LIST OF APPENDICES

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Appendix 1: Glossary of Terms

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Glossary of Terms

21D: The FAA airport location identifier for the Lake Elmo Airport.

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 Lake Elmo Airport are highlighted in bold 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.

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 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.

Long-Term Comprehensive Plan (LTCP): The airport sponsor's concept of the long-term development and use of an airport's land and facilities.

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. (See Figure 2-7.)

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.

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.

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.

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Appendix 2: Historical Airport Planning Documents

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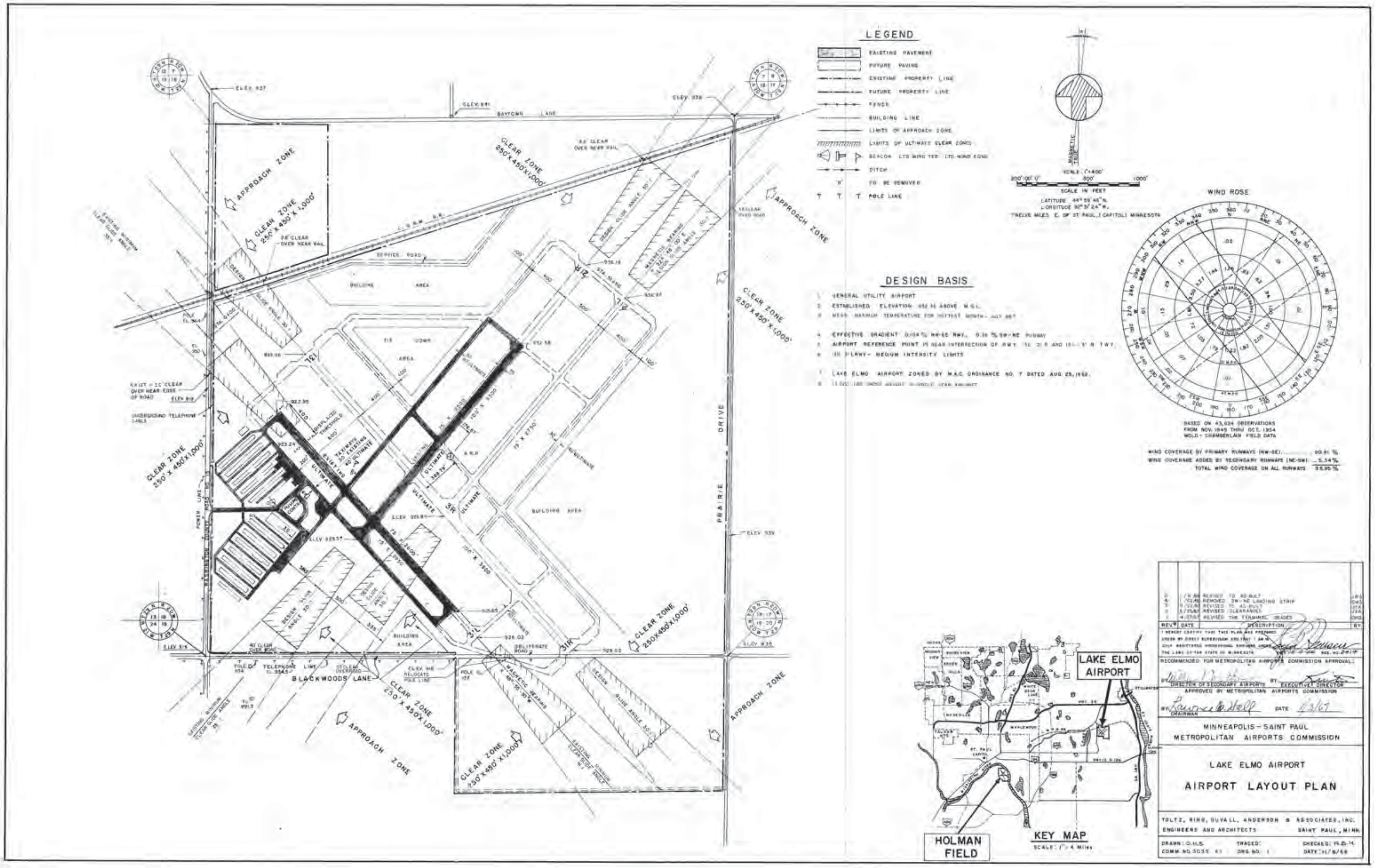
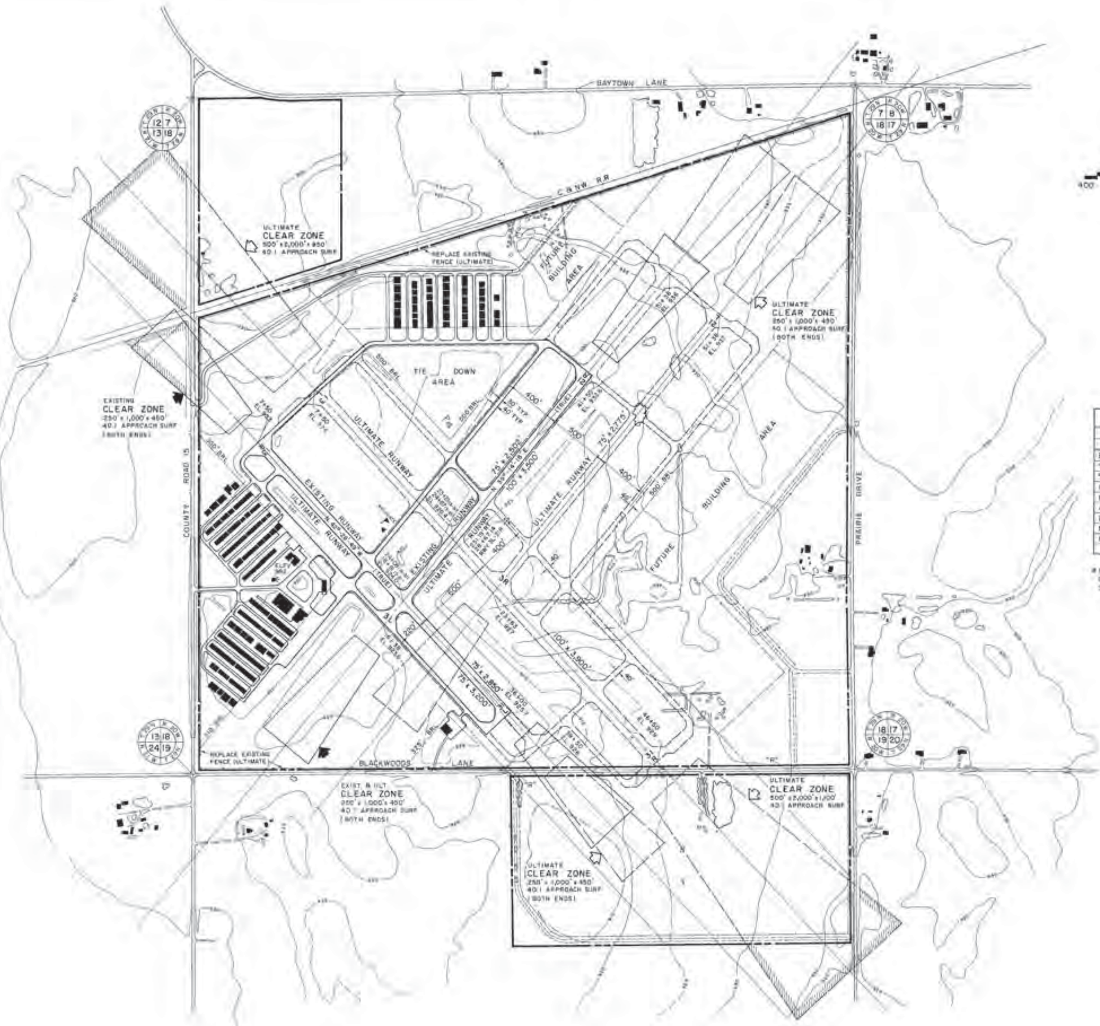
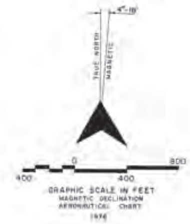

LEGEND
DESIGN BASIS
WIND ROSE
CLEAR ZONE
250' X 450' X 1,000'
APPROACH ZONE
BAYTOWN LANE
BLACKWOODS LANE
PRAIRIE DRIVE
BUILDING AREA
TIE DOWN AREA
SERVICE ROAD
LAKE ELMO
AIRPORT
HOLMAN
FIELD
KEY MAP
MINNEAPOLIS - SAINT PAUL
METROPOLITAN AIRPORTS COMMISSION
LAKE ELMO AIRPORT
AIRPORT LAYOUT PLAN
TOLTZ, KING, DUVALL, ANDERSON & ASSOCIATES, INC.
ENGINEERS AND ARCHITECTS
SAINT PAUL, MINN.





LEGEND		
EXISTING	ULTIMATE	
		PROPERTY LINE
		PAVEMENT
		BUILDING
		ROADWAY
		BOUNDARY FENCE
		BUILDING RESTRICTION LINE (BRL)
		EASEMENT LINE
		LEASE LINE
		AIRPORT REFERENCE POINT
		TO BE REMOVED
		ROTATING BEACON
		LTD WIND CONC, LTD WIND TEE
		GROUND CONTOUR

RUNWAY DATA

	13R-31L		13L-31R		3L-21R		3R-21L	
	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE
EFFECTIVE GRADIENT (IN%)	11%	SAME	—	10%	38%	SAME	—	36%
% WIND COVERAGE-IFR (10kt)	79.50	SAME	—	79.50	68.92	SAME	—	68.92
% WIND COVERAGE-ALL W (10kt)	82.51	SAME	—	82.51	68.03	SAME	—	68.03
INSTRUMENT RUNWAY *	VISUAL	SAME	—	VIS / NPI	VISUAL	SAME	—	VISUAL
PAVEMENT STRENGTH * *	13S	30S	—	30S	13S	30S	—	30S
APPROACH SURFACES *	40:1	SAME	—	40:1	40:1	SAME	—	40:1
LIGHTING	MIRL	SAME	—	MIRL	NONE	MIRL	—	NONE
MARKING	NON-PREC	SAME	—	NON-PREC	NON-PREC	SAME	—	NON-PREC
NAVIGATIONAL AIDS *	NONE	SAME	—	ODALS/REIL	NONE	REIL	—	NONE

* WHERE TWO CONDITIONS ARE INDICATED PER SPACE, THE FIRST CONDITION DESIGNATES THE LOWER NUMBERED RWY, AND THE SECOND CONDITION DESIGNATES THE HIGHER NUMBERED RWY.

* * VALUES GIVEN ARE GROSS AIRCRAFT WEIGHT IN 1,000# FOR SINGLE (S) GEAR AIRCRAFT. RWY & TWY PAVEMENTS ARE BITUMINOUS (FLEXIBLE) CONST.

AIRPORT DATA

	EXISTING	ULTIMATE
AIRPORT ELEVATION	933	937
AIRPORT REFERENCE POINT (LATITUDE)	—	44°-59'-53"
AIRPORT REFERENCE POINT (LONGITUDE)	—	92°-51'-11"
MEAN MAX. TEMP. OF HOTTEST MONTH	85°	SAME
AIRPORT & TERMINAL NAVAIDS	BEACON VOR	SAME

NOTES:
1. ALL ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL.
2. CONTOUR INTERVAL 10.0' (SUPPLEMENTAL 5.0' CONTOURS IN SELECTED FLAT AREAS)
3. CLEAR ZONE DIMENSIONS REPRESENT THE MORE RESTRICTIVE OF APPLICABLE FEDERAL OR STATE CRITERIA.

REV. DATE JAN. 1990

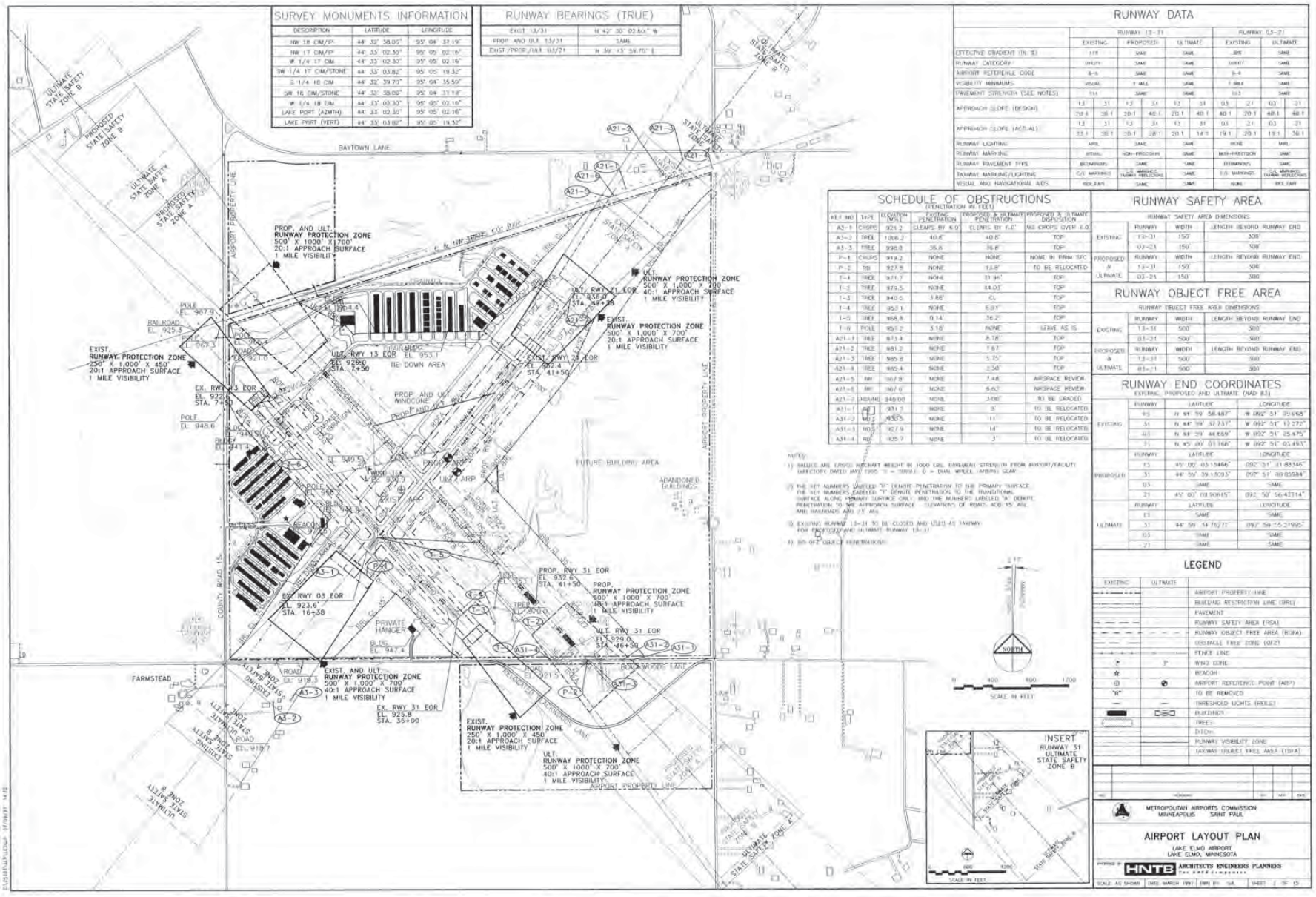
MINNEAPOLIS SAINT PAUL METROPOLITAN AIRPORTS COMMISSION

LAKE ELMO AIRPORT

AIRPORT LAYOUT PLAN

T K D A
TOLTZ, KING, DUVALL, ANDERSON, ASSOCIATES INC.
Engineers & Architects Saint Paul, Minnesota

Sheet 3 of 11 Sheets



SURVEY MONUMENTS INFORMATION		
DESCRIPTION	LATITUDE	LONGITUDE
NW 1/8 CIM/RP	44° 53' 58.06"	95° 04' 33.19"
NW 1/7 CIM/RP	44° 53' 02.50"	95° 05' 02.16"
W 1/4 1/7 CIM	44° 53' 02.30"	95° 05' 02.16"
SW 1/4 1/7 CIM/STONE	44° 53' 03.82"	95° 05' 19.32"
S 1/4 1/8 CIM	44° 52' 39.70"	95° 04' 35.59"
SW 1/8 CIM/STONE	44° 52' 58.06"	95° 04' 33.19"
W 1/4 1/8 CIM	44° 53' 00.30"	95° 05' 02.16"
LAKE PORT (AZMTH)	44° 53' 02.50"	95° 05' 02.16"
LAKE PORT (VERT)	44° 53' 03.82"	95° 05' 19.32"

RUNWAY BEARINGS (TRUE)	
EXIST. 13/31	N 42° 30' 02.60" W
PROP. AND ULT. 13/31	SAME
EXIST./PROP./ULT. 03/21	N 39° 13' 59.75" E

RUNWAY DATA	RUNWAY 13-31				RUNWAY 03-21			
	EXISTING		PROPOSED		ULTIMATE		EXISTING	ULTIMATE
EFFECTIVE GRADIENT (IN %)	1.1%		SAME		SAME		0.5%	SAME
RUNWAY CATEGORY	UTILITY		SAME		SAME		UTILITY	SAME
AIRPORT REFERENCE CODE	B-II		SAME		SAME		B-II	SAME
VISIBILITY MINIMUMS	VISUAL		1 MILE		SAME		1 MILE	SAME
PAVEMENT STRENGTH (SEE NOTES)	11K		SAME		SAME		11K	SAME
APPROACH SLOPE (DESIGN)	13	31	13	31	13	31	03	21	03	21	03	21
	20:1	20:1	20:1	40:1	20:1	40:1	20:1	20:1	40:1	40:1	20:1	20:1
APPROACH SLOPE (ACTUAL)	13	31	13	31	13	31	03	21	03	21		
	33:1	20:1	20:1	28:1	20:1	14:1	19:1	20:1	19:1	50:1		
RUNWAY LIGHTING	MIRL		SAME		SAME		NONE		MIRL			
RUNWAY MARKING	BASIC		NON-PRECISION		SAME		NON-PRECISION		SAME			
RUNWAY PAVEMENT TYPE	BITUMINOUS		SAME		SAME		BITUMINOUS		SAME			
TAXIWAY MARKING/LIGHTING	C/L MARKING		C/L MARKING, TAXIWAY REFLECTORS		SAME		C/L MARKING		C/L MARKING, TAXIWAY REFLECTORS			
VISUAL AND NAVIGATIONAL AIDS	REIL/PAPI		SAME		SAME		NONE		REIL/PAPI			

SCHEDULE OF OBSTRUCTIONS (PENETRATION IN FEET)						
KEY NO.	TYPE	ELEVATION (MSL)	EXISTING PENETRATION	PROPOSED & ULTIMATE PENETRATION	PROPOSED & ULTIMATE DISPOSITION	
A3-1	CROPS	921.2	CLEARS BY 6.0'	CLEARS BY 6.0'	NO CROPS OVER 6.0'	
A3-2	TREE	1008.2	40.8'	40.8'	TOP	
A3-3	TREE	998.8	36.8'	36.8'	TOP	
P-1	CROPS	919.2	NONE	NONE	NONE IN PRIM SFC	
P-2	RD	927.8	NONE	13.8'	TO BE RELOCATED	
T-1	TREE	971.7	NONE	31.96'	TOP	
T-2	TREE	979.5	NONE	44.03'	TOP	
T-3	TREE	940.6	1.88'	CL	TOP	
T-4	TREE	952.1	NONE	6.01'	TOP	
T-5	TREE	968.8	0.14'	16.2'	TOP	
T-6	POLE	951.2	3.18'	NONE	LEAVE AS IS	
A21-1	TREE	973.4	NONE	8.78'	TOP	
A21-2	TREE	981.2	NONE	7.87'	TOP	
A21-3	TREE	985.8	NONE	5.75'	TOP	
A21-4	TREE	985.4	NONE	2.50'	TOP	
A21-5	WR	967.9	NONE	7.48'	AIRSPACE REVIEW	
A21-6	WR	967.6	NONE	6.62'	AIRSPACE REVIEW	
A21-7	GROUND	940.00	NONE	3.00'	TO BE GRADED	
A31-1	RD	931.3	NONE	9'	TO BE RELOCATED	
A31-2	RD	930.5	NONE	11'	TO BE RELOCATED	
A31-3	RD	927.9	NONE	14'	TO BE RELOCATED	
A31-4	RD	925.7	NONE	3'	TO BE RELOCATED	

NOTES:
1) FAILURE ARE GROSS AIRCRAFT WEIGHT IN 1000 LBS. PAVEMENT STRENGTH FROM AIRPORT/FACILITY DIRECTORY DATED MAY 1995. "S" = SINGLE, "D" = DUAL WHEEL LANDING GEAR.
2) THE KEY NUMBERS LABELED "P" DENOTE PENETRATION TO THE PRIMARY SURFACE. THE KEY NUMBERS LABELED "F" DENOTE PENETRATION TO THE TRANSITIONAL SURFACE ALONG PRIMARY SURFACE ONLY, AND THE NUMBERS LABELED "A" DENOTE PENETRATION TO THE APPROACH SURFACE. ELEVATIONS OF ROAD ADD 15' AVG. AND RAILROADS ADD 23' AVG.
3) EXISTING RUNWAY 13-31 TO BE CLOSED AND USED AS TAXIWAY FOR PROPOSED AND ULTIMATE RUNWAY 13-31.
4) 85% OF OBJECT PENETRATION.

RUNWAY SAFETY AREA			
RUNWAY SAFETY AREA DIMENSIONS			
	RUNWAY	WIDTH	LENGTH BEYOND RUNWAY END
EXISTING	13-31	150'	300'
	03-21	150'	300'
PROPOSED & ULTIMATE	RUNWAY	WIDTH	LENGTH BEYOND RUNWAY END
	13-31	150'	300'
	03-21	150'	300'

RUNWAY OBJECT FREE AREA			
RUNWAY OBJECT FREE AREA DIMENSIONS			
	RUNWAY	WIDTH	LENGTH BEYOND RUNWAY END
EXISTING	13-31	500'	300'
	03-21	500'	300'
PROPOSED & ULTIMATE	RUNWAY	WIDTH	LENGTH BEYOND RUNWAY END
	13-31	500'	300'
	03-21	500'	300'

RUNWAY END COORDINATES EXISTING, PROPOSED AND ULTIMATE (NAD 83)			
	RUNWAY	LATITUDE	LONGITUDE
EXISTING	13	N 44° 59' 58.487"	W 092° 51' 39.068"
	31	N 44° 59' 37.737"	W 092° 51' 12.272"
	03	N 44° 59' 44.669"	W 092° 51' 25.475"
	21	N 45° 00' 01.768"	W 092° 51' 03.493"
PROPOSED	RUNWAY	LATITUDE	LONGITUDE
	13	45° 00' 03.1546"	092° 51' 31.88346"
	31	44° 59' 39.14503"	092° 51' 08.85984"
	03	SAME	SAME
	21	45° 00' 19.90415"	092° 50' 56.43114"
ULTIMATE	RUNWAY	LATITUDE	LONGITUDE
	13	SAME	SAME
	31	44° 59' 14.76277"	092° 51' 55.21995"
	03	SAME	SAME
	21	SAME	SAME

LEGEND	
EXISTING	ULTIMATE
	AIRPORT PROPERTY LINE
	BUILDING RESTRICTION LINE (BRL)
	PAVEMENT
	RUNWAY SAFETY AREA (RSA)
	RUNWAY OBJECT FREE AREA (ROFA)
	OBSTACLE FREE ZONE (OFZ)
	FENCE LINE
	WIND CONE
	BEACON
	AIRPORT REFERENCE POINT (ARP)
"R"	TO BE REMOVED
	THRESHOLD LIGHTS (REILS)
	BUILDINGS
	TREES
	DITCH
	RUNWAY VISIBILITY ZONE
	TAXIWAY OBJECT FREE AREA (TOFA)


Existing Airport Property Line
Existing Runway Protection Zone
Ultimate Runway Protection Zone
Mn/DOT State Safety Zones
Runway Safety Area
Runway Object Free Area
Building Area Expansion
Ultimate Pavement
Wetlands
Ultimate AWOS Critical Area
Ultimate Compass Calibration Critical Area (600' Radius)
Figure ES-1
County Road 14
Union Pacific Railroad
Ult. AWOS
3,200'
70°
Runway Length
Existing Runway 14-32 2,850' x 75'
Existing Runway 04-22 2,497' x 75'
Ultimate Runway 14-32 2,850' x 75'
Ultimate Runway 04-22 3,200' x 75'
County Road 15
Blackwoods Lane
NORTH
N.T.S.
Lake Elmo Airport (21D)
Preferred Alternative - Crosswind Runway Extension to 3,200' with Building Area Development

Appendix 3: Lake Elmo 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:
http://metroairports.org/General-Aviation/Airports/Lake-Elmo.aspx

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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

October 7, 2015

Mr. Neil Ralston, A.A.E., Airport Planner
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

Lake Elmo Airport (21D)
Lake Elmo, Minnesota
Approval of Long-Term Comprehensive Plan Aviation Forecast

Dear Mr. Ralston:

The based aircraft and operation forecasts contained in the Draft 2035 Long-Term Comprehensive Plan dated June 22, 2015 have been approved. The FAA concurs with the use of the forecast information contained in Table 3-4: Summary of Based Aircraft Forecast (Base Case) and Table 3-5: Summary of Aircraft Operations Forecast (Base Case).

If you have any questions or would like to discuss this information, please feel welcome to contact me at (612) 253-4641 or gina.mitchell@faa.gov .

Sincerely,

Gina M. Mitchell, AICP
Community Planner
Dakota-Minnesota Airports District Office, Minneapolis Office

cc: Nancy Nistler, FAA Program Manager (email)
Simon Schmitz, FAA Program Manager (email)
Dan Boerner, MnDOT Aeronautics (email)
Rylan Juran, MnDOT Aeronautics (email)

Aircraft By Area Report as of 07/02/2014

Aircraft at LAKE ELMO

N-Nbr	Year-Make-Model	Name-Address1	Addr2-City-State-Zip	County-Base Airport
N4815J	1967 BEECH C33A DEBONAIR	15J LLC 1566 Rice St	St Paul, MN 55117	WASHINGTONLake Elmo
N4711C	1958 CESSNA 172	4711C Corp c/o Ross Sublett	10220 Jody Avenue N Stillwater, MN 55082-9003	WASHINGTONLake Elmo
N30070	1970 BOWERS FLY BABY 1-A	4711C Corp c/o Ross Sublett	10220 Jody Avenue N Stillwater, MN 55082-9003	WASHINGTONLake Elmo
N5540W	1962 PIPER PA28-160 CHEROKEE	Air-Crete Construction Inc 3275 Manning Avenue N #12	Lake Elmo, MN 55042-9695	WASHINGTONLake Elmo
N9AA	1973 AMSDEN MIDGET MUSTAMG I	Allen E Amsden 983 Grandview Avenue	St Paul, MN 55113-4438	WASHINGTONLake Elmo
N5078M	1964 PIPER PA28-235 CHEROKEE	Leon W Anders 1397 Tamberwood Trail	Woodbury, MN 55125-2369	WASHINGTONLake Elmo
N465CC	2012 CUBCRAFTERS INC CC11-160	Colin Anderson 8176 Galway Road	Woodbury, MN 55125-2397	WASHINGTONLake Elmo
N5895N	1979 ROCKWELL INTERNATIONAL 114A	Archnet 333 Main Street N #201	Stillwater, MN 55082	WASHINGTONLake Elmo
N318Z	1960 BEECH 33 DEBONAIR	Arnold Nelson Aviation Inc 2232 Ogden Court	St Paul, MN 55119-5636	WASHINGTONLake Elmo
N9894B	1958 CHAMPION 7EC* TRI-TRAVELER	Ascension Flyers Randy J Hunt	867 Lake Ridge Alcove Woodbury, MN 55129	WASHINGTONLake Elmo
N80869	1946 SWIFT GC-1B GLOBE	Robert L & Deborah A Bailey 1079 Ingerson Road	Shoreview, MN 55126-8143	WASHINGTONLake Elmo
N71SG	1990 LANCAIR 320	Robert K Beach 250 Sixth Street E #508	St Paul, MN 55101-1964	WASHINGTONLake Elmo
N5077T	1968 BEECH A23-24 MUSKETEER	Sanford B Berg 3640 South Fulton Avenue	Hapeville, GA 30354	WASHINGTONLake Elmo
N42WW	1949 UNIVERSAL GLOBE GC-1B	Keith Bergmann 5833 Lake Elmo Avenue N	Lake Elmo, MN 55042-9562	WASHINGTONLake Elmo
N3151R	1982 HAMILTON W-8 TAILWIND	Danny Bergstrom 12171 Parade Avenue N	Stillwater, MN 55082-8590	WASHINGTONLake Elmo
N100EF	1998 BRODERSON SKYSTAR KITFOX 5	Eric M Broderson 14930 - 130th Street N	Stillwater, MN 55082-8504	WASHINGTONLake Elmo

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N5956J	1971 CESSNA A150L AEROBAT	Roger R Brogren 87 Quail Street	Mahtomedi, MN 55115	WASHINGTONLake Elmo
N71800	1946 LUSCOMBE 8A	Roger W Buck 2888 Helena Avenue N	Oakdale, MN 55128-4002	WASHINGTONLake Elmo
N1574K	1947 LUSCOMBE 8E	Roger W Buck 2888 Helena Avenue N	Oakdale, MN 55128-4002	WASHINGTONLake Elmo
N1381K	1946 LUSCOMBE 8A	Roger W Buck 2888 Helena Avenue N	Oakdale, MN 55128-4002	WASHINGTONLake Elmo
N1343B	1948 LUSCOMBE 8A	Roger W Buck 2888 Helena Avenue N	Oakdale, MN 55128-4002	WASHINGTONLake Elmo
N713W	1952 DEHAVILLAND DHC1 CHIPMUNK	Roger G Byers PO Box 173	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N196A	1968 CESSNA 180H	Roger G Byers Box 173	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N182DS	1969 CESSNA 182M	Roger G Byers Box 173	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N82682	1970 CHAMPION 7ECA CITABRIA	Roger G Byers Box 173	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N3506Y	2001 CESSNA T206H TURBO STATIONAIR	Cascade Commodities LLC 15 Daniels Farm Road	White Bear Lake, MN 55110-5231	WASHINGTONLake Elmo
N58484	1973 CESSNA 182P SKYLANE	Centurion Enterprises Inc 3275 Manning Avenue N #8	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N30788	1940 PIPER J3C-65 CUB	Jerry L Chapman 2865 Hallmark Avenue N	Oakdale, MN 55128-3936	WASHINGTONLake Elmo
N2323U	1963 CESSNA 172D	Jerry L Chapman 2865 Hallmark Avenue N	Oakdale, MN 55128-3936	WASHINGTONLake Elmo
N96579	1984 CESSNA 172P SKYHAWK	Civil Air Patrol Minnesota Wing Hq Attn: LT Col Paul Adams	6275 Crossman Lane Inver Grove Heights, MN 55076-1851	WASHINGTONLake Elmo
N2501Z	1977 BELLANCA CITABRIA 7ECA	Dennis Conlin 8560 Ironwood Trail N	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N202WP	1966 CESSNA 150F	David L Cross 1029 McKusick Road Lane N	Stillwater, MN 55082-4168	WASHINGTONLake Elmo
N8850N	1969 PIPER PA28-140B CHEROKEE	Daniel J Cunningham	Minneapolis, MN 55406-3510	WASHINGTONLake Elmo

Aircraft By Area Report as of 07/02/2014

		3856 - 43rd Avenue S		
N483CD	2005 CIRRUS DESIGN CORP SR22	D & A Farms Inc 27646 Saddle Hills Drive	New Ulm, MN 56073	WASHINGTONLake Elmo
N77196	1946 CESSNA 120	Dairy Air Flight Training LLC 7009 13th Avenue S	Richfield, MN 55423	WASHINGTONLake Elmo
N2693N	1947 CESSNA 120	Daniel B Davis 123 Mission Lane	Bloomington, MN 55420-5318	WASHINGTONLake Elmo
N5147X	1969 CHAMPION 7ECA CITABRIA	Sheila M Davis & Russell Jo Brown 3715 Briarwood Avenue	Mahtomedi, MN 55115-1401	WASHINGTONLake Elmo
N61879	1975 CESSNA 172M SKYHAWK	Day Care Air LLC 3275 Manning Avenue N #10	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N5083S	1971 PIPER PA28R-200 CHEROKEE ARROW II	Daycare Air LLC 3275 Manning Avenue N #10	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N62218	1982 CESSNA 172P SKYHAWK	Delta Romeo Aviation LLC 1556 Ashbury Place	Eagan, MN 55122-1222	WASHINGTONLake Elmo
N4179H	1982 RAVEN S60A	John L Diedrich 14140 - 44th Street S	Afton, MN 55001	WASHINGTONLake Elmo
N1679H	1977 PIPER PA-28-181	Dream Team Inc 3808 Abercrombie Lane	Stillwater, MN 55082	WASHINGTONLake Elmo
N2003C	1979 TAYLORCRAFT AVIATION CORP F19	Michael C Eggert PO Box 214	Hackensack, MN 56452	WASHINGTONLake Elmo
N95969	1946 TAYLORCRAFT BC-12D	Thomas F Eggert 8058 Marsh Creek Alcove	Woodbury, MN 55125-3035	WASHINGTONLake Elmo
N17453	1937 WACO YKS-7	Thomas F Eggert 8058 Marsh Creek Alcove	Woodbury, MN 55125-3035	WASHINGTONLake Elmo
N5664K	1966 BEECH C33A DEBONAIR	Elken Company of Minnesota Inc 14698 Afton Blvd	Afton, MN 55001-9723	WASHINGTONLake Elmo
N274Y	1997 DAKE MULLICOUPE	Elmo Aero Box 833	Lake Elmo, MN 55042-0833	WASHINGTONLake Elmo
N38337	1941 PIPER J3C-65 CUB	Elmo AFB Flying Club Inc c/o Paul J Anderson	P O Box 207 Marine on St Croix, MN 55047	WASHINGTONLake Elmo
N45222	1941 NAVAL AIR FACT N3N-3	Elmo AFB Flying Club Inc c/o Paul J. Anderson	P O Box 207 Marine on St Croix, MN 55047	WASHINGTONLake Elmo

Aircraft By Area Report as of 07/02/2014

N88878	1943 CESSNA T-50 BOBCAT	Elmo AFB Flying Club Inc	201 Oak Street Box 207 Marine on St Croix, MN 55047	WASHINGTONLake Elmo
N157RE	2007 RANS INC S-7LS	Ronald J Eshleman 699 Hidden Valley Court	Stillwater, MN 55082-5407	WASHINGTONLake Elmo
N7070E	1960 CESSNA 175A	Steven J Espersen 1254 5th Street	St Paul Park, MN 55071	WASHINGTONLake Elmo
N99673	1946 ERCOUPE 415-C	Julie E Eszlinger & Leo M Daly 2221 Youngman Avenue Apt 304	St Paul, MN 55116-3077	WASHINGTONLake Elmo
N104GD	1970 BEECH A24R SIERRA 200	David Q Fiebiger 181 N McKnight Road #220	St Paul, MN 55119-6650	WASHINGTONLake Elmo
N20085	1977 CESSNA 177B CARDINAL	Ian Fleming 5525 Henna Court	Pine Springs, MN 55128-1805	WASHINGTONLake Elmo
N4247Q	1971 CESSNA 172L	Flite Inc PO BOX 209	Stillwater, MN 55082	WASHINGTONLake Elmo
N1833T	1971 PIPER PA28-180F CHEROKEE	Follow Your Bliss LLC 2536 Cottage Drove Crst	Woodbury, MN 55129-9752	WASHINGTONLake Elmo
N76TM	1976 BELLANCA 17-30A SUPER VIKING	Foreign Auto Specialties 2601 Pleasant Avenue S	Minneapolis, MN 55408-1442	WASHINGTONLake Elmo
N35018	1975 CESSNA 177B	Four Two Foxtrot Inc c/o Wesley Frank	3590 Searle Court Vadnais Heights, MN 55127-7113	WASHINGTONLake Elmo
N17XS	2005 GACEK RANS S-7 COURIER	Jeffrey A Gacek 2629 S Shore Blvd	White Bear Lake, MN 55110-3951	WASHINGTONLake Elmo
N80571	1946 SWIFT GC1B	Dennis M Gehring 2207 Birch Street	White Bear Lake, MN 55110-4308	WASHINGTONLake Elmo
N77857	1946 LUSCOMBE 8A	Dennis M Gehring 2207 Birch Street	White Bear Lake, MN 55110	WASHINGTONLake Elmo
N157E	2007 AMERICAN CHAMPION AIRCRAFT 7EC	Theodore G Glasrud 2677 Arbor Drive	White Bear Lake, MN 55110	WASHINGTONLake Elmo
N623G	2010 GOLDEN RV-6	Gerald E Golden 10464 Osage Street	Coon Rapids, MN 55433-4631	WASHINGTONLake Elmo
N3658L	1966 CESSNA 172G SKYHAWK	Michael E Graczyk Box 44, 3358 Lake Elmo Avenue	Lake Elmo, MN 55042-9799	WASHINGTONLake Elmo
N99EG	1973 PIPER PA-31P	Gerald F Grant 221 Crestview Drive	Maplewood, MN 55119-4708	WASHINGTONLake Elmo

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N83388	1946 AERONCA 7AC	Jon Paul Grubs 2249 Second Street	White Bear Lake, MN 55110-3202	WASHINGTONLake Elmo
N424MG	2010 SKY RAIDER SR-2	Marlon Gunderson 2986 Lake Elmo Avenue N	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N3308H	1947 ERCOUPE 415C/D	Dale H Haag 964 Stryker Avenue	West St Paul, MN 55118-1338	WASHINGTONLake Elmo
N74HL	2001 LIGON HOWARD C HOME BUILT	Kirk Hall 6837 Harriet Avenue	Richfield, MN 55423	WASHINGTONLake Elmo
N5614K	1964 BEECH S35 BONANZA	Richard H Heath 11950 - 21st Street N	Lake Elmo, MN 55042-9634	WASHINGTONLake Elmo
N95118	1969 PIPER PA28-140 CHEROKEE	Lynn Henderson 13787 Greenwood Trail N	Stillwater, MN 55082-8332	WASHINGTONLake Elmo
N1955N	1947 CESSNA 140	Mitchell W Hendrix 106 Pear Lane	Starkville, MS 39759	WASHINGTONLake Elmo
N47175	1943 AERONCA 0-58B	HHH Flying Club Inc 5267 Oak Ridge Court	White Bear Lake, MN 55110-7806	WASHINGTONLake Elmo
N577B	1948 BEECH 35 BONANZA	William J Hinrichs 2150 Fernwood Street N	St Paul, MN 55113-5923	WASHINGTONLake Elmo
N2410B	1949 GLOBE GC-1B	Dennis & Nanette Hoffman 10053 Mendel Road	Stillwater, MN 55082-9494	WASHINGTONLake Elmo
N1887C	1953 CESSNA 170B	Dennis P Hoffman 10053 Mendel Road	Stillwater, MN 55082-9494	WASHINGTONLake Elmo
N5437N	1945 PIPER J3C-65 CUB	Dennis P Hoffman 10053 Mendel Road	Stillwater, MN 55082-9494	WASHINGTONLake Elmo
N2606N	1947 CESSNA 120	Mark Holliday BOX 243	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N7D	1951 KNIGHT TWISTER HOME BUILT	Mark Holliday Box 243	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N80966	1946 SWIFT GC-1B GLOBE	Mark E Holliday Box 243	Lake Elmo, MN 55042-0243	WASHINGTONLake Elmo
N2353B	1948 TEMCO GC-1B SWIFT	Mark E Holliday Box 243	Lake Elmo, MN 55042-0243	WASHINGTONLake Elmo

Aircraft By Area Report as of 07/02/2014

N4112N	1947 CESSNA 140	Mark E Holliday PO Box 243	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N78225	1946 GLOBE GC-1B	Mark E Holliday Box 243	Lake Elmo, MN 55042-0243	WASHINGTONLake Elmo
N6715G	1970 CESSNA 150L	Mark E Holliday PO Box 243	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N78069	1946 GLOBE GC-1B SWIFT	Mark E Holliday PO Box 243	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N78191	1946 GLOBE GC-1B	Mark E Holliday Box 243	Lake Elmo, MN 55042-0243	WASHINGTONLake Elmo
N9937B	1959 LUSCOMBE 8F	Mark E Holliday Box 243	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N90340	1946 UNIVERSAL GLOBE GC1A	Mark E Holliday Box 243	Lake Elmo, MN 55042-0243	WASHINGTONLake Elmo
N9111L	1971 BELLANCA 7ACA	Holman Hobos Flying Club Inc 1143 Farrington St	St Paul, MN 55117-4801	WASHINGTONLake Elmo
N4267T	1971 PIPER PA-28-140	Charles Hooley 5267 Oak Ridge Court	White Bear Lake, MN 55110	WASHINGTONLake Elmo
N80905	1946 SWIFT GC-1A	Charles F Hoover, Jr 7027 - 37th Street N	Oakdale, MN 55128-3340	WASHINGTONLake Elmo
N18CH	1974 THORP T-18	Charles F Hoover, Jr 7027 - 37th Street N	Oakdale, MN 55128-3340	WASHINGTONLake Elmo
N5611Q	1965 MOONEY M20C MARK 21	Leon J Horien 3670 Auger Avenue	White Bear Lake, MN 55110-4607	WASHINGTONLake Elmo
N8353G	1966 CESSNA 150F	Jeffrey P Hove 25 Flandrau Place	St Paul, MN 55106-6810	WASHINGTONLake Elmo
N347RV	2006 HOVE VANS RV-7A	Paul E Hove 12 Sandralee Drive West	St Paul, MN 55119-4953	WASHINGTONLake Elmo
N21522	1979 PIPER PA28-161 CHEROKEE WARRIOR II	Paul E Hove 12 W Sandralee Drive W	St Paul, MN 55119-4953	WASHINGTONLake Elmo
N6987S	1968 CESSNA 150H	Hubbard Broadcasting Inc Attn: Patty Schmeling	3415 University Avenue St Paul, MN 55114-1019	WASHINGTONLake Elmo
N7252A	1957 CESSNA 172	Thomas R Jackson 111 Central Avenue	Bayport, MN 55003	WASHINGTONLake Elmo

Aircraft By Area Report as of 07/02/2014

N94TS	1971 CESSNA 172L	Joseph T Jirele 10389 Fox Run Road	Woodbury, MN 55129-8504	WASHINGTONLake Elmo
N112BK	1957 HILLER UH-12C	Kenneth E Johnson Johan Nelson 611 Florence Avenue	Mahtomedi, MN 55115	WASHINGTONLake Elmo
N119AJ	1963 CESSNA L-19E	Allan E Johnson 985 Neal Avenue N	Stillwater, MN 55082-1928	WASHINGTONLake Elmo
N321MM	1980 CESSNA A185F SKYWAGON	Curtis A Johnson 1940 Foxridge Road	St Paul, MN 55119-4913	WASHINGTONLake Elmo
N90192	1946 CESSNA 140	Dennis F Johnson PO Box 752	Detroit Lakes, MN 56502	WASHINGTONLake Elmo
N2463L	1979 PIPER PA-38-112	Eric Johnson 1795 Queens Avenue South	Lakeland, MN 55043	WASHINGTONLake Elmo
N5393	1973 MAURER STARDUSTER TOO SA-30	Kenneth Johnson 611 Florence Avenue	Mahtomedi, MN 55115-2042	WASHINGTONLake Elmo
N17MG	1968 GRUBER EAA Biplane HR Sport	Kenneth Johnson 611 Florence Avenue	Mahtomedi, MN 55115	WASHINGTONLake Elmo
N9579J	1966 PIPER PA28-180C CHEROKEE	William B Kaiser 247 White Bear Avenue N	St Paul, MN 55106	WASHINGTONLake Elmo
N613RA	1966 PIPER PA23-250C AZTEC	Arnold J Kampa 12405 N Arcola Trail	Stillwater, MN 55082-7594	WASHINGTONLake Elmo
N9139U	1991 MOONEY M20J	Ronald G & Mary J Kargel 8283 Lake Elmo Avenue N	Stillwater, MN 55082-9450	WASHINGTONLake Elmo
N2570U	1979 PIPER PA-28-161	Alan J Kemp & John J Rettner 101 Quality Avenue S	Lakeland Shores, MN 55043	WASHINGTONLake Elmo
N1508K	2010 CIRRUS DESIGN CORP SR22T	Kopair Air LLC 3220 Granada Avenue N	Suite 100 Oakdale, MN 55128	WASHINGTONLake Elmo
N4293R	1969 PIPER PA32-300C CHEROKEE SIX	Ronald E Kranz & David Flod 7181 Mid Oaks Avenue	Stillwater, MN 55082	WASHINGTONLake Elmo
N81CY	1982 SYVERSON MUSTANG II	Nicholas P Krueger 2324 40th Street	Somerset, WI 54025-7336	WASHINGTONLake Elmo
N5505H	1978 BELLANCA 7GCBC CITABRIA	W Alan Kupferschmidt 2769 Legion Avenue N	Lake Elmo, MN 55042-9457	WASHINGTONLake Elmo
N21956	1975 CESSNA 172	Lake Elmo Flyers LLC	Vadnais Heights, MN 55127-3150	WASHINGTONLake Elmo

Aircraft By Area Report as of 07/02/2014

		685 Clearbrook Lane		
N10PE	1989 IRLBECK/LAMPRECHT RV-4	Elden G Lamprecht 2807 Hilo Avenue N	Oakdale, MN 55128-4738	WASHINGTONLake Elmo
N644CL	1997 LECKIE VANS RV-4	Charles Leckie 13580 Crossmoor Avenue	Rosemount, MN 55068	WASHINGTONLake Elmo
N444PL	1999 LIEDL KITFOX SER 5 OUTBACK	Paul A Liedl 6255 Keats Avenue N	Stillwater, MN 55082-9356	WASHINGTONLake Elmo
N1696W	1972 BEECH G33	Richard F Love 1510 Riviera Avenue S	Lakeland, MN 55043	WASHINGTONLake Elmo
N810R	1959 BEECH K35 BONANZA	Raymond C Lundgren 1190 Culligan Lane	Mendota Heights, MN 55118-4101	WASHINGTONLake Elmo
N7812W	1965 PIPER PA28-180C CHEROKEE	Robert J & Robert C Lupelow 3908 Homewood Avenue	White Bear Lake, MN 55110-4507	WASHINGTONLake Elmo
N44650	1974 PIPER PA-28-235	Steven & Linda Macey 468 Meadow Ridge Trail	Hudson, WI 54016	WASHINGTONLake Elmo
N198KM	1999 MARTENSON KITFOX CLASSIC IV	Kirk A Martenson 7871 - 31st Street N	Oakdale, MN 55128-4045	WASHINGTONLake Elmo
N1335M	1943 HOWARD DGA-15P	Thomas R Martin 361 S Owasso Blvd	Roseville, MN 55113-2119	WASHINGTONLake Elmo
N242SB	1989 SPICKES SKYBOLT	Thomas R Martin 361 S Owasso Blvd W	Roseville, MN 55113-2119	WASHINGTONLake Elmo
N3868K	1981 BEECH 77	James A & Rebecca A Maxwell 10827 Falling Water Lane #D	Woodbury, MN 55129	WASHINGTONLake Elmo
N2757A	1994 RANS S-12 AIRAILE	Richard J Menz 501 Main Street N # 312	Stillwater, MN 55082-5782	WASHINGTONLake Elmo
N9CB	1960 BEECH M35 BONANZA	Gary & Yvonne Miller 1560 Dieter Street	St Paul, MN 55106-1452	WASHINGTONLake Elmo
N17210	1973 CESSNA 150L	Bradley J Minion 2065 Woodbridge Street	Roseville, MN 55113	WASHINGTONLake Elmo
N137T	1952 PIPER PA18-150 SUPER CUB	Joseph P Monno 13199 - 80th Street S	Hastings, MN 55033-8527	WASHINGTONLake Elmo
N2460B	1950 TEMCO GC-1B SWIFT	James Montague & Mark Holliday 3360 Klondike Avenue N	Lake Elmo, MN 55042	WASHINGTONLake Elmo

Aircraft By Area Report as of 07/02/2014

N2387B	1949 SWIFT GC-1B STANDARD	W Patrick Moore 2574 Buffalo Street	St Paul, MN 55110-5705	WASHINGTONLake Elmo
N10416	1941 PIPER J4E CUB	Raymond R Morris 8329 - 85th Street S	Cottage Grove, MN 55016-4701	WASHINGTONLake Elmo
N61904	2008 CESSNA T182T	Arthur A Mouyard 6332 Crackleberry Trail	Woodbury, MN 55129	WASHINGTONLake Elmo
N2287P	1957 PIPER PA23-150 APACHE	N2287P Inc c/o Paul J Anderson	Box 207 Marine on St Croix, MN 55047	WASHINGTONLake Elmo
N103MJ	1996 SWICK J N/SWICK M R SWICK-T	N550DB Inc 1415 Birchcrest Drive	White Bear Lake, MN 55110-7610	WASHINGTONLake Elmo
N550DB	1993 BRIGGS GLASAIR SH-2	N550DB Inc 1415 Birchcrest Drive	White Bear Lake, MN 55110-7615	WASHINGTONLake Elmo
N8095Y	1966 PIPER PA30-160B TWIN COMANCHE	N8095Y Inc c/o Jerry Chapman	2865 Hallmark Avenue N Oakdale, MN 55128-3936	WASHINGTONLake Elmo
N7819P	1962 PIPER PA24-180 COMANCHE	Ronald O Nechodom 5481 Golfview Avenue N	Oakdale, MN 55128-1001	WASHINGTONLake Elmo
N381AV	1978 PIPER PA-38-112	Allen R Nelson 6605 Third Street N	Oakdale, MN 55128-7003	WASHINGTONLake Elmo
N2769L	1967 CESSNA 172H SKYHAWK	Dennis M Nelson 8201 - 20th Avenue N	Hugo, MN 55038-8758	WASHINGTONLake Elmo
N6521L	1975 GRUMMAN AMERICAN AVIATION CORP AA-5	Stephen & Mary O'Brien 1379 Surrey Lane	Woodbury, MN 55125-9165	WASHINGTONLake Elmo
N133ND	1975 CESSNA 337G	John M & Shad M O'Malley 630 N Main Street #205	Stillwater, MN 55082	WASHINGTONLake Elmo
N170GA	1951 CESSNA 170A	Neil F Otey 11275 Sandcastle Drive #C	Woodbury, MN 55129-8809	WASHINGTONLake Elmo
N4845A	1956 PIPER PA20-22 PACER	William F Parenteau 12515 - 53rd Street N	Stillwater, MN 55082-1049	WASHINGTONLake Elmo
N43TF	1993 PARENTEAU SKYBOLT	William F Parenteau 12515 - 53rd Street N	Stillwater, MN 55082-1049	WASHINGTONLake Elmo
N21478	1938 PIPER J3C-50 CUB	Daniel C Parker 2617 Edgewood Court	Stillwater, MN 55082-5343	WASHINGTONLake Elmo
N76791	1946 CESSNA 140	Daniel C Parker, Sr 2617 Edgewood Court	Stillwater, MN 55082-7017	WASHINGTONLake Elmo

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N8208X	1961 CESSNA 172B SKYHAWK	Edward L & Nancy J Peiffer 26260 Freeport Avenue	Wyoming, MN 55092-9315	WASHINGTONLake Elmo
N95792	1946 TAYLORCRAFT BC12-D	Robert H Pike 10684 10th Street Ct N	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N45841	1946 LUSCOMBE 8A	Robert H Pike 10684 10th Street CT N	Lake Elmo, MN 55042-9582	WASHINGTONLake Elmo
N1146F	1966 CESSNA 172G SKYHAWK	Steven F & Michael W Pott Box 13	Lake Elmo, MN 55042-0013	WASHINGTONLake Elmo
N3953K	1967 PIPER PA28-140 CHEROKEE	Bruce A Ramsden Box 470	Stillwater, MN 55082-0470	WASHINGTONLake Elmo
N2115D	1955 CESSNA 170B	Michael J Raykowski 1097 Manning Avenue N	Lake Elmo, MN 55042-9607	WASHINGTONLake Elmo
N9587S	1966 CHAMPION 7GCAA CITABRIA	Timothy & Lisa Reberg 2552 Windsor Lane	Woodbury, MN 55125-2804	WASHINGTONLake Elmo
N2632D	1952 CESSNA 170B	Timothy J Rech 6252 Edgemont Blvd	Brooklyn Park, MN 55428	WASHINGTONLake Elmo
N42301	1981 VOELKER ZENITH 200	Joseph J Reeder 2676 89th Court W	Northfield, MN 55057	WASHINGTONLake Elmo
N9124B	1954 CESSNA 180	John A Regenold 1484 E Shore Drive	St Paul, MN 55106-1119	WASHINGTONLake Elmo
N2431B	1950 TEMCO SWIFT GC 1B	John K Renwick 5505 Morgan Avenue S	Minneapolis, MN 55419-1522	WASHINGTONLake Elmo
N734CF	1977 CESSNA 172N SKYHAWK	Rivertown Flying Club c/o Paul J Anderson	Box 207 Marine on St Croix, MN 55047	WASHINGTONLake Elmo
N8296Y	1967 PIPER PA-30	Christopher P Roden 927 Sims Avenue	St Paul, MN 55106-3827	WASHINGTONLake Elmo
N1701	1965 CESSNA 172F SKYHAWK	Charles W Rolston 584 Donegal Circle	Shoreview, MN 55126-4713	WASHINGTONLake Elmo
N40U	1948 BEECH 35 BONANZA	Stan W Ross 633 Eastgate Pkwy	Mahtomedi, MN 55115-1737	WASHINGTONLake Elmo
N9576	1972 ENSTROM F28A	John A Roznick 13600 Fourth Street Court N	Stillwater, MN 55082-1902	WASHINGTONLake Elmo
N429DR	1999 RUPP VANS RV6	Joan C Rupp	Lake City, MN 55041	WASHINGTONLake Elmo

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		30557 690th Street		
N2263V	1981 SCHANKS ACRO SPORT	William Schanks & Richard Becker 1143 Farrington Street	St Paul, MN 55117	WASHINGTONLake Elmo
N5408H	1975 CESSNA 172M	Kelly & Susan Schmidt 8644 Lake Jane Trail	Lake Elmo, MN 55042	WASHINGTONLake Elmo
N3028Q	1967 CESSNA 182K SKYLANE	Richard L Schneider, DDS 1 N Lakeside Drive	Bayport, MN 55003-	WASHINGTONLake Elmo
N26RB	1981 BRUNER ACRODUSTER-II	Neil Schoenheider 13696 30th Street Circle N	Stillwater, MN 55082-1327	WASHINGTONLake Elmo
N9545V	1970 MOONEY M10 CADET	Charles M Schultz 12982 100th	Hastings, MN 55033	WASHINGTONLake Elmo
N7026W	1963 PIPER PA28-180 CHEROKEE	Michael J Schutt 17244 Knox Path	Hastings, MN 55033-9345	WASHINGTONLake Elmo
N16NS	1982 SCHWIETZ KR-2	Norman A Schwietz 3818 Oak Ridge Lane W	White Bear Lake, MN 55110-1854	WASHINGTONLake Elmo
N21353	1998 MOONEY M20K ENCORE	James R Seilbach Box 304	Stillwater, MN 55082-0304	WASHINGTONLake Elmo
N51247	2006 SEITZER SKY RANGER	Dale M Seitzer 1451 Englewood Avenue	St Paul, MN 55104-1904	WASHINGTONLake Elmo
N68736	1979 CESSNA 152 II	Size 12 Aviation LLC 3275 Manning Avenue N	Lake Elmo, MN 55042-9681	WASHINGTONLake Elmo
N4348M	1984 PIPER PA-28RT-201T	St Croix Aviation of Woodbury LLC 8061 Galway Road	Woodbury, MN 55125-2398	WASHINGTONLake Elmo
N119JP	2012 PIPISTREL LSA S R L ALPHA TRAINER	St Croix Light Planes LLC 1092 Delano Way	Stillwater, MN 55082	WASHINGTONLake Elmo
N75539	1992 QUICKSILVER MFG INC QUICKSILVER G	David Stoen 370 Edgecumbe Drive	Mahtomedi, MN 55115-1808	WASHINGTONLake Elmo
N128DD	2004 SYVERSON KITFOX 7	David M & Diane K Syverson 1299 W Ryan Avenue	St Paul, MN 55113-5959	WASHINGTONLake Elmo
N2812Q	1971 CESSNA 172L SKYHAWK	William H Taack 8183 Henslowe Avenue S	Cottage Grove, MN 55016-3146	WASHINGTONLake Elmo
N132CP	2006 CIRRUS DESIGN CORP SR20	Tailwinds Flying Club 8736 178th Avenue	Forest Lake, MN 55025	WASHINGTONLake Elmo

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N2899N	1979 PIPER PA32-300 CHEROKEE SIX	Tailwinds Flying Club Mark Weyer	8736 - 178th Avenue NE Forest Lake, MN 55025-8314	WASHINGTONLake Elmo
N4100Q	1977 PIPER PA28-181 CHEROKEE ARCHER II	Tailwinds Flying Club Mark Weyer	8736 - 178th Avenue NE Forest Lake, MN 55025-8314	WASHINGTONLake Elmo
N20187	1973 CESSNA 172M SKYHAWK	Jack Terhaar 1682 - 38th Street	Somerset, WI 54025-7027	WASHINGTONLake Elmo
N9555C	1978 PIPER PA-28-161	Gatis Valters 6335 S Warner Avenue	Pine Springs, MN 55115	WASHINGTONLake Elmo
N215EM	2007 CIRRUS DESIGN CORP SR22	Todd VanNispen 166 N Concord Exchange, 2nd Floor	South St Paul, MN 55075-1144	WASHINGTONLake Elmo
N43539	1946 TAYLORCRAFT BC12D	Robert J Waldron 4321 Cass Court	Webster, MN 55088-2441	WASHINGTONLake Elmo
N40907	1941 PIPER J3F-65	Robert J Waldron & Dennis Hoffman 1155 Walnut Creek Drive N	Stillwater, MN 55802-9010	WASHINGTONLake Elmo
N722DW	2011 WEILER RV-7	Douglas C Weiler 347 Krattley Lane	Hudson, WI 54016	WASHINGTONLake Elmo
N74RW	1988 WESTERBERG CASSUTT 111M	Roger K Westerberg 8653 Janero Avenue S	Cottage Grove, MN 55016-3415	WASHINGTONLake Elmo
N1365K	1946 LUSCOMBE 8A	Roger K Westerberg 8653 Janero Avenue S	Cottage Grove, MN 55016-3415	WASHINGTONLake Elmo
N2552A	2004 NEW KOLB AIRCRAFT CO FIRESTAR	Steve M Wetteland 3626 Cranbrook Drive	White Bear Lake, MN 55110	WASHINGTONLake Elmo
N6314Z	1985 BELLANCA 17-30A SUPER VIKING	William T Murphy Investigations Box 157	Stillwater, MN 55082-0157	WASHINGTONLake Elmo
N10948	1978 CESSNA 182Q	Thomas Wolf 8379 Hidden Ponds Alcove	Woodbury, MN 55125-5000	WASHINGTONLake Elmo
N30331	1969 CESSNA 177A CARDINAL	Robert S Yach 3205 Woodbridge Street	Shoreview, MN 55126-3067	WASHINGTONLake Elmo
N89221	1946 CESSNA 140	John C Young 418 N Glover Road	Hudson, WI 54016-8112	WASHINGTONLake Elmo
N4611Y	1984 SONERAI II	Darell W Younggren 1827 Regatta Drive	St Paul, MN 55125-8848	WASHINGTONLake Elmo
N16DY	2004 YOUNGGREN KR2S	Darell W Younggren 1827 Regatta Drive	Woodbury, MN 55125-8848	WASHINGTONLake Elmo

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N7189X	1961 CESSNA 150A	Zephyr Air Corp Scott J O'Connor, President & CEO	11 Peninsula Road Dellwood, MN 55110-1504	WASHINGTONLake Elmo
N2921N	1979 PIPER PA-32-300 CHEROKEE	Zephyr Air Corporation Scott J O'Connor, President & CEO	11 Peninsula Road Dellwood, MN 55110-1504	WASHINGTONLake Elmo
N5600F	1966 ALON A2 AIRCOUPE	Carl F Ziegler 20759 Greystone Avenue N	Forest Lake, MN 55025-3764	WASHINGTONLake Elmo
N44JZ	1995 SKYSTAR KITFOX 5	James R Zimmerman 12620 - 16th Street N	Stillwater, MN 55082-1711	WASHINGTONLake Elmo

Total of 203 at LAKE ELMO

*** End of Report ***

Lake Elmo Airport
2035 Long-Term Comprehensive Plan Forecast Summary

1. Introduction

This chapter summarizes the LTCP activity forecast for Lake Elmo Airport (21D). The base year is 2012 and forecasts were prepared for 2015, 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. Variances from assumptions related to the local and national economy and the aviation industry could have a significant effect on the forecasts presented herein.

2. Historical Trends

Table 1 shows historical based aircraft recorded at Lake Elmo from 1990 through 2012. Since Lake Elmo has no air traffic control tower, there is no comparable record of aircraft operations.

Table 1: Historical Based Aircraft Activity at Lake Elmo

Year	Based Aircraft
1990	177
1995	198
2000	245
2001	235
2002	237
2003	237
2004	236
2005	239
2006	233
2007	227
2008	230
2009	229
2010	229
2011	216
2012	229

Source: MAC based aircraft counts.

Based aircraft at Lake Elmo increased during the 1990's and peaked at 245 aircraft in 2000. They gradually decreased to 229 in 2012. A number of factors have contributed to the slowdown since 2000, including the slowing economy, increased fuel prices and other operating costs, and reduced interest in recreational flying by younger people.

3. Forecast Approach

The Minneapolis-St. Paul metropolitan area is served by a system of airports. These airports serve 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 the three smaller airports in the MAC system – Lake Elmo (21D), Airlake (LVN), and Crystal (MIC) – but also incorporated the other MAC airports – Minneapolis-St. Paul International (MSP), St. Paul Downtown (STP), Flying Cloud (FCM), and Anoka County (ANE), 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 – Lake Elmo Airport is located in Washington 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 Holman Field in St. Paul (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) was used to identify the percentage of 21D based aircraft owners that resided in each county[1].
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[2]. A summary of key socioeconomic projections for Washington County is provided in Supplement 1.
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[3].
4. Allocate the projected based aircraft to each MAC-airport according to the existing distribution pattern for each aircraft category (piston, turboprop, jet, helicopter)[4].
5. Estimate the number of aircraft on a waiting list that would be added assuming airport capacity is unconstrained. Since Lake Elmo has extra capacity, there is no waiting list and the waiting list adjustment was not applied there.
6. Redistribute aircraft from the constrained MAC airports (MSP and STP) to the remaining unconstrained airports based on the existing distribution patterns to the airports and

[1] Reference Table C.1 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.
[2] Reference Table D.7 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report for an example of this methodology.
[3] Reference Table D.7 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report for an example of this methodology.
[4] Reference Appendix E in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.

assuming that Airlake and Lake Elmo could accommodate turboprops, microjets[5], and some small business jets[6].

7. Identify base year aircraft operations (takeoffs and landings). Since there is no air traffic control tower, operations counts for Lake Elmo were extrapolated from two field surveys, the first in December 2011 and the second in August 2012. For Lake Elmo, aircraft operations information was also supplemented with available MACNOMS radar data. For 2012, total aircraft operations at Lake Elmo were estimated to be approximately 26,709.
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[7].

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

4. Base Case Forecast Results

Table 2 shows the forecast of based aircraft for Lake Elmo. The based fleet at Lake Elmo is expected to decrease gradually to 2035. A decline in based single-engine piston aircraft will account for the decrease, with other categories either remaining the same or increasing slightly.

Table 3 shows the forecast of aircraft operations at Lake Elmo. Operations at Lake Elmo are projected to decrease slightly from 26,709 in 2012 to 26,138 in 2035, an average annual decrease of -0.09 percent. Increases in operational levels are projected in all aircraft categories except single-engine pistons. Helicopters and other aircraft operations are projected to increase at a much faster pace than pistons and turboprops, consistent with FAA's projections on active fleet and utilization of helicopter, single-engine piston, multi-engine piston, turboprop and other aircraft.

Since Lake Elmo does not have an air traffic control tower, the peak month percentage was estimated based on fuel flow records provided by the MAC. Based on these records, July is the peak month, accounting for approximately 13 percent of annual activity. Average Day Peak Month (ADPM) operations were estimated by dividing the peak month activity by 31 days. The peak hour operations percentage was obtained from field survey data. Approximately 12 percent of total operations occur during the peak hour. Peak hour operations at Lake Elmo are projected to be 13 operations.

[5] Microjets, also referred to as very light jets or personal jets, refer to 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.
[6] Reference Appendix F in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.
[7] Reference Table H.3 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.

Table 2: Summary of Based Aircraft Forecast (Lake Elmo Base Case).

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (a)	Total
2012	208	9	1	0	0	2	9	229
2015	205	9	1	0	0	2	9	226
2020	195	9	1	0	0	3	10	218
2025	187	8	1	0	0	3	10	209
2030	187	10	1	0	0	3	10	211
2035	185	9	1	0	0	3	10	208
			Average Annual Growth Rate					
	-0.5%	0.0%	0.0%	0.0%	0.0%	1.8%	0.5%	-0.4%

(a) Experimental and Light Sport.

Source: Table 8 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.

Table 3: Summary of Operations Forecast (Lake Elmo Base Case).

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (a)	Total
Forecast of Total Aircraft Operations								
2012	23,189	112	56	2	2	449	2,899	26,709
2015	21,664	110	58	2	2	441	3,176	25,454
2020	20,092	109	59	3	3	662	3,304	24,232
2025	19,802	100	58	4	4	664	3,276	23,908
2030	20,946	132	57	5	5	668	3,388	25,200
2035	21,823	125	56	5	5	672	3,450	26,138
Forecast of Touch & Go Operations								
2012	2,356	20	-	-	-	125	860	3,361
2015	2,201	20	-	-	-	123	956	3,300
2020	2,041	19	-	-	-	184	1,162	3,407
2025	2,012	18	-	-	-	185	1,201	3,416
2030	2,128	24	-	-	-	186	1,242	3,580
2035	2,217	22	-	-	-	187	1,279	3,705
Forecast of Non-Touch & Go Operations								
2012	20,833	92	56	2	2	324	2,039	23,348
2015	19,463	90	58	2	2	318	2,220	22,155
2020	18,051	90	59	3	3	477	2,142	20,825
2025	17,790	82	58	4	4	479	2,075	20,492
2030	18,818	108	57	5	5	482	2,146	21,621
2035	19,606	103	56	5	5	485	2,172	22,432

(a) Experimental and Light Sport.

Source: Table 11 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report

Table 4: Peak Activity Forecast (Lake Elmo Base Case).

Year	Annual Operations	Peak Month Operations	ADPM Operations	Peak Hour Operations
2012	26,709	3,339	108	13
2015	25,454	3,182	103	13
2020	24,232	3,029	98	12
2025	23,908	2,988	96	12
2030	25,200	3,150	102	12
2035	26,138	3,267	105	13

Source: Table 14 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.

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 emergence of microjets. To address these uncertainties, and to identify the potential upper and lower bounds of future activity at Lake Elmo, runway extension, high and low scenarios were developed. 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 following assumptions:

- Income in each county is assumed to grow 50 percent more rapidly than under the base case.
- Fuel costs are assumed to follow the average of the U.S. Department of Energy low fuel price scenario and base case scenario.
- Increased popularity of light sport aircraft is assumed to grow 1.5 times more than the FAA forecast levels. This would increase the number of based aircraft and operations.

Other assumptions, including capacity constraints at MSP and STP, are assumed to be the same as in the base case.

The low forecast scenario was prepared using the following assumptions:

- Income in each county is assumed to grow 50 percent more slowly than under the base case.
- Fuel costs are expected to follow the U.S. Department of Energy high fuel price scenario.
- It is assumed that operators currently on waiting lists will become discouraged because of low income and high costs and choose to dispose of their aircraft or to remain at their existing location. Therefore, there would be no additional growth resulting from aircraft currently on waiting lists.

Two extended runway scenarios were also prepared to evaluate the potential impact associated with runway lengthening under the preferred development alternatives. Specifically, the first scenario assumes an extension of the primary runway at Lake Elmo to 3,300 feet and the second scenario assumes an extension of the primary runway to 3,600 feet.

Table 5 compares the total number of aircraft and operations under different scenarios for the Lake Elmo Airport.

Table 5: Forecast Comparison by Scenario –Lake Elmo.

Year	Total Based Aircraft				Total Number of Operations				
	Base Case	High Range	Low Range	Extended Runways (3,300 and 3,600 feet)	Base Case	High Range	Low Range	Extended Runway (3,300 feet)	Extended Runway (3,600 feet)
2012	229	229	229	229	26,709	26,709	26,709	26,709	26,709
2015	226	272	182	226	25,454	29,322	20,944	25,454	25,454
2020	218	287	167	218	24,232	30,128	19,456	24,418	24,539
2025	209	300	154	209	23,908	32,460	18,629	24,125	24,261
2030	211	315	142	211	25,200	35,610	18,041	25,459	25,615
2035	208	332	133	208	26,138	39,119	17,835	26,442	26,620

Source: Table 20 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.

The tabular data in Table 5 is presented graphically in Supplement 2. Summaries of the based aircraft and aircraft operations forecasts for the low range, high range, and runway extension scenarios are presented in Supplement 3.

Supplement 1

Socioeconomic Projections

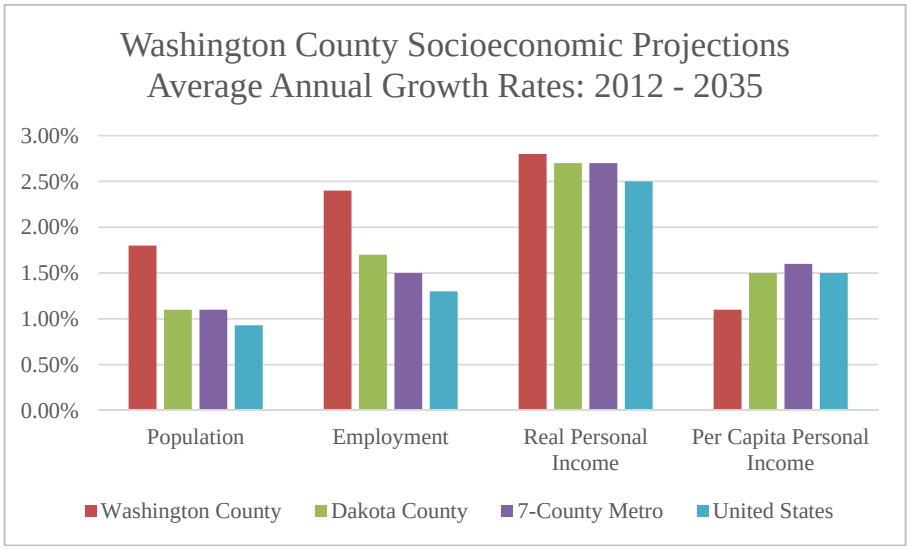
- Table A1.1 – Socioeconomic Projections for Washington County (2012 – 2035)
- Table/Exhibit A1.2 – Comparison of Projected Socioeconomic Growth Rates (2012 – 2035)

Table A1.1 – Socioeconomic Projections for Washington County (2012 – 2035)

Socioeconomic Indicator	Washington County 2012 - 2035			
	2012	2035	Change	% Growth
Population	250,361	373,280	122,919	49%
Employment	100,396	172,429	72,033	72%
Real Personal Income	$11,662,086	$22,237,099	$10,575,013	91%
Per Capita Personal Income	$46,581	$59,572	$12,991	28%

Table/Exhibit A1.2 – Comparison of Projected Socioeconomic Growth Rates (2012 – 2035)

Socioeconomic Indicator	Projected Average Annual Growth Rates 2012 - 2035			
	Washington County	Dakota County	7-County Metro	United States
Population	1.8%	1.1%	1.1%	0.9%
Employment	2.4%	1.7%	1.5%	1.3%
Real Personal Income	2.8%	2.7%	2.7%	2.5%
Per Capita Personal Income	1.1%	1.5%	1.6%	1.5%



Sources:
1. Population data from Table A.2 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report
2. Employment data from Table A.4 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report
3. Real Personal Income data from Table A.6 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report
4. Per Capita Personal Income data from Table A.8 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report

Supplement 2

Forecast Summary Exhibits

- Exhibit A2.1 – Forecast Comparison by Scenario – Based Aircraft at Lake Elmo Airport
- Exhibit A2.2 – Forecast Comparison by Scenario – Operations at Lake Elmo Airport

Exhibit A2.1 – Forecast Comparison by Scenario – Based Aircraft at Lake Elmo Airport

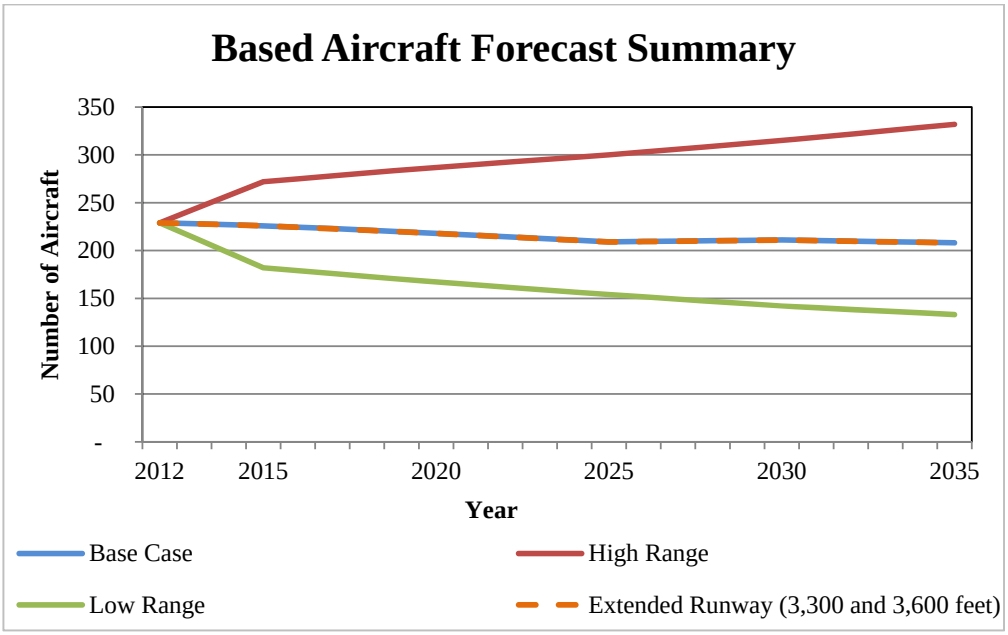
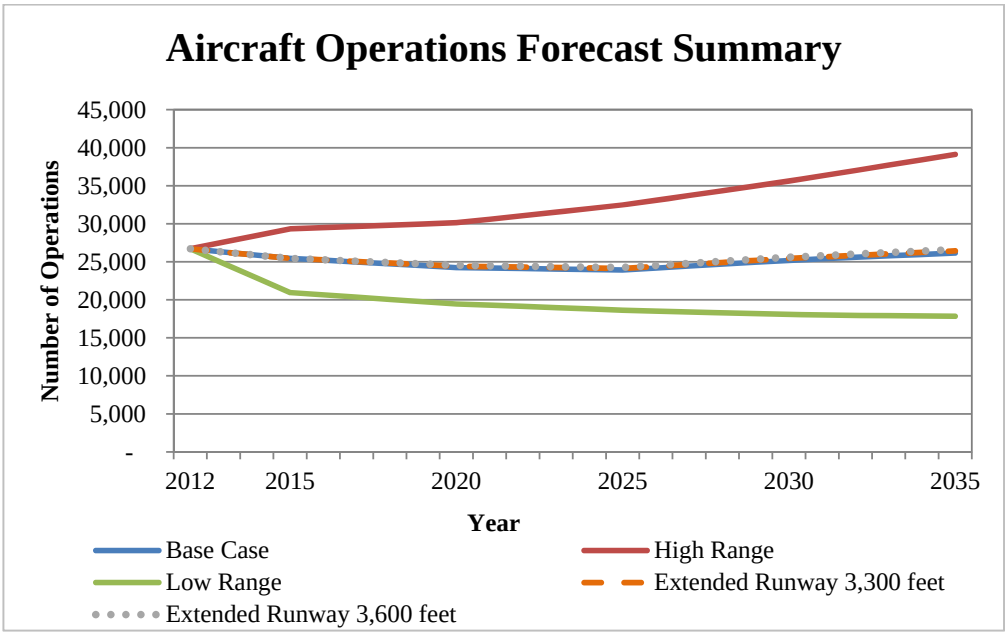


Exhibit A2.2 – Forecast Comparison by Scenario – Operations at Lake Elmo Airport



Supplement 3

Forecast Scenario Data Tables
(Excerpts from Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report)

- Table J.8: Summary of High Range Based Aircraft Forecast
- Table J.9: Summary of High Range Aircraft Operations Forecast
- Table K.8: Summary of Low Range Based Aircraft Forecast
- Table K.9: Summary of Low Range Aircraft Operations Forecast
- Table L.8: Summary of Extended Runway Scenario Based Aircraft Forecast
- Table L.9: Summary of Extended Runway Scenario Aircraft Operations Forecast (3,300 feet)
- Table L.10: Summary of Extended Runway Scenario Aircraft Operations Forecast (3,600 feet)

Table J.8: Summary of High Range Based Aircraft Forecast (a) – Lake Elmo.

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (b)	Total
2012	208	9	1	0	0	2	9	229
2015	235	10	1	0	0	3	23	272
2020	242	12	1	0	0	4	28	287
2025	254	13	1	0	0	4	28	300
2030	264	14	3	0	0	4	30	315
2035	275	14	4	0	0	5	34	332
			Average Annual Growth Rate					
	1.2%	1.9%	6.2%	0.0%	0.0%	4.1%	5.9%	1.6%

(a) Assumes no runway extension.
(b) Experimental and light sport aircraft.

Source: HNTB Analysis.

Table J.9: Summary of High Range Aircraft Operations Forecast (a) – Lake Elmo.

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (b)	Total
Forecast of Total Aircraft Operations								
2012	23,189	112	56	2	2	449	2,899	26,709
2015	24,834	122	58	2	2	662	3,641	29,322
2020	24,935	145	59	3	3	882	4,101	30,128
2025	26,897	162	58	4	4	885	4,450	32,460
2030	29,571	184	171	5	5	891	4,783	35,610
2035	32,440	195	224	5	5	1,120	5,129	39,119
Forecast of Touch & Go Operations								
2012	2,356	20	-	-	-	125	860	3,361
2015	2,523	22	-	-	-	184	1,080	3,809
2020	2,533	26	-	-	-	246	1,216	4,021
2025	2,733	29	-	-	-	246	1,320	4,328
2030	3,004	33	-	-	-	248	1,419	4,704
2035	3,296	35	-	-	-	312	1,522	5,164

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (b)	Total
Forecast of Non-Touch & Go Operations								
2012	20,833	92	56	2	2	324	2,039	23,348
2015	22,311	101	58	2	2	477	2,561	25,513
2020	22,401	119	59	3	3	636	2,884	26,106
2025	24,165	133	58	4	4	639	3,130	28,132
2030	26,567	152	171	5	5	643	3,364	30,906
2035	29,144	160	224	5	5	808	3,607	33,955

(a) Assumes no runway extension.

(b) Experimental and light sport aircraft.

Source: HNTB Analysis.

Table K.8: Summary of Based Aircraft Forecast: Lake Elmo (a) – Low Range Scenario.

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (b)	Total
2012	208	9	1	0	0	2	9	229
2015	162	8	1	0	0	2	9	182
2020	149	6	1	0	0	2	9	167
2025	136	6	1	0	0	2	9	154
2030	126	5	1	0	0	2	8	142
2035	117	5	1	0	0	2	8	133
				Average Annual Growth Rate				
	-2.5%	-2.5%	0.0%	0.0%	0.0%	0.0%	-0.5%	-2.3%

(a) Assumes no runway extension.

(b) Experimental and light sport aircraft.

Source: HNTB Analysis.

Table K.8: Summary of Aircraft Operations Forecast: Lake Elmo (a) – Low Range Scenario.

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (b)	Total
Forecast of Total Aircraft Operations								
2012	23,189	112	56	2	2	449	2,899	26,709
2015	17,120	98	58	2	2	441	3,223	20,944
2020	15,352	73	59	3	3	441	3,524	19,456
2025	14,402	75	58	4	4	443	3,644	18,629
2030	14,114	66	57	5	5	446	3,349	18,041
2035	13,802	70	56	5	5	448	3,448	17,835
Forecast of Touch & Go Operations								
2012	2,356	20	-	-	-	125	860	3,361
2015	1,739	17	-	-	-	123	956	2,836
2020	1,560	13	-	-	-	123	1,046	2,741
2025	1,463	13	-	-	-	123	1,081	2,681
2030	1,434	12	-	-	-	124	994	2,563
2035	1,402	12	-	-	-	125	1,023	2,562

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (b)	Total
Forecast of Non-Touch & Go Operations								
2012	20,833	92	56	2	2	324	2,039	23,348
2015	15,380	80	58	2	2	318	2,267	18,109
2020	13,793	60	59	3	3	318	2,479	16,714
2025	12,939	61	58	4	4	319	2,563	15,948
2030	12,680	54	57	5	5	322	2,356	15,477
2035	12,399	57	56	5	5	323	2,425	15,272

(a) Assumes no runway extension.

(b) Experimental and light sport aircraft.

Source: HNTB Analysis.

Table L.8: Summary of Based Aircraft Forecast: Lake Elmo – Extended Runway Scenarios (3,300 and 3,600 feet).

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (a)	Total
2012	208	9	1	0	0	2	9	229
2015	205	9	1	0	0	2	9	226
2020	195	9	1	0	0	3	10	218
2025	187	8	1	0	0	3	10	209
2030	187	10	1	0	0	3	10	211
2035	185	9	1	0	0	3	10	208
Average Annual Growth Rate								
	-0.5%	0.0%	0.0%	0.0%	0.0%	1.8%	0.5%	-0.4%

(a) Experimental and light sport aircraft.

Source: HNTB Analysis.

Table L.9: Summary of Aircraft Operations Forecast: Lake Elmo – Extended Runway Scenario (3,300 feet).

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (a)	Total
Forecast of Total Aircraft Operations								
2012	23,189	112	56	2	2	449	2,899	26,709
2015	21,664	110	58	2	2	441	3,176	25,454
2020	20,092	109	216	33	3	662	3,304	24,418
2025	19,802	100	223	56	4	664	3,276	24,125
2030	20,946	132	231	90	5	668	3,388	25,459
2035	21,823	125	238	128	5	672	3,450	26,442
Forecast of Touch & Go Operations								
2012	2,356	20	-	-	-	125	860	3,361
2015	2,201	20	-	-	-	123	956	3,300
2020	2,041	19	-	-	-	184	1,162	3,407
2025	2,012	18	-	-	-	185	1,201	3,416
2030	2,128	24	-	-	-	186	1,242	3,580
2035	2,217	22	-	-	-	187	1,279	3,705

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (a)	Total
Forecast of Non-Touch & Go Operations								
2012	20,833	92	56	2	2	324	2,039	23,348
2015	19,463	90	58	2	2	318	2,220	22,155
2020	18,051	90	216	33	3	477	2,142	21,012
2025	17,790	82	223	56	4	479	2,075	20,709
2030	18,818	108	231	90	5	482	2,146	21,880
2035	19,606	103	238	128	5	485	2,172	22,737

(a) Experimental and light sport aircraft.

Source: HNTB Analysis.

Table L.10: Summary of Aircraft Operations Forecast: Lake Elmo – Extended Runway Scenario (3,600 feet).

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (a)	Total
Forecast of Total Aircraft Operations								
2012	23,189	112	56	2	2	449	2,899	26,709
2015	21,664	110	58	2	2	441	3,176	25,454
2020	20,092	109	323	33	16	662	3,304	24,539
2025	19,802	100	335	56	28	664	3,276	24,261
2030	20,946	132	346	90	45	668	3,388	25,615
2035	21,823	125	358	128	64	672	3,450	26,620
Forecast of Touch & Go Operations								
2012	2,356	20	-	-	-	125	860	3,361
2015	2,201	20	-	-	-	123	956	3,300
2020	2,041	19	-	-	-	184	1,162	3,407
2025	2,012	18	-	-	-	185	1,201	3,416
2030	2,128	24	-	-	-	186	1,242	3,580
2035	2,217	22	-	-	-	187	1,279	3,705

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Microjets	Other Jets	Helicopter	Other (a)	Total
Forecast of Non-Touch & Go Operations								
2012	20,833	92	56	2	2	324	2,039	23,348
2015	19,463	90	58	2	2	318	2,220	22,155
2020	18,051	90	323	33	16	477	2,142	21,132
2025	17,790	82	335	56	28	479	2,075	20,845
2030	18,818	108	346	90	45	482	2,146	22,035
2035	19,606	103	358	128	64	485	2,172	22,915

(a) Experimental and light sport aircraft.

Source: HNTB Analysis.

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Appendix 4: Runway Length Calculation Details

Note: Assumptions used to assess runway length requirements include the following:

- Takeoff Weight: Based on 90% of Useful Load
- Temperature: 83°F, 28.5°C
- Pressure Altitude: 933 feet AMSL
- Wind: 5-knot headwind
- Flap Setting: Typical

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Figure 2-1. Small Airplanes with Fewer than 10 Passenger Seats
(Excludes Pilot and Co-pilot)

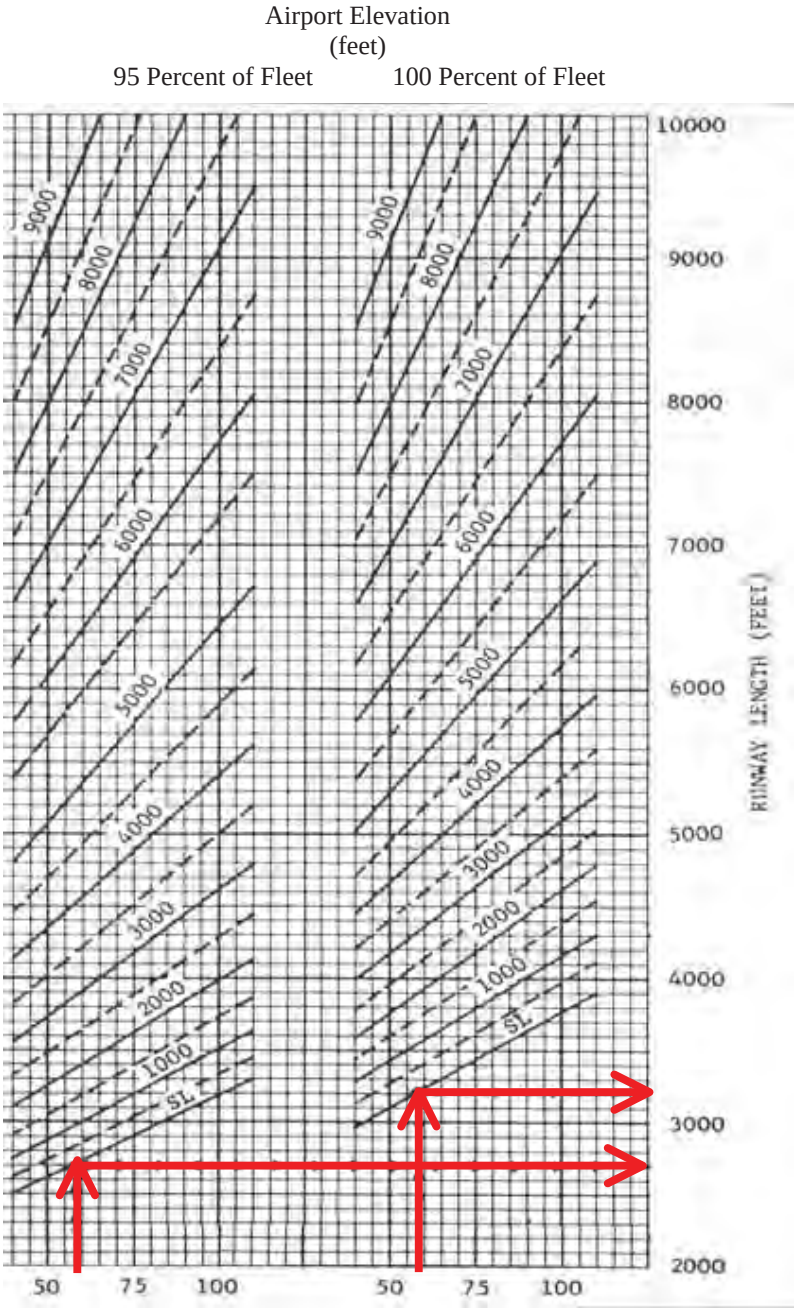
Example:

Temperature (mean day max hot month): 59° F (15° C)
Airport Elevation: Mean Sea Level

Note: Dashed lines shown in the table are mid values of adjacent solid lines.

Recommended Runway Length:

For 95% = 2,700 feet (823 m)
For 100% = 3,200 feet (975 m)



ACCELERATE - STOP - FLAPS UP

ASSOCIATED CONDITIONS:

POWER . . . . . 1. TAKE-OFF POWER SET BEFORE BRAKE RELEASE
2. BOTH ENGINES IDLE AT V_1 SPEED AND REVERSE OPERATING ENGINE
FLAPS . . . . . UP
AUTOFEATHER . ARMED
BRAKING . . . . MAXIMUM
RUNWAY . . . . PAVED, LEVEL, DRY SURFACE

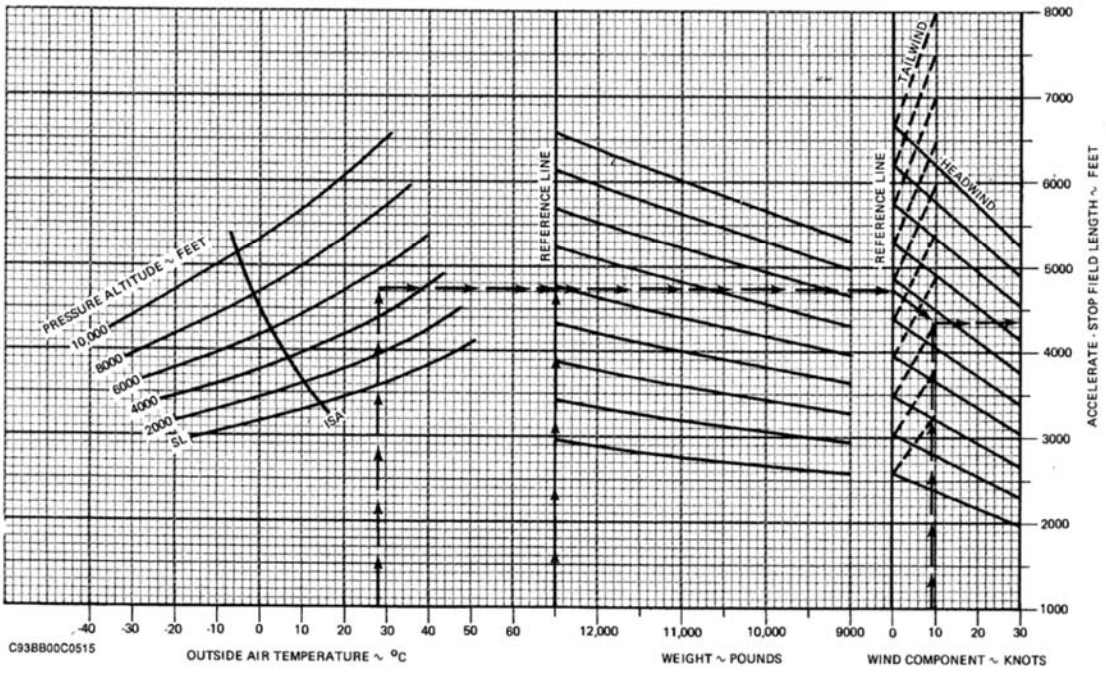
WEIGHT ~ POUNDS	V_1 ~ KNOTS
12,500	95
12,000	95
11,000	95
10,000	95
9000	95

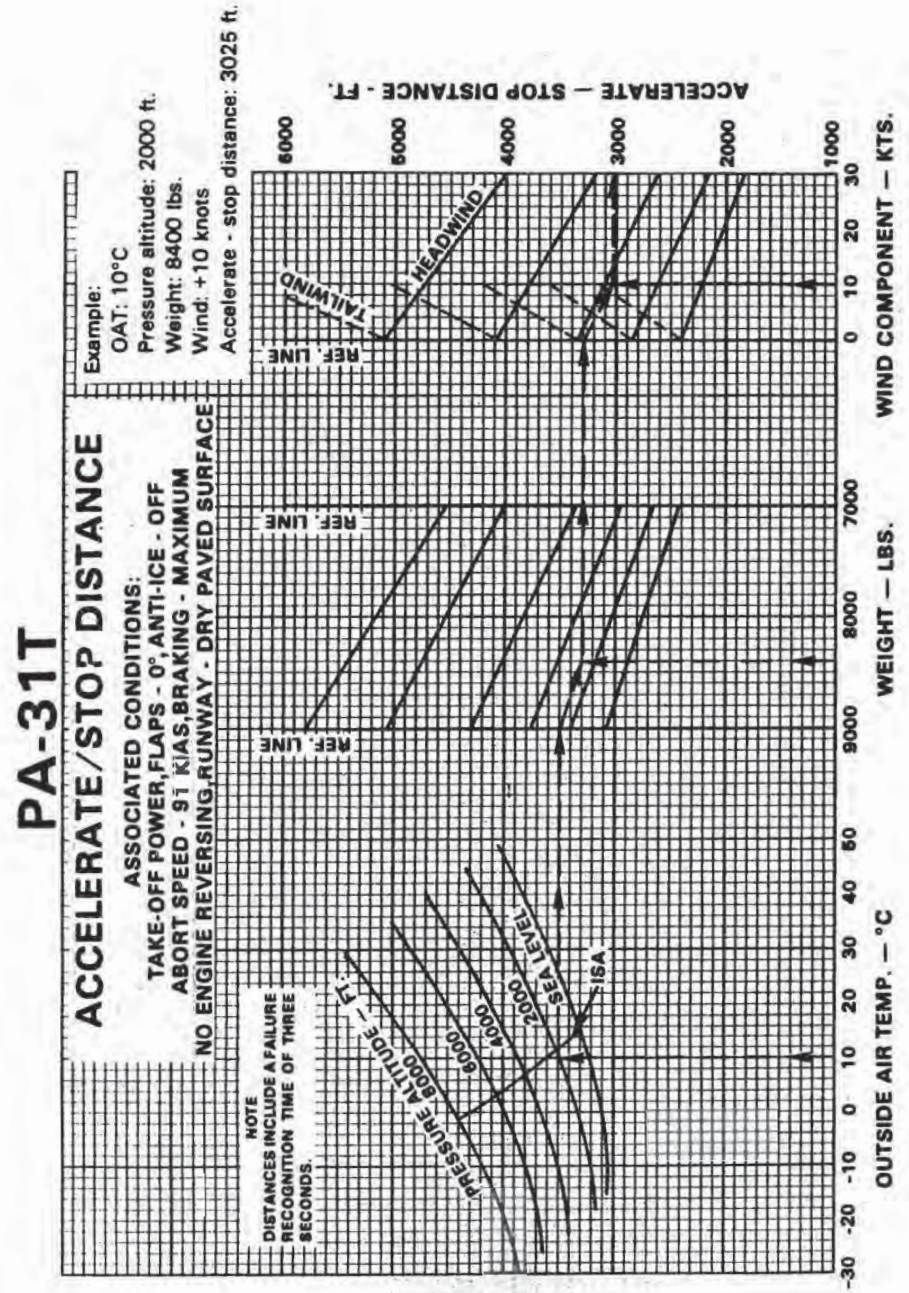
NOTE: FOR OPERATION WITH ICE VANES EXTENDED, PERFORMANCE IS NOT AFFECTED.

EXAMPLE:

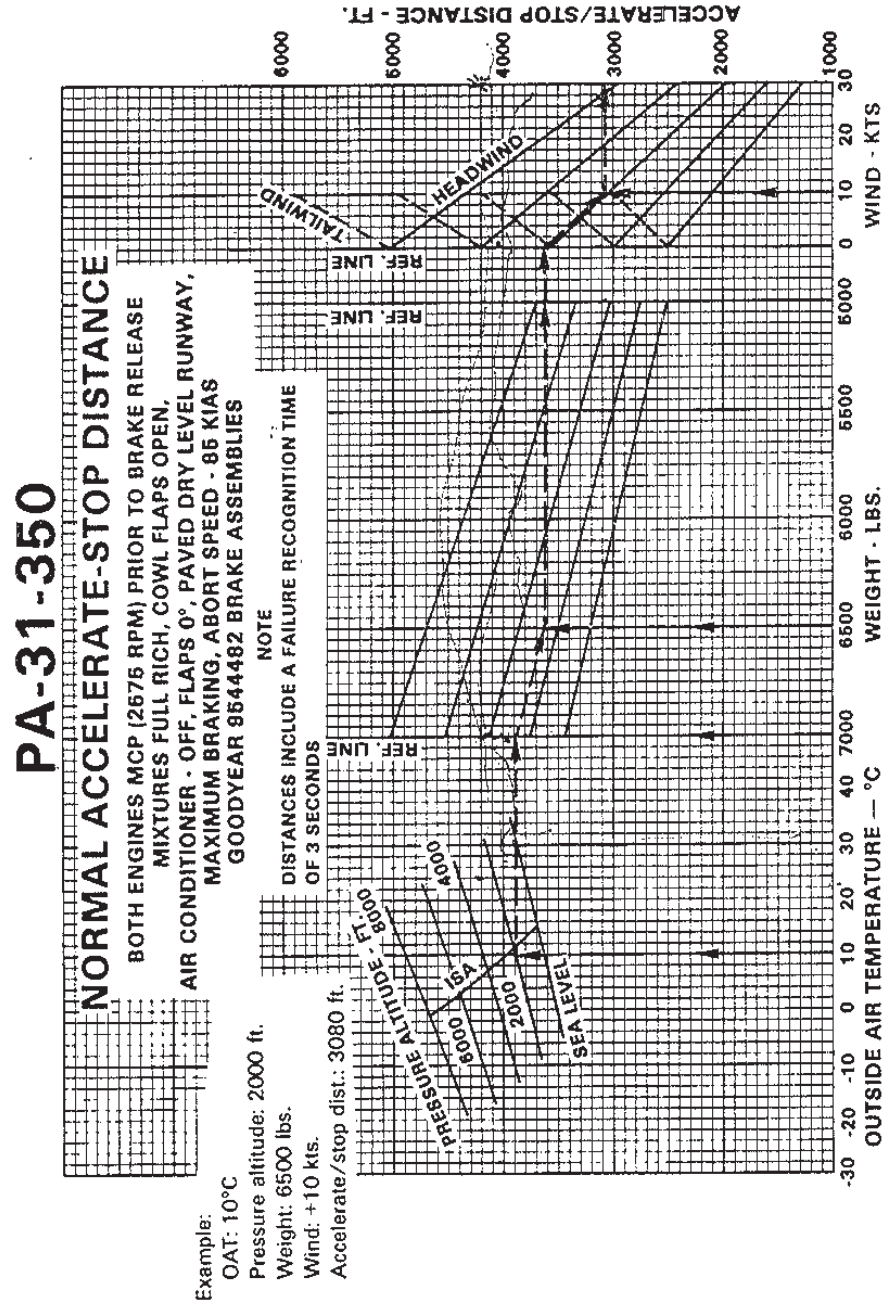
OAT . . . . . 28°C
PRESSURE ALTITUDE . . . . . 5430 FT
WEIGHT . . . . . 12,500 LBS
HEADWIND COMPONENT . . . . . 9.5 KTS

FIELD LENGTH . . . . . 4375 FT
V_1 . . . . . 95 KTS





ACCELERATE/STOP DISTANCE
Figure 5-19



NORMAL ACCELERATE - STOP DISTANCE
Figure 5-17

REPORT: LK-1208
5-19

Ralston, Neil

From: Ralston, Neil
Sent: Wednesday, August 20, 2014 2:59 PM
To: Ralston, Neil
Subject: Flight Planning 1458 08/20/14

PC-12 Digital AFM - Flight Planning

Date: 08/20/14
Registration No: 1458
PC-12 Model: PC-12/41
Interior Code: EX-6S-2

Weight & Balance

BEW (lb): 0
BEM (lb-in): 0
Useful Load (lb): 0
Takeoff Total Weight (lb): 0
Landing Total Weight (lb): 0

Fuel Use

Fuel Flow (lb/h): 0
Fuel Use (lb): 0
Remaining Fuel (lb): 0
Max Fuel Load (lb): 0

Takeoff Distance

Weight (lb): 10100
OAT (Â°C): 29
Altitude (ft): 1000
Headwind (kts): 5
Slope (%): 0
Takeoff Ground Roll (ft): 1853
Takeoff Total Distance (ft): 3124
Accelerate-Stop Distance (ft): 3677
Flaps (Â°): 15
Vr (KIAS): 79

Climb Performance

Weight (lb): 0
ISA Deviation (Â°C): 0

ACCELERATE STOP DISTANCE

CONDITIONS:
1. 2235 RPM and 39.0 Inches Hg. Manifold Pressure Before Brake Release.
2. Mixtures - CHECK Fuel Flows In the White Arc.
3. Wing Flaps - UP.
4. Level, Hard Surface, Dry Runway.
5. Engine Failure at Engine Failure Speed.
6. Idle Power and Maximum Effective Braking After Engine Failure.

NOTE:
1. If full power is applied without brakes set, distances apply from point where full power is applied.
2. Decrease distance 3% for each 4 knots headwind.
3. Increase distance 9% for each 2 knots tailwind.

WEIGHT - POUNDS	ENGINE FAILURE SPEED - KIAS	PRESSURE ALTITUDE - FEET	TOTAL DISTANCE - FEET						
			-20°C -4°F	-10°C +14°F	0°C 32°F	+10°C +50°F	+20°C +68°F	+30°C +86°F	+40°C +104°F
7450	100	Sea Level	2900	3090	3290	3510	3750	4030	4300
		1000	3030	3240	3480	3680	3940	4210	4520
		2000	3190	3390	3620	3870	4140	4430	4760
		3000	3340	3560	3800	4060	4350	4670	5020
		4000	3500	3740	4000	4270	4580	4910	5290
		5000	3680	3930	4200	4500	4820	5180	5580
		6000	3860	4130	4420	4740	5080	5470	5900
		7000	4060	4350	4660	4990	5360	5770	6240
		8000	4280	4580	4910	5260	5660	6100	6600
		9000	4510	4830	5180	5560	5980	6450	6990
		10,000	4750	5090	5460	5870	6320	6830	7410
6800	96	Sea Level	2330	2480	2640	2850	3040	3240	3470
		1000	2440	2600	2800	2990	3190	3400	3650
		2000	2560	2760	2940	3130	3350	3580	3840
		3000	2710	2890	3080	3290	3520	3760	4040
		4000	2850	3040	3240	3460	3700	3960	4260
		5000	2990	3190	3400	3640	3890	4170	4490
		6000	3140	3350	3580	3830	4100	4400	4730
		7000	3300	3530	3770	4030	4320	4640	5000
		8000	3470	3710	3970	4250	4560	4900	5290
		9000	3650	3910	4180	4480	4810	5180	5590
		10,000	3850	4120	4420	4730	5090	5480	5920
6200	91	Sea Level	1890	2010	2140	2280	2430	2590	2790
		1000	1980	2110	2240	2390	2570	2750	2930
		2000	2080	2210	2350	2530	2700	2880	3090
		3000	2180	2320	2500	2660	2840	3030	3250
		4000	2280	2460	2620	2800	2990	3190	3420
		5000	2420	2580	2750	2940	3140	3360	3600
		6000	2540	2710	2890	3090	3300	3540	3800
		7000	2670	2850	3050	3250	3480	3730	4010
		8000	2810	3000	3210	3430	3670	3930	4230
		9000	2960	3160	3380	3610	3870	4150	4470
		10,000	3120	3330	3560	3810	4090	4390	4730
5600	86	Sea Level	1500	1600	1700	1800	1920	2040	2180
		1000	1570	1670	1780	1890	2010	2140	2290
		2000	1660	1750	1870	1980	2110	2250	2430
		3000	1730	1840	1960	2080	2220	2390	2560
		4000	1810	1930	2060	2190	2360	2520	2690
		5000	1900	2030	2160	2330	2480	2650	2830
		6000	2000	2130	2290	2440	2610	2790	2980
		7000	2100	2260	2410	2570	2750	2940	3150
		8000	2230	2380	2540	2710	2890	3090	3320
		9000	2350	2500	2670	2850	3050	3260	3500
		10,000	2470	2640	2820	3010	3220	3450	3700

Figure 5-11

ACCELERATE STOP DISTANCE

CONDITIONS:
1. 2700 RPM and 38.0 Inches Hg. Manifold Pressure Before Brake Release.
2. Mixtures - CHECK Fuel Flows In the White Arc.
3. Wing Flaps - UP.
4. Cowl Flaps - OPEN.
5. Level, Hard Surface, Dry Runway.
6. Engine Failure at Engine Failure Speed.
7. Idle Power and Maximum Effective Braking After Engine Failure.

NOTE:
1. If full power is applied without brakes set, distances apply from point where full power is applied.
2. Decrease distance 3% for each 4 knots headwind.
3. Increase distance 5% for each 2 knots tailwind.

WEIGHT - POUNDS	ENGINE FAILURE SPEED - KIAS	PRESSURE ALTITUDE - FEET	TOTAL DISTANCE - FEET						
			-20°C -4°F	-10°C +14°F	0°C 32°F	+10°C +50°F	+20°C +68°F	+30°C +86°F	+40°C +104°F
6750	98	Sea Level	3370	3590	3820	4120	4390	4670	4980
		1000	3530	3760	4060	4320	4600	4900	5240
		2000	3700	3990	4250	4530	4830	5150	5500
		3000	3880	4180	4460	4750	5070	5410	5790
		4000	4120	4390	4680	4990	5330	5690	6090
		5000	4320	4610	4920	5250	5610	5990	6420
		6000	4540	4840	5170	5520	5900	6320	6770
		7000	4770	5090	5440	5810	6220	6660	7140
		8000	5010	5360	5730	6130	6560	7030	7550
		9000	5280	5640	6040	6460	6920	7420	7980
		10,000	5560	5950	6370	6820	7310	7850	8450
6200	94	Sea Level	2780	2960	3150	3340	3560	3780	4090
		1000	2910	3100	3300	3510	3730	4030	4290
		2000	3050	3250	3460	3680	3970	4230	4510
		3000	3200	3410	3630	3910	4170	4440	4740
		4000	3360	3580	3850	4110	4380	4670	4990
		5000	3530	3800	4050	4310	4600	4910	5250
		6000	3740	3990	4250	4540	4840	5170	5530
		7000	3930	4190	4470	4770	5100	5450	5840
		8000	4130	4410	4710	5030	5370	5750	6160
		9000	4350	4640	4960	5300	5670	6070	6510
		10,000	4580	4890	5230	5590	5990	6410	6880
5700	90	Sea Level	2300	2450	2600	2760	2930	3120	3310
		1000	2410	2560	2720	2890	3080	3270	3480
		2000	2530	2690	2860	3040	3230	3430	3710
		3000	2650	2820	3000	3190	3390	3650	3890
		4000	2780	2960	3150	3350	3610	3840	4100
		5000	2920	3110	3310	3560	3790	4040	4310
		6000	3060	3260	3510	3740	3980	4250	4540
		7000	3220	3460	3690	3930	4190	4480	4780
		8000	3410	3640	3880	4140	4420	4720	5050
		9000	3590	3830	4090	4360	4660	4980	5330
		10,000	3780	4030	4310	4600	4920	5260	5630
5200	86	Sea Level	1870	1990	2110	2240	2380	2520	2680
		1000	1960	2080	2210	2350	2490	2650	2810
		2000	2050	2180	2320	2460	2610	2780	2950
		3000	2150	2290	2430	2580	2750	2920	3110
		4000	2260	2400	2550	2710	2890	3070	3270
		5000	2370	2520	2680	2850	3030	3230	3480
		6000	2490	2650	2820	3000	3190	3430	3660
		7000	2620	2790	2970	3190	3390	3620	3860
		8000	2750	2930	3150	3350	3570	3810	4070
		9000	2900	3110	3310	3530	3760	4020	4290
		10,000	3070	3270	3490	3720	3970	4240	4530

Figure 5-11

ACCELERATE STOP DISTANCE

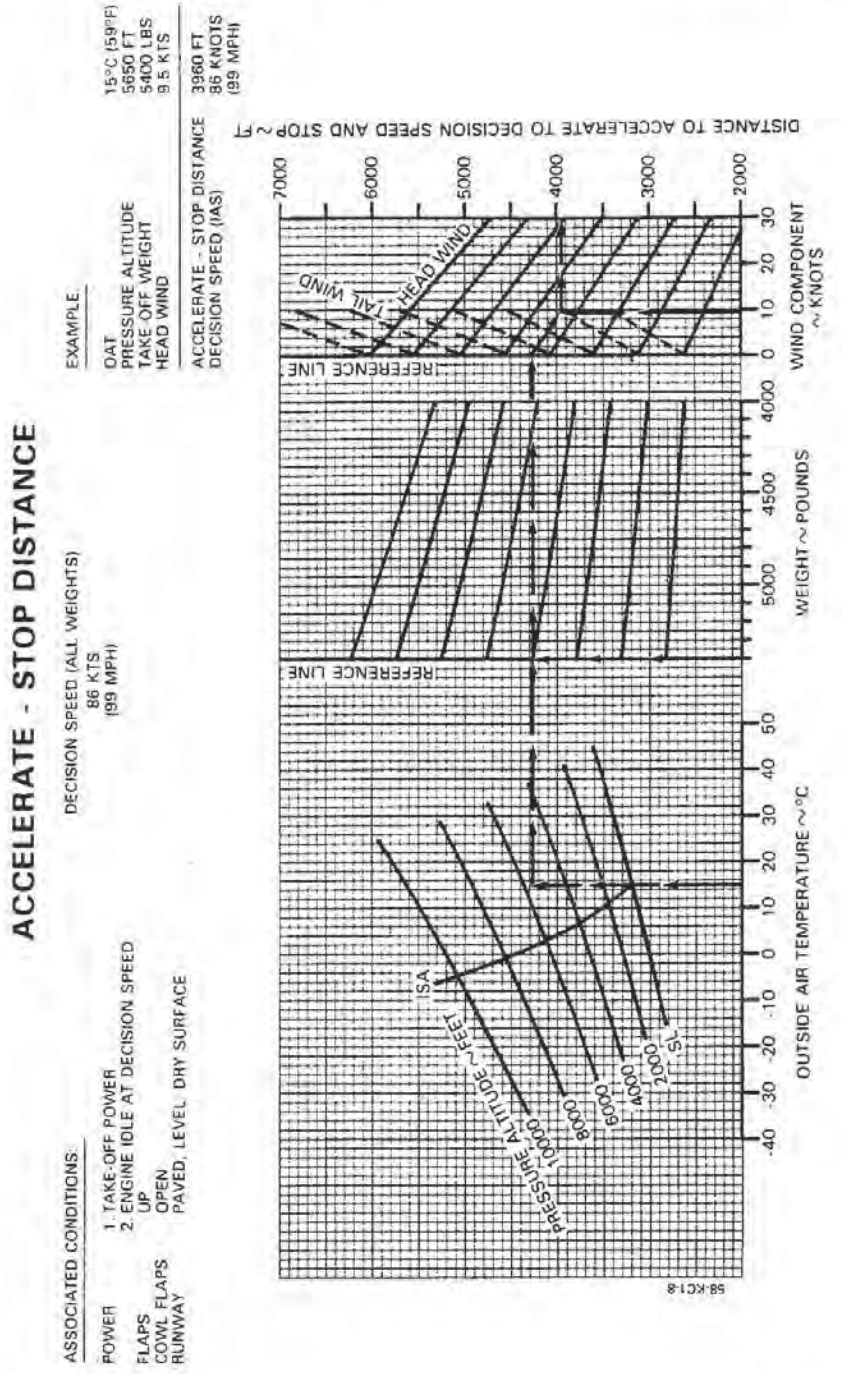
CONDITIONS:
1. Power - FULL THROTTLE and 2700 RPM Before Brake Release.
2. Mixtures - LEAN for field elevation (See Figure 5-27).
3. Wing Flaps - UP.
4. Cowl Flaps - OPEN.
5. Level, Hard Surface, Dry Runway.
6. Engine Failure at Engine Failure Speed.
7. Idle Power and Heavy Braking After Engine Failure.

NOTE:
1. If full power is applied without brakes set, distances apply from point where full power is applied.
2. Decrease distance 3% for each 4 knots headwind.
3. Increase distance 5% for each 2 knots tailwind.

WEIGHT - POUNDS	ENGINE FAILURE SPEED - KIAS	PRESSURE ALTITUDE - FEET	TOTAL DISTANCE - FEET						
			-20°C -4°F	-10°C +14°F	0°C 32°F	+10°C +50°F	+20°C +68°F	+30°C +86°F	+40°C +104°F
5500	92	Sea Level	3020	3190	3370	3550	3740	3930	4120
		1000	3220	3400	3590	3790	3990	4210	4490
		2000	3430	3630	3830	4050	4340	4570	4820
		3000	3660	3880	4100	4400	4650	4910	5180
		4000	3920	4160	4480	4730	5000	5290	5590
		5000	4200	4530	4810	5090	5390	5700	6030
		6000	4590	4880	5180	5490	5820	6170	6530
		7000	4950	5270	5600	5940	6310	6700	7110
		8000	5360	5710	6070	6460	6870	7310	7780
		9000	5830	6210	6630	7060	7530	8020	8560
		10,000	6330	6770	7230	7720	8250	8810	9420
5100	88	Sea Level	2540	2680	2830	2980	3140	3300	3470
		1000	2710	2860	3020	3180	3350	3530	3710
		2000	2880	3050	3220	3390	3580	3770	3970
		3000	3070	3250	3440	3630	3830	4040	4330
		4000	3290	3480	3680	3900	4190	4420	4660
		5000	3520	3730	3950	4250	4500	4750	5020
		6000	3770	4010	4320	4580	4850	5130	5430
		7000	4060	4390	4660	4950	5240	5560	5890
		8000	4470	4750	5050	5360	5690	6050	6420
		9000	4840	5160	5490	5840	6220	6610	7030
		10,000	5250	5600	5970	6370	6790	7230	7710
4700	85	Sea Level	2110	2230	2350	2470	2600	2740	2870
		1000	2250	2370	2500	2640	2770	2920	3070
		2000	2390	2520	2660	2810	2960	3120	3280
		3000	2540	2690	2840	3000	3160	3340	3510
		4000	2720	2880	3040	3210	3390	3580	3780
		5000	2900	3080	3260	3440	3640	3840	4130
		6000	3110	3300	3500	3700	3910	4210	4450
		7000	3340	3550	3760	3990	4300	4550	4820
		8000	3600	3830	4070	4390	4660	4940	5230
		9000	3900	4230	4490	4770	5070	5380	5710
		10,000	4300	4580	4870	5180	5510	5860	6240
4300	81	Sea Level	1730	1820	1920	2020	2120	2230	2340
		1000	1830	1940	2040	2150	2260	2380	2500
		2000	1950	2060	2170	2290	2410	2530	2660
		3000	2070	2190	2310	2440	2570	2710	2850
		4000	2210	2340	2470	2610	2750	2900	3060
		5000	2360	2500	2640	2790	2950	3110	3280
		6000	2520	2680	2830	2990	3160	3340	3530
		7000	2710	2870	3040	3220	3410	3600	3880
		8000	2910	3090	3280	3470	3680	3970	4200
		9000	3140	3340	3550	3760	4070	4310	4570
		10,000	3390	3610	3830	4150	4410	4680	4970

Figure 5-12

ACCELERATE - STOP DISTANCE



ACCELERATE - STOP DISTANCE

(Normally Aspirated Model Equipped With Tip Tanks -- 3725 Lbs Gross Weight)

WING FLAPS RETRACTED
FULL THROTTLE AND MAX RPM
BOTH THROTTLES CLOSED AT DECISION SPEED

RUNWAY SURFACE: PAVED, LEVEL, DRY
ACCELERATE TO 90 MPH IAS
MAXIMUM BRAKING EFFORT

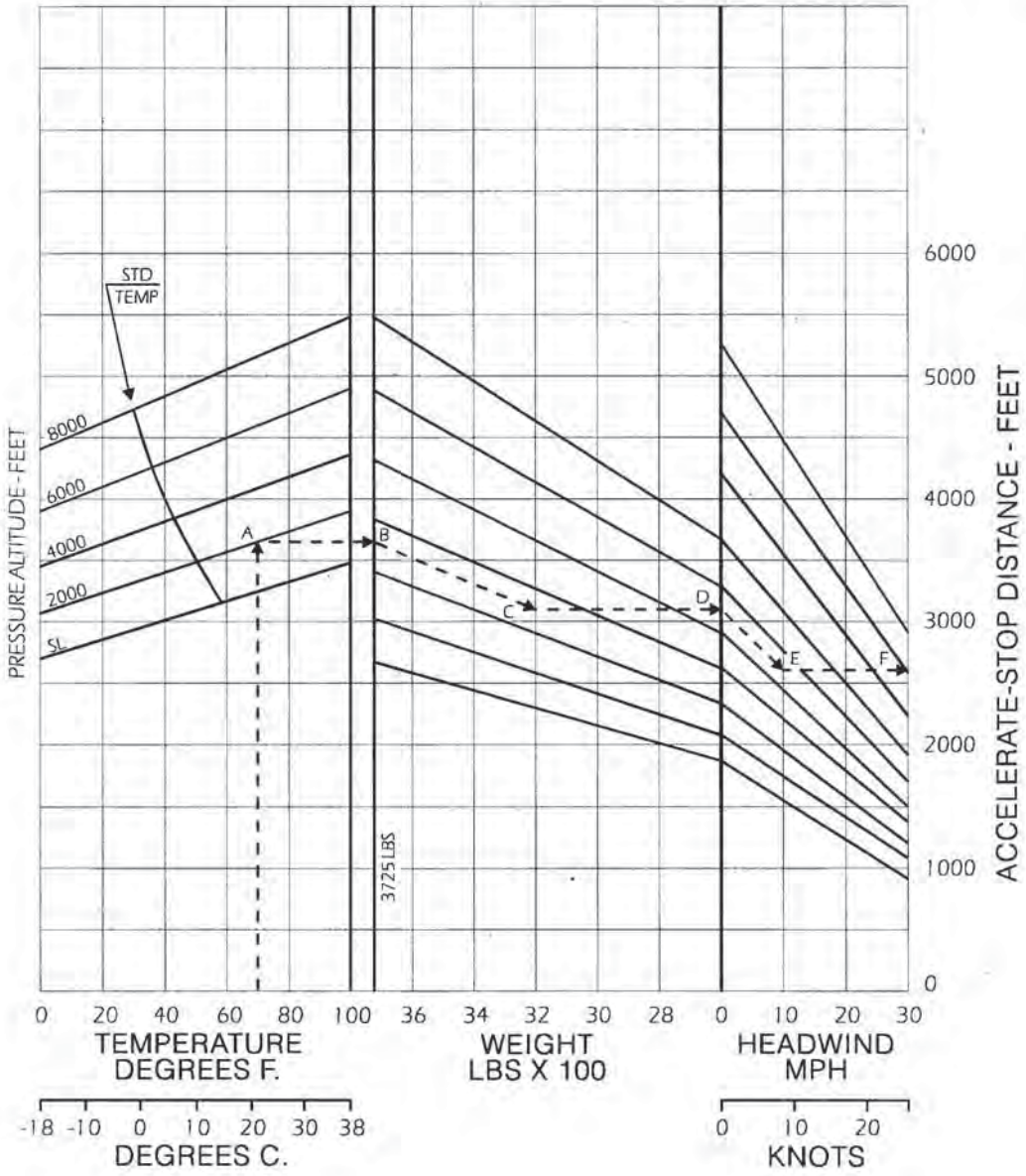


FIGURE 5-08

Page 5-12A

Appendix 5: Cost Estimates

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Lake Elmo Airport (21D)
2035 Long Term Comprehensive Plan

Airfield Development Alternatives -- Cost Estimates

BASE CASE: Maintaining Existing Runways 14-32 and 04-22

Item	Concept Element	Est. Cost
1	Reconstruct Existing RWY 14-32 (2,849' x 75')	$2,350,000
2	Reconstruct Existing RWY 14-32 Electrical Systems (MIRL)	$450,000
3	Property Acquisition (RWY 14 RPZ)	$500,000
4	Reconstruct Existing RWY 04-22 (2,496' x 75')	$2,050,000
	Base Case Total:	*$5,350,000*

ALTERNATIVE A: Runway 04-22 Extension to 3,200 feet and Maintaining Existing Runway 14-32

Item	Concept Element	Est. Cost
1	Extend RWY 04-22 to 3,200' (704' x 75' Extension)	$1,150,000
2	Construct RWY 04-22 Electrical Systems (MIRL full length, REIL, and PAPI)	$650,000
3	Construct TWY System to Extended RWY 22 (w/MITL full length)	$475,000
4	Wetland Mitigation	$175,000
5	Reconstruct Existing RWY 04-22 (2,496' x 75')	$2,050,000
6	Reconstruct Existing RWY 14-32 (2,849' x 75')	$2,350,000
7	Reconstruct Existing RWY 14-32 Electrical Systems (MIRL)	$450,000
8	Property Acquisition (RWY 14 RPZ)	$400,000
	Alternative A Total:	*$7,700,000*

ALTERNATIVE B: Runway 14-32 Relocation to length of 3,600 feet; Runway 04-22 Extension to 2,750 feet

Item	Concept Element	Est. Cost
1	Construct New RWY 14-32 (3,600' x 75')	$3,950,000
2	Construct RWY 14-32 Electrical Systems (MIRL, REIL, and PAPI)	$750,000
3	Construct TWY System for New RWY 14-32 (w/MITL)	$2,400,000
4	Wetland Mitigation	$350,000
5	Relocate 30th St N	$1,200,000
6	Relocate Airport Service Rd	$250,000
7	Convert Old RWY 14-32 to TWY (w/MITL)	$525,000
8	Reconstruct Existing RWY 04-22 (2,496' x 75')	$2,050,000
	Alternative B Total (Future):	*$11,475,000*
9	Construct TWY System for New RWY 14-32 (w/MITL) (Non-Essential)	$2,150,000
10	Extend RWY 04-22 to 2,750' (254' x 75' Extension)	$575,000
11	Construct RWY 04-22 Electrical Systems (MIRL full length, REIL, and PAPI)	$625,000
12	Construct TWY System to Extended RWY 22 (w/MITL full length)	$475,000
13	Wetland Mitigation	$175,000
	Alternative B Total (Ultimate):	*$15,475,000*

ALTERNATIVE C: Runway 14-32 Relocation to length of 3,900 feet; Runway 04-22 Extension to 2,750 feet

Item	Concept Element	Est. Cost
1	Construct New RWY 14-32 (3,900' x 75')	$4,050,000
2	Construct RWY 14-32 Electrical Systems (MIRL, REIL, and PAPI)	$775,000
3	Construct TWY System for New RWY 14-32 (w/MITL)	$1,600,000
4	Wetland Mitigation	$350,000
5	Relocate 30th St N	$1,200,000
6	Convert Old RWY 14-32 to TWY (w/MITL)	$525,000
7	Reconstruct Existing RWY 04-22 (2,496' x 75')	$2,050,000
	Alternative C Total (Future):	*$10,550,000*
8	Construct TWY System for New RWY 14-32 (w/MITL) (Non-Essential)	$2,000,000
9	Extend RWY 04-22 to 2,750' (254' x 75' Extension)	$575,000
10	Construct RWY 04-22 Electrical Systems (MIRL full length, REIL, and PAPI)	$625,000
11	Construct TWY System to Extended RWY 22 (w/MITL full length)	$475,000
12	Wetland Mitigation	$175,000
	Alternative C Total (Ultimate):	*$14,400,000*

ALTERNATIVE B1: Runway 14-32 Relocation to length of 3,500 feet; Runway 04-22 Extension to 2,750 feet

Item	Concept Element	Est. Cost
1	Construct New RWY 14-32 (3,500' x 75')	$3,900,000
2	Construct RWY 14-32 Electrical Systems (MIRL, REIL, and PAPI)	$750,000
3	Construct TWY System for New RWY 14-32 (w/MITL)	$2,400,000
4	Wetland Mitigation	$350,000
5	Relocate 30th St N	$1,300,000
6	Construct On-Airport Connector Road	$200,000
7	Convert Old RWY 14-32 to TWY (w/MITL)	$525,000
8	Reconstruct Existing RWY 04-22 (2,496' x 75')	$2,050,000
	Alternative B1 Total (Future):	*$11,475,000*
9	Construct TWY System for New RWY 14-32 (w/MITL) (Non-Essential)	$2,000,000
10	Extend RWY 04-22 to 2,750' (254' x 75' Extension)	$575,000
11	Construct RWY 04-22 Electrical Systems (MIRL full length, REIL, and PAPI)	$625,000
12	Construct TWY System to Extended RWY 22 (w/MITL full length)	$475,000
13	Wetland Mitigation	$175,000
	Alternative B1 Total (Ultimate):	*$15,325,000*

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Appendix 6: Noise Contour Input Details

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Table A6-1
Baseline Condition Average Daily Flight Operations

Aircraft Type	Aircraft ID	Departures			Arrivals			Touch and Gos			Total Operations		
		Day	Night	Total	Day	Night	Total	Day	Night	Total	Day	Night	Total
Helicopter		*0.37*	*0.07*	*0.44*	*0.37*	*0.07*	*0.44*	*0.17*	*0.00*	*0.17*	*0.92*	*0.14*	*1.06*
Bell 429	B429	0.15	0.07	0.22	0.15	0.07	0.22	0.00	0.00	0.00	0.30	0.14	0.44
Robinson R22	R22	0.22	0.00	0.22	0.22	0.00	0.22	0.17	0.00	0.17	0.62	0.00	0.62
Multi-Engine Piston		*0.12*	*0.00*	*0.13*	*0.12*	*0.00*	*0.13*	*0.03*	*0.00*	*0.03*	*0.27*	*0.01*	*0.28*
Beechcraft Model 55 Baron	BEC55	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01
Beechcraft Model 58 Baron	BEC58	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.02
Beechcraft Model 95 Travel Air	BEC95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Cessna 337 Super Skymaster	CNA337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna 340 Twin Piston MEVP	CNA340	0.03	0.00	0.03	0.03	0.00	0.03	0.00	0.00	0.00	0.07	0.00	0.07
Cessna 414 Chancellor MEVP	CNA414	0.05	0.00	0.05	0.05	0.00	0.05	0.00	0.00	0.00	0.09	0.00	0.09
Piper Apache Twin	PA23AP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Piper Aztec MEPV	PA23AZ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Piper Twin Comanche	PA30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Piper Navajo Twin	PA31	0.01	0.00	0.01	0.01	0.00	0.01	0.03	0.00	0.03	0.04	0.00	0.04
Piper Seneca Twin	PA34	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01
Piper Seminole Twin	PA44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Single-Engine Piston		*30.39*	*0.94*	*31.33*	*30.28*	*1.06*	*31.33*	*4.36*	*0.04*	*4.41*	*65.03*	*2.04*	*67.07*
Grumman Cheetah	AA5A	0.06	0.04	0.10	0.06	0.06	0.13	0.00	0.00	0.00	0.12	0.11	0.23
Beechcraft 33 Debonair/Bonanza	BEC33	2.03	0.26	2.28	2.06	0.13	2.19	0.00	0.00	0.00	4.09	0.38	4.47
Beechcraft Model 36 Bonanza	BECM35	1.07	0.04	1.12	0.75	0.00	0.75	0.00	0.00	0.00	1.82	0.04	1.87
Cessna 150	CNA150	0.18	0.00	0.18	0.13	0.00	0.13	0.00	0.00	0.00	0.30	0.00	0.30
Cessna 152	CNA152	0.24	0.09	0.32	0.13	0.25	0.38	0.00	0.00	0.00	0.36	0.34	0.70
Cessna 172 Single Engine SEPF	CNA172	5.90	0.04	5.94	5.13	0.13	5.25	0.00	0.00	0.00	11.03	0.17	11.20
Cessna Cardinal 177	CNA177	0.18	0.04	0.22	0.19	0.06	0.25	0.00	0.00	0.00	0.37	0.11	0.47
Cessna 182 Skylane	CNA182	2.38	0.09	2.47	2.63	0.13	2.75	0.00	0.00	0.00	5.01	0.21	5.22
Cessna 206	CNA206	1.43	0.04	1.47	1.94	0.00	1.94	0.00	0.00	0.00	3.37	0.04	3.41
Cessna 210 Centurion	CNA210	0.12	0.00	0.12	0.31	0.00	0.31	0.00	0.00	0.00	0.43	0.00	0.43
GA Single Engine Propeller Fixed	GASEPF	0.77	0.00	0.77	1.06	0.06	1.13	0.00	0.00	0.00	1.84	0.06	1.90
GA Single Engine Propeller Variable	GASEPV	2.32	0.04	2.37	2.51	0.12	2.63	0.00	0.00	0.00	4.83	0.16	4.99
Lake Buccaneer	LA42	0.00	0.04	0.04	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.11	0.11
Mooney M-20	M20J	1.07	0.00	1.07	1.25	0.00	1.25	1.98	0.03	2.01	4.30	0.03	4.33
Piper Pacer	PA22TR	0.06	0.00	0.06	0.06	0.00	0.06	0.00	0.00	0.00	0.12	0.00	0.12
Ryan Navion	PA24	0.12	0.00	0.12	0.13	0.00	0.13	0.00	0.00	0.00	0.24	0.00	0.24
Piper Warrior	PA28	4.41	0.00	4.41	3.69	0.00	3.69	0.00	0.00	0.00	8.10	0.00	8.10
Piper Arrow	PA28CA	0.30	0.00	0.30	0.25	0.00	0.25	0.00	0.00	0.00	0.55	0.00	0.55
Piper Cherokee	PA28CH	1.79	0.00	1.79	1.94	0.00	1.94	1.08	0.00	1.08	4.81	0.00	4.81
Piper Cherokee Dakota	PA28DK	0.06	0.00	0.06	0.06	0.00	0.06	0.00	0.00	0.00	0.12	0.00	0.12
Piper Lance/Saratoga	PA32LA	0.06	0.00	0.06	0.06	0.00	0.06	0.00	0.00	0.00	0.12	0.00	0.12

Aircraft Type	Aircraft ID	Departures			Arrivals			Touch and Gos			Total Operations		
		Day	Night	Total	Day	Night	Total	Day	Night	Total	Day	Night	Total
Piper Saratoga	PA32SG	1.25	0.00	1.25	1.44	0.00	1.44	0.65	0.01	0.66	3.34	0.01	3.35
Piper Tomahawk	PA38	0.54	0.00	0.54	0.44	0.06	0.50	0.00	0.00	0.00	0.97	0.06	1.04
Piper Malibu	PA46	0.24	0.00	0.24	0.38	0.00	0.38	0.65	0.01	0.66	1.26	0.01	1.27
Rockwell Commander 112	RWCM12	0.36	0.00	0.36	0.44	0.00	0.44	0.00	0.00	0.00	0.80	0.00	0.80
Cirrus SR22	SR22	3.46	0.21	3.67	3.25	0.00	3.25	0.00	0.00	0.00	6.71	0.21	6.92
Turboprop		*0.07*	*0.01*	*0.08*	*0.07*	*0.01*	*0.08*	*0.00*	*0.00*	*0.00*	*0.14*	*0.01*	*0.15*
Beechcraft 200 (Super) King Air	BEC200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Beechcraft Super King Air 350/300B	BEC30B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Cessna 208 Caravan I	CNA208	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.02
Piper Cheyenne II Twin	PA31T	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pilatus PC-12	PC12	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.02
Socata TBM 700/850	STBM7	0.05	0.00	0.05	0.05	0.00	0.05	0.00	0.00	0.00	0.09	0.00	0.10
Jets		*0.01*	*0.00*	*0.01*	*0.01*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	*0.01*
Cessna Citation CJ2	CNA500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Eclipse 500 VLJ	ECLIPSE50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Total		**30.96**	**1.02**	**31.98**	**30.85**	**1.14**	**31.98**	**4.56**	**0.04**	**4.60**	**66.37**	**2.20**	**68.57**

Notes: Totals may not add due to rounding

Source: MAC Analysis

Table A6-2
2035 Final Preferred Alternative Condition Average Daily Flight Operations

Aircraft Type	Aircraft ID	Departures			Arrivals			Touch and Gos			Total Operations		
		Day	Night	Total	Day	Night	Total	Day	Night	Total	Day	Night	Total
Helicopter		*0.56*	*0.11*	*0.66*	*0.56*	*0.11*	*0.66*	*0.26*	*0.00*	*0.26*	*1.37*	*0.21*	*1.58*
Bell 429	B429	0.23	0.11	0.33	0.23	0.11	0.33	0.00	0.00	0.00	0.45	0.21	0.66
Robinson R22	R22	0.33	0.00	0.33	0.33	0.00	0.33	0.26	0.00	0.26	0.92	0.00	0.92
Multi-Engine Piston		*0.12*	*0.02*	*0.14*	*0.14*	*0.00*	*0.14*	*0.03*	*0.00*	*0.03*	*0.29*	*0.02*	*0.31*
Beechcraft Model 55 Baron	BEC55	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01
Beechcraft Model 58 Baron	BEC58	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.04	0.00	0.04
Beechcraft Model 95 Travel Air	BEC95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Cessna 337 Super Skymaster	CNA337	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Cessna 340 Twin Piston MEVP	CNA340	0.04	0.00	0.04	0.04	0.00	0.04	0.00	0.00	0.00	0.08	0.00	0.08
Cessna 414 Chancellor MEVP	CNA414	0.05	0.00	0.05	0.05	0.00	0.05	0.00	0.00	0.00	0.09	0.01	0.10
Piper Apache Twin	PA23AP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Piper Aztec MEPV	PA23AZ	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.01
Piper Twin Comanche	PA30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Piper Navajo Twin	PA31	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.02	0.01	0.03
Piper Seneca Twin	PA34	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01
Piper Seminole Twin	PA44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Single-Engine Piston		*28.88*	*0.96*	*29.83*	*28.88*	*0.96*	*29.83*	*4.64*	*0.15*	*4.79*	*62.39*	*2.07*	*64.45*
Grumman Cheetah	AA5A	0.05	0.07	0.13	0.06	0.07	0.13	0.00	0.00	0.00	0.11	0.15	0.25
Beechcraft 33 Debonair/Bonanza	BEC33	1.92	0.27	2.18	1.91	0.15	2.06	0.00	0.00	0.00	3.83	0.41	4.24
Beechcraft Model 36 Bonanza	BECM35	1.03	0.04	1.07	0.72	0.00	0.72	0.00	0.00	0.00	1.75	0.04	1.79
Cessna 150	CNA150	0.16	0.00	0.16	0.11	0.00	0.11	0.00	0.00	0.00	0.27	0.00	0.27
Cessna 152	CNA152	0.24	0.06	0.31	0.11	0.21	0.32	0.00	0.00	0.00	0.35	0.27	0.62
Cessna 172 Single Engine SEPF	CNA172	5.59	0.04	5.63	4.94	0.10	5.04	0.00	0.00	0.00	10.52	0.15	10.67
Cessna Cardinal 177	CNA177	0.18	0.07	0.25	0.17	0.04	0.21	0.00	0.00	0.00	0.35	0.11	0.46
Cessna 182 Skylane	CNA182	2.29	0.07	2.37	2.52	0.10	2.63	0.00	0.00	0.00	4.82	0.18	5.00
Cessna 206	CNA206	1.40	0.04	1.44	1.92	0.00	1.92	0.00	0.00	0.00	3.31	0.04	3.36
Cessna 210 Centurion	CNA210	0.11	0.00	0.11	0.29	0.00	0.29	0.00	0.00	0.00	0.39	0.00	0.39
GA Single Engine Propeller Fixed	GASEPF	0.78	0.00	0.78	1.07	0.04	1.12	0.00	0.00	0.00	1.86	0.04	1.90
GA Single Engine Propeller Variable	GASEPV	2.18	0.07	2.25	2.41	0.14	2.55	0.00	0.00	0.00	4.59	0.21	4.80
Lake Buccaneer	LA42	0.00	0.03	0.03	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.10	0.10
Mooney M-20	M20J	1.02	0.00	1.02	1.17	0.00	1.17	1.85	0.06	1.92	4.05	0.06	4.11
Piper Pacer	PA22TR	0.07	0.00	0.07	0.07	0.00	0.07	0.00	0.00	0.00	0.14	0.00	0.14
Ryan Navion	PA24	0.11	0.00	0.11	0.11	0.00	0.11	0.00	0.00	0.00	0.22	0.00	0.22
Piper Warrior	PA28	4.16	0.00	4.16	3.42	0.00	3.42	0.00	0.00	0.00	7.58	0.00	7.58
Piper Arrow	PA28CA	0.31	0.00	0.31	0.23	0.00	0.23	0.00	0.00	0.00	0.54	0.00	0.54
Piper Cherokee	PA28CH	1.64	0.00	1.64	1.88	0.00	1.88	1.53	0.05	1.58	5.06	0.05	5.11
Piper Cherokee Dakota	PA28DK	0.07	0.00	0.07	0.07	0.00	0.07	0.00	0.00	0.00	0.13	0.00	0.13

Aircraft Type	Aircraft ID	Departures			Arrivals			Touch and Gos			Total Operations		
		Day	Night	Total	Day	Night	Total	Day	Night	Total	Day	Night	Total
Piper Lance/Saratoga	PA32LA	0.05	0.00	0.05	0.06	0.00	0.06	0.00	0.00	0.00	0.11	0.00	0.11
Piper Saratoga	PA32SG	1.20	0.00	1.20	1.34	0.00	1.34	0.63	0.02	0.65	3.17	0.02	3.19
Piper Tomahawk	PA38	0.47	0.00	0.47	0.41	0.04	0.45	0.00	0.00	0.00	0.88	0.04	0.92
Piper Malibu	PA46	0.23	0.00	0.23	0.43	0.00	0.43	0.63	0.02	0.65	1.29	0.02	1.31
Rockwell Commander 112	RWCM12	0.34	0.00	0.34	0.41	0.00	0.41	0.00	0.00	0.00	0.75	0.00	0.75
Cirrus SR22	SR22	3.27	0.17	3.44	3.06	0.00	3.06	0.00	0.00	0.00	6.33	0.17	6.50
Turboprop		*0.47*	*0.02*	*0.49*	*0.47*	*0.02*	*0.49*	*0.00*	*0.00*	*0.00*	*0.95*	*0.03*	*0.98*
Beechcraft 200 (Super) King Air	BEC200	0.03	0.00	0.03	0.02	0.00	0.02	0.00	0.00	0.00	0.04	0.00	0.04
Beechcraft Super King Air 350/300B	BEC30B	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03
Cessna 208 Caravan I	CNA208	0.06	0.00	0.06	0.05	0.01	0.06	0.00	0.00	0.00	0.11	0.01	0.12
Piper Cheyenne II Twin	PA31T	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.02
Pilatus PC-12	PC12	0.05	0.00	0.05	0.08	0.01	0.09	0.00	0.00	0.00	0.13	0.01	0.14
Socata TBM 700/850	STBM7	0.32	0.01	0.33	0.31	0.00	0.31	0.00	0.00	0.00	0.62	0.01	0.63
Jets		*0.26*	*0.01*	*0.26*	*0.26*	*0.01*	*0.26*	*0.00*	*0.00*	*0.00*	*0.51*	*0.01*	*0.53*
Cessna Citation CJ2	CNA500	0.09	0.00	0.09	0.09	0.00	0.09	0.00	0.00	0.00	0.18	0.00	0.18
Cessna Mustang	CNA510	0.08	0.00	0.09	0.08	0.00	0.09	0.00	0.00	0.00	0.17	0.01	0.18
Eclipse 500 VLJ	ECLIPSE5	0.08	0.00	0.09	0.08	0.00	0.09	0.00	0.00	0.00	0.17	0.01	0.18
Total		**30.29**	**1.10**	**31.39**	**30.30**	**1.09**	**31.39**	**4.92**	**0.15**	**5.08**	**65.51**	**2.35**	**67.86**

Notes: Totals may not add due to rounding

Source: MAC Analysis

Table A6-3
Baseline Condition Average Annual Runway Use

Aircraft Group	Rwy	Arrivals			Departures			Touch and Gos		
		Day	Night	Total	Day	Night	Total	Day	Night	Total
Helicopters	04	60%	0%	50%	60%	0%	50%	50%	-	50%
	14	0%	0%	0%	0%	0%	0%	0%	-	0%
	22	0%	0%	0%	0%	0%	0%	0%	-	0%
	32	40%	100%	50%	40%	100%	50%	50%	-	50%
Piston	04	5%	6%	5%	7%	5%	7%	5%	0%	5%
	14	28%	30%	28%	33%	55%	34%	30%	33%	30%
	22	19%	17%	19%	16%	14%	16%	20%	3%	20%
	32	48%	48%	48%	44%	27%	43%	45%	64%	45%
Turboprop	04	0%	0%	0%	10%	0%	9%	-	-	-
	14	14%	50%	17%	40%	40%	40%	-	-	-
	22	8%	0%	8%	0%	0%	0%	-	-	-
	32	78%	50%	75%	50%	60%	51%	-	-	-
Jets	04	0%	-	0%	0%	-	0%	-	-	-
	14	0%	-	0%	0%	-	0%	-	-	-
	22	0%	-	0%	0%	-	0%	-	-	-
	32	100%	-	100%	100%	-	100%	-	-	-

Notes: Runway use for helicopter touch and go operations could not be determined from available MACNOMS data. The arrival and departure runway use for helicopters was used to assign these operations. Totals may not add to 100% due to rounding.

Source: MAC Analysis

Table A6-4
2035 Final Preferred Alternative Condition Average Annual Runway Use

Aircraft Group	Rwy	Arrivals			Departures			Touch and Go		
		Day	Night	Total	Day	Night	Total	Day	Night	Total
Helicopters	04	60%	0%	50%	60%	0%	50%	50%	-	50%
	14	0%	0%	0%	0%	0%	0%	0%	-	0%
	22	0%	0%	0%	0%	0%	0%	0%	-	0%
	32	40%	100%	50%	40%	100%	50%	50%	-	50%
Piston	04	8%	11%	8%	10%	10%	10%	8%	8%	8%
	14	26%	33%	26%	31%	40%	31%	27%	27%	27%
	22	21%	22%	21%	19%	23%	20%	25%	25%	25%
	32	45%	34%	45%	40%	27%	40%	40%	40%	40%
Turboprop	04	0%	0%	0%	2%	0%	2%	-	-	-
	14	33%	50%	33%	39%	40%	39%	-	-	-
	22	1%	0%	1%	0%	0%	0%	-	-	-
	32	66%	50%	66%	59%	60%	59%	-	-	-
Jets	04	0%	0%	0%	0%	0%	0%	-	-	-
	14	33%	33%	33%	40%	40%	40%	-	-	-
	22	0%	0%	0%	0%	0%	0%	-	-	-
	32	67%	67%	67%	60%	60%	60%	-	-	-

Notes: Runway use for helicopter touch and go operations could not be determined from available MACNOMS data. The arrival and departure runway use for helicopters was used to assign these operations. All new turboprop and jet operations were assigned to Runway 14-32. A greater share of piston operations were assigned to Runway 04-22, due to runway lengthening to 2,750 feet and lighting. Totals may not add to 100% due to rounding.

Source: MAC Analysis

Table A6-5
Baseline Condition Departure Flight Track Use

Runway	Track	Helicopters		Piston		Turboprop		Jets		Total
		Day	Night	Day	Night	Day	Night	Day	Night	
04	A	0%	-	42%	0%	100%	-	-	-	38%
	B	0%	-	29%	0%	0%	-	-	-	26%
	C	100%	-	21%	0%	0%	-	-	-	27%
	D	0%	-	8%	100%	0%	-	-	-	9%
14	A	-	-	18%	0%	33%	0%	-	-	17%
	B	-	-	26%	25%	0%	0%	-	-	26%
	C	-	-	14%	8%	0%	0%	-	-	14%
	D	-	-	16%	25%	67%	0%	-	-	17%
	E	-	-	26%	42%	0%	100%	-	-	26%
22	A	-	-	34%	67%	-	-	-	-	35%
	B	-	-	21%	33%	-	-	-	-	21%
	C	-	-	16%	0%	-	-	-	-	15%
	D	-	-	29%	0%	-	-	-	-	29%
32	A	0%	0%	21%	0%	0%	0%	0%	-	20%
	B	100%	100%	22%	33%	33%	0%	0%	-	23%
	C	0%	0%	30%	33%	67%	0%	0%	-	29%
	D	0%	0%	28%	33%	0%	100%	100%	-	27%

Notes: Each departure track was dispersed to either side of the backbone tracks. Default INM Version 7.0d subtrack use percentages were used to assign aircraft to the subtracks created during dispersal. Only one touch and go track was modeled for each runway. Totals may not add to 100% due to rounding.

Source: MAC Analysis

Table A6-6
2035 Final Preferred Alternative Condition Departure Flight Track Use

Runway	Track	Helicopters		Piston		Turboprop		Jets		Total
		Day	Night	Day	Night	Day	Night	Day	Night	
04	A	0%	-	42%	0%	100%	-	-	-	36%
	B	0%	-	29%	0%	0%	-	-	-	25%
	C	100%	-	21%	0%	0%	-	-	-	28%
	D	0%	-	8%	100%	0%	-	-	-	10%
14	A	-	-	18%	0%	33%	0%	0%	0%	17%
	B	-	-	26%	24%	0%	0%	0%	0%	25%
	C	-	-	14%	8%	0%	0%	50%	50%	14%
	D	-	-	16%	26%	67%	0%	50%	50%	17%
	E	-	-	26%	42%	0%	100%	0%	0%	26%
22	A	-	-	34%	66%	-	-	-	-	35%
	B	-	-	21%	33%	-	-	-	-	21%
	C	-	-	16%	0%	-	-	-	-	15%
	D	-	-	29%	1%	-	-	-	-	28%
32	A	0%	0%	21%	0%	0%	0%	50%	50%	20%
	B	100%	100%	22%	33%	33%	0%	0%	0%	24%
	C	0%	0%	29%	33%	67%	0%	0%	0%	29%
	D	0%	0%	28%	34%	0%	100%	50%	50%	28%

Notes: Each departure track was dispersed to either side of the backbone tracks. Default INM Version 7.0d subtrack use percentages were used to assign aircraft to the subtracks created during dispersal. Only one touch and go track was modeled for each runway. Totals may not add up to 100% due to rounding. All new jet operations were assigned to Runway 14-32 using the two most straight-out departure tracks off of Runways 14 and 32, with 50% on each track. Totals may not add to 100% due to rounding.

Source: MAC Analysis

Figure A6-1: Baseline Condition INM Flight Tracks

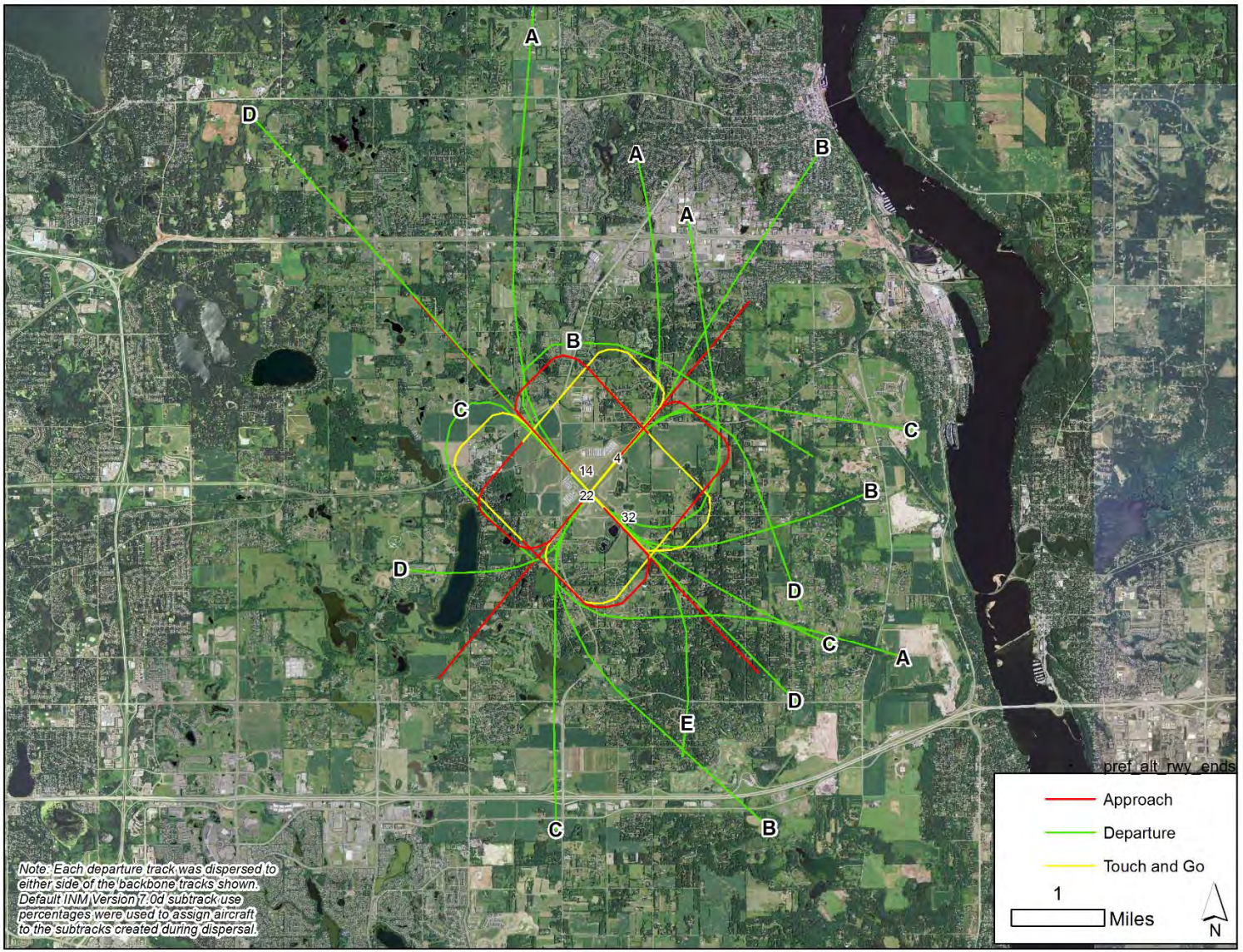
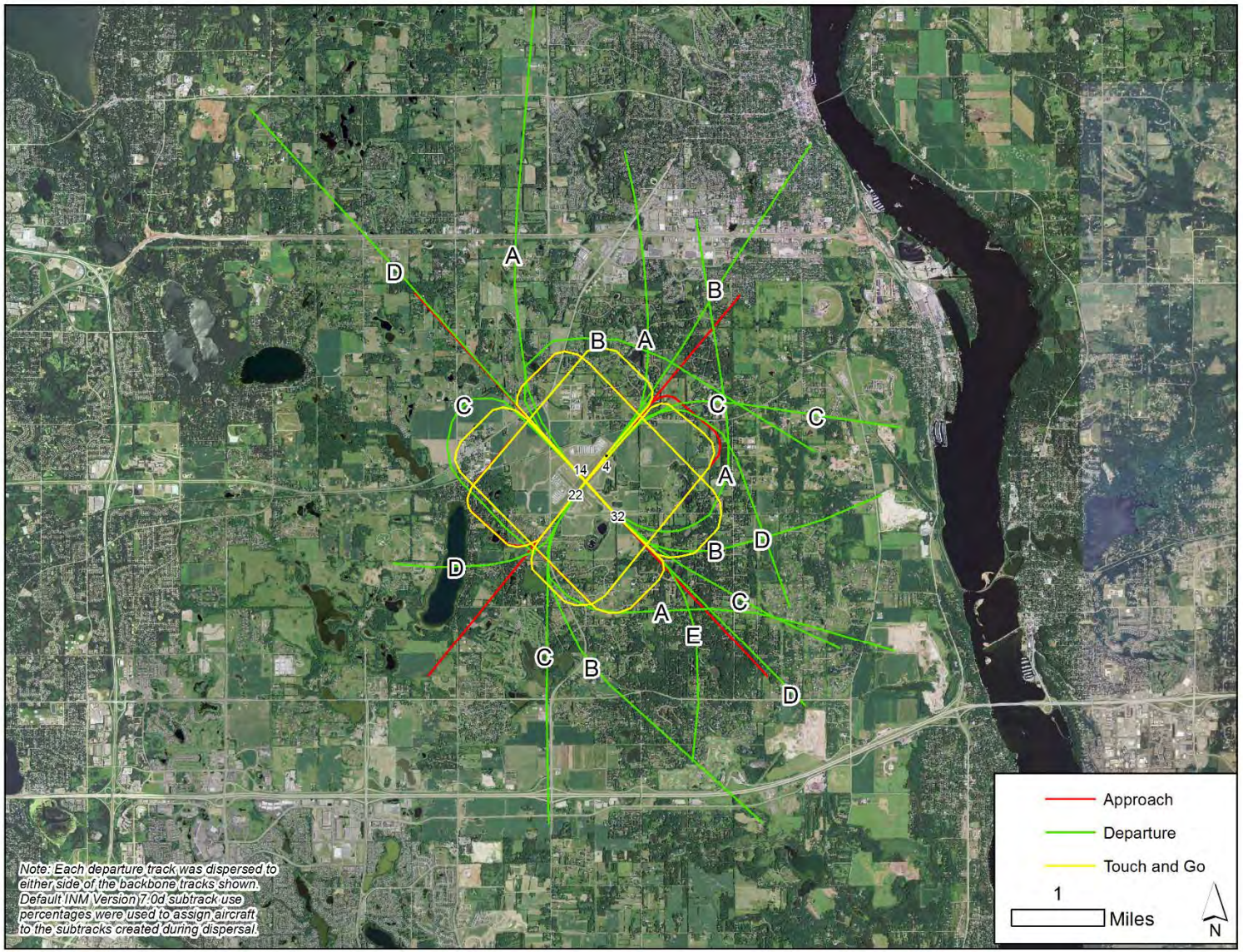


Figure A6-2: 2035 Final Preferred Alternative Condition INM Flight Tracks



Appendix 7: Existing Zoning Ordinances

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ORDINANCE NO. 7

An Ordinance regulating the heighth of structures and trees and the use of the property in the vicinity of Lake Elmo Airport.

WHEREAS, the Minneapolis-Saint Paul Metropolitan Airports Commission considers it necessary for the purpose of promoting public health, safety, order, convenience and general welfare by protecting the lives and property of users of the Lake Elmo Airport and of owners and occupants of land in its vicinity to adopt the following airport zoning ordinance applicable to Lake Elmo Airport as authorized by Minnesota Laws 1945, Chapter 303 as amended, M.S.A. 360.061-360.074.

The Minneapolis-Saint Paul Metropolitan Airports Commission does ordain:

Section 1. Definitions. As used in this ordinance, unless the context otherwise requires:

(1) "Airport" means the Lake Elmo Airport, a public airport owned and being operated, maintained and developed by the Commission.

(2) "Airport hazard" means any structure or tree or use of land, which obstructs the air space required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to such landing or taking off of aircraft.

(3) "Airport hazard area" means the area of land or water or both upon which an airport hazard might exist if not prevented as provided in this ordinance.

(4) "Person" means any individual, firm, partnership, corporation, company, association, joint stock association or body politic, and includes any trustee, receiver, assignee or other similar representative thereof.

(5) "Nonconforming use" means any structure, tree or use of land, which does not conform to a regulation prescribed in this ordinance or any amendment thereto as of the effective date of such regulation or amendment.

(6) "Structure" means any object constructed or installed by man including but without limitation buildings, towers, smoke stacks and overhead transmission lines.

(7) "Tree" means and includes any object of natural growth.

(8) Zoning "map" means the Lake Elmo Airport Zoning Map hereto attached and made a part of this ordinance.

(9) "Master Plan" means the established airport layout as shown by Commission's Plan #3975, Drawing 4, hereto attached and made a part of this ordinance.

(10) "Airport reference point" means the center point of the airport hazard area, as designated on the zoning map.

(11) "Commission" means Minneapolis-Saint Paul Metropolitan Airports Commission, herein referred to as MAC.

(12) "Committee" means the MAC Airport Zoning Committee.

(13) "Board" means the MAC Airport Zoning Appeal Board.

(14) "Public notice" shall mean notice published at least twice with an interval of at least seven days between publication dates in the official newspaper of the cities of Minneapolis and Saint Paul, and of the county in which the airport is located.

Section 2. Airport Hazard Area, Airport Reference Point And Zones. The airport hazard area is the area surrounding the airport reference point as designated on the zoning map and is divided into zones as shown on the zoning map, in respect to which zones height limits as hereinafter set forth will apply:

(1) The landing zones are strips within the confines of the airport boundaries, designated in black on the map, and along which landings and take-offs are made and taxiing is done.

(2) The approach zones are trapezoidal areas which extend beyond the ends of all landing zones as indicated on the zoning map.

(3) The horizontal surface zones are areas having radii of 5,000 feet from the airport reference point and are shown on the zoning map.

(4) The conical surface zones are areas lying immediately beyond the horizontal surface zones having to their outer limits a radius of 8,000 feet from the airport reference point as shown on the zoning map.

(5) The transition zones are irregular areas lying just outside of approach zones as shown on the zoning map.

Section 3. Height Limits. Except as otherwise provided in this ordinance, no structure shall be located, constructed, altered or maintained, and no tree shall be allowed to grow above height limits hereinafter established within any landing zone, approach zones, horizontal surface zones, conical surface zone or transition zone, said heights being measured in feet above established elevations as follows:

(1) Within landing zones - the elevation of the surface of the landing strips except as required and as necessary and incidental to airport operations or as may be recommended by or be in accordance with rules of the Civil Aeronautics Administration.

(2) Within approach zones - the established elevation for the beginning of each approach zone as shown on the Master Plan, plus one foot of height for every 30 feet of horizontal distance measured along the centerline of the approach zone from the end nearest the landing zone to a point on said centerline at right angles to the structure or tree in question.

(3) Within horizontal surface zones - 150 feet above the established elevation of the airport, said established airport elevation being mean sea level elevation 869 feet.

(4) Within conical surface zones - The elevation of the horizontal surface zone at 5,000 feet from the airport reference point plus one foot of height for every 20 feet of horizontal distance to 8,000 feet from the airport reference point.

(5) Within transition zones - The height limit permitted at a point on the centerline of the nearest approach zone at right angles to the structure or tree in question plus one foot in height for every seven feet of horizontal distance from the nearest side boundary of said landing or approach zone to such structure or tree measured along a line at right angles to the centerline of such landing or approach zone.

(6) Where zones overlap, the height limit shall be that of the zone imposing the more stringent height limit.

Section 4. Use Restrictions. Except as provided in Section 8 hereof, from and after the taking effect of this ordinance it shall be unlawful to put any land located within the airport hazard area to any of the following uses:

(1) Any use which would create unreasonable interference with radio communication between aircraft and the airport or communication facilities in the vicinity thereof, or which would unreasonably interfere with other navigational aid or devices used by the airport or by aircraft using said airport, or with electronic navigational aids that may at the time of such interference be established for the vicinity thereof.

(2) Any use which would materially reduce the visibility within the aforementioned airport hazard area or which would make it difficult for flyers in the vicinity of or on the airport to distinguish between airport lights or markers or other navigational lights or markers in the vicinity of the airport, or which would result in glare in the eyes of flyers using the airport.

(3) The conduct of any business or occupation, or any use, which business, occupation or use, by its very nature is inherently dangerous or hazardous as respects likelihood of causing or resulting in injury or damage to aircraft or the occupants thereof flying to and from or in the vicinity of said airport, or persons present at or in the vicinity of said airport or lawfully in the vicinity thereof.

(4) Any other use or uses which would be dangerous or hazardous to the safety of aircraft using the airport or maneuvering in the vicinity thereof or to the health, safety or general welfare of airport personnel and other persons using said airport.

Section 5. Existing Nonconforming Uses. The height limits and use restrictions as provided herein or as may hereafter be provided in any amendment hereto, except as hereinafter provided in Section 6, subdivision 2 and Section 9, subdivision 2 shall in no event be construed to interfere with the continuance of any nonconforming use or to require the removal, lowering or other change or alteration of any existing nonconforming tree, or of any nonconforming structure the construction or alteration of which was begun through the letting of contracts therefor prior to the effective date of this ordinance or amendment thereto and where such construction or alteration is prosecuted with reasonable diligence; provided that the provisions hereof shall not be construed as a limitation upon the rights conferred upon MAC by M.S.A. 360.074.

Section 6. Permits. Application shall be made and permit procured from the MAC Zoning Committee created hereunder in each of the following instances and subject to the following conditions:

(1) Where it is desired to erect or locate structures, to increase the height of existing structures or to plant or transplant trees within the airports hazard area to a height in excess of ten feet below the height limit herein provided with respect thereto.

(2) Where it is desired to replace, substantially alter or repair, rebuild or relocate any nonconforming structure or tree within the airport hazard area, provided, however, that whenever the Committee determines that a nonconforming structure or tree within the airport hazard area has been abandoned or more than 80% torn down, destroyed, deteriorated or decayed no permit shall be granted.

(3) No permit shall be granted that would allow the establishment or creation of an airport hazard or that would permit a nonconforming structure or tree or nonconforming use to be made or to become higher or to become a greater airport hazard than was the case under the applicable zoning regulations at the time when the application for permit was made.

(4) In granting any permit, the Committee may, if it deems such action advisable to effectuate the purpose of this ordinance and reasonable in the circumstances, so condition such permit as to require the owner of a structure or tree in question to permit the MAC at its own expense to install, operate and maintain thereon such markers and lights as may be necessary to indicate to flyers the presence of an airport hazard.

(5) Whenever any person prior to erection, alteration or relocation of structures or planting or transplanting of trees within the airport hazard area makes a report of the contemplated erection, alteration or relocation of structures or the contemplated planting or transplanting of trees within said airport hazard area, to the committee, the committee shall promptly investigate and determine whether or not there would be a violation of the ordinance; and if a violation be found, the committee shall so advise such person, who shall thereupon alter his plans so as to meet the requirements of the ordinance.

Section 7. Variances. Any person desiring to erect or to locate any structure or to increase the height thereof or to permit the growth of any tree or otherwise to use property within the airport hazard area contrary to the provisions of this ordinance may apply to the MAC Airport Zoning Appeal Board created hereunder for variance from the provisions of this ordinance. Such variance shall be allowed where literal application or enforcement of the provisions of this ordinance would result in practical difficulty or unnecessary hardship to the applicant, and where the relief granted would not be contrary to the public interest but would do substantial justice and would be in accordance with the spirit of these provisions. Any variance may be granted, however, subject to such reasonable conditions as the Board may deem necessary to effectuate the purposes of this ordinance, and the granting of such variance may be conditioned upon the owner of a structure or tree granting to the MAC the right at its expense to install, operate and maintain thereon such markers and lights as may be necessary to indicate to flyers the presence of an airport hazard.

(1) Two copies of an application for variance, indicating the facts surrounding such application in sufficient detail to permit a determination of the application on its merits, shall be filed with the MAC Airport Zoning Committee which shall forthwith transmit one copy to the MAC Airport Zoning Appeal Board, the second copy being retained by the Committee for its files.

Section 8. Administration. For the administration and enforcement of the provisions of this ordinance there is hereby created an administrative agency to be known as the MAC Airport Zoning Committee, the same to consist of three members. The said Committee shall include one member of the Commission appointed by the said Commission to represent the City of Minneapolis, a second member of the Commission appointed by the said Commission to represent the City of Saint Paul and a third member who shall be the Executive Director of the said Commission serving ex officio. The members of the Committee, except the ex officio member, shall serve at the pleasure of the Commission. No compensation shall be paid members of the MAC Zoning Committee except reimbursement of actual expense.

(1) The powers and duties of said administrative agency shall be as provided by Laws 1945, c. 303, as amended, M.S.A., sections 360.061-. 074.

(2) Where a nonconforming structure or tree within the airport hazard area has been abandoned or more than 80% torn down, destroyed, deteriorated or decayed, although no application for permit has been made, the Committee may order the owner of such nonconforming structure or tree at the owner's expense to lower, remove, reconstruct or equip the same as may be necessary to conform to this ordinance, in which case the Committee shall give notice thereof to the owner, and if the owner shall neglect or refuse to comply with such order for ten days after notice is given, then the Committee may proceed to have such nonconforming structure or tree lowered, removed reconstructed or equipped and assess the cost and expense thereof against such structure or against the land whereon such structure or tree is or was located. Unless such an assessment is paid within ninety days from the date of service of notice thereof on the owner or upon the person in possession of such structure or tree or of the land upon which the same is or was located, the sum due shall bear interest at the rate of 8% per annum until paid and may be collected either by suit in a court of competent jurisdiction or in the same manner as are general taxes. Notice aforesaid shall be in writing and served in the same manner as a summons in a civil action.

(3) Applications for permits shall be made to the Committee on forms prepared and furnished by it. The forms shall provide for a statement by applicant of the purpose for which the permit is applied, and for statement of applicant of all facts pertinent to the question whether or not the application should be granted. Such applications shall be promptly considered and the permit granted or denied by the Committee, notice in writing of the Committee's decision to be promptly delivered or mailed to the applicant.

(4) All reports made pursuant to Section 6 hereof shall be received by the Committee and shall be reviewed by it promptly to determine whether there is an airport hazard, and if found that there is one, notice in writing of such finding setting forth the reasons therefor shall be promptly delivered or mailed to the person making such report.

(5) All applications for variance shall be received by the Committee, which shall forthwith transmit the copy of such application to the MAC Airport Zoning Appeal Board, retaining a second copy of such application for the Committee's files. The Committee shall be represented at all hearings on applications for variance before the Board unless it shall attach its written approval to the application for variance on transmitting it to the Board.

(6) The Committee shall have its office at the office of the MAC. It shall keep and file in its said office records of all its proceedings, all applications for permits and reports and of action thereon. The Committee shall also keep on file a record of all variances granted by the MAC Airport Zoning Appeal Board. The files of the Committee shall be open to the public.

(7) The majority vote of the members shall control on all matters coming before it.

Section 9. Board of Adjustment. There is hereby created a MAC Airport Zoning Appeal Board consisting of five members. Two members shall be appointed by the Commission from the City of Minneapolis, two members shall be appointed by the Commission from the City of Saint Paul, and the fifth member shall be appointed by a majority vote of the other four members. No member of the MAC Airport Zoning Appeal Board may be a member of the MAC Airport Zoning Committee. Each member shall serve for a term of three years and until his successor is appointed, and all members shall be removable by the Commission for cause upon written charges and after notice and opportunity for public hearing before the Commission. The powers and duties of said Board shall be as provided by Laws 1945, c. 303, as amended, M.S.A. Sections 360.061-.074.

Section 10. Appeals.

(1) Any person aggrieved or taxpayer affected by any decision of the MAC Airport Zoning Committee made in its administration of this ordinance, or the Commission or any governing body or administrative agency of a political subdivision, if of the opinion that a decision of said Committee is an improper application of airport zoning regulations of concern of such Commission, governing body or administrative agency, may appeal to the MAC Airport Zoning Appeal Board from the decision of the Committee.

(2) All appeals must be taken within a reasonable time, as provided by the rules of the Board, by filing with the Committee and with the Board a notice of appeal specifying the grounds thereof. The Committee shall forthwith transmit to the Board all papers constituting the record upon which the action appealed from was taken.

(3) An appeal shall stay all proceedings in furtherance of the action appealed from unless the Committee certifies to the Board after notice of appeal has been filed with it that by reason of the facts set forth in the certificate a stay would in its opinion cause imminent peril to life or property. In such case, proceedings shall not be stayed otherwise than by order of the Board on due notice to the Committee and on due cause shown.

(4) The Board shall fix a reasonable time for the hearing of appeals, give public notice and due notice to the parties in interest and decide the same within a reasonable time. Upon the hearing any party may appear in person or by agent or by attorney.

(5) The Board may in conformity with the provisions of this ordinance reverse or affirm wholly or partly or modify the order, requirement, decision or determination appealed from and may make such order, requirement, decision or determination as ought to be made, and to that end the Board shall have all the powers of the MAC Airport Zoning Committee from which the appeal is taken.

Section 11. Judicial Review. Any person aggrieved or taxpayer affected by any decision of the MAC Airport Zoning Appeal Board, or any governing body or administrative agency of a political subdivision which is of the opinion that a decision of the Committee is illegal will have such right of judicial review as is provided in Minnesota Laws 1945, Chapter 303 as amended upon exhausting the administrative remedies herein provided.

(1) In any case in which provision or provisions of this ordinance are held by a court to interfere with the use or enjoyment of a particular structure or parcel of land to such an extent or to be so onerous in their application to such a structure or parcel of land as to constitute a taking or deprivation of that property in violation of the constitution of this state or of the United States, such holding shall not affect the application of such provisions as to other structures and parcels of land.

Section 12. Violation and Penalties. Every person who within the airport hazard area shall construct, locate or maintain, substantially change or substantially alter or repair any existing structure or plant, transplant or permit the growth of any tree or make use of property contrary to the terms of this ordinance, or who having been granted a permit or variance as herein provided, shall construct, locate, substantially change or substantially alter or repair any existing growth or structure or permit the growth of any tree except as permitted by such permit or variance, or who otherwise shall violate the terms hereof or regulations, orders or rules promulgated hereunder, shall be guilty of a misdemeanor and shall be punished by a fine of not more than $300 or imprisonment for not more than 90 days or by both such fine and imprisonment. Each day a violation continues to exist shall constitute a separate offense, provided, however, that where a report has been made and filed with the MAC Airport Zoning Committee as herein provided, for the purposes of this section there shall be no violation within the meaning of this section until the Committee has given notice that the alteration, erection or location of structures or planting or transplanting of trees, in respect to which such report is made and filed, constitutes an airport hazard in violation of this ordinance, and reasonable opportunity has been given to remove the hazard. (As amended by MAC Ordinance 39 adopted and in effect January 10, 1972)

(1) In addition, the MAC may institute in any court of competent jurisdiction an action to prevent, restrain, correct or abate any violation of this ordinance or of regulations, orders or rulings promulgated hereunder, and the court shall adjudge to the Commission such relief by way of injunction (which may be mandatory) or otherwise as may be proper under all the facts and circumstances of the case in order to fully effectuate the purposes of this ordinance and of regulations, orders and rulings promulgated pursuant thereto.

Section 13. Severability. If any of the provisions of this ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the ordinance which can be given effect without the invalid provision or application, and to this end the provisions of this ordinance are declared to be severable.

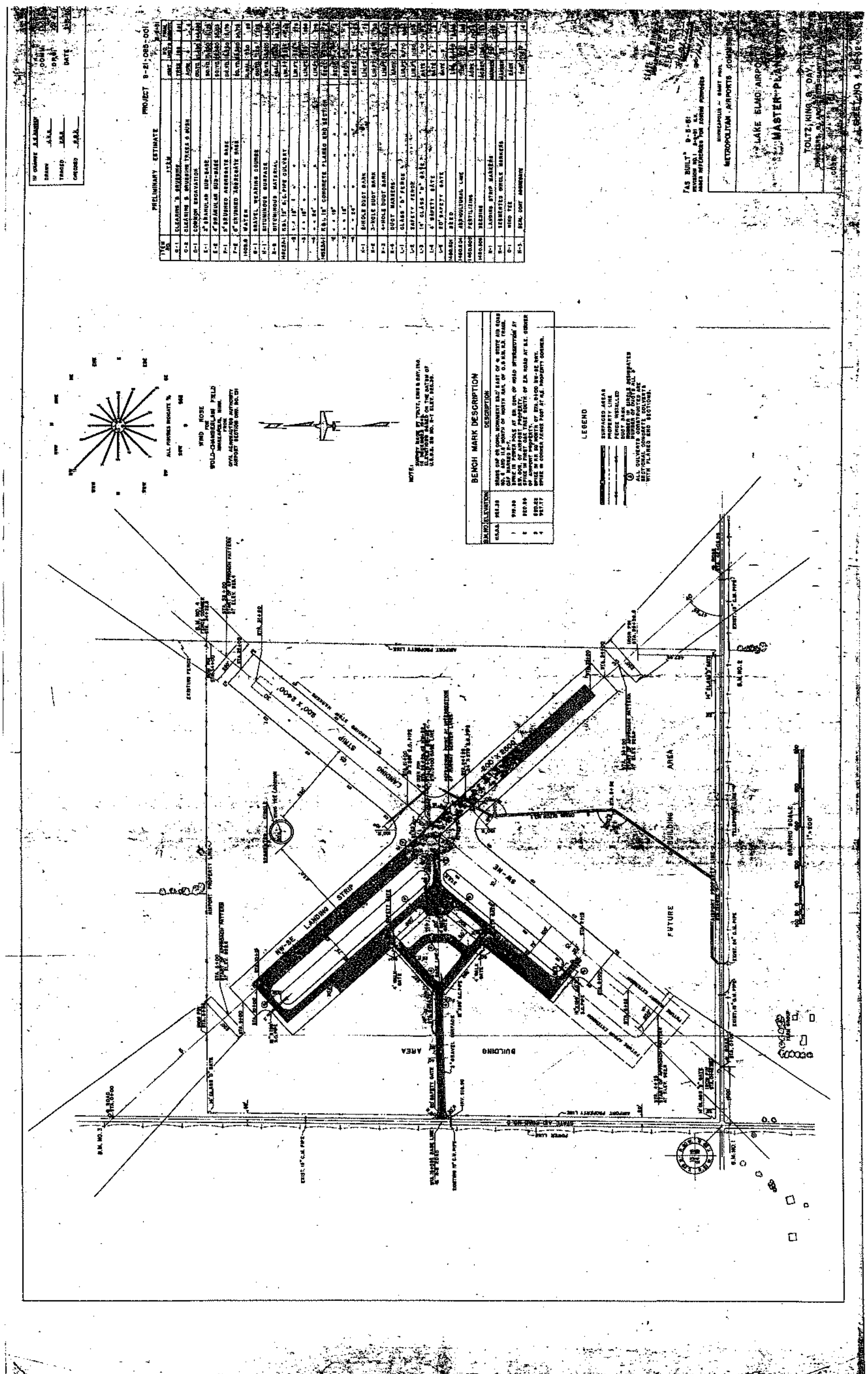
Section 14. Effective Date. This ordinance shall be in full force and effect from and after its adoption.

Passed by the Minneapolis-Saint Paul Metropolitan Airports Commission on the 25th day of August, 1952.

Filed in the office of the Secretary of State on the 2nd day of September, 1952.

Map filed on the 10th day of September, 1952.

LAKE ELMO AIRPORT
ZONING MAP
APPROACH ZONE PROFILE
TYPICAL TRANSVERSE CROSS SECTION
ALONG LANDING STRIP AND RUNWAY
GRAPHIC SCALE 4 0 1 MILE
R.20 W.
R.21 W.
T.29 N.


PRELIMINARY ESTIMATE
BENCH MARK DESCRIPTION
LEGEND
WIND ROSE
NW-SE LANDING STRIP
FUTURE BUILDING AREA
METROPOLITAN AIRPORTS COMMISSION
LAKE ELMO AIRPORT
MASTER PLAN

body. Retail sales are allowed on Saturdays between the hours of 8:00 am and 5:00 PM unless otherwise prohibited by the local governing body. Retail sales for purposes of this section shall mean the sale of product to individuals for personal use and shall exclude commercial hauling. The County shall be notified in writing when the township varies the hours.

(K) Treated yard wastes shall not be allowed to accumulate for longer than three years before being finished and removed from the site. Compost which can not be marketed shall be removed from the site a minimum of once per week.

By-products, including residuals and recyclables, must be stored in a manner that prevents vector problems and aesthetic degradation. Materials that are not composted must be stored and removed a minimum of once per week.

(L) The owner shall maintain the site so that it is free of litter and other nuisances.

(M) An attendant must be on site during operating hours.

(4) Prohibitions. The open burning and/or burying of waste is prohibited.

SECTION 3. OVERLAY DISTRICTS

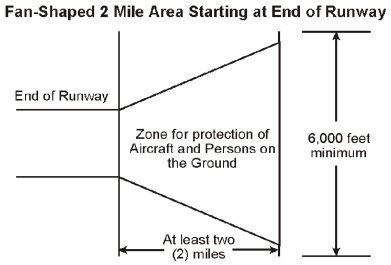
The Airport Overlay District establishes regulations to control the type and extent of land development adjacent to and near the airfields so as not to impede present or future air operations of public benefit and to protect the public from hazards, air traffic noise and other disturbance. The district limits the development and future construction to a reasonable height and use so as not to constitute a hazard for planes operating from the airfields.

3.1 Airport Overlay District

(1) Applicability. The airport zoning district applies to private or publicly owned and operated airfields and adjacent areas. The specific regulations in this district are in addition to, rather than in lieu of, regulations imposed by any other zoning classification for the same land.

(2) Airport Zones. The following zones are hereby established:

(A) Qualified Land Use Zone. Uses shall not be permitted within this zone which might result in an assembly of persons; manufacturing or storage of materials which explode on contact; and the storage of flammable liquid above ground. Land



Planned View of Qualified Land Use Zone

uses allowed include those primary uses, accessory uses, uses permitted with a certificate of compliance and uses permitted with a conditional use permit in the underlying zoning district. Prohibited uses shall include educational, institutional, amusement and recreation. No use may be permitted in such a manner as to create electrical interference with radio communications between airport and aircraft, make it difficult for pilots to distinguish between airport and other lights, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport or otherwise endanger the landing, take-off or maneuvering of aircraft.

(B) Airport Zoning. Except as otherwise provided in this Development Code, and except as required necessary and incidental to airport operations or recommended by or in accordance with the rules of the Federal Aviation Agency, no structure shall be constructed, altered or maintained, and no trees shall be allowed to grow so as to project above the landing area or any of the airport's referenced imaginary surfaces described below:

1. Horizontal Surface - a circular plane, one hundred fifty (150) feet above the established airport elevation, with a radius from the airport reference point of five thousand (5,000) feet.

2. Conical Surface - a surface extending from the periphery of the horizontal surface outward and upward at a slope of twenty to one (20 to 1) for the horizontal distance of seven thousand (7,000) feet and to the elevation above the airport elevation of five hundred (500) feet.

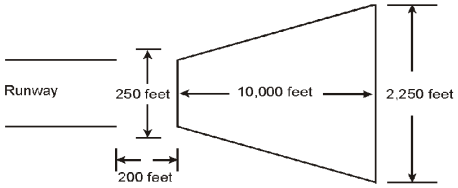
3. Primary Surface - a surface longitudinally centered on a runway and extending in length two hundred (200) feet beyond each end of the runway. The elevation of any point on the longitudinal profile of a primary surface, including extensions, coincides with the elevation of the centerline of the runway, or the extension, as appropriate. The width of a primary surface is two hundred fifty (250) feet.

4. Approach Surface - a surface longitudinally centered on the extended centerline of the runway, beginning at the end of the primary surface, with slopes and dimensions as follows:

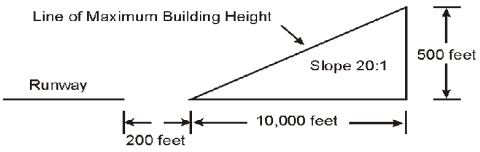
(a) The surface begins two hundred fifty (250) feet wide at the end of the primary surface and extends outward and upward at a slope of twenty to one (20 to 1), expanding to a width of two thousand two hundred fifty (2,250) feet at a horizontal distance ten thousand (10,000) feet.

(C) Airport Landing Area, Approach Area, Width, Slope, Horizontal Surface and Conical Surface -

1. Approach Surface Plan View



2. Approach Surface Elevation: All height limitations are computed from the established airport elevation.



The Railroad Overlay District establishes regulations for railroad operations which utilize tracks in the unincorporated portion of the County. For the purpose of this section, railroad operations shall include those railroad activities which are not preempted from local land use controls by operation of State or Federal law.

3.2 Railroad Overlay District

(1) Land Uses within the Railroad Overlay District.

(A) Uses with a Conditional Use Permit. Railroad operations are permitted in the "RO" District after the issuance of a Conditional Use Permit.

1. The conditional use permit is made to the operator of the railroad. If the operator is not the owner of the railroad track, the use

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Appendix 8: Stakeholder Engagement Program Documentation

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MEMORANDUM

Airport Development

TO: Lake Elmo LTCP Working Group Members

FROM: Neil Ralston, Airport Planner

DATE: October 14, 2014 (Revised October 24, 2014)

RE: **Summary of 10/13/14 Lake Elmo LTCP Community Briefing**

On October 13, 2014, MAC staff met with representatives from several municipalities in the vicinity of the Lake Elmo Airport to brief them about the status of the 2035 Long-Term Comprehensive Plan (LTCP) Update. Represented municipalities included:

- City of Lake Elmo
- West Lakeland Township
- Baytown Township
- Washington County
- VBWD

A copy of the meeting attendance list is attached, along with a copy of the briefing agenda and presentation slides.

A key discussion topic centered on the proposed relocation and extension of Runway 14-32 as depicted in Alternative B, which will necessitate the realignment of 30th Street N to the southeast around the future RWY 32 Runway Protection Zone (RPZ). This realignment will result in an intersection with Neal Avenue that is approximately one-quarter mile to the south of the existing intersection. The dialogue included the following items of concern to West Lakeland Township:

- Many homeowners southeast of the Airport will likely express opposition to this plan (e.g., Artisan neighborhood). There are several high-value homes being constructed in this area.
- Engineering challenges associated with construction of the realigned roadway section, including subsurface conditions and storm water management.
- Disruption to existing traffic patterns and flows associated with the re-alignment.
    - A traffic signal is planned to be installed at the intersection of Manning Avenue and 30th Street.
    - Washington County has recent traffic counts for 30th Street N on both sides of Manning Avenue. They will provide this data [*received 10/14*].
- Ownership and maintenance of the realigned section of roadway.

The merits of reversing the vacation of Neal Avenue north of 30th Street N to 40th Street N was introduced. This may be something that we want to solicit the County's perspective on. Regardless, the railroad crossing remains a challenge.

Regarding the identification of Alternative B as the potential preferred alternative, the City of Lake Elmo appeared to be generally supportive, Baytown Township appeared to be neutral, and West Lakeland

Township appeared to be not supportive. However, an overall theme that emerged during the discussion was recognition that the region is going to experience growth and consideration needs to be given to opportunities that will be positive from a regional standpoint.

Other pertinent questions raised during the dialogue included the following:

- Accuracy of existing aircraft operations estimates – some feel that they are still over-inflated
- Noise impacts of additional turboprop aircraft operations – are they louder than piston types?
- Benefits from the airport – how many employees?
- Demand for a longer runway at Lake Elmo – why would turboprop aircraft types not just continue to use Downtown St. Paul?
- Adequacy of existing landside facilities (FBO) to accommodate more business-related flying
- Overall cost-benefit associated with making improvements at Lake Elmo – perception is that a lot of investment will be made for the benefit of a few hundred aircraft owners.
- Timing – what is a realistic timeframe for implementation of the preferred development alternative? The City of Lake Elmo expressed continuing concern about having to protect for two sets of State Safety Zones for the foreseeable future.

Our next steps include meeting with airport users and preparing draft report documentation for distribution, review, and comment in advance of a public information meeting.

LAKE ELMO LTCP BRIEFING
SIGN-IN SHEET

October 13, 2014 @ 2:30pm	Lake Elmo City Hall

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Audrey Wald	HNTB	awald@hntb.com	763-852-2140
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Bridget Rief	MAC	bridget.rief@mspmac.org	612 725 8371
Neil Ralston	MAC	Neil.Ralston@mspmac.org	612 726 9129
Kyle Klatt	Lake Elmo	kklatt@lakeelmo.org	651-747-3911
Nick Johnson	Lake Elmo	njohnson@lakeelmo.org	651-747-3912
ANN PUNG-TERWEDO	WASHINGTON CTY	ann.pung-terwedo@co.washington.mn.us	651-430-4362
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Kent Grandlienard	Baytown Bd.	ksgrandli@gmail.com	430-1142
Dean Zuleger	City of Lake Elmo	dzuleger@lakeelmo.org	651-747-3905
VINCE ANDERSON	CITIZEN/PILOT	VJANDERSON@PRESENTEC.COM	651-436-5889

Lake Elmo 2035 LTCP Progress Briefing

10/13/2014 @ 2:30 PM
Lake Elmo City Hall

----- Agenda Topics -----

- **Lake Elmo Airport LTCP Guiding Principles**

- **Aviation Activity Forecast (2015 – 2035)**
    - Baseline activity levels
        - Based aircraft
        - Aircraft operations
    - Socioeconomic projections
    - Base Case forecast
    - Forecast scenarios

- **Airfield Facility Requirements**
    - Critical design aircraft/fleet mix family for LTCP
    - Runway length requirements
        - Advisory Circular
        - Aircraft specific performance evaluations

- **Airfield Alternatives Development**
    - Base Case – Existing configuration
    - ALT A – Reconstruct/Extend Crosswind RWY 04/22
    - ALT B Family – Relocate/Extend RWY 14/32 to 3,600’ with Realigned North Driveway
    - ALT C Family – Relocate/Extend RWY 14/32 to 3,900’

- **Stakeholder Engagement**
    - User group presentations
    - Public/neighborhood outreach
    - MAC Committee presentation(s)

- **Next Steps**

Lake Elmo Airport

2035 Long-Term Comprehensive Plan

Progress Briefing

October 13, 2014

LTCP Guiding Principles

METROPOLITAN AIRPORTS COMMISSION

Lake Elmo Airport

2035 Long-Term Comprehensive Plan (LTCP)

Guiding Principles

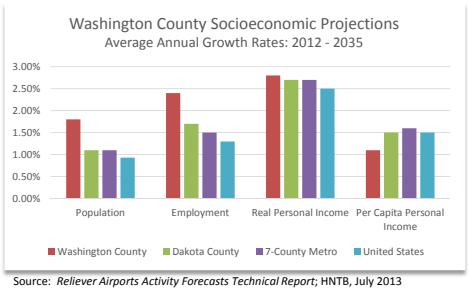
- Establishes parameters for planning decisions
- Provides focus and direction
- States high-level purpose and objectives for planning

Aviation Activity Forecast

- 2012 Base Year
  - 229 Based Aircraft
  - 26,709 Aircraft Operations
    - ~73/day
- 2014 Activity Levels
  - 203 Based Aircraft (July)
  - ~25,000 – 26,000 Aircraft Operations
    - ~70/day
- Activity Forecast for 2015 - 2035

Aviation Activity Forecast, cont'd

- Washington County Socioeconomic Projections
  - Population
  - Employment
  - Real Personal Income
  - Per Capita Personal Income



Source: *Reliever Airports Activity Forecasts Technical Report;* HNTB, July 2013

Aviation Activity Forecast, cont'd

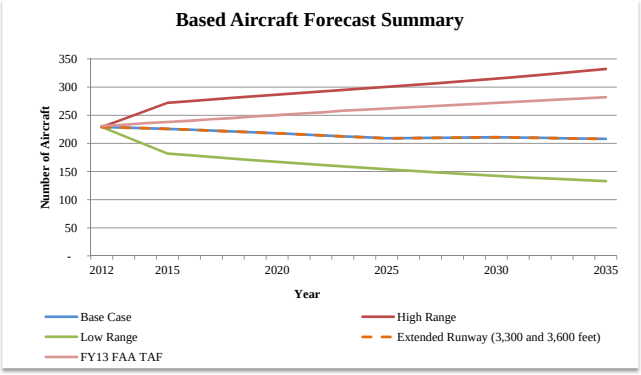
- Base Case Forecast
- Scenarios
  - Low Range
  - High Range
  - Extended Runway
    - 3,300 feet
    - 3,600 feet

Table 5: Forecast Comparison by Scenario –Lake Elmo.

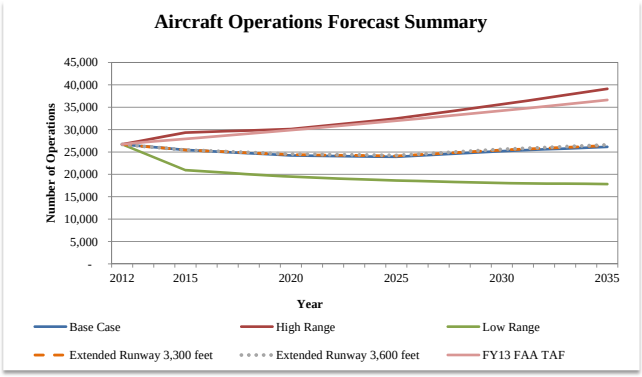
Year	Total Based Aircraft				Total Number of Operations				
	Base Case	High Range	Low Range	Extended Runways (3,300 and 3,600 feet)	Base Case	High Range	Low Range	Extended Runway (3,300 feet)	Extended Runway (3,600 feet)
2012	229	229	229	229	26,709	26,709	26,709	26,709	26,709
2015	226	272	182	226	25,454	29,322	20,944	25,454	25,454
2020	218	287	167	218	24,232	30,128	19,456	24,418	24,539
2025	209	300	154	209	23,908	32,460	18,629	24,125	24,261
2030	211	315	142	211	25,200	35,610	18,041	25,459	25,615
2035	208	332	133	208	26,138	39,119	17,835	26,442	26,620

Source: Table 20 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.

Aviation Activity Forecast, cont'd



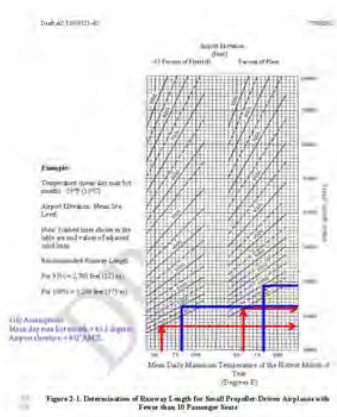
Aviation Activity Forecast, cont'd



Airfield Facility Requirements

- Critical Design Aircraft Family
  - Small Propeller-Driven Airplanes
  - Fewer Than 10 Passenger Seats
  - Representative Aircraft Include:
    - Beechcraft King Air 200/250 (BE20)
    - Pilatus PC-12 (PC12)
    - Piper Chieftain 350 (PA31)

Airfield Facility Requirements, cont'd



- Runway Length Requirements
  - FAA Advisory Circular 150/5325-4C, Fig. 2-1
    - Range of 3,300 – 3,900 feet
  - Aircraft-specific performance evaluation
    - ~3,600 feet optimal length for long-term future planning
    - Enhances safety and operational capability for the design aircraft family

Development Alternatives

- Base Case
  - Existing airfield configuration and runway lengths
  - Focus on reconstruction
  - RWY 14 RPZ Land Acquisition
  - RWY 14-32 RPZ penetrations
    - Manning Avenue
    - North Driveway
    - Railroad
    - 30th Street North

Development Alternatives , cont'd

- Alternative A
  - Extend Crosswind RWY 04-22 to 3,200'
  - Maintain existing RWY 14-32 configuration/length
  - RWY 14 RPZ Land Acquisition
  - RWY 14-32 RPZ penetrations
    - Manning Avenue
    - North Driveway
    - Railroad
    - 30th Street North

Development Alternatives , cont'd

- Alternative B
  - Relocate and extend RWY 14-32 to 3,600'
  - Realign north driveway outside of RWY 14 RPZ
  - Relocate 30th Street N
  - No RPZ land acquisition
  - No RPZ penetrations

Development Alternatives , cont'd

- Alternative C
  - Relocate and extend RWY 14-32 to 3,900'
  - Relocate 30th Street N
  - RWY 14 RPZ penetrations
    - North Driveway
    - Railroad
    - Manning Avenue

Development Alternatives , cont'd

- Alternatives Evaluation Process
  - Optimal runway length
  - Primary runway wind coverage
  - Runway Protection Zone (RPZ) compatibility
  - Use of existing airport property
  - Off-airport impacts
  - Airspace
  - Development cost
  - Timing
- Preferred Alternative

Stakeholder Engagement

- Agency briefing held on 9/22/14
  - FAA, MnDOT, Metropolitan Council, Washington County
- Next Steps
  - Outreach to:
    - Airport Users
    - Airport neighbors/interested public
  - Reliever Airports Advisory Council
  - MAC Committee Presentation
  - Prepare Draft LTCP
  - Prepare Airport Layout Plan (ALP)

Questions & Open Dialogue

MEMORANDUM

Airport Development

TO: Lake Elmo LTCP Working Group Members

FROM: Neil Ralston, Airport Planner

DATE: November 20, 2014

RE: **Summary of 11/18/14 Lake Elmo LTCP Tenant Briefing**

On November 18, 2014, MAC staff hosted a tenant briefing to present information about, and solicit feedback on, the status of the 2035 Long-Term Comprehensive Plan (LTCP) for the Lake Elmo Airport. Approximately 25-30 tenants attended the briefing.

The following topics were covered during the presentation:

- Overview of Guiding Principles, including a discussion about the Airport's existing and future role in the regional airport system
- Summary of the LTCP Aviation Activity Forecasts
- Airfield Facility Requirements, including the rationale behind optimal runway length computations
- Presentation of Development Alternatives
- Summary of Stakeholder Engagement Activities

In summary, it appeared as if the majority of the tenants present were supportive of the preliminary recommendation to identify Alternative "B" (relocate and extend RWY 14-32 to 3,600 feet) as the preferred development alternative.

Key feedback received during the meeting included the following:

- The "Base Case" estimate of approximately 70 aircraft operations per day (~26,000 annual operations) seems about right.
    - Of course, daily operations fluctuate greatly based on the time of year.
    - It seems that 10% of the based aircraft do 90% of the flying – including Valter's flight training activity.
    - It also seems like use of the airport by business twins may be increasing somewhat.
- The methodology leading to selecting 3,600 feet as the optimal runway length seems reasonable.
    - In addition to enhancing safety and operational capabilities, this runway length would also likely result in additional flight training activity and perhaps some charter "drop-off, pick-up" activity.
    - Insurance companies may have minimum runway length requirements for turboprop aircraft operations. This should be investigated further. AOPA may be a resource to help with this.
- RWY 04-22 should be extended beyond the existing length to better accommodate crosswind operations.
- A non-precision GPS approach to RWY 14 would be beneficial, as would a GPS overlay to the existing RWY 04 NDB approach.

- A location will need to be identified for jet fuel storage and dispensing if the airport is going to attract additional turbine activity.
- One method to improve community relations may be to explore non-aeronautical uses of portions of airport property for public-use amenities like walking trails, bike paths, picnic areas, a dog park, etc.
- There are several groups at the airport (e.g., the Vans Air Force Minnesota Wing, EAA, AOPA) that can be called upon to help convey the benefits of the Lake Elmo Airport to the public.

Other questions from the tenants included:

- How will these proposed improvements be paid for? Will tenant lease rates increase to pay for them?
- Were noise abatement procedures considered when evaluating Alternative "A" (extending RWY 04-22 to become the primary)?
- What about other existing airport facility improvements, especially programming existing taxiway reconstruction?
- Can a turf runway be constructed?

A copy of the briefing attendance list is attached, along with a copy of the presentation handout materials.

LAKE ELMO LTCP TENANT BRIEFING
SIGN-IN SHEET

November 18, 2014 @ 6:00pm	Lake Elmo Airport – MAC Maintenance Building

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BRUCE RAMSDEN			651-439-3762
Dennis Fehring			651-429-5967
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SCOTT RIMNLD		SRIMNLD@gmail.com	6512600577
MARK HOLLIDAY	ECHO AERO	MARKH85@aol.com	651-270-1318
Dave Fiebiger			
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Paul + Vicki Olson	–	Paulolsonmn@gmail.com	651-653-1340
John Renwick		RFNWICKT@GMAIL.COM	612 469-9397
Charles Hoover			612-961-4863

LAKE ELMO LTCP TENANT BRIEFING
SIGN-IN SHEET

November 18, 2014 @ 6:00pm | Lake Elmo Airport – MAC Maintenance Building

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Elden Lamprecht			651-777-7349
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KEN JOHNSON		KEN.JOHNSON8@COMCAST.NET	651-775-0843
CRAIG BERGGREN	Centurion	ANCHORLAND CARE @MSN.COM	651-230-2927
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Scott Hanson		scott.hanson5@comcast.net	651-501-1551
BONNIE MCHOOM			651 503 6180
Jeff Hove		flying@jeffhove.com	651-343-5148 (m)
Roger Byerly		RGB411@YAHOO.COM	612-860-4549

3

LAKE ELMO LTCP TENANT BRIEFING
SIGN-IN SHEET

November 18, 2014 @ 6:00pm	Lake Elmo Airport – MAC Maintenance Building

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JAY SCHRANIKER		schra223@umn.edu	[illegible]-280-2371
Neil Ralston	MAC [illegible]	[illegible]	612-726-8129

Lake Elmo Airport

2035 Long-Term Comprehensive Plan

Tenant Briefing

November 18, 2014

LTCP Guiding Principles

METROPOLITAN AIRPORTS COMMISSION

Lake Elmo Airport

2035 Long-Term Comprehensive Plan (LTCP)

Guiding Principles

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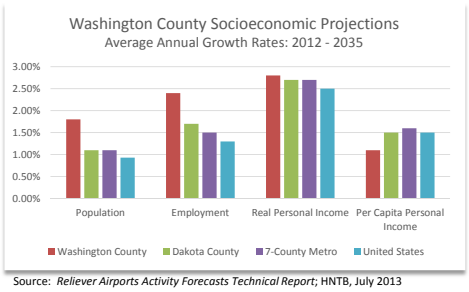
Aviation Activity Forecast, cont'd

- Washington County Socioeconomic Projections
  - Population
  - Employment
  - Real Personal Income
  - Per Capita Personal Income



Source: *Reliever Airports Activity Forecasts Technical Report;* HNTB, July 2013

Aviation Activity Forecast, cont'd

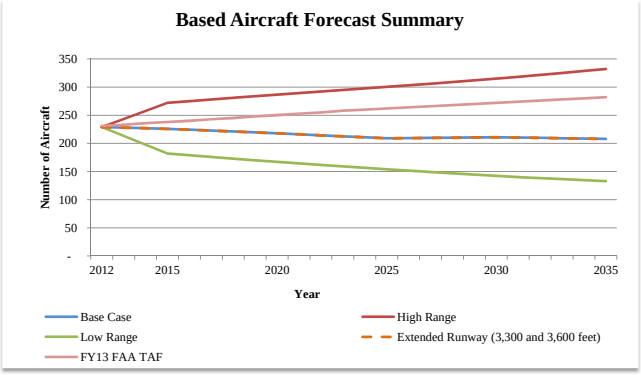
- Base Case Forecast
- Scenarios
  - Low Range
  - High Range
  - Extended Runway
    - 3,300 feet
    - 3,600 feet

Table 5: Forecast Comparison by Scenario –Lake Elmo.

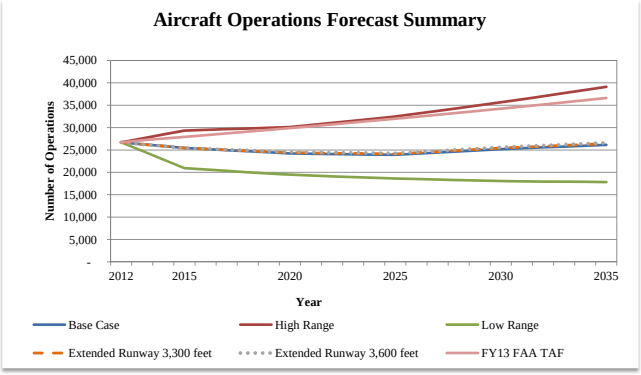
Year	Total Based Aircraft				Total Number of Operations				
	Base Case	High Range	Low Range	Extended Runways (3,300 and 3,600 feet)	Base Case	High Range	Low Range	Extended Runway (3,300 feet)	Extended Runway (3,600 feet)
2012	229	229	229	229	26,709	26,709	26,709	26,709	26,709
2015	226	272	182	226	25,454	29,322	20,944	25,454	25,454
2020	218	287	167	218	24,232	30,128	19,456	24,418	24,539
2025	209	300	154	209	23,908	32,460	18,629	24,125	24,261
2030	211	315	142	211	25,200	35,610	18,041	25,459	25,615
2035	208	332	133	208	26,138	39,119	17,835	26,442	26,620

Source: Table 20 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.

Aviation Activity Forecast, cont'd



Aviation Activity Forecast, cont'd



Airfield Facility Requirements

- Design Aircraft Family
  - Small Propeller-Driven Airplanes
  - Fewer Than 10 Passenger Seats
- Runway Length Requirements
  - FAA Guidance: Range of 3,300 – 3,900 feet
  - Aircraft-specific analysis: ~3,600 feet optimal length for long-term future planning
    - Enhances safety and operational capability for the design aircraft family

Development Alternatives

- Base Case
  - Existing airfield configuration and runway lengths
  - Focus on reconstruction
  - RWY 14 RPZ Land Acquisition
  - RWY 14-32 RPZ penetrations
    - Manning Avenue
    - North Driveway
    - Railroad
    - 30th Street North

Development Alternatives , cont'd

- Alternative A
  - Extend Crosswind RWY 04-22 to 3,200'
  - Maintain existing RWY 14-32 configuration/length
  - RWY 14 RPZ Land Acquisition
  - RWY 14-32 RPZ penetrations
    - Manning Avenue
    - North Driveway
    - Railroad
    - 30th Street North

Development Alternatives , cont'd

- Alternative B
  - Relocate and extend RWY 14-32 to 3,600'
  - Realign north driveway outside of RWY 14 RPZ
  - Relocate 30th Street N
  - No RPZ land acquisition
  - No RPZ penetrations

Development Alternatives , cont'd

- Alternative C
  - Relocate and extend RWY 14-32 to 3,900'
  - Relocate 30th Street N
  - RWY 14 RPZ penetrations
    - North Driveway
    - Railroad
    - Manning Avenue

Development Alternatives , cont'd

- Alternatives Evaluation Process
  - Runway Protection Zone (RPZ) compatibility
  - Timing
  - Optimal runway length
  - Primary runway wind coverage
  - Use of existing airport property
  - Off-airport impacts
  - Airspace
  - Development cost
  - Operational impacts during construction

Development Alternatives , cont'd

- *Preliminary* Preferred Alternative – ALT B
  - RPZ Compatibility
  - Ability to provide optimal runway length
  - Optimizes use of existing airport property
  - Timing to move forward
  - Minimizes operational disruptions during construction

Stakeholder Engagement

- Agency briefing held on 9/22/14
  - FAA, MnDOT, Metropolitan Council, Washington County
- Community briefing held on 10/13/14
  - City of Lake Elmo, Baytown & West Lakeland Townships, Washington County
- Next Steps
  - Prepare Draft LTCP document for public review
  - Public information meeting(s)
  - Present final LTCP for adoption

Questions & Open Dialogue

METROPOLITAN AIRPORTS COMMISSION
Minneapolis-Saint Paul International Airport
6040 - 28th Avenue South • Minneapolis, MN 55450-2799
Phone (612) 726-8100

Lake Elmo Airport

2035 Long-Term Comprehensive Plan (LTCP)

Guiding Principles

Guiding principles provide a foundation for a planning effort by establishing the parameters against which planning-related decisions will be evaluated. These principles will also provide focus and direction in the formulation of the recommended development plan for the Lake Elmo Airport (21D). Finally, the principles can provide interested parties 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

- Functioning within a diverse system of metropolitan area airports, the primary role of the Lake Elmo Airport is to accommodate personal and recreational aviation users within Washington County and the eastern portion of the metropolitan area. This primary role is not expected to change throughout the foreseeable planning period.
    - The classification of the Lake Elmo Airport will continue to be that of a Complimentary/Secondary Reliever in the Metropolitan Airports Commission (MAC) system and an Intermediate Airport per MnDOT criteria.
    - The critical design aircraft that is anticipated to use the airport on a regular basis will continue to be the family of small, propeller-driven airplanes with fewer than 10 passenger seats.

Airport Infrastructure

- The recommended development plan should give priority to safety and security requirements, followed by meeting user needs within the context of consistently providing a great customer experience.
- The planning process should ensure that proposed airfield development conforms to Federal Aviation Administration (FAA) and MnDOT regulations, design standards, and system plans to the extent practical and feasible.
    - Modifications and/or variances to established design standards will be pursued on a case-by-case basis if investigation determines that there is a benefit to the aviation system and an equivalent level of safety can be provided.
- Wherever prudent, future plans should make use of existing facilities through renewal, modernization and/or infill development to meet demand.

Stakeholder and Community Engagement

- The planning process will seek to foster consensus among key stakeholders, including Airport users, the FAA, MnDOT, the Metropolitan Council, the MAC, and local governmental bodies.
    - The Airport should be developed and maintained in a manner that considers the objectives of local governmental bodies, including partnering with these bodies in the areas of mutually-beneficial economic development opportunities and land use compatibility.
    - The planning process will employ a focused public involvement program to inform interested parties of the Airport's positive community impacts as well as future plans.

Land Use Compatibility & Environmental Considerations

- The significant investment already made in the Lake Elmo Airport warrants the need to protect the facility from the encroachment of non-compatible development that would compromise its role. Proper zoning and land use restrictions should be established to facilitate implementation of the recommended development plan.
- As a steward of the environment and in service to the general public, operation and development of the Lake Elmo Airport should consider initiatives that promote environmental stewardship and sustainability.

Financial Viability

- Future development at the Lake Elmo Airport should 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 by pursuing FAA/MnDOT grants first, with MAC funding as a second source.
    - Future development at the Lake Elmo Airport should promote financial self-sufficiency to the maximum extent practical, including strategies to increase tenant investments, agricultural revenue generation, and other non-aeronautical revenue generation.

Preserving Heritage

- The Lake Elmo Airport maintains a proud heritage of accommodating general aviation users with a strong sense of identity and community. Preserving this unique legacy should be embraced during the formulation of the recommended development plan for the Airport.

Table 5: Forecast Comparison by Scenario –Lake Elmo.

Year	Total Based Aircraft				Total Number of Operations				
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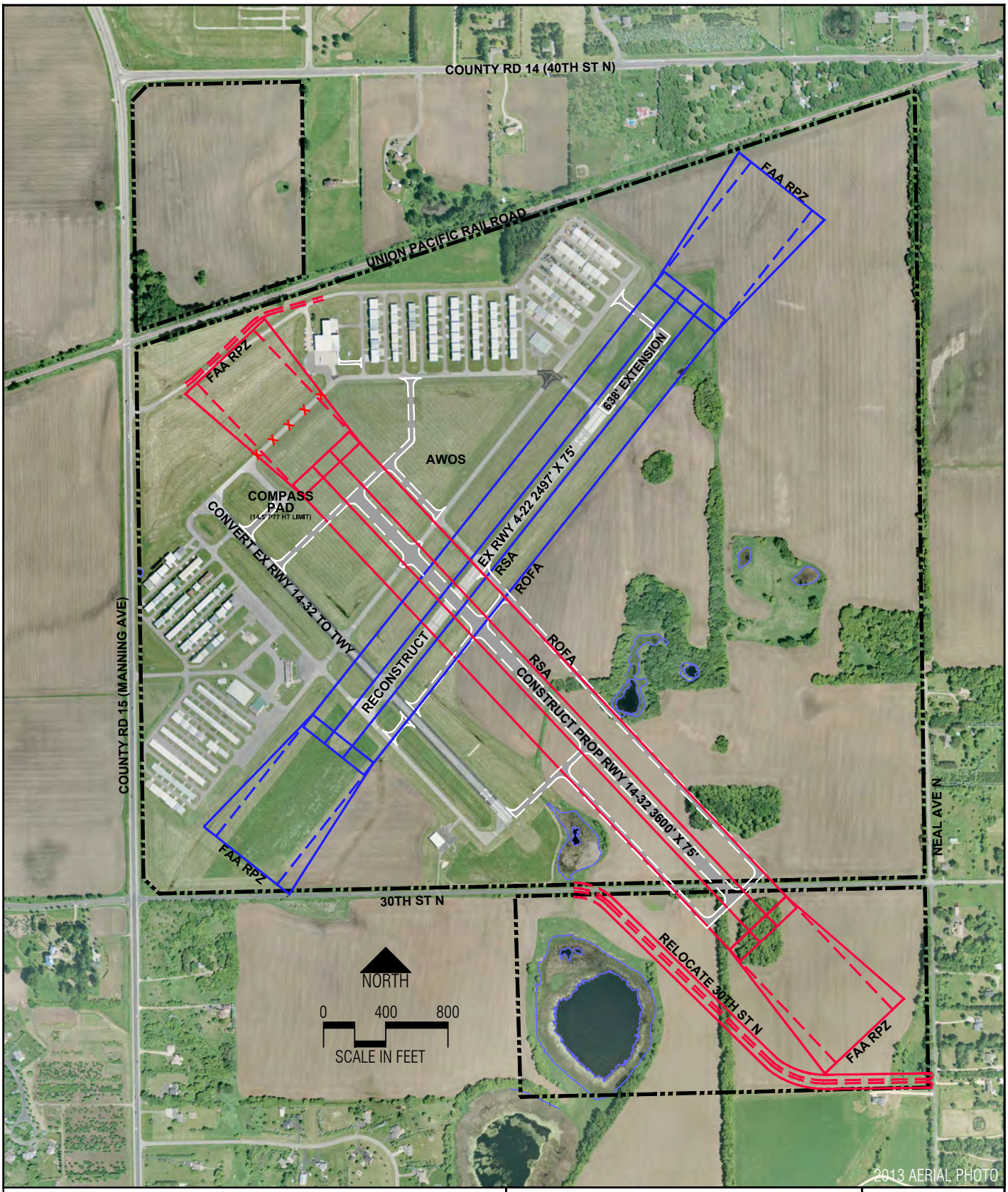
COUNTY RD 14 (40TH ST N)
UNION PACIFIC RAILROAD
FAA RPZ
FAA RPZ
638' EXTENSION
AWOS
COMPASS PAD
(14.5° P77 HT LIMIT)
CONVERT EX RWY 14-32 TO TWY
EX RWY 4-22 2497' X 75'
RSA
ROFA
RECONSTRUCT
ROFA
RSA
CONSTRUCT PROP RWY 14-32 3600' X 75'
COUNTY RD 15 (MANNING AVE)
NEAL AVE N
FAA RPZ
30TH ST N
RELOCATE 30TH ST N
FAA RPZ
NORTH
0
400
800
SCALE IN FEET
2013 AERIAL PHOTO
EXISTING AIRPORT PROPERTY
RWY 14-32 DEVELOPMENT
RWY 4-22 DEVELOPMENT
WETLANDS
RWY/TWY EXTENSIONS
PAVEMENT REMOVAL
LAKE ELMO AIRPORT (21D)
ALTERNATIVE B - RELOCATE/EXTEND RWY 14-32 TO 3,600'
METROPOLITAN AIRPORTS COMMISSION
OCTOBER 13, 2014
DRAFT
MAC
HNTB

Metropolitan Airports Commission

Airport Development Department

Memo

DATE: April 23, 2015

TO: Lake Elmo LTCP Working Group Members

FROM: Neil Ralston, Airport Planner

SUBJECT: Summary of 04/21/15 Lake Elmo LTCP Municipal Representatives Briefing

On April 21, 2015, MAC staff met with representatives from several municipalities in the vicinity of the Lake Elmo Airport to update them about the status of the 2035 Long-Term Comprehensive Plan (LTCP) Update since we last met in October 2014. Represented municipalities included:

- City of Lake Elmo
- West Lakeland Township
- Baytown Township
- Washington County
- Valley Branch Watershed District (VBWD)
- Washington County Housing and Redevelopment Authority (HRA)

A copy of the meeting attendance list is attached, along with a copy of the briefing agenda, presentation slides, and supplemental handouts.

The presentation started with a review of the Airport's role, current activity trends, the LTCP forecasts, and airfield facility requirements.

LTCP Alternative B (relocation and extension of Runway 14-32 to a length of 3,600 feet, which will necessitate the realignment of 30th Street N to the southeast around the future RWY 32 Runway Protection Zone (RPZ)) was presented to the group as the Preferred Development Alternative, along with the rationale for its selection.

Follow-on discussion items included:

- 30th Street N realignment options (three alternatives presented, two of which are viable to accommodate the goal of extended Runway 14/32 to 3,600 feet):
    - Safety factors – isn't a curved roadway inherently less safe than the option with stops and turns?
    - Need to consider constructability factors.
    - Vacation/closure is not an option for this segment of 30th Street N.
    - This segment of 30th Street N is a low-volume roadway (~1,000 ADT per Washington County traffic counts) but important as a connection.

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- Need to consider long-term concepts to re-connect Neal Ave. to 40th Street N; potential concepts could allow for a connection on the east side of the railroad tracks.

- Environmental Considerations (Noise Contours and Land Use Compatibility)
  - 65 and 60 DNL contours pull into the Airport property in the Preferred Alternative Condition.
  - 55 DNL contour is smaller in size in the Preferred Alternative Condition but the number of residential units in it increases from 2 to 13, primarily to the southeast of the Airport along Neal Avenue.
  - The state's "model" state safety zones are shown in the LTCP documents. However, proposed changes to state statute may allow for development of a customized zoning ordinance that would allow a Joint Airport Zoning Board (JAZB) to consider safety zones with different shapes, sizes, and/or land use controls.
    - MAC will keep the municipalities up to date with the status of efforts to update state statues and implementing rules related to airport zoning.
    - The JAZB process will be separate from the LTCP.
  - Lake Elmo staff will provide updated drawings for platted residential developments in the vicinity of the Airport so those parcels can be taken into consideration when evaluating impacts. Also, future land uses that are not yet platted should also be considered.

- Stakeholder Outreach/Engagement
  - The consensus of the group was that the timing is good for initiating the public outreach process this summer. The community is generally aware that the plan is being updated, and it would be good to engage with them sooner rather than later.
  - Lake Elmo supports moving the plan forward to help reduce uncertainty when it comes to future land use decision making.
  - Explaining the need to expend funds on reconstructing existing pavements versus building new should be part of our dialogue with the community.
  - MAC should be prepared to talk about the benefits and economic value of the Lake Elmo Airport.
  - The Baytown Community Center is available to host a public meeting.

- West Lakeland Township Comments
  - Understand that this plan provides several benefits, but at the expense of West Lakeland Township residents. Expect stiff opposition.
  - Still convinced that existing aircraft activity statistics are over-inflated at ~70 aircraft operations per day
  - Previous predictions of growth at the Airport have not come to fruition, so why would they now?
  - Many airport users like it the way it is and do not support a longer runway
  - Noise impacts of additional turboprop and some small jet operations
  - How will drainage from the increased impervious surface area be addressed?
  - The 30th Street N realignment will be very expensive to build and may not be feasible from an engineering standpoint.
  - If the 30th Street N realignment is constructed, West Lakeland's position is that maintenance of the road will be MAC's responsibility.
  - Concern that West Lakeland residents will be "steam rolled" into accepting this development
  - Concern that aircraft participating in the EAA Young Eagles program are flying too low to the south of the Airport.
  - West Lakeland submitted a comment letter last year (AOEE?) expressing opposition to any expansion of the Airport.

Our next step is to coordinate with the municipalities regarding the logistics of the public outreach program so that they can help to distribute information.

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LAKE ELMO LTCP BRIEFING
SIGN-IN SHEET

April 21, 2015 @ 2:00pm	Lake Elmo City Hall

NAME	AGENCY	EMAIL	TELEPHONE
Neil Ralston	MAC	Neil.Ralston@mspmac.org	
Stephen Ebner	West Lakeland Twp	srebner58@gmail.com	
Kyle Klatt	City of Lake Elmo	klklatt@lakeelmn.org	651-747-3911
Frank Ticknor	Washington Co	frank.ticknor@co.washington.mn.us	651-430-4319
Dana Nelson	MAC	dana.nelson@mspmac.org	612 725 6330
Dave Schultz	West Lakeland Twp	dschultz6816@comcast.net	651-436-6816
John Hanson	VBWD	jhanson@barr.com	952-832-2622
Kent Grandlienard	Baytown Township	Kegrandl@gmail.com	651-430-1142
Dan Kyllo	West Lakeland Twship	dan.kyllo@comcast.net	651-436-1134
Audrey Wald	HNTB	awald@hntb.com	
Pat Mosites	MAC	pat.mosites@mspmac.org	612 713-7499
Vincent Anderson	West Lakeland	VTANDERSON@PRESSENTER.COM	651-436-5184

LAKE ELMO LTCP BRIEFING
SIGN-IN SHEET

April 21, 2015 @ 2:00pm	Lake Elmo City Hall

NAME	AGENCY	EMAIL	TELEPHONE
Kristen Scobie	Wash. Co HRA	KScobie@wchra.com	651-379-9358
Joe Harris	Metropolitan Airports Comm.	Joe.Harris@mspmac.org	651-204-4306

Lake Elmo 2035 Long-Term Comprehensive Plan (LTCP) Progress Briefing

04/21/2015 @ 2:00 PM
Lake Elmo City Hall

----- Agenda Topics -----

- **Review of Lake Elmo Airport Role**
- **Lake Elmo Airport Activity Levels**
    - Current activity levels
        - Based aircraft
        - Aircraft operations
    - 2015 Trends
    - Base Case forecast
    - Forecast scenarios
- **Airfield Facility Requirements**
    - Critical design aircraft/fleet mix family for LTCP
    - Runway length requirements
- **LTCP Preferred Development Alternative**
    - Alternative B – Relocate/Extend Runway 14/32 to 3,600'
        - Review of features
        - Rationale for selection
    - 30th Street N Realignment Options
    - Environmental Considerations – Noise
    - Land Use Considerations
- **Stakeholder/Public Outreach Program**
    - Pre-Draft Activities
    - Formal Outreach Program
    - Plan Finalization
- **The Road Ahead**
- **Open Discussion**

Lake Elmo Airport

2035 Long-Term Comprehensive Plan

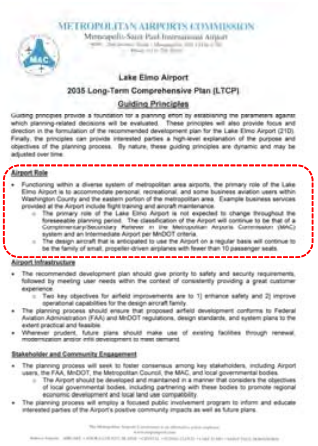
Progress Briefing To Municipal Representatives

April 21, 2015

Briefing Agenda

- Review of Airport Role
- Activity Levels (Existing & Forecast)
- Airfield Facility Requirements
- LTCP Preferred Development Alternative
- Stakeholder/Public Outreach Program
- The Road Ahead
- Open Discussion

LTCP Guiding Principles – Airport Role



METROPOLITAN AIRPORTS COMMISSION
Minneapolis-Saint Paul International Airport

Lake Elmo Airport
2035 Long-Term Comprehensive Plan (LTCP)

Guiding Principles

Guiding principles provide a foundation for a planning effort by establishing the parameters against which planning-related decisions will be evaluated. These principles will also provide focus and direction in the formulation of the recommended development plan for the Lake Elmo Airport (21D). Finally, the principles can provide interested parties 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

- Functioning within a diverse system of metropolitan area airports, the primary role of the Lake Elmo Airport is to accommodate personal, recreational, and some business aviation users within Washington County and the eastern portion of the metropolitan area. Example business services provided at the Airport include flight training and aircraft maintenance.
  - The primary role of the Lake Elmo Airport is not expected to change throughout the foreseeable planning period. The classification of the Airport will continue to be that of a Comprehensive/Secondary Reliever in the Metropolitan Airports Commission (MAC) system and an Intermediate Airport per MnDOT criteria.
  - The design aircraft that is anticipated to use the Airport on a regular basis will continue to be the family of small, propeller-driven airplanes with fewer than 10 passenger seats.

Airport Infrastructure

- The recommended development plan should give priority to safety and security requirements, followed by meeting user needs within the context of consistently providing a great customer experience.
  - Two key objectives for airfield improvements are to 1) enhance safety and 2) improve operational capabilities for the design aircraft family.
- The planning process should ensure that 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, future plans should make use of existing facilities through renewal, modernization and/or infill development to meet demand.

Stakeholder and Community Engagement

- The planning process will seek to foster consensus among key stakeholders, including Airport users, the FAA, MnDOT, the Metropolitan Council, the MAC, and local governmental bodies.
  - The Airport should be developed and maintained in a manner that considers 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 employ a focused public involvement program to inform and educate interested parties of the Airport's positive community impacts as well as future plans.

- Primary Role of Lake Elmo Airport
  - Accommodate Personal, Recreational, and some Business Aviation users
  - Design Aircraft is and will continue to be small, propeller driven aircraft with < 10 passenger seats
  - Role not expected to change in forecast period

Aviation Activity Update

- Current Activity Levels
  - 205 Based Aircraft (January 2015)
  - ~26,000 Aircraft Operations in CY 2014
    - ~70/day
- 2015 Forecast
  - 226 Based Aircraft
    - 182 in low scenario
  - 25,454 Aircraft Operations
  - 2015 YTD Operations up over 2014

LTCP Aviation Activity Forecast

- Base Case Forecast
  - Based Aircraft
  - Aircraft Operations
- Scenarios
  - Low Range
  - High Range
  - Extended Runway

Table 5: Forecast Comparison by Scenario –Lake Elmo.

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LTCP Airfield Facility Requirements

- Design Aircraft Family
  - Small Propeller-Driven Airplanes
  - Fewer Than 10 Passenger Seats
- Primary Runway Length
  - FAA Guidance: Range of 3,300 – 3,900 feet
  - Aircraft-specific analysis: ~3,600 feet optimal length for long-term future planning
    - Enhances safety and operational capability for the design aircraft family
- Crosswind Runway Length
  - FAA Guidance: ~2,750 feet

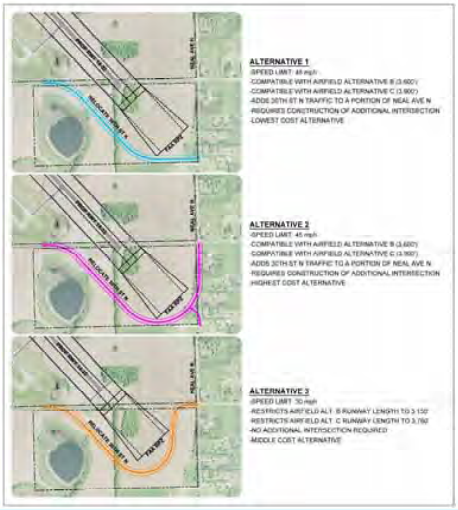
Preferred Development Alternative – ALT B

- Initial Development Program
  - Relocate and extend primary Runway 14-32 to 3,600’
  - Relocate 30th Street N
  - Realign north driveway
  - Essential Taxiways
  - Convert existing Runway to Taxiway
  - ~$11.5m development cost
- Other Development
  - Additional taxiways
  - Extend crosswind runway to 2,750’

Preferred Development Alternative – ALT B

- Rationale for Selection
  - Runway Protection Zone Compatibility
    - No additional land acquisition needed
  - Ability to provide optimal primary runway length
    - No additional primary runway extensions contemplated
  - Optimizes use of existing airport property
    - Including that purchased decades ago for a longer primary runway
  - Minimizes operational disruptions during construction

30th Street N Realignment Options



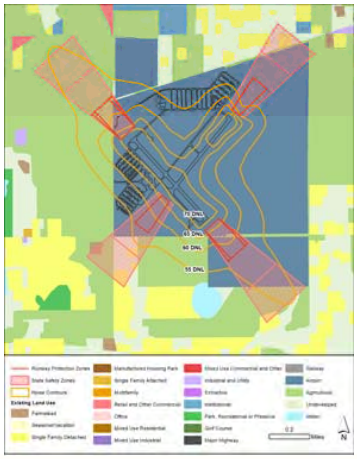
- Alternative 1
  - Currently shown on Alternatives exhibits
- Alternative 2
  - Feasible for further consideration
- Alternative 3
  - Does not allow for optimal runway length
  - Not feasible for further consideration

Environmental Considerations – Noise

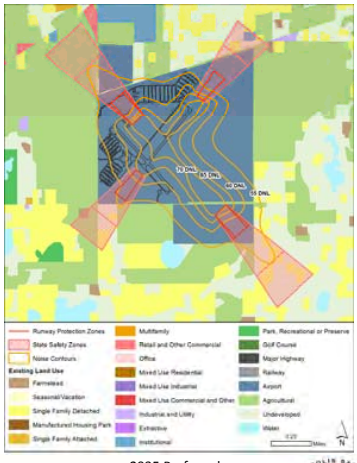
Baseline Condition

2035 Preferred Alternative Condition

Land Use Considerations



Baseline Condition



2035 Preferred Alternative Condition

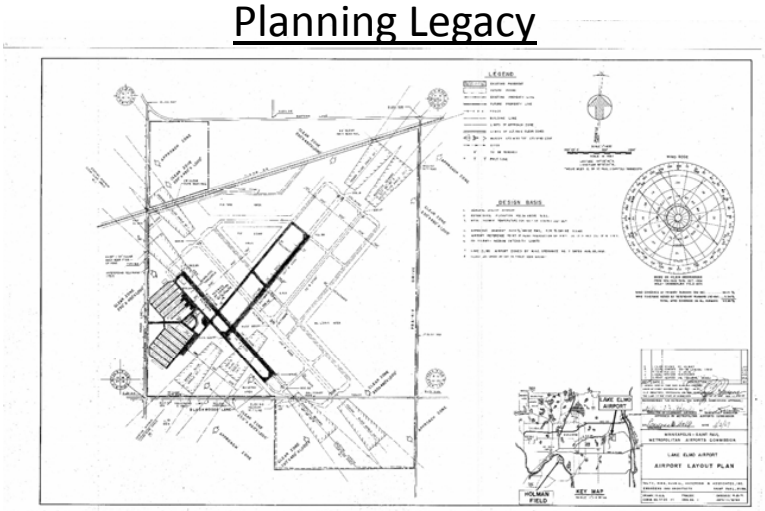
Stakeholder/Public Outreach Program

- 1st Phase: Pre-Draft Activities
  - Stakeholder Meetings
  - MAC Approval to circulate Draft LTCP Report (May 2015)
- 2nd Phase: Outreach Program
  - Distribute Draft LTCP Report
    - Electronic versions, hard copies
  - Formal Public Review Period
    - 45 Days
  - Public Information Meeting(s)
    - Location(s)
- 3rd Phase: Plan Finalization
  - Consider & Incorporate Feedback
  - Final MAC Adoption & Metropolitan Council Formal Review

The Road Ahead

- MAC Adoption of LTCP
  - The LTCP does not authorize construction
  - The 7-Year Capital Improvement Program is the implementation vehicle of the MAC
- Metropolitan Council Formal Review
- Airport Layout Plan (ALP)
  - Reviewed/Approved by FAA
- Environmental Review
- Grant Funding Competition
- Project Engineering/Design
- Joint Airport Zoning Board (JAZB)

Planning Legacy



Questions & Open Dialogue

Figure 5-3: Alternative B Layout

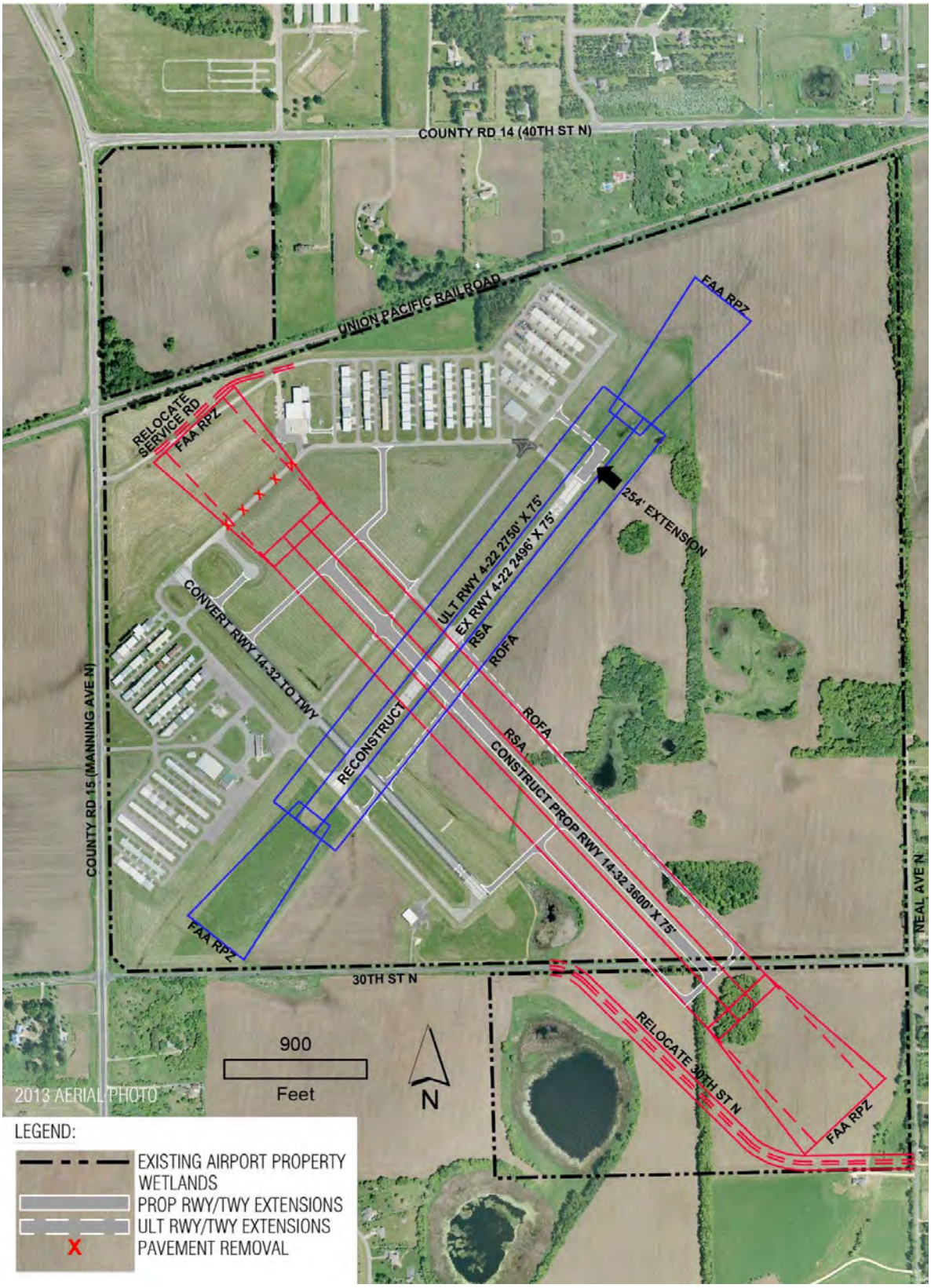
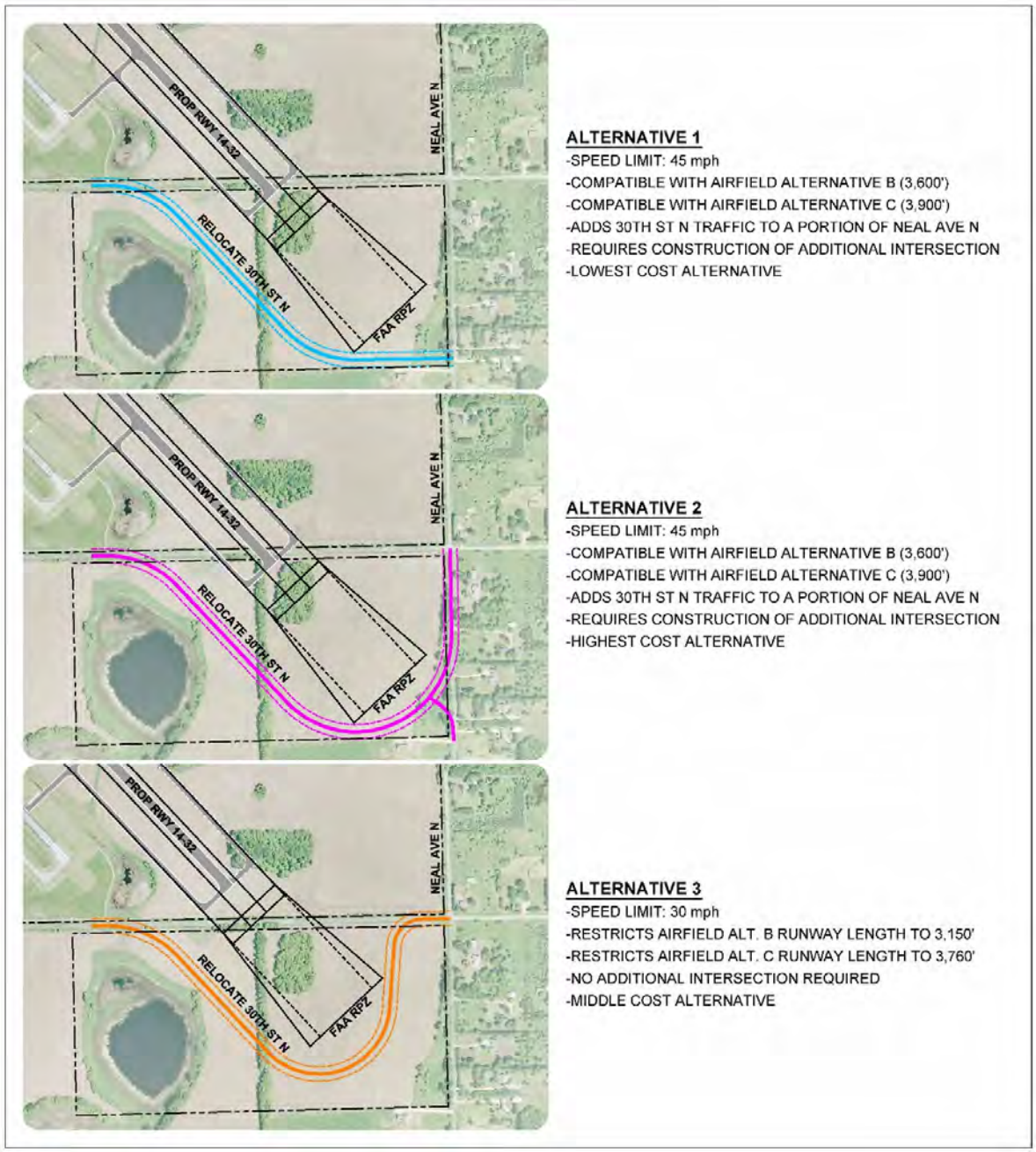


Figure 5-5: 30th Street N Relocation Alignment Alternatives



Metropolitan Airports Commission
6040 28th Avenue South, Minneapolis, MN 55450 • 612-726-8100 • metroairports.org

Lake Elmo Airport
2035 Long-Term Comprehensive Plan (LTCP)
Frequently Asked Questions (FAQ's)

Q: What is the purpose of the 2035 LTCP for the Lake Elmo Airport?

A: This plan will update our view of future facility needs for the next 20 years and provide a "road map" to guide our development strategy for the Lake Elmo Airport over the next 5-10 years.

The last LTCP for the Lake Elmo Airport was adopted by the Metropolitan Airports Commission (MAC) in late 2008, so it is time to update the plan to reflect current conditions and trends.

A copy of the Guiding Principles that have been developed for the Lake Elmo 2035 LTCP are attached to this FAQ sheet.

Q: What is the current status of the 2035 LTCP, and when will the plan be completed?

A: To date, aviation activity forecasts have been prepared and a runway length assessment has been completed. Four development alternatives have been selected for evaluation in the LTCP. Three of the alternatives include a longer primary runway length, and none contemplate new hangar areas or construction of an Airport Traffic Control Tower. High-level cost estimates, benefits, and potential disadvantages have been identified for each development alternative.

We intend to complete this planning study during 2015. The exact completion date will depend upon several factors, including the timing of the public information meeting and adoption of the final plan by the Metropolitan Airports Commission.

Q: Will the public have an opportunity to review and comment on the 2035 LTCP before it is finalized?

A: Yes. A draft LTCP report will be made available for public review and comment in mid-2015. Then, a public information meeting will be held to solicit public feedback and address questions before a final plan is presented to the Metropolitan Airports Commission for adoption.

Q: Once the 2035 LTCP is adopted, what additional steps must be taken before the recommended improvements can be constructed?

A: The LTCP is a planning document in process. 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 (FAA) 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 between 2017 and 2020 (subject to change).

Q: What is the anticipated cost of the improvements proposed in the 2035 LTCP, and what are the funding sources that will be used?

A: High-level estimates suggest that the improvements to the Lake Elmo Airport will cost between approximately $5.4 million and $11.5 million (in 2015 dollars), depending upon the preferred alternative that is ultimately selected and the timing of the projects.

Future development at the Lake Elmo Airport will continue to be self-funded by users of the aviation system through FAA and/or MnDOT grant programs and internal MAC funds. No local sales or property taxes will be used to fund Airport improvements.

Q: Does the 2035 LTCP contemplate changing the role of the Lake Elmo Airport?

A: No. The primary role of the Lake Elmo Airport is to accommodate personal, recreational, and some business aviation users within Washington County and the eastern portion of the Twin Cities metropolitan area. This primary role is not expected to change throughout the foreseeable planning period.

The design aircraft that is anticipated to use the Airport on a regular basis will continue to be the family of small, propeller-driven airplanes with fewer than 10 passenger seats.

Q: Why are improvements being considered now for the Lake Elmo Airport?

A: According to guidance available from the Federal Aviation Administration (FAA) and aircraft manufacturers, the existing length of the primary runway at the Lake Elmo Airport is lacking to efficiently accommodate the existing design aircraft family of propeller-driven airplanes. In fact, the Lake Elmo Airport has one of the shortest paved primary runways of any airport in the State of Minnesota.

Based on the condition of the primary runway pavement, we are faced with making a decision to either reconstruct the runway in its current configuration or construct a replacement runway.

Two key objectives for proposed airfield improvements are to 1] enhance safety, and 2] improve operational capabilities for the design aircraft family. Providing a right-sized runway length will help to improve the Airport's ability to better fulfill its existing role and also to compete more effectively for additional business-related flights that use propeller-driven aircraft types.

It should be noted that providing a longer primary runway length has been part of MAC's plans for the Lake Elmo Airport for several decades. In fact, the land needed to accommodate a longer runway was acquired by MAC in the late 1960's and early 1970's.

Q: Who can I contact if I have additional questions about the 2035 LTCP for the Lake Elmo Airport?

A: If you have questions about the 2035 Lake Elmo LTCP, please contact Neil Ralston, MAC Airport Planner, via email at neil.ralston@mspmac.org.

Lake Elmo Airport
2035 Long-Term Comprehensive Plan (LTCP)
Guiding Principles

Guiding principles provide a foundation for a planning effort by establishing the parameters against which planning-related decisions will be evaluated. These principles will also provide focus and direction in the formulation of the recommended development plan for the Lake Elmo Airport (21D). Finally, the principles can provide interested parties 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

- Functioning within a diverse system of metropolitan area airports, the primary role of the Lake Elmo Airport is to accommodate personal, recreational, and some business aviation users within Washington County and the eastern portion of the metropolitan area. Example business services provided at the Airport include flight training and aircraft maintenance.
    - The primary role of the Lake Elmo Airport is not expected to change throughout the foreseeable planning period. The classification of the Airport will continue to be that of a Complimentary/Secondary Reliever in the Metropolitan Airports Commission (MAC) system and an Intermediate Airport per MnDOT criteria.
    - The design aircraft that is anticipated to use the Airport on a regular basis will continue to be the family of small, propeller-driven airplanes with fewer than 10 passenger seats.

Airport Infrastructure

- The recommended development plan should give priority to safety and security requirements, followed by meeting user needs within the context of consistently providing a great customer experience.
    - Two key objectives for airfield improvements are to 1] enhance safety and 2] improve operational capabilities for the design aircraft family.
- The planning process should ensure that 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, future plans should make use of existing facilities through renewal, modernization and/or infill development to meet demand.

Stakeholder and Community Engagement

- The planning process will seek to foster consensus among key stakeholders, including Airport users, the FAA, MnDOT, the Metropolitan Council, the MAC, and local governmental bodies.
    - The Airport should be developed and maintained in a manner that considers 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 employ a focused public involvement program to inform and educate interested parties of the Airport's future plans and community impacts, and to consider feedback received.

Land Use Compatibility & Environmental Considerations

- The significant investment already made in the Lake Elmo Airport warrants the need to protect the facility from the encroachment of non-compatible development that would compromise its role. Proper zoning and land use restrictions should be established to facilitate implementation of the recommended development plan.
- As a steward of the environment and in service to the general public, operation and development of the Lake Elmo Airport should consider initiatives that promote environmental stewardship and sustainability.

Financial Viability

- Future development at the Lake Elmo Airport should 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 by pursuing FAA/MnDOT grants first, with MAC funding as a second source.
    - Future development at the Lake Elmo Airport should promote financial self-sufficiency to the maximum extent practical, including strategies to increase tenant investments in facility improvements and/or new facilities, agricultural revenue generation, and other non-aeronautical revenue generation.

Preserving Heritage

- The Lake Elmo Airport maintains a proud heritage of accommodating general aviation users with a strong sense of identity and community. Preserving this unique legacy should be embraced during the formulation of the recommended development plan for the Airport.

PLEASE SIGN IN

NAME	ADDRESS
ELIZABETH BUCKINGHAM	POB 234 LAKE ELMO 55042
GARY KRIESEL	WASHINGTON CO COMMISSIONER
VINCE ANDERSON	1615 HILLSIDE CIR WEST LAKELAND
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JOAN Telfer	13030 - 30TH ST N. STILLWATER
Ed Cobun	12660 12th ST N Lake Elmo
Mike Graetz	1176 Nolan Ave N Stillwater 55082
Denise Cornell	2133 Neal Av El. Water MN 55082
Tom Curtis	3785 MANNING AVE
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Glen Douglass	13741-42nd St Ct N 55082
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DAVE SCHULTZ	1440 NORCREST AVEN. " "
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Joel & Eileen Sandstrom	1165 Oakgreen Ave. N. West Lakeland 55082
Mary Glaser	1815 Hillside Circle WLT 55082
Louie Bruntz	2392 Morgan Ave N WLT 55082
Chuck Severn	5190 MUIR AVE N Stillwater 55082

Lake Elmo LTCP Public Information Meeting July 9, 2015 Baytown Community Center

(1)

PLEASE SIGN IN

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Maynard & Sandy Kelsey	4440 Neal Ave. N. BayTown
Daniel Kyllo	1891 Oldridge Ave N, West Lakeland

Lake Elmo LTCP Public Information Meeting July 9, 2015 Baytown Community Center (2)

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Ashleigh Lundy	2595 Neal Ave N Stillwater
Guy Wojtowicz	2655 Northridge Ln N W. Lakeland
Jody Wojtowicz	"
Mick Koschmitter	2795 Neal Ave N.
Tony Willger	ISD #834 1875 S. Greeley St. Stillwater
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Ron KARGEL	8283 LAKE ELMO AVE. N. STILLWATER
Linda Ulasich	13167 30th St N. Stillwater MN 55082
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Shannon Runyon	13385 24th St. N. Stillwater MN 55082
RICK WESTRANICH	13310 51st ST. N. STILLWATER MN 55082
Barbara Dacy	7645 Currell Blvd, Woodbury MN 55125
Catherine Curtis	2785 Manning Ave N Lake Elmo 55042

Lake Elmo LTCP Public Information Meeting July 9, 2015 Baytown Community Center

(3)

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Jim McCann	12685 53rd St. N - Baytown 55082
Diane McCann	"
Brian Zeller	55 Lakeland Shores Rd, Lakeland MN
Steve & Jean Melin	5295 Neal Ave N - , Baytown 55082
Mark Dimmerhaum	1112 Atwood Lane, Stillwater, MN
Jan & Dale Schaeffner	2480 Overlook Ct N. West Lakeland
John Hall Baytown	14400 Olinda Blvd Stillwater
Delbert Jankhauser	12805 40th St N. Stillwater, MN
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Joan + Chuck Newman	13434 Greenwood Trl. No, West Lakeland Twp, Mn.

Lake Elmo LTCP Public Information Meeting July 9, 2015 Baytown Community Center (4)

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Ray Lucksinger	12775 5th St N Lake Elmo
Susan Markgraf	Lake Elmo
DAVE SCREATON	Lake Elmo
Neil Ralston	MAC
Melissa Scovronski	MAC
Dana Nelson	MAC
Lynn Klocek	MAC
Pat Mosites	MAC
Joel Diesel	MAC consultant (SEH)
Audrey Wahl	MAC consultant (HNTB)
Lindsay Reidt	MAC consultant (SEH)

Lake Elmo LTCP Public Information Meeting July 9, 2015 Baytown Community Center

(5)

PLEASE SIGN IN

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PASQUALE STEBE	13717 GREENWOOD TR. N. STILLWATER	
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Peggy SZOSTAK	1787 Nolan Ave N Stillwater	
Ann Fung-Terwedo	Washington County	
Jim Lohmann	3610 Lake Elmo Ave	
Jim Hoffmann	13530 30th St. No Stillwater, Minnesota	
Carol Reuter	2925 Neal Ave No Stillwater	
Mike Kohns	13220 30th St. N,	
Mick Kaschmitter	2795 Neal Ave N. West Lakeland	
Rod Wahl	14129 30th ST NO Wild.	
Bob Kriesel	15290 Painters Lane Cir. N. W. Lakeland	
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Sara Miller	1839 Mendel Ave. N. Lake Elmo MN	
Kent Greenwood	Baytown Board	
Lowell Johnson	4574 Lilac Ln N	

Lake Elmo LTCP Public Information Meeting July 16, 2015 Lake Elmo City Hall

(1)

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Carla Jeschke	2645 Northridge Ln Stillwater	
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Pat Connolly	st.patrickc@gmail.com	
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Tuyet Nguyen	13843 30th St. N. Stillwater	
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VERN & PAT SVEDBERG	2521 N BALAVEN	
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DON HOFF	14841 58TH ST. No, B3, STILLWATER	
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Mike Pearson		
Karen Baltzer	13232 20th St Ct, N West Lakeland	
DAVE NECHROBECKI	1701 NEWBERRY AVE N, WEST LAKELAND	
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JIM OGREN	11790 LITTLE BLUESTEM CT N.	
Rod Fischer	1913 mystic Ridge Ave N	

Lake Elmo LTCP Public Information Meeting — July 16, 2015 — Lake Elmo City Hall

(2)

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Bob+Kathy Karner	13080-22nd St. N, West Lakeland	Self
[illegible] Roth	2654 Neal Ave N	Self
Marian APPELT	2655 Neal Ave N	self
Tom & Pam BARNES	1734 MANNING TRAIL N LAKELAND	SELF
Paul [illegible]	2327 Morgan Ave N	SELF
Marty + Joan Fleischhacker	13606 30th St. N	myself.
BILL KLINZING	13039 22ND ST N W LAKELAND	SELF
Dale Wiehe	12260 27th st N W Lakeland MN	Me
Thomas + Ashley Varek	2302 Nicolle Ave N Stillwater 55082	Me
Mary Vierling	2825 Neal Ave N Stillwater 55082	Self
Melissa Scovronski	MAC	
Lynn Klocek	MAC	
Joe Harris	MAC	
Neil Ralston	MAC	
Joel Dresel	SEH	
Lindsay Reidt	SEH	
Greg Albjerg	HNTB	

Lake Elmo LTCP Public Information Meeting July 16, 2015 Lake Elmo City Hall

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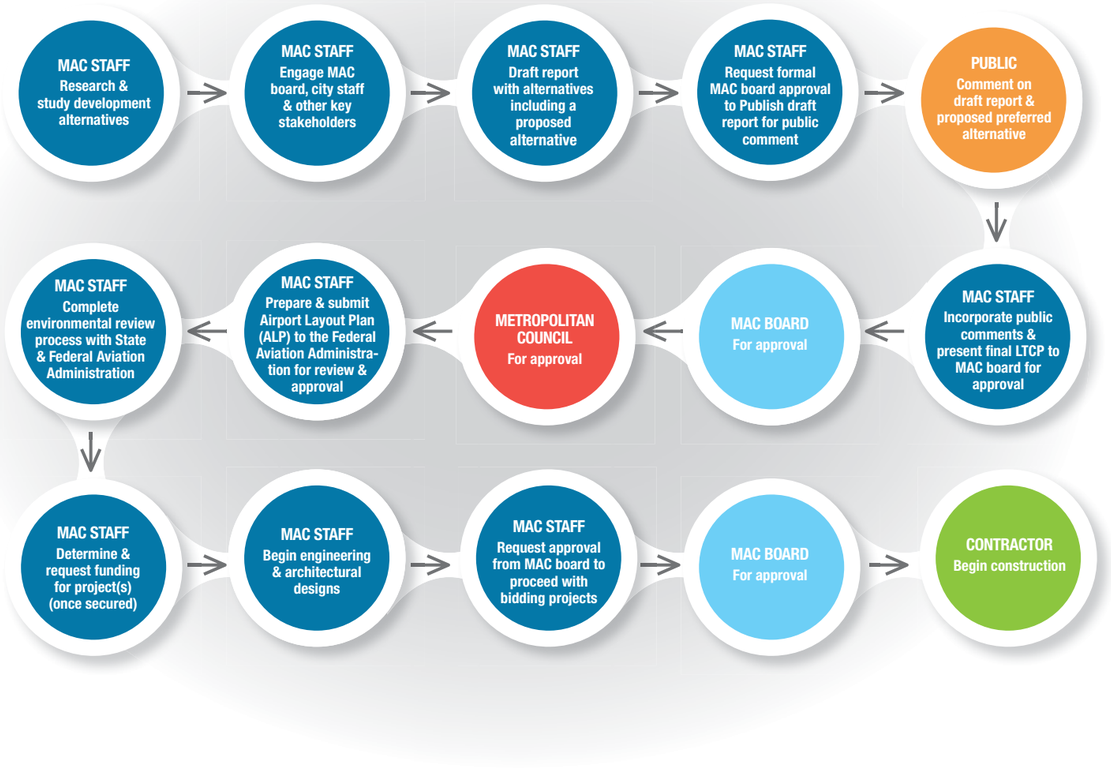
WHAT'S NEXT?



WHAT BENEFITS DOES THE LAKE ELMO AIRPORT BRING TO THE COMMUNITY?

General aviation airports like Lake Elmo contribute to the local economy in a number of ways.

They provide:
- Employment for airport workers
- Facilities for personal and business aircraft
- Charter transportation services for local businesses
- Space for general aviation service companies to do business

As a result, businesses and workers are able to purchase goods and services from other companies in the community, helping to ensure a thriving local economy.

Specific benefits of the Lake Elmo Airport include:

- Direct employment created by the airport's Fixed Base Operator, Valters Aviation, and the MAC.
- MAC operates, maintains, and improves the airport at no cost to local taxpayers. Development at Lake Elmo Airport will continue to be funded by users of the aviation system via FAA and/or MnDOT grant programs, and MAC funds. No local sales or property taxes will be used to fund improvements.
- Airport tenants contribute to the local tax base by paying personal property taxes on hangar facilities and making purchases at local establishments.
- Lake Elmo Airport is home to several tenant groups who emphasize aviation education and awareness, including the St. Croix Composite Squadron of the Civil Air Patrol (CAP), Chapter 54 of the Experimental Aircraft Association (EAA), and the Twin Cities RV Builders Group.
- MnDOT 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 this tool, the total economic impact from activity occurring at the Lake Elmo Airport is approximately $1.8 million annually and accounts for approximately 23 jobs in the County.

Metropolitan Airports Commission
Airport Development and Reliever Airports
6040 28th Avenue S., Minneapolis, MN 55450
MetroAirports.org

Lake Elmo Airport 2035 LTCP

Information Meeting Handout

Thank you for attending the Lake Elmo Airport 2035 Long Term Comprehensive Plan (LTCP) public information meeting.

We appreciate you taking the time to attend and learn more about the draft LTCP. This handout contains information about Lake Elmo Airport, a summary of the planning process, and the resulting recommendations.

Airport Development, Environment and Reliever Airports

ABOUT LAKE ELMO AIRPORT

The Metropolitan Airports Commission (MAC) owns and operates Lake Elmo Airport. It is one of six general aviation airports within the MAC's system of airports.

Lake Elmo Airport opened in September 1951 and has been in continuous operation since. In 2014, Lake Elmo Airport was home to just over 200 aircraft and accommodated approximately 26,000 landings and takeoffs. The airport is situated on approximately 640 acres and has two paved runways. The primary runway (Runway 14-32) is 2,849 feet long by 75 feet wide, and the crosswind runway (Runway 04-22) is 2,496 feet long by 75 feet wide.

Operating within a diverse system of metropolitan area airports, Lake Elmo Airport's primary role is to serve personal, recreational, and some business aviation users in Minnesota's Washington County and the eastern portion of the metropolitan area.

WHY IS THE LTCP BEING UPDATED? WHAT IS ITS STATUS?

The MAC last updated Lake Elmo Airport's LTCP in late 2008 for the 20-year planning timeframe of 2005-2025. Seven years later it is time to update the plan to reflect current conditions and trends.

This update explores the facility's needs out to the year 2035, with recommendations that provide guidance for its development over the next 5-10 years.

In preparation for this update, the MAC prepared an aviation activity forecast and a runway length assessment. From those, four development alternatives were identified for evaluation. Three of the four prescribe a longer primary runway. None contemplate new hangar areas or construction of an airport traffic control tower. Preliminary cost estimates, as well as an assessment of the benefits and potential disadvantages, have been identified for each.

The draft LTCP report is available for public review and comment on the MAC website at **http://www.metroairports.org/General-Aviation/Airports/Lake-Elmo.aspx.**

WHY ARE IMPROVEMENTS BEING CONSIDERED NOW?

Due to its age and condition, the MAC needs to determine whether to reconstruct the primary runway in its current configuration or construct a replacement runway adjacent to it.

Based on information from the Federal Aviation Administration (FAA) and aircraft manufacturers, the existing primary runway is not adequate to efficiently accommodate the propeller-driven aircraft currently being used at the airport. Lake Elmo Airport has one of the shortest paved primary runways of any airport in the State of Minnesota.

Two key objectives for the proposed airfield improvements are to 1] enhance safety, and 2] improve operational capabilities for the aircraft family for which this airport is designed. Providing a right-sized runway length will improve the airport's ability to fulfill its existing role and to compete for business-related flights that use propeller-driven aircraft.

The primary role of the Lake Elmo Airport is expected to stay the same throughout the planning period. The aircraft mainly anticipated to use the airport – and that which it is designed for - will continue to be a family of small, propeller-driven airplanes with fewer than 10 passenger seats.

PUBLIC COMMENTS

The MAC is accepting written comments about the plan through Wednesday, August 5, 2015.

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 **lake_elmo_airport_ltcp_comments@mspmac.org**.

All comments submitted will be made a part of the project record and published in the final report.

WHAT AIRPORT IMPROVEMENTS ARE PROPOSED IN THE PLAN?

A. Relocate primary Runway 14-32 by shifting it 700 feet to the northeast and extending it to a length of 3,600 feet

B. Relocate 30th Street N around the new Runway 32 end

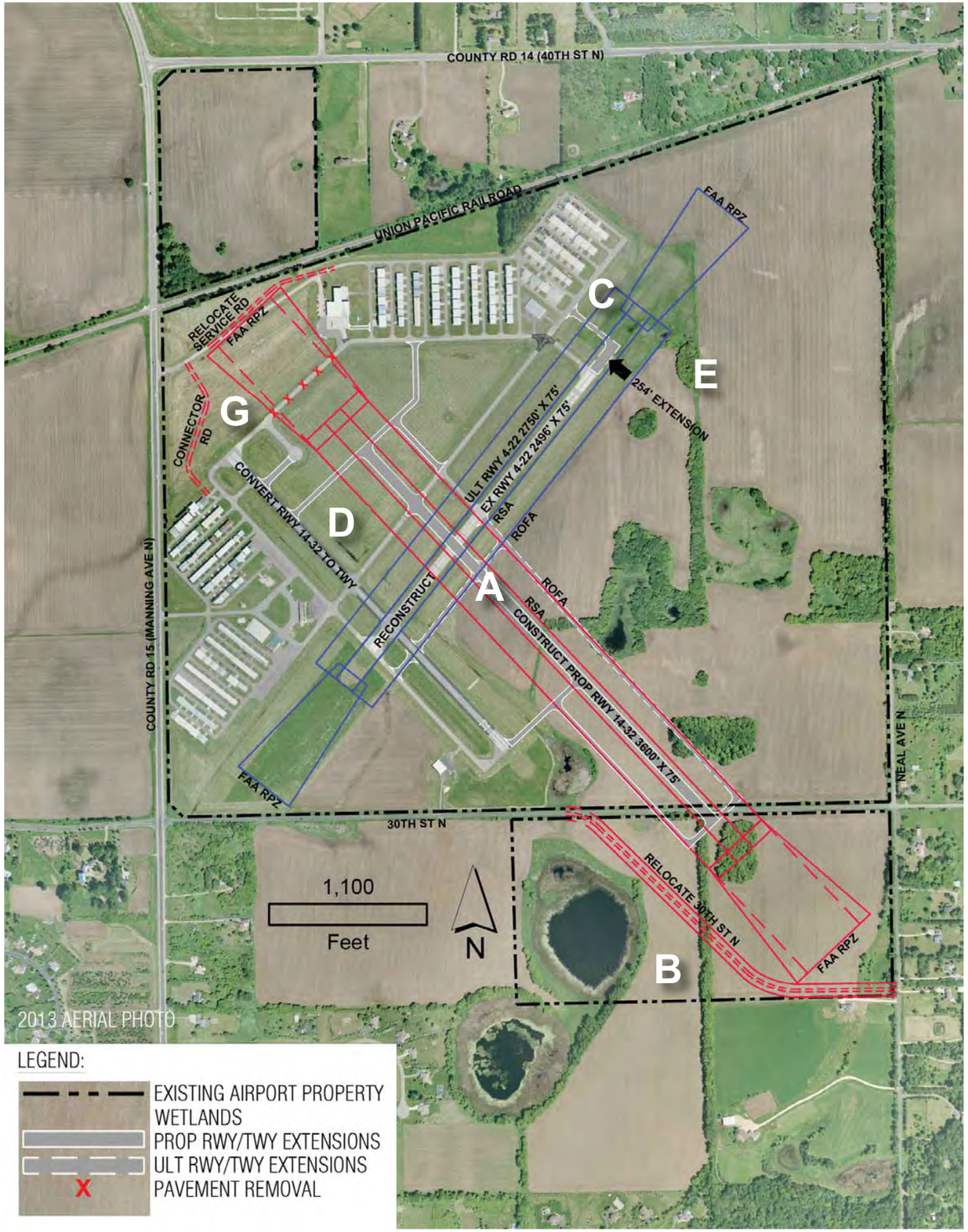
C. Construct a new cross-field taxiway to serve the new Runway 14 end (north end)

D. Convert existing Runway 14-32 into a partial parallel taxiway and construct additional taxiway infrastructure as needed to support the relocated runway

E. Reconstruct existing crosswind Runway 04-22 and extend it to 2,750 feet, including a new taxiway connector and runway lighting

F. Pursue a new, non-precision instrument approach to the Runway 14 end, and upgrade the existing Runway 04 approach to an RNAV (GPS) type (not shown on diagram)

G. Connector roadway between hangar areas

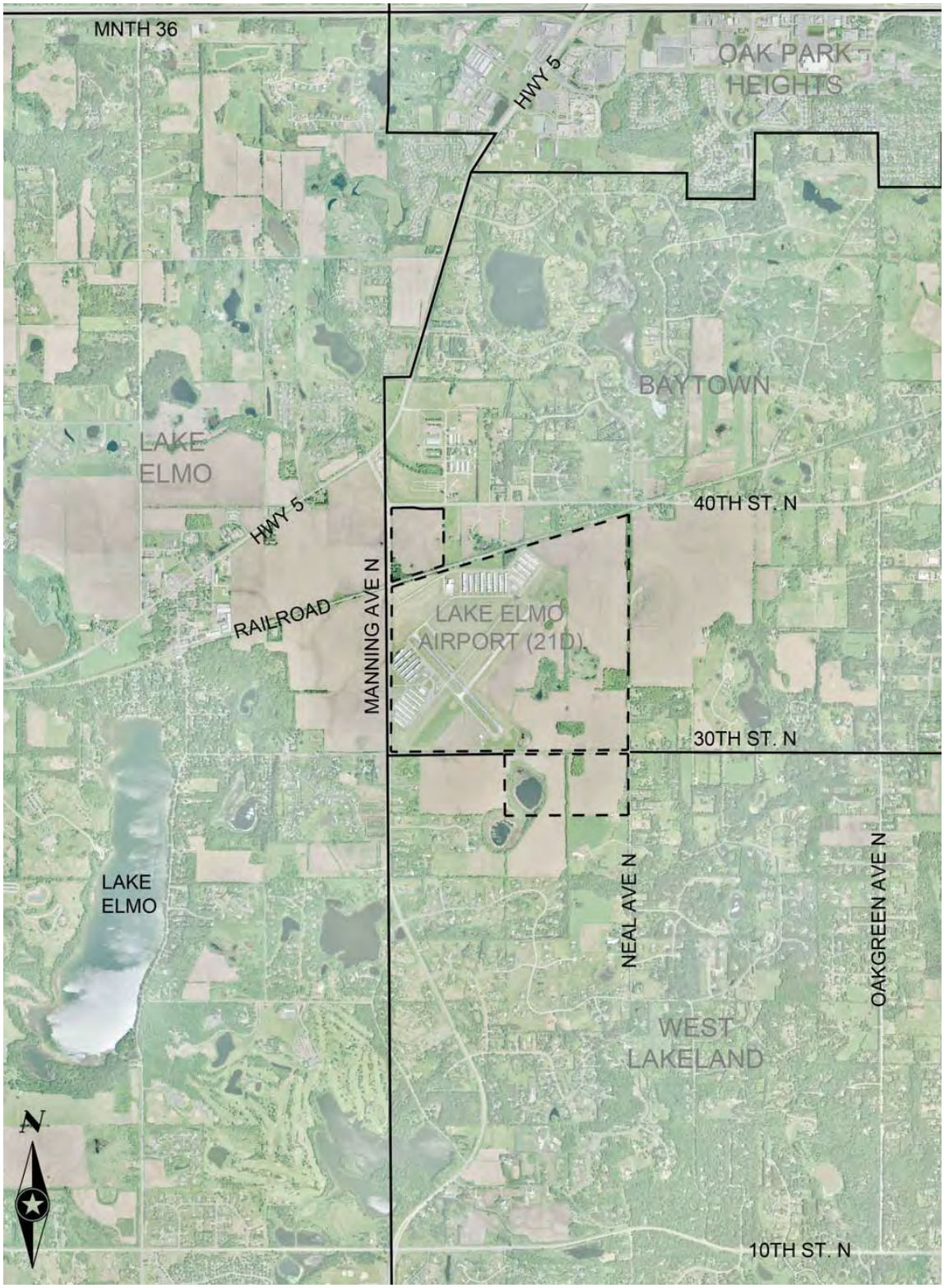


Lake Elmo Airport

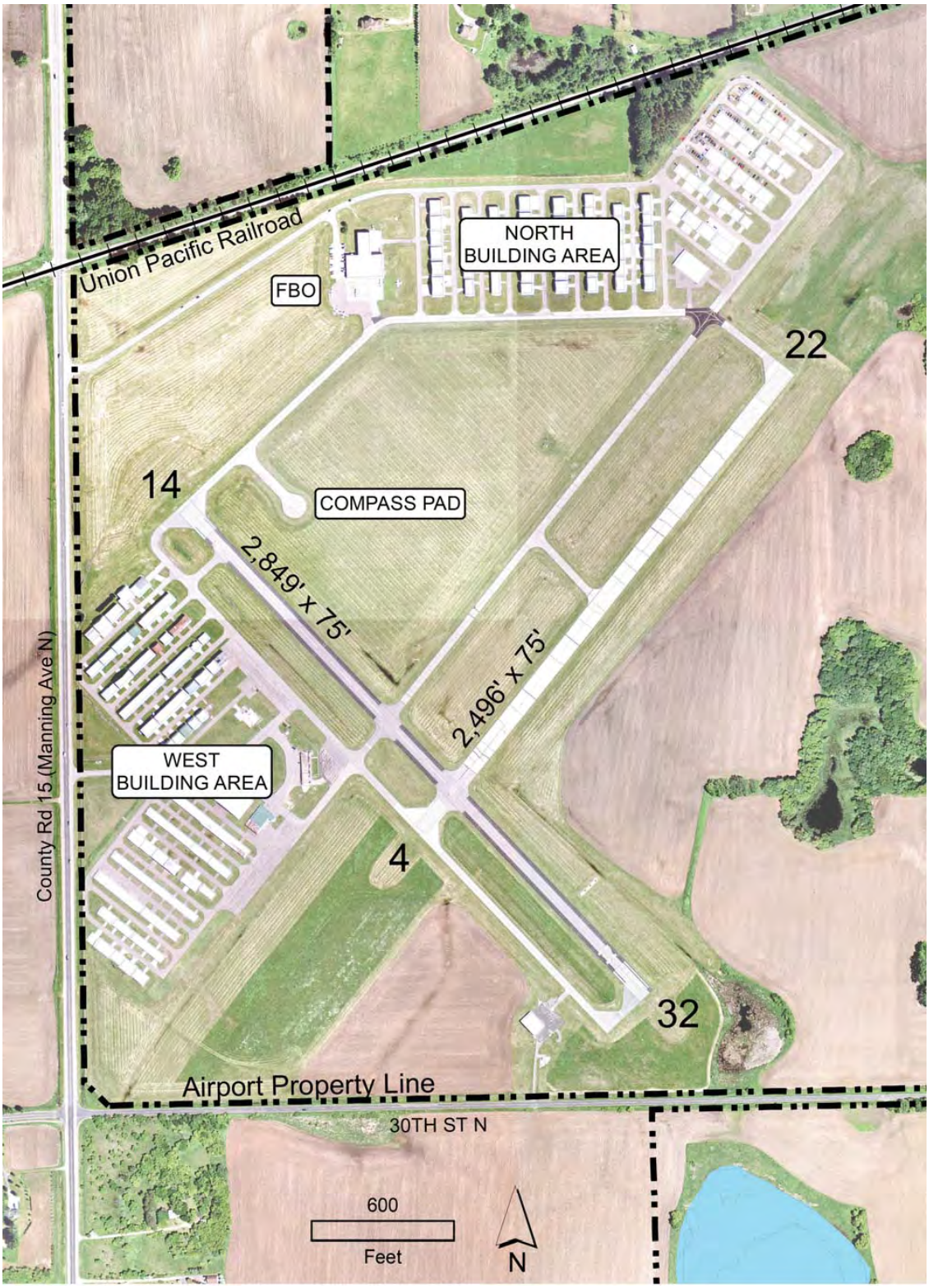
2035 Long-Term Comprehensive Plan (LTCP)

LAKE ELMO AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

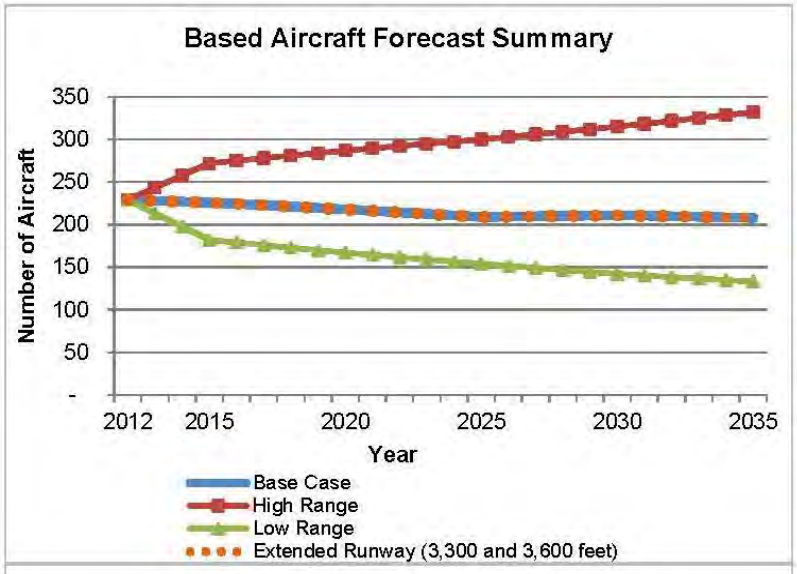
Public Information Meeting – July 9 & 16, 2015



Airport Vicinity



Existing Airport Layout



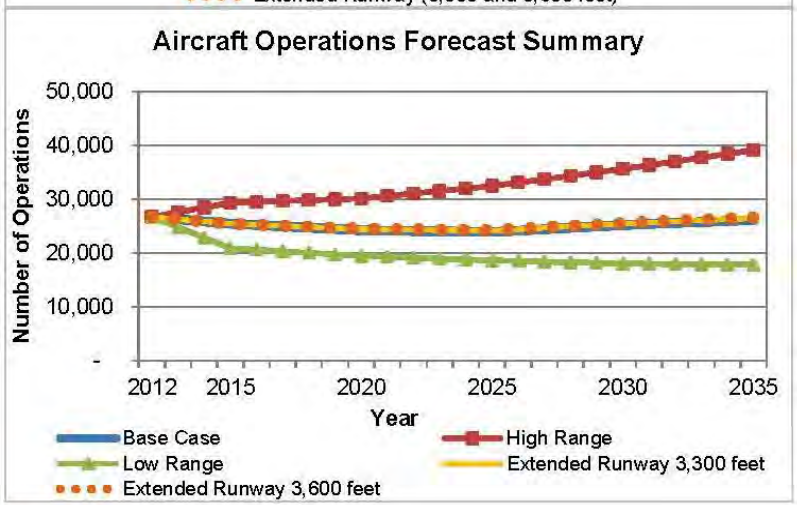


Table 5: Forecast Comparison by Scenario –Lake Elmo

Year	Total Based Aircraft				Total Number of Operations				
	Base Case	High Range	Low Range	Extended Runways (3,300' & 3,600')	Base Case	High Range	Low Range	Extended Runway (3,300')	Extended Runway (3,600')
2012	229	229	229	229	26,709	26,709	26,709	26,709	26,709
2015	226	272	182	226	25,454	29,322	20,944	25,454	25,454
2020	218	287	167	218	24,232	30,128	19,456	24,418	24,539
2025	209	300	154	209	23,908	32,460	18,629	24,125	24,261
2030	211	315	142	211	25,200	35,610	18,041	25,459	25,615
2035	208	332	133	208	26,138	39,119	17,835	26,442	26,620

Source: Table 20 in Minneapolis-St. Paul Reliever Airport: Activity Forecasts – Technical Report.

Activity Forecasts

Airport Reference Code A-I (Maximum Takeoff Weight (MTOW) less than or equal to 12,500lbs

Aircraft	MTOW (lbs.)	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
TBM 850	7,394	85	41' - 7"	14' - 4"	Single-Engine Turbo
Diamond DA42	4,189	79	44' - 4"	8' - 2"	Multi-Engine
Eclipse 550	6,000	77	37' - 11"	11' - 0"	Very Light Jet

Airport Reference Code A-II (Maximum Takeoff Weight (MTOW) less than or equal to 12,500lbs

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

Airport Reference Code B-I (Maximum Takeoff Weight (MTOW) less than or equal to 12,500lbs

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

Airport Reference Code B-II (Maximum Takeoff Weight (MTOW) less than or equal to 12,500lbs

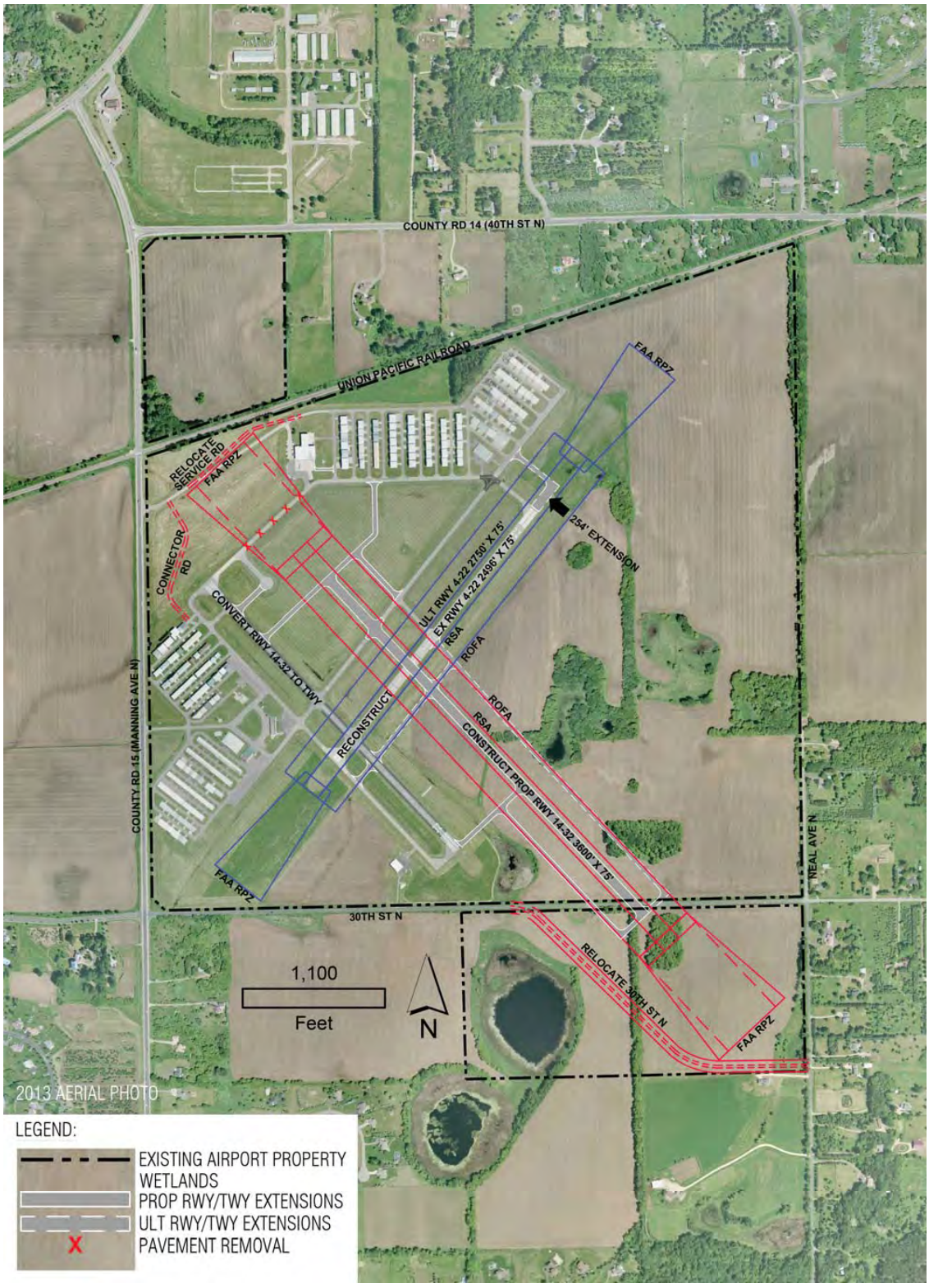
Aircraft	MTOW (lbs.)	Approach Speed (knots)	Wingspan	Tail Height	Aircraft Type
Raytheon Beechcraft King Air 200/250 	12,500	103	57' - 11"	14'-10"	Multi-Engine Turbo
Cessna 441	9,850	99	49' - 4"	13' - 2"	Multi-Engine Turbo

- **Design Aircraft Family**
  - Small Propeller-Driven Airplanes
  - Fewer than 10 Passenger Seats
- **Primary Runway Length**
  - FAA Guidance: Range 3,300 to 3,900 feet
  - Aircraft-Specific Analysis: ~ 3,600 feet
- **Crosswind Runway Length**
  - FAA Guidance: ~ 2,750 feet

Runway Length Requirements

Note: See the alternatives analysis section for more detail.

Development Alternatives Considered



Preferred Development Alternative

Alternative 1

- Speed Limit:45 mph
- Compatible with Alternative B (3,600')
- Compatible with Alternative C (3,900')
- Adds 30th St N traffic to portion of Neal Ave N
- Requires Construction of Additional Intersection
- Lowest Cost Alternative

Alternative 2

- Speed Limit:45 mph
- Compatible with Alternative B (3,600')
- Compatible with Alternative C (3,900')
- Adds 30th St N traffic to portion of Neal Ave N
- Requires Construction of Additional Intersection
- Highest Cost Alternative

Alternative 3

- Speed Limit:30 mph
- Restricts Alternative B Runway Length to 3,150'
- Restricts Alternative C Runway Length to 3,760'
- No Additional Intersection Required
- Middle Cost Alternative

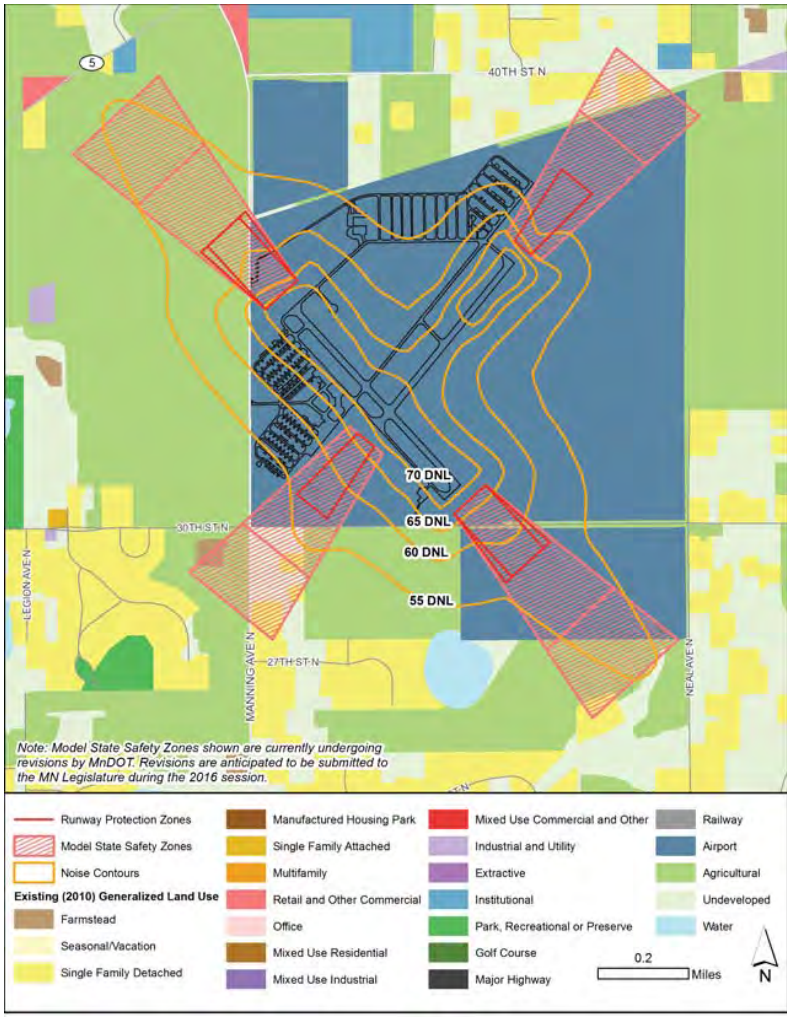
30th St. North Relocation Alternatives

Baseline Condition

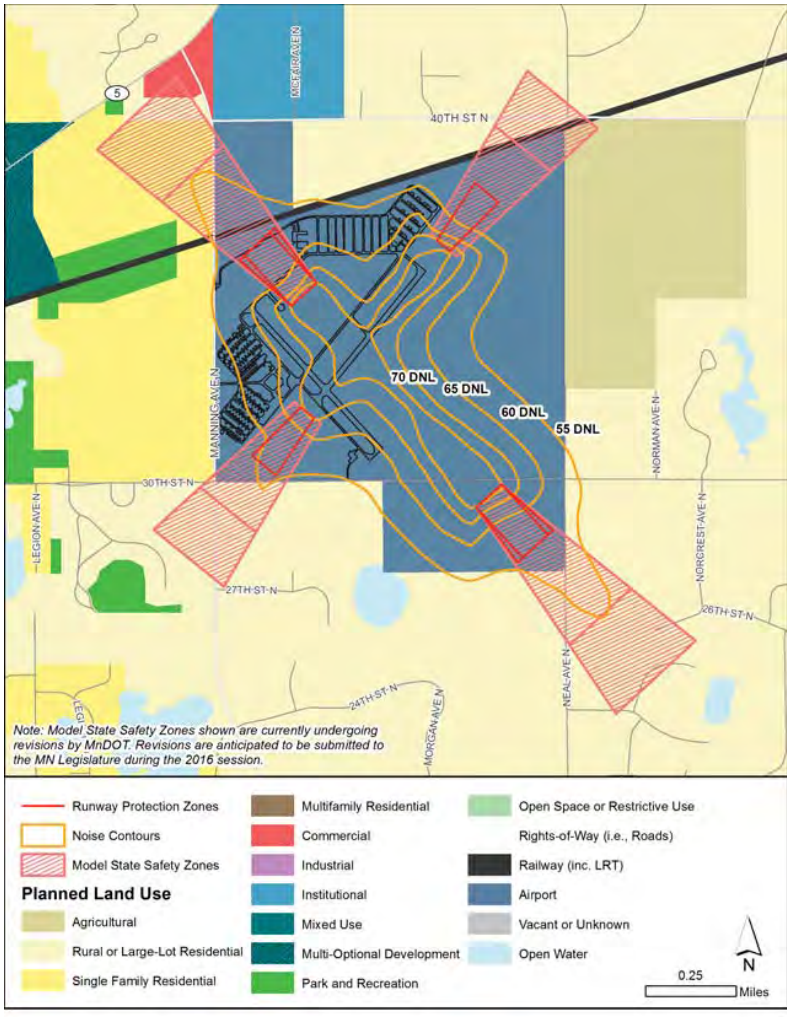
2035 Preferred Alternative Condition

Noise Contours

Baseline Condition

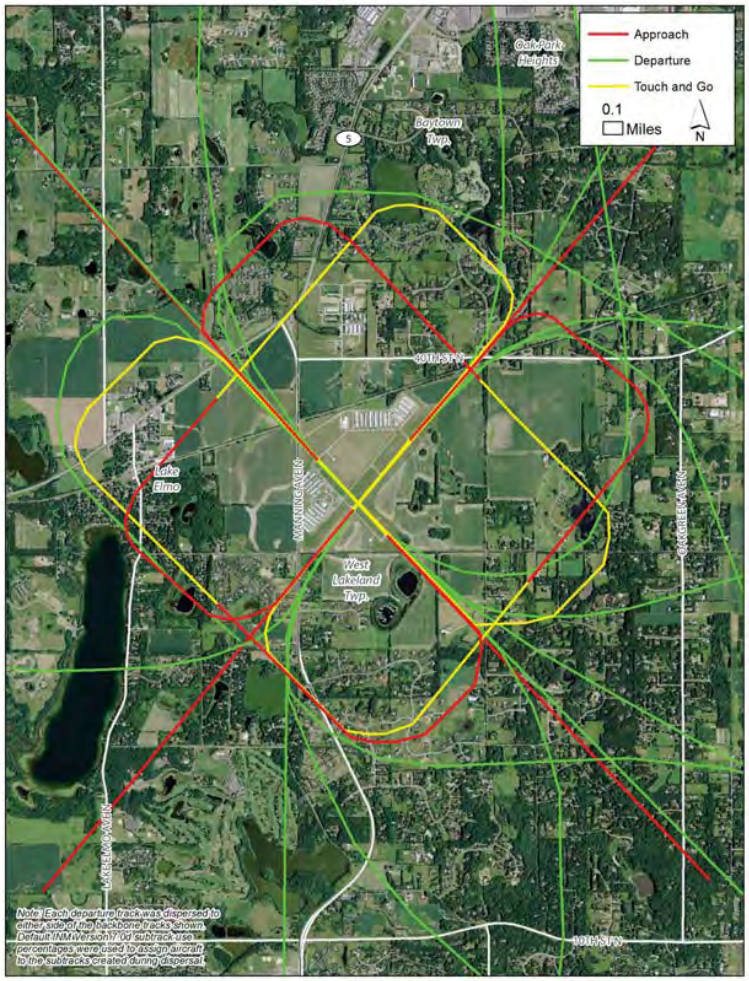


2035 Preferred Alternative Condition

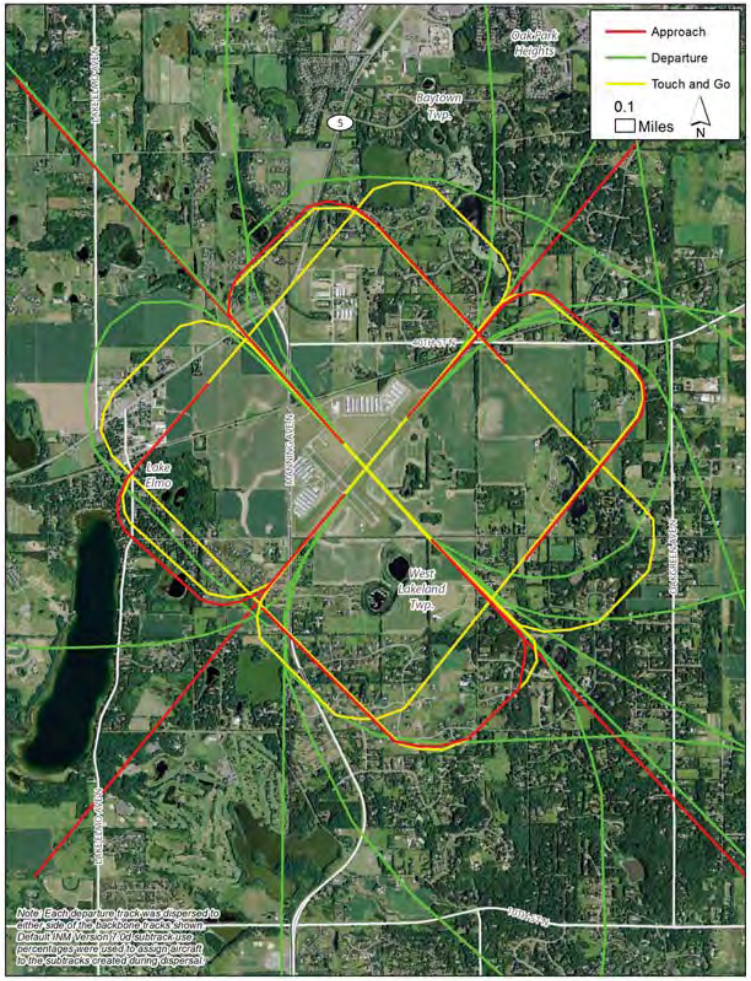


Land Use Compatibility

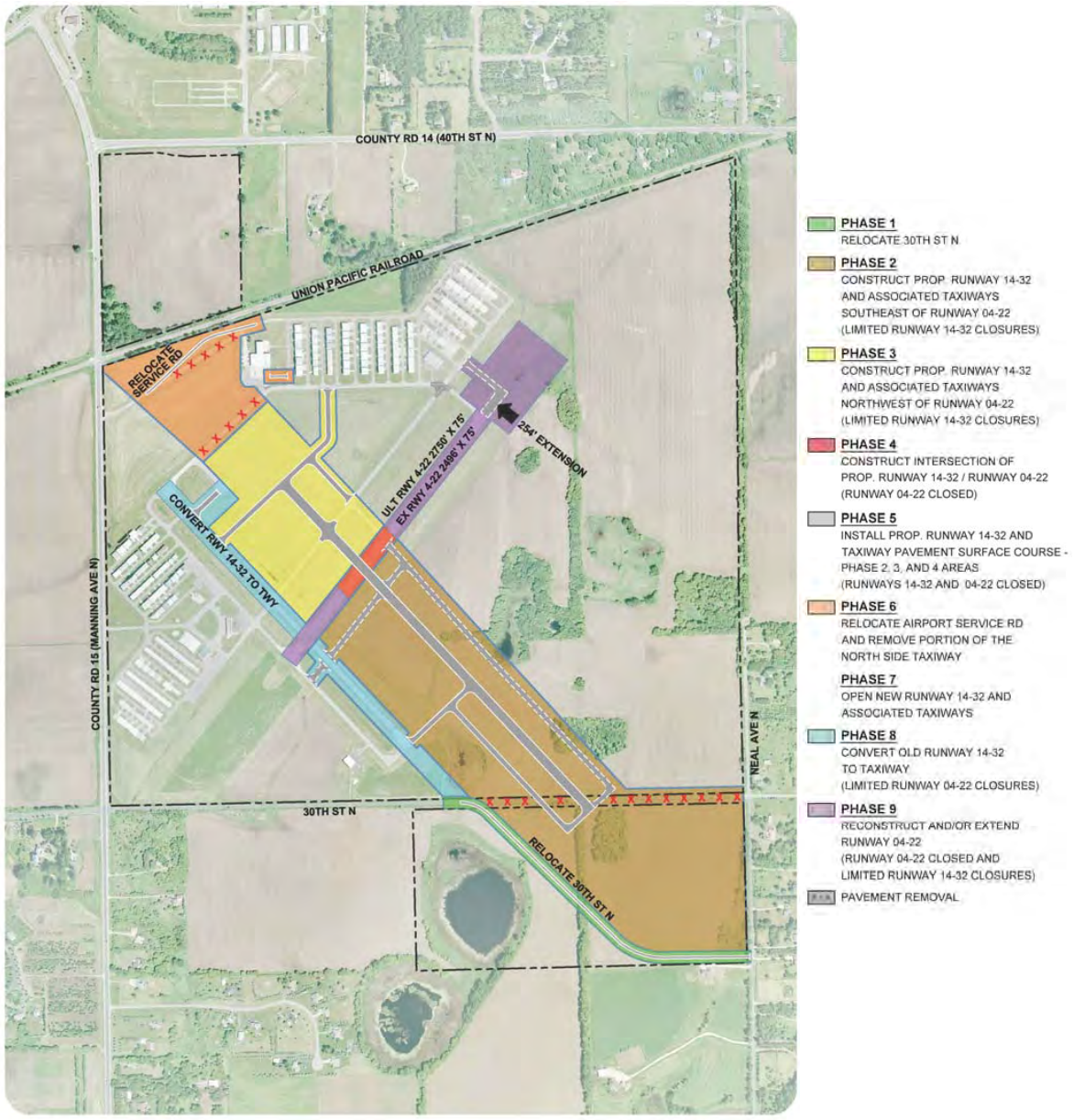
Baseline Condition



2035 Preferred Alternative Condition



Flight Tracks



Note:
Dashed white outline indicate Runway/Taxiway extensions that may not be included in initial construction. Earthwork and drainage improvements in these areas may be incorporated into initial construction to satisfy FAA surface gradient design requirements and realize construction and cost efficiencies.

Construction Phasing Plan

Lake Elmo Airport

Draft 2035 Long-Term Comprehensive Plan (LTCP)

18 August 2015 – Washington County Board Workshop

Presentation of Draft LTCP & Preferred Development Alternative

Introduction to the MAC

- Purpose & Legislative Mandate
- Organizational Structure
- Overview of the Reliever Airport System
- Relationship to Federal Aviation Administration (FAA) and MnDOT Aeronautics

2

Briefing Agenda

- Airport Role & Opportunities
- LTCP Purpose & Key Planning Issues
- Aviation Activity Forecasts
- Airfield Facility Requirements
- Alternatives Analysis
- Noise Analysis
- Stakeholder Engagement
- Summary

3

Lake Elmo Airport Role

- Primary Role of Lake Elmo Airport
  - Integral part of the regional Reliever Airport system
  - Accommodates Personal, Recreational, and some Business Aviation users
  - Design Aircraft is and will continue to be small, propeller driven aircraft with < 10 passenger seats
  - Role not expected to change in forecast period
- Existing facility & activity level overview
  - 205 Based Aircraft (January 2015)
  - ~26,000 Aircraft Operations in CY 2014
- Airport Context

4

Aircraft Using the Airport Today

- Design Aircraft Family
  - Small Propeller-Driven Airplanes
  - Fewer Than 10 Passenger Seats



5

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
  - Several incompatible land uses in existing RPZs at Lake Elmo (roads, railroad, non-owned property)
  - RPZ Alternatives Analysis now required for triggering events (e.g., Manning Avenue Improvements)

6

Today's Opportunities

- Runway Protection Zones
  - Have MAC-owned property to meet FAA requirements
- Manning Avenue Improvements
  - Accommodate roadway needs
- Zoning Questions for Neighbors
  - Resolve uncertainties for County, City and Townships
- Failing Infrastructure
  - Runway pavements need to be reconstructed
- Airport Improvements for Users
  - Provide longer runway per FAA Guidance

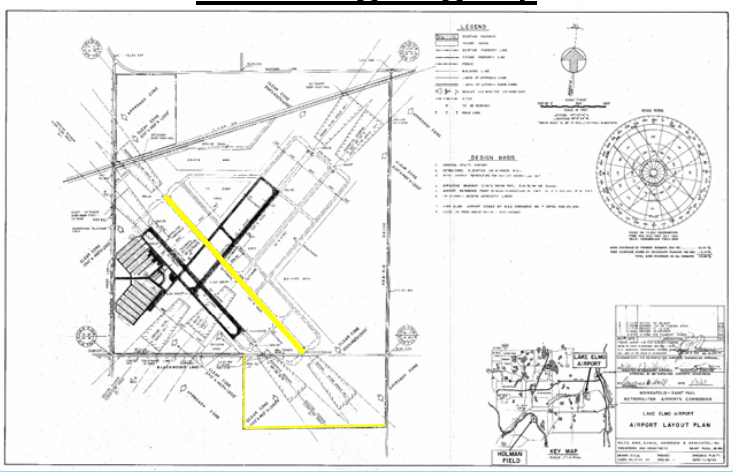
7

LTCP Purpose

- LTCP Purpose
  - First step in the overall process
  - Update view of future facility needs
  - Serve as the "road map" to guide our development strategy and shape our 7-Year Capital Improvement Program
  - Does not authorize construction
- Updates on a ~5-year cycle
- The LTCP is still in DRAFT form

8

Planning Legacy



9

Key Planning Objectives

- Key Planning Objectives
  - Enhance safety for all aircraft operations
  - Improve operational capabilities for aircraft using the airport
  - Achieve compliance with FAA RPZ criteria
- Facility improvements; not a change in role or property footprint

10

AVIATION ACTIVITY FORECAST

11

Aviation Activity Forecast: 2015 - 2035

Table 5: Forecast Comparison by Scenario –Lake Elmo.

Year	Total Based Aircraft				Total Number of Operations				
	Base Case	High Range	Low Range	Extended Runways (3,300 and 3,600 feet)	Base Case	High Range	Low Range	Extended Runway (3,300 feet)	Extended Runway (3,600 feet)
2012	229	229	229	229	26,709	26,709	26,709	26,709	26,709
2015	226	272	182	226	25,454	29,322	20,944	25,454	25,454
2020	218	287	167	218	24,232	30,128	19,456	24,418	24,539
2025	209	300	154	209	23,908	32,460	18,629	24,125	24,261
2030	211	315	142	211	25,200	35,610	18,041	25,459	25,615
2035	208	332	133	208	26,138	39,119	17,835	26,442	26,620

Source: *Reliever Airports Activity Forecasts Technical Report*; HNTB, July 2013

- Base Case Forecast
- Scenarios
  - Low Range
  - High Range
  - Extended Runway
    - 3,300 feet
    - 3,600 feet

12

Aviation Activity Forecast: 2015 - 2035

Table 5: Forecast Comparison by Scenario –Lake Elmo.

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Source: *Reliever Airports Activity Forecasts Technical Report*; HNTB, July 2013

- Base Case Forecast
- Scenarios
  - Low Range
  - High Range
  - Extended Runway
    - 3,300 feet
    - 3,600 feet
    - No change in total based aircraft

13

Aviation Activity Forecast: 2015 - 2035

Table 5: Forecast Comparison by Scenario –Lake Elmo.

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Source: *Reliever Airports Activity Forecasts Technical Report*; HNTB, July 2013

- Base Case Forecast
- Scenarios
  - Low Range
  - High Range
  - Extended Runway
    - 3,300 feet
    - 3,600 feet
    - 1-2% increase in traffic from Base Case

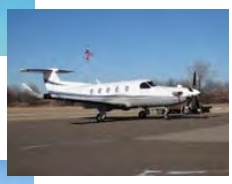
14

AIRFIELD FACILITY REQUIREMENTS

15

Runway Length

- Design Aircraft Family
  - Small Propeller-Driven Airplanes
  - Fewer Than 10 Passenger Seats
- Primary Runway Length
  - FAA Guidance: Range of 3,300 – 3,900 feet
  - Aircraft-specific analysis: ~3,600 feet optimal length for long-term future planning
    - Enhances safety and operational capability for the design aircraft family of propeller airplanes
    - Does NOT consider length requirements for jets
- Crosswind Runway Length
  - Small extension to ~2,750 feet



16

DEVELOPMENT ALTERNATIVES

17

Base Case

- Existing airfield configuration and runway lengths
- Focus on reconstruction of existing pavements
- Runway 14 RPZ Land Acquisition
  - FAA grant requirement

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Base Case

- **Benefits**
  - No change to existing conditions/flight patterns
  - Lowest development cost
- **Areas of Concern**
  - Cannot achieve optimal 3,600' runway length
  - RPZ incompatibilities not addressed
    - Private property acquisition
  - Manning Avenue conflict not addressed; improvements trigger RPZ study requiring FAA review and approval

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Alternative A

- Extend Crosswind Runway 04-22 to 3,200'
- Maintain existing Runway 14-32 configuration
- Runway 14 RPZ Land Acquisition
  - FAA grant requirement
- Preferred Alternative from 2008 LTCP

20

Alternative A

- **Benefits**
  - Provides a longer runway than existing condition
  - Development cost
- **Areas of Concern**
  - Cannot achieve optimal 3,600' runway length
  - Primary runway not aligned for optimal wind coverage
  - RPZ incompatibilities not addressed
    - Private property acquisition
  - Manning Avenue conflict not addressed
  - Shifts primary runway traffic patterns to northeast & southwest
  - Some wetland mitigation

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Alternative B

- Relocate and extend primary Runway 14-32 to 3,600'
- Relocate 30th Street N
- Realign north airport access road
- Convert existing Runway to Taxiway
- Extend crosswind Runway 04-22 to 2,750'

22

Alternative B

- **Benefits**
  - Achieves optimal 3,600’ runway length
  - Achieves RPZ compatibility on MAC-owned land
  - Primary runway aligned for optimal wind coverage
  - Minimizes operational disruptions during construction
- **Areas of Concern**
  - Requires realignment of 30th Street N
  - Shifts primary runway traffic patterns to southeast
  - Some wetland mitigation
  - Most expensive alternative

23

Alternative C

- Relocate and extend primary Runway 14-32 to 3,900’
- Relocate 30th Street N
- Convert existing Runway to Taxiway
- “Legacy” alternative from previous planning
- Extend crosswind Runway 04-22 to 2,750’

24

Alternative C

- **Benefits**
  - Achieves optimal 3,600' runway length (and longer)
  - Primary runway aligned for optimal wind coverage
  - Minimizes operational disruptions during construction
- **Areas of Concern**
  - RPZ incompatibilities will trigger RPZ study
  - Requires relocation of 30th Street N
  - Shifts primary runway traffic patterns to southeast
  - Some wetland mitigation
  - Development cost

25

Preferred Alternative

Alternative B

- Rationale for Selection
  - Runway Protection Zone Compatibility
    - No additional land acquisition needed
  - Ability to provide optimal 3,600' primary runway length
    - No additional primary runway extensions contemplated during planning horizon
    - Provides certainty for surrounding communities
  - Optimizes use of existing airport property
    - Including that purchased decades ago for a longer primary runway
  - Minimizes operational disruptions during construction

26

Preferred Alternative

Alternative B

- Impacts
  - Small increase in aircraft traffic levels (only 1 - 2%) over base case; similar to 2012 levels
    - Better accommodates more sophisticated propeller-driven aircraft
    - May attract a small number of small jets but runway length, instrument approaches, and amenities will be limiting factors
  - 30th Street N realignment will place additional traffic on Neal Avenue and introduce longer travel times for some
    - MAC will provide right-of-way and construct the relocated portion of road
  - Lights on the crosswind runway will only be on when activated by pilots
  - Noise footprint shrinks slightly but shifts southeast

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EVALUATION OF NOISE IMPACTS

28

Existing and Forecast Aircraft Types

- Approximately 69 average daily operations are currently occurring at the airport.
- An anticipated 68 average daily operations are expected to occur in 2035.

	Single-Engine Piston	Helicopter	Multi-Engine Piston	Turboprop	Light Jet	Total
Existing	67.1	1.1	0.3	0.2	0.0	68.6
2035 Forecast	64.5	1.6	0.3	1.0 *(1 takeoff or 1 landing each day)*	0.5 *(1 takeoff or 1 landing every other day)*	67.9

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Aircraft Types and Associated Noise Levels

Aircraft Category	Aircraft Category Operations	Representative Aircraft Type	Seats	Part 36 Takeoff Noise Level (dBA)
Single-Engine Piston	Existing: 67.1/day Forecast: 64.5/day	Cessna 172 	4	74.3
		Cirrus SR22 	4-5	83.7
Turboprop	Existing: 0.2/day Forecast: 1.0/day	Beechcraft King Air 200/250 	7-9	79.2
		Pilatus PC-12 	6-9	77.7
Light Jet	Existing: 0.0/day Forecast: 0.5/day	Cessna Citation Mustang 	6	73.9
Multi-Engine Piston	Existing: 0.3/day Forecast: 0.3/day	Piper Navajo Chieftain 	6-8	78.0

30

Environmental Considerations – Noise Contours

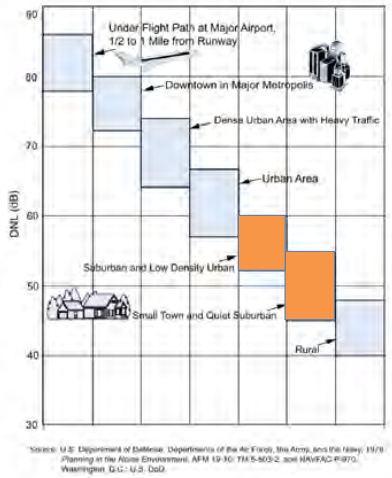
The FAA considers 65 dB DNL to be the threshold for incompatible land use (e.g., residential).

The 65 and 60 db DNL noise contour extend off airport property in the Existing Condition, but are both contained on the airport in the Preferred Alternative Condition.

The 55 dB DNL noise contour includes 11 more residential parcels in the Preferred Alternative Condition as compared to the Existing Condition.

31

Typical Outdoor Community Day-Night Average Sound Levels



The DNL metric is calculated by cumulatively averaging sound levels over a 24-hour period with a 10 dB penalty between 10 p.m. and 7 a.m.

Community noise levels in Small Town and Quiet Suburban areas are typically in the range of **45 dB to 55 dB DNL**. This includes small town cul-de-sacs and wooded residential areas.

Community noise levels in Suburban and Low Density Urban areas are typically in the DNL range of **52 dB to 60 dB DNL**.

32

STAKEHOLDER ENGAGEMENT

33

Stakeholder & Public Engagement

- 1st Phase – Initial Stakeholder Engagement
  - Partner Agencies
    - FAA, MnDOT, Met Council
  - Municipal Representatives
    - Lake Elmo, Baytown & West Lakeland Townships, Washington County
  - Tenant Briefing

Phase 1 Stakeholder Outreach Meetings

Audience	Materials Covered	Date	Location
FAA	LTCP Process, Review of Alternatives	8/21/2014	MAC
FAA, MnDOT, Met Council, County	LTCP Process, Review of Alternatives, Preliminary Findings	9/22/2014	MAC
City, County, Townships	LTCP Process, Review of Alternatives, Preliminary Findings	10/13/2014	LE City Hall
FBO	LTCP Process, Review of Alternatives, Preliminary Findings	10/29/2014	FBO
Airport Users and Tenants	LTCP Process, Review of Alternatives, Preliminary Findings	11/18/2014	Airport
MAC Reliever Advisory Council	LTCP Process, Review of Alternatives, Preliminary Findings	12/9/2014	MAC
FAA	LTCP Technical Review Session	2/18/2015	FAA
City, County, Townships	Review of Draft LTCP Recommendations & Public Engagement Plan	4/21/2015	LE City Hall

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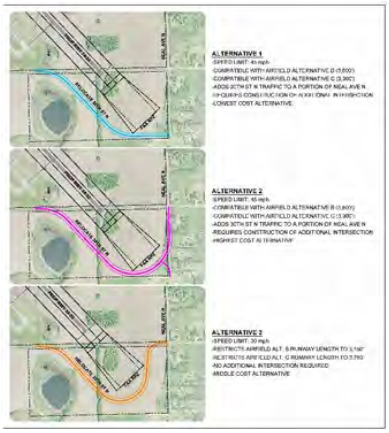
Stakeholder & Public Engagement

- 2nd Phase – Public Outreach Program
  - Distribute Draft LTCP Report
    - Available June 22, 2015
  - Formal Public Review Period
    - June 22 – August 26 (extended from August 5)
  - Two Public Information Meetings
    - July 9 (Baytown) and July 16 (Lake Elmo)
    - ~150 attendees
- 3rd Phase – Plan Finalization
  - Consider & Incorporate Feedback
  - Final MAC Adoption & Met Council Formal Review

Audience	Date	Location
General Public	July 9	Baytown
General Public	July 16	Lake Elmo
Public Comment Period: June 22, 2015 – August 26, 2015		

35

Citizen Concerns



- Citizen concerns we are hearing:
  - 30th Street North realignment
    - Disruption to existing traffic patterns
  - Increased aircraft traffic levels and noise levels
    - Introduction of significant levels of jet aircraft activity
    - Impact on property values
  - Impact of airfield lighting
  - Overall need for the improvements – the airport is fine as it is today

36

The Road Ahead

- LTCP Finalization
- MAC Adoption of LTCP
  - The LTCP does not authorize construction
  - The 7-Year Capital Improvement Program is the implementation vehicle of the MAC
- Metropolitan Council Formal Review
- Airport Layout Plan (ALP)
  - Reviewed/Approved by FAA
- Environmental Review
  - Another opportunity for public comment/input
- Grant Funding
- Project Engineering/Design

37

Summary

- Real challenges to address
  - "Do Nothing" is no longer an option
- Preferred Alternative is an opportunity to:
  - Address RPZ compliance without complicating the Manning Avenue improvement project or acquiring more private property
  - Provide certainly of airport footprint for municipal planning
  - Address long-standing runway length deficiency
  - Meet objectives of improving safety and increasing operational capabilities for aircraft using the airport

38

Lake Elmo Airport

Draft 2035 Long-Term Comprehensive Plan (LTCP)

09 November 2015 – West Lakeland Township Board

Draft LTCP Status Update & Potential Refined Development Alternative

Briefing Agenda

- Airport Role & Opportunities
- Key Planning Issues
- Review of Original Preferred Alternative
- Presentation of Potential Refined Preferred Alternative
- Stakeholder Engagement & Road Ahead
- Summary

2

Lake Elmo Airport Role

- Primary Role of Lake Elmo Airport
  - Integral part of the regional Reliever Airport system
  - Accommodates Personal, Recreational, and some Business Aviation users
  - Design Aircraft is and will continue to be small, propeller driven aircraft with < 10 passenger seats
  - Role not expected to change
- Lake Elmo Airport Context
  - Of 83 Intermediate Airports in Minnesota:
    - 2nd highest number of based aircraft
    - 3rd highest number of aircraft flights
    - Only 4 other airports have a shorter primary runway

3

Aircraft Using the Airport Today

- Design Aircraft Family
  - Small Propeller-Driven Airplanes
  - Fewer Than 10 Passenger Seats

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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
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  - Several incompatible land uses in existing RPZs at Lake Elmo (roads, railroad, non-owned property)
  - RPZ Alternatives Analysis now required for triggering events (e.g., Manning Avenue Improvements)

5

Today's Needs and Opportunities

Today's Needs

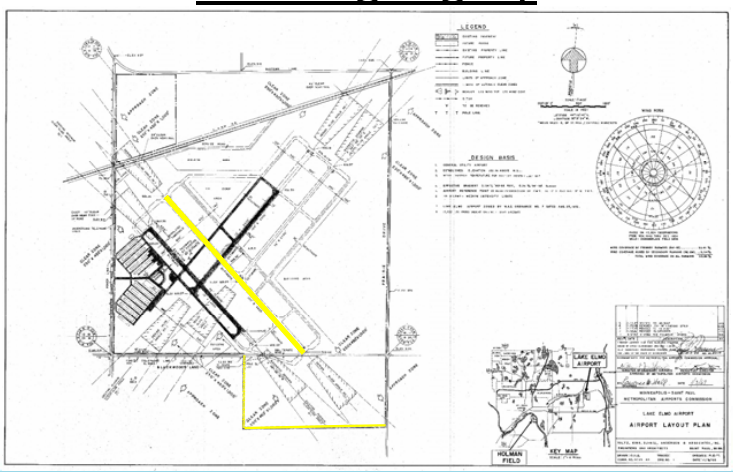
- Failing Infrastructure
  - Runway pavements need to be reconstructed
- Runway Protection Zones
  - Have MAC-owned property to meet FAA requirements

Today's Opportunities

- Manning Avenue Improvements
  - Accommodate roadway needs
- Zoning Questions for Neighbors
  - Resolve uncertainties for County, City and Townships
- Airport Improvements for Users
  - Provide longer runway per FAA Guidance

6

Planning Legacy



7

Key Planning Objectives

- Key Planning Objectives
  - Address failing infrastructure
  - Enhance safety for all aircraft operations
  - Improve operational capabilities for aircraft using the airport
  - Achieve compliance with FAA RPZ criteria
- Facility improvements; not a change in role or property footprint

8

DEVELOPMENT ALTERNATIVES

9

Original Preferred Alternative

Alternative B

- Rationale for Selection
  - Runway Protection Zone Compatibility
    - No additional land acquisition needed
  - Ability to provide optimal 3,600' primary runway length
    - No additional primary runway extensions contemplated during planning horizon
    - Provides certainty for surrounding communities
  - Optimizes use of existing airport property
    - Including that purchased decades ago for a longer primary runway
  - Minimizes operational disruptions during construction

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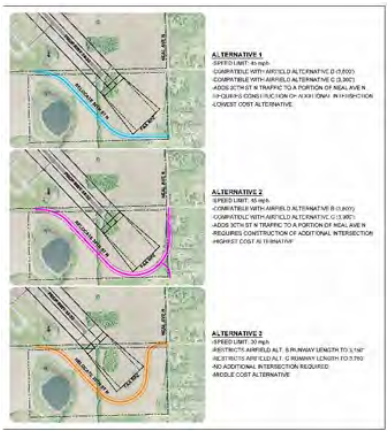
Citizen Concerns



- Citizen concerns we have heard:
  - 30th Street North realignment
    - Disruption to existing traffic patterns
    - Increased traffic on Neal Avenue
  - Increased aircraft traffic levels and noise levels
    - Introduction of significant levels of jet aircraft activity
    - Impact on property values
  - Environmental impacts to wetlands and wildlife habitat
  - Overall need for the improvements – the airport is fine as it is today

11

Potential Refined Alternative

Alternative B1

- Changes from Original Preferred Alternative
  - 30th Street N connects back to existing intersection with Neal Avenue
  - Shorter runway length (3,500 feet)
  - Runway shifts to the north and west – further from WLT residences
  - Use of smaller Runway Protection Zones (RPZs)

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STAKEHOLDER ENGAGEMENT

13

Stakeholder & Public Engagement

- Public Outreach Program
  - Pre-publication stakeholder engagement
  - Distribute Draft LTCP Report
    - Available June 22, 2015
  - Formal Public Review Period
    - June 22 – September 16 (extended from August 5)
  - Two Public Information Meetings
    - July 9 (Baytown) and July 16 (Lake Elmo)
    - ~150 attendees
  - Washington County Board Briefing (August 18)
- Consider & Incorporate Feedback
  - Meetings with Concerned Neighbor Groups
  - Tenant Update
  - Follow-on Public Comment Period in December (if approved MAC Board)

Audience	Date	Location
General Public	July 9	Baytown
General Public	July 16	Lake Elmo
Washington County Board	August 18	Stillwater
Public Comment Period: June 22, 2015 – September 16, 2015		

14

The Road Ahead

- MAC Adoption of LTCP*
  - The LTCP does not authorize construction
  - The 7-Year Capital Improvement Program is the implementation vehicle of the MAC
- Metropolitan Council Formal Review*
- Airport Layout Plan (ALP)
  - Reviewed/Approved by FAA
- Environmental Review*
- Grant Funding
- Project Engineering/Design

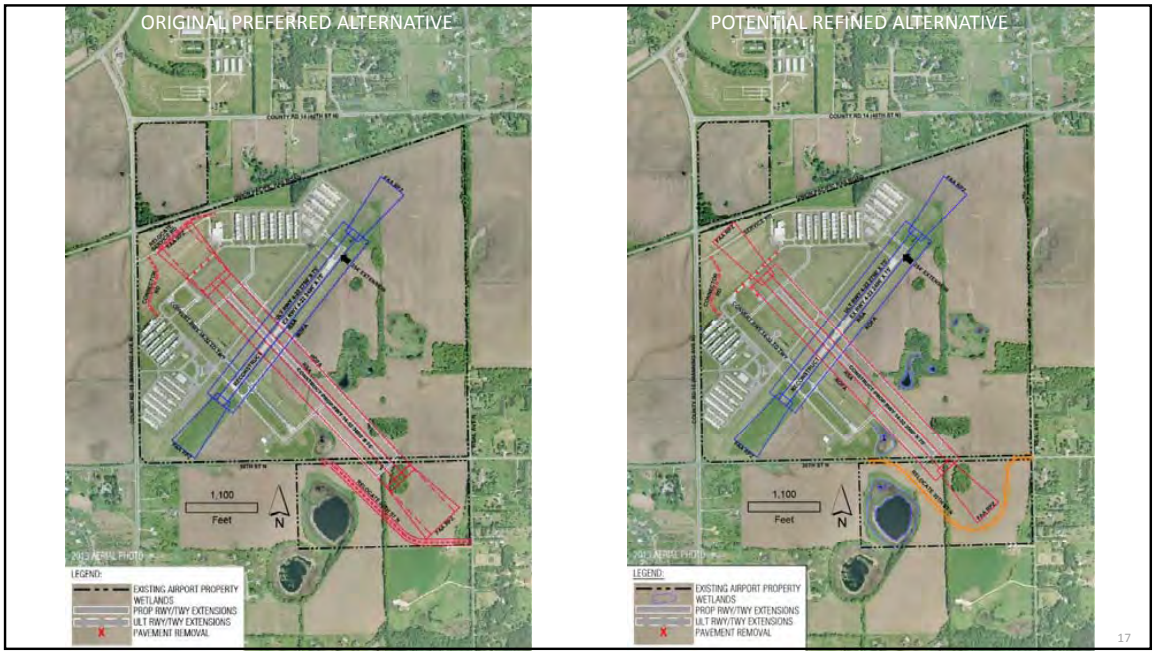
* Denotes processes that provide additional opportunities for public input

15

Summary

- Real challenges to address
  - "Do Nothing" is no longer an option
- Refined Preferred Alternative is an opportunity to:
  - Address failing infrastructure
  - Address long-standing runway length deficiency
  - Address RPZ compliance without complicating the Manning Avenue improvement project or acquiring more private property
  - Provide certainly of airport footprint for municipal planning
  - Address some community concerns while still meeting MAC objectives of improving safety and increasing operational capabilities for aircraft using the Airport

16


ORIGINAL PREFERRED ALTERNATIVE
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LEGEND:
EXISTING AIRPORT PROPERTY
WETLANDS
PROP RWY/TWY EXTENSIONS
ULT RWY/TWY EXTENSIONS
PAVEMENT REMOVAL
POTENTIAL REFINED ALTERNATIVE
1,100
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N
LEGEND:
EXISTING AIRPORT PROPERTY
WETLANDS
PROP RWY/TWY EXTENSIONS
ULT RWY/TWY EXTENSIONS
PAVEMENT REMOVAL
17

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
[illegible]	[illegible] Hillside - Stillwater	Self
Dave Schultz	1440 Norcrest Ave N.	WLT
Nathan Ruedy	7009 13th Ave S Richfield	Airport
Bruce Olson	685 Clearbrook Ln - Vadnais Hts	Self & EAA
Karen Baltzer	13232 30th St Ct N - West Lakeland	Self
John Kelley	5238 [illegible] Blvd. N. Stillwater	Baytown Twp.
Mike [illegible]	14186 [illegible] Blvd N	Self
David Sqe	2055 Stagecoach Tr. N.	Self
Dale Olson	1740 Neal Ave. N. W. Lakeland	Self
Denise Cornell	2733 Neal Av. W Lakeland	Self
Claudia B Baldwin	13955 28 St W. Lakeland	Self
Kathy Lohmer	3305 Osgood Cove N. Baytown	Self + district
Rick Weyrauch	13310 51st St. N.	Baytown Twp.
Vern + Pat Swedberg	2521 Neal Ave N.	W. Lakeland
John + Della Hadler	11834 44th St. Ln N.	Friends of St Croix 2
Dean & Chris Dumel	2413 Morgan Ave N	Self
[illegible]	West Lakeland	Self
Charles S [illegible]	Baytown Twp	Self

Lake Elmo Draft 2035 LTCP Refined Preferred Alternative Addendum Supplemental Public Information Meeting

February 11, 2016

Baytown Community Center

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
Allen Kupferschmidt	2769 LEGION AVE N. Lk Elmo MN.	Airport
DAN BERGSTROM	12171 PARADE AVE N STILLWATER, MN 55082	AIRPORT
GATIS VALTERS	6335 WARNER AVE S. PINE SPRINGS 55115	AIRPORT
Steve Fortman	3121 OASIS Ave N Baytown MN 55082	Myself
Mr. & Mrs Dale Otteson	1740 Neal Ave N Stillwater	myself
Brad + Denise Cornell	2733 Neal Ave N. Stillwater	myself
Jason Lieberow	1121 O'Ryan Trl N West Lakeland	myself
TOM & MARY VIERLING	2825 Neal Ave N STILLWATER	Self
Tom Eggert	8058 Marsh Creek Alcove Woodbury 55125	Self
Senator Karin Housley		self
Chris Dresser		
Susan B. Cusack + Tim	12786 22nd St. N. W Lkind	Self
Dan Kyllo	1891 Oldfield Ave N, WLT	West Lakeland Board
JERRY CONDON	13216 30TH ST. CIRCLE NO. BAYTOWN	SELF
Dale Wiehe	12240 27TH ST N Lake Elmo MN	Self
Stephen + Elizabeth Buckingham	13694 30TH Street Circle	Self
Susan & Tim Milpitz	3101 Neal Ave N	self
Brad Swahl	14129 20th/ ST N	Me

Lake Elmo Draft 2035 LTCP Refined Preferred Alternative Addendum Supplemental Public Information Meeting

February 11, 2016

Baytown Community Center

PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
Marian Arnett	2655 Neal Ave N, Stillwater, MN	
Charles Hackman		Airport
Ann Pung-Terwedo	Washington County	-
Sandra + Jim Ogren	11790 Little Bluestem Ct N	
DAVE + CAROL BEALKE	13860 230th St. Ct. N. Stillwater	RESIDENTS
Paul Randall	1053 Garden Ave Maplewood, MN 55109	Self - Pilot - Flight Instr.
MOLLY KOLSEN	West Lakeland Twp	Self

Lake Elmo Draft 2035 LTCP Refined Preferred Alternative Addendum Supplemental Public Information Meeting

February 11, 2016

Baytown Community Center

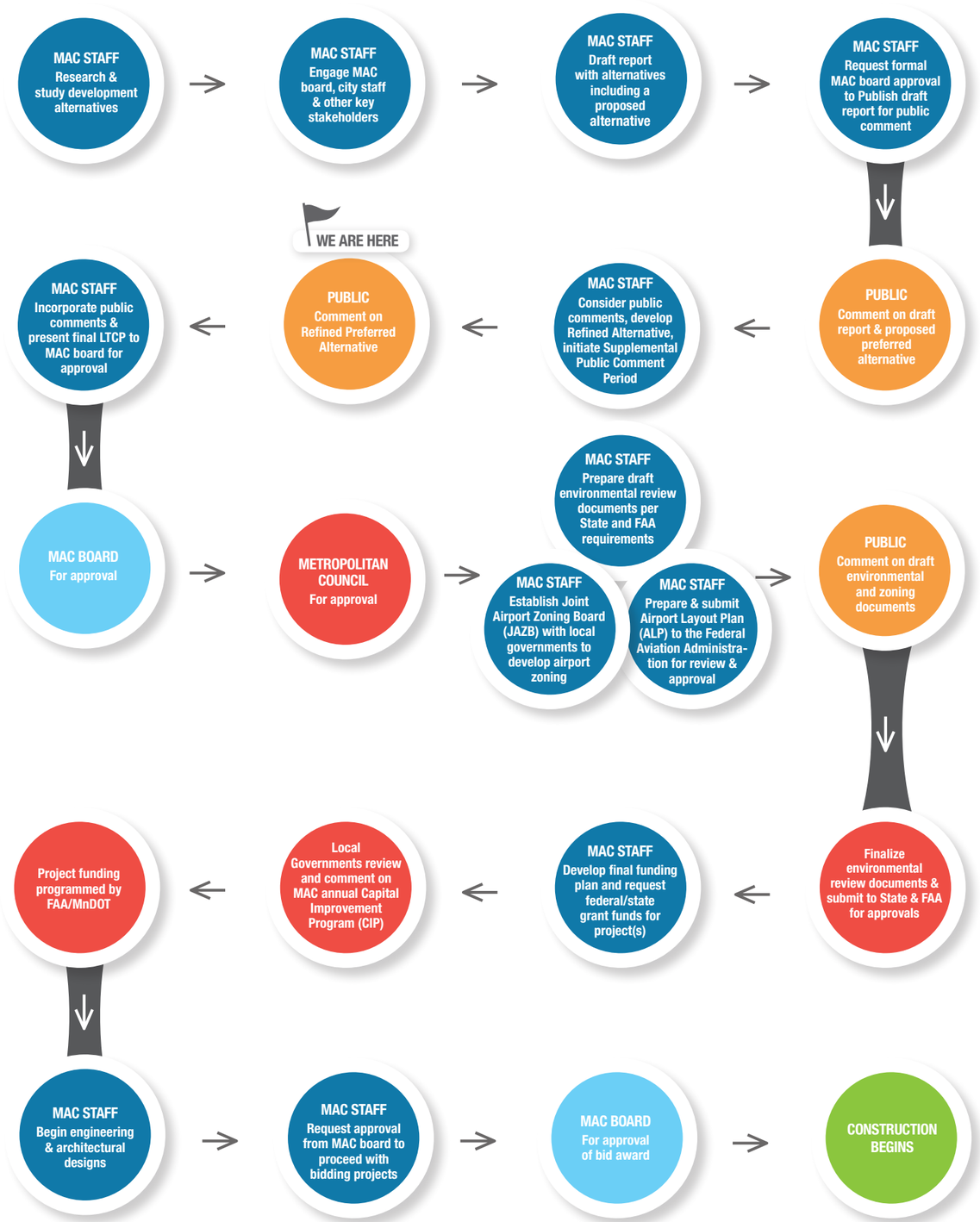
PLEASE SIGN IN

NAME	ADDRESS	REPRESENTING
John Renwick	Minneapolis	
Tim Cossalter	Minneapolis	Senator Klobuchar
Lynda Pelt	West Lakeland MN	Self
Rolf Larson	Lake Elmo, MN	Self
Hugh Murphy	Lake Elmo	Self.
Kurt [illegible]	Baytown Board	

Lake Elmo Draft 2035 LTCP Refined Preferred Alternative Addendum Supplemental Public Information Meeting

February 11, 2016

Baytown Community Center



Lake Elmo Airport 2035 LTCP

Supplemental Information Meeting Handout

Thank you for attending this supplemental Lake Elmo Airport 2035 Long Term Comprehensive Plan (LTCP) public information meeting.

We appreciate you taking the time to attend and learn more about the changes we made to the draft LTCP. Based on feedback received during the first public comment period, the MAC is proposing a Refined Preferred Alternative. This Refined Alternative seeks to address some items of community concern while preserving the desired objectives for improving airport facilities.

This handout provides information about Lake Elmo Airport, a summary of the planning process and the refined recommendations.

Airport Development and Reliever Airports

PUBLIC COMMENTS

The Metropolitan Airports Commission (MAC) owns and operates Lake Elmo Airport. It is one of six general aviation airports within the MAC's system of airports.

The MAC is accepting written comments about the revised plan through Wednesday, March 9, 2016. 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 **lake_elmo_airport_ltcp_comments@mspmac.org**. All comments submitted will be made a part of the project record and published in the final report.

ABOUT LAKE ELMO AIRPORT

Lake Elmo Airport opened in September 1951 and has been in continuous operation since. The airport is situated on approximately 640 acres and has two paved runways. The primary runway (Runway 14-32) is 2,849 feet long by 75 feet wide, and the crosswind runway (Runway 04-22) is 2,496 feet long by 75 feet wide.

Operating within a diverse system of metropolitan area airports, Lake Elmo Airport's primary role is to serve personal, recreational, and some business aviation users in Minnesota's Washington County and the eastern portion of the metropolitan area.

WHY IS THE LTCP BEING UPDATED? WHAT IS ITS STATUS?

The MAC last updated Lake Elmo Airport's LTCP in late 2008 for the 20-year planning timeframe of 2005-2025. It is time to update the plan to reflect current conditions and trends.

This update explores the facility's needs out to the year 2035, with recommendations that provide guidance for its development over the next 5-10 years.

The original draft LTCP report, issued in June 2015, is available on the MAC website at **http://www.metroairports.org/General-Aviation/Airports/Lake-Elmo.aspx**

The Addendum to the draft 2035 LTCP report, which describes the Refined Preferred Alternative, is also available on the MAC website.

WHY ARE IMPROVEMENTS BEING CONSIDERED NOW?

Due to its age and condition, the MAC needs to determine whether to reconstruct the primary runway in its current configuration or construct a replacement runway adjacent to it.

Based on information from the Federal Aviation Administration (FAA) and aircraft manufacturers, the existing primary runway is not adequate to efficiently accommodate the propeller-driven aircraft currently being used at the airport. Lake Elmo Airport has one of the shortest paved primary runways of any airport in the State of Minnesota.

Key objectives for the proposed airfield improvements are to 1] address failing, end-of-life infrastructure, 2] enhance safety, and 3] improve operational capabilities for the aircraft family for which this airport is designed.

The primary role of the Lake Elmo Airport is expected to stay the same throughout the planning period. The aircraft mainly anticipated to use the airport – and that which it is designed for – will continue to be a family of small, propeller-driven airplanes with fewer than 10 passenger seats.

WHAT AIRPORT IMPROVEMENTS ARE PROPOSED IN THE PLAN?

The following improvements are recommended and are shown on the map:

A. REVISED: Relocate primary Runway 14-32 by shifting it 614 feet to the northeast and extending it to a length of 3,500 feet
- o *The Original Preferred Alternative proposed shifting the runway 700 feet to the northeast and extending it to a length of 3,600 feet*

B. REVISED: Relocate 30th Street N around the new Runway 32 end so that it meets back up at the current intersection with Neal Avenue
- o *The Original Preferred Alternative proposed relocating 30th Street N to a new intersection with Neal Avenue about ¼ mile south of the existing intersection.*

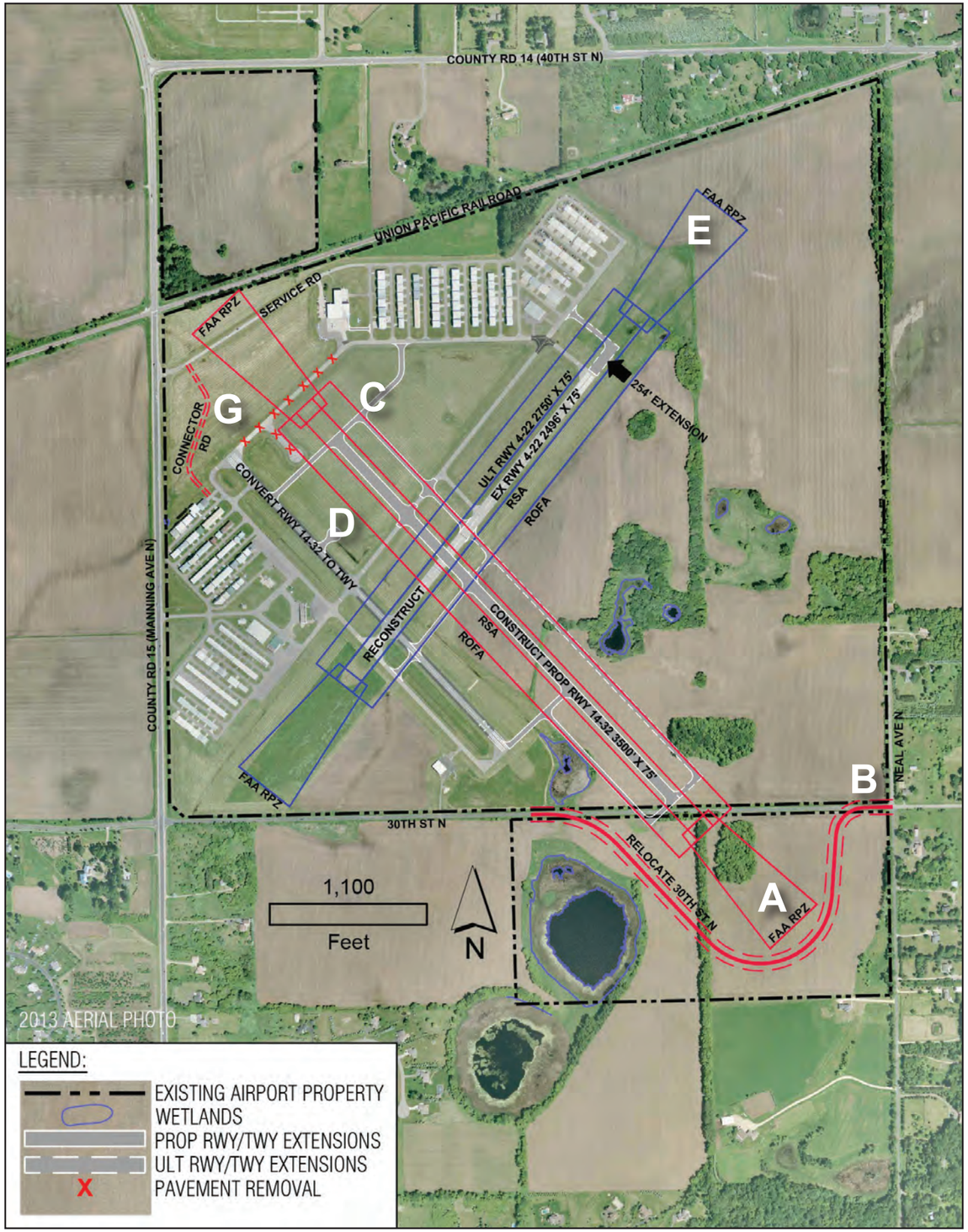
C. Construct a new cross-field taxiway to serve the new Runway 14 end (north end)

D. Convert existing Runway 14-32 into a partial parallel taxiway and construct additional taxiway infrastructure as needed to support the relocated runway

E. Reconstruct existing crosswind Runway 04-22 and extend it to 2,750 feet, including a new taxiway connector and runway lighting

F. Pursue a new, non-precision instrument approach to the Runway 14 end, and upgrade the existing Runway 04 approach to an RNAV (GPS) type (not shown on diagram)

G. Connector roadway between hangar areas

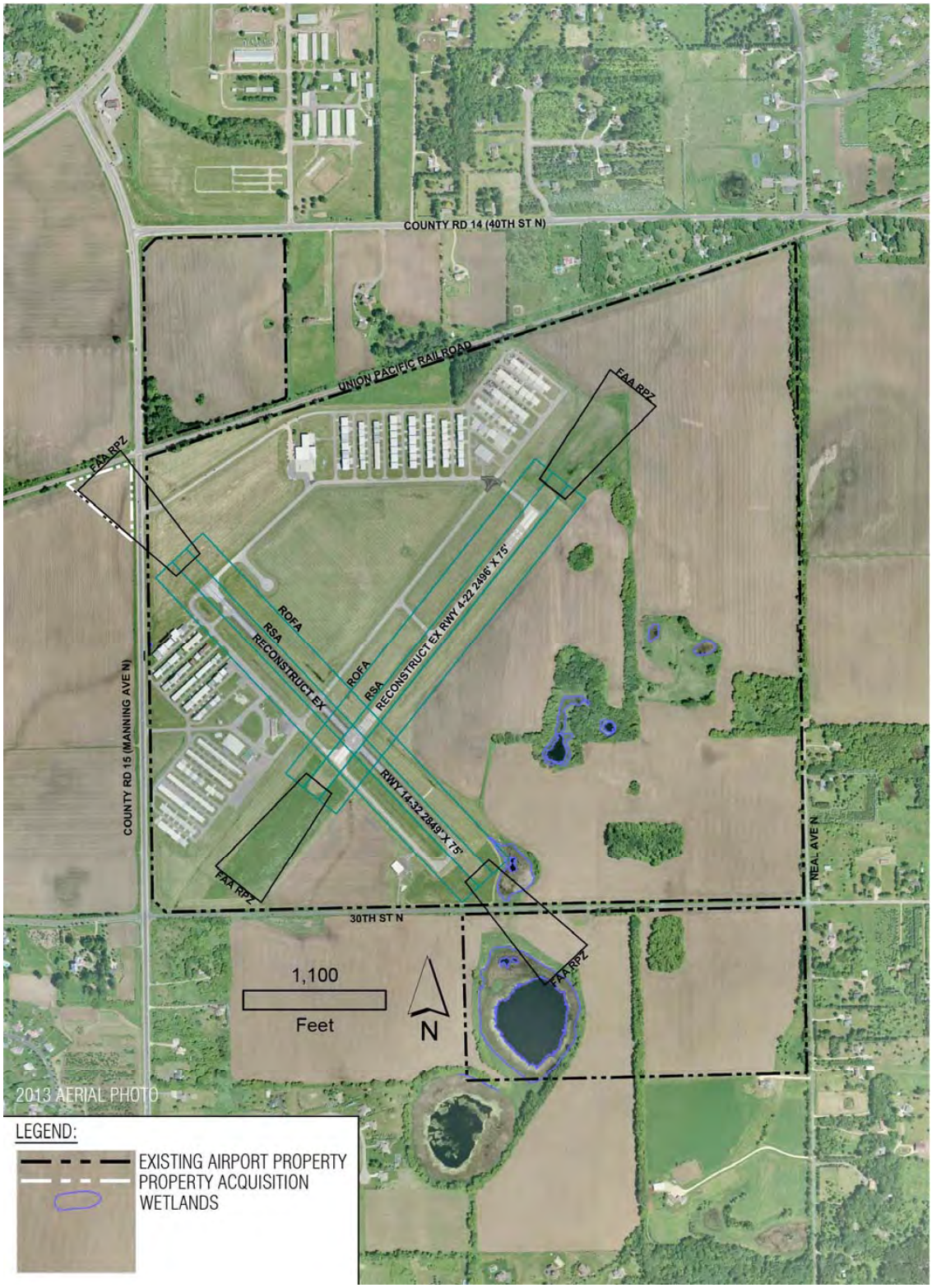


Lake Elmo Airport

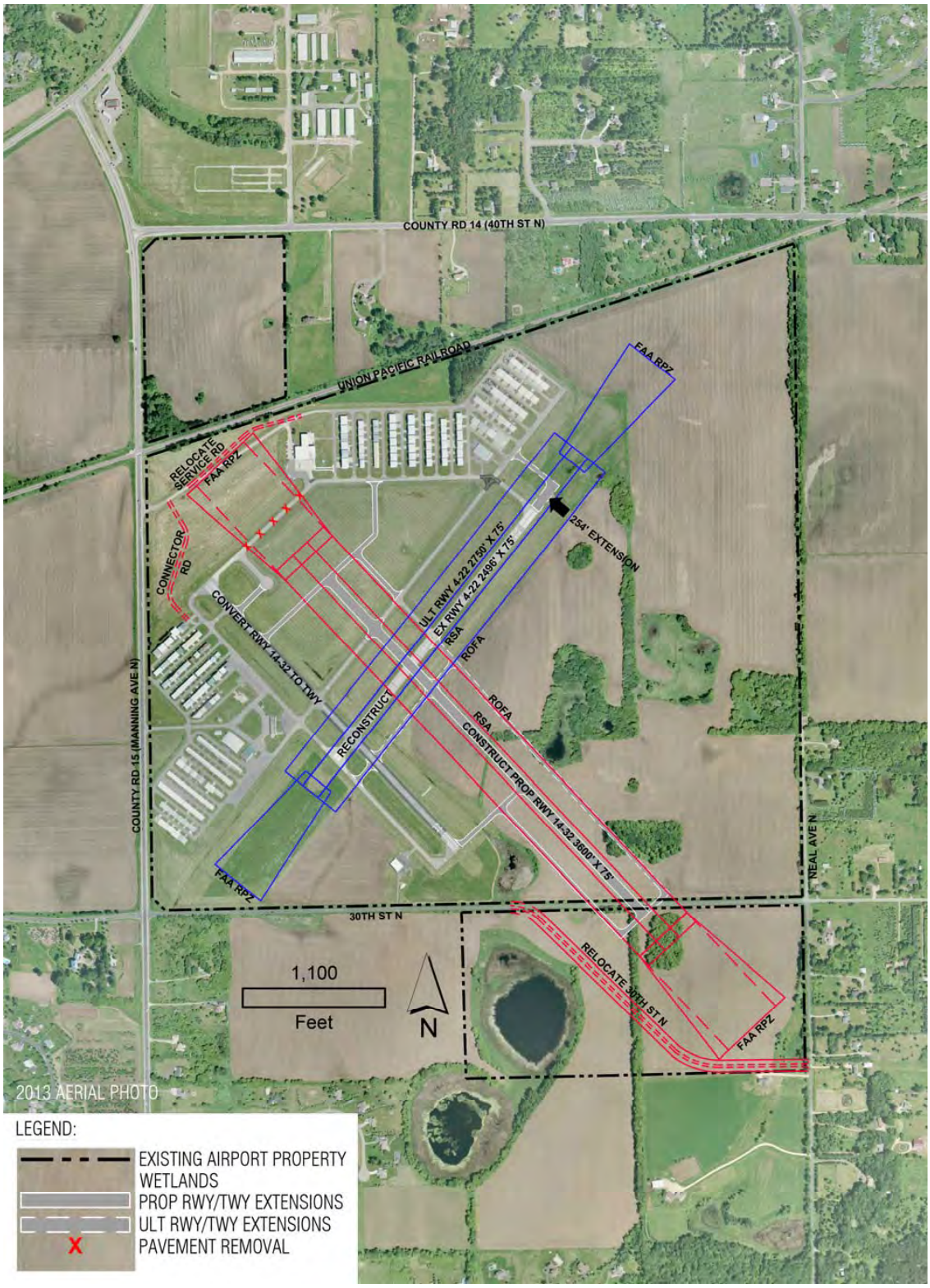
Draft 2035 Long-Term Comprehensive Plan (LTCP)

LAKE ELMO AIRPORT 2035 LONG-TERM COMPREHENSIVE PLAN

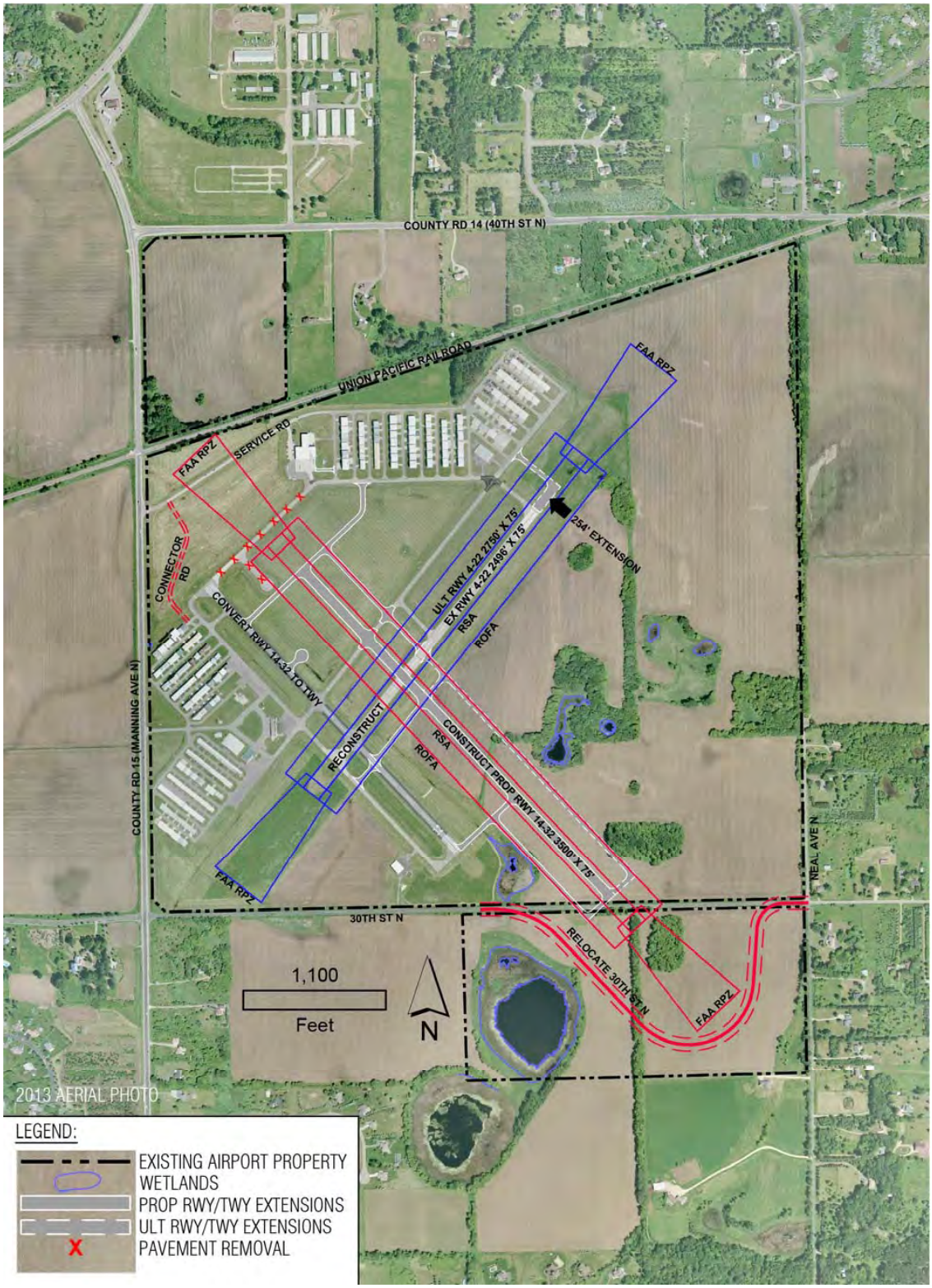
Supplemental Public Information Meeting – February 11, 2016



Existing Condition

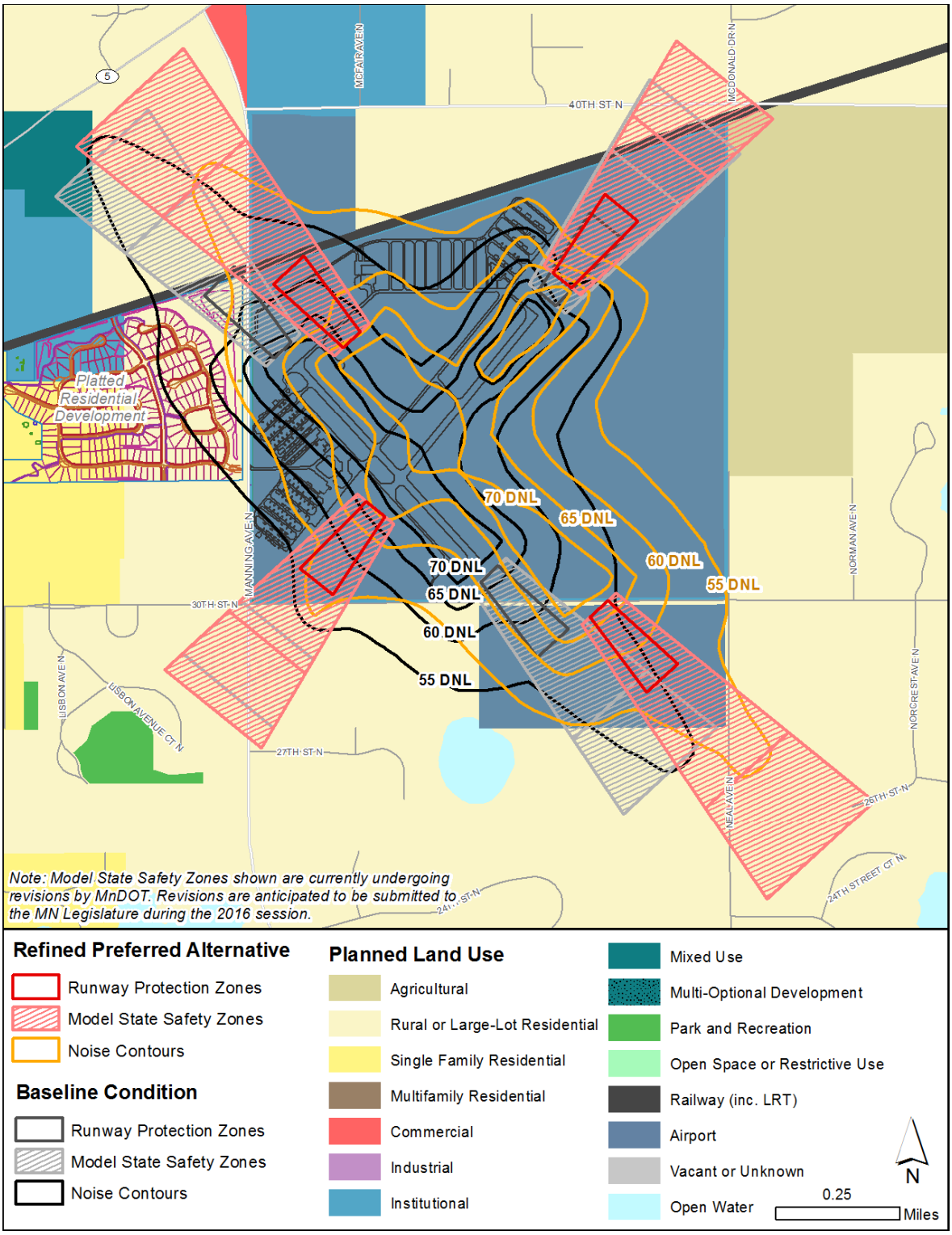


Original Preferred Development Alternative

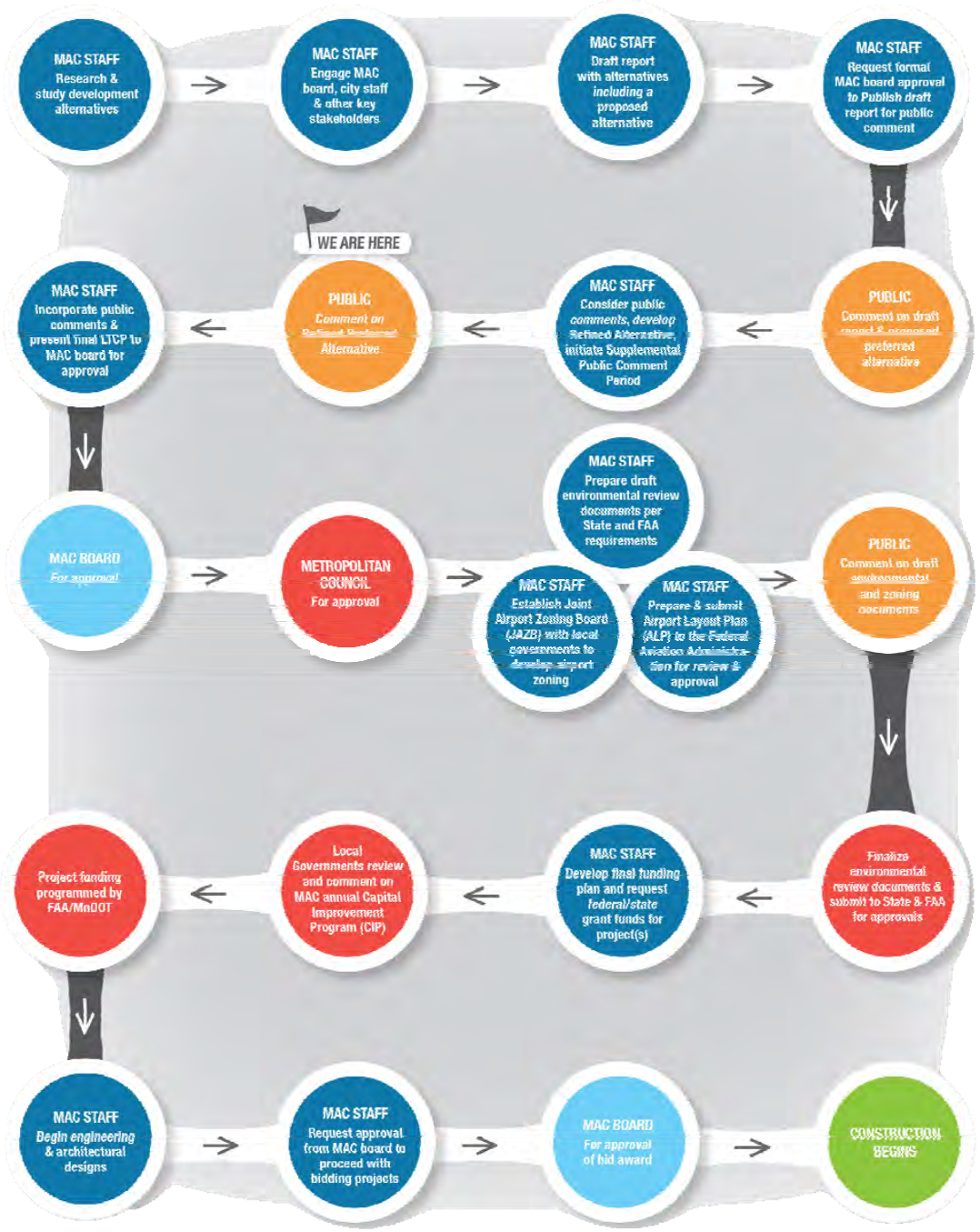


Refined Preferred Development Alternative

Noise Contour Comparison



Land Use Compatibility Comparison



Planning & Project Implementation Process

Lake Elmo Airport

Draft 2035 Long-Term Comprehensive Plan (LTCP)

11 February 2016 – Supplemental Public Information Meeting

Refined Preferred Development Alternative Briefing

Briefing Agenda

- Review of Key Planning Issues
- Stakeholder Engagement Process
- Review of Original Preferred Alternative
- Presentation of Refined Alternative
- The Road Ahead & Summary

2

Lake Elmo Airport Role

- Primary Role of Lake Elmo Airport
  - Integral part of the regional Reliever Airport system
  - Accommodates Personal, Recreational, and some Business Aviation users
  - Design Aircraft is and will continue to be small, propeller driven aircraft with < 10 passenger seats
  - Role not expected to change
  - Improvements, not expansion
- Lake Elmo Airport Context
  - Of 83 Intermediate Airports in Minnesota:
    - 2nd highest number of based aircraft
    - 3rd highest number of aircraft flights
    - Only 4 other airports have a shorter primary runway

3

Purpose and Need for Proposed Improvements

CONCEPTUAL MANNING AVENUE REALIGNMENT CORRIDOR TO CLEAR EXISTING RUNWAY PROTECTION ZONE (RPZ)

- Failing Infrastructure
  - Runway pavements need to be reconstructed
- Airport Improvements for Users
  - Provide longer runway per FAA Guidance
  - Not feasible to extend existing primary runway
- Runway Protection Zone (RPZ) Compliance
  - Have MAC-owned property to meet FAA requirements without acquiring additional property
  - Opportunity to remove Manning Avenue & 30th Street N from RPZ
- Proposed improvements will achieve objectives of enhancing safety and improving operational capabilities
- Facility improvements; not a change in role or property footprint

4

STAKEHOLDER ENGAGEMENT

5

Stakeholder & Public Engagement

- Public Outreach Program
  - Pre-publication stakeholder engagement
  - Distribute Draft LTCP Report
    - Available June 22, 2015
  - Formal Public Review Period
    - June 22 – September 16, 2015 (extended from August 5)
  - Two Public Information Meetings
  - Washington County Board Briefing
  - West Lakeland Township Board Briefing
- Consider & Incorporate Feedback
  - Meetings with Concerned Neighbor Groups
  - Tenant Update
  - LTCP Addendum & Supplemental Public Comment Period
    - January 25 – March 9, 2016
    - Supplemental Public Information Meeting

Audience	Date	Location
General Public Information Meeting	July 9, 2015	Baytown
General Public Information Meeting	July 16, 2015	Lake Elmo
Washington County Board	August 18, 2015	Stillwater
West Lakeland Township Board	November 9, 2015	West Lakeland
MAC Board Presentations	December 7 & 21, 2015	MAC
General Public Information Meeting	February 11, 2016	Baytown
Supplemental Public Comment Period: January 25 – March 9, 2016		

6

DEVELOPMENT ALTERNATIVES

7

Original Preferred Alternative

Alternative B

- Rationale for Selection
  - Runway Protection Zone Compatibility
    - No additional land acquisition needed
  - Ability to provide optimal 3,600' primary runway length
    - No additional primary runway extensions contemplated during planning horizon
    - Provides certainty for surrounding communities
  - Optimizes use of existing airport property
    - Including that purchased decades ago for a longer primary runway
  - Minimizes operational disruptions during construction

8

Citizen Concerns

- Citizen concerns we received:
  - 30th Street North realignment
    - Disruption to existing traffic patterns
    - Increased traffic on Neal Avenue
  - Increased aircraft traffic levels and noise levels
    - Introduction of significant levels of jet aircraft activity
    - Impact on property values
  - Environmental impacts to wetlands and wildlife habitat
  - Overall need for the improvements – the airport is fine as it is today

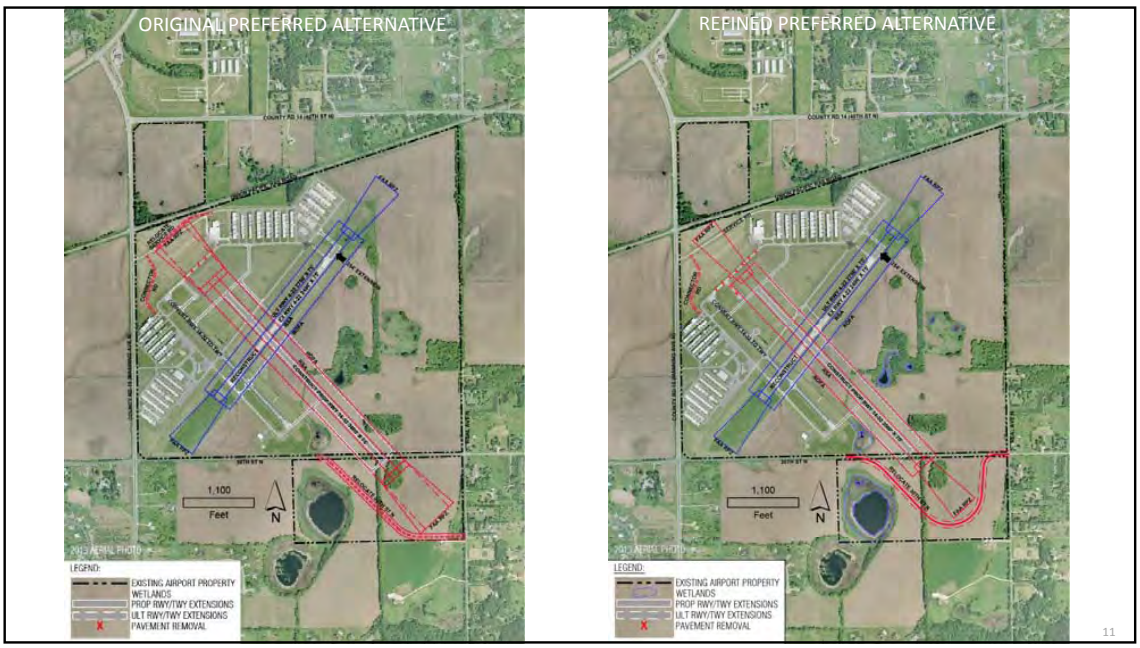
9

Refined Alternative

Alternative B1

- Changes from Original Preferred Alternative
  - 30th Street N connects back to existing intersection with Neal Avenue
  - Shorter runway length (3,500 feet)
  - Runway shifts to the north and west – further from West Lakeland Township residences
  - "Utility" runway designation allowing use of smaller Runway Protection Zones (RPZs)

10


ORIGINAL PREFERRED ALTERNATIVE
REFINED PREFERRED ALTERNATIVE
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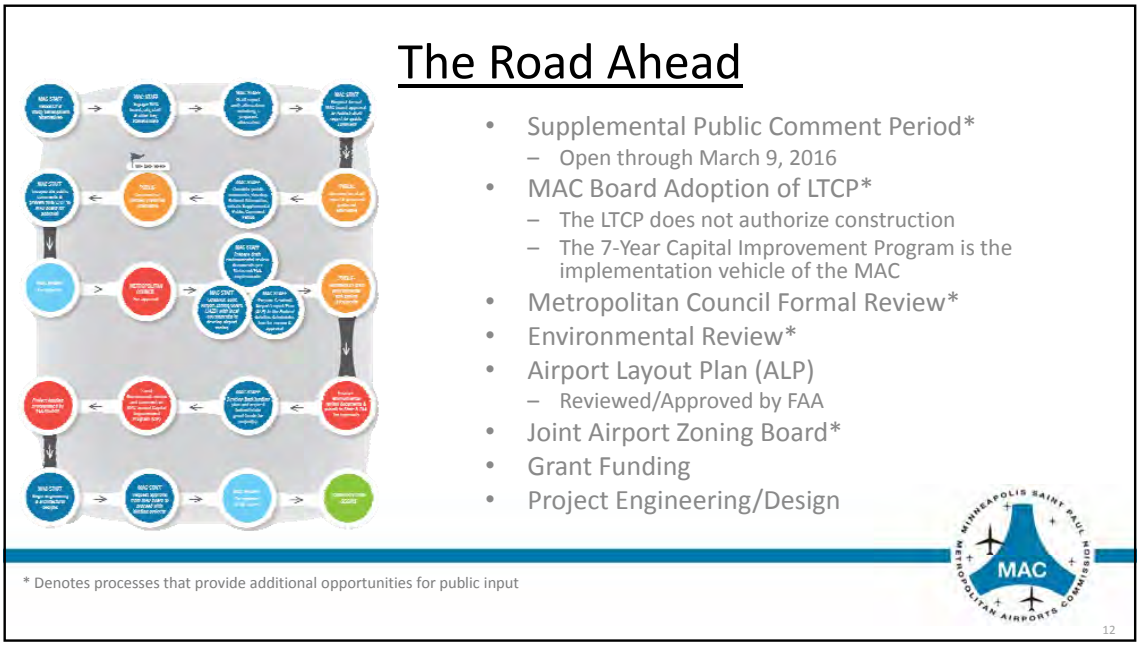
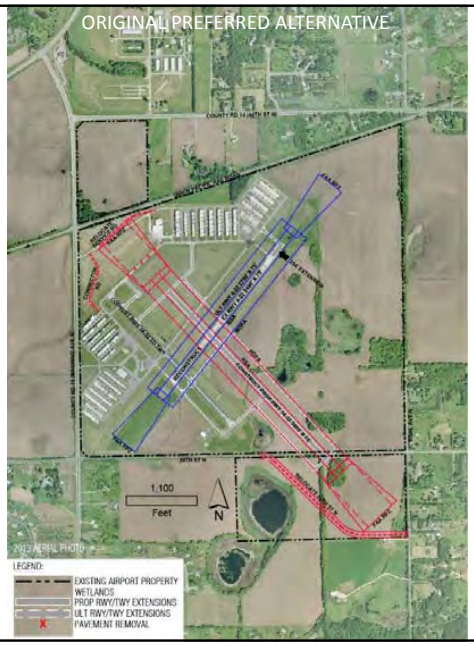
LEGEND:
EXISTING AIRPORT PROPERTY
WETLANDS
PROP RWY/TWY EXTENSIONS
ULT RWY/TWY EXTENSIONS
PAVEMENT REMOVAL
11


The Road Ahead
Supplemental Public Comment Period*
Open through March 9, 2016
MAC Board Adoption of LTCP*
The LTCP does not authorize construction
The 7-Year Capital Improvement Program is the implementation vehicle of the MAC
Metropolitan Council Formal Review*
Environmental Review*
Airport Layout Plan (ALP)
Reviewed/Approved by FAA
Joint Airport Zoning Board*
Grant Funding
Project Engineering/Design
* Denotes processes that provide additional opportunities for public input
MAC
12

Summary

- Real challenges to address
  - "Do Nothing" is no longer an option
- Refined Alternative is an opportunity to:
  - Address failing infrastructure
  - Address long-standing runway length deficiency
  - Address RPZ compliance without complicating the Manning Avenue improvement project or acquiring more private property
  - Provide certainly of airport footprint for municipal planning
  - Address some community concerns while still meeting MAC objectives

13



14

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA)
COUNTY OF WASHINGTON) ss
)

Charlene Vold being duly sworn on an oath, states or affirms that they are the Authorized Agent of the newspaper(s) known as:

Stillwater Gazette

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, §331A.07, and other applicable laws as amended.

(B) This Public Notice was printed and published in said newspaper(s) for 1 successive issues; the first insertion being on 06/17/2015 and the last insertion being on 06/17/2015.

By: Charlene Vold
Authorized Agent

Subscribed and sworn to or affirmed before me on 06/17/2015.

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:
$40.00 per column inch

Ad ID 407748

Public Notice

(Official Publication)

PUBLIC NOTICE
2035 LONG-TERM COMPREHENSIVE PLAN
LAKE ELMO AIRPORT
Public Comment Period Open

The Metropolitan Airports Commission (MAC) has completed a draft version of the 2035 Long-Term Comprehensive Plan (LTCP) for Lake Elmo Airport. The purpose of the LTCP is to identify facility needs at Lake Elmo Airport for the 20-year period between 2015 and 2035. The public is invited to review this document and provide written comments to the MAC.

Lake Elmo Airport is located in Washington County approximately 12 miles east of the downtown district, one mile east of downtown Lake Elmo, within Baytown Township, and is bordered by portions of West Lakeland Township and the City of Lake Elmo. The draft LTCP considers replacing the primary northwest/southeast Runway 14-32 with a runway that is relocated approximately 700 feet parallel to, and northeast of, the existing primary runway alignment and extended to a length of 3,600 feet. The relocated primary runway would require realignment of a portion of 30th Street North. An extension to the crosswind northeast/southwest Runway 04-22 to a length of 2,750 feet is also proposed. These improvements are intended to enhance the airport's ability to fulfill its existing role of accommodating propeller-driven airplanes with fewer than 10 passenger seats.

Copies of the draft LTCP document will be available for distribution and for viewing on the MAC's website beginning Monday, June 22, 2015 (http://metroairports.org/General-Aviation/Airports/Lake-Elmo.aspx). Written comments will be accepted until Wednesday, August 5, 2015 at 5:00pm CDT.

A copy of the draft LTCP document will also be available for review at the MAC General Office building, 6040 28th Avenue South, Minneapolis; Lake Elmo City Hall, 3800 Laverne Avenue North, Lake Elmo; and at Lake Elmo Airport, 3275 Manning Avenue, Lake Elmo; or a request for a copy may be submitted via the email address below.

Please submit written comments via email to Lake_Elmo_Airport_LTCP_Comments@mspmac.org, or mail written comments to Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis MN 55450.

The public is also invited to attend public information meetings to learn more about the proposed developments included in the draft LTCP and to provide comments. The meetings will provide an opportunity for one-to-one interaction with MAC staff in an open-house setting at the times and locations listed below:

Thursday, July 9, 2015
4:00 to 7:00 PM
Baytown Community Center
4020 McDonald Drive North, Stillwater, MN 55082

Thursday, July 16, 2015
4:00 to 7:00 PM
City of Lake Elmo City Hall
3800 Laverne Avenue North
Lake Elmo, MN 55042

6/17/15, 3SG, Lake Elmo Airport Public Comment, 407748

Affidavit of Publication

State of Minnesota
County of Washington } SS

E. KITTY SUNDBERG, being duly sworn, on oath, says that he/she is the publisher or authorized agent and employee of the publisher of the newspaper known as OAKDALE/LAKE ELMO REVIEW, and has full knowledge of the facts which are stated below:

(A) The newspaper has complied with all of the requirements constituting qualification as a qualified newspaper, as provided by Minnesota Statute 331A.02, 331A.07, and other applicable laws, as amended.

(B) The printed PUBLIC NOTICE

which is attached was cut from the columns of said newspaper, and was printed and published once each week, for 1 successive weeks; it was first published on WEDNESDAY, the 17TH day of JUNE, 2015, and was thereafter printed and published on every _____ to and including _____, the _____ day of _____, 20____; and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*abcdefghijklmnopqrstuvwxyz

BY: E. Kitty Sundberg
TITLE LEGAL COORDINATOR

Subscribed and sworn to before me on
this 17TH day of JUNE, 2015.
Tonya R Whitehead
Notary Public

*Alphabet should be in the same size and kind of type as the notice.

TONYA R. WHITEHEAD
Notary Public-Minnesota
My Commission Expires Jan 31, 2020

RATE INFORMATION

(1) Lowest classified rate paid by commercial users for comparable space.....$25.00 per col. inch

(2) Maximum rate allowed by law for the above matter.....$25.00 per col. inch

(3) Rate actually charged for the above matter.....$ per col. inch

01/15

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Lake Elmo, MN 55042

(Oakdale-Lake Elmo Review: June 17, 2015)

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Please submit written comments via email to Lake_Elmo_Airport_LTCP_Comments@mspmac.org, or mail written comments to Neil Ralston,

7/15/2015 2:25:01PM

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA

COUNTY OF RAMSEY

Michael Davis,
being duly sworn on oath, says: that he is, and during all times herein states has been, Clerk of Northwest Publications, Inc., Publisher of the newspaper known as the Saint Paul Pioneer Press, a newspaper of general circulation within the Counties of Chisago, Dakota, Ramsey and Washington in Minnesota and Pierce and St. Croix in Wisconsin.

That the notice hereto attached was cut from the columns of said newspaper and was printed and published therein on the following date(s):

June 17, 2015
Newspaper Ref./Ad # 71281145

Subscribed and sworn to before me this 15th of July, 2015

Melanie Jayne Kluender

NOTARY PUBLIC

Ramsey County, Minnesota

My commission expires January 31, 2020

MELANIE JAYNE KLUENDER
Notary Public
Minnesota
My Commission Expires 01/31/2020

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA)
COUNTY OF WASHINGTON) ss

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:

Stillwater Gazette

with the known office of issue being located in the county of:

WASHINGTON

with additional circulation in the counties of:

WASHINGTON

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 07/01/2015 and the last insertion being on 07/01/2015.

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 07/01/2015.

Darlene M MacPherson
Notary Public

DARLENE MARIE MACPHERSON
Notary Public-Minnesota
My Commission Expires Jan 31, 2018

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Public Notice

(Official Publication)

2035 LONG-TERM COMPREHENSIVE PLAN LAKE ELMO AIRPORT
Public Information Meetings

The Metropolitan Airports Commission (MAC) will be hosting two separate public information meetings about the draft 2035 Long-Term Comprehensive Plan (LTCP) for Lake Elmo Airport. The public is invited to attend these meetings to learn more about the proposed developments included in the draft LTCP and to provide comments. The meetings offer an opportunity for one-to-one interaction with MAC staff in an open-house setting at the times and locations listed below:

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4020 McDonald Drive North, Stillwater, MN 55082

Thursday, July 16, 2015
4:00 to 7:00 PM
City of Lake Elmo City Hall
3800 Laverne Avenue North
Lake Elmo, MN 55042

Copies of the draft LTCP document are available for distribution and viewing on the MAC's website (http://metroairports.org/General-Aviation/Airports/Lake-Elmo.aspx). Written comments will be accepted until Wednesday, August 5, 2015 at 5:00pm CDT. A copy of the draft LTCP document is also available for review at the MAC General Office building, 6040 28th Avenue South, Minneapolis; Lake Elmo City Hall, 3800 Laverne Avenue North, Lake Elmo; and at Lake Elmo Airport, 3275 Manning Avenue, Lake Elmo; or a request for a copy may be submitted via the email address below.

Please submit written comments via email to Lake_Elmo_Airport_LTCP_Comments@mspmac.org, or mail written comments to Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis MN 55450.

414387 07/01/15 LTCP Lk Elmo Airport

Affidavit of Publication

State of Minnesota
County of Washington } SS

E. KITTY SUNDBERG, being duly sworn, on oath, says that he/she is the publisher or authorized agent and employee of the publisher of the newspaper known as OAKDALE/LAKE ELMO REVIEW, and has full knowledge of the facts which are stated below:

(A) The newspaper has complied with all of the requirements constituting qualification as a qualified newspaper, as provided by Minnesota Statute 331A.02, 331A.07, and other applicable laws, as amended.

(B) The printed PUBLIC NOTICE

which is attached was cut from the columns of said newspaper, and was printed and published once each week, for 1 successive weeks; it was first published on WEDNESDAY, the 1ST day of JULY, 20 15, and was thereafter printed and published on every _____ to and including _____, the _____ day of _____, 20____; and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*abcdefghijklmnopqrstuvwxyz

BY: E. Kitty Sundberg
TITLE LEGAL COORDINATOR

Subscribed and sworn to before me on
this 1ST day of JULY, 2015.
Tonya R. Whitehead
Notary Public

*Alphabet should be in the same size and kind of type as the notice.

TONYA R. WHITEHEAD
Notary Public-Minnesota
My Commission Expires Jan 31, 2020

RATE INFORMATION

(1) Lowest classified rate paid by commercial users for comparable space.....$25.00 per col. inch

(2) Maximum rate allowed by law for the above matter.....$25.00 per col. inch

(3) Rate actually charged for the above matter.....$ per col. inch

01/15

PUBLIC NOTICE
2035 LONG-TERM COMPREHENSIVE PLAN
LAKE ELMO AIRPORT
PUBLIC INFORMATION MEETINGS

The Metropolitan Airports Commission (MAC) will be holding two separate public information meetings about the draft 2035 Long-Term Comprehensive Plan (LTCP) for Lake Elmo Airport. The public is invited to attend these meetings to learn more about the proposed development included in the draft LTCP and to provide comments. The meetings offer an opportunity for one-on-one interaction with MAC staff in an open house setting at the times and locations listed below.

Thursday, July 9, 2015
4:30 to 7:00 PM
Baytown Community Center
4020 McDonald Drive North,
Stillwater, MN 55082

Thursday, July 16, 2015
4:30 to 7:00 PM
City of Lake Elmo City Hall
3800 Laverne Avenue North
Lake Elmo, MN 55042

Copies of the draft LTCP document are available for distribution and viewing on the MAC's website: http://www.metroairports.org/General-Aviation/Airports/Lake-Elmo.aspx. Written comments will be accepted until Wednesday, August 5, 2015 at 5:00 p.m. CDT. A copy of the draft LTCP document is also available for review at the MAC General Office building, 6040 28th Avenue South, Minneapolis; Lake Elmo City Hall, 3800 Laverne Avenue North, Lake Elmo; and at Lake Elmo Airport, 3275 Manning Avenue, Lake Elmo, or a request for a copy may be submitted via the contact address below.

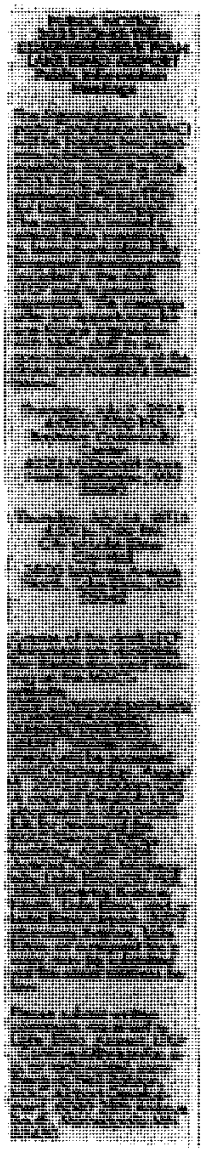
Please submit written comments via email to Lake.Elmo.Airport.LTCP.Comments@mspmac.org, or mail written comments to: Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis, MN 55450.

(Oakdale-Lake Elmo Review: July 1, 2015)

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA

COUNTY OF RAMSEY



LuLetta Schmitz,
being duly sworn on oath, says: that she is, and during all times herein states has been, Clerk of Northwest Publications, Inc., Publisher of the newspaper known as the Saint Paul Pioneer Press, a newspaper of general circulation within the Counties of Chisago, Dakota, Ramsey and Washington in Minnesota and Pierce and St. Croix in Wisconsin.

That the notice hereto attached was cut from the columns of said newspaper and was printed and published therein on the following date(s):

1st of July 2015
Newspaper Ref./Ad # 71283068

LuLetta Schmitz

Subscribed and sworn to before me this 20th of July 2015

Melanie Jayne Kluender

NOTARY PUBLIC

Ramsey County, Minnesota

My commission expires January 31, 2020

MELANIE JAYNE KLUENDER
Notary Public
Minnesota
My Commission Expires 01/31/2020

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA) ss
COUNTY OF WASHINGTON

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:

Stillwater Gazette

with the known office of issue being located in the county of:
WASHINGTON
with a substantial portion of the circulation in the counties of:
WASHINGTON
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 07/29/2015 and the last insertion being on 07/29/2015.

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 07/29/2015.

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:
$40.00 per column inch

Ad ID 425208

Public Notice

(Official Publication)

Public Notice
Draft 2035 Long-Term Comprehensive Plan
Lake Elmo Airport
Public Comment Period Extension

The public comment period for the Lake Elmo Airport Draft 2035 Long-Term Comprehensive Plan has been extended. Instead of closing on Wednesday, August 5, 2015, written comments will now be accepted through Wednesday, August 26, 2015 at 5:00 PM CDT.

Please submit written comments via email to Lake_Elmo_Airport_LTCP_Comments@mspmac.org or mail written comments to Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis, MN, 55450.

7/29/15, 3SG, Lake Elmo Public Comment, 425208

Affidavit of Publication

State of Minnesota
County of Washington } SS

E. KITTY SUNDBERG, being duly sworn, on oath, says that he/she is the publisher or authorized agent and employee of the publisher of the newspaper known as OAKDALE/LAKE ELMO REVIEW, and has full knowledge of the facts which are stated below:

(A) The newspaper has complied with all of the requirements constituting qualification as a qualified newspaper, as provided by Minnesota Statute 331A.02, 331A.07, and other applicable laws, as amended.

(B) The printed PUBLIC NOTICE

which is attached was cut from the columns of said newspaper, and was printed and published once each week, for 1 successive weeks; it was first published on WEDNESDAY, the 29TH day of JULY, 2015, and was thereafter printed and published on every _____ to and including _____, the _____ day of _____, 20____; and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*abcdefghijklmnopqrstuvwxyz

BY: E. Kitty Sundberg
TITLE LEGAL COORDINATOR

Subscribed and sworn to before me on
this 29TH day of JULY 2015.
Tonya R. Whitehead
Notary Public

*Alphabet should be in the same size and kind of type as the notice.

TONYA R. WHITEHEAD
Notary Public-Minnesota
My Commission Expires Jan 31, 2020

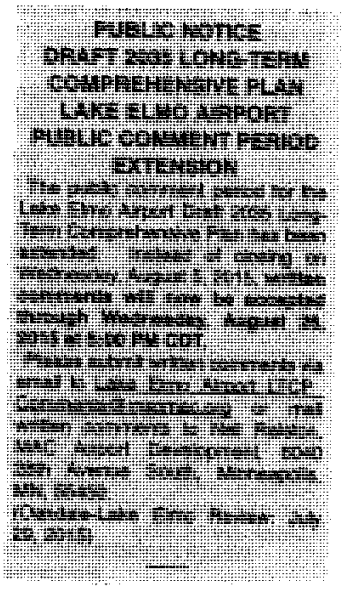
RATE INFORMATION

(1) Lowest classified rate paid by commercial users for comparable space.....$25.00 per col. inch

(2) Maximum rate allowed by law for the above matter.....$25.00 per col. inch

(3) Rate actually charged for the above matter.....$ per col. inch

01/15



PUBLIC NOTICE
DRAFT 2035 LONG-TERM
COMPREHENSIVE PLAN
LAKE ELMO AIRPORT
PUBLIC COMMENT PERIOD
EXTENSION

The public comment period for the Lake Elmo Airport draft 2035 Long-Term Comprehensive Plan has been extended. Instead of closing on Wednesday, August 5, 2015, written comments will now be accepted through Wednesday, August 26, 2015 at 5:00 PM CDT.

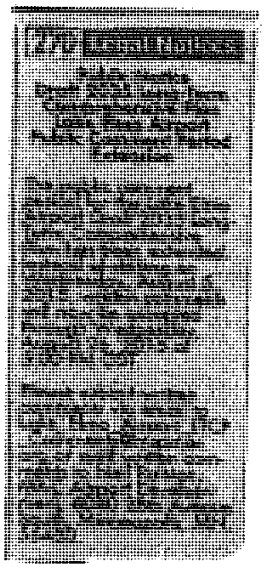
Please submit written comments via email to Lake Elmo Airport LTCP Comments@metc.state.mn.us or mail written comments to the Metropolitan Council Environment Group 390 Robert Street North, Minneapolis MN 55101.

(Oakdale-Lake Elmo Review, July 23, 2015)

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA

COUNTY OF RAMSEY



LuLetta Schmitz,
being duly sworn on oath, says: that she is, and during all times herein states has been, Clerk of Northwest Publications, Inc., Publisher of the newspaper known as the Saint Paul Pioneer Press, a newspaper of general circulation within the Counties of Chisago, Dakota, Ramsey and Washington in Minnesota and Pierce and St. Croix in Wisconsin.

That the notice hereto attached was cut from the columns of said newspaper and was printed and published therein on the following date(s):

29th of July 2015
Newspaper Ref./Ad # 71286583

LuLetta Schmitz

Subscribed and sworn to before me this 29th of July 2015

Melanie Jayne Kluender

NOTARY PUBLIC

Ramsey County, Minnesota

My commission expires January 31, 2020

MELANIE JAYNE KLUENDER
Notary Public
Minnesota
My Commission Expires 01/31/2020

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA)
COUNTY OF WASHINGTON) ss

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:

Stillwater Gazette

with the known office of issue being located in the county of:

WASHINGTON

with a substantial portion of the circulation in the counties of:

WASHINGTON

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 08/26/2015 and the last insertion being on 08/26/2015.

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 08/26/2015.

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:
$40.00 per column inch

Ad ID 438075

Public Notice

(Official Publication)

Public Notice
Draft 2035 Long-Term Comprehensive Plan
Lake Elmo Airport
Public Comment Period Extension

The public comment period for the Lake Elmo Airport Draft 2035 Long-term Comprehensive Plan has been extended. Instead of closing on Wednesday, August 26, 2015, written comments will now be accepted through Wednesday, September 16, 2015 at 5:00 PM CDT.

Please submit written comments via email to Lake_Elmo_Airport_LTCP_Comments@mspmac.org or mail written comments to Neil Ralston, MAC Airport Development, 6040 28th Avenue South, Minneapolis, MN, 55450.

8/26/15, 3SG, Lake Elmo Public Comment, 438075

Affidavit of Publication

State of Minnesota
County of Washington } SS

E. KITTY SUNDBERG, being duly sworn, on oath, says that he/she is the publisher or authorized agent and employee of the publisher of the newspaper known as OAKDALE/LAKE ELMO REVIEW, and has full knowledge of the facts which are stated below:

(A) The newspaper has complied with all of the requirements constituting qualification as a qualified newspaper, as provided by Minnesota Statute 331A.02, 331A.07, and other applicable laws, as amended.

(B) The printed PUBLIC NOTICE

which is attached was cut from the columns of said newspaper, and was printed and published once each week, for 1 successive weeks; it was first published on WEDNESDAY, the 26TH day of AUGUST, 2015, and was thereafter printed and published on every _____ to and including _____, the _____ day of _____, 20____; and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*abcdefghijklmnopqrstuvwxyz

BY: E Kitty Sundberg
TITLE LEGAL COORDINATOR

Subscribed and sworn to before me on
this 26TH day of AUGUST 2015.
Tonya R. Whitehead
Notary Public

*Alphabet should be in the same size and kind of type as the notice.

TONYA R. WHITEHEAD
Notary Public-Minnesota
My Commission Expires Jan 31, 2020

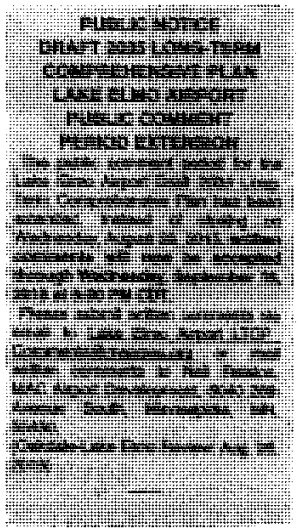
RATE INFORMATION

(1) Lowest classified rate paid by commercial users for comparable space.....$25.00 per col. inch

(2) Maximum rate allowed by law for the above matter.....$25.00 per col. inch

(3) Rate actually charged for the above matter.....$ per col. inch

01/15

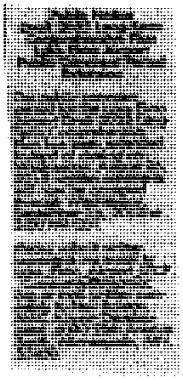


PUBLIC NOTICE
DRAFT 2035 LONG-TERM
COMPREHENSIVE PLAN
LAKE ELMO AIRPORT
PUBLIC COMMENT
PERIOD EXTENSION

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA

COUNTY OF RAMSEY



LuLetta Schmitz,
being duly sworn on oath, says: that she is, and during all times herein states has been, Clerk of Northwest Publications, Inc., Publisher of the newspaper known as the Saint Paul Pioneer Press, a newspaper of general circulation within the Counties of Chisago, Dakota, Ramsey and Washington in Minnesota and Pierce and St. Croix in Wisconsin.

That the notice hereto attached was cut from the columns of said newspaper and was printed and published therein on the following date(s):

26th of August 2015
Newspaper Ref./Ad # 71290684

LuLetta Schmitz

Subscribed and sworn to before me this 1st of September 2015

Melanie Jayne Kluender

NOTARY PUBLIC

Ramsey County, Minnesota

My commission expires January 31, 2020

MELANIE JAYNE KLUENDER
Notary Public
Minnesota
My Commission Expires 01/31/2020

Affidavit of Publication

State of Minnesota
County of Washington } SS

E. KITTY SUNDBERG, being duly sworn, on oath, says that he/she is the publisher or authorized agent and employee of the publisher of the newspaper known as OAKDALE/LAKE ELMO REVIEW, and has full knowledge of the facts which are stated below:

(A) The newspaper has complied with all of the requirements constituting qualification as a qualified newspaper, as provided by Minnesota Statute 331A.02, 331A.07, and other applicable laws, as amended.

(B) The printed PUBLIC NOTICE

which is attached was cut from the columns of said newspaper, and was printed and published once each week, for 1 successive weeks; it was first published on WEDNESDAY, the 20TH day of JANUARY, 2016, and was thereafter printed and published on every _____ to and including _____, the _____ day of _____, 20____; and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*ABCDEFGHIJKLMNOPQRSTUVWXYZ
*abcdefghijklmnopqrstuvwxyz

BY: E. Kitty Sundberg
TITLE LEGAL COORDINATOR

Subscribed and sworn to before me on
this 20TH day of JANUARY 2016.
Tonya R. Whitehead
Notary Public

*Alphabet should be in the same size and kind of type as the notice.

TONYA R. WHITEHEAD
Notary Public-Minnesota
My Commission Expires Jan 31, 2020

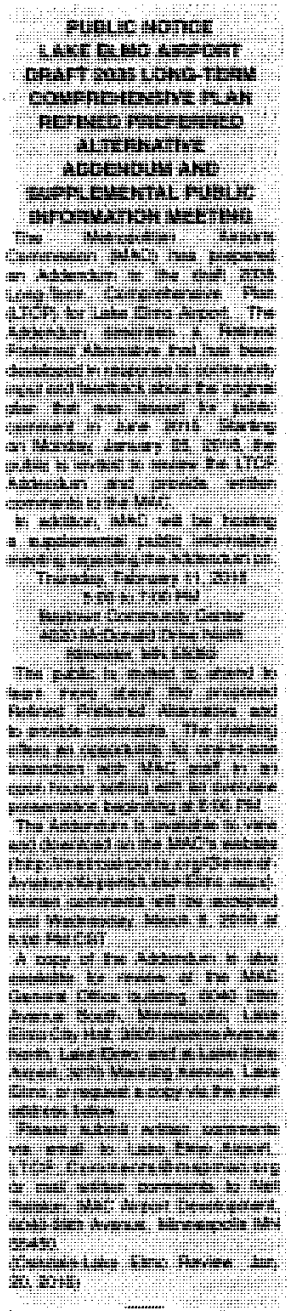
RATE INFORMATION

(1) Lowest classified rate paid by commercial users for comparable space.....$25.00 per col. inch

(2) Maximum rate allowed by law for the above matter.....$25.00 per col. inch

(3) Rate actually charged for the above matter.....$ per col. inch

01/16



PUBLIC NOTICE
LAKE ELMO AIRPORT
DRAFT 2035 LONG-TERM
COMPREHENSIVE PLAN
REFINED PREFERRED
ALTERNATIVE
ADDENDUM AND
SUPPLEMENTAL PUBLIC
INFORMATION MEETING

Lake Elmo Airport 2035 LTCP | Appendix 8 | Page 8-136

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA)
COUNTY OF WASHINGTON) ss

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:

Stillwater Gazette

with the known office of issue being located in the county of:
WASHINGTON
with additional circulation in the counties of:
WASHINGTON
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 01/22/2016 and the last insertion being on 01/22/2016.

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 01/22/2016 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:
$40.00 per column inch

Ad ID 499110

Public Notice

(Official Publication)

PUBLIC NOTICE
LAKE ELMO AIRPORT
DRAFT 2035 LONG-TERM COMPREHENSIVE PLAN
REFINED PREFERRED ALTERNATIVE
ADDENDUM AND SUPPLEMENTAL PUBLIC INFORMATION MEETING

The Metropolitan Airports Commission (MAC) has prepared an Addendum to the draft 2035 Long-Term Comprehensive Plan (LTCP) for Lake Elmo Airport. The Addendum describes a Refined Preferred Alternative that has been developed in response to community input and feedback about the original plan that was issued for public comment in June 2015. Starting on Monday, January 25, 2016, the public is invited to review the LTCP Addendum and provide written comments to the MAC.

In addition, MAC will be hosting a supplemental public information meeting regarding the Addendum on:

Thursday, February 11, 2016
5:00 to 7:00 PM
Baytown Community Center
4020 McDonald Drive North
Stillwater, MN 55082

The public is invited to attend to learn more about the proposed Refined Preferred Alternative and to provide comments. The meeting offers an opportunity for one-to-one interaction with MAC staff in an open house setting with an overview presentation beginning at 6:00 PM.

The Addendum is available to view and download on the MAC's website (http://metroairports.org/General-Aviation/Airports/Lake-Elmo.aspx). Written comments will be accepted until Wednesday, March 9, 2016 at 5:00 PM CST.

A copy of the Addendum is also available for review at the MAC General Office building, 6040 28th Avenue South, Minneapolis; Lake Elmo City Hall, 3800 Laverne Avenue North, Lake Elmo; and at Lake Elmo Airport, 3275 Manning Avenue, Lake Elmo; or request a copy via the email address below.

Please submit written comments via email to Lake_Elmo_Airport_LTCP_Comments@mspmac.org or mail written comments to Neil Ralston, MAC Airport Development, 6040-28th Avenue, Minneapolis MN 55450.

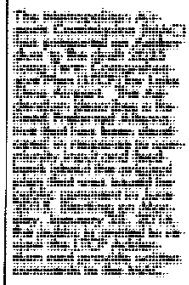
1/22/16, 3SG, Lake Elmo LTCP Meeting, 499110

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA

COUNTY OF RAMSEY

ALTERNATIVE ADDENDUM AND SUPPLEMENTAL PUBLIC INFORMATION MEETING



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Thursday, February 11, 2016
5:00 to 7:00 PM
Baytown Community Center
4020 McDonald Drive North
Stillwater, MN 55082

The public is invited to attend to learn more about the proposed Refined Preferred Alternative and to provide comments. The meeting offers an opportunity for one-to-one interaction with MAC staff in an open house setting with an overview presentation beginning at 6:00 PM.

The Addendum is available to view and download on the MAC's website (http://metroairports.org/General-Aviation/Airports/Lake-Elmo.aspx). Written comments will be accepted until Wednesday, March 9, 2016 at 5:00 PM CST.

A copy of the Addendum is also available for review at the MAC General Office building, 6040 28th Avenue South, Minneapolis; Lake Elmo City Hall, 3800 Laverne Avenue North, Lake Elmo; and at Lake Elmo Airport, 3275 Manning Avenue, Lake Elmo; or request a copy via the email address below.

Please submit written comments via email to Lake_Elmo_Airport_LTCP_Comments@mspmac.org or mail written comments to Neil Ralston, MAC Airport Development, 6040 28th Avenue, Minneapolis, MN 55450.

Lacey Hamann
being duly sworn on oath, says: that she is, and during all times herein state has been, Sales Assistant of MediaNews Group, Publisher of the newspaper known as the Saint Paul Pioneer Press, a newspaper of General circulation within the City of Saint Paul and the surrounding Counties of Minnesota and Wisconsin including Ramsey and Kanabec.

That the notice hereto attached was cut from the columns of said newspaper and was printed and published therein on the following date(s): January 22, 2016

Newspaper Ref./Ad Number # 0071308492

Subscribed and sworn to before me this 10th day of March, 2016

Barb Regal

NOTARY PUBLIC

Washington County, Minnesota

BARBARA LYNN REGAL
NOTARY PUBLIC
STATE OF MINNESOTA
MY COMMISSION EXPIRES
JANUARY 31, 2017