

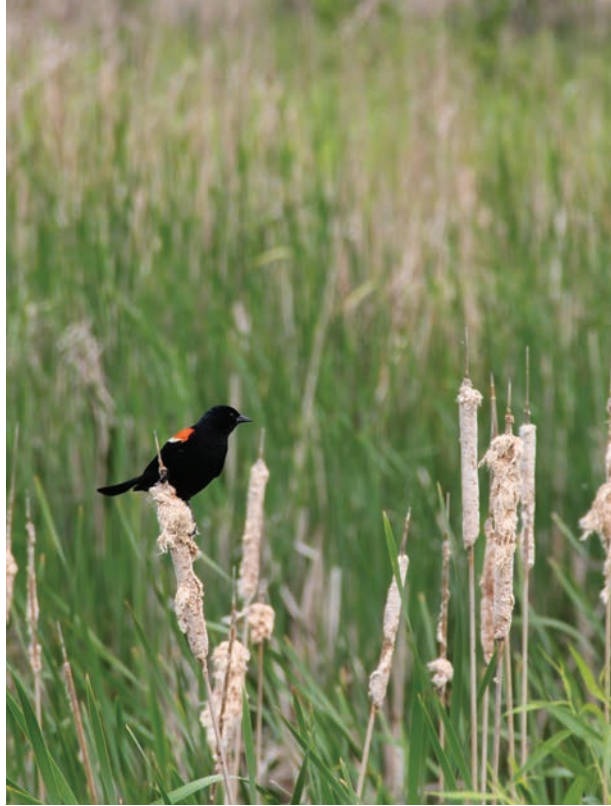
2014 Trail Audit FINAL



July 16, 2014

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City of Lake Elmo Planning Intern

Acknowledgments



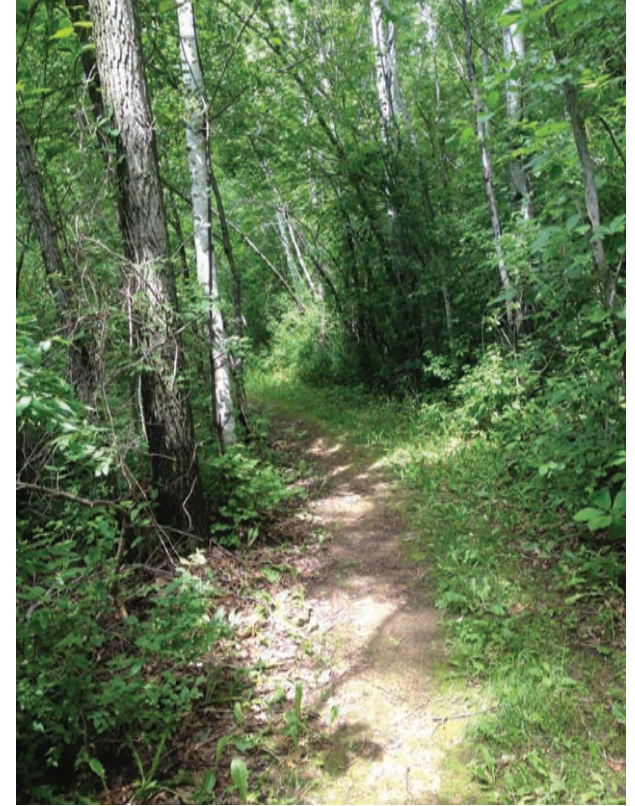
Building a trail system requires cooperation, commitment and community involvement and we would like to thank those who have participated in the development of the trail system thus far.

In addition, we thank SEH and Damon Farber and Associates for their commitment. This document is based on the 2030 Comprehensive Trail System Plan prepared by SEH in 2005. Recently, Damon Farber and Associates designed a “kit of parts” for the City of Lake Elmo and these are included in this document as well. We thank both firms for their contributions.



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Executive Summary



The City of Lake Elmo's changing landscape creates an opportunity to use best planning practices to create a vibrant community network. With the 2040 population estimated to grow to 20,500 people in 8,000 households, the planning and implementation of a successful citywide trail network is essential.

In 2005, The City of Lake Elmo published a Trail System Plan as part of the 2030 Comprehensive Plan. This document aims to build upon the Trail System Plan by providing current information to allow the planning process to be as efficient and effective as possible.

The City's Park Survey, done in 2013, produced several trends. These trends will be included in this document to provide a framework for the proposed trail alignments.

The data gathered in this document outlines key features and data for the City to reference in the next steps of the planning process. The presented information aims to achieve six main goals:

- Provide an understanding of the benefits of trails within the community
- Examine the current trail network within the scope of the Washington County Trail Plan
- Assess current trail conditions
- Evaluate connections to pertinent destinations within the city
- Propose trail alignments based on set criteria
- Outline the next steps needed to continue the planning process

Lake Elmo is dedicated to preserving its rural charm, open space and natural areas. The City is committed to developing a Trail Plan that will provide a trail network that allows both current and future residents to enjoy nature.

Introduction: Vision

“The City will develop a safe, convenient and integrated system of trails linking neighborhoods, schools, the “Old Village,” and parks that will focus on the natural resources and character of Lake Elmo and help safely meet the recreation, health/fitness and transportation needs of its residents.”



The City of Lake Elmo’s vision was developed by the Parks Commission and is part of the 2005 Trail System Plan. The vision statement is supplemented by goals and objectives designed to help inform the trails development. The goals and objectives include the following:

- Provide connections to natural resources, historical landmarks and cultural elements in the City.
- Provide a trail system that meets the desires of and has the support of the residents.
- The comprehensive master trail plan seeks to integrate the trail system with existing and future development, the general transportation system, trail systems in adjacent communities, and state and county trails and facilities.

- Develop safe and convenient methods of crossing barriers such as Highway 5 and the Union Pacific Railroad.
- Provide a trail system that links to Lake Elmo (the lake).
- Develop a uniform and comprehensive signage system that will promote park and trail use and enhance City identity and character.
- Develop construction criteria for sidewalks, and paved and unpaved trails.
- Develop an overall plan to provide a system of trails that is affordable, maintainable, and can be implemented in a reasonable time frame.

As these goals and objectives are from 2005, several have been reached or are currently being implemented, such as a uniform signage system, safe passage across Highway 5 and the Union Pacific Railroad, and trail linkages to Lake Elmo (the lake).

Benefits of Trails



PROPERTY VALUES



COMMUNITY DEVELOPMENT



TOURISM



HEALTHCARE COSTS



JOB AND INVESTMENT



EVENTS AND CELEBRATIONS

Trails can have a dynamic impact in a community and can increase property value, help create community, increase tourism, lower healthcare costs, create jobs and investments, and can be used for events and celebrations. These benefits are widely supported by many studies, dating back to the 1970's.

Trails are a valuable component of many cities and can influence property value. The effect of greenways and trails has been studied extensively. Generally, the studies show that the closer a property is to a park, trail, or greenway, the greater the property value (Macdonald, 2011). A study by Correll, Lillydahl, and Singell (1978) revealed that property values increased in value as they neared the greenbelt (a greenway with a natural buffer). Property directly adjacent to the greenbelt was valued at \$54,379, whereas property 3,200 feet from the greenbelt was \$41,206. A similar study from Salem, Oregon revealed that property next to the greenbelt was priced \$1,200 higher than property 1,000 feet away (Robert Wood Johnson Foundation, 2010).

A study done in Austin, Texas (2005), revealed that property directly adjacent to greenways were not negatively effected by the greenway, and in most cases sales prices increased with the addition of the greenway. This study also analyzed properties that had views of the greenway and entrances to the greenway. Results showed that having a view of the greenway had no affect on property value, and similarly, property in close proximity to an entrance had no effect on property value (Robert Wood Johnson Foundation, 2010).

Greenways and trails, seen as linear green spaces, have more properties directly adjacent to them when compared to parks. As a result, a larger number of properties' benefit from the amenity. Because of this, trails can be an effective tool to strengthen a community's economy.

“Beyond all the economic, health, and other policy reasons for trails, rests one more down to earth but less quantifiable factor in favor of trails: trails can lift your spirits.”

-South Carolina State Trails Plan

Charles E. Little, the author of “Greenways for America,” writes “to make a greenway is to make a community.” Connecting neighborhoods to each other, parks, schools, shopping, and restaurants creates safe routes for pedestrians. Social interaction is increased when neighborhoods are linked, and statistics show that crime is reduced when trails are used regularly (San Diego Strategic Plan).

Walkability

Walkability and access to trails is the second most important characteristic homeowners consider when purchasing a home (American Trails et al., 2012). Accessibility is highly sought after in today's market and has been studied extensively. A 2006 study of 900 housing sales in Austin, Texas, revealed that residential values are directly linked to accessibility. Vibrant neighborhoods consistently have many amenities and consumer destinations and are pedestrian friendly and easily accessible. In short, they are more walkable. Walkable communities are also typically safer, better served by transit, and have higher residential property values. (Cortright, 2009).

Over the past several decades, the automobile has become almost essential in many communities where amenities are far apart, resulting in poor pedestrian facilities, health impacts and urban sprawl. Today, walkability is an indicator of opportunity, health, safety, and vibrant neighborhoods. Home buyers now frequently use Walk Score to assess the walkability of a neighborhood.

Walk Score is a measurement of consumer destinations within a short distance used to calculate the walkability of neighborhoods. Highly walkable areas, or areas with many amenities and consumer destinations are typically more successful, safe, and have higher property values (Cortright, 2009).



http://www.seattlemet.com/data/publicola-assets/2010/02/walk_6x335.png

Studies have shown that the Walk Score (a value between 0 for car dependent areas, and 100 for the most walkable areas) for a neighborhood actually correlates into home values. Typically one point increase in Walk Score is associated with a \$700 to \$3,000 increase in home values.

Lake Elmo currently has a Walk Score of 31, revealing that the location is car dependent.

Studies on walkability have already influenced communities to re-examine and revitalize their traditional suburbs. For example, Denver replaced the aging Villa Italia Mall in the suburb of Lakewood with a mixed-use development. The new commercial and residential area features a modern main street (Cortright, 2009).

Walkability and accessibility have become assets on which consumers place value, and they are essential to healthy, vibrant communities.

Tourism



In addition to creating connected neighborhoods and a sense of community, trails can be a catalyst for tourism and increased revenue for local businesses. In Minnesota, walkers and hikers spent \$1,425.6 million in 2009 for expenses such as recreational equipment, lodging, groceries, restaurants, and shopping.

The Metro has an extensive trail network and walking, hiking and biking are the most popular activities. In 2008, there were 87,535 trail users throughout the year (Venegas, 2009). The Metro area has an extensive trail system that is being expanded every year. Lake Elmo is part of this network and can benefit greatly from a formal trail system. The Metro area has a highly active trail user base, and walkers, hikers and biker make up about 1/3rd it (about 30,000 people in 2008). Although most trail users prefer to stay within 30 minutes of home, 1/4th of trail users are willing to travel further distances and prefer longer trips (Venegas, 2009).



On average, residents that stay within 30 minutes of home spend \$5 per day when walking or hiking, and those who take longer trips spend from \$27 to \$39 per day (Venegas, 2009).

Tourism has lasting effects in local economies. In the Metro, trip spending by walkers or hikers was estimated at \$289,565 in 2009. By using IMPLAN modeling, it is estimated that \$210,324 directly affected businesses in direct sales. When public agencies, or affected businesses purchase goods to run their businesses, it is called the indirect effect. The estimated indirect effect was estimated at \$60,230. The third tier of effects are seen when the employees of the affected businesses spend their earned income, called the induced effect. In 2009, the induced effect resulting from walkers and hikers trail spending was \$54,757 (Venegas, 2009). Trails can be a great source of revenue for cities, and the revenue can have lasting effects in the community, especially if it stays local.



Health

“Without health there is no happiness. An attention to health, then, should take the place of every other object.”

-Thomas Jefferson, 1787



The Center for Disease Control (CDC) is promoting Active Community Environments in an effort to increase physical activity in communities. With more than half of Washington County overweight or obese (Washington County Dept. of Public Health, 2011), trails can significantly improve the health and wellbeing of the community. Active Community Environments provide places for people to be physically active and engage in activities such as walking, hiking, biking, roller blading, and horseback riding.

As our reliance on the automobile increased, our trips made by walking and biking dramatically decreased. Between 1975 and 1995, the Department of Transportation calculated that the number of trips the average American made by foot each year decreased by 42% (Wilkinson et al., 2002).

Active Community Environments, and providing access to places of recreation and activity, such as trails, has been proven to increase physical activity in a community (Schmid and Killingsworth, 2011).

It is recommended that adults engage in 30 minutes of physical activity a day. Currently, less than 1/3 of adults partake in the recommended amount. In fact, 40% of adults do not practice any form of exercise. 65 year olds and older are the least active age group in the United States, a problem for Lake Elmo, as 35% of the population is age 50 or older as of 2010 (Metropolitan Council, 2010).

Trails have been proven to increase physical activity and data suggests that street design, location of facilities such as parks and trails, and the availability of bicycle and pedestrian facilities have a significant role in the promotion of physical activity (Schmid and Killingsworth, 2011).

Before and after studies show the health impacts trails have, such as in Missouri, where 55% of trail users are exercising more now than before having trail access. Another study of six different trails in Indiana showed that over 70% of trail users reported getting more exercise as a result of the new trails. (Trails and Greenways Clearinghouse).

Healthy communities create healthy people and the impacts to public health are numerous. In Lincoln, Nebraska, a new trail system cost \$209 per capita. A cost-benefit analysis was conducted and revealed that the direct medical benefit of using the trails was \$564 per capita. The cost-benefit ratio was 2.94, showing that for every \$1 spent on the trail led to \$2.94 in medical savings (Trails and Greenways Clearinghouse).

Daily exercise helps control weight, prevent heart disease, control cholesterol levels, prevent diabetes, slows bone loss associated with aging, lowers the risk of cancer, and can help reduce anxiety and depression (Trails and Greenways Clearinghouse). Trails create opportunities for activity by providing safe and accessible places to walk, hike, jog, bike, and many more fun activities.

Jobs and Investment

“More Americans owe their jobs to bicycle-based recreation than there are people employed as lawyers.”

-Outdoor Industry Foundation

Trails can be a catalyst for economic development in communities, especially if the town supports the trail. Several towns have been very successful by marketing their trails and providing maps, signs, events and tours.

For example, the West Orange, Little Econ, and Cady Way trails in Orange County, CA, created 516 jobs. The economic impact of the trails was estimated at \$42.6 million in 2010 (Macdonald, 2011).

New businesses often accompany the installation of trails, for example in the Great Allegheny Passage (a 141 mile trail system from MD to PA), 93 new trail related businesses opened from 2007 to 2011. A survey showed that the business owners attributed about 25% of their revenues to the proximity of the trail (Macdonald, 2011).

The tables to the right illustrate the lasting impacts trails and their activities have on the Metro (Venegas, 2009). Lake Elmo has the potential to become a part of the Metro trail system and benefit from trail usage.

Economic Impacts of Spending on **Trips** in the 7 County Metro

	Trip Spending	Gross Output	Gross Region Product	Employee Compensation	State and Local Taxes	Jobs
Walking	\$289,565	\$325,311	\$169,061	\$98,942	\$21,705	3,022
Running	\$48,409	\$36,601	\$17,680	\$10,362	\$2,348	291
Biking	\$137,309	\$140,351	\$75,635	\$43,895	\$10,342	1,374
Horseback Riding	\$7,173	\$8,027	\$4,200	\$2,497	\$531	67
Cross Country Skiing	\$10,930	\$13,044	\$7,637	\$4,936	\$809	126

Economic Impacts of Spending on **Equipment** in the 7 County Metro

	Equipment Spending	Gross Output	Gross Region Product	Employee Compensation	State and Local Taxes	Jobs
Walking	\$13,281	\$10,672	\$6,790	\$3,717	\$1,167	150
Running	\$25,005	\$20,091	\$12,784	\$6,998	\$2,197	281
Biking	\$33,200	\$29,113	\$17,845	\$9,655	\$2,822	357
Horseback Riding	\$279,833	\$255,884	\$146,697	\$80,570	\$19,664	3,552
Cross Country Skiing	\$6,016	\$4,982	\$3,128	\$1,703	\$523	67

Events and Education



Relief sculptures at Harriet Island Regional Park, St. Paul, MN.
<http://www.americantrails.org/galleries/11index.htm>



A sculpture along St. Paul's riverfront portrays a blue marlin.
<http://www.americantrails.org/galleries/11index.htm>

Completed trail systems create opportunities to host events and education programs. Cities can host marathons, develop group bike rides, and support local walking groups. Local artists can showcase their work along the trail to create a sense of place.



Heron Pond Natural Area in Denver, CO, uses touchable art to help the blind connect to nature.
<http://www.americantrails.org/galleries/11index.htm>



A sculpture at the North Carolina Museum of Art welcomes visitors to the trail.
http://www.tripadvisor.com/LocationPhotoDirectLink.g49463-d1370584-101297497-North_Carolina-Museum_of_Art-Raleigh_North_Carolina.html#36895378

Education and stewardship programs can be developed; such as they were in Ranch Sonado and West Coyote Hills in CA. With new paths, shade structures and informational signs, local schools and community groups frequent the trails and use them as an outdoor classroom.



The outdoors provides many teaching opportunities and unique experiences.
<http://www.americantrails.org/resources/kids/Inside-Outdoors-environmental-education.html>



Students learn from a park ranger in an outdoor classroom.
<http://www.thestate.com/2014/05/22/3462009/track-trail-adds-new-reason-to.html>

Trails are being viewed as “significant, vibrant laboratories for outdoor learning,” and are supported by new legislative initiatives that encourage children to engage in nature. (Bell, Johnson and Rigby).

Common Myths and Concerns



Development concerns are customary during any project, and implementing a trail or greenway system can cause concern for property owners, neighborhood groups, and members of the community. There are five usual point of worry that should be addressed to ensure a smooth planning process.

1) Liability Issues: Some public and private landowners worry that a new trail system will increase their liability. Studies from other trail systems show that this is not the case, and Minnesota has laws protecting private landowners who open their land to the public for recreation (as long as they do not charge a fee or intentionally cause a hazard). (Public Health Law Center).

2) Concerns about increased crime and vandalism: these concerns are very common during the development phase, but “there is a great deal of evidence, both locally and nationally, that indicates that trails do not attract crime” (Rick Reese, BST Committee). A trail along Ogden River Parkway in Utah found that the development of the trail system removed crime from the area. The problems they had seen before the trail system was built, such as 4x4 vehicles, gunfire, and beer parties, had been eliminated (Knoch and Tomes, 2006).

3) Worries about decreased property value: Amenities such as parks, greenways, and trails are proven to increase property value within proximity to the feature. Numerous studies show the correlation between trail systems and increased property value.

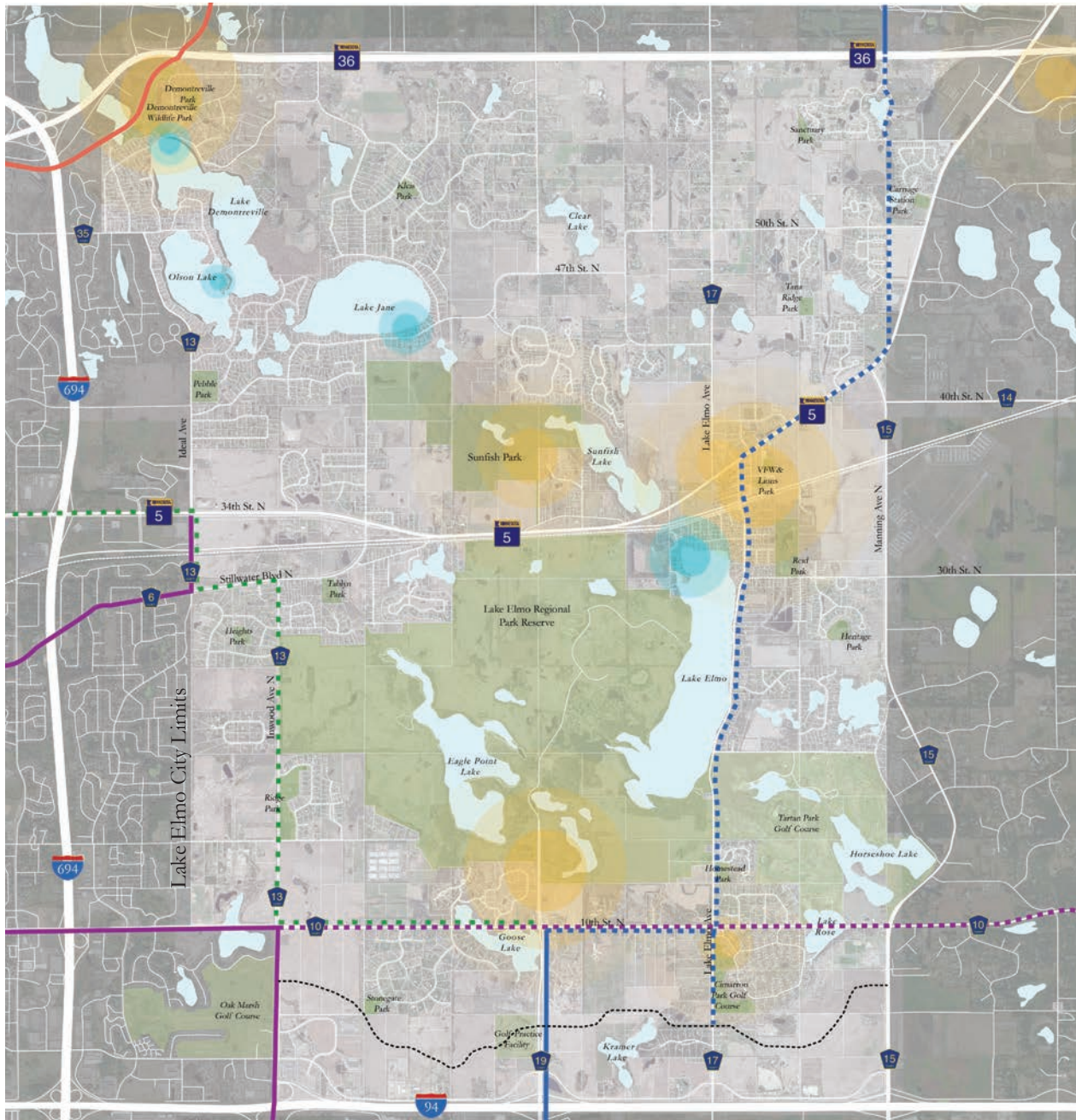
“More of the right kind of use by the right kind of people tends to drive out trouble-causers who thrive on seclusion and anonymity.”

-Northern Bonneville Shoreline
Trail Master Plan

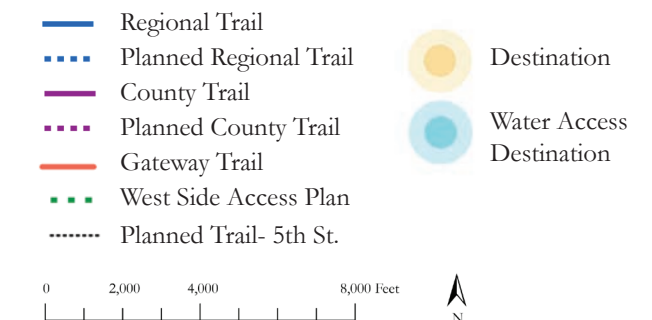
4) A common belief is that residents do not want to live next to public access trails, however, research shows that residents who were at first apprehensive about the new trail change their opinions when the trail is established. A study in Omaha, NE, showed that 75% of over 1,000 homeowners perceived the new community trail to enhance their quality of life (Knoch and Tomes, 2006).

5) In past studies, communities have expressed concern about the costs of maintaining a trail system. Although initial costs to the city may seem high, the investment often has lasting positive economic impacts and health benefits. Communities already have fire access roads, utility easements, or existing trail segments that can easily be developed into trail while keeping costs low (Koch, 2006). The City would maintain the trail system, which would lessen maintenance by the community.

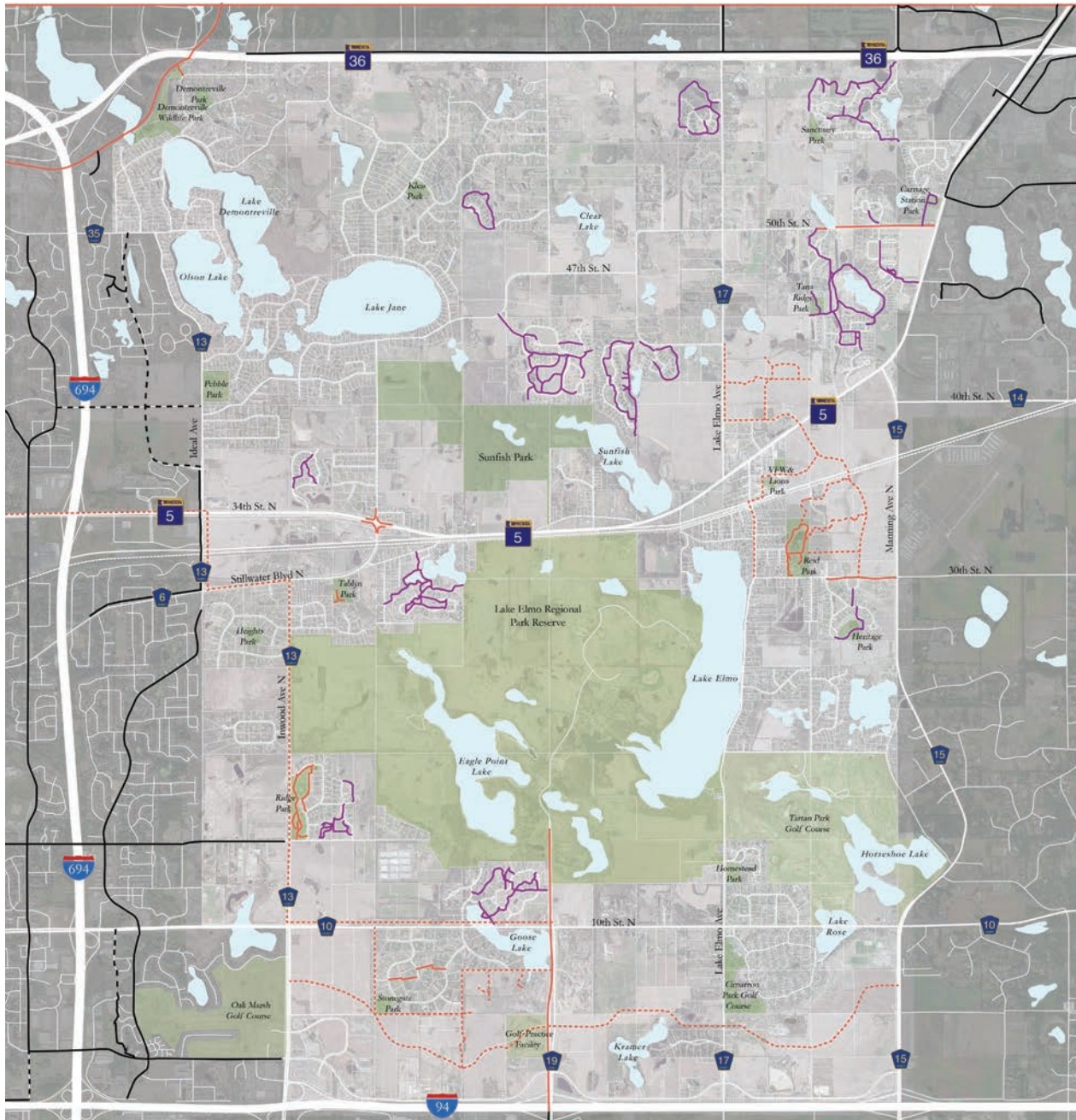
Regional and County Trail Framework



There are two different trail plans proposed for Lake Elmo: the Regional Trail Plan, and the County Trail Plan. The Regional Trail focuses on North/South connections and the County Trail Plan targets East/West movement. There have been discussions regarding the alignment of the North/South Regional Trail, with possible realignment on Manning Ave N or through the Lake Elmo Regional Park Reserve. A benefit to having the trail on Lake Elmo Ave is the aesthetic qualities associated with traveling along Lake Elmo (the Lake). The Lake Elmo Regional Park Reserve is currently a conservation area with limited activity and requires paid entry. Negotiating the use of the park would greatly benefit Lake Elmo as a whole and increase recreation and use of the Park. To some, the Park Reserve is a barrier within Lake Elmo due to inaccessibility and access issues. Manning Avenue presents less challenges as there are less spatial constraints compared to Lake Elmo Avenue. However, aligning the trail to Manning would direct traffic away from the Old Village/ Downtown and would have less of an aesthetic impact on trail users.



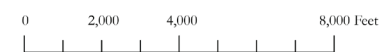
Trail Conditions: Existing and Planned



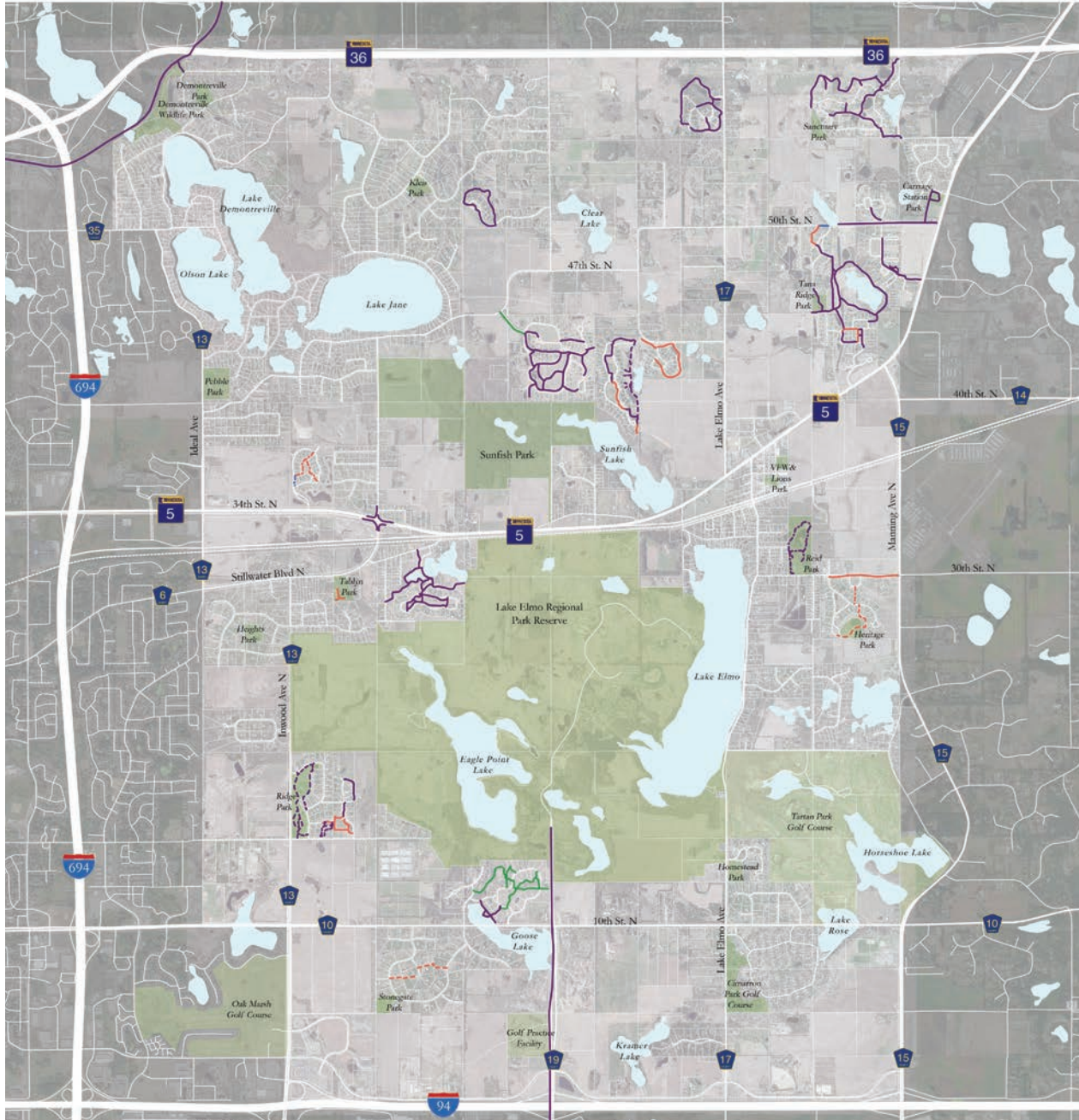
The existing trails in Lake Elmo are primarily owned and maintained by Home Owner Associations (HOAs). The City has approached some HOAs to discuss public access to private trails. The use of targeted segments or HOA owned trails would help the City develop a successful trail network. While the City would not require any HOA to make their trails public, inclusion of HOA owned trails in the overall trail system would greatly improve the overall connectivity of the City's trail system, improving access to a number of key destinations.

Legend:

- Existing Trails- Public
- - - Planned Trails- Public
- Existing Trails- Private
- Existing Trails Outside Lake Elmo
- - - Planned Trails Outside Lake Elmo



Trail Conditions: Quality and Materials



The existing trails, both public and private, were evaluated using the PASER system to determine which trails need to be given priority for reconstruction. The trail material was also noted. Grass, gravel and dirt trails will need to be paved if they are to be used in the ADA accessible recreation network.

Legend:

- | | |
|--|--|
| — Excellent | Paved |
| — Good | Grass |
| — Fair | Gravel/Dirt |
| — Poor | |

0 2,000 4,000 8,000 Feet



Existing Conditions: Documentation



1) Gateway Trail: Good



2) Meyers Pineridge: Good



3) Discover Crossing: Good



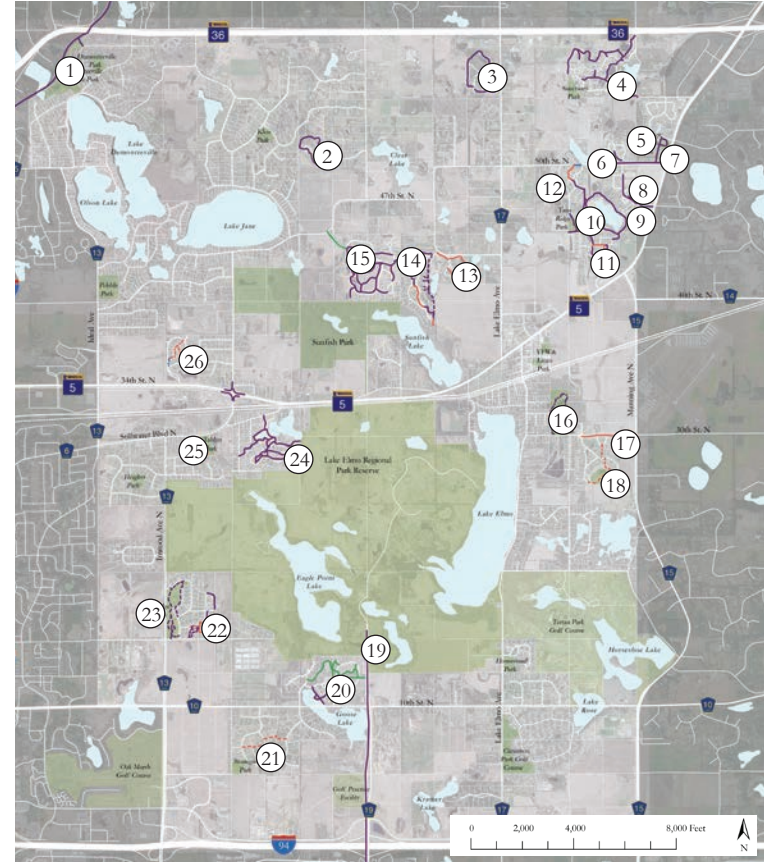
4) Sanctuary Good



5) Carriage Station: Good



6) 50th Street (Tana Ridge): Poor



7) 50th Street: Good
16



8) Fields of St. Croix 1: Good



9) Bluestem at Fields: Good



10) Tana Ridge: Fair/Good



11) Fields 2: Fair/Good

Existing Conditions: Documentation



12) Tana Ridge: Fair/Good



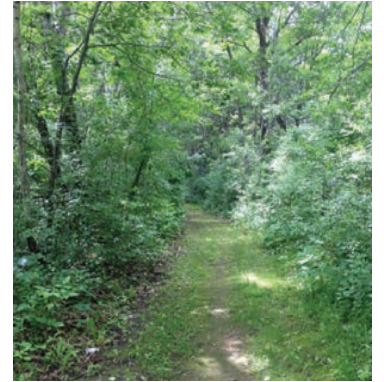
13) Sunfish Ponds: Fair



14) Hamlet on SFL: Fair/Good



15) Tapestry: Good



16) Reid Park: Good



17) 30th Street: Good



18) Heritage Farms: Good



19) Keats Ave N: Good



20) Whistling Valley: Excellent



21) Stonegate: Fair



22) Cardinal Ridge: Fair



23) Ridge Park: Good



24) Farms of Lake Elmo: Good

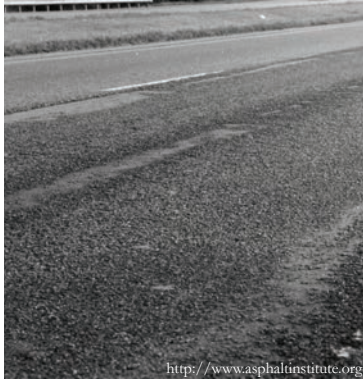


25) Tablyn Park: Fair



26) Wildflower Shores

PASER System: Rating the Trails



Raveling, Flushing, Polishing



Rutting, Distortion



Longitudinal Cracks



Transverse Cracks



Patches and Potholes

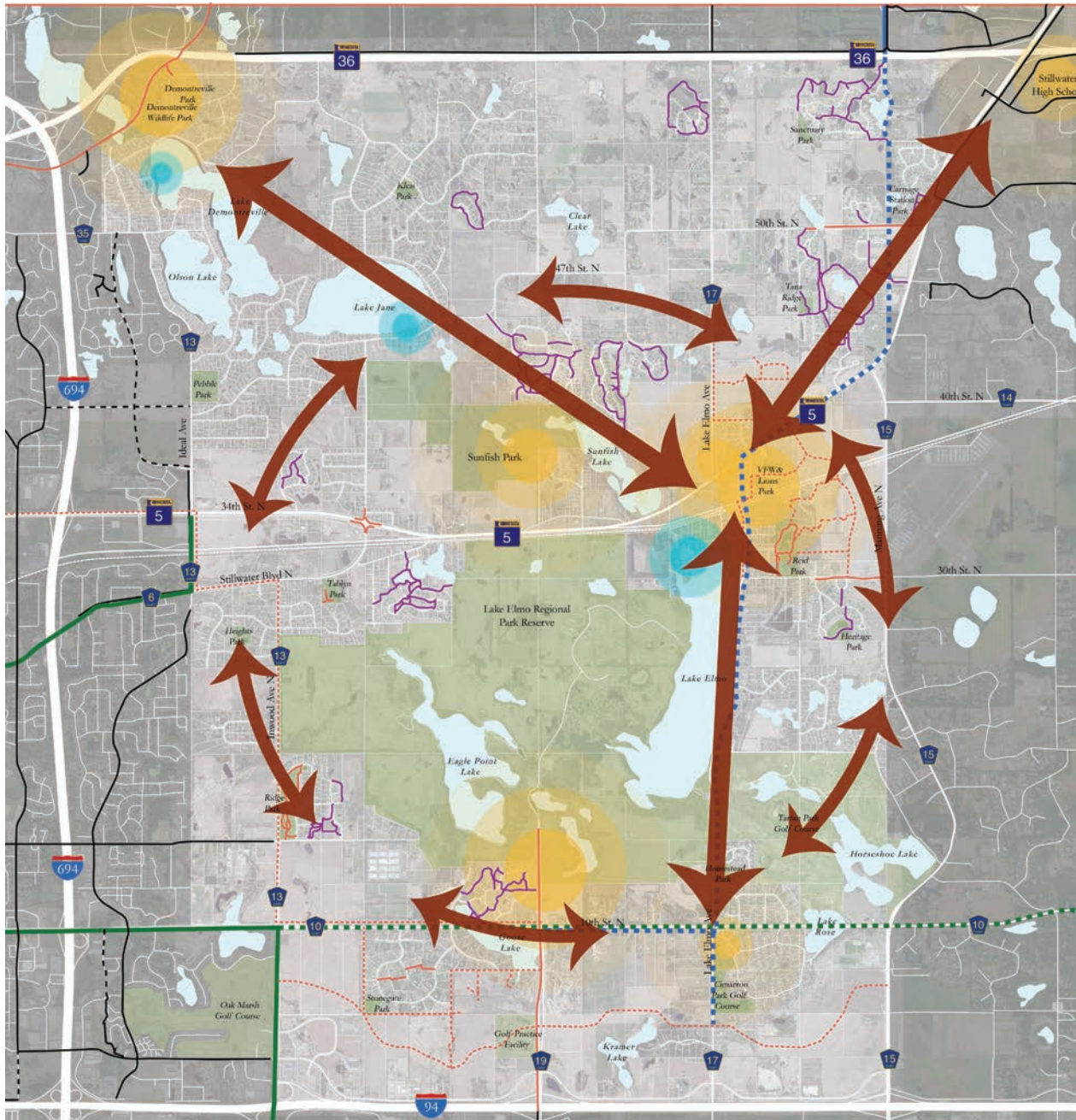
The Pavement Surface Evaluation and Rating system (PASER) of Asphalt Roads was originally developed by Phil Scherer, a transportation planner with the Northwest Wisconsin Regional Planning Commission, along with the Wisconsin Transportation Information Center.

The PASER system evaluates pavement based on four guidelines: surface defects, surface deformation, cracking, and patches and potholes. These are then used to assign the pavement a value from 1 to 10, which corresponds to a rating of Excellent, Very Good, Good, Fair, Poor, Very Poor, and Failed. To simplify the system, the values in this survey were limited to correspond with four ratings of Excellent, Good, Fair and Poor.

These ratings are useful to prioritize maintenance or rehabilitation of the trails. It is recommended that trails with a Poor rating be reconstructed.

PASER System	Simplified Rating	Visible Distress
10: Excellent	10: Excellent	None
9: Excellent	9: Excellent	None
8: Very Good	8: Good	No longitudinal cracks except reflection of paving joints. Occasional transverse cracks. Sealed cracks.
7: Good	7: Good	Slight or no raveling, evidence of traffic wear. Longitudinal cracks due to reflection or paving joints. Transverse crack spaced 10' or more apart. Patching in good condition.
6: Good	6: Good	Slight raveling and traffic wear. Longitudinal cracks less than 10' apart. First sign of block cracking. Some flushing or polishing. Patching in good condition.
5: Fair	5: Fair	Moderate to severe raveling. Longitudinal and transverse cracks show signs of raveling and secondary cracks. Longitudinal cracks near pavement edge. Block cracking up to 50% of surface. Extensive flushing. Patching in good condition.
4: Fair	4: Fair	Severe raveling. Multiple longitudinal and transverse cracking with slight raveling. Block cracking over 50% of surface. Patching in fair condition. Slight rutting.
3: Poor	3: Poor	Closely spaced longitudinal and transverse cracks often showing signs of traveling and crack erosion. Block cracking and slight alligator cracking. Patches in poor condition. Occasional potholes.
2: Very Poor	2: Poor	Alligator cracking over 25% of surface, severe distortions, extensive patching in poor condition. Potholes.
1: Failed	1: Poor	Severe distress with extensive loss of surface integrity. Total reconstruction needed.

Recommendations: Big Picture

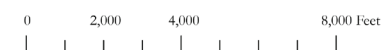


The Old Village/Downtown acts as an anchor in Lake Elmo and can even be viewed as the heart of the City. It is necessary to connect communities to the Old Village/Downtown as the city develops to keep the rural identity of the City. The Gateway Trail has the potential to bring many visitors to Lake Elmo and it is an important destination to residents as well.

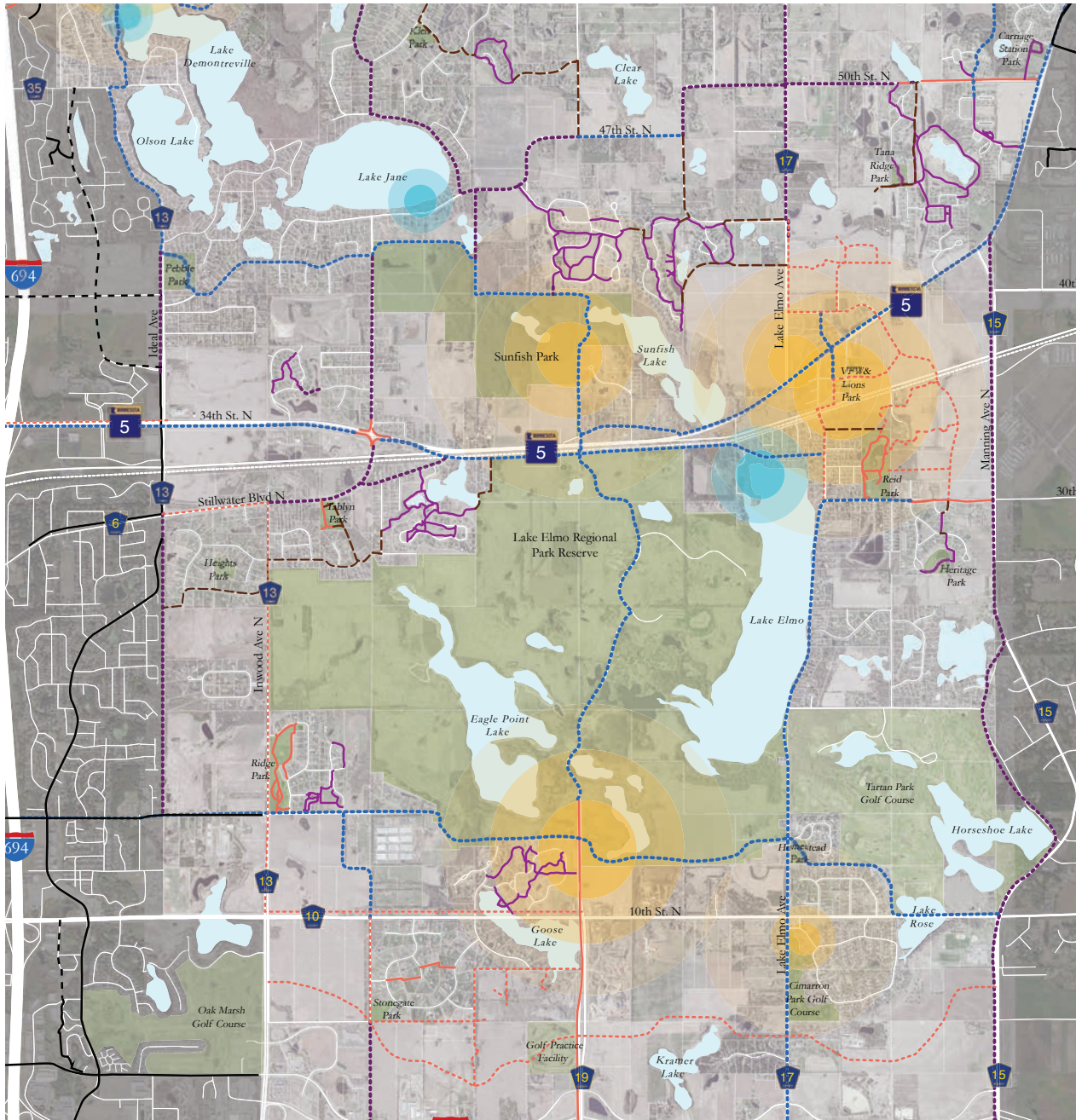
Creating opportunities for circulation by designing different routes is an important component of trail planning. Different route lengths for different users are desired, preferably with route options along the way. Developing the urban fabric by creating trails traveling North/South and East/West echoes the Washington County Regional Plan and the Metropolitan Council's Regional Trail Plan.

Legend:

- Existing Trails- Public
 - - - Future Trails- Public
 - Existing Trails- Private
 - Existing Trails- Exterior
 - - - Planned Trails- Exterior
 - Existing Regional Trail
 - - - Planned Regional Trail
 - Existing County Trail
 - - - Planned County Trail
 - Gateway Trail
- Destination
 - Water Access Destination



Recommendations: Ideal Pedestrian and Bicycle Routes



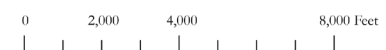
The City of Lake Elmo conducted a Park Survey in 2013 which outlined the most desired connections and destinations in the city. The most frequently indicated destinations for trail connections were the Lake Elmo Park Reserve, Gateway Trail, and the Old Village/Downtown. The Park Reserve and Gateway Trail received the highest rankings in terms of importance. Other desired locations include Sunfish Lake Park, Stillwater High School, Lake Elmo Elementary School and Cimarron.

Ideal routes were chosen based on connection, accessibility, utilizing existing trails, incorporating the Washington County Linear Park Plan and Met-council's Regional Trail Plan, and best practices for bicycle and pedestrian planning.

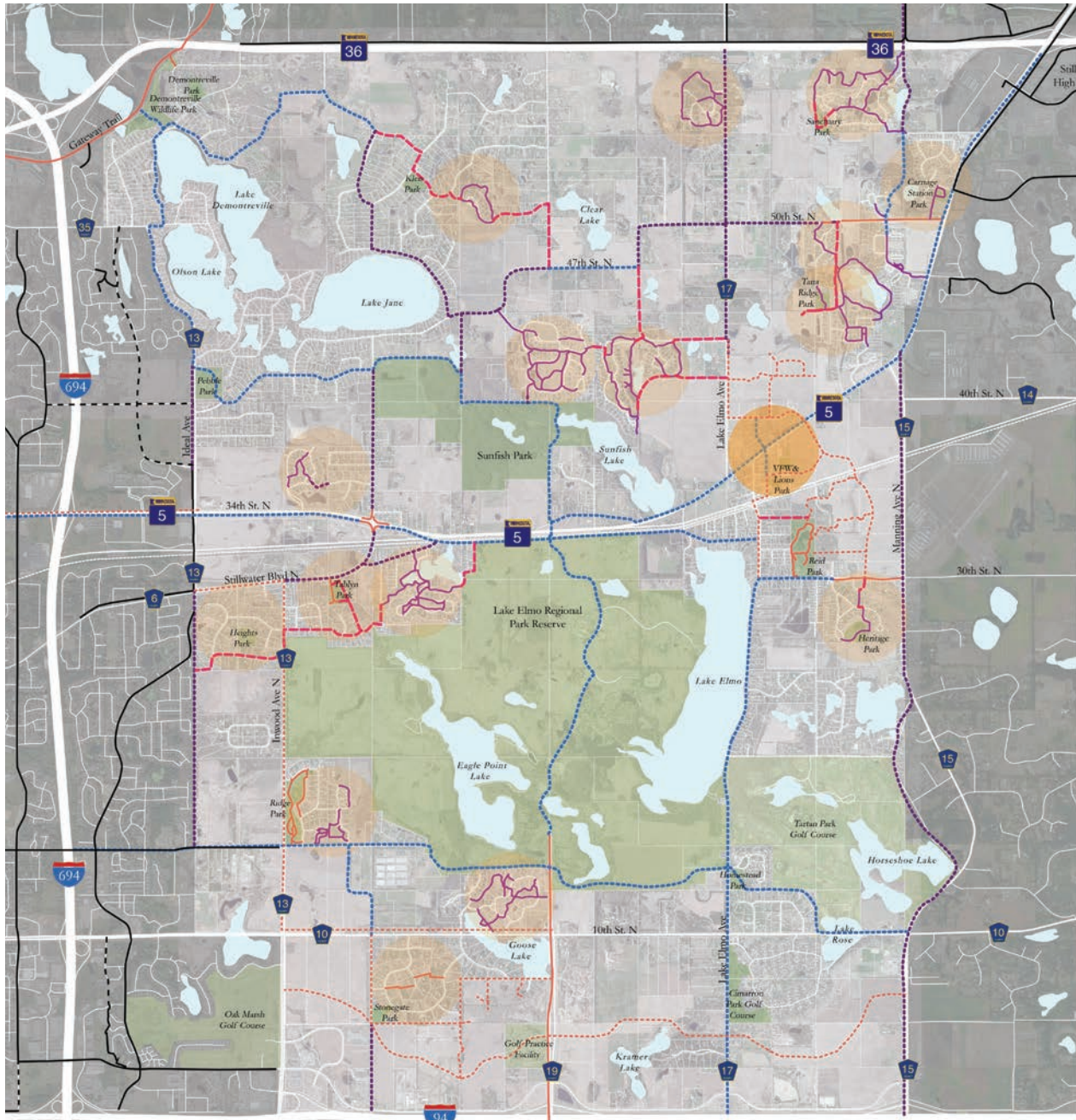
A user hierarchy should be developed to create high speed trails for long distances, and more intimate trails for neighborhood use.

Legend:

- Existing Trails
- - - Planned Trails
- Multi Use Trails- Off Roadway
- - - Pedestrian Friendly Trails- Typ. 8' Wide
- Multi Use Trails- Next To or On Roadway
- Destination
- Water Access Destination



Recommendations: Trail and Route Feasibility










Many trail users prefer to stay close to home and pedestrians tend to stay within a 1/4 mile radius of their homes. Trails within neighborhoods can be 6-8 feet wide, or wider if desired. Those who prefer longer walks, jogging or bicycling desire wider trails and typically travel at a greater speed. These connecting trails should be 8 feet wide or wider to accommodate different users groups.

If connections cannot be made by pedestrians through linking neighborhood trails, an additional off road trail may be needed. In several areas, however, it may be more cost effective to link existing trails and develop a bike land on rural roads (for example, 50th Street near Tana Ridge).

It is recommended that a safe passage over highway 5 be developed to ensure pedestrian safety.

Creating access through Sunfish Park and the Lake Elmo Park Reserve would develop Lake Elmo's 'sense of place' and promote recreation, stewardship, and conservancy.

Legend:

-  5 Minute Walk: 1/4 mile
-  Amount of time the average person is willing to walk before opting to drive.
-  Existing Trails
-  Planned Trails
-  Multi Use Trails- Off Roadway
-  Pedestrian Friendly Trails- Typ. 8' Wide
-  Multi Use Trails- Next To or On Roadway



Next Steps:



Prioritize Routes

Potential improvements should be ranked from most to least desirable. Four factors should be considered during prioritization:

Level of Demand: Calculating the number of people who would use the trail if it were installed.

Degree of Barrier: Roads can act as barriers if there are unsafe conditions for pedestrians or bikers. The degree of barrier can range from minor to a total barrier (for example, Highway 5).

Potential Benefits: Adding trails and encouraging non-motorized transportation can add value to the community and increase walking and cycling.

Cost and Ease of Improvement: Addressing the cost of construction and maintenance. Understanding spatial restraints of current roads.



Safety

Pedestrians and bicyclists often do not feel safe on high speed, high traffic roads. Addressing safety is essential to creating a trail system. Calculating and evaluating walking and cycling conditions are important next steps in the planning process.

Factors to consider include speed of traffic, volumes of traffic, truck usage, width of curb lane, and hindrances (such as number of driveways along trail).

Once these factors have been calibrated, an evaluation matrix can be developed for each trail.

Example Evaluation Matrix:

	Demand	Barrier Reduction	Social Benefit	Affordability	Total Points
Weight	4	3	2	2	
Proposal 1	4	5	3	4	45
Proposal 2	3	2	5	3	34
Proposal 3	5	3	4	1	39
Proposal 4	2	4	3	1	28



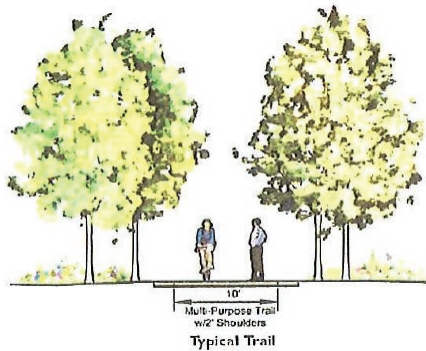
User Groups

The trail system aims to connect communities throughout the city. As the Existing and Planned Trail Map on page 14 shows, many of the existing trails are privately owned by Home Owner Associations (HOAs).

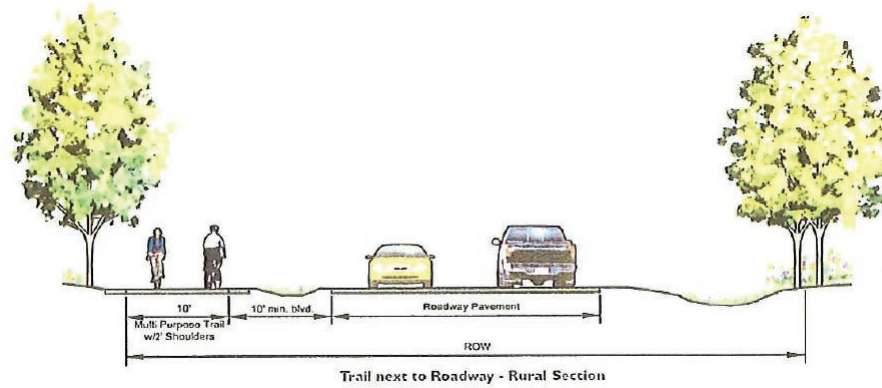
In these cases, it would be the HOAs decision to link the private trail system to the city wide public trail system. In previous efforts to engage HOAs to participate in the public trail system, some HOAs opted to keep their trails private.

The City is optimistic in its efforts to create a city wide trail system and is hopeful that in the future HOAs will be open to linking their trails to the public trail network.

Next Steps: Sections and Construction Documents



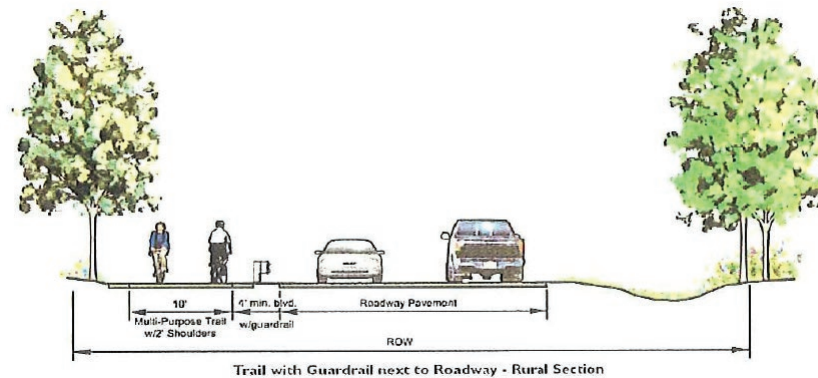
This trail section is the most ideal because users are separated from traffic.



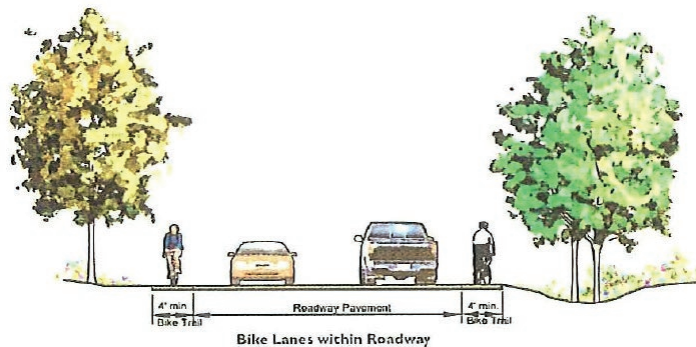
This trail section is preferable because of the land separating the pedestrians and bikers from traffic.

Trail Components

The trail system will take many forms through the city. These sections were developed by SEH for the Comprehensive Plan (2005). They illustrate different trail sections. An important next step is to address which section works with the spatial constraints of city roads. The sections have varying widths, costs, and construction implications and it is recommended that this step be part of the Evaluation Matrix due to these differences.

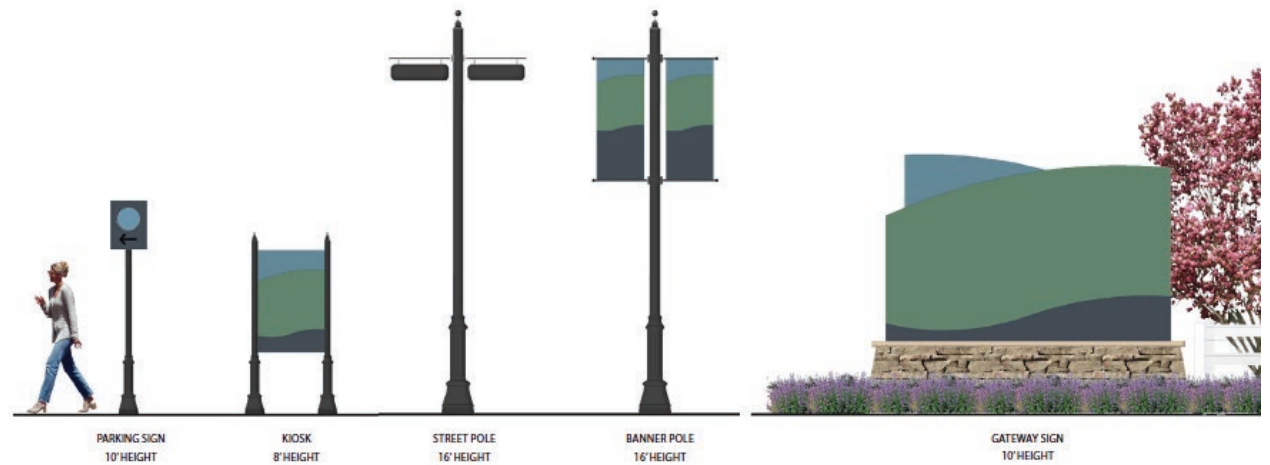


This trail section is somewhat preferable because a guardrail separates bikers from traffic, however pedestrians may feel traffic is too close.



This trail section is convenient for bicyclists and cost effective. Shoulder width may need to be expanded to accommodate new bike lanes. Pedestrian use of these trails is not advised, and this is the least preferable section for pedestrian use.

Next Steps: City Brand



Implementing a trail system is a great opportunity provide safe transportation to pedestrians and bicyclists. Important design factors include adequate lighting, signs, and trail safety precautions such as visibility. A maintenance plan should be created to ensure that the trails are well kept and user friendly.

Because the trail system is a network through the city, it is an opportunity to provide the city with a uniform look. Branding has a large influence on public opinion and visitor frequency. Damon Farber and Associates have developed a signage system for the City of Lake Elmo and these signs will be a real asset to the trail system.

Go Farther: If the trail is connected through Sunfish Park and the Lake Elmo Regional Park Reserve, the city becomes a place where access to natural environments and amenities are celebrated. This could help develop Lake Elmo's sense of place.



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Thank you!