan Council, at its meeting on March 21, 2018 took action on the Metropolitan Airports Commission's request for determination of the Airlake Airport Long Term Comprehensive Plan (LTCP). The Metropolitan Council determined that the LTCP conforms to regional systems and is consistent with Council policies.

Sincerely,

Wes Kooistra
Regional Administrator
Metropolitan Council

cc: Dan Boivin, Chair - Metropolitan Airports Commission
Katie Rodriguez, Chair - Metropolitan Council - Transportation Committee

390 Robert Street North | Saint Paul, MN 55101-1805
P. 651.602.1000 TTY 651.291.0904 | metrocouncil.org

METROPOLITAN COUNCIL

PAGE INTENTIONALLY LEFT BLANK

LIST OF APPENDICES

PAGE INTENTIONALLY LEFT BLANK

Appendix 1: Glossary of Terms

Content	Page

PAGE INTENTIONALLY LEFT BLANK

Glossary of Terms

A-Weighted Decibels (dBA): A measure of noise levels adjusted relative to the frequencies most audible to the human ear.

Above Ground Level (AGL): A height above the ground as opposed to above Mean Sea Level (MSL).

Accelerate-Stop Distance: The runway length declared available and suitable for the acceleration and deceleration of an aircraft aborting a takeoff.

Advisory Circular: External publications issued by the FAA consisting of non-regulatory material providing for the recommendations relative to a policy and guidance and information relative to a specific aviation subject.

Aircraft Approach Category (AAC): An alphabetic classification of aircraft based upon 1.3 times the stall speed in a landing configuration at their maximum certified landing weight. The categories are as follows:

- Category A: Approach speed less than 91 knots
- Category B: Approach speed 91 knots or more but less than 121 knots
- Category C: Approach speed 121 knots or more but less than 141 knots
- Category D: Approach speed 141 knots or more but less than 166 knots
- Category E: Approach speed 166 knots or more

Airplane Design Group (ADG): A classification of aircraft based on wingspan and tail height. The groups are as follows:

- Group I: Wingspan up to but not including 49 feet or tail height up to but not including 20 feet
- Group II: Wingspan 49 feet up to but not including 79 feet or tail height from 20 feet up to but not including 30 feet
- Group III: Wingspan 79 feet up to but not including 118 feet or tail height from 30 feet up to but not including 45 feet
- Group IV: Wingspan 118 feet up to but not including 171 feet or tail height from 45 feet up to but not including 60 feet
- Group V: Wingspan 171 feet up to but not including 214 feet or tail height from 60 feet up to but not including 66 feet
- Group VI: Wingspan 214 feet up to but not including 262 feet or tail height from 66 feet up to but not including 80 feet

Aircraft Operation: The landing, takeoff, or touch-and-do procedure by an aircraft on a runway at an airport.

Airport Classifications: Definitions of airport classifications vary by agency. Classifications relevant to the Airlake Airport are highlighted in italicized text.

- Federal Aviation Administration (FAA) General Aviation Airport Classifications:
    - National: National airports support the national and state system by providing communities with access to national and international markets. They accommodate a full range of aviation activity including large corporate jet and multi-engine aircraft operations, significant charter passenger services, or all-cargo operations. They often work in conjunction with, and in support of, hub airports serving the aviation needs of larger metropolitan areas.
    - *Regional: Regional airports support regional economies by connecting communities to statewide and interstate markets. These airports accommodate a full range of regional and local business activities, limited scheduled passenger service, or cargo operations. They serve corporate jet and multi-engine aircraft, as well as single-engine propeller aircraft.*
    - Local: Local airports supplement communities by providing access to primarily intrastate and some interstate markets. These airports accommodate small businesses, flight training, emergency service, charter service, cargo operations, and personal flying activities. They typically accommodate smaller general aviation aircraft.
    - Basic: Basic airports support general aviation activities such as emergency service, charter or critical passenger service, cargo operations, flight training, and personal flying. These airports typically accommodate mostly single-engine propeller aircraft. They may be located in and provide service to remote areas of the United States with limited or no surface transportation options, and therefore may be critical to the transportation of goods required for local day-to-day life.
- Minnesota State Aviation System Plan (SASP) Classifications:
    - Key Airports: These airports have paved and lighted primary runways 5,000 feet or longer in length. They are capable of accommodating all single-engine aircraft along with larger multi-engine aircraft and most corporate jets.
        - Key Airports include Minneapolis-St. Paul International, St. Paul Downtown, Flying Cloud, and Anoka County – Blaine Airports.
    - *Intermediate Airports: These airports have paved and lighted runways all of which are between 2,500 and 5,000 feet long. Intermediate airports can*

accommodate all single engine aircraft, some multi-engine aircraft, and most corporate jets.

    - Intermediate Airports include Airlake, Lake Elmo, and Crystal Airports.

  - Landing Strips: These airports have turf runways which can accommodate most single-engine aircraft and some twin engine aircraft. They may be unusable during wet weather, winter months, and during the spring melt.

- Metropolitan Council Regional Aviation System Plan (RASP) Classifications:
  - Major Airport: An airport with a primary runway length of 8,000 feet or greater with a precision approach. A Major Airport serves a primary air service access area that is international and national in scope. Its role in the airport system is to provide facilities and services primarily to scheduled air carrier and regional commuter users, but also includes air cargo and charter carriers.
    - Major Airports include Minneapolis-St. Paul International Airport.
  - Intermediate Airport: An airport with a primary runway length between 5,000 and 8,000 feet with a precision approach. The role of an Intermediate Airport is to provide facilities and services primarily to corporate and business general aviation aircraft. Typical users of these airports fly a variety of business jets, turboprop aircraft, and single- and twin-engine piston aircraft.
    - Intermediate Airports include St. Paul Downtown Airport.
  - *Minor Airport: An airport with runways all of which are 5,000 feet in length or less. Their system role is to provide general aviation facilities and services primarily to personal, business, and instructional users. The most common users of these airports fly single-engine and light twin-engine aircraft. Minnesota state statute prohibits upgrading a minor airport to intermediate airport status without legislative approval.*
    - Minor Airports include Flying Cloud, Anoka County – Blaine, Airlake, Lake Elmo, and Crystal Airports.
  - Special Purpose Airport: A facility open to public use, including heliports, seaplane bases, or airport landing areas whose primary geographic and service focus is normally state and metropolitan in scope. Personal, business and instruction uses are accommodated at these facilities.
- Metropolitan Airports Commission (MAC) Reliever Airport Classifications:
  - Primary Relievers: MAC Reliever airports that provide the infrastructure and serves that are key to corporate aviation needs.
    - Primary Relievers include St. Paul Downtown, Flying Cloud, and Anoka County – Blaine Airports.

- *Complimentary Relievers: MAC Reliever airports that provide limited MSP relief and complement the three Primary Relievers by offering options for aviation activity but not to the level of infrastructure and services typically expected at a Primary Reliever.*
    - Complimentary Relievers include Airlake, Lake Elmo, and Crystal Airports.

Airport Elevation: The highest point of an airfield's usable landing area measured in feet above Mean Sea Level (MSL).

Airport Layout Plan (ALP): A scaled drawing of the existing and planned land and facilities necessary for the operation and development of an airport.
Airport Reference Code (ARC): A designation that signifies the airport's highest Runway Design Code (RDC). The ARC is used for planning and design only and does not limit the aircraft that may be able to operate safely on the airport.

Air Route Traffic Control Center (ARTCC): A facility established to provide air traffic control service to aircraft operating on Instrument Flight Rule (IFR) flight plans within controlled airspace and principally during the en-route phase of flight.

Air Traffic Control (ATC): A service provided for the purpose of promoting the safe, orderly, and expeditious flow of air traffic, including airport, approach, and en-route air traffic control services.

Air Traffic Control Tower (ATCT): A structure from which air traffic control personnel control the movement of aircraft on or around the airport.

Annual Service Volume (ASV): The number of annual operations that can be reasonably expected to occur at an airport based on a given level of delay.

Approach Surface: An imaginary obstruction-limiting surface defined in 14 CFR Part 77 which is longitudinally centered on an extended runway centerline and extends outward and upward from the primary surface at each end of a runway at a designated slope and distance based on the type of available or planned approach by aircraft to a runway. See Figure 2-6.

Approach Visibility Minimums: A set of conditions specified for operations of aircraft during Instrument Flight Rule (IFR) weather conditions.

Apron: A specified portion of an airfield used for aircraft parking and the refueling, maintenance, servicing, and loading/unloading of aircraft.

Area Navigation (RNAV): A method of navigation that permits aircraft operations on any desired course within the coverage of station-referenced navigation signals.

Automated Weather Observation System (AWOS): Equipment that takes and broadcasts automated weather readings at an airport.

Average Day Peak Month (ADPM): Defined as peak month passengers or operations divided by the number of days in the month.

Based Aircraft: The general aviation aircraft that use a specific airport as a home base.

Circling Approach: A maneuver initiated by a pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable.

Clear Zone: As defined by MnDOT Aeronautics, Clear Zones off runway ends are intended to enhance operational safety of aircraft and to protect life and property in runway approach areas. The MnDOT Clear Zones have a similar function to, but are not always the same dimensions, as the FAA Runway Protection Zone (RPZ).

Common Traffic Advisory Frequency (CTAF): A radio frequency designated for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower.

Compass Calibration Pad: An airport facility used for calibrating an aircraft compass.

Crosswind Runway: An additional runway at an airport that compensates for primary runways that provide less wind coverage than desired.

Day-Night Average Sound Level (DNL): The predicted average sound effect on an area near the airport for a typical 24-hour period. A weighting factor equivalent to a penalty of 10 decibels is applied to aircraft operations occurring between 10:00 PM and 7:00 AM.

Decibel (dB): A unit used to measure the intensity of a sound or the power level of an electrical signal by comparing it with a given level on a logarithmic scale.

Declared Distances: Distances for a runway representing the maximum lengths available and suitable for meeting takeoff and landing distance requirements. They are determined in accordance with FAA design standards, with length added to or subtracted from the physical length of the runway to provide standard safety areas and protection zones. As a result, the declared distances for a runway may be more or less than the physical length of the runway depicted on aeronautical charts. There are four defined declared distances:

- Takeoff run available (TORA) – length for the ground run of a departing aircraft;
- Takeoff distance available (TODA) – length through the start of the takeoff climb;
- Accelerate stop distance available (ASDA) – length for acceleration to takeoff speed and then deceleration associated with an aborted takeoff; this is often the longest length for twins and turbines
- Landing distance available – length suitable for landing an aircraft

Design Aircraft: An aircraft with characteristics that determine the application of airport design standards for a specific runway, taxiway, apron, or other facility. This aircraft can be a specific aircraft model or a composite of several aircraft using, expected, or intended to use the airport or part of the airport (also called critical aircraft or critical design aircraft).

Dual Wheel Gear (DW): The configuration of an aircraft landing gear where two wheels are used at each wheel position to support the aircraft load.

Federal Aviation Administration (FAA): The federal agency responsible for the safety and efficiency of the national airspace and air transportation system.

Federal Aviation Regulations (FAR): The general and permanent rules established by the executive departments and agencies of the Federal Government for aviation, which are published in the Federal Register. These are the aviation subset of the Code of Federal Regulations.

Fixed Base Operator (FBO): A commercial business enterprise located on an airport that provides services to pilots including aircraft rental, training, fueling, maintenance, parking, and the sale of pilot supplies. Also known as a Full Service Commercial Operator.

Fleet Mix: A collective term generally used to describe the proportions of aircraft types operating at an airport.

Flight Service Station (FSS): Air traffic facilities which provide pilot briefings, flight plan processing, inflight radio communications, search and rescue (SAR) services, and assistance to lost aircraft and aircraft in emergency situations.

General Aviation: The segment of aviation that encompasses all aspects of civil aviation except for certified air carriers and other commercial operators such as air cargo.

Global Positioning System (GPS): A satellite based navigational system that provides signals in the cockpit of aircraft defining aircraft position in terms of latitude, longitude, and altitude.

Instrument Flight Rules (IFR): Procedures for the conduct of flight in weather conditions below Visual Flight Rule weather minimums. The term IFR is often used to define weather conditions and the type of flight plan under which an aircraft is operating.

Instrument Landing System (ILS): A precision instrument approach system that is based on two radio beams which together provide pilots with both vertical and horizontal guidance during an approach to landing. An ILS normally consists of the following electronic components and visual aids: localizer, glide slope, marker beacons, and approach lights.

Instrument Meteorological Conditions (IMC): Meteorological conditions expressed in terms of specific visibility and ceiling conditions that are less than the minimums specified for visual meteorological conditions.

Integrated Noise Model (INM): The INM is a computer model that evaluates aircraft noise impacts in the vicinity of airports. It was developed based on the algorithm and framework from the SAE AIR 1845 standard, which uses noise-power-distance (NPD) data to estimate noise accounting for specific operation mode, thrust setting, and source-receiver geometry, acoustic directivity, and other environmental factors.

Itinerant Operation: An aircraft operation where the destination point is greater than 20 miles from the aircraft's point of origin.

Joint Airport Zoning Board (JAZB): A Joint Airport Zoning Board is comprised of the municipality that owns or controls an airport along with surrounding municipalities within which an airport hazard area may be located. Once formed, the Joint Airport Zoning Board has the power to adopt, administer, and enforce airport zoning regulations applicable to the airport hazard areas in its jurisdiction.
Knots: Nautical miles per hour, equal to 1.15 statute miles per hour.

Lateral Navigation (LNAV): Azimuth navigation without positive vertical guidance. This type of navigation is associated with non-precision approach procedures.

Local Operation: An aircraft operation that remains in the local traffic pattern, executes simulated instrument approaches or low passes at the airport, and operations to or from the airport and a designated practice area within a 20−mile radius of the tower.

Localizer Performance with Vertical Guidance (LPV): The highest precision GPS-enabled instrument approach procedure available without specialized aircrew training requirements. Although precise and accurate, LPV approaches are still considered to be non-precision approaches.

Long-Term Comprehensive Plan (LTCP): The airport sponsor's concept of the long-term development and use of an airport's land and facilities.

LVN: The FAA airport location identifier for Airlake Airport.

MACNOMS: The MAC Noise and Operations Monitoring System collects aircraft noise levels at 39 remote noise monitoring towers located around the Minneapolis-St. Paul International Airport (MSP). In addition, the system collects flight track data to approximately 40 miles around MSP up to 20,000 feet.

Metropolitan Airports Commission (MAC): The owner and operator of the Lake Elmo Airport. The Metropolitan Airports Commission (MAC) was created in 1943 by the Minnesota Legislature to promote air transportation in the seven-county metropolitan area.

Microjet: A category of small jet aircraft approved for single-pilot operation, typically seating 4-8 people, with a maximum takeoff weight of under 10,000 pounds. Also referred to as very light jets or personal jets.

Medium Intensity Runway Lights (MIRL): Lights that are located along the edge of a runway to assist pilots in identifying the edge of the surface available for takeoffs and landings.

Modification to Design Standards (MOS): Any approved nonconformance to FAA standards applicable to an airport design, construction, or equipment procurement project that is necessary to accommodate an unusual local condition for a specific project on a case-by-case basis while maintaining an acceptable level of safety.

Mean Seal Level (MSL): A measure used in aviation for pilots to identify the flight or airfield elevation above sea level as opposed to above ground level (AGL).

Movement Area: The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, takeoff, and landing of aircraft including helicopters, exclusive of aprons and aircraft parking areas.

MSP: Minneapolis-St. Paul International Airport

National Climatic Data Center (NCDC): The federal agency responsible for preserving, monitoring, assessing, and providing public access to the Nation's climate and historical weather data and information.

National Plan of Integrated Airport Systems (NPIAS): The national airport system plan developed by the Secretary of Transportation on a biannual basis for the development of public use airports to meet national air transportation needs.

Navigational Aid (NAVAID): A visual or electronic facility or device used as, available for use as, or designed for use as an aid to air navigation.

Non-Directional Beacon (NDB): A general purpose, low-frequency radio beacon that can be used by a pilot to determine a bearing from the transmitter.

Non-Precision Approach: A straight-in instrument approach procedure that provides course guidance, without without vertical path guidance, with visibility minimums not later than ¾ mile.

Object Free Area (OFA): An area centered on the ground on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by remaining clear of objects except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

Obstacle Free Zone (OFZ): The OFZ is the three-dimensional airspace along the runway and extended runway centerline that is required to be clear of obstacles for protection for aircraft landing or taking off from the runway and for missed approaches.

Other-Than-Utility Runway: A runway that is intended to be used by propeller driven aircraft with a maximum gross weight greater than 12,500 pounds and/or jet aircraft of any gross weight.

Part 77: Regulations for the protection of airspace around a public-use civilian or military airport are specified in 14 CFR Part 77 *Safe, Efficient Use, and Preservation of the Navigable Airspace*. These defined surfaces are used by the FAA to identify obstructions to airspace around an airport facility. Part 77 surfaces are comprised of primary, approach, transitional, horizontal and conical three-dimensional imaginary surfaces.

Pavement Condition Index (PCI): PCI evaluation includes a visual inspection of pavements and assignment of a numerical indicator that reflects the structural and operational condition of the pavement including the type, severity, and quantity of pavement distress.

Precision Approach: An instrument approach procedure that provides course and vertical path guidance with visibility below ¾ mile.

Precision Approach Path Indicator (PAPI): A navigational aid to visually identify the glideslope to the touchdown zone of the runway.

Precision Obstacle Free Zone (POFZ): A volume of airspace above an area beginning at the runway threshold, at the threshold elevation, and centered on the extended runway centerline, 200 feet long by 800 feet wide.

Primary Runway: A runway constructed to meet airport capacity needs. The design objective for a primary runway is to provide a runway length that will not result in operational weight restrictions.

Primary Surface: An imaginary obstruction limiting surface defined in 14 CFR Part 77 that is specified as a rectangular surface longitudinally centered about a runway. (See Figure 2-7.)

Regular Use: Regular use is considered as at least 500 or more annual itinerant operations of the runway by the critical design aircraft.

Reliever Airport: General Aviation airports in major metropolitan areas that provide pilots with attractive alternatives to using congested hub airports. To be eligible for reliever designation, an airport must be open to the public, have 100 or more based aircraft, or have 25,000 annual itinerant operations.

Remote Transmitter/Receiver (RTR): An air-to-ground communications system having transmitters and/or receivers and other ancillary equipment. These on-airport facilities allow radio communications between a pilot and ATCT and are usually located at non-towered airports.

Runway: A defined rectangular area at an airport designated for the landing and takeoff of an aircraft.

Runway Design Code (RDC): The selected AAC, ADG, and desired approach visibility minimums (in feet of runway visual range) are combined to form the Runway Design Code (RDC) for a particular runway. The RDC is used to determine the standards that apply to a specific runway and parallel taxiway to allow unrestricted operations by the design aircraft under defined meteorological conditions.

Runway End Identifier Lights (REIL): Two synchronized flashing lights, one of each side of a runway threshold, which provide positive identification of the runway approach end.

Runway Object Free Area (ROFA): An area centered on the ground on a runway centerline provided to enhance the safety of aircraft operations by remaining clear of objects, except for objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes.

Runway Object Free Zone (ROFZ): The ROFZ is the three-dimensional airspace along the runway and extended runway centerline that is required to be clear of obstacles for protection for aircraft landing or taking off from the runway and for missed approaches.

Runway Protection Zone (RPZ): An area at ground level prior to the threshold or beyond the runway end to enhance the safety and protection of people and property on the ground.

Runway Safety Area (RSA): A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway.

Runway Visual Range (RVR): An estimate of the maximum distance at which the runway, or the specified lights or markers delineating it, can be seen from a position above a specific point on the runway centerline.

Single Wheel Gear (SW): The configuration of an aircraft landing gear where a single wheel is used at each wheel position to distribute the aircraft load.

Small Aircraft: An aircraft with a maximum certificated takeoff weight of 12,500 pounds or less.

State Airport System Plan (SASP): The primary objective of the Minnesota State Aviation System Plan is to provide the state with excellent planning tools to assist in making informed decisions guiding the development of Minnesota's system of airports and expending funds in a cost-effective manner.

State Safety Zones: Model standards promulgated by the Minnesota Department of Transportation per Minnesota Administrative Rules Chapter 8800, Section 2400 for the zoning of public airports as to airspace, land use safety, and noise sensitivity. A complete description and copy of the Minnesota Rules (Chapter 8800 Department of Transportation Aeronautics, Section 2400 Airport Zoning Standards) can be accessed via the following website link: https://www.revisor.mn.gov/rules/?id=8800.2400.

T-Hangar: A linear structure with interior bays that are of a "T" shape and provide shelter for aircraft.

Taxilane: A taxiway designed for low speed and precise taxiing. Taxilanes are usually, but not always, located outside the movement area, providing access from taxiways to aircraft parking positions and other terminal areas.

Taxiway: A defined path established for the taxiing of aircraft from one part of an airport to another.

Taxiway Design Group (TDG): A classification of airplanes based on outer-to-outer main landing gear width and cockpit to main gear distance.

Taxiway/Taxilane Safety Area (TSA): A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft deviating from the taxiway.

Threshold: The beginning of that portion of the runway available for landing. In some cases, the threshold may be displaced from the physical end of the runway.

Touch and Go: A practice maneuver consisting of a landing and a takeoff performed simultaneously without coming to a complete stop. A touch and go is defined as two aircraft operations.

Traffic Pattern: Projections on the ground of the aerial path associated with an aircraft flying the crosswind, downwind, base, and final approach legs of the takeoff and landing process.

Turbine-Powered Aircraft: Aircraft powered by turbine engines including turbojets and turboprops but excluding turbo-shaft, rotary-wing aircraft. Such aircraft normally use Jet-A fuel.

Uncontrolled Airport: An airport without an airport traffic control tower at which the control of Visual Flight Rules (VFR) traffic is not exercised.

Useful Load: The aircraft maximum takeoff weight minus the aircraft empty weight. An aircraft's useful load can be used to transport either fuel or payload (passengers, baggage, and/or cargo).

Utility Runway: A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.

Visual Flight Rules (VFR): Procedures for the conduct of flights in weather conditions above Visual Flight Rules (VFR) weather minimums. The term VFR is often used to define weather conditions and the type of flight plan under which an aircraft is operating.

Visual Meteorological Conditions (VMC): Meteorological conditions expressed in terms of specific visibility and ceiling conditions which are equal to or greater than the threshold values for instrument meteorological conditions.

Visual Runway: A runway without an existing or planned straight-in instrument approach procedure.

Appendix 2: Historical Airport Planning Documents

PAGE INTENTIONALLY LEFT BLANK

METROPOLITAN AIRPORTS COMMISSION

IN THE MATTER OF THE
ACQUISITION OF AIRLAKE INDUSTRIAL AIRPORT
AND CERTAIN ADJACENT LAND

FINDINGS, CONCLUSIONS AND ORDER

Pursuant to notice duly published and mailed, a public hearing was held on October 4, 1979 at which testimony was taken and other evidence introduced on the issue of whether or not the Metropolitan Airports Commission (hereinafter "MAC") should acquire interests in real property located in Dakota County, Minnesota, commonly known as Airlake Airport, and certain adjacent land, described as set forth in Exhibit A (hereinafter collectively referred to as "SUBJECT PROPERTY").

The hearing was commenced at the time and place designated in said notice, at 7:30 p.m. in the commons area of the Lakeville High School, located in Lakeville, Minnesota. The hearing was conducted by Commissioner Jack Jorgensen, Sr., pursuant to formal action of the Commission taken on April 16, 1979. The Commission was represented at the hearing by its legal counsel, Thomas W. Anderson, Oppenheimer, Wolff, Foster, Shepard and Donnelly.

Testimony and evidence was first presented by Mr. Raymond G. Glumack, Executive Director, MAC; Mr. Nigel D. Finney, MAC Planning/Construction Engineer; and Mr. Steve Hurvitz, Minnesota Department of Transportation. Following the foregoing testimony and the questioning of Mr. Glumack by members of the public, all of those in attendance and wishing to do so had the opportunity to testify and to introduce evidence regarding the proposed acquisition by the MAC of the SUBJECT PROPERTY.

Twenty-three (23) exhibits were offered and received into the record at the public hearing. The hearing record was kept open until October 11, 1979 and eight (8) additional exhibits were received by the MAC into the record.

NOW, THEREFORE, having given due consideration to the testimony, exhibits and other evidence submitted and made a part of the record, the MAC makes the following FINDINGS, CONCLUSIONS AND ORDER:

FINDINGS AND CONCLUSIONS

1. The MAC is a public corporation operating under Minn. Stat. Chapter 473 for the purposes of promoting the public welfare and national security; serving the public interest, convenience, and necessity; promoting air navigation and transportation, international, national, state, and local; promoting the efficient, safe and economical handling of air commerce; developing the full potentialities of the metropolitan area in this state as an aviation center; and assuring the residents of the metropolitan area of the minimum environmental impact from air navigation and transportation.

2. The MAC area of jurisdiction extends 35 miles from the city halls of Minneapolis and St. Paul and over the seven-county metropolitan area. The MAC presently operates a system of six airports, set out in the Metropolitan Development Guide, Aviation Chapter as: Minneapolis/St. Paul International Airport (Wold-Chamberlain Field), an air carrier airport; St. Paul Downtown Airport (Holman Field), an Intermediate airport;Flying Cloud Field, a minor airport; Crystal Airport, a minor airport; Anoka County-Blaine Airport (Janes Field), an intermediate airport; and Lake Elmo Airport, a minor airport.

3. In early 1979, the Federal Aviation Administration ("FAA") announced the creation of a national program to increase safety at

major airports by attempting to separate general aviation and air carrier aircraft to the greatest extent possible. Although MAC has an excellent reliever system to attract general aviation away from Minneapolis/St. Paul International Airport, certified pilots wishing to train on an Instrument Landing System ("ILS") in single engine, or light twin-engine aircraft, must do so at Minneapolis/St. Paul International Airport, which leads to an incompatible mix of general aviation training activity with scheduled airline passenger flights.

4. The FAA has proposed to install a training ILS at a reliever airport in the Minneapolis/St. Paul metropolitan area to help separate general aviation and air carrier activity. In conjunction with the Minnesota Department of Transportation ("MnDOT"), the FAA looked at the Twin Cities area for the most appropriate airport on which to install a training ILS. None of the existing MAC reliever airports were determined to be appropriate at this time for installation of a training ILS, due to air space, physical, or environmental constraints. It was the determination of the FAA and MnDOT that the SUBJECT PROPERTY encompassing a privately-owned minor airport located in Dakota County, Minnesota, was the most appropriate location in the Twin Cities metropolitan area for installation of this system.

5. Because the FAA is prohibited from using federal funding at private airports, it approached the MAC as the regional airport operating agency requesting that MAC acquire the SUBJECT PROPERTY.

6. The SUBJECT PROPERTY is located in central Dakota County approximately 18 miles south of Minneapolis/St. Paul International Airport (Wold-Chamberlain Field), approximately 1 mile southeast

of Lakeville and 4 miles west of Farmington, Minnesota. The SUBJECT PROPERTY straddles the boundary between the City of Lakeville and Eureka Township.

7. The terrain around the SUBJECT PROPERTY is generally flat with some rolling areas. The airfield proper consists of a runway 5,000 feet long and 75 feet wide, equipped with a MIRLS with REILS at each runway end.

8. The role each airport is to play in the Metropolitan Airport System is defined by the Metropolitan Council in the Metropolitan Development Guide - Aviation Chapter. Airlake Airport is presently included in the Metropolitan Airport System as a privately-owned, minor airport.

9. The MDG-Airports Chapter indicates a concern regarding the possible loss of privately-owned airports and the resulting diminution in metropolitan airport system capacity, and suggests that public acquisition and ownership is one mechanism to maintain these airports in the Metropolitan System.

10. The MAC must operate the SUBJECT PROPERTY consistent with its role in the metropolitan system (Minor Airport) and must also comply with design criteria of the Federal Aviation Administration and Minnesota Department of Transportation/Division of Aeronautics.

(a) Runway length. The present 5,000 foot runway is designed for business jets. Based upon the needs of the type of aircraft normally using a Minor Airport, a runway of approximately 4,150 feet would be sufficient.

(b) Parallel taxiway. A parallel taxiway along the north side of the runway approximately 200 feet from the runway centerline is required.

(c) Approach zone requirements. These requirements vary according to use of the runway and summarized as follows:

Clear Zone - an area off the runway and coincident with the inner portion of the approach surface within which the airport owner must be able to control structures; this area extends 2,700 feet from the southeast runway end and 1,200 feet from the northwest runway end.

Approach clearance - an approach slope beginning 200 feet from the runway end which should not be penetrated by any obstructions; a 50:1 slope applies at the southeast runway end and should provide a 15 foot clearance over Cedear Avenue, and a 20:1 slope applies at the northwest runway end and should provide a 23 foot clearance over the railroad.

(d) Lateral clearances. Federal regulations for lateral clearances on precision utility runways indicates that no buildings or structures should be located within an area 300 feet from the runway centerline, nor should buildings pentrate a 4:1 slope starting at the 300 foot line. In the area between the 300 foot line and the edge of the primary surface for a precision runway, the FAA must evaluate each structure and make a determination as to whether or not it is a hazard to air navigation or would interfere with the ILS electronic signals; a positive determination would require removal of the structure.

11. Acquisition of the SUBJECT PROPERTY by the MAC will permit the FAA to install an ILS and Control Tower, could divert

approximately 8,000 small aircraft ILS training operations per year. There are presently approximately 8,000 annual operations at Airlake Airport. Based upon the above, it is expected that operation of the SUBJECT PROPERTY by the MAC as a Minor Airport would have the following effects:

(a) Safety. Acquisition of the SUBJECT PROPERTY by the MAC and installation of an ILS and Control Tower by the FAA could increase the level of safety at AIRLAKE AIRPORT, by converting what is presently uncontrolled air space into controlled air space.

(b) Aircraft noise.

1. Base case. Assuming the present level of aircraft activity plus the immediate diversion of 8,000 annual ILS training operations, neither the federal (Ldn) nor the state (L10) methodologies produce contours, indicating no noise impact using these methodologies.

2. Assuming an historical growth rate equivalent to other comparable MAC airports, there will be an approximate doubling of annual operations over a 10 to 15 year period, which will produce Ldn 55 and L10 65 noise contours entirely within the boundaries of the SUBJECT PROPERTY.

(c) Airport zoning. Minn. Stat. Chapter 360 requires zoning of specified areas adjacent to airports through a Joint Airport Zoning Board, composed of the airport operator and all affected communities. Under regulations of the MnDOT, this zoning must divide affected property into A, B and C zones, in which, respectively, (a) no development may take place, (b) development may take place with specified density and use restrictions, and (c) development may not electronically or visually interfere with the airport operations.

12. Based upon the appraisal of Davis and Lagerman, Inc., the cost of acquisition of the SUBJECT PROPERTY, excluding costs of relocating existing buildings and as limited as set forth in Davis and Lagerman's appraisal, would be in the range of $4,800,000 to $5,500,000.

13. Acquisition of the SUBJECT PROPERTY by the MAC is consistent with the objectives of Minn. Stat. §473.602, in that acquisition of the SUBJECT PROPERTY by the MAC would

(a) Serve public interest, convenience, and necessity;

(b) Promote air navigation and transportation in and throughout this state;

(c) Promote the efficient, safe and economical handling of air commerce; and

(d) Help develop the full potentialities of the metropolitan area in this state as an aviation center.

Based upon the above FINDINGS AND CONCLUSIONS, and all of the testimony, exhibits and other evidence presented, IT IS HEREBY ORDERED

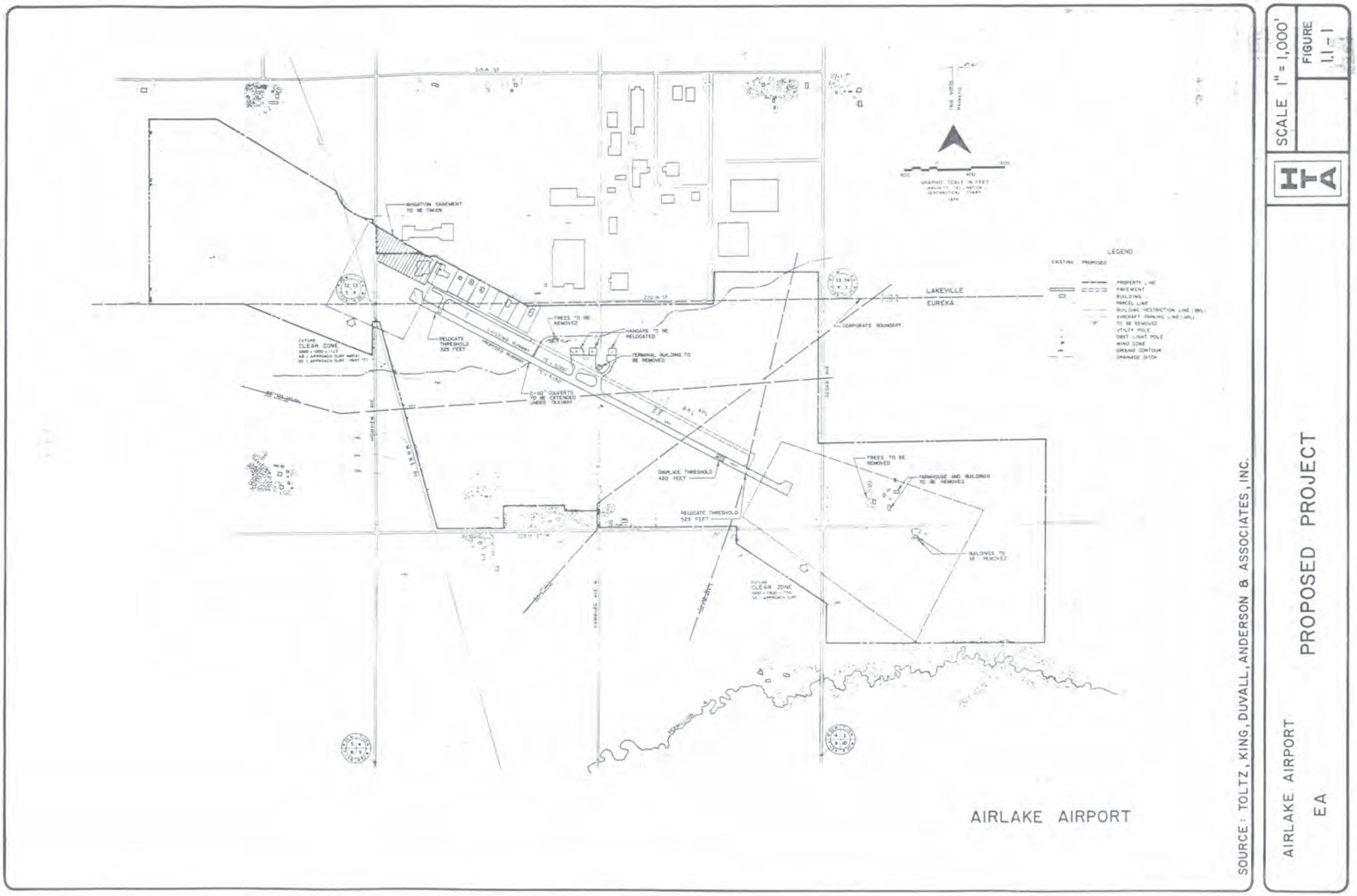
1. That the Metropolitan Airports Commission be authorized to acquire title in fee simple absolute or some lesser interest, either

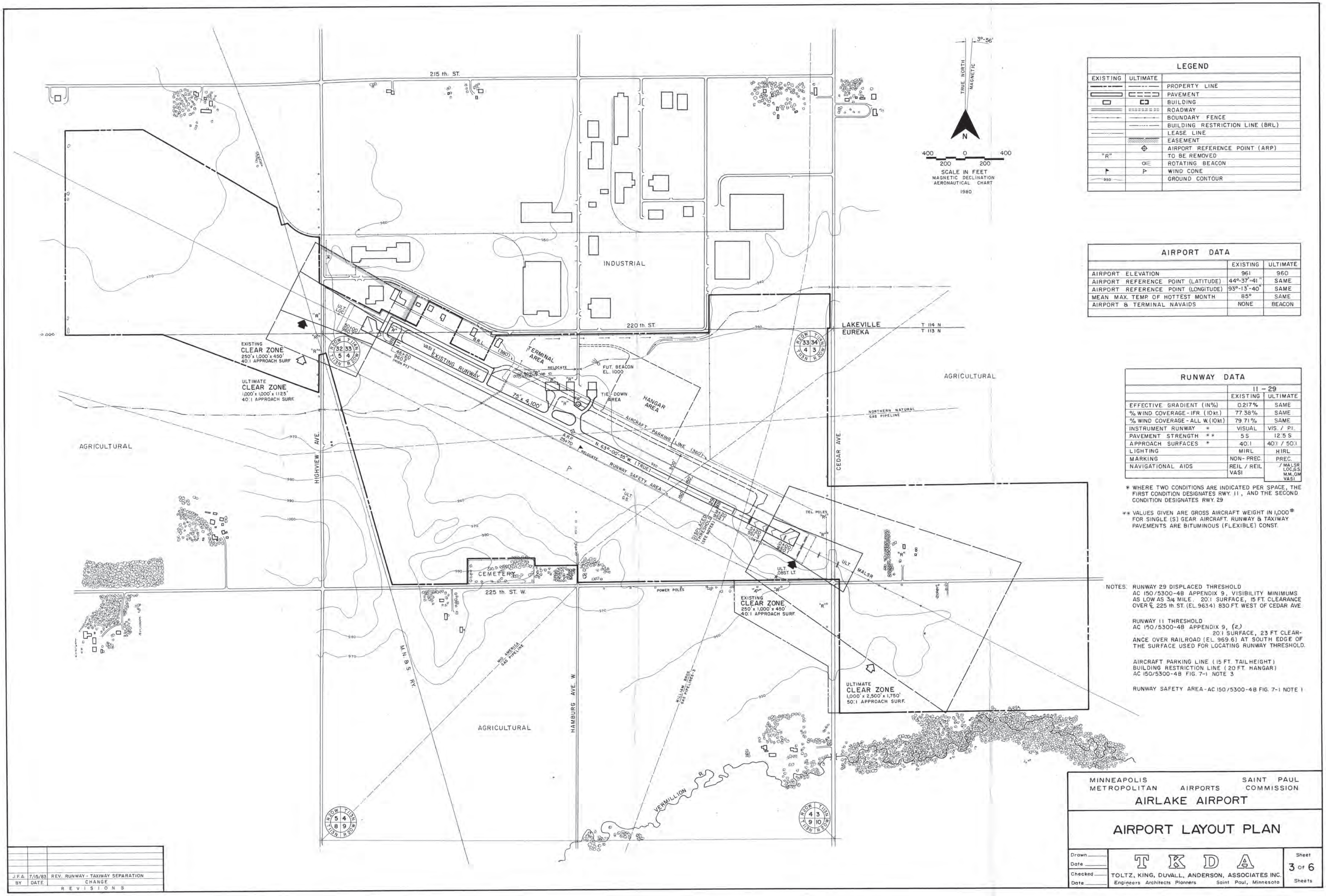
by purchase, if purchase can be made within the limits of appraisals made by independent, outside appraisers retained by the MAC and upon terms acceptable to the MAC or, to the extent acquisition by negotiated purchase is not practical, then through eminent domain proceedings, to all or part of the SUBJECT PROPERTY.

DATED: December 17, 1979

CHAIRMAN

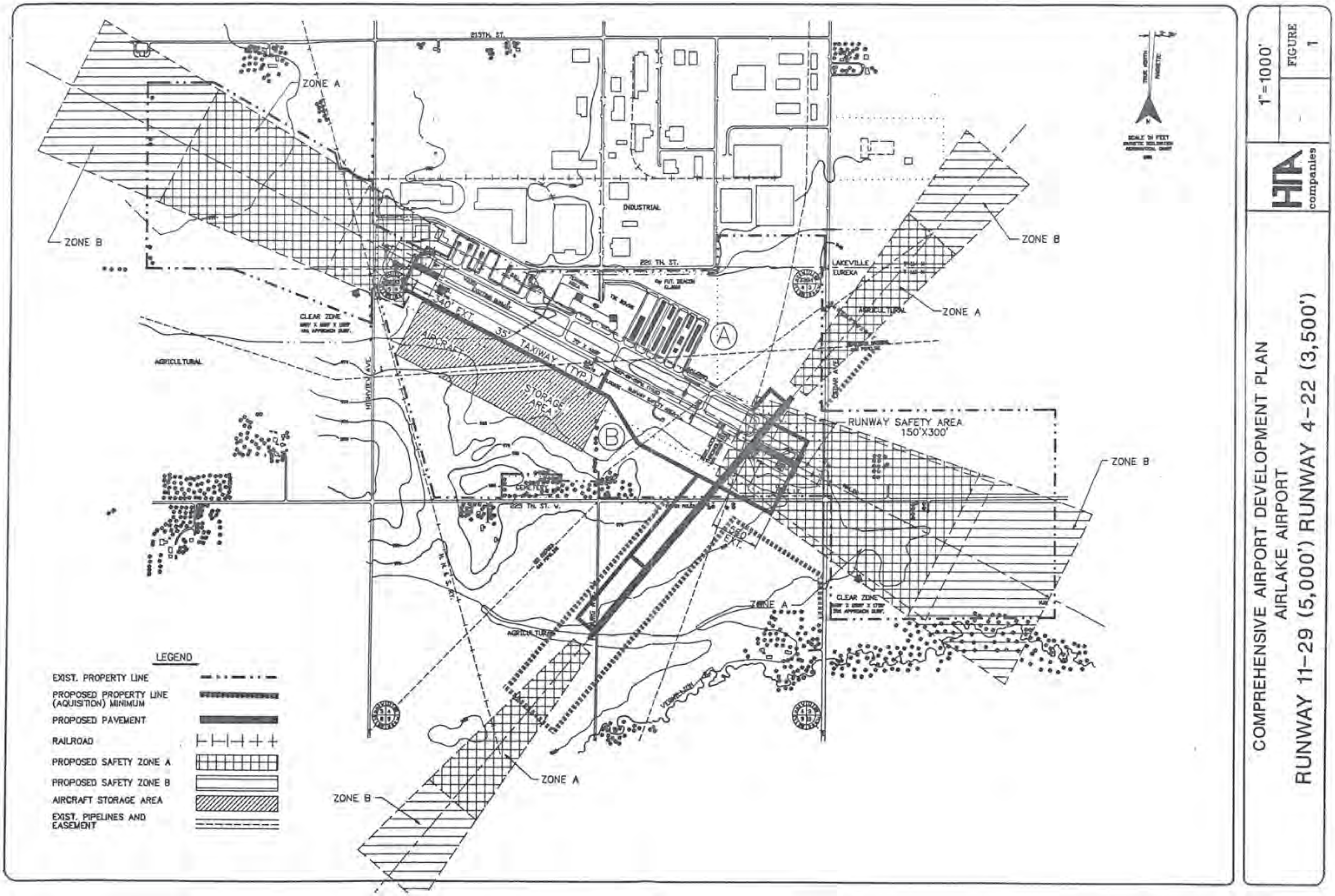
Lynn Tischler
SECRETARY

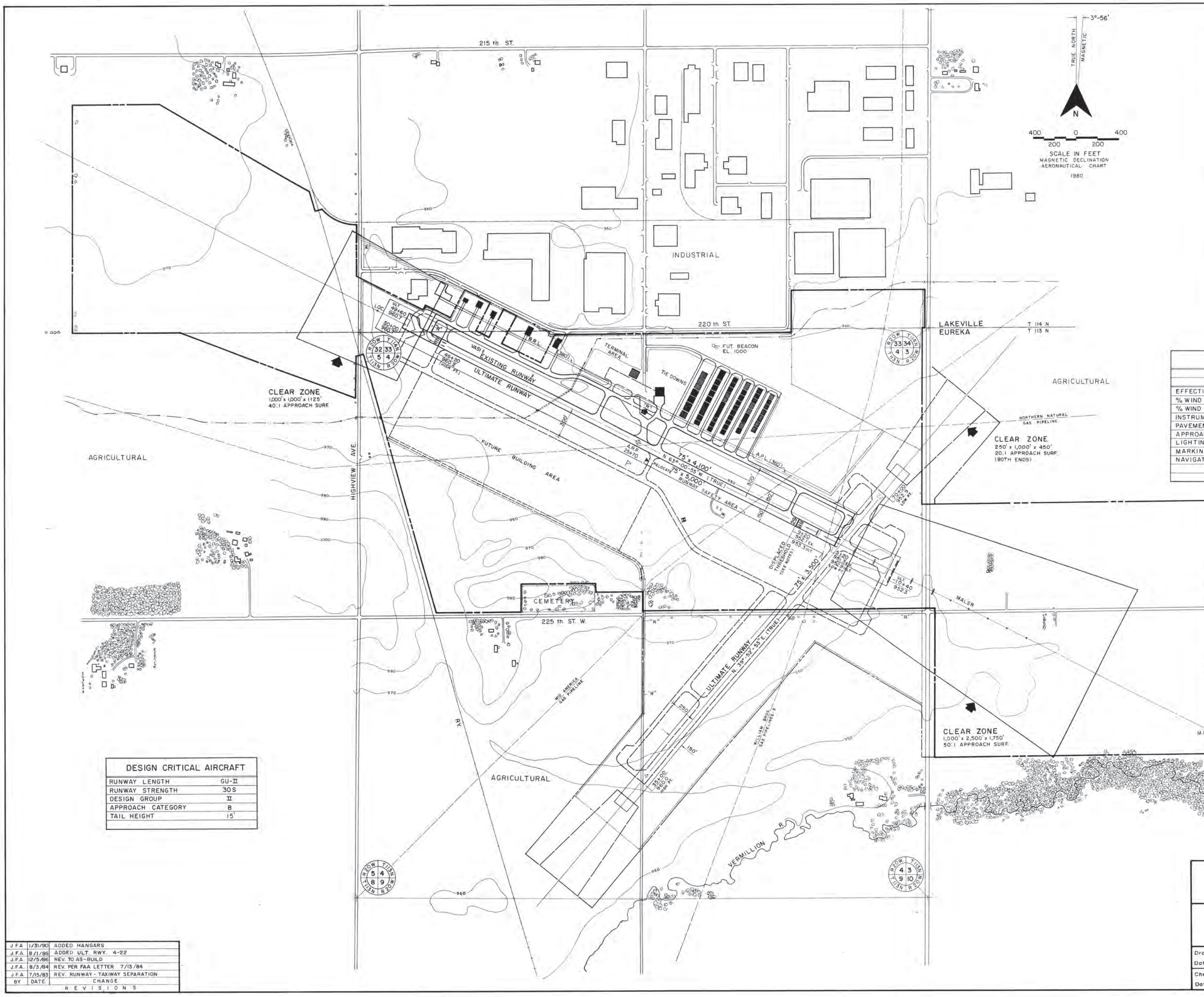

AVIGATION EASEMENT TO BE TAKEN
TREES TO BE REMOVED
HANGARS TO BE RELOCATED
TERMINAL BUILDING TO BE REMOVED
RELOCATE THRESHOLD 325 FEET
FUTURE CLEAR ZONE
2-60" CULVERTS TO BE EXTENDED UNDER TAXIWAY
LAKEVILLE
EUREKA
CORPORATE BOUNDARY
LEGEND
TREES TO BE REMOVED
FARMHOUSE AND BUILDINGS TO BE REMOVED
DISPLACE THRESHOLD 420 FEET
RELOCATE THRESHOLD 325 FEET
BUILDINGS TO BE REMOVED
FUTURE CLEAR ZONE
AIRLAKE AIRPORT
SOURCE : TOLTZ, KING, DUVALL, ANDERSON & ASSOCIATES, INC.
SCALE 1" = 1,000'
FIGURE 1.1-1
PROPOSED PROJECT
AIRLAKE AIRPORT
EA



AIRPORT DATA	EXISTING	ULTIMATE
AIRPORT ELEVATION	961	960
AIRPORT REFERENCE POINT (LATITUDE)	44°-37'-41"	SAME
AIRPORT REFERENCE POINT (LONGITUDE)	93°-13'-40"	SAME
MEAN MAX. TEMP. OF HOTTEST MONTH	85°	SAME
AIRPORT & TERMINAL NAVAIDS	NONE	BEACON

RUNWAY DATA	11 – 29	
	EXISTING	ULTIMATE
EFFECTIVE GRADIENT (IN%)	0.217%	SAME
% WIND COVERAGE - IFR (10 kt.)	77.38%	SAME
% WIND COVERAGE - ALL W. (10 kt.)	79.71%	SAME
INSTRUMENT RUNWAY *	VISUAL	VIS. / P.I.
PAVEMENT STRENGTH **	5 S	12.5 S
APPROACH SURFACES *	40:1	40:1 / 50:1
LIGHTING	MIRL	HIRL
MARKING	NON-PREC.	PREC.
NAVIGATIONAL AIDS	REIL / REIL VASI	/ MALSR LOC, G.S. M.M., O.M. VASI


ZONE A
ZONE B
INDUSTRIAL
220 TH. ST.
LAKEVILLE
EUREKA
AGRICULTURAL
CLEAR ZONE
540' EXT.
35' TAXIWAY (TYP.)
AIRCRAFT STORAGE AREA
RUNWAY SAFETY AREA 150'X300'
CEDAR AVE.
HIGHVIEW AVE.
225 TH. ST. W.
CEMETERY
550' EXT.
LEGEND
EXIST. PROPERTY LINE
PROPOSED PROPERTY LINE (AQUISITION) MINIMUM
PROPOSED PAVEMENT
RAILROAD
PROPOSED SAFETY ZONE A
PROPOSED SAFETY ZONE B
AIRCRAFT STORAGE AREA
EXIST. PIPELINES AND EASEMENT
1"=1000'
FIGURE 1
HTA companies
COMPREHENSIVE AIRPORT DEVELOPMENT PLAN
AIRLAKE AIRPORT
RUNWAY 11-29 (5,000') RUNWAY 4-22 (3,500')



LEGEND

EXISTING	ULTIMATE	
		PROPERTY LINE
		PAVEMENT
		BUILDING
		ROADWAY
		BOUNDARY FENCE
		BUILDING RESTRICTION LINE (BRL)
		LEASE LINE
		EASEMENT
		AIRPORT REFERENCE POINT (ARP)
"R"		TO BE REMOVED
		ROTATING BEACON
		WIND CONE
950		GROUND CONTOUR

AIRPORT DATA

	EXISTING	ULTIMATE
AIRPORT ELEVATION	960	SAME
AIRPORT REFERENCE POINT (LATITUDE)	44°-37'-41"	44°-37'-33"
AIRPORT REFERENCE POINT (LONGITUDE)	93°-13'-40"	93°-13'-34"
MEAN MAX. TEMP. OF HOTTEST MONTH	85°	SAME
AIRPORT & TERMINAL NAVAIDS	NONE	BEACON
OPERATIONAL ROLE	G.U.	SAME

RUNWAY DATA

	11 - 29		4 - 22	
	EXISTING	ULTIMATE	EXISTING	ULTIMATE
EFFECTIVE GRADIENT (IN%)	0.217%	SAME		.002
% WIND COVERAGE - IFR (10kt.)	77.38%	SAME		VISUAL
% WIND COVERAGE - ALL W. (10kt.)	79.71%	SAME		63.70%
INSTRUMENT RUNWAY *	VIS./ P.I.	SAME		VIS. / VIS.
PAVEMENT STRENGTH **	5S	12.5 S		12.5 S
APPROACH SURFACES *	40:1 / 50:1	SAME		20:1
LIGHTING	MIRL	HIRL		MIRL
MARKING	NON-PREC.	PREC.		BASIC
NAVIGATIONAL AIDS	REIL / I.L.S. VASI/MALSR	SAME PAPI / PAPI		PAPI/PAPI

* WHERE TWO CONDITIONS ARE INDICATED PER SPACE, THE FIRST CONDITION DESIGNATES RWY. 11,4 AND THE SECOND CONDITION DESIGNATES RWY. 29, 22

** VALUES GIVEN ARE GROSS AIRCRAFT WEIGHT IN 1,000# FOR SINGLE (S) GEAR AIRCRAFT. RUNWAY & TAXIWAY PAVEMENTS ARE BITUMINOUS (FLEXIBLE) CONST.

NOTES:

ALL TAXIWAYS WILL ULTIMATELY BE 40 FEET WIDE

NOTES: RUNWAY 29 DISPLACED THRESHOLD
AC 150/5300-4B APPENDIX 9, VISIBILITY MINIMUMS AS LOW AS 3/4 MILE. 20:1 SURFACE, 15 FT. CLEARANCE OVER ℄ 225 th ST. (EL 963.4) 830 FT. WEST OF CEDAR AVE.

RUNWAY 11 THRESHOLD
AC 150/5300-4B APPENDIX 9, (2). 20:1 SURFACE, 23' FT. CLEARANCE OVER RAILROAD (EL. 969.6) AT SOUTH EDGE OF THE SURFACE USED FOR LOCATING RUNWAY THRESHOLD.

AIRCRAFT PARKING LINE (15 FT. TAILHEIGHT)
BUILDING RESTRICTION LINE (20 FT. HANGAR)
AC 150/5300-4B FIG. 7-1 NOTE 3

RUNWAY SAFETY AREA - AC 150/5300-4B FIG. 7-1 NOTE 1

DESIGN CRITICAL AIRCRAFT

RUNWAY LENGTH	GU-II
RUNWAY STRENGTH	30 S
DESIGN GROUP	II
APPROACH CATEGORY	B
TAIL HEIGHT	15'

BY	DATE	CHANGE
J.F.A.	1/31/90	ADDED HANGARS
J.F.A.	8/1/86	ADDED ULT. RWY. 4-22
J.F.A.	12/5/86	REV. TO AS-BUILD
J.F.A.	8/3/84	REV. PER FAA LETTER 7/13/84
J.F.A.	7/15/83	REV. RUNWAY - TAXIWAY SEPARATION

REVISIONS

REV. DATE JAN 1990

MINNEAPOLIS SAINT PAUL METROPOLITAN AIRPORTS COMMISSION

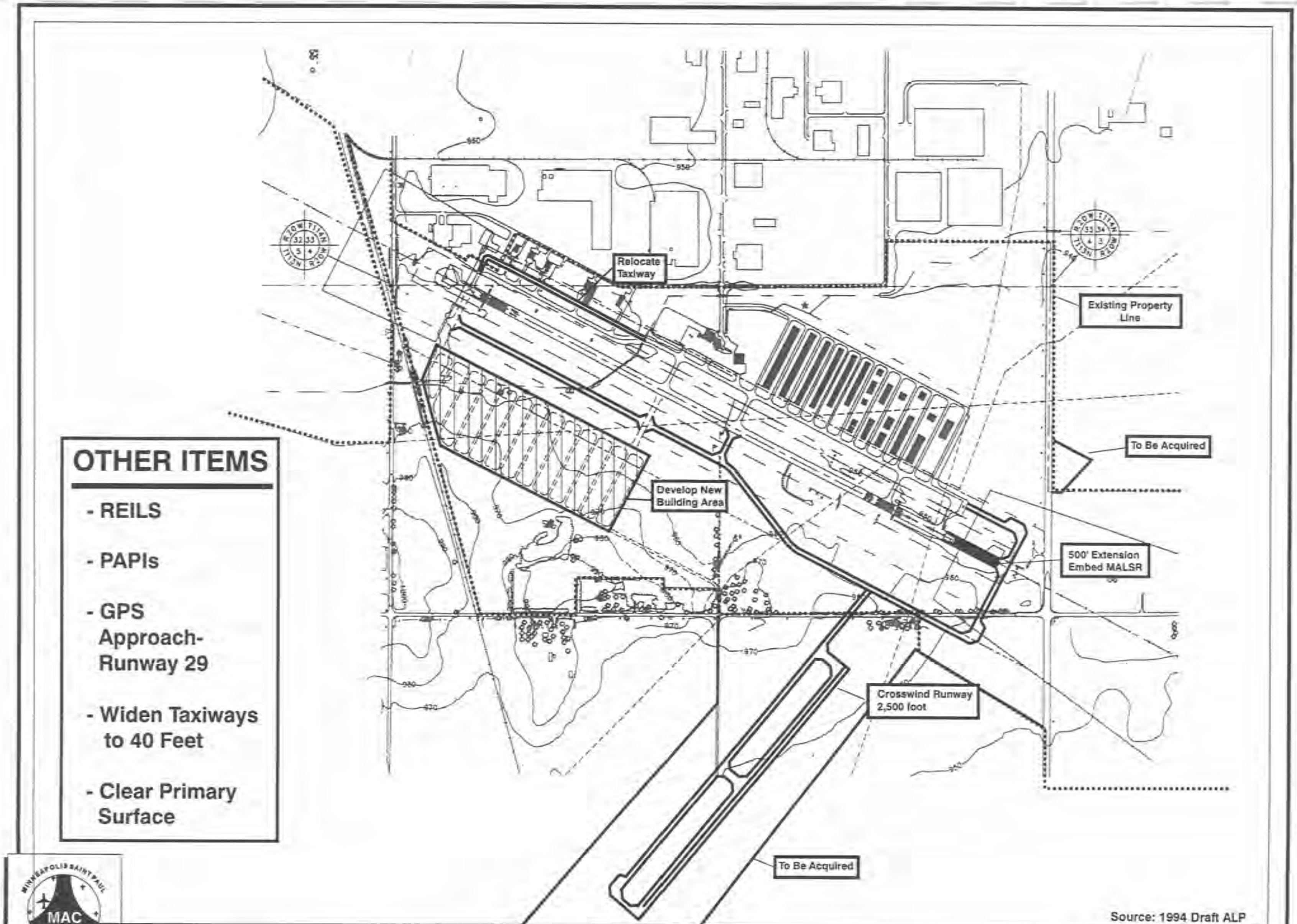
AIRLAKE AIRPORT

AIRPORT LAYOUT PLAN

Drawn ____ Date ____ Checked ____ Date ____

TKDA
TOLTZ, KING, DUVALL, ANDERSON, ASSOCIATES INC.
Engineers Architects Planners Saint Paul, Minnesota

Sheet 3 of 8 Sheets



AIRLAKE AIRPORT

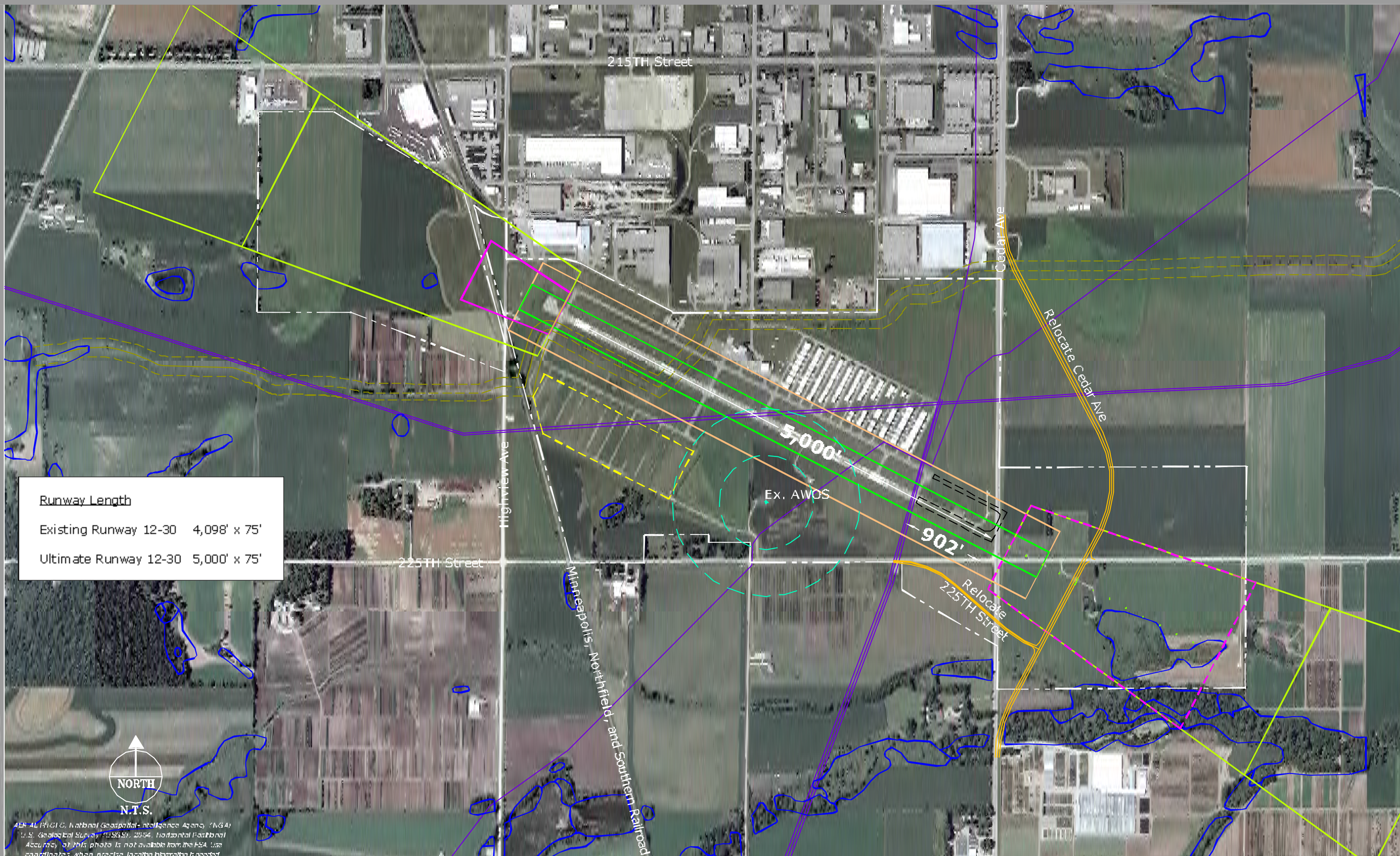
LONG-TERM COMPREHENSIVE PLAN UPDATE

POSSIBLE DEVELOPMENT

EXHIBIT 1

Existing Airport Property Line	Runway Safety Area	Pipelines	Trout Stream Protection (100' Buffer)
Ultimate Runway Protection Zone	Runway Object Free Area	Wetlands	Road Relocation
Mn/DOT State Safety Zones	Building Area Expansion	Existing AWOS Critical Area	

Figure ES-1



Airlake Airport (LVN)

Preferred Alternative - Extend to 5,000-feet with Building Area Development

Appendix 3: Airlake Airport Activity Forecast Methodology

Note: The complete *Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report* that contains full forecast development documentation can be downloaded from the MAC website at:

https://www.metroairports.org/General-Aviation/General-Aviation-Documents/MSP-Reliever-Technical-Report-10-30-2015.aspx

PAGE INTENTIONALLY LEFT BLANK

Airlake Airport (LVN)
2035 Long-Term Comprehensive Plan Forecast Summary

1. Introduction

This chapter summarizes the LTCP activity forecast for Airlake Airport (LVN). The base year is represented by the twelve months ending June 2015 and forecasts were prepared for 2020, 2025, 2030, and 2035. The forecasts for the airport are unconstrained, except for runway length, and assume that the necessary facilities will be in place to accommodate demand. The chapter begins with a description of the forecast approach, followed by a discussion of the forecasts for based aircraft and aircraft operations, and then concludes with a set of alternative forecast scenarios.

The assumptions inherent in the following calculations are based on data provided by the MAC, federal and local sources, and professional experience. Forecasting, however, is not an exact science. Departures from forecast levels in the local and national economy and in the aviation industry would have a significant effect on the forecasts presented herein.

2. Historical Trends

Table 1 shows historical based aircraft and aircraft operations at LVN from 1990 through 2015.

Table 1: Historical Aviation Activity at Airlake

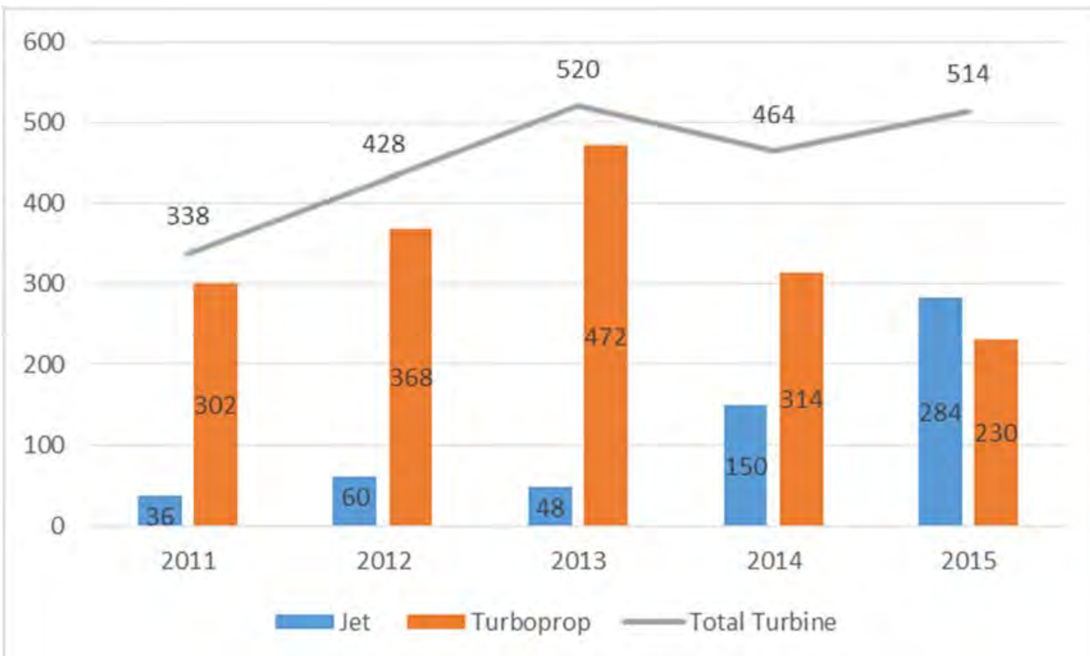
Year	Based Aircraft	Operations (a)
1990	140	67,980
1995	179	75,397
2000	175	76,418
2001	170	70,229
2002	170	69,176
2003	190	58,108
2004	177	53,309
2005	163	51,678
2006	159	48,014
2007	175	41,292
2008	158	39,021
2009	147	35,802
2010	147	35,662
2011	131	34,270
2012	147	34,560
2013	127	31,346
2014	129	34,327
2015	137	36,757(b)

(a) MAC estimates.
(b) Twelve months ending June 2015.
Source: MAC and FAA ATADS.

The total number of aircraft based at Airlake Airport rose from 1990 to 2003. They then declined to 2013 but have since begun to increase again. Based aircraft at LVN currently stand at 137. Aircraft operations fell more rapidly than based aircraft over the same period, but are recovering as well. A number of factors have contributed to the decline during the 2000's, including the slowing economy, increased fuel prices and other operating costs, and reduced interest in recreational flying by younger people.

LVN is experiencing an upward trend in high-performance corporate and general aviation itinerant activity with turbine equipment. To document the existing fleet mix at LVN, FAA Traffic Flow Management System Counts (TFMSC) were collected for CY2015. Traffic Flow Management System Counts (TFMSC) collect data for Instrument Flight Rules (IFR) flights captured by the FAA's enroute computers. VFR (Visual Flight Rules) flights are not included in the TFMSC data set. For CY2015, there were approximately 2,000 operations identified that contain known aircraft types. Of these recorded operations, 284 were jets and 230 were turboprops, for a combined total of 514 turbine operations. **Figure 1** depicts operational trends for turbine aircraft at LVN over the past five years.

Figure 1: Airlake Airport Turbine Aircraft Operations Trend (2011-2015)



Source: FAA TFMSC Data

This figure illustrates the growth realized in jet aircraft operations over the past five years, showcasing an evolution in the fleet mix at LVN and the emerging demand for business-related aviation services. While the existing runway length is generally adequate for most turboprop operations, it is marginal for many jet operations, particularly for takeoff and Part 135 landing requirements. As the demand for jet operations grows, the runway length will become an increasing constraint on the airport's ability to fully fulfill its designated role as a south-metro area reliever.

3. Forecast Approach

The Minneapolis-St. Paul metropolitan area is served by a system of airports. These airports provide a variety of roles and therefore both complement and compete with each other. Since these airports operate as a system, they were forecast as a system so that the interrelationships between the airports could be properly captured. The forecast focused on five of the airports in the MAC system – Crystal (MIC), Airlake, Anoka County (ANE), Flying Cloud (FCM), and St. Paul Downtown (STP) – but also incorporated the other MAC airports – Minneapolis-St. Paul International (MSP) and Lake Elmo (21D) into the analysis. The details of the forecast approach are provided in the main forecast report, *Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report*, and are summarized below:

1. Identify Catchment Areas – Airlake Airport is located in Dakota County and most of the based aircraft owners reside in the same county as the airport they use. Nevertheless, there is some overlap between the airport catchment areas. Jet and turboprop aircraft owners that require longer runways and more extensive maintenance and fueling facilities tend to gravitate towards airports such as St. Paul Downtown (STP) and Flying Cloud Airport (FCM). Likewise, operators of small single engine piston aircraft often shy away from larger more commercial airports because of congestion and costs, even though these airports may be closer to their place of residence. Aircraft registration data from the Minnesota Department of Transportation (MnDOT) and the Metropolitan Airports Commission (MAC) was used to identify the percentage of LVN based aircraft owners that resided in each county.
2. Develop Socioeconomic Projections – Population forecasts from the Metropolitan Council (Met Council) and per capita income forecasts from Woods & Poole Economics (W&P) were used to develop hybrid income forecasts for each county in the metropolitan area. The income forecasts were used to estimate the share of based aircraft growth accounted for by each county.
3. Project the number of based aircraft registered in each county by aircraft category based on the county income forecasts and the FAA Aerospace forecast adjusted for Minneapolis-St. Paul trends.
4. Allocate the projected based aircraft to each MAC-airport according to the existing distribution pattern for each aircraft category (piston, turboprop, jet, helicopter, etc.).
5. Estimate the number of aircraft on waiting list that would be added assuming airport capacity is unconstrained. MAC records indicated LVN had 10 aircraft on their hangar waiting list in 2015. Based on consultation with MAC staff, it was assumed that 50 percent of the aircraft owners and operators who signed up on the waiting list since 2012 would base their aircraft at LVN under unconstrained conditions.
6. Redistribute aircraft from the constrained MAC airports (MSP) to the remaining unconstrained airports based on the existing distribution patterns of the airports. Although MSP has sufficient airfield capacity to accommodate growth, the facilities that can accommodate based general aviation (GA) aircraft are limited.
7. Identify base year aircraft operations. Airlake does not have an air traffic control tower (ATCT) and direct counts of aircraft operations are therefore not available. The MAC's noise and operations monitoring system (MACNOMS) flight tracking system is currently able to track about 60 to 70 percent of actual operations. The ratio of total aircraft operations to MACNOMS operations was calculated for Flying Cloud (a towered airport), and then applied to the Airlake MACNOMS count to arrive at an estimate of total Airlake aircraft operations.
8. Project future year aircraft operations. In each aircraft category, operations per active aircraft were projected to increase at the same rate as the FAA forecast of hours flown per based aircraft, implicitly assuming that the number of operations per hours flown remain

constant. The percentage of touch and go operations in each aircraft category was assumed to remain constant.

Forecasts include based aircraft and operations for each major category: single engine piston, multi-engine piston, turboprop, jets, helicopters, sport aircraft, experimental, and other. It was assumed that the share of each county's registered aircraft in every aircraft category based at all of the airports under study will remain constant.

4. Forecast Results

Table 2 shows the forecast of based aircraft for Airlake. The number of based aircraft at Airlake is projected to decline slightly, from 137 aircraft in 2015 to 131 aircraft in 2035. The dominant aircraft in the fleet, piston engine aircraft, are projected to decline, consistent with the FAA Aerospace Forecast: Fiscal Years 2015-2035. Jets, helicopters, sport, and experimental aircraft are expected to increase but not fast enough to offset the decline in the piston category.

Table 3 shows the forecast of aircraft operations at LVN. Total aircraft operations at Airlake are forecast to decrease from 36,757 in 2015 to 34,642 in 2025 and then increase to 35,658 in 2035. Increases are projected in all categories except single-engine and multi-engine piston aircraft, for which the anticipated decrease in the based aircraft offsets slightly higher utilization forecasted by FAA. Jet, helicopter and sport operations are expected to increase the fastest.

The peak month operations percentage at Airlake was assumed to be the average for ANE, MIC, FCM, and STP from 2011 to 2014. Average Day Peak Month (ADPM) operations were estimated by dividing by 31 days. Peak hour operations were estimated at 19.2 percent of ADPM operations based on MAC aircraft operation counts. As shown in **Table 4**, peak hour operations are projected to fluctuate between 25 and 26 operations.

Table 2: Summary of Based Aircraft Forecast (Airlake Base Case Condition).

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Jets	Rotor	Sport	Experimental - Excluding Ultralights	Other	Total
2015	99	10	1	4	0	2	18	3	137
2020	96	10	1	4	0	2	19	3	135
2025	92	9	1	6	0	3	20	3	134
2030	89	9	1	6	0	4	21	3	133
2035	87	8	1	7	0	4	21	3	131
Average Annual Growth Rate									
	-0.6%	-1.1%	0.0%	2.8%	-	3.5%	0.8%	0.0%	-0.2%

Source: Table 8 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report, 2016.

Table 3: Summary of Operations Forecast (Airlake Base Case Condition)

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Jets	Rotor	Sport	Experimental - Excluding Ultralights	Other	Total
2014	29,732	778	332	141	1,422	960	961	-	34,327
2015	31,865	834	271	202	1,525	1,029	1,030	-	36,757
2020	29,406	814	276	221	1,843	1,071	1,180	-	34,811
2025	28,208	731	285	347	2,100	1,673	1,298	-	34,642
2030	27,629	754	304	349	2,359	2,309	1,402	-	35,106
2035	27,722	707	331	408	2,650	2,399	1,441	-	35,658
				Average Annual Growth Rate					
	-0.7%	-0.8%	1.0%	3.6%	-	4.3%	1.7%	-	-0.2%

Source: Table 13 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report, 2016.

Table 4: Peak Activity Forecast (Airlake Base Case Condition)

Year	Annual Operations	Peak Month Operations	ADPM Operations	Peak Hour Operations
2014	34,327	3,960	128	25
2015	36,757	4,241	137	26
2020	34,811	4,016	130	25
2025	34,642	3,997	129	25
2030	35,106	4,050	131	25
2035	35,658	4,114	133	26

Source: Table 18 in Minneapolis-St. Paul Reliever Airport Activity Forecasts – Technical Report, 2016.

5 Scenarios

General aviation activity has historically been difficult to forecast, since the relationships with economic growth and pricing factors are more tenuous than in other aviation sectors, such as commercial aviation. This uncertainty is likely to carry over into the near future, given the volatility of fuel prices and the continued shift in GA from personal and recreational use to business use. To address these uncertainties, and to identify the potential upper and lower bounds of future activity at the study airports, detailed high and low scenarios are presented. These scenarios use the same forecast approach that was used in the base case, but alter the assumptions to reflect either a more aggressive or more conservative outlook.

The high forecast scenario is based on the assumption that income would grow 0.5 percent per year faster than in the base case. All other assumptions are the same as in the base case. The low forecast scenario is based on the assumption that income would grow 0.5 percent more slowly each year than under the base case.

An extended runway scenario was prepared to evaluate the potential impact associated with lengthening the main runway at LVN from 4,099 feet to 5,000 feet[1]. All other forecast assumptions are the same as in the base case. An examination of registered jets within LVN's current catchment area for piston aircraft indicated that there were several that could operate at reasonable payloads with a 5,000 foot runway. Based on this analysis, it was estimated that the number of based jet aircraft at LVN would increase from 7 under the baseline forecast to 10 under the extended runway scenario, and turboprops from 1 to 2.

[1] Minnesota Statutes Section 473.641 subdivision 4 prohibits the MAC from extending runway length at its minor airports beyond 5,000 feet without prior legislative authorization.

The current ratio of operations to based aircraft for jets at Airlake (LVN) is unusually low. Based aircraft account for the majority of all jet operations, with a relatively small amount of activity from transient operators.

It was considered unlikely that the ratio would remain at its current level if the LVN runway were extended to 5,000 feet, as both based and transient operators would be more likely to take advantage of the facility. As a result, using the current ratio of jet operations to based aircraft would probably understate noise and other environmental impacts associated with a 5,000 foot scenario.

Due to the existing runway length, it is not possible to use historical data to estimate an operations to based aircraft ratio that is defensible. Absent useful historical data, the next best option is to identify airports with characteristics similar to LVN after a runway extension to 5,000 feet. Flying Cloud (FCM) and Anoka County (ANE) were determined to be the most similar airports since they currently have 5,000 foot runways and, along with Airlake, serve the Minneapolis-St. Paul metropolitan area. In addition, since these airports have air traffic control towers, more accurate operations data is available.

LVN, FCM, and ANE have overlapping service areas since they all serve the Minneapolis-St. Paul metropolitan area. LVN is slightly more distant at approximately 23 miles from the downtown St. Paul center and 24 miles from the downtown Minneapolis center. FCM is about 14 miles from the downtown Minneapolis center and about 20 miles from the downtown St. Paul center, while ANE is about 12 miles from the downtown St. Paul center and about 15 miles from the downtown Minneapolis center.

LVN is located in Dakota County, and owners of aircraft based at LVN live primarily in Dakota (46%), Scott (20%), Ramsey (14%), and Hennepin Counties (11%). FCM is located in Hennepin County and owners of aircraft based at FCM live primarily in Hennepin (67%), Scott (6%), and Dakota Counties (4%). ANE is located in Anoka County, and owners of aircraft based at Anoka County live primarily in Hennepin (37%), Ramsey (24%) and Anoka Counties (20%). Although each of the airports tend to serve the communities that are closest they all serve residents located throughout the metropolitan area and serve as reliever airport to MSP. Average per capita income in 2013 ranged from a low of $42,799 in Anoka County (where ANE is located) to a high of $61,409 in Hennepin County (where FCM is located). As a comparison, the per capita income in Dakota County (where LVN is located) was $51,363, approximately midway between Anoka and Hennepin Counties.

In order to estimate impact of a runway extension at LVN on aircraft operations, data was used from FCM and ANE airports because of the anticipated similarity in facilities and shared socioeconomic characteristics. Based on the above analysis, it was anticipated that the extended runway at LVN would attract more itinerant operations by high performance turboprops and jets. After the extension at LVN, the maximum runway lengths at LVN, FCM, and ANE would be equivalent and it was therefore assumed that the ratios of turboprop and jet operations to based aircraft at LVN would become the same as the regional average for airports with 5,000-foot runways. The forecast operations fleet mix for jets and turboprops also assumes FBO and other GA amenities, including sufficient apron parking space, comparable to FCM and ANE, would be in place at LVN. **Table 5** shows the extended runway condition forecast of aircraft operations at LVN.

Table 5: Summary of Operations Forecast (LVN Extended Runway Condition)

Extended Runway Forecast: Airlake

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Jets	Rotor	Sport	Experimental - Excluding Ultralights	Other	Total
Based Aircraft Forecast									
2015	99	10	1	4	-	2	18	3	137
2020	96	10	1	4	-	2	19	3	135
2025	92	9	2	8	-	3	20	3	137
2030	89	9	2	8	-	4	21	3	136
2035	87	8	2	10	-	4	21	3	135
Forecast of Total Operations									
2014	29,732	778	332	141	1,422	960	961	-	34,327
2015	31,865	834	271	202	1,525	1,029	1,030	-	36,757
2020	29,406	814	276	221	1,843	1,071	1,180	-	34,811
2025	28,208	731	576	1,314	2,100	1,673	1,298	-	35,900
2030	27,629	754	739	2,181	2,359	2,309	1,402	-	37,373
2035	27,722	707	757	2,734	2,650	2,399	1,441	-	38,410

Source: HNTB analysis.

Table 6 compares the total number of aircraft and operations under different scenarios for LVN.

Figure 2 provides a graphic comparison of the base, high and low operations forecasts, along with the FAA's Terminal Area Forecast (TAF) for the airport.

Table 6: Forecast Comparison by Scenario – LVN

Year	Total Based Aircraft				Total Number of Operations					Variance from TAF (Operations)	
	Base Case	High Range	Low Range	Extended Runway	Base Case	High Range	Low Range	Extended Runway	TAF	Base Case	Extended Runway
2015	137	137	137	137	36,757	36,757	36,757	36,757	34,174	8%	8%
2020	135	137	131	135	34,811	35,230	33,761	34,811	36,305	-4%	-4%
2025	134	141	128	137	34,642	36,333	33,739	35,900	38,570	-10%	-7%
2030	133	143	126	136	35,106	37,917	33,303	37,373	40,996	-14%	-9%
2035	131	145	120	135	35,658	39,219	32,712	38,410	43,575	-18%	-12%
Average Annual Growth Rate											
	-0.2%	0.3%	-0.7%	-0.1%	-0.2%	0.3%	-0.6%	0.2%	1.2%		

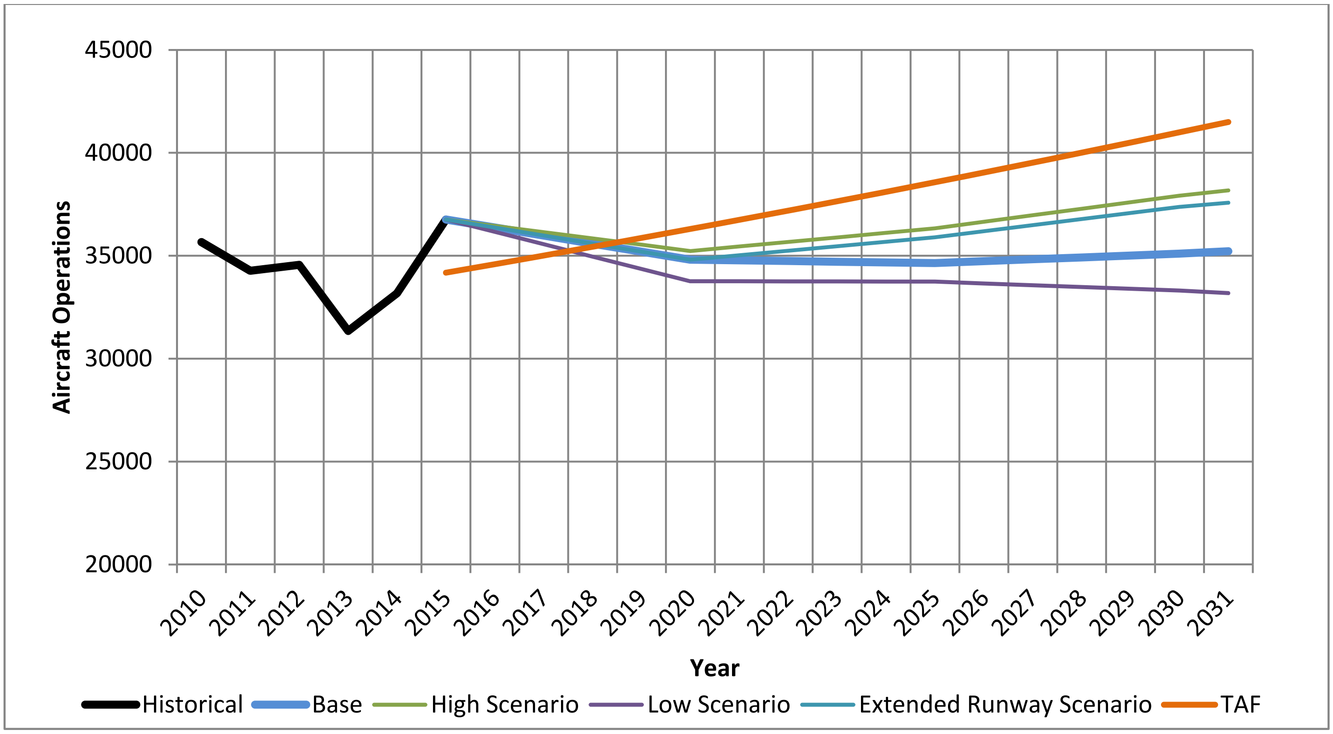
Notes:

TAF - 2017 Terminal Area Forecast published by FAA

The LTCP forecast is considered to be consistent with the FAA TAF if it differs by less than 10% in the 5-year forecast period and less than 15% in the 10-year and beyond forecast periods

Sources: HNTB Analysis.

Figure 2: Airlake Forecast Comparison



U.S. Department of Transportation
Federal Aviation Administration

Dakota-Minnesota Airports District Office
Bismarck Office
2301 University Drive, Building 23B
Bismarck, ND 58504

Dakota-Minnesota Airports District Office
Minneapolis Office
6020 28th Avenue South, Suite 102
Minneapolis, MN 55450

June 28, 2017

Mr. Neil Ralston, A.A.E., Airport Planner
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

Airlake Airport (LVN) – Lakeville, MN
Approval of Master Plan Forecast & Critical Design Aircraft

Dear Mr. Ralston:

The aviation forecast has been determined to be consistent with the FAA Terminal Area Forecast and is approved. The critical design aircraft is also approved. A summary of this information is provided in the table below.

	Base Case (2015)	**Base Case 20 Year Forecast (2035)**	**Master Plan Source**
Based Aircraft *	137	131	Table 3-10
Aircraft Operations	36,757	35,658	Table 3-10
Critical Design Aircraft	Design Group B-II (Beechcraft King Air 350)	Design Group B-II (Cessna Citation III/650 &/or Dassault Falcon 20/200)	Section 2.3.1 Section 4.2
Source: Airlake Airport Long Term Comprehensive Plan dated July 2017 * Total excludes ultralight/experimental aircraft			

If you have any questions or would like to discuss this information further, please feel welcome to contact me at (612) 253-4641 or gina.mitchell@faa.gov.

Sincerely,

Gina M. Mitchell

Gina M. Mitchell, AICP, Community Planner
Dakota-Minnesota Airports District Office, Minneapolis Office

cc: Nancy Nistler, FAA (email)
Rylan Juran, MnDOT Aeronautics (email)
Dan Boerner, MnDOT Aeronautics (email)
Bob Burrell, MnDOT Aeronautics (email)

enc. Table 3-10: Forecast Comparison by Scenario

Table 3-10: Forecast Comparison by Scenario

Year	Total Based Aircraft				Total Number of Operations					Variance from TAF (Operations)	
	Base Case	High Range	Low Range	Extended Runway	Base Case	High Range	Low Range	Extended Runway	2015 TAF	Base Case	Extended Runway
2015	137	137	137	137	36,757	36,757	36,757	36,757	27,016	36%	36%
2020	135	137	131	135	34,811	35,230	33,761	34,811	28,806	21%	21%
2025	134	141	128	137	34,642	36,333	33,739	35,900	30,709	13%	17%
2030	133	143	126	136	35,106	37,917	33,303	37,373	32,743	7%	14%
2035	131	145	120	135	35,658	39,219	32,712	38,410	34,914	2%	10%
Average Annual Growth Rate											
	-0.2%	0.3%	-0.7%	-0.1%	-0.2%	0.3%	-0.6%	0.2%	1.3%		

Notes:

TAF - 2015 Terminal Area Forecast published by FAA

A LTCP forecast is considered to be consistent with the FAA TAF if it differs by less than 10% in the 5-year forecast period and less than 15% in the 10-year and beyond forecast periods

Sources: HNTB Analysis.

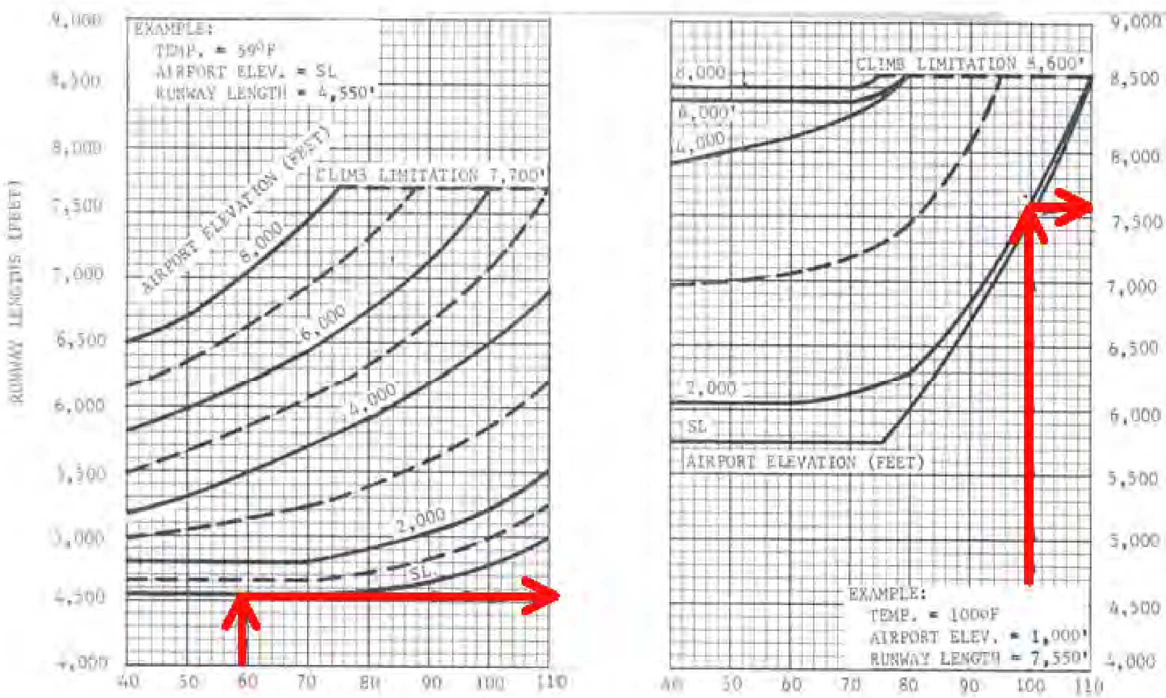
Appendix 4: Runway Length Calculation Details

Note: Assumptions used to assess runway length requirements include the following:

- Temperature: 82.3°F, 27.9°C
- Pressure Altitude: 960 feet AMSL
- Flap Setting: Typical

PAGE INTENTIONALLY LEFT BLANK

Figure 3-1. 75 Percent of Fleet at 60 or 90 Percent Useful Load



Mean Daily Maximum Temperature of Hottest Month of the Year in Degrees Fahrenheit

75 percent of feet at 60 percent useful load — 75 percent of feet at 90 percent useful load

FAA Advisory Circular 150/5325-4B Runway Length Chart for airplanes with a maximum certificated takeoff weight of more than 12,500 Pounds up to and including 60,000 pounds

TAKEOFF FIELD LENGTH - 15° FLAPS *

(Distance to 35 Feet Above the Runway)
Zero Wind, Anti-Ice Systems Off, Cabin Bleed Air On

Elevation = Sea Level

Ambient Temp. °C / °F	Takeoff Weight (lbs) 20,000	19,500	19,000	18,500	17,500	16,500	15,500	14,500
0 / 32	3430	3290	3160	3020	2770	2520	2480	2500
10 / 50	3540	3400	3260	3120	2850	2600	2550	2570
15 / 59	3590	3450	3310	3170	2900	2650	2590	2600
20 / 68	3650	3500	3360	3220	2940	2690	2620	2640
25 / 77	3750	3580	3430	3290	3000	2740	2640	2650
30 / 86	4060	3860	3680	3510	3200	2910	2640	2540
35 / 95	4420	4210	4000	3810	3440	3110	2810	2530
40 / 104	4960	4660	4390	4170	3750	3370	3020	2710
45 / 113	—	—	5080	4750	4160	3710	3300	2940
50 / 122	—	—	—	—	4820	4160	3660	3220
Climb Wght Temp Limits °C/°F	42/108	44/111	46/115	47/117	51/124	54/129	54/129	54/129
Field Length at Temp Limits (ft)	5270	5260	5260	5070	4970	4670	4000	3490

Elevation = 1,000 Feet

Ambient Temp. °C / °F	Takeoff Weight (lbs) 20,000	19,500	19,000	18,500	17,500	16,500	15,500	14,500
0 / 32	3570	3430	3290	3150	2880	2620	2530	2540
10 / 50	3690	3530	3390	3250	2970	2710	2600	2610
15 / 59	3750	3590	3450	3300	3020	2750	2640	2650
20 / 68	3810	3640	3490	3340	3060	2780	2690	2700
25 / 77	4050	3860	3680	3520	3210	2920	2650	2620
30 / 86	4380	4170	3970	3770	3420	3110	2810	2530
35 / 95	4770	4540	4310	4090	3690	3320	2990	2690
40 / 104	5530	5180	4850	4540	4060	3630	3240	2900
45 / 113	—	—	—	—	4630	4070	3580	3170
50 / 122	—	—	—	—	—	4640	4010	3500
Climb Wght Temp Limits °C/°F	40/104	41/106	43/109	44/111	48/118	52/126	52/126	52/126
Field Length at Temp Limits (ft)	5530	5350	5350	5160	5100	4930	4200	3660

***Above takeoff tables reflect aircraft with rudder bias system installed (SB560XL-27-06).**

Cessna Citation Excel Model 560XL Takeoff Performance Data

TAKEOFF Zero Wind or Gradient 1000 FT
Engine Anti-Ice ON FLAPS 20°
ENGINE BLEED AIR OFF

T.O Gross Weight x 1000	Temp °C	-25	-20	-10	0	10	20	30	40
	T.O. Power	88.4	89.2	90.9	92.6	94.2	95.2	94.1	92.1
		88.4	89.2	90.9	92.6	90.0	–	–	–
	S.E. Climb	87.1	87.9	89.5	91.1	92.6	93.1	91.4	89.6
		86.8	87.6	89.3	91.0	90.0	–	–	–
	M.E. Climb	NP	NP	88.9	90.5	91.7	92.5	91.9	NP
		86.4	87.2	88.9	90.5	NP	–	–	–
22.0	V_1	123	123	123	123	123	123	–	–
		123	123	123	123	123	–	–	–
V_{ENR} 165	V_R	123	123	123	123	123	123	–	–
	V_2	133	133	133	133	133	133	–	–
V_{REF} 135	RWY	4570	4650	4810	4980	5160	5550	–	–
		5941	6045	6253	6474	6708	–	–	–
21.5	V_1	122	122	122	122	122	122	122	–
		122	122	122	122	122	–	–	–
V_{ENR} 165	V_R	122	122	122	122	122	122	122	–
	V_2	132	132	132	132	132	132	132	–
V_{REF} 134	RWY	4410	4480	4630	4800	4970	5320	6030	–
		5733	5824	6019	6240	6461	–	–	–
21.0	V_1	122	122	122	121	121	121	121	–
		122	122	122	122	121	–	–	–
V_{ENR} 165	V_R	122	122	122	122	121	121	121	–
	V_2	131	131	131	131	131	131	130	–
V_{REF} 132	RWY	4240	4320	4470	4630	4800	5090	5760	–
		5512	5616	5811	6019	6240	–	–	–
19.0	V_1	118	117	117	117	117	117	117	116
		118	118	118	118	118	–	–	–
V_{ENR} 165	V_R	118	118	118	118	118	118	117	116
	V_2	128	128	128	128	128	128	126	126
V_{REF} 128	RWY	3690	3760	3890	4030	4180	4410	4790	5630
		4797	4888	5057	5239	5434	–	–	–
17.0	V_1	112	111	111	111	111	111	111	110
		114	113	113	113	113	–	–	–
V_{ENR} 165	V_R	114	114	114	114	113	113	112	110
	V_2	124	124	124	124	124	123	122	120
V_{REF} 121	RWY	3120	3180	3290	3400	3520	3710	4000	4470
		4056	4134	4277	4420	4576	–	–	–

TAKEOFF BLEED AIR OFF

Citation III/VI with TFE731-3C Engines

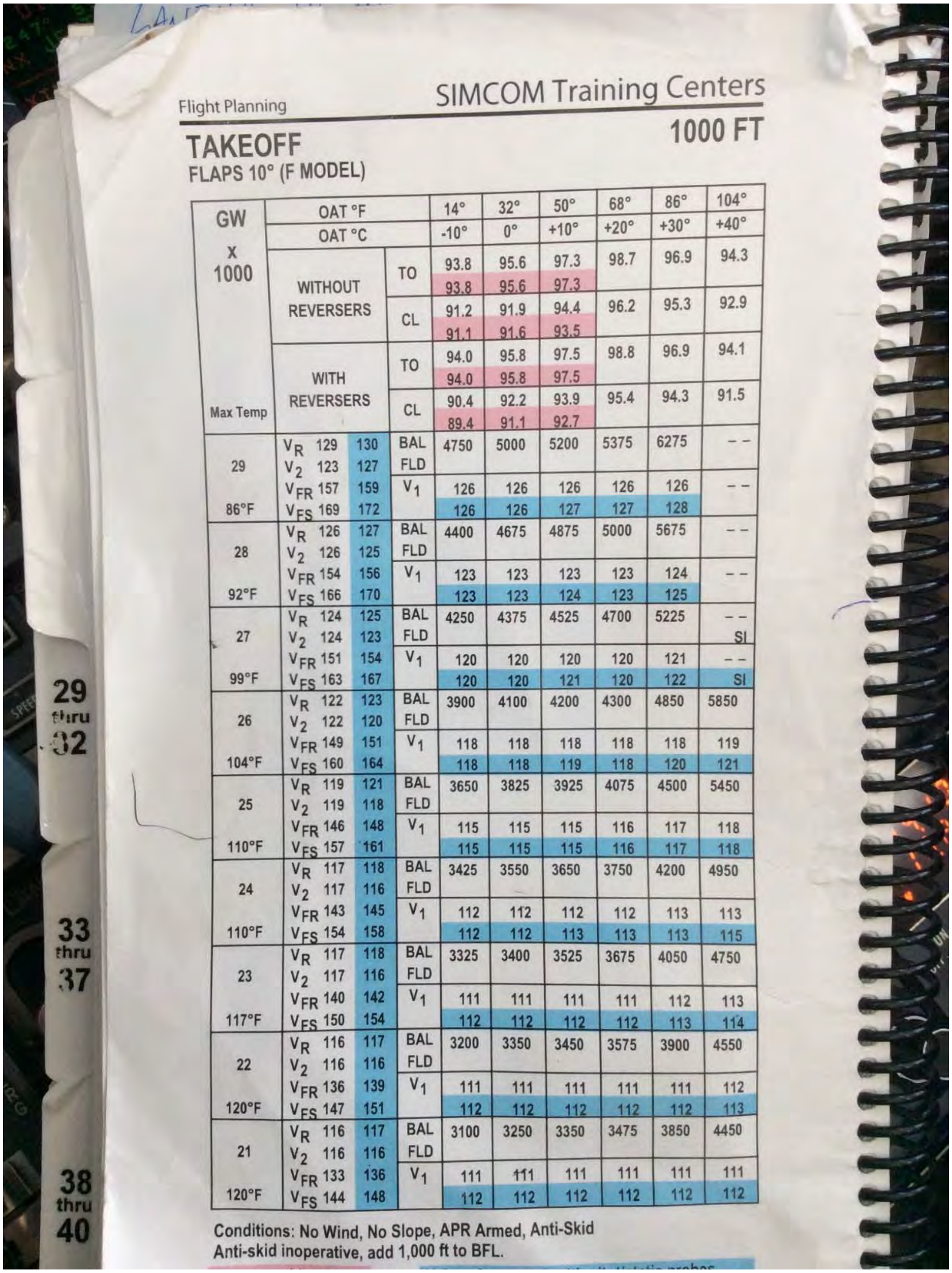
TAKEOFF Zero Wind or Gradient SEA LEVEL
Engine Anti-Ice ON FLAPS 20°
ENGINE BLEED AIR OFF

T.O Gross Weight x 1000	Temp °C	-25	-20	-10	0	10	20	30	40
	T.O. Power	87.0	87.8	89.6	91.2	92.8	94.5	94.1	92.2
		87.0	87.8	89.6	91.2	90.0	–	–	–
	S.E. Climb	85.8	86.6	88.2	89.8	91.3	92.9	91.4	89.6
		85.8	86.5	88.1	89.7	90.1	–	–	–
	M.E. Climb	NP	86.1	87.7	89.3	90.9	92.2	90.2	–
		85.3	86.1	87.7	89.3	90.9	–	–	–
22.0	V_1	123	123	123	123	123	123	123	–
		123	123	123	123	123	–	–	–
V_{ENR} 165	V_R	123	123	123	123	123	123	123	–
	V_2	133	133	133	133	133	133	133	–
V_{REF} 135	RWY	4480	4560	4720	4890	5060	5300	5830	–
		5824	5928	6136	6357	6578	–	–	–
21.5	V_1	122	122	122	122	122	122	122	–
		123	123	123	123	123	123	123	–
V_{ENR} 165	V_R	122	122	122	122	122	122	122	–
	V_2	132	132	132	132	132	132	132	–
V_{REF} 134	RWY	4310	4380	4530	4690	4850	5172	5692	–
		5603	5694	5889	6097	6305	–	–	–
21.0	V_1	121	121	121	121	121	121	121	–
		121	121	121	121	121	–	–	–
V_{ENR} 165	V_R	121	121	121	121	121	121	121	–
	V_2	131	131	131	131	131	131	130	–
V_{REF} 132	RWY	4150	4220	4370	4510	4670	4870	5330	–
		5395	5486	5681	5863	6071	–	–	–
19.0	V_1	118	118	117	117	117	117	117	116
		118	118	118	118	118	–	–	–
V_{ENR} 165	V_R	118	118	118	118	118	118	117	116
	V_2	128	128	128	128	128	128	127	126
V_{REF} 128	RWY	3590	3650	3790	3920	4060	4315	4601	5304
		4667	4745	4927	5096	5278	–	–	–
17.0	V_1	112	112	111	111	111	111	111	111
		113	113	113	113	113	–	–	–
V_{ENR} 165	V_R	113	113	113	113	113	113	112	111
	V_2	124	124	124	124	124	123	122	120
V_{REF} 121	RWY	3030	3090	3200	3310	3420	3632	3866	4264
		3939	4017	4160	4303	4446	–	–	–

TAKEOFF BLEED AIR OFF

Citation III/VI with TFE731-3C Engines

Cessna Citation III Model 650 Takeoff Performance Data



Flight Planning

SIMCOM Training Centers

TAKEOFF

1000 FT

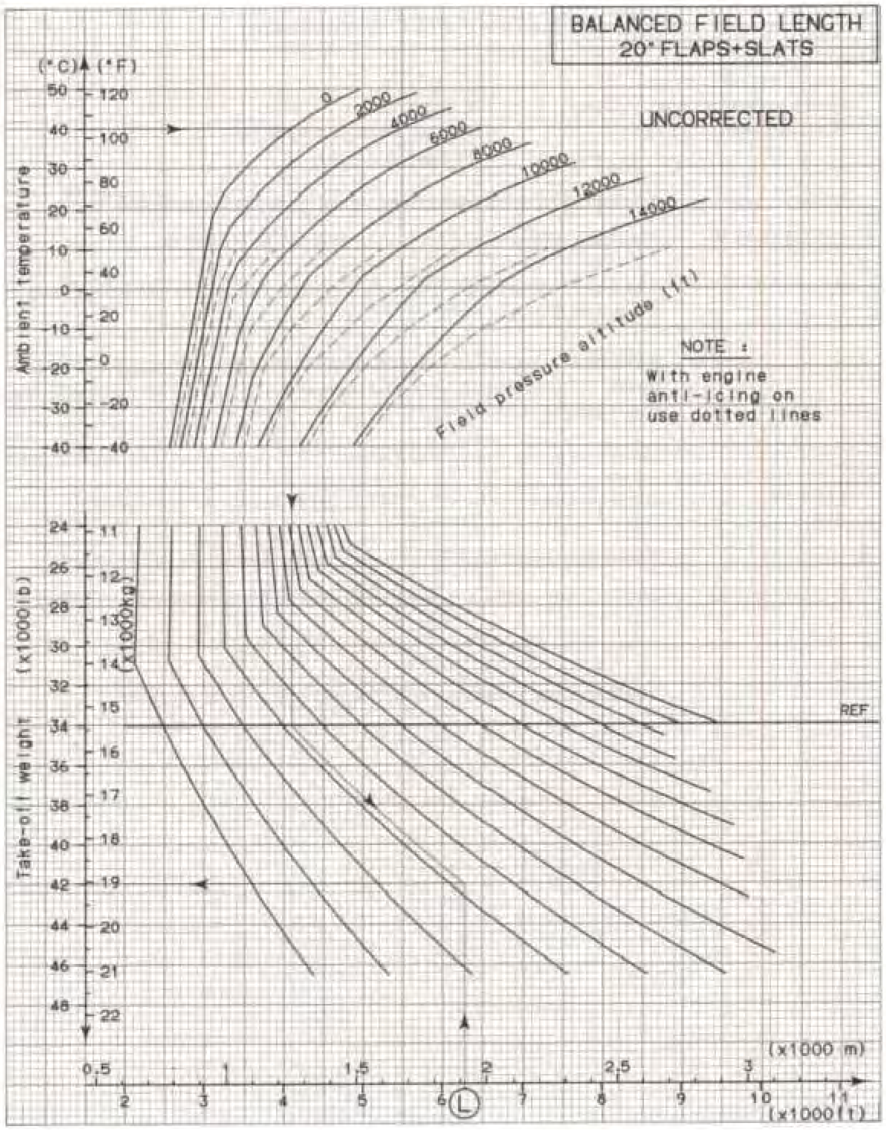
FLAPS 10° (F MODEL)

GW	OAT °F			14°	32°	50°	68°	86°	104°
	OAT °C			-10°	0°	+10°	+20°	+30°	+40°
x 1000	WITHOUT REVERSERS		TO	93.8	95.6	97.3	98.7	96.9	94.3
				93.8	95.6	97.3			
			CL	91.2	91.9	94.4	96.2	95.3	92.9
				91.1	91.6	93.5			
	WITH REVERSERS		TO	94.0	95.8	97.5	98.8	96.9	94.1
				94.0	95.8	97.5			
Max Temp			CL	90.4	92.2	93.9	95.4	94.3	91.5
				89.4	91.1	92.7			
29	V_R 129	130	BAL FLD	4750	5000	5200	5375	6275	– –
	V_2 123	127							
	V_{FR} 157	159	V_1	126	126	126	126	126	– –
86°F	V_{FS} 169	172		126	126	127	127	128	
28	V_R 126	127	BAL FLD	4400	4675	4875	5000	5675	– –
	V_2 126	125							
	V_{FR} 154	156	V_1	123	123	123	123	124	– –
92°F	V_{FS} 166	170		123	123	124	123	125	
27	V_R 124	125	BAL FLD	4250	4375	4525	4700	5225	– – SI
	V_2 124	123							
	V_{FR} 151	154	V_1	120	120	120	120	121	– –
99°F	V_{FS} 163	167		120	120	121	120	122	SI
26	V_R 122	123	BAL FLD	3900	4100	4200	4300	4850	5850
	V_2 122	120							
	V_{FR} 149	151	V_1	118	118	118	118	118	119
104°F	V_{FS} 160	164		118	118	119	118	120	121
25	V_R 119	121	BAL FLD	3650	3825	3925	4075	4500	5450
	V_2 119	118							
	V_{FR} 146	148	V_1	115	115	115	116	117	118
110°F	V_{FS} 157	161		115	115	115	116	117	118
24	V_R 117	118	BAL FLD	3425	3550	3650	3750	4200	4950
	V_2 117	116							
	V_{FR} 143	145	V_1	112	112	112	112	113	113
110°F	V_{FS} 154	158		112	112	113	113	113	115
23	V_R 117	118	BAL FLD	3325	3400	3525	3675	4050	4750
	V_2 117	116							
	V_{FR} 140	142	V_1	111	111	111	111	112	113
117°F	V_{FS} 150	154		112	112	112	112	113	114
22	V_R 116	117	BAL FLD	3200	3350	3450	3575	3900	4550
	V_2 116	116							
	V_{FR} 136	139	V_1	111	111	111	111	111	112
120°F	V_{FS} 147	151		112	112	112	112	112	113
21	V_R 116	117	BAL FLD	3100	3250	3350	3475	3850	4450
	V_2 116	116							
	V_{FR} 133	136	V_1	111	111	111	111	111	111
120°F	V_{FS} 144	148		112	112	112	112	112	112

Conditions: No Wind, No Slope, APR Armed, Anti-Skid
Anti-skid inoperative, add 1,000 ft to BFL.

Dassault Falcon 20 Takeoff Performance Data

4.3 Takeoff - FALCON 900A



Dassault Falcon 900 Takeoff Performance Data

Waypoint Flight Services

March 15, 2016

Metropolitan Airports Commission
Airport Development Department
6040 28th Avenue South
Minneapolis, MN 55450

RE: Statement of Support for Additional Runway Length at Airlake Airport (LVN)

To Whom It May Concern:

Waypoint Flight Services (formerly Aviation Resource Center) is the full-service Fixed Base Operator (FBO) at LVN. Our FBO services include on-demand charter, aircraft service, sales and rentals, aircraft fuel and storage, and maintenance. A growing segment of our business involves managing and operating corporate jet aircraft for fractional owners. We currently have three such aircraft based at LVN – two Cessna Citation III's and a Citation 501 – and are actively seeking to increase the fleet. These three aircraft alone account for approximately 130-140 annual flight operations at LVN.

The aircraft types most in demand from our clientele are mid-sized corporate jets such as the Cessna Citation III and Dassault Falcon 20. However, the existing runway length at LVN constrains our operation of these aircraft types to flights with short stage lengths – generally 500 nautical miles or less – and minimal payload. For flights to farther destinations, we frequently re-position the aircraft from LVN to another area airport in order to depart with the necessary fuel and payload. For example, we have recently had to reposition aircraft from LVN to Flying Cloud Airport (FCM) for flights to Milwaukee, WI (MKE), Chicago-Midway, IL (MDW), Sarasota-Bradenton, FL (SRQ), and Fort Myers, FL (FMY). Even though MKE and MDW represent relatively short stage length flights from LVN, we were not able to depart LVN with the required payload. This is both inefficient and unproductive.

We are aware that the Metropolitan Airports Commission (MAC) is in the process of preparing the 2035 Long-Term Comprehensive Plan (LTCP) for LVN, and that part of the plan is evaluating feasible alternatives to provide additional runway length, in the range of 4,600 to 4,900 feet.

Please accept this letter in support of these efforts to provide additional runway length, as a longer runway will ease our current operational constraints and allow us to build our aircraft management business at LVN based on market-driven demand. Based on our current business plan, we envision the potential for up to seven mid-sized corporate jet aircraft based at LVN that could account for an additional 450-500 annual flight operations shortly after runway improvements are in place.

In addition, a longer runway will open the door to additional itinerant aircraft operations with similar mid-sized corporate jets that bypass LVN today for other area airports with additional runway length.

22100 Hamburg Avenue, Lakeville, MN 55044 952.469.4414

Waypoint Flight Services

We recently became members of the Corporate Aircraft Association (CAA), which allows us to advertise significant fuel discounts for other members. We have seen a limited number of itinerant jet aircraft operations due to the current runway length, but, based on our market research, we believe that several hundred corporate jet aircraft could opt to use LVN annually with a longer runway in place. This increased activity will drive the need for additional itinerant aircraft parking, as well.

For context, we note that the City of Lakeville is one of the fastest-growing cities in the metropolitan area. Between 2010 and 2014, the population of Lakeville grew by nearly seven percent to 59,866, and it is expected to grow to over 80,000 by 2040. Likewise, steady growth is anticipated in both the number of households and employment. Commercial development is surging as well, with several recent business expansions or developments in the vicinity of the Airport including Menasha Packaging and FedEx Freight. We believe that these demographic trends will translate into growing demand for aviation services that LVN will be uniquely situated to serve.

Airlake Airport has great potential, and we look forward to the progressive development of the facility in the future.

Thank you.

Sincerely,

Tony Fiorillo
President

22100 Hamburg Avenue, Lakeville, MN 55044 952.469.4414

Flight Solutions®
Business in Motion

April 25, 2016

To Whom It May Concern:

Please accept this statement of support for long-term plans to provide additional runway length at Airlake Airport (LVN) in Lakeville Minnesota.

Flight Solutions, Inc. currently operates a fleet consisting of Cessna Citations, Dassualt Falcon and Hawker type corporate jet aircraft. Based on the existing runway length at KLVN, our ability to operate these aircraft types at the airport is limited. While a runway length of 5,000 feet or more would be ideal, a future runway length in the range of 4,600 to 4,900 feet would allow us to consider using KLVN on a more frequent basis.

As the south metro area continues to grow, we envision that demand for our services could translate into approximately fifty (50) or more of annual flight operations with our fleet aircraft at LVN with a longer runway in place.

Thank you,

Sincerely,

Kevin R. McCutcheon
President
Flight Solutions, Inc.

Flight Solutions, Inc. • P. O. Box 678 Hendersonville, TN USA 37077
Phone: (615) 452-5001 • Fax: (615) 451-2371 • Email: info@flightsolution.com • www.flightsolution.com

PRIVAIRA

April 25th, 2016,

Please accept this statement of support for long-term plans to provide additional runway length at Airlake Airport (LVN) in Lakeville, MN.

Sky One Holdings, LLC. d/b/a PRIVAIRA current operates a fleet of Challenger 601's, Falcon 50, Hawker 800XP's and BeechJet 400A's. Based on the existing runway length at LVN, our ability to operate these aircraft types at the airport is limited. While a runway length of 5,000 feet or more would be ideal, a future runway length in the range of 4,600 to 4,900 feet would allow us to consider using LVN on a more frequent basis.

As the south metro area continues to grow, we envision that demand for our services could translate into approximately 20 or more annual flight operations with our fleet of aircraft at LVN with a longer runway in place.

Thank you.

Sincerely,

T.J. Hinkle
Director Charter Sales
PRIVAIRA

3690 Airport Road, Hangar #9 Boca Raton, FL 33431
P. (561) 886 0380 F. (561) 886 0379 E. info@privaira.com

WWW.PRIVAIRA.COM

Private Air Charter Services

JET ACCESS
AVIATION

April 26, 2016

To Whom It May Concern

Please accept this letter of support for long-term plans to provide additional length at Airlake Airport (KLVN) in Lakeville, Minnesota.

Jet Access Aviation currently operates a fleet of 13 aircrafts consisting of Citiation S/II, Beechjet 400A, (2) Lear 31's, Lear 45, (2) Lear 60's, (2) Hawker 800XP's, Citation Sovereign, Challenger 601-R, Gulfstream IV & Global Express.

Based on the existing runway length in KLVN our ability to operate these aircraft types at the airport is limited. While a runway length of 5,000 feet or more would be ideal, a future runway length of 4,600 to 4,900 feet would allow us to consider using KLNV on a more frequent basis.

While we are unable to predict how many times we would use Airlake Aiport annually, I can tell you that we currently fly into the Minneapolis area an estimated four times a month.

Respectfully,

Jack Lambert

President

Jet Access Aviation

RECTRIX

4-26-2016

To Whom it may concern:

Please accept this statement of support for long term plans to provide additional runway length at Airlake Airport (LVN) in Lakeville Minnesota.

Rectrix Aviation operates a fleet of Lear 45s and Challenger 300s – Based on the existing runway length at LVN, our abilitly to operate these aircraft at the airport is severely limited. While a runway length of 5000 feet or more would be ideal, a future runway length in the range of 4,600-4,900 feet would allow us to consider using LVN on a more frequent basis.

As the south metro area continues to grow, we envision that demand for our services could translate into some 50 or more annual operations to LVN with the longer runway.

Thanks for your consideration,

Sincerely

Chris Kelly

Aerodrome Centers • AirFlyte Maintenance Centers • Global Jet Charter

www.flyrectrix.com

CHARTER FIRST
AIR TRAVEL SPECIALISTS

April 26, 2016

To Whom It May Concern:

Please accept this letter of support for long term plans to provide adequate runway lengths at Airlake Airport (KLVN) in Lakeville, MN.

Charter First, a FAA 135 operator based in MN operating multiple Cessna Citations, Bombardier Lear 45XR, a Dasssualt Falcon 50EX, and multiple King Airs. Existing runway lengths at KLVN mostly eliminates Charter First form utilizing KLVN for SAFE operations. Runway lengths greater than 5,000 at KLVN could equate to 2 current Charter First aircraft being KLVN based and increasing approximately 300 operations yearly. Runway lengths between 4,600ft to 4,900ft would increase our utility of KLVN by approximately 100 operations a year.

I feel strongly that KLVN's Runway Lengths be extended. Extended for safety reasons and also as a much needed south metro reliever airport.

Kind Regards,

Pete Johnson
President
Charter First
Executive Air Charter / Aircraft Management
Main 800.862.6807 Cell 507.829.9656
petej@charter-first.com www.charter-first.com
IS-BAO ARGUS Platinum Operator

1650 West College Drive | Marshall, MN 56258
office: 507-532-3164 | fax: 507-532-5881
charter-first.com | info@charter-first.com

DuPage Aerospace

2755 International Drive • West Chicago, IL 60185 • Phone: (630) 513-2222 • Fax: (630) 513-2227

April 26, 2016

To Whom It May Concern

Please accept this letter of support for long-term plans to provide additional length at Airlake Airport <LVN> in Lakeville Minnesota.

DuPage Aerospace currently operates (2) Challenger 601s, (1) G-200, (4) Hawker 800XPs, (2) Hawker 800s, a Lear 45 and a Lear 35. Each of these 11 aircraft requires a minimum of 5000 feet of runway.

While we are unable to predict how many times we would use Airlake Airport annually, I can tell you that we currently fly into the Minneapolis area an estimated twice a month.

Respectfully,

John Bullock
Vice President
DuPage Aerospace

JETEX

1517 Perimeter Road, Suite 527
West Palm Beach, FL 33406
www.JETEXcharter.com

To Whom It May Concern:

Please accept this statement of support for long-term plans to provide additional runway length at Airlake Airport (LVN).

JETEX LLC currently operates a fleet of LR31's, LR60's, and G200's. Based on the existing runway length at LVN, our ability to operate these aircraft types at the airport is limited. While a runway length of 5,000 feet or more would be ideal, a future runway length in the range of 4,600 to 4,900 feet would allow us to consider using LVN on a more frequent basis. As the south metro area continues to grow, we envision that demand for our services could translate into approximately 30 trips of annual flight operations with our fleet at LVN with a longer runway in place. Without a longer runway we will be forced to take our clients to another destination.

Thank you.

Sincerely,

Edward Layton
Director of Operations
JETEX LLC.

Appendix 5: Cost Estimates

PAGE INTENTIONALLY LEFT BLANK

Airlake Airport (LVN)
2035 Long Term Comprehensive Plan

April 10, 2017

Airfield Development - Cost Estimates

Displaced Threshold, Runway Extension, Declaired Distances, & 225th St. Relocation

Item	Concept Element		Est. Cost
1	Reconstruct Existing Rwy 12-30 (4099' x 75')		$2,150,000
2	Runway Extension & Taxiway Construction/Relocation		$1,050,000
3	Runway 12-30 Electrical Systems (HIRL & Airfield Signage)		$800,000
4	Relocate 225th St.		$1,700,000
		Total:	*$5,700,000*

3.0 Airlake Airport Facility

Asset Funding Needs Report
By Name

Client: Metropolitan Airports Commission (MAC)
Project_Number: Airlake Airport

Asset: Maintenance Building
Asset Number: 1

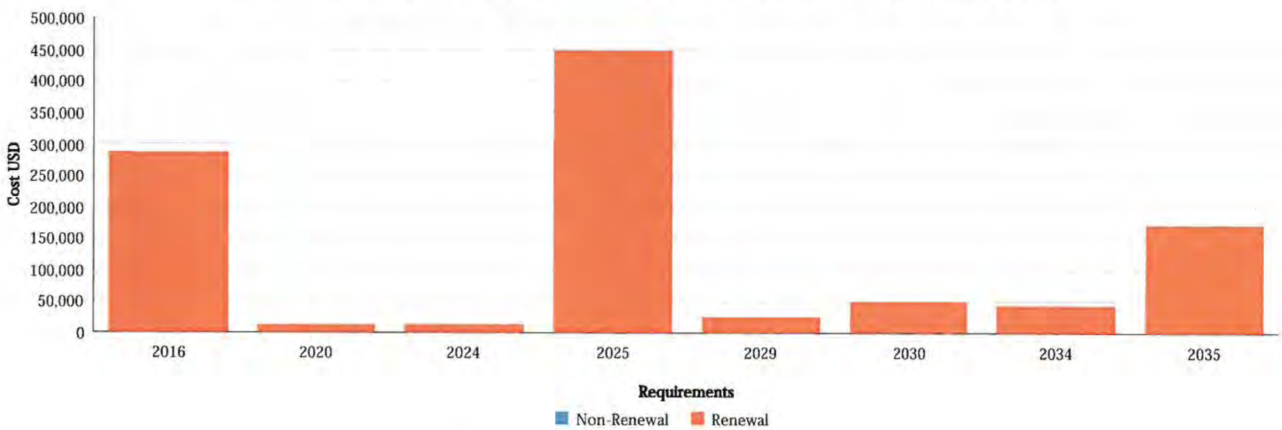
Report is grouped by Year

Currency: USD

Address 1	-	Address 2	-
City	Lakeville	State/Province/Region	Minnesota
Country	-	ZIP	-

Current Replacement Value	775,947	Size	7,270 SF

Summary of Funding Needed by Requirement Type and Year



Year	Renewal Requirements	Non-Renewal Requirements	Total
2016	286,814	0	286,814
2020	12,148	0	12,148
2024	13,143	0	13,143
2025	449,162	0	449,162
2029	25,092	0	25,092
2030	49,927	0	49,927
2034	43,505	0	43,505
2035	171,769	0	171,769
Total	**1,051,559**	**0**	**1,051,559**

Detail of Funding Needed by Year

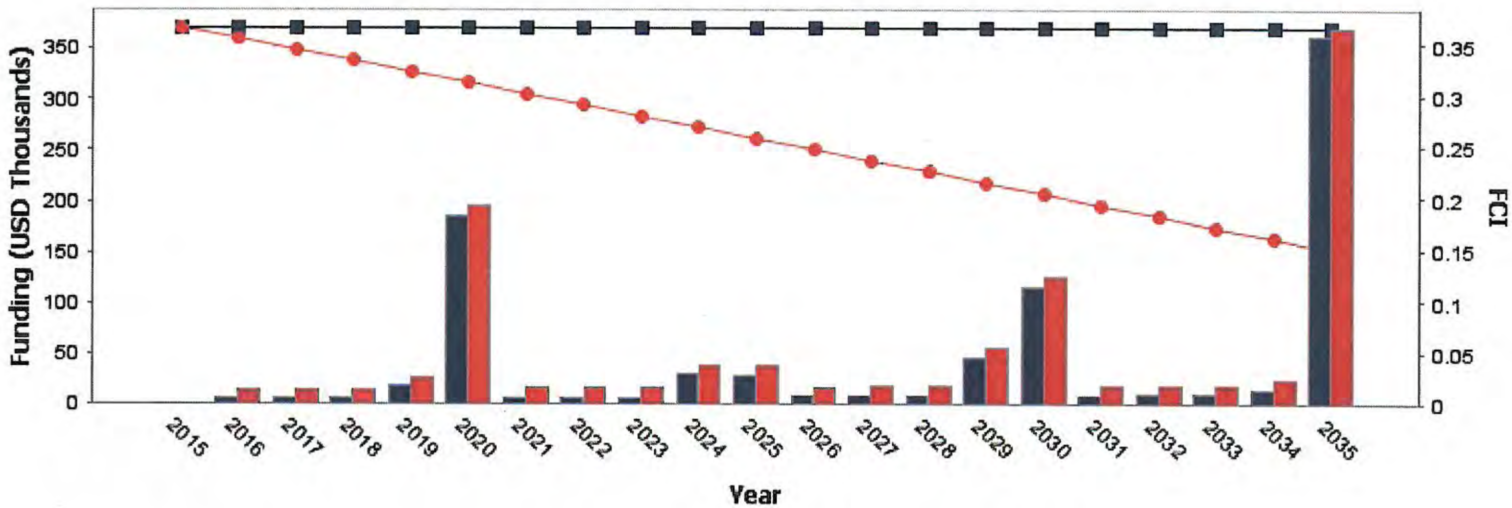
Year	System	Requirement Name	Renewal	Non-Renewal	Total
2016	C3030 - Ceiling Finishes	ACT System - Standard (Original) Renewal	3,451	0	3,451
	D3050 - Terminal and Package Units	Unit Heaters - Gas Fired Renewal	11,391	0	11,391
	D3050 - Terminal and Package Units	Rooftop Unitary AC - Cooling w/Gas Heat < 10 Ton Renewal	11,728	0	11,728

Asset Funding Needs Report
By Name

Year	System	Requirement Name	Renewal	Non-Renewal	Total
2016	D3050 - Terminal and Package Units	Unit Heaters - Electric (Each) Renewal	905	0	905
	D3050 - Terminal and Package Units	Makeup Air Unit - Gas Fired Renewal	22,091	0	22,091
	D5022 - Lighting Equipment	Lighting Fixtures - Light Density (Garage) Renewal	32,249	0	32,249
	B30 - Roofing	BUR (Built-Up Roofing) Renewal	144,338	0	144,338
	D5021 - Branch Wiring Devices	Branch Wiring - Equipment & Devices - Light Density Renewal	8,009	0	8,009
	D5092 - Emergency Light and Power Systems	Emergency Battery Pack Lights Renewal	3,660	0	3,660
	D2020 - Domestic Water Distribution	Water Heater - Elec - Residential - 52 Gal Renewal	3,911	0	3,911
	D5020 - Lighting and Branch Wiring	Lighting - Exterior - HID Wall Packs Renewal	4,786	0	4,786
	D3060 - Controls and Instrumentation	Parking Garage CO Monitor System Renewal	5,977	0	5,977
	D5092 - Emergency Light and Power Systems	Exit Signs - Low Density Renewal	1,689	0	1,689
	B2030 - Exterior Doors	Door Assembly - 3 x 7 HM Renewal	7,976	0	7,976
	D3040 - Distribution Systems	Exhaust System - General Building Renewal	22,903	0	22,903
	B30 - Roofing	Downspouts - Aluminum Renewal	1,750	0	1,750
		Subtotal for 2016	**286,814**	**0**	**286,814**
2020	D2020 - Domestic Water Distribution	Water Heater - Elec - Residential - 52 Gal Renewal	4,402	0	4,402
	D3060 - Controls and Instrumentation	Parking Garage CO Monitor System Renewal	6,727	0	6,727
	D3050 - Terminal and Package Units	Unit Heaters - Electric (Each) Renewal	1,019	0	1,019
		Subtotal for 2020	**12,148**	**0**	**12,148**
2024	D2020 - Domestic Water Distribution	Water Heater - Elec - Residential - 30 Gal	4,251	0	4,251
	C3010 - Wall Finishes	Painted Finish - Average (1 Coat Prime - 2 Coats Finish)	4,104	0	4,104
	C3020 - Floor Finishes	VCT - Average	4,788	0	4,788
		Subtotal for 2024	**13,143**	**0**	**13,143**
2025	B2030 - Exterior Doors	Overhead Sectional Doors - Electric Operation	71,414	0	71,414
	D5033 - Telephone Systems	Telephone System - Light Density	18,803	0	18,803
	D5012 - Low Tension Service and Dist.	Main Electrical Service 03 - 200A 240/120V	17,410	0	17,410
	B30 - Roofing	BUR (Built-Up Roofing) Renewal	188,328	0	188,328
	D2090 - Other Plumbing Systems	Natural Gas Supply for Bldg - 1" Feed (SF)	14,198	0	14,198
	B2030 - Exterior Doors	Door Assembly - 3 x 7 Storefront	6,792	0	6,792
	C1010 - Partitions	CMU Block Walls - Plain	2,499	0	2,499
	D5092 - Emergency Light and Power Systems	Exit Signs - Low Density Renewal	2,204	0	2,204
	D5020 - Lighting and Branch Wiring	Lighting - Exterior - HID Wall Packs Renewal	6,245	0	6,245
	D5092 - Emergency Light and Power Systems	Emergency Battery Pack Lights Renewal	4,776	0	4,776
	D5010 - Electrical Service and Distribution	Distribution System - Light Capacity	40,507	0	40,507
	D2010 - Plumbing Fixtures	Wall Hung Custodial/Utility Sinks - Each	2,817	0	2,817
	D2010 - Plumbing Fixtures	Emergency Eyewash and Shower Units	1,672	0	1,672
	C3030 - Ceiling Finishes	ACT System - Standard (Original) Renewal	4,503	0	4,503
	G3091 - Industrial Waste Systems	Industrial Waste Systems - Coalescing Oil-Water Separator - 200 GPM	18,003	0	18,003
	D5022 - Lighting Equipment	Lighting Fixtures - Light Density (Garage) Renewal	42,078	0	42,078
	B2020 - Exterior Windows	Aluminum Windows	6,914	0	6,914
		Subtotal for 2025	**449,162**	**0**	**449,162**
2029	D3050 - Terminal and Package Units	Unit Heaters - Gas Fired	25,092	0	25,092
		Subtotal for 2029	**25,092**	**0**	**25,092**
2030	D3050 - Terminal and Package Units	Unit Heaters - Gas Fired Renewal	17,230	0	17,230
	D2020 - Domestic Water Distribution	Water Heater - Elec - Residential - 52 Gal Renewal	5,916	0	5,916
	D3050 - Terminal and Package Units	Rooftop Unitary AC - Cooling w/Gas Heat < 10 Ton Renewal	17,740	0	17,740

Asset Funding Needs Report
By Name

Year	System	Requirement Name	Renewal	Non-Renewal	Total
2030	D3060 - Controls and Instrumentation	Parking Garage CO Monitor System Renewal	9,040	0	9,040
		Subtotal for 2030	**49,927**	**0**	**49,927**
2034	D5022 - Lighting Equipment	Lighting Fixtures - Light Density (Office)	11,223	0	11,223
	D2020 - Domestic Water Distribution	Water Heater - Elec - Residential - 30 Gal	5,713	0	5,713
	D3040 - Distribution Systems	Exhaust System - Restroom w/Roof Fan	839	0	839
	C3030 - Ceiling Finishes	ACT System - Standard (New)	4,136	0	4,136
	C3010 - Wall Finishes	Painted Finish - Average (1 Coat Prime - 2 Coats Finish)	5,516	0	5,516
	C3020 - Floor Finishes	VCT - Average	6,434	0	6,434
	E - Equipment and Furnishings	Kitchen Cabinets - Average	9,644	0	9,644
		Subtotal for 2034	**43,505**	**0**	**43,505**
2035	D5033 - Telephone Systems	Telephone System - Light Density	25,269	0	25,269
	C1020 - Interior Doors	Overhead/Rolling Door - Large (Electric Operation)	17,713	0	17,713
	D5092 - Emergency Light and Power Systems	Exit Signs - Low Density Renewal	2,962	0	2,962
	B30 - Roofing	Downspouts - Aluminum Renewal	3,069	0	3,069
	D3050 - Terminal and Package Units	Unit Heaters - Electric (Each) Renewal	1,587	0	1,587
	D5092 - Emergency Light and Power Systems	Emergency Battery Pack Lights Renewal	6,418	0	6,418
	D3050 - Terminal and Package Units	Makeup Air Unit - Gas Fired Renewal	38,737	0	38,737
	D3040 - Distribution Systems	Exhaust System - General Building Renewal	40,161	0	40,161
	D2030 - Sanitary Waste	Sanitary Waste - Gravity Disch - Average	35,853	0	35,853
		Subtotal for 2035	**171,769**	**0**	**171,769**
		Total	**1,051,559**	**0**	**1,051,559**



Funding-Maintain - FCI

Funding-Target - Funding to reduce FCI to 15% in 20 years

FCI-Maintain - FCI

FCI-Target - Funding to reduce FCI to 15% in 20 years

Cost Curve Applied: Spiky 0

Note: All cost curves other than Spiky 0 will result in a change to the starting FCI that is displayed. For a full description of all Forecast Parameters applied to this funding scenario, see the final page of this report.

All costs in USD.

Maintain - FCI

Cost Curve Applied: Spiky 0

Year	Replacement Cost	Renewal Cost	Backlog Deterioration	Total New Liability	New Backlog Total	Net Plant Value	Funding	Funding Reserve	FCI
2015	766,343	280,928	0	280,928	280,928	485,414	0	0	0.3666
2016	789,333	0	5,787	5,787	289,356	499,977	5,787	0	0.3666
2017	813,013	0	5,961	5,961	298,037	514,976	5,961	0	0.3666
2018	837,403	0	6,140	6,140	306,978	530,425	6,140	0	0.3666
2019	862,525	11,017	6,324	17,341	316,187	546,338	17,341	0	0.3666
2020	888,401	179,317	6,513	185,831	325,673	562,728	185,831	0	0.3666
2021	915,053	0	6,709	6,709	335,443	579,610	6,709	0	0.3666
2022	942,505	0	6,910	6,910	345,506	596,998	6,910	0	0.3666
2023	970,780	0	7,117	7,117	355,872	614,908	7,117	0	0.3666
2024	999,903	22,281	7,331	29,612	366,548	633,356	29,612	0	0.3666
2025	1,029,900	20,512	7,551	28,063	377,544	652,356	28,063	0	0.3666
2026	1,060,797	0	7,777	7,777	388,870	671,927	7,777	0	0.3666
2027	1,092,621	0	8,011	8,011	400,537	692,085	8,011	0	0.3666
2028	1,125,400	0	8,251	8,251	412,553	712,847	8,251	0	0.3666
2029	1,159,162	37,339	8,499	45,838	424,929	734,233	45,838	0	0.3666
2030	1,193,937	107,442	8,754	116,196	437,677	756,260	116,196	0	0.3666
2031	1,229,755	0	9,016	9,016	450,807	778,947	9,016	0	0.3666
2032	1,266,647	0	9,287	9,287	464,332	802,316	9,287	0	0.3666
2033	1,304,647	0	9,565	9,565	478,262	826,385	9,565	0	0.3666
2034	1,343,786	4,998	9,852	14,850	492,609	851,177	14,850	0	0.3666
2035	1,384,100	351,100	10,148	361,247	507,388	876,712	361,247	0	0.3666

All costs in USD.

Target - Funding to reduce FCI to 15% in 20 years

Cost Curve Applied: Spiky 0

Year	Replacement Cost	Renewal Cost	Backlog Deterioration	Total New Liability	New Backlog Total	Net Plant Value	Funding	Funding Reserve	FCI
2015	766,343	280,928	0	280,928	280,928	485,414	0	0	0.3666
2016	789,333	0	5,787	5,787	280,808	508,525	14,335	0	0.3558
2017	813,013	0	5,785	5,785	280,428	532,585	14,589	0	0.3449
2018	837,403	0	5,777	5,777	279,773	557,631	14,845	0	0.3341
2019	862,525	11,017	5,763	16,781	278,826	583,700	26,121	0	0.3233
2020	888,401	179,317	5,744	185,061	277,570	610,831	194,682	0	0.3124
2021	915,053	0	5,718	5,718	275,988	639,066	15,627	0	0.3016
2022	942,505	0	5,685	5,685	274,061	668,444	15,892	0	0.2908
2023	970,780	0	5,646	5,646	271,770	699,010	16,158	0	0.2799
2024	999,903	22,281	5,598	27,879	269,095	730,809	38,707	0	0.2691
2025	1,029,900	20,512	5,543	26,055	266,015	763,886	37,208	0	0.2583
2026	1,060,797	0	5,480	5,480	262,507	798,290	16,967	0	0.2475
2027	1,092,621	0	5,408	5,408	258,551	834,071	17,240	0	0.2366
2028	1,125,400	0	5,326	5,326	254,120	871,280	17,513	0	0.2258
2029	1,159,162	37,339	5,235	42,574	249,191	909,971	55,127	0	0.2150
2030	1,193,937	107,442	5,133	112,575	243,737	950,199	125,505	0	0.2041
2031	1,229,755	0	5,021	5,021	237,732	992,023	18,338	0	0.1933
2032	1,266,647	0	4,897	4,897	231,147	1,035,500	18,614	0	0.1825
2033	1,304,647	0	4,762	4,762	223,953	1,080,693	18,890	0	0.1717
2034	1,343,786	4,998	4,613	9,611	216,120	1,127,666	24,163	0	0.1608
2035	1,384,100	351,100	4,452	355,552	207,615	1,176,485	370,540	0	0.1500

All costs in USD.

Asset Detail Report
By Asset Name

Client: Metropolitan Airports Commission (MAC) **Asset:** Maintenance Building
Project_Number: Airlake Airport **Asset Number:** 1

Assets are ordered by Asset Name **Currency: USD**

Statistics

FCI Cost:	280,928	FCI:	0.37
RI Cost:	280,928	RI:	0.37
Total Requirement Cost:	280,929	Asset Condition Rating:	Fair

Current Replacement Value	766,343	Address 1	-
Size	7,270 SF	Address 2	-
Year Constructed	1975	City	Lakeville
Year Renovated	2014	State/Province/Region	Minnesota
Commission Date	-	Zip/Postal Code	
Decommission Date	-	Architect	-
Ownership	Client Owned	Historical Category	-
Floors	1	Construction Type	IBC - Type 2B
Type	Building	Use	Maintenance

Photo

Building Exterior

Asset Description

**ARCHITECTURAL
The Maintenance Building located at the AirLake Airport property was constructed in approximately 1975 with a garage addition constructed around 1985 and an office renovation project in 2014. There were no existing drawings or documents available for review at this facility at the time of the on-site review Currently the building serves as a maintenance and storage facility for vehicles and equipment used at the airport facility as well as office space. The overall structure is comprised of one story and has approximately 7,200 square feet of space.

Per the 2012 International Building Code, Section 602, the building is classified as a Storage (S-2) Occupancy, having a Construction Type of Type IIB.

The handicapped accessibility for this facility was assessed utilizing ANSI 117.1.

SUBSTRUCTURE: Foundation walls and strip footings are believed to be comprised of reinforced poured concrete strip footings with concrete block foundation walls.

SUPERSTRUCTURE: The superstructure consists of load bearing concrete masonry units (CMU) supporting open web steel bar joist roof framing with steel roof decking.

BUILDING EXTERIOR

EXTERIOR WALLS: Exterior walls are comprised of un-insulated, single wythe, load bearing CMU construction at the office and vehicle storage areas. The CMU is in good condition but showing signs of moisture infiltration. The interior of the garage areas have some staining that is likely caused by moisture build-up in the uninsulated walls.

EXTERIOR WINDOWS: The windows consist of an aluminum framed units with insulated glass. The frames and glazing are in good condition.

EXTERIOR DOORS: The building main entry door is an aluminum storefront frame with a full glass swing door which is in fair condition. Entry doors into the garage spaces consist of hollow metal doors and frames and appear to be worn and near the end of their expected lifespan. Overhead sectional doors provide access to the vehicle storage and maintenance areas and are approximately 20 years old. The overhead doors are functioning adequately but are nearing the end of their useful life expectancy.

ROOFING: Roofing consists of a built-up ballasted membrane over rigid insulation. Parapets are capped with painted metal flashing and primary roof drainage is achieved through scuppers and downspouts. The roof membrane is beginning to show signs of cracking and deterioration.

BUILDING INTERIOR

PARTITIONS: Interior partitions within the building consist of CMU in the garage area and steel stud and gypsum board in the office area.

INTERIOR DOORS: Interior doors consist of wood doors set in hollow metal frames in the office area.

WALL FINISHES: The Interior walls consist of paint. A ceramic tiling wainscot can be found in the restroom.

FLOOR FINISHES: Flooring is a mixture of bare concrete in the vehicle storage and maintenance areas, ceramic tile in the restroom and vinyl composite tile (VCT) in the office areas.

CEILING FINISHES: The ceilings consist of exposed structure in the garage areas, painted gypsum board in the restroom and acoustical ceiling tile in a suspended grid in the office spaces. A portion of the suspended ceilings were replaced during the 2014 renovation and a portion of the original ceiling was reused.

**MECHANICAL

HVAC: The building heating is achieved via gas fired unit heaters suspended from the roof structure in the garage areas. The office and restroom area is heated and cooled via a rooftop air handler unit.

The garage area is equipped with CO2/NO sensors connected to an exhaust unit and ductwork which appears to be in poor condition.

There are two water heater serving the building. A new 10 gallon electric water heater was installed during the 2014 renovation and serves the office and restroom areas. The remainder of the building is served via an entire 80 gallon electric unit located in the garage area.

**ELECTRICAL

Electrical Service:
The electrical service is fed by a service drop from a pole that is northeast of the building. The service mast feeds an exterior meter socket on the exterior wall. The meter socket feeds through the wall to a 120/240 volt, 1 phase, 3-wire, 200 amp main circuit breaker panel in the shop area. That panel feeds a subpanel via an 80 amp, 2-pole circuit breaker. The panels are dated 2013 and 2014 and appear to be in excellent condition.
Another electrical service for the small buildings to the south is fed underground from the pole. There is a meter socket on the outside of one of the small buildings for that service. Those buildings were not part of this survey.

Telephone Service:
The telephone service is fed from below grade to an exterior telephone pedestal near the meter socket northeast of the office area. This supplies a telephone/data terminal cabinet in the janitor's closet within the office area. This equipment apparently is less than 3 years old and is in excellent condition. It has ample space and capacity for future expansion.

Office Area
Lighting: The office area was remodeled in 2014 and is in good shape. The lighting is generally recessed, T-8 fluorescent, with electronic ballasts. There are 2' T-5 under cabinet lights in the kitchen. The bathroom has 1' x 4', T-8, surface mounted wrap around light fixtures, a 2' T-8 vanity fixture, and a recessed incandescent shower light. There is one battery powered exit sign, and 3 emergency battery lights in this area. The lighting is controlled by manual switches.

Power and Communications: There are an adequate number of receptacles and telephone/data outlets throughout the area, and everything seems to be functional and in good condition. Some of the conduits and outlets are recessed within walls, and some are surface mounted.

Garage/Shop Area
Lighting: The lighting looks to be in good operational condition. General lighting is provided by low bay type metal halide light fixtures. There is also a T-8, 2 lamp wide, 8' fluorescent industrial, and two quartz flood lights in the shop area. There is also a 4', 2 lamp fluorescent wrap around fixture with a missing lens in the small room in the southwest corner. There is one battery powered exit sign, with 2 emergency light heads built into the unit. There is no other emergency lighting,

although there is a non-electric exit sign at the southeast exit door. That sign should be illuminated by an emergency light or replaced with a battery powered exit sign. Lighting is controlled by manual switches.

Power: The branch circuit conduit, wiring, boxes, equipment, and devices appear to be operational and in fair to good condition. Some of the disconnect switches and starters in the garage areas are fairly old and may need to be replaced before too long.

Exterior
The exterior lights are wall mounted, HID wall packs that appear to be in good repair and operational. There is some yellowing of the lenses on these fixtures.
There is an exterior alarm pushbutton and horn/beacon that looks fairly new and is in good shape. The exterior GFCI receptacle appears to work and is in good condition.

Requirements

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
BUR (Built-Up Roofing) Renewal	Yes	B30 - Roofing	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2005	139,039
Door Assembly - 3 x 7 HM Renewal	Yes	B2030 - Exterior Doors	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2015	7,752
Branch Wiring - Equipment & Devices - Light Density Renewal	Yes	D5021 - Branch Wiring Devices	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2015	8,157
Unit Heaters - Electric (Each) Renewal	Yes	D3050 - Terminal and Package Units	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 1990	893
Exit Signs - Low Density Renewal	Yes	D5092 - Emergency Light and Power Systems	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 1995	1,785
Water Heater - Elec - Residential - 52 Gal Renewal	Yes	D2020 - Domestic Water Distribution	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2010	3,776
Downspouts - Aluminum Renewal	Yes	B30 - Roofing	Beyond Useful Life	3- Necessary -	Jan 1, 2010	1,714

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Not Yet Critical		
Exhaust System - General Building Renewal	Yes	D3040 - Distribution Systems	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2010	22,583
Lighting Fixtures - Light Density (Garage) Renewal	Yes	D5022 - Lighting Equipment	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2005	31,994
Makeup Air Unit - Gas Fired Renewal	Yes	D3050 - Terminal and Package Units	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2010	21,806
Emergency Battery Pack Lights Renewal	Yes	D5092 - Emergency Light and Power Systems	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 1995	3,611
Rooftop Unitary AC - Cooling w/Gas Heat < 10 Ton Renewal	Yes	D3050 - Terminal and Package Units	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2000	12,244
ACT System - Standard (Original) Renewal	Yes	C3030 - Ceiling Finishes	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2005	3,392
Unit Heaters - Gas Fired Renewal	Yes	D3050 - Terminal and Package Units	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2015	11,384
Parking Garage CO Monitor System Renewal	Yes	D3060 - Controls and Instrumentation	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2010	6,091
Lighting - Exterior - HID Wall Packs Renewal	Yes	D5020 - Lighting and Branch Wiring	Beyond Useful Life	3- Necessary - Not Yet Critical	Jan 1, 2005	4,708
Total						**280,929**

PAGE INTENTIONALLY LEFT BLANK

Appendix 6: Runway Protection Zone (RPZ) Alternatives Analysis

PAGE INTENTIONALLY LEFT BLANK

U.S. Department
of Transportation
Federal Aviation Administration

Federal Aviation Administration
Dakota-Minnesota Airports District Office
Bismarck Office
2301 University Drive, Building 23B
Bismarck, ND 58504

Federal Aviation Administration
Dakota-Minnesota Airports District Office
Minneapolis Office
6020 28th Avenue South, Suite 102
Minneapolis, MN 55450

January 5, 2017

Mr. Neil Ralston, A.A.E., Airport Planner
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

Airlake Airport (LVN) Runway Protection Zone Alternatives Analysis – Declared Distances

Mr. Ralston:

The FAA concurs with the Airlake Airport (LVN) Runway Protection Zone Alternatives Analysis (RPZ AA) for the use of declared distances as requested by the Metropolitan Airports Commission (MAC) and identified on Attachment 1.

The triggering event for this RPZ alternatives analysis is the proposed extension to Runway 12/30. Runway 12 is proposed to be extended by 271 feet, which will eliminate the aligned taxiway and displace the current threshold by an additional 120 feet to provide a clear glideslope qualification surface (GQS) and clear terminal instrument procedure surfaces (TERPS). The Runway 12 approach RPZ is proposed to be shifted due to the threshold displacement. The Runway 12 departure RPZ is proposed to remain in its existing location. Runway 30 is proposed to be extended by 480 feet and the existing Runway 30 threshold is proposed to remain in its current location. There are no proposed changes to the existing approach or departure RPZs. These proposed extensions would allow the accelerate stop distance available (ASDA) to increase to 4,850 feet in both directions to better serve the airport's existing critical design aircraft.

Highview Avenue, 220th Street, and the Progressive Rail line, which are within the existing Runway 12 departure RPZ and future Runway 12 approach RPZ, are proposed to remain. Due to high costs and alignment of the rail, it is not feasible to realign the railroad outside of the RPZ. Highview Avenue and 220th Street have relatively low traffic volumes and would be costly to relocate. The intersection of 225th Street and Cedar Avenue is proposed to be relocated outside the Runway 30 approach and departure RPZs.

No new land uses are being introduced into the Runway 30 approach or departure RPZs. In the interim, the airport will work with the respective road authorities to consider the installation of "Low Flying Aircraft/No Parking" signage on Cedar Avenue, Highview Avenue, and 220th Street at the edges of the RPZ. Also, if in the future the traffic on Cedar Avenue necessitates a roadway expansion, a RPZ AA including relocation, will be completed at that time.

If you have any questions or would like to discuss this information further, please feel welcome to contact Gina Mitchell, Community Planner, at (612) 253-4641 or gina.mitchell@faa.gov.

Sincerely,

Lindsay Butler

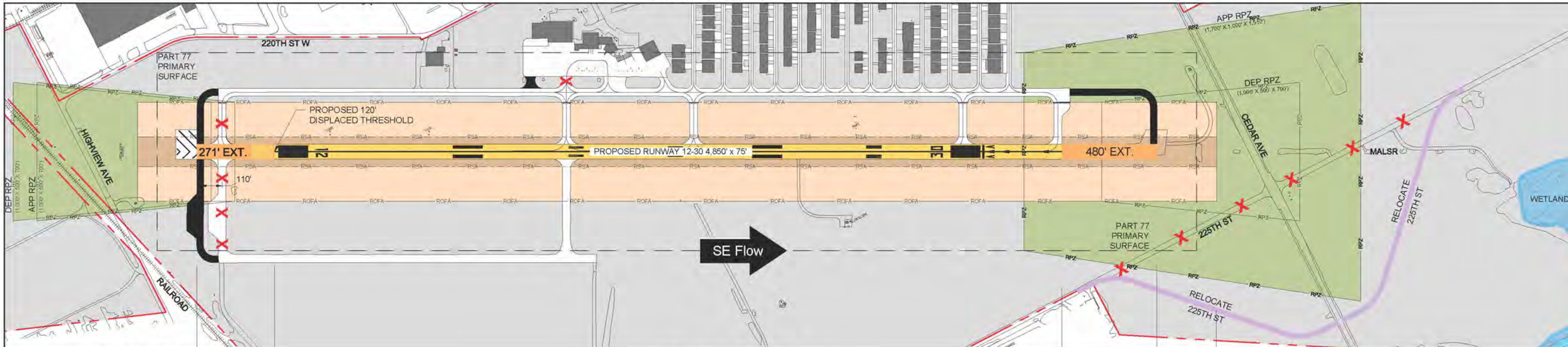
Lindsay Butler
Assistant Manager
Dakota-Minnesota Airports District Office, Minnesota Office

enc Declared Distances – Attachment 1

cc Mike Wilson, MAC, (by email)
Nancy Nistler, FAA (by email)
Paul Lo, FAA (by email)
Rylan Juran, MnDOT Aeronautics (by email)
Dan Boerner, MnDOT Aeronautics (by email)
Bob Burrell, MnDOT Aeronautics (by email)

Displace Threshold, Runway Extensions, Declared Distances, & 225th St. Relocation

Proposed Runway 12 Declared Distances



391' Displaced Threshold

Runway 12 LDA 4,459'

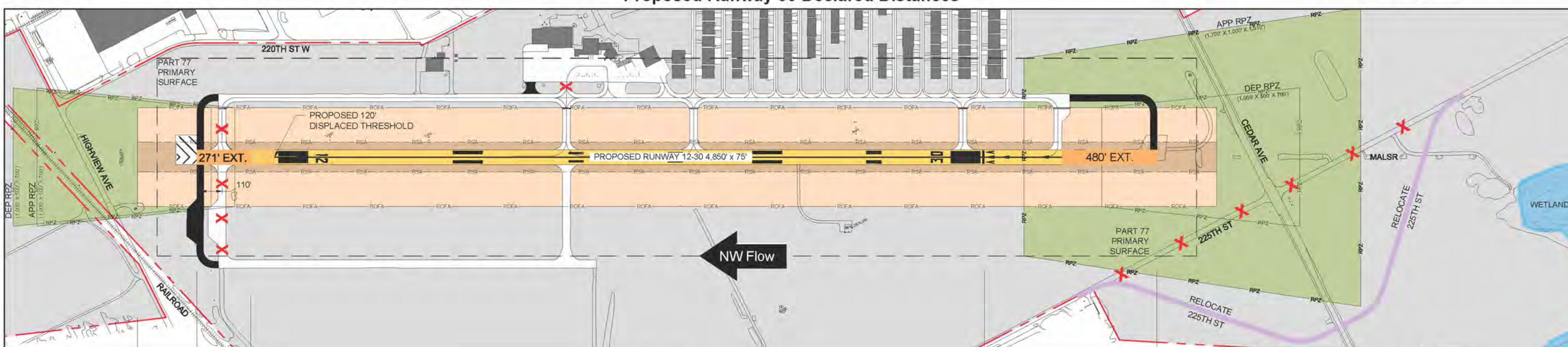
Runway 12 TORA / TODA 4,370'

Runway 12 ASDA 4,850'

300' RSA/ROFA

NOTE:
1) The Runway 12 approach (APP) RPZ changes due to the proposed 120' displaced threshold necessary to clear the railroad.
2) The Runway 30 APP RPZ and all departure (DEP) RPZ's do not change from existing conditions so as to not introduce new incompatible land uses.

Proposed Runway 30 Declared Distances



Runway 30 LDA 3,978'

872' Displaced Threshold

Runway 30 TORA / TODA 4,579'

300' RSA/ROFA

Runway 30 ASDA 4,850'

DRAWING LEGEND

RUNWAY PAVEMENT	PROPOSED TAXIWAY	ROAD RELOCATION	RUNWAY OBJECT FREE AREA
PROPOSED RUNWAY PAVEMENT	PAVEMENT REMOVAL	AIRPORT PROPERTY LINE	RUNWAY PROTECTION ZONE
TAXIWAY / APRON PAVEMENT	OTHER PAVEMENT IN USE	RUNWAY SAFETY AREA	PART 77 PRIMARY SURFACE

EXISTING BUILDING
WETLANDS

0 500
SCALE IN FEET

DRAFT

HNTB

Metropolitan Airports Commission

Airport Development Department

Memo

DATE: 27 October 2016

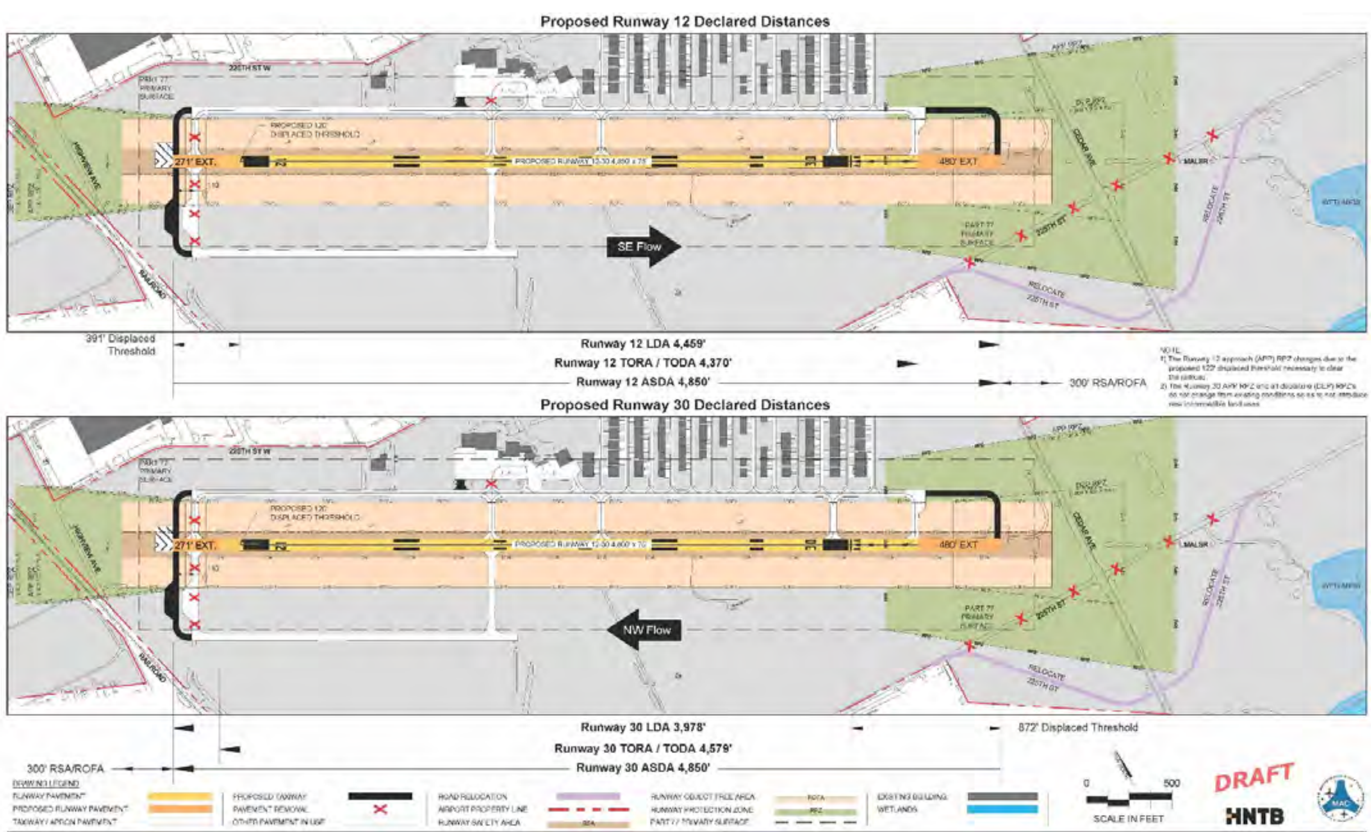
TO: Gina Mitchell, ADO Community Planner

FROM: Neil Ralston, MAC Airport Planner

SUBJECT: Airlake Airport (LVN)
Runway Protection Zone Alternatives Analysis (RPZ AA) – Submittal for FAA Review

---

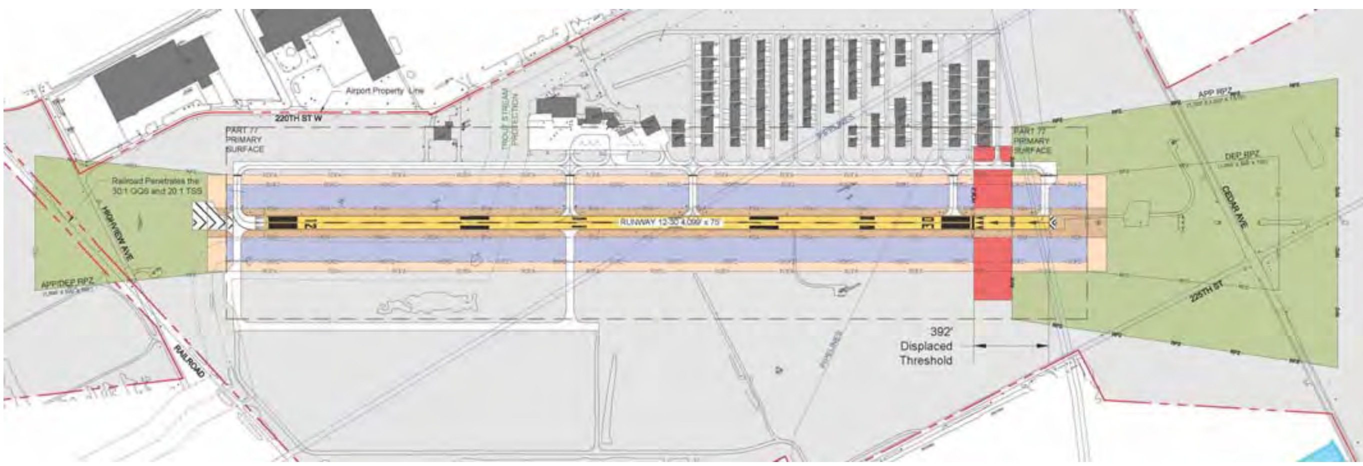
Request: The Metropolitan Airports Commission (MAC) staff is preparing a Long-Term Comprehensive Plan (LTCP) (i.e. 20-year master planning study) for Airlake Airport (LVN) and is proposing a concept to extend Runway 12-30 and use declared distances to better meet existing user needs. The resulting Runway Protection Zones (RPZs) will not be clear. MAC is seeking favorable consideration of the Runway Extension/Declared Distance Alternative depicted below to minimize impacts to adjacent private property owners, project costs, and the environmental footprint of the improvements. A larger view is provided in **Attachment 1**.



Runway 12 currently has an aligned taxiway prior to the runway threshold. The proposed concept eliminates the aligned taxiway portion by extending the runway by 271 feet and then displacing the current threshold by an additional 120 feet to clear the 30:1 GQS and 20:1 TERPS Visual Area Surface over the adjacent railroad tracks. Through the use of declared distances, the Runway 30 departure RPZ is not proposed to change from existing conditions. The Runway 12 approach RPZ change triggers an RPZ Alternatives Analysis (RPZ AA). The improvements on the Runway 12 end would leave a low volume township road (Highview Avenue), a railroad (Progressive Rail), and a private agricultural field access within the RPZ.

Runway 30 currently has a 392-foot displaced threshold. The controlling obstacle is 225th Street located south of the runway. MAC's goal is to maximize the utility of the runway to meet existing user needs, without triggering the realignment of County State Aid Highway 23 (Cedar Avenue). The proposed concept includes adding 480 feet of additional pavement to the Runway 30 end. The end result would be an 872-foot displaced threshold and no change to the existing approach RPZ. Through the use of declared distances, the Runway 12 departure RPZ is not proposed to change from existing conditions. The ADO determined the additional pavement constitutes an "airfield project" thereby triggering an RPZ AA, even though there is no change proposed to the approach or departure RPZ on this runway end.

Background Information: LVN is currently one of six reliever airports owned and operated by MAC. LVN has one runway, 12-30, which is 4,099 feet long by 75 feet wide. It was formerly a private airport and was purchased by MAC in 1981 to provide a training facility for conducting ILS approaches to relieve some activity at MSP. The existing airport layout is depicted below.



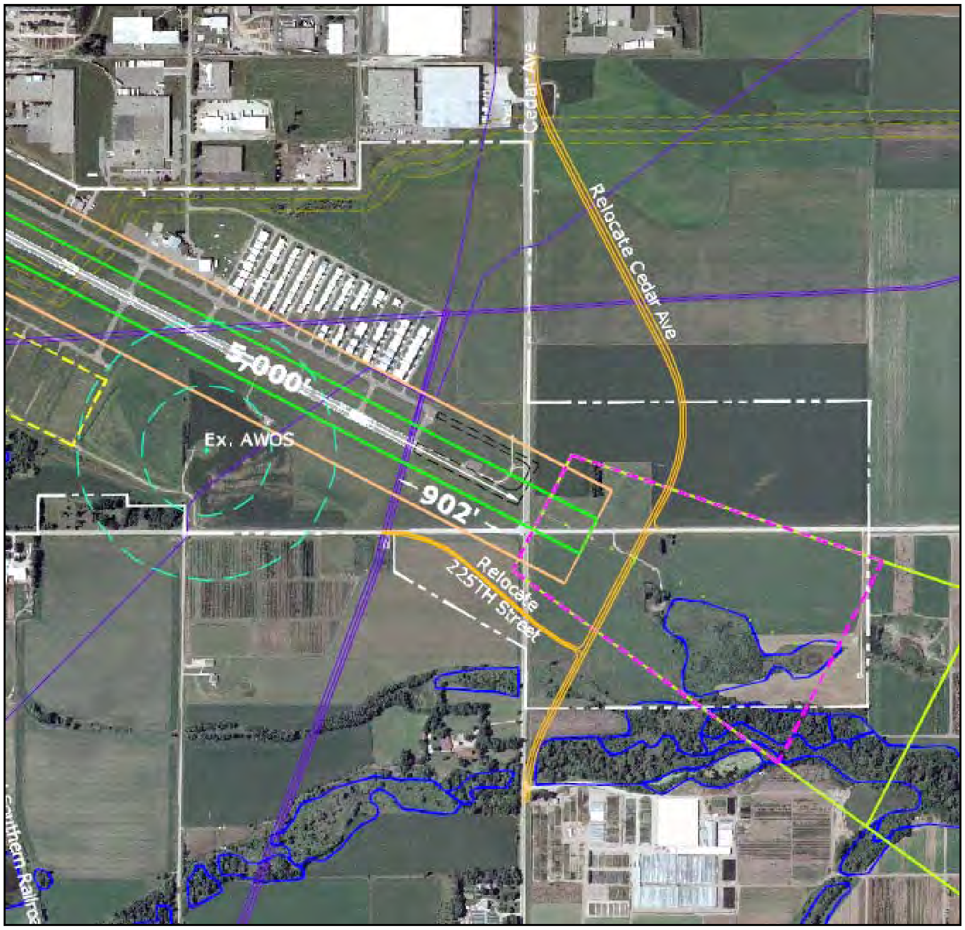
MAC's previous (2008) LTCP planned for a future runway extension to a length of 5,000 feet. This length was based on forecasted user needs, however it was also limited by State Statute, which restricts the maximum runway length at intermediate-class airports to a maximum length of 5,000 feet.

LVN is experiencing an upward trend in high-performance turbine corporate and general aviation itinerant activity. The steady increase in jet operations is largely attributable to an evolving aircraft management business model by the airport's Fixed Based Operator (FBO), but also reflects improved economic conditions and growth in the demand for business-related flying in the south metropolitan area. From an aircraft management perspective, the aircraft types most in demand by the FBO's clientele are mid-sized corporate jets such as the Cessna Citation III and Dassault Falcon 20. The operational capabilities of these aircraft types are constrained by the existing runway length at LVN. At times, jet aircraft based at LVN must reposition to another area airport with a longer runway in order to depart with enough fuel and payload to reach destinations beyond an approximately 500 nautical mile stage length. Operating in this manner is both inefficient and unproductive for users of the regional airport system. Letters of support obtained from airport users document a strong likelihood of LVN accommodating at least 500 annual operations of mid-size (ARC B-II) corporate jet aircraft within the first five years of an extended runway being in place.

As shown in the following graphic, the airport is bound by roads on all sides, as well as the railroad on the west side. Land uses to the north consist of industrial development within the City of Lakeville. Agricultural crop production exists on the other three sides of the airport, consistent with Eureka Township's long standing land use vision.

County State Aid Highway (CSAH) 23 / Cedar Avenue is located on the east side of airport property. It is an important north/south arterial road that serves the southeast quadrant of the Twin Cities Metropolitan Area by providing mobility and connectivity across and through the region. This corridor crosses the Minnesota River and provides accessibility to the MSP Airport.

The runway extension planned in the 2008 LTCP study identified that Cedar Avenue would be impacted and realigned around the relocated runway end. Although the runway extension and roadway realignment were not imminent, the owners of currently undeveloped property along Cedar Avenue desired to know the future alignment in order to consider it in their property development plans. Since a State EIS is required by state law for a runway length of 5,000 feet or longer, an EIS Final Scoping Decision Document was completed in 2011 to establish a vision to expand the corridor from a two lane to a four lane divided highway without negatively impacting the Vermillion River. The Vermillion River and its associated wetlands are located approximately ½ mile south of the airport and the river is a DNR protected trout stream. The current river bridge crossing would be used in order to limit the impacts on the river. The estimated cost to relocate Cedar Avenue and 225th Street was estimated to cost between $5.9 and $6.8 million in 2010 dollars, not including property acquisition costs.

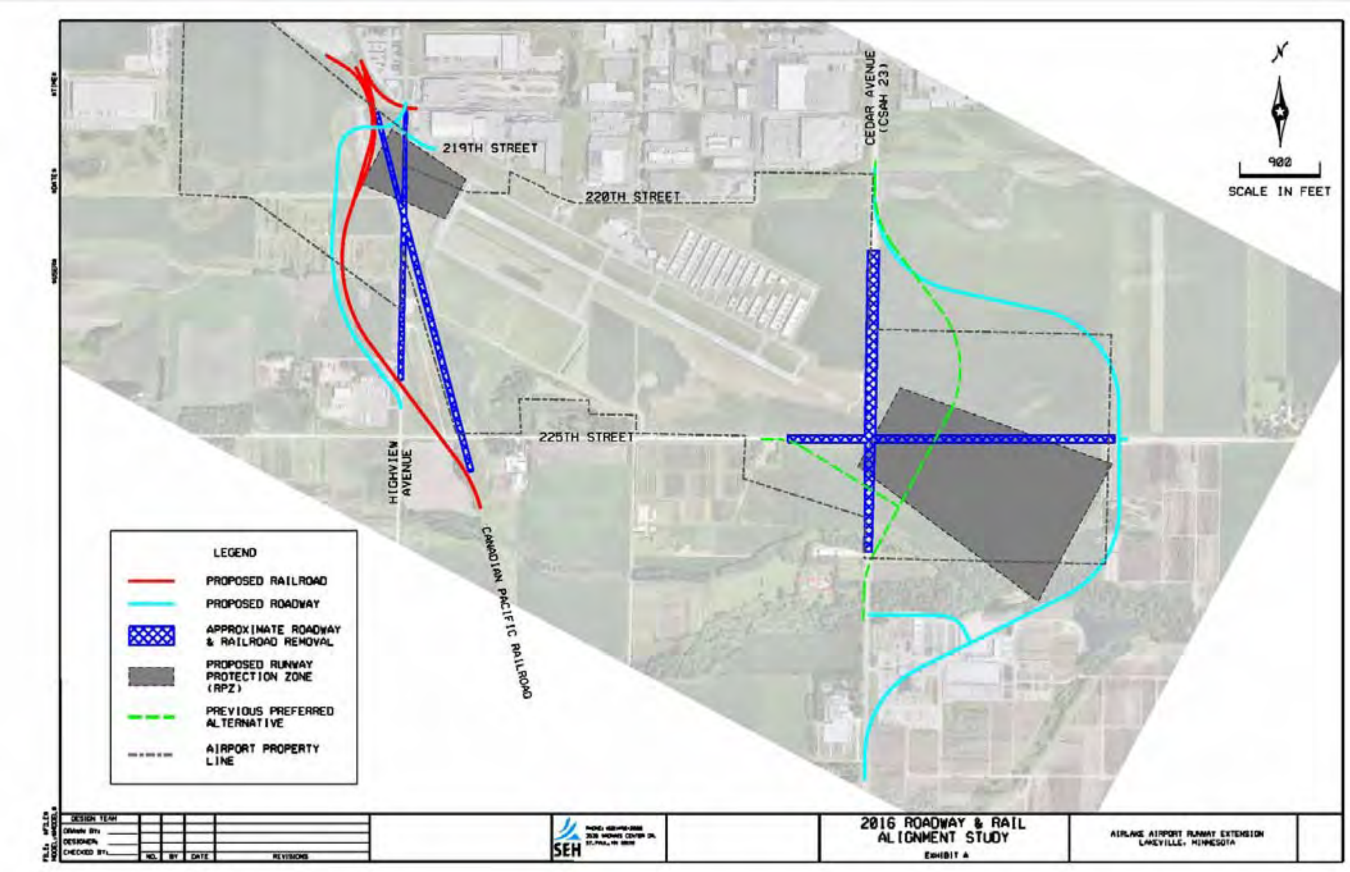


According to the 2030 Transportation Plan for Dakota County, traffic on the two-lane section of Cedar Avenue (County State Aid Highway 23) adjacent to LVN Airport accommodates approximately 6,800 vehicles per day, and is projected to reach about 12,000 vehicles per day by 2030. According to the County, the threshold for expanding a roadway from two to four lanes is when traffic exceeds approximately 15,000 vehicles per day. There is no current plan to expand or improve this section of Cedar Avenue adjacent to LVN that would qualify as a triggering event for an RPZ Alternatives Analysis.

The FAA issued a memorandum for *Interim Guidance on Land Uses within a RPZ* dated September 27, 2012. This memorandum clarifies the FAA's current position on allowable land use compatibilities within the RPZ. The memorandum describes the coordination and processes that are required to determine whether new or modified land uses in the RPZ are allowable. Included within the process is a comprehensive alternatives analysis that assesses the benefits, costs, and implications of the alternatives.

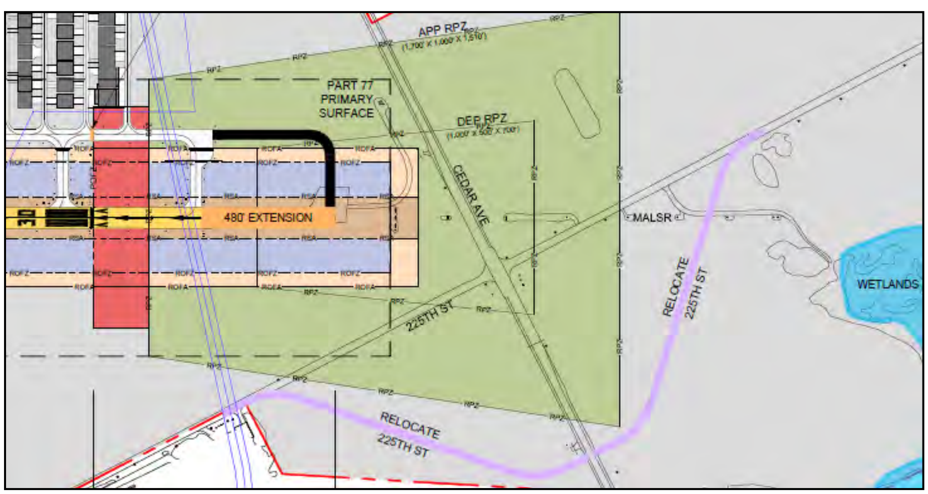
The recommended development plan from the 2025 LTCP to extend the runway to a length of 5,000 feet would realign both Cedar Avenue and 225th Street through the relocated RPZ, which would represent a triggering event to necessitate an RPZ Alternatives Analysis under the current FAA guidance.

As illustrated on the following image, relocating Cedar Avenue completely outside the RPZ for an extended Runway 30 would be an extensive undertaking. A high-level review suggests that the cost for this relocation would be upwards of $16,000,000, not including the nearly 40 acres of property acquisition that would be required for right-of-way.



In comparison, the 2035 LTCP study is considering a scaled-back concept to extend the runway pavement to length of approximately 4,850 feet (see **Attachment 1**). It proposes to use declared distances to maximize utility for existing users and does not change the existing Runway 30 approach or Runway 12 departure RPZs. In essence, MAC's current plan is to add additional airfield pavement without relocating Cedar Avenue, because current traffic volumes on the corridor do not support expansion to four lanes until 2030 or later. The vision established in the 2025 LTCP and the subsequent 2011 EIS Scoping Decision Document did not consider the current 2012 RPZ guidance.

225th Street is an east/west corridor that borders airport property on the south. It is a gravel-surfaced township road that provides local land access and connectivity to other roadways, such as Cedar Avenue, that serve a mobility function. This road is currently the controlling obstacle for the Runway 30 displaced threshold.



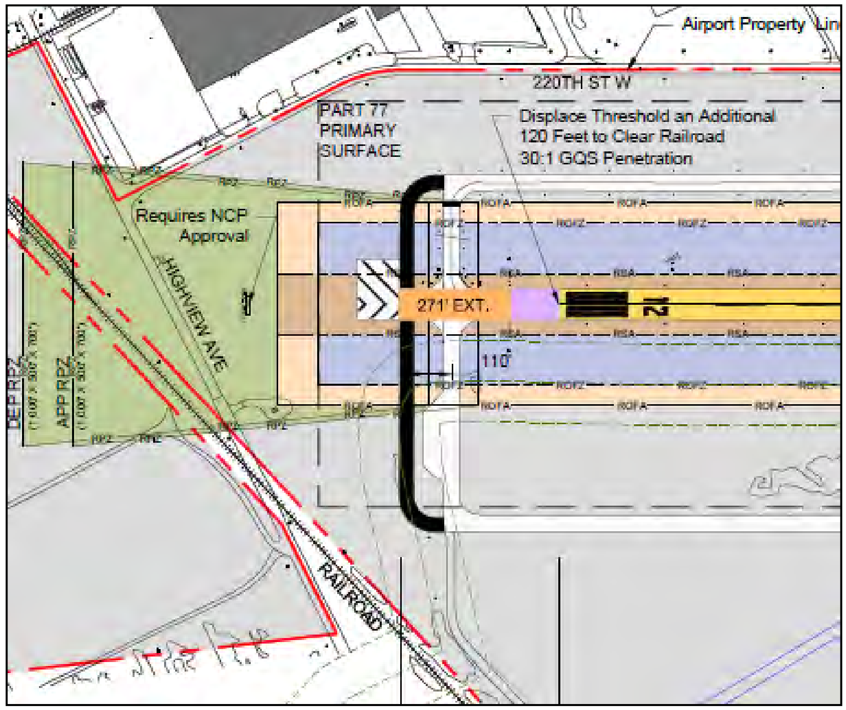
MAC's 2035 LTCP concept includes realigning 225th Street's intersection with Cedar Avenue along an alignment located outside of the future primary surface and approach and departure RPZs to connect back with its current east/west alignment on the east side of Cedar.

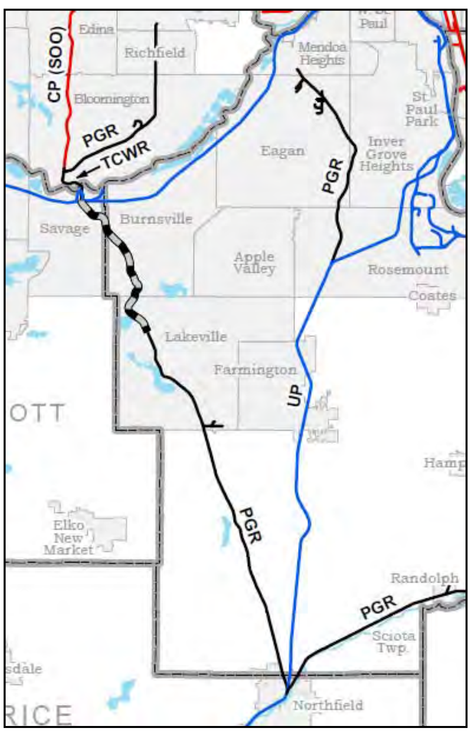
MAC acknowledges that relocating 225th Street outside of both the primary surface and the RPZ will be necessary components of the project in order to obtain FAA concurrence.

Highview Avenue is a local north/south road in Eureka Township located to the east of Runway 12 that accommodates an estimated 2,000 vehicles per day.

220th Street is an east/west city street located north of the airport that accommodates approximately 1,500 vehicles per day.

Both roads are in the approach and departure RPZs of Runway 12. The estimated cost to relocate these roads outside of the RPZ is approximately $1,600,000, not including land acquisition costs for right-of-way. Given the existing industrial development, location of the railroad tracks, and low traffic volumes on these corridors, they are not proposed to be relocated.





Progressive Rail operates almost 80 miles of track in the south Twin Cities Metro Area. In the Lakeville area where LVN is located, according to the *Draft Minnesota Comprehensive Statewide Freight and Passenger Rail Plan Freight Rail Supply Technical Memorandum,* "…it moves a wide variety of commodities – everything from heavy equipment to building products, and also serves a large industrial park in Lakeville. Its lines are a mix of former Union Pacific and Canadian Pacific lines and it continues to interchange with both." According to the MnDOT Rail Office, two trains operate per week day and operations are occasional on weekends.

Currently the rail line is a penetration to the Runway 12 30:1 GQS and 20:1 TERPS Visual Area Surface. MAC is proposing to mitigate the obstacle by siting a new PAPI in a location that would serve the existing and proposed condition. The estimated cost to relocate the railroad outside of the RPZ is approximately $5,200,000, not including land acquisition costs for right-of-way. Given the adjacent built up urban area to the north, the adjacent spur line serving existing industrial land uses, proximity of the airport, and railroad corridor alignment design requirements, it is not feasible to realign the railroad outside of the RPZ.

In summary, MAC's rationale for pursuing an airfield development concept that extends the runway through the use of declared distances and maintains existing land uses in the RPZs is as follows:

- While additional pavement is being added to the Runway 30 end, the approach and departure RPZs are not changing based on the proposed use of declared distances. Traffic volumes on Cedar Avenue do not warrant expansion of the corridor from two to four lanes. The risk of an airplane crash within the RPZ when a vehicle would be present is no greater than it would be today. Removing Cedar Avenue from the RPZ can be revaluated if/when the corridor is proposed for expansion.

- Highview Avenue and 220th Street are low volume, local roads. The risk of an airplane crash within the RPZ when a vehicle is present is low. Realignment outside of the RPZ is not viable given the existing industrial development and location of the Progressive Rail line.

- The Progressive Rail line has, at most, two trains a day on the line. It serves an adjacent spur line and industrial development. Realigning the railroad to required design standards would cause significant impacts due to the built up urban area to the north and agricultural area to the south and west of LVN.

- MAC is willing to consider the installation of "Low Flying Aircraft/No Parking" signage on Cedar Avenue, Highview Avenue, and 220th Street at the edges of the RPZ as a mitigating strategy, but this will require coordination with and approval from the municipalities with roadway jurisdiction.

- At an estimated cost of less than $6,000,000 (including reconstruction of the existing runway), the proposed concept is much less costly than any alternative that involves relocating Cedar Avenue or the adjacent Progressive Rail tracks. At the same time, input from turbine aircraft operators suggests that the longer runway as proposed would ease current operational constraints and open the door for additional mid-size corporate jet operators that bypass LVN today for other area airports with additional runway length.

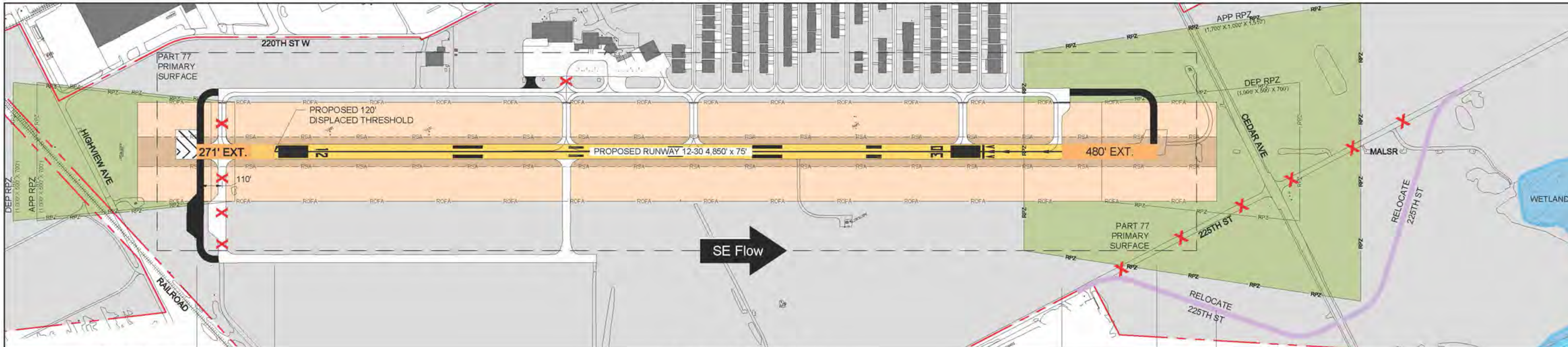
- The proposed use of declared distances at LVN was subjected to an Operational Assessment as a formalized and proactive approach to manage safety and for continued maintenance of stakeholder confidence. A panel of subject matter experts (SME) conducted an assessment on Thursday September 8th, 2016 at LVN.

  First the panel evaluated the effectiveness and suitability of declared distances aimed at identification of defects, gaps, and areas of risk. Second, it provided a realistic forecasted measure of expected output should the proposed change be implemented. The assessment was limited in scope to discuss risks and opportunities associated with implementation of the change. The panel did recognize concerns, but did not consider feasibility or possible environmental impacts of the proposed change. At the conclusion of the panel, members stated their position referencing the implementation of declared distances at LVN. The panel was said to be either neutral or in favor of the proposed change. There were none in opposition to the change. A copy of the Operational Assessment Report is included as **Attachment 2**.

We look forward to receiving FAA's written determination on this matter. If you have any questions or would like to discuss this information further, please contact me at (612) 726-8129 or neil.ralston@mspmac.org.

Displace Threshold, Runway Extensions, Declared Distances, & 225th St. Relocation

Proposed Runway 12 Declared Distances



391' Displaced Threshold

Runway 12 LDA 4,459'

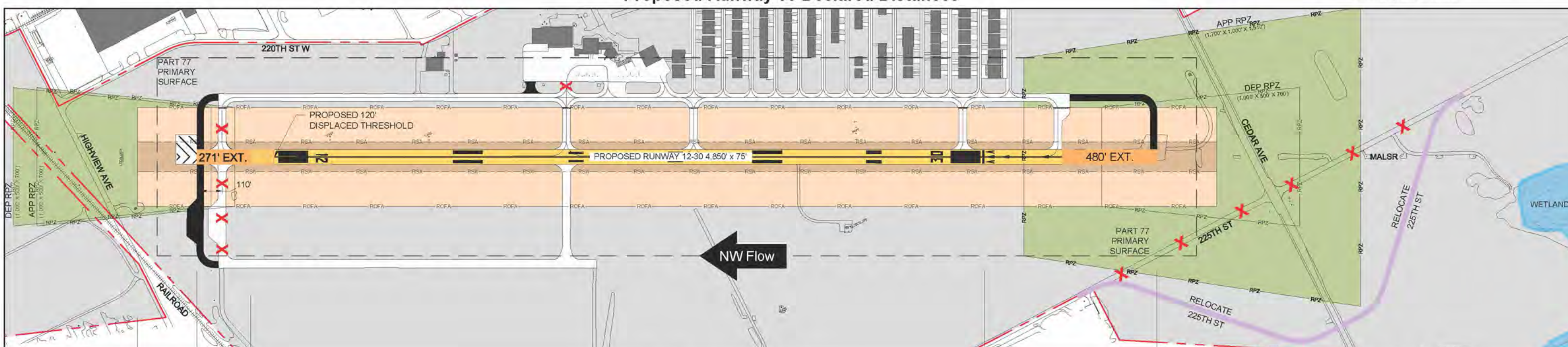
Runway 12 TORA / TODA 4,370'

Runway 12 ASDA 4,850'

300' RSA/ROFA

NOTE:
1) The Runway 12 approach (APP) RPZ changes due to the proposed 120' displaced threshold necessary to clear the railroad.
2) The Runway 30 APP RPZ and all departure (DEP) RPZ's do not change from existing conditions so as to not introduce new incompatible land uses.

Proposed Runway 30 Declared Distances



Runway 30 LDA 3,978'

872' Displaced Threshold

Runway 30 TORA / TODA 4,579'

300' RSA/ROFA

Runway 30 ASDA 4,850'

DRAWING LEGEND

RUNWAY PAVEMENT		PROPOSED TAXIWAY		ROAD RELOCATION		RUNWAY OBJECT FREE AREA	ROFA	EXISTING BUILDING	
PROPOSED RUNWAY PAVEMENT		PAVEMENT REMOVAL		AIRPORT PROPERTY LINE		RUNWAY PROTECTION ZONE	RPZ	WETLANDS	
TAXIWAY / APRON PAVEMENT		OTHER PAVEMENT IN USE		RUNWAY SAFETY AREA	RSA	PART 77 PRIMARY SURFACE			

0 500
SCALE IN FEET

DRAFT

HNTB

Airlake Airport (LVN)

Operational Assessment:

Declared Distances

September 8th, 2016

Table of Contents

Executive Summary

The Metropolitan Airports Commission (MAC) has proposed, in conjunction with the Airlake Airport (LVN) 2035 Long-Term Comprehensive Plan (LTCP), to incorporate the use of declared distances in order to satisfy the following three objectives:

- Maximize operational capabilities of the existing airfield configuration to better accommodate turbine aircraft
- Maintain or improve upon existing Runway Protection Zone (RPZ) land use capability
- Mitigate existing runway 12 20:1 straight-in visual approach surface penetrations.

An operational assessment was recommended by the Dakota-Minnesota Airports District Office (ADO) as a formalized and proactive approach to manage safety and for continued maintenance of stakeholder confidence. A panel of subject matter experts (SME) conducted an assessment on Thursday September 8th, 2016 at the LVN airport. First the panel evaluated the effectiveness and suitability of declared distances aimed at identification of defects, gaps, and areas of risk. Second, it provided a realistic forecasted measure of expected output should the proposed change be implemented.

The assessment was limited in scope to discuss risks and opportunities associated with implementation of the change. The panel did recognize concerns, but did not consider feasibility or possible environmental impacts of the proposed change. Should the MAC continue with the proposed change, the panel recommends vetting capital improvements with a feasibility study as well as an Environmental Assessment (EA) in accordance with National Environment Policy Act (NEPA) of 1969, as amended by the U.S. Department of Transportation (DOT), Federal Aviation Administration (FAA) National Environmental Policy Act Implementing Instructions for Airport Actions, Order 5050.4B.

At the conclusion of the panel, members stated their position referencing the implementation of declared distances at Airlake Airport. The panel was said to be either neutral or in favor of the proposed change. There were none in opposition to the change.

Section 1- Current System

Airlake Airport is a public use airport located south of the Twin Cities, near Lakeville and Farmington MN. The airport is positioned adjacent to a large 1,500-acre contiguous industrial parks. The airport was purchased by the MAC in 1981. It has been deemed significant to the National Airspace System (NAS) and is listed in the National Plan of Integrated Airport System (NPIAS) as a reliever airport. The airport has a single 4,098-foot x75-foot runway with a full length parallel taxiway. LVN offers both precision and non-precision instrument approaches and serves to relieve congestion and increase capacity at the Minneapolis- St. Paul International Airport (MSP). Airlake also provides infrastructure for the region's corporate aircraft and recreational aviation needs. The current airfield configuration is shown in **Exhibit 1**.

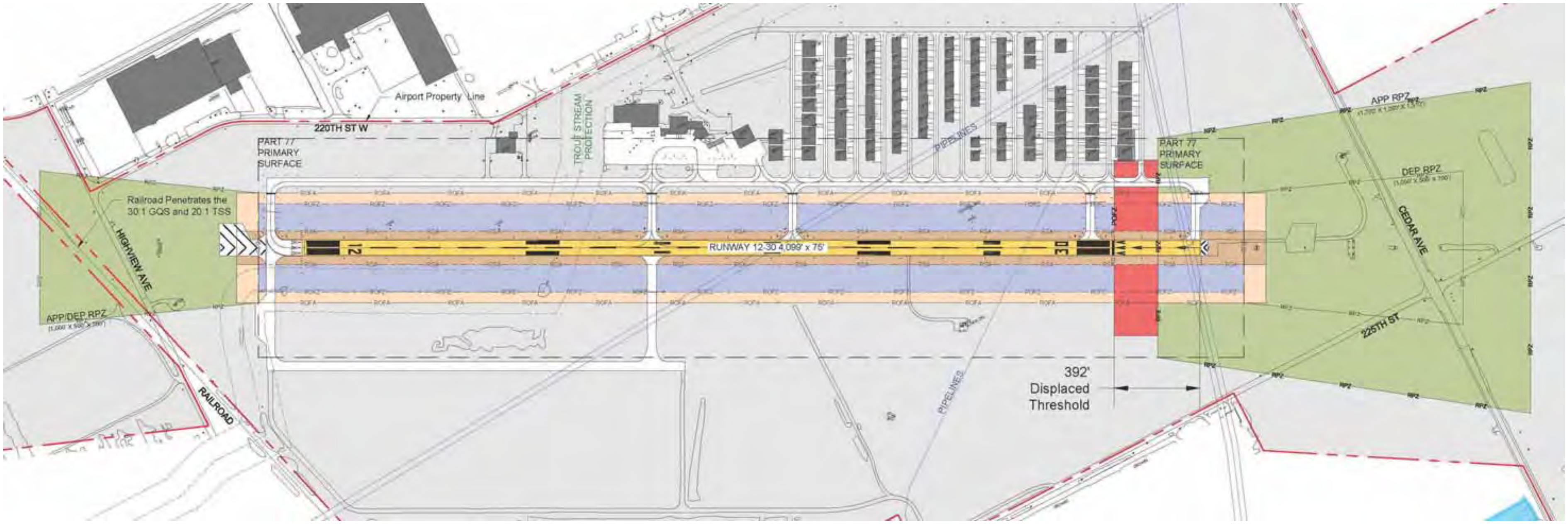
Section 2- Proposed Change

As result of changes in FAA airport design standards, the runway extension concept proposed in the previous 2025 Airlake Airport LTCP no longer meets the required design criteria. During the development of the 2035 LTCP the MAC, while recognizing the more restrictive design standards, explored various design concepts to gain efficiencies while considering the off airport geometrical constraints of Cedar Avenue to the east and the railroad tracks to the west. One of the concepts considered was runway extensions along with the application and publication of declared distances. This would maximize the utility of the airport's physical footprint in a manner that complies with FAA design standards. Declared distances are the distances the airport owner, with agreement from the ADO, declares available for use in meeting an airplane's takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements. Declared distances are used throughout the NAS and have been vetted through the Safety Management System (SMS) process on a national level. However, this assessment was recommended to evaluate the operational impact, and determine if there are risks with implementation that are specific to Airlake Airport.

Definitions:

- Takeoff Run Available (TORA) – the distance to accelerate from brake release to lift-off
- Takeoff Distance Available (TODA) – the distance to accelerate from brake release past lift-off to start takeoff climb
- Accelerate-Stop Distance Available (ASDA) – the distance to accelerate from brake release to rotation speed and then decelerate to a stop
- Landing Distance Available (LDA) – the distance from the threshold to complete the approach, touchdown, and decelerate to a stop

Exhibit 1: Current Airfield Configuration



5

The panel considered the following change:

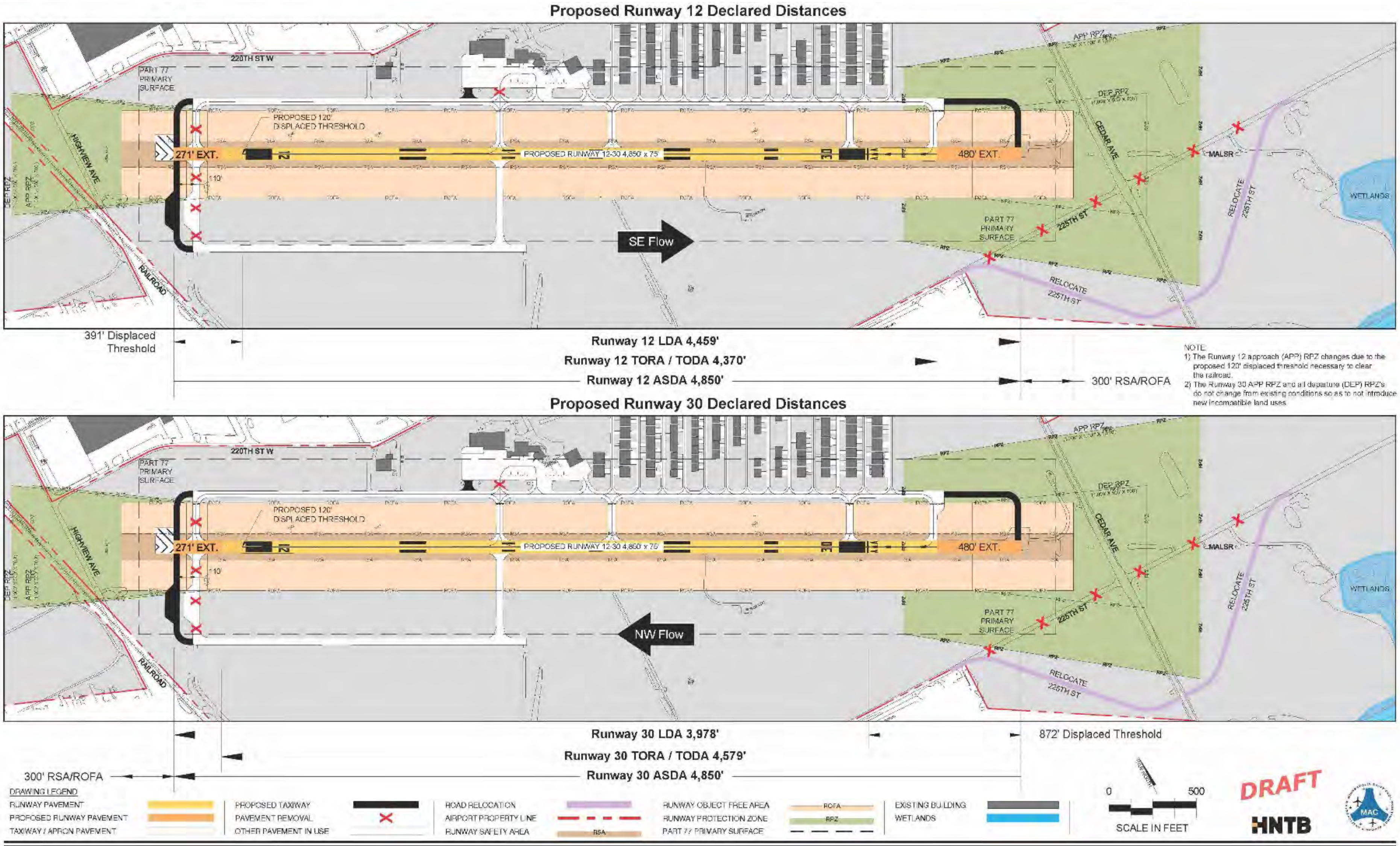
> Runway extensions of 271 feet on the Runway 12 end and 480 feet on the Runway 30 end. The Runway 30 landing threshold would remain in the current location. In order to avoid relocating the existing RPZs or the TERPS 40:1 Instrument Departure Surface, declared distances would be applied and published as illustrated in Figure 2. Further, a section of 225th Street along the southern boundary of the airfield would be relocated to clear the 14 CFR Part 77 Primary Surface and the RPZ. Finally, the Runway 12 threshold would be displaced to remove the 20:1 Straight-In Visual Approach Surface penetration created by the railroad track. As a by-product of the displacement, the location of the Runway 12 Approach RPZ would shift slightly as it is tethered to the threshold location.

The proposed airfield configuration is shown in **Exhibit 2**.

A summary of the runway lengths provided by the declared distance concept, compared to the existing runway length, is provided below:

	Existing Runway		**Declared Distance Concept**	
	12	**30**	**12**	**30**
Landing Distance Available (LDA)	4,099'	3,707'	4,579'	3,978'
Takeoff Run Available (TORA)	4,099'	4,099'	4,370'	4,579'
Takeoff Distance Available (TODA)	4,099'	4,099'	4,370'	4,579'
Accelerate-Stop Distance Available (ASDA)	4,099'	4,099'	4,850'	4,850'

Exhibit 2: Proposed Airfield Configuration



7

Section 3- Operational Assessment Panel

Neil Ralston, Change proponent

Neil is currently serves as the Airport Planner for the Metropolitan Airports Commission of Minneapolis-Saint Paul (MAC), a position he assumed in June 2014. In this role, Neil is responsible for coordinating planning initiatives for the MAC's system of seven airports, including Minneapolis-Saint Paul International Airport (MSP) and six reliever facilities.

Neil began his career in 1998 by serving as an Airport Operations Supervisor at the Gulfport/Biloxi International Airport (GPT) in Gulfport, MS. Next, he moved to Milwaukee, WI to serve as the Noise Abatement Analyst for General Mitchell International Airport (MKE). Between 2000 and 2005, Neil worked for Crawford, Murphy & Tilly (CMT) consulting engineers in Springfield, IL as an Aviation Planner. Between 2006 and 2008, he worked for the Indianapolis Airport Authority (IAA) as the Planner for their system of airports. Before joining the MAC, Neil served on the management team at the Colorado Springs Airport (COS) as the Planning & Development Manager (2008 – 2013) and Interim Assistant Aviation Director for Planning & Development (2013 – 2014). Neil has attained the Accredited Airport Executive (AAE) designation from the American Association of Airport Executives (AAAE) and is also a licensed commercial pilot with an instrument rating.

Greg Albjerg, PE

Greg is HNTB's national aviation planning leader. He is recognized industry-wide for his airspace and air traffic expertise and has prior experience as an FAA air traffic controller. He is also a registered professional engineer and an active licensed pilot with instrument rating.

Audry Wald

Audrey has nearly 28 years of experience with airport planning, engineering and environmental projects. She has worked on master plans, airport layout plans, environmental assessments, DBE programs, site selections and feasibility studies. She has her private pilot's license and is a member of the Minnesota Council of Airports.

Todd Wright

Todd Wright is an experienced aviation planner with expertise in airspace analysis, airport planning and design, and navigational aid siting. He has over 13 years of experience and brings specific expertise to aviation planning due to his thorough understanding of instrument approach/departure procedures. Todd's experience spans coast to coast at airports of all sizes.

Russ Owen

Russ Owen serves as Sr. Aviation Planner for the Metropolitan Council. He has been with the Council for 5 years, and previously spent 8 years as a consultant for a national Architectural and Engineering firm as an airport planner. He has been involved in Master Plans, Site Studies, environmental documentation, spaceport licensing, ALP work and ATC siting work.

Patrick Halligan

He was born and raised in north Minneapolis. He took his private pilot lessons at Anoka County Airport. Patrick attended the University of North Dakota, majoring in aviation and after graduating he taught flying lessons at Flying Cloud Airport.

He was picked for a MN Air National Guard pilot slot in 1978. He Flew T-37's and T-38's in pilot training and then the C-130 for the MN Air Guard. He was hired by Republic Airlines in 1980, merged with Northwest and then Delta. He retired after 32 years, in 2012, as an Airbus captain. He flies his own C-182 that is based at LVN. Patrick built and owned a hangar at LVN back in the 1990's. He now rents a hangar at KLVN. EAA Chapter 25 has a hangar on the field. He is a member and was representing their interests.

Randy Schoephoerster

Randy is the owner of Air Trek North Flight School & Maintenance at KFCM, KLVN, KSGS Airports. He serves as President of the MN Seaplane Pilots Association. Randy is a FAASTeam Lead Representative and field Director of the National Seaplane Pilots Association.

He is certified as ATP AMEL, ATP ASES, ATP ASEL, Gold Seal Flight Instructor, and has 10,000 hours of pilot total time.

Previously he has served as Marketing and Engineering Director at Emerson Electric, Shakopee City Commissioner, and VP MN Seaplane Pilots Association.

Randy received a Bachelor of Science in Electrical Engineering at NDSU and a MBA Marketing at University of St. Thomas.

Gina Mitchell

She is a Community Planner with the Dakota-Minnesota ADO, Minneapolis Office. Gina has been with the ADO over three years, and she works primarily on airport master planning projects and capital improvement planning for large airport development projects. Prior to joining FAA, she worked for eight years at a consulting firm managing airport, highway, and land use planning projects, and ten years in city and county government in the areas of land use and transportation planning. She is an accredited American Institute of Certified Planner (AICP).

Pat Mosites

He serves on the MAC Airport Development Staff as a Construction project Manager for airfield projects for MSP and our 7 Relievers airfields. He participates in the planning and execution of these projects making sure that all aspects of FAA safety requirements are fulfilled. He has a Bachelor of Science degree in Civil Engineering and has been at the MAC since Jan 2000.

Tom Fitzhenry

He serves as Director of Counterdrug Operations MN wing and Assistant Director of Emergency Services MN wing. Previously Tom was the Commander of the 130th squadron at KLVN. He serves as City Council member for the City of Richfield and has been a Council member ward from 2008. Tom Cochair's the MAC noise oversight committee. He is a mission pilot and owns a hangar at the Airlake Airport. He is a member of the EAA chapter 25. Tom is a retired Air National Guard Air Traffic Controller serving at KANE ATC (ANG), KANE Rapcon Chief (ANG), and working in TERPS (ANG).

Additional members extensive backgrounds and experience representing Airports District Office (ADO), FAA Flight Standards District Office (FSDO), Airlake Fixed Base Operator (FBO), and Minnesota Department of Aeronautics (MNDOT).

Nancy Nistler:	FAA ADO
Mike Wilson:	KLVN MAC Airport Manager
Chris Meyer:	MNDOT
Rylan Juran:	MNDOT
Lindsay Butler:	FAA ADO
Lindsay Reidt:	SEH Construction Services
Mark Mantley:	MAC
John Ostrom:	MAC
Tony Fiorollo:	Waypoint Flight Services: on-demand charter, aircraft service, aircraft sales and rentals, aircraft fuel and storage, maintenance.

Facilitator: William Ratts

William currently serves as the Northern Planes District Safety Risk Management Focal, Air Traffic Organization, FAA. He is employed as an Operation Supervisor at Flying Cloud Air Traffic Control Tower, and has pilot experience in part 121, 135, and 91 operations. He continues to fly fixed wing turbine aircraft in a corporate aviation setting.

Section 4- Operational Assessment Panel Findings

The panel analyzed the potential benefit and unintended negative consequences of the implementation of declared distances. Listed below is the panel's finding broken into the appropriate categories.

Positive consequences:

1. The use of declared distances would aid in maximizing the runway footprint with in the surrounding geographical constraints.
2. This proposed change would provide a more efficient way to utilize the runway.
3. This approach is a realistic, feasible alternative. This design concept would have a diminished impact on surrounding area and community compared to other proposals. With that in mind, the panel recognized a comparative cost savings and viewed this as a fiscally viable solution.
4. The use of displaced thresholds located at both ends would be a visible image to pilots showing that obstructions were present therefore allowing them to adjust flight path accordingly.
5. The proposed change would increase safety margins for larger aircraft/ jet operations.
6. Increased runway use would positively impact revenue for the airport and community.
7. Compared to other design concepts, the panel believed that there would be less environmental impact.
8. The 20:1 visual surface that is currently impeded with the railroad west of the airport would be rectified.
9. There would be a reduction in frangible MALSR lights and an increase in in-pavement lighting, resulting in fewer above-ground objects within the RPZ.

Negative Consequences (with discussed assessment by the panel):

1. Pilots unfamiliar with the airport making midfield takeoffs/intersection departures wouldn't realize where the end of the TORA/TODA occurs.
    a. This is a condition that already exists in the NAS and is not really impacted by the use of declared distances.
2. Stop-n-go's could occur more often because of the increased runway length.
    a. This in a condition that already exists in the NAS. Other aircraft in the traffic pattern are of more concern than declared distances would be.
3. The panel recognized there could be confusion with an average non-professional pilot who has base level knowledge. There was also concern, albeit less, that there could be misapplication of declared distances with a professional pilot.

4. Lack of education/understanding of the declared distances concept, could lead to more incidents occurring at the airport.
    a. General consensus was that this can be alleviated with educational initiatives.
5. There would be additional mitigation costs (signage/markings/additional Taxiways) associated with a declared distance alternative.
    a. Operational impact, however there is no safety risks associated.
6. Transient aircraft operations could be decreased if pilots are concerned with the complexity of declared distances.
    a. The panel believed this was an operational impact only and would not degrade the level of safety.
7. Physical relocation of 225th Street.
    a. This was determined to pose no safety risk and the panel agreed to only consider post implementation issues. This would be evaluated during the environmental process associated with the runway alternative.
8. There are concerns about jet blast being closer to the localizer antenna.
    a. This was determined to pose no safety risk.
9. A lack of an Air Traffic Control Tower means pilots are making decisions about operations and could be unfamiliar with the airport environs.
    a. The panel believed that this already exists and therefore would be no additional resultant risk associated with the use of declared distances.
10. The proposed change does not address existing 14 CFR Part 77 primary surface penetrations (hangars located on the north side).
    a. This condition already exists today and is not a result of the implementation of declared distances.
11. The longer runway may cause a change in the fleet mix lessening the likelihood Airlake would remain a recreational airport.
    a. The panel believed the MAC should consider the impact to the fleet mix that other airports have had when lengthening a runway, however, it was agreed that there was no operational impact.
12. As the runway ends are extended the pavement will be closer to off-airport obstructions (roads/railroad).

a. The changes would still comply with all applicable FAA design standards.

13. No required visual indication (i.e. signage/marking) of TORA/TODA limitation.

    a. Signage, while not mandated, can be used to provide visual representation of limitations.

14. Operators may push the limits of the new runway length.

    a. This condition already exists today and is not a result of the implementation of declared distances.

Section 5- Mitigation Recommendations:

The panel, while conscientious of the operational impacts to stakeholders and the community, placed a high regard towards ensuring that the safety of the NAS not be degraded. The panel members believed that the implementation of DD's at Airlake Airport created an acceptable risk. However, when possible, an effort was placed to reduce risk further through the following mitigation strategies.

1. Declared distance signage
    a. Declared distance informational signage on parallel taxiway.
    b. Consider declared distance informational signage on the runway as long as is not deemed a distraction to pilots.
2. Automated Weather Observations System (AWOS) should carry an informational message informing pilots that declared distances are in use.
3. Issuance of FDC NOTAM.
4. Addition of remarks referencing the declared distances in the 5010.
5. Change the airport diagram, applicable charts, and instrument approach plates to reflect the declared distances.
6. Identify the connector taxiways with appropriate signage.
7. Addition of a taxiway connector at Runway 12 displaced threshold to provide a visual cue as to location of Runway 30 TORA/TODA end.
8. Consider the effectiveness of a grooved runway.
9. Educational considerations:
    a. Local outreach
        i. Tenant letter
        ii. Informational flyer in lease review and posted in FBO building
        iii. Emails
        iv. EAA groups

v. Civil Air Patrol (CAP)

b. FAASTeam training

c. MN/DOT zero aviation death initiative.

10. Consider best practices from other reliever airports that have experienced growth.

11. Evaluate changing class G airspace to controlled class E airspace.

12. Review historical NTSB reports for aviation accidents/incidents in the vicinity of LVN to better understand the nature of these events in relation to the proposed airfield improvements

Section 6- Summary

At the beginning of the assessment panel members were asked to state whether they were for, against, or neutral towards the implementation of declared distances at Airlake airport. At the conclusion of the panel each member was asked to state their position again, and the results are as follows:

Todd (HNTB)- in favor/same	Randy(Air Trek)-neutral/neutral	Tom(CAP)-neutral/leaning in favor
Greg(HNTB)-in favor/not present	Tony(Waypoint)-in favor/not present	Glenn(RAAC)-neutral/leaning in favor
Patrick(EAA 25)-in favor/same	Chris(MnDOT)-neutral/neutral	Lindsay(FAA ADO)-in favor/same
Pat(MAC)- in favor/same	Ryan(MnDOT)-neutral/neutral	Gina(FAA ADO)-neutral/in favor
Nancy(FAA ADO)-neutral/in favor	Mark(MAC)-in favor/same	Audrey(HNTB)-in favor/ not present
Kevin(FAA FSDO)-neutral/in favor	Neil(MAC)-in favor/same	Lindsa(SEH)-neutral/in favor
Mike(MAC)-in favor/same	John(MAC)-neutral/in favor	Russ(Met Council)-neutral/in favor

*Panel member's positions at the conclusion are in red.

In conclusion, the panel has completed a thorough consideration of the implications of declared distances at the Airlake Airport. Subsequently there have been no dissenting opinions stated.

William Ratts

10/10/2016

William Ratts
Northern Planes SRM Focal
Air Traffic Organization, FAA

Date

PAGE INTENTIONALLY LEFT BLANK

Appendix 7: Noise Contour Input Details

PAGE INTENTIONALLY LEFT BLANK

Table A7-1
Baseline Condition Average Daily Flight Operations

Aircraft Type	Aircraft ID	Arrivals			Departures			Touch and Gos			Total Operations		
		Day	Night	Total	Day	Night	Total	Day	Night	Total	Day	Night	Total
Helicopter		*1.22*	*0.52*	*1.74*	*1.51*	*0.23*	*1.74*	*0.35*	*-*	*0.35*	*3.09*	*0.74*	*3.83*
Agusta 109	A109	1.22	0.47	1.69	1.51	0.18	1.69	0.35	-	0.35	3.09	0.65	3.74
Robinson R22	R22	-	0.05	0.05	-	0.05	0.05	-	-	-	-	0.09	0.09
Multi-Engine Piston		*0.82*	*0.04*	*0.86*	*0.81*	*0.05*	*0.86*	*0.28*	*-*	*0.28*	*1.91*	*0.09*	*2.00*
Commander 500	AC50	-	-	-	*0.01*	-	*0.01*	-	-	-	0.01	-	0.01
Beechcraft Baron BE-55	BEC55	0.06	0.01	0.07	0.06	-	0.06	0.14	-	0.14	0.27	0.01	0.28
Beechcraft Baron BE-58	BEC58	0.16	-	0.16	0.13	-	0.13	0.14	-	0.14	0.44	-	0.44
P-68 Observer	BEC58P	0.19	-	0.19	0.22	-	0.22	-	-	-	0.41	-	0.41
Beechcraft Duke Twin	BEC60	0.01	-	0.01	0.01	-	0.01	-	-	-	0.02	-	0.02
Beechcraft Duchess Twin	BEC76	-	-	-	0.01	-	0.01	-	-	-	0.01	-	0.01
Cessna 310 Twin	CNA310	0.02	0.01	0.03	0.03	0.01	0.03	-	-	-	0.05	0.01	0.06
Cessna Twin 335	CNA335	0.01	-	0.01	0.01	-	0.01	-	-	-	0.01	-	0.01
Cessna 340 Twin	CNA340	0.02	-	0.02	0.02	0.01	0.02	-	-	-	0.04	0.01	0.05
Cessna 414 Twin	CNA414	0.12	0.01	0.13	0.11	0.02	0.13	-	-	-	0.23	0.03	0.26
Cessna Golden Eagle 421	CNA421	0.12	0.01	0.13	0.13	0.01	0.14	-	-	-	0.26	0.02	0.27
Diamond Twin Star	DA42	0.01	-	0.01	-	-	-	-	-	-	0.01	-	0.01
Grumman Cougar	GA7	0.01	-	0.01	0.01	-	0.01	-	-	-	0.02	-	0.02
Piper Aztec Twin	PA23AZ	0.01	-	0.01	0.01	-	0.01	-	-	-	0.01	-	0.01
Piper Navajo Twin	PA31	0.02	0.01	0.03	0.02	0.01	0.03	-	-	-	0.04	0.02	0.06
Piper Seneca Twin	PA34	0.02	-	0.02	0.02	-	0.02	-	-	-	0.05	-	0.05
Piper Seminole Twin	PA44	0.03	-	0.03	0.02	-	0.02	-	-	-	0.05	-	0.05
Single-Engine Piston		*25.77*	*1.16*	*26.93*	*25.91*	*1.02*	*26.93*	*19.39*	*0.15*	*19.54*	*71.07*	*2.33*	*73.40*
Grumman American Cheetah	AA5A	-	-	-	0.04	-	0.04	-	-	-	0.04	-	0.04
Beechcraft Musketeer	BEC23	-	-	-	0.04	-	0.04	-	-	-	0.04	-	0.04
Beechcraft Sierra/Sundowner	BEC24	0.04	-	0.04	0.04	-	0.04	-	-	-	0.08	-	0.08
Beechcraft Debonair/Bonanza	BEC33	0.40	-	0.40	0.20	0.04	0.23	-	-	-	0.60	0.04	0.63
Beechcraft Bonanza 35	BECM35	3.34	0.04	3.38	3.79	0.20	3.99	-	-	-	7.13	0.23	7.37
Bellanca Super Viking	BL26	0.11	-	0.11	0.08	-	0.08	-	-	-	0.19	-	0.19
Cessna 150	CNA150	0.15	-	0.15	0.16	-	0.16	-	-	-	0.30	-	0.30
Cessna 152	CNA152	0.18	-	0.18	0.08	-	0.08	-	-	-	0.26	-	0.26
Cessna Skyhawk 172	CNA172	4.87	0.40	5.27	5.32	0.12	5.43	4.85	0.10	4.95	15.03	0.62	15.65
Cessna Cardinal 177	CNA177	0.29	-	0.29	0.39	0.04	0.43	-	-	-	0.68	0.04	0.72
Cessna Skywagon 180	CNA180	0.11	-	0.11	-	-	-	-	-	-	0.11	-	0.11
Cessna Skylane 182	CNA182	2.40	0.04	2.43	2.42	0.12	2.54	2.42	-	2.42	7.25	0.15	7.40
Cessna 185	CNA185	0.04	-	0.04	0.04	-	0.04	-	-	-	0.08	-	0.08
Cessna 206	CNA206	0.65	-	0.65	0.63	-	0.63	-	-	-	1.28	-	1.28
Cessna Centurion 210	CNA210	0.84	-	0.84	0.86	0.04	0.90	-	-	-	1.70	0.04	1.73
GA Single Engine Propeller Fixed	GASEPF	0.73	0.11	0.84	0.47	-	0.47	2.42	0.05	2.48	3.62	0.16	3.78
GA Single Engine Propeller Variable	GASEPV	1.96	0.07	2.04	1.72	-	1.72	2.42	-	2.42	6.11	0.07	6.18
Lake LA-4-200 Buccaneer	LA42	-	-	-	0.08	-	0.08	-	-	-	0.08	-	0.08
Mooney M-20	M20J	0.98	0.04	1.02	0.94	0.04	0.98	2.42	-	2.42	4.34	0.08	4.42
Piper Comanche	PA24	0.18	-	0.18	0.20	-	0.20	-	-	-	0.38	-	0.38
Piper Cherokee	PA28	3.42	0.33	3.74	3.40	0.27	3.67	-	-	-	6.82	0.60	7.42
Piper Arrow	PA28CA	0.51	0.04	0.55	0.47	-	0.47	-	-	-	0.98	0.04	1.01
Piper Warrior	PA28CH	1.02	-	1.02	0.94	-	0.94	-	-	-	1.96	-	1.96
Piper Cherokee Dakota	PA28DK	0.11	-	0.11	0.04	-	0.04	-	-	-	0.15	-	0.15
Piper Cherokee Six	PA32C6	0.04	-	0.04	-	-	-	-	-	-	0.04	-	0.04
Piper Lance/Saratoga	PA32SG	0.69	-	0.69	0.63	-	0.63	2.42	-	2.42	3.74	-	3.74
Piper Tomahawk	PA38	0.04	-	0.04	0.08	-	0.08	-	-	-	0.11	-	0.11
Piper Malibu	PA46	0.11	-	0.11	0.12	-	0.12	-	-	-	0.23	-	0.23
Rockwell Aero Commander 112	RWCM12	0.11	-	0.11	0.12	-	0.12	-	-	-	0.23	-	0.23
Cirrus SR-22	SR22	2.47	0.11	2.58	2.66	0.16	2.81	2.42	-	2.42	7.55	0.27	7.82
Turboprop		*0.32*	*0.05*	*0.37*	*0.34*	*0.04*	*0.37*	*-*	*-*	*-*	*0.66*	*0.08*	*0.74*
Beechcraft 1900	1900D	0.00	-	0.00	0.00	-	0.00	-	-	-	0.01	-	0.01
Beechcraft King Air 200	BEC200	0.03	0.01	0.04	0.04	0.00	0.04	-	-	-	0.07	0.01	0.08
Beechcraft Super King Air 350/300B	BEC30B	0.05	0.02	0.07	0.05	0.03	0.07	-	-	-	0.09	0.05	0.15
Beechcraft King Air 90	BEC90	0.03	-	0.03	0.04	-	0.04	-	-	-	0.07	-	0.07
Beechcraft Super King Air F90	BEC9F	0.01	-	0.01	0.01	-	0.01	-	-	-	0.02	-	0.02
Cessna 208	CNA208	0.03	0.01	0.04	0.03	-	0.03	-	-	-	0.06	0.01	0.07
Cessna Conquest 441	CNA441	0.01	-	0.01	0.01	-	0.01	-	-	-	0.01	-	0.01
De Havilland DH-6	DHC6	0.00	-	0.00	-	-	-	-	-	-	0.00	-	0.00
De Havilland DHC8	DHC8	0.00	-	0.00	0.00	-	0.00	-	-	-	0.01	-	0.01
Mitsubishi MU-2	MU2	0.00	-	0.00	0.00	-	0.00	-	-	-	0.01	-	0.01
Piper Malibu Meridian	P180	0.00	-	0.00	-	-	-	-	-	-	0.00	-	0.00
Piper PA-31T-2 Cheyenne I/II	PA31T	0.00	-	0.00	0.01	-	0.01	-	-	-	0.01	-	0.01
Pilatus PC-12	PC12	0.07	0.01	0.08	0.08	0.00	0.09	-	-	-	0.16	0.01	0.17
Rockwell Turbo Commander 690	RWCM69	0.00	-	0.00	-	-	-	-	-	-	0.00	-	0.00
Socata TBM 700	STBM7	0.07	-	0.07	0.07	-	0.07	-	-	-	0.14	-	0.14
Jets		*0.25*	*0.02*	*0.28*	*0.24*	*0.04*	*0.28*	*-*	*-*	*-*	*0.49*	*0.06*	*0.55*
Raytheon Beechjet 400	BEC400	0.01	-	0.01	0.01	-	0.01	-	-	-	0.01	-	0.01
Cessna Citation I Single Pilot Twin Jet	CNA501	0.04	0.00	0.04	0.03	0.01	0.04	-	-	-	0.07	0.01	0.08
Cessna Citation Mustang	CNA510	0.07	0.00	0.07	0.07	-	0.07	-	-	-	0.14	0.00	0.15
Cessna Citation Jet 525	CNA525C	0.05	0.01	0.06	0.03	0.02	0.05	-	-	-	0.09	0.03	0.11
Cessna Citation 550 Citation II	CNA550	0.00	-	0.00	0.00	-	0.00	-	-	-	0.01	-	0.01
Cessna Citation Jet 550	CNA55B	0.01	0.01	0.02	0.02	0.00	0.02	-	-	-	0.03	0.01	0.04
Cessna 560 Ultra Encore	CNA560E	0.00	-	0.00	0.00	-	0.00	-	-	-	0.01	-	0.01
Cessna 560 Ultra	CNA560U	0.01	-	0.01	0.01	-	0.01	-	-	-	0.02	-	0.02
Cessna 560XL Citation Excel	CNA560XL	0.01	-	0.01	0.01	-	0.01	-	-	-	0.02	-	0.02
Cessna Citation Jet 650	CNA650	0.05	0.00	0.05	0.05	0.01	0.05	-	-	-	0.09	0.01	0.10
Cessna 750 Citation X	CNA750	-	-	-	0.00	-	0.00	-	-	-	0.00	-	0.00
IAI 1123 Westwind	IA1124	0.00	-	0.00	0.00	-	0.00	-	-	-	0.01	-	0.01
Learjet 45 Twin Jet	LEAR45	0.00	-	0.00	0.00	-	0.00	-	-	-	0.01	-	0.01
Total		**28.38**	**1.79**	**30.18**	**28.81**	**1.37**	**30.18**	**20.02**	**0.15**	**20.18**	**77.22**	**3.31**	**80.53**

Note: Total may not add due to rounding.

Source: MACNOMS Data Analysis, HNTB Activity Forecasts

Table A7-2
2035 Preferred Alternative Condition Average Daily Flight Operations

Aircraft Type	Aircraft ID	Arrivals			Departures			Touch and Gos			Total Operations		
		Day	Night	Total	Day	Night	Total	Day	Night	Total	Day	Night	Total
Helicopter		*2.13*	*0.90*	*3.03*	*2.63*	*0.39*	*3.03*	*0.60*	*-*	*0.60*	*5.36*	*1.29*	*6.66*
Agusta 109	A109	2.13	0.82	2.94	2.63	0.31	2.94	0.60	-	0.60	5.36	1.13	6.49
Robinson R22	R22	-	0.08	0.08	-	0.08	0.08	-	-	-	-	0.16	0.16
Multi-Engine Piston		*0.69*	*0.03*	*0.73*	*0.68*	*0.04*	*0.73*	*0.24*	*-*	*0.24*	*1.62*	*0.08*	*1.70*
Commander 500	AC50	-	-	-	*0.00*	-	*0.00*	-	-	-	0.00	-	0.00
Beechcraft Baron BE-55	BEC55	0.05	0.00	0.06	0.05	-	0.05	0.12	-	0.12	0.23	0.00	0.23
Beechcraft Baron BE-58	BEC58	0.14	-	0.14	0.11	-	0.11	0.12	-	0.12	0.37	-	0.37
P-68 Observer	BEC58P	0.16	-	0.16	0.19	-	0.19	-	-	-	0.35	-	0.35
Beechcraft Duke Twin	BEC60	0.01	-	0.01	0.00	-	0.00	-	-	-	0.01	-	0.01
Beechcraft Duchess Twin	BEC76	-	-	-	0.00	-	0.00	-	-	-	0.00	-	0.00
Cessna 310 Twin	CNA310	0.02	0.00	0.02	0.02	0.00	0.03	-	-	-	0.04	0.01	0.05
Cessna Twin 335	CNA335	0.00	-	0.00	0.00	-	0.00	-	-	-	0.01	-	0.01
Cessna 340 Twin	CNA340	0.02	-	0.02	0.01	0.00	0.02	-	-	-	0.03	0.00	0.04
Cessna 414 Twin	CNA414	0.10	0.01	0.11	0.09	0.01	0.11	-	-	-	0.19	0.02	0.22
Cessna Golden Eagle 421	CNA421	0.10	0.00	0.11	0.11	0.01	0.12	-	-	-	0.22	0.01	0.23
Diamond Twin Star	DA42	0.00	-	0.00	-	-	-	-	-	-	0.00	-	0.00
Grumman Cougar	GA7	0.00	-	0.00	0.01	-	0.01	-	-	-	0.01	-	0.01
Piper Aztec Twin	PA23AZ	0.00	-	0.00	0.00	-	0.00	-	-	-	0.01	-	0.01
Piper Navajo Twin	PA31	0.01	0.01	0.02	0.02	0.01	0.03	-	-	-	0.03	0.02	0.05
Piper Seneca Twin	PA34	0.02	-	0.02	0.02	-	0.02	-	-	-	0.04	-	0.04
Piper Seminole Twin	PA44	0.02	-	0.02	0.01	-	0.01	-	-	-	0.04	-	0.04
Single-Engine Piston		*23.97*	*1.08*	*25.05*	*24.10*	*0.95*	*25.05*	*18.19*	*-*	*18.19*	*66.26*	*2.03*	*68.28*
Grumman American Cheetah	AA5A	-	-	-	0.04	-	0.04	-	-	-	0.04	-	0.04
Beechcraft Musketeer	BEC23	-	-	-	0.04	-	0.04	-	-	-	0.04	-	0.04
Beechcraft Sierra/Sundowner	BEC24	0.03	-	0.03	0.04	-	0.04	-	-	-	0.07	-	0.07
Beechcraft Debonair/Bonanza	BEC33	0.37	-	0.37	0.18	0.04	0.22	-	-	-	0.55	0.04	0.59
Beechcraft Bonanza 35	BECM35	3.11	0.03	3.14	3.53	0.18	3.71	-	-	-	6.64	0.22	6.85
Bellanca Super Viking	BL26	0.10	-	0.10	0.07	-	0.07	-	-	-	0.17	-	0.17
Cessna 150	CNA150	0.14	-	0.14	0.15	-	0.15	-	-	-	0.28	-	0.28
Cessna 152	CNA152	0.17	-	0.17	0.07	-	0.07	-	-	-	0.24	-	0.24
Cessna Skyhawk 172	CNA172	4.53	0.37	4.90	4.94	0.11	5.05	-	-	-	9.47	0.48	9.95
Cessna Cardinal 177	CNA177	0.27	-	0.27	0.36	0.04	0.40	-	-	-	0.63	0.04	0.67
Cessna Skywagon 180	CNA180	0.10	-	0.10	-	-	-	-	-	-	0.10	-	0.10
Cessna Skylane 182	CNA182	2.23	0.03	2.26	2.25	0.11	2.36	2.27	-	2.27	6.76	0.14	6.90
Cessna 185	CNA185	0.03	-	0.03	0.04	-	0.04	-	-	-	0.07	-	0.07
Cessna 206	CNA206	0.61	-	0.61	0.58	-	0.58	-	-	-	1.19	-	1.19
Cessna Centurion 210	CNA210	0.78	-	0.78	0.80	0.04	0.84	-	-	-	1.58	0.04	1.61
GA Single Engine Propeller Fixed	GASEPF	0.68	0.10	0.78	0.44	-	0.44	2.27	-	2.27	3.39	0.10	3.49
GA Single Engine Propeller Variable	GASEPV	1.83	0.07	1.89	1.60	-	1.60	2.27	-	2.27	5.70	0.07	5.77
Lake LA-4-200 Buccaneer	LA42	-	-	-	0.07	-	0.07	-	-	-	0.07	-	0.07
Mooney M-20	M20J	0.91	0.03	0.95	0.87	0.04	0.91	2.27	-	2.27	4.06	0.07	4.13
Piper Comanche	PA24	0.17	-	0.17	0.18	-	0.18	-	-	-	0.35	-	0.35
Piper Cherokee	PA28	3.18	0.30	3.48	3.16	0.25	3.42	4.55	-	4.55	10.89	0.56	11.45
Piper Arrow	PA28CA	0.47	0.03	0.51	0.44	-	0.44	-	-	-	0.91	0.03	0.94
Piper Warrior	PA28CH	0.95	-	0.95	0.87	-	0.87	-	-	-	1.82	-	1.82
Piper Cherokee Dakota	PA28DK	0.10	-	0.10	0.04	-	0.04	-	-	-	0.14	-	0.14
Piper Cherokee Six	PA32C6	0.03	-	0.03	-	-	-	-	-	-	0.03	-	0.03
Piper Lance/Saratoga	PA32SG	0.64	-	0.64	0.58	-	0.58	2.27	-	2.27	3.50	-	3.50
Piper Tomahawk	PA38	0.03	-	0.03	0.07	-	0.07	-	-	-	0.11	-	0.11
Piper Malibu	PA46	0.10	-	0.10	0.11	-	0.11	-	-	-	0.21	-	0.21
Rockwell Aero Commander 112	RWCM12	0.10	-	0.10	0.11	-	0.11	-	-	-	0.21	-	0.21
Cirrus SR-22	SR22	2.30	0.10	2.40	2.47	0.15	2.62	2.27	-	2.27	7.04	0.25	7.29
Turboprop		*0.90*	*0.13*	*1.04*	*0.94*	*0.10*	*1.04*	*-*	*-*	*-*	*1.84*	*0.23*	*2.07*
Beechcraft 1900	1900D	0.01	-	0.01	0.01	-	0.01	-	-	-	0.02	-	0.02
Beechcraft King Air 200	BEC200	0.09	0.02	0.11	0.10	0.01	0.11	-	-	-	0.19	0.03	0.22
Beechcraft Super King Air 350/300B	BEC30B	0.13	0.07	0.20	0.13	0.08	0.21	-	-	-	0.26	0.15	0.41
Beechcraft King Air 90	BEC90	0.08	-	0.08	0.12	-	0.12	-	-	-	0.19	-	0.19
Beechcraft Super King Air F90	BEC9F	0.03	-	0.03	0.03	-	0.03	-	-	-	0.05	-	0.05
Cessna 208	CNA208	0.09	0.03	0.13	0.08	-	0.08	-	-	-	0.17	0.03	0.21
Cessna Conquest 441	CNA441	0.02	-	0.02	0.02	-	0.02	-	-	-	0.03	-	0.03
De Havilland DH-6	DHC6	0.01	-	0.01	-	-	-	-	-	-	0.01	-	0.01
De Havilland DHC8	DHC8	0.01	-	0.01	0.01	-	0.01	-	-	-	0.02	-	0.02
Mitsubishi MU-2	MU2	0.01	-	0.01	0.01	-	0.01	-	-	-	0.02	-	0.02
Piper Malibu Meridian	P180	0.01	-	0.01	-	-	-	-	-	-	0.01	-	0.01
Piper PA-31T-2 Cheyenne I/II	PA31T	0.01	-	0.01	0.02	-	0.02	-	-	-	0.03	-	0.03
Pilatus PC-12	PC12	0.21	0.02	0.23	0.23	0.01	0.24	-	-	-	0.44	0.03	0.47
Rockwell Turbo Commander 690	RWCM69	0.01	-	0.01	-	-	-	-	-	-	0.01	-	0.01
Socata TBM 700	STBM7	0.20	-	0.20	0.19	-	0.19	-	-	-	0.39	-	0.39
Jets		*3.41*	*0.34*	*3.75*	*3.26*	*0.49*	*3.75*	*-*	*-*	*-*	*6.67*	*0.82*	*7.49*
Raytheon Beechjet 400	BEC400	0.07	-	0.07	0.07	-	0.07	-	-	-	0.15	-	0.15
Cessna Citation I Single Pilot Twin J	CNA501	0.28	0.02	0.30	0.23	0.06	0.29	-	-	-	0.51	0.08	0.59
Cessna Citation Mustang	CNA510	0.26	-	0.26	0.25	-	0.25	-	-	-	0.51	-	0.51
Cessna Citation Jet 525	CNA525C	0.04	0.00	0.04	0.02	0.01	0.03	-	-	-	0.06	0.02	0.07
Cessna Citation Jet 550	CNA55B	0.32	0.24	0.56	0.46	0.08	0.54	-	-	-	0.78	0.32	1.10
Cessna 560 Ultra	CNA560U	0.60	-	0.60	0.39	0.19	0.58	-	-	-	0.98	0.19	1.17
Cessna 560XL Citation Excel	CNA560XL	0.52	-	0.52	0.51	-	0.51	-	-	-	1.03	-	1.03
Cessna Citation Jet 650	CNA650	1.19	0.07	1.27	1.16	0.15	1.31	-	-	-	2.36	0.22	2.58
Cessna 750 Citation X	CNA750	-	-	-	0.04	-	0.04	-	-	-	0.04	-	0.04
Falcon 200	FAL200	0.04	-	0.04	0.04	-	0.04	-	-	-	0.07	-	0.07
Falcon 50	FAL50	0.04	-	0.04	0.04	-	0.04	-	-	-	0.07	-	0.07
Falcon 900	FAL900	0.04	-	0.04	0.04	-	0.04	-	-	-	0.07	-	0.07
Learjet 45 Twin Jet	LEAR45	0.02	-	0.02	0.02	-	0.02	-	-	-	0.04	-	0.04
Total		**31.10**	**2.49**	**33.58**	**31.61**	**1.97**	**33.58**	**19.03**	**-**	**19.03**	**81.74**	**4.46**	**86.20**

Note: Total may not add due to rounding.

Source: MACNOMS Data Analysis, HNTB Activity Forecasts

Table A7-3
Baseline Condition Average Annual Runway Use

Aircraft Group	Runway	Arrivals			Departures			Touch and Gos		
		Day	Night	Total	Day	Night	Total	Day	Night	Total
Helicopters	12	35%	9%	27%	25%	0%	22%	50%	-	50%
	30	65%	91%	73%	75%	100%	78%	50%	-	50%
Piston	12	37%	28%	36%	38%	42%	38%	51%	50%	51%
	30	63%	72%	64%	62%	58%	62%	49%	50%	49%
Turboprop	12	31%	19%	30%	49%	18%	46%	-	-	-
	30	69%	81%	70%	51%	82%	54%	-	-	-
Jets	12	32%	13%	31%	54%	69%	56%	-	-	-
	30	68%	88%	69%	46%	31%	44%	-	-	-

Note: Totals may not add up to 100% due to rounding.

Source: MAC Analysis

Table A7-4

2035 Preferred Alternative Condition Average Annual Runway Use

ircraft Grou	Runway	Arrivals			Departures			Touch and Gos		
		Day	Night	Total	Day	Night	Total	Day	Night	Total
Helicopters	12	35%	9%	27%	25%	0%	22%	50%	-	50%
	30	65%	91%	73%	75%	100%	78%	50%	-	50%
Piston	12	37%	28%	36%	38%	42%	38%	51%	-	51%
	30	63%	72%	64%	62%	58%	62%	49%	-	49%
Turboprop	12	31%	19%	30%	49%	18%	46%	-	-	-
	30	69%	81%	70%	51%	82%	54%	-	-	-
Jets	12	53%	29%	50%	44%	56%	46%	-	-	-
	30	47%	71%	50%	56%	44%	54%	-	-	-

Note: Totals may not add up to 100% due to rounding.

Source: MAC Analysis

Table A7-5
Baseline Condition Departure Flight Track Use

Runway	Track	Jets		Helicopters		Piston		Turboprop		Total
		Day	Night	Day	Night	Day	Night	Day	Night	
12	A	20%	11%	20%	-	14%	9%	14%	50%	20%
	B	57%	56%	0%	-	25%	46%	43%	0%	32%
	C	4%	0%	0%	-	7%	1%	6%	0%	3%
	D	17%	22%	0%	-	20%	19%	24%	50%	22%
	E	0%	0%	40%	-	23%	26%	6%	0%	14%
	F	2%	11%	40%	-	12%	0%	8%	0%	10%
30	A	3%	0%	20%	0%	13%	13%	0%	0%	11%
	B	18%	0%	33%	33%	17%	20%	13%	0%	20%
	C	5%	0%	20%	33%	13%	19%	11%	0%	18%
	D	5%	25%	13%	33%	10%	13%	4%	0%	14%
	E	21%	0%	0%	0%	17%	6%	30%	11%	11%
	F	49%	75%	13%	0%	30%	29%	42%	89%	27%

Notes: Each departure track was dispersed to either side of the backbone tracks. Defualt INM Version 7.0d subtrack use percentages were used to assign aircraft to the subtracks created during dispersa. Totals may not add to 100% due to rounding.

Source: MAC Analysis

Table A7-6
2035 Preferred Alternative Condition Departure Flight Track Use

Runway	Track	Jets		Helicopters		Piston		Turboprop		Total
		Day	Night	Day	Night	Day	Night	Day	Night	
12	A	17%	26%	20%	-	14%	9%	22%	100%	16%
	B	55%	72%	0%	-	25%	46%	69%	0%	42%
	C	1%	0%	0%	-	7%	1%	9%	0%	3%
	D	14%	1%	0%	-	20%	18%	0%	0%	14%
	E	0%	0%	40%	-	23%	26%	0%	0%	18%
	F	13%	1%	40%	-	12%	0%	0%	0%	7%
30	A	17%	26%	20%	-	14%	9%	14%	50%	16%
	B	55%	72%	0%	-	25%	46%	43%	0%	41%
	C	1%	0%	0%	-	7%	1%	6%	0%	3%
	D	14%	1%	0%	-	20%	18%	24%	50%	15%
	E	0%	0%	40%	-	23%	26%	6%	0%	18%
	F	13%	1%	40%	-	12%	0%	8%	0%	7%

Notes: Each departure track was dispersed to either side of the backbone tracks. Defualt INM Version 7.0d subtrack use percentages were used to assign aircraft to the subtracks created during dispersa. Totals may not add to 100% due to rounding.

Source: MAC Analysis

Figure A7-1: Baseline Condition INM Flight Tracks

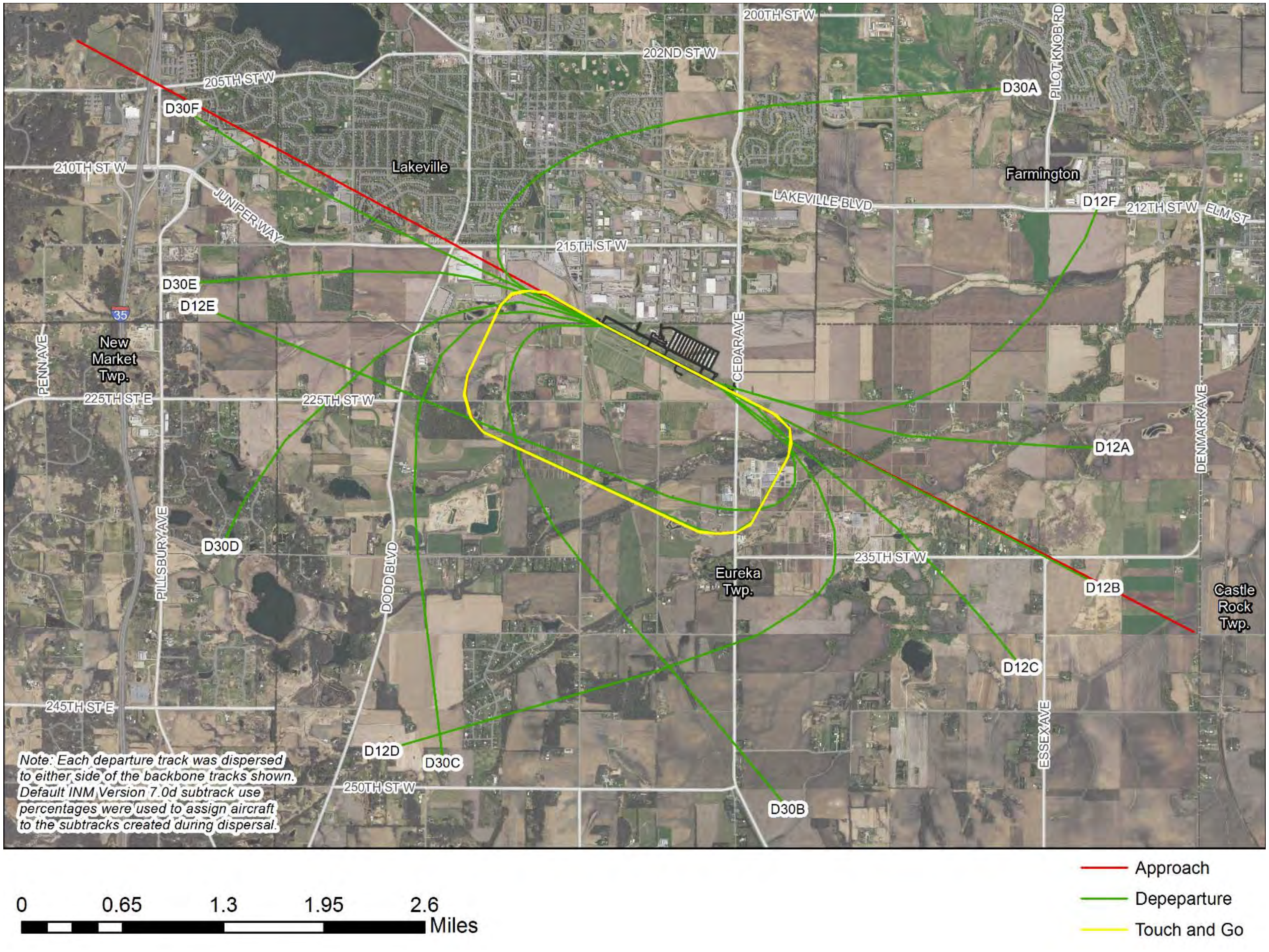
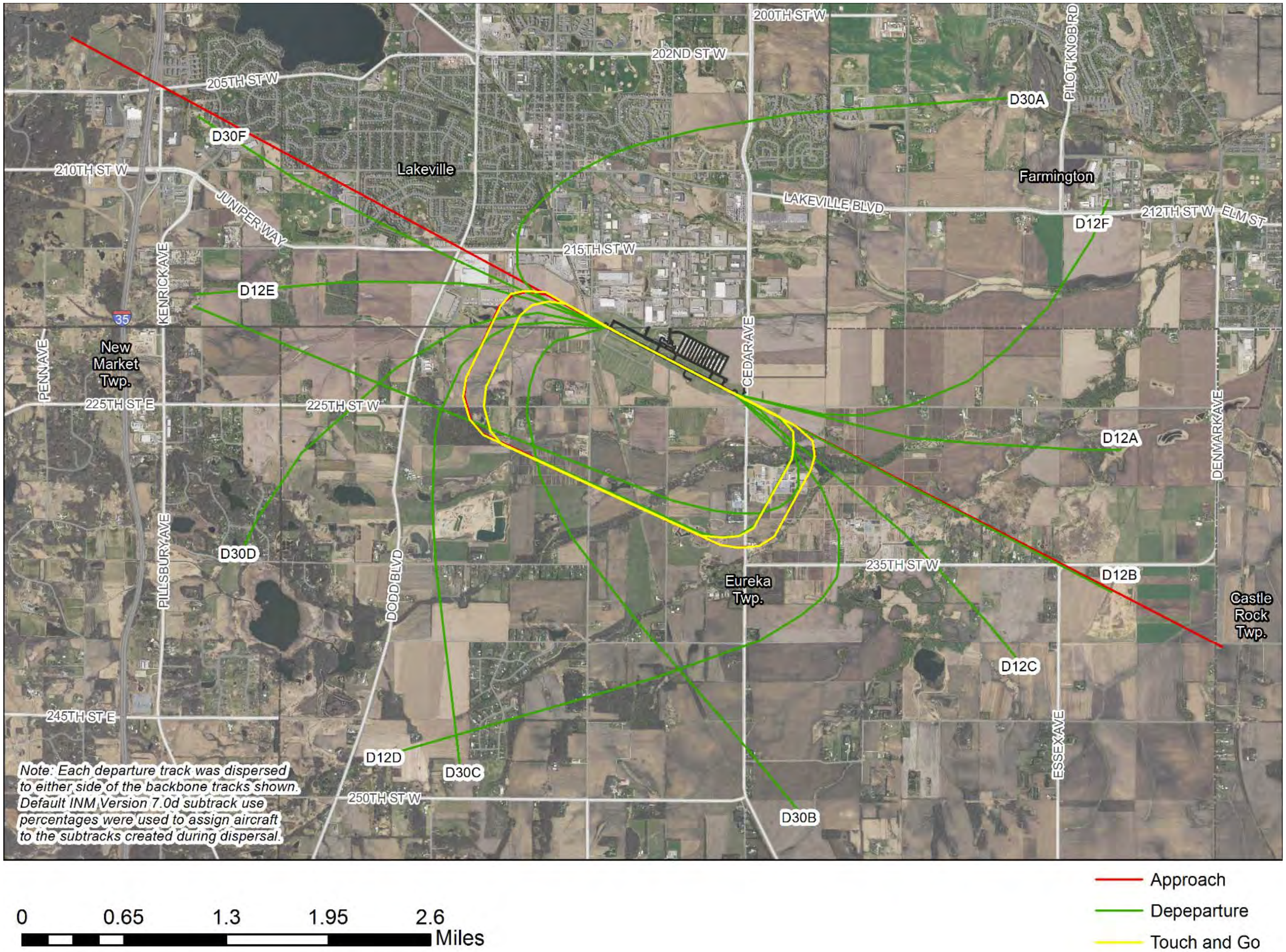


Figure A7-2: 2035 Preferred Alternative Condition INM Flight Tracks



Appendix 8: Stakeholder Engagement Program Documentation

PAGE INTENTIONALLY LEFT BLANK

Airlake Airport

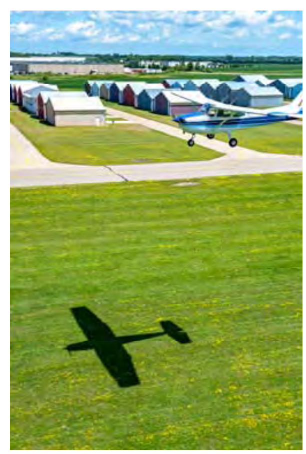
2035 Long-Term Comprehensive Plan (LTCP)

23 March 2017 – Tenant Briefing

LTCP Status Briefing

Briefing Agenda

- LTCP Overview
- Airport Role & Context
- Existing Conditions & Previous Plan
- Aviation Activity Forecasts
- Development Concepts
- Stakeholder Engagement & Next Steps



2

Airlake (LVN) 2035 LTCP Overview

- Airlake Airport 2035 LTCP Purpose
  - Update view of future facility needs
  - Serve as the "road map" to guide development strategy
  - Shape the 7-Year Capital Improvement Program (CIP)
  - Previous LTCP Completed in 2008
- Key Planning Objectives for LTCP
  - Optimize use the airfield footprint to better meet existing user operational needs
  - Maintain or improve upon existing Runway Protection Zone (RPZ) land use compatibility
  - Address existing airspace penetrations
  - Incorporate airfield geometry best practices to reduce incursion potential

3

Airlake Airport Role

- Primary Role of Airlake Airport
  - Integral part of the regional Reliever Airport system
  - Accommodates Personal, Recreational, and Business Aviation users
  - Design Aircraft is and will continue to be small business aircraft
  - Role not expected to change

- Airlake Airport Context
  - Of Peer "Intermediate" Airports (83)
    - 4th busiest for aircraft operations
    - 4th highest number of based aircraft
  - Of All Minnesota Airports (135)
    - 11th busiest for aircraft operations
    - 6th highest number of based aircraft

4

Airlake (LVN) Existing Conditions

Existing runway length:
- 4,099 feet (3,707 feet landing RWY 30)

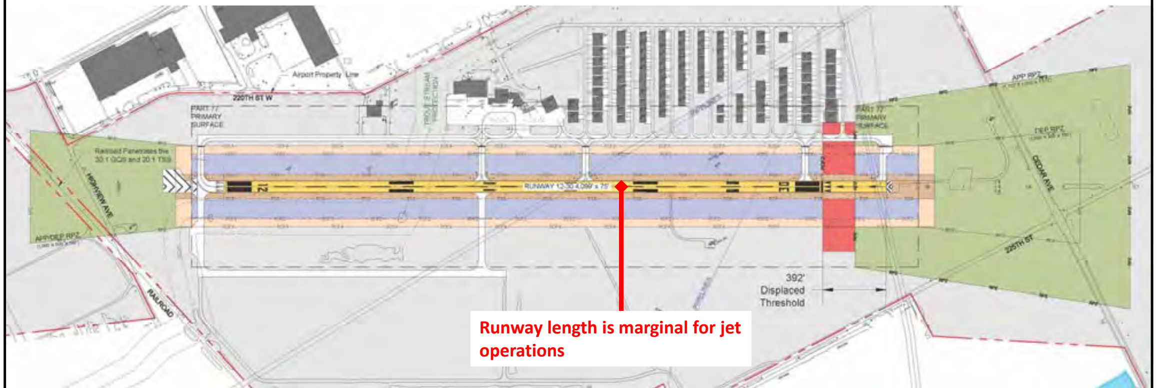
5

Airlake (LVN) Existing Conditions

Existing runway length:
- 4,099 feet (3,707 feet landing RWY 30)

6

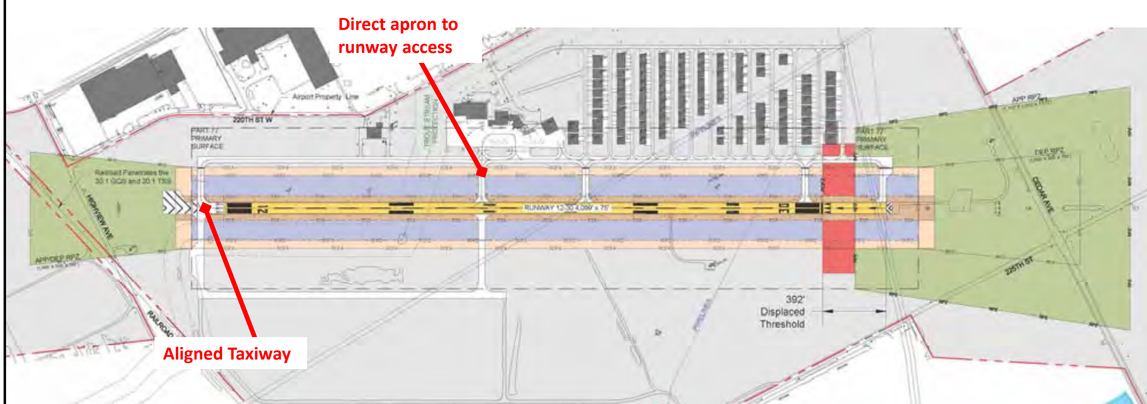
Airlake (LVN) Existing Conditions



Existing runway length:
- 4,099 feet (3,707 feet landing RWY 30)

7

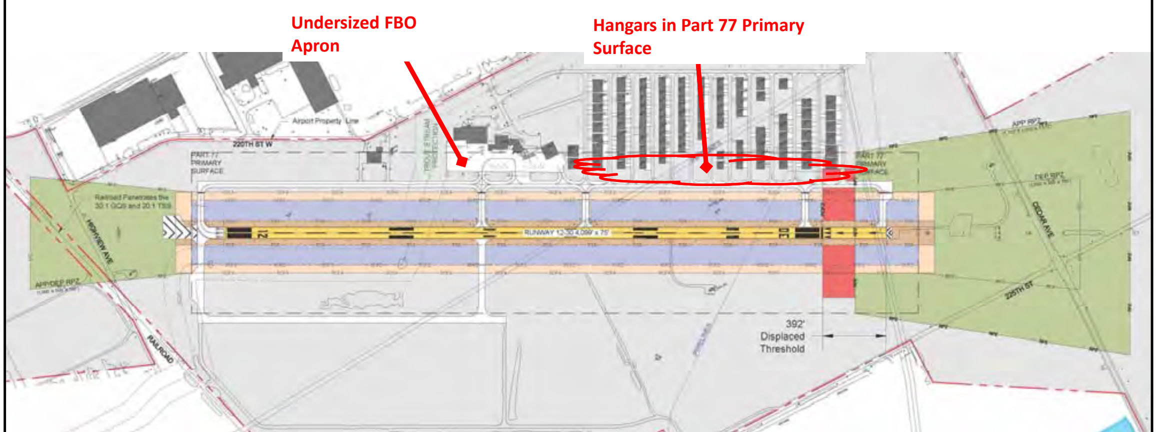
Airlake (LVN) Existing Conditions



Existing runway length:
- 4,099 feet (3,707 feet landing RWY 30)

8

Airlake (LVN) Existing Conditions



Existing runway length:

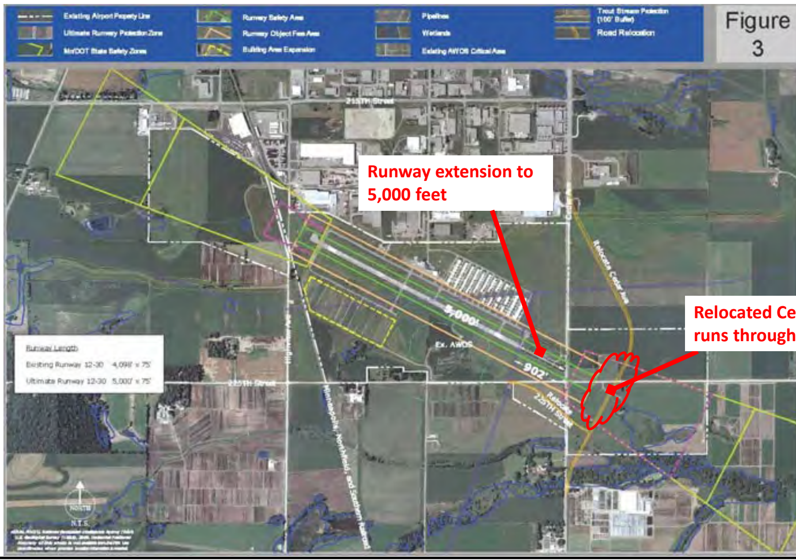
- 4,099 feet (3,707 feet landing RWY 30)

9

Airlake (LVN) Previous LTCP

10

Airlake (LVN) Previous LTCP



11

FAA Runway Protection Zone (RPZ) Guidance

- Runway Protection Zone (RPZ)
  - Role is to enhance safety and protection of people and property on the ground off runway ends
  - Airport control is emphasized
- FAA's *Interim Guidance on Land Uses Within a RPZ* issued in 2012
  - Clarifies and tightens up former guidance on compatible land uses in RPZs
    - Land uses requiring coordination with FAA now include railways and public roads/highways
    - Applies to introduction of new or modified uses; not applicable to existing uses
  - RPZ Alternatives Analysis now required for triggering events
    - Would require analysis of concepts to avoid RPZ impacts


Federal Aviation Administration

Memorandum

Date: SEP 27 [illegible]

To: Regional Airports Division Managers
610 Branch Managers
620 Branch Managers
ADO Managers

From: Benito De Leon, Director
Office of Airport Planning and Programming (APP-1)
Michael J. O'Donnell, Director
Office of Airport Safety and Standards (AAS-1)

Subject: Interim Guidance on Land Uses Within a Runway Protection Zone

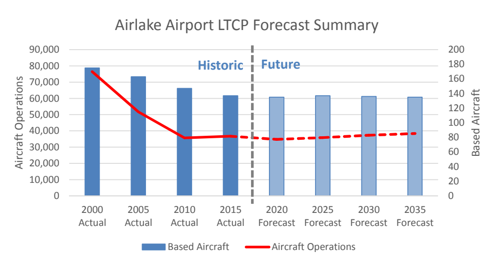
Background

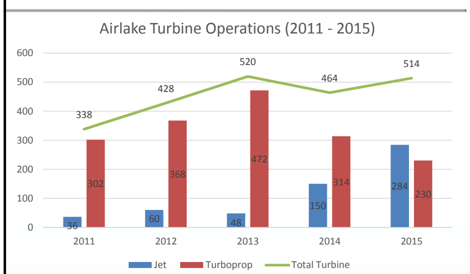
The FAA Office of Airports (ARP) has identified the need to clarify our policy on land uses within the Runway Protection Zone (RPZ). This memorandum presents interim policy guidance on compatible land uses within Runway Protection Zones (RPZ) to address recurrent questions about what constitutes a compatible land use and how to evaluate proposed land uses that would reside in an RPZ. While Advisory Circular 150/5300-Change 17(Airport Design) notes that "it is desirable to clear all objects from the RPZ," it also acknowledges that "some uses are permitted" with conditions and other "land uses are prohibited."

12

FAA Runway Protection Zone (RPZ) Guidance

13



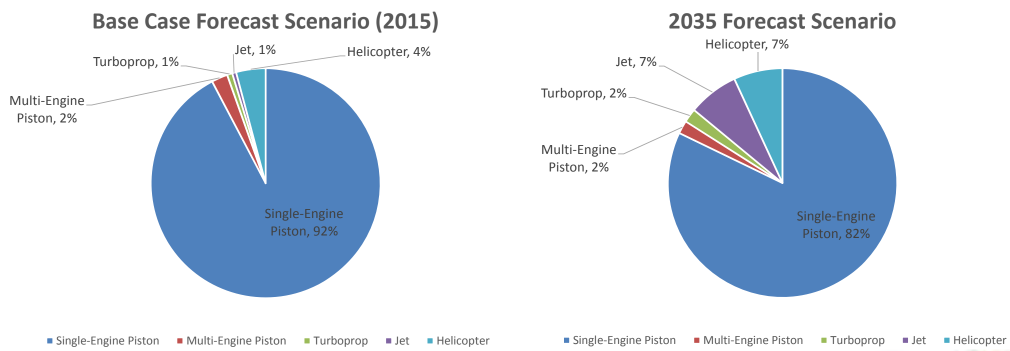


Airlake (LVN) Activity Trends

- Based aircraft = 137
- Aircraft operations ~ 37,000
- Growth in jet operations over past 5 years
  - Existing runway length limits jet operations
  - Opportunity for increased turbine operations with longer runway
- Robust flight training activity
  - ILS is important training element
- 2035 Forecast:
  - 130-135 Based Aircraft
  - 36 – 38,000 Aircraft Operations

14

Airlake (LVN) Fleet Mix



15

Airlake Runway Length Requirements

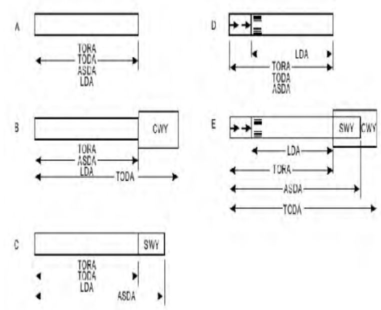
- Small Propeller-Driven Aircraft
  - FAA guidance for < 10 pax seats = ~3,900 feet
  - FAA guidance for ≥ 10 pax seats = ~4,200 feet
- Business Jets (< 60,000 pounds MTOW)
  - Airport Reference Code (ARC) B-II
    - Wingspan < 79 feet, Approach Speed < 121 knots
  - FAA guidance = Range of ~4,800 – ~5,400 feet
  - Statutory prohibition against runway extension > 5,000 feet
  - Aircraft-specific analysis:
    - 5,000 feet would be ideal, but…
    - Even an extension into the upper 4,000-foot range could yield significant operational improvements

16

Declared Distance Overview

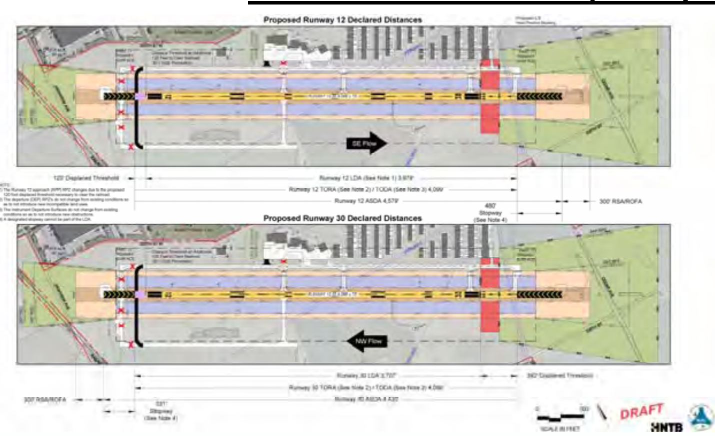
Declared distances for a runway **represent the maximum distances available and suitable** for meeting takeoff and landing distance performance requirements.

- **Takeoff Run & Distance Available (TORA/TODA)**
  - TORA = Runway length declared available and suitable for the ground run of an aircraft taking off
  - TODA = Distance from brake release past liftoff to start of takeoff climb
  - TORA = TODA at Airlake
- **Accelerate-Stop Distance Available (ASDA)**
  - Runway length declared available and suitable for acceleration and deceleration of an airplane aborting a takeoff
  - Includes designated Stopway
- **Landing Distance Available (LDA)**
  - Runway length declared available and suitable for a landing airplane
  - Displaced threshold



17

Airlake LTCP Stopway Concept

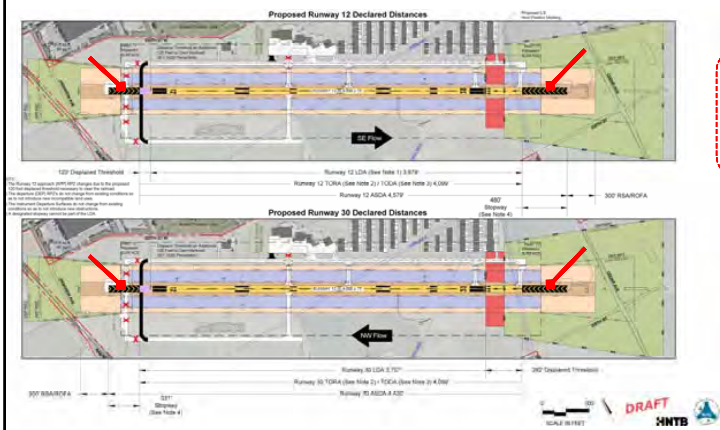


RWY 12-30 Stopways

- Adds Stopways to both runway ends
  - Provides greater Accelerate-Stop Distance
  - No change in TORA/TODA or LDA
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar

18

Airlake LTCP Stopway Concept

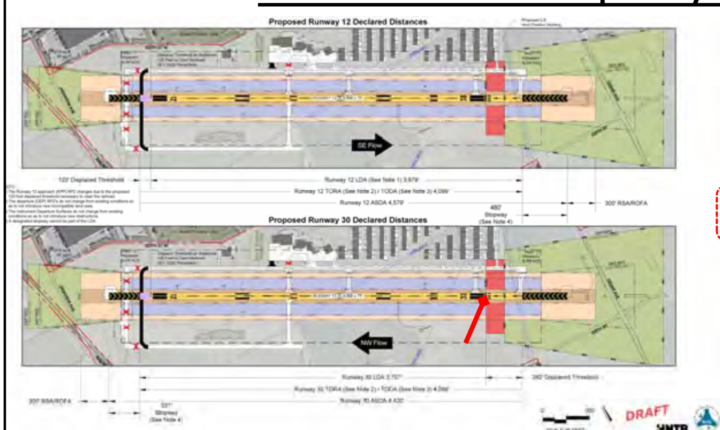


RWY 12-30 Stopways

- Adds Stopways to both runway ends
  - Provides greater Accelerate-Stop Distance
  - No change in TORA/TODA or LDA
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar

19

Airlake LTCP Stopway Concept

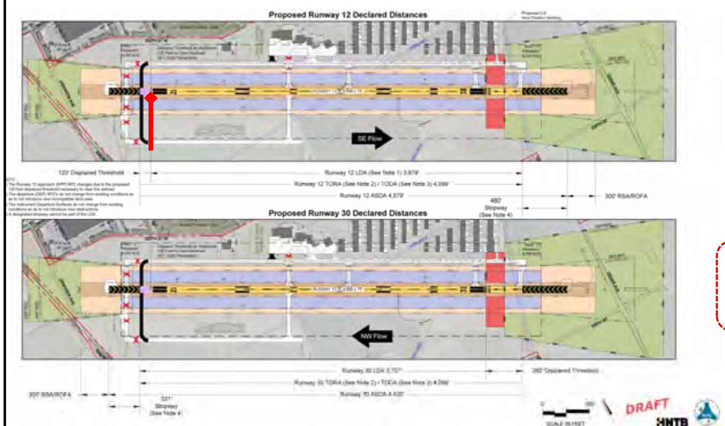


RWY 12-30 Stopways

- Adds Stopways to both runway ends
  - Provides greater Accelerate-Stop Distance
  - No change in TORA/TODA or LDA
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar

20

Airlake LTCP Stopway Concept

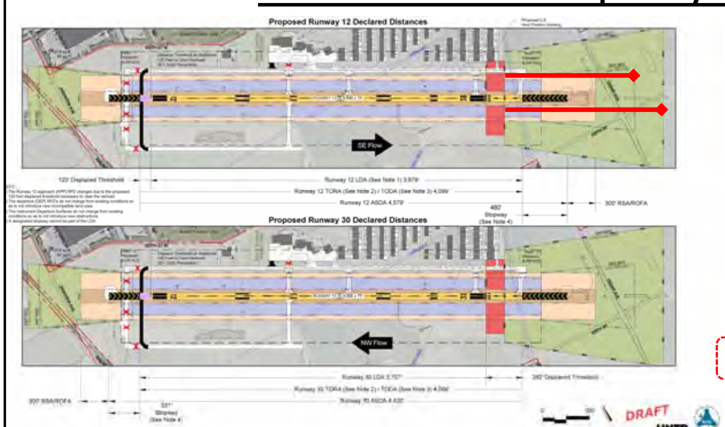


RWY 12-30 Stopways

- Adds Stopways to both runway ends
  - Provides greater Accelerate-Stop Distance
  - No change in TORA/TODA or LDA
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar

21

Airlake LTCP Stopway Concept

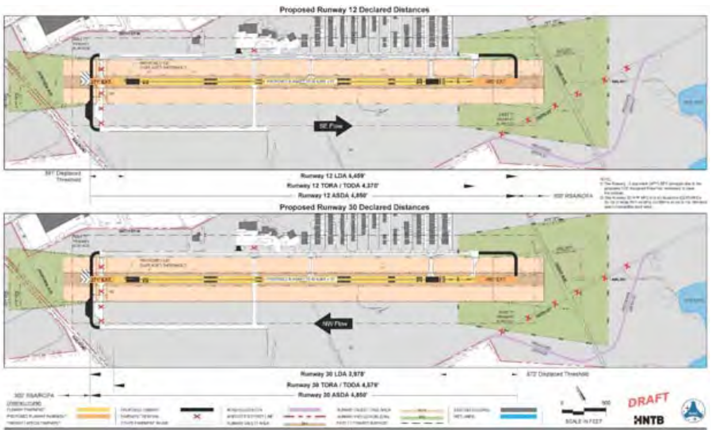


RWY 12-30 Stopways

- Adds Stopways to both runway ends
  - Provides greater Accelerate-Stop Distance
  - No change in TORA/TODA or LDA
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar

22

Airlake LTCP Declared Distance Concept

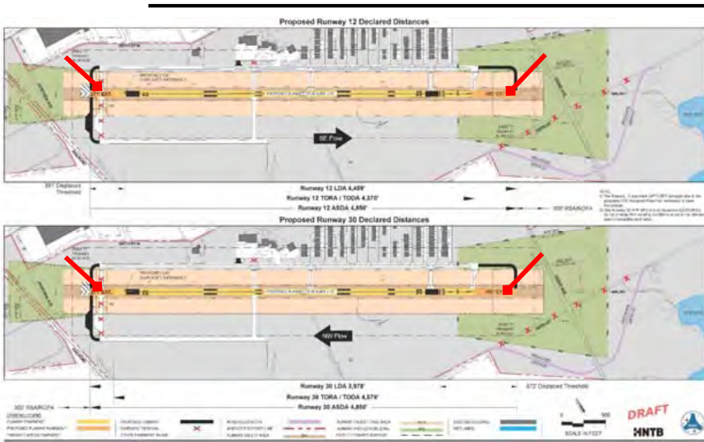


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

23

Airlake LTCP Declared Distance Concept

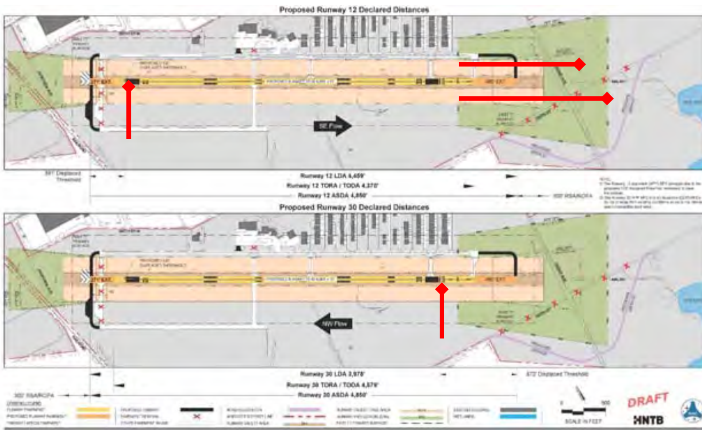


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

24

Airlake LTCP Declared Distance Concept

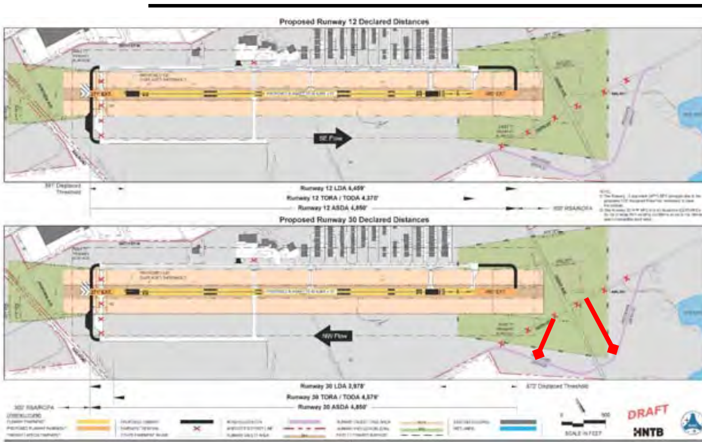


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

25

Airlake LTCP Declared Distance Concept

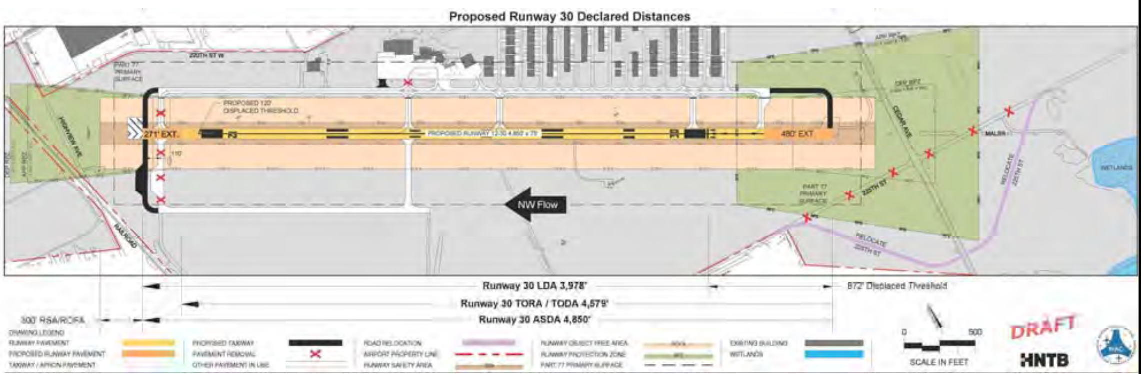


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

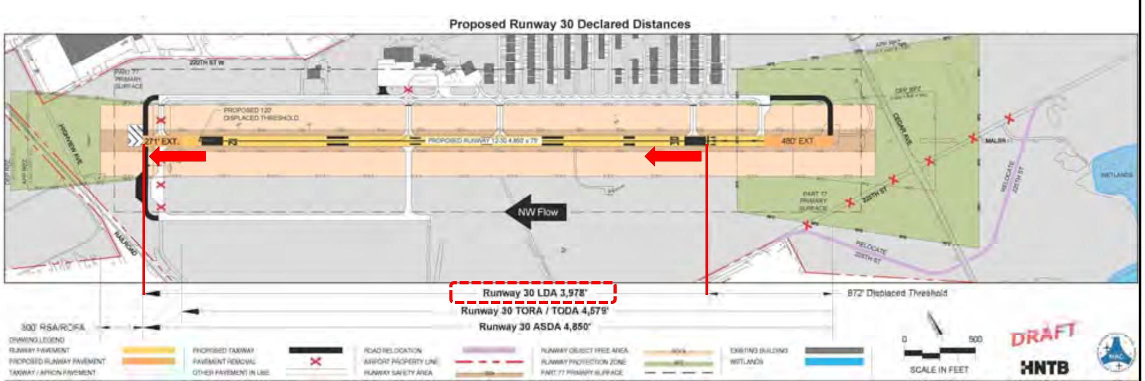
26

Airlake LTCP Declared Distance Concept



27

Airlake LTCP Declared Distance Concept

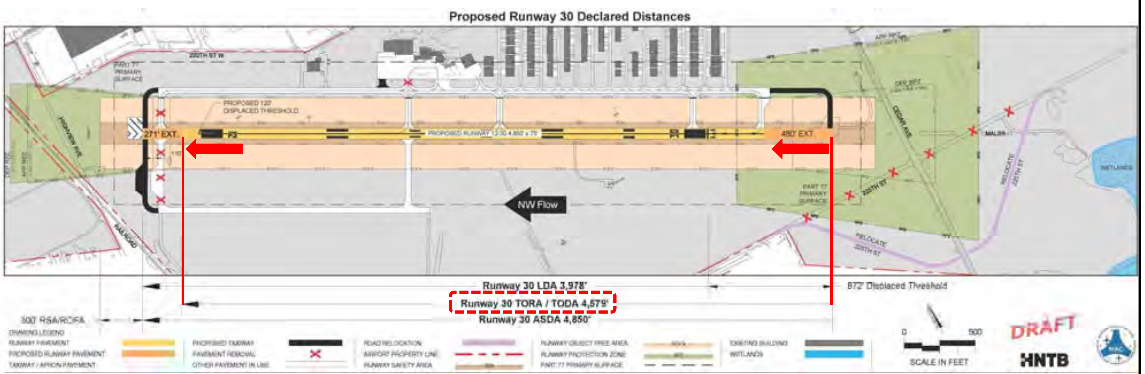


RWY 30 LDA (3,978 feet)

- Maintains existing RWY 30 displaced threshold to avoid moving Approach RPZ and ILS
- Extends landing rollout on NW end (Part 77 Primary Surface is constraint)
- Compliant Runway Safety Area/Runway Object Free Area

28

Airlake LTCP Declared Distance Concept



RWY 30 TORA/TODA (4,579 feet)

- Start of takeoff roll uses SE extension
- TORA stops at existing RWY 12 end to avoid moving Departure RPZ
- TODA stop at existing RWY 12 end to avoid moving TERPS 40:1 Departure Surface
- No FAA design standard to denote TORA/TODA stop end if different than physical runway end

29

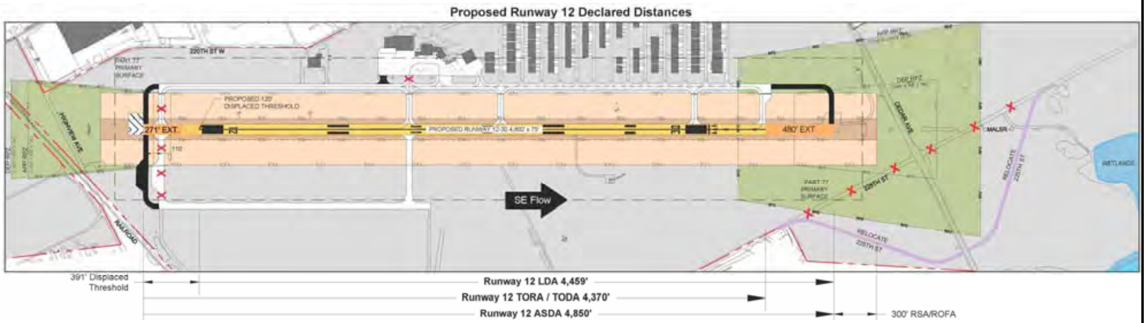
Airlake LTCP Declared Distance Concept

RWY 30 ASDA (4,850 feet)

- Start of takeoff roll uses SE extension
- ASDA stop uses NW extension
- Compliant Runway Safety Area/Runway Object Free Area

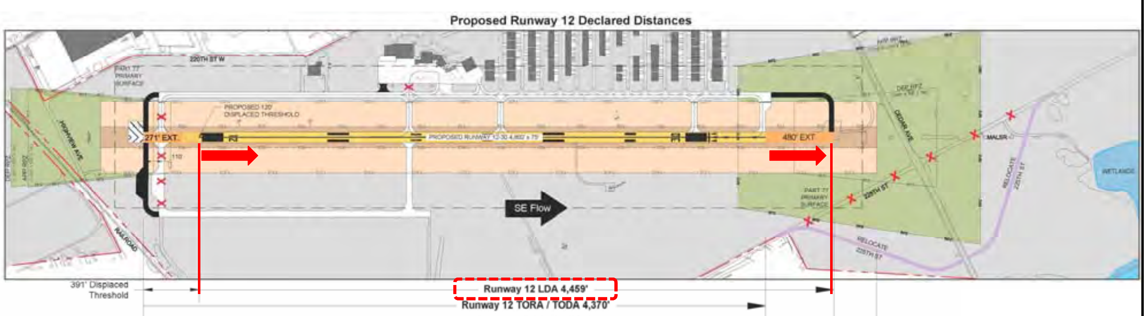
30

Airlake LTCP Declared Distance Concept



31

Airlake LTCP Declared Distance Concept

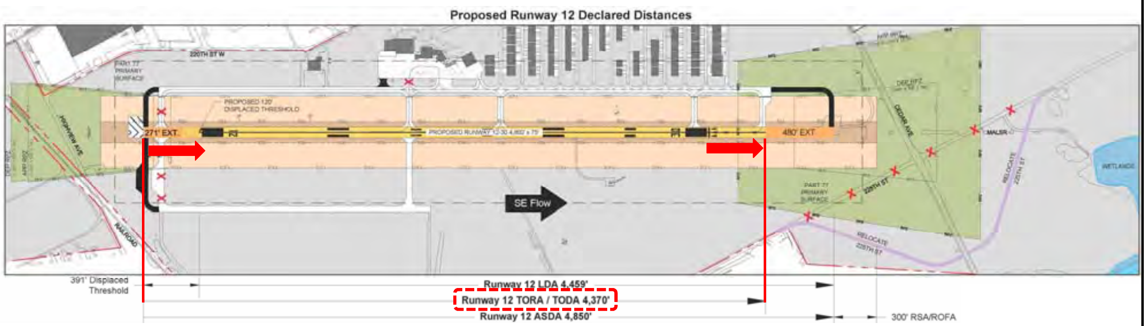


RWY 12 LDA (4,459 feet)

- Establishes new RWY 12 end displaced threshold to clear RR track airspace penetration
- Extends landing rollout onto SE end extension (Part 77 Primary Surface is constraint)
- Compliant Runway Safety Area/Runway Object Free Area

32

Airlake LTCP Declared Distance Concept

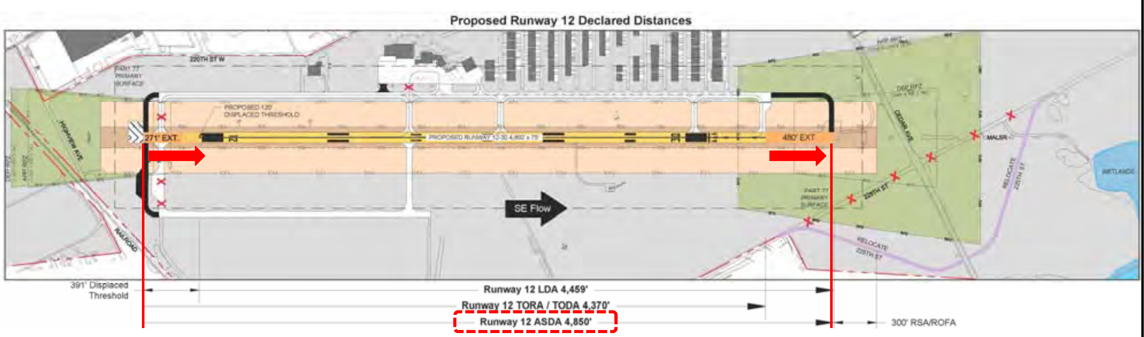


RWY 12 TORA/TODA (4,370 feet)

- Start of takeoff roll uses NW extension
- TORA stop at existing RWY 30 end to avoid moving Departure RPZ
- TODA stop at existing RWY 30 end to avoid moving TERPS 40:1 Departure Surface
- No FAA design standard to denote TORA/TODA stop end if different than physical runway end

33

Airlake LTCP Declared Distance Concept



RWY 12 ASDA (4,850 feet)

- Start of takeoff roll uses NW extension
- ASDA stop uses SE extension
- Compliant Runway Safety Area/Runway Object Free Area

34

Airlake LTCP Declared Distance Concept

Potential Benefits?

- Jet operators gain additional runway for balanced field length requirements
  - Additional fuel and payload
- All operators may realize safety benefits
  - Additional pavement to use in emergency conditions (aborted takeoffs, long landings)
  - Takeoff roll starts further away from departure-end obstacles
- Lower noise exposure for takeoffs
- Increased airport revenue
- Feasible concept

Potential Risks?

- Pilots unfamiliar with declared distances may be confused
  - Pilots may use pavement beyond TORA/TODA end to complete takeoff roll (intersection takeoffs or stop-and-gos)
- Physical runway ends are closer to the airport boundary and off-airport obstacles
- Increased runway length could encourage some operators to "push the limits"

MINNEAPOLIS SAINT PAUL METROPOLITAN AIRPORTS COMMISSION MAC

35

Risk Mitigation Ideas

- Install declared distance signage on taxiways and runway
- AWOS recording with declared distance information
- Include declared distance information on airport diagram, instrument approach plates, airport master record, NOTAMs, etc.
- Add taxiway connector at new RWY 12 end as a visual cue
- Educational considerations
  - Tenant outreach
  - Emails
  - EAA/CAP programs
  - FAASTeam
  - MnDOT
- Others?

MINNEAPOLIS SAINT PAUL METROPOLITAN AIRPORTS COMMISSION MAC

36

Stakeholder & Public Engagement

- Pre-Publication Stakeholder Engagement
  - Agencies
  - Tenants
  - Municipal Representatives
- MAC Board Approval to publish Draft LTCP
  - Targeting May 2017
- Formal Public Review Period
  - 45-day review period (June – July 2017)
  - Public Information Meeting(s)
- MAC Board Approval to Submit to Met Council
- Metropolitan Council Review
- Final MAC Board Adoption
- Environmental, ALP, Zoning

37

Questions & Dialogue

38

Metropolitan Airports Commission

Airport Development Department

Memo

DATE: March 28, 2017

TO: Airlake Airport LTCP Working Group Members

FROM: Neil Ralston, Airport Planner

SUBJECT: **Summary of 03/23/17 Airlake Airport Draft 2035 LTCP Tenant Briefing**

On March 24, 2017, MAC staff hosted a tenant briefing to present information about, and solicit feedback on, the draft 2035 Long-Term Comprehensive Plan (LTCP) for the Airlake Airport. Approximately 13 tenants attended the briefing.

The following topics were covered during the briefing:

- LTCP overview
- Airport role and activity context
- Existing conditions and previous plan
- LTCP aviation forecast summary
- Development concepts being considered
- Overview of upcoming stakeholder engagement activities

The draft 2035 LTCP Preferred Alternative presented to the tenants included the following project elements:

- Extend both runway ends with useable pavement than can be used for takeoff and landing operations (480 feet on the Runway 30 end and 271 feet on the Runway 12 end) and implement declared distances.
- Shift Runway 12 landing threshold approximately 120 feet to the southeast to provide a clear visual approach surface (TERPS 20:1 Visual Area Surface) over the Progressive Rail railroad tracks.
- Extend taxiways to new Runway 12 end to eliminate the existing aligned taxiway.
- Relocate a portion of 225th Street outside of the extended runway's Primary Surface and Runway Protection Zone (RPZ).
- Reconfigure apron entrance taxiway to eliminate direct apron to runway access.

The tenant group offered the following feedback:

- One tenant expressed concern that the proposed improvements only benefit turbine users and not the majority of based aircraft.

G:\Shared\NRalston\Airports\LVN\2035_LTCP\Stakeholder_Engagement\LVN_2035LTCP_Tenant_Briefing_03-23-17_summary_v2.doc

MAC staff responded that the longer runway should benefit all users by providing a greater margin of safety. Also, having a longer runway to be more attractive to some turbine users should result in enhanced vibrancy for the FBO, which indirectly will benefit based users.

- MAC should be helping tenants with the drainage issues in the North Hangar Area.
  MAC supports tenants who want to install drain tiles around their hangars, but is not in a position to provide a wholesale drainage improvement project at this time.

- There is demand for new hangars in the South Hangar area, even if they are "dry" without water and sewer services.
  The mindset has been that it would be much more efficient to have municipal sewer and water available in the South Hangar area before it is developed to avoid installation costs later. Eureka Township is working to establish a Joint Powers Agreement (JPA) with Lakeville to provide services without annexation. However, it may be time to survey tenants again about demand for additional hangar space, both with and without access to municipal utilities.

- Tenants requested clarification about the designated calm wind runway at LVN. It used to be Runway 30, was changed to Runway 12. Runway 30 seems to make the most sense, but it needs to be clarified one way or the other. One tenant offered that this issue is a much greater safety concern than the proposed declared distance concept described in the presentation.
  MAC staff is working to address this item.

Other questions from the tenants included:

- How are existing aircraft operations estimated?
- How will these proposed improvements be paid for? Will there be a special assessment on tenants to pay for the improvements?
- What apron expansion options are being considered?
- What is the timeline for implementing the planned improvements, and will the airport have to be closed during construction?
- Will the improvements require that the airport be fenced in?
- Can a tunnel for Cedar Avenue be constructed?

An overview of the results from the September 2016 Operational Assessment panel that reviewed benefits and risks associated with implementing and using a declared distance runway concept at a non-towered airport was presented to the tenant group. Overall, the tenants seemed supportive of the proposed declared distance runway concept and did not indicate that safety risks associated with understanding and use of declared distances were significant or unable to be mitigated.

A copy of the briefing attendance list is attached, along with a copy of the presentation handout materials.

G:\Shared\NRalston\Airports\LVN\2035_LTCP\Stakeholder_Engagement\LVN_2035LTCP_Tenant_Briefing_03-23-17_summary_v2.doc

Airlake Airport

2035 Long-Term Comprehensive Plan (LTCP)

27 March 2017 – Municipal Representatives Briefing

LTCP Status Briefing

Briefing Agenda

- LTCP Overview
- Airport Role & Context
- Existing Conditions & Previous Plan
- Aviation Activity Forecasts
- Development Concept
- Stakeholder Engagement & Next Steps

2

Airlake (LVN) 2035 LTCP Overview

- Airlake Airport 2035 LTCP Purpose
  - Update view of future facility needs
  - Serve as the “road map” to guide development strategy
  - Shape the 7-Year Capital Improvement Program (CIP)
  - Previous LTCP Completed in 2008
- Key Planning Objectives for LTCP
  - Optimize use the airfield footprint to better meet existing user operational needs
  - Maintain or improve upon existing Runway Protection Zone (RPZ) land use compatibility
  - Address existing airspace penetrations
  - Incorporate airfield geometry best practices to reduce incursion potential

3

Airlake Airport Role

- Primary Role of Airlake Airport
  - Integral part of the regional Reliever Airport system
  - Accommodates Personal, Recreational, and Business Aviation users
  - Design Aircraft is and will continue to be small business aircraft
  - Role not expected to change

- Airlake Airport Context
  - Of Peer “Intermediate” Airports (83)
    - 4th busiest for aircraft operations
    - 4th highest number of based aircraft

4

2

Airlake (LVN) Existing Conditions

Existing runway length:
- 4,099 feet (3,707 feet landing RWY 30)

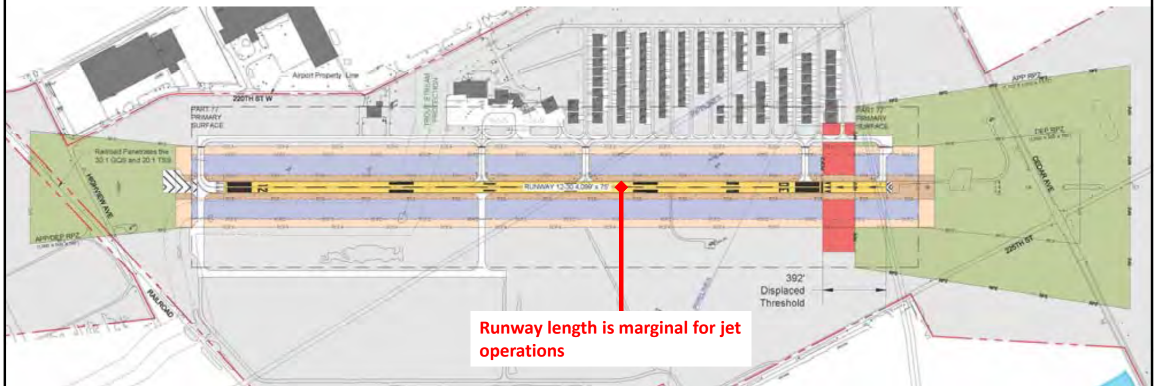
5

Airlake (LVN) Existing Conditions

Existing runway length:
- 4,099 feet (3,707 feet landing RWY 30)

6

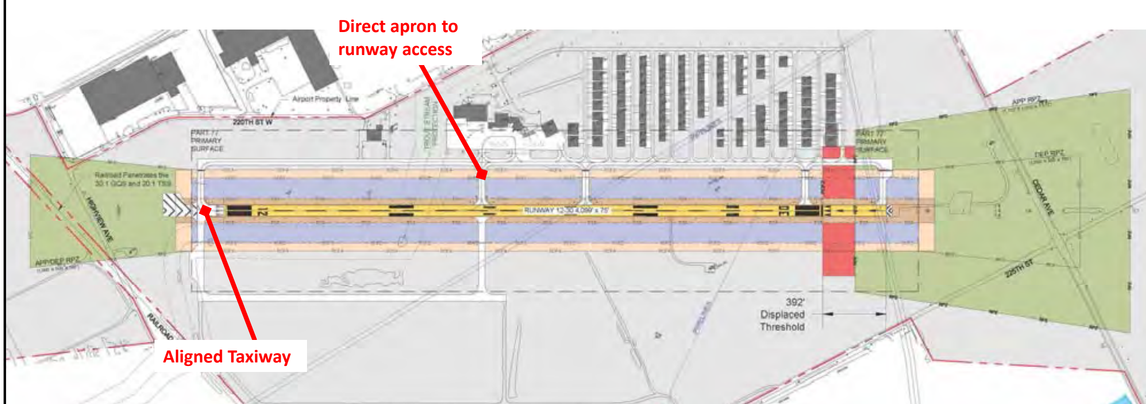
Airlake (LVN) Existing Conditions



Existing runway length:
- 4,099 feet (3,707 feet landing RWY 30)

7

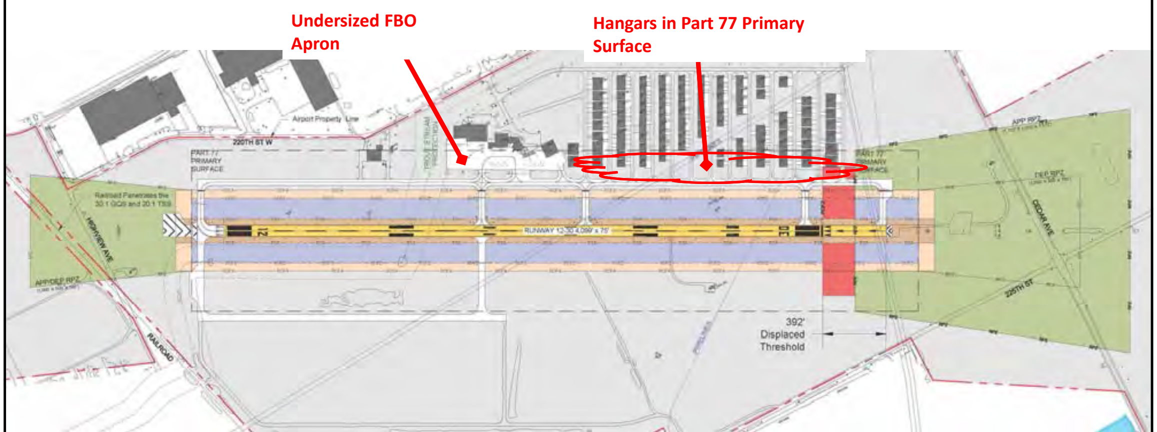
Airlake (LVN) Existing Conditions



Existing runway length:
- 4,099 feet (3,707 feet landing RWY 30)

8

Airlake (LVN) Existing Conditions



Existing runway length:
- 4,099 feet (3,707 feet landing RWY 30)

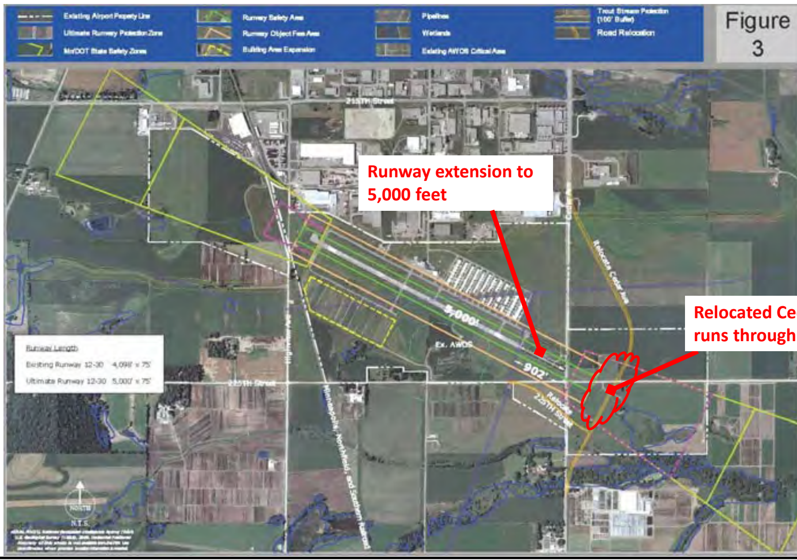
9

Airlake (LVN) Previous LTCP

10

5

Airlake (LVN) Previous LTCP



11

FAA Runway Protection Zone (RPZ) Guidance

- Runway Protection Zone (RPZ)
  - Role is to enhance safety and protection of people and property on the ground off runway ends
  - Airport control is emphasized
- FAA's *Interim Guidance on Land Uses Within a RPZ* issued in 2012
  - Clarifies and tightens up former guidance on compatible land uses in RPZs
    - Land uses requiring coordination with FAA now include railways and public roads/highways
    - Applies to introduction of new or modified uses; not applicable to existing uses
  - RPZ Alternatives Analysis now required for triggering events
    - Would require analysis of concepts to avoid RPZ impacts


Federal Aviation Administration

Memorandum

Date: SEP 27 2012

To: Regional Airports Division Managers
610 Branch Managers
620 Branch Managers
ADO Managers

From: Benito De Leon, Director
Office of Airport Planning and Programming (APP-1)
Michael J. O'Donnell, Director
Office of Airport Safety and Standards (AAS-1)

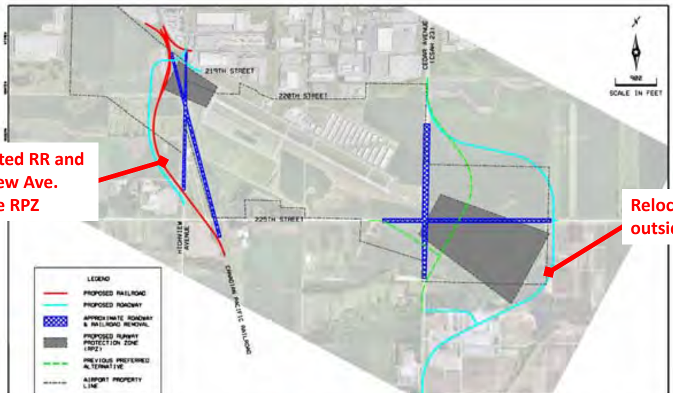
Subject: Interim Guidance on Land Uses Within a Runway Protection Zone

Background

The FAA Office of Airports (ARP) has identified the need to clarify our policy on land uses within the Runway Protection Zone (RPZ). This memorandum presents interim policy guidance on compatible land uses within Runway Protection Zones (RPZ) to address recurrent questions about what constitutes a compatible land use and how to evaluate proposed land uses that would reside in an RPZ. While Advisory Circular 150/5300-Change 17(Airport Design) notes that "it is desirable to clear all objects from the RPZ," it also acknowledges that "some uses are permitted" with conditions and other "land uses are prohibited."

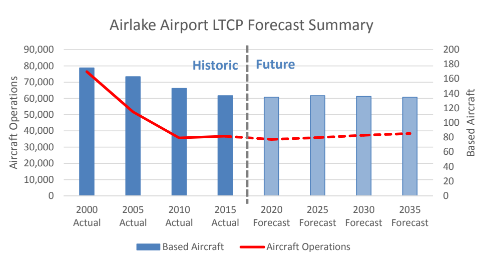
12

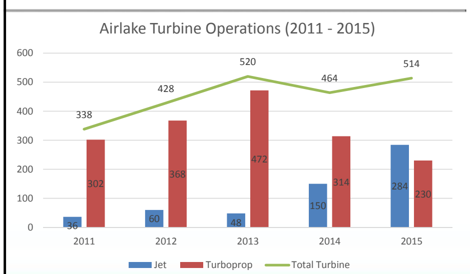
FAA Runway Protection Zone (RPZ) Guidance



13

Airlake (LVN) Activity Trends



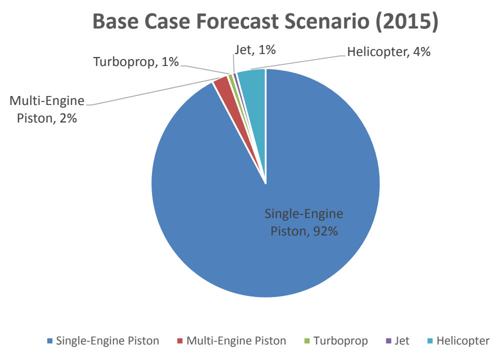


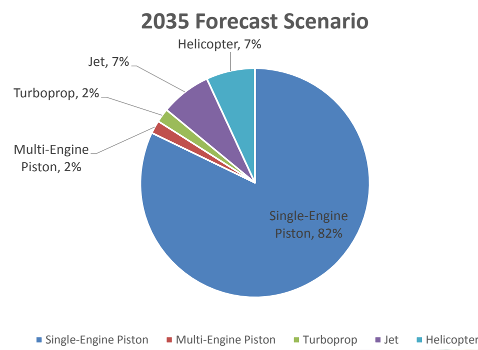
- Based aircraft = 137
- Aircraft operations ~ 37,000
- Growth in jet operations over past 5 years
  - Existing runway length limits jet operations
  - Opportunity for increased turbine operations with longer runway
- Robust flight training activity
  - ILS is important training element
- 2035 Forecast:
  - 130-135 Based Aircraft
  - 36 – 38,000 Aircraft Operations

14

7

Airlake (LVN) Fleet Mix





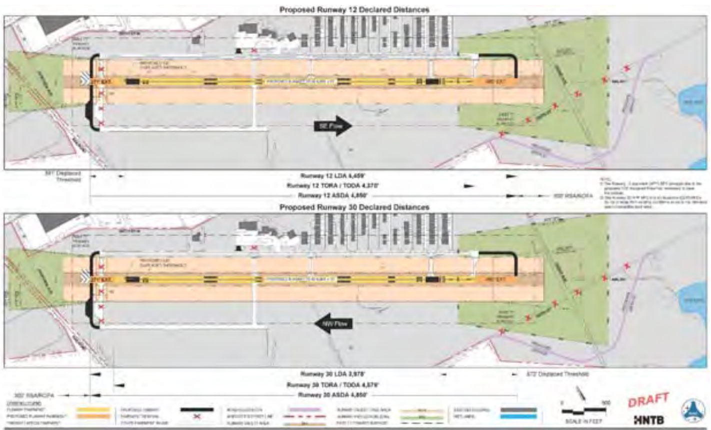
15

Airlake Runway Length Requirements

- Small Propeller-Driven Aircraft
  - FAA guidance for < 10 pax seats = ~3,900 feet
  - FAA guidance for ≥ 10 pax seats = ~4,200 feet
- Business Jets (< 60,000 pounds MTOW)
  - Airport Reference Code (ARC) B-II
    - Wingspan < 79 feet, Approach Speed < 121 knots
  - FAA guidance = Range of ~4,800 – ~5,400 feet
  - Statutory prohibition against runway extension > 5,000 feet
  - Aircraft-specific analysis:
    - 5,000 feet would be ideal, but…
    - Even an extension into the upper 4,000-foot range could yield significant operational improvements

16

Airlake LTCP Declared Distance Concept

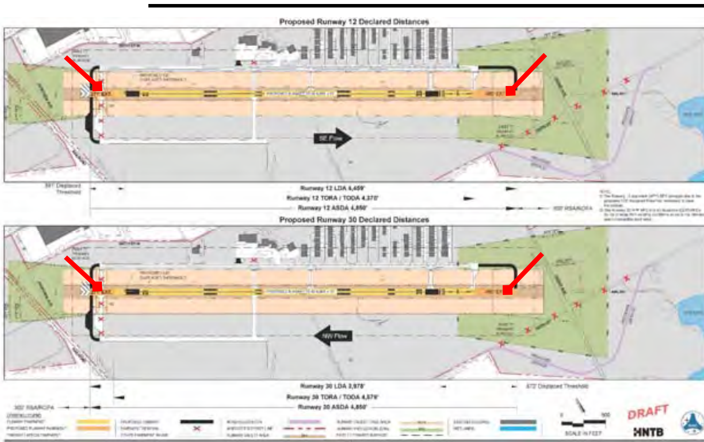


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

23

Airlake LTCP Declared Distance Concept

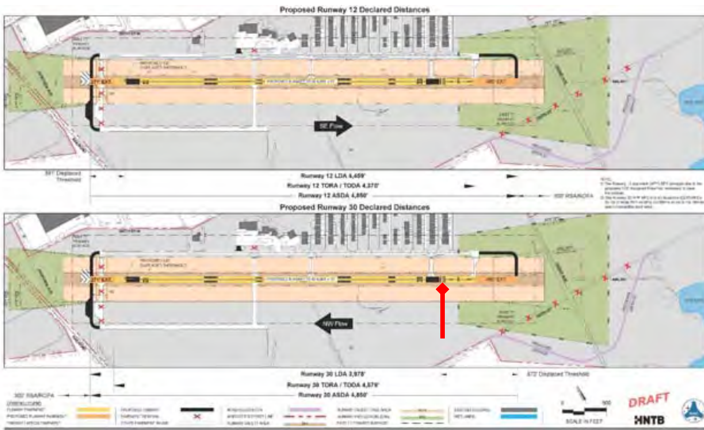


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

24

Airlake LTCP Declared Distance Concept

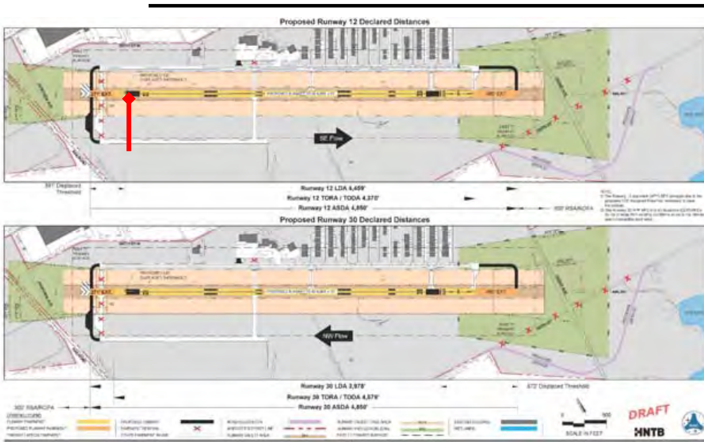


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

25

Airlake LTCP Declared Distance Concept

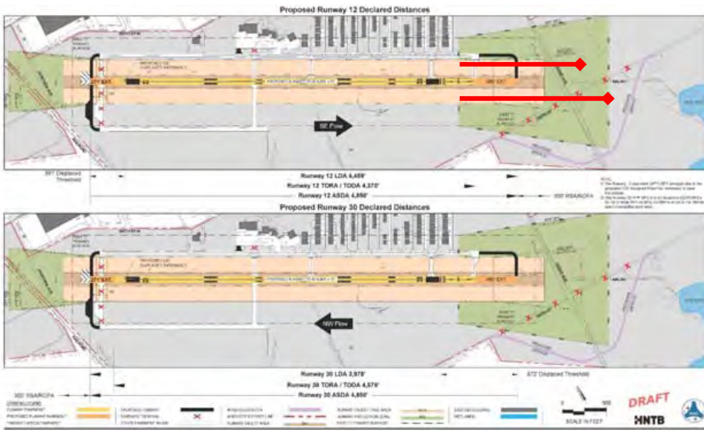


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

25

Airlake LTCP Declared Distance Concept

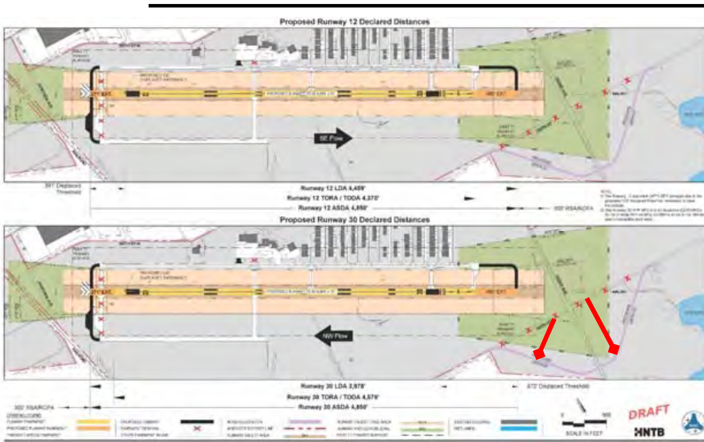


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

25

Airlake LTCP Declared Distance Concept

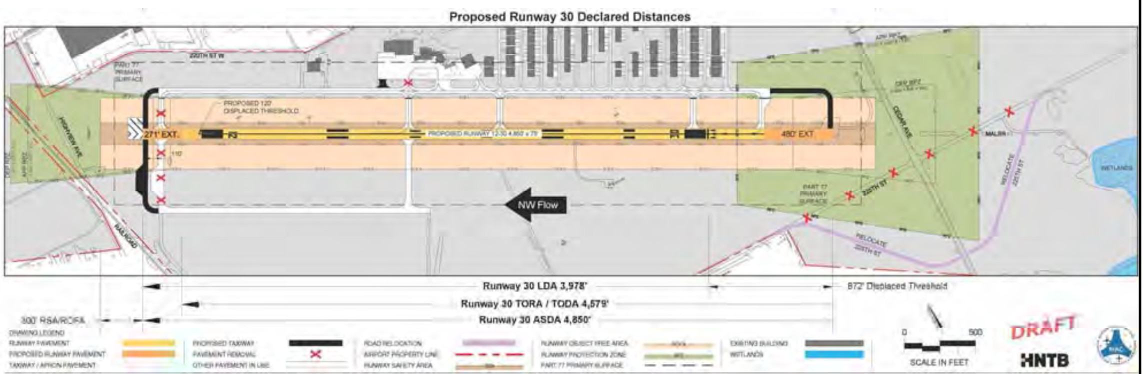


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and ILS
- Displaces RWY 12 landing threshold to clear RR tracks
  - Eliminates aligned taxiway
- Maintains existing RPZs over Cedar
- Relocates 225th Street out of Primary Surface and RPZ

26

Airlake LTCP Declared Distance Concept



27

Airlake LTCP Declared Distance Concept

31

LTCP Apron Expansion Concepts

Optional Apron Expansion Areas **Figure 5-9**

* Requires environmental review/approval.

Stakeholder & Public Engagement

- Pre-Publication Stakeholder Engagement
  - Agencies
  - Tenants
  - Municipal Representatives
- MAC Board Approval to publish Draft LTCP
  - Targeting May 2017
- Formal Public Review Period
  - 45-day review period (June – July 2017)
  - Public Information Meeting(s)
- MAC Board Approval to Submit to Met Council
- Metropolitan Council Review
- Final MAC Board Adoption
- Environmental, ALP, Zoning

37

Questions & Dialogue

38

PUBLIC NOTICE

DRAFT 2035 LONG-TERM COMPREHENSIVE PLAN
AIRLAKE AIRPORT
Public Comment Period Open

The Metropolitan Airports Commission (MAC) has prepared a draft version of the 2035 Long-Term Comprehensive Plan (LTCP) for Airlake Airport. The purpose of the LTCP is to identify facility needs at Airlake Airport through 2035. The public is invited to review this document and provide written comments to the MAC.

Airlake Airport is located in Dakota County, within the borders of Eureka Township and abutting the southern border of the City of Lakeville. A small portion of the airport lies within the City of Lakeville boundary. The Draft 2035 LTCP recommends that the runway at Airlake Airport (Runway 12-30) be extended to a length of 4,850 feet from its current length of 4,099 feet. Unlike previous plans, the recommended concept in this update does not require the relocation of Cedar Avenue (County Road 23) on the east side of the airport. It does, however, consider the relocation of a section of 225th Street (a township road) to a new intersection with Cedar Avenue in order to accommodate the runway changes.

Copies of the Draft LTCP document will be available for distribution, and for viewing on the MAC's website, beginning Monday, July 17, 2017. Written comments will be accepted until Wednesday, August 30, 2017 at 5:00pm CDT.

https://metroairports.org/General-Aviation/Airports/Airlake.aspx

A printed copy of the document will be available for review at the following locations: MAC General Office building, 6040 28th Avenue South, Minneapolis; Lakeville City Hall, 20195 Holyoke Avenue, Lakeville; Eureka Township Town Hall, 25043 Cedar Ave S, Lakeville; Heritage Library, 20085 Heritage Drive, Lakeville; and at Airlake Airport (MAC Office), 8140 220th Street W, Lakeville. Requests for a paper copy can be sent to the email address below.

The public is also invited to attend informational meetings to learn more about the proposed improvements included in the Draft LTCP. See below for the times and locations:

Wednesday, August 9, 2017
6:00 to 8:00 PM
Lakeville City Council Chambers
20195 Holyoke Avenue
Lakeville, MN 55044

Thursday, August 10, 2017
6:00 to 8:00 PM
Eureka Township Town Hall
25043 Cedar Ave S
Lakeville, MN 55044

The meetings will include a 6:30 p.m. presentation by MAC staff, as well as opportunities to ask questions and talk directly with staff.

Written comments can be submitted via email by sending them to Airlake-Airport-LTCP-Comments@mspmac.org, or by physically mailing them to Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis MN 55450.

PUBLIC MEETING ANNOUNCEMENT

The Metropolitan Airports Commission will hold two informational meetings for the public to learn more about its proposed long-term plans for Airlake Airport. Please join us!

Wednesday, Aug. 9, 2017 • 6 to 8 p.m.

MAC staff will provide a presentation at 6:30 p.m.
Lakeville City Council Chambers
20195 Holyoke Ave., Lakeville, MN 55044

OR

Thursday, Aug. 10, 2017 • 6 to 8 p.m.

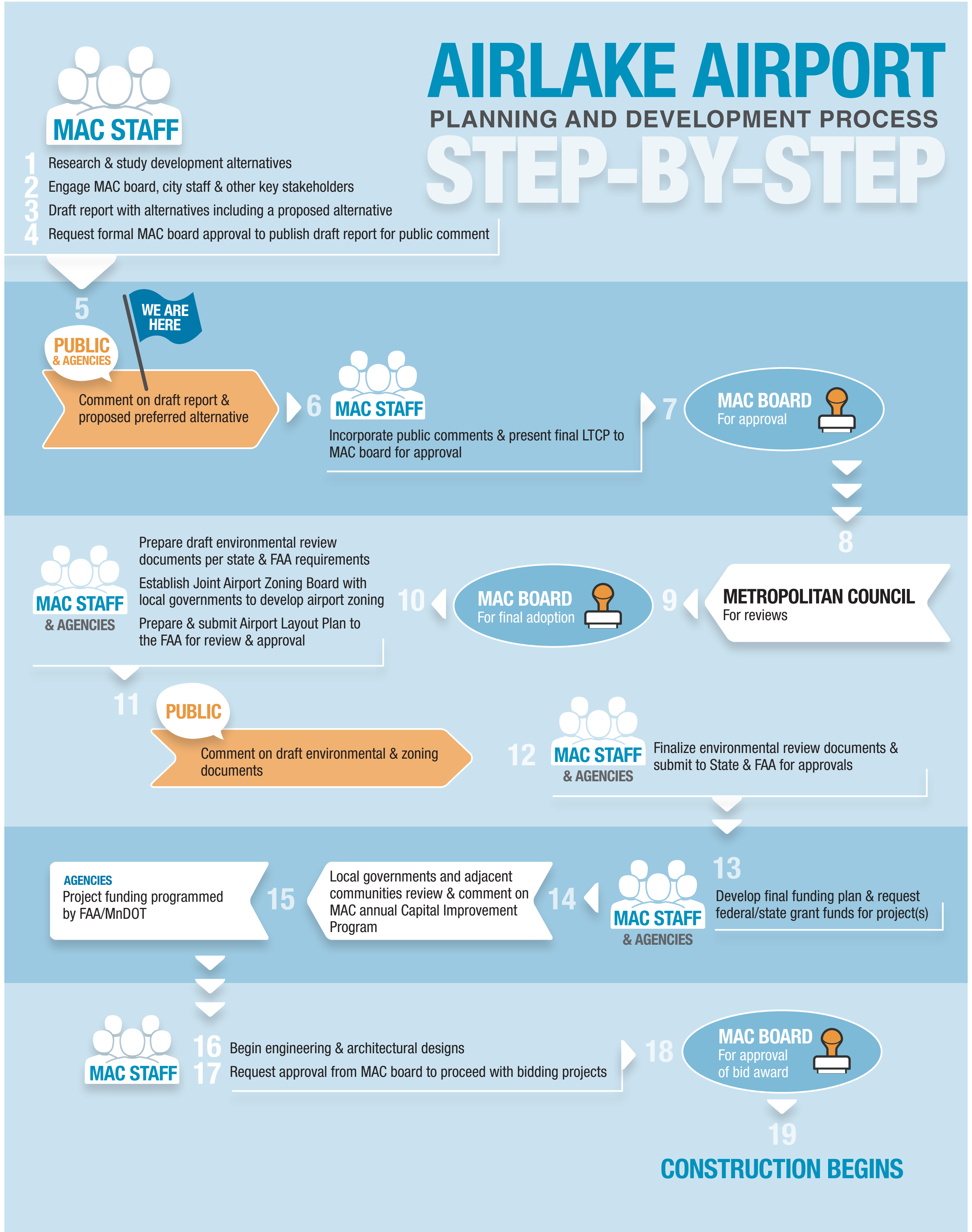
MAC staff will provide a presentation at 6:30 p.m.
Eureka Township Town Hall
25043 Cedar Ave. S., Lakeville, MN 55044

The draft 2035 Long-Term Comprehensive Plan and a summary of the changes included in the plan can be found on the MAC's website at:

metroairports.org/General-Aviation/Airports/Airlake.aspx

Questions about the plan or the informational meeting?
Contact Neil Ralston at neil.ralston@mspmac.org or 612-726-8129.

Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450



Airlake Airport
2035 DRAFT Long-Term Comprehensive Plan (LTCP)
Public Information Meeting Handout

Thank you for attending this Airlake Airport 2035 Long Term Comprehensive Plan (LTCP) public information meeting.

We appreciate you taking the time to attend and learn more about the long-term plan we are developing for Airlake Airport.

This handout provides information about Airlake Airport, a summary of the planning process and the plan recommendations.

Airport Development, Reliever Airports and Environment

PUBLIC COMMENTS

The MAC is accepting written comments about the draft plan for Airlake Airport through Wednesday, August 30, 2017. To provide comments, you can fill out a comment form tonight, mail your form at a later date, or submit your comments via email to **Airlake-Airport-LTCP-Comments@mspmac.org**. All comments submitted will be made a part of the project record and published in the final report.

ABOUT AIRLAKE AIRPORT

The Metropolitan Airports Commission (MAC) owns and operates Airlake Airport. It is one of six general aviation airports within the MAC's system of airports. Airlake Airport plays an important role in the MAC system of airports and serves to relieve congestion at Minneapolis-St. Paul International Airport (MSP) by attracting general aviation traffic away from this larger airport.

Airlake Airport began operating in 1967 as a privately-owned airfield serving the Airlake Industrial Park. The MAC acquired the airport in 1981 to provide a training facility for conducting general aviation instrument approaches, which had been occurring at MSP Airport.

It serves personal, recreational, and some business aviation users in the southern metropolitan areas of Dakota and Scott Counties. Examples of business services provided at Airlake Airport include flight training, aircraft rentals, charter flights, aircraft management services, and medical flight transportation.

The proposed 2035 plan does not recommend changing the airport's role to accommodate larger aircraft or scheduled passenger or cargo flights.

ABOUT THE DRAFT 2035 LTCP

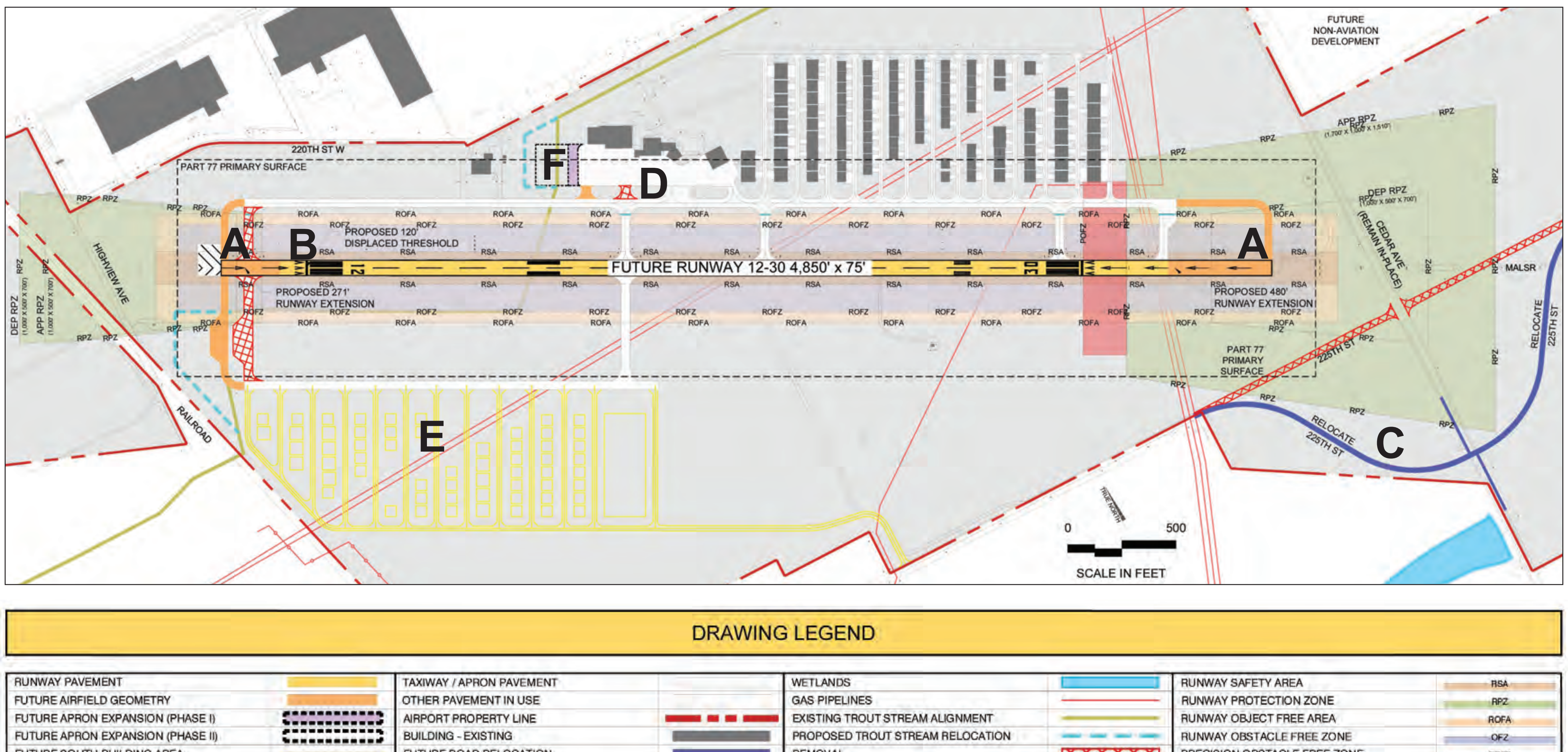
The purpose of the Airlake Airport 2035 Long-Term Comprehensive Plan is to update, as needed, the findings of the 2025 LTCP, and to extend the planning horizon an additional ten years to 2035. A LTCP is an infrastructure planning tool that is updated on a regular basis. It is forward-looking in nature but does not authorize actual construction.

For this LTCP, an overarching objective is to better accommodate business related aircraft needs by maximizing the airfield's operational capabilities and property footprint, while at the same time enhancing airfield safety for all types of aircraft. The Draft 2035 LTCP recommends that the one runway at Airlake Airport (Runway 12-30) be extended to a length of 4,850 feet from its current length of 4,099 feet. Unlike previous plans, the recommended concept in this update does not require the relocation of Cedar Avenue (County Road 23) on the east side of the airport. It does, however, consider the relocation of a section of 225th Street (a township road) to a new intersection with Cedar Avenue in order to accommodate the runway changes.

Other improvements recommended in the Draft LTCP include the following:

- Move the Runway 12 touchdown location to keep aircraft higher over the railroad tracks when landing.
- Modify some taxiway configurations to reflect airport layout best practices and thus enhance airfield safety
- Develop an area on the south side of the airport to accommodate future hangar development, including an access roadway
- Provide more space for aircraft parking to better accommodate visiting aircraft

The draft LTCP report is available for public review and comment on the MAC website at: **www.metroairports.org/General-Aviation/Airports/Airlake.aspx**



WHAT'S NEXT?

The Airlake Airport LTCP is in draft form. Following the public comment period, the plan will be completed and presented to the MAC Board of Commissioners for its final adoption. It will also be presented to the Metropolitan Council for additional review.

WHAT AIRPORT IMPROVEMENTS ARE PROPOSED IN THE PLAN?

The following improvements are recommended and are illustrated on the map.

A. Extend both runway ends for a runway length of 4,850 feet (including connector taxiway extensions and rehabilitating the existing runway pavement)

B. Displace Runway 12 end for additional airspace clearance over railroad track

C. Relocate 225th Street to accommodate runway changes

D. Modify some taxiway configurations

E. Develop the South Building Area and access roadway

F. Expand the aircraft parking apron

Airlake Airport

2035 Long-Term Comprehensive Plan (LTCP)

Public Informational Meetings – August 9 & 10, 2017

Draft LTCP Overview

Briefing Agenda

- Airport Role & Context
- Existing Conditions & Previous Plan
- Aviation Activity Forecasts
- Recommended Development Concept
- Stakeholder Engagement & Next Steps

Airlake Airport 2035 LTCP Purpose:
- Update view of future facility needs
- Serve as the "road map" to guide our development strategy for Airlake Airport
- Shape the 7-Year Capital Improvement Program (CIP)

2

Airlake 2035 LTCP Overview

- Key Planning Objectives for LTCP
  - Better accommodate business aircraft needs by maximizing the airfield's operational capabilities and property footprint
  - Maintain or improve upon existing Runway Protection Zone (RPZ) land use compatibility
  - Mitigate existing issues with airspace penetrations
  - Update the taxiway layout to reflect current industry best practices, thus enhancing airfield safety

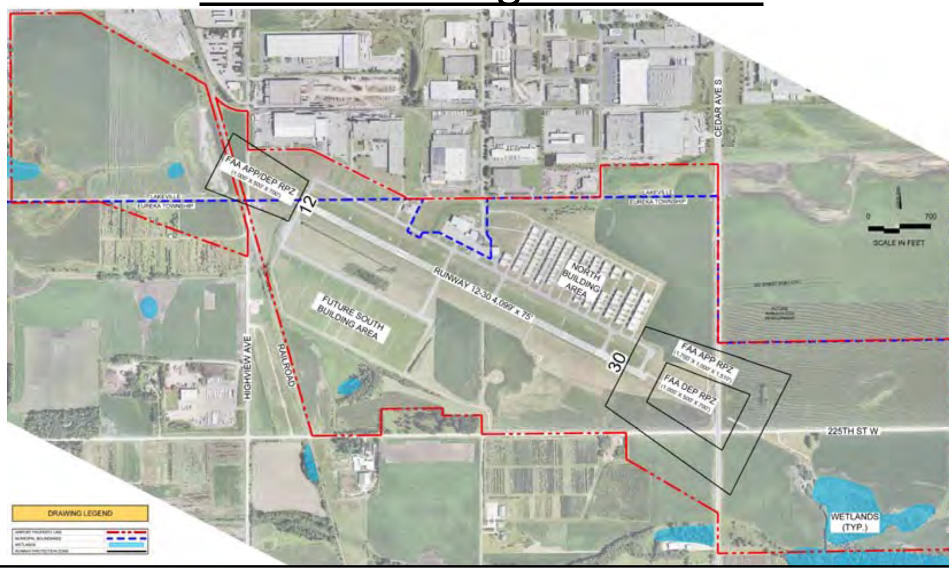
3

Airlake Airport Role

- Primary Role of Airlake Airport
  - Integral part of the regional Reliever Airport system
  - Accommodates Personal, Recreational, and Business Aviation users
  - Design Aircraft is and will continue to be small/mid-size business aircraft
  - Role not expected to change

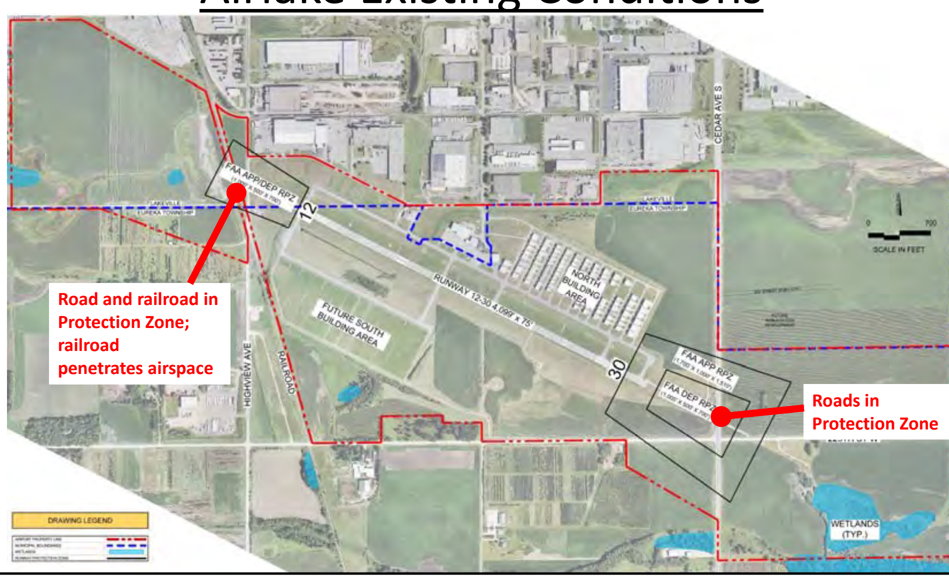
4

Airlake Existing Conditions



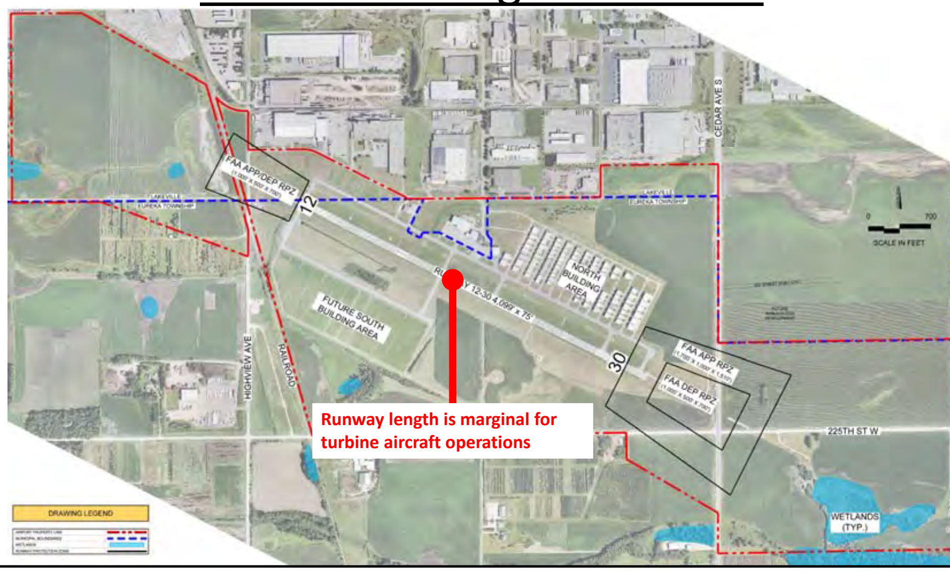
5

Airlake Existing Conditions



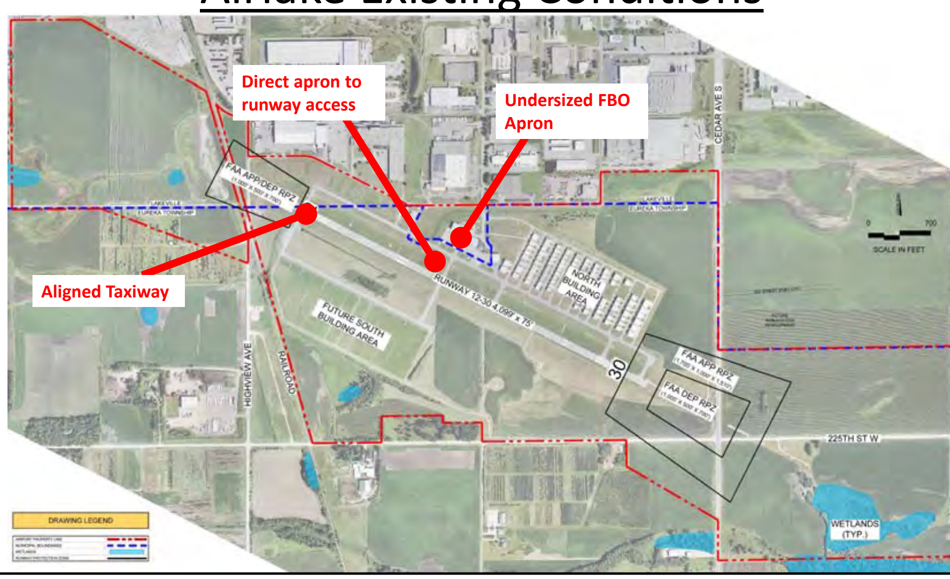
6

Airlake Existing Conditions



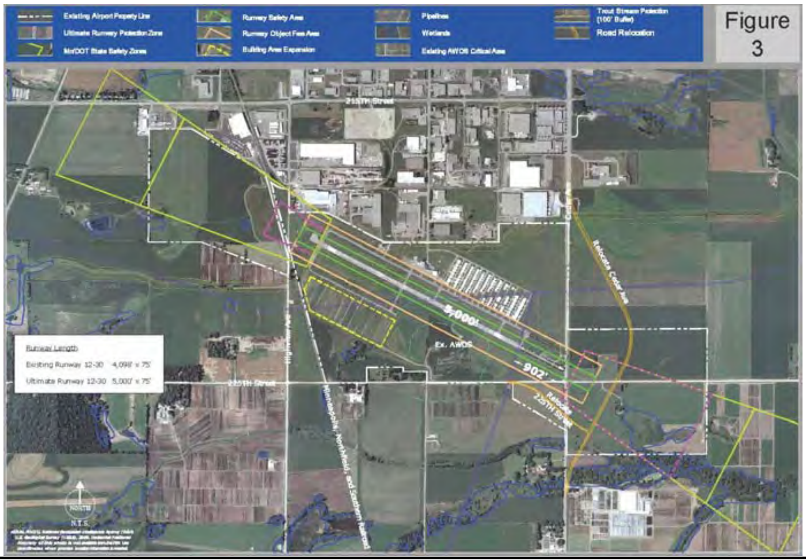
7

Airlake Existing Conditions



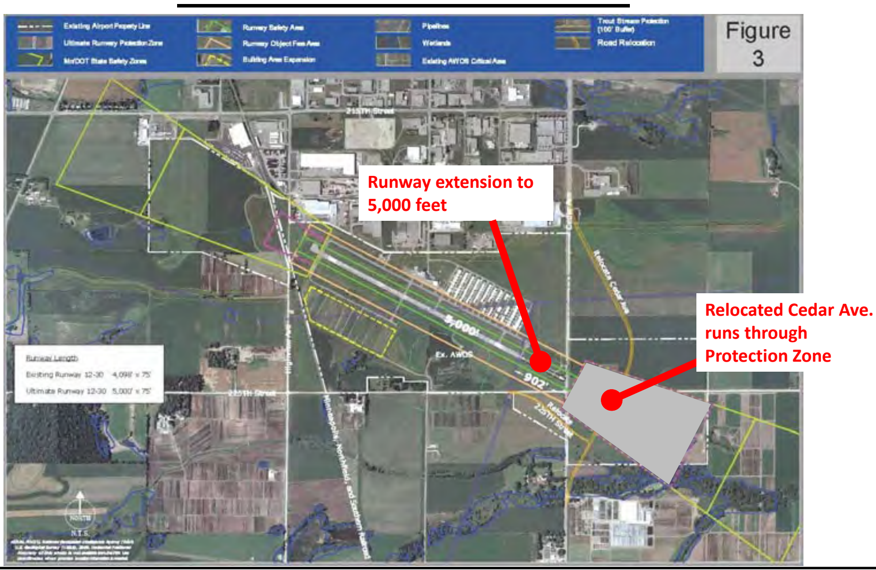
8

Airlake Previous LTCP

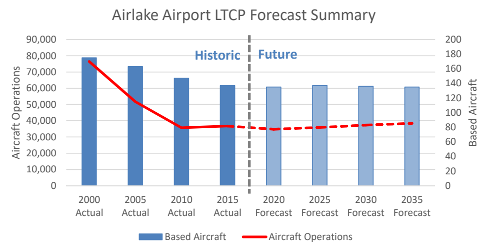


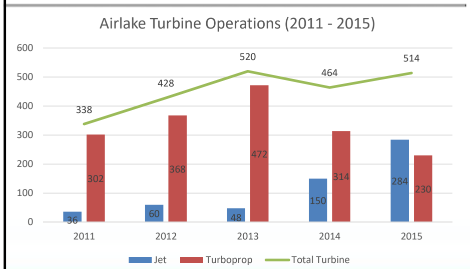
9

Airlake Previous LTCP



10





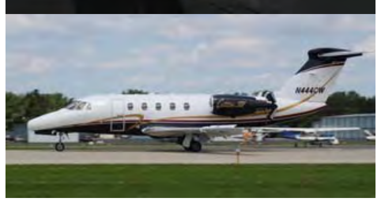
Airlake Activity Trends

- Based aircraft = 137
- Aircraft operations ~ 37,000
- Growth in jet operations over past 5 years
  - Existing runway length limits jet operations
  - Opportunity for increased turbine operations with longer runway
- Robust flight training activity
  - ILS is important training element
- 2035 Forecast:
  - 130-135 Based Aircraft
  - 36 – 38,000 Aircraft Operations

11

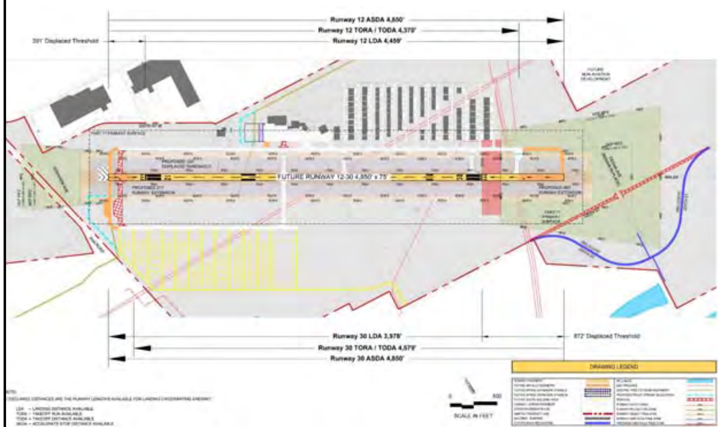
Airlake Runway Length Requirements

- Small Propeller-Driven Aircraft
  - Existing runway length adequate
- Small/Mid-Size Business Jets
  - Range of ~4,800 – ~5,400 feet
  - Statutory prohibition against runway extension > 5,000 feet
- Aircraft-specific analysis:
  - 5,000 feet would be ideal, but…
  - Even an extension into the upper 4,000-foot range could yield significant operational improvements



12

Airlake LTCP Runway 12-30 Extension Concept

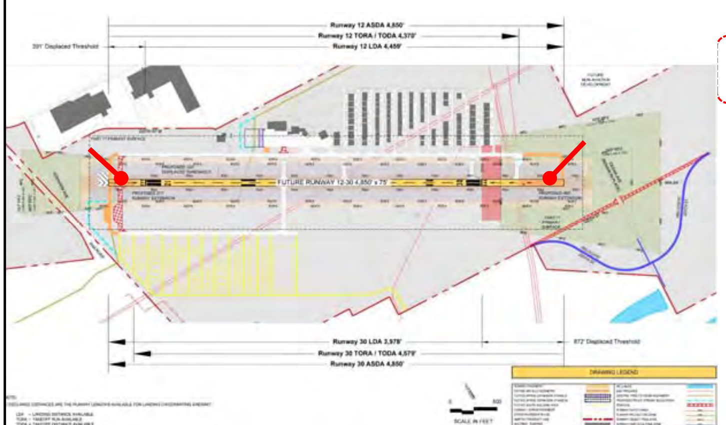


RWY 12-30 Extension Concept

- Extends both runway ends
  - Using Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

13

Airlake LTCP Runway 12-30 Extension Concept

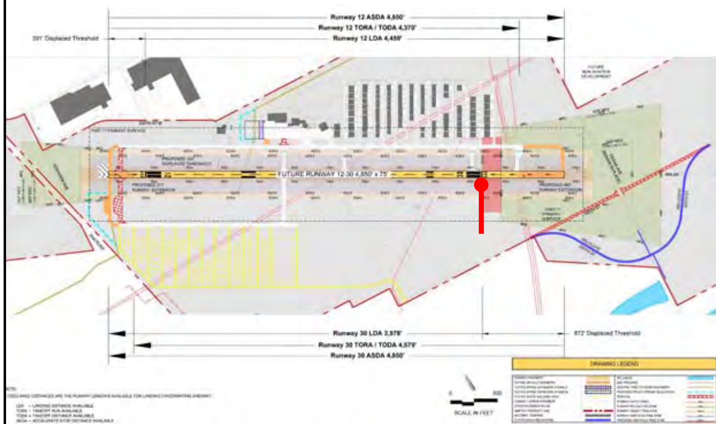


RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

14

Airlake LTCP Runway 12-30 Extension Concept

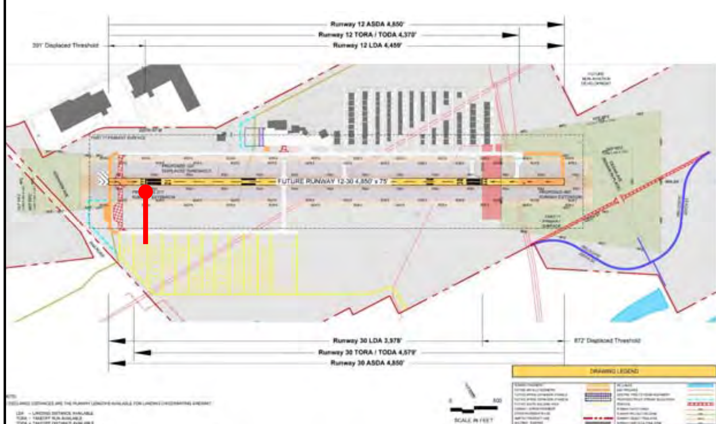


RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

15

Airlake LTCP Runway 12-30 Extension Concept

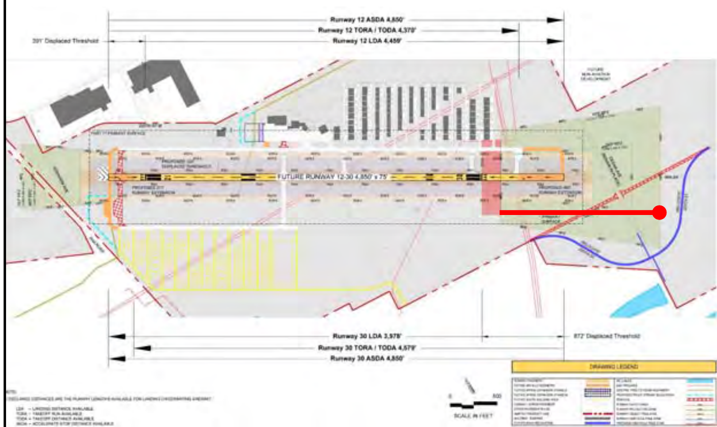


RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

16

Airlake LTCP Runway 12-30 Extension Concept

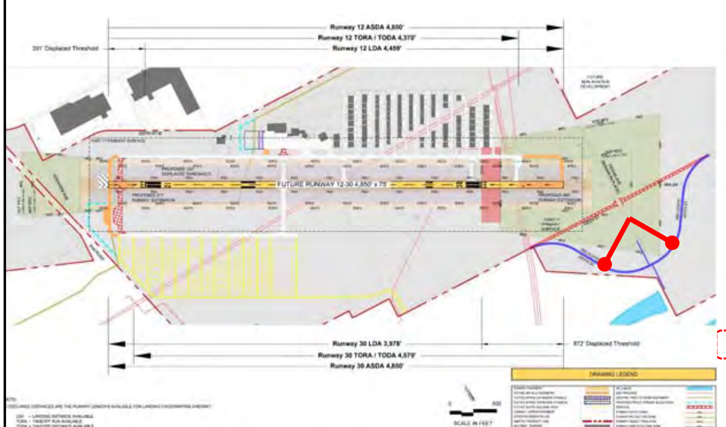


RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

17

Airlake LTCP Runway 12-30 Extension Concept

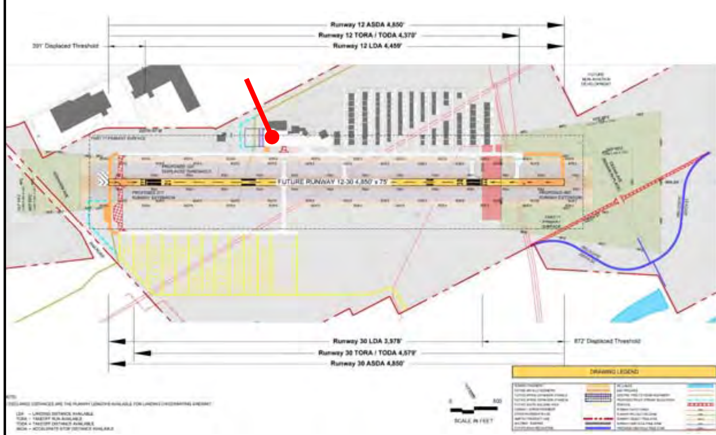


RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

18

Airlake LTCP Other Improvements

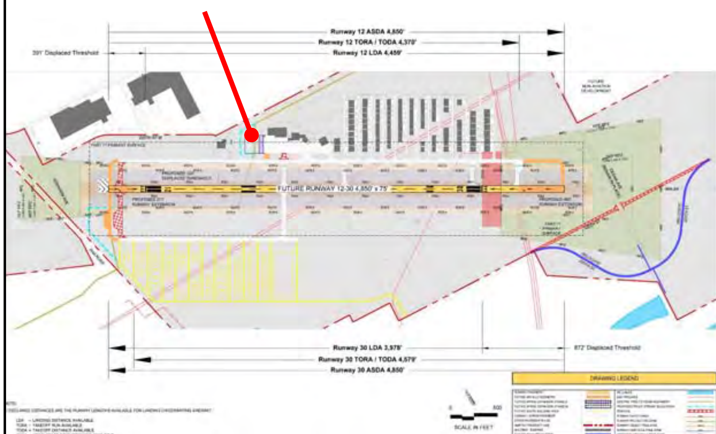


Other LTCP Improvements

- Taxiway configuration change
  - Removes "ramp to runway" access
- Expand the aircraft parking apron
- Develop the South Building Area
  - Including access road and utilities

19

Airlake LTCP Other Improvements

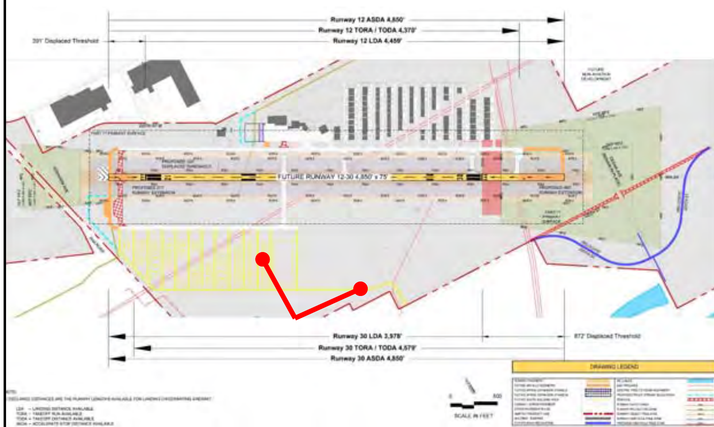


Other LTCP Improvements

- Taxiway configuration change
  - Removes "ramp to runway" access
- Expand the aircraft parking apron
- Develop the South Building Area
  - Including access road and utilities

20

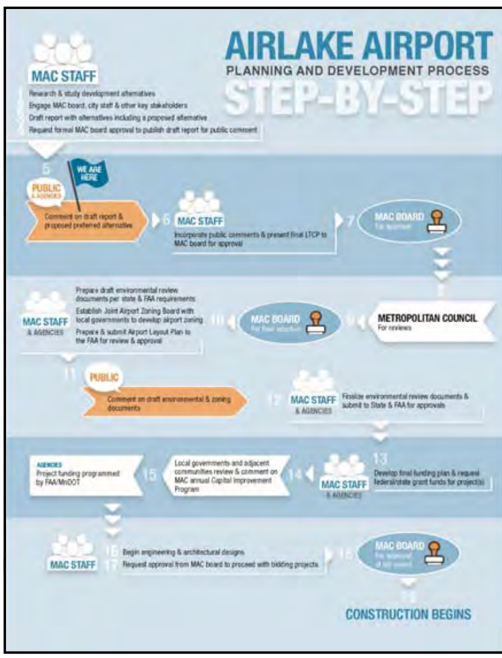
Airlake LTCP Other Improvements



Other LTCP Improvements

- Taxiway configuration change
  - Removes "ramp to runway" access
- Expand the aircraft parking apron
- Develop the South Building Area
  - Including access road and utilities

21



Stakeholder & Public Engagement

- Pre-Publication Stakeholder Engagement
  - Agencies
  - Tenants
  - Municipal Representatives
- MAC Board Approval to publish Draft LTCP
  - May 2017
- Formal Public Review Period
  - 45-day review period (July 17 – August 30, 2017)
  - Public Information Meetings – August 9 & 10
- MAC Board Approval to Submit to Met Council
- Metropolitan Council Review
- Final MAC Board Adoption
- Environmental Review

22

Question & Answer Session

MAC Staff will be available until 8pm to address any questions you may have

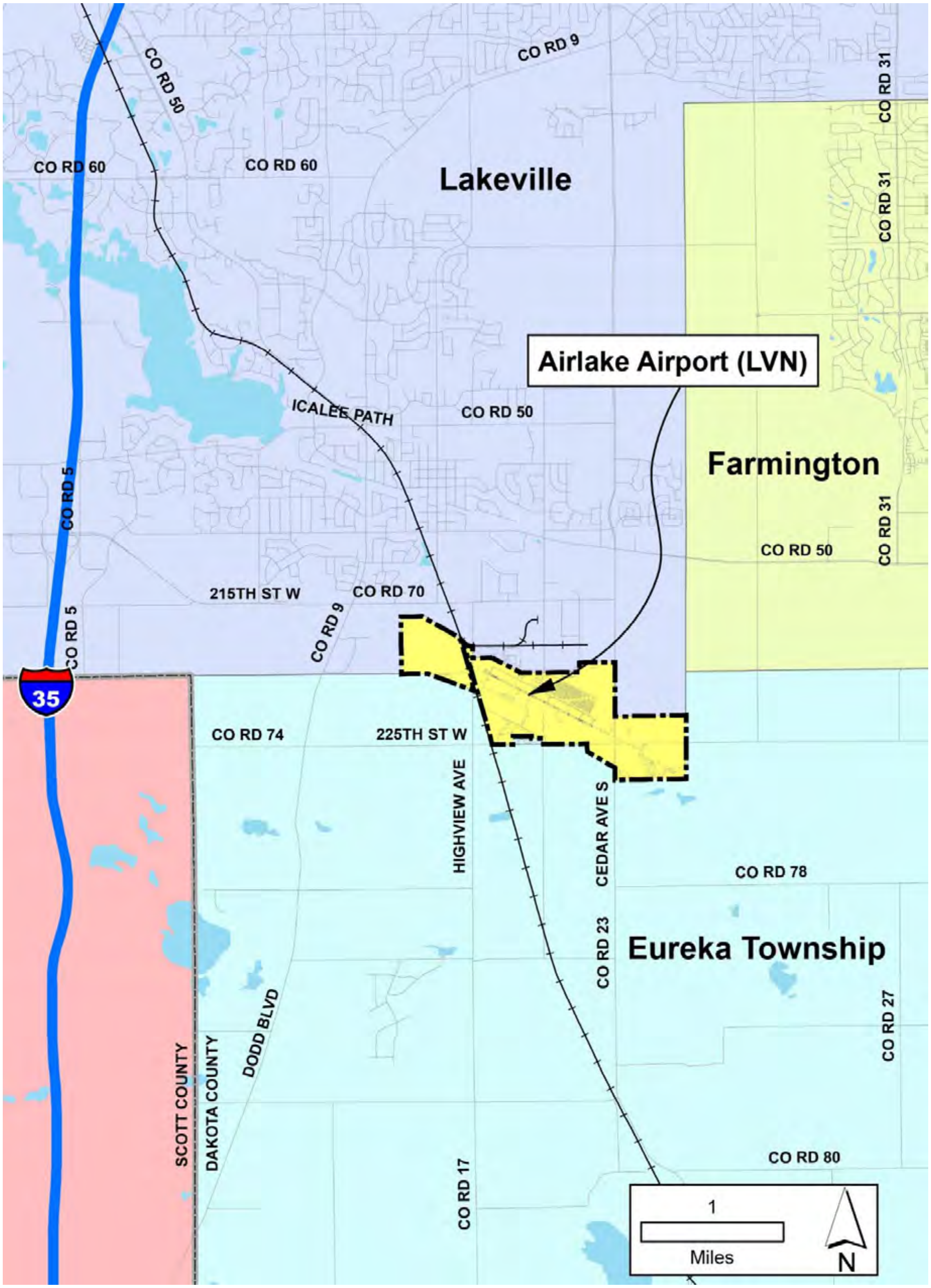
23

Airlake Airport

Draft 2035 Long-Term Comprehensive Plan (LTCP)

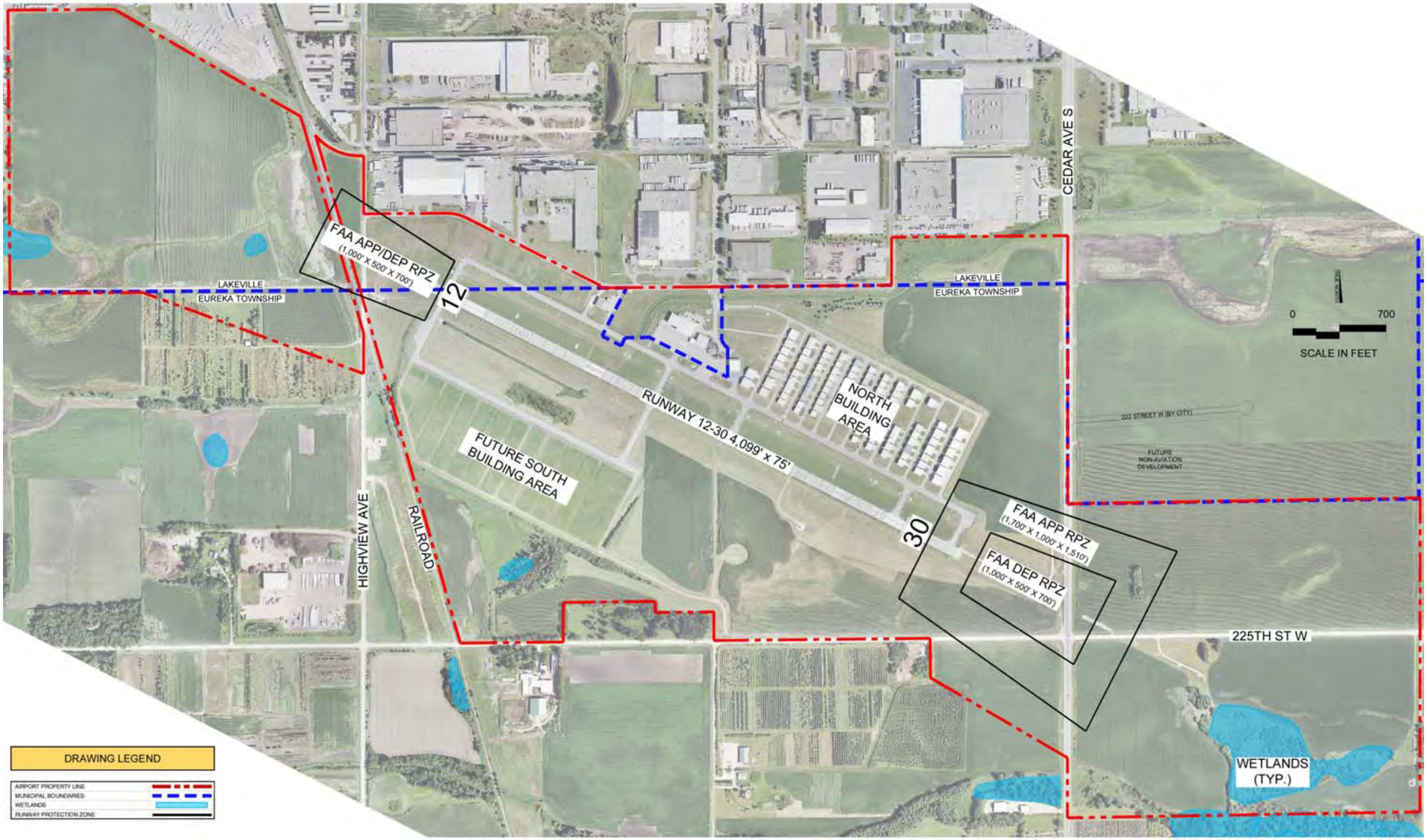
AIRLAKE AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

Public Informational Meetings – August 9 & 10, 2017



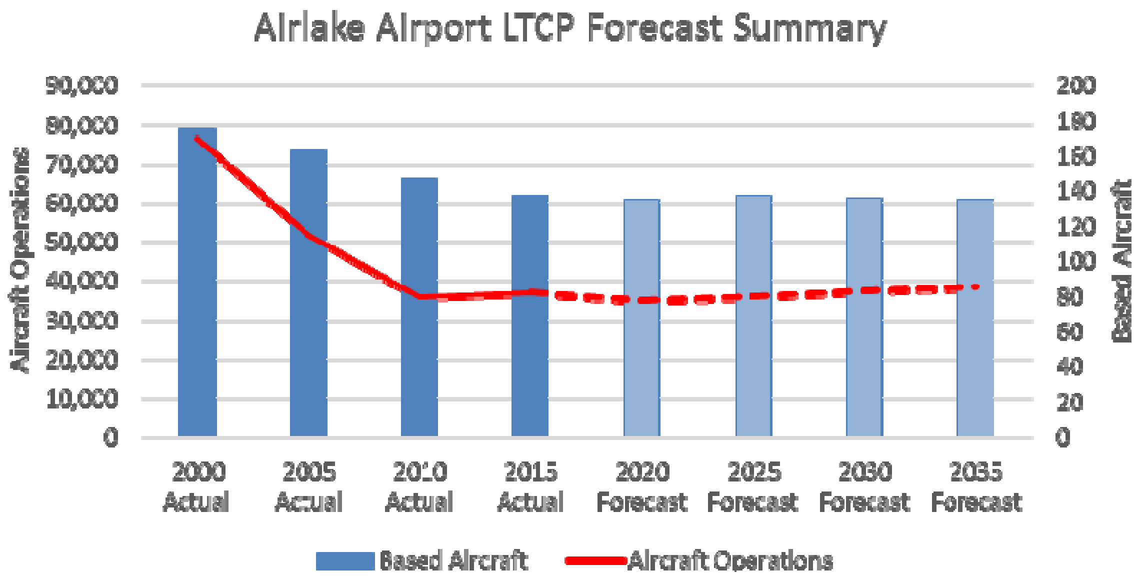
AIRLAKE AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

Airport Vicinity



AIRLAKE AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

Existing Airport Layout



Year	Total Based Aircraft				Total Number of Operations			
	Base Case	High Range	Low Range	Extended Runway	Base Case	High Range	Low Range	Extended Runway
2015 (a)	137	137	137	137	36,757	36,757	36,757	36,757
2020	135	137	131	135	34,811	35,230	33,761	34,811
2025	134	141	128	137	34,642	36,333	33,739	35,900
2030	133	143	126	136	35,106	37,917	33,303	37,373
2035	131	145	120	135	35,658	39,219	32,712	38,410
	Average Annual Growth Rate							
	-0.2%	0.3%	-0.7%	-0.1%	-0.2%	0.3%	-0.6%	0.2%

Notes:

(a) 2015 operations represent twelve months ending June 2015. Includes estimate of nighttime activity.

Sources: HNTB Analysis.

AIRLAKE AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

Aviation Activity Forecast Summary

Airport Reference Code A-I

Aircraft	MTOW (lbs.)[1]	Approach Speed (knots)	Wingspan	Tail Height	Aircraft Type
Cessna 172	2,550	62	36'-1"	8'-11"	Single-Engine
Cirrus SR22 	3,400	78	38'-4"	8'-11"	Single-Engine
Diamond DA42	4,189	79	44'-4"	8'-2"	Multi-Engine
Eclipse 550	6,000	77	37'-11"	11'-0"	Very Light Jet
TBM 850	7,394	85	41'-7"	14'-4"	Single-Engine Turbo

Airport Reference Code A-II

Aircraft	MTOW (lbs.)[1]	Approach Speed (knots)	Wingspan	Tail Height	Aircraft Type
Cessna Caravan 208	8,000	79	52'-1"	14'-11"	Single-Engine Turbo
Pilatus PC-12 	10,450	87	53'-4"	14'-0"	Single-Engine Turbo

Airport Reference Code B-I

Aircraft	MTOW (lbs.)[1]	Approach Speed (knots)	Wingspan	Tail Height	Aircraft Type
Piper PA-31-350 Chieftain	7,000	96	40'-8"	13'-0"	Multi-Engine
Cessna 421C	7,450	96	41'-1"	11'-5"	Multi-Engine
Cessna Citation Mustang 	8,645	95	43'-2"	13'-5"	Very Light Jet
Piper PA-31T Cheyenne	9,000	98	42'-8"	12'-9"	Multi-Engine Turbo

Airport Reference Code B-II

Aircraft	MTOW (lbs.)[1]	Approach Speed (knots)	Wingspan	Tail Height	Aircraft Type
Cessna 441	9,850	99	49'-4"	13'-2"	Multi-Engine Turbo
Raytheon Beechcraft King Air 200/250 	12,500	103	57'-11"	14'-10"	Multi-Engine Turbo
Cessna Citation II/550 	14,100	112	52'-2"	15'-0"	Jet
Raytheon Beechcraft King Air 300/350	15,000	100	57'-11"	14'-4"	Multi-Engine Turbo
Cessna Citation Excel/560	20,000	107	55'-8"	17'-3"	Jet
Cessna Citation III/650 	22,000	114	53'-6"	16'-10"	Jet
Falcon 50	40,780	113	61'-10"	22'-11"	Jet

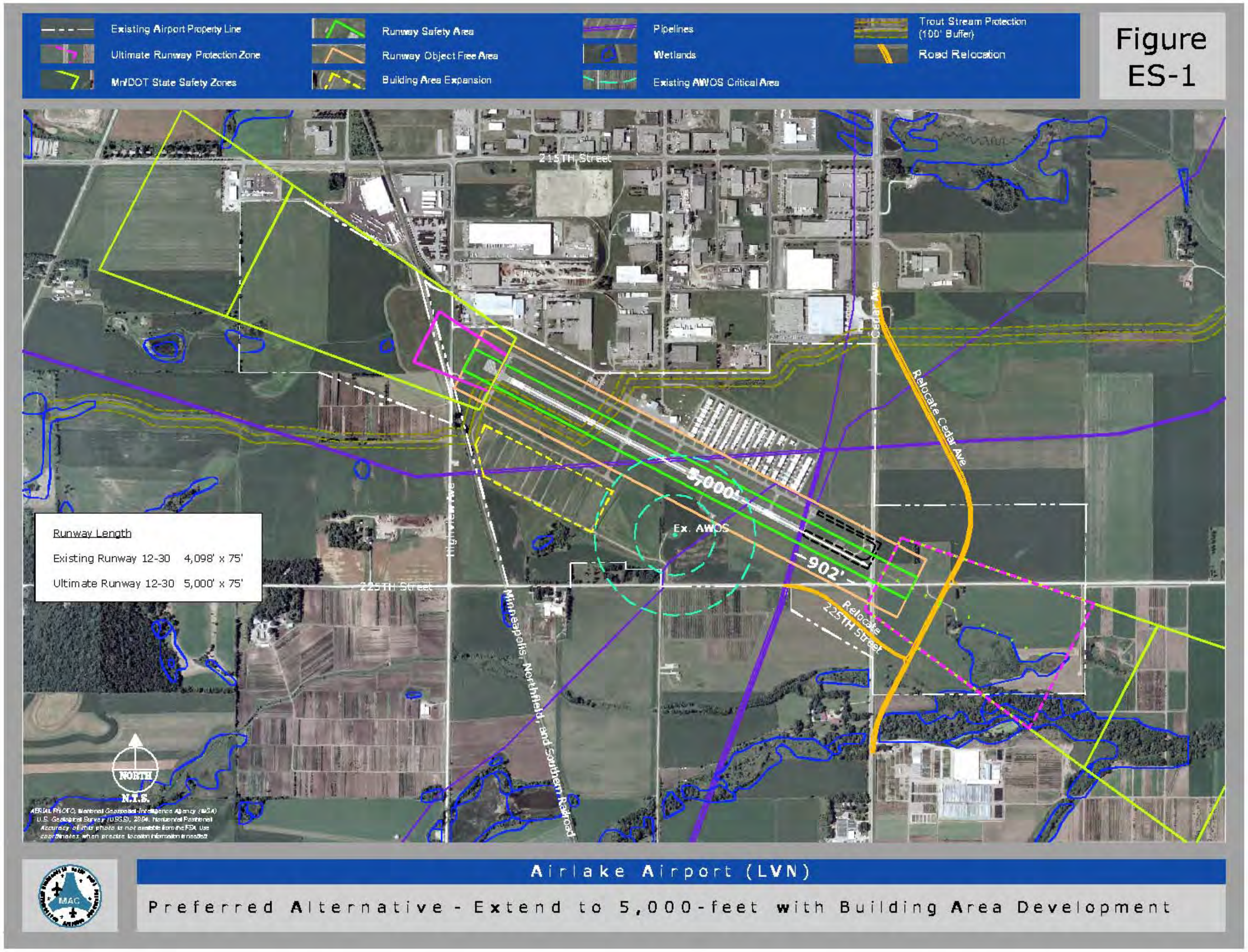
[1] Small Aircraft = Maximum Takeoff Weight (MTOW) less than or equal to 12,500lbs.

Runway Length

- Based on business-use aircraft requirements
- FAA Guidance: Range ~4,800 to ~5,400 feet
- Statutory prohibition against runway extension > 5,000 feet
- 5,000 feet would be ideal, but…
  - Even an extension into the upper 4,000-foot range could yield significant operational improvements for the aircraft types using Airlake today

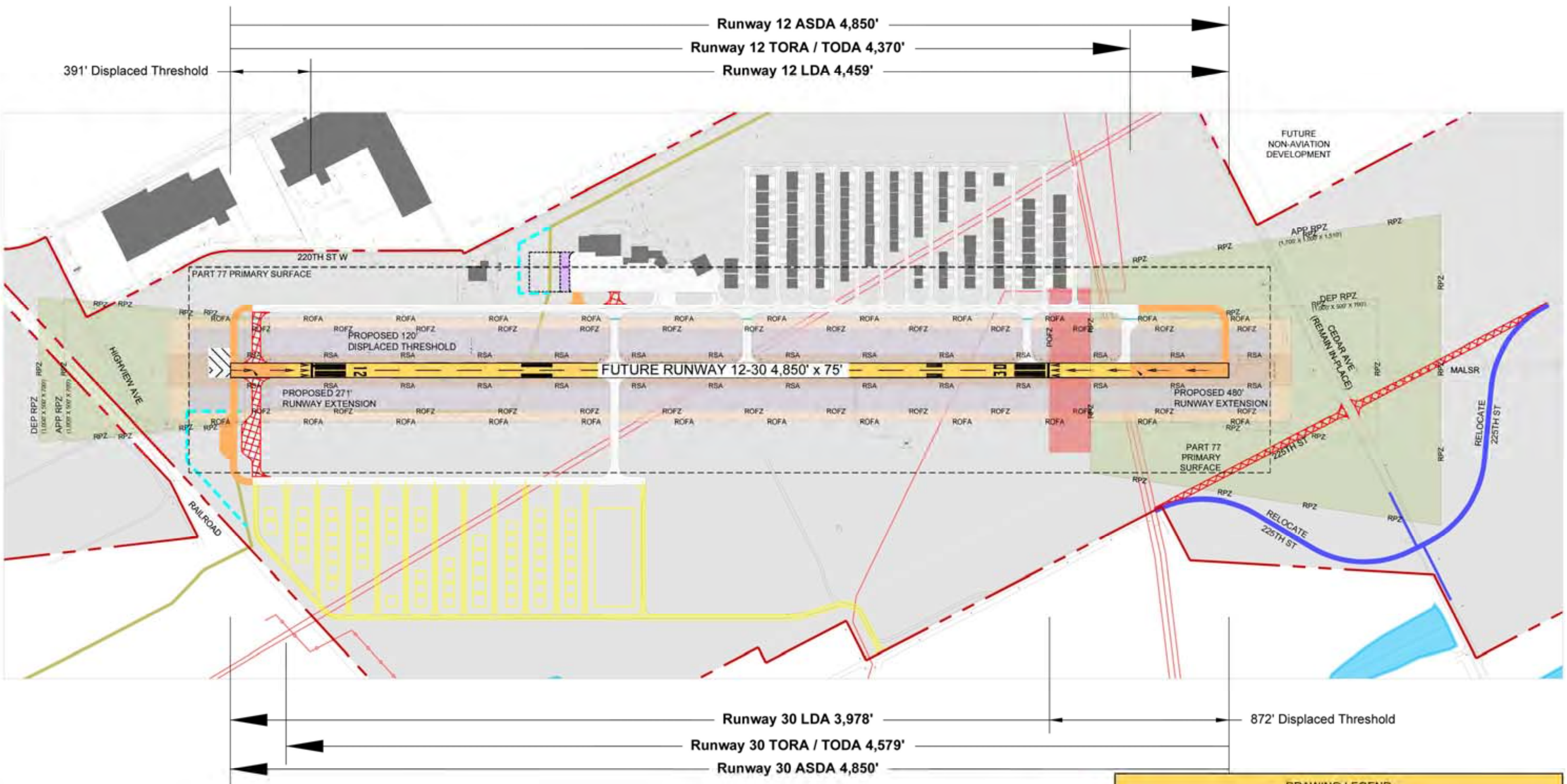
AIRLAKE AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

Typical Aircraft Types



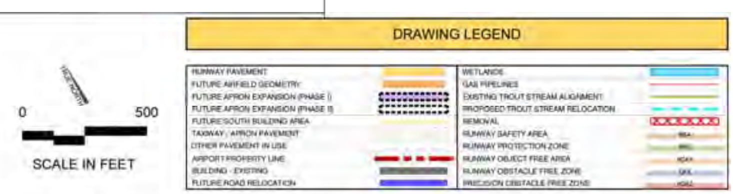
AIRLAKE AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

Previous LTCP Preferred Development Alternative

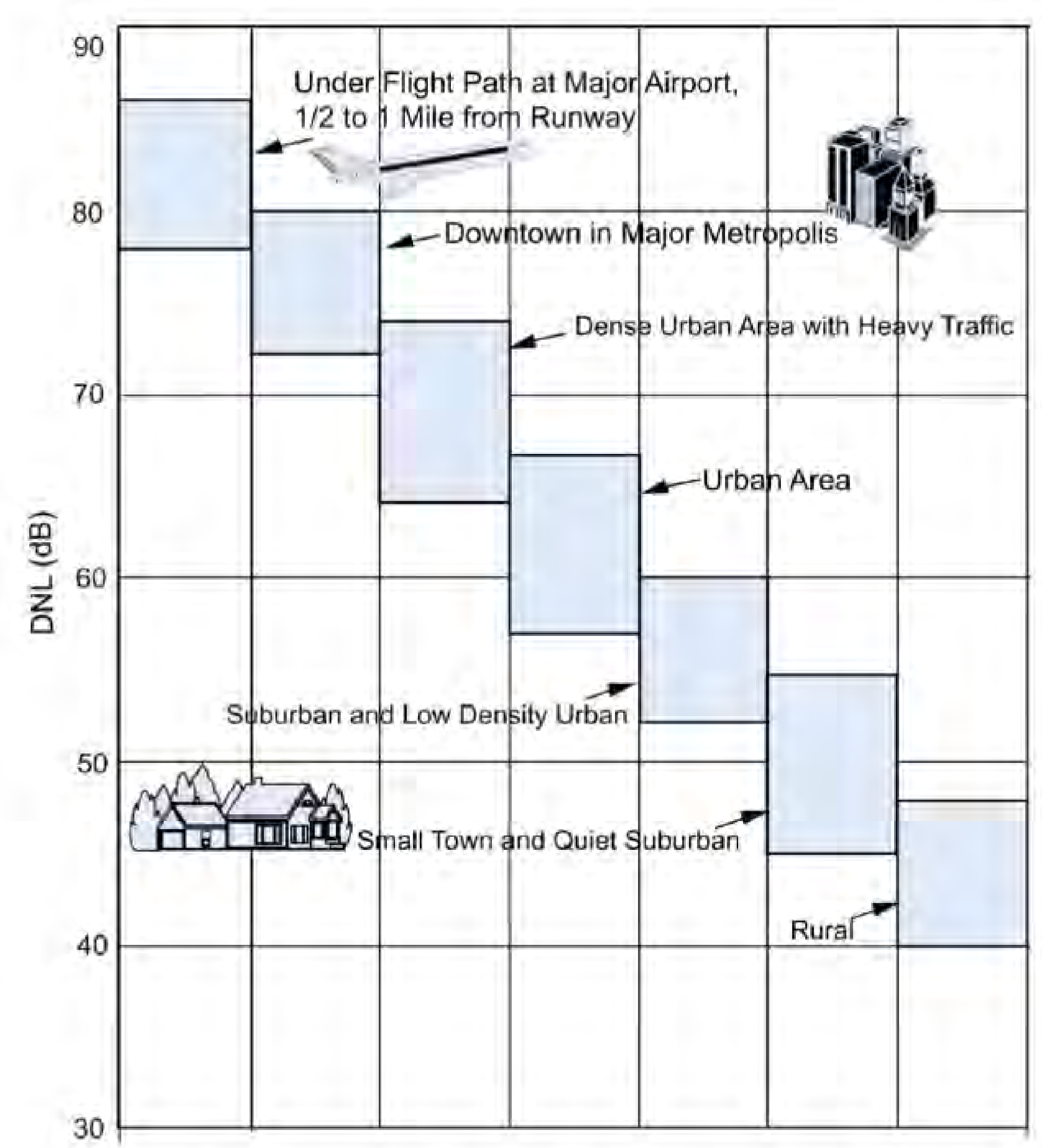


NOTE:
1) DECLARED DISTANCES ARE THE RUNWAY LENGTHS AVAILABLE FOR LANDING OR DEPARTING AIRCRAFT

LDA = LANDING DISTANCE AVAILABLE
TORA = TAKEOFF RUN AVAILABLE
TODA = TAKEOFF DISTANCE AVAILABLE
ASDA = ACCELERATE-STOP DISTANCE AVAILABLE



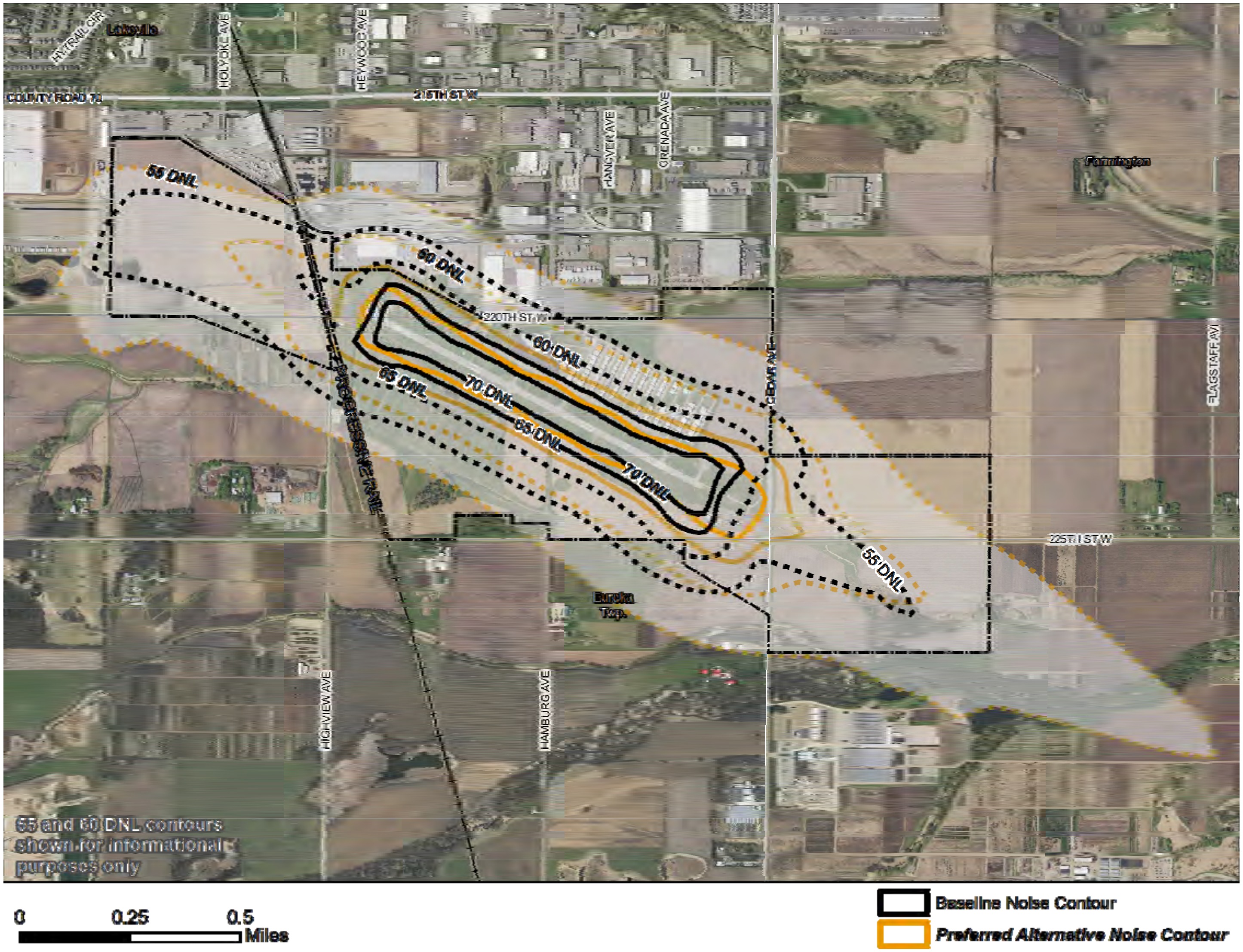
Extended Runway Scenario (Preferred Development Alternative)



Source: U.S. Department of Defense. Departments of the Air Force, the Army, and the Navy, 1978. *Planning in the Noise Environment.* AFM 19-10, TM 5-803-2, and NAVFAC P-970. Washington, D.C.: U.S. DoD.

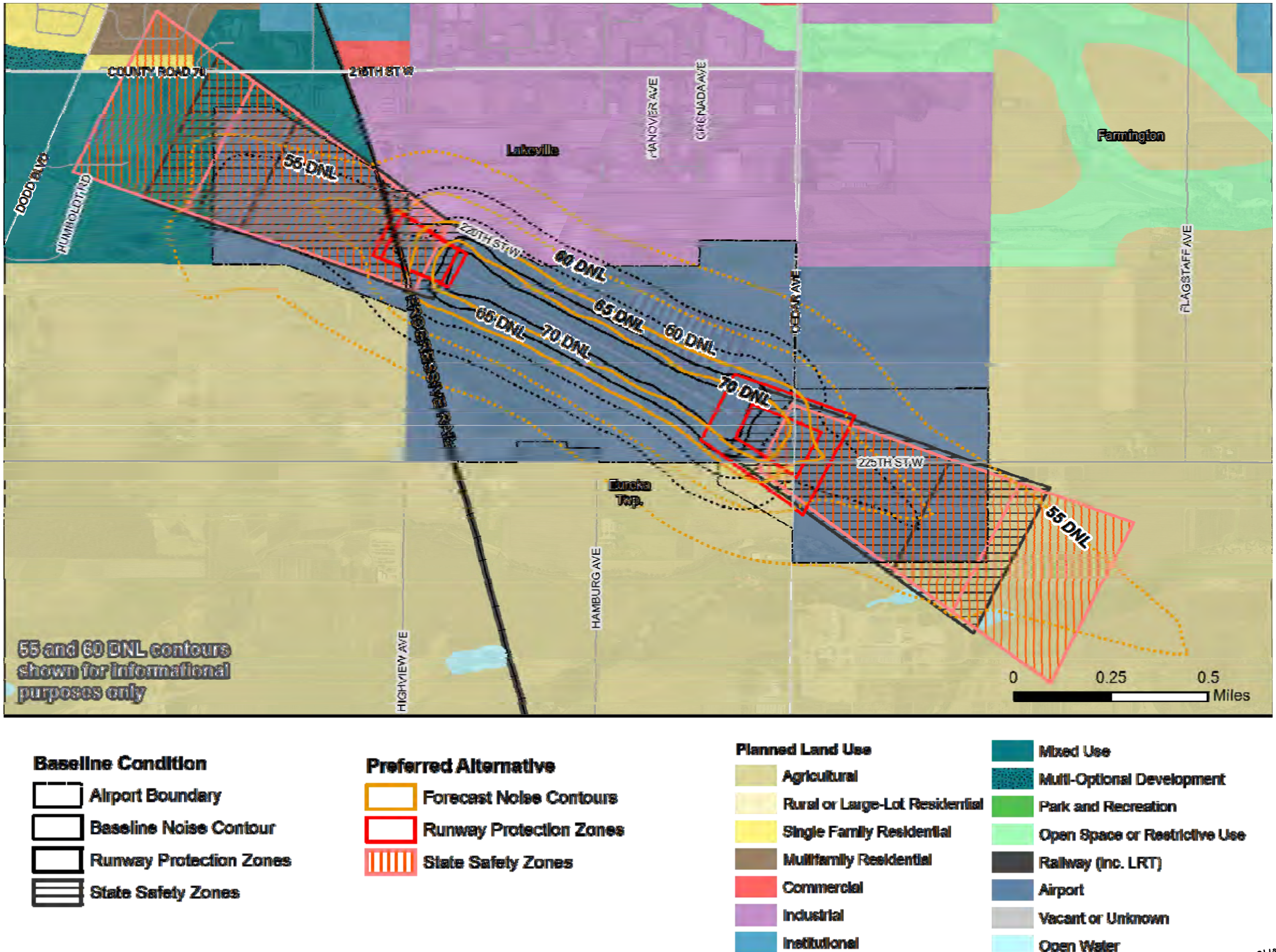
The DNL metric is calculated by cumulatively averaging sound levels over a 24-hour period with a 10 dB penalty between 10:00 P.M. and 7:00 A.M.

Typical Outdoor Community Day-Night Average Sound Level

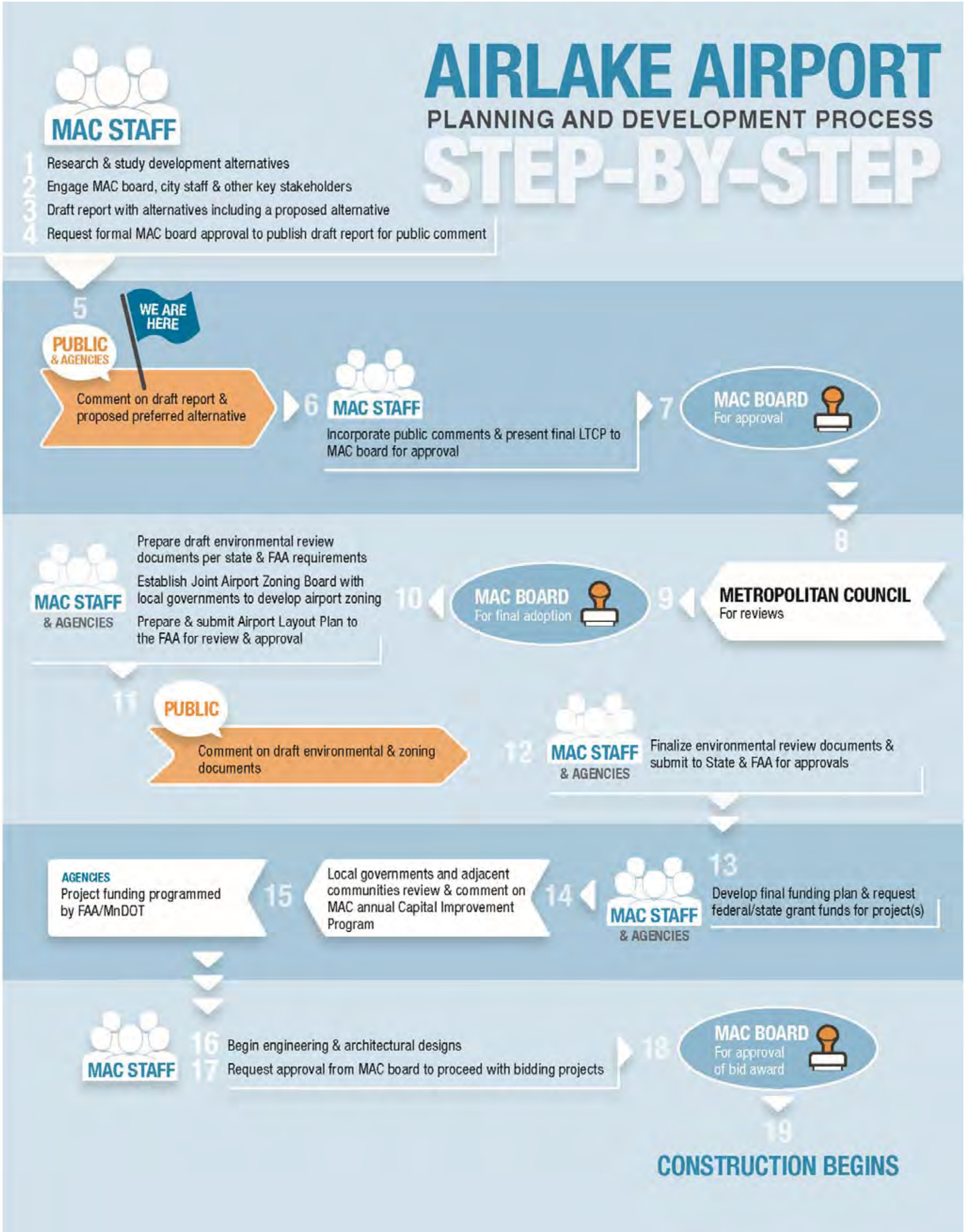


AIRLAKE AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

Aircraft Noise Contours (Baseline & Preferred Alternative)



Land Use Compatibility (Baseline & Preferred Alternative)



AIRLAKE AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

Planning & Development Process

9

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
Bob Finke	9142 212TH St. W. LKVL	SELF
Maureen LaFrance	Montgomery, MN	Self
Shawn Olszewski	Farmington, MN	Self
Stein Bruch	Farmington MN	SteinAir, Inc.
Phil Raines	18654 [illegible] Tr Lakeville	Me
Kathy Pancerto	22702 Hamburg Ave Lakeville	self & Applewood Orchard
Don Leidner	4552 Lake Park Court Eagan	self
S Sauder	17227 Harrington Way LkVlle	SELF
J. Bean	19344 Ireland Ct Lakeville	Self.

DRAFT Airlake Airport 2035 LTCP
Public Information Meeting

August 9, 2017

City Council Chambers
Lakeville, MN

MAC
METROPOLITAN AIRPORTS COMMISSION · MINNEAPOLIS SAINT PAUL

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
Jay Jones	9950 Towering Oaks Curve Prior Lake MN 55372	self
Jamie Bergen	15704 Cobblestone Lk Pkwy Apple Valley, MN 55124	SELF
Jed Gregerson	19310 Huntington Ave Lakeville	Self/SteinAir
Christer Stenstrom	21170 Eaton Ave Ste A Farmington MN 55024	Stein Air
Allen Alwin	23585 Jersey Ct 55044	CAP
Ron Schaura	21392 Hytrail Cir Lakeville MN 55044	SELF
Dave Sheldon	21346 Hytrail Circle, Lakeville	Self
Laird Hanson	18150 Jannevar Ct., Lakeville →	self
Heath Biegler	[redacted] 1	Magellan Pipeline
Lee Fitzke	21127 Homefire Way Lakeville	Self
David Casahan	20132 " " "	"
Nicholas Fudge	20720 Holt Ave Lakeville	"

DRAFT Airlake Airport 2035 LTCP
Public Information Meeting

August 9, 2017

City Council Chambers
Lakeville, MN

24
+9
33 attendees

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
Doug Anderson	19827 Jersey Ave Lkvl	Mayor Lkvl
Mark Demunto	22702 Hamburg Ave	Applewood Orch
Patrick Hallikan	4379 Kaufmanis Way Eagan, MN	EAA Chapter 25
Dave Adelmann	19492 Biscayne Farmington	
Gary Rosch	5016 Edgewater Dr Savage MN	EAA Chp 25
Steve Wentworth	12466 Judicial Rd Lakeville MN	Airlake Flyteline Services
Bob Breckner	14725 Innsbrook Circle Burnsville MN	Airlake Hgr owner
[illegible]	10213 205th ST W	Self
Gary Stinar	9155 Glocca Morra Circle	~~[illegible]~~ / Self
Tom Fitzhenry	6737 [illegible]	self
Mark Zweber	12320 210th St Lkvl	
Carl Pflaum	5780 225th ST. W	

Farmington MN 55024

DRAFT Airlake Airport 2035 LTCP
Public Information Meeting

August 9, 2017

City Council Chambers
Lakeville, MN

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
Nancy Sauber	9445 225th St. W.	
Tim Murphy	9110 225th St. W.	
B.T. [illegible] Clancy	25511 [illegible] Ave Lakeville	Resident
[illegible] Boiny	23865 Co Rd 10	Lorette 55357
Gmar Olson W	" " "	" "
Kelvin Borchardt	9245 215 W	215 street
Sue Whitney	21332 Hytrail Cir. Lakeville	
Mark [illegible]	7226 235th St. West	
Randy Wood	23775 Essex AV	
Nicholas [illegible]	20720 Holt ave	[illegible]
[illegible]	26347 Galaxie	
Carrie Jennings	8419 280th St W	Nfld 55057

DRAFT Airlake Airport 2035 LTCP
Public Information Meeting

August 10, 2017

Eureka Township Town Hall
Eureka Township, MN

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
Susan Bachman West	26347 Galaxie Ave	
Kelly Brosseth	9235 235TH St. W.	
Marcus Watson	15717 Fremont Way Apple Valley	
Laird Hanson	Lakeville	
Brian Murphy	6730 Lakeville Blvd.	
Tricia Murphy	6730 Lakeville Blvd.	
Mark Pflaum	6100 225th St W	
Don Pflaum	5256 225th St W	
Butch Ha[illegible]	26120 Highw[illegible]	
Donovan Palmquist	27607 Grenada	
Georgie Motts	8875 - 225th St W.	
Cal Pflaum	5780 225th St W., Farmington	

DRAFT Airlake Airport 2035 LTCP
Public Information Meeting

August 10, 2017

Eureka Township Town Hall
Eureka Township, MN

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
Gary Stinar	9155 Glocca Morra Circle	Self

DRAFT Airlake Airport 2035 LTCP
Public Information Meeting

August 10, 2017

Eureka Township Town Hall
Eureka Township, MN

Airlake Airport Draft 2035 Long-Term Comprehensive Plan (LTCP)

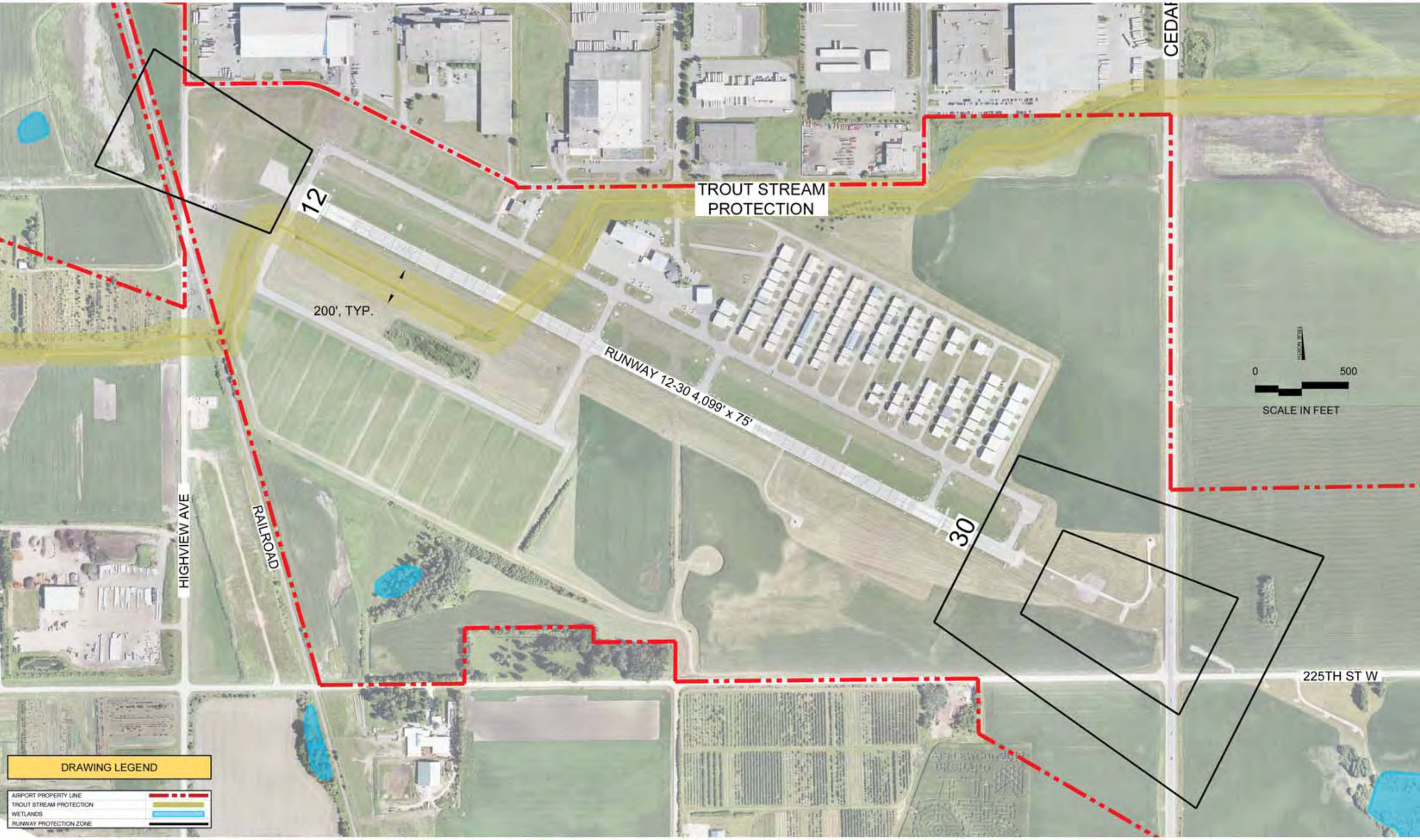
Briefing with Water Quality Agencies

06/19/2017 @ 11:00 AM
Airlake Airport MAC Office
8140 220th Street, Lakeville, MN 55044

----- Agenda Topics -----

- **Introductions**
- **LTCP Briefing**
  - Overview
  - Airport Role & Context
  - Existing Conditions & Previous Plan
  - Aviation Activity Forecasts
  - Development Concepts
  - Timeline
- **Overview of South Tributary of South Creek**
  - Trout stream designation
  - Previous relocations
  - Existing condition/activity
- **Protections / Buffers in place**
  - Dimensions
  - Restrictions
  - Triggers
  - Approval processes
  - Mitigation techniques
- **Site Walk (if needed)**
- **Summary / Action Items**

[site exhibit on next page]



TROUT STREAM
PROTECTION
CEDAR
12
200', TYP.
RUNWAY 12-30 4,099' x 75'
30
HIGHVIEW AVE
RAILROAD
225TH ST W
TRUE NORTH
0
500
SCALE IN FEET
DRAWING LEGEND
AIRPORT PROPERTY LINE
TROUT STREAM PROTECTION
WETLANDS
RUNWAY PROTECTION ZONE

Airlake Airport

2035 Long-Term Comprehensive Plan (LTCP)

19 June 2017 – Water Quality Agency Briefing

Draft LTCP Summary Overview

Briefing Agenda

- Airport Role & Context
- Existing Conditions & Previous Plan
- Aviation Activity Forecasts
- Recommended Development Concept
- Stakeholder Engagement & Next Steps

Airlake Airport 2035 LTCP Purpose:
- Update view of future facility needs
- Serve as the "road map" to guide our development strategy for Airlake Airport
- Shape the 7-Year Capital Improvement Program (CIP)

2

Airlake 2035 LTCP Overview

- Key Planning Objectives for LTCP
  - Optimize use the airfield footprint to better meet existing user operational needs
  - Maintain or improve upon existing Runway Protection Zone (RPZ) land use compatibility
  - Address existing airspace penetrations
  - Incorporate airfield geometry best practices to reduce incursion potential

3

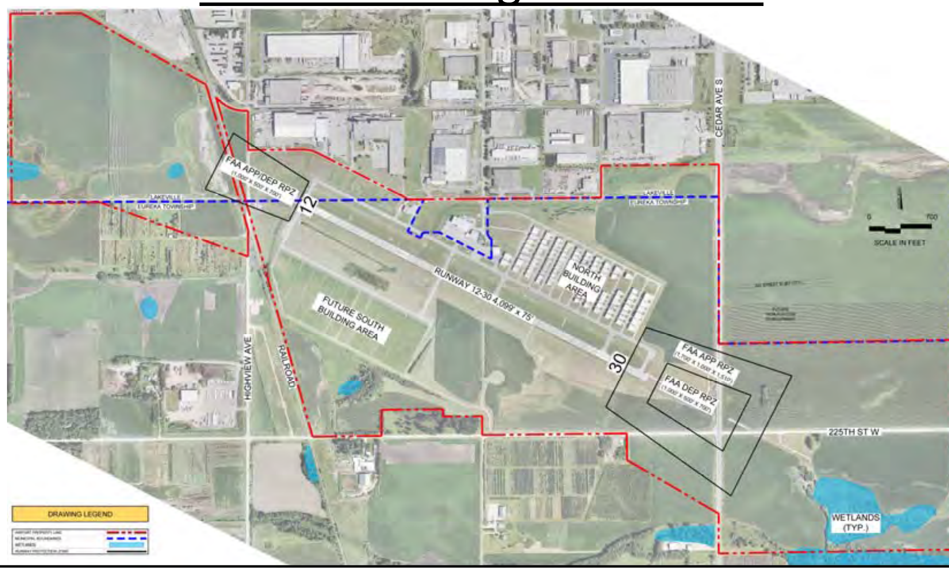
Airlake Airport Role

- Primary Role of Airlake Airport
  - Integral part of the regional Reliever Airport system
  - Accommodates Personal, Recreational, and Business Aviation users
  - Design Aircraft is and will continue to be small/mid-size business aircraft
  - Role not expected to change

- Airlake Airport Context
  - Of Peer "Intermediate" Airports (83)
    - 4th busiest for aircraft operations
    - 4th highest number of based aircraft

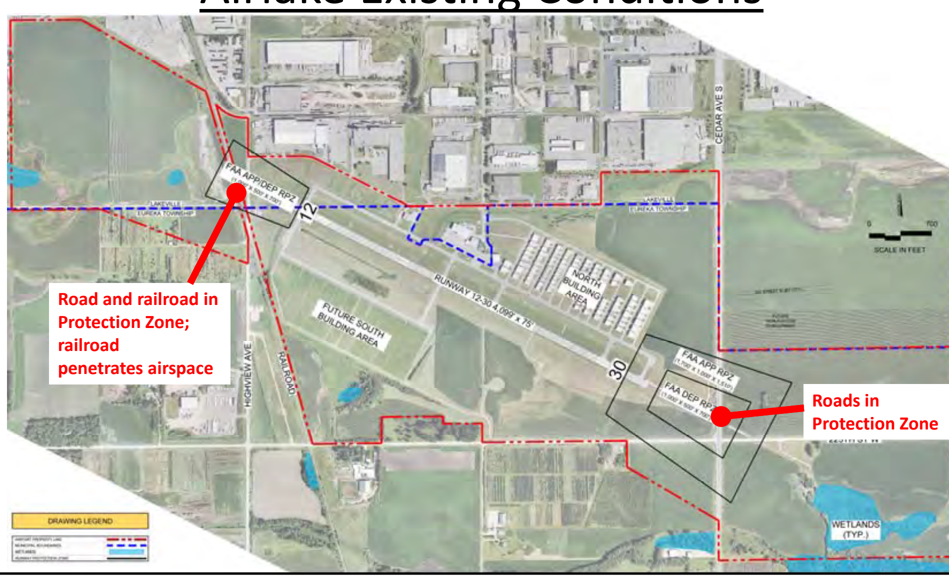
4

Airlake Existing Conditions



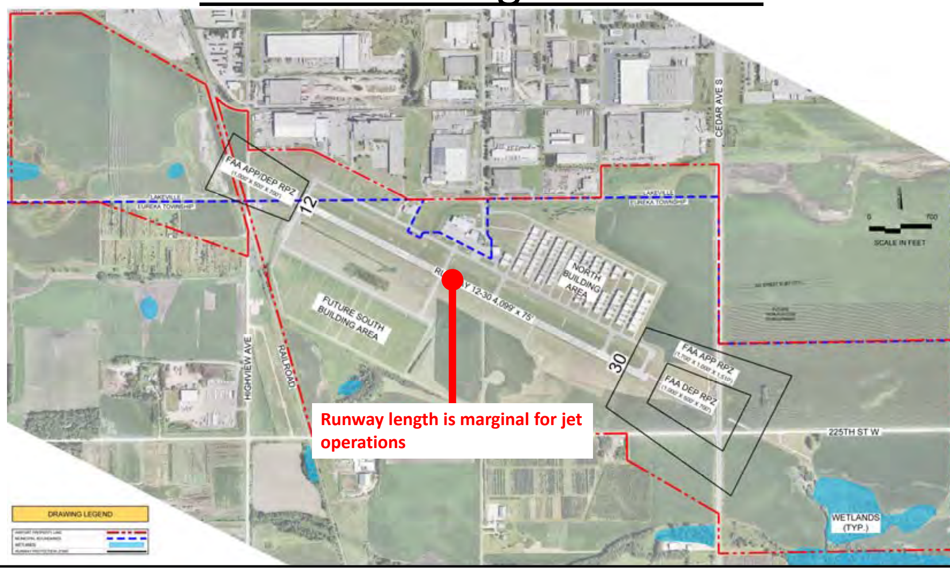
5

Airlake Existing Conditions



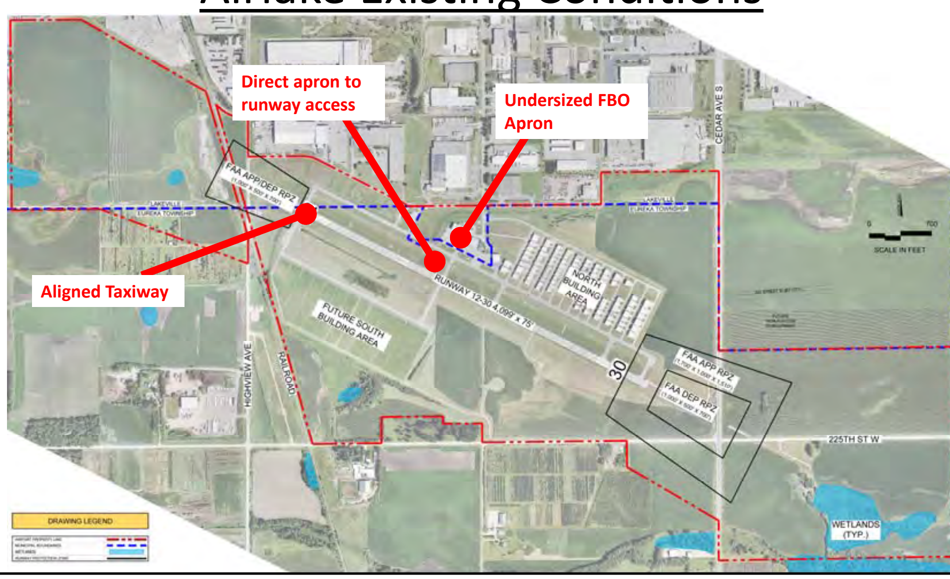
6

Airlake Existing Conditions



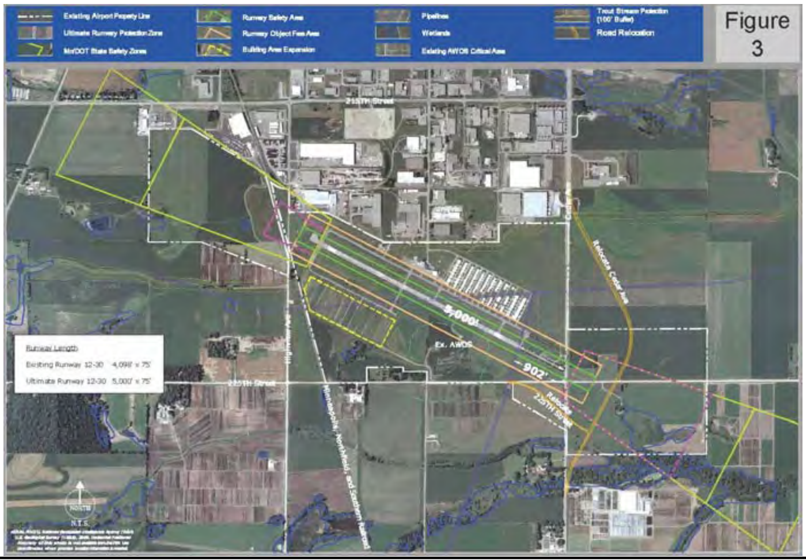
7

Airlake Existing Conditions



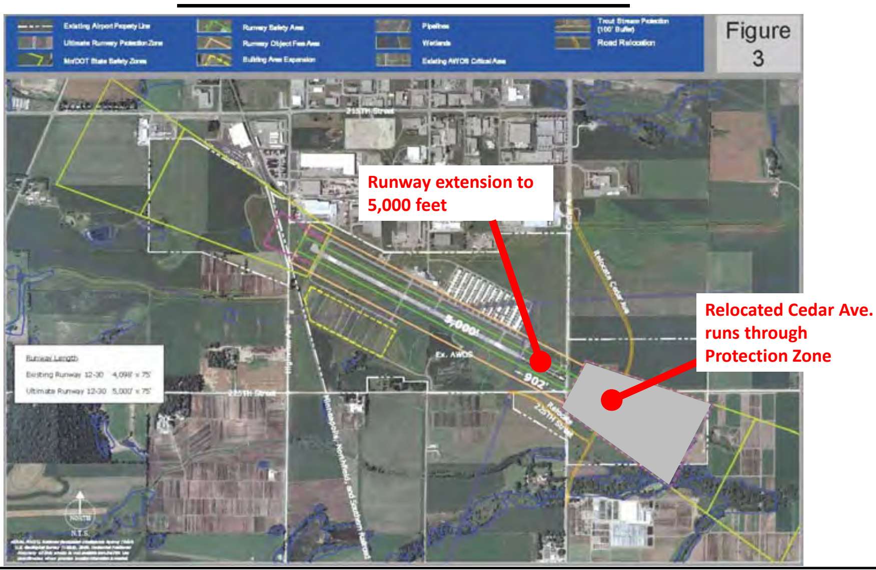
8

Airlake Previous LTCP



9

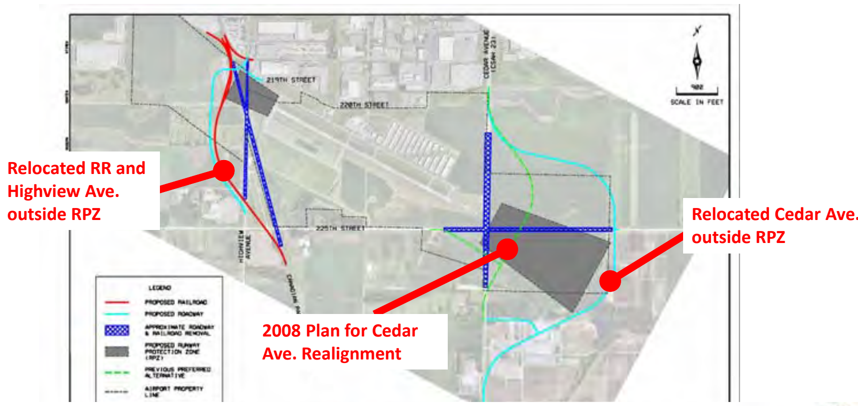
Airlake Previous LTCP



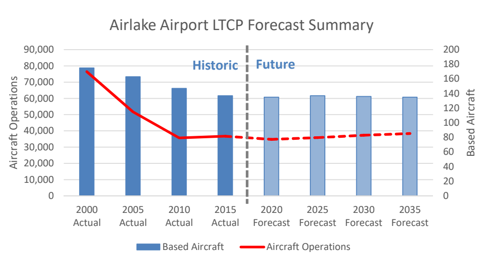
10

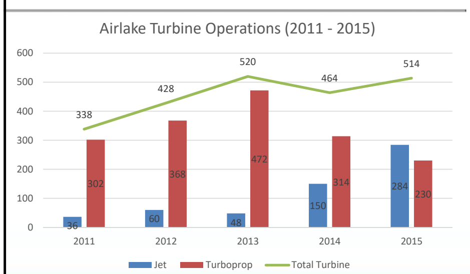
5

FAA Runway Protection Zone (RPZ) Guidance



11





Airlake Activity Trends

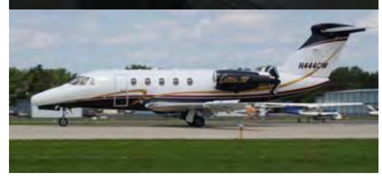
- Based aircraft = 137
- Aircraft operations ~ 37,000
- Growth in jet operations over past 5 years
  - Existing runway length limits jet operations
  - Opportunity for increased turbine operations with longer runway
- Robust flight training activity
  - ILS is important training element

- 2035 Forecast:
  - 130-135 Based Aircraft
  - 36 – 38,000 Aircraft Operations

12

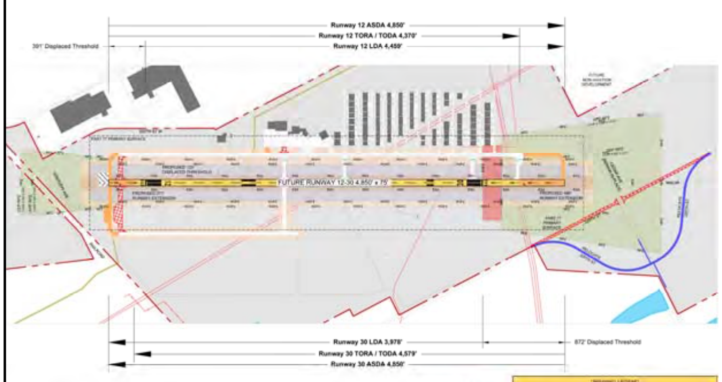
Airlake Runway Length Requirements

- Small Propeller-Driven Aircraft
  - Existing runway length adequate
- Small/Mid-Size Business Jets
  - Wingspan < 79 feet, Approach Speed < 121 knots
  - FAA guidance = Range of ~4,800 – ~5,400 feet
  - Statutory prohibition against runway extension > 5,000 feet
- Aircraft-specific analysis:
  - 5,000 feet would be ideal, but…
  - Even an extension into the upper 4,000-foot range could yield significant operational improvements



13

Airlake LTCP Declared Distance Concept



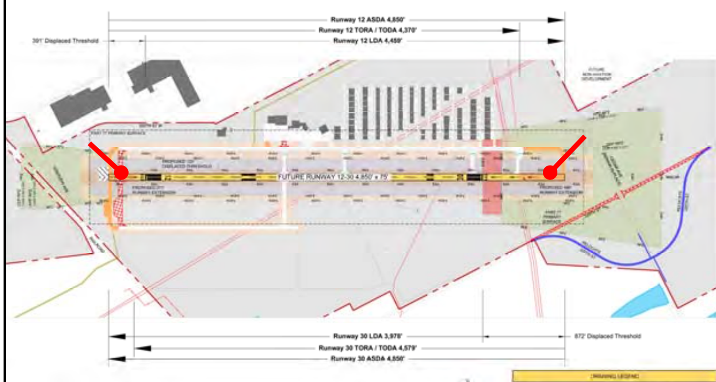
RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

14

7

Airlake LTCP Declared Distance Concept

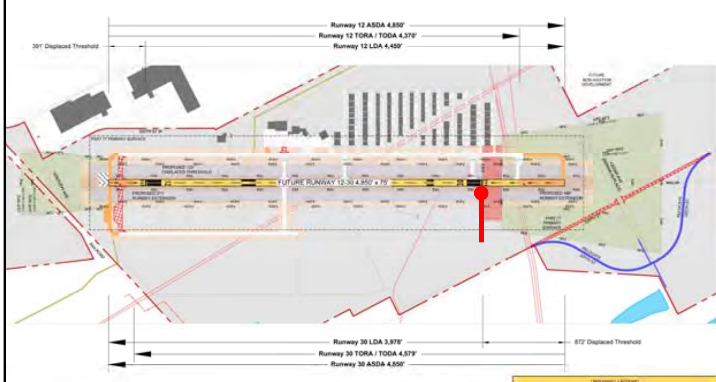


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

15

Airlake LTCP Declared Distance Concept

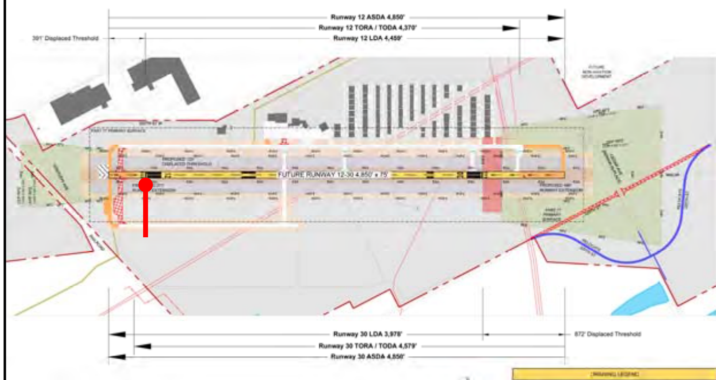


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

16

Airlake LTCP Declared Distance Concept

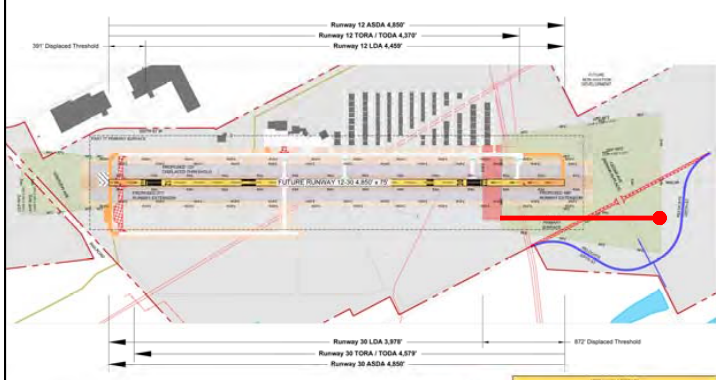


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

17

Airlake LTCP Declared Distance Concept

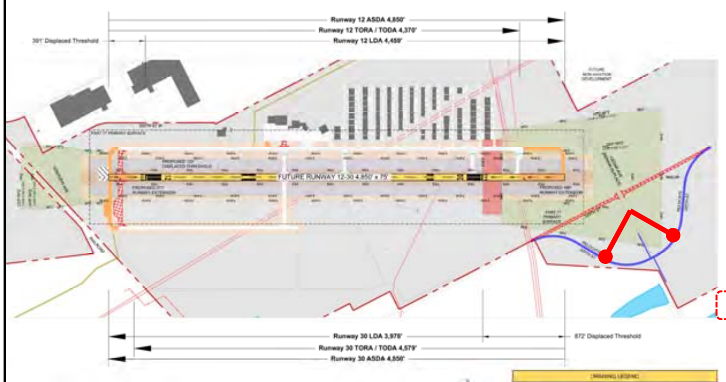


RWY 12-30 Declared Distances

- Extends both runway ends
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

18

Airlake LTCP Declared Distance Concept

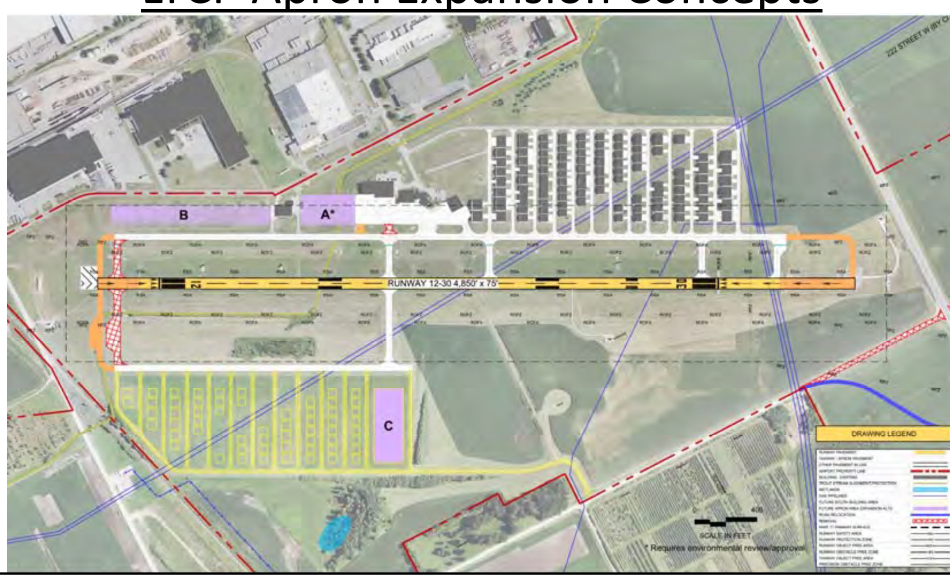


RWY 12-30 Declared Distances

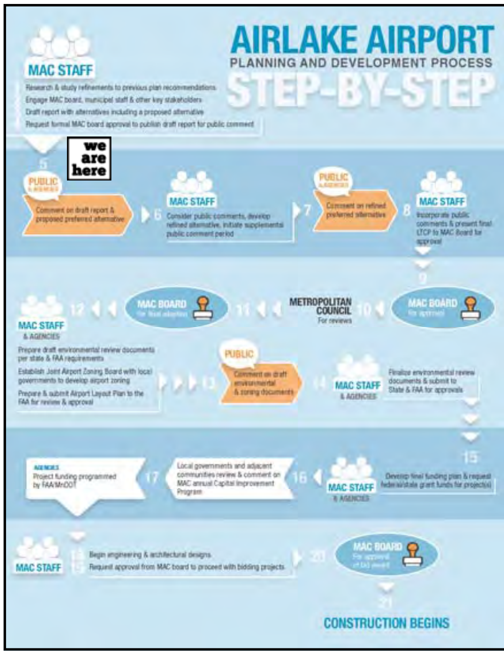
- Extends both runway ends
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

19

LTCP Apron Expansion Concepts



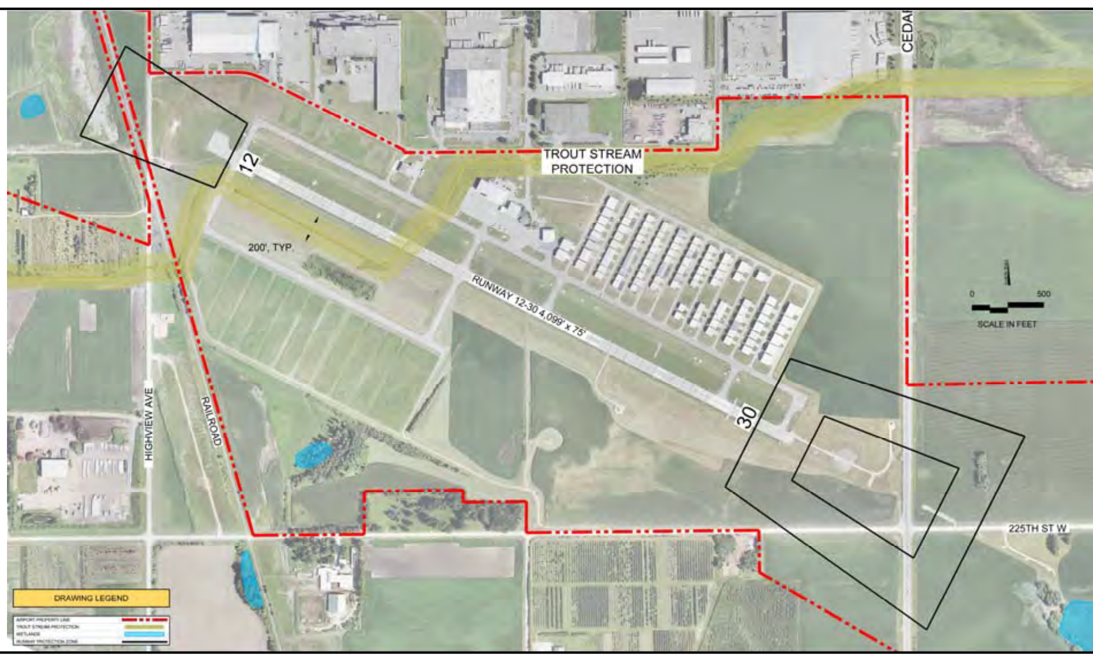
20

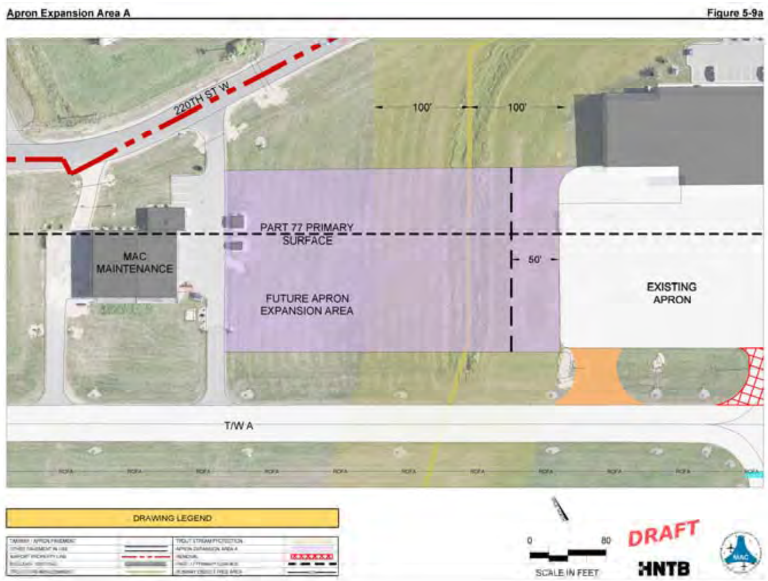


Stakeholder & Public Engagement

- Pre-Publication Stakeholder Engagement
  - Agencies
  - Tenants
  - Municipal Representatives
- MAC Board Approval to publish Draft LTCP
  - May 2017
- Formal Public Review Period
  - 45-day review period (July – August 2017)
  - Public Information Meetings – early August
- MAC Board Approval to Submit to Met Council
- Metropolitan Council Review
- Final MAC Board Adoption
- Environmental Review

21





23

Questions & Dialogue

24

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
TODD WRIGHT	TWRIGHT@HNTB.COM	HNTB
PAT MOSITES	pat.mosites@mspmac.org	MAC
T. Howell	toni.howell@mspmac.org	MAC
Robert Dockry	Robert.dockry@mspmac.org	MAC
Dave Holmen	David.holmen@co.dakota.mn.us	SWCD
Travis Thiel	Travis.Thiel@co.dakota.mn.us	Vermillion River Watershed JPO
Jennie Skancke	Jennie.Skancke@state.mn.us	MN DNR
Mac Cafferty	mcafferty@lakevillemn.gov	Lakeville
ZACH JOHNSON	ZJOHNSON@LAKEVILLEMN.GOV	LAKEVILLE

June 19, 2017

Metropolitan Airports Commission

Airport Development Department

Memo

DATE: June 22, 2017 (revised July 3, 2017)

TO: Airlake Airport LTCP Working Group Members

FROM: Neil Ralston, Airport Planner

SUBJECT: **Summary of 06/19/17 Airlake Airport Draft 2035 LTCP Water Quality Agency Briefing**

On June 19, 2017, MAC staff hosted a briefing with representatives from local water quality agencies to present information about, and solicit feedback on, the draft 2035 Long-Term Comprehensive Plan (LTCP) for the Airlake Airport. Representatives from the following agencies attended:

- Dakota County Soil and Water Conservation District
- Vermillion River Watershed JPO
- MN DNR
- City of Lakeville
- HNTB
- MAC

A key purpose of the meeting was to better understand current protections in place for the South Tributary of South Creek that crosses the Airport, and the feasibility of obtaining approvals for potential airfield development in the vicinity of the stream. Highlights of the discussion follow:

- South Tributary of South Creek is formally designated as a trout stream by DNR (waters of the state). This designation is a result of a DNR/Trout Unlimited lawsuit in the 1990s and only extends to the section line (along Highview Ave west of airport).
- There are two types of buffers that affect designated trout streams:
    - Watershed Buffer Standards
        - Aquatic Corridor – Principal Connector with Trout Stream Designation: 100 feet either side of stream
        - Buffer provisions do not apply to any lot of record as of March 22, 2007 until such lot is subdivided.
        - No requirement for this buffer at LVN; in place voluntarily
        - http://www.vermillionriverwatershed.org/wp-content/uploads/2016/05/Standards-June-1_2016.pdf
    - 2015 MN Buffer Legislation
        - Applies to public waters, which the stream is by virtue of the trout stream/waters of the state designation
        - Requires the more restrictive of the following:

G:\Shared\NRalston\Airports\LVN\2035_LTCP\Stakeholder_Engagement\LVN_2035LTCP_Water_Qual_Stakeholder_Briefing_06-19-17_summary_r1.doc

        - 50-foot average width, 30-foot minimum width, continuous buffer of perennially rooted vegetation; or
        - State shoreland standards and criteria
            - State shoreland standards are implemented through the Dakota County Shoreland and Floodplain Management Ordinance
            - Requires 50-foot vegetative buffer on either side of the stream (buffer averaging not allowed). This is the more restrictive criteria and defines the current buffer in place.
            - http://bwsr.state.mn.us/buffers/
            - https://www.co.dakota.mn.us/LawJustice/Ordinances/Documents/CountyOrdinance50.pdf
- Additional buffer-related discussion items:
    - Native vegetation is better, but mowed turf is a buffer.
    - Mitigation (will come down to choosing least impactful alternative):
        - Can the buffer grow or be expanded elsewhere?
        - Rerouting is a possibility and could be preferred.
        - Enclosure (culvert) is not the most beneficial.
    - Stronger consideration will be given to improvements to stormwater mitigation.
    - All agencies represented have some jurisdiction. The US Army Corps of Engineers (USACE) also may have jurisdiction due to "waters of the state", but it was recommended to initiate discussion with them to solicit a "preliminary jurisdiction" decision.
    - All agencies represented said they are willing to provide preliminary feedback on a proposed project
    - Initial feedback is that this waterway is not a prime trout habitat
    - Watershed regulations are implemented by Lakeville through the permitting process for parcels in the City; the Watershed District is the permitting agency for parcels in Eureka Township

A copy of the briefing attendance list is attached, along with a copy of the presentation handout materials.

Airlake Airport

2035 Long-Term Comprehensive Plan (LTCP)

Lakeville City Council (Work Session) Briefing – September 25, 2017

Draft LTCP Overview

Briefing Agenda

- Airport Role & Context
- Existing Conditions & Previous Plan
- Aviation Activity Forecasts
- Recommended Development Concept
- Stakeholder Engagement & Next Steps

Airlake Airport 2035 LTCP Purpose:
- Update view of future facility needs
- Serve as the "road map" to guide our development strategy for Airlake Airport
- Shape the 7-Year Capital Improvement Program (CIP)

2

Airlake 2035 LTCP Overview


- Key Planning Objectives for LTCP
  - Better accommodate business aircraft needs by maximizing the airfield's operational capabilities and property footprint
  - Maintain or improve upon existing Runway Protection Zone (RPZ) land use compatibility
  - Mitigate existing issues with airspace penetrations
  - Update the taxiway layout to reflect current industry best practices, thus enhancing airfield safety

METROPOLITAN AIRPORTS COMMISSION MINNEAPOLIS SAINT PAUL MAC

3

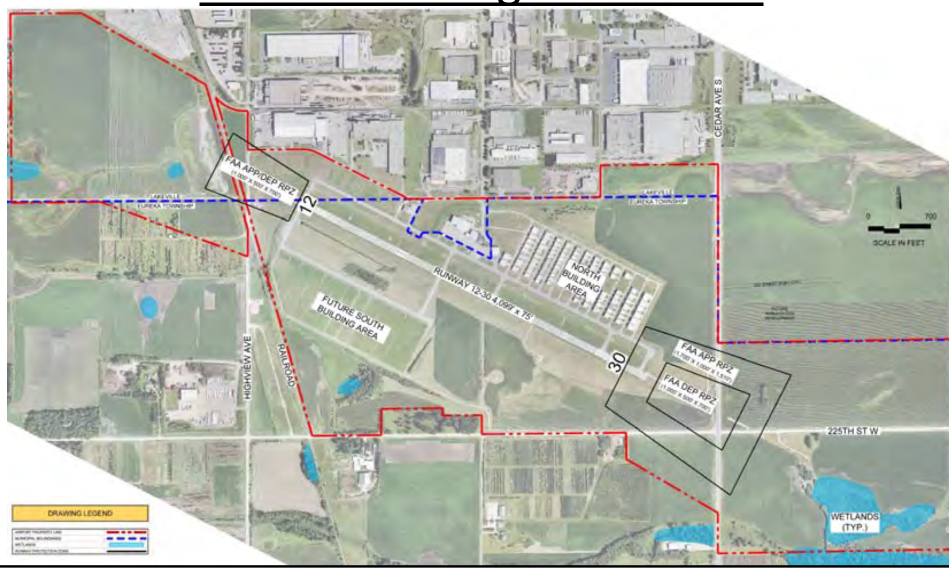
Airlake Airport Role


- Primary Role of Airlake Airport
  - Integral part of the regional Reliever Airport system
  - Accommodates Personal, Recreational, and Business Aviation users
  - Design Aircraft is and will continue to be small/mid-size business aircraft
  - Role not expected to change

METROPOLITAN AIRPORTS COMMISSION MINNEAPOLIS SAINT PAUL MAC

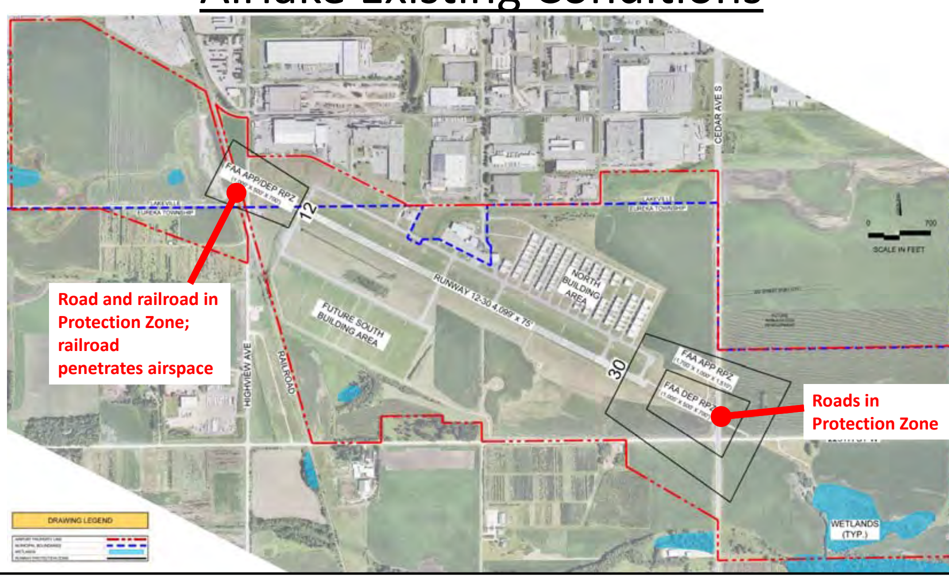
4

Airlake Existing Conditions



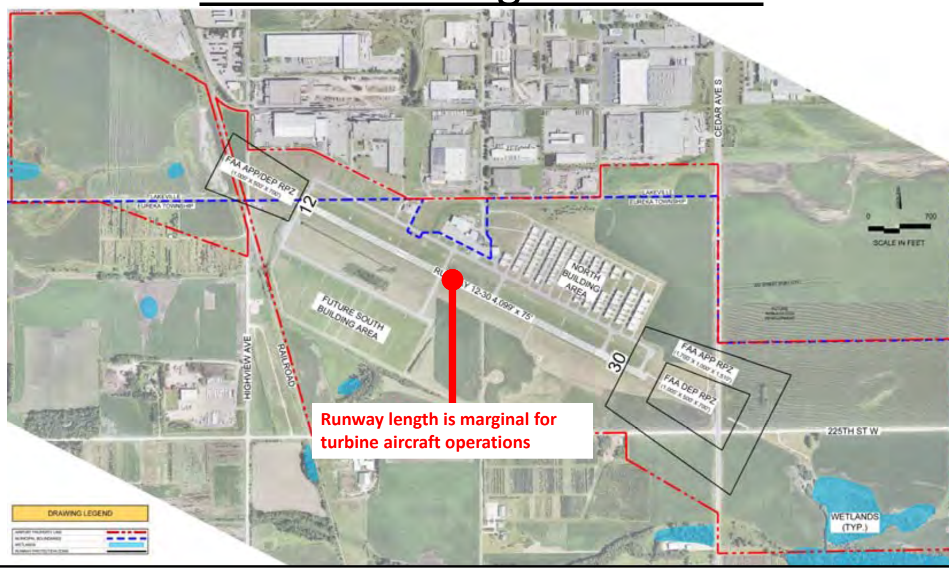
5

Airlake Existing Conditions



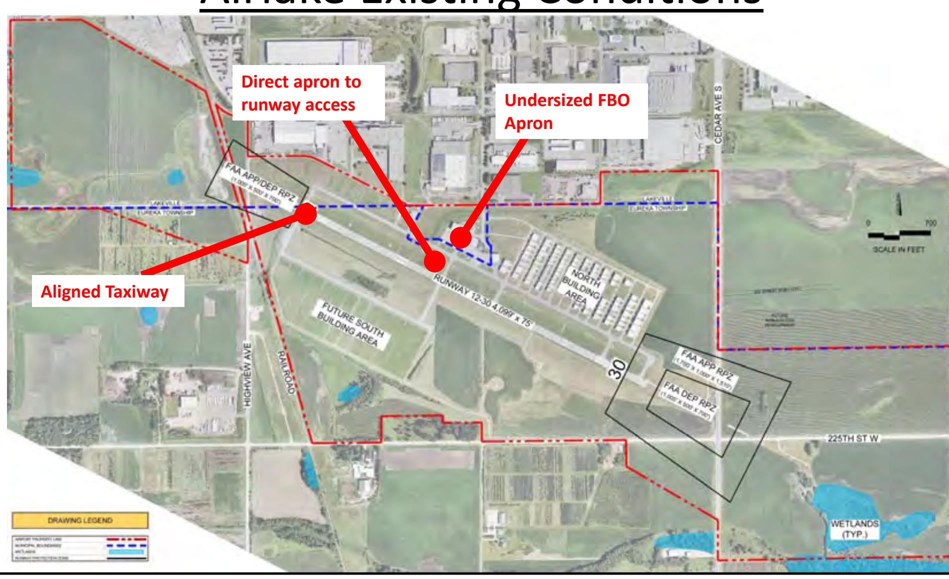
6

Airlake Existing Conditions



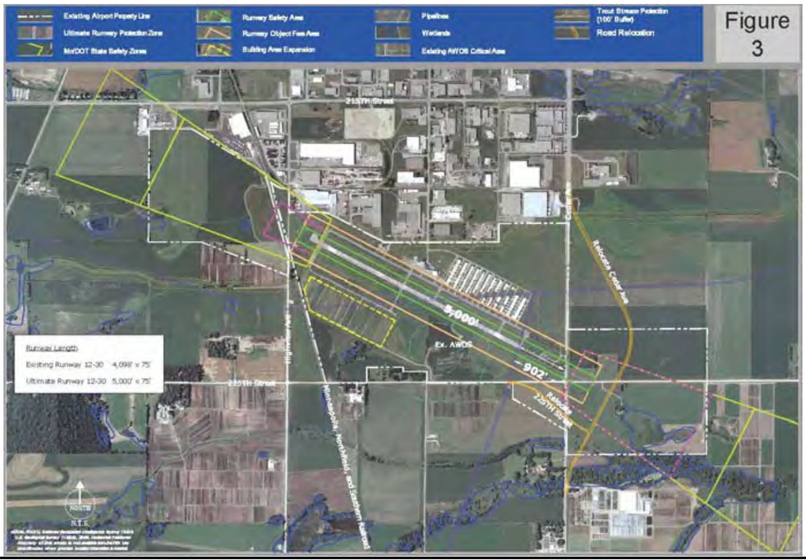
7

Airlake Existing Conditions



8

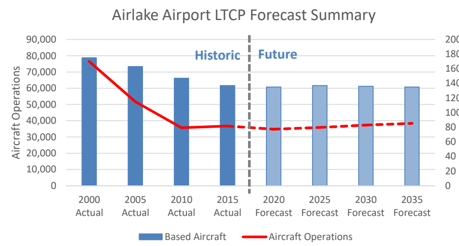
Airlake Previous LTCP

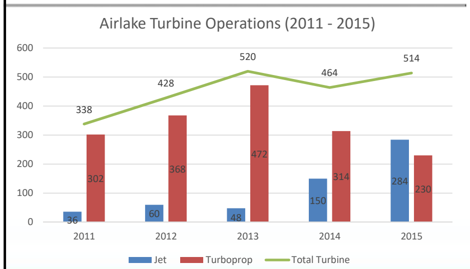


9

Airlake Previous LTCP

10





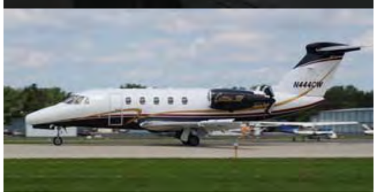
Airlake Activity Trends

- Based aircraft = 137
- Aircraft operations ~ 37,000
- Growth in jet operations over past 5 years
  - Existing runway length limits jet operations
  - Opportunity for increased turbine operations with longer runway
- Robust flight training activity
  - ILS is important training element
- 2035 Forecast:
  - 130-135 Based Aircraft
  - 36 – 38,000 Aircraft Operations

11

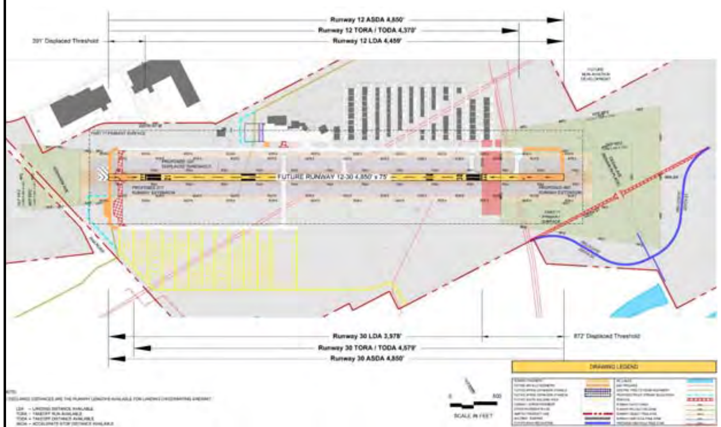
Airlake Runway Length Requirements

- Small Propeller-Driven Aircraft
  - Existing runway length adequate
- Small/Mid-Size Business Jets
  - Range of ~4,800 – ~5,400 feet
  - Statutory prohibition against runway extension > 5,000 feet
- Aircraft-specific analysis:
  - 5,000 feet would be ideal, but…
  - Even an extension into the upper 4,000-foot range could yield significant operational improvements



12

Airlake LTCP Runway 12-30 Extension Concept



RWY 12-30 Extension Concept

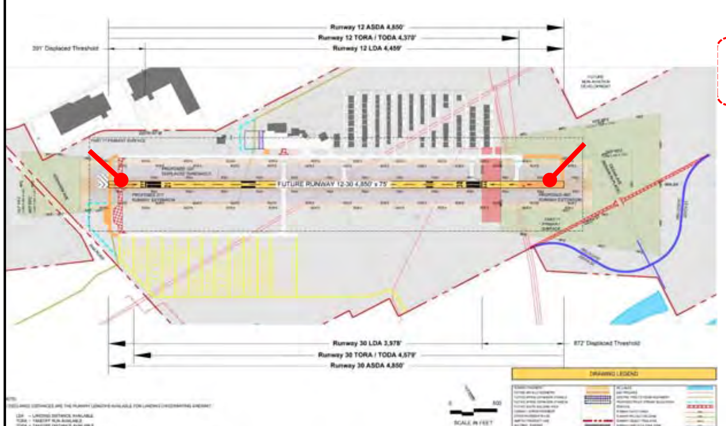
- Extends both runway ends
  - Using Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

MAC

METROPOLITAN AIRPORTS COMMISSION MINNEAPOLIS SAINT PAUL

13

Airlake LTCP Runway 12-30 Extension Concept



RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

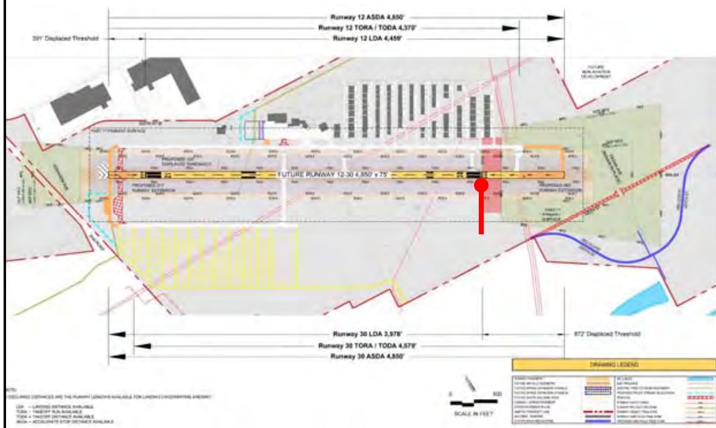
MAC

METROPOLITAN AIRPORTS COMMISSION MINNEAPOLIS SAINT PAUL

14

7

Airlake LTCP Runway 12-30 Extension Concept

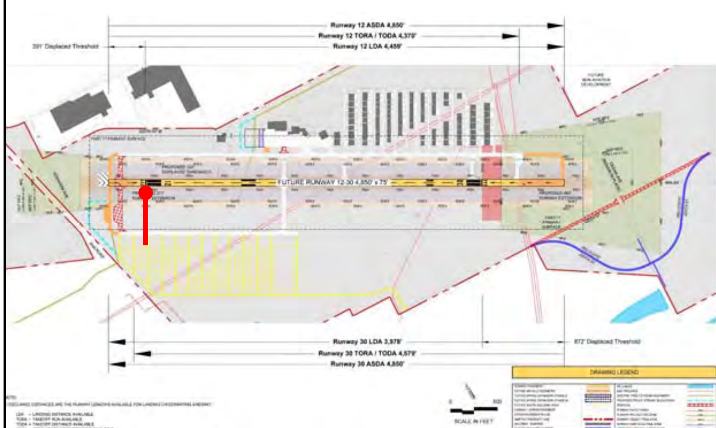


RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

15

Airlake LTCP Runway 12-30 Extension Concept



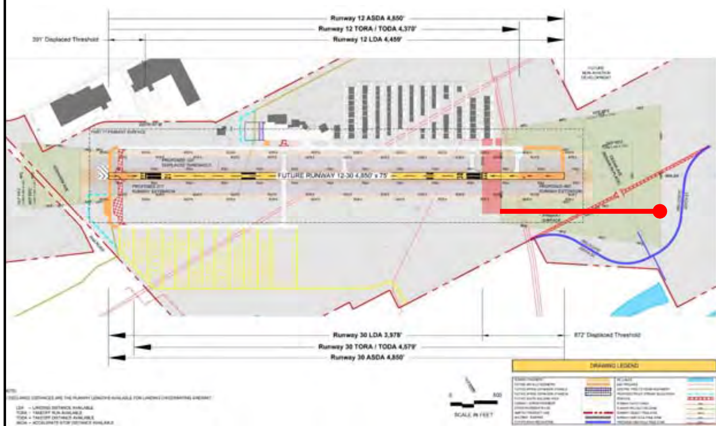
RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

16

8

Airlake LTCP Runway 12-30 Extension Concept

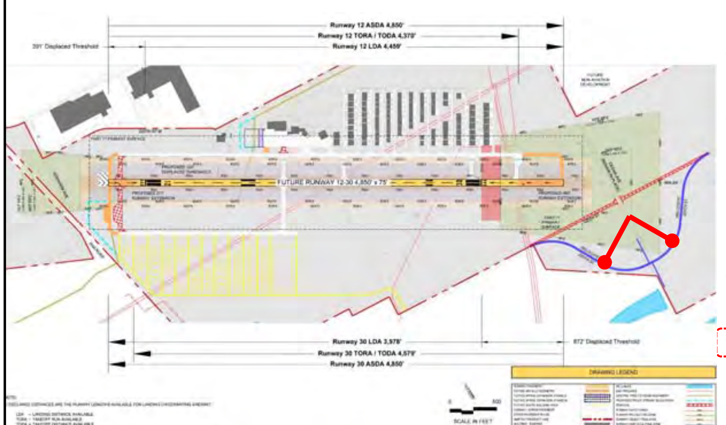


RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

17

Airlake LTCP Runway 12-30 Extension Concept

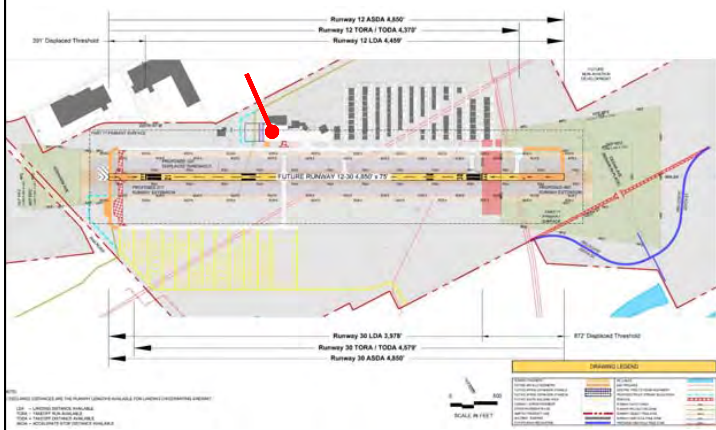


RWY 12-30 Extension Concept

- Extends both runway ends
  - Uses Declared Distances
- Maintains RWY 30 landing threshold and instrument approach
- Displaces RWY 12 landing threshold to clear train car on railroad tracks
  - Eliminates aligned taxiway
- Maintains existing Runway Protection Zones (RPZs) over Cedar Avenue
- Relocates 225th Street out of the RPZ

18

Airlake LTCP Other Improvements

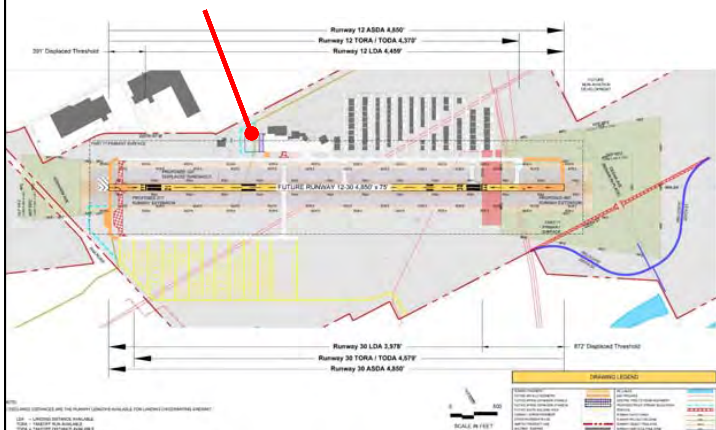


Other LTCP Improvements

- Taxiway configuration change
  - Removes "ramp to runway" access
- Expand the aircraft parking apron
- Develop the South Building Area
  - Including access road and utilities

19

Airlake LTCP Other Improvements

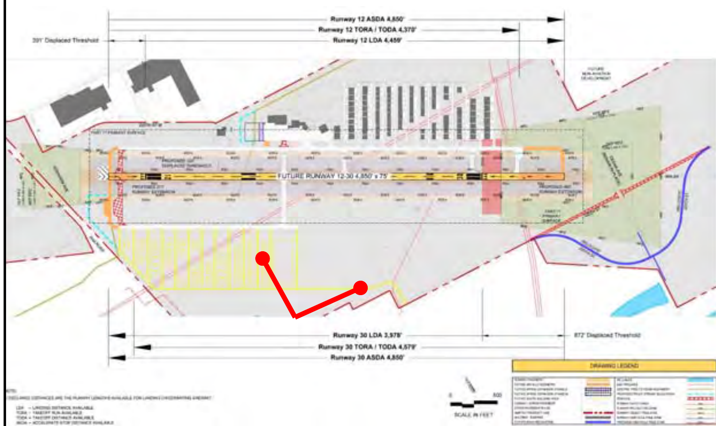


Other LTCP Improvements

- Taxiway configuration change
  - Removes "ramp to runway" access
- Expand the aircraft parking apron
- Develop the South Building Area
  - Including access road and utilities

20

Airlake LTCP Other Improvements

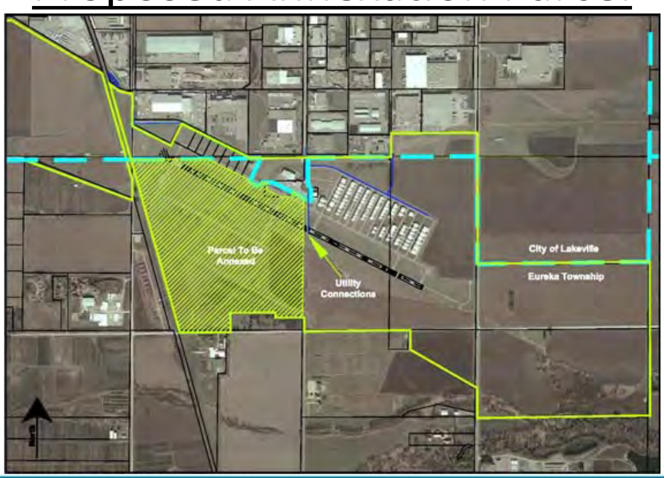


Other LTCP Improvements

- Taxiway configuration change
  - Removes "ramp to runway" access
- Expand the aircraft parking apron
- Develop the South Building Area
  - Including access road and utilities

21

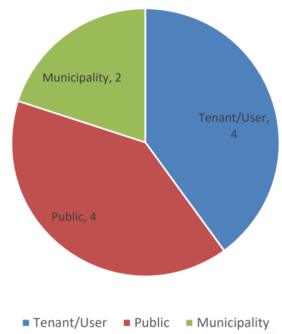
Proposed Annexation Parcel



22

Summary of Public Comments Received

LTCP Public Comments Received (10 Total)



- 10 total comments
  - 4 from Tenants/Users
  - 4 from citizens/public
  - 2 from a municipal representatives

23

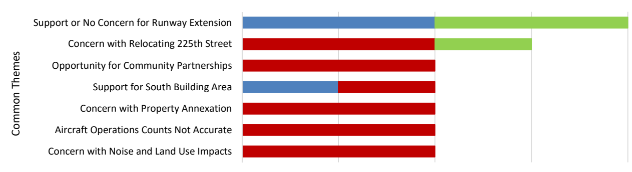
Summary of Public Comments Received

Most Common Themes

- Support (or no concern) for runway extension
- Support for South Hangar Area
- Opportunity for Community Partnerships

- Concern with relocating 225th Street
- Concern with property annexation
- Concern with noise and land use impacts
- Aircraft operations counts not accurate

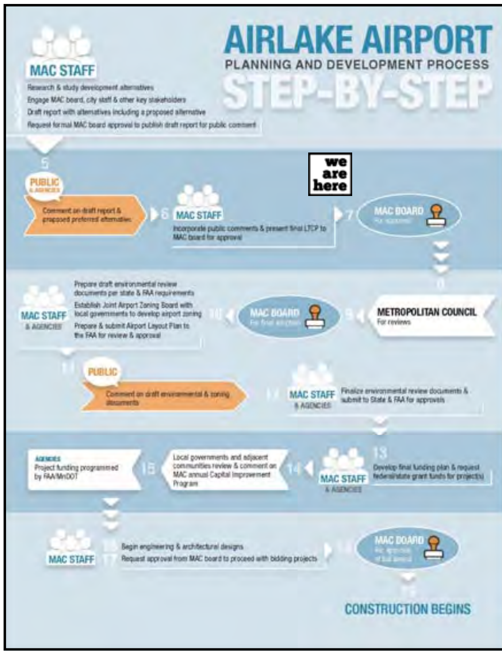
Common Themes Based on Comments Received



	Concern with Noise and Land Use Impacts	Aircraft Operations Counts Not Accurate	Concern with Property Annexation	Support for South Building Area	Opportunity for Community Partnerships	Concern with Relocating 225th Street	Support or No Concern for Runway Extension
Tenant/User	0	0	0	1	0	0	2
Public	2	2	2	1	2	2	0
Municipality	0	0	0	0	0	1	2

Comments Received

24



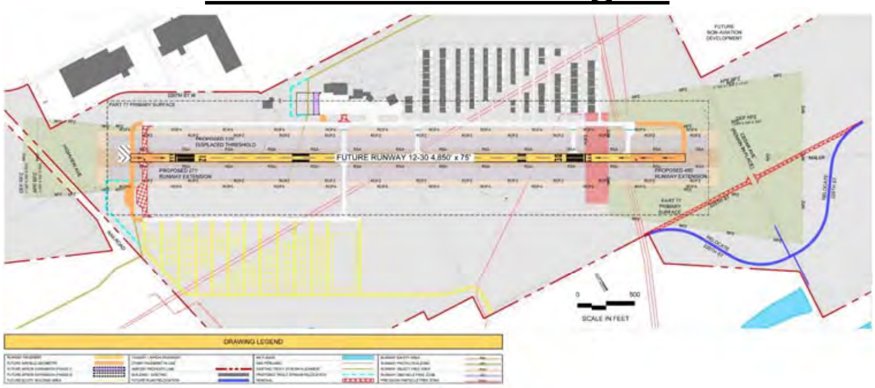
Next Steps

- MAC Board Approval of LTCP Alternative*
- Metropolitan Council Formal Review*
- MAC Board Final Adoption of LTCP*
- Environmental Review*
- Airport Layout Plan (ALP)
  - Reviewed/Approved by FAA
- Joint Airport Zoning Board*
- Grant Programming/Funding
- Project Engineering/Design
- MAC Board approval of Bid Awards*

* Denotes processes that provide additional opportunities for public input

25

Questions & Dialogue



26

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA) ss
COUNTY OF DAKOTA

Charlene Vold being duly sworn on an oath, states or affirms that he/she is the Publisher's Designated Agent of the newspaper(s) known as:

STW Lakeville

with the known office of issue being located in the county of:
DAKOTA
with additional circulation in the counties of:
SCOTT
and has full knowledge of the facts stated below:

(A) The newspaper has complied with all of the requirements constituting qualification as a qualified newspaper as provided by Minn. Stat. §331A.02.
(B) This Public Notice was printed and published in said newspaper(s) once each week, for 1 successive week(s); the first insertion being on 07/14/2017 and the last insertion being on 07/14/2017.

MORTGAGE FORECLOSURE NOTICES
Pursuant to Minnesota Stat. §580.033 relating to the publication of mortgage foreclosure notices: The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

By: Charlene Vold
Designated Agent

Subscribed and sworn to or affirmed before me on 07/14/2017 by Charlene Vold.

Darlene M MacPherson
Notary Public

DARLENE MARIE MACPHERSON
Notary Public-Minnesota
My Commission Expires Jan 31, 2019

Rate Information:
(1) Lowest classified rate paid by commercial users for comparable space:
$27.40 per column inch

Ad ID 710626

PUBLIC NOTICE
DRAFT 2035 LONG-TERM COMPREHENSIVE PLAN
AIRLAKE AIRPORT
PUBLIC COMMENT PERIOD OPEN

The Metropolitan Airports Commission (MAC) has prepared a draft version of the 2035 Long-Term Comprehensive Plan (LTCP) for Airlake Airport. The purpose of the LTCP is to identify facility needs at Airlake Airport through 2035. The public is invited to review this document and provide written comments to the MAC.

Airlake Airport is located in Dakota County, within the borders of Eureka Township and abutting the southern border of the City of Lakeville. A small portion of the airport lies within the City of Lakeville boundary. The Draft 2035 LTCP recommends that the runway at Airlake Airport (Runway 12-30) be extended to a length of 4,850 feet from its current length of 4,099 feet. Unlike previous plans, the recommended concept in this update does not require the relocation of Cedar Avenue (County Road 23) on the east side of the airport. It does, however, consider the relocation of a section of 225th Street (a township road) to a new intersection with Cedar Avenue in order to accommodate the runway changes.

Copies of the Draft LTCP document will be available for distribution, and for viewing on the MAC's website, beginning Monday, July 17, 2017. Written comments will be accepted until Wednesday, August 30, 2017 at 5:00 PM CDT.

https://metroairports.org/General-Aviation/Airports/Airlake.aspx

A printed copy of the document will be available for review at the following locations: MAC General Office building, 6040 28th Avenue South, Minneapolis; Lakeville City Hall, 20195 Holyoke Avenue, Lakeville; Eureka Township Town Hall, 25043 Cedar Avenue South, Lakeville; Heritage Library, 20085 Heritage Drive, Lakeville; and at Airlake Airport (MAC Office), 8140 220th Street West, Lakeville. Requests for a paper copy can be sent to the email address below.

The public is also invited to attend informational meetings to learn more about the proposed improvements included in the Draft LTCP. See below for the times and locations:

Wednesday, August 9, 2017
6:00 to 8:00 PM
Lakeville City Council Chambers
20195 Holyoke Avenue
Lakeville, MN 55044

Thursday, August 10, 2017
6:00 to 8:00 PM
Eureka Township Town Hall
25043 Cedar Avenue South
Lakeville, MN 55044

The meetings will include a 6:30 p.m. presentation by MAC staff, as well as opportunities to ask questions and talk directly with staff.

Written comments can be submitted via email by sending them to Airlake-Airport-LTCP-Comments@mspmac.org, or by physically mailing them to Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis MN 55450.

Published in the
Lakeville Sun Thisweek
July 14, 2017
710626

PAGE INTENTIONALLY LEFT BLANK

Appendix 9: Public Comments and Responses

PAGE INTENTIONALLY LEFT BLANK

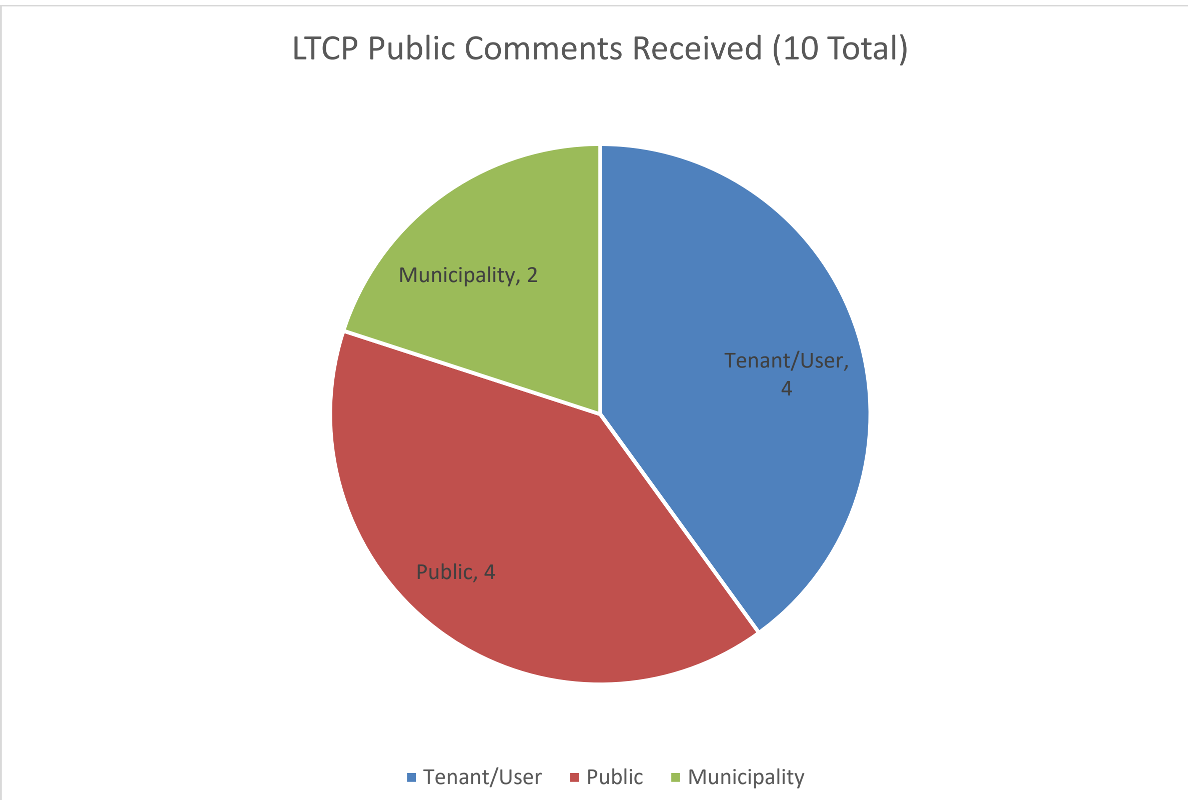
AIRLAKE AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN
PUBLIC COMMENTS AND RESPONSES

INTRODUCTION

The Draft 2035 LTCP for Airlake Airport was issued for public review and comment on Monday, July 17, 2017. Two public information meetings were held in August 2017 to provide information about the draft plan to interested stakeholders. The public comment period closed on Wednesday, August 30, 2017.

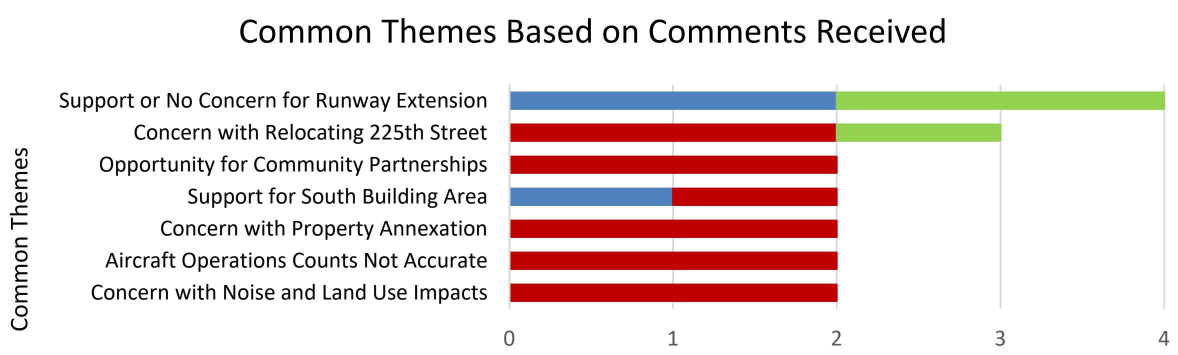
Feedback from the Public Comment Period (July 17 – August 30, 2017)

During the public comment period, MAC received a total of ten written comments. Of the comments received, four were from airport tenants and users, four from members of the public, and two from municipal representatives.



Waypoint Flight Services, the full-service Fixed Base Operator (FBO) at the Airlake Airport, submitted comments in support of the proposed plan. The City of Lakeville submitted comments stating they do not have any objections or concerns with the plan. Dakota County submitted a few technical comments for consideration, including a statement that the proposed relocation of 225th Street and its intersection with Cedar Avenue will need to be evaluated to ensure they do not increase the likelihood of traffic safety issues compared to the roadway system as it exists today.

The themes that were expressed multiple times during the comment period are summarized below:



	Concern with Noise and Land Use Impacts	Aircraft Operations Counts Not Accurate	Concern with Property Annexation	Support for South Building Area	Opportunity for Community Partnerships	Concern with Relocating 225th Street	Support or No Concern for Runway Extension
Tenant/User	0	0	0	1	0	0	2
Public	2	2	2	1	2	2	0
Municipality	0	0	0	0	0	1	2

Comments Received

<u>MAC Response to Public and Stakeholder Feedback</u>

Throughout the public process, MAC made a commitment to consider the concerns voiced by stakeholders and evaluate if any related adjustments to the proposed plan were feasible. In this case, the volume of comments expressed on any particular theme was very small. Regardless, MAC staff has evaluated the concerns most frequently expressed by commenters and offers the responses outlined on the next pages.

RESPONSES TO PUBLIC COMMENTS

General responses were developed to address questions and concerns that were both relevant to the LTCP and consistent among the comments received during both rounds of public comment about the Draft 2035 LTCP. The following topics are covered by the suite of general responses:

1. Concern with Relocating 225th Street
2. Aircraft Operations Counts Not Accurate
3. Concern with Noise and Land Use Impacts
4. Opportunity for Community Partnerships (2 mentions)
5. Concern with Property Annexation (2 mentions)

All written comments received from members of the public are reproduced in their entirety at the end of this appendix.

General responses #1 through #5 follow.

1. **Concern about Relocating 225th Street**

   The Draft 2035 LTCP proposed to realign 225th Street around the extended Runway 30 end, to a new intersection with Cedar Avenue (County Road 23) that is about 750 feet to the south of the existing intersection of the roadways.

   As described in the LTCP, existing roads within an existing Runway Protection Zone (RPZ) predate the FAA's current RPZ compatibility guidance. The proposed plan does not change the location of the RPZs associated with Runway 30. This allows existing Cedar Avenue to remain in place. However, the extension to the Runway 30 end does result in the FAA Part 77 Primary Surface extending to encompass approximately 270 linear feet of 225th Street on the south boundary of the Airport. That Primary Surface is 1,000 feet wide, is centered on the runway, and is intended to be clear of any non-essential aeronautical structures or objects. As FAA does not routinely permit objects to penetrate the Primary Surface, the plan contemplates moving 225th Street to clear the surface. FAA's current policy is that if a public roadway is going to be moved as a part of an airfield development project, the road should be relocated outside of the Runway Protection Zone (RPZ). In this case, it is feasible to relocate 225th Street outside of both the Part 77 Primary Surface and the RPZ and remain on MAC-owned property, so that is what the plan depicts.

   Commenters expressed concern both over increased travel times and safety impacts associated with the relocated sections of 225th Street. From a travel time perspective, the current travel distance for the section of road to be relocated is approximately 2,150 feet with a posted speed limit of 45 miles per hour and a stop condition at Cedar Avenue. As proposed, the relocated section of road would have a travel distance of approximately 2,800 feet with a posted speed of 40 miles per hour to account for the curves needed to avoid the RPZ. This represents an increased travel distance of approximately 650 feet, or about 15 seconds. In addition, MAC has proposed to pave the relocated sections of gravel road as a part of the project to enhance safety, increase smoothness, and reduce dust and erosion. MAC acknowledges the County's observation that the alignment of 225th Street as it approaches Cedar Avenue and the location of the intersection itself will still need to be evaluated to ensure they do not increase the likelihood of traffic safety issues compared with the roadway system as it exists today.

   At this time, staff does not recommend changes to the proposed 225th Street relocation as shown in the Draft LTCP.

2. **Aircraft Operations Counts Are Not Accurate**

   There is no Air Traffic Control Tower (ATCT) at Airlake Airport, so there is no "official" count of aircraft operations. The existing level of aircraft operations at Airlake Airport (36,757 annual or approximately 100 operations per day) was calculated as follows:

   - The MAC Noise and Operations Monitoring System (MACNOMS) flight tracking system recorded 27,407 flight tracks for aircraft arriving to or departing from Airlake Airport during the 12 months ending June 2015. MACNOMS collects flight track data through a multi-sensor surveillance data feed provided by Harris Corporation. The data feed is a fusion of multiple data collection services, including data from Harris' network of

Automatic Dependent Surveillance-Broadcast (ADS-B) sensors, FAA enroute and terminal secondary surveillance data, FAA Airport Surface Detection Equipment Model X (ASDE-X) data, FAA Wide Area Multilateration (WAM) data, and FAA flight plan data.

- The MACNOMS capture rate (MACNOMS tracks compared to the official FAA Tower Count) at the closest MAC-owned towered Reliever, Flying Cloud Airport (FCM), was 74.6% for the same time period. The FCM capture rate and was used to adjust the Airlake Airport data set to account for missing flight tracks in MACNOMS.
- The MACNOMS capture rate adjustment for Airlake is as follows: 27,407 MACNOMS recorded tracks / 74.6% FCM capture rate = 36,757 annual operations.

When it comes to tracking jet aircraft activity at Airlake, the MACNOMS system correlates very well to FAA records. For example, during calendar year 2015, the FAA recorded 284 jet aircraft arriving or departing Airlake on an instrument flight plan. For the same time period, the MACNOMS system recorded 280 jet aircraft flights at Airlake, for a capture rate of nearly 99%.

3. Concern for Increased Noise and Land Use Impacts

From a noise exposure perspective, the FAA has set the 65 Day-Night Average Sound Level (DNL) noise contour as the threshold of significant noise impact. In both the existing and future condition contours, there are no residential parcels in the 65 DNL noise contour. Furthermore, there are no residential parcels located in the 55 DNL noise contour under either condition – which is shown in the plan for informational purposes only per Metropolitan Council guidelines.

The noise analysis contained in the LTCP is intended to provide a high-level assessment of potential noise impacts. A more thorough noise impact analysis will take place during the subsequent environmental review process.

A voluntary Noise Abatement Plan is in place to promote aircraft operating procedures that help reduce aircraft noise and overflights for residents living near Airlake Airport. Pilots may also reference the pilot guide for easy access to noise abatement information. The details of this noise abatement plan will be revisited during the environmental review process for the proposed airfield improvements.

Although the MAC continues to evaluate ways to reduce noise impacts around its airports, there remain many circumstances when the impacts from the airport simply cannot be abated. Federal grant dollar provisions require that public use airports, such as Airlake Airport, be operated in a manner that is neither discriminatory nor poses an undue burden on interstate commerce. The result is that it is extremely difficult to restrict aircraft operations at an airport to control noise in a manner that complies with federal grant assurances.

Regarding land use compatibility and zoning, the size and shape of the existing Minnesota Department of Transportation (MnDOT) model State Safety Zones A and B were used in the LTCP for the purpose of analyzing land use compatibility. These zones are not currently in effect at Airlake Airport and, at this time, have no bearing on land use controls over adjacent properties. The sizes, shapes and/or locations of future zones will be developed by a Joint Airport Zoning Board (JAZB) during development of an Airport Zoning Ordinance for Airlake Airport.

The MAC intends to convene a JAZB to develop an Airport Zoning Ordinance for Airlake Airport during the environmental review process. The JAZB will include the respective local municipalities who control land use development around the Airport (including Dakota County, the City of Lakeville, and Eureka Township). Through a collaborative process, the JAZB will seek to develop an Airport Zoning Ordinance which best achieves a reasonable level of public safety while facilitating compatible community development and land uses.

The MnDOT Office of Aeronautics has undertaken efforts to update the state's airport zoning regulations. It is anticipated that revisions to the statutes governing airport zoning will be submitted for consideration during a future Minnesota Legislative session. The JAZB will incorporate any updates to the state's zoning regulations and/or administrate rules into the formulation of the Airport Zoning Ordinance for Airlake Airport.

4. Opportunity for Community Partnerships

While not an issue directly addressed in the Draft LTCP, the opportunity to enter into community partnerships that engage and provide value to area residents should be pursued on a case-by-case basis and are really unrelated to this LTCP preferred alternative development project. Ideas suggested by commenters include establishing a restored prairie habitat and/or bee habitat on airport open space property, and for the airport to host community events such as a national night out or open house for area residents. Current community outreach efforts at Airlake Airport include the annual Lions Club Fly-In Pancake Breakfast associated with the Lakeville Pan-O-Prog celebration, and the new public aircraft viewing area that has been constructed adjacent to the MAC Maintenance facility.

5. Concern with Property Annexation

Most of the Airlake Airport is situated in Eureka Township whose northern border is contiguous with the City of Lakeville. The township has no municipal sewer and water systems in place, or plans to provide such services. The lack of services has recently prompted a migration of MAC tenants to other airports and stifled new development at the airport. A number of prospective tenants have expressed a desire to build new hangars on the Airlake Airport, including a commercial business, but only if sewer and water services are made available. MAC has unsuccessfully attempted to negotiate an "orderly annexation" of the airport into the City of Lakeville where municipal sewer and water are available. An orderly annexation requires a three party negotiated agreement between Eureka Township, the City of Lakeville and MAC as prescribed in Minnesota Statutes. In 2015, MAC staff was encouraged by the Chairman of the Eureka Township Board to make another effort to reach an agreement for orderly annexation. However, in 2016, the Board ultimately voted no to annexation. It is the belief of MAC staff that an orderly annexation agreement will not be reached in the foreseeable future. Thus, it is MAC staff's opinion that the only viable process to gain access to sewer and water services for the Airlake Airport is to petition the City of Lakeville to annex the south building portion of the airport. Under Minnesota Statute §414.033, MAC can file a petition with the City of Lakeville seeking annexation by ordinance. Minn. Stat. §414.033, subd. 2 cl. (3) allows for property owners to request annexation by ordinance when the land to be annexed abuts the municipality, is less than 120 acres, and is not served by public wastewater facilities. In September 2017, the MAC Board approved MAC staff's request to petition the City of Lakeville to annex the approximately 120-acre parcel associated with the South Building Area. The petition requesting annexation by ordinance for this property was submitted to the City of Lakeville on October 27, 2017.

All written comments received from members of the public are reproduced at the end of this appendix.

RESPONSES TO MUNICIPAL/AGENCY COMMENTS

This section contains responses to comments received from municipalities and agencies about the Draft 2035 LTCP for Airlake Airport.

Commenter	ID	Subject	Response
Comments Received During the Public Comment Period (July 17 – August 30, 2017)			
Dakota County, Letter dated August 30, 2017	1	ES.6 Environmental Considerations, page xv *Prior to any construction taking place, the MAC will complete an Environmental Assessment (EA) and/or an Environmental Assessment Worksheet {EAW) in compliance with state statutes and FAA requirements for utilizing Airport Improvement Program (AIP} grant funds.* Once prepared, Dakota County will review the EA, EAW and/or EIS. An evaluation of the area's known environmental contamination issues has been completed and a map and report are attached. There are a number of Dakota County and Minnesota Pollution Control Agency identified sites and issues that could have an impact to the airport or could be impacted by the proposed long term plans. These sites and issues should be evaluated and discussed in any future EA, EAW or EIS.	Comment acknowledged.
Dakota County, Letter dated August 30, 2017	2	Other Environmental Considerations, page xviii *The MAC will conduct an environmental review per federal National Environmental Policy Act (NEPA) and Minnesota Environmental Policy Act (MEPA) requirements to more specifically identify the environmental footprint of the proposed improvements before construction can begin. During this process, alternatives must be reviewed and any potential impacts must be avoided if possible. If impacts cannot be avoided,*	Comment acknowledged.

		they must be minimized to the extent possible and mitigated in full compliance with federal and state requirements. Dakota County will review this information once completed.	
Dakota County, Letter dated August 30, 2017	3	The 2025 Airlake Airport's Long Term Comprehensive Plan (LTCP) included extending the runway from 4100 feet to 5000 feet, requiring a substantial realignments of both County State Aid Highway 23 (Cedar Avenue) and Eureka Township's 225th Street. At that time, the County raised questions about the feasibility of this plan and the implications for traffic on Cedar. The Draft 2035 LTCP includes a new approach for extending the runway that would not require realignment of Cedar Avenue. This Plan still involves relocating the intersection of 225th St at Cedar Avenue to the south with a realignment of 225th Street on both sides of Cedar Avenue. Concerns remain about the implications for the intersection of Cedar Avenue and 225'" Street. Any changes to this intersection, including the alignment of 225'h Street as it approaches Cedar Avenue and the location of the intersection itself will still need to be evaluated to ensure they do not increase the likelihood of traffic safety issues compared with the roadway system as it exists today. It is understood that any extension of the runway will need to be evaluated through an environmental review process. Dakota County staff look forward to working with MAC through this environmental review process to assess and address any traffic safety issues or concerns.	MAC acknowledges the County's observation that the alignment of 225th Street as it approaches Cedar Avenue and the location of the intersection itself will still need to be evaluated to ensure they do not increase the likelihood of traffic safety issues compared with the roadway system as it exists today.

City of Lakeville, Letter dated August 30, 2017	1	On behalf of the City of Lakeville, at this point we do not have any objections or concerns with the Draft Long Term Comprehensive Plan Update for Airlake Airport. We look forward to your presentation of this Draft Plan at the September 25th City Council Work Session.	Comment acknowledged.

PAGE INTENTIONALLY LEFT BLANK

MUNICIPAL/AGENCY COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD

(JULY 17 – AUGUST 30, 2017)

PAGE INTENTIONALLY LEFT BLANK

Dakota
COUNTY

Physical Development Division
Steven C. Mielke, Director

Dakota County
Western Service Center
14955 Galaxie Avenue
Apple Valley, MN 55124-8579

952.891.7000
Fax 952.891.7031
www.dakotacounty.us

Environmental Resources
Environmental Initiatives
Groundwater Protection
Land Conservation
Vermillion River Watershed
Water Resources
Waste Regulation

Office of Planning

Operations Management
Capital Projects Management
Facilities Management
Fleet Management
Parks

Transportation
Highway
Surveyor's Office
Transit Office

August 30, 2017

Neil Ralston
MAC Airport Development
6040 28th Ave South
Minneapolis, MN 55450

Thank you for the opportunity to comment on the draft Airlake Airport 2035 Long-Term Comprehensive Plan (LTCP). Dakota County Physical Development Staff reviewed the document and offer the following comments for consideration.

Environmental Resources

ES.6 ENVIRONMENTAL CONSIDERATIONS, page xv
Prior to any construction taking place, the MAC will complete an Environmental Assessment (EA) and/or an Environmental Assessment Worksheet (EAW) in compliance with state statutes and FAA requirements for utilizing Airport Improvement Program (AIP) grant funds.
Once prepared, Dakota County will review the EA, EAW and/or EIS. An evaluation of the area's known environmental contamination issues has been completed and a map and report are attached. There are a number of Dakota County and Minnesota Pollution Control Agency identified sites and issues that could have an impact to the airport or could be impacted by the proposed long term plans. These sites and issues should be evaluated and discussed in any future EA, EAW or EIS.

Other Environmental Considerations, page xviii
The MAC will conduct an environmental review per federal National Environmental Policy Act (NEPA) and Minnesota Environmental Policy Act (MEPA) requirements to more specifically identify the environmental footprint of the proposed improvements before construction can begin. During this process, alternatives must be reviewed and any potential impacts must be avoided if possible. If impacts cannot be avoided, they must be minimized to the extent possible and mitigated in full compliance with federal and state requirements.

Dakota County will review this information once completed.

Transportation

The 2025 Airlake Airport's Long Term Comprehensive Plan (LTCP) included extending the runway from 4100 feet to 5000 feet, requiring a substantial realignments of both County State Aid Highway 23 (Cedar Avenue) and Eureka Township's 225th Street. At that time, the County raised questions about the feasibility of this plan and the implications for traffic on Cedar.

The Draft 2035 LTCP includes a new approach for extending the runway that would not require realignment of Cedar Avenue. This Plan still involves relocating the intersection of 225th St at Cedar Avenue to the south with a realignment of 225th Street on both sides of Cedar Avenue.

Concerns remain about the implications for the intersection of Cedar Avenue and 225th Street. Any changes to this intersection, including the alignment of 225th Street as it approaches Cedar Avenue and the location of the intersection itself will still need to be evaluated to ensure they do not increase the likelihood of traffic safety issues compared with the roadway system as it exists today. It is understood that any extension of the runway will need to be evaluated through an environmental review process. Dakota County staff look forward to working with MAC through this environmental review process to assess and address any traffic safety issues or concerns.

If you have any questions relating to our comments, please contact me at 952-891-7007 or Steven.Mielke @co.dakota.mn.us.

Sincerely,

Steven C. Mielke, Director
Physical Development Division

cc: Commissioner Mike Slavik, District 1
Commissioner Mary Liz Holberg, District 6
Matt Smith, County Manager

City of Lakeville
Positioned to Thrive

August 30, 2017

Neil Ralston, A.A.E.
Airport Planner
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

Dear Mr. Ralston:

On behalf of the City of Lakeville, at this point we do not have any objections or concerns with the Draft Long Term Comprehensive Plan Update for Airlake Airport. We look forward to your presentation of this Draft Plan at the September 25th City Council Work Session.

Sincerely,

Justin Miller
City Administrator

c: David L. Olson, Community and Economic Development Director
Daryl Morey, Planning Director
Zach Johnson, City Engineer
Frank Dempsey, Associate Planner

20195 Holyoke Avenue, Lakeville, MN 55044
952-985-4400 • 952-985-4499 fax
www.lakevillemn.gov

PAGE INTENTIONALLY LEFT BLANK

WRITTEN PUBLIC COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD

(JULY 17 – AUGUST 30, 2017)

PAGE INTENTIONALLY LEFT BLANK

Public Comment Form

DRAFT Airlake Airport 2035 Long-Term Comprehensive Plan

Public Information Meetings:
Lakeville City Council Chambers, August 9, 2017 (6-8pm)
Eureka Township Town Hall, August 10, 2017 (6-8pm)

The Metropolitan Airports Commission (MAC) is seeking public input about the Draft 2035 Long-Term Comprehensive Development Plan (LTCP) for Airlake Airport.

Written comments can be provided:
1] On this form and left in the comment boxes at either public meeting;
2] Via email to the following address: Airlake-Airport-LTCP-Comments@mspmac.org or;
3] Via mail to: Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis MN 55450.

Written comments will be accepted until Wednesday, 8/30/17 at 5:00 PM. All written comments received will become part of the project record.

Name: Kathryn Parranto

Address: 22702 Hamburg Ave, Lakeville MN 55044

If you do not have to move Cedar ave in this plan, there seems to be no reason to move 225th St W. St (225th St. W) has very limited traffic for most of the year. Otherwise if the plan improves air traffic safety that is good. But is the expense worth the outcome?

Please use the back side of this form for additional comments.

More information about the plan can be found at: http:/metroairports.org/General-Aviation/Airports/Airlake.aspx

Public Comment Form
DRAFT Airlake Airport 2035 Long-Term Comprehensive Plan

Public Information Meetings:
Lakeville City Council Chambers, August 9, 2017 (6-8pm)
Eureka Township Town Hall, August 10, 2017 (6-8pm)

The Metropolitan Airports Commission (MAC) is seeking public input about the Draft 2035 Long-Term Comprehensive Development Plan (LTCP) for Airlake Airport.

Written comments can be provided:
1] On this form and left in the comment boxes at either public meeting;
2] Via email to the following address: Airlake-Airport-LTCP-Comments@mspmac.org or;
3] Via mail to: Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis MN 55450.

Written comments will be accepted until Wednesday, 8/30/17 at 5:00 PM. All written comments received will become part of the project record.

Name: AL ALWIN

Address: 23585 JERSEY CT. LKVLLE

A REMINDER TO INCLUDE ADEQUATE RUNUP PADS AT EITHER ENDS OF THE RUNWAY THANKS

Please use the back side of this form for additional comments.

More information about the plan can be found at: http:/metroairports.org/General-Aviation/Airports/Airlake.aspx

Public Comment Form
DRAFT Airlake Airport 2035 Long-Term Comprehensive Plan

Received
AUG 2 8 2017
Airport Development

Public Information Meetings:
Lakeville City Council Chambers, August 9, 2017 (6-8pm)
Eureka Township Town Hall, August 10, 2017 (6-8pm)

The Metropolitan Airports Commission (MAC) is seeking public input about the Draft 2035 Long-Term Comprehensive Development Plan (LTCP) for Airlake Airport.

Written comments can be provided:
1] On this form and left in the comment boxes at either public meeting;
2] Via email to the following address: Airlake-Airport-LTCP-Comments@mspmac.org or;
3] Via mail to: Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis MN 55450.

Written comments will be accepted until Wednesday, 8/30/17 at 5:00 PM. All written comments received will become part of the project record.

Name: Georgie Molitor 8-22-17

Address: 8875-225th St. W., Lakeville, MN 55044

I have lived in Eureka Township for 63 years. I choose to continue to live here with very amendities that might be found in other areas because of the open space, quiet, and environmental quality and water quality.
I understand that things change however I do not appreciate losing my lifestyle to others who do not live in Eureka. Nor do I appreciate being considered a lesser impact - It is a huge impact to my family and life.

At the very least, if this change must occur, the airport organization must consider providing a reasonable benefit for Eureka Township and the surrounding area environmentally and as well as emotional. Such benefits could include but should not be limited

Please use the back side of this form for additional comments.

More information about the plan can be found at: http:/metroairports.org/General-Aviation/Airports/Airlake.aspx

to changing open areas to restored prairie, restoring marsh/pond areas, and working with soil & water (Dakota Cty. Travis Theil) and University of Minnesota (Thomas W. Molitor) to restore Bee areas and Brian Watson (soil and water) to create water reserve areas on lands that the airport currently own.. There are several horticultural businesses within Eureka Township that could benefit from the construction of these environmental areas.

At least Eureka will benefit environmentally from the growth of the airport and the additional noise and traffic that will be created by Lakeville airport increasing the landing strip. In addition, the changes should, and could, retain and improve the water quality of the area, as well as the environments quality.

Thank you,

Georgie Molitor

Cambridge, Shelly

From:	Ralston, Neil
Sent:	Monday, August 14, 2017 3:58 PM
To:	Airlake LTCP
Subject:	FW: Alternative suggestion for 2035 plan for KLVN Airlake
Attachments:	Note Jul 28, 2017 9_31_24 AM.PDF; Crosswind Runway.jpg
Follow Up Flag:	Follow up
Flag Status:	Completed

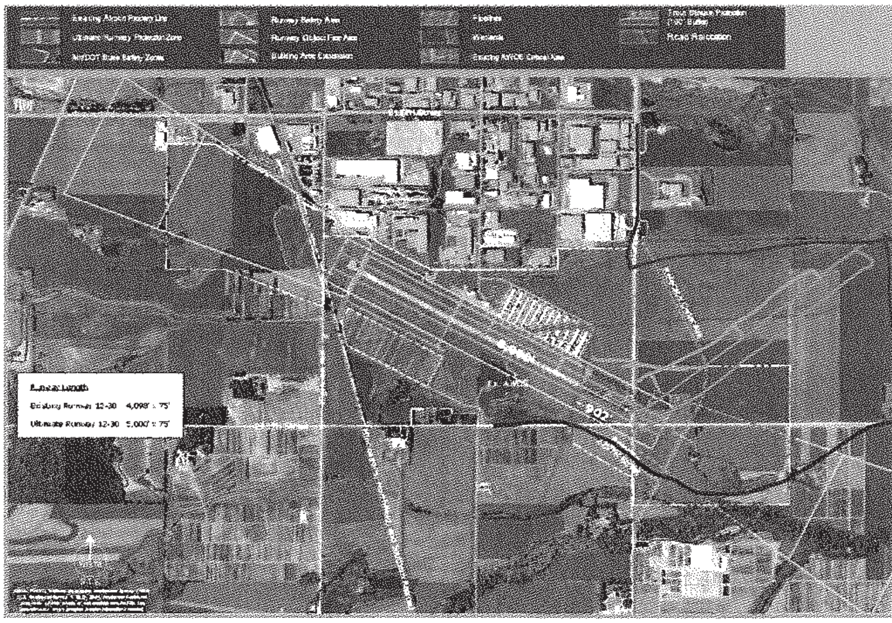
Forwarding to the LTCP comment address.

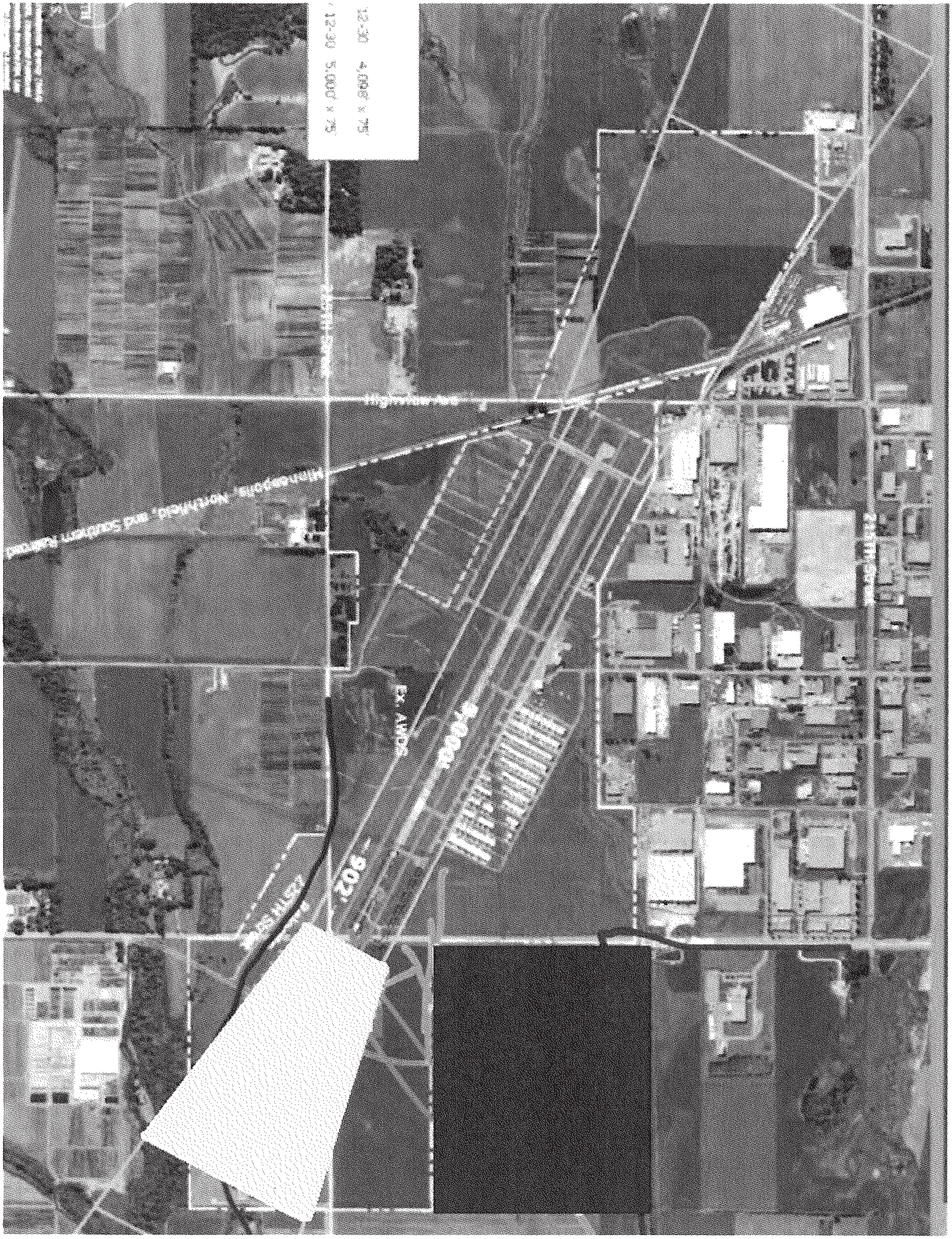
-----Original Message-----
From: Josh Olson [mailto:josh.j.olson@gmail.com]
Sent: Friday, July 28, 2017 9:43 AM
To: Harder, Mike <Mike.Harder@mspmac.org>; Glassing, David <David.Glassing@mspmac.org>; Wilson, Mike <Mike.Wilson@mspmac.org>
Cc: Treasurer Aai <treasureraai@gmail.com>; Safety Officer Aai <FlySafeAAI@gmail.com>
Subject: Alternative suggestion for 2035 plan for KLVN Airlake

Please find attached a suggestion to investigate. One challenge with KLVN for GA is lack of alternative runways when prevailing winds are not favoring 12 or 30. This suggestion would create a level of additional safety for planes of all sizes. It could also better accommodate additional hangar space on the east side. It also assumes minimal route changes for car traffic as they simply reroute around and no longer utilize Cedar Ave and simply route to the road to the east.

Thoughts?

Figure ES-2: 2025 LTCP Preferred Development Alternative




12-30 4,098' x 75'
12-30 5,000' x 75'
Highview Ave
Minneapolis, Northfield, and Southern Railroad
Ex. AWOS
5,000'
902'

Cambridge, Shelly

From: Patrick Halligan <flyinghooligan@gmail.com>
Sent: Thursday, August 17, 2017 2:31 PM
To: Airlake LTCP
Subject: Public Comments

Follow Up Flag: Follow up
Flag Status: Completed

MAC,

I attended the Lakeville City Council Chambers LTCP meeting one week ago. It was a "well done" presentation by Neil, Mike and the rest of the crew. I liked the peg boards they had set up before hand and the number of MAC members in attendance. Neil did a great job staying on topic. His explanations of the runway work planned and the annexation were spot on. I'm all in favor of the extra runway length, as I fly a Baron. Sure 4100' is enough, but 4800' is even better. I know MAC would like to see a few more small jets use the airport and I'm all in favor of that. The more fuel LVN sells, the better for all users. I want to see LVN grow, not die.
Also, I like the idea of opening up the south area for hangar building. I know there are local pilots and companies that want to build.

An Airlake Airport user.
Patrick Halligan

Mark and Kathryn Parranto
22702 Hamburg Avenue
Lakeville, MN 55044

August 28, 2017

Mr. Neil Ralston
MAC Airport Development
6040 28th Avenue South
Minneapolis, MN 55450

This letter is to comment on the Draft Airlake Airport 3050 Long Term Comprehensive Plan and information obtained at the stakeholders meeting at Lakeville City Hall on August 9, 2017.

First let me state that we are the owners of Applewood Orchard located immediately south of Airlake, on the south side of 225th St between Cedar Ave , at least the part that MAC does not own, and Hamburg Ave.

Figure 2-10 on page 2-37, together with Figure 7-2 on page 7-21 would have you think that the Orchard is all agricultural land since the maps conveniently cover over the air photo which shows the orchard. Figure 7-2 shows a blip on the page saying there is a small retail use. These characterizations are misleading at best and a lie by omission at worst. The buildings on our site are a 6100 square foot apple barn housing retail, cider production a large cooler and processing lines. We are primarily a " pick-your-own" operation. The harvest season runs from the middle to late August to the end of October, a period of 8 to 10 weeks. During this time there are individuals and families wandering through the orchard, all 60 acres of it. The may be as many as 500 people here at any given time. Over the course of a season there will have been thousands of people here.

The actual use is substantially different than the maps portraying the land as agriculture and the discussion of Eureka Townships zoning and Comprehensive Plan which seemed to be designed to lead to the conclusion the all the land to the south and east of Airlake is corn and soybeans. There are several houses and farmsteads located off the end of Runway 12, but they are not mentioned either, just lumped in with "agriculture".

On page 1-7 section 1.4.5 "Airport Context" states that Airlake is one of 83 intermediate airports in the state and is the 4th busiest. The map on the next page shows that St Paul Downtown is the only intermediate and that Airlake is a minor airport, one 5 in the metro area. The only one smaller, I would guess, is Lake Elmo.

Airlake is a "hobby" airport based on observation of flights from my orchard. Most of the planes are light propeller planes and many are restored antiques and homebuilts. While the LTCP states that there are 4 jets at Airlake, in response to questioning at the meeting, airport management stated that there is now only one. Page 6-5 shows that current operations, using the 4 jets that the report states are on the field are 0.6 operations per day. An operation , according to MAC is a takeoff or landing. The report says that his is expected to grow to 7.5 operations per day if the airport is expanded. This is an increase of 15 times as many as currently occurring. The reality is that there are fewer jet flights than the indicated 0.6 operations per day since there is only one jet at Airlake.

At the information meeting at Lakeville City Hall, airport management stated that for the first time MAC was actively pursuing annexation by Lakeville in order to provide sewer and water to the airport. Eureka Township has been trying for the last year or so to get Lakeville to provide utilities or to enter into a joint power agreement to do so. They have steadfastly refused. The people of the Township have previously indicated that the Township should fight rather than lose additional land to Lakeville. Refusing a joint power agreement and then trying to annex that same land would seem to go against the intent of the annexation statutes.

After reviewing the entire document it appears that it was written for two purposes , to provide additional business opportunities for the fixed base operator, and to expand the hanger space to the future south building area. It was stated at the open house that selling jet fuel is more profitable than avgas. There is not really any other reason to start lengthening the runway.

In my opinion, the Metropolitan Airports Commission should not lengthen the runway, but it should plan on adding the additional hanger space. It should use its influence to convince Lakeville to enter into a joint power agreement for sewer and water. All parties could then be happy. Private pilots will have somewhere to go, the FBO will sell more gas and do more repairs with more planes on site and Eureka will not have to fight annexation.

Sincerely,

Mark Parranto

Kathryn Parranto

Waypoint Flight Services

August 28th, 2017

Metropolitan Airports Commission |
Airport Development Department
6040 28th Avenue South
Minneapolis, MN 55450

RE: Statement of Support for Additional Runway Length at Airlake Airport (LVN)

To Whom It May Concern:

Waypoint Flight Services (formerly Aviation Resource Center) is the full-service Fixed Base Operator (FBO) at LVN. Our FBO services include on-demand charter, aircraft service, sales and rentals, aircraft fuel and storage and maintenance. A growing segment of our business involves managing and operating corporate jet aircraft for fractional owners. We currently have four such aircrafts based at LVN: two Cessna Citation 650s, one Citation 550, and a Citation 501. We are also actively seeking to increase the fleet. These four aircrafts alone account for approximately 130-140 annual flight operations at LVN.

The aircraft types most in demand from our clientele are mid-sized corporate jets such as the Cessna Citation 650 and Dassault Falcon 20. However, the existing runway length at LVN constraints our operation of these aircraft types to flights with short stage lengths – generally 500 nautical miles or less – and minimal payload. For flights to farther destinations, we frequently re-position the aircraft from LVN to another area airport to depart with the necessary fuel and payload. For example, we have recently had to reposition an aircraft from LVN to Flying Cloud Airport (FCM) for flights to Milwaukee, WI (MKE) Chicago-Midway, IL (MDW), Sarasota-Bradenton, FL (SRQ) and Fort Myers, FL (FMY). Even though MKE and MDW represent relatively short stage length flights from LVN, we were not able to depart LVN with the required payload. This is both inefficient and unproductive.

We are aware that the Metropolitan Airports Commission (MAC) is in the process of preparing the 2035 Long-Term Comprehensive Plan (LTCP) for LVN. Part of the plan is evaluating feasible alternatives to provide additional runway length, as a longer runway will ease our current operational constraints and allow us to build our aircraft management business at LVN based on market-driven demand. Based on our current business plan, we envision the potential for up to seven mid-sized corporate jet aircrafts based at LVN that could account for an additional 450-500 annual flight operations shortly after runway improvements are in place.

In addition, a longer runway will open the door to additional itinerant aircraft operations with similar mid-sized corporate jets that bypass LVN today for other area airports with additional runway length.

We recently became members of the Corporate Aircraft Association (CAA), which allow us to advertise significant fuel discounts for other members. We have seen a limited number of itinerant jet aircraft

22100 Hamburg Avenue, Lakeville, MN 55044 952.469.4414

Waypoint Flight Services

operations due to the current runway length, but based on our market research, we believe that several hundred corporate jet aircrafts could opt to use LVN annually with a longer runway in place. This increased activity will drive the need for additional itinerant aircraft parking as well.

For context, we note that the City of Lakeville is one of the fastest-growing cities in the metropolitan area. Between 2010 and 2014, the population of Lakeville grew by nearly seven percent to 59,866 and is expected to grow to over 80,000 by 2040. Likewise, steady growth is anticipated in both the number of households and employment. Commercial development is surging as well, with several recent business expansions or development near the Airport including Menasha Packaging and FedEx Freight. We believe that these demographic trends will translate into growing demand for aviation services that LVN will be uniquely situated to serve.

Airlake Airport has immense potential, and we look forward to the progressive development of the facility in the future.

Thank you.

Sincerely,

Tony Fiorillo

President

22100 Hamburg Avenue, Lakeville, MN 55044 952.469.4414

Cambridge, Shelly

From:	Mark Pflaum <pfla0006@hotmail.com>
Sent:	Wednesday, August 30, 2017 4:43 PM
To:	Airlake LTCP
Subject:	Long-Term Plan Airlake Airport
Follow Up Flag:	Follow up
Flag Status:	Completed

I wish provide my comments and questions listed below in regards to the 2035 Long-Term Comprehensive Plan for Airlake Airport.

Calvin Pflaum
5780 225th St. W
Farmington, MN 55024

Our family has been in Eureka Township for over 100 years. Our family farm is a fifth generation family farm. We farm on both sides of the airport. Although we are not a "next door neighbor" with property touching airport property our farm is with a quarter mile of the airport property on both ends of runway. Our family had an airplane associated with this airport crash with two fatalities on our family farm. Our whole family watch this sad event occur on a Sunday afternoon. The overall usage of the airport along with changes to surrounding infrastructure and neighboring properties are concerning. The plan does not list compensation for expenses to community members associated with changes in this plan or for property owners who have lines drawn on maps in the plan on their property.

1. What is being done regarding planes flying at low altitude over neighboring properties? This effects both noise and personal space. To state FAA regulates airspace is not an acceptable answer when this comprehensive plan is drawing lines on neighboring properties that are not owned by MAC.

2. The comprehensive plan does not discuss compensating for neighboring land owner rights. There are lines placed for different reasons in the plan specifically crash zone and noise limits. Obviously these lines effect property that does not belong to MAC. What compensation is being provided? If these lines do not effect property rights then they should not be in the comprehensive plan?

3. What is being done to ensure pilots flying into or out of this airport have the proper license and training to fly?

4. What is the median age of the hangar owners?

5. Airport security is not being addressed in the comprehensive plan to include people driving on the runway and unauthorized use. What is being done to ensure security is being addressed?

6. People are using the airport property for many reasons to include dumping garbage, off road driving. What is the plan to curb these illegal activities on airport property?

7. One staff pointed out during the public hearing some of the proposed changes were to bring the airport up to date with current changes. One piece that should be updated prior to any changes in the comprehensive plan is creating an accurate accounting of planes taking off and landing at this airport. Using radar from many miles away or an estimate based on how many plane fly out of MSP airport is not acceptable. A five year study should be completed before any changes to the airport are made with equipment to count and document the actual number of landings, take offs, and the number of planes using the airport. Once this study is complete an economic viability study should be completed to determine if the changes and overall operating expenses warrant the number of planes using the airport.

8. Moving 225th Street is not a viable option. The proposal talks about moving 225th Street 650 feet and putting a curve in the road. Our family farms on both sides of Cedar and this changes poses a significant financial, safety, and time impact. Here is the math 650 feet times 2 is 1300 feet every time I need to cross Cedar. A round trip that results in 2600 feet. This is almost a half a mile. With 365 days a year and a half mile a day results in over 180 miles a year in extra driving. This results in extra fuel and equipment operating costs every year. Then there is the time impact on the cost of our time to travel those extra 180 miles a year. The current speed limit is posted at 45 miles per hour. That results in an extra 4 hours per year and with a curve in the road this time will more than likely increase. The safety impact is the curve in the road. Who will be maintain this section of road? Sometimes in the winter the road blows shut or during a major snow storm the road will not be plowed for days. With a curve this makes the trip down the road even more treacherous. Our family currently has 8 licensed drivers. If you take the above numbers times 8 the hardship for our family multiplies. If you look at future generations the financial impact intensifies. The financial impact of this change is exponential to our family and will cause a financial hardship, while people who are flying in or out of this airport have the enjoyment to fly over our farm. Please address the following questions. How we will be compensated for this change in 225th Street? How others in the community will be compensated? How is the additional time and financial impact for everyone who uses 225th Street warranted compared to the small number of planes using the airport.

9. Request a waiver from FAA to not move 225th Street.

10. Meet with neighboring land owners to include the rail road to determine if other options exist with runway changes.

11. The usage of the airport has changed and the age of the hangar owners have increased. Overall usage of this airport and viability for the cost of annual operations along with the amount of investment of improvements should be studied to determine if the airport is economically viable. The Met Council should create a non-biased committee to review the need for this airport. This committee should be convened to determine viability prior to any changes to the airport. If staff is involved on this panel then neighboring land owners whose property is effected by the lines drawn on their property on this map should also be included.

12. Will all planes stored in the hangers and on the ground on Airlake property be checked for safety and noise levels semi-annually? Although MAC does not have any regulation over what happens in the sky it does own the property and should be reviewing aircraft on the ground at their facility.

13. We have heard the wish to be annexed to Lakeville for sewer and water service. If the hangers sole use is storing airplanes then why is sewer and water needed in each hanger? If the airport currently has a building with sewer and water service why is this not sufficient?

14. The Met Council should have a round table discussion with MAC, Eureka Township, residents, and users of the airport to come up with a solution to the sewer and water service needs. There are so many options out there, but MAC is focused on one that includes annexation. Options include agreements with Lakeville, Farmington, private services....truly there are many options and the Met Council needs to assist MAC in determining a viable solution without having the airport leave our community.

15. Based on the need for sewer and water services. Are people living in the hangers?

16. Are the hangars being used for non-conforming uses?

17. Are classic vehicles and other non-aviation property being stored in hangars?

18. Are hangars being used for parties, weddings, and meetings for people not flying out of the airport?

19. Will the airport host a community event such as a national night out event or open house for residents of eureka township, since many of the users of the airport do not reside in eureka township?

PAGE INTENTIONALLY LEFT BLANK

Metropolitan Airports Commission
Airport Development, Environment, and Reliever Departments
6040 28th Avenue South • Minneapolis, MN 55450
MetroAirports.org