Appendix 4

Transportation

Draft Comprehensive Transportation Plan Update—2040 Comp Plan

98 pages

Final Report
Comprehensive Transportation Plan Update
2040 Comp Plan
City of Golden Valley, Minnesota
GOLDV 139424 | October 17, 2018

SEH

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Comprehensive Transportation Plan Update

2040 Comp Plan

Prepared for City of Golden Valley, Minnesota

1 Introduction and Authority

The Golden Valley Comprehensive Transportation Plan is an integrated component of the Golden Valley Comprehensive Plan Update developed to provide planning guidance over the next ten years based upon needs anticipated through 2040. The transportation plan is a key part of the City's Comprehensive Plan that assesses all modes of transportation, including streets and highways, trails and sidewalks, transit facilities, and airport accessibility. This plan expresses the location, limits, function, and capacity of all transportation facilities in the City of Golden Valley.

The State of Minnesota, through the enactment of the Metropolitan Land Planning Act (M.S. 473.859, Subd.3(1) requires the Metropolitan Council's review of each metropolitan community transportation plan to assure conformity with the regional development framework. The Metropolitan Council's 2040 Transportation Policy Plan (TPP) is the planning document that provides guidance for policies and strategies included in the 2040 Golden Valley Transportation Plan.

2 Background and Purpose of the Transportation Plan

The City of Golden Valley recognizes the changing travel needs of its residents, commuters, visitors, commercial transporters, pedestrians, and cyclists making trips through the community. To provide for safe, multimodal transportation facilities that offer adequate capacity (existing and future) with a high level of mobility, a transportation improvement plan that corresponds to the overall Comprehensive Plan must be adopted and implemented.

The 2040 Golden Valley Transportation Plan describes, designates, and schedules the location, extent, function, and capacity for all transportation modes within the community. To be consistent with the regional policy, the 2040 Golden Valley Transportation Plan includes the following elements:

- An assignment of socio-economic forecasts (population, households, and employment) to traffic analysis zones
- A street and highway plan that maps and describes existing roads and planned improvements, analyzes traffic volumes, and addresses safety and capacity issues
- A bicycle and pedestrian plan
- A transit plan for facilities and service
- A railroad, freight and heavy commercial vehicle plan
- An aviation plan that identifies aviation-related facilities and addresses airspace protections

3 Goals and Objectives

Transportation goals and objectives were developed to express the values of the community and establish a long term vision for the transportation system. They provide direction and guidance for the future of the City in terms of policymaking, improvements, programs, investments, priorities, and work plans.

Goal 1: Preserve and Enhance the Transportation System

Protect the public investment in transportation infrastructure through regular maintenance and management. Construct new facilities to standards that minimize maintenance and environmental impacts.

Objectives

1. Proactively maintain the existing transportation system by making scheduled improvements to replace worn or obsolete components

   1.1 Employ cost effective maintenance practices to maximize the lifespan of city infrastructure

   1.2 Continue the Pavement Management Program to reconstruct facilities following best practices that manage life cycle costs and minimize environmental impact

   1.3 Transition to the Infrastructure Renewal Program (IRP) to preserve, maintain and rehabilitate infrastructure

   1.4 Encourage the state legislature to provide stable, long-term roadway funding for capital improvements and maintenance

2. Enhance the transportation system with environmentally sustainable project design to the extent practical to minimize the impacts of the transportation system on the environment

   2.1 Reduce impervious surface in public right-of-way to the extent feasible

   2.2 Incorporate green infrastructure that enhances water quality and reduces stormwater runoff in transportation infrastructure to the extent possible

3. Enhance the transportation system in a way that is inclusive of all populations and their needs

   3.1 Address the unique transportation needs of aging population

   3.2 Continue to make improvements to existing infrastructure that comply with the Americans with Disabilities Act

   3.3 Ensure that all residents and employees have safe and cost effective travel options

4. Preserve the existing transportation network through right of way preservation and acquisition

   4.1 Continue to use zoning and subdivision regulations to preserve right of way

   4.2 Employ right-of-way preservation strategies that proactively limit the need for acquisition at a future date

   4.3 Acquire additional right-of-way when necessary while minimizing impacts to existing residences and businesses

Goal 2: Improve the Functionality and Safety of the Roadway Network

Improve mobility for efficient movement of people and goods on the local and regional roadway network. Improve safety for motorized and non-motorized traffic.

Objectives

1. Increase safety by reducing crashes on the roadway network, especially at intersections

Prioritize improvements that eliminate known safety issues within the network

   1.1 Make traffic more compatible with lower speed bicycling and walking on local streets by employing traffic calming measures

   1.2 Implement intersection improvements that reduce vehicle crashes involving pedestrians and bicycles

   1.3 Provide strategic enforcement of traffic laws in targeted areas where repeated violations occur

   1.4 Coordinate with other agencies to study opportunities for roadway safety improvements on Highway 169

2. Balance the need for mobility and accessibility in the roadway network

2.1 Provide access to the local street system in a manner that balances safety and efficiency with the need for access to land

2.2 Minimize and consolidate driveway entrances as opportunities arise and discourage driveway entrances along arterial roadways

3. Incorporate new technologies and innovative best practices into transportation project design, planning and asset management

4.1 Increase the operational efficiency of the roadway network with advanced traffic operation technologies

4.2 Continue to explore and incorporate new and emerging technologies to construct, rehabilitate, maintain, and manage public assets and infrastructure in an efficient, cost effective manner

4.3 Monitor potential impacts on the transportation system that may arise with emerging technologies, such as automated and connected vehicles

4.4 Plan, design, and maintain infrastructure to accommodate emerging vehicle technology, most notably automated and connected vehicles

4. Use Travel Demand Management (TDM) practices and land use planning principles to reduce congestion and increase mobility

4.1 Implement a transportation system that supports the Future Land Use Plan

4.2 Require development proposals with potential for significant traffic impacts to prepare a traffic impact study or TDM plan and make improvements that mitigate impacts determined in the study

4.3 Encourage joint and shared parking, car sharing, ride sharing, (car pools and van pools), bicycle parking, and increased transit use

5. Accommodate the efficient movement of goods in the city while minimizing the impacts of freight traffic on adjacent land uses

5.1 Maintain a network of truck routes that ensures the safe and efficient delivery of goods to businesses

5.2 Direct truck traffic to a limited number of streets with the appropriate weight limits

5.3 Continue to consolidate and cluster industrial land uses in the city

5.4 Invest in safety improvements along viable railroad corridors as necessary

Goal 3: Expand the Bicycle and Pedestrian Network to Provide a Balanced System of Transportation Alternatives

Expand sidewalk, multi-use trail, and on-street bicycle facilities to provide greater opportunity to choose alternative modes of travel. Improve existing non-motorized transportation infrastructure systems.

Objectives

1. Ensure that local and regional destinations are accessible by biking and walking
   - 1.1 Prioritize the construction of routes and intersection improvements near destinations such as Brookview, Blue Line light rail stations, schools, parks and nature areas, downtown, retail centers, senior housing developments, healthcare facilities, and the West End
   - 1.2 Improve the bicycle and pedestrian environment in the downtown area to ensure it is a safe and enjoyable place to walk
   - 1.3 Encourage healthy lifestyles by creating loop routes that can be utilized for outdoor recreational purposes
   - 1.4 Continue to create and enforce standards for building placement and site design to create a pedestrian-friendly environment
2. Seek opportunities with other agencies and property owners to construct new bicycle and pedestrian routes, fill gaps in the network, and make improvements to intersections, and provide bike-sharing opportunities
   - 2.1 Collaborate with other agencies to implement recommended improvements to the network
   - 2.2 Work with adjacent cites to implement consistent facility treatments across city boundaries
   - 2.3 Apply for grant funding as projects become eligible and pursue opportunities for funding through corporate sponsorships and redevelopment projects
   - 2.4 Request bond funding from the State Legislature for large infrastructure projects that include bicycle and pedestrian facilities
3. Prioritize the implementation of primary north-south bicycle routes in the network
   - 3.1 Prioritize improvements to north-south connections to the Luce Line Regional Trail
   - 3.2 Prioritize improvements to the north-south crossings at Highway 55 and Interstate 394
4. Implement a multi-modal system that balances space and financial constraints
   - 4.1 Implement cost-effective bicycle facilities by using existing road width when roads are scheduled for pavement replacement
   - 4.2 Reevaluate facility options when roads are scheduled for reconstruction and build multi-use trails, buffered bikeways, or protected bikeways as well as sidewalks when feasible

Goal 4: Maximize Safety, Comfort, and Convenience for Bicyclists and Pedestrians

Provide and maintain sidewalks, off-road trails, and on-street bicycle facilities to a high standard for the comfort and safety of use by pedestrians and bicyclists of all ages and abilities.

Objectives

1. Identify and remove safety challenges for pedestrians and bicyclists at intersections, particularly on principal arterial roadways
   - 1.1 Continue to monitor accidents with bicyclists and pedestrians and prioritize the improvement of facilities that reduce potential for accidents
   - 1.2 Work with MnDOT to improve intersections on Highway 55 for bicyclists and pedestrians, with consideration for grade-separated crossings
   - 1.3 Continue enhancing existing pedestrian facilities to comply with standards established in the Americans with Disabilities Act
   - 1.4 Prioritize the construction of sidewalks and trails along roadways in locations that are identified as unsafe for pedestrians
2. Design routes and facilities that are comfortable for users of all ages and abilities
   - 2.1 Build multi-use trails in identified locations to maximize comfort and safety
   - 2.2 Provide a clear separation between different modes of transportation
   - 2.3 Prioritize the construction of sidewalks and trails along roadways in locations that are identified as uncomfortable for pedestrians, particularly on arterial routes
   - 2.4 Apply industry adopted standards for pedestrian and bicycle facility design
   - 2.5 Integrate industry adopted standards for safety features in pedestrian and bicycle facility improvements
3. Ensure that the bicycle and pedestrian network is a convenient and easily understood system
   - 3.1 Fill gaps in the network to maximize connectivity and convenience
   - 3.2 Provide consistent wayfinding signage on bicycle and pedestrian routes that includes mileage to major destinations, including routes in adjacent cities
   - 3.3 Provide bicycle racks at destinations located along existing and planned bicycle routes
   - 3.4 Strive for a consistent design in bicycle and pedestrian facilities for the entire length of a route
4. Provide information that educates and builds awareness about safety precautions
   - 4.1 Review City Sidewalk Policy for bicyclists, make adjustments to policy as bicycle and pedestrian network expands, and educate the public on this topic
   - 4.2 Develop an education campaign on bicycle and pedestrian safety and motorist awareness
   - 4.3 Explore programming that encourages walking and biking in Golden Valley
5. Encourage year-round walking and biking by ensuring that winter maintenance of bicycle and pedestrian facilities is adequately addressed
   - 5.1 Continue providing winter maintenance on bicycle and pedestrian facilities in the City

5.2 Evaluate the option of shifting winter maintenance responsibilities to property owners

5.3 Consider enhancing volunteer opportunities to ensure timely winter maintenance

Goal 5: Support and Promote Increased Transit Usage

Support and promote increased transit usage by improving connectivity, improved accessibility, and reliability of the transit services.

Objectives

1. Advocate for additional transit options and the enhancement of existing services to ensure community members have safe, affordable, and practical transit options
   - 1.1 Collaborate with regional partners to prioritize transit service and capital improvements along the major transportation corridors in the community, particularly Highway 55
   - 1.2 Take an active role in transit studies conducted by other agencies to advocate for increased transit in Golden Valley
   - 1.3 Continually assess and report the changing transit needs of area residents and visitors to transit providers
   - 1.4 Advocate for enhancements to highly used transit stops in the community
2. Ensure that redevelopment projects are served with optimal, high quality transit facilities and services
   - 2.1 Focus redevelopment efforts near high-frequency transit service and implement transit oriented development policies in these areas
   - 2.2 Pursue development of a circulator system within the City that includes access to light rail stations
   - 2.3 Incorporate transit stations and stops into site design for redevelopment projects as applicable
3. Promote the benefits of transit to funders, residents, and business owners
   - 3.1 Encourage the state legislature to provide stable, long term transit funding
   - 3.2 Encourage employers to offer economic incentives for employees, guests and clients to use transit
   - 3.3 Educate residents about the relationship between development density and transit

Goal 6: Integrate Community Values and Character into the Transportation System

Employ a context sensitive design approach to integrate transportation infrastructure with natural resources, bicycle and pedestrian facilities, public art, community resilience and sustainability, public realm improvements, and other features that represent community values, character, and identity.

Objectives

1. Provide aesthetic treatments in public rights-of-way that are appropriate for the scale of the area, conform with selected community themes, and can be maintained within the City's financial resources
   - 1.1 Balance a variety of community needs, interests, and values into the design process for transportation projects while maintaining a priority on safety and efficiency
   - 1.2 Include public realm improvements such as seating and public art in prominent public rights-of-way
   - 1.3 Encourage beautification of local roadways with amenities such as boulevard trees, native plantings, and decorative street lighting in appropriate locations
   - 1.4 Place utilities underground wherever possible with assistance from the utility provider when the adjacent street is reconstructed
2. Continue to incorporate the community's values, identity, and character into public right-of-way projects
   - 2.1 Integrate community input, land use plans, and transportation needs into the long-term vision for transportation corridors
   - 2.2 Incorporate community resilience and sustainability practices into transportation infrastructure projects
   - 2.3 Continue to assess whether enhancements to the transportation system are inclusive of all populations and their needs

4 Issue Analysis and Needs Assessment

The transportation system issue analysis and needs assessment examines the transportation system that currently serves Golden Valley and documents its current and future deficiencies. Future deficiencies are based on effects on the current system with an application of long-range (2040) travel demand forecasts.

The transportation system analysis includes the following elements:

- 2040 travel demand forecast projections from a traffic model developed for Golden Valley from the Metropolitan Council's regional forecasting model and updated Transportation Analysis Zone (TAZ) data;
- An inventory and assessment of the existing roadway system's existing and future capacity and safety using travel demand forecasts; and,
- An inventory and determination of the suitability of the current functional classification and jurisdictional designations of the local and regional roadway system in the community with 2040 forecasts.

4.1 Issues and Needs Identification

Observed transportation issues can be grouped in three topic areas: Capacity, Mobility and Safety.

4.1.1 Capacity

Capacity issues are evident on the freeway and expressway system that pass through Golden Valley. U.S. Highway 169 is severely congested and the effects of regional traffic demand growth are evident at intersecting arterial corridors especially on I-394 and TH 55. Long-term congestion on the freeway system in particular causes motorists to look for alternative routes using the city's arterial and collector roadway system.

Daily morning peak period capacity issues are evident at locations such as eastbound TH 55 at Boone Avenue and Winnetka Avenue where traffic demand results in delay for all users.

Collector routes are subjected to overflow traffic demands during the peak periods. An example of this is Medicine Lake Road (County Road 70) and Mendelssohn Avenue, which combine to serve as an alternative to US 169 during congested periods. These are intended to serve a combination of local and longer trips but freeway congestion periodically causes an undue level of regional trips being served on the local system. Added demand on the local roadway system results in issues related to access management, intersection control, and street continuity/connectivity and neighborhood livability.

Highway 169 experiences daily congestion and safety issues

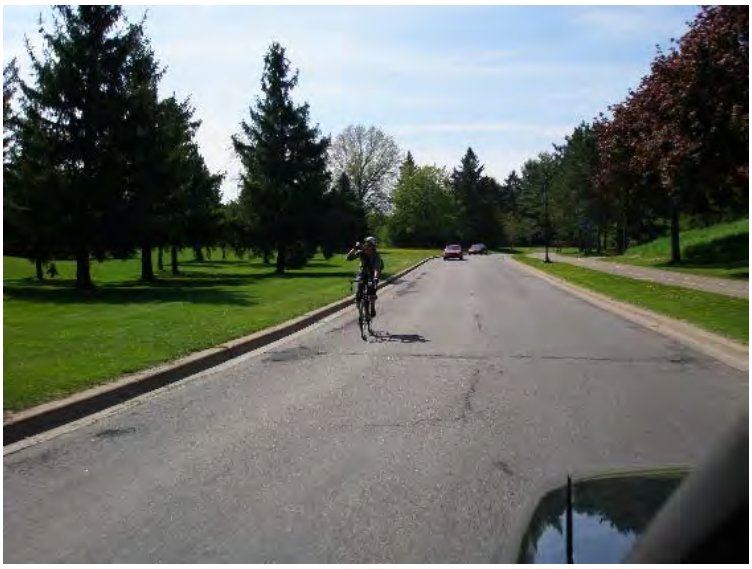
4.1.2 Safety

Safety issues are also noted primarily on the freeways and expressway routes that pass through Golden Valley. Substandard interchange ramp design and spacing on U.S. Highway 169, for example, leads to vehicle weaving issues and congestion on the highway. In addition, there are several examples of roadway design issues, particularly at intersections along TH 55 and minor arterials (such as Boone Avenue, Winnetka Avenue and Douglas Drive) where delay and congestion issues contribute to the frequency of crashes.

4.1.3 Mobility

Mobility issues in Golden Valley relate to the balance that must occur to preserve the character of the community's established neighborhoods with new investments and redevelopment projects in the community. Opportunities for new commercial and residential development present increasing demands on the existing transportation system and need to be carefully monitored to assess impacts and the need for potential mitigation. In addition, local trips in the community should be accommodated on an efficient system of minor arterial and collector streets to reduce

the number of local trips adding to congestion on the freeway system. Providing attractive transit facilities and services where they are needed most, and enhancing non-motorized vehicle alternatives (for pedestrian and bicycle commuting) will also improve mobility in the community.



Golden Valley's roadway system serves a growing demand of non-motorized commuters

In the next sections, these issues have been paired with an examination of the city's existing roadway functional classification, traffic volumes (current and forecasted), capacity and safety analyses, and an assessment of other modes, including freight and railroads, commercial trucks, and trails

4.2 Existing Functional Classification and Current Traffic Volumes

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. A basic premise in examining a community's functional classification system is that individual streets and highways do not function independently: most travel involves movement through a network of roadways. It becomes necessary to determine how this travel demand can be served by a hierarchy of roadways within the transportation network in a logical and efficient manner. Functional classification defines the nature of this hierarchy by defining the role that any particular street or highway plays in serving the flow of trips through the transportation network.

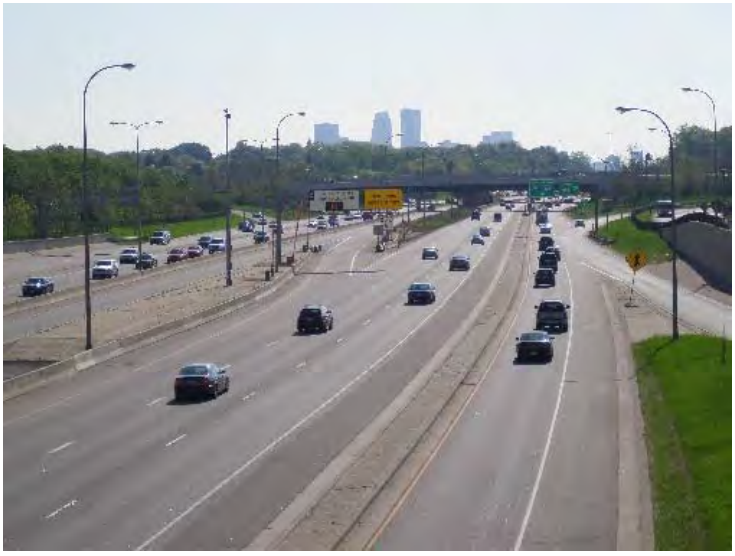
There are four functional classifications of streets and highways in Golden Valley: Principal Arterials, Minor Arterials, Collectors, and Local Streets. They are listed below in descending hierarchy and illustrated in Figure 1.

4.2.1 Principal Arterials

Urban principal arterial roadways carry the highest traffic volumes and serve the majority of trips entering or leaving Golden Valley. Principal arterials typically connect regional business districts, employment centers, and residential districts. They also serve primary bus transit routes, are high-speed facilities (up to 60 mph posted speeds) and typically have controlled or restricted access via expressway (at-grade intersections) or freeway (grade-separated interchange) design.

Interstate 394, U.S. Highway 169, Minnesota Trunk Highway (T.H.) 100 and T.H. 55 are classified as Principal Arterial highways according to the Metropolitan Council's Functional Classification system. Golden Valley has approximately 14.5 miles of Principal Arterial highways.

I-394 through Golden Valley is a six lane concrete barrier-divided freeway running east-west along the southern boundary of the community. Traffic volumes on I-394 in 2015 ranged from 122,000 vehicles per day (vpd) east of US 169 to 142,000 vpd west of TH 100. One lane of traffic in each direction on I-394 west of TH 100 operates as a dedicated high occupancy vehicle (HOV) lane which is also open for use by single occupant vehicles on a pay-for-use basis under the MnPASS program. Cost for use of the MnPASS lane by non-HOV drivers is variable depending on the level of congestion in the general purpose lanes in the I-394 Corridor.



I-394 MnPASS lanes serve HOV's with congestion pricing for single occupant vehicles

US 169 through Golden Valley is a four-lane concrete barrier-divided roadway that runs north-south along the west city limits. Traffic volumes on US 169 in 2015 ranged from 100,000 vpd at I-394 to 86,000 vpd south of Medicine Lake Road.

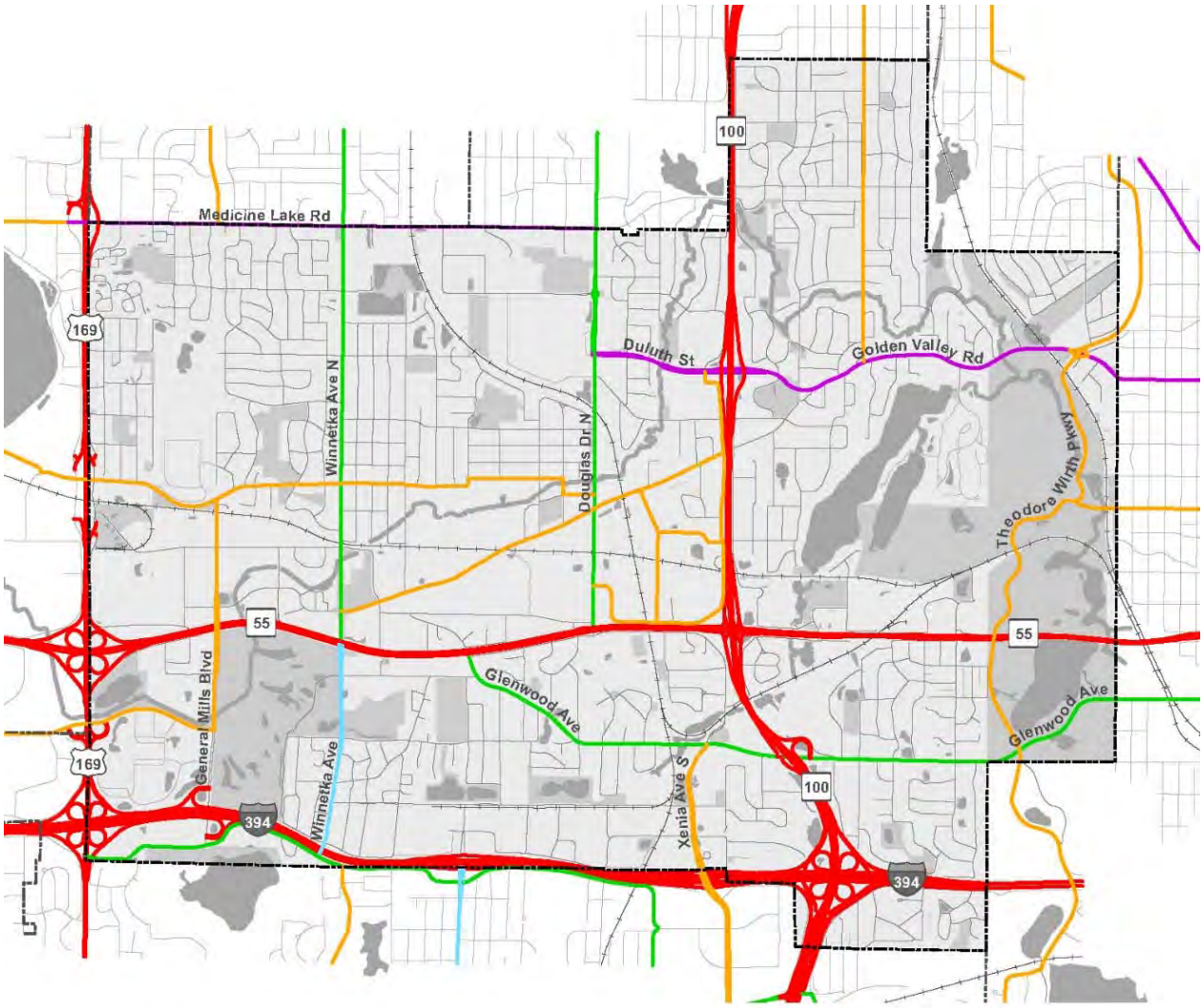
TH 100 runs north-south through the eastern center of Golden Valley and is a six-lane concrete barrier-divided highway. In 2015, traffic volumes ranged from 133,000 vpd south of I-394 to 91,000 vpd north of Duluth Street. Capacity improvements on TH 100 through St. Louis Park were completed in 2016 resulting in increased demands on TH 100 through Golden Valley.

Highway 100 serves as a north-south Principal Arterial

Highway 55 runs east-west through the south center of Golden Valley and is a four-lane divided expressway with a median ditch through most of the community. Full access intersections along the expressway are controlled by traffic signals. Grade separated interchanges are in place at US 169 and TH 100. Traffic volumes along Highway. 55 in 2015 ranged from 38,000 vpd east of Highway 169 to 24,300 vpd east of Theodore Wirth Parkway.

Highway 55 operates as a signalized urban expressway

Figure 1 – Existing Functional Classifications



Existing Functional Classification

- **Principal Arterial** - Regional freeways and expressways
- **A-Minor Reliever** - Relieves congestion on parallel Principal Arterials
- **A-Minor Augmenter** - Supplement to the Principal Arterial system in densely developed areas
- **B-Minor Arterial** Classification no longer used
- **Collector** - Connect major traffic generators, job centers and neighborhoods
- **Local** - Access within commercial and residential neighborhoods

0 0.25 0.5 1 Mile

Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017).

4.2.2 Minor Arterials

Urban minor arterial roadways interconnect with principal arterial roadways and provide service to trips of moderate length at a somewhat lower level of travel mobility in a smaller geographic service area than principal arterials. Minor arterials also typically carry lower traffic volumes and place more emphasis on land access than principal arterials. These roadways are suitable to carry bus transit routes, but ideally do not penetrate local neighborhoods. Posted speeds in urban areas are typically lower than principal arterial roadways (from 30 to 50 mph). Golden Valley has approximately 11.4 miles of Minor Arterial roadways shown on the existing Met Council functional classification map.

The Metropolitan Council has further refined minor arterial roadways with a series of additional classifications that define the purpose and function of the minor arterials in the Twin Cities Metropolitan Area. "A" Minor Arterials are classified as Relievers, Augmenters, Expanders, and Connectors.

Golden Valley has two A-Minor Arterial (Augmenter) routes. One is Medicine Lake Road (County 70) from Highway 169 to Douglas Drive. The other is from by a combination of Duluth Street (County 66) from Douglas Drive to Noble Avenue and Golden Valley Road (County 66) from Noble Avenue to the east city limits. Both routes are classified as A-Minor Arterial (Augmenter) roadways in the Metropolitan Council's current classification system. The purpose of the A-Minor Arterial Augmenter roadway within the I-494/694 beltway is to augment the function of a principal arterial and, in cases where a principal arterial doesn't exist, to provide a similar function. Medicine Lake Road runs east-west along the north city limits of Golden Valley. Existing (2015) traffic volumes ranged from 13,100 vpd near U.S. 169 to 7,700 vpd at Douglas Drive. Duluth Street runs east-west and had 2015 traffic volumes that ranged from 17,500 vpd between T.H. 100 and Noble Avenue to 9,400 vpd east of Noble Avenue.

Duluth Street is an A-Minor Arterial "Augmenter"

Winnetka Avenue (north of T.H. 55 - County 156), Douglas Drive (County 102), and Glenwood Avenue (County 40) are classified as A-Minor (Reliever) roadways. A-Minor Reliever roadways provide "relief" specifically to the parallel principal arterial highways and are typically meant to accommodate medium length trips of 8 miles or less. Winnetka Avenue and Douglas Drive are both north-south routes whose minor arterial status begins at T.H. 55 and extends northerly into

the Cities of New Hope and Crystal. In 2015, Winnetka Avenue's traffic volumes ranged from 15,800 north of T.H. 55 to 11,200 vpd south of Medicine Lake Road. In 2015, prior to its reconstruction, Douglas Drive's traffic volumes ranged from 8,500 vpd south of Golden Valley Road to 11,5000 vpd north of Duluth Street. Reconstruction of Douglas Drive occurred in 2016/2017 to improve safety and provide continuity to bicycle and pedestrian facilities, but is not expected to significantly change vehicular traffic demand in the corridor. Glenwood Avenue is an east-west A-Minor Reliever roadway that connects T.H. 55 in Golden Valley with T.H. 55 (7th Street) in Minneapolis. In 2015, Glenwood Avenue served 4,300 vpd in Theodore Wirth Park and 9,700 vpd west of T.H 100.

Winnetka Avenue north of TH 55 is an A-Minor Arterial "Reliever"

South of T.H. 55, Winnetka Avenue was previously classified as a "B" Minor Arterial roadway, a classification that has been discontinued by the Metropolitan Council. Therefore it currently falls into a classification called "Other Arterials". It is proposed to reclassify this segment of Winnetka Avenue as a Collector which is consistent with its function within the roadway network and the character of the neighborhoods through which it extends. This segment of Winnetka Avenue extends between T.H. 55 and Wayzata Boulevard with a grade-separated crossing of I-394. Traffic volumes on this segment of Winnetka Avenue in 2015 ranged from 9,400 vpd. south of T.H. 55 to 4,600 vpd. north of I-394.

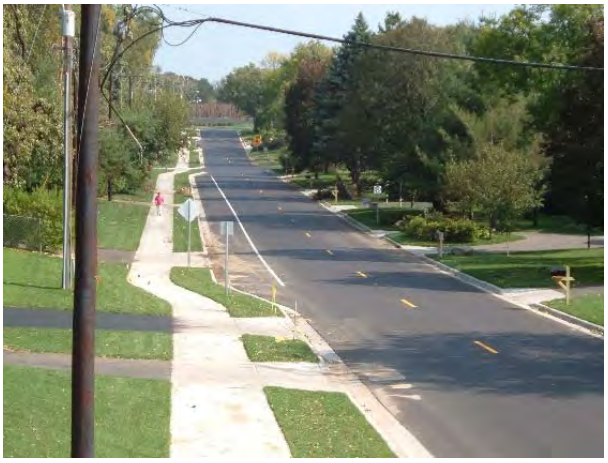
Winnetka Avenue south of TH 55 is currently an "Other Arterial" and is proposed for reclassification as a Collector

4.2.3 Collector Streets

Collector Streets provide a balance between land access and mobility and move local street traffic to and from the arterial roadway system. Collector streets have reasonable continuity that channel traffic between arterials and from other collector streets to the arterial system. Such a street may sustain retail or other commercial establishments along its route, and may carry relatively high traffic volumes. Golden Valley currently has approximately11.7 miles of Collector streets recognized in the Metropolitan Council's functional classification map.

The Metropolitan Council's functional classification system includes a Major Collector and Minor Collector definition, however Minor Collectors are not recognized as regional facilities within urbanized cities such as Golden Valley. It is proposed that only one Collector Street classification be used in Golden Valley (i.e. all Collector Streets defined in Golden Valley are equivalent to the Major Collector Met Council definition).

Existing collector streets in Golden Valley include Plymouth Avenue from U.S. 169 to Winnetka Avenue; Boone Avenue from Plymouth Avenue to T.H. 55; General Mills Boulevard from T.H. 55 to Betty Crocker Drive; Betty Crocker Drive from U.S. 169 to General Mills Boulevard; a segment of Golden Valley Road from Winnetka Avenue to T.H.100; Zane Avenue from Golden Valley Drive to the T.H. 55 North Frontage Road; Lindsay Street from Zane Avenue to Lilac Drive; Lilac Drive from Duluth Street to the North Frontage Road of T.H. 55; North T.H. 55 Frontage Road from Lilac Drive to Douglas Drive; Theodore Wirth Parkway; Noble Avenue; and Xenia Avenue North. Plymouth Avenue east of Winnetka Avenue and short segments of Florida Avenue and Phoenix Street near Douglas Drive are currently collectors but are proposed to revert to a local streets. Traffic volumes in 2015 on Golden Valley collector roadways ranged from 2,550 vpd on Noble Avenue to 14,500 vpd on Xenia Avenue north of I-394.



Golden Valley Road east of Douglas Drive serves as a Collector Roadway

Boone Avenue north of TH 55 is a Collector Roadway

4.2.4 Local Streets

All other public and private streets within Golden Valley are classified as local streets. Local streets provide the highest level of direct access and therefore carry the lowest traffic volumes typically at the lowest speeds. Golden Valley has approximately 90 miles of local streets. These streets typically provide private property access in low density residential areas.

Typical local residential street in Golden Valley

4.3 Existing Traffic Volumes

The City collects traffic volume data on Municipal State Aid routes which are most often higher volume collector and arterial routes. The County and State also collect traffic data on their facilities. MnDOT maintains a traffic volume database that includes traffic volumes provided by the City and County and shares it with the Metropolitan Council for use in traffic forecast modeling.

Figure 2 depicts the existing (2015) daily traffic demands being served by arterial and collector roadways in Golden Valley.

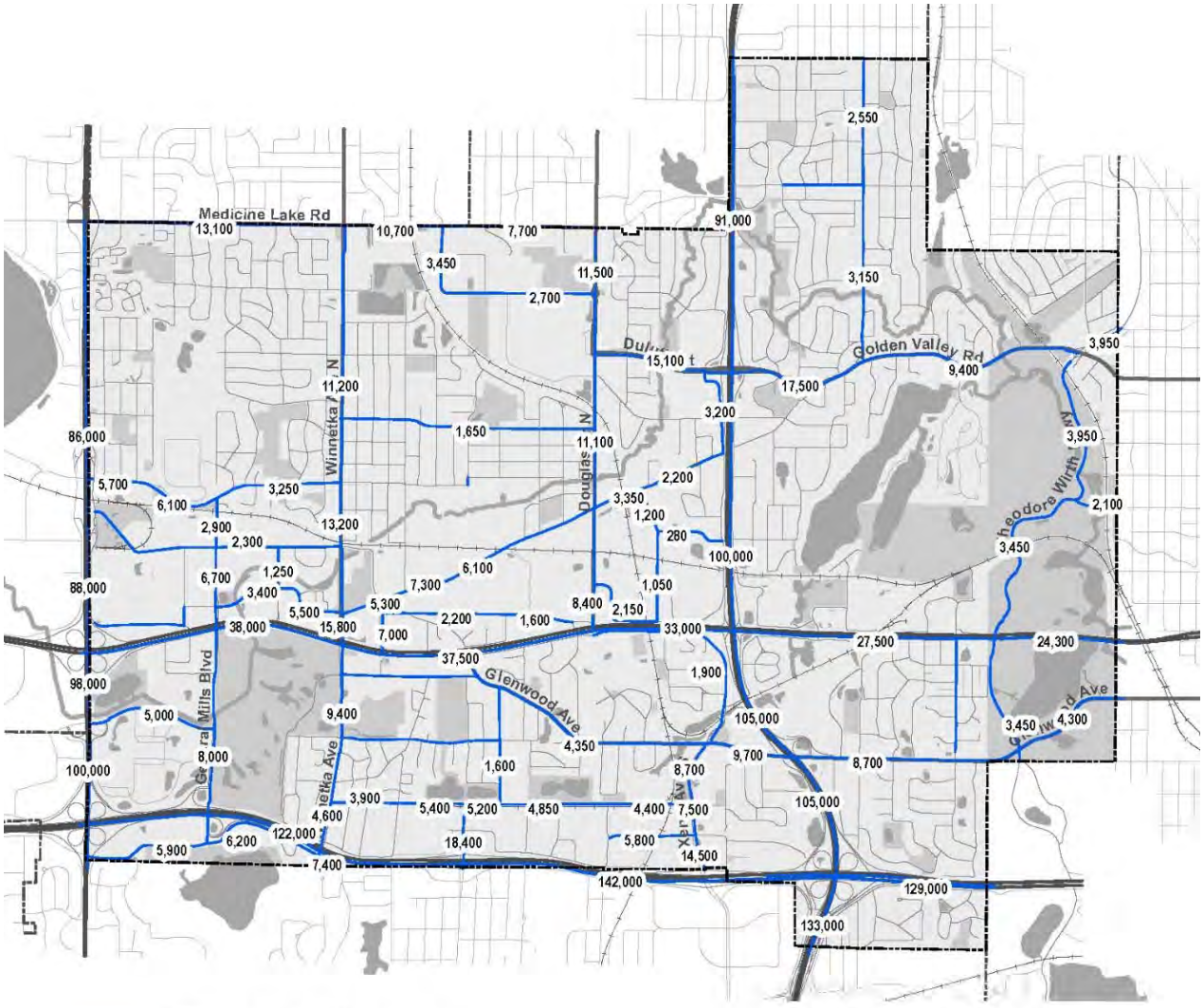
4.4 Existing Roadway Capacity Analysis

Planning level congestion analysis was performed for the existing roadways based on the daily traffic demand and roadway capacity. Figure 2 illustrated the most current traffic volumes

documented for the roadways within the City of Golden Valley. Figure 3 illustrates the number of lanes for the roadways with the City.

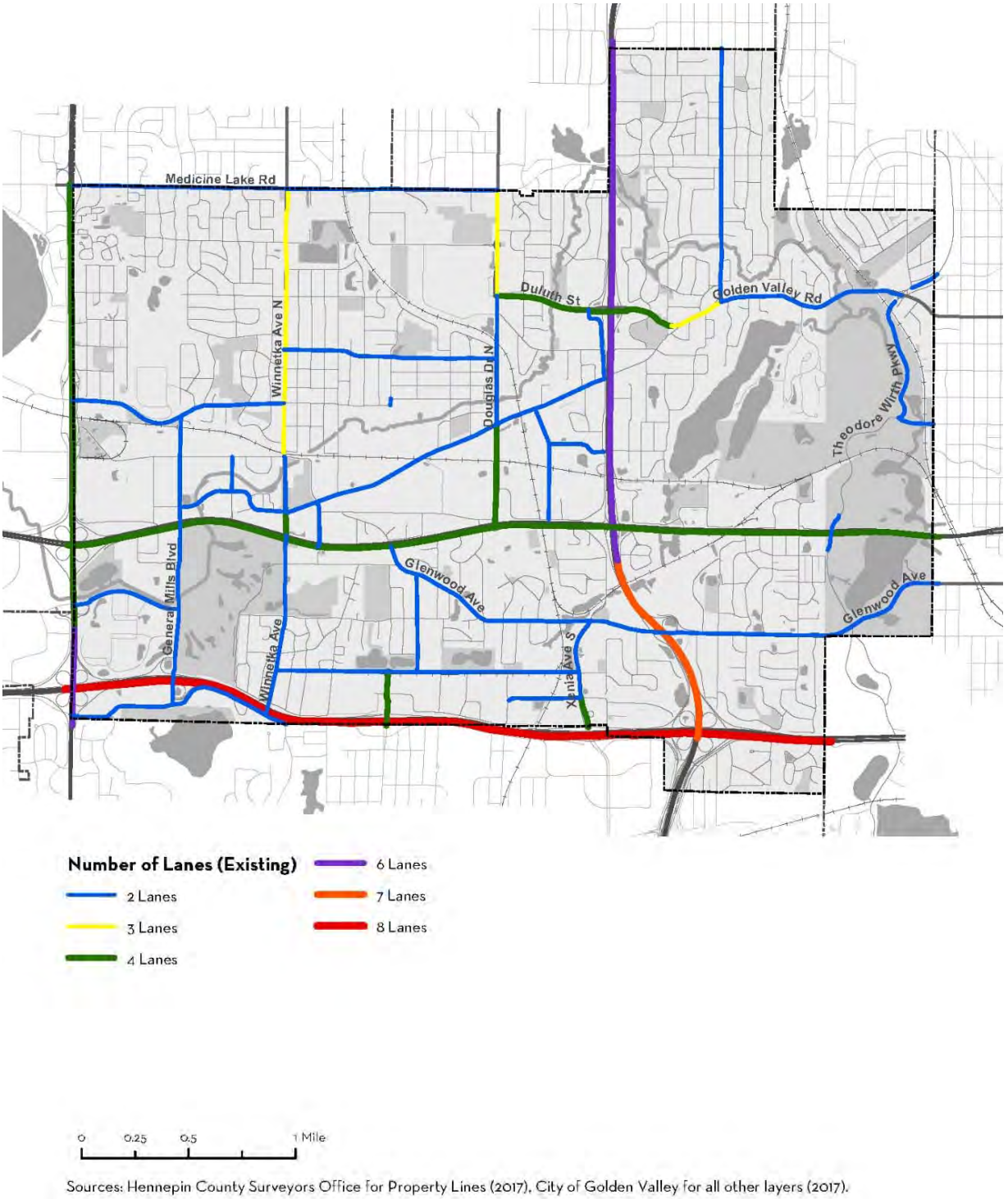
The capacity of a roadway is a measure of its ability to accommodate a certain volume of moving vehicles. The factors affecting capacity include traffic conditions, roadway geometric conditions (number of lanes, controls, and etic) and driver's characteristics. At this planning level of analysis, the daily capacities for different roadway types were estimated based on the Highway Capacity Manual, the number of lanes and the hourly per-lane capacity in the regional model. Table 1 summarizes the capacity for different roadway types.

Figure 2 – Existing Average Annual Daily Traffic (AADT) Volumes



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017). AADT from Metropolitan Council

Figure 3 – Existing Number of Roadway Lanes



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017).

Table 1 – Generalized Average Daily Traffic Thresholds for Capacity

Facility Type	Number of Lanes	Daily Capacity
Metered Interstate Freeway	8	147,000
	6	110,000
	4	73,000
Un-Metered Interstate Freeway	6	99,000
	4	66,000
Expressway	6	62,000
	4	41,000
Divided Arterial	6	48,000
	4	32,000
	2	16,000
Un-Divided Arterial	6	42,000
	4	28,000
	2	14,000
Collector	4	19,000
	2	9,000

Note: Estimated v/c is based on daily capacity in HCM and hourly capacity in the Metro Council ABM. Golden Valley is designated as a developed area type in the Metro Council's System (along with developing, rural, business and residential)

Table 2 – Generalized Average Daily Traffic Lower Limit Thresholds for Different LOS

Facility Type	Number of Lanes	B	C	D	E	F
Metered Interstate Freeway	8	95,600	110,000	125,000	140,000	154,000
	6	71,500	82,500	93,500	105,000	116,000
	4	47,500	54,800	62,100	69,400	76,700
Un-metered Interstate Freeway	6	64,400	74,300	84,200	94,100	104,000
	4	42,900	49,500	56,100	62,700	69,300
Expressway	6	40,300	46,500	52,700	58,900	65,100
	4	26,700	30,800	34,900	39,000	43,100
Divided Arterial	6	31,200	36,000	40,800	45,600	50,400
	4	20,800	24,000	27,200	30,400	33,600
	2	10,400	12,000	13,600	15,200	16,800
Un-divided Arterial	6	27,300	31,500	35,700	39,900	44,100
	4	18,200	21,000	23,800	26,600	29,400
	2	9,100	10,500	11,900	13,300	14,700
Collector	4	12,400	14,300	16,200	18,100	20,000
	2	5,900	6,800	7,700	8,600	9,500
	V/C Ratio	0.65	0.75	0.85	0.95	1.05

Note: Estimated v/c is based on daily capacity in HCM and hourly capacity in the Metro Council ABM. Golden Valley is designated as a developed area type in the Metro Council's System (along with developing, rural, business and residential)

Based on the daily traffic, capacity and LOS defined above, the existing roadway congestion levels were analyzed. Figure 4 illustrates the existing roadway congestion levels. Table 3 summarizes capacity deficiencies by miles for each facility type. Table 4 identifies the congested roadways segments. LOS Results are also illustrated in Figure 4.

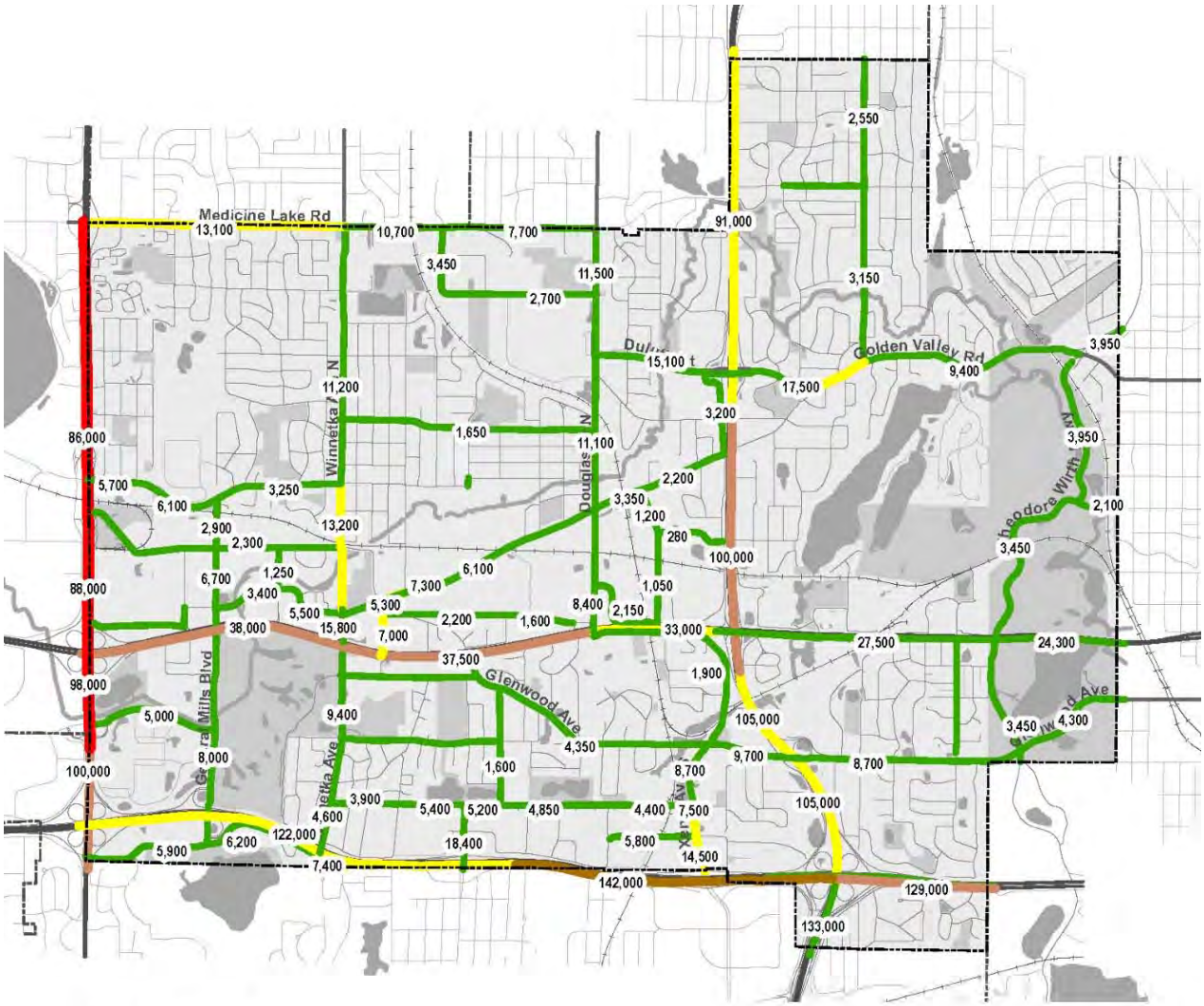
Table 3 – Existing Roadway Capacity Deficiencies

Roadway Class	Roadways at or near capacity		Roadways approaching capacity	
	Existing LOS	Length (Miles)	Existing LOS	Length (Mile)
Freeway	E	1.24	C	4.14
	F	2.06	D	2.09
	Subtotal	3.30	Subtotal	6.24
Expressway	E	0.00	C	0.48
	F	0.00	D	2.04
	Subtotal	0.00	Subtotal	2.51
Arterial	E	0.00	C	1.76
	F	0.00	D	0.00
	Subtotal	0.00	Subtotal	1.76
Collector Road	E	0.00	C	0.64
	F	0.00	D	0.00
	Subtotal	0.00	Subtotal	0.64
Totals		3.30		11.15

Table 4 – Planning Level Roadway Segment Capacity Deficiencies Analysis (Existing)

Route and names	Locations	Length (Mile)	V/C Ratio	LOS
I-394	E of TH100	0.64	0.88	D
I-394	E of Louisiana Ave	1.24	0.97	E
I-394	W of Louisiana Ave	1.75	0.83	C
TH 100	N of Duluth St	1.44	0.83	C
TH 100	N of TH55	0.99	0.91	D
TH 100	N of I-394	0.95	0.82	C
TH 169	S of Medicine Lake Rd	1.30	1.18	F
TH 169	N of TH55	0.33	1.21	F
TH 169	S of TH55	0.43	1.34	F
TH 169	N of I-394	0.47	0.91	D
TH 55	W of TH100	0.48	0.80	C
TH 55	E of Rhode Island Ave	0.99	0.91	D
TH 55	E of TH169	1.05	0.93	D
CSAH 156 (Winnetka Ave)	S of Plymouth Avenue	0.24	0.83	C
CSAH 156 (Winnetka Ave)	S of 10th Avenue	0.25	0.83	C
CSAH 66 (Duluth St)	E of TH 100	0.26	0.83	C
CSAH 70 (Medicine Lake Rd)	E of TH169	1.01	0.82	C
Wayzata Boulevard	W of Texas Avenue	0.11	0.82	C
MSAS 332 (Xenia Ave)	S of Laurel Avenue	0.12	0.83	C
MSAS 332 (Xenia Ave)	N of I-394	0.14	0.76	C
Rhode Island Ave	N of TH 55	0.17	0.78	C
MSAS 411 (Golden Valley Rd)	E of Rhode Island Ave	0.10	0.81	C
	Total	14.46		

Figure 4 – Existing Daily Traffic Volumes and Congestion (Level of Service)



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017). AADT from Metropolitan Council

4.5 2040 Traffic Forecast Analysis

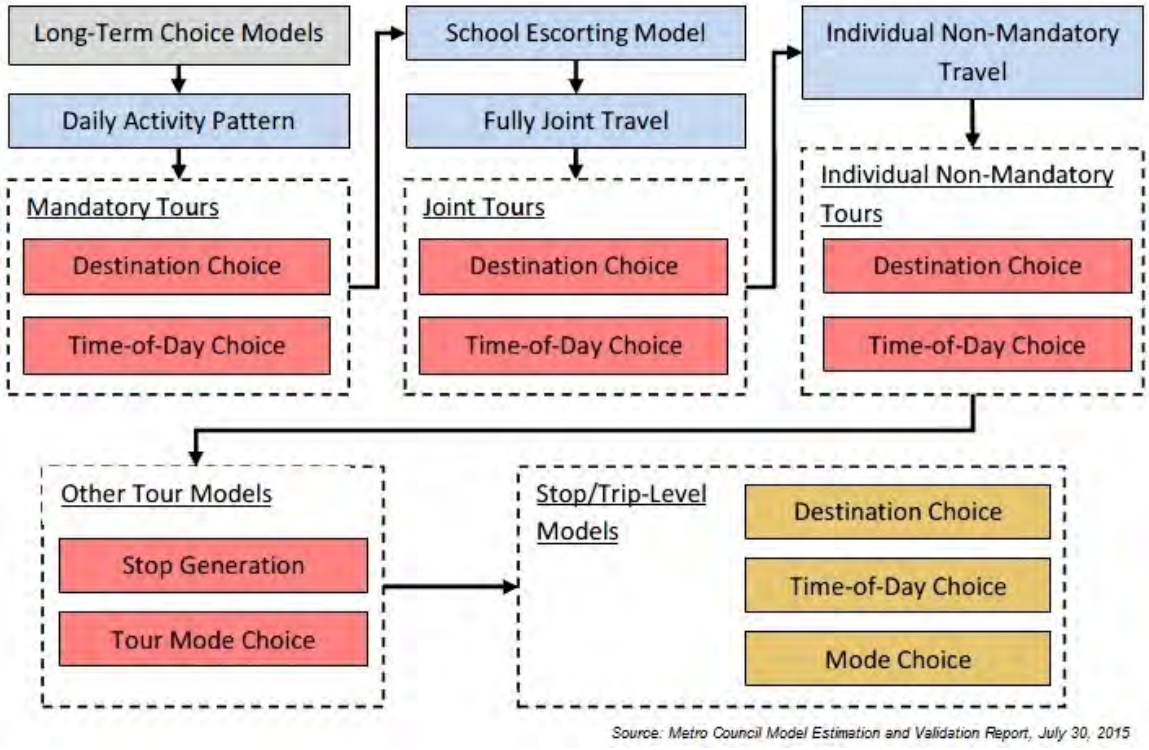
4.5.1 Twin Cities Regional Model

The Metropolitan Council Travel Demand Model was used for determining future travel conditions on the roadways in the City of Golden Valley. The Metro Council upgraded its trip-based model to an Activity-Based Model (ABM) for its 2040 Transportation Policy Plan (Thrive MSP 2040) and released its latest version in July 2017. Local communities are required to conduct transportation plan updates using the latest ABM model.

In addition to data preparation and special generation aggregate models, there are four major categories of disaggregate models in the Metro Council's ABM. Figure 5 illustrates the model framework for the four major categories. (Source: Metro Council Model Estimation and Validation Report, July 30, 2015).

1. **Long-term Models:** The models in this category capture decisions with a longer time horizon including the location of one's regular workplace, regular school location, vehicle availability, and transit and toll transponder pass ownership models. These decisions are modeled first since the outcome of these decisions influences other components of travel including mode choice and time availability for non-mandatory travel.
2. **Daily Activity Patterns**: The models in this category establish daily travel patterns at the individual level. Related to this concept is the understanding that each individual has a restricted amount of time per day that can be engaged in activities and associated travel. The daily activity patterns are simulated through a series of models including daily activity pattern, mandatory tour generation, school escorting, joint non-mandatory tour participation and individual non-mandatory tour generation models.
3. **Tour Level Models:** The models in this category incorporate interrelationship among trips that are components of a "tour" which typically departs from home, visits one or more activity locations, and then return home. Hierarchical rules are established to identify the appropriate nature of the tour. For instance, tours that include a mandatory destination such as work or school are defined as a work-based tour irrespective of other destinations serviced as part of this tour. The tour-level models provide an improved framework over trip-based models to represent daily travel decisions since they account for previous and subsequent trips within a tour. Overall, tour-based models account for information on modes, time-of-day, group travel, and other characteristics of travel that are clearly interrelated across trips within a tour.
4. **Trip/Stop Level Models:** Within each tour, non-primary stops are modeled as intermediate stops. For tours with intermediate stops, separate models that capture the destination of the stop, the mode of travel, and the time-of-day of travel are developed. These models are constrained by the choices already made at the tour-level and therefore, allow for a more realistic decision-making process for every individual trip.

Figure 5 – Metro Council Activity-Based Model Structure



Source: Metro Council Model Estimation and Validation Report, July 30, 2015

4.5.2 Land Use Assumptions

The use of the ABM model requires the allocation of socioeconomic (SE) data (i.e. population and employment) to individual TAZs based on the proposed land uses. Discussions with the city regarding future land use plans and development proposals were used to assign future population and employment values to all the TAZs within the City of Golden Valley.

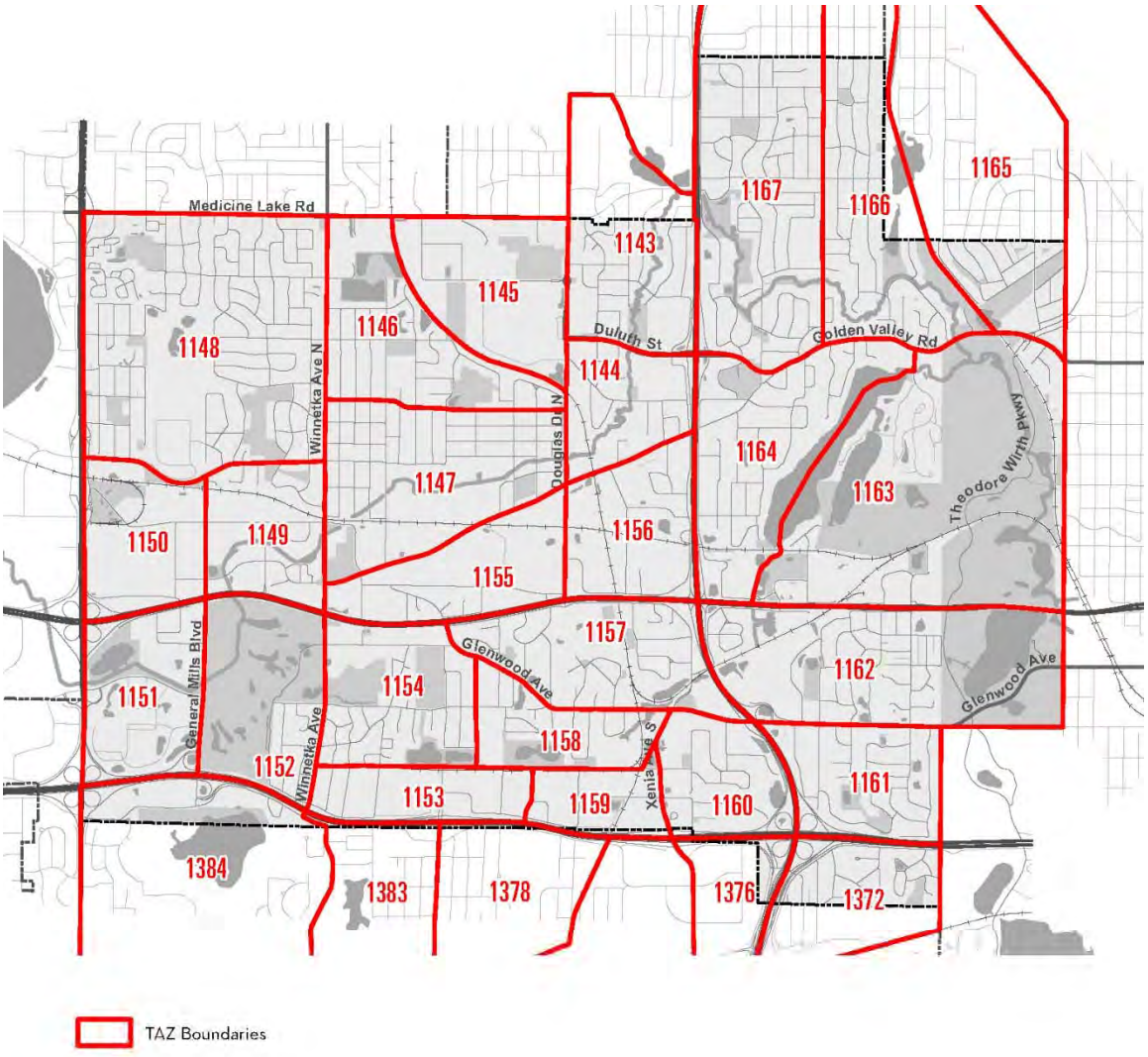
Figure 6 illustrates the location of the various TAZs contained within Golden Valley. Table 5 summarizes the SE data for existing, 2020, 2030 and 2040. The data for the city in the Metro Council Statement are included in the table for comparison.

4.5.3 2040 Roadway Network Assumptions

The traffic forecasts for year 2040 were developed using the ABM. The ABM was refined in the City of Golden Valley area specifically for the City's Transportation Plan Updates. The original ABM 2040 network includes the existing roadway network plus the planned system transportation improvements in the Twin Cities area, including the I-94 Managed Lanes between Downtowns. The roadway network will remain unchanged within the City of Golden Valley.

Figure 7 illustrates the number of lanes for the 2040 roadway network.

Figure 6 – Regional Model TAZ's within the City Limits



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017).

Table 5 – Socio-Economic Data Summary 2020 - 2040

TAZ	2020			2030			2040		
	Pop	HH	Emplymt	Pop	HH	Emplymt	Pop	HH	Emplymt
1143*	565	251	361	646	287	410	758	337	410
1144	1494	653	1393	1634	726	1370	1774	776	1370
1145	119	43	1385	107	45	1600	107	45	1600
1146	1906	836	224	1906	836	55	1906	836	55
1147	1683	738	466	1661	738	500	1661	738	500
1148	3128	1390	1150	3150	1400	980	3150	1400	980
1149	781	347	1439	856	376	1481	1184	526	1481
1150	1107	432	3252	1109	493	3466	1346	593	3466
1151	212	94	3773	212	94	4321	212	94	4540
1152	252	112	840	251	111	810	251	111	810
1153	198	88	1947	266	118	2091	266	118	2230
1154	1044	454	276	1098	488	120	1098	488	120
1155	534	215	2831	599	266	2722	599	266	2722
1156	146	65	2448	190	78	2317	190	78	2745
1157	764	332	373	819	348	260	819	348	260
1158	683	301	59	790	351	90	902	401	90
1159	797	354	2674	837	372	2856	837	372	3070
1160	1988	840	1741	2098	920	2100	2098	920	2100
1161	639	278	137	655	285	140	641	285	140
1162	925	402	1402	913	402	1160	905	402	1160
1163	740	329	4623	740	329	4834	740	329	4834
1164	1028	457	331	1044	464	350	1044	464	350
1165*	592	263	73	745	331	73	745	331	73
1166*	1035	456	8	1037	461	8	1037	461	8
1167*	1853	808	108	1848	818	108	1841	818	108
1372*	392	174	32	394	175	32	394	175	32
1376*	180	80	0	180	80	0	180	80	0
1384*	18	8	1654	18	8	1746	18	8	1746
Total	24,800	10,800	35,000	25,800	11,400	36,000	26,700	11,800	37,000
** Met Council	21,300	9,300	36,000	22,000	9,600	37,500	22,900	9,800	38,900

* Note: TAZ's are partially within the City of Golden Valley; only the data within the City are included

** Met Council forecast values; City and MC staff met and came to concurrence on City Totals

4.5.4 2040 Traffic Forecasts and Capacity Deficiency Analysis

The 2040 daily traffic forecasts for major roadways were developed based on the regional model 2040 outputs, the differences between base model outputs and actual counts. Figure 8 illustrates the traffic forecast results. Based on the daily traffic forecasts as well as the capacity and LOS defined in the previous section, the 2040 roadway congestion levels were analyzed. Figure 8 also illustrates the 2040 roadway congestion levels. Table 6 summarizes the miles of congested roadways for each functional classification in year 2040. Table 7 identifies roadway segments anticipated to operate near or exceeding their capacity based on projected V/C ratios.

Comparison of Table 6 and Table 3 indicates that the level congestion on the roadways in Golden Valley will continue to increase due to increased traffic. This result is expected as the community continues to develop while opportunities for new or expanded roadways may not increase accordingly due to resource constraints. The interstate freeways are the roadways that will be most affected by increased traffic levels. Congestion on the principal arterials including I-394, TH 100, US 169 and TH 55 in the city are expected to deteriorate over time and will be operate at or over capacity. Nevertheless, the majority of County and City roadways are projected to operate at acceptable levels in 2040 although traffic levels will continue to increase.

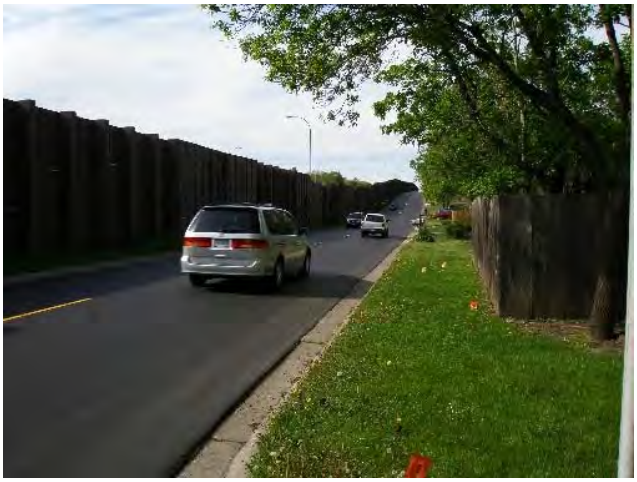
4.5.5 2040 Forecast Findings

The projected year 2040 traffic levels are included in Figure 8. The following findings were compiled based upon comparison of 2015 and 2040 Met Council travel demand models:

- Regionally, Twin Cities metro area trips are anticipated to increase by 22 percent through 2040
- There are approximately 235,000 vehicle trip ends that originate or terminate within the City of Golden Valley on an average day
- Trips that begin or end in Golden Valley are expected to increase by approximately eight per cent by 2040
- For trips served by all roads in Golden Valley, approximately:
  - 37 percent originate or terminate in the City
  - 63 percent pass through Golden Valley without stopping

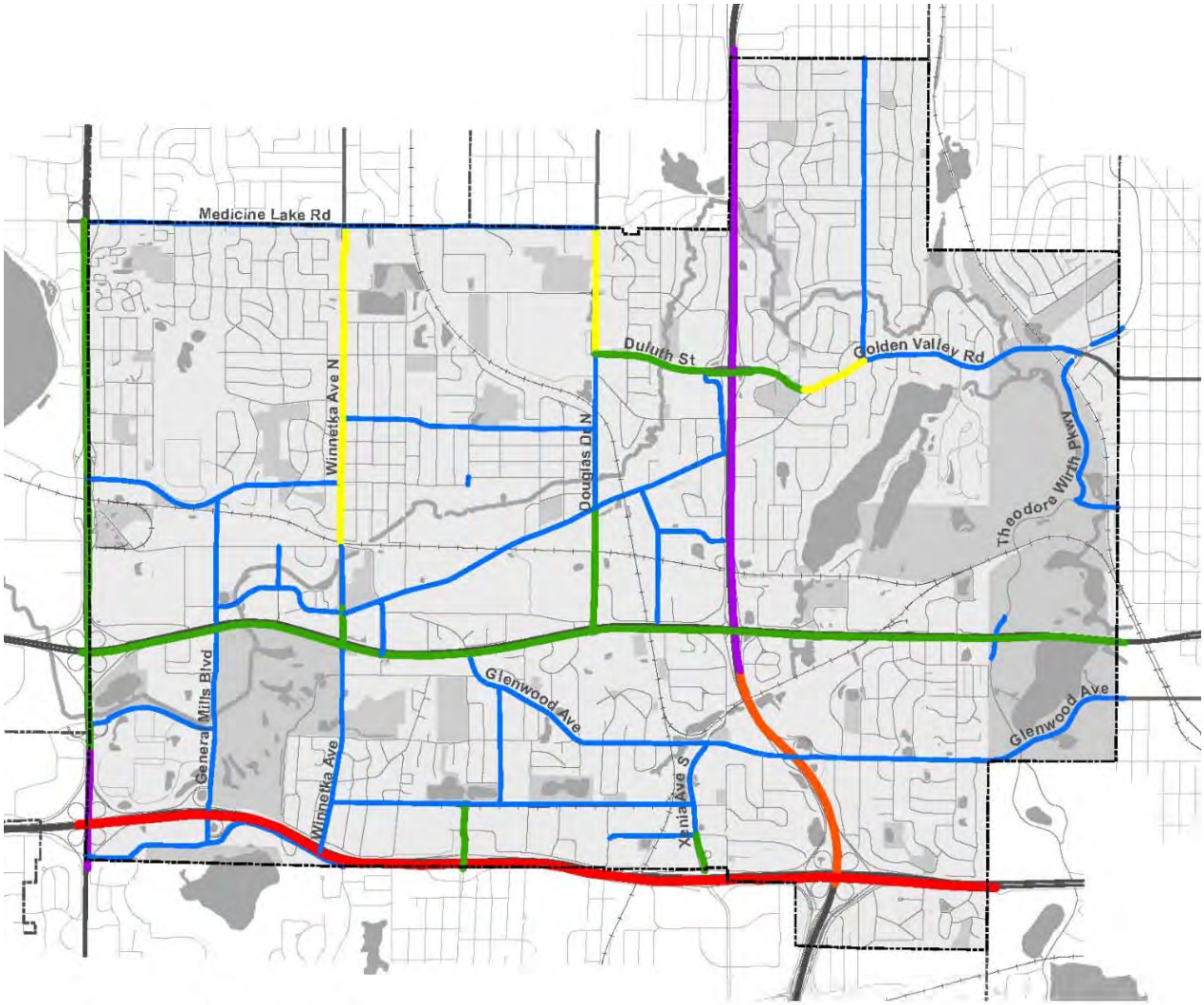
From the above forecast model findings, we can conclude the following:

- Regional routes through Golden Valley will experience greater travel demand increases than local routes.
- During peak periods, if the regional routes cannot serve the demand volumes, excess demand will spillover onto the local roadways



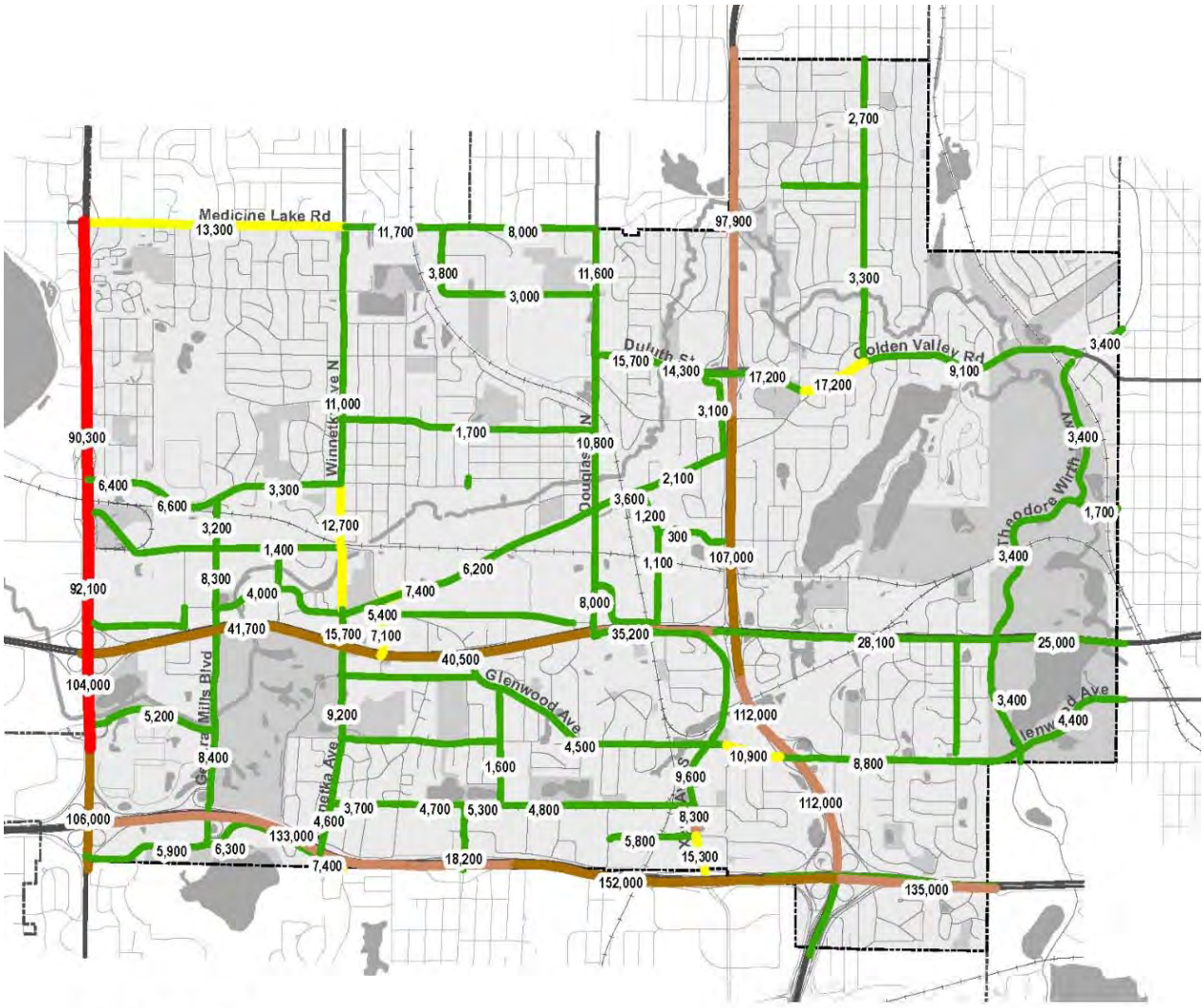
Congestion on the freeway system often results in increased traffic on parallel routes

Figure 7 – Number of Roadway Lanes in 2040



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017).

Figure 8 – 2040 Daily Traffic and Congestion (Level of Service)



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017). AADT from Metropolitan Council

Table 6 – 2040 Roadway Capacity Deficiencies

Roadway Class	Roadways at, or near capacity		Roadways approaching capacity	
	LOS	Length (Mile)	LOS	Length (Mile)
Freeway	E	2.70	C	0.00
	F	2.06	D	4.78
	Subtotal	4.76	Subtotal	4.78
Expressway	E	2.04	C	0.00
	F	0.00	D	0.48
	Subtotal	2.04	Subtotal	0.48
Arterial	E	0.00	C	1.98
	F	0.00	D	0.00
	Subtotal	0.00	Subtotal	1.98
Collector Road	E	0.00	C	0.52
	F	0.00	D	0.12
	Subtotal	0.00	Subtotal	0.64
Total		6.80		7.87

Table 7 – Planning Level Roadway Segment Capacity Deficiencies Analysis (2040)

Route and name	Location	Length (Mile)	V/C Ratio	LOS
I-394	E of TH100	0.64	0.92	D
I-394	E of Louisiana Avenue	1.24	1.03	E
I-394	W of Louisiana Avenue	1.75	0.90	D
TH 100	N of Duluth St	1.44	0.89	D
TH 100	N of TH55	0.99	0.97	E
TH 100	N of I-394	0.95	0.87	D
TH 169	S of Medicine Lake Rd	1.30	1.24	F
TH 169	N of TH55	0.33	1.26	F
TH 169	S of TH55	0.43	1.42	F
TH 169	N of I-394	0.47	0.96	E
TH 55	W of TH100	0.48	0.86	D
TH 55	E of Rhode Island Avenue	0.99	0.99	E
TH 55	E of TH169	1.05	1.02	E
CSAH 156 (Winnetka Avenue)	S of Plymouth Avenue	0.24	0.80	C
CSAH 156 (Winnetka Avenue)	S of 10th Avenue	0.25	0.80	C
CSAH 40 (Glenwood Avenue)	W of TH100	0.21	0.78	C
CSAH 66 (Duluth St)	E of TH 100	0.26	0.82	C
CSAH 70 (Medicine Lake Rd)	E of TH169	1.01	0.83	C
Wayzata Boulevard	W of Texas Avenue	0.11	0.83	C

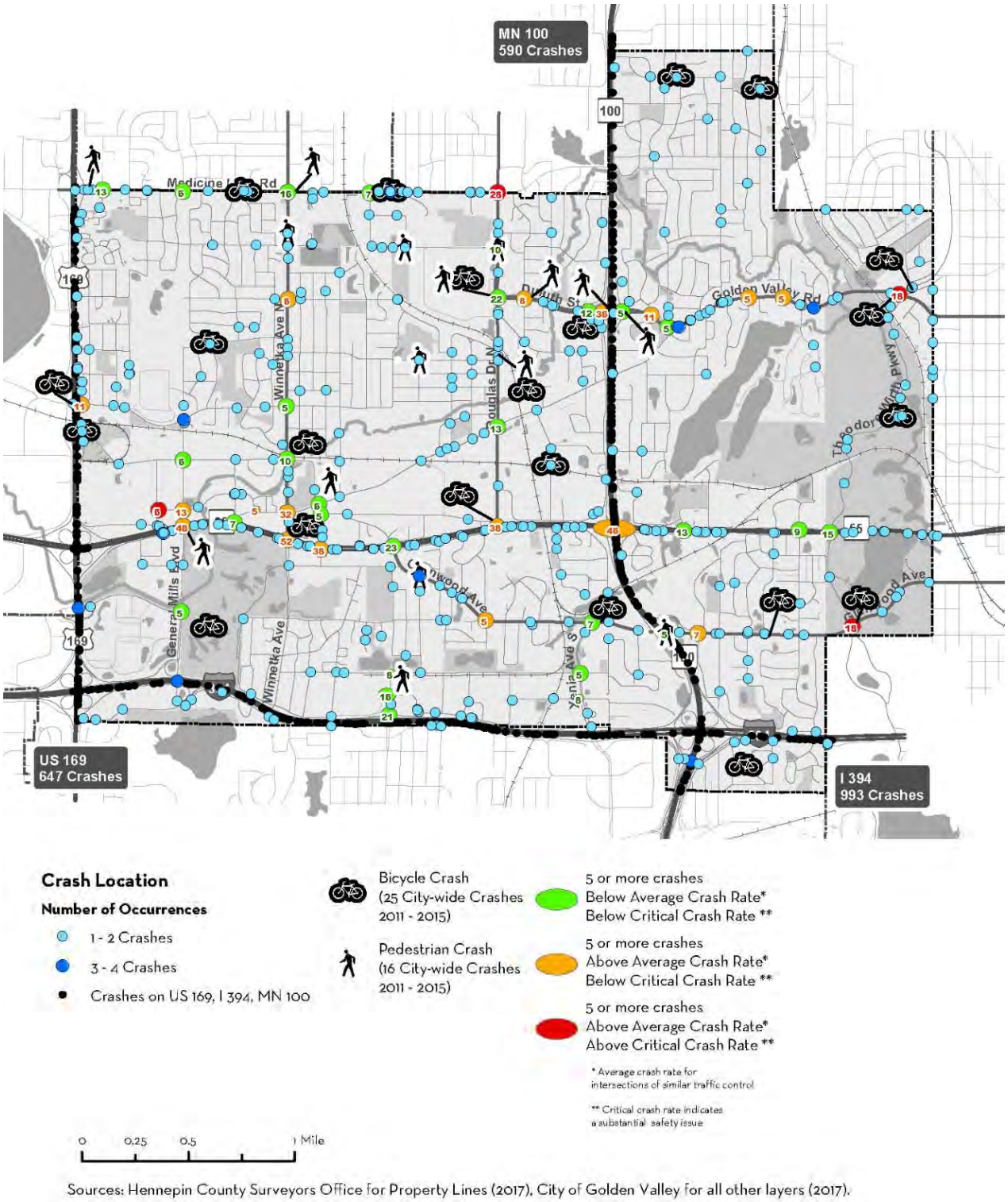
Route and name	Location	Length (Mile)	V/C Ratio	LOS
MSAS 332 (Xenia Avenue)	S of Laurel Avenue	0.12	0.92	D
MSAS 332 (Xenia Avenue)	N of I-394	0.14	0.81	C
Rhode Island Avenue	N of TH 55	0.17	0.78	C
MSAS 411 (Golden Valley Road)	E of Rhode Island Avenue	0.10	0.82	C
	Total	14.67		

4.6 Safety Assessment

The Minnesota Department of Transportation's crash mapping software (MnCMAT) was used to identify crash locations and statistics for Golden Valley for a five year period (2011 through 2015). These crash locations are illustrated on **Figure 9**. The highest frequency crash locations were analyzed to identify intersections that have a crash rate (crashes per million entering vehicles) that is higher than average, or exceed their critical rate. The critical crash rate is defined as the rate that is indicative of a sustained crash problem given the specific traffic control and volume conditions experienced at that location. Intersections with above average crash rates and those that exceed their critical rates are color coded in **Figure 9**. Non-motorized crashes (involving bicycles or pedestrians) are also evident in Figure 9.

A mix of freeway ramp and local shopping center traffic results in safety concerns along Duluth Street near Highway 100 for both motorized and non-motorized users.

Figure 9 – 2011-2015 Crashes



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017).

4.7 Transit System

Metro Transit currently operates many bus routes along Golden Valley's Principal and Minor Arterial routes. Current (2018) routes include 7,9,14, 30, 32, 643, 645, 649, 652,672, 675, 707, 755,756, and 758. Bus service is more frequent during the A.M. and P.M. peak commute times. **Figure 10** illustrates current transit system routes, stops and support facilities in Golden Valley.

Most of Golden Valley is located in Transit Market Area III. This area is defined as typically having a moderate-density development but tending to have a traditional street grid that can limit the effectiveness of transit. Transit service in Market Area III is primarily commuter express bus service with some fixed-route local service providing basic coverage.

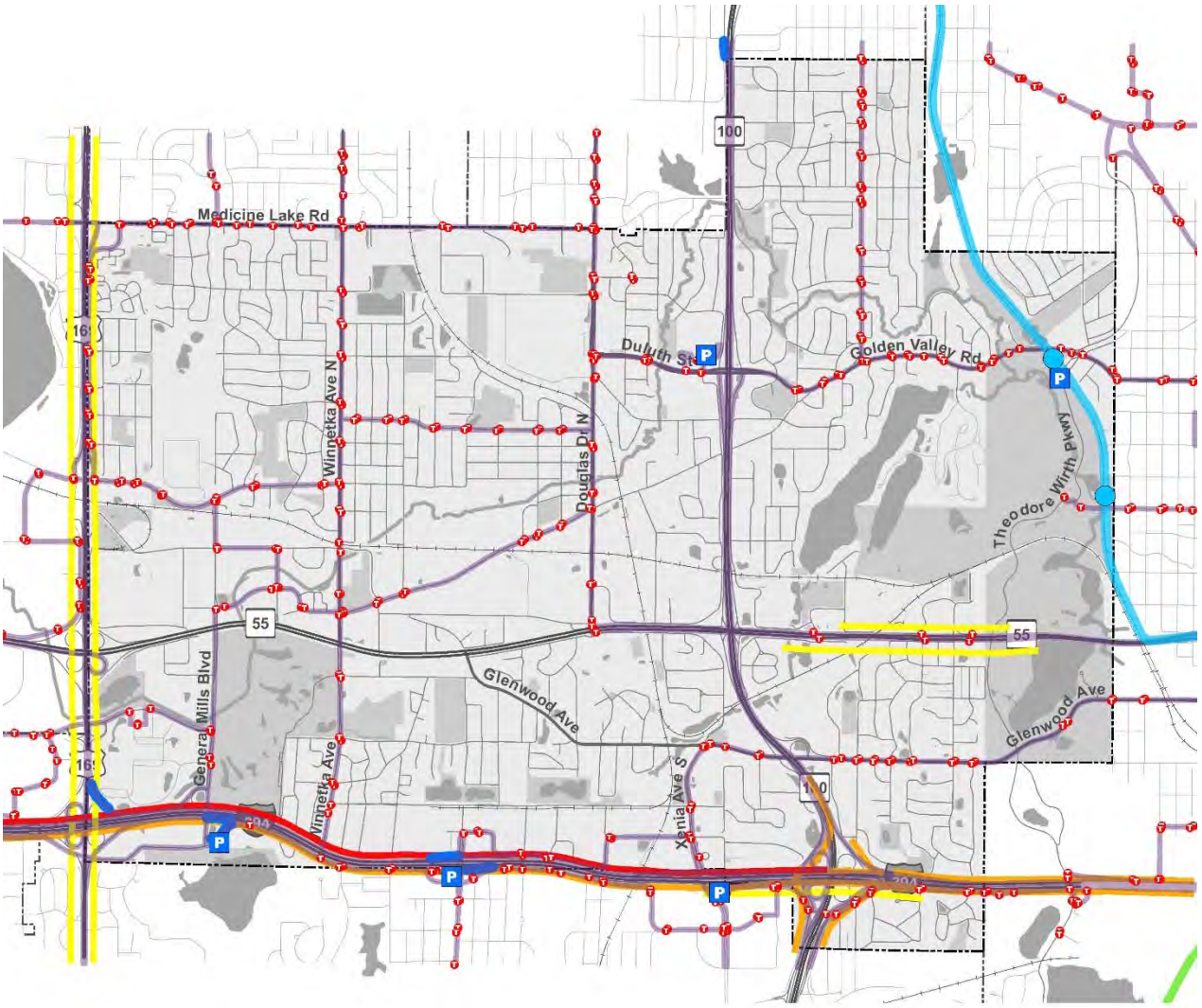
Service options for Market Area III includes regular-route local service, all-day express service, special needs paratransit (for senior citizens and compliant with Americans with Disabilities Act) and ridesharing through their Ridematch and Vanpool programs.

Metro Transit operates two park and ride facilities in Golden Valley. One is located at Wayzata Boulevard and General Mills Boulevard. Bus routes 645, 652 and 675 serve this park-and-ride facility. The parking lot has 123 spaces and is 95% filled to capacity on an average weekday (2016 Annual Regional Park and Ride System Report). A second park-and-ride facility is located along Duluth Street, just west of TH 100. This park and ride facility is served by Routes 758 and 14. The parking lot has 50 spaces and is well used, however because it is a shared use lot, the actual percentage of lot capacity utilized is unclear, according to the Park and Ride System Report.

Metro Transit operates this park & ride on Wayzata Boulevard near General Mills Boulevard

Unique transit needs in the community are presented by populations housed in group quarters and facilities that offer specialty care services for temporarily or permanently disabled populations, such as patients at the Courage Kenny Rehabilitation Center. Their varied needs are typically met by specialized paratransit providers that offer express or demand-response services, such as the Metro Mobility program administered by the Metropolitan Council. Transit Link is the Twin Cities dial-a-ride small bus service for areas where regular route transit service is not available. Transit Link is for trips that cannot be accomplished on regular transit routes alone and may require a combination of regular route and Transit Link service.

Figure 10 – Transit Map



Transit Facilities

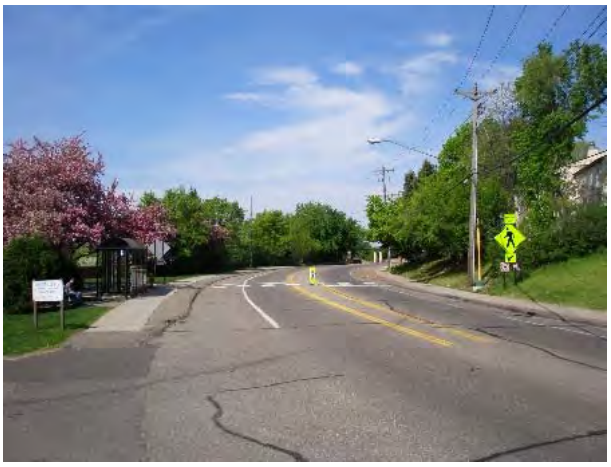
- Blue Line Transit Stations
- Park And Ride Lots
- Bus Stops
- Metro Transit Bus Routes
- Blue Line Light Rail Transit (Bottineau)
- Southwest LRT

Transit Advantages

- Meter Bypass
- HOT Lane
- HOV Lane
- Shoulder Lane

0 0.25 0.5 1 Mile

Sources: Hennepin County Surveyors Office for Property Lines (2017), Met Council for Transit layers
City of Golden Valley for all other layers (2017)



Transit stop on Golden Valley Road near the Courage Center

On demand transit providers serve senior citizens and handicapped individuals

4.8 Bicycle and Pedestrian Network

Golden Valley has 54.3 miles of local sidewalks and trails. There are also 12.8 miles of regional trails and 5.4 miles of on-street bicycle lanes in Golden Valley. These facilities are for non-motorized vehicle and pedestrian use. Some sidewalks are demoted for pedestrian use only. Many local sidewalks and trails connect to the Minneapolis Park and Recreation Board's (MPRB) trails in Theodore Wirth Park and Three Rivers Park District regional trails in the community.

Hennepin County has also identified a series of corridors appropriate for additional pedestrian and bikeway facilities in Golden Valley. Community members have expressed a strong interest for additional pedestrian and bicycle facilities that are comfortable and safe for users of all ages and abilities. The City has a long history of implementing these types of facilities and will continue to prioritize this work in the future.

4.8.1 Local Network

Paved local sidewalks, on-street bike lanes, and multi-use trails are located on local streets, minor arterials and collector roadways. They provide connections to the community's parks and recreation areas, local businesses, schools, and regional trails. See **Figure 11** for the location of local sidewalks and trails.

Sidewalks constructed to current standards are safe and accessible for all users

4.8.2 Regional Network

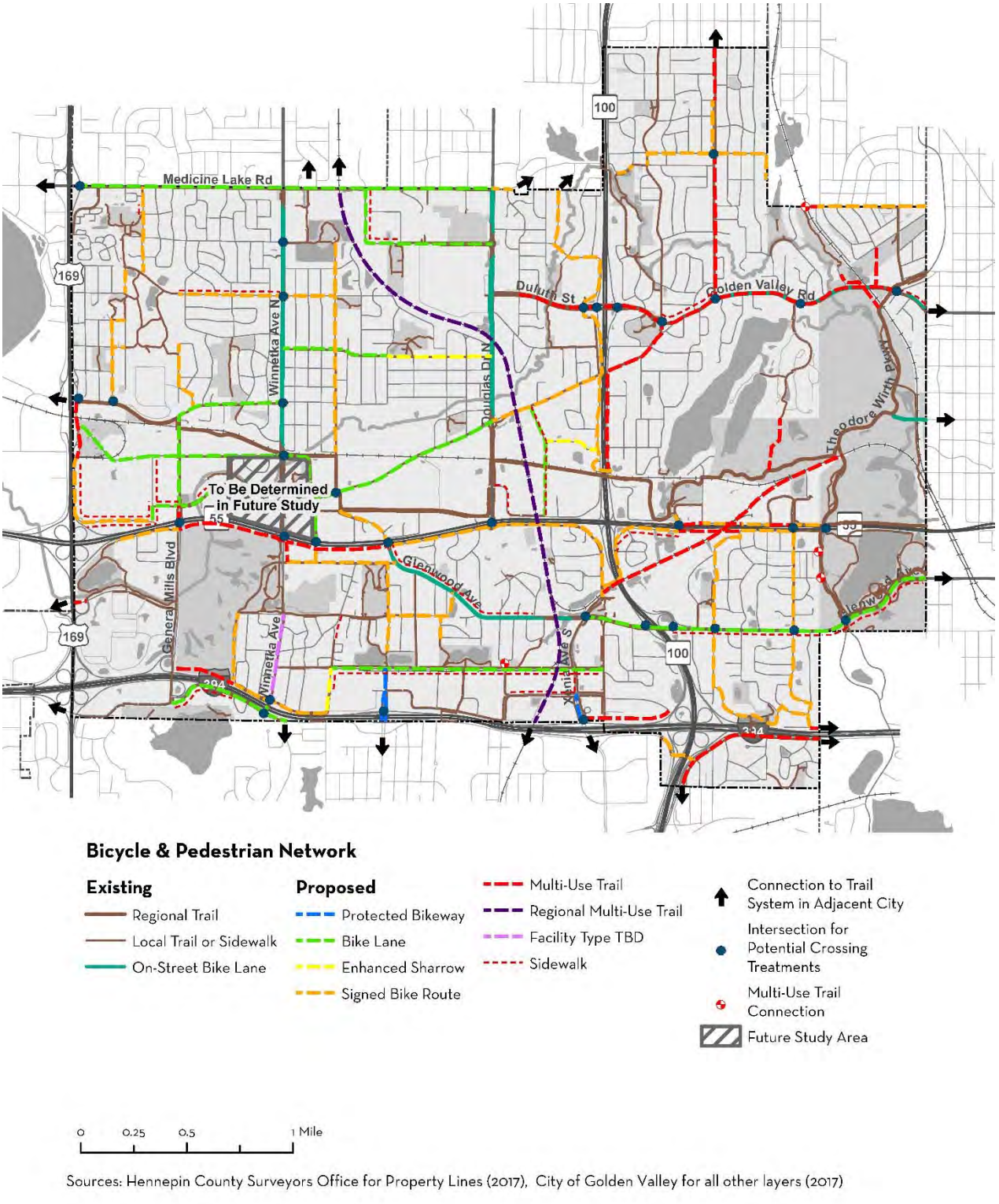
Regional bicycle and pedestrian trails provide commuting and recreational opportunities for residents, employees, and visitors. There are three off-street, multi-use regional trails in Golden Valley:

- Theodore Wirth Regional Trail runs north-south through Theodore Wirth Regional Park and is maintained by the Minneapolis Park and Recreation Board.
- The Basset Creek Regional Trail connects to a pedestrian bridge over Highway 100 adjacent to Unity Avenue near Briarwood Nature Area, then connects west and north to the trail system in Basset Creek Park and adjacent residential neighborhoods in Crystal and French Regional Park in Plymouth. The eastern portion will be constructed in the coming years, primarily on Golden Valley Road from Regent Avenue to Theodore Wirth Parkway. The trail is maintained by Three Rivers Park District which also maintains the Luce Line regional Trail.
- The Luce Line Regional Trail runs east-west and enters the City at Highway 169 and Plymouth Avenue. It runs through the center of Golden Valley before terminating at Theodore Wirth Regional Trail.

Three Rivers Parks District operates the Line Trail through Golden Valley

Bike lanes have been implemented on Glenwood Avenue by Hennepin County

Figure 11 – Existing and Proposed Trails and Sidewalks



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017)

4.9 Airport/Heliport/Seaplane Facilities with Golden Valley

No airports, heliports, or seaplane operations are located, or planned to be constructed, within the city limits of Golden Valley.

4.9.1 Airspace

Although there are no airport facilities in Golden Valley, the community is located northwest of the Minneapolis/St-Paul International Airport and south of the Crystal Airport, both of which are owned and operated by the Metropolitan Airports Commission (MAC). These airports each distribute air traffic over Golden Valley. The safety of the air traffic over Golden Valley is a concern for local officials and protection of the airspace travel lanes is included as part of construction authorization.

4.9.2 Airspace Protection

The Federal Aviation Administration's (FAA) Federal Aviation Regulations Part 77 states that any construction exceeding 200 feet above ground level must file Form 7460-1. As part of the design process, any new construction that is planned to exceed 200 feet above ground level must be approved by the FAA as well as the Minnesota Department of Transportation under MN State Statues 360.

Existing structures within Golden Valley that exceed 200 feet in height are limited and include utility and telecommunications towers at scattered locations in the community. The tallest structure in Golden Valley is a 400 foot communications tower in the northwest quadrant of the community owned and operated by Hennepin County. There are currently no commercial or residential buildings in the community that exceed 200 feet.

The other requirements of Part 77 apply to construction within 20,000 feet of an airport with a runway longer than 3,200 feet. All runways at Minneapolis-St. Paul International Airport are farther than 20,000 feet from the city limits of Golden Valley.

4.9.3 Airport Influence Areas

The Minneapolis-St Paul International Airport (MSP) is the closest commercial airport that serves Golden Valley. One of two main runways at MSP, 12L-30R, distributes arriving and departing aircraft in airspace over Golden Valley. Depending on weather conditions and the time of the year, air traffic over Golden Valley can exceed 400 commercial operations daily. Golden Valley's distance from MSP buffers it from being included in the MAC's 2007 noise policy area. Golden Valley is also outside the MAC's 2007 noise policy area for its reliever airport in Crystal.

4.10 Freight

A safe, efficient, high-capacity freight transportation system is essential to the economic prosperity of Golden Valley. Freight movement occurs using heavy commercial trucks and via railroad lines that serve the city. Figure 12 illustrates Heavy Commercial Average Annual Daily Traffic (HCAADT) volumes on Principal Arterials traversing the City. Figure 12 also depicts the railroad lines operating within the city.

4.10.1 Heavy Commercial Vehicles

There are several industrial areas of the city that must accommodate truck traffic to move goods. Stores and restaurants must also be served by trucks. Manufacturing and warehouse facilities are generally located near the principal arterial and minor arterial roadway network with site accessibility from collector roadways. There are no height or weight restricted corridors on the arterial routes through the City.

Some of the larger manufacturing operations that generate significant truck traffic include:

- Tennant Company on Lilac Drive north of Highway 55 has access to Highway 55 via Zane Avenue, the Highway 55 Frontage Road, and Douglas Drive
- Honeywell on Douglas Drive has access to Highway 100 via Duluth Street and also has access to Highway 55 via Douglas Drive
- Lubrication Technologies, Inc. on Mendelsohn Avenue has access to Highway 169 via the Plymouth Avenue interchange
- General Mills James Ford Bell Technical Center on Plymouth Avenue with access to Highway 169 at the Plymouth Avenue interchange
- Liberty Carton on Louisiana Avenue has access to I-394 via the Louisiana Avenue interchange

There are also several areas of the city with a concentration of industrial uses that generate truck traffic:

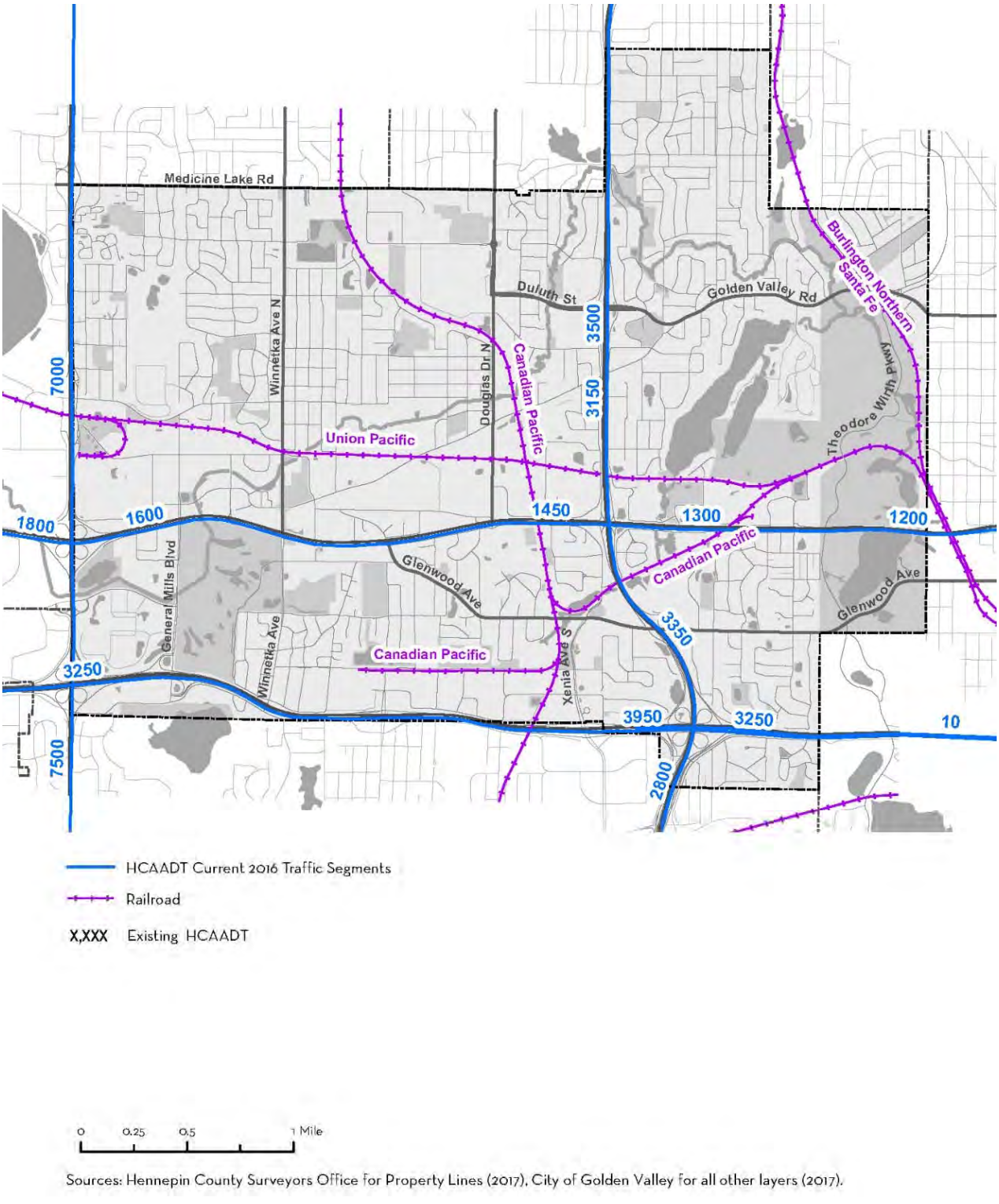
- North Wirth Business Park
- Nevada Avenue and Sandburg Road area with access to Highway 169 via Medicine Lake Road
- Highway 55 and Douglas Drive
- Zane Avenue and Lindsey Street area
- 10th Avenue and Boone Avenue area

The other primary type of goods movement within the city has to do with delivery of products to retail outlets within the City. The primary retail areas have sufficient access to the interstate system for goods delivery. The primary retail areas include:

- Golden Valley Shopping Center: access to Highway 55 via Winnetka Avenue
- Golden Valley Commons: access to Highway 55 via Winnetka Avenue and Rhode Island Avenue
- Golden Valley Town Square: access to Highway 55 via Winnetka Avenue and Rhode Island Avenue
- Spring Gate Shopping Center: access to Highway 100 via Duluth Street and Lilac Drive North
- I-394 commercial area between Winnetka Avenue and Xenia Avenue: access to I-394 via Xenia Avenue and Louisiana Avenue from Market Street and Laurel Avenue
- Concentration of commercial uses on Golden Valley Road: access to Highway 55 via Decatur Avenue, Boone Avenue, and Wisconsin Avenue
- Concentration of commercial uses on Wayzata Boulevard South Frontage Road between Highway 169 and Winnetka Avenue: access to I-394 via General Mills Boulevard

According to MnDOT, one of the top-ranking strategies to reduce congestion for trucks traveling within and through the Twin Cities is to provide design guidance to local governments for accommodating trucks on local roads. The guidance is intended to help local governments identify locations where land uses generate heavy truck movements, present unique traffic control needs, and demonstrate concerns for local street pavement and geometric design to accommodate heavy truck dimensions and weight. The guidance can be used to improve truck, motorist, and non-motorized vehicle safety and traffic flow. Although all business owners and residents rely on the efficient movement of goods, freight movement is often regarded as incompatible with many land uses. The Future Land Use Plan aims to minimize these conflicts by separating large industrial and commercial uses from residential and institutional uses. Thoughtful site planning and site plan review for new developments is also utilized to minimize conflicts. Railroads are not managed by local governments, but local governments must plan for the possibility of increased freight traffic in the future.

Figure 12 – Railroads and Heavy Commercial Vehicle Average Annual Daily Traffic



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017).

Truck mobility and access is critical to successful commerce within the City

Typical examples include driveways or approaches to loading zones for retail stores or industrial buildings where inadequate maneuvering and turning space may cause safety conflicts. Pedestrians approaching a driveway intersection on a sidewalk may not suspect a truck's approaching off-tracked rear tires. In addition, damages to public infrastructure can also result (broken curbs and landscaping destruction). Inadequate truck queuing can also be a problem, requiring temporary on-street parking.

An assessment of industrial and commercial truck ingress/egress areas in Golden Valley should be performed for properties where such issues have been observed for reasons associated with safety, operational efficiencies, and infrastructure preservation. In addition, the guidance will provide support to the City of Golden Valley in conducting site plan reviews for potentially new developments.

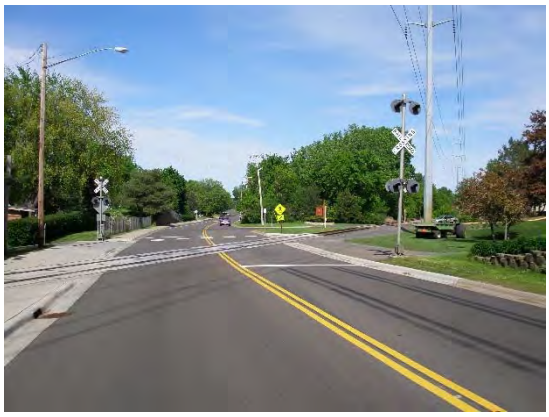
4.10.2 Railroads

Three railroads have active lines in Golden Valley. There are 32 railroad crossings in Golden Valley, 21 are at grade and 11 are grade separated. The active railroad lines within the city include:

- The Canadian Pacific (CP) Railway, formerly the Soo Line, operates a north-south line in Golden Valley. The line has 12 crossings and serves about four trains per day at speeds up to 25 miles per hour. This line connects with other CP lines in Crystal and Savage. In addition, an east-west spur runs parallel to Laurel Avenue. It has five crossings and serves up to two trains per week at speeds of 10 miles per hour. A second spur passes near Breck School and through Theodore Wirth Regional Park on its way to Minneapolis.

The Canadian Pacific Railroad bridges over Golden Valley Road east of Douglas Drive

- The Union Pacific (UP) Railroad operates an east-west line that runs parallel to Highway 55 and terminates in Plymouth. It has 12 street crossings and serves two trains per day at speeds up to 10 miles per hour.



This Union Pacific Railroad crossing of Golden Valley Road occurs adjacent to a trail crossing

- The BNSF Railway operates a line in the far eastern part of the City that serves two trains per day at speeds up to 25 miles per hour. The line begins in Minneapolis and terminates in Monticello, Minnesota, and it has three grade-separated roadway crossings in Golden Valley. This corridor will also carry the Blue Line Light Rail Line planned for operation in 2023.

The railroad industry nationwide is healthy because of the high energy costs related to the trucking industry. Railroad operations in Golden Valley will remain active through 2040. However, significant changes in train traffic are not expected because the rail lines provide local rather than long distance service. The City will continue to advocate for the sharing the railroad right-of-way for other transportation uses like transit and multi-use bicycle and pedestrian trails.

5 Future Transportation System Plan

A long-range plan has been developed for each of the management elements of the Golden Valley Transportation System. This plan is based on deficiencies, needs, and desires expressed in Sections 3.0 (Goals, Objectives, and Policies) and 4.0 (Issue Analysis and Needs Assessment). The plan provides guidance for the following elements:

- Complete Streets
- Pavement Management and Infrastructure Renewal Program
- Future Functional Classification
- Access Management
- Right of Way Preservation and Character
- Transit
- Pedestrian and Bicycles
- Sub-Area Plans – Transportation Safety Improvements
- Traffic Impact Management
- Emerging Transportation Technologies

5.1 Complete Streets

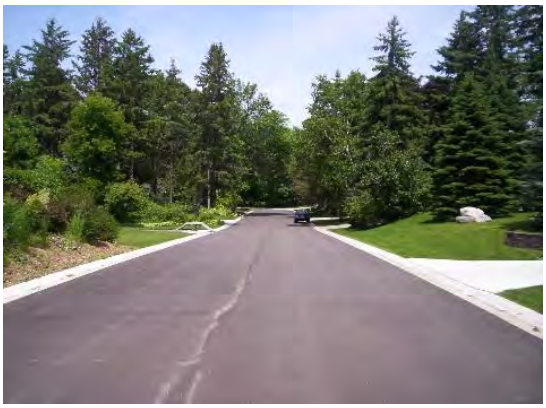
The City has a long history of supporting the Complete Streets philosophy, which promotes streets that are safe and convenient for all users, including pedestrians, bicyclists, transit riders, and motor vehicle drivers of all ages and abilities. The National Complete Streets Coalition notes that there is no singular design prescription for Complete Streets, but a design will likely include sidewalks, bike lanes, comfortable and accessible transit stops, safe crossings, narrower travel lanes, roundabouts, and more. The designs encourage street connectivity and aim to create a comprehensive, integrated, and connected network for all modes. The City will continue demonstrating its support for Complete Streets by incorporating its principles and design options into all transportation plans and policies.

5.2 Pavement Management & Infrastructure Renewal Programs

The Golden Valley Pavement Management Program (PMP) is an on-going systematic program for local roadway improvements to provide a safe, efficient, high quality transportation system in a long-term cost effective manner. Funding for the pavement management program integrates City resources, special assessments, and Municipal State Aid (MSA) funding. As part of the program, the City evaluates the sanitary sewer, water, and storm water systems under each street. The highest priority repairs or replacements are done as part of the project so that multiple project improvement types can be coordinated if needed. In addition, the City considers integrating intersection safety improvements, sidewalk and trail improvements, water quality improvements, or other projects into the road reconstruction project. The program begin in 1995. Since then, 105 miles of roadway have been reconstructed to current standards.

Street pavement deterioration is caused by many factors, including the freeze/thaw cycle, traffic volume and loading, the effects of moisture, and the quality of the soils beneath the street. As pavement deteriorates, certain types of distresses occur (potholes, settling, rutting, and cracking). These distresses indicate what type of maintenance or rehabilitation is needed to prolong the lifespan of a street in a cost-effective manner. The life span of the investments made during the PMP program will last through 2040 with proactive and continual maintenance; however, increasing precipitation and freeze/thaw cycles may impact the resilience of the investment over time. Golden Valley is in the process of implementing a plan for long-term revenue for the long term maintenance costs. This is further addressed in the Resilience and Sustainability Chapter.

When the PMP transitions into an Infrastructure Renewal Program (IRP) in 2022, the City will shift its focus to the preservation of its roadways and will increase its investment aging underground utilities and other related public assets. The IRP will be a continuous process of maintaining and rehabilitating the City's infrastructure.



Typical local streets before and after PMP improvements

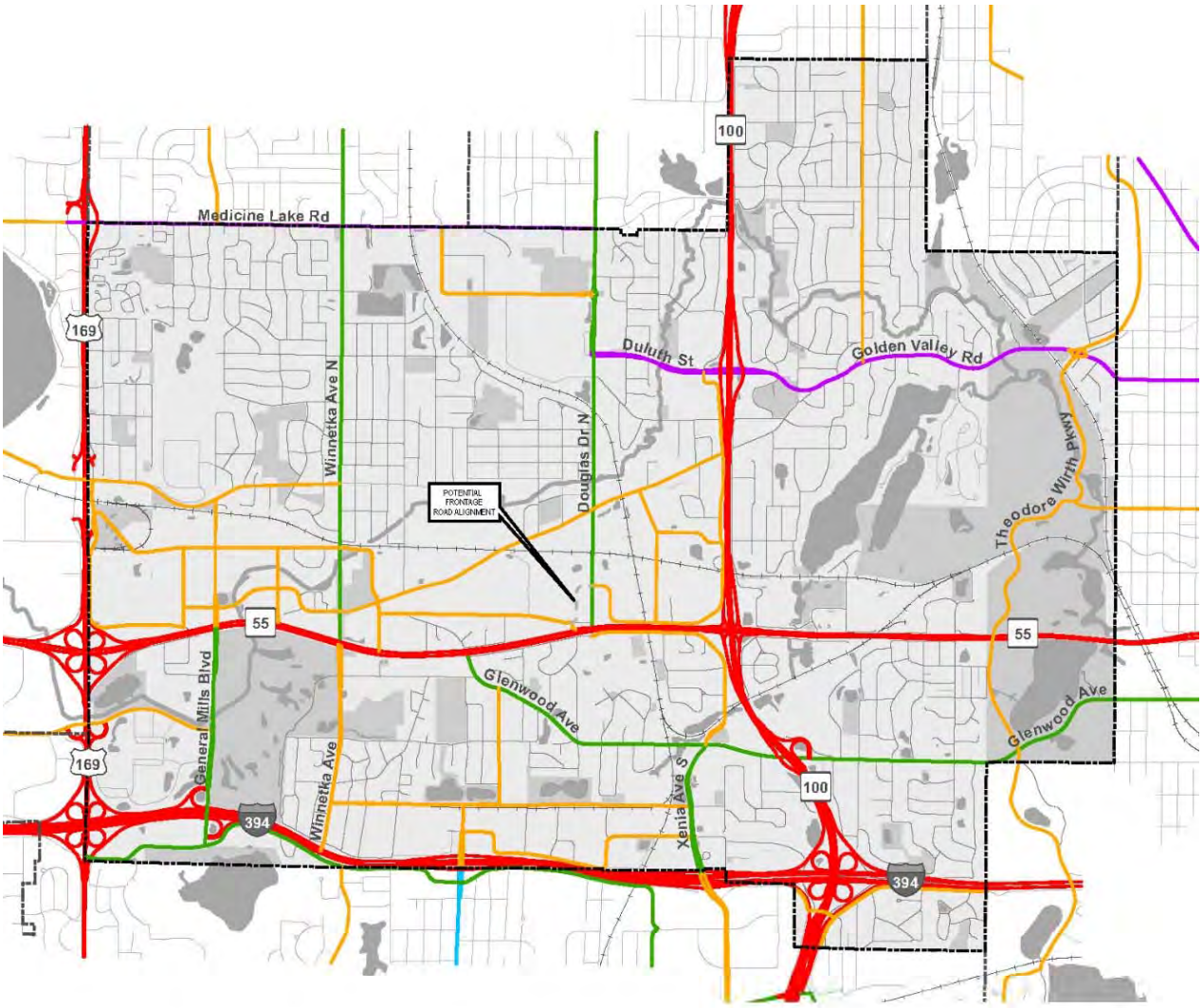
5.3 Future Functional Classification

The proposed future functional classification system for Golden Valley is based on the Federal Highway Administration's Functional Classification Manual criteria, Metropolitan Council guidance and a number of other factors, including: estimated trip length, trip type, connections to activity centers, spacing, continuity, mobility, accessibility, and speed.

Future functional classification recommendations are based on the overall Comprehensive Plan update elements (i.e., future policy and land use recommendations), regional facility and adjacent community plans and functional classification changes, public and partnership organizations, and federal and state system mileage guidelines.

The proposed functional classifications for roadways in Golden Valley are shown on Figure 13. Proposed changes to the functional classifications in the City are listed in Table 8.

Figure 13 – Proposed Functional Classifications



Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017).

Table 8 – Proposed Functional Classification Changes

Roadway	Segment	Classification		Remarks
		Existing	Proposed	
General Mills Boulevard	Highway 55 to Wayzata Boulevard	Collector	Minor Arterial	Interchange access at I-394; Reliever to Highway 169; Coupled with downgrade of Winnetka Avenue from an "other" arterial to a collector
Winnetka Avenue	Highway 55 to Wayzata Boulevard	Other Arterial (Previously B-minor)	Collector	No access to I-394; developed residential area on south end with driveway access; this is coupled with upgrade of General Mills Boulevard from a collector to a minor arterial
Xenia Avenue	Highway 55 to Wayzata Boulevard	Collector	Minor Arterial	Interchange access at I-394; Reliever to Highway 100;
Nevada Avenue	Medicine Lake Road to Sandburg Road	Local	Collector	Collects and distributes industrial park and school trips
Sandburg Road	Nevada Avenue to Douglas Drive	Local	Collector	Collects and distributes industrial park and school trips
Mendelssohn Avenue	Plymouth Avenue to Golden Valley Road	Local	Collector	Provides access to Highway 169 serving developed office and industrial land uses
10th Avenue	Mendelssohn Avenue to Rhode Island Avenue	Local	Collector	Provides east-west mobility and access into developed light industrial land use area
Golden Valley Road	Mendelssohn Avenue to Decatur Avenue	Local	Collector	Provides east-west mobility through developed office/light industrial/medium residential land use area
Decatur Avenue	10th Avenue to Golden Valley Road	Local	Collector	Provides north-south connection to TH 55 through a developed light industrial/commercial land use area
7th Avenue	Decatur Avenue to Boone Avenue	Local	Collector	Provides east-west connection through a developed commercial land use area
Golden Valley Road	Boone Avenue to Winnetka Avenue	Local	Collector	Provides east-west mobility through developed commercial and residential neighborhood
Wisconsin Avenue	10th Avenue to Highway 55	Local	Collector	Provides north-south connection to TH 55 through a developed commercial and residential neighborhood
Rhode Island Avenue	10th Avenue to Highway 55	Local	Collector	Provides north-south connection to TH 55 and access to downtown business district
Country Club Road	Rhode Island Avenue to Highway 55	Local	Collector	Provide east-west mobility parallel to TH 55 through a developed area
Laurel Avenue	Winnetka Avenue to Xenia Avenue	Local	Collector	Provide east-west mobility parallel to I-394 through developed /developing area
Jersey Avenue	Glenwood Avenue to Laurel Avenue	Local	Collector	Serves as an existing neighborhood collector through a developed area
Louisiana Avenue	Laurel Avenue to I-394	Local	Collector	Provides north-south connection to I-394 through a developed commercial area

Roadway	Segment	Classification		Remarks
		Existing	Proposed	
Market Street	Louisiana Avenue to Wayzata Boulevard	Local	Collector	Provides east-west mobility parallel to I-394 through developed commercial area
Wayzata Boulevard	Market Street to Golden Hills Drive	Local	Collector	Provides east-west mobility parallel to I-394 through developed commercial area
Golden Hills Drive	Wayzata Boulevard to Xenia Avenue	Local	Collector	Provides east-west mobility parallel to I-394 through developing residential and office area
TH 55 South Frontage Road	Douglas Drive to Turners Crossroad	Local	Collector	Serves as an existing neighborhood collector through a developed area
Turners Crossroad	TH 55 South Frontage Road to Glenwood Avenue	Local	Collector	Serves as an existing neighborhood collector through a developed area
Wayzata Boulevard	SLP City limits to Quentin Avenue (under TH 100)	Local	Collector	Provides east-west mobility parallel to I-394 through developed commercial area
Wayzata Boulevard	Quentin Avenue to France Avenue (Mpls city limits)	Local	Collector	Provides east-west mobility parallel to I-394 through developed residential area
Quentin Avenue	SLP city limits to Wayzata Boulevard	Local	Collector	Provides north-south mobility parallel to Highway 100 through developed residential area
Plymouth Avenue	Winnetka Avenue to Florida Avenue	Collector	Local	Serves local residential needs only with no access or dis-jointed access to arterials on either end
Florida Avenue	Plymouth Avenue to Phoenix Street	Collector	Local	Serves local residential access needs only
Phoenix Street	Florida Avenue to Douglas Drive	Collector	Local	Serves local residential access needs only

5.4 Access Management Plan

Key transportation corridors are important to the overall flow and ease of travel within and through Golden Valley. Principal arterials, minor arterials, and collector streets function best with proper access spacing. MnDOT has established access management guidelines for access spacing for use by local governments as well as MnDOT roadway management. Golden Valley will continue to observe these guidelines in its long range transportation system planning.

Each of the Interstate, U.S. and Minnesota Trunk highways that pass through Golden Valley are major transportation corridors in the Metro Area. Access management along these Principal Arterial corridors is essential in maintaining the ease of flow and speed continuity along the roadways. Ramp metering is used along I-394, U.S. 169, and T.H. 100 to manage traffic entering the highways. Access points along these corridors have been consolidated over time and all points of access are controlled and allowed only at interchanges. Access points along T.H. 55 include the use of traffic signals at all full access points and partial access at other intersections.

Minor Arterial roadways in the community observe more permissive access and traffic signal standards than principal arterial roadways. One-quarter mile access and signal spacing is

considered to be acceptable. Collector roadways are desirably served by access spacing at one eighth mile and traffic signal spacing at one-quarter mile. The following Table 4 illustrates applicable MnDOT access spacing guidelines adopted for use in Golden Valley's Transportation System.

Table 9 – Access and Signal Spacing Guidelines

MnDOT Access Category and Subcategory	Functional Classification	Intersection Spacing		Signal Spacing	Example Corridors in Golden Valley
		Primary Full Movement Intersection	Conditional Secondary Intersection		
Category: 4 Subcategory: B (Urban)	Principal Arterials (Expressway)	1/2 mile	1/4 mile	1/2 mile	T.H. 55
Category: 4 Subcategory: B (Urban)	Principal Arterials (Freeway)	1 Mile Interchange		N/A	I-394, U.S. 169, T.H. 100,
Category: 5 Subcategory: B (Urban)	Minor Arterials	1/4 mile	1/8 mile	1/4 mile	Douglas Drive, Winnetka Avenue North
Category: 6 Subcategory: B (Urban)	Collectors	1/8 mile	Not Applicable	1/4 mile	Golden Valley Road, Noble Avenue

Source: MnDOT Access Management Manual
January 2008

Corridors in Golden Valley that need additional access management considerations include US 169, TH 55, Douglas Drive, Winnetka Avenue, Golden Valley Road, and Noble Avenue. These corridors were fully developed prior to the adoption of access management standards and most of the accessibility issues have been addressed with minor improvements over time. Major improvements, such as TH 169's inadequate interchange access spacing between TH 55, Betty Crocker Drive, and I-394, and other intersections which present safety and congestion problems related to excessive access, remain as unmet needs.

When opportunities to redevelop private properties along Golden Valley's principally commercial districts occur, multiple driveway entrances on commercial and industrial properties should be carefully monitored and reduced if possible to better manage property access ingress and egress. Considerations should include driveway spacing, truck and delivery traffic needs, and trip generation/ peak hour turning movement characteristics. In addition, as sidewalks and trails are retrofitted to minor arterial and collector corridors, accessibility concerns for pedestrians and bicyclists should also be considered.

5.5 Right-of Way Preservation and Character

The Transportation system is comprised of 1,484 acres of right-of-way, which is approximately 22 percent of the total land in the city. The majority of this right-of-way is owned by the City, but right-of-way is also owned by MnDOT, Hennepin County, and railroad companies. Right-of-way preservation is the coordinated control or protection of the right-of-way for planned future transportation improvements. Right-of-way is also utilized for other public amenities, such as benches, public art, plazas, storm water management, and special signage. Right-of-way

preservation is often times addressed in the context of corridor management, which coordinates land use planning and long-term visioning in important transportation corridors.

5.5.1 Preservation Benefits and Strategies

Right-of-way preservation provides numerous benefits to communities, taxpayers, and the public. It promotes orderly and predictable development, minimizes damage to existing homes and businesses, reduces the costs of acquiring right-of-way, and decreases adverse social, economic, and environmental impacts on people and communities.

There are many different techniques and strategies available to protect right-of-way for future transportation corridors. The basic approaches are:

- Land Acquisition (purchase of easements, title purchase, eminent domain)
- Landowner Agreements (development agreements, transferable development rights)
- Land Use Regulations (development exactions, setback ordinances, official mapping, subdivision regulations)
- Access Management (limiting curb cuts, reverse lot frontage)

The applicability of these approaches is dependent on many factors including available funding, the immediacy of development, and the timing of the need for the road improvements.

5.5.2 Character

Since right-of-way comprises such a significant amount of land in the city and it is highly visible to the public, there is a recognition that the character of the right-of-way is part of the entire community's character. Character is defined by the way that a corridor looks and feels as well as the presence of special amenities. Examples of amenities include public art, informational displays, special signage, and benches. The visual character of a corridor can be a reflection of the community's values. For example, the Douglas Drive reconstruction included green infrastructure, extensive landscaping, undergrounding of overhead utilities, ADA accessibility improvements, signage for Bassett Creek, sidewalks with benches, on-street bicycle lanes, and a multi-use trail. These improvements are a reflection of the values within the community, which include sustainability, active living, and inclusivity of all populations. The City will continue to integrate community values and character into the right-of-way utilized for transportation purposes.

5.5.3 Advanced Telecommunications

Telecommunication (telecom) technologies are constantly evolving as private carriers are currently in the midst of next generation 5G implementation. As this telecom system expands, it is anticipated that there will be a need for smaller and more frequent facilities to locate within already crowded public rights-of-way. As a result, the City will track the progress of telecom technologies and determine if changes need to be made in its engineering design standards, zoning requirements, and/or permitting processes.

5.6 Transit Plan

The Transit Plan recognizes the need to plan for service adjustments and enhancements to accommodate changing demographics that will occur as higher density residential developments are completed and occupied. The Plan also recognizes that new needs and opportunities will

present themselves as the Blue Line LRT service begins in 2023. In addition, the recommendations of the Highway 169 Mobility study included BRT service and stations on TH 55, a concept that is strongly supported by the City.

Golden Valley supports restoring frequency and bring service to areas not currently served. The City will work with transit providers to identify potential future service options and facilities consistent with the Metropolitan Council Transportation Policy Plan (TPP) and the applicable Market Areas.

The City will continue to advocate for additional transit options and the enhancement of existing service to ensure community members have safe, affordable, and practical transit options. This requires collaboration with regional transit providers as well as advocacy for stable, long term transit funding from state and federal sources.

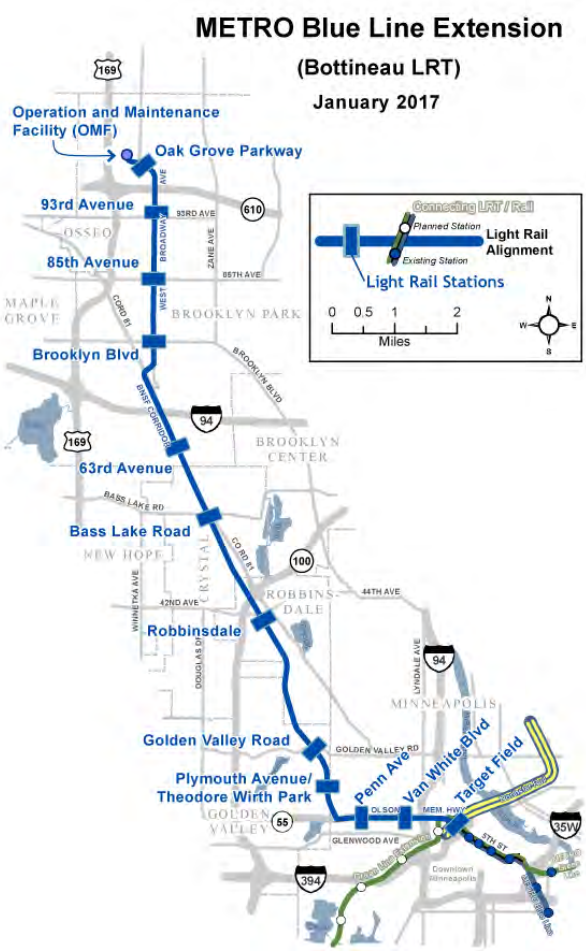
5.6.1 Metro Transit Blue Line Extension

The METRO Blue line is a dedicated light rail transit (LRT) corridor that will extend from downtown Minneapolis to northern Brooklyn Park. Formerly known as the Bottineau Light Rail Transit, the line will be an extension of the existing Blue Line (Hiawatha LRT) into the northwest suburbs. The line will travel out of downtown Minneapolis, through Golden Valley along the Burlington Northern Santa Fe Railroad Corridor, then into Robbinsdale, Crystal, and Brooklyn Park, where it will end north of Highway 610.

Two Blue Line Stations are planned in Golden Valley. The first will be at Plymouth Avenue/Theodore Wirth Park and the second at Golden Valley Road near the Theodore Wirth Parkway intersection. The Plymouth Avenue/Theodore Wirth Park station will provide convenient access to Wirth Chalet and the amenities of the park. The Golden Valley Road station will include a 90-space park-and-ride facility and will serve as a trailhead for bicycle and pedestrian routes that converge at the station. As part of the project, a new grade separated trail connection will be built to the west of the existing rail corridor to connect Theodore Wirth Park with Sochacki Park.

Enhanced Metro Transit bus service is planned to support ridership at the Golden Valley Road station. The feasibility of a City circulator or other shared mobility option will continue to be explored.

Construction is anticipated to begin in 2019 with fare service beginning in 2023. To accommodate light rail, three bridges in Golden Valley will need to be reconstructed on Plymouth Avenue, Theodore Wirth Parkway and Golden Valley Road. In addition, the intersection of Golden Valley Road and Theodore Wirth Parkway will be rebuilt to include a traffic signal and bicycle and pedestrian improvements.



LRT service is planned to begin along the Blue Line in 2023

5.6.2 Transit-Supportive Land Use Planning

The City acknowledges the link between transit and land use planning. The areas surrounding the Golden Valley Road station and Plymouth Avenue/Theodore Wirth Park station are located in Metropolitan Council's Transit Market Area II. This area is defined as typically having high to moderately high population and employment densities that can support fixed-route transit such as light rail. The Land Use Chapter of the 2040 Comprehensive Plan includes policies that support future growth around stations consistent with Metropolitan Council policies in regards to Land Use and Local Planning found in Chapter 3 of the Transportation Policy Plan.

The City will focus redevelopment efforts near high-frequency transit service and implement transit-oriented development policies in these areas. In addition, the City will educate residents about the relationship between development density and transit. Lastly, the improvements identified in the Bicycle and Pedestrian Plan will increase accessibility to the transit stations.

5.6.3 Highway 55 Bus Rapid Transit

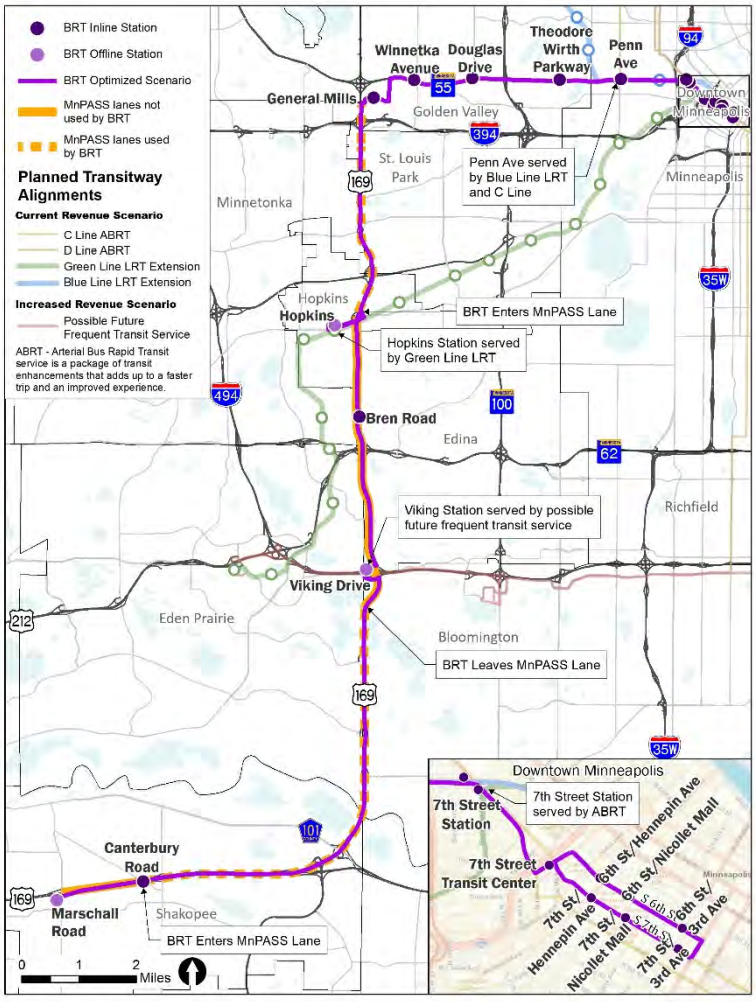
MnDOT, Scott County, and Metro Transit completed the Highway 169 Mobility Study in 2018. It assessed opportunities for improved mobility and safety along the Highway 169 corridor from Shakopee to downtown Minneapolis. The study included consideration of MnPASS highway travel express lanes along Highway 169 and Bus Rapid Transit (BRT) along the entire length of

the study area. Routing options along Highway 55 and I-394 were considered for BRT. The study recommended the “optimized scenario”, which includes a BRT route on Highway 55 with stations at General Mills Boulevard, Winnetka Avenue, Douglas Drive and Theodore Wirth Parkway.

Because of the community’s support for frequent, high quality transit service on Highway 55, the City took an active role in this transit study. The project is included in the 2018 update to the Metropolitan Councils’ 2040 Transportation Policy Plan (TPP), which is required in order to receive federal and regional funding for implementation. The City supports the inclusion of this corridor in the TPP and will continue to support further planning and design of Highway 55 BRT option in coming years.

Golden Valley’s Future Land Use Plan supports increased transit options and provides opportunities for redevelopment in the downtown area of Golden Valley as well as along Douglas Drive, both of which intersect potential stations for future BRT. Additional environmental, operations and design studies are needed to further develop the project.

In conjunction with the implementation of BRT on Highway 55 and MnPASS lanes on Highway 169, the study also identified the need for safety and mobility improvements on Highway 169 at the Highway 55, Betty Crocker Drive and I-394 interchanges. Identifying federal, state, regional and county funding for this project will be a priority for the City.



The Highway 169 Mobility Study recommended BRT stations along Highway 55 in Golden Valley as well as MnPASS lanes on Highway 169 with interchange improvements on Highway 169 at I-394, Betty Crocker Drive and Highway 55.

5.7 Pedestrian and Bicycle Plan

5.7.1 Regional Bicycle Transportation Network (RBTN)

The Metropolitan Council has defined the RBTN so that local planning efforts will be complimentary to the development of a regional system of trails and bikeways. The regional network is defined with two priority levels defined as Tier 1 and Tier 2. The existing RBTN trails and planning corridors in Golden Valley and adjacent communities are depicted in Figure 14.

Existing Tier 1 trails in Golden Valley include the Luce Line Trail and the Theodore Wirth Trail. A north-south Tier 1 planning corridor is shown by a wide planning area band extended from the south into Golden Valley generally centered along Louisiana Avenue. Another Tier 1 planning corridor is shown entering Golden Valley from the north generally between Highway 169 and Winnetka Avenue. Connection of these two north south planning corridors could be made along the Canadian Pacific Railroad Corridor. The City's pedestrian and trail plan identifies a future regional multi-use trail along this Canadian Pacific right of way which is "**proposed for the RBTN**".

Several existing and planned trails and bikeways in Golden Valley are complimentary to the Tier 2 RBTN's shown in Figure 14. Bike lanes were recently implemented on Glenwood Avenue by Hennepin County. This alignment correlates very closely with an east-west Tier 2 corridor. Similarly, Medicine Lake Road is planned for bike lanes and it also correlates to a Tier 2 corridor. Both of these county routes are candidates to be "proposed for the RBTN" but should be identified as such by the Hennepin County.

5.7.2 Bicycle and Pedestrian Plan

In 2016, the City established a Bicycle and Pedestrian Planning Task Force to review its assessment of bicycle and pedestrian facilities in the community. The Task Force evaluated input from the community and provided additional direction on City priorities. The planning process resulted in a map (See Figure 11) of recommended routes and intersection improvements and identified funding sources and potential partnerships with other agencies.

Several bicycle and pedestrian planning tools and were developed as part of the planning process including the following, all of which are included in Appendix A of this report:

- Bicycle and Pedestrian Network Map – this map identifies existing and planned sidewalks, multi-use trails, and on-street bicycle facility treatments
- Bicycle Facility Guidance – a matrix that defines potential bike facility treatment types and the corridor parameters for which they are best suited
- Intersection Treatment Toolkit – a matric of intersection crossing treatments that can be considered to safely serve non-motorized users crossings of streets and highways.

5.7.3 Bicycle Route Improvements

Since most of the roadways in Golden Valley have been reconstructed in the last 25 years, reconstruction is not expected again for several decades. During reconstruction, the City has the opportunity to build sidewalks, multi-use trails, or protected bike lanes at a lower cost than stand-alone bicycle route projects. It is more cost-effective to complete many of these bicycle and pedestrian improvements at that time. In the meantime, City staff will implement improvements that balance the space and cost constraints on current roadways. Sidewalks, multi-use trails, and

protected bike lanes will be implemented as financial resources become available or redevelopment opportunities arise.

Bicycle routes with wayfinding signage as well as on-street bicycle lanes can be constructed with mill and overlay projects, which occur in a shorter time frame than road reconstruction. Signs can be erected on these routes as a routine maintenance activity. The City divides maintenance responsibilities into five geographic zones. Each year, staff will implement the projects identified within that zone.

Through 2040, City improvements to the bicycle network will focus on:

- Constructing new routes to destinations such as Brookview, Blue Line light rail stations, schools, parks and nature areas, downtown, retail centers, senior housing developments, healthcare facilities, and the West End.
- Prioritizing the implementation of north-south routes in the network to improve connectivity
- Maximizing comfort and safety for bicyclist by applying industry best practices for bicycle facility design and providing clear separation between bicyclists and vehicular traffic
- Identifying and removing safety challenges for bicyclists at intersections, particularly on arterial roadways like Highway 55.
- Installing bicycle racks throughout the community

5.7.4 Pedestrian Route Improvements

The City has focused on implementing pedestrian routes for several decades. Nearly all major roadways in Golden Valley have a sidewalk or trail located on at least one side. Through 2040, the City will focus on the following improvements for the pedestrian network:

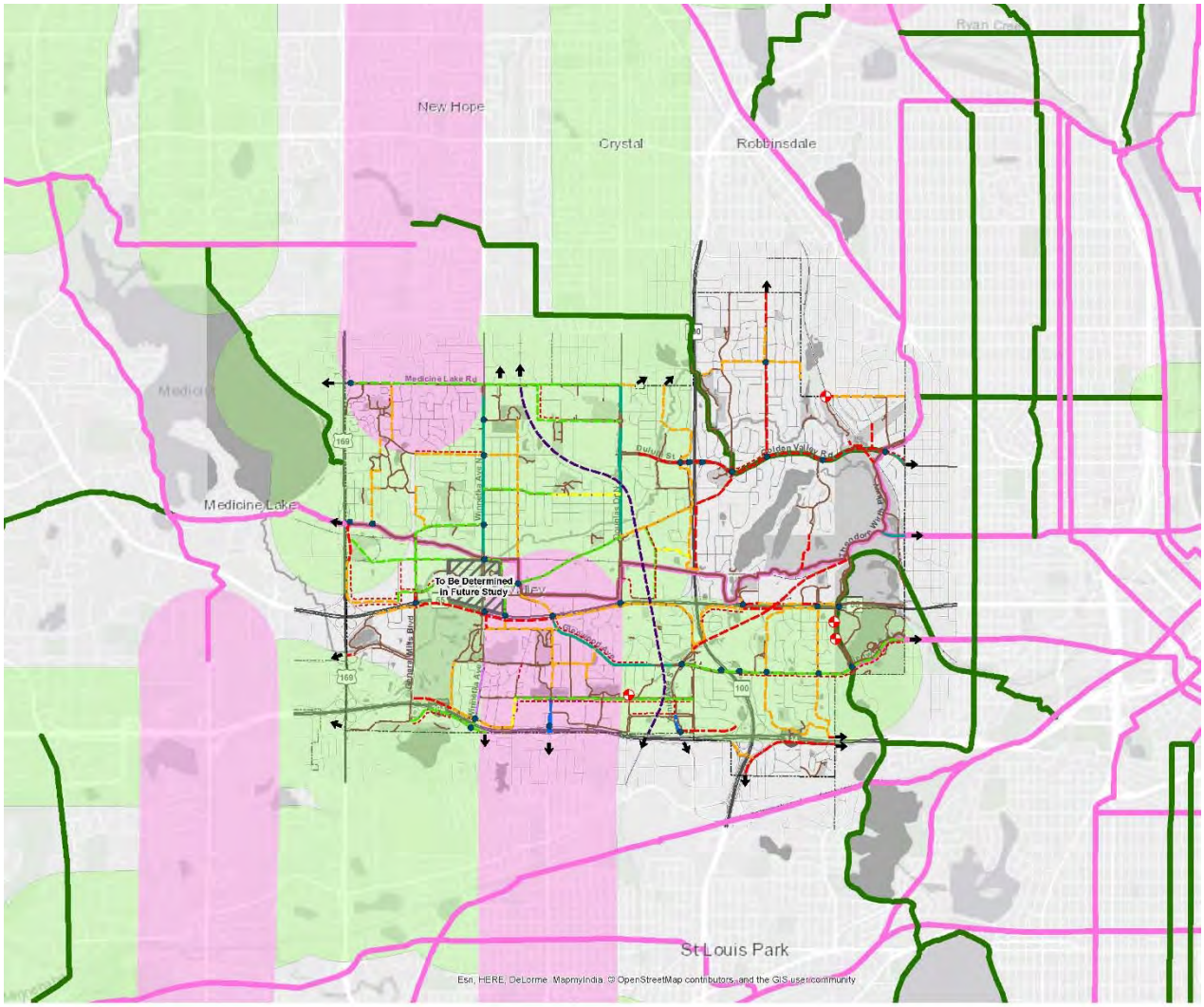
- Filling important gaps in the existing sidewalk network
- Prioritizing the enhancement of crossings and intersections for pedestrian safety and comfort
- Continuing to bring existing facilities into compliance with the standards established by the Americans with Disabilities Act
- Continuing to conduct regularly scheduled maintenance on existing pedestrian facilities
- Exploring options for improving winter maintenance (snow removal) of existing and future facilities

5.7.5 Implementation

Implementation of bicycle and pedestrian network improvements will occur as opportunities arise and financial resources become available. Exact timing of implementation will depend on funding, staff time, grant funding, and opportunities to partner with other organizations and property owners.

It is important that City staff evaluate the assumptions that were made when this plan was created and update the plan as assumptions change. These assumptions include cost estimates, local financial resources, grant funding programs, future population and employment growth projections, the City's Future Land Use Plan, existing technologies and best practices, community and City Council input on goals and priorities, existing roadway classifications, rate of accidents involving bicyclists or pedestrians, destinations within the community, and other factors that affect timing, cost and prioritization.

Figure 14 – Regional Bicycle Transportation Network



Existing
- Regional Trail
- Local Trail or Sidewalk
- On-Street Bike Lane

Proposed
- Protected Bikeway
- Bike Lane
- Enhanced Sharrow
- Signed Bike Route
- Multi-Use Trail
- Regional Multi-Use Trail
- Facility Type TBD
- Sidewalk

- Connection to Trail System in Adjacent City
- Intersection for Potential Crossing Treatments
- Multi-Use Trail Connection
- Future Study Area

- RBTN Tier 1 Alignment
- RBTN Tier 2 Alignment
- RBTN Tier 1 Corridor
- RBTN Tier 2 Corridor

0 0.25 0.5 1 Mile

Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017).

5.8 Sub-area Plans –Transportation Safety Improvements

Sub-area plans provide guidance for key redevelopment areas and other areas in need of traffic safety or operational improvements in the future.

5.8.1 Downtown West Planning District

5.8.1.1 Highway 169 and Highway 55 Interchange Area (Northeast Quadrant)

To serve changing land uses in the area, transportation improvements are programmed for a portion of the district between Mendelssohn Avenue and Boone Avenue along 7th Avenue, Decatur Avenue, and Golden Valley Road. Changes will include street and sidewalks improvements plus a safety improvement at the right-in/right-out access to Decatur Avenue from Highway 55. As site redevelopment occurs in this area, the City will continue to require that site access points be safely located and configured and that traffic impacts on the roadway network be mitigated in recognition of existing capacity constraints at the Highway 55 intersection with Boone Avenue and also the proximity to the congested operating conditions along Highway 169.

5.8.1.2 Winnetka Avenue and Highway 55 (Southeast Quadrant)

The City's Future Land Use Plan indicates a change to medium density residential land use. Winnetka Avenue south of Highway 55 operates near its capacity in the peak periods. Land uses that do not contribute significant peak period traffic flow should be encouraged. Access management guidelines should be observed and enforced to avoid impacts to traffic safety and flow on a roadway that already experiences congested flow during the peak periods. Direct access to Winnetka Avenue should not be allowed; site access should be planned to Harold Avenue or Rhode Island Avenue. The addition of a westbound right turn lane on Harold Avenue approaching Winnetka Avenue and the southerly extension of the northbound right lane on Winnetka Avenue from Harold Avenue to Highway 55 would be beneficial to traffic operations. Bicycle and pedestrian improvements should also be considered. Right-of-way dedication to accommodate these improvements should be considered when site redevelopment occurs.

5.8.2 I-394 Corridor District

The City's Future Land Use Plan identifies retail, office, and mixed uses along the corridor generally between I-394 and Laurel Avenue from Pennsylvania Avenue to Highway 100. Freeway access to this area is served by interchanges on I-394 at Louisiana Avenue and at Xenia Avenue. Local roadway system performance is subject to monitoring and review as defined in the I-394 Overlay District that applies to land uses in Golden Valley as well as in St. Louis Park.

5.8.2.1 Xenia Avenue Northwest Area

Much of the residential and office sites on near Xenia Avenue have been constructed or will soon be occupied. Roadway, sidewalk, and safety improvements will continue to be made as the development of these parcels is completed. When significant occupancy is achieved, the City should monitor and assess traffic operations and safety in the Xenia Avenue corridor to inform future potential infill development in the corridor.

Protected bikeway improvements over I-394 in the Xenia Avenue/Park Place corridor are identified in Golden Valley's and in Saint Louis Park's planned Bicycle and Pedestrian networks. The bikeway will enhance multi-modal opportunities between the West End development area south of the freeway and residential and employment centers in the Golden Hills area north of I-

394. The two cities should collaborate on development of a concept plan and jointly pursue funding opportunities.

5.8.2.2 Highway 100 / I-394 Interchange Area (Southwest Quadrant)

The West End shopping center in its surrounding area is located in the City of Golden Valley and the City of St. Louis Park. High-density redevelopment is expected to continue. Traffic impacts related to the proposed Central Park West development have been studied and several improvement needs were identified that affect traffic operations in Golden Valley – only some of which have been implemented. Specific elements yet to be constructed include traffic calming, safety and trail improvements on Wayzata Boulevard between Quentin Avenue and France Avenue, I-394 east bound entrance ramp capacity improvements to maximize capacity of the I-394/Highway 100 interchange and collector-distributor roadway, and traffic signal interconnection and coordination (timing plans) of signals on Park Place Boulevard and on Xenia Avenue.

5.8.2.3 Market Street Extension

Extension of Market St between Louisiana Avenue and Pennsylvania Avenue would provide improved access to a site that currently lacks direct public street access. A new street connection would also improve circulation on the public street system in the western end of the I-394 Corridor District. Extension should be considered if land use changes are proposed by adjacent owners.

5.8.2.4 Travel Demand Management Plans (TDMP)

The I-394 Overlay District regulations require that at TDMP be developed for sites that generate a significant number of daily or peak period trips. The scope of the TDMP for a given site will be prepared at the expense of the developer to the satisfaction of the Cities of Golden Valley and St. Louis Park. TDMP requirements could include traffic capacity and safety mitigation through a variety of on-site or off-site management strategies.

5.8.3 Douglas Drive Corridor Planning District

Douglas Drive has been reconstructed from Highway 55 to Medicine Lake Road. Safety, intersection control, sidewalk, and trail improvements have been implemented. While the larger corridor construction improvements have been made, additional improvements are desirable.

5.8.3.1 Country Club Drive / North TH 55 Frontage Road Extension

As part of the Douglas Drive project, direct access from Country Club Drive to Douglas Drive north of Highway 55 has been eliminated as a safety improvement. The access was realigned to operate as a right-in/right-out between Country Club Drive and westbound Highway 55. To improve local street connectivity, it is desirable to extend Country Club Drive northerly to join the existing signalized intersection of Douglas Drive and the North Highway 55 Frontage Road east of Douglas Drive. Extension of Country Club Drive would require right of way to be acquired from the currently vacant site in the northwest quadrant of Highway 55 and Douglas Drive.

5.8.3.2 Highway 55 South Frontage Road Improvement Concept

The intersection of Highway 55 and Douglas Drive experiences congestion and safety problems including operation issues on the south side of the intersection due to minimal separation between the frontage road and Highway 55. Pedestrian crossings of Highway 55 are also a concern including the safety of students crossing the highway from the transit stop north of the

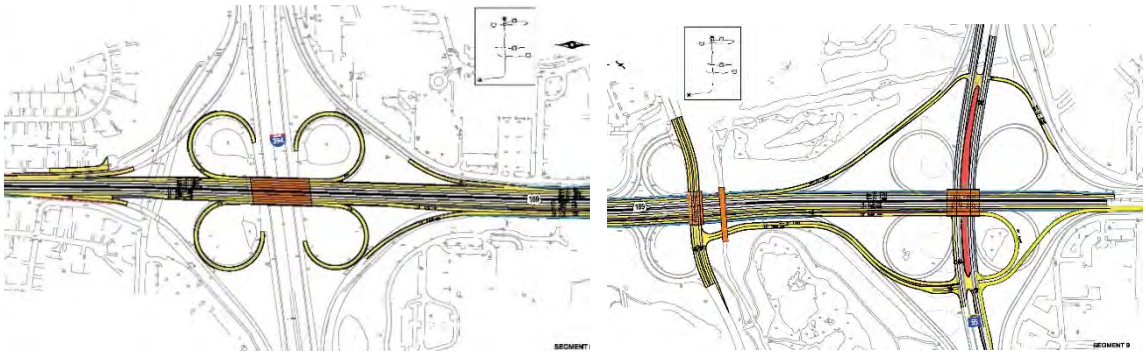
highway to attend Perpich Center for Arts Education School on the south side. An improvement concept has been identified and agreed upon by the City, Hennepin County, and MnDOT that creates a larger separation from Highway 55 to the south frontage road and controls the frontage road intersection with a mini-roundabout. A pedestrian underpass would be included to provide safe crossing opportunities for pedestrians and students. The City will continue cooperative efforts with MnDOT and Hennepin County to fund the improvements.

Highway 55 and Douglas Drive Frontage Road Realignment, Mini-Roundabout and Trail Tunnel

5.8.4 Other Sub-Areas

5.8.4.1 Highway 169 from I-394 to Highway 55

MnDOT, Scott County, and the Metropolitan Council completed the Highway 169 Mobility Study in 2018. The study provided conceptual designs that improve safety and mobility on Highway 169 at the Highway 55, Betty Crocker Drive, and I-394 interchanges. These improvements that can be made in preparation for or the eventual construction of MnPASS lanes on Highway 169 and BRT on Highway 169 and Highway 55. Identifying federal, state, regional, and county funding for this project will be a priority for the City. Golden Valley will continue to be cooperative and supportive of these study recommendations in order to resolve safety and capacity problems while simultaneously improving transit service within the city.



Mobility Study Concepts for Highway 169 Interchange Improvements at I-394, Betty Crocker Drive and Highway 55

5.8.4.2 Golden Valley Road Light Rail Transit Stop

The Metropolitan Council's Blue Line Light Rail Transit (LRT) project includes a transit station near the intersection of Golden Valley Road and Theodore Wirth Parkway. Intersection improvements and a traffic signal are planned with the Blue Line project to resolve existing safety issues at the intersection and more safely facilitate the increase in pedestrian and bicycle traffic. The City plans additional trail improvements along routes to and from the LRT station (see the Bicycle and Pedestrian Plan). The City will coordinate with Metro Transit to improve transit service along Golden Valley Road to serve the new demand generated by the Blue Line Extension.

5.8.4.3 Highway 100 / Highway 55 Interchange Area (Northwest Quadrant)

Land use changes are planned in this area to accommodate potential industrial expansion. Area roadways operate within their capacities today and in are still expected to in 2040. Access planning and site layout guidelines should be employed as new land uses in this area are defined so that new problems are not created. Problems that have been reported in the area due to existing uses include: pedestrian crossing issues between existing industrial sites; on street parking issues; driveway location issues; and truck access issues. Best practices for site design and access management should be followed to correct existing deficiencies and avoid new operational and safety issues on the streets.

5.8.4.4 Highway 55 South Frontage Road East of Glenwood Avenue

The intersection of Glenwood Avenue and the Highway 55 South Frontage Road occurs immediately adjacent to the Glenwood Avenue and Highway 55 intersection. Access to and from the frontage road creates safety conflicts with vehicles approaching Highway 55 from the south or waiting to be served by the traffic signal. Closure of the frontage road access to Glenwood Avenue should be considered creating a street served by access only from the east. A cul-de-sac should be planned to allow turn-around maneuvers by passenger vehicles, delivery trucks, school buses, and street maintenance trucks. Dedication of right-of-way for the cul-de-sac should be considered if subdivision of residential lots is considered.

5.8.4.5 Glenwood Avenue and Ottawa Avenue

The Breck School campus is located northerly of Glenwood Avenue with primary site access provided from Ottawa Avenue. School arrival and dismissal activity creates traffic congestion in both directions along Glenwood Avenue, especially between Ottawa Avenue and the Highway 100 ramp intersections. The school employs Golden Valley Community Service Officers to routinely perform intersection traffic control at the Ottawa Avenue intersection and at the easterly Highway 100 ramp intersection on school days. Resolution of the congestion problem without the need for traffic control officers will require roadway capacity and intersection control improvements. If expansion of the school site or enrollment increases are considered, the roadway capacity and traffic control improvements should be made.

5.9 Traffic Impact Plan

Golden Valley is committed to creating and maintaining a transportation system that is safe and efficient for all users. Any commercial or residential building permit application that will result in added traffic must submit a traffic impact analysis statement to the City. The statement must outline the type of development and the types of traffic associated with the new development. If the City determines that the traffic impact on the surrounding transportation network will be

significant, the City may request that the applicant complete a Travel Demand Management Plan for the proposed development.

If new development generates more than 1000 trips per day or 100 trips in the AM or PM peak hour the City may require that a traffic impact study be prepared at the applicant's expense.

5.9.1 Travel Demand Management Plan Guidelines

Any construction within the City Limits of Golden Valley that significantly changes traffic volumes and directional flow on the development's surrounding transportation network, as determined through the traffic impact plan process, must provide a Travel Demand Management Plan (TDMP) to the City for approval.

5.9.2 Requirements

Each TDMP must include a site plan, proposed square footage or units of each use type, forecasted trips at full build out, and operational measures of surrounding transportation network.

5.9.3 Traffic Mitigation Methods

Different methods may be used to reduce the impact of the new development on the surrounding transportation network. Examples of possible methods include, but are not limited to: connection to transit; carpool parking spots, bike lockers, flexible work hours, telecommuting, restricted hours of operation, construction of additional traffic lanes, construction of traffic signal, and installation of traffic signage.

It is important to note that while possible methods are listed here, they may not apply to a development, not reduce the traffic impact, or not be feasible and therefore will not be considered as a trip-reducing mitigation method.

5.9.4 Approval Process

The TDMP must be submitted to the City for approval. The City will respond to the TDMP by either approving the TDMP or requesting further information. The applicant may respond to the Cities request for further information or withdraw their TDMP from consideration.

5.9.5 Effectiveness of Traffic Mitigation Measures

If a development has a significant impact on the surrounding transportation network and mitigation measures were included as part of the approved TDMP, then follow up data must be collected to verify the development is in compliance with limits set by the approved TDMP.

6 Emerging Trends Affecting Transportation

Technologies as they apply to transportation and traffic management are evolving rapidly. The city will monitor these trends for influences that may have impact on the public, or for opportunities to embrace technologies that may be beneficial.

6.1 Ascent of Autonomous Vehicles

An autonomous vehicle (also known as a driverless vehicle, self-driving vehicle, robotic vehicle) is a vehicle that is capable of sensing its environment and navigating without human input. Their

ubiquity is not a matter of if, but a matter of when. Many such systems are evolving and several pilot projects have been initiated throughout the Country.

Autonomous cars use a combination or system of technologies. The first system is for general navigation. A GPS system provides accurate location of a road and provides the overall direction of the vehicle. The second is a system of sensors, radars, or cameras to recognize dynamic conditions (other roadway users, stopped cars, road construction, bikers, pedestrian, etc.). The third system aggregates all the data collected from the mix of navigation sensors to provide action for the autonomous vehicle. Further technologies are under development that will allow vehicles and other objects to "speak" to one another, which will significantly enhance safety and operations.

A number of direct transportation benefits could arise from the use of autonomous vehicles including, but not limited to, reduced congestion or increased mobility, improved safety for all roadway users (vehicles, bicyclists, pedestrians), and lower infrastructure costs. Other benefits may also be realized such lower insurance costs, lower fuel consumption, less need for parking, enhanced mobility of youth, disabled, low-income, and/or elderly populations.

Among the main obstacles to widespread development are technological challenges, government regulations, funding, liability, replacement of existing vehicles, and security just to name a few.

As autonomous vehicle technology continues to evolve and gain acceptance and use, the city will follow and evaluate the potential of such vehicles and its implications to city regulations and design requirements.

6.2 Drones or Unmanned Aerial Vehicles

Drones, or Unmanned Aerial Vehicles (UAVs), have become smaller, more powerful, and less expensive and as a result have become much more common sight in our cities.

The Federal Aviation Administration predicts the number of drones to grow from approximately 2.5 million in 2017 to over 8 million by 2020. It is anticipated that over the next 20 years, an increasing number of drones will carry out services hundreds of feet above our roadways. Cities will need to adopt and not just plan for activities on the ground but also on an aerial basis.

Several issues surround the use of drones including safety, noise, personal intrusion, and privacy. The City of Golden Valley will need to account for their legal limits and restrictions (land use and zoning powers) and have a solid understanding of their role in protecting the public realm by possibly designating when and where drones (or UAVs) can operate.

6.3 Advanced Telecommunications

Telecommunication (Telecom) technologies are constantly evolving as private carriers are currently in the midst of next generation 5G implementation. As this telecom system expands it is anticipated that there will be a need for "small cell sites" to locate within already crowded public rights of way. As a result, the City of Golden Valley will track the progress of telecom technologies and determine if changes need to be made in their Roadway Design Guide, zoning requirements, and/or permitting processes.

6.4 Systems Currently Available

Current systems that are already available include the following:

- On-board collision avoidance systems – car manufacturers are currently offering various forms of driver warning systems (i.e. centerline crossing warnings) and collision avoidance systems (i.e. automatic emergency braking).
- Automatic parallel parking – vehicles are currently on the market equipped with sensors and automated steering control that automatically perform a parallel parking maneuver.
- GPS navigation – on board wayfinding is commonly available in modern vehicles
- On-board breathalyzer system – this is an interlock mechanism that will immobilize the vehicle if the driver's breath indicates the presence of alcohol above a specified level

7 Implementation

The implementation section of the Transportation Plan identifies improvement projects for inclusion in the City's Capital Improvement Plan, priorities, and potential funding sources for recommended improvements.

7.1 Implementation Plan

The Implementation Plan for this Chapter includes a set of specific actions to accomplish the goals and objectives set forth in the Policy Plan. It differs from the Policy Plan in that it provides the opportunity to easily measure progress and note tangible outcomes from each task. Each task provides an approximate cost estimate for the work and notes a timeframe in which the specific action should take place. Tasks are prioritized based on financial feasibility, staff capacity, importance or urgency for action, and other factors. The Implementation Plan is updated every 5 years (mid-cycle of the 10 year Policy Plan) based on progress and new opportunities.

7.1.1 Preserve and Enhance the Transportation System

Implementation Actions:

- Continue the Pavement Management Program until transitioning to the Infrastructure Renewal Program.
- Transition to the Infrastructure Renewal Program. Establish maintenance districts within the city for implementation of maintenance, preservation, and rehabilitation projects.
- Provide long-term and sustainable funding for maintenance staff, equipment, and related resources to allow restoration and improvement of aged or worn infrastructure.
- Address infrastructure funding in the City's legislative priorities in order to encourage the state legislature to provide stable, long-term funding for capital improvements and maintenance.
- Review transportation project designs for opportunities to incorporate green infrastructure. This could include rain gardens, rainwater harvesting practices, green alleys or parking lots, pervious pavement, green roofs and walls, tree trenches and boxes, and native plantings.
- Continue to make ADA improvements to existing infrastructure.
- Continue employing right-of-way preservation strategies.

7.1.2 Improve the Functionality and Safety of the Roadway Network

Implementation Actions:

- Conduct vehicle speed audits in areas of concern. Respond to local reports of speeding by conducting audits. Additional enforcement of speed limits or consideration for traffic calming measures may be necessary.
- Monitor crash statistics for trends and tailor crash reduction improvements for targeted areas.
- Review redevelopment projects for opportunities to implement roadway improvements, monitor traffic impacts, implement access management strategies, and resolve safety deficiencies.
- Continue the work of the Traffic Safety Committee to review and respond to safety and traffic control issues in the city.
- Assess existing network for traffic calming opportunities, particularly on local streets.
- Follow MnDOT guidance on emerging vehicle technologies such as automated and connected vehicles.
- Improve intersection geometry in identified areas to address safety issues and delays.
- Improve traffic control at intersections in areas with a determined need in order to reduce intersection delays on signalized corridors.
- Update traffic signal phasing and timing to promote efficient traffic flow as appropriate.
- Promote High Occupancy Vehicle (HOV) bypasses for congested highways such as Highway 169
- Require development proposals to include TDM plans or traffic impact studies when significant traffic impacts are expected. Developers are required to fund and/or construct improvements that prevent or mitigate traffic impacts.

7.1.3 Expand the Bicycle and Pedestrian Network in Order to Provide a Balanced System of Transportation Alternatives

Implementation Actions:

- Continue to assess existing bicycle and pedestrian facilities. Assess the condition, safety, and improvement needs of current bicycle and pedestrian facilities.
- Research ways to increase bicycle mode share. Identify the locations for the highest potential bicycle trip generation and seek opportunities to increase the mode share of biking in those areas
- Improve the pedestrian environment in the downtown area to ensure it is a safe, enjoyable, and accessible place to walk. Encourage strategies such as wider sidewalks for pedestrian movement, trees, landscaping, street furniture, improved transit facilities, and additional bicycle facilities.
- Implement cost-effective on-street bike routes and bike lanes in conjunction with pavement marking and traffic sign replacement/maintenance program.
- Conduct site plan review as redevelopment occurs to ensure that sites provide an environment conducive to walking and biking.
- Require developers and property owners to install and sidewalks in identified areas as redevelopment occurs.

- Conduct further study on bicycle improvements for the downtown area. Assess existing conditions in order to understand the feasibility of implementing new facilities in the area.
- Utilize the City's facility design guide for the planning and construction of new bicycle and pedestrian facilities in the community.
- Apply for grant funding for as projects become eligible. Monitor grant funds and match funding with projects identified in the bicycle and pedestrian plan.
- Request state bond funding for large infrastructure projects. Focus on large projects that include bicycle and pedestrian improvements

7.1.4 Maximize Safety, Comfort, and Convenience for Bicyclists and Pedestrians

Implementation Actions:

- Work with MnDOT to prioritize north-south crossings at Highway 55 and I-394.
- Evaluate policy for biking on sidewalks. Assess whether bicyclists will continue to be allowed to bike on sidewalks.
- Install wayfinding or directional signage in strategic locations
- Educate the public on bicycle and pedestrian safety. Use CityNews, the City website, and social media.
- Monitor crash data that includes bicycle and pedestrians. Prioritize improvements that reduce bicycle and pedestrian crashes in the community.
- Install bicycle racks in various locations throughout the city and require installation by private property owners as redevelopment occurs.
- Explore programming that encourages walking and biking.
- Research methods and practices to cost-effectively enhance winter maintenance of trails and sidewalks.

7.1.5 Support and Promote Increased Transit Usage

Implementation Actions:

- Continue to coordinate with Metro Transit. Continually assess the existing transit system performance and adapt to changing needs.
- Take an active role in transit studies. Promote additional transit in Golden Valley by participating in transit studies conducted by other agencies.
- Require and build transit-friendly infrastructure in planning districts. The planning districts are identified in the Future Land Use Plan.
- Advocate for enhancements to transit stops. Focus on the heavily used transit stops in the community that lack amenities such as shelter and heating.
- Research circulator system options. Access to the light rail and major employers should be a focus of any research.
- Advocate for additional transit funding from the state legislature. Stable, long-term transit funding is necessary in order to meet the transit goals of Golden Valley and surrounding communities.
- Develop educational material about density and transit. Educate residents about the necessary relationship between density and transit.

7.1.6 Integrate Community Values and Character into the Transportation System

Implementation Actions:

- Assess the condition of existing aesthetic treatments in the right-of-way. This may include landscaping, decorative lighting, wayfinding or interpretive signage, benches. Determine maintenance needs and opportunities for improvement.
- Develop and apply a uniform design scheme in the right-of-way. This would apply to landscaping, signage, lighting, benches, and other features in the right-of-way.
- Identify locations appropriate for public art. This could include gateway locations or community spaces.
- Work with regional transportation partners to incorporate local design schemes and aesthetic treatment themes chosen by the community into projects.
- Secure funding partnerships to construct and maintain unique public infrastructure. This could include corporate sponsorships and partnerships with non-profit organizations, schools, and other community groups or individuals.
- Research ways to incorporate racial equity evaluations into transportation planning and design.
- Continue to gather community input for the planning and design of transportation projects in the city.
- Bury existing overhead utilities with projects as resources and opportunities arise.

Table 10 – Summary of Implementation Actions

Action	Estimated Cost	Timeframe
Preserve and Enhance the Transportation System		
Continue the Pavement Management Program	$$$	0-5 years
Transition to the Infrastructure Renewal Program	$$$	Ongoing
Provide long-term and sustainable funding for maintenance	$$$	Ongoing
Address infrastructure funding in the City's legislative priorities	$	0-5 years
Review transportation project designs for opportunities to incorporate green infrastructure	$	Ongoing
Continue to make ADA improvements to existing infrastructure	$$	Ongoing
Continue employing right-of-way preservation strategies	$	Ongoing
Improve the Functionality and Safety of the Roadway Network		
Conduct vehicle speed audits in areas of concern	$	Ongoing
Monitor crash statistics	$	Ongoing
Review redevelopment projects	$	Ongoing
Continue the work of the Traffic Safety Committee	$	Ongoing
Assess existing network for traffic calming opportunities	$	Ongoing
Follow MnDOT guidance on emerging vehicle technologies	$	Ongoing
Improve intersection geometry	$$	0-5 years
Improve traffic control at intersections	$$	0-5 years
Update traffic signal phasing and timing	$$	0-5 years
Promote High Occupancy Vehicle (HOV) bypasses	$	Ongoing
Require development proposals to include TDM plans or traffic impact studies	$	Ongoing
Expand the Bicycle and Pedestrian Network in Order to Provide a Balanced System of Transportation Alternatives		
Continue to assess existing bicycle and pedestrian facilities	$	Ongoing
Research ways to increase bicycle mode share	$	5-10 years
Improve the pedestrian environment in the downtown area	$$	5-10 years
Implement cost-effective on-street bike routes	$	0-5 years
Conduct site plan review	$	Ongoing
Require developers and property owners to install and maintain sidewalks	$	Ongoing
Conduct further study on bicycle improvements for the downtown area	$	0-5 years
Utilize the City's facility design guide	$	Ongoing
Apply for grant funding for as projects become eligible	$	Ongoing
Request state bond funding for large infrastructure projects	$	Ongoing
Maximize Safety, Comfort, and Convenience for Bicyclists and Pedestrians		
Work with MnDOT to prioritize north-south crossings	$$$	0-5 years
Evaluate policy for biking on sidewalks	$	5-10 years
Install wayfinding or directional signage	$	0-5 years
Educate the public on bicycle and pedestrian safety	$	Ongoing
Monitor crash data that includes bicycle and pedestrians	$	Ongoing
Install bicycle racks	$	0-5 years
Explore programming that encourages walking and biking	$	5-10 years

Action	Estimated Cost	Timeframe
Research methods and practices to cost-effectively enhance winter maintenance of trails and sidewalks	$	5-10 years
Support and Promote Increased Transit Usage		
Continue to coordinate with Metro Transit	$	Ongoing
Take an active role in transit studies	$	Ongoing
Require and build transit-friendly infrastructure in planning districts	$$	0-5 years
Advocate for enhancements to transit stops	$	0-5 years
Research circulator system options	$	0-5 years
Advocate for additional transit funding from the state legislature	$	0-5 years
Develop educational material about density and transit	$	5-10 years
Integrate Community Values and Character into the Transportation System		
Assess the condition of existing aesthetic treatments in the right-of-way	$	0-5 years
Develop and apply a uniform design scheme in the right-of-way	$	Ongoing
Identify locations appropriate for public art in the right-of-way	$	0-5 years
Work with regional transportation partners to incorporate local design schemes	$	Ongoing
Secure funding partnerships to construct and maintain unique public infrastructure	$	5-10 years
Research ways to incorporate racial equity evaluations	$	0-5 years
Continue to gather community input	$	Ongoing
Bury existing overhead utilities with projects as resources and opportunities arise	$$$	Ongoing

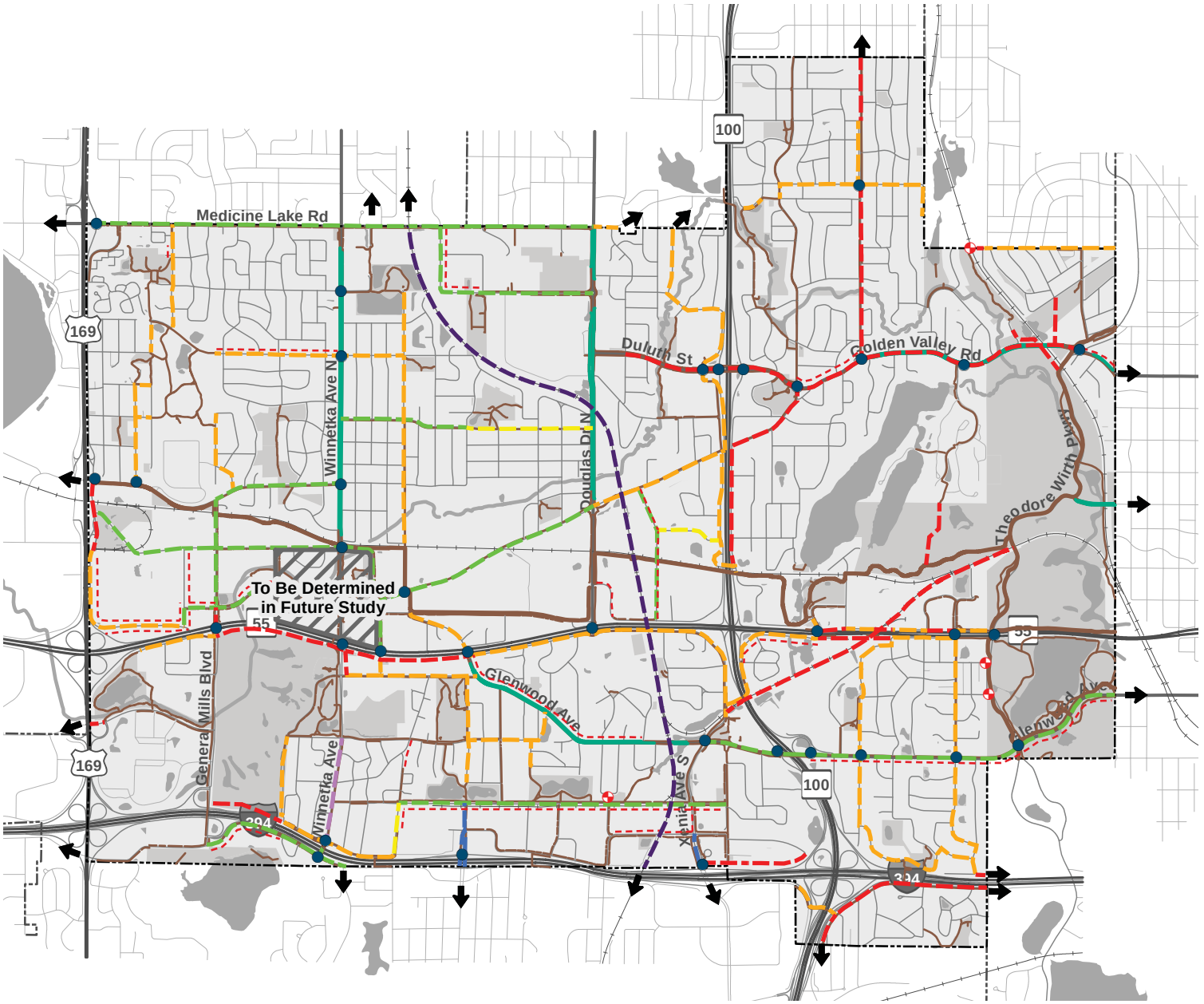
Appendix A

Bicycle and Pedestrian Network

Bicycle and Pedestrian Plan

Bicycle Facility Guidance

Intersection Treatment Toolkit



Bicycle & Pedestrian Network

Existing

- Regional Trail
- Local Trail or Sidewalk
- On-Street Bike Lane

Proposed

- Protected Bikeway
- Bike Lane
- Enhanced Sharrow
- Signed Bike Route
- Multi-Use Trail
- Regional Multi-Use Trail
- Facility Type TBD
- Sidewalk
- Connection to Trail System in Adjacent City
- Intersection for Potential Crossing Treatments
- Multi-Use Trail Connection
- Future Study Area

0 0.25 0.5 1 Mile

Sources: Hennepin County Surveyors Office for Property Lines (2017), City of Golden Valley for all other layers (2017)

List of Recommended Improvements

Map	Location	Treatment	Cost	Partnerships & Funding
	26th Avenue Kewanee Way/City of Robbinsdale boundary to Xerxes Avenue/City of Minneapolis Boundary	Signed Bicycle Route	$$	Hennepin County, City of Robbinsdale, CIP
	Boone Avenue and Mandan Avenue General Mills Research Nature Area to Plymouth Avenue	Signed Bicycle Route	$	CIP
	Brookview Parkway Western Avenue to Wayzata Boulevard (I-394 North Frontage Road)	Signed Bicycle Route	$	CIP
	Courtlawn Circle West Western Avenue to Courtlawn Circle South	Signed Bicycle Route	$	CIP
	Culver Road, Regent Avenue, Dawnview Terrace, and June Avenue Briarwood Nature Area to Sochacki Park	Signed Bicycle Route	$	CIP, Hennepin County
	Duluth Street General Mills Research Nature Area to Pennsylvania Avenue	Signed Bicycle Route	$	CIP
	Ensign Avenue Medicine Lake Road to General Mills Research Nature Area	Signed Bicycle Route	$	CIP
	Flag Avenue Duluth Street to Earl Street	Signed Bicycle Route	$	CIP
	Gettysburg Avenue Naper Street to Plymouth Avenue with connection to General Mills Research Nature Area via Naper Street and Olympia Street	Signed Bicycle Route	$	CIP
	Glenwood Avenue Country Club Drive to Highway 55	Signed Bicycle Route	$	CIP
	Harold Avenue Winnetka Avenue to Glenwood Avenue	Signed Bicycle Route	$	CIP

Map	Location	Treatment	Cost	Partnerships & Funding
	Highway 55 South Frontage Road General Mills Nature Preserve to General Mills Boulevard	Signed Bicycle Route	$	CIP
	Highway 55 South Frontage Road and Turners Crossroad Glenwood Avenue to Schaper Road	Signed Bicycle Route	$	CIP, Municipal State Aid
	Lilac Drive (west of Highway 100), Westbrook Drive, and Brookridge Avenue City of Crystal Bassett Creek Park to Luce Line Regional Trail	Signed Bicycle Route	$	CIP
	Louisiana Avenue Harold Avenue to Laurel Avenue	Signed Bicycle Route	$	CIP
	Meadow Lane Highway 55 to Wayzata Boulevard (I-394 North Frontage Road)	Signed Bicycle Route	$	CIP, Municipal State Aid
	Medicine Lake Road Douglas Drive to Brunswick Avenue/City of Crystal Boundary	Signed Bicycle Route	$	CIP, City of Crystal
	Natchez Avenue Highway 55 to pedestrian bridge over I-394 on Sunset Ridge (route includes Chatelain Terrace, Westwood Drive, and Sunset Ridge)	Signed Bicycle Route	$	CIP
	Pennsylvania Avenue Pennsylvania Woods to Luce Line Regional Trail	Signed Bicycle Route	$	CIP
	Rhode Island Avenue Highway 55 to Harold Avenue	Signed Bicycle Route	$	CIP
	Wayzata Boulevard (I-394 North Frontage Road) Brookview Parkway to Pennsylvania Avenue	Signed Bicycle Route	$	CIP
	Western Avenue and Hampshire Avenue Louisiana Avenue to Glenwood Avenue	Signed Bicycle Route	$	CIP
	Golden Valley Road Rhode Island Avenue to Lilac Drive	On-Street Bicycle Lanes and Signed Bicycle Route (varies by segment)	$$	CIP, Municipal State Aid

Map	Location	Treatment	Cost	Partnerships & Funding
	10th Avenue and Rhode Island Avenue Mendelssohn Avenue to Highway 55	On-Street Bicycle Lanes	$$	CIP, Municipal State Aid
	Boone Avenue Plymouth Avenue to 7th Avenue/Golden Valley Road	On-Street Bicycle Lanes	$$	CIP, Municipal State Aid
	Decatur Avenue 10th Avenue to Golden Valley Road	On-Street Bicycle Lanes	$$	CIP, Municipal State Aid
	Glenwood Avenue Highway 55 to Xerxes Avenue/City of Minneapolis boundary	On-Street Bicycle Lanes	$$	Hennepin County
	Golden Valley Road Decatur Avenue to Wisconsin Avenue	On-Street Bicycle Lanes	$$	CIP, Municipal State Aid
	Laurel Avenue Pennsylvania Avenue to Turners Crossroad	On-Street Bicycle Lanes	$$	CIP, Municipal State Aid
	Medicine Lake Road Highway 169 to Douglas Drive	On-Street Bicycle Lanes	$$	Hennepin County, CIP, City of Plymouth, City of New Hope, City of Crystal
	Plymouth Avenue Boone Avenue to Winnetka Avenue	On-Street Bicycle Lanes	$$	CIP, Municipal State Aid
	Sandburg Road Medicine Lake Road to Douglas Drive	On-Street Bicycle Lanes	$$	CIP, Municipal State Aid
	Wayzata Boulevard (I-394 South Frontage Road) General Mills Boulevard to Texas Avenue/St. Louis Park City boundary	On-Street Bicycle Lanes and Signed Bicycle Route (varies by segment)	$$	CIP, Municipal State Aid, City of St. Louis Park
	Winnetka Avenue I-394 North Frontage Road to I-394 South Frontage Road	On-Street Bicycle Lanes	$$	CIP, Municipal State Aid, MnDOT
	Zane Avenue Golden Valley Road to Highway 55 North Frontage Road	On-Street Bicycle Lanes	$$	CIP, Municipal State Aid, Property Owners
	Lindsey Street Zane Avenue to Lilac Drive	Enhanced Sharrow	$$	CIP

Map	Location	Treatment	Cost	Partnerships & Funding
	Olympia Street Winnetka Avenue to Douglas Drive	On-Street Bicycle Lanes and Enhanced Sharrows (varies by segment)	$$	CIP, Municipal State Aid
	Pennsylvania Avenue Laurel Avenue to Wayzata Boulevard (I-394 North Frontage Road)	Enhanced Sharrow	$$	CIP, Municipal State Aid
	Louisiana Avenue Laurel Avenue to Wayzata Boulevard (I-394 South Frontage Road)/St. Louis Park City Boundary	Protected Bikeway	$$$	CIP, Municipal State Aid
	Xenia Avenue Laurel Avenue to Wayzata Boulevard (I-394 South Frontage Road)/City of St. Louis Park Boundary	Multi-Use Trail and Protected Bikeway (varies by segment)	$$$	CIP, Municipal State Aid
	Golden Valley Road Plymouth Avenue to Decatur Avenue	Multi-Use Trail and Signed Bicycle Route (varies by segment)	$$$	CIP, Municipal State Aid
	Highway 55 North Frontage Road Schaper Road to Theodore Wirth Parkway	Multi-Use Trail and Signed Bicycle Route (varies by segment)	$$$	CIP, Property Owners
	Highway 55 South Frontage Road Schaper Road to Theodore Wirth Parkway	Multi-Use Trail and Signed Bicycle Route (varies by segment)	$$$	CIP, Property Owners
	Wayzata Boulevard (South Frontage Road of I-394) Xenia Avenue/Park Place to France Avenue/St. Louis Park City boundary	Multi-Use Trail and Signed Bicycle Route (varies by segment)	$$$	CIP, Hennepin County, City of St. Louis Park, City of Minneapolis
	Betty Crocker Drive Existing multi-use trail to City of Plymouth boundary	Multi-Use Trail	$$$	CIP, Municipal State Aid, MnDOT, City of Plymouth
	Boone Avenue Golden Valley Road/7th Avenue to Highway 55	Multi-Use Trail	$$$	CIP, Municipal State Aid
	Duluth Street from Brunswick Avenue to Lilac Drive	Multi-Use Trail	$$$	Hennepin County, CIP

Map	Location	Treatment	Cost	Partnerships & Funding
	Glenview Terrace Park and Church of St. Margaret Mary Manor Drive to Golden Valley Road	Multi-Use Trail	$$$	Hennepin County, Minneapolis Park and Rec Board, Property Owners
	Golden Valley Road Toledo Avenue to Theodore Wirth Parkway	Multi-Use Trail	$$$	Three Rivers Park District, Hennepin County, Metropolitan Council, CIP
	Hidden Lake Parkway Golden Valley Road to Luce Line Trail Regional Trail	Multi-Use Trail	$$$	CIP
	Highway 55 (south side of road) General Mills Boulevard to Winnetka Avenue	Multi-Use Trail	$$$	MnDOT, CIP
	Highway 55 (south side of road) Winnetka Avenue to Glenwood Avenue	Multi-Use Trail	$$$	MnDOT, CIP, Property Owners
	Lilac Drive (east side of Highway 100) and Golden Valley Road Duluth Street to Luce Line Regional Trail	Multi-Use Trail	$$$	CIP
	Noble Avenue 34th Avenue/City of Crystal Boundary to Golden Valley Road	Multi-Use Trail and Signed Bicycle Route (varies by segment)	$$$	CIP, Municipal State Aid, Hennepin County
	Wayzata Boulevard (I-394 North Frontage Road) General Mills Boulevard to Brookview Parkway	Multi-Use Trail	$$$	CIP
	Wayzata Boulevard (I-394 North Frontage Road) and Sunset Ridge Pedestrian bridge over I-394 on Sunset Ridge to entrance into Theodore Wirth Park	Multi-Use Trail	$$$	CIP
	Wayzata Boulevard (I-394 North Frontage Road) Xenia Avenue to Circle Down	Multi-Use Trail	$$$	CIP, Property Owners
	Winnetka Avenue (east side of road) Highway 55 to Harold Avenue	Multi-Use Trail	$$$	CIP, Municipal State Aid, Property Owners

Map	Location	Treatment	Cost	Partnerships & Funding
	26th Avenue to Sochacki Park at BNSF Railroad and Blue Line Light Rail	Multi-Use Trail Connection	$$$$	No funding sources or partnerships identified
	Douglas Drive Underpass at Highway 55	Multi-Use Trail Connection	$$$	MnDOT, CIP
	Laurel Avenue to Dakota Avenue/ Brunswick Avenue	Multi-Use Trail Connection	$$	CIP, Municipal State Aid
	Theodore Wirth Parkway to Woodstock Avenue	Multi-Use Trail Connection	$$	CIP, Minneapolis Park and Recreation Board
	Theodore Wirth Parkway to Poplar Drive	Multi-Use Trail Connection	$$	CIP, Minneapolis Park and Recreation Board
	Canadian Pacific Railroad City of New Hope Boundary to City of St. Louis Park Boundary	Regional Multi-Use Trail	$$$$	Three Rivers Park District, Rails to Trails Program, Metropolitan Council, Hennepin County, CIP
	Winnetka Avenue (east side of road) Western Avenue to Wayzata Boulevard (I-394 North Frontage Road)	Bicycle Facility TBD	$$$$	CIP, Municipal State Aid
	7th Avenue (both sides of road) Decatur Avenue to Boone Avenue	Sidewalk	$$$	CIP, Property Owners, Municipal State Aid, TIF
	Decatur Avenue (one or both sides of road - varies by segment) 10th Avenue to Golden Valley Road	Sidewalk	$$$	CIP, Property Owners, Municipal State Aid, TIF
	Duluth Street (north side of road) from General Mills Research Nature Area to Winnetka Avenue	Sidewalk	$$$	CIP, Property Owners
	Ensign Avenue (west side of road) Medicine Lake Road to Medley Lane/Medley Park	Sidewalk	$$$	CIP, Property Owners
	Glenwood Avenue (north side of road) Highway 55 to Meander Road	Sidewalk	$$$	Hennepin County, Property Owners
	Glenwood Avenue (south side of road)	Sidewalk	$$$	Hennepin County, Property Owners

Map	Location	Treatment	Cost	Partnerships & Funding
	Highway 100 bridge to Xerxes Avenue/City of Minneapolis Boundary			
	Golden Hills Drive (north side of road) Colorado Avenue to Xenia Avenue	Sidewalk	$$$	CIP, Municipal State Aid, Property Owners
	Golden Valley Road (one or both sides of road – varies by segment) Railroad Spur to Decatur Avenue	Sidewalk	$$$	CIP, Property Owners, TIF
	Golden Valley Road (north side of road) Regent Avenue to Noble Avenue	Sidewalk	$$$	Hennepin County, CIP, Property Owners
	Golden Valley Road (north side of road) Theodore Wirth Parkway to Xerxes Avenue/City of Minneapolis Boundary	Sidewalk	$$$	Hennepin County, Property Owners
	Highway 55 North Frontage Road Douglas Drive to Zane Avenue	Sidewalk	$$$	CIP, Municipal State Aid, Property Owners
	Laurel Avenue (south side of road) Pennsylvania Avenue to Xenia Avenue	Sidewalk	$$$	CIP, Municipal State Aid, Property Owners
	Lilac Drive and Highway 55 South Frontage Road Woodstock Avenue to Schaper Road	Sidewalk	$$$	CIP, Property Owners
	Nevada Avenue and Sandburg Road (east and north sides of roads) Medicine Lake Road to Louisiana Avenue	Sidewalk	$$$	CIP, Municipal State Aid, Property Owners
	Pennsylvania Avenue and Ridgeway Road Western Avenue and Wayzata Boulevard (I-394 South Frontage Road)	Sidewalk	$$$	CIP, Municipal State Aid, Property Owners
	Wayzata Boulevard (I-394 South Frontage Road) General Mills Boulevard to Wisconsin Avenue	Sidewalk	$$$	MnDOT, CIP, Property Owners

Map	Location	Treatment	Cost	Partnerships & Funding
	Highway 55 & Boone Avenue	**Potential Intersection Treatments:** • Modified Design of Channelized Slip Lanes • Curb Extensions • Median Refuges • Reduced Turning Radii • High-Visibility Pavement Markings (Advance Stop Bars, Crosswalks, Elephant Tracks, Bicycle Boxes) • Enhanced Traffic Signal Devices (Countdown Timers, Leading Interval) • Rectangular Rapid Flashing Beacon • Overhead Pedestrian Warning System • High Intensity Pedestrian Actuated Crosswalk System • Pedestrian Crossing Signage, Channelized Right Island Signage		MnDOT, CIP
	Highway 55 & Winnetka Avenue			MnDOT, Hennepin County, CIP
	Highway 55 & Rhode Island Avenue			MnDOT, CIP
	Highway 55 & Glenwood Avenue			MnDOT, Hennepin County, CIP
	Highway 55 & Douglas Drive			MnDOT, Hennepin County, CIP
	Highway 55 & Schaper Road			MnDOT, CIP
	Highway 55 & Meadow Lane			MnDOT, CIP
	Highway 55 & Theodore Wirth Parkway			MnDOT, Minneapolis Park and Recreation Board, CIP
	Highway 100 & Duluth Street			MnDOT, Hennepin County
	Highway 100 & Glenwood			MnDOT, Hennepin County
	Highway 169 & Luce Line/Plymouth Avenue			Three Rivers Park District, MnDOT, Hennepin County, CIP
	Highway 169 & Medicine Lake Road			MnDOT, Hennepin County
	Winnetka & Medicine Lake Road			Hennepin County
	Winnetka & 23rd Avenue			Hennepin County, CIP
	Winnetka & Duluth Street			Hennepin County, CIP
	Winnetka & Plymouth Avenue			Hennepin County, CIP
	Winnetka & Luce Line/10th Avenue			Three Rivers Park District, Hennepin County, CIP
	Winnetka & Western Avenue			CIP
	Winnetka & Wayzata Boulevard (I-394 North Frontage Road)			MnDOT, CIP
	Winnetka & Wayzata Boulevard (I-394 South Frontage Road)			MnDOT, CIP, City of St. Louis Park
	Pennsylvania Avenue & Golden Valley Road			CIP
	Pennsylvania Avenue & Wayzata Boulevard (I-394 North Frontage Road)			MnDOT, CIP
	Gettysburg Avenue & Plymouth Avenue			CIP
	Golden Valley Road & Duluth Street & Regent Avenue			Hennepin County, CIP

Map	Location	Treatment	Cost	Partnerships & Funding
	Golden Valley Road & Noble Avenue			Hennepin County, CIP
	Noble Avenue & Culver Road			Hennepin County, CIP
	Golden Valley Road & Hidden Lakes Parkway			Hennepin County, CIP
	Glenwood Avenue & Natchez Avenue			Hennepin County, CIP
	Glenwood Avenue & Meadow Lane			Hennepin County, CIP
	Glenwood Avenue & Theodore Wirth Parkway			Hennepin County, Minneapolis Park and Recreation Board, CIP
	Xenia Avenue & I-394			MnDOT, Metropolitan Council, Hennepin County, City of St. Louis Park, CIP
	Glenwood Avenue & Xenia Avenue			Hennepin County, CIP

Funding Sources Summary

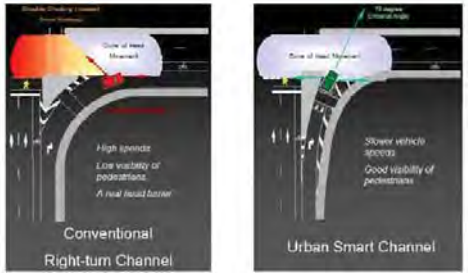
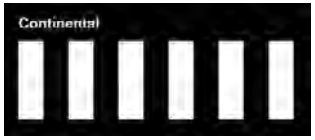
Funding Source	Description	Opportunities
Capital Improvement Plan (CIP)	The Golden Valley CIP is used to guide capital investments within the community. It is updated annually to reflect the changing needs in the transportation network.	Improvements to streets owned by City of Golden Valley
Municipal State Aid	Funds are allocated to the City from the State of Minnesota for improvements to streets identified as Municipal State Aid streets, which are typically collector roadways that are owned by the City of Golden Valley.	Improvements to streets owned by City of Golden Valley and identified as Municipal State Aid streets.
Tax Increment Financing (TIF)	Improvements may be made using anticipated tax revenue from a redevelopment project. A TIF district must be formally established and improvements must be identified in TIF plan.	Improvements to streets within an established TIF district.
Metropolitan Council	Programs Include: • Regional Solicitation for Federal Funding • Transportation Alternatives Program • Livable Communities Demonstration Account • Transit Oriented Development Grants	Improvements that are eligible for funding, which are typically identified as regional investments or located near transitways, employment centers, or affordable housing developments.

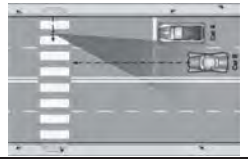
Funding Source	Description	Opportunities
State of Minnesota (including MnDOT and DNR)	Programs Include: • Safe Routes to School • Corridor Investment Management Strategy • Trails Legacy Grant Program • Local Trail Connection Program • Regional Trail Grant Program • Outdoor Recreation Grant Program	MnDOT is responsible for improvements to streets owned by the State of Minnesota. Improvements within 2-mile radius of schools are eligible for Safe Routes to School funding for capital costs and studies. Regional trails and trails located in parks are eligible for certain programs.
Hennepin County	Programs Include: • Bicycle and Pedestrian Capital Improvement Program • Transit Oriented Development Grants	Hennepin County is responsible for improvements to streets owned by Hennepin County. Improvements identified in adopted Hennepin County Plans are eligible for grants for capital costs and feasibility studies.
Property Owners	Property owners that benefit from a roadway improvement may be assessed for the cost of construction by the City. Developers may be required to provide trails and sidewalks at the time of redevelopment, which can be negotiated during the site plan review process.	Staff will utilize the Bicycle and Pedestrian Plan when working with developers and property owners on redevelopment projects and roadway improvement projects.
Public/Private Partnerships	Organizations can provide assistance in design, funding, outreach, easements, use agreements, and maintenance of bicycle and pedestrian facilities on public and private land.	The City will continue to explore this option for funding
Organizations and Corporate Donors	Donations from private organizations and corporations can be accepted for projects.	The City will continue to explore this option for funding.
Increase in Franchise Fees	The City has the ability to increase franchise fees for customers of Xcel Energy and CenterPoint Energy in order to fund improvements to the network.	The City will continue to explore this option for funding.
Trail Dedication Funds	Minnesota State Statute allows local governments to require dedication of land for trails or cash in-lieu of land with subdivision or Planned Unit Development applications. This is currently not permitted by City Code.	The City will continue to explore this option for funding.

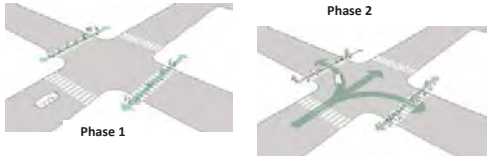
Street Type	AADT	Speed	Options	Treatment	Minimum Desirable Cross Sections (See Note 1)	Design Standards	Details	Images	Capital and Maintenance Costs
Local-Residential	0-3000	30	Option A	Signed Bicycle Route	<34'	State Aid standards as applicable	if <34' with parking, then it is a signed route		Low Cost
		30	Option B	Sharrow	14'T/Sharrow, 14'T/Sharrow = 28'	State Aid standards as applicable	if = 28' without parking		
					7'P, 11'T, 14'T/Sharrow = 33'		if = or >33' with one side parking		
Collector	1000-7000	< 40		Enhanced Sharrow	if 28'-34' and no parking	State Aid standards as applicable	Fill gaps on bike lane street where there isnt enough room for a bike lane (28'-34' no parking or 41' with one side parking)	 	
					if 41' or > one side parking				
Collector	3000-10000	30-40	Option A	Bike Lane	6'B, 11'T, 11'T, 6'B = 34'	Minimum Bike Lane 5', Desirable Bike Lane 6', State Aid standards as applicable	if 34' or > without parking		
					7'P, 6'B, 11'T, 11'T, 6'B = 41'	State Aid may require variance for 7' parking	if 41' or > with one side parking		
					7'P, 6'B, 11'T, 11'T, 6'B, 7'P = 48'	State Aid may require variance for 7' parking	if 48' or > with two side parking		
		30-40	Option B	Buffered Bike Lane	6'B, 2'Bu, 11'T, 11'T, 2'Bu, 6'B = 38'	State Aid standards as applicable	Where excess space allows and/or there is a traffic calming opportunity.		
		30-40	Option C	Multi-Use Trail	2'C, 8'P, 2'C = 12'	State Aid standards as applicable			
Collector-Arterial	> 10000	40 and greater	Option A	Protected Bike Lane - One Way, includes physical protection	5'B, 3'Bu, 11'T, 11'T, 3'Bu, 5'B = 38'	Minimum Bike Lane 5', Desirable Bike Lane 6', State Aid (SA) standards as applicable	if 38' or > without parking		
					8'P, 5'B, 3'Bu, 11'T, 11'T, 3'Bu, 5'B = 46'	State Aid may require variance for 8' parking	if 46' or > with one side parking		
				Protected Bike Lane - Two Way, includes physical protection	10'B, 3'Bu, 11'T, 11'T, 2'C = 37'				
		40 and greater	Option B	Multi-Use Trail	2'C, 8'P, 2'C = 12'	State Aid standards as applicable		See above	High Cost

Note 1) B = Bike Lane; Bu = Buffer; C = Clear Zone; T = Travel Lane

Note 2) Achieving safety standards for motorized and non-motorized users is the primary goal. On Municipal State Aid routes, when safety would not be compromised, deviations from State Aid standards may be considered, subject to approval through the State Aid Variance process.

Type	ID	Treatment[1]	Example	Pedestrian	Bicycle	Considerations
Channelized Slip Lanes	A	Modified Design of Channelized Right Turns		X	X	Improves visibility of crossing pedestrians; improves sight line for motorists; slows motorist speeds; shortens crossing of the right-turn lane itself as pedestrians can cross at a right angle; cut-through medians and islands improve ADA accessibility. Cost or maintenance issues: Most cost effectively implemented with street reconstruction; Moderate-high cost as a stand alone project.
	B	Signing at Channelized Right Islands		X	X	Improves visibility of crossing pedestrians; and reduces conflicts with motor vehicles. Used in combination with A (above).
Geometric	C	Reduced Curb Radii, Truck Apron or Striping at curb radius		X		Reduces motorist speeds, apron allows for heavy vehicles to execute turns. Cost or maintenance issues: Most cost effectively implemented with street reconstruction; Moderate cost as a stand alone project.
	D	Curb extension		X		Extends sidewalks further into the street; shortens crossing length of the crosswalk; traffic calming by narrowing street; improves visibility for and of pedestrians; may impact ability to provide on-street bicycle facilities. Cost or maintenance issues: Most cost effectively implemented with street reconstruction; Moderate-high cost as a stand alone project.
	E	Median Refuge		X	X	Provides accessible protected refuge area for pedestrians crossing multiple lanes of traffic. Cost or maintenance issues: Most cost effectively implemented with street reconstruction; Moderate cost as a stand alone project if compatible with street width and lane uses.
Pavement Markings - Pedestrian and Bicycle	F	Continental Crosswalks		X	X	Visible to approaching motorists, especially in dark and/or wet conditions.

Type	ID	Treatment[1]	Example	Pedestrian	Bicycle	Considerations
Pavement Markings - Pedestrian and Bicycle	G	Advance Stop Bars		X	X	Keeps motorists from encroaching into the crosswalk; on multi-lane streets; advanced stop bars allow pedestrians to be seen by motorists in adjacent lanes.
Pavement Markings - Bicycle	H	"Elephant" track through intersection			X	Defines bicyclist route across an intersection; increases awareness of bicyclist through intersection; reduces bicyclist stress by delineating the bicycling zone; Bicyclist movements are more predictable. Cost or maintenance issues: Increased maintenance effort/cost to maintain colored pavement surface.
Pavement Markings - Bicycle	I	Green Conflict Marking	 		X	Highlights area of motorist and bicyclist conflict at intersections. Cost or maintenance issues: Increased maintenance effort/cost to maintain colored pavement surface.
	J	Bicycle Boxes			X	Improves bicyclist ability to safely and comfortably make left turns; provides a formal queuing space in front of waiting vehicles for bicyclists to turn at intersections; reduces conflicts between bicyclists and turning motorists; reduces avoidance maneuvers by both bicyclists and motorists; reduces bicyclists and motor vehicles encroaching into pedestrian crosswalks when stopped at an intersection.
	K	Two-Stage Turn Queue Box	 		X	Improves bicyclist ability to safely and comfortably make left turns; provides a formal queuing space for turning bicyclists; reduces turning conflicts between bicyclists and motor vehicles; prevents conflicts from bicyclists queuing in a bike lane or using crosswalk; separates turning bicyclists from through bicyclists; Cost or maintenance issues: Increased maintenance effort/cost to maintain colored pavement surface.
Devices	L	Traffic Signal - Countdown Signal Indications		X	X	Informs pedestrians of time remaining to cross the street.

Type	ID	Treatment[1]	Example	Pedestrian	Bicycle	Considerations
Devices	M	Traffic Signal - Leading Interval		X	X	Establishes the pedestrian in the crosswalk or bicyclist in the intersection before motor vehicles begin to move; improved visibility of crossing pedestrians as they occupy crosswalk rather than curb when motorist signal phase changes. Cost, maintenance, or operational issues: May require signal system modifications; May not be operationally feasible in some locations; subject to agency approval on County or MnDOT routes.
	N	Rectangular Rapid Flashing Beacon (RRFB)		X	X	User-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks; increased motorist yielding rate (compliance) to crossing pedestrians. Cost, maintenance, or operational issues: Moderate-high cost to construct; subject to agency approval on County or MnDOT routes.
	O	Overhead Pedestrian Warning System		X	X	Overhead mounted device and warning signs at unsignalized intersections or mid-block crosswalks; increased visibility - in particular on multi-lane or wider streets or those with medians. Cost, maintenance, or operational issues: Moderate-high cost to construct; subject to agency approval on County or MnDOT routes.
	P	High Intensity Pedestrian Actuated Crosswalk System (HAWK)		X	X	Subject to MMUTCD [2] Warrant Criteria; user-actuated device at unsignalized intersections or mid-block crosswalks; provides solid red indication for motorists to stop for the crossing pedestrian; beacon is dark if not activated; when activated device proceeds through cycle of flashing yellow, solid yellow, solid red and flashing red - pedestrian indication walk begins at solid red phase. Cost or operational issues: High cost to construct; subject to agency approval on County or MnDOT routes.
Signing	Q	Pedestrian Crossing Signing		X	X	Indentifies crosssing location; Advance warning signing alerts motorists of upcoming crossing.
Grade Separation	R	Pedestrian or Trail Bridge		X	X	Grade separation of non motorized travelers from autos. Requires space at touchdown locations for elevation changes and ADA requirements. Cost or operational issues: High cost to construct; subject to agency approval on County or MnDOT routes.

Notes:
(1) The application of the treatment(s) shall be based upon an engineering review and is subject to established design standards and guidance.
(2) Minnesota Manual on Uniform Traffic Control Devices.

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