Lake Elmo Airport
Joint Airport Zoning Board (JAZB)
Analysis of Custom Airport Zoning Factors

JAZB Purpose and Goals

The JAZB's purpose is to collaboratively develop an airport zoning ordinance that achieves a reasonable level of safety while allowing compatible community land uses.

The overarching goal for the JAZB is to develop a Lake Elmo Airport Zoning Ordinance ("Ordinance") for review and approval by the MnDOT Commissioner of Transportation, subsequent adoption by the JAZB, and then incorporation by local municipalities and townships. MnDOT reserves the authority to determine whether the proposed Ordinance meets the reasonable level of safety threshold. A supporting goal for the JAZB is to ensure that an appropriate level of community engagement occurs.

The JAZB followed the statutory requirements in developing the Ordinance by analyzing all the custom zoning factors set forth in Minn. Stat. Section 360.0656.

Section A ("Custom Zoning Factors") describes the application of the custom zoning factors to the Lake Elmo Airport.

Section B ("Proposed Custom Zoning") contains a detailed analysis that explains how the Ordinance addresses the custom zoning factors to ensure a reasonable level of safety.

A. Custom Zoning Factors

1. Location of the airport, the surrounding land uses, and the character of neighborhoods in the vicinity of the airport;

Located in Washington County east of St. Paul, Minnesota, Lake Elmo Airport is a 640-acre public airport owned and operated by the Metropolitan Airports Commission (MAC). The MAC is an airport authority created by state law in 1943 to provide coordinated aviation services within the Twin Cities Metropolitan Area. The MAC owns and operates seven airports in the metropolitan area including Lake Elmo, which was established in 1951 and is classified by the MAC as a "complimentary reliever."

The primary role of Lake Elmo Airport is to accommodate personal, recreational, and some business aviation users in Washington County and the eastern portion of the metropolitan area. Approximately 560 acres of Airport land are in Baytown Township, Minnesota, with the remaining 80 acres located in West Lakeland Township south of 30th Street North. The City of Lake Elmo is adjacent to the Airport west of Manning Avenue North. Situated one mile east of downtown Lake Elmo, the Airport is accessed via Manning Avenue North and 33rd Street North.

<u>Baytown Township</u>
Organized in 1858, Baytown Township is situated north of 30th Street North and is where Lake Elmo Airport's facilities currently reside, including Runways 14/32 and 4/22. In 2010, the total population was 1,617, or approximately 169 people per square mile. According to the Minnesota State Demographic Center (MSDC), population has increased in subsequent years to approximately 1,830.

The primary land use in Baytown Township is large lot single-family residential which is primarily located within the single-family estate district to the north and east of the Airport. Residences nearest to the Airport in Baytown Township are along 40th Street North, Manning Avenue North, Neal Avenue North, and McDonald Drive North. There is also significant agricultural/agricultural preserve land uses in the vicinity of the Airport. The Township does not plan to change its low-density residential zoning district that requires at least 2.5 acres per dwelling unit near the Airport. There is no commercial land use near the Airport, and no commercial zoning district within the township.

West Lakeland Township

West Lakeland Township was originally part of Lakeland Township, which was established in 1858, but split off and organized as a separate entity in 1950 when Lakeland incorporated as a village. In 2010, the total population was 4,046, or approximately 321 people per square mile. According to the Minnesota State Demographic Center (MSDC), population has increased in subsequent years to approximately 4,144.

West Lakeland Township also has a goal of maintaining a rural residential character. According to its Comprehensive Plan and current zoning map, land use within the township is primarily rural residential single-family homes. The Township does not plan to change its low-density residential zoning district that requires at least 2.5 acres per dwelling unit near the Airport. Primary uses within the single-family estate district in the vicinity of the Airport are agriculture and single-family estates. Uses such as golf courses, livestock and livestock operations, and essential services including government uses require a conditional use permit. Commercial activities are limited throughout the Township by the zoning ordinance.

City of Lake Elmo

The City of Lake Elmo was established in 1852. With a 2010 Census population of 8,069, or approximately 331 people per square mile. According to the Minnesota State Demographic Center (MSDC), population has increased in subsequent years to approximately 8,748.

The City's zoning code lists the areas to the west and northwest of the airport, some of which is currently undeveloped, as urban low density residential (LDR) and rural development transitional (RT) zoning districts.

The LDR district provides single-family dwellings on moderately sized lots (1.5 – 3.0 dwelling units per acre) and is the most restrictive of the urban residential districts. The district intends to provide areas for lower density residential development in areas served by public sewer and water services. Uses such as parks and open areas, home occupation, group homes, and single-family detached dwellings are permitted within the LDR district. Other uses such as broadcasting or communication facilities, golf courses, and schools are allowed with a conditional use permit. The new Easton Village and Northport residential neighborhoods directly adjacent to the western boundary of Lake Elmo Airport are representative of this development category.

The RT district is an interim holding zone to regulate land uses within the city that will connect to regional sewer service.

a) the location of vulnerable populations, including schools, hospitals, and nursing homes, in the airport hazard area;

Please see the analysis for 1.b. directly below.

b) the location of land uses that attract large assemblies of people in the airport hazard area;

The Airport Hazard Area is defined as property that lies under the extents of the future condition 14 CFR Part 77 airspace surfaces for Lake Elmo Airport. The Airport Hazard Area is shown on **Figure 1**.

Most locations of vulnerable populations within the Airport Hazard Area are in central Lake Elmo:

- Arbor Glenn Senior Living
- Early Learning Center
- Lake Elmo Elementary School

Other locations of vulnerable populations include Stillwater High School, fully outside of the Airport Hazard Area except for a small portion of property used for athletic fields, and the Children's Farm School in West Lakeland Township.

Likewise, most places of public assembly within the Airport Hazard Area are located about one mile west in central Lake Elmo, including:

- Lake Elmo Public Library
- Lake Elmo City Hall
- Christ Lutheran Church

Other places of public assembly include the Washington County Fairgrounds located about one mile to the north of the Airport in Baytown Township, the Baytown Community Center, and Saint John's Lutheran near the northern extent of the Hazard Area. These uses are shown on **Figure 2**.

c) the availability of contiguous open spaces in the airport hazard area;

Contiguous open spaces are valuable in the vicinity of an airport as they give the pilot of a disabled aircraft options to land in a place that may have the greatest potential to minimize damage and contain the accident site.

Contiguous open spaces adjacent to the extended runway centerlines in the vicinity of the Airport are provided by the following land uses:

- Land guided as Public/Semi-Public (PSP) or as Park/Open Space (Park) in the City of Lake Elmo
- Land guided as Agricultural Preserve in Baytown Township
- Major roadway and railway right-of-ways
- Open water

These contiguous open space areas account for nearly 1,000 acres within the Airport Hazard Area. The Airport Hazard area itself is comprised of approximately 8,000 acres.

In addition to these open-space areas, there are large bands (nearly 5,500 acres) of low-density residential development surrounding the airport that is zoned to require at least 2.5 acres per dwelling unit. This type of low-density development provides additional swaths of open space not available in more urbanized, densely-developed areas.

Contiguous open spaces are shown on **Figure 3**.

d) the location of wildlife attractants in the airport hazard area;

Land uses that attract wildlife in the vicinity of Lake Elmo Airport include open water and wetland areas, the fairgrounds, and the Royal Golf Club. These are all uses that feature open water or large turfed areas that are attractive to waterfowl. No other traditional wildlife attractants, such as wastewater treatment facilities, landfills, or waste transfer stations are located in the study area. Wildlife attractant areas are shown on **Figure 4**.

e) airport ownership or control of the federal Runway Protection Zone and the department's Clear Zone;

The Runway Protection Zones are trapezoid surfaces off the runway ends that are meant to be clear of incompatible land uses based on Federal Aviation Administration standards.

The State Clear Zones are the same length as, but wider than, the Federal Runway Protection Zones and represent properties that MnDOT encourages airports to own or control. In the existing condition, nearly 5 acres of the Federal Runway Protection Zone and about 8 acres of the State Clear Zone extend off airport property.

In the proposed future condition, the Federal Runway Protection Zone is contained on airport property and only 0.2 acre of the State Clear Zone extends off airport property. The off-airport elements of the Clear Zone are corners that extend slightly onto the railroad right of way on the north side of the airport and onto 30th Street N on the south side.

Relocating the primary runway at Lake Elmo Airport closer to the center of the airport property results in all of the Federal Runway Protection Zone being located on Airport property, a significant improvement over the existing condition where nearly five acres extends off airport property. This represents a safety improvement given the ongoing initiatives by Washington County to expand the capacity and footprint of Manning Avenue (CSAH 15) to handle higher traffic volumes.

Similarly, all but 0.2 acres the State Clear Zones will shift onto airport property. The remaining off-airport elements of the Clear Zone are corners that extend slightly onto the railroad right of way on the north side of the airport and onto 30th Street N on the south side. This results in 99.7% of the Clear Zone being on airport property in the future configuration.

The Runway Protection Zones and State Clear Zones are shown on **Figure 5**.

f) land uses that create or cause interference with the operation of radio or electronic facilities used by the airport or aircraft;

Please see the analysis for 1.h. below.

g) land uses that make it difficult for pilots to distinguish between airport lights and other lights, result in glare in the eyes of pilots using the airport, or impair visibility in the vicinity of the airport;

Please see the analysis for 1.h. below.

h) land uses that otherwise inhibit a pilot's ability to land, take off, or maneuver the aircraft;

MAC adopted an airspace and land use zoning ordinance for Lake Elmo Airport in 1952. Washington County followed up with implementation of an Airport Overlay District that included both airspace and land use zoning. This Airport Overlay District is now administered by the Townships. The legacy Airport Overlay District contains a Qualified Land Use Zone that prohibits structures or uses that will cause assembly of persons, manufacturing or storage of materials which will explode on contact, or the storage of flammable liquid above ground. It also prohibits educational, institutional, amusement, and recreational uses as well as any other that would result in electrical interference with radio communications, airport light interference, or impaired visibility. The Qualified Land Use Zone is shown on **Figure 6**.

There are no known land uses that create or cause interference with the operation of radio or electronic facilities used by the airport or aircraft; that make it difficult for pilots to distinguish between airport lights and other lights, result in glare in the eyes of pilots using the airport, or impair visibility in the vicinity of the airport; or that otherwise inhibit a pilot's ability to land, take off, or maneuver the aircraft.

i) airspace protection to prevent the creation of air navigation hazards in the airport hazard area; and

MAC adopted an airspace and land use zoning ordinance for Lake Elmo Airport in 1952. Washington County followed up with implementation of an Airport Overlay District that included both airspace and land use zoning. This Airport Overlay District is now administered by the Townships. The legacy Airport Overlay District for Lake Elmo Airport contains an Airport Zone that prohibits growth, construction, maintenance, or alteration of trees and structures above designated airspace surfaces. The Airport Zone is shown on **Figure 6**.

The figure also shows the location of significant man-made tall structures in the Airport Hazard Area, including poles, antennas, cell towers, power lines, and water towers. The only existing airspace obstructions include three poles along Manning Avenue, just south of the railroad tracks. However, plans to relocate the primary runway would render the poles a non-issue from an obstruction perspective.

j) the social and economic costs of restricting land uses;

The social and economic costs of restricting land uses in the vicinity of an airport typically include the following:

- More restrictions on residential and commercial uses and development;
- Potential impacts to local property tax revenue that would be generated by market-driven development; and
- Impacts to employment potential associated with market-driven development.

For the Runway 4, 32, and 22 Ends (Northeast, Southeast, and Southwest Quadrants), land use restrictions would create social and economic costs by placing new burdens on property owners in the form of variance requirements for even simple property alternations or improvements.

For the Runway 14 End (Northwest Quadrant), land use restrictions in the developing area of the City of Lake Elmo to the northwest of Lake Elmo Airport could have significant adverse social and economic cost impacts, including: restrictions and burdens on residential and commercial uses and development; impacts to local property tax revenue that could be generated by market-driven development; and impacts to employment potential associated with market-driven development.

There is also the potential that additional land use restrictions on private property could result in takings claims.

Figure 1: Airport Hazard Area

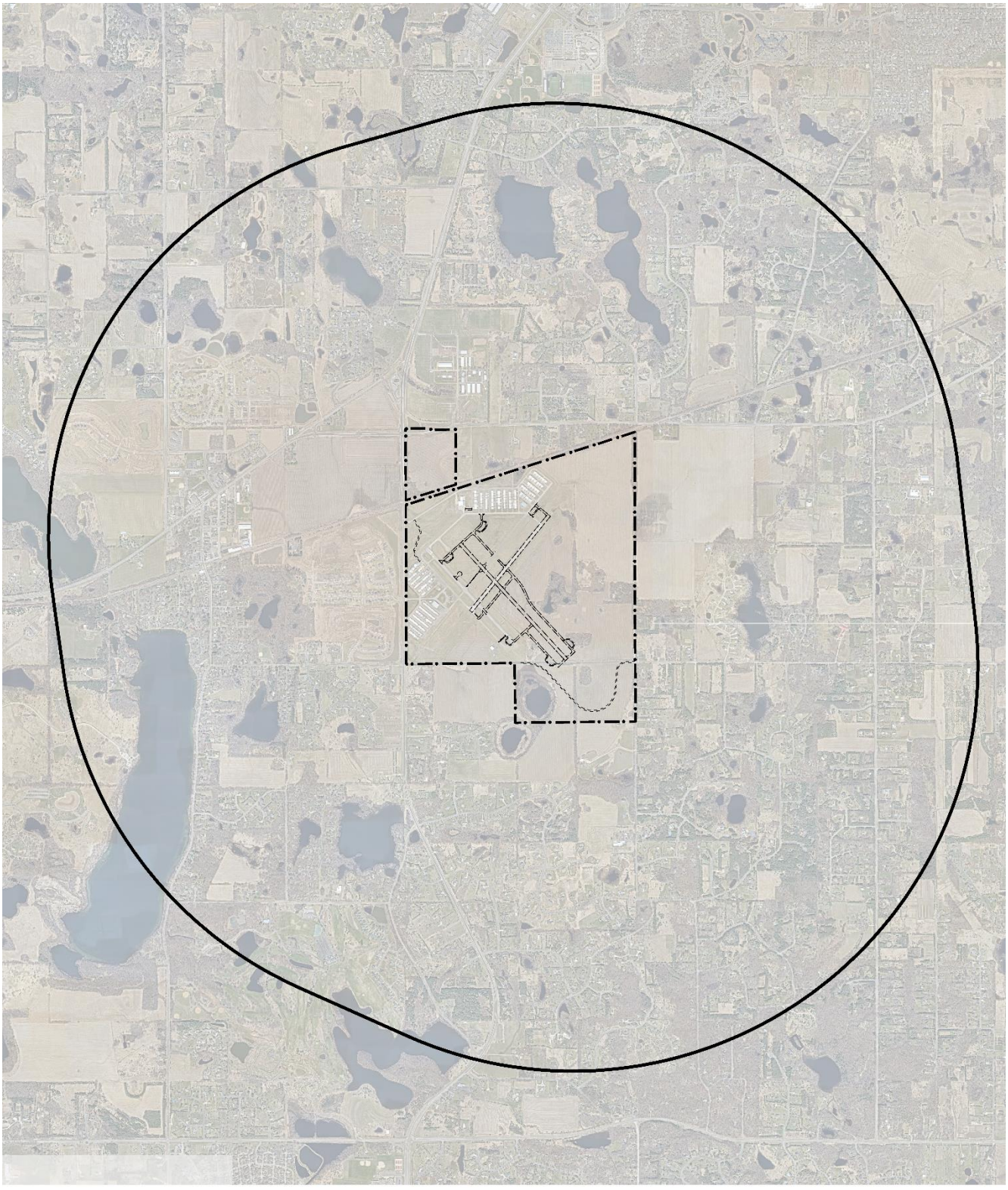


Figure 2: Location of Vulnerable Populations & Land Uses That Attract Assemblies of People

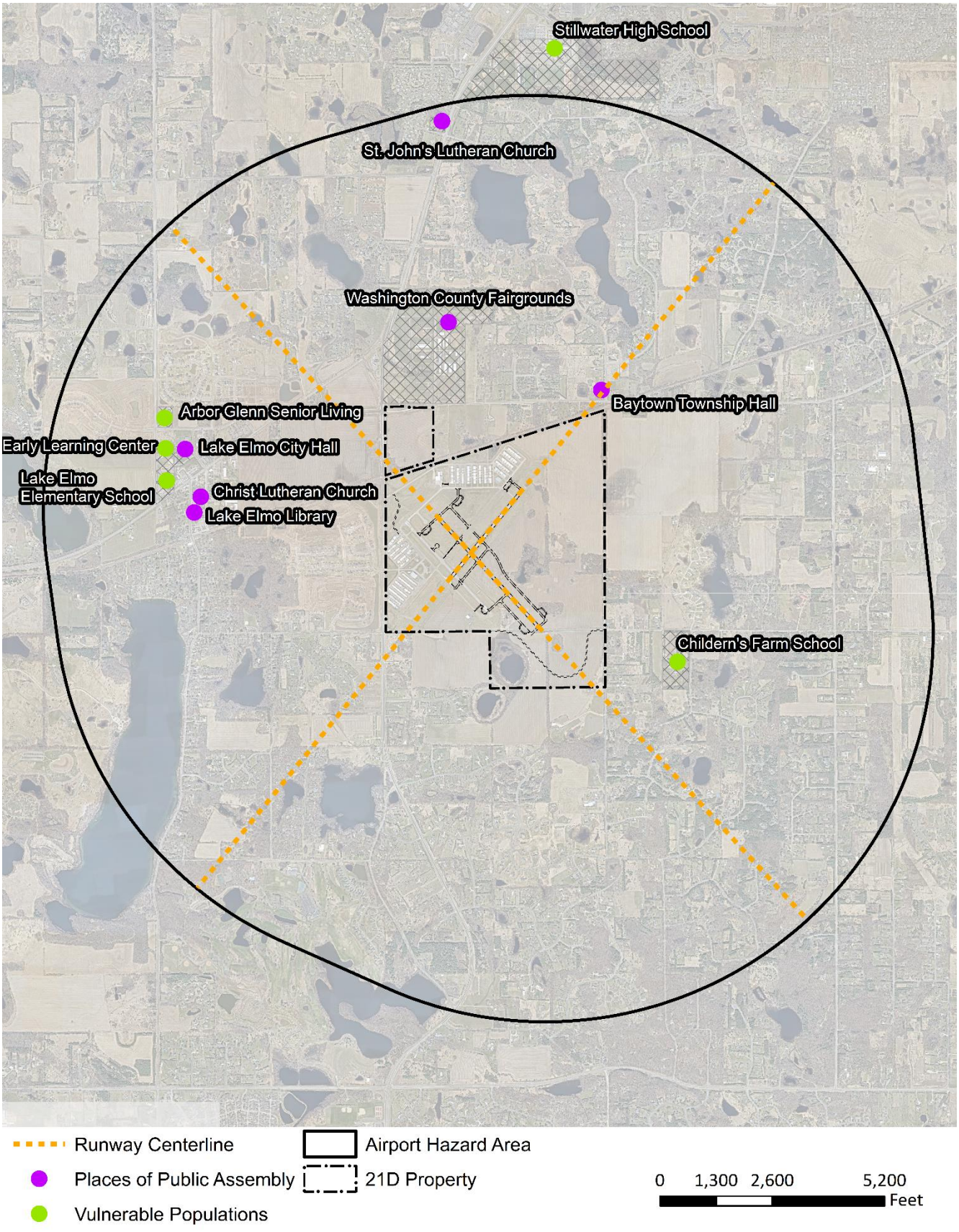


Figure 3: Contiguous Open Spaces

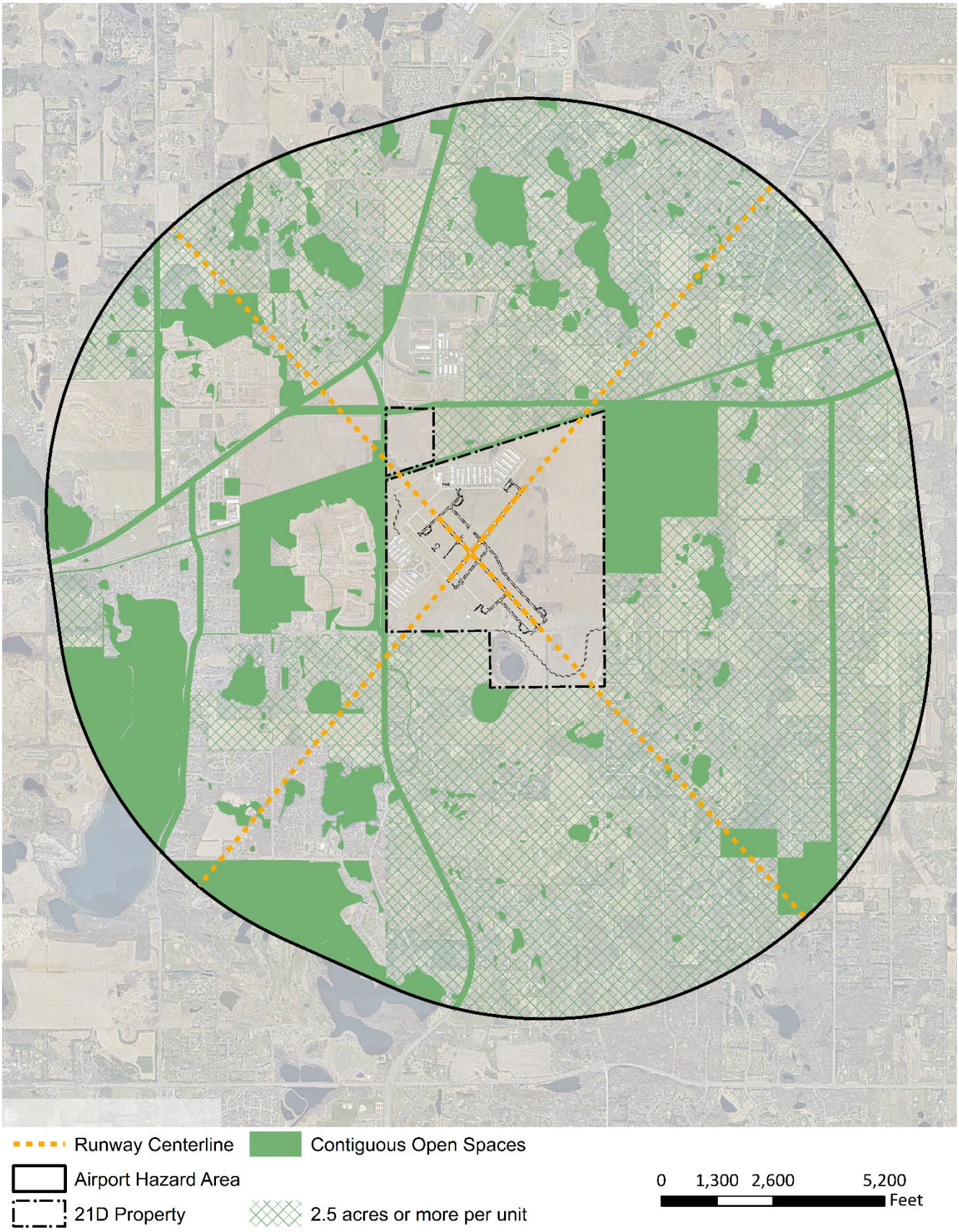


Figure 4: Wildlife Attractants

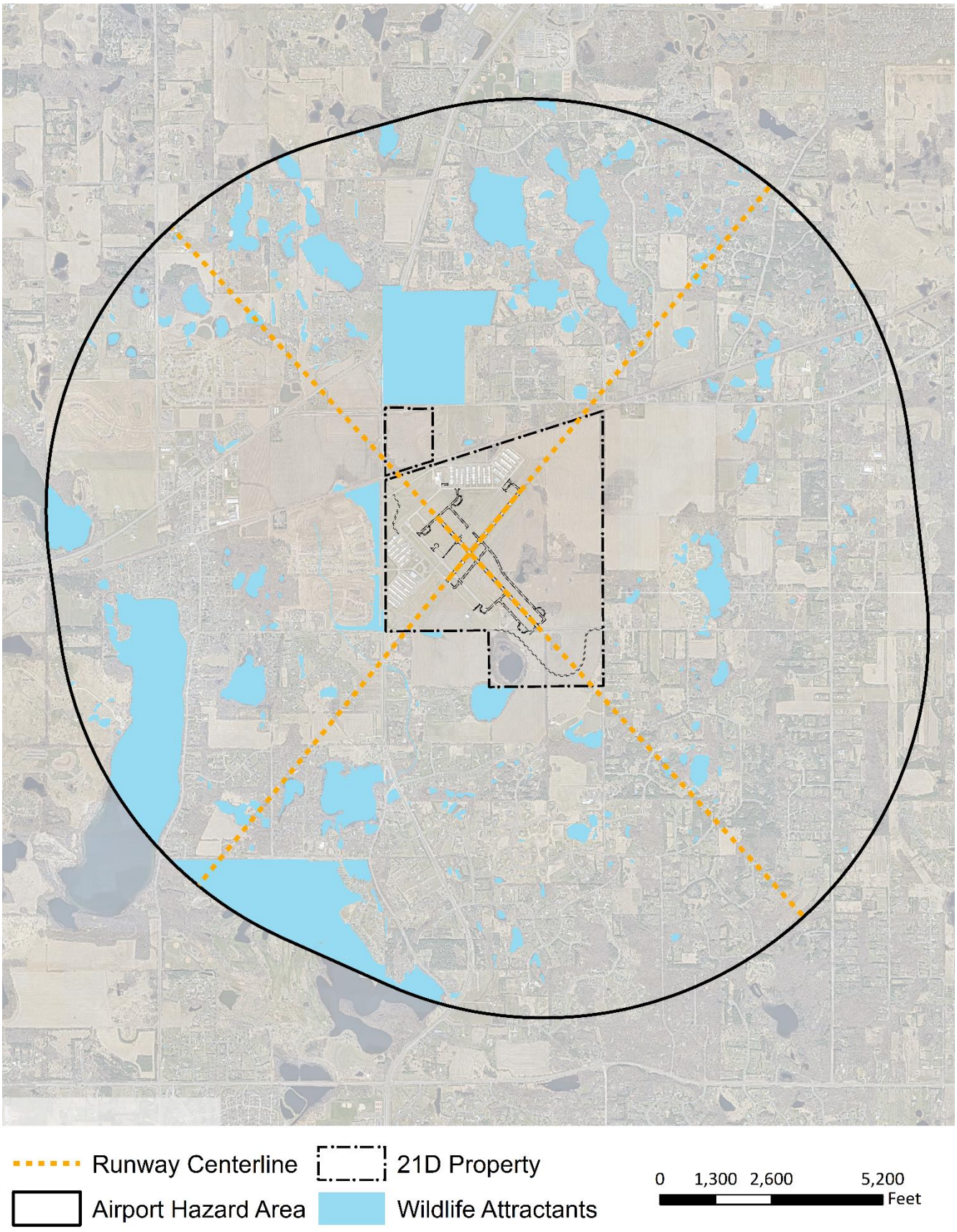


Figure 5: Federal Runway Protection Zones and State Clear Zones

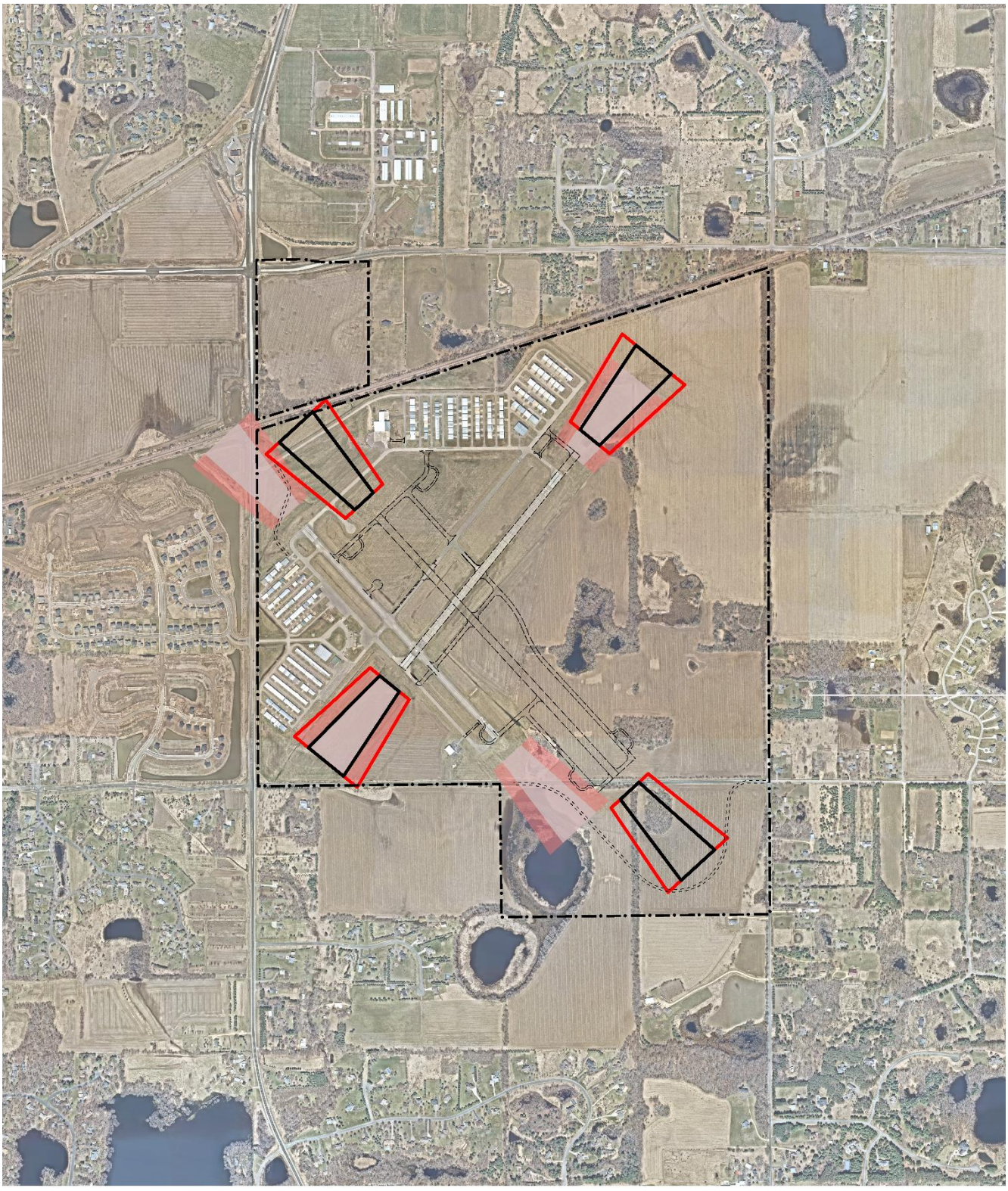
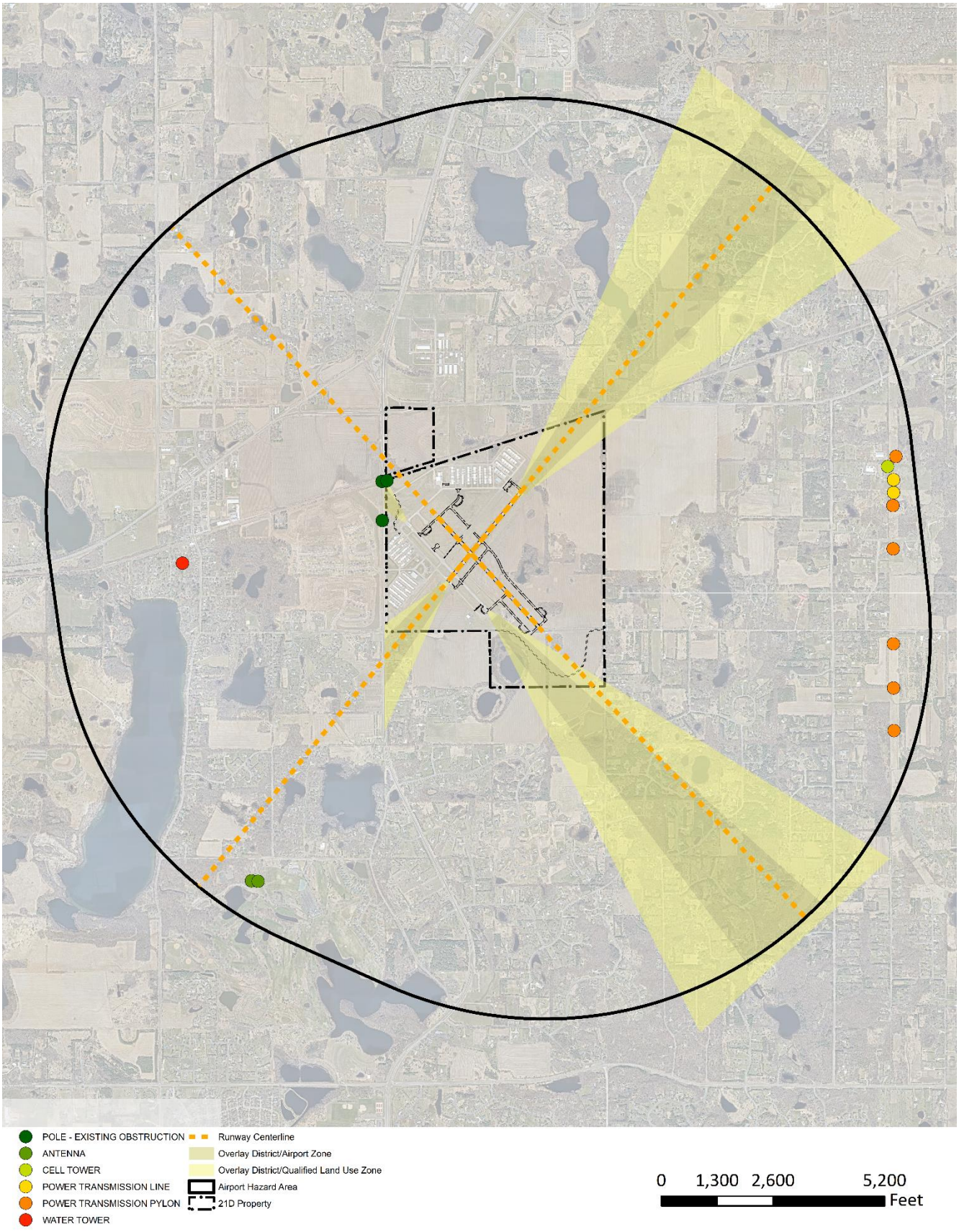


Figure 6: Existing Airport Overlay District Zones



2. Airport's type of operations and how the operations affect safety surrounding the airport

From a physical perspective, the topography of Lake Elmo Airport site is relatively flat as it is located on a broad plateau. The airport location is generally good for aircraft operations with no features that cause adverse flying conditions.

The Airport accommodates personal, recreational, and some business general aviation users. It is intended for use primarily by small propeller aircraft with fewer than 10 passenger seats. It is an important part of the MAC Reliever Airports system, which alleviates congestion at MSP and provides infrastructure to accommodate the region's general aviation needs.

Based on the latest records, there are about 193 aircraft based at Lake Elmo Airport, comprised of 186 single-engine piston aircraft, 5 multi-engine piston aircraft, and 2 helicopters. The Airport is also frequently used by non-based visiting aircraft. Available flight track information indicates that about 94% of flights at the airport are by single-engine piston aircraft, with the balance being flown by other aircraft types including multi-engine pistons, helicopters, and turboprops.

About 60% of the flight operations at Lake Elmo Airport are local in nature, meaning they take off from Lake Elmo, stay in the vicinity, and then return to Lake Elmo. The remaining 40% of flight operations are itinerant, meaning that aircraft are flying to or from an airport other than Lake Elmo.

This operational profile is not expected to change with the proposed airport improvements.

3. Accident rate at the airport compared to a statistically significant sample, including an analysis of accident distribution based on the rate with a higher accident incidence

The following table compares the historical accident rate per 100,000 aircraft operations at Lake Elmo Airport and the State of Minnesota for the 25-year period from 1994 to 2018, based on available accident records from the National Transportation Safety Board (NTSB).

	Lake Elmo Airport 1994-2018	**State of MN 1994-2018**
Total Aircraft Operations	1,191,968	56,578,820
Total Aircraft Accidents	10	502
Accident Rate Per 100,000 Aircraft Operations	0.84	0.89

Source:

Lake Elmo data from NTSB accident database and MAC operational records

Statewide data from NTSB accident database and FAA Terminal Area Forecast records

Analysis excludes en route and non-flight accidents

This analysis suggests that the long-term accident rate at Lake Elmo Airport is slightly less than that experienced at all airports in Minnesota over the same time period. The analysis of accident distribution (see **Appendix A**) is based on the state rate of 0.89 accidents per 100,000 aircraft operations.

Since there have been relatively few actual aircraft accidents in the vicinity of Lake Elmo Airport, a larger set of generalized accident location data is needed to conduct a safety risk analysis. Using a methodology described in **Appendix A**, the safety-risk analysis calculated accident probability and frequency likelihood in the vicinity of Lake Elmo Airport.

4. Planned land uses within an airport hazard area, including any applicable platting, zoning, comprehensive plan, or transportation plan

Baytown Township and West Lakeland Township are rural residential communities consisting almost entirely of agricultural, conservation, and large lot, low-density residential land uses zoned to require at least 2.5 acres per dwelling unit, although some cluster developments (also called open space subdivisions) are also permitted as long as the overall density of the subdivision is consistent with the zoning ordinance. Both townships desire to preserve this rural residential character. Baytown Township has requested that the Metropolitan Council staff remove the township from the Metropolitan Council's long-term sewer service area map as part of an on-going comprehensive planning process, and West Lakeland Township's comprehensive plan states that the need for public facilities should be kept to a minimum with on-site sewer and water preferred for existing and future development. Without changes to the zoning ordinances or establishment of municipal water and sanitary sewer services, significant future changes in the character of existing development within the townships are unlikely to occur.

There are two types of development patterns in the vicinity of Lake Elmo Airport.

The first type of development pattern is where land uses are fixed and unlikely to change based on future guidance plans.

The existing residential neighborhoods to the northeast, southeast, and southwest of Lake Elmo Airport represent steady-state land uses zoned for large lot, low-density single family residential development zoned to require at least 2.5 acres per dwelling unit. Based on the latest round of municipal comprehensive plans, this land use pattern is unlikely to change.

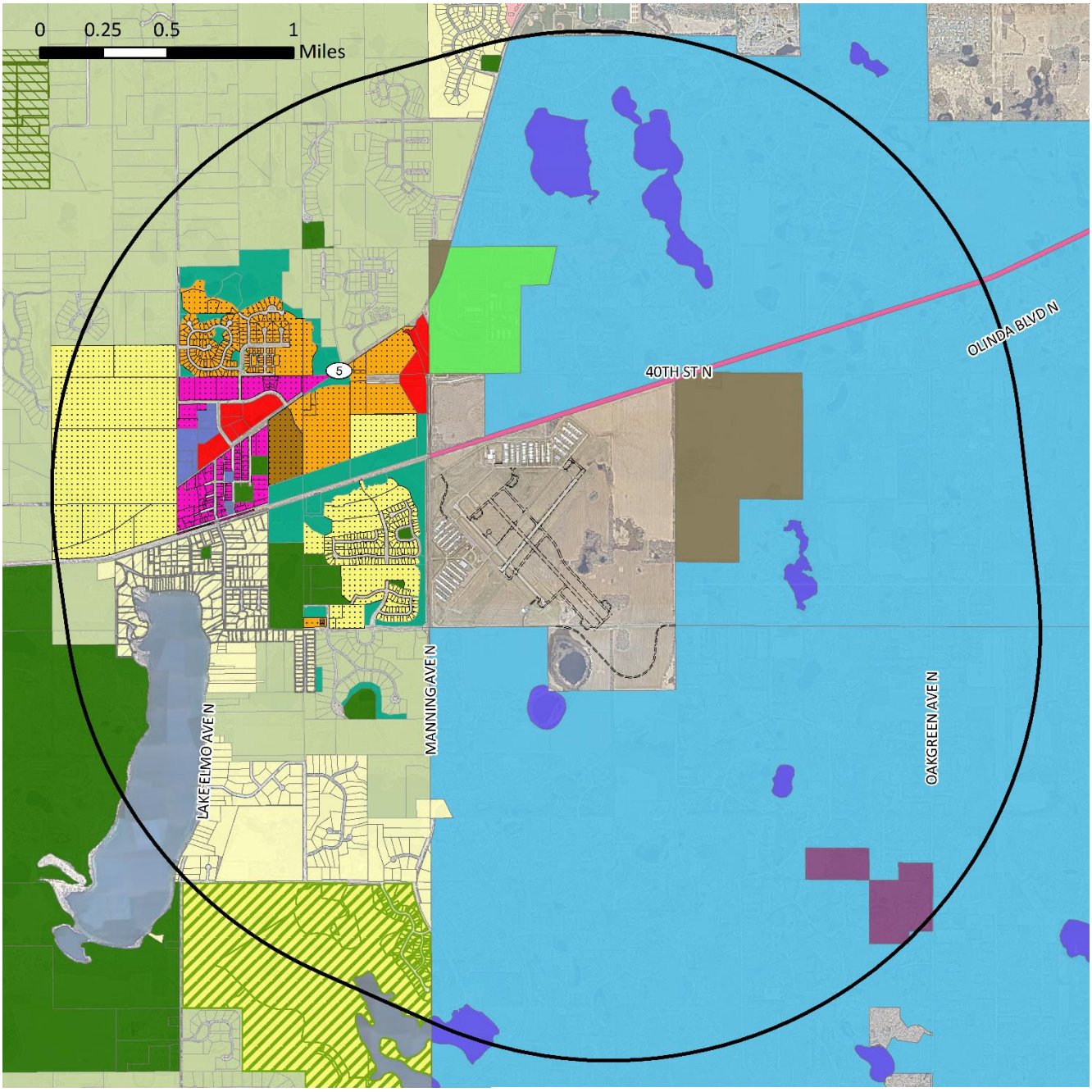
Conversely, the recent extension of municipal water and sanitary sewer facilities into the southeastern portion of the City of Lake Elmo (to the northwest of the Airport) is likely to support additional urban development in the future. The land uses to the northwest of the airport under the proposed Runway 14 approach is guided to transition from rural, primarily agricultural, uses to more densely developed residential and commercial uses. This transitional area is where the social and economic costs of restricted land uses could have the greatest impact.

Future land uses in the vicinity of Lake Elmo Airport are shown on **Figure 7**.

5. Any other information relevant to safety or the airport

No supplemental information is available at this time.

Figure 7: Future Land Uses



Met Council Future Land Use

- Agricultural Preserve (1du per 40 acres)
- Open Water
- Public
- Railway
- Single Family Residential (1 unit per 2.5 acres or more)
- Undeveloped / Agriculture

Lake Elmo 2040 Future Land Use

- Commercial (C)
- Public / Semi-Public (PSP)
- Park
- Rural Area Development (RAD), .1 units per acre
- Right of Way (ROW)
- Rural Single Family (RSF), 0.1 - 2.0 units per acre
- Village Low Density Residential (V-LDR), 1.5 - 3.0 units per acre
- Village Medium Density Residential (V-MDR), 3.0 - 8.0 units per acre

B. Proposed Custom Zoning

1. Proposed Airspace Zone [Height Limitations]

The legacy Airport Overlay District for Lake Elmo Airport, originally administered by Washington County but since transferred to the Townships, has been largely effective in preventing both airspace obstructions and land uses that interfere with the safety of flight operations. A deficiency in the legacy Airport Overlay District is that it does not provide protection beyond the Township boundaries.

In the proposed Ordinance, airspace protection, along with general land use restrictions preventing interference with flight safety, address the custom zoning factors to ensure a reasonable level of safety by extending to the full extent of the Airport Hazard Area. Proposed height limitations are based on FAA airspace protection criteria, as shown on **Figure 8**.

Additionally, the Ordinance clarifies that all construction or alteration of existing structures in an Airspace Zone shall comply with the requirements for filing notice to the FAA under the 7460 Obstruction Evaluation process.

If a proposed development seeks to penetrate the height limitations stipulated by the proposed Airspace Zone, a variance will have to be approved by the Board of Adjustment.

2. Proposed JAZB Safety Zone 1 [Land Use]

JAZB Safety Zone 1 is the most restrictive zone that prohibits buildings, other structural hazards, and land uses that bring together assemblies of people. The boundary of proposed JAZB Safety Zone 1 is shown on **Figure 9**.

3. Proposed JAZB Safety Zone 2 [Land Use]

Proposed JAZB Safety Zone 2 is a less-restrictive land use zone with general prohibitions against land uses that would interfere with the safety of flight. Prohibited land uses are those that would:

- Create or cause interference with the operations of radio or electronic facilities
- Create or causes interference with radio or electronic communications between airport and aircraft
- Make it difficult for pilots to distinguish between Airport lights and other lights
- Result in glare in the eyes of pilots using the airport
- Impair visibility in the vicinity of the airport
- Is deemed a hazard to air navigation by the FAA or MnDOT as part of an FAA 7460 Obstruction Evaluation
- Otherwise endanger the landing, taking off, or maneuvering of aircraft in the runway approach areas.

Proposed JAZB Safety Zone 2 does not seek to prohibit the use of rooftop solar panels on homes or restrict the use of FCC-approved amateur radio stations.

The JAZB believes that the appropriate boundary for Proposed Safety Zone 2 is the FAA's horizontal airspace surface (5,000-foot radius from each proposed future runway end), as shown on **Figure 10**.

4. Rationale for Development of JAZB Safety Zones

The JAZB believes the proposed JAZB Safety Zones 1 and 2 address the custom zoning factors to ensure a reasonable level of safety for the reasons set forth below.

a) JAZB Safety Zone 1 encompasses all of the FAA Runway Protection Zones and MnDOT Clear Zones and additional property as shown on **Figure 9.**

b) Beyond the significant improvements in both Federal Runway Protection Zone and State Clear Zone conformance as described in Section A.1.e. above, relocating the primary runway closer to the center of the airport property takes better advantage of the property acquired by the MAC many years ago to facilitate airfield improvements for small, propeller-driven aircraft with fewer than 10 passenger seats. With the proposed primary runway configuration, there is on-airport "buffer" space beyond the ends of the Federal Runway Protection Zones and State Clear Zones in areas of higher accident probability and frequency.

c) Relocating the primary runway at Lake Elmo Airport closer to the center of the airport property moves it further from several existing open-water areas on or adjacent to the airport, reducing risk from waterfowl like Canada Geese. The Airport will continue to coordinate with developers of adjacent properties to incorporate waterfowl mitigation techniques into open-water features needed to accommodate and treat surface water runoff. However, a wholesale prohibition against open-water ponds is not practical given the topography of the area and state, watershed district, and local requirements for storm water management.

d) Nearly 1,000 acres of land within the Airport Hazard Area (total of approximately 8,000 acres) are identified as Contiguous Open Space. This open space is distributed throughout the Airport Hazard Area, giving the pilot of a distressed aircraft in the vicinity of Lake Elmo Airport many options for an off-airport landing in an area that will minimize damage and contain a crash site.

e) In addition, approximately 5,500 acres of the Airport Hazard Area is comprised of low-density residential development that is zoned to require at least 2.5 acres per dwelling unit. Based on the latest year 2040 municipal comprehensive plans, this land use pattern is unlikely to change. Excerpts from these plans are provided in **Appendix B**.

f) For the Runway 4, 32, and 22 Ends (Northeast, Southeast, and Southwest Quadrants), the following factors additionally ensure a reasonable level of safety is provided by the proposed JAZB Safety Zones 1 and 2:

   i. Existing and future land uses under the approach surfaces to Runways 4, 22, and 32, out to the length of the proposed runways, do not promote the type of new development associated with vulnerable populations (schools, hospitals, nursing homes, etc.), or new land uses that attract large assemblies of people.

   ii. Applying additional land use restrictions in these established, low-density residential development areas would not likely result in a material or measurable safety benefit as described in paragraph (v.) below. Additional land use restrictions would, however, create social and economic costs by placing new burdens on property owners in the form of variance requirements for even simple property alternations or improvements.

   iii. The number of existing residential dwelling units in the low-density residential neighborhoods under the approach surfaces to Runways 4, 22, and 32, out to the length of the proposed

runways, is approximately 22. Based on an average population of approximately 3 persons per household, the total population under the runway approaches is estimated to be less than 70. Total acres under the approach surfaces to Runways 4, 22, and 32, out to the length of the proposed runways, is approximately 110. This equates to approximately 5.0 acres per residential dwelling unit with an average site population of about 0.6 persons per acre.

iv. These low density levels reduce the risk of an aircraft accident impacting a residential dwelling unit or other off-airport structure under the approach surfaces to Runways 4, 22, and 32. The combination of existing low-density development, and future land use guidance indicating that development patterns are unlikely to change, suggest that the land use controls already provided by existing and guided zoning provide a reasonable level of safety.

v. 76% of accident probability is captured within Proposed JAZB Safety Zone 1 and the airport property line. Beyond Proposed JAZB Safety Zone 1, safety-related benefits diminish rapidly. Additional accident probability captured under the approach surfaces for Runways 4, 32, and 22, out to the proposed runway lengths, beyond Proposed JAZB Safety Zone 1 accounts for only 3.1%.

g) For the Runway 14 End (Northwest Quadrant), the following factors additionally ensure a reasonable level of safety is provided by the proposed JAZB Safety Zones 1 and 2:

i. Future land uses in the City of Lake Elmo under the approach surface to Runway 14, out to the length of the proposed runway, are guided in the City's 2040 Comprehensive Plan to be a combination of the following land use categories: (i) Village Low Density Residential (V-LDR) – 8.6 acres; (ii) Village Medium Density Residential (V-MDR) – 25.1 acres; and (iii) Commercial (C) – 8.5 acres.

ii. The property guided to be Village Low Density Residential (V-LDR) is in closest proximity to the runway end. It is primarily located to the southwest of the Runway 14 extended centerline. The intended land uses in the City's V-LDR land use category are limited primarily to single-family detached dwellings. The City does not allow uses associated with vulnerable populations or assemblies of people, such as Community Services, Day Care Centers, Medical Facilities, Nursing and Personal Care, Public Assembly, Religious Institutions, and Schools in the V-LDR land use category.

iii. The property guided to be Village Medium Density Residential (V-MDR) lies to the north of the LDR parcel under the extended runway centerline. While the City allows for a greater variety of housing types in the V-MDR land use category than in the V-LDR category, the majority of uses associated with vulnerable populations or assemblies of people are not allowed. The exceptions are Day Care Centers and Schools which are listed as conditional uses in the City zoning code that the City could allow subject to specific conditions. MAC will collaborate with the City of Lake Elmo as part of the municipal review process to provide comments and feedback about the compatibility of any proposed conditional use development in this area.

iv. The property guided to be Commercial (C) lies to the east of the V-MDR parcel, closest to Manning Avenue. It is primarily located to the east of the extended Runway 14 centerline. The C land use category is for areas the City plans for retail business. This land use category excludes industrial land uses. Residential land uses are conditionally allowed in the C zoning district, as are Community Services, Day Care Centers, Schools, Medical Facilities, Nursing and Personal Care, Public Assembly, and Religious Institutions. As with the V-MDR land use category, MAC will collaborate with the City of Lake Elmo as part of the municipal review process to provide

comments and feedback about the compatibility of any proposed conditional use development in this area.

v. Implementing additional land use restrictions in the developing area of the City to the northwest of Lake Elmo Airport could have significant adverse social and economic cost impacts, including: restrictions and burdens on residential and commercial uses and development; impacts to local property tax revenue that could be generated by market-driven development; and impacts to employment potential associated with market-driven development. There is also the potential that additional land use restrictions on private property could result in takings claims. As described in the next paragraph, there are no clear, demonstrable safety benefits in applying additional land use restrictions in this area.

vi. 76% of accident probability is captured within Proposed JAZB Safety Zone 1 and the airport property line. Beyond Proposed JAZB Safety Zone 1, safety-related benefits diminish rapidly. Accident probability captured under the approach surface for Runway 14, out to the proposed runway length, beyond Proposed JAZB Safety Zone 1 accounts for only 1.0%.

h) The safety/risk analysis for Proposed Safety Zone 1, when combined with the rest of airport-owned property, indicates that ~76% accident probability is captured within Proposed Custom Zone 1 and the airport property line. The analysis also found ~5 Years between accidents within Proposed Custom Zone 1 and the Airport property line.

i. The analysis found that accident probability beyond Proposed JAZB Safety Zone 1 and under the approach surface for the proposed length of each runway decreases dramatically to less than 2%, and the years between accidents increases dramatically to greater than 224.

The results shown below, and in Appendix A, demonstrates that the Proposed JAZB Safety Zone 1 ensures a reasonable level of safety.

Runway End	Accident Probability	Years Between Accidents
14	1.0%	396
32	1.8%	224
4	1.1%	366
22	0.2%	1,710
Total	4.1%	97

ii. The analysis also calculated the accident probability per acre within Proposed JAZB Safety Zone 1 off each runway end versus the accident probability per acre beyond proposed JAZB Safety Zone 1 and under the approach surface for the proposed length of each runway.

As shown below, the accident probability per acre drops off significantly beyond proposed JAZB Safety Zone 1, demonstrating that the Proposed JAZB Safety Zone 1 ensures a reasonable level of safety.

Runway End	Accident Probability Per Acre	
	JAZB Zone 1	Beyond JAZB Zone 1
14	0.2%	0.02%
32	0.2%	0.03%
4	0.1%	0.03%
22	0.1%	0.01%

Beyond JAZB Zone 1 = Under Approach Surface for the runway length

Figure 8: Proposed Airspace Zone

Figure 9: Proposed JAZB Safety Zone 1

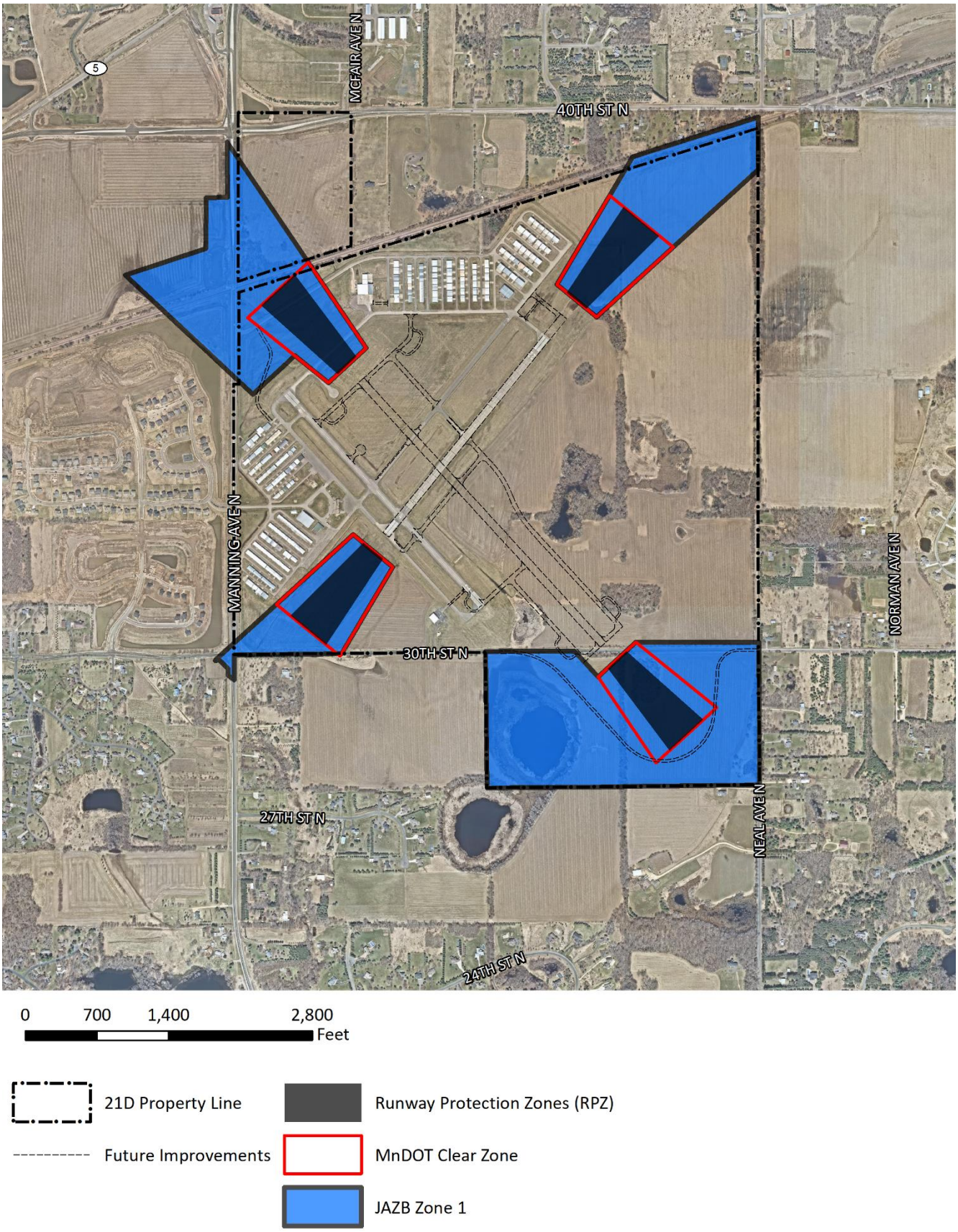
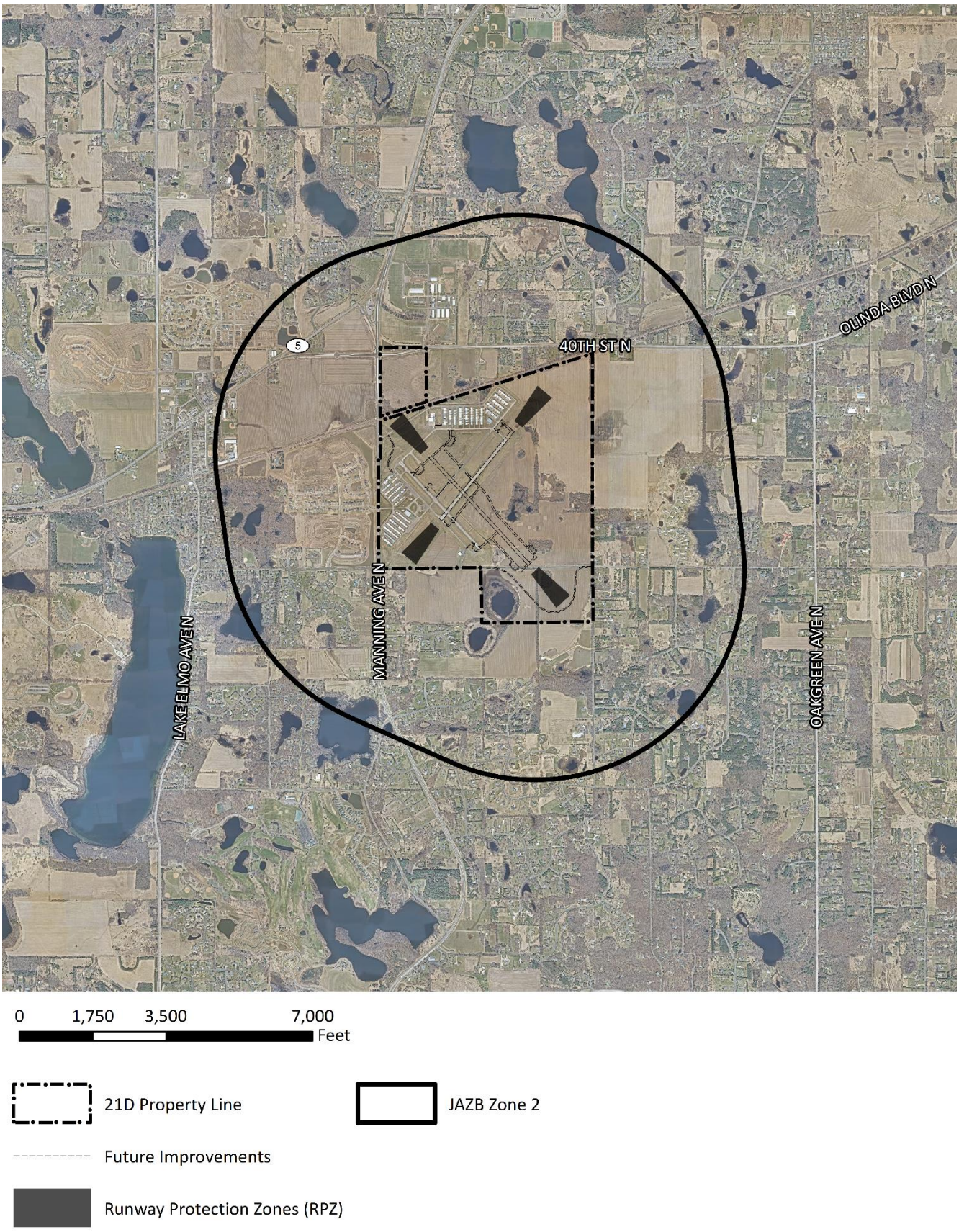


Figure 10: Proposed JAZB Safety Zone 2



Custom Zoning Factors Cross-Reference

When developing and adopting custom airport zoning regulations under this section, the municipality, county, or joint airport zoning board must include in the record a detailed analysis that explains how the proposed custom airport zoning regulations addressed the following factors to ensure a reasonable level of safety:

(1) the location of the airport, the surrounding land uses, and the character of neighborhoods in the vicinity of the airport, including:

(i) the location of vulnerable populations, including schools, hospitals, and nursing homes, in the airport hazard area;

- Sections A.1.b, B.4.f, B.4.g, Figure 2

(ii) the location of land uses that attract large assemblies of people in the airport hazard area;

- Sections A.1.b, B.2, B.4.f, B.4.g, Figure 2

(iii) the availability of contiguous open spaces in the airport hazard area;

- Sections A.1.c, B.4.d, Figure 3

(iv) the location of wildlife attractants in the airport hazard area;

- Sections A.1.d, B.4.c, Figure 4

(v) airport ownership or control of the federal Runway Protection Zone and the department's Clear Zone;

- Sections A.1.e, B.4.a, B.4.b, Figure 5

(vi) land uses that create or cause interference with the operation of radio or electronic facilities used by the airport or aircraft;

- Sections A.1.h, B3

(vii) land uses that make it difficult for pilots to distinguish between airport lights and other lights, result in glare in the eyes of pilots using the airport, or impair visibility in the vicinity of the airport;

- Sections A.1.h, B3

(viii) land uses that otherwise inhibit a pilot's ability to land, take off, or maneuver the aircraft;

- Sections A.1.h, B3

(ix) airspace protection to prevent the creation of air navigation hazards in the airport hazard area; and

- Sections A.1.i, B1, Figure 6

(x) the social and economic costs of restricting land uses;

- Sections A.1.j, B.4.f, B.4.g

(2) the airport's type of operations and how the operations affect safety surrounding the airport;

- Sections A.2, 4.b

(3) the accident rate at the airport compared to a statistically significant sample, including an analysis of accident distribution based on the rate with a higher accident incidence:

- Sections A.3, B.4.h, Appendix A

(4) the planned land uses within an airport hazard area, including any applicable platting, zoning, comprehensive plan, or transportation plan; and

- Sections A.4, B.4.e, B.4.f, B.4.g, Figure 7

(5) any other information relevant to safety or the airport.

- Section A.5

Appendix A – Safety/Risk Analysis Methodology

The safety/risk analysis employs the following methodology:

1. **Select accident location data set to use for analysis**
   The general aviation accident location distribution research conducted by the University of California at Berkeley for the *California Airport Land Use Planning Handbook* (California Study) remains the most complete known data set available for this analysis. A link to the updated California Study report is provided here:
   https://dot.ca.gov/-/media/dot-media/programs/aeronautics/documents/californiaairportlanduseplanninghandbook-a11y.pdf

   The California Study looked at several thousand NTSB accident records from across the nation and plotted the location of nearly 900 accidents that had off-airport land-use compatibility implications. It found that the number and location of reported accidents varied by runway length and therefore grouped the accident locations by the following categories:

   - Runway length less than 4,000 feet;
   - Runway length between 4,000 feet and 5,999 feet; and
   - Runway length 6,000 feet and greater.

   The accident locations contained in the "runway length less than 4,000 feet" data set from the California Study were selected to provide a representative sample of where general aviation accidents are most likely to occur in relation to the proposed runway configuration at Lake Elmo Airport. **Figure 11** shows the location of the California Study accident locations superimposed on the appropriate Lake Elmo Airport runway ends to provide a representative sample of where general aviation accidents are likely to occur in relation to a runway.

   It is important to reiterate that these are not actual accident locations at Lake Elmo Airport, but a representative set of nationwide data compiled to help the industry better understand where general aviation accidents are most likely to occur.

2. **Generalize accident locations to avoid an implication of precision**
   The California Study developed a grid spacing system of 300 feet by 300 feet to group accident data points according to relative degrees of geographic concentration. For consistency purposes, a 300 foot by 300-foot grid system will be employed in this analysis as well. Aircraft accident locations will not be expressed as individual point locations, but as accident probabilities per grid region. The grid regions are shown in **Figure 12**.

3. **Normalize accident location data to account for Lake Elmo Airport runway use patterns and the number of data points off each runway end**
   This process effectively weights the accident location data to account for the difference in runway end operational volumes and the number of accident location data points off each runway end to ensure that each location is considered equally. For example, Runway 32 has far more arrival operations than crosswind Runway 4, but the accident data set contains the same number of accident locations for both runways. Thus, to consider the data equally when determining accident probabilities, each accident location associated with arrivals to Runway 32 should be weighted more heavily than those associated with Runway 4. The results of the weighting process are shown below.

Runway	Aircraft Operations		Accident Data Set		Final Weighting	
	Arrivals	Departures	Arrival Points	Departure Points	Arrivals	Departures
14	3,629	4,403	153	191	1.23	1.19
32	6,426	5,744	153	191	2.17	1.55
4	718	1,061	153	191	0.24	0.29
22	2,537	2,101	153	191	0.86	0.57
Total	**13,310**	**13,309**	**612**	**764**	---	---

4. Calculate the probability of an accident occurring within each grid region

The average probability of an accident occurring within each grid region was calculated using GIS geo-spatial analysis. The sum total of the probability for the extent of the entire grid region is 100%. A "heat map" symbolizing the accident probability in each grid square is shown in **Figure 13**.

5. Calculate the frequency of an accident occurring within each grid region

The frequency of an accident occurring within each grid region, expressed in terms of "years between accidents", was calculated using GIS geo-spatial analysis. The sum total of the probability for the extent of the entire grid region is 100%. Based on an accident rate of 0.89 per 100,000 aircraft operations and an assumed operational level of 28,000 annual takeoffs and landings at Lake Elmo Airport, the overall probability of an accident occurring at or in the vicinity of Lake Elmo Airport is one every four years. A "heat map" symbolizing the number of years between accidents in each grid square is shown in **Figure 14**.

6. Evaluate Proposed JAZB Custom Safety Zone 1

Figure 15 shows Accident Probabilities within and adjacent to Proposed JAZB Safety Zone 1.

Figure 16 shows Accident Frequency, expressed in terms of years between accidents, within and adjacent to Proposed JAZB Safety Zone 1.

The safety/risk analysis for Proposed Safety Zone 1 by itself indicates the following results:

- ~37% Accident Probability captured within Proposed Custom Zone 1
- ~11 Years Between Accidents within Proposed Custom Zone 1

The safety/risk analysis for Proposed Safety Zone 1, when combined with the rest of airport-owned property, indicates the following results:

- ~76% Accident Probability captured within Proposed Custom Zone 1 and airport property line
  - Leaves a 24% chance that an accident will be elsewhere in the airport vicinity
- ~5 Years Between Accidents within Proposed Custom Zone 1 and airport property line

The analysis also calculated accident probability beyond Proposed JAZB Safety Zone 1, under the approach surface for the proposed length of each runway. The results are shown below, and on **Figure 17**.

Runway End	Accident Probability	Years Between Accidents
14	1.0%	396
32	1.8%	224
4	1.1%	366
22	0.2%	1,710
Total	4.1%	97

Lastly, as a comparison, the analysis calculated the accident probability per acre within Proposed JAZB Safety Zone 1 off each runway end versus the accident probability per acre beyond proposed JAZB Safety Zone 1, under the approach surface for the proposed length of each runway. As shown below, the accident probability per acre drops off significantly beyond proposed JAZB Safety Zone 1.

Runway End	Accident Probability Per Acre	
	JAZB Zone 1	Beyond JAZB Zone 1
14	0.2%	0.02%
32	0.2%	0.03%
4	0.1%	0.03%
22	0.1%	0.01%

Beyond JAZB Zone 1 = Under Approach Surface for the runway length

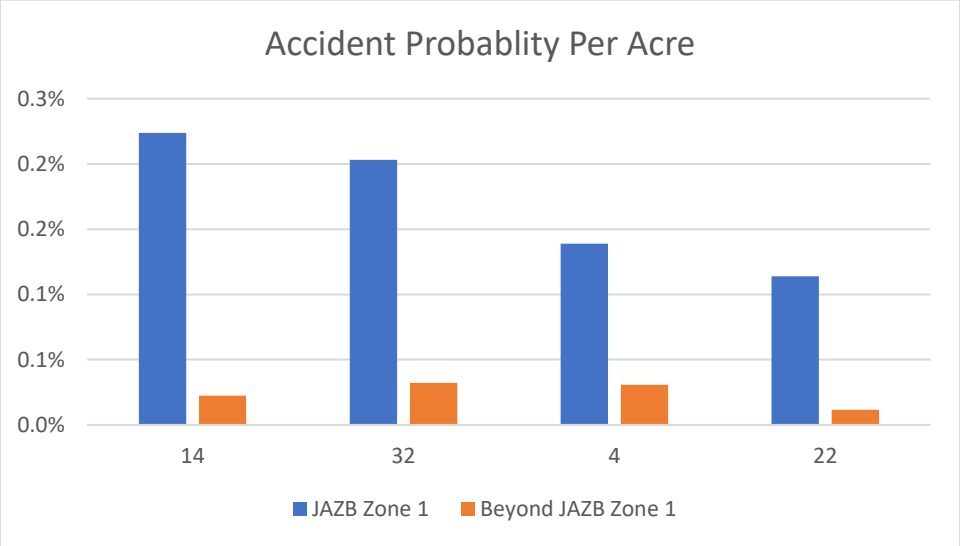


Figure 11: California Study Accident Location Data Superimposed on Lake Elmo Airport Runways

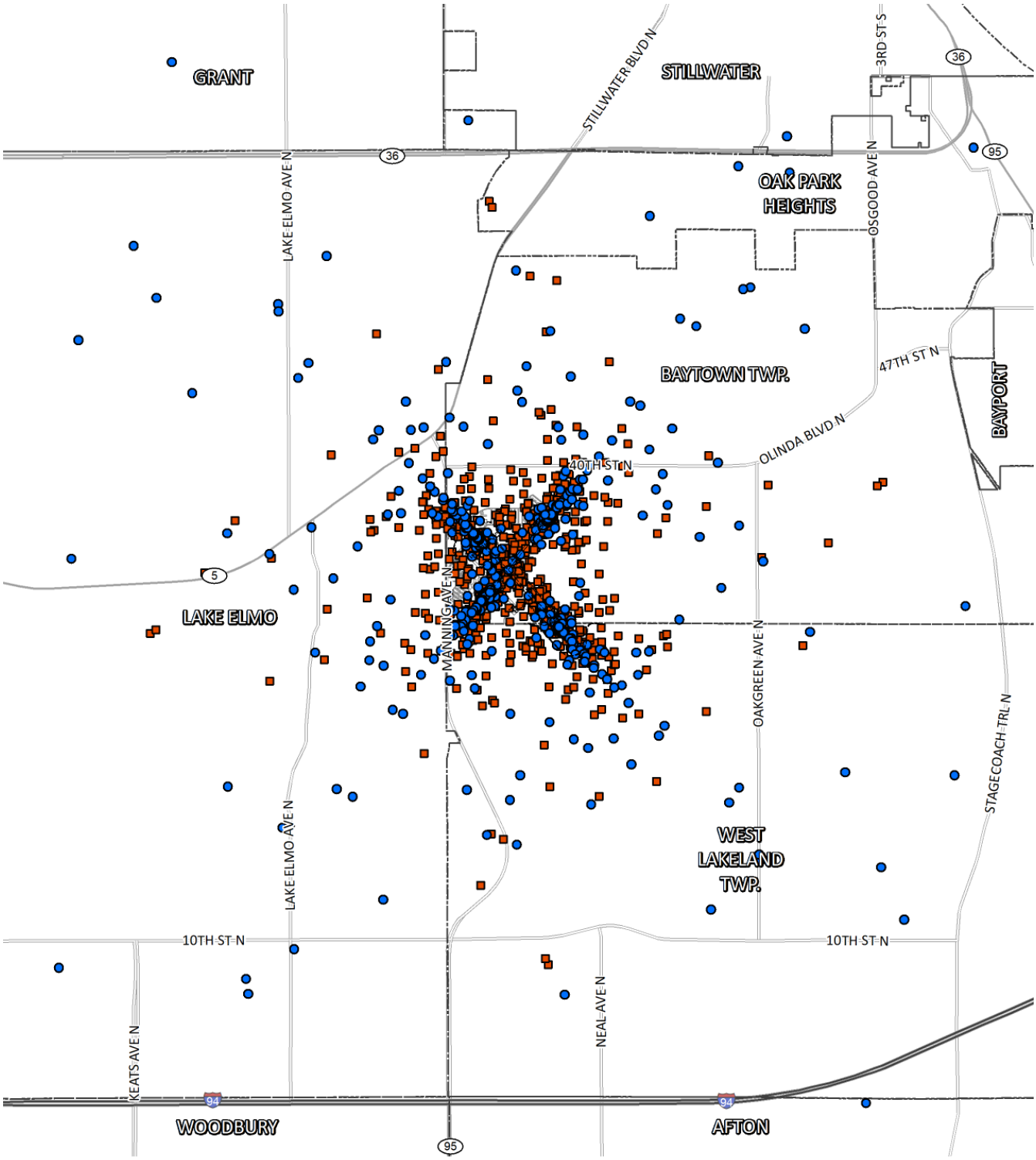
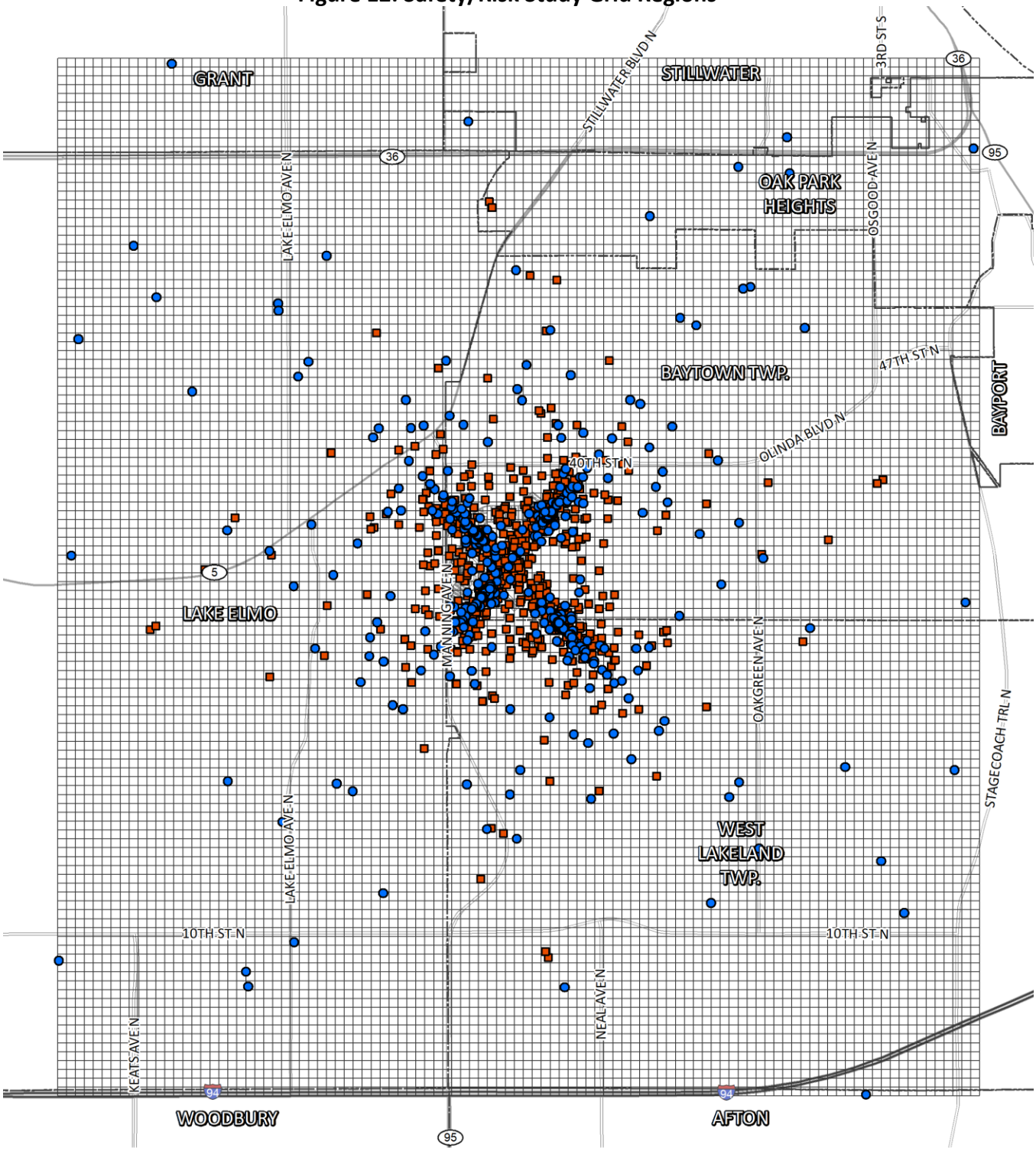


Figure 12: Safety/Risk Study Grid Regions



Arrival Accident

Departure Accident

Accident Grid

NOT ACTUAL LAKE ELMO AIRPORT ACCIDENT LOCATIONS

0 2,500 5,000 10,000 Feet

Figure 13: Safety/Risk Study Accident Probabilities

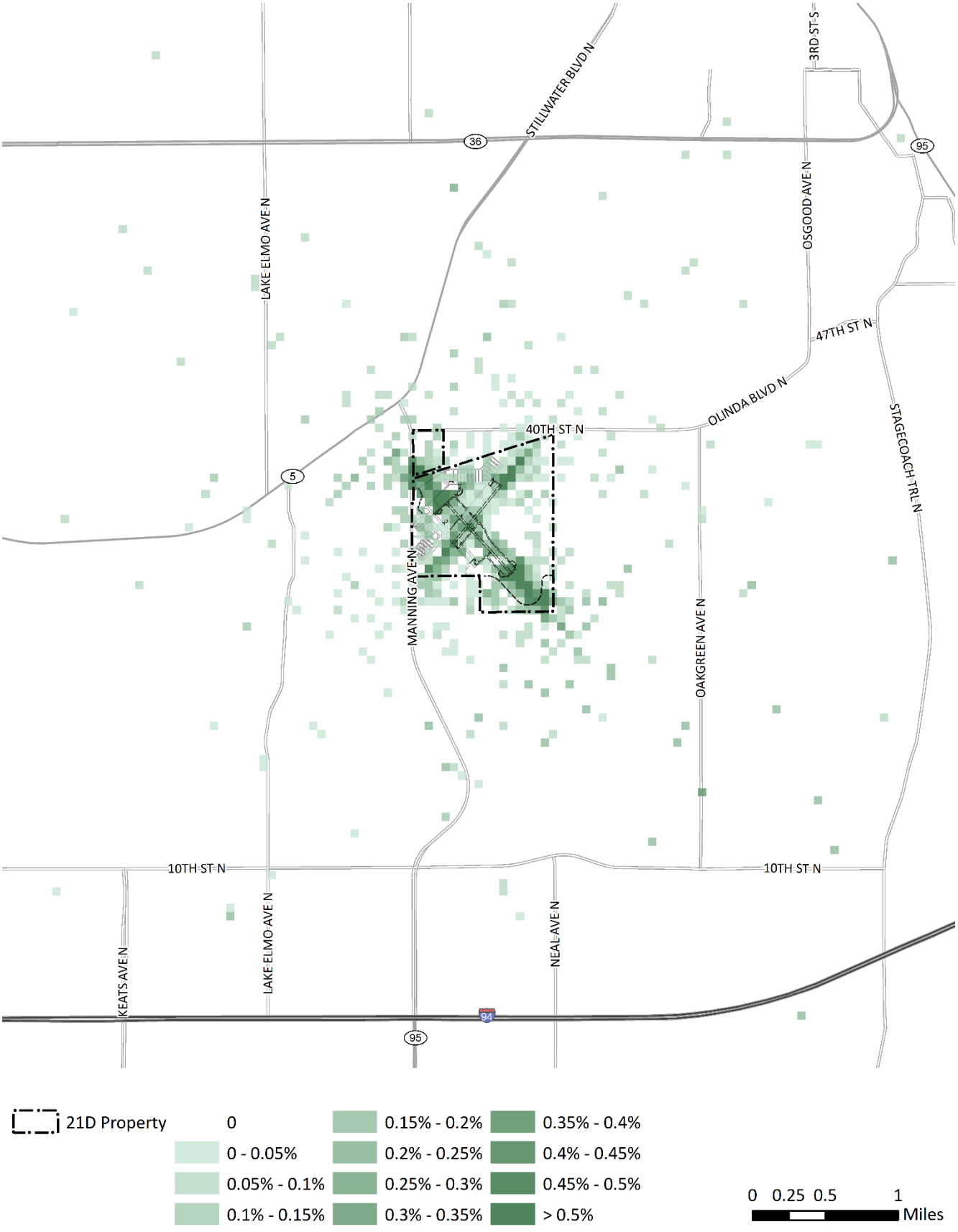


Figure 14: Safety/Risk Study Accident Frequency (Years Between Accidents)

Figure 15: Proposed JAZB Safety Zone 1 Accident Probability by Grid

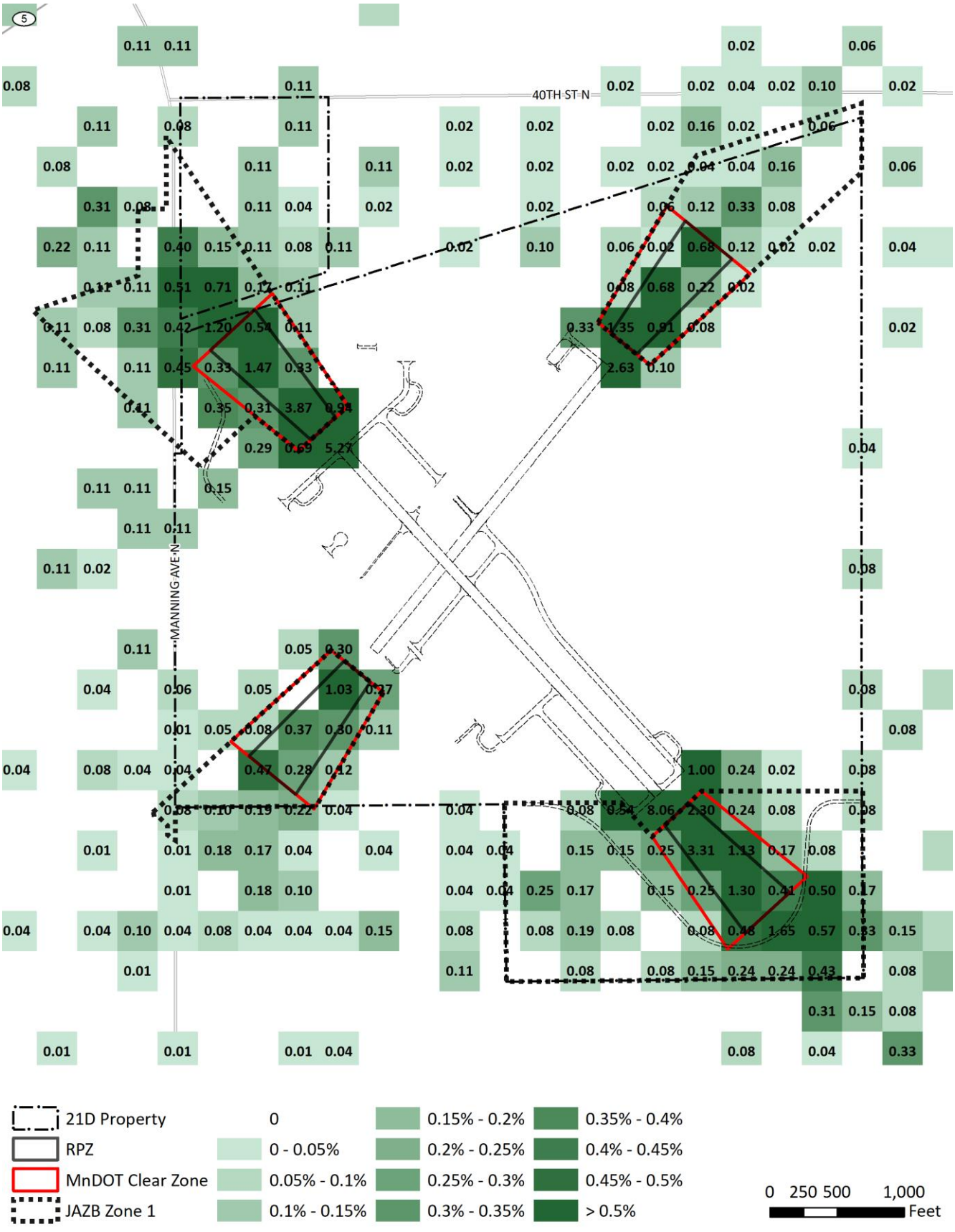


Figure 16: Proposed JAZB Safety Zone 1 Accident Frequency by Grid

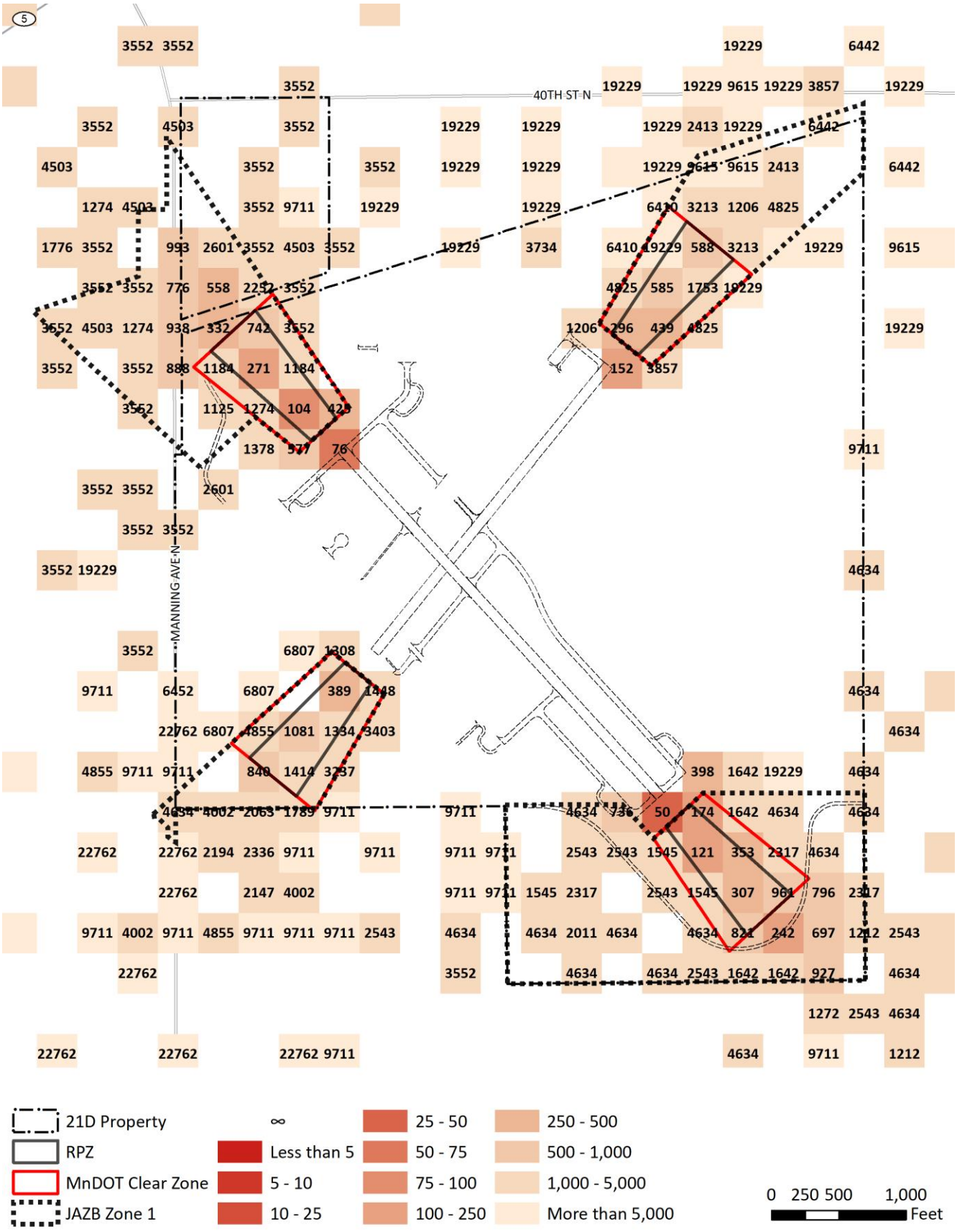
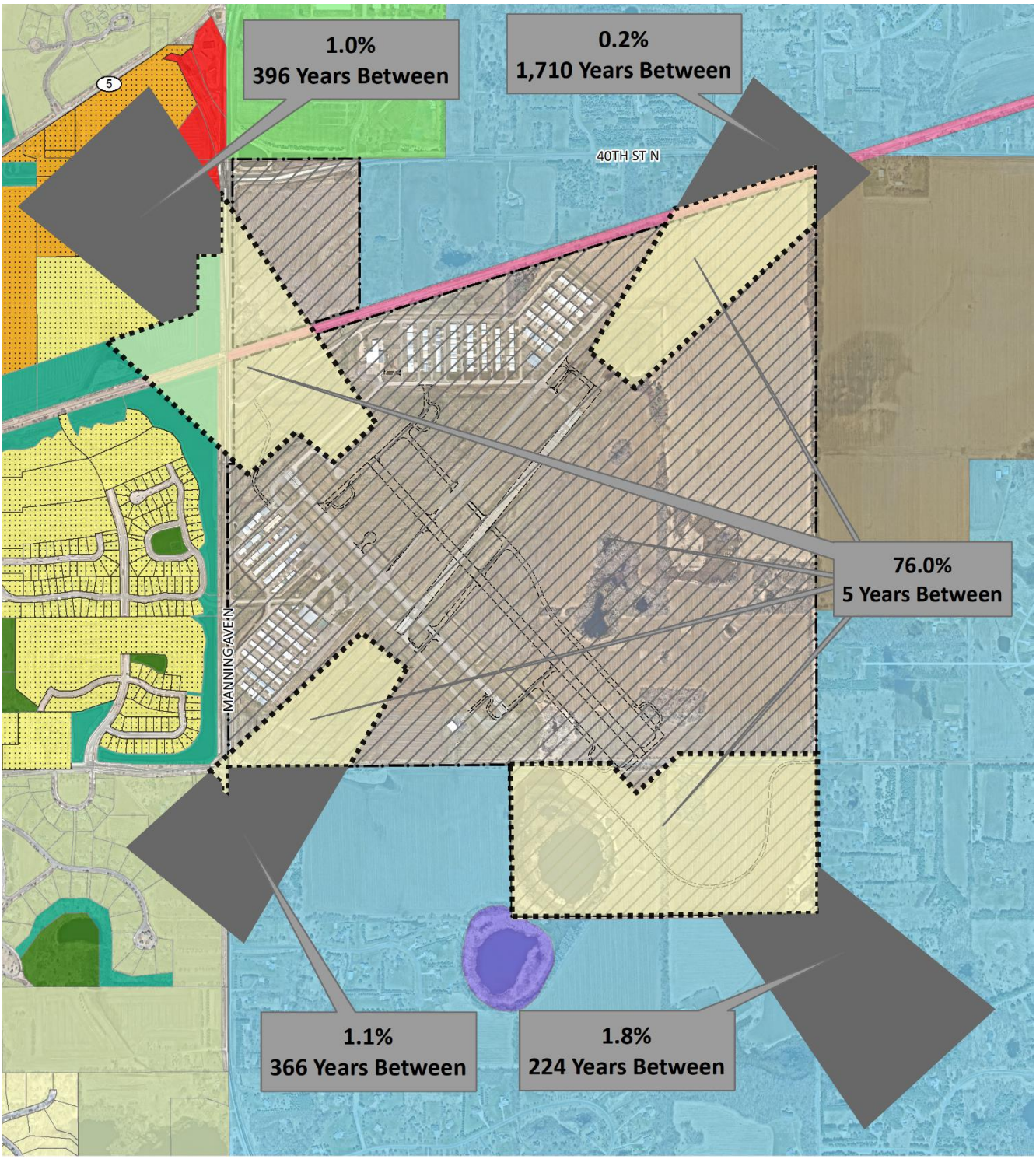


Figure 17: Accident Probability Beyond Proposed JAZB Safety Zone 1



Appendix B – Land Use Sections from Municipal Comprehensive Plans

Baytown Township 2040 Comprehensive Plan (May 2018), Chapter 3, Land Use

Lake Elmo Comprehensive Plan 2040 (July 2019), Chapter 3, Land Use

West Lakeland Township Comprehensive Plan (January 2019), Section 7, Land Use Plan

III. Land Use

A. EXISTING LAND USE

The Metropolitan Council provided maps of existing land use in the Township and tables that estimate the area of use by land use classification in 2005 and 2010. The Council's data is shown on the Existing Land Use Map (Exhibit 8) and the table below indicates the distribution of land uses by acreage in Baytown Township.

Table 3: Existing Land Use

Land Use Designation	2005 Acres	2010 Acres
Farmstead	30	30
Single-Family Detached	1,035	1,115
Mixed Use Residential	0	3
Industry and Utility	3	14
Extractive	84	100
Institutional	108	138
Park, Recreational or Preserve	149	356
Airport	271	271
Agricultural & Undeveloped	3,499	3,152
Water	691	691
Total	**5,870**	**5,870**

Data source: Metro Council

1. Farmsteads, Agricultural and Undeveloped Land Use Areas

Farmsteads, Agricultural and Vacant lands (former or current agricultural and hobby farm uses) make up approximately one quarter of the Township's area, and are particularly concentrated in the areas near the Lake Elmo Airport and in the eastern portion of the Township.

Prior to 1960, Baytown Township was almost entirely agricultural, but since then a significant amount of residential development has occurred in the Township. Baytown Township has been steadily losing agricultural land over the past years.

One significant area of the Township is enrolled in the Agriculture Preserves program, as shown on the 2040 Land Use Plan. The remaining areas designated for Agricultural land use include farms and aggregate mining operations, which are permitted only within areas zoned for Agricultural use.

Agricultural Preserves

In April 1980, the State Legislature passed and the Governor signed the Metropolitan Agricultural Preserves Act. This act provides a package of benefits to enable farmers near urban areas who want to continue farming to do so on an equal footing with farmers not

affected by urban pressures. The intent is to allow farmers to make long-term agricultural investments with the assurance that their land would continue in farm use.

The Township includes any parcels participating in the Agricultural Preserves program in the Agricultural Preserves (AP) Zoning District, which has a minimum lot size of 40 acres and limited allowed and permitted uses based on the Agricultural Preserves Act.

2. Single-Family Detached Residential Land Use Areas

Land use in Baytown Township consists primarily of large lot single family residential land uses, concentrated in the Rural Residential and Single-Family Estates zoning districts. The Metropolitan Council forecasts that the number of households within the Township will increase from 573 households in 2010, to 670 in 2020, to 720 in 2030 and 760 in 2040. This is a 17% increase from 2010 to 2020, and a 13% increase from 2020 to 2040. This growth in households and the corresponding growth in population will be concentrated in the Single-Family Residential land use areas at densities permitted in the Zoning Ordinance.

3. Mixed Use Residential Land Use Areas

This land use classification includes one duplex and a property that includes a residential use and a horse-training facility.

4. Industry and Utility Land Use Areas

This land use classification includes small sites with utility equipment.

5. Extractive (Aggregate Mining) Land Use Areas

Aggregate resources and commercial mining operations within the Township are concentrated along the eastern boundary of the Township. There are two active mining areas in the southeast portion of the Township. The Township will continue to permit mining in its Agriculture District so that this material can be removed prior to development.

6. Institutional Land Use Areas

The areas identified on the Land Use Map as "institutional" use are the property occupied by the St. Croix Preparatory Academy and the Washington County Fairgrounds. The areas occupied by this use is expected to remain unchanged through 2040.

7. Park, Recreational and Preserve Land Use Areas

The Park, Recreational and Preserve areas in the Townshp include the Bayport Wildlife Management Area and St. Croix Savannal Scientific and Natural Area (SNA). Both areas are managed by the Minnesota DNR and accessible to the public.

8. Airport Land Use Area

The Lake Elmo Airport is located largely within the boundaries of Baytown Township. This facility is owned by the Metropoltian Airports Commission. The airport is currently completing its 2035 Long-Term Comprehensive Plan. The proposed changes included in the plan have no impact on the area within Baytown Township.

9. Water Land Use Area

The water classification includes several lakes and the St. Croix River, a Wild and Scenic River.

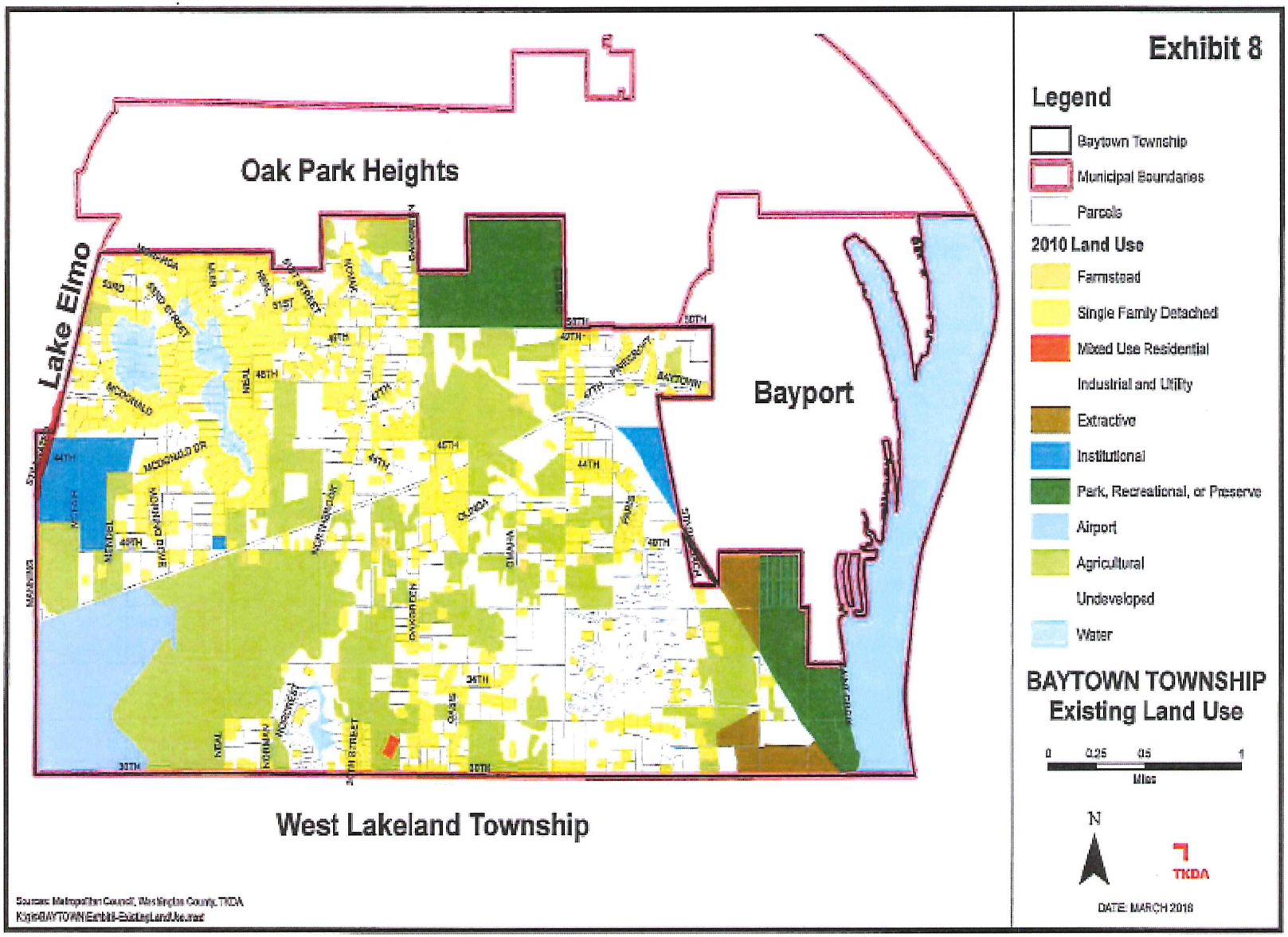


Exhibit 8
Legend
Baytown Township
Municipal Boundaries
Parcels
2010 Land Use
Farmstead
Single Family Detached
Mixed Use Residential
Industrial and Utility
Extractive
Institutional
Park, Recreational, or Preserve
Airport
Agricultural
Undeveloped
Water
BAYTOWN TOWNSHIP
Existing Land Use
0 0.25 0.5 1
Miles
N
TKDA
DATE: MARCH 2018
Oak Park Heights
Lake Elmo
Bayport
West Lakeland Township
Sources: Metropolitan Council, Washington County, TKDA
K:\gis\BAYTOWN Exhibit8-ExistingLandUse.mxd

B. FUTURE LAND USE

Baytown Township has made changes to its future land use plan in this Comprehensive Plan Update from the plan that was approved in the 2030 Plan. The proposed 2040 Land Use Plan is shown on Exhibit 9.

The Township is a rural residential community and wishes to preserve its character, sense of community, and existing Township borders. In order to preserve the Township's goals and policies which reinforce these values, the Township does not plan to provide municipal waste water services within the Township. The Township's land use plan proposes that most of the Township be developed as single-family estates, rural residential, and agricultural uses. Other smaller areas of public and institutional uses are included in the plan.

Consistency with Metropolitan Council Forecasts and Policies. The proposed land use areas in the Township provide for land use types and areas to provide for the modest growth that is predicted by the Metropolitan Council forecasts through 2040. The Council has forecast approximately 200 additional people, 187 additional households, and approximately 200 new jobs in the Township between 2010 and 2040. There is sufficient undeveloped area in the agricultural and residential land use areas to accommodate the population and household growth forecast, and additional employment in the Township may occur in the Institutional (schools) and Agricultural (mining) land use classifications. The Township estimates that there are approximately 840 developable acres remaining within the Single-Family Estates and Rural Residential land use areas.

The Township's 2040 Land Use plan is consistent with Metropolitan Council policies for Rural Residential communities in that it includes development patterns with minimum 2.5-acre and 5-acre lots sizes (larger than the minimum lot sizes that the Council's policies would permit in Rural Residential communities) and has also identified opportunities for development in the agriculture and institutional land use areas with minimum 10-acre lot sizes for residential development in those districts. The 2040 Land Use plan and the Township's Zoning Ordinance include options for lot averaging and open space (cluster developments) and requirements for best management practices for stormwater management and natural resource protection.

Changes from 2030 Comprehensive Plan Land Use. The Township's proposed 2040 Land Use map is similar to the 2030 proposed land use map. The significant changes include: elimination of a several proposed areas of higher-density sewered land uses adjacent to Lake Elmo, Oak Park Heights and Bayport that were identified in the 2030 plan. At the time of the 2030 plan, a senior housing development in Oak Park Heights had talked with the Township about potential expansion to an adjacent parcel in the Township, but that is no longer likely. The Township will not request regional sewer service that would support higher-density development in the Township, as stated in this plan, and has modified the 2040 Land Use plan to request that commitment.

Location of future growth. The majority of the expected growth in the Township will occur in the Single-Family Estates area identified on the land use map by division of the larger parcels remaining in this zone into smaller, single-family residential parcels. As noted above and in several other locations in this plan, all new residential development will be served by individual

or community subsurface septic treatment systems. Proposed land use in 2020-2040 includes the following areas:

2020-2040 Land Use Designation	Acres
Agriculture Preserves	200
Agriculture	328
Rural Residential	130
Single Family Estates	3,529
Public	948
Institutional	59
Water and wetlands	671
TOTAL	5,865

The intent and purpose of each land use area that is identified on the Township's 2040 Land Use Plan is as follows:

1. Agriculture Preserves Use (minimum density 1 unit/40 acres) and Zoning District

The purpose of this designation is to preserve agriculture as a viable permanent land use and significant economic activity within the Township on parcels with a minimum size of 40 acres. Properties currently enrolled in or eligible for the Agricultural Preserves program are included in this land use designation. A variety of agricultural uses and single-family residential use are permitted in this district, consistent with the uses permitted by state statutes.

2. Agriculture Use (minimum density 4 units/40 acres) and Zoning District

The purpose of this area is to preserve land which can be utilized for interim agriculture on lots smaller than those required in the Agricultural Preserves designation, and includes aggregate mining operations. This category allows for rural low density housing and will be developed at a maximum density of 4 density units per 40 acres (1 home per 10 acres). This district helps to preserve the rural character of the Township. It includes agricultural, single-family residential uses, and permits Open Space Developments, aggregate mining, public facilities and schools, and places of worship with a Conditional Use Permit.

3. Rural Residential Use (minimum density 8 units/40 acres) and Zoning District

Rural Residential lands will be developed with single-family residential uses at a minimum density of 8 density units per 40 acres (1 home per 5.0 acres). Due to physical constraints and surrounding uses, it is likely than many of the parcels in this district will be developed with minimum lots sizes of 1 unit per 10 acres. All development in the District will occur using on-site septic systems.

The Rural Residential Zoning District allows agriculture and single-family residential uses, and permits Open Space Developments, multifamily residential development (on approved on-site community septic systems), schools, recreational facilities, and other uses with a Conditional Use Permit.

4. Single Family Estate Use (minimum density 16 units/40 acres) and Zoning District

Single Family Estate lands will be developed with single-family residential uses at a minimum density of 16 density units per 40 acres (1 home per 2.5 acres). All development in the District will occur using on-site individual or community septic systems. As noted previously in this plan, the Township is not planning to provide municipal sewer services through the Metrpolitan Council's Regional System for residential development in the Township. While the Metroplitan Council's Rural Residential designation would permit development at densities between 1 and 2.5 acres per housing unit, the Township's zoning ordinance permits a minimum lot size of 2.5 acres in the SFE District, and the Town plans to continue to require this minimum density through 2040.

While 2.5 acres is the minimum lot size in this land use classification and its corresponding zoning district, some areas may develop with larger lot sizes due to ordinance requirements, physical constraints or market conditions. The Shoreland Ordinance requires 5-acre minimum lot sizes within the shoreland overlay areas in all districts in the Township.

This is the largest land use designation within the Township. The district allows agricultural and single-family residential uses, and permits Open Space Developments (OSD's), multi-family residential development (on approved on-site community septic systems), schools, public recreational facilities, and other uses with a Conditional Use Permit. All residential development will use individual subsurface septic treatment systems.

The Township's Zoning Ordinance currently permits lot averaging with the SFE areas, which permits flexible development options. The Township also permits Open Space (cluster) Developments (OSDs) in the SFE District if they meet the critieria in the Township's Zoning Ordinance.

"Lot averaging" permits variable lot sizes within a subdivision as long as the overall density of the subdivision is consistent with the Comprehensive Plan and Zoning Ordinance. The Township's Open Space Development ordinance includes options for density bonuses if the developments meet the bonus criteria, including the incorporation of community septic systems, community water systems, and the provision of a community-wide trail system.

The Township noted that given current development patterns, there are only few sites remaining that could utilize the OSD option to protect significant natural areas or agriculture.

5. *Public Land Use (Agriculture Zoning District)*

This classification includes lands that are publicly or privately owned and operated for public purposes. The classification allows for public facilities and parks, recreational, and open space areas. These land use areas are included in the Agriculture Zoning District.

The Lake Elmo Airport and the Washington County Fairgrounds are included in this designation. The designation also includes the Bayport Wildlife Management Area and the St. Croix Savanna Scientific and Natural Area.

6. *Institutional Land Use (Transition Zoning District)*

There is one area within the Township currently designated as an Institutional land use. The St. Croix Preparatory Academy, a charter school that is part of the Stillwater School District, occupies this area. The Institutional land use area is included in the Transition Zoning District in the Township, which permits uses such as public and private schools, government buildings, and other institutional uses. It also permits agriculture, single-family residences, and multifamily residential uses.

The Transition Zoning District permits a minimum lot size of 10 acres (density permitted is 1 unit per 10 acres), and the maximum lot coverage permitted is 25%.

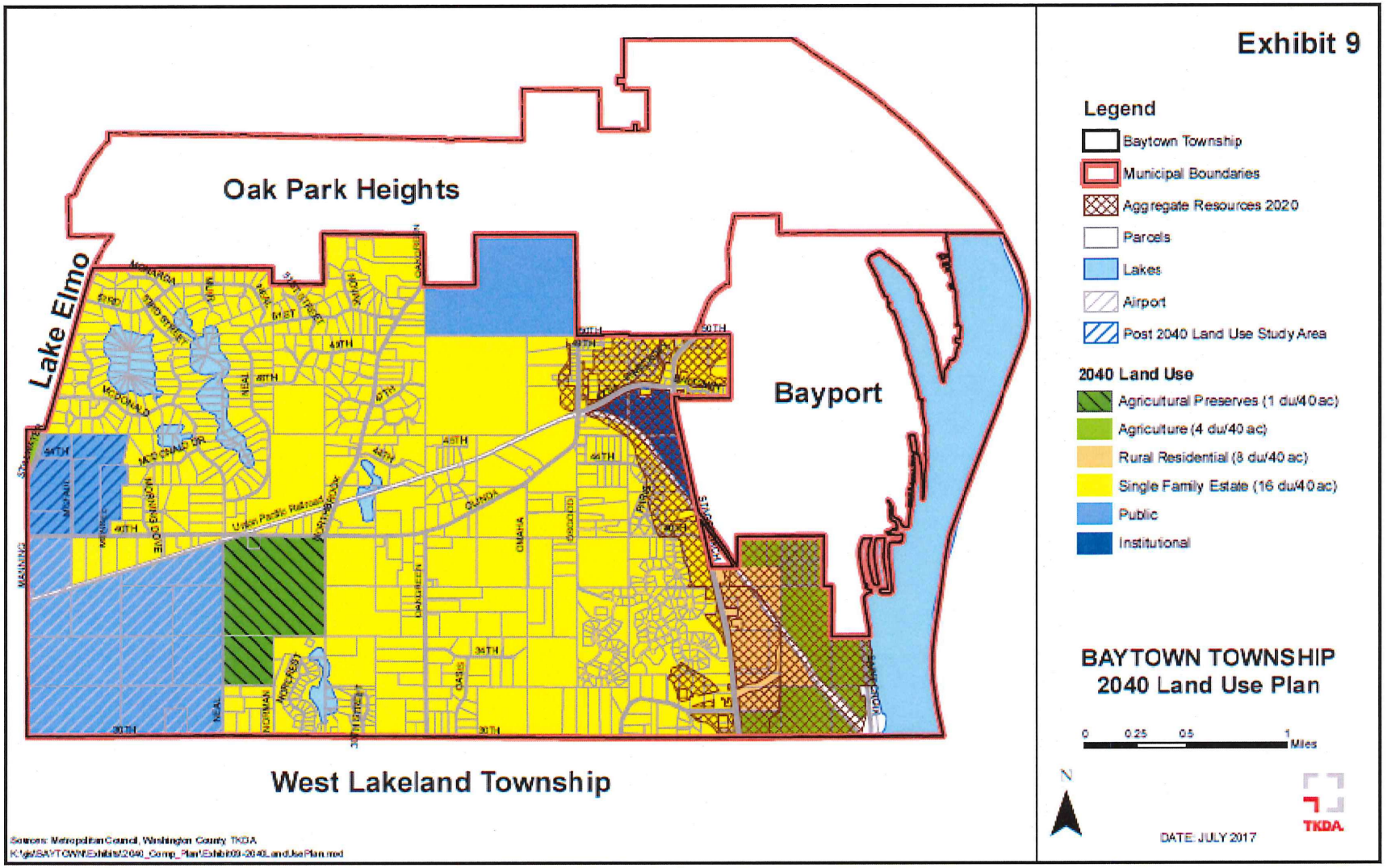


Exhibit 9
Oak Park Heights
Lake Elmo
Bayport
West Lakeland Township
Legend
Baytown Township
Municipal Boundaries
Aggregate Resources 2020
Parcels
Lakes
Airport
Post 2040 Land Use Study Area
2040 Land Use
Agricultural Preserves (1 du/40 ac)
Agriculture (4 du/40 ac)
Rural Residential (8 du/40 ac)
Single Family Estate (16 du/40 ac)
Public
Institutional
BAYTOWN TOWNSHIP
2040 Land Use Plan
0 0.25 0.5 1 Miles
N
DATE: JULY 2017
TKDA
Sources: Metropolitan Council, Washington County, TKDA
K:\gis\BAYTOWN\Exhibits\2040_Comp_Plan\Exhibit09-2040LandUsePlan.mxd

C. LAND USE GOALS AND POLICIES

Goals

1. Protect and preserve the rural residential character of the Township which contributes to the health and quality of life of Township residents.

2. Maintain the geographic boundaries of the Township.

3. Encourage development to occur in an orderly manner that makes Baytown more attractive to residents and retains the rural character of the Township. Require future development to be consistent with the adopted 2040 land use plan and Comprehensive Plan.

4. Encourage the continuation of commercial and/or hobby farming as a viable land use to maintain rural character and as a way to contribute to the economic activity of the Township.

5. Permit options for permitting flexibility in subdivision design, including lot averaging and Open Space Developments.

Policies

1. The Township will update its Zoning Map and Ordinance to be consistent with the land use plan and goals in this Comprehensive Plan.

2. The Township will update its ordinances as needed to be consistent with the Comprehensive Plan and meet the natural resource goals in this plan and its Local Surface Water Management Plan.

3. All land development cost will be borne by the developer including but not limited to road construction, drainage improvements, landscaping, attorney fees, planning fees, and engineering fees associated with each.

4. Developers of new subdivisions must demonstrate that each newly created lot can accommodate, first, two (2) proper subsurface sewage treatment systems and, second, a house meeting all setback requirements in both the zoning ordinance and subsurface sewage treatment system ordinance.

5. Requests for subdivisions of land must meet current Township and County regulations regarding adequate lot frontage, access, provision of septic/water, and other minimum lot requirements.

IV. Housing

The Township's land use goals identify the Township's intent to remain a low-density, single family residential community and maintain the rural and rural/residential character of the Township through 2040.

A. HOUSING CHARACTERISTICS

Baytown Township's housing stock consists largely of single family homes. The Metropolitan Council provided the following data that describe the housing stock in the Township and its affordability to a variety of households.

Total housing units [1] = 685 Total households [2] = 655

Table 1 Affordability in 2016 [3]

Units affordable to households with income at or below 30% of AMI	Units affordable to households with income 31% to 50% of AMI	Units affordable to households with income 51% to 80% of AMI
51	10	28

Table 2 Tenure in 2016 [4]

Ownership units	Rental units
588	97

Table 3 Housing Type in 2016 [1]

Single-family units	Multifamily units	Manufactured homes	Other housing units
685	0	0	0

Table 4 Publicly Subsidized Units [5]

All publicly subsidized units	Publicly subsidized senior units	Publicly subsidized units for people with disabilities	Publicly subsidized units: All others
0	0	0	0

Table 5 Housing Cost-Burdened Households in 2016 [6]

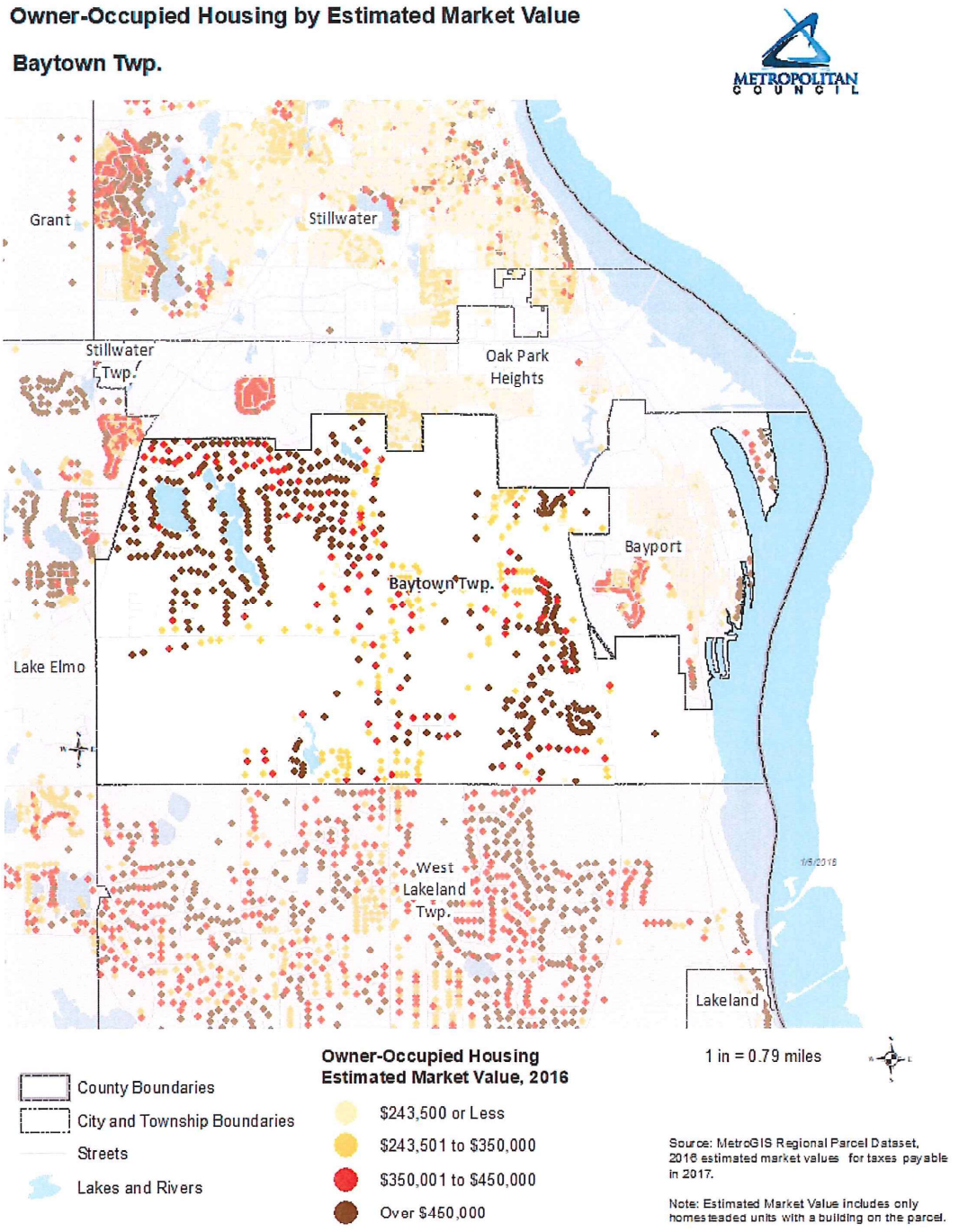
Income at or below 30% of AMI	Income 31% to 50% of AMI	Income 51% to 80% of AMI
17	31	35

[1] Source: Metropolitan Council, 2016 housing stock estimates. Single-family units include single-family detached homes and townhomes.

The U.S. Census data for 2014 and Metro Council data for 2016 provides the following information about the housing stock in Baytown Township:

- The Township included 685 households in 2016.
- Metro Council data indicates that all of the housing units are single-family detached units.
- The Census data incated that few new housing units were added each year between 2007 and 2010—approximately 3-5 units each year. Since 2011, the numbers of new housing units constructed in the Townshp have increased to 12-20 new units each year, which is similar to the numbers of new units constructed in the Township each year between 2000 and 2005.

- Approximately 86% of the homes in the Township are owner-occupied.
- The Township has some of the highest home values in Washington County. The map below shows the estimated market value of homes in the Township in 2016.
- The data identify 83 households that are burdened by the cost of their current housing as a proportion of their incomes.



Senior Housing in Adjacent Areas

The Township has contributed to housing diversity and the development of housing for seniors in adjacent areas. The land where the Boutwell's Landing and Oak Park Place developments are located was originally in Baytown, but was annexed to Oak Park Heights so that these senior housing facilities could be developed with municipal sewer and water services.

B. WASHINGTON COUNTY HOUSING STUDY

Maxfield Research, Inc. updated the Comprehensive Housing Needs Assessment for Washington County in 2013. This study examines current housing within the County and addresses housing needs for the County through 2030. Baytown Township is part of the Stillwater Market Area for this study.

The study found the following trends in housing in the Stillwater Market Area and Washington County:

- The Stillwater Market Area is expected to add between 2,000 and 5,000 people between 2013 and 2030.
- The number of people in each household continues to decline.
- The demand for rental housing is growing faster than the demand for owner housing. This includes housing for seniors and "Millenials"
- Employment continues to grow in Washington County as a whole. There is a gap between the average home value and what many workers in the County can afford. Workers in the County earn much less on average than County residents.
- The study projected a strong demand for all types of housing between 2013 and 2030 in Washington County, including both affordable and market-rate rental housing for seniors and the general population between 2013 and 2030.

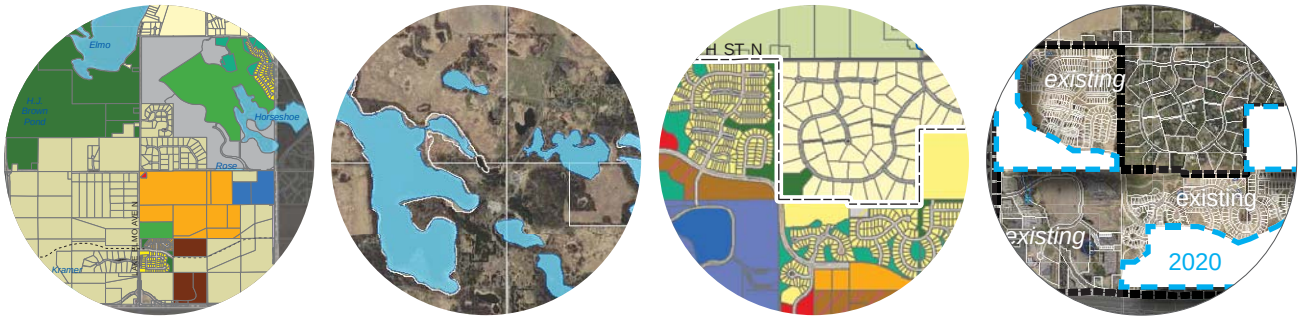
C. HOUSING ISSUES AND NEEDS

The Township recognizes that there are over 100 households in the Township that have been identified as burdened by the costs of their housing units in relationship to their incomes. Because the Township does not have municipal sewer and water services and will not provide these services, the new housing units are likely to be single-family residential units on large parcels with on-site septic systems and private wells, built at market rates.

The Township's Zoning Ordinance permits Accessory Apartments within single-family homes, Community Residences, and Temporary Housing Units as Care Facilities and for Farm Workers. These provide some life-cycle housing options to meet individual needs. There are currently two group homes ("Community Residences") in Baytown Township.

Chapter 3: Land Use

Existing & Future



INTRODUCTION

The City of Lake Elmo is a growing, engaged and dynamic community that has experienced significant change over the past planning period. The City's proximity to jobs and access to regional amenities means that the City will likely continue to experience external pressures to grow. Consequently, it is essential for the City to develop a thoughtful, well-planned approach to its future land uses and growth strategy.

The following Chapter will focus first on existing land uses that will provide a baseline from which the Future Land Use Plan (FLU) was derived. The FLU guides anticipated densities of new neighborhoods, locations of future mixed-use and employment centers, and guides land for commercial and retail services through 2040. The community understands that while there is significant growth pressure and demand today for certain types of development, that demand is likely to ebb and flow and change over the next several decades as market trends fluctuate. More detail regarding current market trends and development can be found in Chapter 4. Balanced Development & Growth within this Plan; however, the pace of growth is addressed through the Staging Plan that is included in subsequent sections of this Chapter. The Staging Plan provides sequential geographic areas available for development and growth during prescribed time periods that methodically allows for contiguous development and cost-effective expansion of municipal services to undeveloped areas of the community.

The Future Land Use, Staging and Special Area plans contained within this Chapter, if consistently followed and implemented, directly support the goals and objectives contained within Chapter 1: Vision, Goals & Strategies. The intent of this chapter is to demonstrate where land use changes are anticipated, where existing land use patterns are guided to stay the same, and how these land uses patterns will continue to support the identity and character of the community through this planning period.

2040 Land Use Highlights – What's to Come

- **The Existing Land Use Patterns in the Rural Residential areas should be protected through this planning period; some new rural residential neighborhoods, including open space developments, are anticipated to develop consistent with the City's rural tradition.**
- **New Future Land Use designations will allow for a better response to market conditions and will allow greater options in land use choices.**
- **Integration of more diverse neighborhood patterns and densities will allow for a stronger commitment to the staging plan.**
- **Refinement of staging and infrastructure phasing to promote contiguous, efficient development patterns.**

Existing Land Use

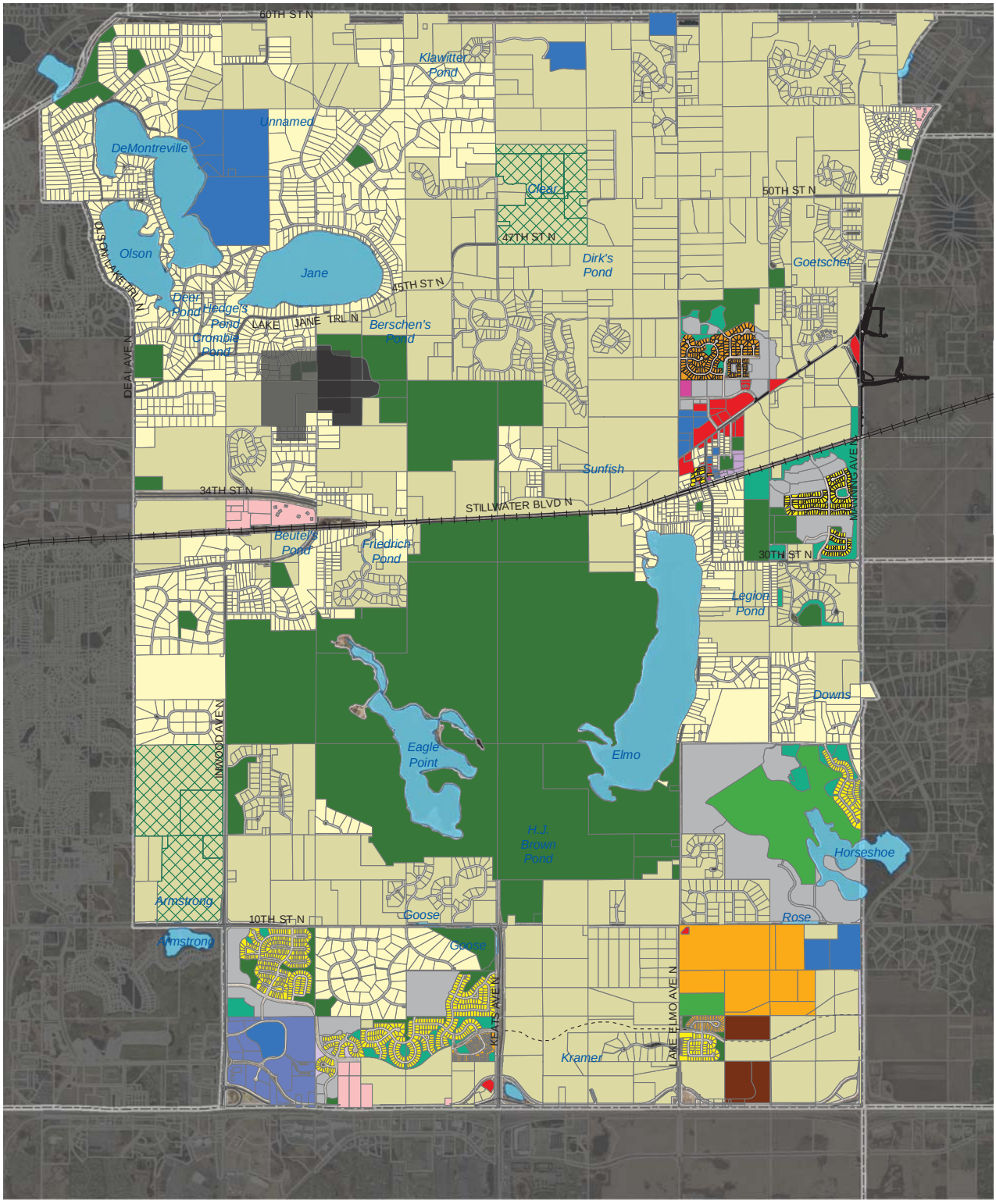
The existing land use patterns reflect the City's past commitment to the rural landscape and investment in development of primarily single-family detached housing. Rural residential neighborhoods with conventional rural subdivisions and open space development subdivisions are sprinkled throughout much of the community's landscape. The many lakes of the City are dotted with smaller residential lots that once were dominated by vacation homes that have now transitioned to full-time residences. The Lake Elmo Regional Park Reserve is centered in the City providing a hub of natural and recreational resources for both City and metro area residents. The "Old Village" is the historical hub of activity in the City, and a mix of uses is present today including some residential, commercial and office users. Business uses, employment pockets and retail/service users are primarily located in or near the "Old Village", along the I-94 corridor, or at major intersections and thoroughfares.

In Lake Elmo's 2030 Comprehensive Plan, the City's existing land uses did not include any areas that were connected to municipal services or located within the Metropolitan Urban Service Area (MUSA). Now, in this 2040 Plan, the existing land use patterns include neighborhoods that have been developed or are under construction that were guided in the MUSA in the previous plan. The availability of municipal services has allowed for the addition of new land use patterns that can be found in developing neighborhoods such as Inwood, Savona, and Easton Village. Additionally, the Old Village area has been incrementally served and connected to municipal services over the past decade, which has allowed for existing small-lot residential neighborhoods to be served, as well as new neighborhoods under development. While the developing neighborhoods in the MUSA continue to be dominated by single-family detached uses, some diversification has started to emerge as a few small pockets of medium-density residential uses are under construction and development.

Table 3-1. Existing Land Use

Existing Land Uses	Residential Density (dwelling units/acre)	Acres	% Total Acres
Agricultural Preserve (AP)	0.025	414.70	2.67%
Rural Area Development (RAD)	0.1	6,103.13	39.36%
Rural Estate (RE)	0.1 -0.4	815.26	5.26%
Rural Single Family (RSF)	0.66 - 2.0	1,754.14	11.31%
Low Density Residential (LDR)	2 - 4	182.06	1.17%
Medium Density Residential (MDR)	4 - 8	231.41	1.49%
Village - Low Density Residential (V-LDR)	1 - 4	36.08	0.23%
Village - Medium Density Residential (V-MDR)	4 - 6	48.18	0.31%
Mixed Use (MU)	5 - 12	4.93	0.03%
Undeveloped (U)	Various	392.15	2.53%
Limited Business (LB)	NA	71.79	0.46%
Business Park (BP)	NA	88.01	0.57%
General Business (GB)	NA	70.09	0.45%
Commercial (C)	NA	50.27	0.32%
Institutional (INST)	NA	305.40	1.97%
Closed Landfill (CL)	NA	67.53	0.44%
Public/Semi-Public (PSP)	NA	123.55	0.80%
Golf Course (GC)	NA	267.36	1.72%
Parks & Open Space (POS)	NA	2,531.43	16.32%
Right of Way (ROW)	NA	594.18	3.83%
Open Water	NA	1,355.29	8.74%
TOTAL		**15,506.96**	**100.00%**

Map 3-1. Existing Land Use Map 2018



ELU

AP	V-LDR	BP	Golf Cours	Closed Landfill
RAD	V-MDR	LB	PSP	
RSF	MXD	Industrial	Park/OS	
LDR	C	Institutional	Undeveloped	
MDR	GB	Closed Landfill	ROW	

Draft Date: Rev. 5.2.2018
Source: Washington County, MNGEO, SHC

Existing Land Use Definitions

Agricultural Preserve (AP)

This land use designation identifies land enrolled in the Agricultural Preserves program. Land in this designation is required to be guided for no more than 1 dwelling unit per 40 acres and is protected from further subdivision during the contract period.

Rural Area Development (RAD)

This land use designation represents the large areas of rural residential development and agricultural uses within the City. Common uses found in these areas include working farms, alternative agricultural uses as defined by City Code and rural single-family detached residences. Development in these areas requires 10+ acres, or a conditional use permit to authorize a cluster development meeting the City's Preserved Open Space regulations.

Rural Estate (RE)

This land use designation defines areas developed specifically for large lot single-family detached housing typically on two or more acres of land, but developed at densities more than one unit per ten acres.

Rural Single Family (RSF)

This land use designation identifies land that was platted for conventional subdivision prior to 2005, and includes large lots that are primarily serviced by private on-site well and septic system.

Low Density Residential (LDR)

This land use designation identifies land that has been developed with primarily single-family detached housing with urban services between 2010 and 2018 at densities between 2.5 and 4 dwelling units per acre. This existing land use is only located within the South MUSA.

Medium Density Residential (MDR)

This land use designation identifies land that has been developed primarily with a mix of attached and detached single-family housing with urban services between 2010 and 2018 at densities between 4.5 and 7 dwelling units per acre and the manufactured home park that was developed in the 1960s. This existing land use is only located within the South MUSA.

Village - Low Density Residential (V-LDR)

This land use designation identifies land that has been developed with primarily single-family detached housing with urban services between 2010 and 2018 at densities between 1.5 and 2.5 dwelling units per acre. This existing land use is only located within the Village Planning MUSA.

Village - Medium Density Residential (V-MDR)

This land use designation identifies land that has been developed with primarily single-family detached housing with urban services between 2010 and 2018 at densities between 2.5 and 5 dwelling units per acre. This existing land use is only located within the Village Planning MUSA.

Mixed Use (MU)

This land use designation identifies land developed with a mix of commercial and residential uses and is limited to land within the Village Planning Area.

Undeveloped (U)

This land use designation identifies land within the South MUSA and Village MUSA that has been approved for future sewered development through a Preliminary Plat or PUD process, but Final Plat has not been completed.

Limited Business (LB)

This land use designation identifies areas that are developed with commercial users that are not served by urban services. Users in this designation are generally less intense than would be permitted in the planned MUSA designations.

Business Park (BP)

This land use designation identifies areas used for professional businesses including medical and research facilities, offices and corporate headquarters. Users specifically excluded for existing park areas include warehousing, manufacturing, distribution, assembly and truck terminals. Retail sales of goods and services are allowed by conditional use permit.

General Business (GB)

This land use designation identifies areas used for general business activities that currently include warehousing, light industrial and manufacturing uses.

Commercial (C)

This land use designation identifies areas that are used for retail and service businesses. This land use can be found within the Village MUSA and South MUSA.

Institutional (INST)

This land use designation identifies lands that are developed with public or semi-public uses including users such as, but not limited to, religious institutions, schools, libraries and other civic buildings.

Public/Semi-Public (PSP)

This land use designation identifies lands that support adjacent development with stormwater ponds and other utilities and may include ancillary uses such as trails and small open spaces.

Golf Course (GC)

This land use designation identifies land that is used for a private golf course and ancillary uses that may include, but not be limited to, driving range, clubhouse and other amenity centers.

Park & Open Space (POS)

This land use designation identifies land that is used for park, recreation, trails, other natural resources preservation. Land within this designation is publicly owned by either the City, county, or other public agency.

Closed Landfill Restricted (CL)

This land use designation identifies former landfills that are qualified to be under the Closed Landfill Program of the Minnesota Pollution Control Agency (MPCA). The purpose of this category is to limit uses of land within the closed landfill, both actively filled and related lands, to minimal uses in order to protect the land from human activity where response action systems are in place and, at the same time, are protective of human health and safety.

Right of Way (ROW)

This land use designation includes all publicly dedicated areas that are used for roadways, shoulders, ditches, and other improvements. It should be noted that not all roads in the City are platted, and many are dedicated by easement and therefore this land area is accounted for through the associated land use designation. As a result there is more land dedicated to road use than identified within the acreages identified on the existing land use table.

FUTURE LAND USE

The Future Land Use Plan (FLU) was developed by building on stated goals and strategies as identified through the planning process and documented in Chapter 1: Vision, Goals & Strategies. The resulting FLU carefully balances the recommendations and considerations of residents, stakeholders, staff, and policy-makers while responding to and incorporating the regulatory requirements of the Metropolitan Council.

> *LU Goal #1.* **Work with residents, developers, land owners and other stakeholders through the development process and require development that is consistent with the Future Land Use Plan.**
>
> - Chapter 1: Vision, Goals & Strategies

The FLU is in part shaped by the policy designations the City is required to meet as part of the Metropolitan Council's Thrive MSP 2040 Land Use Policy as provided within the 2015 Lake Elmo System Statement. Lake Elmo falls into two categories of Community Designation, as described in Chapter 2: Community Context. Each of these designations carries responsibility for the related Community Role in the regional growth of the metropolitan area in relation to future land use. These roles are outlined in the Metropolitan Council's Thrive 2040 Land Use Policy and include the following land use practices for Lake Elmo:

Emerging Suburban Edge

- Plan and stage development for forecasted growth through 2040 and beyond at overall average net densities of at least 3-5 dwelling units per acre in the community. Target higher-intensity developments in areas with better access to regional sewer and transportation infrastructure, connections to local commercial activity centers, transit facilities, and recreational amenities. Future land use must therefore plan to accommodate a minimum residential density of 3 du/acre within this designation.
- Identify and protect an adequate supply of land to support growth for future development beyond 2040, with regard to agricultural viability and natural and historic resources preservation.
- Incorporate best management practices for stormwater management and natural resources conservation and restoration in planning processes.
- Plan for local infrastructure needs including those needed to support future growth.

Rural Residential

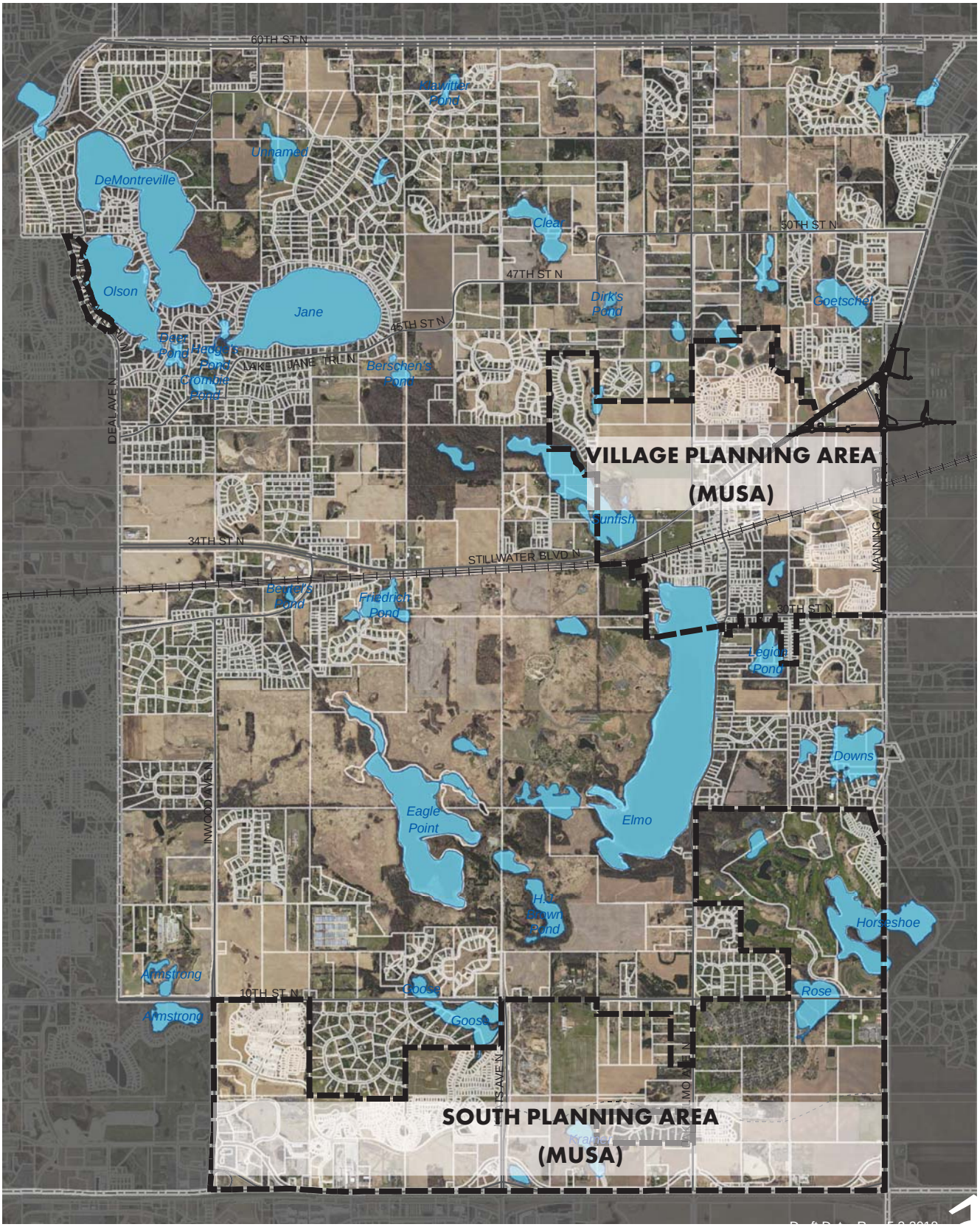
- Discourage future development of rural residential patterns (unsewered lots of 2.5 acres or less) and where opportunities exist, plan for rural development at densities that are not greater than 1 unit per 10 acres. Future land use must therefore plan to limit development to a maximum residential density of 0.1 du/acre within this designation.
- Implement conservation subdivision ordinances, cluster development ordinances, and environmental protection provisions in local land use ordinances, consistent with the Council's flexible residential development guidelines.
- Promote best management practices for stormwater management, habitat restoration, and natural resource conservation in development plans and projects.

3-10

The two distinctive Community Designations require the City to adopt and implement a FLU that provides a minimum residential density within the areas defined as Emerging Suburban Edge (where MUSA is designated), while implementing a maximum residential density for the areas identified as Rural Residential (areas not included within the MUSA in this planning period).

The FLU must also identify appropriate land use designations and guide corresponding acreages that support the forecasted employment growth as identified within the System Statement. Additionally, the FLU must guide adequate land area, at appropriate densities, that may accommodate the City's allocated number of affordable housing units for the period between 2021 and 2030. The employment and affordable housing requirements will be provided for within the MUSA, and are not expected to be met within the Rural Residential Areas. The Emerging Suburban Areas are generally consistent with the MUSA areas identified in the 2030 Comprehensive Plan with two exceptions; 1) the existing single-family homes on the south side of Olson Lake are now served by MUSA; and 2) the newly designated Golf Course Community located on the east side of the community was incorporated into the MUSA through a Comprehensive Plan Amendment in October 2017. With the exception of these two areas, the MUSA and corresponding Emerging Suburban Area designations are unchanged from the previous planning period, and all projected urbanized growth can be accommodated within the boundaries as shown on Map 3-2. 2018-2040 MUSA.

Map 3-2. 2018 – 2040 MUSA



Future Land Use Definitions

Agricultural Preserve (AP)

This land use designation identifies land enrolled in the Agricultural Preserves program. Land in this designation is required to be guided for no more than 1 dwelling unit per 40 acres, and is protected from further subdivision during the contract period.

Rural Area Development (RAD)

A large percentage of land in Lake Elmo falls within the Rural Area Development designation, including single-family detached homes, working farms and agricultural uses where land is undeveloped, cultivated in crops, or used for livestock. This designation includes open space developments that are developed, or may be developed, with clustered housing and may be served by a community septic system. Open space developments generally average more than 1 residential unit per 10 acres and include a dedicated open space protected through a conservation easement. This designation is inclusive of large-lot rural single-family detached residential uses and future conventional subdivision. Density across this land use designation is planned to maintain maximum densities of 1 residential dwelling unit per 10 acres. This land use designation is limited to areas not within the MUSA planning areas.

Rural Single Family (RSF)

This land use designation combines the previous Residential Estate and Rural Single-Family categories into one designation to simplify intended land use guidance. Development with this designation includes single-family detached housing served by private on-site well and septic systems. Some areas with this designation are allowed to have two-family dwellings based on zoning.

Rural Single Family Sewered (RSFS)

This land use designation identifies existing previously unsewered rural single- family land uses located within the Village Planning Area. These properties have either recently been served with municipal sewer and water, or are planned to be served as part of the planned MUSA extensions within the Village Planning Area. Some areas with this designation are allowed to have two-family dwellings based on zoning. Land within this designation have been developed at densities ranging from 0.1-2.0 dwelling units per acre (0.1-2.0 du/acre).

Golf Course Community (GC)

In recognition that a Golf Course on the land formerly known as Tartan Park is a local and regional amenity the City wishes to maintain, this specialized land use category has been crafted to maximize the likelihood that a golf course can be maintained on the property should a development proposal for the land come forward.

Low Density Residential (LDR)

This category includes development of single-family detached housing and two-family attached dwellings with a density of 2.5 to 4 units per acre (2.5 – 4 du/acre) and are planned to be serviced by public sewer and water. This land use is limited to the part of the City within the South Planning Area.

Medium Density Residential (MDR)

This category allows for a variety of housing types including single-family detached, duplexes, townhomes, and small two- and three-story apartment buildings and/or senior living centers. The Medium Density Residential development is intended for a density of 4.01 to 8 units per acre (4.01 – 8 du/acre). This land use is limited to the part of the City within the South Planning Area.

High Density Residential (HDR)

This land use designation guides land for higher density residential development including townhomes, small apartment buildings, and multi-family dwellings. Residential density ranges between 8.01 and 15 units per acre (8.01 – 15 du/acre) and provides opportunities for affordable housing to be incorporated into future developments. This land use is limited to the part of the City within the South Planning Area.

Mixed Use Commercial (MU-C)

This designation is a new land use designation and identifies where a mix of commercial and residential uses may be integrated to benefit from proximity and adjacencies to each other. Commercial uses in this category include service and retail uses such as, but not limited to, restaurants, shops, convenience stores, salons, studios and dry cleaners. Land with this designation is assumed to develop with a minimum of 50% residential use with a density ranging from 10 to 15 dwelling units per acre (10 – 15 du/acre).

Mixed Use - Business Park (MU-BP)

This land use designation is new and identifies where a mix of general business, business park, and residential uses may benefit or be compatible due to proximity of uses. Business uses in this category include office and service uses such as, but not limited to, offices and agencies, warehouse/showroom, light manufacturing, and live/work development. Land with this designation is assumed to develop with a minimum of 50% residential use with a density ranging from 6 to 10 dwelling units per acre (6 – 10 du/acre).

Village – Low Density Residential (V-LDR)

This land use designation is planned for areas within the Village Planning Area and identifies land intended for single-family detached housing development serviced by municipal sewer and water. Density ranges between 1.5 and 3 dwelling units per acres (1.5 – 3 du/acre). This land use already exists, or is developing, in much of the outside edges of the Village Planning Area, transitioning from the village center districts to the rural land use pattern not designated within the MUSA areas.

Village – Medium Density Residential (V-MDR)

This land use designation identifies proposed land use within the Village Planning Area guided for single-family detached, duplexes, and townhomes/villa housing types. Residential density ranges between 3.01 and 8 dwelling units per acre (3.01 – 8 du/acre). This land use allows for a greater variety in housing stock and brings more people closer to living within easy access of Village destinations and amenities.

Village – High Density Residential (V-HDR)

This land use designation is a new planned land use within the Village Planning Area and is guided for apartment buildings and multi-family dwellings with a density between 8.01 and 12 units per acre (8.01 – 12 du/acre). This land use is intended to provide for an increase in types of housing stock, provide opportunities for more affordable and lifecycle housing, and bring a higher concentration of people living closer to Village destinations and amenities.

Village – Mixed Use (V-MU)

This land use designation is used in the center of the Village Planning Area to identify an area where a mix of vertically integrated commercial/business and residential uses provide development types that benefit from proximity to each other. More residents in closer proximity to businesses bring greater traffic to the businesses while these same businesses offer convenient and necessary services and amenities to nearby residents. Together, the dynamics of a mixed-use district can establish unique vitality, synergy of activity and a true community destination. Land with this designation is assumed to redevelop or develop with a minimum of 50% residential use with a density ranging from 5 to 10 dwelling units per acre (5 – 10 du/acre).

Limited Business (LB)

This land use designation identifies areas that are developed with commercial users that were not served by urban services. Users in this designation are generally less intense than would be permitted in the planned MUSA designations.

Commercial (C)

The commercial land use includes areas that are used for retail business and are primarily located within MUSA boundaries of the City. Small pockets of commercial land can also be found where retail goods and services are located at transportation intersections. This category excludes residential and industrial uses.

Business Park (BP)

This land use provides for a wide variety of professional businesses such as medical and research facilities, offices and corporate headquarters. Retail sales of goods and services are allowable uses by conditional use permit provided such uses are goods and services for the employees of the permitted business use. This land use designation excludes any residential use.

Institutional (INST)

The Institutional land use category identifies land that is used for schools, religious institutions, City hall, municipal buildings, libraries, and other institutional uses. This land use is found throughout the City.

Public/Semi-Public (PSP)

The Public/Semi-Public land use category identifies land that is generally owned by the City or other agency, whose primary purpose is to support adjacent developments with stormwater management and other utilities. This land use may also include some secondary uses such as public trails or small open spaces.

Closed Landfill Restricted (CL)

This land use designation identifies former landfills that are qualified to be under the Closed Landfill Program of the Minnesota Pollution Control Agency (MPCA). The purpose of this category is to limit uses of land within the closed landfill, both actively filled and related lands, to minimal uses in order to protect the land from human activity where response action systems are in place and, at the same time, are protective of human health and safety.

Park & Open Space (Park)

This land use identifies land used for public recreation and protected open space managed for park uses. Most land within this designation is owned by Washington County or the City of Lake Elmo, but also includes land owned by other public and semi-public agencies.

Planned Land Use

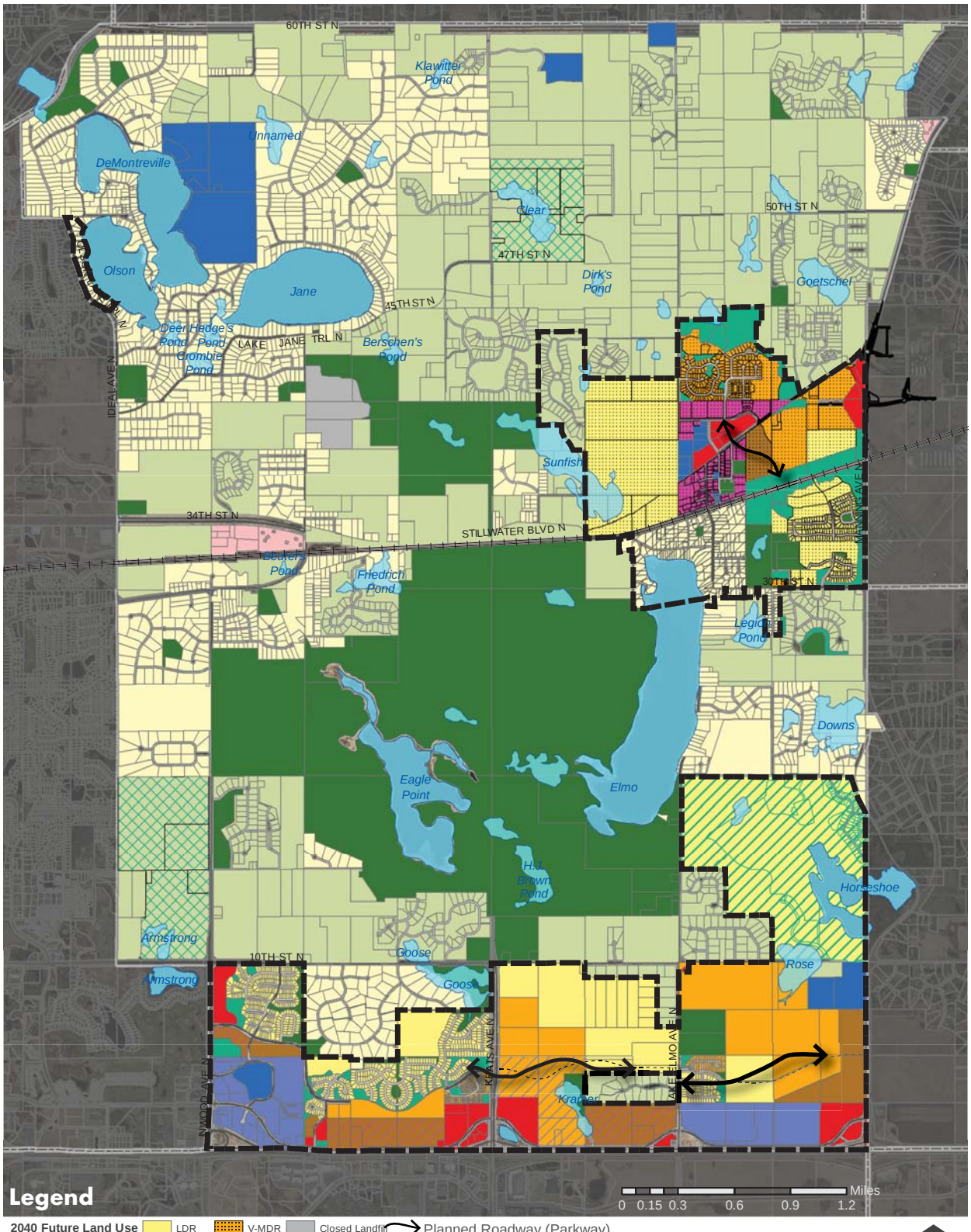
The following table identifies the total land area within the community and comprehensively includes all existing land uses, not guided for change, and planned land uses. The planned land use designations are generally consistent with the 2030 Land Use Plan, with some exceptions as noted:

- The nomenclature regarding sewered residential uses has been changed from "Urban Low Density" to "Low Density Residential, "Urban Medium Density" to "Medium Density Residential" and so forth. This change did not in all cases alter the definition or density ranges but was renamed to better describe the planned land uses.
- The density ranges for Medium Density Residential and High Density Residential were shifted to align with the required affordable housing density requirements as noted within the Metropolitan Council's Housing Policy Plan.
- Two mixed use residential land uses were added to areas within the MUSA to allow for a better integration of uses and more flexibility to respond to market demands. These use designations require a minimum residential component as described within the Future Land Use definitions.

Table 3-2. Future Land Use Plan and Total Acreage

Future Land Use	Residential Density (dwelling units/acre)	Total Acres	% of Total Acres
Agricultural Preserve (AP)	0.025	414.73	2.67%
Rural Area Development (RAD)	0.1	4,835.22	31.18%
Rural Single Family (RSF)	0.1-2.0	2,398.76	15.48%
Rural Single Family Sewered (RSFS)	0.1-2.0	149.79	0.97%
Golf Course Community (GC)	1.5-2.49	442.96	2.86%
Low Density Residential (LDR)	2.5 - 4	477.90	3.08%
Medium Density Residential (MDR)	4.01 - 8	365.92	2.36%
High Density Residential (HDR)	8.01 - 15	80.07	0.52%
Mixed Use – Commercial (MU-C)	10 - 15	138.23	0.89%
Mixed Use - Business Park (MU-BP)	6 - 10	92.20	0.59%
Village – Low Density Residential (V-LDR)	1.5 - 3	382.69	2.47%
Village – Medium Density Residential (V-MDR)	3.01 - 8	157.13	1.01%
Village – High Density Residential (V-HDR)	8.01 - 12	21.99	0.14%
Village – Mixed Use (V-MU)	5 - 10	74.10	0.48%
Commercial (C)	NA	154.92	1.00%
Business Park (BP)	NA	206.93	1.33%
Limited Business (LB)	NA	45.76	0.30%
Institutional (INST)	NA	304.05	1.96%
Closed Landfill	NA	67.34	0.43%
Public/Semi-Public (PSP)	NA	205.86	1.33%
Park/Open Space (Park)	NA	2600.59	16.77%
Open Water	NA	1355.29	8.74%
Right of Way (ROW) *Includes RR ROW*	NA	534.54	3.45%
Total		15,506.97	100.00%

Map 3-3. Future Land Use Map



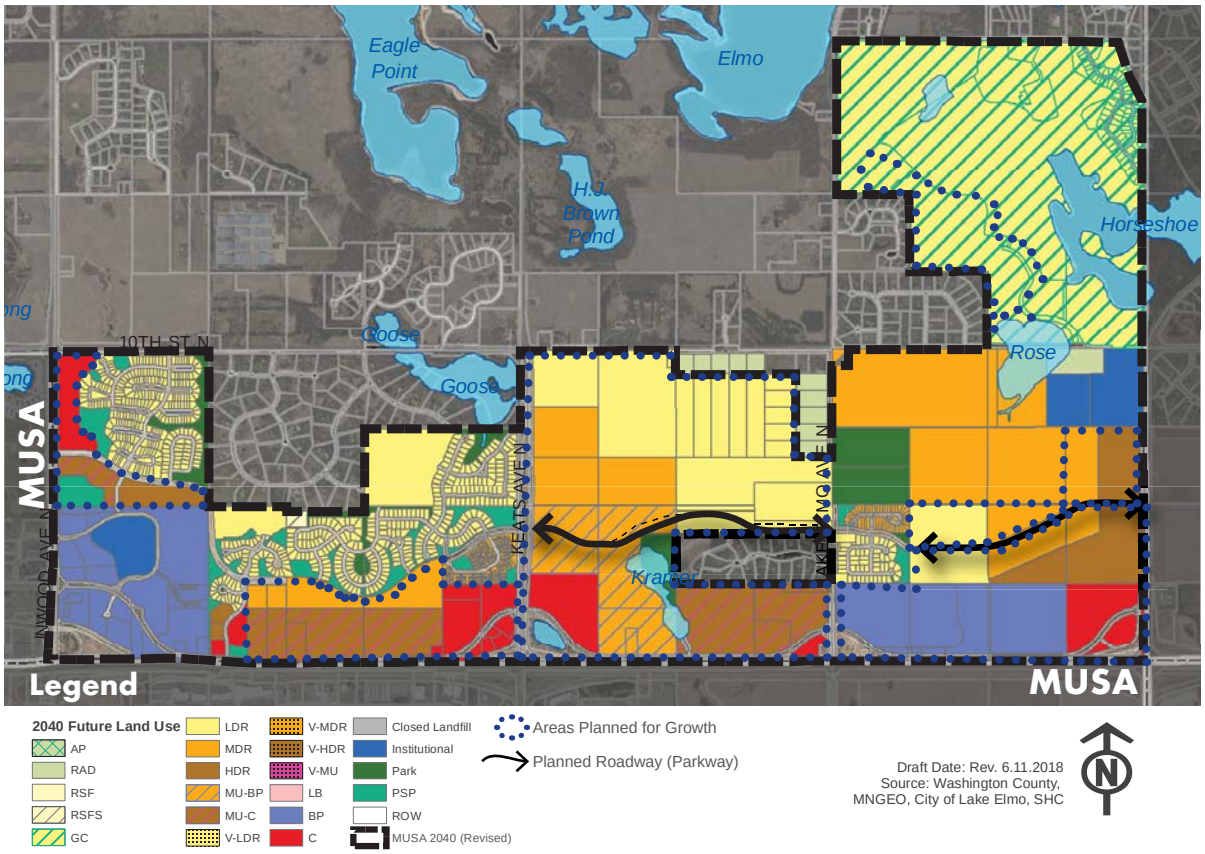
Draft Date: Rev. 6.11.2018
Source: Washington County, MNGEO, City of Lake Elmo, SHC

PLANNED GROWTH AREAS

> ***LU Goal #3.*** **Continue to educate residents, developers, and stakeholders about the guided land uses and where sewered and non-sewered development is guided.**
>
> - Chapter 1: Vision, Goals & Strategies

Growth within Lake Elmo is expected to primarily occur in areas designated within the MUSA, consistent with the Metropolitan Council's 2015 System Statement Projections. The City geographically describes their primary growth areas the South Planning Area and the Village Planning Area. Within both of these MUSA boundaries, there is adequate land to serve the projected population, households and employment through 2040. As shown on Map 3-4 and Map 3-5, the areas planned for growth and change in this planning period are identified. Corresponding Table 3-3. Net Developable Acreage of Residential Land Uses provides the calculated density, and expected households, based on the FLU in each of these areas. In addition to the anticipated growth in the areas served within the MUSA, the City also anticipates some growth within the Rural Residential areas consistent with previous plans, and as projected within the 2015 System Statement. Further description regarding the development of the FLU and the growth strategy are provided within Chapter 4: Balanced Development & Growth.

Map 3-4. Future Land Use – South Planning Area Planned Growth



Map 3-5. Future Land Use – Village Planning Area Planned Growth

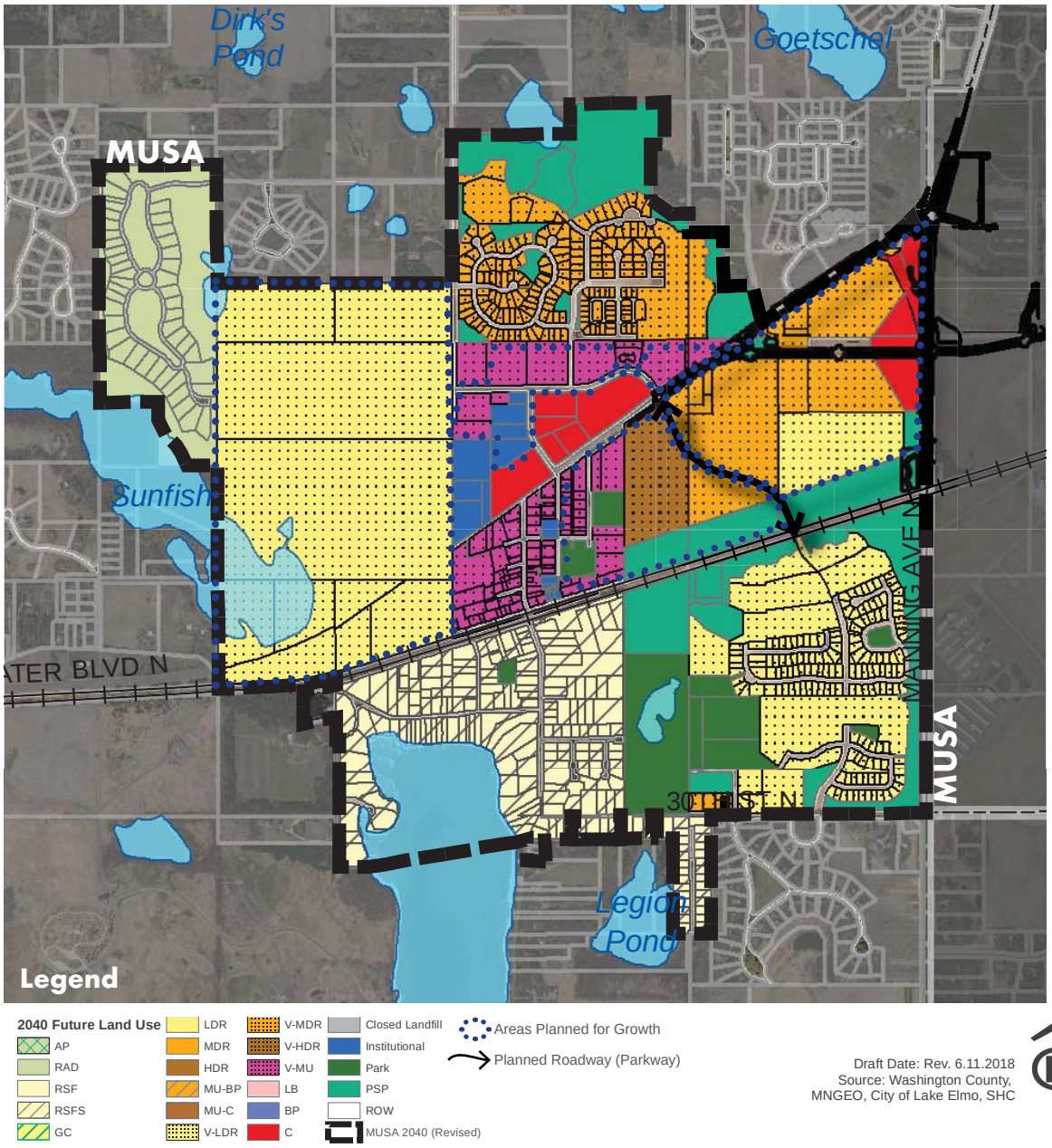


Table 3-3. Net Developable Acreage of Residential Land Uses

Future Land Use	Residential Density (dwelling units/net acre)	Total Net Acres	Estimated Households
Low Density Residential (LDR)	2.5 - 4	210	525
Medium Density Residential (MDR)	4.01 - 8	134	535
High Density Residential (HDR)	8.01 - 15	72	577
Mixed Use – Commercial (MU-C)*	10 - 15	59	591
Mixed Use - Business Park (MU-B)*	6 - 10	41	249
Village – Low Density Residential (V-LDR)	1.5 - 3	128	193
Village – Medium Density Residential (V-MDR)	3.01 - 8	63	190
Village – High Density Residential (V-HDR)	8.01 - 12	8	144
Village – Mixed Use (V-MU)*	5 - 10	18	38
Total 2020-2040 Residential		**733**	**3,042**
Net Density 2020-2040			**4 du/acre**
Residential Plats 2010 - 2020		***1,107***	***2,444***
Total Sewered Households 2010-2040		**1,840**	**5,486**
Total Net Density 2010-2040			**3 du/acre**

**Only residential acreage included/calculated in table. Land Use designation assumption that a minimum of 50% of total acreage is developed with residential use.*

Total Net Acres excludes estimated park land dedications as required per City ordinances, principal/arterial ROW, wetlands and lake areas. Actual acres and resulting households to be adjusted and calculated at time of development (Preliminary and Final Plat).

Density in Sewered Areas by 2040

Consistent with the Metropolitan Council's policies, the density calculation performed based on Table 3-3. Net Developable Acreage of Planned Residential Land Uses will result in an average net density of approximately 3 dwelling units per acre. As required, the household calculation in Table 3-3 was performed based on the minimum units allowable per the density range, and the City anticipates at least a portion of future development will exceed the minimum standards based on market conditions.

As shown on Map 3-4 and Map 3-5, there are three land use designations at sufficient densities to meet the City's allocation of affordable housing per the revised forecasts. Approximately 100 acres are collectively guided for these three designations between 2021 and 2030, which meets the required allocation in this planning period. (Further detail regarding affordable housing can be found in Chapter 5: Housing).

Revised Population & Household Projections

As noted in Table 3-3 the number of households, and thus the corresponding projected population, is consistent with the revised forecasts for the City as agreed to with the Metropolitan Council in June of 2019. As denoted in subsequent sections of this Chapter and the Sanitary Sewer Chapter, the City's infrastructure may need additional improvements to its infrastructure to serve the entire MUSA area depending on the ultimate commercial and/or business user and density of the residential neighborhoods. Thus capacity of the infrastructure within later staging areas will need to be evaluated, and development approvals contingent on appropriate system upgrades. Regardless, this Plan identifies and guides all land within the MUSA with an urbanized land use designation.

Table 3-4. Revised Population & Household Projections

	2020	2030	2040
Population Unsewered	6,502	7,319	7,457
Population Sewered	4,518	10,686	14,847
Total Population	**11,020**	**18,005**	**22,304**
Households Unsewered	2,242	2,642	2,742
Households Sewered	1,558	3,858	5,458
Total Households	**4,291**	**6,876**	**9,167**

Source: Metropolitan Council, SHC, City of Lake Elmo

Employment Locations

Existing and planned employment locations are generally located within the Village Planning Area and South Planning Area. Land uses served by MUSA, or planned for extension of services, will continue to be the primary locations for employment through the forecasted planning period. There are some existing limited business land uses located outside of MUSA designations that are anticipated to remain in operations through this planning period, but are not accounted for in Table 3-4 because they are existing, and no intensification of the land use is projected in these areas.

To determine the intensity of the commercial and business park uses in the guided FLU, the maximum impervious surface coverage was estimated based on information contained in the City's Zoning Ordinance. The coverage calculation was converted to square feet and the Metropolitan Council Environmental Services Sewer Area Charge (SAC) 2017 Manual was used to determine allocated SAC units based on the designation and potential users.

These land uses are identified on Map 3-3. Future Land Use Plan, Map 3-4. Future Land Use Plan – South Planning Area and Map 3-5. Future Land Use Plan – Village Planning Area.

Table 3-5. Employment Locations and Intensity (Planned for Development)

Growth Area	Land Use	Planned Acres	Intensity (FAR)	Estimated Acres (Square Feet)	EMP
South Planning Area	Commercial	110	35%	38.5 (1,677,060)	559
	Business Park[b]	100	35%	35 (1,524,600)	320
	Mixed Use - Commercial[a]	69.12	35%	24.19 (1,053,804)	351
	Mixed Use - Business Park[ab]	46.1	35%	16.14 (702,841)	148
Village Planning Area	Commercial	14.9	35%	5.21 (227,165)	76
	Mixed Use - Village[a]	9.54	50%	4.77 (207,781)	69
Total EMP					**1,523**

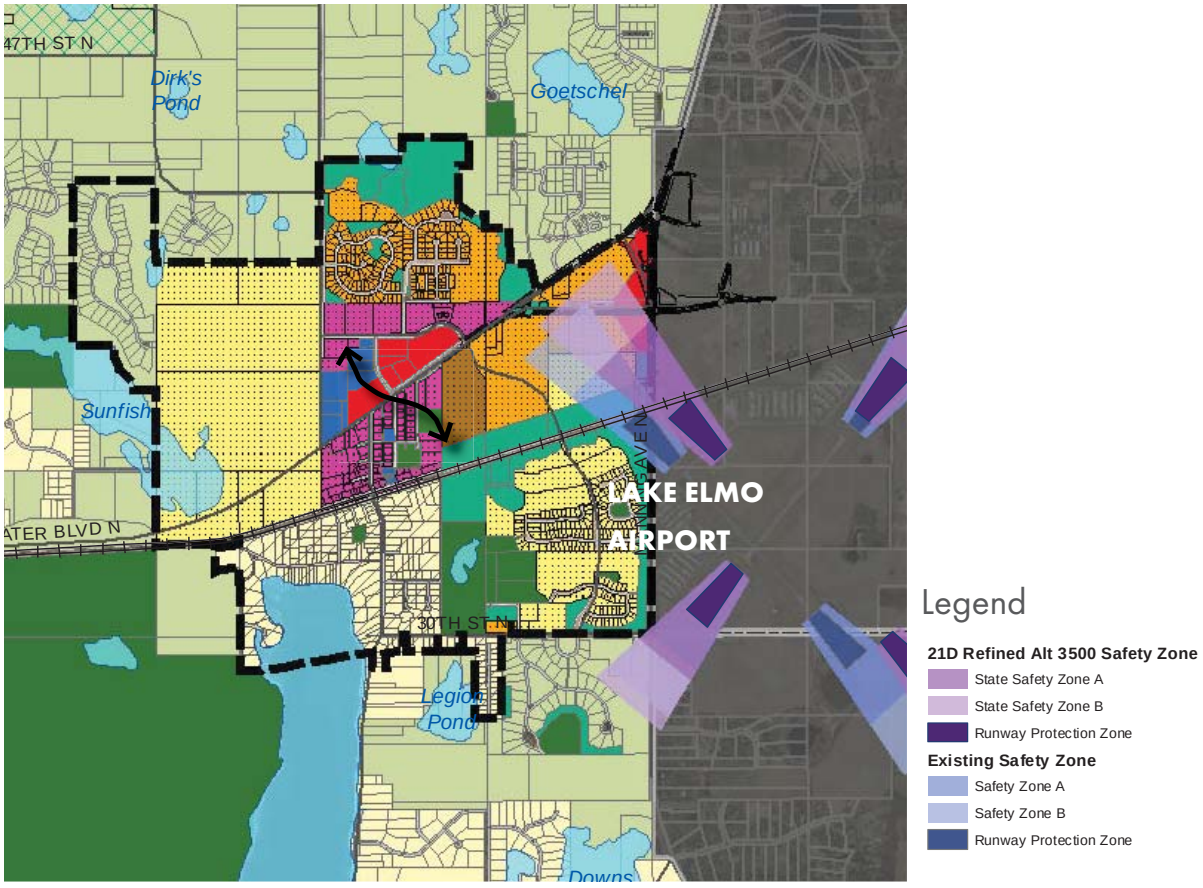
[a]Only commercial/business component is included in acreage. Approximately 50% of total land use designation used for calculation per land use definition.

[b]Business Park Designations calculation assumes office/manufacturing/warehousing mix of general business users.

Airport Impact

The Lake Elmo Regional Airport is located adjacent to the City's eastern boundary in West Lakeland Township. The airport is east of Manning Avenue and between the railroad and 30th Street N. Parts of the airport safety zone and noise impact areas impact a portion of the Village Planning Area in Lake Elmo. A new low density single-family detached residential neighborhood is partially developed with subsequent phases anticipated within this planning period. No development is allowed within the Runway Protection Zone (RPZ). All land designated within the RPZ are designated as Public/Semi-Public uses and are included within the City's Greenway Overlay which restrict any future development of land within this designation. The FLU is consistent with allowed land uses within the safety zones for the Lake Elmo Regional Airport and reflects this restriction. The City will continue to work with the Metropolitan Airports Commission and MnDOT Aeronautics Division to update airport zoning regulations that address noise and safety concerns within these zones as required.

Map 3-6. Airport Safety and Runway Protection

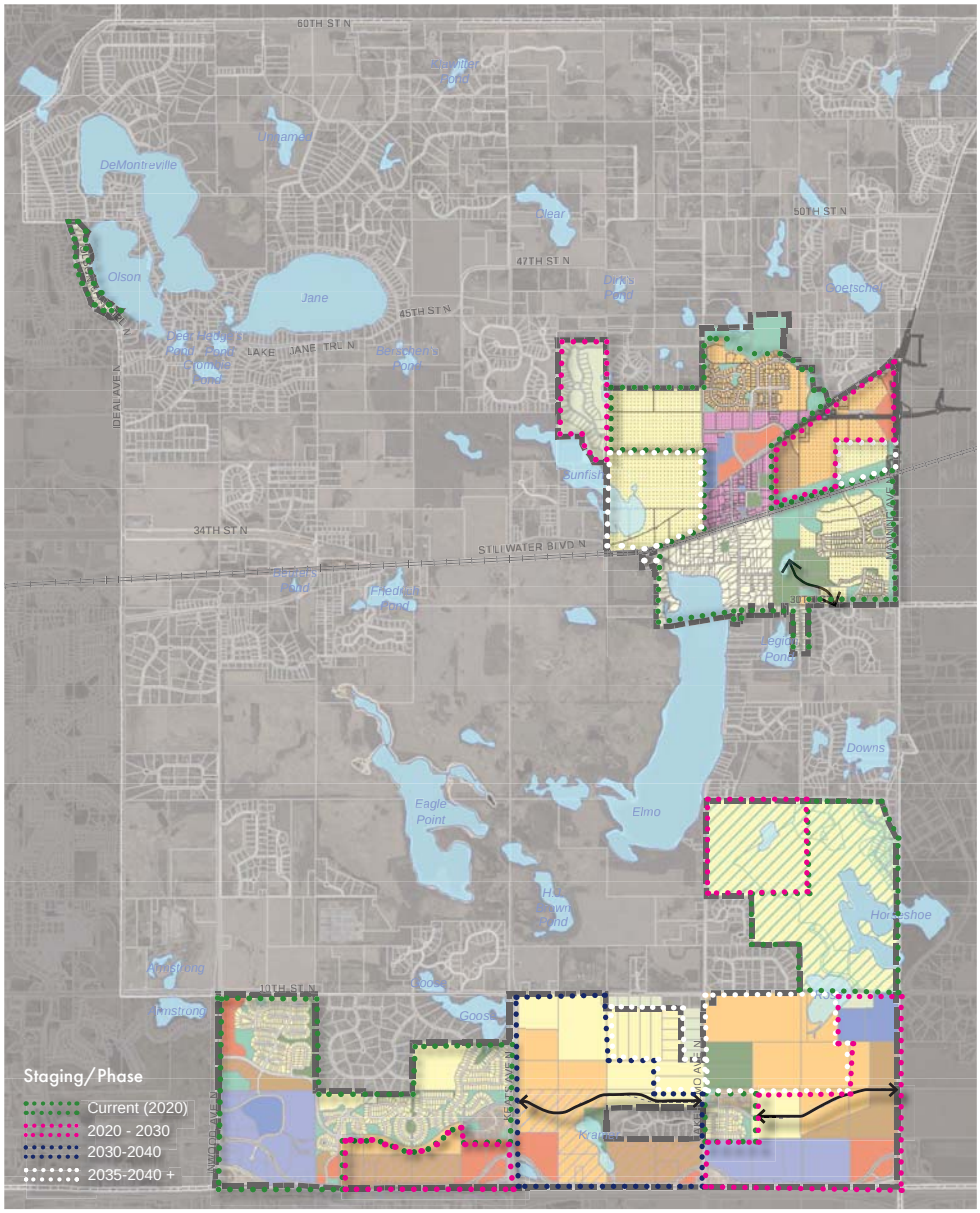


Source: MAC, City of Lake Elmo, SHC

Phasing & Staged Growth

The majority of the City's growth in households and employment is anticipated to occur within the designated MUSA boundaries; however, there will be some continued development in the rural residential areas of the community consistent with the community's land use designations. Table 3-6 identifies gross acreages per land use designation, while calculations found in Table 3-3 provide net acreage calculations for each residential land use designation within the designated MUSA as noted. The City's objective is to plan for phased, contiguous growth to ensure adequate infrastructure and capacity are available to support development. Map 3-7 identifies four staging areas consistent with existing and planned water, wastewater and transportation infrastructure. The City acknowledges that market conditions, as well as other

Map 3-7. MUSA Growth & Phasing Plan



external impacts may influence exactly where and when development occurs, and this map is intended to signal to the City that it must evaluate its infrastructure with respect to timing and development approvals. This is particularly important in the last phase denoted as post-2035. Property withing this staging area should be monitored for capacity and potential improvements based on actual development in earlier phasing periods.

Table 3-6. Future Land Use Forecast Gross Acreage per Decade

Future Land Use	Residential Density (dwelling units/acre)	2020 Acres (%)	2030 Acres (%)	2040 Acres (%)
Agricultural Preserve (AP)	0.025	414.73 (2.67%)	414.73 (2.67%)	414.73 (2.67%)
Rural Area Development (RAD)	0.1	6,071.68 (39.15%)	5,326.20 (%)	4,837.37 (31.19%)
Rural Single Family (RSF)	0.5 - 2	2,398.76 (15.47%)	2,398.76 (15.47%)	2,398.76 (15.47%)
Rural Single Family Sewered (RSFS)	0.5-2	149.79 (0.97%)	149.79 (0.97%)	149.79 (0.97%)
Golf Course Community	1.5-2.49	267.96 (1.73%)	442.96 (2.86%)	442.96 (2.86%)
Low Density Residential (LDR)[1]	2.5 - 4	216.16 (1.39%)	336.60 (2.15%)	477.90 (3.08%)
Medium Density Residential (MDR)[1]	4.01 - 8	298.89 (1.93%)	365.92 (2.36%)	365.92 (2.36%)
High Density Residential (HDR)[1]	8.01 - 15	12.69 (0.08%)	80.07 (0.52%)	80.07 (0.52%)
Mixed Use - Commercial (MU-C)[1]	12 - 15	63.73 (0.41%)	63.73 (0.41%)	138.23 (0.89%)
Mixed Use - Business Park (MU-BP)[1]	6 - 10	0 (0%)	0 (0%)	92.20 (0.59%)
Village – Low Density Residential (V-LDR)[1]	1.5 - 3	202.78 (1.31%)	225.45 (1.45%)	377.54 (2.43%)
Village – Medium Density Residential (V-MDR)[1]	3.01 - 5	78.31 (0.50%)	157.13 (1.01%)	157.13 (1.01%)
Village – High Density Residential (V-HDR)[1]	8.01 -12	0 (0%)	21.99 (0.14%)	21.99 (0.14%)
Village – Mixed Use (V-MU)[1]	5 - 10	76.74 (0.49%)	76.74 (0.49%)	76.74 (0.49%)
Commercial (C)	NA	41.16 (0.27%)	129.18 (0.83%)	154.92 (1.0%)
Business Park (BP)	NA	99.80 (0.64%)	206.93 (1.33%)	206.93 (1.33%)
Limited Business (LB)	NA	45.76 (0.30%)	45.76 (0.30%)	45.76 (0.30%)
Institutional (INST)	NA	301.41 (1.94%)	301.41 (1.94%)	301.41 (1.94%)
Public/Semi-Public (PSP)*	NA	206.56 (1.33%)	206.56 (1.33%)	206.56 (1.33%)
Closed Landfill	NA	67.34 (0.43%)	67.34 (0.43%)	67.34 (0.43%)
Park (Park)[1]	NA	2,602.89 (16.79%)	2,602.89 (16.79%)	2,602.89 (16.79%)
Open Water*	NA	1,355.29 (8.75%)	1,355.29 (8.75%)	1,355.29 (8.75%)
ROW / RR ROW*	NA	534.54 (3.45%)	534.54 (3.45%)	534.54 (3.45%)
TOTAL	**NA**	**15,506.97 (100%)**	**15,506.97 (100%)**	**15,506.97 (100%)**

[1]Acre calculations do not exclude park dedication of 10% per the City's adopted ordinance; and Park land use designation will be adjusted accordingly as plat are processed and approved.

ADDITIONAL OBJECTIVES OF FUTURE LAND USES

The City's Future Land Use Plan acknowledges and plans for continued household and employment growth through 2040, but also includes preservation and continued support of its rural residential landscape and robust parks and open space system. The City of Lake Elmo has always been identified as an exceptional place to live because of its robust parks system, protected high-quality natural resources, and proximity to major employment, healthcare and retail centers. Even though the community is growing, and in some cases transitioning from a primarily rural residential community, there is a desire and an opportunity to weave the most important elements and characteristics into changing areas of the community to ensure that the identity and character of the community continues for generations to come.

Equally important to the planned land uses, densities and projections is the commitment to maintain open spaces, natural resources and parks and to promote opportunities to provide healthy, vibrant, resilient neighborhoods.

The following sections should be used as an extension to the Future Land Use Plan and should be incorporated or acknowledged in growth areas and in areas planned for protection of existing uses. There is always an opportunity to do better, and the following themes help support the future direction of the City's land uses and decision-making.

Promoting Health with Land Use

As part of the 2040 Comprehensive Plan Update process, the City obtained a grant from Washington County Department of Public Health and Environment through the Statewide Health Improvement Partnership (SHIP). There are many ways that the principles of healthy neighborhoods, communities and environments can be incorporated into existing and future land uses. The following summary identifies some of the ways in which health was considered, and incorporated, into the Future Land Use Plan.

Mixed-Use Land Use Designations to Promote Health

The introduction of land uses that will promote a more compact, walkable, development pattern was purposefully integrated throughout the growth areas as identified in previous sections of this Chapter. In addition to creating new land use designations, the City discussed opportunities to better connect existing neighborhoods though bikeways, trails and other pedestrian routes to support active residents. This discussion included how public and private trail connections may be used to achieve these objectives, and the City acknowledges the need to better communicate and sign public trails and routes so users are comfortable and informed using the system.

In addition to neighborhood pattern, the new mixed-use designations will permit the incorporation of uses such as restaurants, markets, farmers markets, and other events that can be designed to support an active lifestyle for the City's residents, employees and employers. With the growing popularity of farm-to-table dining and experiences that focus on healthy living, Lake Elmo is well-positioned to capitalize on trends that connect its rich rural and agricultural resources with health-conscious consumers seeking fresh high-quality foods and products. As the community grows and new households are added, it will be important for the City to ensure grocery and fresh foods are sold and provided at locations nearby higher concentrations of residents.

Ensuring "Uses" that Support Health are Permitted and Accessible

Closely related to the introduction of more compact development patterns, is the need to provide accessible options to purchase healthy and fresh foods and products. This can be accomplished through ensuring that uses that support that objective are permitted within the City's land use designations and the zoning code. Connection and ease of access are essential components to this objective, so pedestrian, bikeways and other routes to locations with fresh products is important to consider as the City develops and evolves.

Providing an Accessible and Connected Green Network

> *LU Goal #2.* **Enhance Lake Elmo's expansive network of trails, open spaces, and natural resources as amenities in developing areas of the community.**
>
> - Chapter 1: Vision, Goals & Strategies

The City is committed to preservation of its existing natural resource and open space network. In addition to the existing network, the City plans to expand the network as growth areas are developed. Part of this planning process included discussion and recommendations regarding better park, trail and open space connections for residents in existing neighborhoods and in new growing neighborhoods. Natural resource protection, identification, preservation and development creates opportunities to create a network of greenways and trails for residents to utilize for recreation, connection with nature, connection between various neighborhoods and destinations in and around Lake Elmo, and to build a more resilient (and green) infrastructure. Trail development is an important way to promote health and activity in the community. The City's Future Land Use Plan should be implemented to be consistent with Chapter 6: Parks, Trails & Open Space that identifies key trail, natural resource and open space considerations as development occurs within the City's growth areas.

Parks, Open Space and Natural Resources Integration

Nearly 18% of the City's land acreage is publicly protected as Park or Open Space, and an additional 11% of private lands area is protected with a conservation easement. Natural resources, parks, and open space protection and enhancement is one of the City's character defining elements that makes the community a special place to live, work and recreate. The City's expansive natural resources, including woodland, meadow, lakes and wetlands, and rural scenic amenities are sprinkled throughout the heart of the community are valued assets for all residents. The presence of high quality natural resources is important to the lasting effort of balanced development, enduring biodiversity, and opportunity for recreation and connection for area residents. The effort to preserve and enhance these features as an asset for the community and region is a primary objective and specifically stated in several Goals and Strategies within Chapter 1: Vision, Goals & Strategies.

Decision-making related to incorporation of greenways, natural resources, parks and trails associated within this Future Land Use Plan should be consistent with the information found in Chapter 6: Parks, Trails & Open Space.

Access and Transportation

A key component of implementing the Future Land Use Plan is to plan for appropriate access and consider diverse modes of transportation. It is likely that as the growth areas change and develop a more diverse demographic will move to the community and their transportation demands may include alternate modes such as bikeways, pedestrian ways and the desire for transit.

Incorporated on Map 3-3. Future Land Use Plan are the conceptual main thoroughfares through the growth areas that are planned for within the Chapter 7: Transportation. Identification of the east-west roadway connection in the South MUSA planning boundary on the Future Land Use Plan is deliberate and was used to guide compatible and appropriate land uses. It is the intent of the Future Land Use Plan that development along the east-west corridor would support and plan for adequate right-of-way at time of development that would include a multi-use trail that would promote mode choice and accessibility to adjacent neighborhoods. Likewise, a new roadway connection in the Village MUSA planning boundary is identified and the land use plan was developed to encourage higher-densities near the roadway to improve access. More detail regarding new roadways, and the existing transportation, transit, and bikeways system can be found in Chapter 7: Transportation.

Supporting Resiliency

The purpose of creating a Future Land Use Plan that provides a diverse land use pattern is to allow for the City to adapt and change as needed through this planning period. Better integration of land uses allows for the community to be thoughtful about innovation as the environment changes and new technologies are developed, and creates opportunities to adapt and be responsive. The idea of resiliency is woven throughout this Plan, and is specifically discussed as it relates to the Green Network and Resilient Infrastructure in Chapter 6. It is the intent of the City that the idea of a Green Network be used as part of the decision-making process and allow for improvements in neighborhood and development design as the community evolves and changes through 2040.

Solar Access

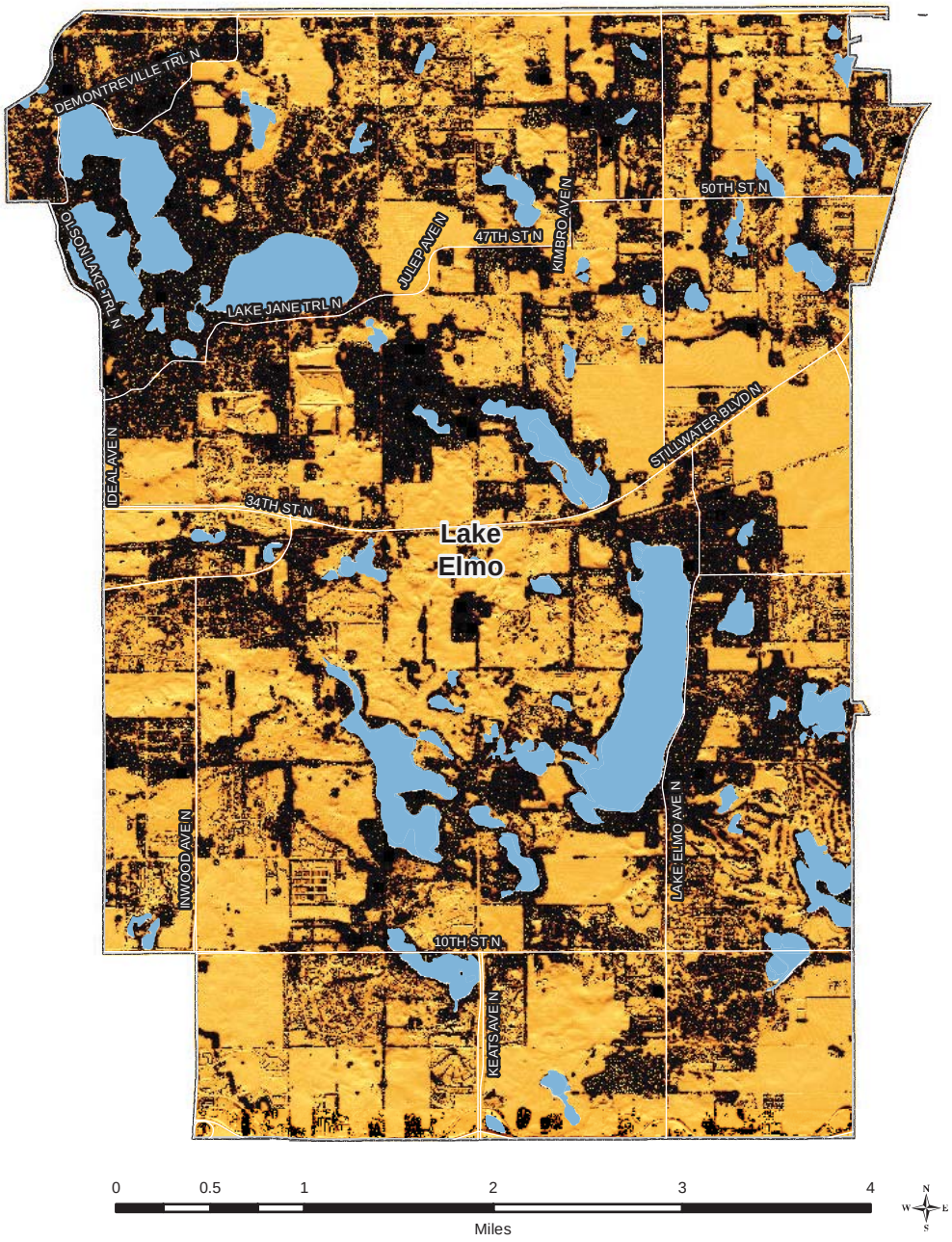
The City has incorporated standards into their zoning ordinances regarding siting of structures and buildings to support access to solar resources. Given the City's dominant residential landscape pattern, options for private property owners including individual homeowners and homeowners associations to capitalize on solar energy are supported by the City's adopted ordinances and official controls. Map 3-8 and Table 3-7 illustrate the solar potential of electricity production in Lake Elmo based on existing technology and expressed in megawatt hours per year.

Table 3-7. Solar Calculations Table

Community	Gross Potential (Mwh/yr)	Rooftop Potential (Mwh/yr)	Gross Generation Potential (Mwh/yr)[2]	Rooftop Generation Potential (Mwh/yr)[2]
Lake Elmo	40,199,146	519,490	4,019,914	51,949

Source: Metropolitan Council

Map 3-8. Gross Solar Potential



Gross Solar Potential
(Watt-hours per Year)

High : 1276008

Low : 900001

Solar Potential under 900,000 watt-hours per year

County Boundaries

City and Township Boundaries

Wetlands and Open Water Features

Source: University of Minnesota U-Spatial Statewide Solar Raster, 12/2016

SPECIAL RESOURCE PROTECTION

A consideration when developing the Future Land Use Plan was to inventory special or unique resources in the community, and to allow these resources (where applicable) to help guide where and when development would occur.

Historical Resources

There are no State or Locally registered historical districts or structures in Lake Elmo. However, the City strongly supports the preservation of the "Old Village" Main Street, where the Village first developed. During the 2030 Planning period, the City developed a set of design guidelines which will help protect existing buildings and ensure new construction integrates well with the existing character and building form of the district.

During this Plan development process the City studied the Old Village area, and concluded that it would benefit from further refinement based on areas contained within the previous Old Village boundary. The result, is that this Plan creates three distinct Districts that describe the use, activities and desired plans based on location within the City's core village area. A full description of the Districts, and how they will shape the core of the Village are provided in Chapter 4: Balanced Development & Growth.

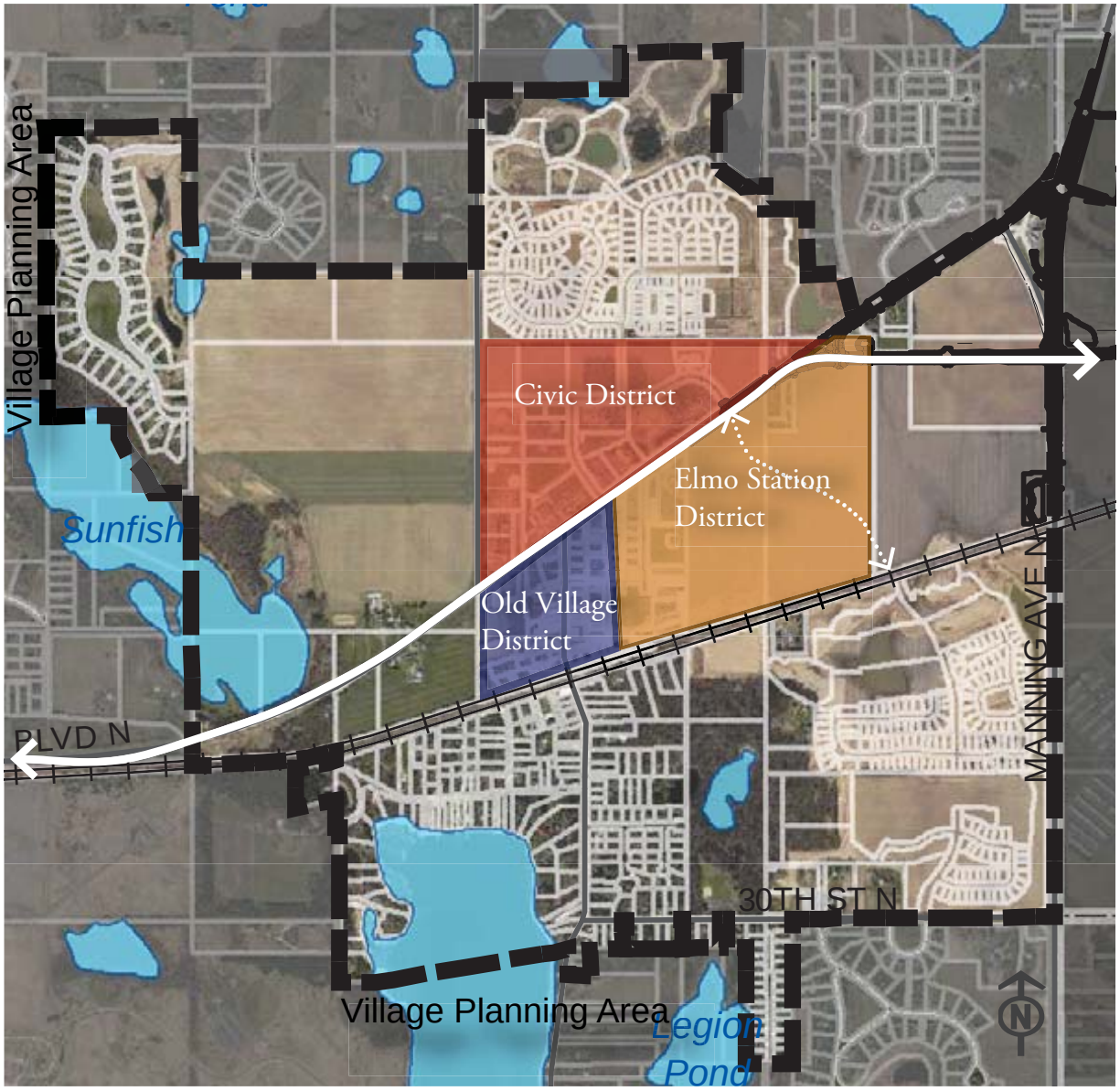
LU Goal #4. **Create strong and vibrant Districts in the Village Planning Area that become a destination for all residents of the community.**

LU Goal #5. **Identify and Explore opportunities to improve the streetscape in the Old Village District, Elmo Station District and Civic Center District to create a more walkable environment.**

LU Goal #6. **Maintain and Strengthen the small-town charm of the Old Village District.**

- Chapter 1: Vision, Goals & Strategies

Map 3-9. District Boundaries in Village Planning Area



Source: Metropolitan Council,City of Lake Elmo, SHC

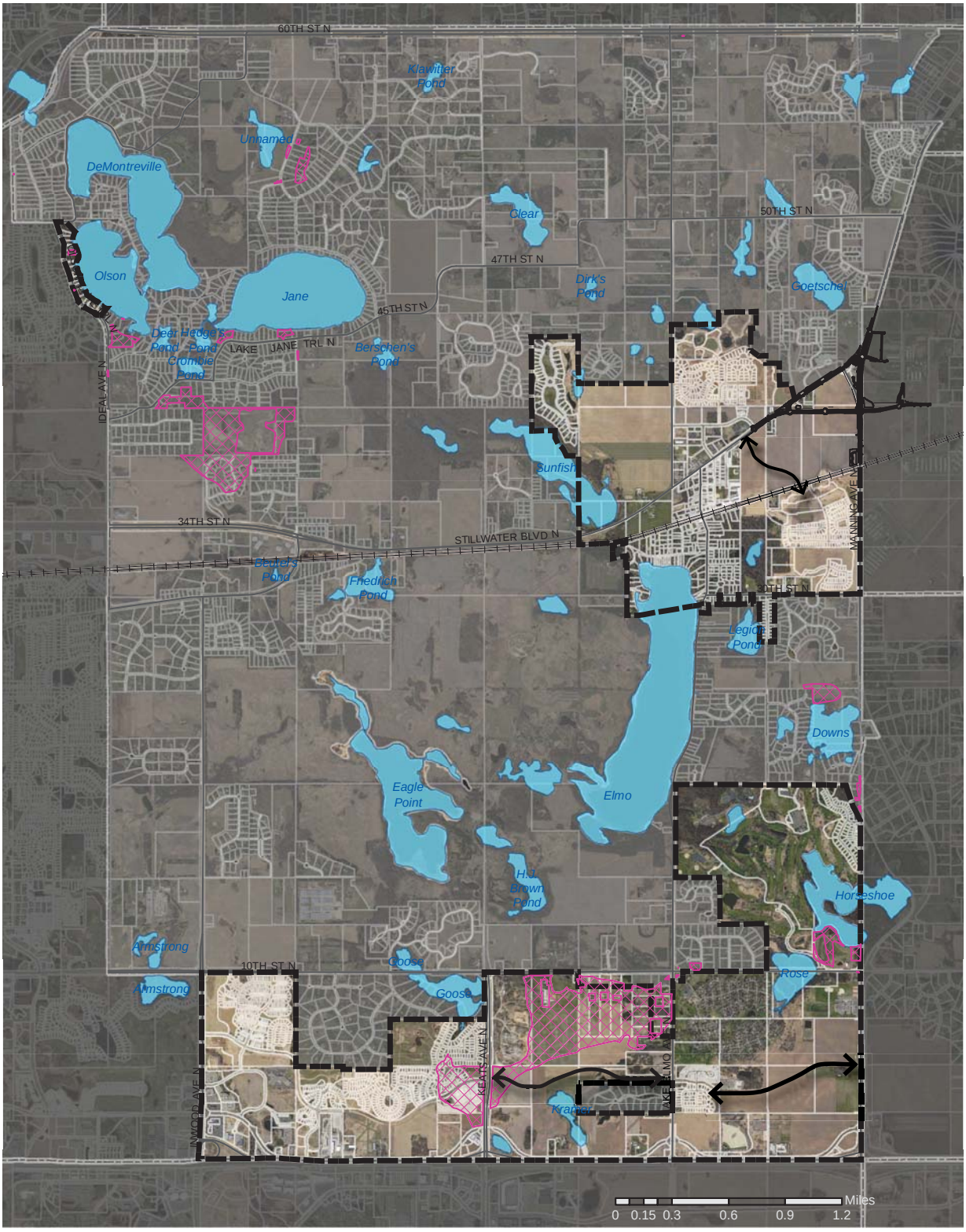
Aggregate Resources

Per the Metropolitan Council's 1997 Aggregate Resources information, there are approximately 324 acres of land identified in the City has having aggregate resource value. Today, there are two active aggregate sites, one located in the northwestern quadrant of the community, which is identified on the 1997 Aggregate Resource Inventory. The second active site is located in the South MUSA boundary, near the Keats intersection with 10th Street North. Adjacent to this site, and designated within the City's post-2035 phasing area, is additional land identified within the 1997 Aggregate Resource map. The existing active sites have been in operation for several decades, and it is the City's understanding that these sites are nearing their useful life and may be exhausted in this planning period. Beyond the active sites, the 1997 Aggregate Resource map identified areas within exiting neighborhoods that are not likely to experience any demand or opportunity for extraction. As aggregate resources are depleted, the land will likely transition into suburban-style development, consistent with the surrounding district. As mentioned, some of the land identified with potential for aggregate resource extraction that has not been mined, is designated within the City's post-2035 phasing area, which does not plan for or anticipate urbanized development over the next 15-years due to existing development patterns and infrastructure planning.

Agricultural Preserve

The City's agrarian and agricultural past continues to be valued by the City, and landowners and homeowners that express interest in preserving agricultural land through the Agricultural Preserve program will be supported by the City. Currently, there are approximately 414-acres of land protected by an Agricultural Preserve covenant per the Metropolitan Council's records, and those properties have been identified and guided appropriately on the Existing and Future Land Use Plan contained within this Chapter.

Map 3-10. Aggregate Resource Locations



Aggregate Resources 1997

MUSA 2040 (Revised)

Draft Date: Rev. 5.23.2018
Source: Washington County, MNGEO, City of Lake Elmo, SHC

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d) Scenic River Designation

A small portion of land in West Lakeland Township is regulated as to development by qualifying for St. Croix Scenic River designation. The established, mandated development ordinances are explicit as to land use both at present and in the future. These ordinances have been adopted by the Washington County Board of Commissioners for use throughout the County.

e) Zoning

As of January 1, 2017, the Township took over West Lakeland land use responsibilities from Washington County except for Shoreland Management Areas, mining, Floodplain, subsurface Sewage Treatment Systems, the Lower St Croix River Bluffland and Shoreland Management. Some of the area along the I-94 corridor has been zoned Commercial by the Township since 1957 (See Figure 9).

6. Agricultural Trends

The Township's location near a rapidly developing metropolitan area has placed development pressures on landowners. Agriculture use is encouraged within the Township, and as such, is an allowed use in all zones, but is no longer separate zone within the Township. In addition to the remaining farmland, some residents are using smaller acreages for individual recreational farming. It is the Township's intention to structure its policies so that each farmer may have the maximum assistance in holding land for agricultural purposes for as long as possible. With a commitment from the farmers and the Township, ordinances will be encouraged to allow continuing agricultural practices on suitable acreage. Reasonable measures to encourage the preservation of the agricultural land areas will be taken.

7. Land Use Plan

The land use plan in the following paragraphs provides the major purposes for this Comprehensive Plan. The environment is the most valuable resource the Township has to offer its residents and it wishes to see the character and the quality of the land preserved. These paragraphs provide the intent behind current land use ordinances and serve as a guide for making future planning and zoning decisions.

a) Existing Land Use

The major purpose of the land in West Lakeland Township is as rural residential large lots for single family homes. Rural residential land use is defined by the Township as a single family home on a minimum of two and one half acres. The need for public

facilities is to be kept to a minimum. These homes are to be as self-sufficient as possible by providing on site sewer and water. Private wells are permitted by Minnesota Department of Health. A portion of the Township lies within a Well Advisory Area, see Figure 5, due to the ground water pollution originating in neighboring communities. Minnesota Department of Health has established special requirements for water wells located in this area. Private on-site septic systems require soil tests and percolation studies before Washington County will permit them. Periodic inspections and pumping of holding tanks are also required by Washington County.

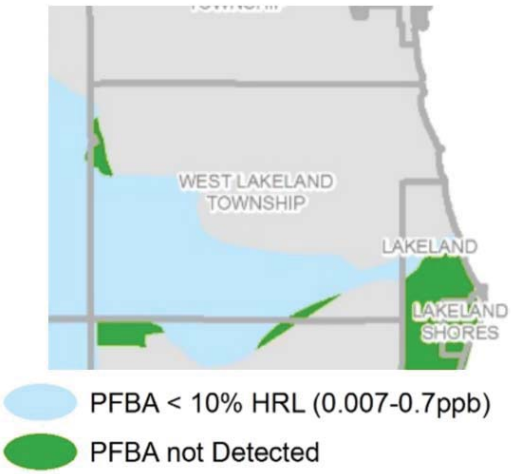

FIGURE 5 -WELL ADVISORY AREA

Other land uses in West Lakeland Township include agriculture and compatible commercial operations such as mining/extraction. The mining operations provide construction material while providing income and employment opportunities for the landowner, the Township, Washington County and the State of Minnesota. After mining is complete, the land will be reclaimed and put to its best use.

TABLE 2 – GENERALIZED LAND USE

Land Use	Acres	Percent of Total
Undeveloped/Agriculture	1285	16%
Airport	81	1%
Mining/Extraction	702	9%
Commercial	114	1%
Recreational/Open Space	481	6%
*includes park, recreational or preserve and golf course		0%
Bayport Wildlife Area	249	3%
Single Family Residential	5015	62%
* includes zoned single family, not yet developed		0%
Total	7972	100%

Existing Land Use Categories:

Undeveloped/Agriculture – Agriculture and Undeveloped lands make up approximately 16% of the Township area. Agriculture and undeveloped land uses includes farms and vacant parcels

Airport – There are no airport facilities in West Lakeland except the eighty (80) acres owned but currently unused by the Metropolitan Airports Commission adjacent to the Lake Elmo Airport. The major part of this airport lies in Baytown Township, outside the zoning authority of West Lakeland.

Mining/Extraction – Mining and extraction operations within the Township are concentrated along the eastern boundary of the Township as well as north of Highway 94. The mining operations provide construction material while providing income and employment opportunities for the landowner, the Township, Washington County and the State of Minnesota. After mining is complete, the land will be reclaimed and put to its best use.

Commercial – Commercial uses are authorized by conditional use permit and are outlined in the Land Use section of this plan.

Recreational/Open Space – Recreational uses include areas such as the Lucy Winton Bell Athletic fields, West Lakeland Storage Sites for water runoff and drainage and acreage owned by the Belwin Foundation

Bayport Wildlife Area – The Bayport Wildlife area is 451.5 acres, part of which is in West Lakeland Township, under the auspices of the Minnesota Department of Natural Resources located on County Road 24. The major emphasis is to manage for a variety of woodland and grassland wildlife. The area consists of 72% grassland/agricultural land, 27% woodland and a small amount of wetland.

Single Family Residential – Land us in West Lakeland Township consists primarily of large lot single family residential land uses with agriculture uses. Additional uses may be permitted under conditional use, as described in the Land Use section of this plan.

Landfills are inconsistent with a long range residential land use plan and are not permitted. A landfill, as defined as any type of disposal facility designed for the purpose of storing solid waste, such as, but not limited to, garbage, refuse, industrial waste, fly ash and hazardous waste as described in the Washington County Waste Management plan is not in harmony with the Township's goal of a rural residential character.

Future land use will continue along these same lines. Single family homes will predominate as they have done in the past. The Town Board, moreover, has established the two and one half acre lot with one buildable acre as the minimum permissible lot size. The Metropolitan Council predicts that slow residential growth will continue.

TABLE 3 - FUTURE GENERALIZED LAND USE

Land Use	Acres	Percent of Total
Undeveloped/Agriculture	41	1%
Airport	81	1%
Mining/Extraction	899	11
Commercial	326	4%
Recreational/Open Space	408	5%
*includes park, recreational or preserve and golf course		0%
Bayport Wildlife Area	249	3%
Single Family Residential	5968	75%
* includes zoned single family, not yet developed		0%
Total	7972	100%

Note: The Future Land Use Table Land Uses are the same as the Current Land Use descriptions.

b) Natural Resource Areas

Important natural resources available to the Township include the land itself, St. Croix River, and numerous wetlands. The quality of the soils for residential development is generally suitable. Constraints to building are in those areas of high or

steep slopes, identified in Figure 6. While it is possible to build in these areas, consideration must be made to the limitations of the site.

A final constraint to building is in the drainage ways running through the Township. Protection of wetlands and drainage ways restrict development and are important to the Township when development plans are reviewed. Easements for the surface water management are obtained by, but not limited to, the following organizations: Valley Branch Watershed, Middle St Croix Water Management Organization, and Washington County.

d) Aggregate Resources

Mining is managed by Washington County. Within the township, other than in the Highway Commercial Zone, the existing mining operations are pre-existing nonconforming uses.

Dolomite and aggregate are considered to be valuable resources. Existing mining operations will be encouraged to be retained for as long as economically viable.

Most of the land suitable and economical to mine is already owned by mining companies. Only four undeveloped areas of the Township remain as possible mining locations, as shown in Figure 7. All other areas are either developed or previously had the gravel extracted. Additional mining may be considered where economically feasible and no conflicting land use exist.

e) Land Use Policies and Plan

The Township is primarily to be a rural residential zoning district, see Figure 8, along with small commercial areas. This zoning classification allows single family homes on two and one-half acres with 160 feet of frontage on a public road. The lots are to be created when described by platting or simple subdivision to Washington County and West Lakeland Township standards.

Lots will be permitted only if soil tests show that the particular parcel will be able to maintain an on-site sewage disposal system for the foreseeable future. When soils are not suitable or other constraints (such as surface water management) are encountered, larger lots may be required.

Development must not aggravate water surface runoff or flooding problems within the lot or to neighbors. Appropriate development will provide adequate buildable lots, properly constructed, hard surfaced public roads, utility and drainage easements, and buried utilities. Subdivision and development ordinances are adopted to ensure the attainment of these goals. West Lakeland's intent is to provide an opportunity for

landowners to establish a single residential site while protecting, preserving and enhancing the rural environment and lifestyle.

The responsibility to establish a buildable lot lies with the developer of the site, not the purchaser or the Township. The requirements for a plan and any individual lots are provided in the Township codes.

The zoning ordinances encourage some agricultural, open space and conservation practices throughout the Township. It also accommodates broader agricultural practices consistent with hobby farming on parcels of 5 or more acres. If desired by the landowner, the Township will support the Metropolitan Agricultural Preserve Program.

The Township's goal is to encourage and preserve the rural open space nature of the area despite a growing population and additional development. Within the Single Family Estate Zone, the allowed uses are residential and agricultural. The Township may recognize other appropriate uses through a process of conditional use permits.

The commitments and obligations of each party are detailed in the specific conditional use permit. The Township will grant land use variations by individual parcel application. This allows the residents legal and economic protections, while preserving open space and agricultural use.

Examples of allowed uses by a conditional use permit in the Neighborhood Commercial Zone include, but are not limited to: Bakeries; Banks, Savings and Loan Associations and other Financial Institutions; Barber Shops/Beauty Shops; Business Offices; Coffee Shops; Day Care Centers; Drug Stores; Golf Driving Ranges; Essential Services - Government Buildings, Storage, and Uses; Essential Services - Utility Substations; Florists; Insurance Sales Offices; Optical Stores; Park and Ride, Plant Nurseries; Self Service Storage Facilities; Transit Stops/Shelters; Places of Worship; Public Recreation Facility; Real Estate Sales; Schools (i.e. Dance, Karate); Soda Fountain and Ice Cream Stores; Small Arts and Crafts stores providing specialty products for sale; Veterinary Clinics. Allowed uses within the Highway Commercial Zone with a conditional use permit include, but not limited to: Balloon Ports – Commercial; Convenience Food Store; Essential Services - Government Buildings, Storage, and Uses; Essential Services - Utility Substations; Medical/Dental Clinics; Mining/Extraction-Related Industries; Motor Vehicle Service Stations (Automobile)/Parts; Car Wash; Physical Fitness Center; Plant Nursery/Sales; Restaurants; Self Service Storage Facilities; Drive-through Restaurants; Veterinary Clinic; Wireless Communication Facility. The uses are allowed through a conditional use permit to ensure the best fit with the residential community.

The future land use policy for the Township is to remain consistent with these allowed uses and retain single family residential housing as the primary land use of the Township.

Present land use includes the broadest category of use as Single Family Estates. Within the Single Family Estates zone, allowed or conditional uses include residential uses, recreational areas, including the Bayport Wildlife Area or Lucy Winton Bell Athletic fields, Mining, and undeveloped areas and agricultural uses. The following uses are permitted within this district with the issuance of a Conditional Use Permit: Agricultural Business – Seasonal; Essential Services - Government Uses, Building, and Storage; Essential Services - Utility Substation; Certain Home Occupations; Cemeteries; Day Care Facility; Golf Course; Place of Worship; Public Recreation Facility; Schools; Horse Training Facility, Private (under 10 horses); Livestock and Livestock Operations (over 11 animal units).

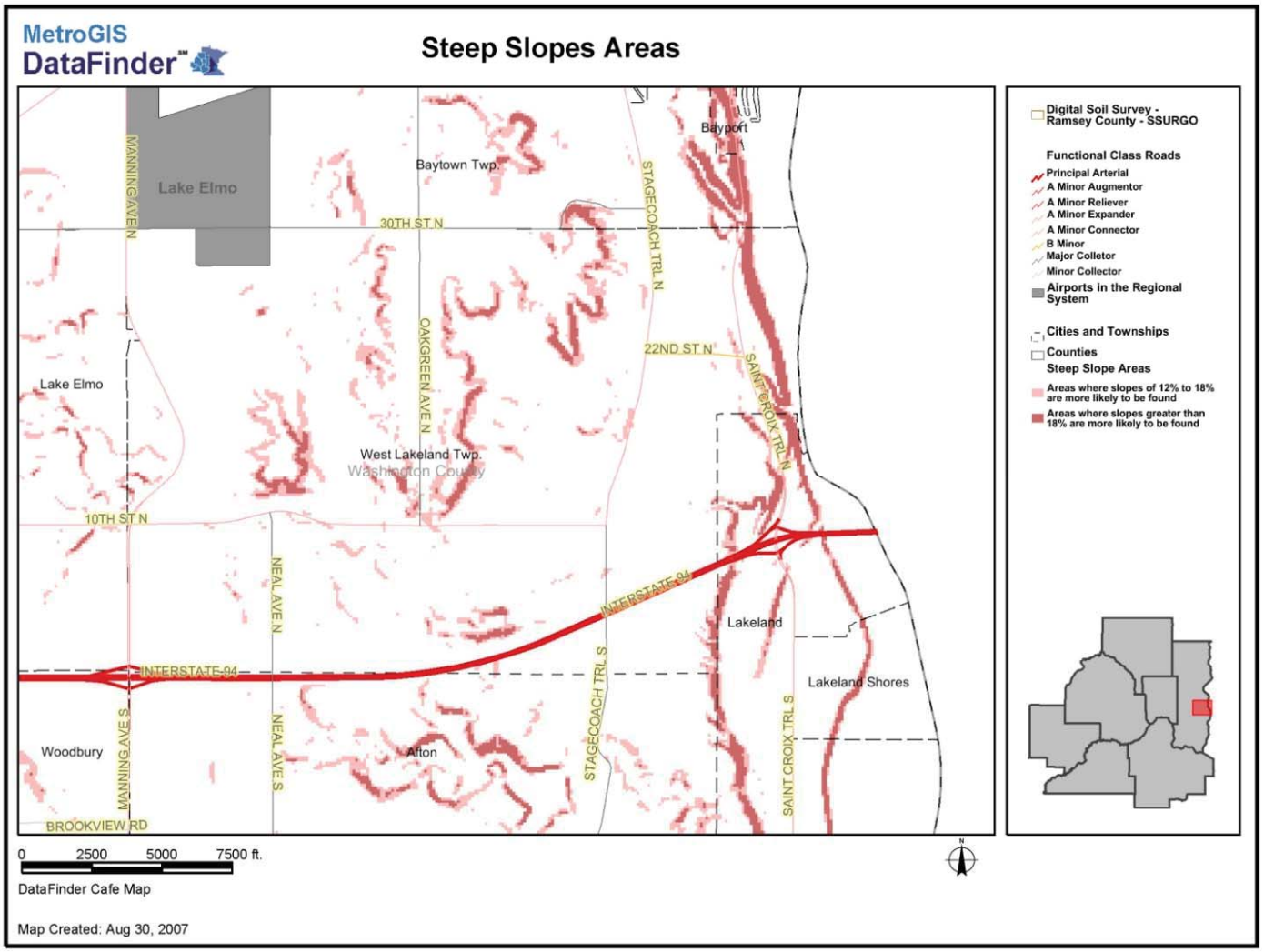

FIGURE 6 - STEEP SLOPE AREAS

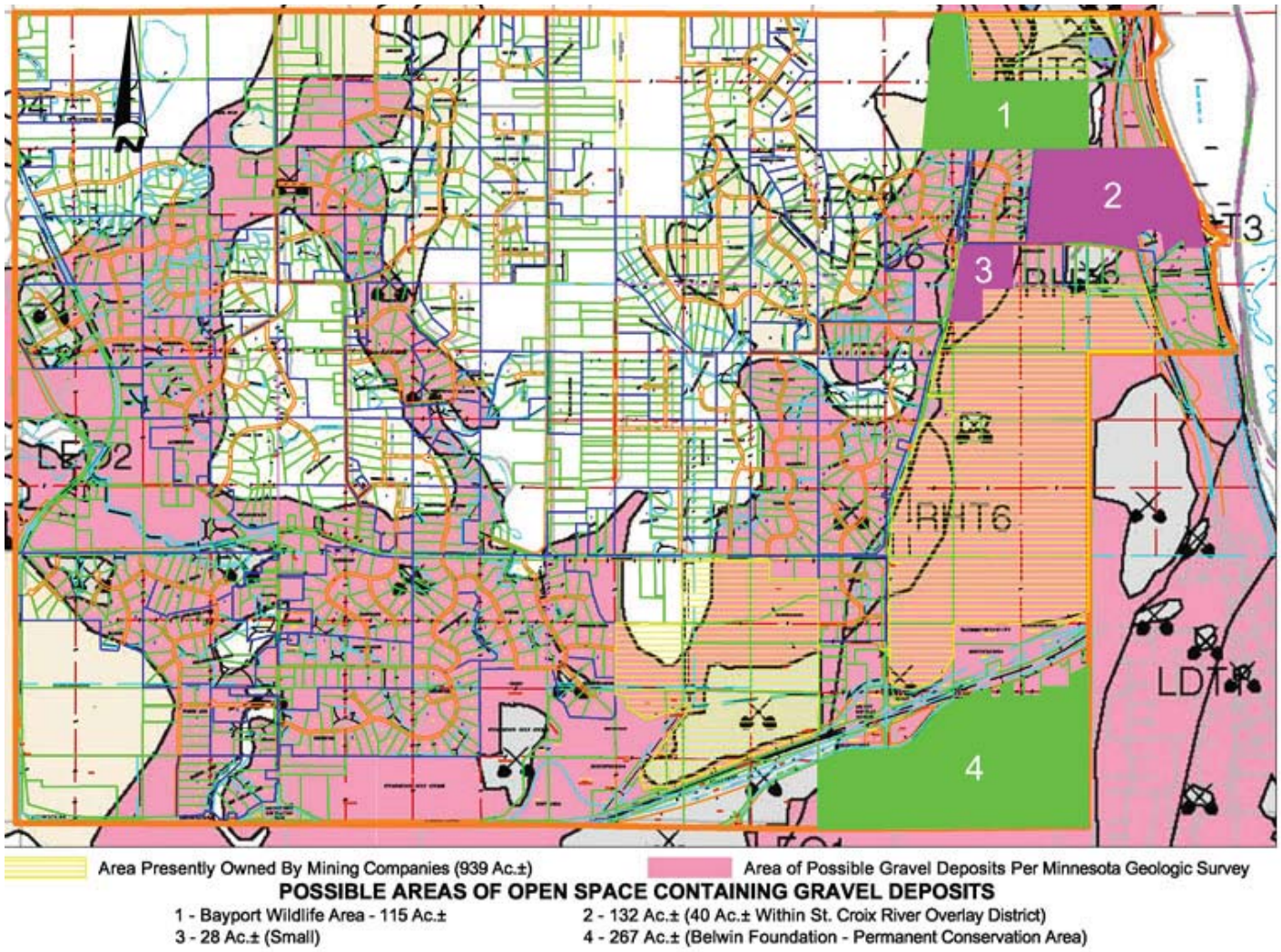

FIGURE 7 - POTENTIAL MINING AREAS

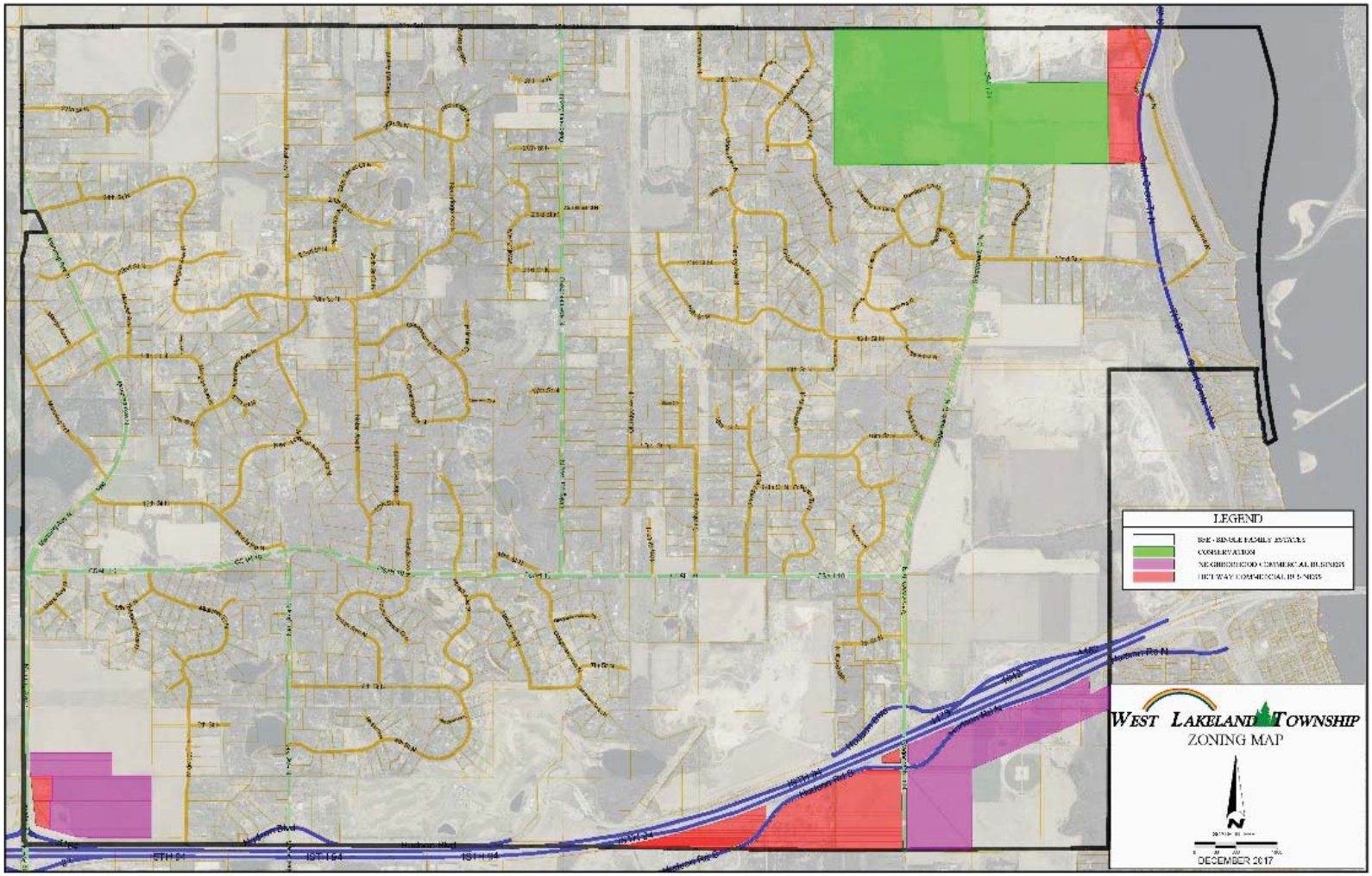

FIGURE 8 - ZONING

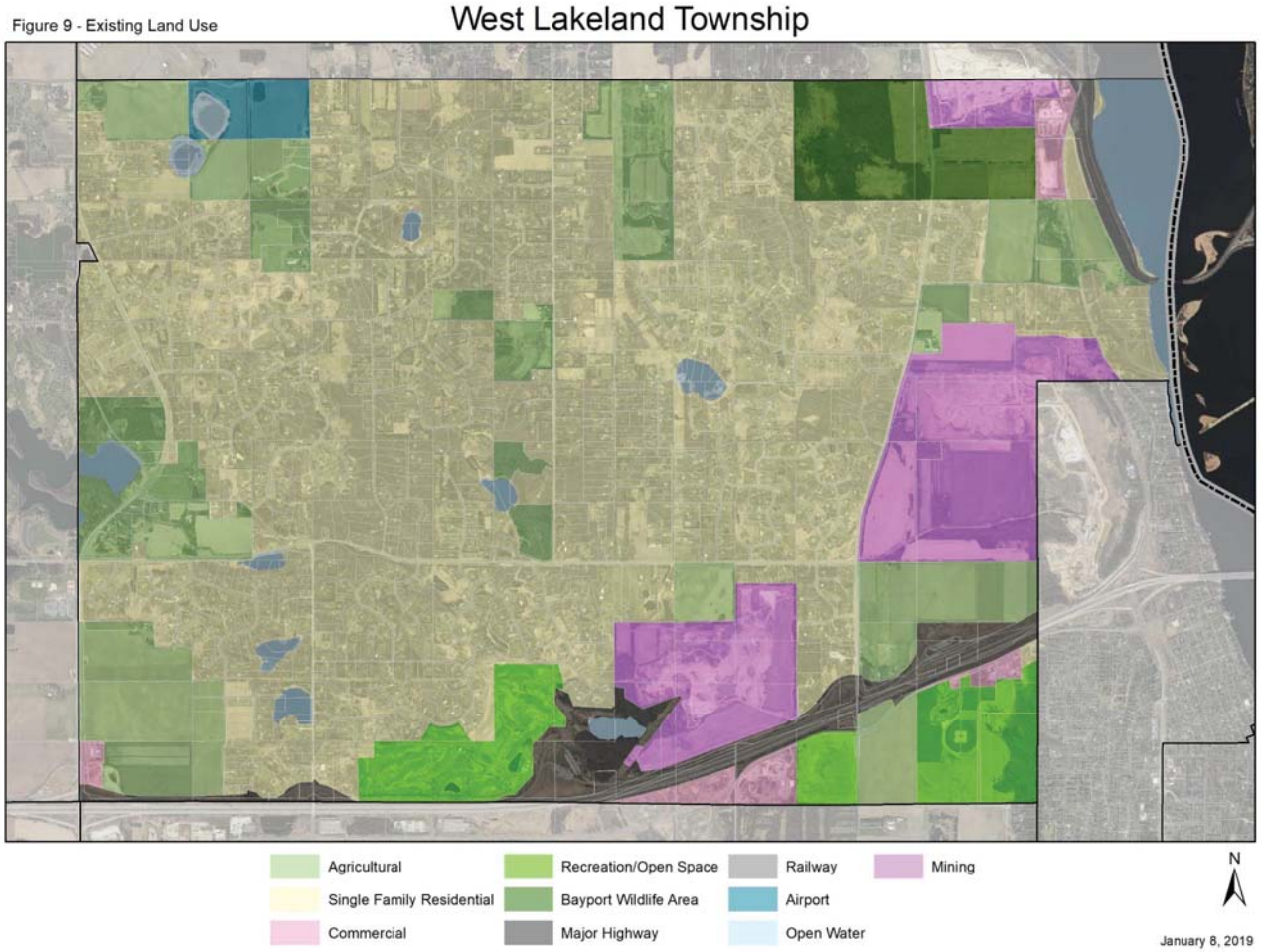

FIGURE 9 - PRESENT LAND USE

Figure 10 - Future Land Use

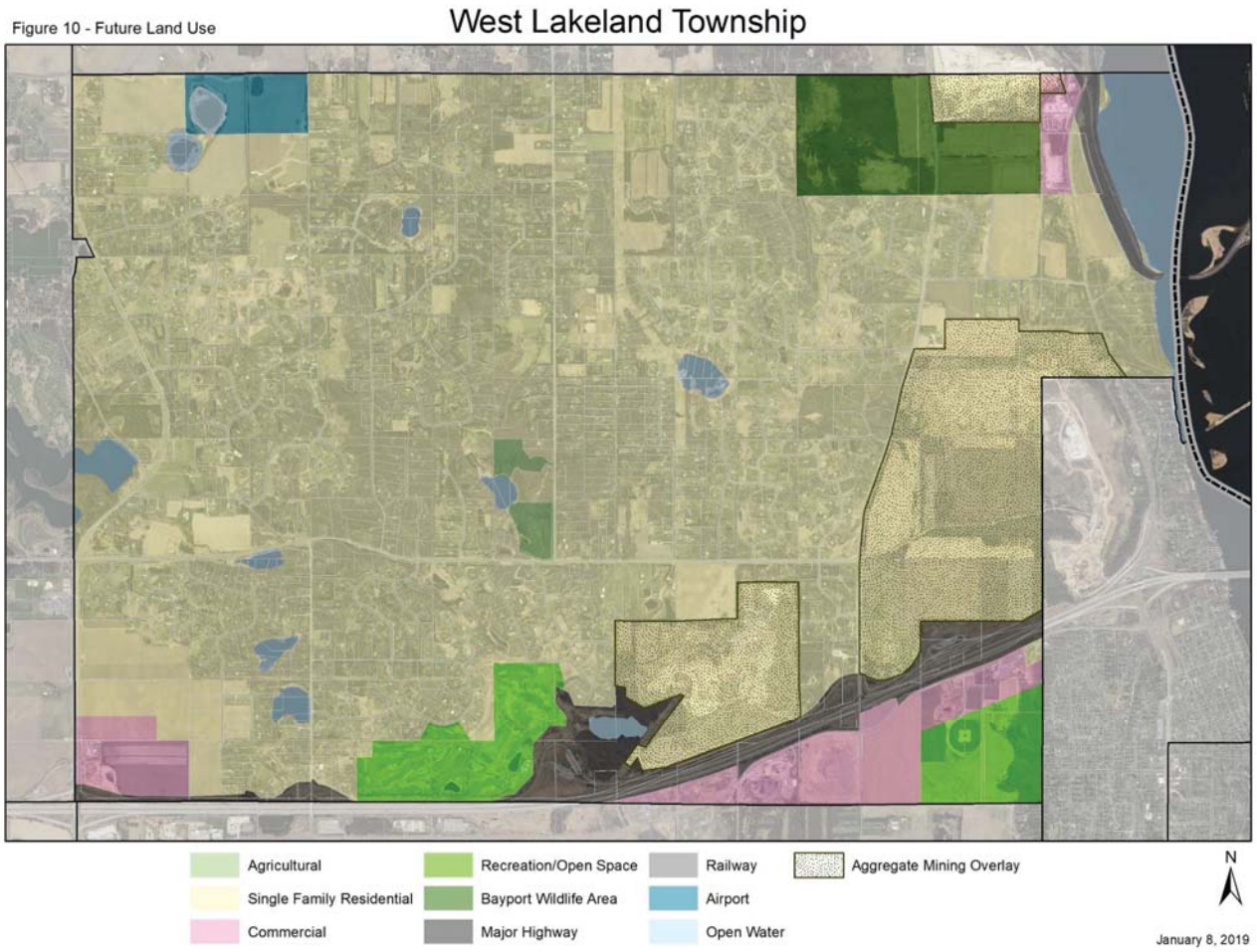

FIGURE 10 - FUTURE LAND USE

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f) Land Use Summary

The most important use of land in the Township is to provide homes for residents and their families. Some future commercial development will provide more jobs for residents within our own community. Home occupations, through properly granted conditional use permits, will provide some of this economic opportunity. People are important, and the land use plans are devised so that each resident may make the maximum use of the land while preserving its character and rural atmosphere for the whole community, see Figure 9. Innovation and individuality are important when developing land within these guidelines.

At present there exists approximately 1,200 acres of agricultural or underdeveloped land within the residential zone of West Lakeland Township. Of this undeveloped acreage, the Township estimated approximately 480 acres being developed other than residential. Additional land currently or projected for mining is intended to be reclaimed for residential land in the future. At an estimated density of one homesite per four acres (due to steep terrain, wetlands, and additional necessary roads in remaining areas.) this would leave approximately 300 residential home sites available. At present development rates, this would leave the Township fully developed beyond 2040. These estimates are based on maximum development, and do not include those properties which could remain underdeveloped (i.e. agricultural or large estates), see Figure 9.

8. Housing Plan

Existing homes are primarily single family owner occupied and of moderate age. Currently, there are approximately 1,300 housing units in the Township. With the current development trend, the Township should reach full development within the next 20 to 40 years. Rental housing is minimal in the Township. Illustration of housing values is at Figure 12.

Providing for affordable housing is addressed through home owner programs facilitated through Washington County. Consistent with the larger plans of the Metropolitan Council, West Lakeland remains with minimal growth and low density. Of the Region's total need for affordable housing for 2021 to 2030 of 37,000 units, West Lakeland's allocation of need is zero units. As a result, the estimated potential of 80 new households in West Lakeland Township will develop at market value.