



Chapter Three: Transportation Plan



PROFESSIONAL CERTIFICATION

I hereby certify that this report, drawing, or specification was prepared by me or under my direct supervision and that I am a duly Licensed Engineer under the laws of the State of Minnesota.

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I. INTRODUCTION

The City of Andover presents this Transportation Plan as a guideline to be used for the implementation of various elements of the City's transportation system. The studies and analyses presented in the plan address each of the following:

- Roadway System
- Transit
- Access Management
- Rail Crossing Safety
- Air Service
- Trails System
- Roadway Funding Potentials
- Freight Movement

Within the transportation plan, analyses have been completed that involve the projection of traffic volumes, analysis of various potentially problematic intersections, as well as other identified traffic/transportation issues.

The plan, which follows, provides the recommendations regarding the various transportation elements within the City of Andover. As with any plan, it is intended to be dynamic in that it will require review and revision as conditions in the City evolve and change.

II. TRANSPORTATION GOALS, OBJECTIVES AND POLICIES

Goal: Provide a safe and efficient transportation system that is cost effective and serves the existing and future access and mobility needs of the City

Objective: Ensure adequate internal and external transportation access and links for efficient movement of people and goods

Objective: Provide a transportation system that enhances quality economic development within the City

Objective: Provide a transportation system that meets the varied needs of Andover residents with a focus on Context Sensitive Designs

Objective: Consider the mobility needs of all persons in the planning and development of the transportation system

Policies:

- Provide for early and continuing citizen involvement in transportation planning and implementation of projects
- Provide public education through the City website, public meetings, and other mediums to help inform residents of new transportation elements and changes that are occurring within the community
- Provide a roadway system within a functional hierarchy that accommodates existing and future travel demands by providing the necessary design features to satisfy the roadway's intended use and functional classification
- Provide sufficient roadway capacity through the construction of transportation system improvements that accommodate existing and future demand
- Require construction of transportation system improvements in conjunction with new developments when the need is created by the new development
- Require payment for future transportation improvements as a part of development approval proportionate to the demand created by new developments
- Ensure that all components of the transportation system are maintained and developed to the highest standards to ensure against detrimental impact upon community growth
- Utilize the Capital Improvement Plan to schedule projects that increase public safety by minimizing hazards and improving intersections and access points in need of safety improvements

Goal: Provide a coordinated transportation system that is compatible with adjacent municipality, Anoka County, Metropolitan Council and State of Minnesota transportation plans

Objective: Coordinate transportation planning and transportation system improvements with other government agencies to increase efficiencies

Objective: Increase opportunities for funding of local transportation system improvements from county, state, and federal funding sources

Policies:

- Coordinate grant applications and other funding requests, when appropriate, with neighboring municipalities, as well as state and county agencies
- Coordinate participation of Anoka County and adjacent cities, where appropriate, in the provision of Transportation Plan elements

Goal: **Provide multi-modal transportation options, enhancing accessibility and providing an interconnected multi-use trail system, whenever and wherever feasible and advantageous**

Objective: Periodically evaluate potential ridership and feasibility of joining the Metropolitan Transit Capital Levy District to provide additional transit options for Andover residents

Objective: Decrease the vehicle load on the transportation network while adding flexibility in mobility options

Objective: Provide an accessible trail system that links residential neighborhoods, commercial developments, and park areas

Objective: Utilize multiple funding sources to complete the regional and local trail systems

Objective: Coordinate trail construction with street improvement projects, new development, expansion and redevelopment projects

Objective: Create ADA compliant facilities providing accessibility to all residents

Policies:

- Identify locations for park and ride facilities and preserve the ability to implement these facilities in the future
- Promote ridesharing and increased vehicle occupancies throughout the City
- Maintain a map of existing and future local and regional trails and coordinate trail planning, construction, and maintenance of the Capital Improvement Plan
- Fund regional trail system improvements adjacent to residential properties with trail fees collected from new residential developments, state aid funds and federal funds where eligible for such funding
- Pursue Safe Routes to School funding options through the possibility of mini-grants or local, private, or federal funding
- Require regional trail construction adjacent to commercial and industrial properties, where shown on the trails plan, in conjunction with development, expansion and redevelopment projects
- Require local trail construction adjacent to residential, commercial and industrial properties, where shown on the trails plan, in conjunction with development, expansion and redevelopment projects
- Develop trails in accordance with the American Association of State Highway Transportation Officials (AASHTO) standards
- Coordinate trail and sidewalk improvements, where appropriate, with Anoka County and neighboring cities

- Upgrade pedestrian facilities to current ADA standards whenever adjacent roadway projects are undertaken and/or wherever high pedestrian use facilities necessitate stand-alone projects

Goal: **Minimize impacts of the transportation system on the natural environment**

Objective: Ensure environmentally sensitive implementation of the transportation system through the planning, design, and construction of improvements

Objective: Consider the impacts of improvements to the existing transportation system on land use, environmental, social, historical, and cultural resources

Policies:

- Adhere to best management practices and all components of the Implementation Plan during the planning, construction, and maintenance of the transportation system
- Separate non-motorized traffic from arterial and collector roadways when feasible
- Pursue land use efficiency through the grouping of complementary land uses
- Encourage joint parking facilities to conserve land

Goal: **Create “attractive” roadways through routine maintenance and customized community involved transportation elements**

Objective: Ensure roadway elements are maintained and kept clean, so they do not become an eyesore for Andover residents

Objective: Convert standard roadway elements into consistent pieces specific to Andover, Minnesota

Objective: Create a sense of community pride through public involvement in roadway beautification projects

Policies:

- Consider the addition of landscaping to streets and parks to increase aesthetics and visual appeal of existing and proposed projects
- Upkeep paint on roadway elements such as traffic signals, fire hydrants, and signal cabinets
- Pursue the options of community involvement in roadway beautification projects, such as Adopt-A-Street, to help enhance the visual appeal of traffic elements such as fire hydrants and controller cabinets
- Consider unique hardscaping elements to help provide aesthetic pleasure to sidewalks, medians, and crosswalks

III. EXISTING CONDITIONS

The development of a Transportation Plan begins with the collection and review of various data, which can be denoted as existing conditions. These existing conditions, or characteristics, provide the base upon which the system plan is then built. This chapter provides information on certain existing conditions that have been reviewed during the preparation of the Transportation Plan.

A. Roadway Jurisdiction

The Andover roadway system consists of County roads, County State-Aid Highways (CSAH), Municipal State Aid (MSA) facilities and local City streets. No State of Minnesota highways are in the City of Andover. A map indicating the roadway jurisdiction is contained in *Figure 1*.

B. Roadway Functional Classification

The functional classification of roadways in the City of Andover consists of the following types:

- 'A' Minor Arterials
- Other Arterials
- Major Collectors
- Minor Collectors
- Local (which includes Minimum Maintenance Roads)

The functional classification system will be reviewed and discussed as part of the Transportation Plan. The existing functional classification system is illustrated in *Figure 2*.

C. Existing Traffic Volumes

The most recent daily traffic volume information for the primary roadways in Andover was obtained from various sources including State and County traffic flow models and maps and the City of Andover. The most recent (2014 or newer) daily traffic volume information is provided in *Figure 3*.

D. Trails

There are a number of existing trails, both on- and off-road, in Andover. In addition to these existing trails, the City has a Trail Plan designed to expand the existing network of trails for use by the public. The existing Trails Plan is shown in *Figure 4*.

E. Transit Service

Andover lies outside the Metropolitan Transit Capital Levy District and does not have fixed route transit services. The routes closest to the city travel through Coon Rapids and Anoka, but never enter the City of Andover. These are routes 805, 850 and 852.

Paratransit services, once provided by the Anoka County Traveler, are no longer available. However, Anoka County Transit Link does provide service within Andover to anyone needing transit services. Services areas and hours can be found at the following

website: <https://metro council.org/transportation/services/transit-link/service-areas-and-hours.aspx>

Same day rides must be booked at least two hours before the desired pickup time. Cancellations of service must be completed at least one hour before the scheduled pick-up time. Fares are dependent on the mileage of the trip and are as follows as of October 1, 2017:

- Rush hour trips less than 15 miles - \$4.50 each way
- Rush hour trips greater than 15 miles - \$5.25 each way
- Non-rush hour trips less than 15 miles - \$3.50 each way
- Non-rush hour trips greater than 15 miles - \$4.25 each way

There are no park-and-ride or transit centers in Andover, although according to Metro Transit's 2014 Metro Transit Rider Survey, Andover MN is one of the top ten (10) zip code origins of Metro Transit ridership, based on percentage. Current regional Park-and-Ride lots near Andover include:

- Anoka – Anoka Station – 4th Avenue & Johnson Street
- Blaine – Northtown Transit Center – 85th Avenue & Jefferson
- Blaine – Paul Parkway – Paul Parkway & Ulysses Street NE
- Blaine – 95th Avenue Park & Ride – 95th Avenue NE & I-35W
- Coon Rapids – MTC Park & Ride - Foley Blvd – Between Coon Rapids Blvd and East River Road near Hwy 610
- Coon Rapids – Coon Rapids-Riverdale Station – 121st Lane & Northdale Blvd.
- East Bethel – Hwy 65 at County Road 24 (no bus service)
- East Bethel – East Bethel Theatre – 18635 Ulysses Street NE
- East Bethel – East Bethel Ice Arena – Hwy 65 between 205th Avenue & 209th Avenue
- Elk River – Elk River Station – 171st Lane & Tyler Street NW
- Elk River - Hwy 169 & School Street NW (no bus service)
- Fridley – Fridley Station – 61st Avenue & Maine Street NE
- Fridley – Church of St. William – 6120 5th Street NE
- Ham Lake – Family of Christ Lutheran Church – 16345 Polk Street NE
- Ramsey – Ramsey Station – 7550 Sunwood Drive

In the event transit services are expanded into Andover, the City has discussed possible locations in the past. Major north-south commuting routes, such as Hanson Boulevard NW and Round Lake Boulevard NW, and east-west routes, such as Bunker Lake Boulevard NW, should be examined for potential Park-and-Ride locations.

Nowthen

Oak Grove

East Bethel



TRANSPORTATION PLAN

LEGEND

Roadway Jurisdiction

- County State Aid Highway
- Municipal State Aid
- County Road
- City Road

Ham Lake

Existing Roadway Jurisdiction

Figure 1

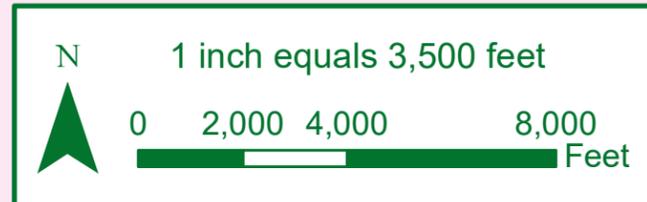
Revised February 2018

Ramsey

Anoka

Coon Rapids

Blaine



Nowthen

Oak Grove

East Bethel

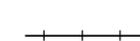
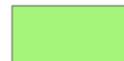
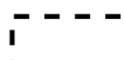


TRANSPORTATION PLAN

LEGEND

Functional Classification

-  A Minor Arterial
-  Other Minor Arterial
-  Major Collector
-  Minor Collector
-  Local

-  Railroad
-  Parks
-  Water
-  City Limits
-  Long Range Rail/Street Grade Separation

Existing Functional Classification System

Figure 2

Revised June 2019

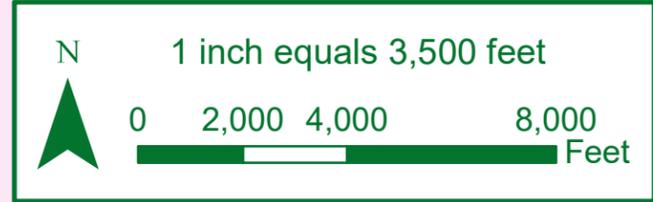
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Anoka

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Ham Lake

Blaine



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Nowthen

Oak Grove

East Bethel



TRANSPORTATION PLAN

LEGEND

- MnDOT Traffic-Studied Road
- Major Node - All Roads Split
- Minor Node - One Road Split
- Other City Roads
- City Limits
- 2015/2016 AADT
- 2015/2016 HCAADT

Ham Lake

Ramsey

ROUND LAKE

Anoka

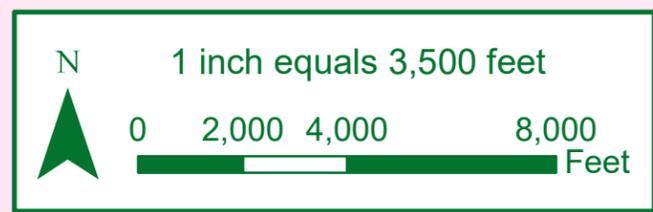
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Blaine

2015/2016 Daily Traffic Volumes

Figure 3

Revised February 2020
Data Source - MN Dept. of Transportation



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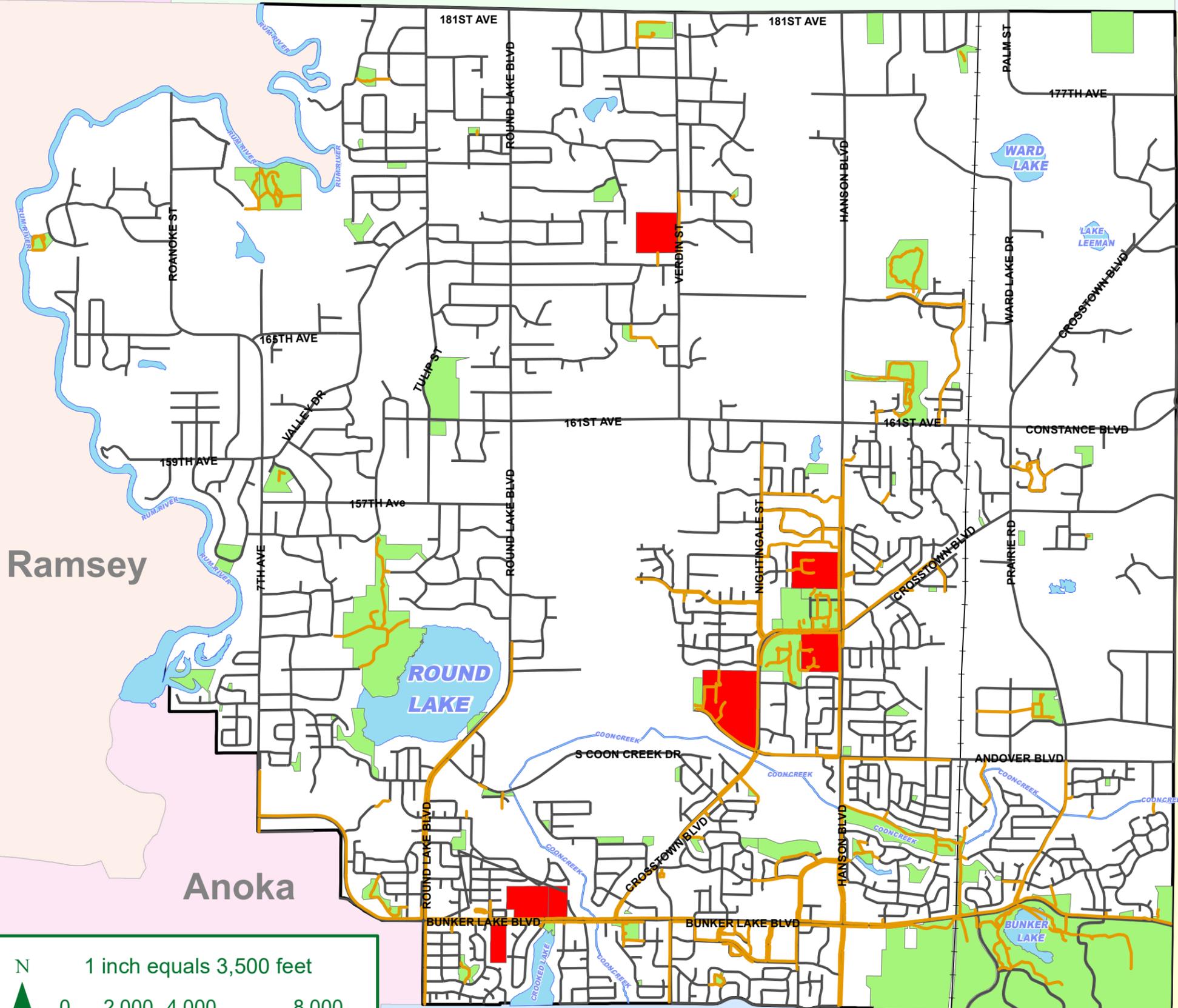
Nowthen

Oak Grove

East Bethel



TRANSPORTATION PLAN



LEGEND

- Existing Trails
- Other**
- Schools
- Existing Roads
- Railroad
- Parks
- Water

Ham Lake

Ramsey

Anoka

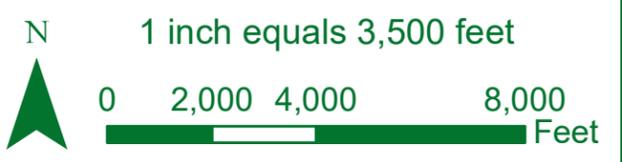
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Blaine

Existing Trails Plan

Figure 4

Revised February 2018



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F. Rail System

The Burlington Northern Santa Fe (BNSF) Railroad operates on a rail track situated in a north/south direction in the eastern part of the City. According to data collected by the MnDOT Office of Freight, Railroads, and Waterways, an average of 14 trains per day operate on this rail line at a maximum train speed of 50 miles per hour. A study completed by Spack Consulting in 2017 found over a 48-hour period a total of 18 trains, nine (9) per day, pass through the City of Andover based on video collected at the Bunker Lake Boulevard rail crossing.

There are six (6) railroad grade crossings with public streets in Andover. There are also four (4) private crossings in the City. The public street at-grade crossings are on the following roadways:

- Bunker Lake Boulevard NW (Quiet Zone 2007)
- Andover Boulevard NW (Wayside Horn 2008)
- Crosstown Boulevard NW (Wayside Horn 2008)
- 161st Avenue NW (Quiet Zone 2008)
- Ward Lake Drive NW
- 181st Avenue NW

Flashers, gates, and bells presently control all crossings. Wayside horns were installed at Andover Boulevard NW and Crosstown Boulevard in 2008 to help reduce train noise for adjacent households. A median was constructed in 2007 to meet the Railroad Quiet Zone requirements at Bunker Lake Boulevard NW and in 2008 at 161st Avenue. The data provided by MnDOT indicates there have been no rail crossing accidents in the last five years in Andover. MnDOT establishes the type of crossing protection on the public streets and has a process that involves variables such as train and vehicular volumes, speeds, sight distance, and number of tracks in order to determine the crossing types. The controls appear to be correct for those crossings in Andover. MnDOT works with cities if a request for crossing review or improvement is presented by the City. Existing Quiet Zones require recertification every two and a half to three years if based on Alternative Safety Measure (ASM) standards or every four and a half to five years when based on Supplemental Safety Measures (SSM).

G. Crash Data

Data regarding reported crashes in Andover can be obtained from the Minnesota Department of Transportation's Minnesota Crash Mapping Analysis Tool (MnCMAT) and/or through the Anoka County Sheriff's Department as crash data changes very rapidly. If crash information is necessary to evaluate a particular location, the City will obtain the necessary information from MnDOT and/or the Anoka County Sheriff's Department.

H. Air Service

There are no airports within the City of Andover. The closest airport, the Anoka County-Blaine Airport, is not within proximity to cause an effect with regard to airport runway clearances and land use designation. Note: The City of Andover does not have a specific ordinance restricting the use of seaplanes

I. Intersection “Hot Spots”

One element of the study includes an ongoing study of twenty (20) intersection “hot spots.” These locations were chosen originally by the Technical Advisory Committee (TAC), in a previous plan update, following a review of the volumes and crash data as well as the receipt of input from City staff and the public. These intersections were selected based on the history of each location and not on anticipated issues in the future.

The intersections selected for traffic operation analysis are:

- Bunker Lake Boulevard NW (CSAH 116) and Crooked Lake Boulevard NW
- Bunker Lake Boulevard NW (CSAH 116) and Marigold Street NW
- Crosstown Boulevard NW (CSAH 18)/Crosstown Drive NW and 139th Avenue NW
- Crosstown Boulevard NW (CSAH 18) and South Coon Creek Drive NW
- South Coon Creek Drive NW and Round Lake Boulevard NW (CSAH 9)
- Crosstown Boulevard NW (CSAH 18) and Nightingale Street NW
- Crosstown Boulevard NW and Prairie Road NW
- Crosstown Boulevard NW (CSAH 18) and 161st Avenue NW (CSAH 20)/Constance Boulevard NW (CR 60)
- 159th Avenue NW/Valley Drive and 7th Avenue (CSAH 7)
- 7th Avenue (CSAH 7) and 165th Avenue NW (East) (CR 158)
- 161st Avenue NW (CSAH 20) and Verdin Street NW (CR 59)
- Andover Boulevard NW (CR 16) and Prairie Road NW
- Andover Boulevard NW (CR 16) and Hanson Boulevard NW (CSAH 78)
- Roanoke Street NW (CSAH 7) and 165th Avenue NW (West)
- Hanson Boulevard NW (CSAH 78) and 161st Avenue NW (CSAH 20)
- Hanson Boulevard NW (CSAH 78) and Crosstown Boulevard NW (CSAH 18)
- Hanson Boulevard NW (CSAH 78) and Community Center Entrance
- Nightingale Street NW and 161st Avenue NW (CSAH 20)
- Round Lake Boulevard NW (CSAH 9) and 173rd Lane NW
- Bunker Lake Boulevard NW (CSAH 116) and 38th Avenue
- Bunker Lake Boulevard NW (CSAH 116) and 7th Avenue NW (CSAH 7)
- Bunker Lake Boulevard NW (CSAH 116) and Round Lake Boulevard NW (CSAH 9)
- Bunker Lake Boulevard NW (CSAH 116) and Crosstown Boulevard NW (CR 18)
- Bunker Lake Boulevard NW (CSAH 116) and Hanson Boulevard (CSAH 78)
- Bunker Lake Boulevard NW (CSAH 116) and Prairie Road NW

The existing conditions operations analysis is presented in the following chapter. The locations of the 25 “hot spot” intersections are shown in *Figure 5*.

Locations noted with ○ have been upgraded with traffic signals to improve conditions.

Nowthen

Oak Grove

East Bethel



TRANSPORTATION PLAN

LEGEND

- Intersections With Traffic Signals
- Locations for Further Study
- Right of Way
- Railroad
- Parks
- Water

Ham Lake

Intersection Hot Spots

Figure 5

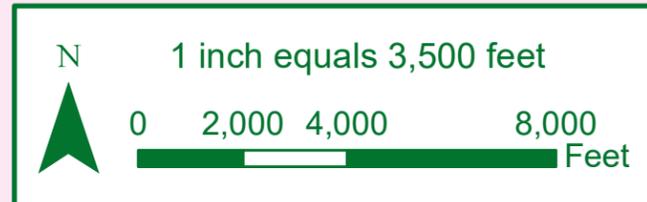
Revised March 2018

Ramsey

Anoka

Coon Rapids

Blaine



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J. Traffic/Transportation Issues

The following are various transportation issues that should be addressed:

- Traffic is backed up 4-5 times per day by trains crossing Bunker Lake Boulevard NW. All streets in Andover with rail crossings are delayed by trains.
- Nightingale Street NW intersects Crosstown Boulevard NW at an odd angle and there is more foot traffic from the school. Traffic needs to travel slower. Preliminary planning has begun on roundabout designs for this intersection.
- There is a need for a completed trail along Andover Boulevard NW between Vale Street NW and Prairie Road NW.
- The trail on Crosstown Boulevard NW should be continued east from its current terminus at the intersection with Xeon Street NW to the Miller Woods neighborhood at 159th Avenue NW near Andover Fire Station No. 3.
- Pedestrian crossings of Crosstown Boulevard, particularly at the intersections with Yellow Pine Street NW and Xeon Street NW, need to be reviewed for potential safety improvements.
- Round Lake Boulevard NW does not provide consistency through the corridor, transitioning from four lanes down to two lanes and then back up to four lanes. Having a consistent corridor would eliminate unnecessary merging and remove a bottleneck in the City.
- Crosstown Boulevard NW to the east of the Hanson Boulevard NW intersection does not provide turn lanes, shoulders, and/or by-pass lanes. The Crosstown Boulevard NW intersections with Yellow Pine Street NW and Bluebird Street NW are of particular concern due to increasing traffic and development activity. These elements would improve both safety and capacity of the corridor. Currently, right turn lanes and by-pass lanes are proposed for construction at Crosstown Boulevard NW intersections with Yellow Pine Street NW and Avocet Street NW in 2018.
- The intersection approach on Crosstown Boulevard NW to Crosstown Drive NW/139th Avenue NW is a potential concern for sight distance with difficult viewing angles for turning traffic and the close proximity to emergency operations related to the adjacent fire station.

IV. STUDY ELEMENTS ANALYSIS/RECOMMENDATIONS

This chapter presents results and recommendations for the transportation elements that have been analyzed during the preparation of this Transportation Plan.

A. Roadway Jurisdiction/MSA Routes

The State of Minnesota, through the gas tax, license fees, and motor vehicle sales tax, collects funds to be used to construct and maintain the State's transportation system. Most of the funds collected are distributed for use on the State's Trunk Highway (TH) system, the County State Aid Highway (CSAH) system and the Municipal State Aid Street (MSAS) system. The available funds are distributed 62% TH, 29% CSAH and 9% MSAS. When a city's population goes above 5,000, they become eligible to receive a portion of the MSAS funding. When this happens, the city develops a State Aid Street system. The MSAS system can include existing roadways as well as future roadways.

In order to develop the City's State Aid system, the total mileage of all roadways within the City is computed. The mileage the City can designate for their State Aid system is no more than 20% of the total roadway mileage. As development occurs and new roadways are constructed, the total mileage increases, and therefore, the total State Aid mileage will also increase. Knowing that the mileage will increase in the future, it is wise to plan where that mileage will be applied.

The City of Andover has an MSAS system in place and has been using State Aid funds for roadway maintenance and construction. As part of this Transportation Plan, an updated City collector system has been identified. Generally, the collector roadways are the routes designated as State Aid Streets. The following section of this plan will look at the City's existing MSAS system and make recommendations regarding system revisions. This review will include removing some existing routes, designating new routes and planning for future designations as the City's State Aid mileage increases.

The following recommendations are based on developing a State Aid system that provides continuity of all routes through the City. The emphasis is placed on developing north/south and east/west routes at uniform spacing throughout the City. These routes can include trunk highways and County Roads, which may not be part of the City's system, but provide continuity for the traveling public. The proposed and existing State Aid Road designations are discussed below and are illustrated in *Figure 6*.

Nowthen

Oak Grove

East Bethel



TRANSPORTATION PLAN

LEGEND

- Roadway Jurisdiction**
- County State Aid Highway
 - Municipal State Aid
 - Designated MSA Non-Existing Roadway
 - County Road
 - City Road
 - Proposed Turnback to Local Communities
 - Future Turn-Up to County Roads
 - Railroad
 - Water

Existing and Proposed Municipal State Aid Street Designations

Figure 6

★ based on Figure "Fig 7-6 and Tables" from 2030 County Plan

Revised February 2018

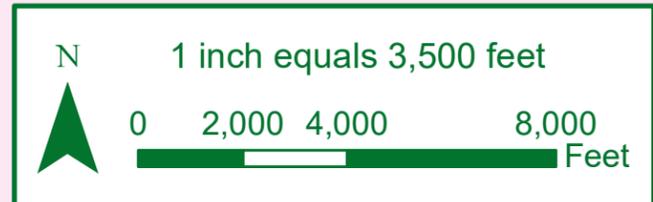
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Coon Rapids

Blaine

Ham Lake



Turnbacks from Anoka County

There are five County State Aid Highways and County Roads located within the City that have been discussed as potential turnback routes. Anoka County would release these roadways into the jurisdiction of the City. When this happens, the City will be allowed to add these routes to their State Aid system. These routes will be added to the City's existing state aid mileage, increasing the overall city system. Each year the City will calculate the total mileage of roadways, take 20% of those miles and then add on the turnback miles. This process allows a City to take a roadway from a county and receive additional state aid funding to maintain it. The five roadways identified by the County as turnbacks but not acknowledged by the City are:

- County Road 18 (Crosstown Boulevard) (approximately 2.4 miles)
 - From Bunker Lake Blvd NW (CSAH 116) to Hanson Boulevard (CSAH 78)
- County Road 58 (Valley Drive/Tulip Street NW) (approximately 3.7 miles)
 - From 7th Avenue (CSAH 7) to Round Lake Blvd NW (County Road 9)
- County Road 59 (Verdin Street NW) (approximately 2.5 miles)
 - From 161st Avenue NW (CSAH 20) to 181st Avenue NW (CSAH 58)
- County Road 158 (165th Avenue) (approximately 0.7 miles)
 - From 7th Avenue (CSAH 7) to Valley Drive (County Road 58)
- County Road 16 (Andover Boulevard) (approximately 1.99 miles)
 - From Hanson Boulevard (CSAH 78) to Andover-Ham Lake City Line

These additions would add approximately 11.3 miles to the City's current MSAS system.

Existing MSA Routes to be Revised

With the existing layout of developments and land usages in Andover, the existing State Aid routes improve the overall north/south and east/west continuity of the entire roadway system and provide additional relief to the surrounding arterial roadway system. However, with the addition of other future collector streets, additional mileage will be needed to apply to those routes to provide the desired continuity. Routes to be removed will be analyzed on a year by year basis.

At this point, no routes are proposed to be revised. If routes are to be revised in the future, there are factors that need to be considered. Prior to removing a route from the system, the City must determine if State Aid construction funds have been used on that route over the past 20 years. If so, the City will have to pay back a prorated amount of the construction funds to remove it from the system. Determining where and when those funds were spent will be necessary to justify the removal of the MSA designation.

Note: Although the City may plan to designate a future roadway to the State Aid system as outlined within this plan, this designation does not have to occur immediately. The City may not have enough mileage to provide for the designation. As the City grows and road mileage increases, the City will gain additional mileage for the future dedication. Upon receiving enough mileage, the City can designate a future roadway to the Municipal State Aid Street system.

Future Municipal State Aid Street Designations

The function of the State Aid street system within the City is to provide for the movement of vehicles along the heavier volume collector type system to the arterial roadway system as well as connecting towns, communities, shipping points, parks, recreational areas, and points of major traffic interest. It also can provide for the movement of vehicles along non-arterial corridors within the City helping to distribute volumes and provide some relief to the more heavily used arterial system. It is desirable to designate roadways in a grid-like pattern to allow for the north/south and east/west movement through the City. New routes will be analyzed on a year by year basis.

B. Roadway Functional Classification System

The intent of a functional classification system is the creation of a roadway hierarchy that collects and distributes traffic from local roadways and collectors to arterials in a safe and efficient manner. Such classification aids in determining appropriate roadway widths, speed limits, intersection control, design features, accessibility and maintenance priorities. Functional classification also helps to ensure that non-transportation factors such as land use and development, are considered in planning and design of the roadway system.

A balanced system is desired, yet not always attainable due to existing conditions and characteristics. The criteria of the functional classification system are intended to be guidelines and are to be applied when plans are developed for the construction or reconstruction of a given classified route. However, the guidelines may not be strictly adhered to if the factors involved in a particular situation warrant an alternative approach. Some roadways, for a short segment, may carry higher volumes than a roadway with a higher classification. Spacing guidelines may not follow recommendations for a variety of reasons such as topography, land use type and density, and environmental concerns.

The two major considerations in the classification of roadway networks are access and mobility. Mobility is of primary importance on arterials. Thus limitation of access is a necessity. The primary function of a local roadway, however, is the provision of access, which in turn limits mobility. The extent and degree of access control is a very important factor in the function of a roadway facility. The functional classification types utilized are dependent upon one another in order to provide a complete system of streets and highways.

A complete functional design system provides a series of distinct travel movements. Most trips exhibit six recognizable stages. These stages are as follows:

- Main movement
- Transition
- Distribution
- Collection
- Access
- Termination

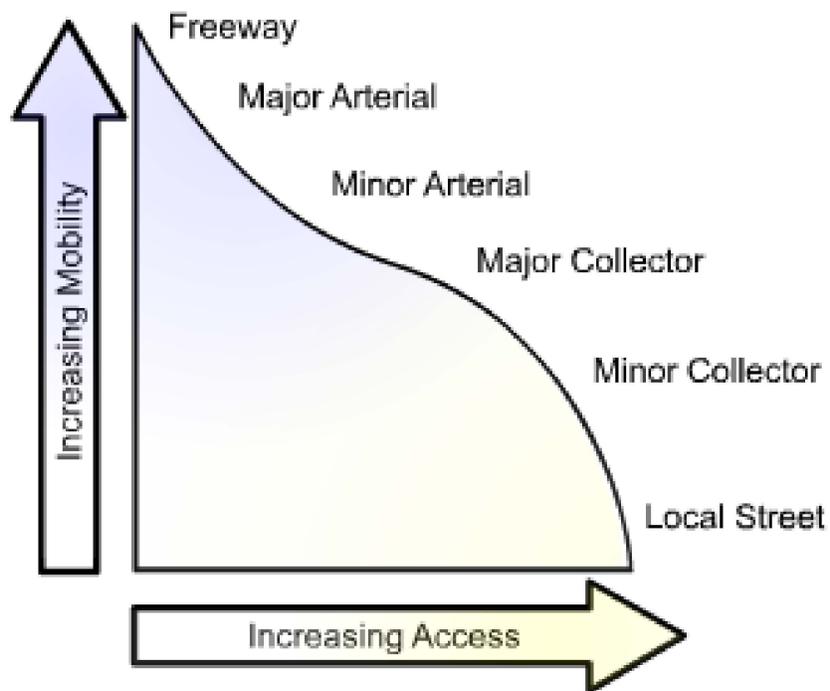
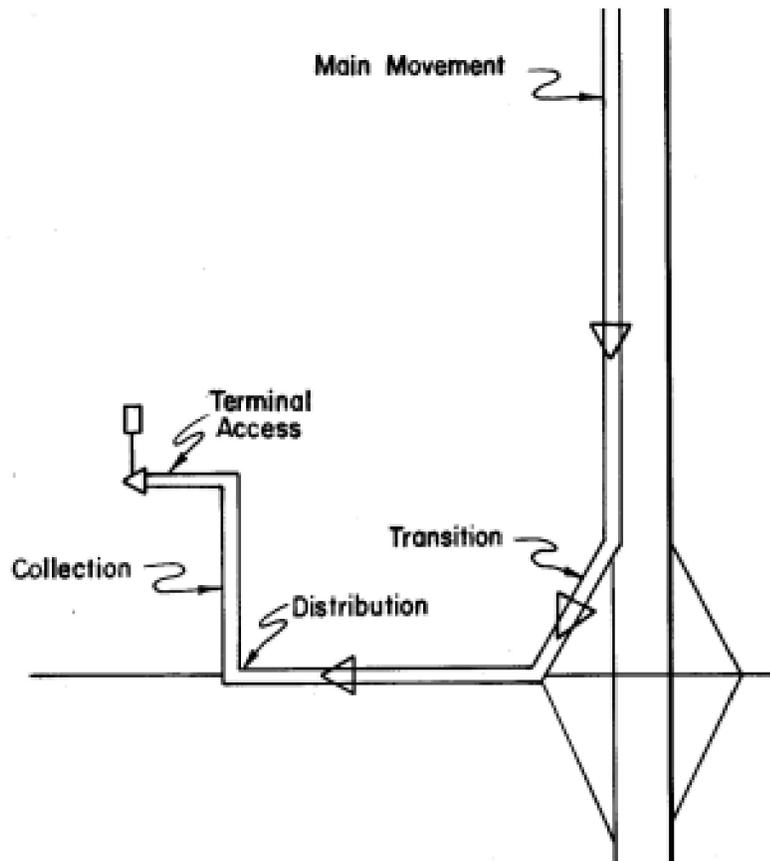
As an example, *Figure 7* depicts this hierarchy of movement by illustrating a hypothetical trip using a freeway, which comprises the main movement. When the vehicle leaves the freeway, the transition is the use of the freeway ramp at a reduced speed. The vehicle then enters the moderate speed arterial, the distribution function, to travel toward a neighborhood. From the arterial, the vehicle enters a collection road.

Then a local access road that provides direct approach to the residence or termination point. Each of the six stages of the trip is handled by a facility designed specifically for that function. Speeds and volumes normally decrease as one travels through the six stages of movement.

It must be recognized that all intermediate facilities are not always needed for various trip types. The character of movement or service that is provided has a function, and these functions do not act independently. Thus, the number of movements in the travel categories become consistent with function and the classification of that function.

Principal Arterials

Principal Arterial roadways serve major activity centers, higher traffic volumes, longer trips and carry a higher proportion of total urbanized travel on a minimum of mileage. Along these facilities, access needs to be limited in order to preserve the ability of the roadway to accommodate the volumes and to maximize safety. Spacing varies from 2-3 miles for a fully developed area, 2-6 miles for a developing area, and 6-12 miles in rural areas. The management criteria require that a 40 mph average speed be achieved during peak traffic periods. Also, little or no direct land access should be allowed within an urban area. Grade separated intersections are required for freeways and highly desired for other principal arterial roadways. Currently, there are no principal arterials within the City of Andover. Regionally, TH 10, TH 169, County Road 14 (between TH 10 and TH 65) and TH 65 are principal arterials.



Source: FHWA; What is Access Management

Figure 7: Hierarchy of Movements

Minor Arterials

Minor Arterial roadways connect the urban service area to cities and towns inside and outside the region and generally service medium to short trips. Minor Arterials may also provide an alternate route for congested Principal Arterial roadways. Minor Arterials connect principal arterials, minor arterials, and connectors. The spacing ranges from ¼ to ¾ of a mile in metro centers to 1 to 2 miles in a developing area. The desired minimum average speed during peak traffic periods is 20 mph in fully developed areas and 30 mph in developing areas.

The emphasis for Minor Arterial roadways is on mobility rather than on land access. In urban areas, direct land access is generally restricted to concentrations of commercial/industrial land uses. Minor Arterials can be broken down further into ‘A’ Minor and ‘Other’ Minor Arterials. ‘A’ Minor Arterials have less emphasis on land access than ‘Other’ Minor Arterials. This allows ‘A’ Minor Arterials to become eligible to compete for Federal funding. There are currently six ‘A’ Minor Arterial roadways within the City of Andover:

- Hanson Boulevard NW
- Round Lake Boulevard NW
- Bunker Lake Boulevard NW
- portions of Crosstown Boulevard NW
- portions of 161st Avenue NW.
- Roanoke Street/7th Avenue

These ‘A’ Minor Arterial Roadways provide critical connections to the Principal Arterial and Interregional Corridor systems, which include TH 10, TH 65, TH 169 and County Road 14 (between TH 10 and TH 65).

Currently, there are two ‘Other’ Minor Arterial roadways within the City of Andover:

- 157th Avenue NW (CSAH 20) between County Road 7 and Round Lake Boulevard NW
- 161st Avenue NW (CSAH 20) between Round Lake Boulevard NW (CSAH 9) and Hanson Boulevard NW.

These ‘Other’ Minor Arterial roadways provide connections to the surrounding cities of Ham Lake, Oak Grove, Coon Rapids and Ramsey.

Collector Streets

Collector Streets provide more land access than arterials and connections to arterials, although not in all cases. As is the case with any roadway system, there will always be exceptions to the planning guidelines that are used to classify a roadway system. Collectors serve a dual function of accommodating traffic and provision of more access to adjacent properties. Mobility and land access are equally important and direct land access should predominately be to development concentrations. For collector streets that have 2,499 ADT or less, the street would be considered a minor collector street and direct land access would be allowed. For collector streets that would have ADT’s equal to or larger than 2,500, the street would be considered a major collector and direct land access

would be restricted. Collectors generally connect to minor arterials and serve short trips. Spacing for collectors ranges from 1/8 to 1/2 miles in a metro center to 1/2 to 1 mile in a developing area.

In order to provide a network consistent with the spacing guidelines for a developing area; several local streets throughout the City will need to be reclassified as collectors and some new collector roadways will need to be constructed. This reclassification could require the reconstruction of the Local Streets to meet the recommended roadway widths and design features of a Collector Street. Such reconstruction, when warranted due to street conditions, may or may not provide a wider street section.

Local Streets

The lowest classification of roadways is the local roadway where access is provided with much less concern for control, but land service is paramount. Spacing for local streets is as needed to access land uses. Local roadways generally have lower speed limits in urban areas and normally serve short trips. Local streets will connect with some minor arterials but generally connect to collectors and other local streets. The development of local streets will be guided by the location of the existing and proposed minor arterials and collectors as well as by development and the expansion of local utilities.

Recommendations

Anoka County and the City of Andover made changes to the functional classification system since the original transportation plan was approved in 2003. A majority of the changes have occurred due to the construction of new roads; however, some modifications have occurred due to turn ups to the county and turn downs to the city. The proposed functional classification system, which includes proposed, non-existing roadways, is shown in *Figure 8*.

C. Projected Traffic Volumes

Two sets of traffic volumes have been prepared, which illustrate 2015/2016 and projected year 2040 volumes for the City of Andover and are shown in *Figure 9*.

Nowthen

Oak Grove

East Bethel



TRANSPORTATION PLAN

Ramsey

Ham Lake

Anoka

Coon Rapids

Blaine

LEGEND

Existing Roadway

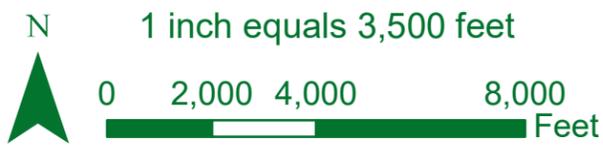
- A Minor Arterial
- Other Minor Arterial
- Major Collector
- Minor Collector
- Proposed Major Collector
- Proposed Minor Collector
- Local

- Railroad
- Water
- Parks
- limits
- Long Range Rail/Street Grade Separation

Proposed Functional Classification Systems

Figure 8

Revised June 2019



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Nowthen

Oak Grove

East Bethel



TRANSPORTATION PLAN

LEGEND

- 2015 Average Daily Volumes
- 2040 Average Daily Volumes
- MnDOT Traffic-Studied Road
- Major Node - All Roads Split
- Minor Node - One Road Split
- Other City Roads
- City Limits

Ramsey

Ham Lake

Anoka

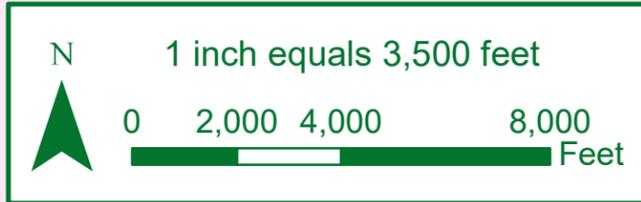
Coon Rapids

Blaine

2015 and Projected 2040 Average Daily Volumes

Figure 9

Revised June 2020
Data Source - MN Dept. of Transportation



Land Use Scenarios

The 2015/2016 Existing volumes are taken directly from counts by the Minnesota Department of Transportation (MnDOT). MnDOT gathers the raw traffic volumes from the City and uses minor adjustments, determined by when the count was taken, such as month and day, to present an Annual Average Daily Traffic (AADT) volume.

The 2040 projections add 25 years of general traffic growth. Historically, traffic on most roadways increases over time, with or without specific development on that roadway. The exception to this is when new roadways or accesses to roadways are constructed. These new roads draw traffic from surrounding existing roadways and can result in an overall decrease in daily traffic along some adjacent roads. To account for this general increase in volume, various factors, such as the State-Aid 20-year growth factor, historic growth over the past ten years, roadway location, and importance were examined for the roads in Andover. The existing and year 2040 projected volumes are shown in *Figure 9*.

The projected traffic volume information is used to test the ability of the proposed roadway and land use plan to accommodate the future volumes. For purposes of this planning analysis, the daily capacity volumes used in the metro areas are as follows:

Two-Lane Roadway with Exclusive Left Turn Lane

- 30 MPH: 10,700 veh/day to 16,100 veh/day
- 45 MPH: 14,300 veh/day to 16,500 veh/day

Four-Lane Roadway with Exclusive Left Turn Lane

- 30 MPH: 22,300 veh/day to 32,200 veh/day
- 45 MPH: 30,200 veh/day to 33,100 veh/day

The planning capacities utilized, put forth by the Highway Capacity Manual 6th Edition, will vary due to actual operations along any roadway. Many factors influence the capacity of a roadway such as number and locations of signals, number of access drives, roadway alignment, the percentage of trucks on the facility, and other factors. There are four-lane divided roadways that accommodate 40,000 vehicles per day and two-lane roadways that have been able to accommodate up to 20,000 vehicles per day. The capacities used in this analysis are appropriate for planning level reviews.

Most of the roadways in the City should be able to function acceptably as two-lane facilities as long as good access management is practiced along these arterials and collector streets.

In most cases, the roadway systems adjacent to the Rural Reserve Area would not need to be upgraded as long as right and left turn lane improvements are provided to serve the vehicular demand generated by the increased density considered in the volume projections. The exception to this is Round Lake Boulevard NW which will need to be a four-lane roadway under the proposed 2040 volumes. All other roadways in the immediate area will function acceptably as two-lane roadways including the proposed east-west and north-south collectors in this area. Turn lane improvements will be needed to access the Rural Reserve once entrance/egress locations have been identified.

Review of the volume projections indicates the expansion of existing transportation routes to provide four-lane roadways would be appropriate for the following facilities in Andover:

- Hanson Boulevard NW from 139th Avenue NW/Jay Street NW to Crosstown Boulevard (Divided) (Proposed for reconstruction in 2019)
- Hanson Boulevard NW from Crosstown Boulevard to 161st Avenue NW (Divided)
- Round Lake Boulevard NW from 152nd Lane NW to 168th Lane NW (Divided)
- Round Lake Boulevard NW from 168th Lane NW to north City Boundary (Divided)
- 7th Avenue NW from South City Boundary to 157th Avenue NW (Divided)
- 7th Avenue NW from 157th Avenue NW to North City Boundary (Divided)

Transportation Analysis Zones

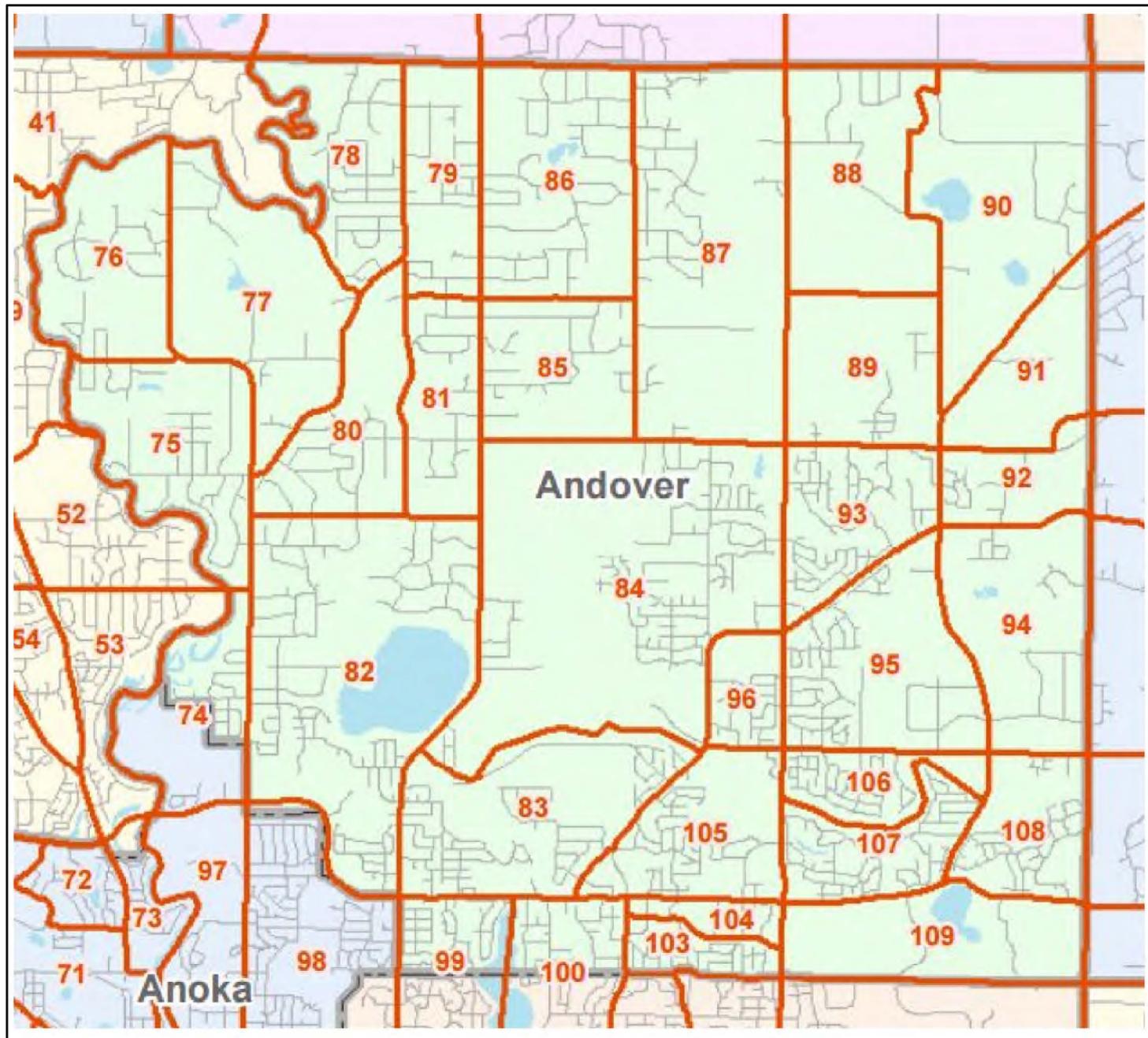
The following tables provide existing and projected Population and Employment Densities by Traffic Analysis Zones (TAZ) in Andover. Table 1 shows the TAZ based on the City's zone. This information was prepared using the growth projections of the Comprehensive Plan.

The most significant population growth by the year 2040 is projected in the eastern side of the city between Crosstown Boulevard and Andover Boulevard (TAZs 94 and 95). A significant amount of vacant land is available in this area for residential development fueling this growth. The most commercial growth will be concentrated in the south-central portions of the City (TAZs 104 and 99) as well as the Rural Reserve Area (TAZ 84). *Figure 10* illustrates the Cities TAZ boundaries.

The interrelationship between land use and transit cannot be overemphasized. Transit supportive land use patterns, which include directed planning of integrated roadway systems, careful development for concentrations of rider origins and destinations while preserving open space and community character, and developing a mix of activities and uses, is essential to the long-term viability of providing transit as a mobility option for the residents of Andover.

TAZ	POPULATION 2014	HOUSEHOLDS 2014	EMPLOYMENT 2014	POPULATION 2040	HOUSEHOLDS 2040	EMPLOYMENT 2040
74	352	124	0	320	130	0
75	573	192	13	687	268	22
76	456	140	32	362	141	43
77	270	100	20	270	108	26
78	664	223	14	609	245	55
79	569	190	15	534	216	15
80	563	204	12	581	234	12
81	374	106	40	302	122	40
82	2597	856	114	3044	1091	181
83	2856	1034	683	5593	2141	686
84	3135	944	645	4074	1358	699
85	440	140	137	444	158	138
86	670	237	110	754	269	110
87	655	210	240	664	236	241
88	199	70	4	256	91	0
89	412	125	20	360	127	34
90	310	104	6	339	121	0
91	166	52	41	178	63	41
92	338	112	1	550	195	9
93	2826	775	537	3748	1327	540
94	467	151	4	2065	732	8
95	1752	556	20	3949	1397	41
96	690	217	129	657	236	130
98	20	6	6	340	150	10
99	1173	394	68	1030	410	80
100	905	309	47	990	370	110
103	1252	409	97	1272	467	123
104	3	1	978	0	0	1569
105	1662	583	499	1641	589	575
106	1580	480	30	1419	487	31
107	2396	743	297	2187	752	298
108	1552	487	13	1431	490	37
109	0	0	287	0	0	289
TAZ TOTALS	31877	10274	5159	40,650	14,721	6,193

Table 1: 2014 and 2040 TAZ Population and Employment



LEGEND

- ## - TAZ Number**
- ∩ - TAZ Boundary**

Figure 10: TAZ Boundaries

D. Intersection “Hot Spots”

There are 20 intersections considered potential “hot spot” intersections. These intersections are listed in Chapter III – Existing Conditions section of this report. The City of Andover recognizes that the traffic conditions at these and other intersections change over time and, as such, intersection review and analysis needs to occur approximately every two years.

The intersections controlled by traffic signals include:

- Bunker Lake Boulevard NW (CSAH 116) and 38th Avenue
- Bunker Lake Boulevard NW (CSAH 116) and 7th Avenue NW (CSAH 7)
- Bunker Lake Boulevard NW (CSAH 116) and Round Lake Boulevard NW (CSAH 9)
- Bunker Lake Boulevard NW (CSAH 116) and Crosstown Boulevard NW (CR 18)
- Bunker Lake Boulevard NW (CSAH 116) and Hanson Boulevard (CSAH 78)

Two intersections, Andover Boulevard NW with Prairie Road NW and Crosstown Boulevard NW with Prairie Road NW are under all-way stop control. The other intersections are controlled by stop signs on the minor street(s) approaches.

To determine if improvements need to be made at these intersections, the levels of service (LOS) will need to be calculated. Level of Service is a measure of how well an intersection is operating. Normally, for intersections within the greater metropolitan area, LOS D or better is considered a passing grade. The hierarchy of LOS is defined as follows:

- Level of Service A corresponds to a free flow condition with motorists virtually unaffected by the intersection control mechanism. For a signalized or an unsignalized intersection, the average delay per vehicle would be approximately 10 seconds or less.
- Level of Service B represents stable flow with a high degree of freedom, but with some influence from the intersection control device and the traffic volumes. For a signalized intersection, the average delay ranges from 10 to 20 seconds. An unsignalized intersection would have delays ranging from 10 to 15 seconds for this level.
- Level of Service C depicts a restricted flow which remains stable, but with significant influence from the intersection control device and the traffic volumes. The general level of comfort and convenience changes noticeably at this level. The delay ranges from 20 to 35 seconds for a signalized intersection and from 15 to 25 seconds for an unsignalized intersection at this level.
- Level of Service D corresponds to a high-density flow in which speed and freedom are significantly restricted. Though traffic flow remains stable, reductions in comfort and convenience are experienced. The control delay for this level is 35 to 55 seconds for a signalized intersection and 25 to 35 seconds for an unsignalized intersection. For most agencies in the Twin Cities area, Level Of Service D represents the minimum acceptable Level Of Service for regular daily operations.

- Level of Service E represents the unstable flow of traffic at or near the capacity of the intersection with poor levels of comfort and convenience. The delay ranges from 55 to 80 seconds for a signalized intersection and from 35 to 50 seconds for an unsignalized intersection at this level.
- Level of Service F represents forced flow in which the volume of traffic approaching the intersection exceeds the volume that can be served. Characteristics often experienced include long queues, stop-and-go waves, poor travel times, low comfort and convenience, and increased accident exposure. Delays over 80 seconds for a signalized intersection and over 50 seconds for an unsignalized intersection correspond to this Level of Service.

E. Study Corridors

Additional attention and analysis should be completed on roadway corridors on top of the earlier mentioned intersection analysis. The corridor analysis should focus on the more heavily used roadways, discussed in the earlier “Land Use Scenarios section, and result in consistent and efficient roadways which safely distribute traffic throughout the city while being able to accommodate the projected traffic volumes and contain an access plan that will serve future development. Close coordination with the county should be pursued to ensure consistency of roadways within the City of Andover no matter the ownership of the corridor.

F. Transit Planning

Transportation Plan Objective number three states that the plan will “Provide multi-modal transportation options . . . whenever and wherever feasible and advantageous.”

Different types of transit service—fixed route, deviating fixed route, circulator, dial-a-ride, vanpooling, and others—are appropriate in different markets. Transit Redesign, a 1996 planning report by the Metropolitan Council, identified five different market areas based on population and employment densities, concentrations of transit-dependent individuals, and major travel destinations. Transit Redesign also correlated different types of transit service with each of these five market areas and established performance standards for evaluating these services. Transit Redesign focused on the geographic areas within the Transit Taxing District (TTD). A more recent look at these transit areas was conducted for the 2040 Transportation Policy Plan update. Shifts in transit funding sources—from its historic property tax base to a dedicated percentage of revenues from the statewide Motor Vehicle Excise Tax (MVET)—created an opportunity to explore transit service outside of the TTD boundary. These opportunities are discussed later in this plan. It should be noted that the City consistently works with developers to include transit options into their developments where feasible.

The Transit Market Index is used to determine what the transit needs are for an area based on a multitude of factors. According to the Transit Market Areas map approximately the southern 1/2 of Andover falls within “Market Area 4” with the upper half falling into the “Market Area 5” category. There is also a small section of Andover, the southeast corner of Bunker Lake Boulevard and Round Lake Boulevard, which is defined as “Market Area 3”. Table 2 provides a description of these areas and the types of service appropriate to each.

Transit Market Area	Transit Market Index Range	Propensity to Use Transit	Typical Transit Service
Market Area I	TMI greater than 256.0	Highest potential for transit ridership	Dense network of local routes with highest levels of service accommodating a wide variety of trip purposes. Limited stop service supplements local routes where appropriate.
Market Area II	TMI between 128.0 and 256.0	Approximately 1/2 ridership potential of Market Area I	Similar network structure to Market Area I with reduced level of service as demand warrants. Limited stop services are appropriate to connect major destinations.
Market Area III	TMI between 64.0 and 128	Approximately 1/2 ridership potential of Market Area II	Primary emphasis is on commuter express bus service. Suburban local routes providing basic coverage. General public dial-a-ride complements fixed route in some cases.
Market Area IV	TMI between 32.0 and 64.0	Approximately 1/2 ridership potential of Market Area III	Peak period express service is appropriate as local demand warrants. General public dial-a-ride services are appropriate.
Market Area V	TMI less than 32.0	Lowest potential for transit ridership	Not well-suited for fixed-route service. Primary emphasis is on general public dial-a-ride services.
Emerging Market Overlay	Varies.	Varies. Typically matches surrounding Market Area.	Varies. Typically matches surrounding Market Area.
Freestanding Town Center	TMI at least 64.0	Varies. Typically matches surrounding Market Area.	Varies. Potential for local community circulator as demand warrants. Some peak period commuter express service may be appropriate

Source: Metropolitan Council; 2040 Transportation Policy Plan

Table 2: Transit Markets and Service Options

System Deficiencies

Previous studies have identified the following deficiencies, among others.

- Lack of fixed route services
- Lack of Park-and-Ride facilities
- Lack of Reverse Commute services

Other possible issues, such as the difficulty of access to bus stops or ADA accessibility of bus stops are not applicable to Andover because of the lack of existing fixed route service.

Transit Service Improvements

The Metropolitan Council completed a planning document called the “Study of Transit Service Expansion beyond the Historic Transit Taxing District” (TTD). Eleven geographic areas comprised of 35 cities and townships were studied outside of the TTD, one of which was an area combining the cities of Andover and Ramsey. The Andover/Ramsey study area ranked number one in estimated daily trips with 980 trips projected to the Minneapolis Central Business District (CBD). However, revising the geography of the study area to include the cities of Andover, Ham Lake, East Bethel, Oak Grove, and part of St. Francis, cities feeding into the Highway 10 and Highway 65 travel shed, would change this number. This revised travel shed should be studied further for its transit potential.

The type of service proposed is fixed route, morning and afternoon peak, express bus service into downtown Minneapolis without intermediate stops. This is supported by a majority of Andover being classified as Market Area 4 in the 2040 TPP update.

While this service would be oriented around Park-and-Ride facilities as its major ridership generator, it could originate as fixed route feeder-type service with walk-up boarding at defined stops in higher density residential areas within the City. This would allow the extension of fixed route services further north into Andover, for example, along Hanson or Round Lake Boulevards. Whether, and to what distance, these feeder services are extended into Andover will depend upon the results of more detailed service planning to establish service frequency and running times to and from downtown Minneapolis. The viability of these feeder services can be improved by considering the needs of transit in the overall community development patterns along the corridors and by providing bus pullouts/stops and trail system connections as part of future roadway improvement projects.

Due to the cost to the City of Andover for opting into the regional transit system, the City has elected not to participate.

Transit Facility Improvements

To accommodate the new riders served by the potential express bus services, new Park-and-Ride lots should be constructed in Andover. Given Andover’s location within the travel shed, and if no new Park-and-Ride facilities are constructed along Highway 10 south of the City, it is likely that at least half of these new riders would need to be

accommodated in Park-and-Ride lots within Andover. These riders could be served by two or three Park-and-Ride locations with 200-300 vehicles per location.

Historically, park and pool activities also increase when dedicated parking facilities are provided. Therefore, it is likely that the number of vehicles using the Park-and-Ride sites will be higher than the number of park-and-riders alone. Further, the City could develop these facilities as park and pool locations now, and add transit service to them in the future as planning and funding components for transit services are put into place. Coordination between the City and transit service providers will help to determine suitable transit facilities and services. As an initial step in reducing single occupant vehicles and developing transit demand, the City could also promote vanpool programs, such as those available through Metro Commuter Services.

Park-and-Ride facilities should be located along major commuter routes, such as Round Lake Boulevard and Hanson Boulevard, in the southern third of the City. If the Bethel Corridor is developed, or if transit improvements such as bus-only shoulder lanes are introduced on Highway 65, it may also be advisable to construct a Park-and-Ride along Bunker Lake Boulevard or Andover Boulevard near the eastern edge of the City. Bus routing from the Park-and-Ride should offer as many travel time advantages as possible and should be express service, without intermediate stops, for as much of its length as possible.

Approximately 3-5 acres of land is desirable at each 200-300 car Park-and-Ride location. This amount of land area eliminates the need for structured parking, which has significantly higher costs. For comparison purposes, a surface parking facility with a transit center building would cost roughly \$2 million and \$3 million to develop, whereas a structure parking facility would cost between \$5 million and \$7.5 million. Setting aside sufficient land for future Park-and-Rides is clearly desirable from a development cost standpoint.

The following locations have been discussed as potential Park-and-Ride sites:

- At the Andover Station North Ball Field Facility parking lot.
- The church on the corner of Round Lake and Bunker Lake Boulevards NW.
- Wild Iris Park along Bunker Lake Boulevard NW west of Round Lake Boulevard NW.

G. Trails Planning

The City of Andover has identified the following goals for a comprehensive city-wide trail system:

- Non-motorized traffic is separated from motor vehicles on collector and arterial roadways.
- Links are provided between residential, commercial and park areas.
- Parks are accessible.
- Trails are developed in coordination with all surrounding municipalities as well as Anoka County.

- The trails shall be developed according to American Association of State Highway Transportation Officials (AASHTO) standards and/or the MnDOT Bikeway Facility Design Manual.

Where feasible, it is preferable to develop off-road trails, which provide facilities for both bicyclists and pedestrians. Trails along rivers and through parks and natural areas are always highly desirable routes if and when they can be attained, as they provide a more scenic experience for the user. An off-road trail is one that is physically separated from motorized vehicular traffic by an open space or barrier either within the roadway right of way or within an independent right of way. According to MnDOT's Bike Facility Design Manual, the standard width of a shared-use trail that provides for two-way bicycle traffic and allows for pedestrian use is ten (10) feet. Where traffic volumes are higher, a more desirable width for a bike path is 12 feet. The City of Andover has slightly lower pedestrian trail standard widths of eight (8) feet being typical with ten (10) feet being preferred where possible.

Adequate room is not always available within the existing road right of way for an off-road trail. Where it is necessary to develop continuous trail segments, the City is recommended to work with residential developers and owners of commercial developments to obtain easements in areas where the roadway right of way is not adequate for a ten (10) or 12-foot off-road trail, or in areas where the topography does not allow the trail to be constructed within the existing right of way. It should be noted that commercial and industrial developments within the City of Andover are required to construct or pay for any regional trails located adjacent to their property as identified on the regional trail plan (Figure 11).

In cases where funding or right of way is limited, an on-road bicycle trail can present a more economical solution. The provision of an on-road bicycle trail can be accomplished through the restriping of existing roadways or with extra consideration during the design of a new roadway. Similar to the functional classification of roadways, bikeway facilities also have a hierarchy of structure. The following classification helps to define the different facilities available for on-road bicycle trails:

1. Bicycle lanes – One-way bicycle facilities, which travel in the same direction as adjacent vehicle traffic. Two-way bicycle lanes located together on the same side of the roadway tend to promote bike travel against the flow of vehicle traffic. This type of bicycle lane should only be used for short connections when necessary.
2. Shared Bus/Bicycle Lanes – The grouping together of bicycles and buses may be considered if the average speed and traffic volumes are low. Currently, there are no bus routes or lanes in Andover.

Nowthen

Oak Grove

East Bethel



TRANSPORTATION PLAN

LEGEND

Proposed Regional Trails

- City (dashed green line)
- County (dashed black line)

Existing Trails

- City (solid green line)
- County (solid black line)
- Existing Roads (solid blue line)
- Proposed Collector Roadway (dashed orange line)

Existing Roadway

- A Minor Arterial (solid purple line)
- B Minor Arterial (solid red line)
- Major Collector (solid orange line)
- Minor Collector (solid light green line)
- Local (solid grey line)

- Water (blue area)
- Railroad (black line with cross-ticks)
- Parks (green square)
- Schools (red square)

Proposed Regional Trails Plan

Figure 11

Revised February 2018

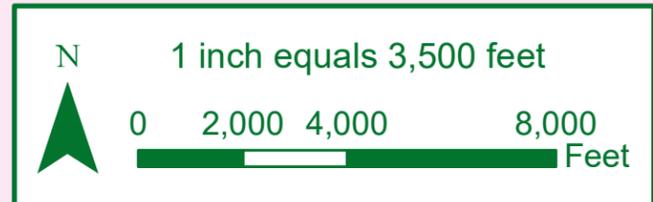
Ramsey

Ham Lake

Anoka

Coon Rapids

Blaine



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3. Shared Lanes – Shared lanes consist of roadways with no special provisions for bicyclists. Shared lanes generally require vehicles to cross the center lane in order to pass bicyclists. These types of lanes are usually not signed and can be used in residential areas that have low traffic volumes and speeds of less than 30-mph.
4. Widened curb, wide outside lanes or shoulders – Located adjacent to the outermost through traffic lane, experienced bicyclists who are not intimidated by high traffic volumes and speeds generally use this type of facility. Shoulders may be utilized by average experience cyclists depending upon the speed and amount of traffic on the adjacent roadway.
5. Local roadways – Typical urban local or collectors can be used as routes for bicyclists and pedestrians. Traffic calming can be implemented to reduce the speed of motor vehicles. However, given the City’s stated goals, non-motorized traffic should be separated from motorized traffic along collectors.

The City trail system includes county regional trails, City multi-use trails, and school-walk routes. A distinction can also be made between pedestrian/commuter trails and recreational trails. Pedestrian/commuter trails generally connect residential areas to commercial, retail or school facilities. Pedestrian/commuter trails tend to follow collector and arterial roadways, used by motor vehicle commuters, since the users of these trails seek out the most direct path to their destination. An example of a pedestrian/commuter trail is the existing trail along the arterial roadway, Bunker Lake Boulevard NW, which connects several local streets to schools, parks, and businesses.

Conversely, recreational trails tend to be off-road trails, which connect residential areas to parks, natural areas or greenway corridors. Recreational trails can provide a connection between parks and neighborhoods, and can meander within parks. Recreational trails often do not travel a direct route and are often located along rivers and streams or contained within parks and greenway corridors. The existing trail system along Coon Creek is a good example of a recreational trail, as it is entirely off-road and follows scenic Sand and Coon Creek through wooded areas of the City and adjacent cities. Dividing the trails into these two categories can help to determine from where the appropriate funding should be derived.

A main goal of the trail plan is to link together the major pedestrian generators in the City such as schools, parks and commercial development. Additionally, trails can be a vital link to transit facilities. Some municipal trails are proposed for development. Additional trails, which should be considered, include municipal trails along existing and proposed collectors providing east/west and north/south connections throughout the City. The current lack of east/west trails in the northern half of the City is related to the availability, or lack thereof, of roadways. Based on the recommended Functional Classification of the roadways in that section of the City, however, a network of east/west-traveling roadways will be developed in the future as Andover’s population and roadway system grow. The construction of trails as part of these roadway projects should be considered as the area develops further and should be discussed with developers utilizing the land. Trails should also be developed along a number of sub-collector roadways to provide links between the

overall trail system and City parks. Again, *Figure 11* illustrates the proposed regional trails network throughout the City.

Trail crossing locations along collectors and arterials should be carefully considered to maximize trail user safety. Some trails within the City that switch from one side of the roadway to the other. Examples include trails along Bunker Lake and Hanson Boulevards NW. Appropriate solutions, be they signed crosswalks, signals, or grade separated crossings, should be developed for each crossing location. It is worth noting that when a trail or pedestrian crossing is being considered or requested at any location within the City, a traffic engineering study at the direction of the City Council may be required to determine if criteria and warrants are met. Trail or pedestrian crossings should be concentrated to controlled intersections (traffic signal or stop sign controlled). Trail or pedestrian crossing located at unexpected entries (such as mid-block crossings) will not be encouraged or recommended especially on higher speed routes.

School walking routes have been developed in cooperation with the Anoka-Hennepin school district to handle safety concerns. These concerns have increased due to the discontinuation of bus service to students living within 2 miles of a school. Many of these walking routes follow existing trails or sidewalks. Several of the school walking routes follow the sidewalks or trails along existing arterial and collector roadways. The City should provide a continuous connection along the arterial and collector roadways to support walking routes.

The method of funding the City's Regional Trail System includes the City's Trail Fund, Municipal State Aid Funds, as well as some available grants, which will be discussed later. Trails not identified on the proposed Regional Trail Plan are considered internal trails to specific developments. These trails are to be funded by the developer and included as part of the platting and infrastructure improvements.

H. Rail Crossing Safety

The issue with rail crossings over public streets in Andover is one of delay caused to vehicular traffic when trains are at the crossings. Flashers and gates currently control all of the existing crossings.

The delays, whether excessive or not, can be caused by the length of trains, train speeds, and the number of trains per day. The presence of a switching operation will also add to the incurred delay. Since rail traffic and length of trains has increased during the past few years, the problem of vehicular delay to motorists is one experienced in many cities. The only short-term action that would be advisable is to continue dialogue with the owners/operators of the rail system to ensure that all is being done to minimize the length of time crossings are blocked. A long-term solution is the provision of grade-separated crossings for the present rail/roadway at-grade crossings. Such crossings are, obviously, solutions that take a long time to implement. However, the approvals process needs to begin to have a hope of realizing such improvements. Another option is to request that the railroad move the switching operation to a less populated area.

For purposes of the transportation plan, future grade-separated crossings are being recommended for the Bunker Lake Boulevard NW rail crossing. Bunker Lake Boulevard NW has year 2040 volume projections up to 27,700 in some sections. Bunker Lake Boulevard NW is under the jurisdiction of Anoka County so the City should work with the County for this beneficial improvement.

I. Air

The City of Andover does not have a specific ordinance restricting the use of sea planes or is not directly impacted by any of the area's airports. Therefore, no recommendations are deemed to be necessary with regard to the Transportation Plan.

J. Access Management

The management of access along roadway systems, particularly arterial and collector roadways is a very important component of maximizing the capacity of a roadway and decreasing the accident potential along those facilities. Arterial roadways have a function of accommodating larger volumes of traffic and often at higher speeds. Therefore, access to such facilities must be limited in order to protect the integrity of the arterial function. Collector roadways provide a link from local streets to arterial roadways and are designed to provide more access to local land uses since the volumes and speeds are often less than arterial roadways.

The Minnesota Department of Transportation (MnDOT) reports that studies have shown that as the density of accesses increase, whether public or private, the traffic carrying capacity of the roadway decreases and the vehicular crash rate increases¹. Businesses suffer financially on roadways with poorly designed access. Well-designed access to commercial properties supports long-term economic vitality.

As with many transportation-related decisions, land use activity and planning are integral parts of the creation of a safe and efficient roadway system. Land use decisions have a major impact on the access conditions along the roadway system. Every land use plan amendment, subdivision, rezoning, conditional use permit, or site plan involves access and creates a potential impact to the efficiency of the transportation system. Properties have access rights, and good design will minimize the negative effect on the roadway system. Access management is a combination of good land use planning and effective design of access to the property.

The granting of access in the City of Andover is shared by the City and by Anoka County, with each having the permitting process responsibility for roadways under their jurisdiction. The City, working with the County, produces access spacing quality to balance the benefits to the traveling public and developments. To strengthen the goal of good access management, a set of access spacing guidelines has been prepared which is intended for use in the access permitting process.

¹ "Toward An Access Classification System and Spacing Guidelines," Technical Study No. 4, MnDOT, February 1999.

The guidelines are presented for functionally classified arterial and collector roadways without reference to the jurisdiction over these roadways. The basic references for the spacing guidelines are the Anoka County Highway Department Access Spacing Guidelines which closely references the MnDOT Access Management Manual. However, additional restrictions have been implemented by the city since the last plan. One addition to the access spacing guidelines is the allowance of direct driveway access onto City-owned minor collectors while not onto major collectors. Major collectors, defined as having daily traffic volumes of 2,500 vehicles or higher, will then hold more of a focus on mobility, while minor collectors, which carry 2,499 vehicles a day or less, focus more toward access.

The access guidelines are presented in Table 5, which follows. The stated values are meant to be “minimum” values. It is also recognized that some existing connections, both public and private, may not meet these guidelines. Due to various circumstances, access may need to be granted that cannot adhere to these guidelines. The following table does not provide guidelines regarding access along Principal Arterials because there are no roadways functionally classified as Principal Arterials in the City of Andover.

**TABLE 5
ACCESS SPACING GUIDELINES
CITY OF ANDOVER**

Functional Class	Median Treatment	Existing & Proposed Land Use	Typical Posted Speed (MPH)	Full Median Opening Spacing (Miles)	Minimum Signal Spacing (Miles)	Spacing Between Connections (Feet) (1)
Minor Arterial	Divided	Rural	55	1/2	1/2	1320
		Urban	≥ 40	1/4	1/4	660
		Urban Core	< 40	1/8	1/4	300 - 660
	Undivided	Rural	55	NA	1/2	1320
		Urban	≥ 40	NA	1/4	660
		Urban Core	< 40	NA	1/4	300 - 660
Collector	Divided	Rural	55	1/2	1/2	1320
		Urban	≥ 40	1/8	1/4	330 - 660
		Urban Core	< 40	1/8	1/8	330 – 660
	Undivided	Rural	55	NA	1/2	1320
		Urban	≥ 40	NA	1/4	330
		Urban Core	< 40	NA	1/8	330

NA – Not Applicable

- (1) Distances are based upon the spacing between connections (major roads, local public streets, and private driveways).
- (1) Distances are minimum, and greater spacing is beneficial.
- (1) Minor Arterials and Major collectors should not provide direct access to driveway

K. Traffic Calming

Traffic calming is a popular way of addressing various traffic aspects on residential streets. It allows interested citizens to voice their opinions on what they don't like, and to suggest improvements. Traffic calming can be a viable approach to decreasing volume and speed problems on residential streets. Residential traffic calming and traditional neighborhood designs are tools that can be used to help address the complex demands for more livable communities. The goal of moving traffic efficiently and safely and, at the same time, providing more "comfort" in our communities is bringing together the many various elements used when analyzing roadways. This concept of bringing together various transportation planning and design features is called harmonization.

Available Traffic Calming Techniques

Many residential street traffic-calming techniques being used throughout the United States to varying degrees of success. This segment of the Transportation Plan will discuss available techniques and their levels of success.

A wide range of traffic calming techniques have been used over the years. They range from physical changes to the roadway system to traffic control techniques using signage and/or pavement markings. A list of the various "traffic calming" techniques is listed below. A brief description of each technique follows. Graphic illustrations of some of these techniques are contained with the description.

Physical changes to the street include:

- Street narrowing
- Curvilinear street
- Choker
- Chicane
- Traffic circle
- Protected parking bays
- Street closure
- Diagonal diverter
- Semi-diverter
- Trumpet island
- Streetscape material or landscape plantings

Traffic control techniques include:

- Police enforcement (Placement of speed trailer)
- Marked crosswalks
- Turn restrictions
- Speed watch program
- One-way streets
- Variable-speed display board
- Vehicle restrictions

Street Changes

Street Narrowing – A street can be narrowed one of two ways – The street width can be reduced by removing some of the pavement surface, or a psychological narrowing can be accomplished by using a white pavement edge line that indicates narrower travel lanes. Street narrowing may minimize or eliminate street parking, compromise bicycle safety, and affect emergency vehicle response times. On the plus side, street beautification can accompany street narrowing projects. Pavement markings can play a dual role by also identifying bike lanes.

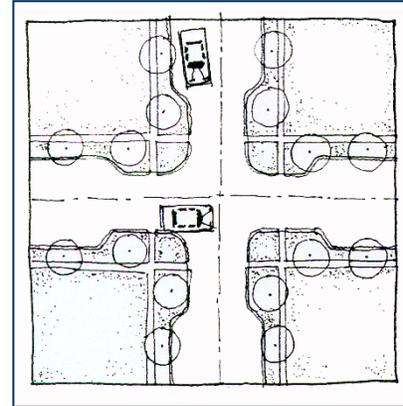
Choker – A choker narrows the width of the traveled lanes. A choker can be constructed at an intersection or mid-block locations.

Curvilinear Street – The construction or reconstruction of an existing street can be done in a curvilinear fashion that, in theory, slows traffic. This can be done with a curved centerline alignment and a uniform roadway width or through the use of chokers and alternative side barriers.

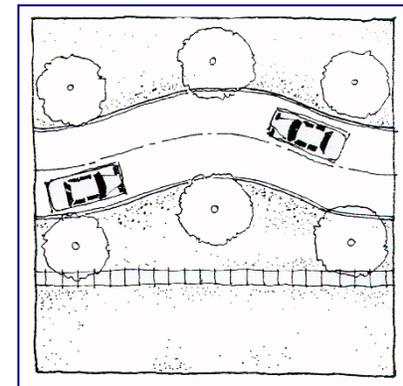
Chicane – Like the choker, the chicane narrows the street, mid-block, by construction curb bulbs that are staggered, thus creating a serpentine effect along the traveled lanes.

Traffic Circle – A traffic circle is a raised island placed in the intersection of local streets. The island, approximately 20 feet in diameter, deflects the path of through traffic around the island, slowing traffic speeds. These traffic circles must be carefully designed, so the desired objective of slowing traffic is achieved without compromising safety.

The traffic circle is different than a traffic roundabout. Roundabouts, popular in Europe, and becoming increasingly more popular in the United States are normally used on higher volume roadways and involve different design elements.

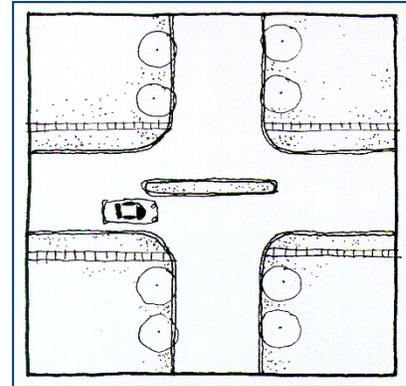


Choker



Chicane

Median Island – A median island, or barrier, is a method of eliminating through traffic and left turns to/from one street of an intersection. Routes for traffic that would be diverted must be carefully analyzed so the problem being solved isn't merely shifted to another location. Emergency vehicle access must be carefully analyzed when considering this geometric technique.

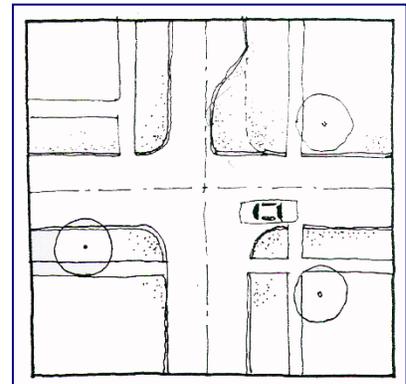


Median Island

Protected Parking Bays – Narrowing a street to provide protected parking bays can slow traffic. The extent to which traffic is slowed depends on the width of the lanes that remain for moving traffic.

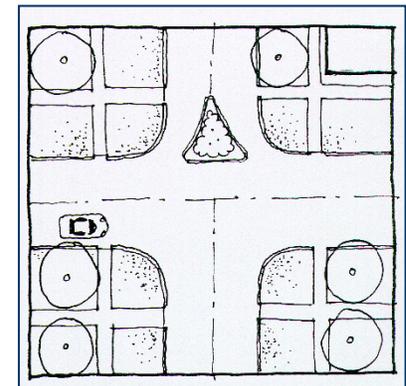
Street Closure – One effective way to reduce traffic volumes on a local street is closing that street at an intersection, normally with a cul-de-sac. A detailed analysis of where diverted traffic will go needs to be completed to avoid introducing new and possibly unwanted traffic on an adjacent street. The effect of such a closure must also be analyzed from an emergency vehicle access standpoint. While a street study and/or closure can be accomplished as a single action, it is normally part of a larger scale, areawide analysis, and control project.

Diagonal Diverter – The diagonal diverter, placed at the intersection of two local streets, prohibits through and left-turn traffic. This diverter is normally a raised barrier that can be landscaped. The diverter can be successful in reducing “cut-through” traffic in neighborhoods. As with previous devices, an areawide treatment is normally the best practice. Care has to be exercised so emergency vehicle response times are not significantly affected.



Semi-Diverter

Semi-Diverter – This partial diverter narrows a two-way street at an intersection so that only one direction of travel is allowed. The semi-diverter can be designed to eliminate either entering or exiting traffic.



Trumpet Island

Trumpet Island (right turn diverter) – This raised island, placed on any leg of an intersection, allows for right turns in/out for a particular roadway. A trumpet island is normally used in situations where left turns and through traffic are safety concerns. Traffic volumes are usually reduced with this device.

Streetscape Material or Landscape Plantings – This is another beautification option that could affect traffic speed. The design concept/type provides the illusion that the street is narrower, causing drivers to slow down.

Traffic Control Techniques

Police Enforcement – Increasing the use of radar to curb speeding can be an effective control tool – if it is administered consistently. However, radar can be costly, and assigning officers to this lower-priority task is often difficult. Though productive for the short-term, sporadic enforcement, or removing enforcement after a period of time, will result in speeds creeping back up over time.

One-Way Streets – Converting a pair or series of streets to one-way operations has safety benefits and causes a shift in traffic volumes. One-way pairs, alternating one-ways, or divergent/convergent one-ways create benefits, but can be a problem for certain local users as they can cause increased driving distances to arrive at their residences. Detailed analyses should be conducted before this concept is implemented.

Stop Signs – Stop signs should only be installed where warranted and as the result of an engineering analysis. Stop signs are not recommended for use as a speed control device. Removing stop signs, when warranted as part of an engineering study, can be as sensitive as installing one.

Marked Crosswalks – Painted crosswalks direct pedestrians to a crossing location that is judged safe for them and, equally important, visible to vehicular traffic. Crosswalks only need to be painted where pedestrian traffic is high, such as near parks and schools.

Variable Speed Display Board – The speed display unit, or trailer, uses radar to record and display a motorist's speed, along with the posted limit. Motorists do respond to this technique, but results may be short-term with speeds creeping back up over time. This use of the speed display unit should be repeated periodically to gain maximum effectiveness. Turn Restrictions – Turn Restrictions (no left turn, no right turn) along major streets at residential street intersections can be an effective technique for reducing neighborhood “cut-through” traffic. Such turn restrictions are usually posted for the peak traffic hours. Since this is not a physical deterrent, there are usually some, albeit minimal, violations.

Vehicle Restrictions – Restricting vehicles, namely trucks, from certain streets is often the result of citizen complaints. Trucks are important to the economic viability of the area. The City has designated streets upon which trucks are allowed daily travel. Explaining the impetus behind the truck route layout may satisfy a citizen's concerns when complaints are lodged.

Speed Alert/Watch Programs – This program allows residents to become a part of the solution. Under this program, citizens are trained to operate radar units by law enforcement personnel. One person runs the radar unit while another records speed and vehicle information. Speeders are then sent letters by the police department pointing out their recorded speed and asking them to slow down. In many cases, the speeders are area residents.

Effectiveness of Traffic Calming Techniques

Traffic calming techniques are being used on residential streets throughout Minnesota and the United States with varying success. In some cases, projects that had been installed have been subsequently removed, often at the request of the same people who requested the calming technique in the first place. Much research is still needed to determine the expected effects of these various control and geometric elements. Most research on the effects of these residential street-calming efforts has been project specific. Data and research on this topic are still in its infancy.

Some of the benefits anticipated for a specific project are based on engineering judgment, but need to be verified. This will occur as more research is undertaken. However, some case studies have identified benefits to certain projects, often reported as an “enhancement to the street environment.” These statements can be interpreted to mean residents are experiencing a feeling of improved safety, street “livability,” and an overall improvement in their perceived quality of life.

There have been efforts, in research and project reporting studies, to indicate the types of improvements that can be expected when certain traffic calming techniques are used. These expectations are based on first-hand experience and subjective analysis.

In 1996 – 1997, the Minnesota Department of Transportation and the Minnesota Local Road Research Board sponsored a research study¹ that examined the extent of traffic calming activity in Minnesota and the degree of actual and perceived success of such projects. Effectiveness was rated as:

- Highly Effective
- Effective
- Slightly Effective
- Uncertain of Effectiveness
- Not Effective

The study rated the effect of the project type on four different elements:

- Vehicle Speeds
- Traffic Volumes
- Street Safety
- Enhancing Perceived Street Environment

Table 6, which follows, present the results of these ratings.

¹ Traffic Calming Activity in Minnesota, LRRB, SRF Consulting Group, December 1997.

TABLE 6

Effectiveness of Traffic Calming Measures on Vehicle Speeds, Traffic Volumes, Street Safety, and Enhancement to the Perceived Street Environment

Traffic Calming Measures	Highly Effective	Effective	Slightly Effective	Uncertain of Effectiveness	Not Effective
Street Width Adjustments:					
Street Narrowing	◇		○ - ● - ■		
Choker	◇	○	● - ■		
Median Island	◇		○ - ● - ■		
On-Street Angled Parking			○ - ◇	● - ■	
Protected Parking Bays			○ - ■ - ◇	●	
Traditional Traffic Control Techniques:					
Vehicle Restrictions		● - ■ - ◇			○
Turn Restrictions	●	◇		■	○
One-Way Streets		●		○ - ■ - ◇	
Variable-Speed Display Board		○	■	● - ◇	
Trumpet Island			● - ■	○ - ◇	
Marked Crosswalks		◇	○ - ■		●
Stop Signs		■	○ - ● - ◇		
Vertical or Horizontal Realignments:					
Speed hump or bump		○ - ●	◇	■	
Traffic Circle		○ - ◇	●	■	
Chicane				○ - ● - ■ - ◇	
Route Modifications:					
Street Closure (cul-de-sac)	●	■ - ◇	○		
Diagonal Diverter	●	○ - ◇		■	
Semi-Diverter	●	◇	■	○	
Perceptual Enhancements:					
Change in Road Surface, Materials, or Color		◇	●	○	■
Streetscape Materials or Landscape Plantings	◇		○ - ● - ■		

Legend:

- – Effectiveness of Traffic Calming Measures on Vehicle Speeds
- – Effectiveness of Traffic Calming Measures on Traffic Volumes
- - Effectiveness of Traffic Calming Measures to Improve Street Safety
- ◇ – Effectiveness of Traffic Calming Measures for Enhancing Perceived Street Environment

A document prepared in 1994 by the North Central Section of the Institute of Transportation Engineers¹ (NCITE) contained an evaluation of the effects of various traffic engineering and traffic calming techniques. The units of measure were weighed against a variety of elements and rated for their effect – low, mid or high. The engineering/calming techniques were called a “tool box.” Table 7 on the following page presents the ratings from the report.

¹Neighborhood Traffic Control, North Central Section of the Institute of Transportation Engineers, January 1994

TABLE 7
North Central Section of the Institute of Transportation Engineers Ratings Evaluation

Engineering/ Calming Technique	Volume Reduction	Speed Reduction	Safety Improvem	Pollution Reduction	Access Restriction	Emergenc y Access	Maintenan ce	Level Of Violation	Communit y	Cost
Truck Restrictions	○	○	○	◇	●	○	○	○	●	○
Increased Enforcement	○	●	■	○	○	○	○	n/a	●	■
Speed Watch	○	●	■	○	○	○	○	n/a	●	○
Variable Speed Display	○	●	■	○	○	○	○	n/a	●	○
Watch for Children	○	○	○	○	○	○	○	n/a	●	○
Pavement Markings	○	○	○	○	○	○	○	n/a	●	○
Street Narrowing	○	■	■	○	○	○	○	n/a	○	■
Turn Restrictions	●	■	■	◇	●	○	○	○	○	○
Private Streets	■	■	■	●	■	●	○	n/a	○	●
Basket Weave Stop Signs	○	■	●	○	○	○	○	○	●	○
Yield Signs	○	■	○	○	○	○	○	■	●	○
Do Not Enter	■	○	■	◇	●	○	○	■	○	○
Speed Limit Changes	○	○	○	○	○	○	○	●	●	○
Parking Restrictions	○	○	■	○	○	○	○	○	○	○
All Way Stop	○	■	■	○	○	○	○	■	●	○
One Way Streets	■	○	■	○	●	○	○	○	○	○
Stop Sign Removal	○	○	■	●	○	○	○	n/a	●	○
Chokers	■	○	■	○	○	○	○	n/a	●	●
Partial Diverters	■	■	■	◇	●	●	○	○	○	●
Street Closure	■	●	■	●	●	●	●	n/a	○	●
Full Diverters	■	■	■	◇	●	●	●	n/a	○	●
Traffic Circles	○	■	■	○	○	●	■	n/a	○	●
Median Barriers	●	○	●	◇	●	●	○	n/a	○	■
Speed Bumps/Humps	■	●	○	○	○	●	■	n/a	○	■
Curvilinear Reconstruction	■	■	■	○	○	○	○	n/a	○	●
○ Low, Unlikely, No					● High, Likely, Yes					
■ Mid, Moderate, Possible					◇ Shift					

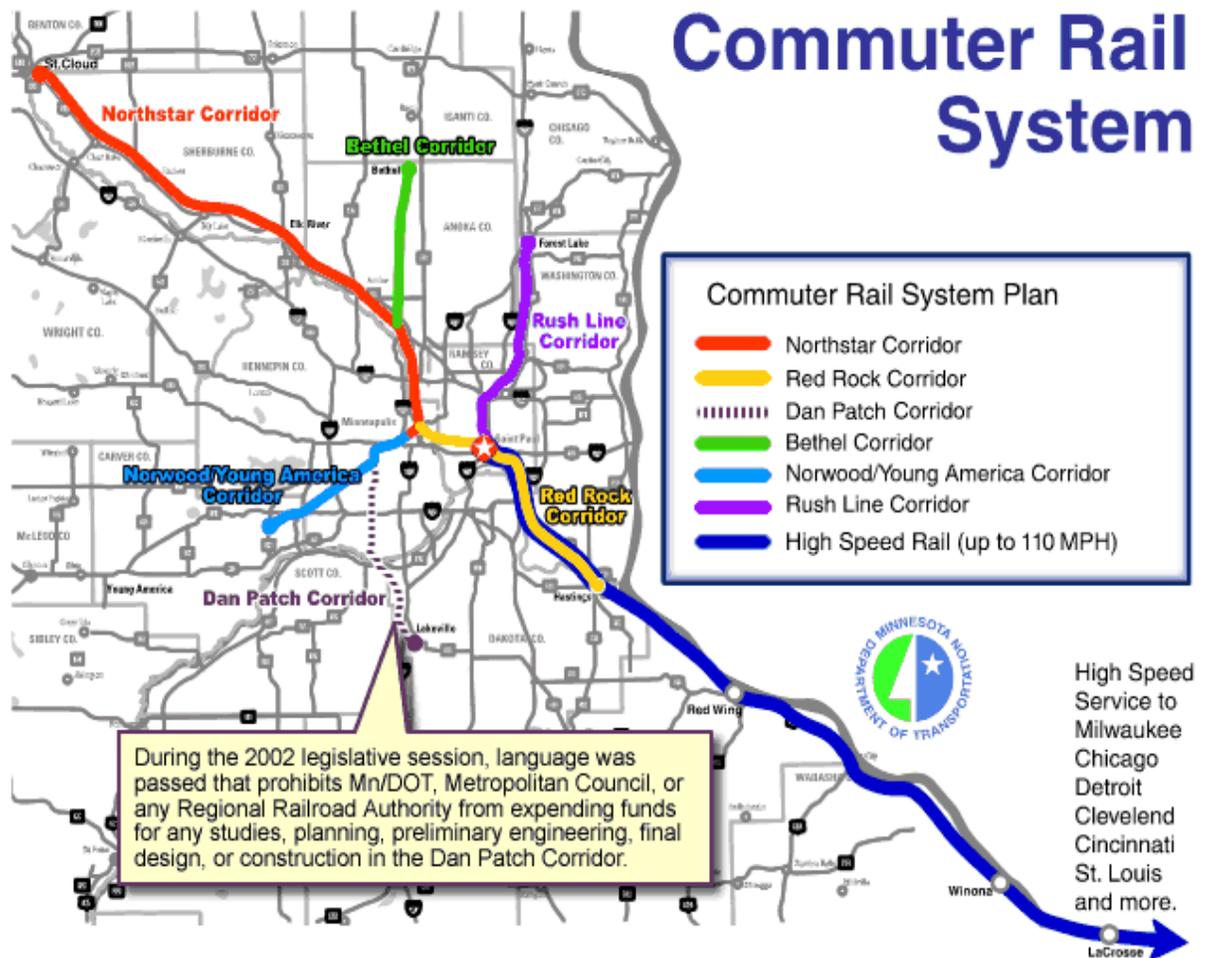
SOURCE: *Neighborhood Traffic Control, NCITE, January 1994*

V. REGIONAL TRANSPORTATION INITIATIVES

Northstar Corridor and Bethel Corridor, Commuter Rail

Overpasses and underpasses for rail lines

The Northstar Corridor is a 40-mile transportation corridor, which runs along Hwy 10 and Hwy 47 from Minneapolis to Big Lake. The Northstar Corridor was identified by MnDOT and is included in the Metropolitan Council’s Master Regional Transit Plan as a transit investment around the region. Northstar Commuter Rail Stations in the Northeast suburbs include Elk River (east of TH 169 and north of TH 10), Anoka (north of TH 10 between TH 47 and TH 288) and Coon Rapids (along Northdale Boulevard south of Riverdale Commons). In 2016, the Northstar provided more than 711,000 rides at rates ranging from six (6) dollars in Big Lake to three (3) dollars in Fridley during the week and \$5.25 in Big Lake to \$2.50 in Fridley on the weekend.



Note: The Northern Lights Express the Twin Cities (Target Field) to Duluth (The Depot) passenger service project is not identified. The status according to MNDOT is “study in progress”. No projects have been funded.



The Bethel corridor is a tentative commuter rail corridor, which runs north/south from the City of Bethel to Coon Rapids where it ties into the Northstar corridor. A study performed by MnDOT on the feasibility of commuter rail corridors in the Twin Cities found the Bethel Corridor to be feasible as a tier two corridor, which means that it could support potential commuter rail service. It is anticipated that tier two corridors will be implemented after 2020. The City of Andover is recommended consider the potential for this rail line as the City continues to develop. This may include selecting locations with urban housing, community centers, etc. near the existing rail line. If the existing rail line becomes the location for the future commuter rail corridor, the infrastructure should complement the use of that facility. At this point, the most appropriate location for a rail station appears to be near the BNSF railway and Bunker Lake Boulevard NW intersection in the southwest quadrant, which is currently owned by Anoka County.

The Northstar Corridor and the proposed Bethel Corridor are part of a commuter rail system that will be integrated with other forms of transportation such as LRT, bus transit, bicycles, and pedestrians. Due to the construction of these commuter rail lines, the City of Andover may experience an increase in bus transit, which may require the construction of new Park-and-Rides within the City. Also, increased demand for pedestrian and

bicycle transit may occur, requiring the construction of more trails, walkways, and pedestrian provisions through the City.

Regional Trails

Existing regional trails through the City of Andover include the Bunker Hills Regional Trail, which travels through Bunker Hills Regional Park in the SE corner of Andover and the Central Anoka County Regional Trail, which travels east/west through the southern section of the City of Andover. The Rum River Regional Trail is also proposed by Anoka County to travel north/south along County Road 7 through the City. The Coon Creek Regional Trail travels east/west along Coon Creek and connects to the Bunker Hills Regional Park. Additions to both of these regional trails are currently proposed by Anoka County. With the construction of regional trails comes Andover's opportunity to connect existing municipal trails to the larger system.

Mississippi River Crossing

MnDOT has studied the existing Mississippi River Crossings and has determined that both the Hwy 101 and the Hwy 169 crossings are congested. Various locations have been investigated for an additional river crossing. MnDOT's goal is to have the additional river crossing constructed at some point down the road. One location being considered includes a crossing from the City of Ramsey to the City of Dayton. Due to the construction of this new river crossing, the City of Andover could expect to see more commuters heading west to cross the river and then south into Minneapolis and St. Paul. If river crossing were to move forward at some point, MnDOT would need to look at preserving the right-of-way for this project.

As part of this project, it is anticipated that MnDOT will need to address how this crossing connects to the transportation system to the north. The crossing could potentially connect to TH 169 or TH 47 to the north. This may provide a TH 169 "bypass" around Elk River or a realignment of TH 47 away from the City of Anoka. Anoka County will also be reviewing the function of CSAH 22 and how it relates to the new river crossing as well as its function as an east/west connection for the northern Minneapolis/St. Paul Metro Area.

TH 47 (Preservation Route)

A preservation route is a section of Trunk Highway (TH) that has been categorized as MnDOT's highest investment priority. This category involves the repair and replacement of pavement and bridges, and repair of miscellaneous infrastructure. Funding is provided to preserve the existing infrastructure and not for other improvements even though they may be warranted. MnDOT has categorized TH 47 as a preservation route. TH 47 was recently reconstructed through the City of Ramsey as late as 2016. MnDOT recognizes the deficiencies on TH 47 within the City of Anoka. MNDOT was successful in securing \$7 million in Federal STP funding to rebuild the interchange at US 10 and TH 47/169 (Ferry Street) in Anoka. Also, Anoka County secured 1.9 million in Federal STP funds to improve the intersection TH 47 at CSAH 116. MnDOT and Anoka County will continue to review the needed improvements and future alignment of TH 47 as discussions continue concerning the potential turn back of the roadway to Anoka County.

CSAH 14 (Management Route)

A Management Route is MnDOT's second highest investment priority category. This type of route involves preservation strategies, transportation system management, access management, jurisdictional reassignment and corridor preservation. As the first step in developing an Access Management Plan, Anoka County prepared an Access Management Study for CSAH 14 between TH 10 and I-35W. It was determined that CSAH 14 is the best east/west corridor through southern Anoka County. However, most trips on CSAH 14 were short as travelers used the corridor to access north/south roadways. It was also discovered that the number of access points along this corridor of CSAH 14 is more than double the MnDOT guideline for an urban principal arterial facility.

Safety issues were identified as well as problems with congestion. Results of the study indicated that widening the corridor and making intersection improvements would minimize future traffic delays and congestion. To accomplish this goal, it was recommended this segment of CSAH 14 be reconstructed as a four-lane divided urban facility with left and right turn lanes. This would restrict access points and thereby reduce the number of conflicts.

Since MnDOT considers CSAH 14 a management corridor, improvements such as turn lanes, frontage roads, signal timing and access changes may receive state and regional funding. The mentioned upgrades were completed Fall 2016, and CSAH 14 has returned to being fully operational.

TH 65 (Management Route)

TH 65 is a MnDOT Management Route and may receive state and regional funding for improvements such as turn lanes, signal timing, and access closures or modifications. MnDOT will be providing signal system upgrades at Hwy 65 at 105th Avenue in Blaine. MnDOT, Anoka County, and Blaine will continue to discuss the future of TH 65. These discussions include defining potential funding sources for future improvements. MNDOT is currently working on a TH 65 study. Limits are from CSAH 10 on the south end to CSAH 116 on the north end. Visit the following website at <http://www.dot.state.mn.us/metro/projects/hwy65hamlake-slp> for further information.

MnDOT completed a Traffic Operations Study in 2000 for TH 65 from 53rd Avenue to 245th Avenue within Anoka County. Computer modeling was completed for intersections along this segment of TH 65. It was found that 22 intersections along the study corridor would be operating at unacceptable levels in 2020 if only the programmed improvements were performed on TH 65. The recommendations in the traffic operations study include access eliminations to increase intersection spacing, dedicated turn lanes to increase the cross street capacity, and additional through lanes in some areas to increase the intersection capacity. Some of these improvements are proposed for construction with the reduction of conflict intersections from Bunker Lake Boulevard to 245th Avenue by lengthening left turn lanes at intersections between 85th Avenue, Blaine Road, and Sims Road. This work is projected to begin in 2018.

CSAH 116 (Management Route)

CSAH 116 received Surface Transportation Program (STP) funding in 2011. These resources were used to widen and reconstruct the roadway between Crane Street and Jefferson Street, roughly 2.3 miles of total roadway. Additional roadway upgrades included in this project were:

- Intersection upgrades including turn lane additions and shoulder upgrades.
- Pedestrian facility upgrades through trail construction.
- Bus/truck pull-out lanes at the BNSF railroad crossing.

The above-mentioned construction was started in April 2017 and substantially completed November 2017.

TH 10 (Interregional Corridor)

An Interregional Corridor (IRC) is described as a route that connects regional trade centers within Minnesota. These corridors are only two percent of all roadway miles in the state. However they account for one-third of all vehicle miles traveled. These corridors receive priority for management investment funds as well as improvement and expansion funding. TH 10 is categorized as a management investment, but is also part of the Interregional Corridor System and is eligible for IRC funds.

In August 2014, MnDOT completed an Access Planning Study for TH 10 from the Anoka/Sherburne County line to the Rum River. The studies goals were to:

- Identify high-benefit, lower-cost improvements along Highway 10.
- Recommend improvements at a scale that can be funded and maintained.
- Prioritize investment recommendations for incremental implementation.

From these goals, 20 smaller projects were determined grouped into current, immediate, short-term, mid-term, and opportunity-driven priorities. The current priority was the reconstruction of the Highway 10 and Armstrong Boulevard intersection, which has been completed. The City of Anoka was successful in obtaining funding to improve US 10 through the City including work at Thurston, Fair oak, and West Main with the understanding that construction is planned possibly in 2022. The mid-term priorities would remove the Ramsey Boulevard and Sunfish Lake Boulevard traffic signals. Finally, the opportunity-driven priorities are projects that do not have an immediate need for construction but would provide additional grade separation and access closures increasing mobility along Highway 10.

In May 2002, MnDOT completed a Management Study/Plan for TH 10 from TH 24 in Clear Lake to I-35W in Mounds View and Arden Hills. Geometric and capacity deficiencies were studied along the length of the corridor. Segments through Anoka and Ramsey were among the segments with the greatest number of deficiencies. Congestion during peak hours was determined to stretch from Coon Rapids to Elk River. A major concern is the number of existing and potential signalized intersections along the corridor. Identified alternatives including increasing the number of through lanes along TH 10 or increasing the efficiency of the existing through lanes by converting from an

expressway to a freeway design. A freeway design would require the elimination of local road intersections and access points and the conversion of at-grade signalized intersections to grade-separated interchanges.

The study included the following alternatives for the Anoka County area:

Elk River: Convert the existing 4-lane arterial to a 6-lane arterial or a 4 or 6-lane freeway or construct a 4-lane freeway bypass north of the City.

Ramsey: Convert the existing 4-lane expressway to either a 6-lane expressway or a 4 or 6-lane freeway.

Anoka: Convert the existing 4-lane expressway to a 4 or 6-lane freeway.

Coon Rapids: Widen the present 4-lane freeway to a 6 or 8-lane freeway.

This list of alternatives was evaluated, and a list of potential projects was developed. Portions relevant to the Andover/Anoka County area include a project in Ramsey converting TH 10 from TH 169 to Sunfish Lake Boulevard to a 6-lane freeway, and a project in Anoka converting TH 10 from Sunfish Lake Boulevard to Round Lake Boulevard to a 6-lane freeway. It was also recommended that TH 10 from Round Lake Boulevard south to I-35W be converted to an 8-lane freeway as part of two different projects. Improvements to this corridor need to consider the Northstar Commuter Rail and related bus transit activities and facilities.

Some intersection/interchange improvements have been started and are in various stages of completion. The interchange at Round Lake Boulevard and Hanson Boulevard has been completed.

TH 169 (Interregional Corridor)

TH 169 has been classified by MnDOT as an interregional corridor. This corridor is eligible to receive priority for management investment funds as well as improvement and expansion funding. MnDOT has also identified this corridor as an at-risk, high-priority interregional corridor. As of October 2017, the following work has been completed:

- Replacing the Highway 169 bridge over Nine Mile Creek.
- Reconstruction of more than six (6) miles of pavement between Highway 55 and Highway 62.
- Construction of acceleration and deceleration lanes.
- Removal of access to and from southbound Highway 169 at 16th Street.
- Repairing noise walls and concrete barriers.
- Improving pedestrian accessibility.

MnDOT intends to preserve Right-of-Way for the widening of TH 169 between I-94 and 109th Avenue after developing a preliminary design map. According to the Transit 2020 Master Plan, bus-only shoulders are proposed for this corridor and should be incorporated into any new designs for TH 169. MnDOT will continue to analyze the project capacity deficiencies.

Roadway Turnbacks

Two potential regional roadway turnbacks are being discussed by MnDOT and Anoka County:

- TH 47 from MnDOT to Anoka County
- East/West CSAH 22 from Anoka County to MnDOT

A change in “ownership” of a roadway can affect funding and project priority. A roadway that may not have been a high priority to MnDOT may be more important to Anoka County and could receive more attention under the jurisdiction of the County. Also, the funding that can be provided for maintenance and construction will change along with the jurisdictional change.

The Anoka County 2040 Transportation plan shows proposed changes to the County Highway System. The roadways that may be turned back to the City of Andover in the future are:

- County Road 18 (Crosstown Boulevard) (approximately 2.4 miles)
 - From Bunker Lake Blvd NW (CSAH 116) to Hanson Boulevard (CSAH 78)
- County Road 58 (Valley Drive/Tulip Street NW) (approximately 3.7 miles)
 - From 7th Avenue (CSAH 7) to Round Lake Blvd NW (County Road 9)
- County Road 59 (Verdin Street NW) (approximately 2.5 miles)
 - From 161st Avenue NW (CSAH 20) to 181st Avenue NW (CSAH 58)
- County Road 158 (165th Avenue) (approximately 0.7 miles)
 - From 7th Avenue (CSAH 7) to Valley Drive (County Road 58)
- County Road 16 (Andover Boulevard) (approximately 1.99 miles)
 - From Hanson Boulevard (CSAH 78) to Andover-Ham Lake City Line

VI. ROADWAY SYSTEMS PLAN

A. Transportation Funding

There are several funding alternatives available to Andover for improvements to the transportation system. Below is a list of funding sources that can be utilized for various types of improvements:

- Federal Aid funding
 - Surface Transportation Block Grant Program (STBG)
 - Congestion Mitigation and Air Quality Improvement Program (CMAQ)
 - Highway Safety Improvement Program (HSIP)
 - National Highway Performance Program (NHPP)
- Federal Demonstration Funding for High Priority Projects (HPP)
- Transportation Revolving Loan Fund (TRLF)
- County State Aid Highway (CSAH) funding
- Municipal State Aid Street (MSAS) funding
- State and Federal Bridge funding
- Minnesota Railroad-Highway Grade Crossing Safety Improvement Program
- State DNR Grants
 - Federal Recreational Trail Grant Program
 - Regional Trail Grant Program
 - Outdoor Recreational Grant Program
 - Local Trail Connections Grant Program
- Legislative Commission on Minnesota Resources (LCCMR)
- Turnback funding
- County funding
- City funding

Each of these funding sources has a unique set of requirements and criteria that must be met to receive funding; in some cases, this includes successfully competing for limited funding. There are also rules that apply to the use of the funding and for what the funding can be used. Below is a more detailed description of the funding sources, how to receive the funds and how the funds can be used.

Federal Aid Funding

States receive federal funding for highways through the Fixing America's Surface Transportation Act (FAST Act) of the Federal Highway Trust Fund. Federal Highway Trust Fund revenue is generated from the federal gas tax, taxes on truck sales, use and tires, and from the General Trust Fund. Currently, each state receives a minimum amount of federal aid equal to 90% of the amount it contributes in taxes.

The Federal Aid or FAST Act funds are administered through the Minnesota Department of Transportation (MnDOT) with guidance provided through formulas determined by the federal government as well as the Transportation Advisory Board of the Metropolitan Council of the Twin Cities. Municipalities can compete for a portion of the federal funding that is available to the state. The federal funding usually covers 80% of the construction costs of a project. The other 20% must come from other funding sources. These sources could include other funds listed in this plan. The federal categories and an explanation are provided below:

Surface Transportation Block Grant Program (STBG)

The FAST Act converted the Surface Transportation Program (STP) funding to the Surface Transportation Block Grant Program (STBG). The funding is available for roadway construction and reconstruction, capacity projects, safety projects, bikeway or walkway components of projects, transit projects, Park-and-Ride facilities, and traffic management projects. With the transfer to the FAST Act, funds may now also be used to create and operate State offices to help design, implement, and oversee public-private partnerships. STBG funding is the most flexible program with respect to eligibilities among all Federal-aid highway programs.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

CMAQ provides flexible funding to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act of 1990. In general, eligible projects provide some type of reduction in toxic emissions. These include alternative fuel vehicles purchases, traffic flow improvements, transit projects, rideshare activities and telecommuting. In the FAST Act, additional expansion of fund uses includes eligibility for the technology of non-road vehicles used in port-related freight operations and vehicle to infrastructure communication equipment. CMAQ funding can be used in various fashions to defer the costs of implementing these strategies. In Minnesota, the funds are administered by the Transportation Advisory Board.

Highway Safety Improvement Program (HSIP)

HSIP provides funding for safety projects consistent with the States strategic highway safety plan with the purpose of significantly reducing fatalities and serious injuries on public roadways. Eligible projects include correction and improvements of hazardous roads, highway safety improvements, installation of the vehicle to infrastructure communication equipment, pedestrian hybrid beacons, and roadway projects providing pedestrian and motorist separation.

National Highway Performance Program (NHPP)

The National Highway Performance Program provides funding for the improvement and upkeep of the National Highway System (NHS) as well as construction of new facilities on the NHS. The goal of the NHPP is to ensure federal funds are invested in highway construction that supports the progress towards performance targets outlined in the State's asset management plan for the

NHS. Eligible activities include installation of vehicle-to-infrastructure communication equipment, reconstruction, rehabilitation, and preservation of a non-NHS bridge (when NHS bridge conditions are already satisfied), and projects reducing the risk of failure of critical NHS infrastructure.

Federal Demonstration Funding for High Priority Projects (HPP)

While Federal funding is available through the FAST Act, other federal funding may be available for specific high priority projects. In order to obtain this special funding, a project must have technical merit, as well as political backing. A coalition may be formed from supporting agencies and elected officials to organize an effort to bring funding to a project. A special Bill passed by Congress may contain funding directly applied to a specific project. By forming a coalition and working with your congressman and other elected officials, the City may be able to bring substantial transportation funding to a regionally significant transportation project.

Transportation Revolving Loan Fund (TRLF)

The federal government established a State Infrastructure Bank (SIB) program in 1995 through the National Highway System Designation Act. A SIB is a state or multi-state fund that can be used by eligible borrowers to finance eligible transportation projects. Minnesota's SIB, known as the Transportation Revolving Loan Fund (TRLF), was established in 1997. The TRLF operates much like a commercial bank providing low-interest loans to cities, counties, and other governmental entities for eligible transportation projects. When the loans are repaid, the funds are returned to the TRLF and used to finance additional transportation projects.

The TRLF is an innovative finance tool that can be used to finance transportation projects that may not get financed through traditional transportation funding methods. The TRLF's benefits include:

- Faster project completion, resulting in cost-savings and improved transportation systems.
- A variety of low-cost financing options.
- The ability to fund additional projects as loans are repaid.
- The attraction of new types of dollars for transportation use.
- The generation of additional dollars for transportation purposes through leveraging.

Eligible projects include, but are not limited to, pre-design studies; acquisition of right-of-way; road and bridge maintenance, repair, improvement, or construction; enhancement items; rail safety projects; transit capital purchases and leases; and drainage structures, signs guardrails, and protective structures used in connection with these projects.

An eligible borrower's possible sources of TRLF loan repayment include, but are not limited to, special assessments, property tax levies, tax increment financing, local government option sales taxes, future federal funds, future state funds, and customer fees from revenue-generating projects such as parking ramps and intermodal terminals.

County State Aid Highway (CSAH) funding

Anoka County receives a State Aid funding allocation each year for maintenance and construction of the County's State Aid Highway (CSAH) system. In 2017 Anoka County is forecasted to receive approximately \$19.5 million in State Aid funding. Approximately \$7.8 million is allocated for maintenance of the CSAH system, and \$11.7 million is allocated for construction funding. The County's State Aid funding can only be used for improvements made to the CSAH system. The State Aid funds can be used for construction, engineering, and right of way costs. The County can also borrow from its future State Aid allocation interest-free.

Municipal State Aid Street (MSAS) funding

The City of Andover receives a State Aid funding allocation each year for maintenance and construction of the City's Municipal State Aid Street (MSAS) System. In 2017 Andover is forecast to receive \$1.49 million in State Aid funding. The City may appropriate 25% to 35% of this funding to general maintenance with the remaining allotment being used for construction. The City's State Aid funds can be used for construction improvements to a Municipal State Aid Street (which include trails along the route), County State Aid Highway or State Trunk Highway. The State Aid funds can also be used for engineering costs and right of way costs.

The City can also borrow from its future State Aid allocation interest-free. The City can borrow up to five times the municipalities' last construction allotment or \$4 million, whichever is less. The State Aid for Local Transportation Office is continuously accepting loan applications.

State and Federal Bridge funding

Federal Highway Bridge Replacement and Rehabilitation Program (HBRRP) funds, Town Bridge funds and Minnesota State Transportation Funds (bond funds) are available to fund bridge replacement projects. These funds are available to municipalities for bridge projects and include removal of abandoned bridges to the reconstruction of deficient structures. For bridges on the state aide system, 50 percent of the costs can be paid from the State Transportation Fund. Higher participation shares may be approved if there is a financial need.

Minnesota Railroad-Highway Grade Crossing Safety Improvement Program

The mission of the Minnesota Railroad-Highway Grade Crossing Safety Improvement Program is to save lives in locations with at-grade crossings. Under this program, active warning devices have been installed at more than 1,500 of the Minnesota grade crossings.

Federal funds for railroad-highway grade crossing safety projects are available under the Fast Act with the Railway-Highway Crossing Program. MnDOT, local road authorities, railroads, and local planning agencies work together to identify railroad-highway grade crossing safety projects. The eight ATPs integrate projects into area-wide plans. MnDOT's Office of Freight, Railroads and Waterways helps the ATPs to assess grade crossing safety investment needs.

Types of projects eligible under the Minnesota Railroad-Highway Grade Crossing Safety Program include signal and signal upgrade, signs and pavement markings, lighting, crossing closures and roadway relocations, sight condition improvements, crossing alignments, grade improvements, and grade separations.

State DNR Grants

The DNR has several grants available through their general, trail and water recreation programs. These grants may provide a local match to federal funding or a contribution to a project with other funding sources. The following programs are available to the City of Andover for City or County trails:

Federal Recreational Trail Grant Program

This program is available for the development, reconstruction or maintenance/restoration of either motorized or non-motorized trails. A unit of government must sponsor the project. The minimum grant request is \$1,000, and the maximum grant award is \$150,000. Purchases of above \$75,000 require a 50% match while those below \$75,000 require a 25% match. Federal funds can be used as a match in some circumstances. The application for this program is due annually on February 28th.

Regional Trail Grant Program

This program is intended to support the development of regionally significant trails. Demonstration of local support and a 20-year commitment from the trail developer are requirements of this trail program. Cities, counties, and townships are eligible to apply for the funding. Grants are reimbursement based up to 75% of the eligible cost. The minimum grant request is \$5,000 with a maximum grant reward of \$250,000. This match cannot include any other state funds. The application for this program is due annually on March 31.

Outdoor Recreational Grant Program

This program is intended to increase and enhance outdoor recreation facilities. Eligible projects include park acquisition and/or development/redevelopment; this includes among others, picnic shelters, playgrounds, athletic facilities, trails, boat accesses, fishing piers, swimming beaches, and campgrounds. Cities, counties, and townships are eligible to apply for the funding. Grants are reimbursed up to 50% of the total eligible cost with a maximum grant award of \$150,000. The application for this program is due annually on March 31st.

Local Trail Connections Grant Program

This program is intended to promote relatively short trail connections between where people live and desirable locations, not to develop significant new trails. Demonstration of local support and a 20-year commitment from the trail developer are requirements of this trail program. Cities, counties, and townships are eligible to apply for the funding. Priority is given to projects with residential connections to state and regional facilities. The minimum grant request is \$5,000 with a maximum grant amount of \$150,000. Grants are reimbursement up to 75% of the total eligible costs with the remaining 25% provided by a non-state cash match. The application for this program is due annually on March 31st.

Legislative Citizens Commission on Minnesota Resources (LCCMR)

The LCCMR makes funding recommendations to the Minnesota Legislature each year for special natural resource projects. These projects help maintain and enhance Minnesota's natural resources. These projects include recreational parks, trails and history; fish and wildlife habitat; water resources; and environmental education. The LCCMR process is open to all provided there is a demonstrated public benefit. Recipients include state agencies, private non-profits, academic institutions, local government units, the federal government, tribal governments and private corporations.

Proposals are due around May of each year. The LCCMR processes these proposals for presentation to the Legislature the following January. If selected, funding becomes available the following July and is available for a two-year period.

Turnback Funding

When a jurisdictional transfer occurs, the agency releasing the roadway usually provides funding for necessary upgrades prior to releasing the roadway. These funds may include State Aid funds or special turnback funding designated by that agency for turnback purposes.

County Funding

Anoka County funding is provided by the County to maintain and construct the County Road system. These funds are utilized for roadways not on the CSAH system as well as some improvements made to County State Aid Highways.

City Funding

The City of Andover allocates City funding for maintenance and construction of its roadways. This funding, along with the MSAS funds received from the State provide the City with its yearly allocation for roadway maintenance and construction. Also, there are certain intersection improvements on City streets and County roads that may be the responsibility of the property owners and/or developers/subdividers. These requirements are as follows:

1. The subdivider shall be required to pay a proportionate share of all costs associated with required intersection improvements along County roads and City streets when new developments trigger the need for upgrades (i.e., right and left turn lanes, bypass lanes and deceleration lanes).
2. The subdivider shall make the required improvements as a part of the street improvements for the new development as identified in the preliminary plat approval.
3. The City Council may elect to construct such improvements as an assessment project in which the subdivider shall accept an assessment for a proportionate share of the improvements as identified in the preliminary plat approval.

B. Short-term/Long-term Planning

This Transportation Plan provides the City with a guide for future improvements to the overall City transportation system. Specific recommendations have been made regarding various aspects of the system. Many factors outside of this Transportation Plan will affect what those short-range projects will be. In fact, the primary factor is the development or redevelopment that will occur within the City.

As development occurs, the City will require certain elements of the Transportation system to be provided as part of that development. It is at this time that many projects recommended within the Transportation Plan will be implemented. By implementing this plan, the City establishes the requirements of transportation projects whenever they occur in the future. As the City updates its Capital Improvement Plan, this plan can be used as one tool to prioritize transportation improvements. However, many other factors will contribute to the CIP as well, including maintenance needs, etc.

This plan will also assist the City with projects outside of their jurisdiction. By providing recommendations for Hanson Boulevard and Crosstown Boulevard the City is able to let the County know what the desire and expectations are for future improvements. The County can use this when programming funding for future improvements along the county roads. It is anticipated that Anoka County will use this plan as a guide when developing its short and long-range transportation improvement plan.

VI. MANAGING FREIGHT MOVEMENT

The safe and efficient movement of goods is an integral part of the health and livability of a community for both businesses and homeowners. With a majority of the goods being delivered throughout the city and to various land uses through truck traffic, it is important to ensure the infrastructure of Andover can support these larger freight vehicles and their corresponding movement without causing undue burden to passenger vehicles, pedestrians, and bicyclists. The city will work to accommodate freight infrastructure without negatively impacting surrounding land uses. The first step in creating this efficient freight movement is through defined and dedicated freight routes through the city. These dedicated routes prevent heavy truck traffic from impacting local roadways and allows for focused improvements on these freight routes to improve safety and infrastructure needed to accommodate these heavy vehicles.

The City should work with potential developments, which expect heavier volumes of truck traffic for freight movements, to ensure proper planning has been put forth with respect for these vehicles. This may include but is not limited to:

- Site plans, which propose separated and internal accesses and/or truck routes to loading dock areas.
- Storage, sufficient to accommodate freight vehicles without impacting pedestrians and roadway traffic and infrastructure.
- Limiting freight deliveries and pick-ups outside of the roadway's peak periods.
- Upgrading pavement depths to accommodate the heavier truck traffic.

Most freight traffic is generated in areas outside of Andover, or in the areas located near the intersection of Bunker Lake Blvd/Hanson Blvd, Bunker Lake Blvd/Round Lake Blvd, and Hanson Blvd/Crosstown Blvd. This area has a high percentage of commercial and industrial land use relative to the rest of Andover. Heavy Commercial Average Annual Daily Traffic (HCAADT) counts for A-minor arterial roadways are depicted in *Figure 3*. The existing railroad line provides additional freight movement options and can be used to help relieve freight traffic from the local roadways for regional freight movements.

VII. PUBLIC INPUT PROCESS

To complete and implement a City-wide transportation plan, it is critical that the various agencies, business owners, citizens and other affected parties participate in planning activities. The City will continue to work with these entities to improve the City Transportation System.

VIII. MISCELLANEOUS TRANSPORTATION RELATED RECOMMENDATIONS

The previous chapters discussed a variety of transportation system elements. During the development of the plan, certain recommendations were brought forth that should be adopted by the City of Andover to help ensure continuing development of an up-to-date plan and evaluation of various traffic and land use related conditions.

- The Transportation Plan should be reviewed and updated every five (5) to no more than ten (10) years in order to better plan for changing conditions.
- The City should, on a five (5) year time frame, conduct a review of the safety and traffic operations conditions of a list of “hot spot” intersections. That list will probably change as the City continues to grow.
- The City should require a traffic impact analysis of proposed new development be conducted as part of the plan review process. The size and type of land use development requiring such traffic analysis should be left to the discretion of the City Engineer. No traffic impact analysis is required for residential land uses unless an access request has been blocked by the county. The primary benefit of these traffic analyses will be to determine:
 - Access needs.
 - Intersection and roadway improvements adjacent to and within the general area of the proposed project.
 - Traffic control needs.
- The City should ensure all city-owned traffic signals are retimed every 3 to five years to fulfill MnDOT requirements.
- The City should pursue flashing yellow arrow operation upgrades on city-owned signals. This operation will provide additional roadway efficiency during lower volume periods of the day at signals that currently operate protected or protected-permissive throughout the day. The County is currently completing a flashing yellow arrow review.
- The City should provide additional flexibility concerning access spacing. The re-classification of Major/Minor Collectors is a good step in the process, but additional focus and re-evaluation of 3/4-accesses as conditional accesses dependent on city review should be pursued with future developments.