



Chapter 8: Transportation



Transportation

Transportation Goals

- Goal 1: Collaborate with federal, state, regional agencies, and local jurisdictions on transportation issues to increase connectivity and achieve alternative forms of transportation.
 - a. Maintain and implement the park and trail plan to ensure the provision of pedestrian and bicycle facilities.
- Goal 2: Develop and maintain a safe, efficient and environmentally sensitive transportation system.
- Goal 3: Promote a multi-modal transportation plan that is fully integrated with land use planning.
 - a. Adopt and enforce access and mobility standards tied to a functional classification system for all of Oakdale’s roadways.

Introduction

The Transportation Plan element looks at the roadway network as a basis for transportation and provides a hierarchy of roads based on functional classification consistent with the metropolitan area. It also addresses operational concerns and solutions to the system and discusses access management. Alternative modes are part of the plan, including traditional transit, system and demand management, and emerging technological changes. This element replaces the past Transportation Plan.

The Oakdale transportation element of the Comprehensive Plan has the following goals:

- Develop and maintain a safe, efficient, and environmentally sensitive transportation system for the movement of people and goods.
- Develop an overall traffic control system that provides safety and efficiency.
- Establish a street system that is sensitive to homogeneous neighborhoods and activity areas.
- Establish a street system that recognizes the relationship between roadway function, land access and specific uses of abutting

land.

- Collaborate with overlapping and surrounding jurisdictions on transportation issues, including transit and alternative forms of transportation.
- Approach transportation in a comprehensive manner, giving attention to all modes and related multimodal facilities.
- Ensure the provision of pedestrian and bicycle facilities that are consistent with the safe and convenient circulation needs.

To help meet these goals and to provide direction, the City has also established policies relating to the transportation system. The following policies will help with the focus of the transportation element of the Comprehensive Plan and/or provide additional elements to supplement the plan.

- Establish a functional classification system that provides visual distinctions between functional class and provides a hierarchy of design standards.
- Minimize and limit access onto arterials and collectors consistent with access management guidelines.
- Where feasible and practical, encourage

Classification

- off-street parking and prohibit parking on arterial and collector streets.
- Where feasible, include the provision of trailways, landscaping, and park improvements in conjunction with street improvements.
- Enhance the aesthetic character of major roadway corridors by periodically updating zoning and building construction standards, to include boulevard landscaping requirements.
- Continue updating the Capital Improvement Program to address safety, beautification, and maintenance cost containment through replacement programs.
- Design and develop local street systems that minimize through traffic and speeding.
- Continue to monitor accidents on local streets.



Roadway Functional Classification

Background

Functional classification of a roadway system consists of determining the purpose of each of the individual roadways comprising the system. Functional classification helps to develop an area wide system of roadways consistent with land use and development in the area. Once the function of the roadway is established, desirable design and operational characteristics can be coordinated with the function and with adjacent land uses. Functional classification

also assists with jurisdictional decisions, development of a consistent metropolitan roadway system, determination of transit routes, and allocation of funding. In the seven county metropolitan area, the functional classification system consists of four classes of roadways: principal arterials, minor arterials, collectors and local streets. The functional classifications are discussed in detail in the Metropolitan Development Guide, Transportation Policy Plan Appendix published in December 1996.

Classification Criteria

Principal Arterials

The metropolitan highway system is made up of principal arterials in the region. These principal arterials include all interstate freeways and other major freeways and expressways. The system proposed by Metropolitan Council for central Washington County includes Interstates 94, 694 and 494, Highway 36 and Highway 61. The principal arterials connect the region to other areas in the state, connect metropolitan centers to regional business concentrations and provide for the longest trips in the region.

Minor Arterials

The minor arterial system connects the urban service area to cities and towns inside and outside the region. They interconnect with rural growth centers, supplement the principal arterial system and connect major traffic generators in the regional system. Minor arterials generally connect to principal arterials or other minor arterials and collectors. Access is somewhat limited and the emphasis is on mobility. Minor arterials provide for medium to short trips or serve as a portion of longer trips connecting to the principal arterial system.

The Metropolitan Council has developed a system of A minor arterials and B minor arterials. The A minor arterials are more regionally significant than the B minor arterials. Within the A minor arterial classification, the Metropolitan Council has also defined Relievers, Expanders, Connectors and Augmenters. Relievers are minor arterials that provide direct relief to metropolitan highways. These are generally parallel to principal arterials within the core urban area. Weir Drive/Hadley Avenue south of 10th Street is shown as an A minor arterial-reliever by the Metropolitan Council.

Expanders are routes that provide a way to make connections between developing areas outside the interstate ring and are generally extensions of the internal system. Examples in Oakdale include County Road 10 east of I-694 and Highway 5 east of I-694.

Connectors are a subgroup of A minor arterials that provide connections between town centers in the outlying areas. These are generally extensions of A minor arterials into the rural area. There are none within Oakdale, but Manning Avenue (County Road 15) is an example through Washington County.

The fourth group of A minor arterials are Augmenters which are roads which provide relief to the principal arterial system. These are generally urban City streets that provide opportunities for traffic to make local trips without utilizing any other of the higher functional classification roads. Highway 5 west of I-694 is an Augmenter. B minor arterials are those roadways that supplement the metropolitan system but are primarily local in nature. The other major difference is that A minor arterials are eligible for federal funding while B minor arterials are not.

Collector Streets

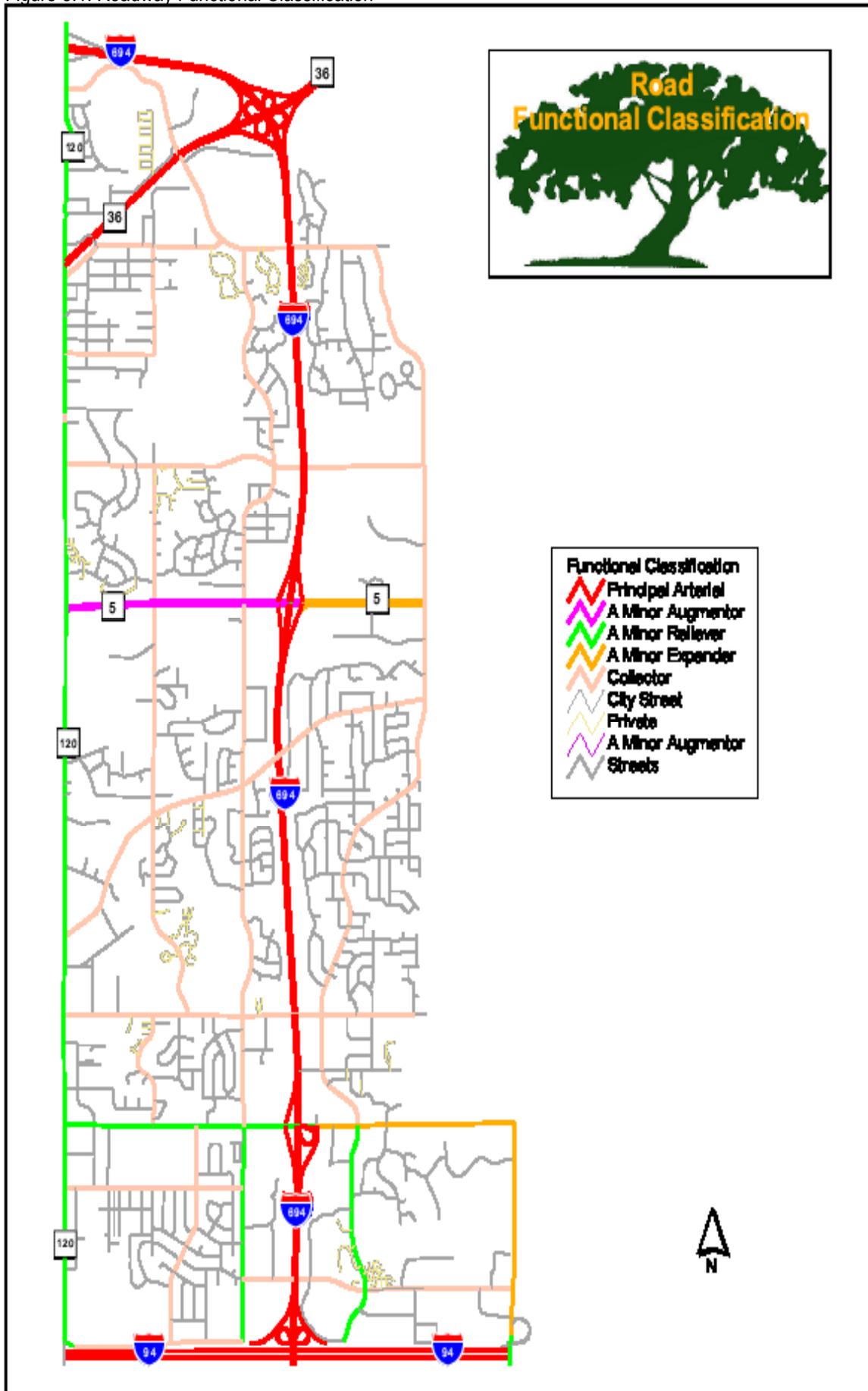
The collector street system provides connections between neighborhoods or from neighborhoods to business concentrations. Collectors are a supplementary system of streets that are more focused on land access than mobility, but still have access limitations. They generally provide for short trips between residential areas and businesses or for other trips that are local in nature. The City of Oakdale has a collector street system consisting of major north-south streets such as Hadley Avenue and short important streets such as Gentry Avenue. These are primarily developed to provide concentration of traffic from residential neighborhoods to commercial areas or to the arterial street system.



Oakdale Functional Classification System

The Oakdale system, as proposed, is based on the Metropolitan Council System with some modifications. Figure 8-1 shows the transportation system including principal arterials, minor arterials, and collectors. They are arranged by the functional classification of Metropolitan Council and include principal arterials, A minor arterials, B minor arterials and collectors.

Figure 8.1: Roadway Functional Classification



Changes from Metropolitan Council System of 1996

The Oakdale Transportation Plan has considered all roadways within the City and their functional classification designation. The Metropolitan Council has provided a guideline and the City's plan is in agreement with many of the designations. There are some specific changes that are proposed from the Metropolitan Council designations.

While the Hadley Avenue and Weir Drive connection on the west side of I-694 is included in the Metropolitan Council designation of A minor arterials, the companion road on the east side is not.

Stillwater Boulevard (County Road 6) from Highway 120 east to County Road 13 and County Road 13 (Ideal Avenue) from Stillwater Boulevard to Highway 5 are designated as a B minor arterial in the Oakdale plan. Stillwater Boulevard is an A minor arterial west of Highway 120 and is a major east-west route.

The map of the Metropolitan Council shows only a few of the collector streets in Oakdale. The City plan has carefully reviewed all roadways and added those that meet all of the characteristics of the collector designation. (Figure 8.1).



The City will need to request some functional classification changes through the TAC- Planning Committee. The City has also identified a number of collector roadways on Figure 8.1 that will also need to be reviewed by the TAC- Planning Committee in order to be consistent with Metropolitan Council's mapping.

The Metropolitan Council also encourages mitigating impacts of transportation related infrastructure on local water quality. Oakdale is in agreement with these efforts and has tailored their Comp Plan to encourage sustainable design in redevelopment including future transportation improvements.



Traffic Forecasts

In conjunction with the land use plan and development of the functional classification system, traffic forecasts were made based fundamentally on Washington County's 2030 Traffic Model forecasts. Specific development studies (Imation, Oakdale Market Place, Carlson Oaks Business Park) projected volumes were also considered and added to the background growth projects in the immediate vicinity of those developments. Concurrently, the system was reviewed for potential land use changes in the area developing traffic for specific roads. In some instances, the area was completely developed and little additional traffic from adjacent areas was anticipated. These roads, such as 45th Street or Greenway Avenue, were shown to have little traffic growth. Other local collector streets, such as 40th Street, Helmo Avenue, and 4th Street, were anticipated to have increased local traffic, but little outside traffic.

The three methods were then compared and specific year 2030 forecast traffic volumes were made. Existing volumes are shown in Figure 8.2 and proposed traffic volumes are shown in Figure 8.3. Traffic Analysis Zones are shown in Figure 8.4 and Table 8.1. The 2030 volumes do not reflect major road system changes such as an interchange at I-694 and 40th Street or relocation of 50th Street at Highway 120.

Operational Concerns

The City of Oakdale's transportation system, like many others in a growing Metropolitan area, has a number of operating concerns and problems and some concerns for future operation. Projected roadway deficiencies are

reflected in Figure 8.5. The transportation system has been analyzed completely in general terms based on both observations and measurements. The City has carefully considered a number of problems or concerns existing on roadways under various jurisdictions and has developed some general concepts with which to alleviate or reduce the scope of the operational problems. A discussion of each of these operational concerns, as numbered and shown on Figure 8.6, follows.

1. Hadley Avenue Extension Across I-94

Hadley Avenue is a major collector street paralleling I-694 through Oakdale. However, it does not have continuity on the most congested section of I-694, that between County Road 10 and Woodbury. A similar situation exists with Weir Drive in Woodbury. A proposal has long existed in both communities to provide a bridge over I-94 and a connection for continuity of Hadley Avenue.

2. Helmo Avenue Extension over I-94

Helmo Avenue is similar to Hadley Avenue, with both roads flanking I-694. It is an important north-south collector between and parallel to I-694 and County Road 13. The City of Woodbury again has a companion route in Bielenberg Drive from Hudson Road south to Valley Creek Drive. The connection of Helmo Avenue and Bielenberg Drive would also provide continuity between the two communities and provide an alternate route to I-694 and 494 or County Road 13.

3. I-94 and County Road 13 Interchange Area

4th Street currently serves as an east-west connector between Hadley Avenue and County

Figure 8.2: Existing Roadway Traffic Volumes

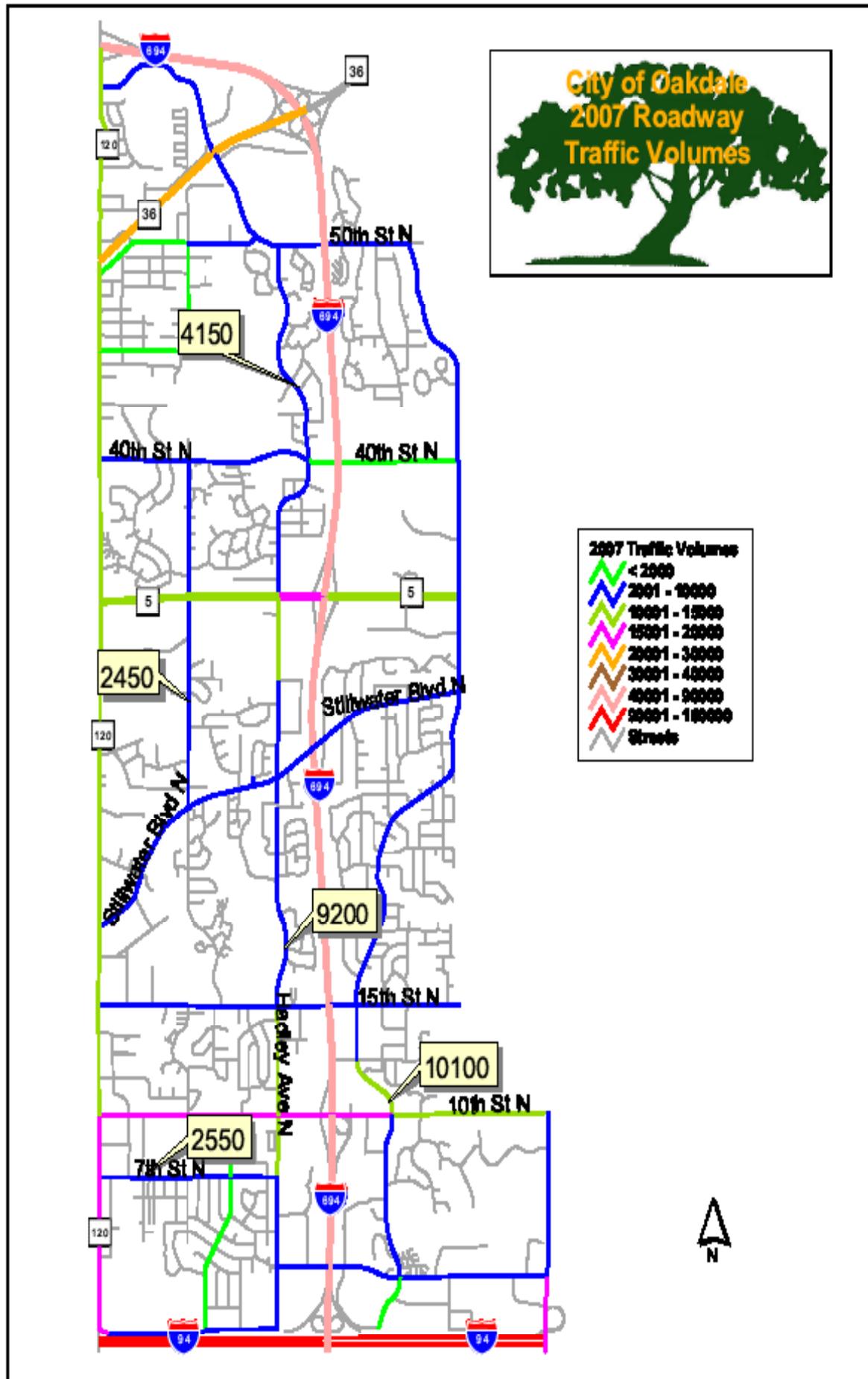


Figure 8.3: 2030 Projected Traffic Volumes

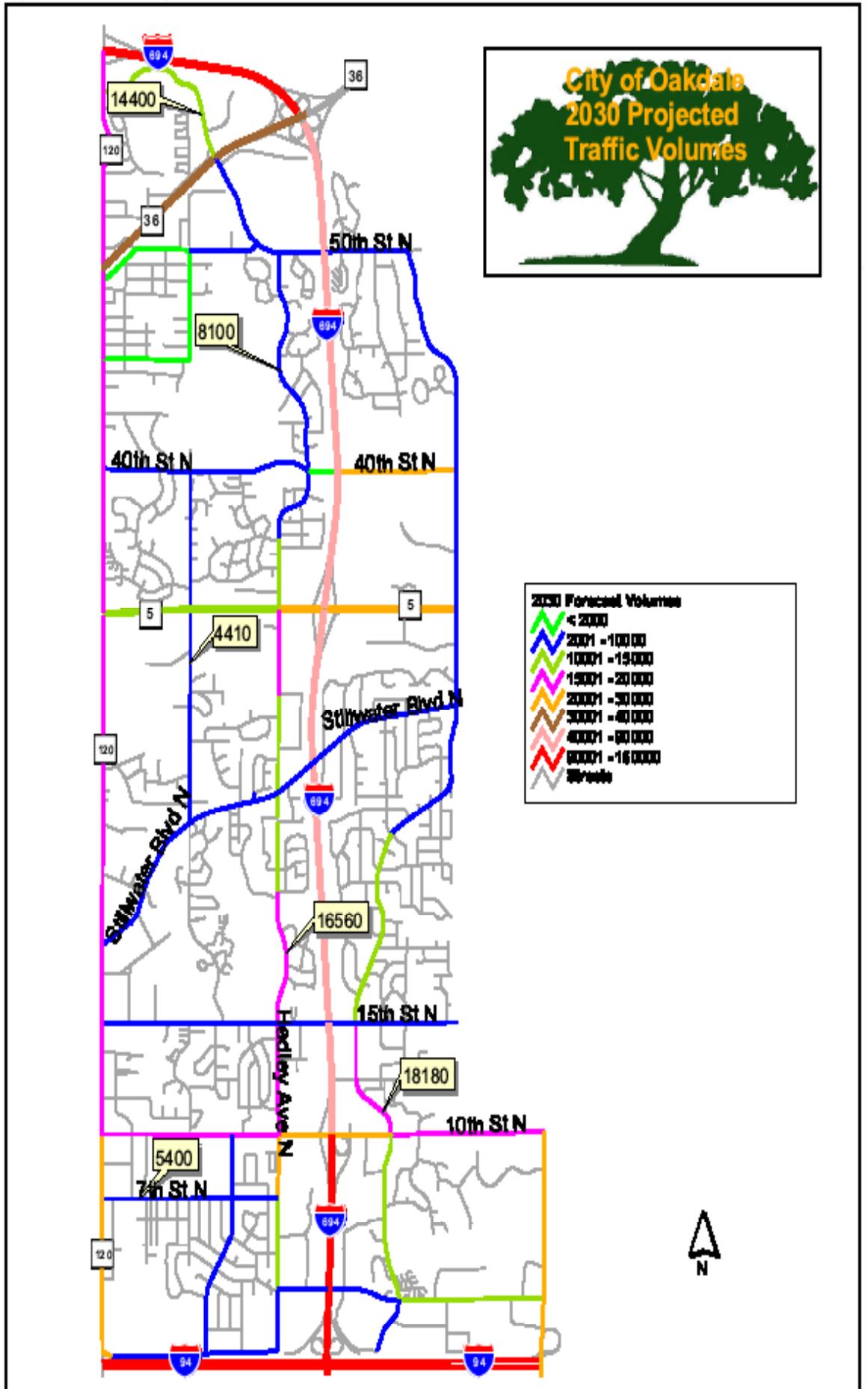


Table 8-1: TAZ Forecast.

CITY	Washington County TAZ	Met Council TAZ	2005			2030		
			Households	Retail Employment	Non-retail Employment	Households	Retail Employment	Non-retail Employment
OAKDALE	1118	1118	484	27	132	494	85	0
OAKDALE	1120	1120	2233	350	418	2188	300	800
OAKDALE	1122	1122	2037	272	317	2767	160	1415
OAKDALE	1123	1123	788	222	830	850	250	720
OAKDALE	1124	1124	1500	0	7	1400	10	480
OAKDALE	1125	1125	1318	8	848	1867	60	674
OAKDALE	1126	1126	208	334	388	550	580	675
OAKDALE	1127	1127	808	0	858	830	251	2605
OAKDALE	1201	1118	178	355	1281	118	515	825
OAKDALE/LANDFALL	1121	1121	1811	217	1525	2188	360	1082
Total for Oakdale			83,762	19,246	55,051	145,527	31,548	83881
Total								97,652

Figure 8.5: Projected Roadway Deficiencies

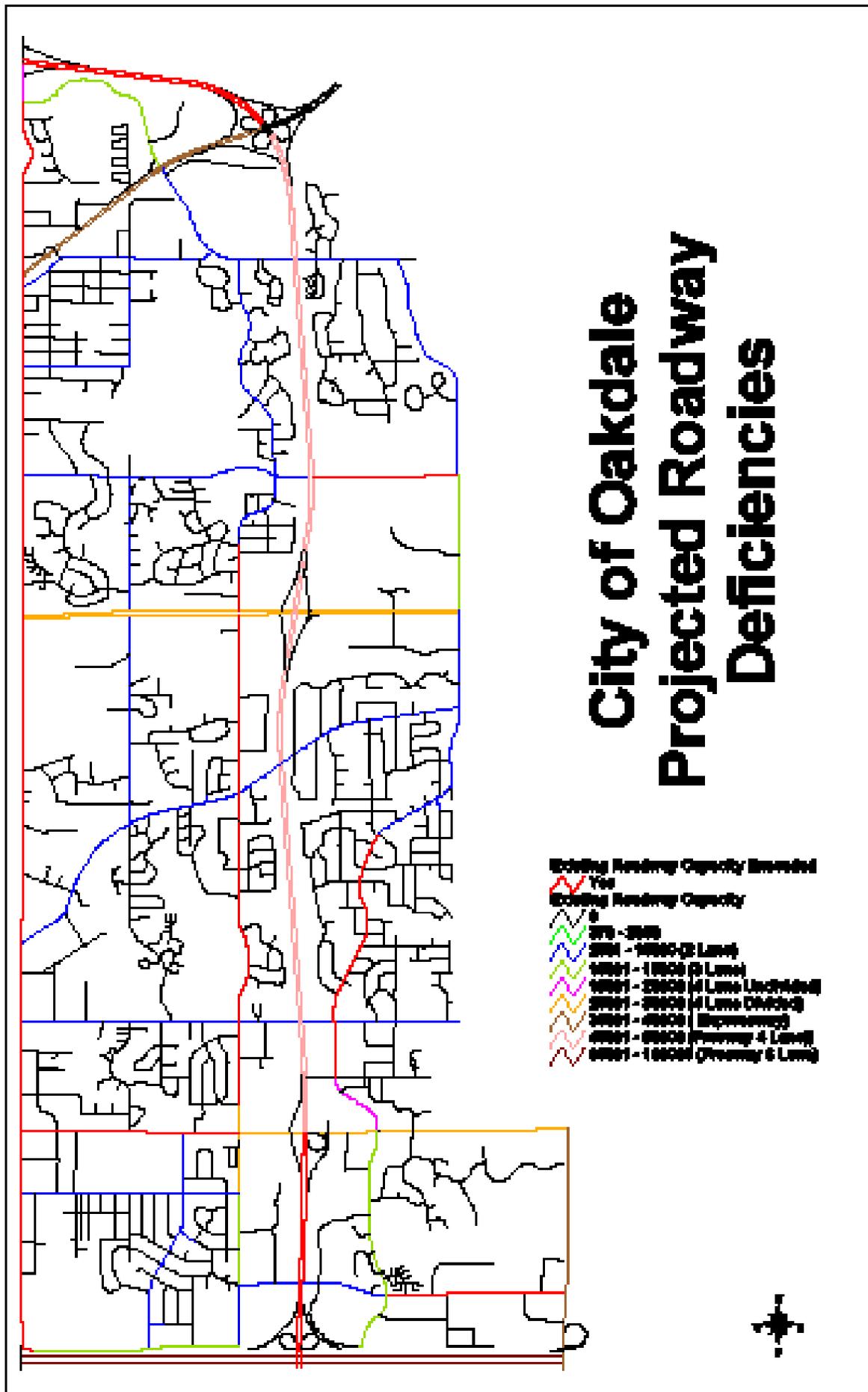
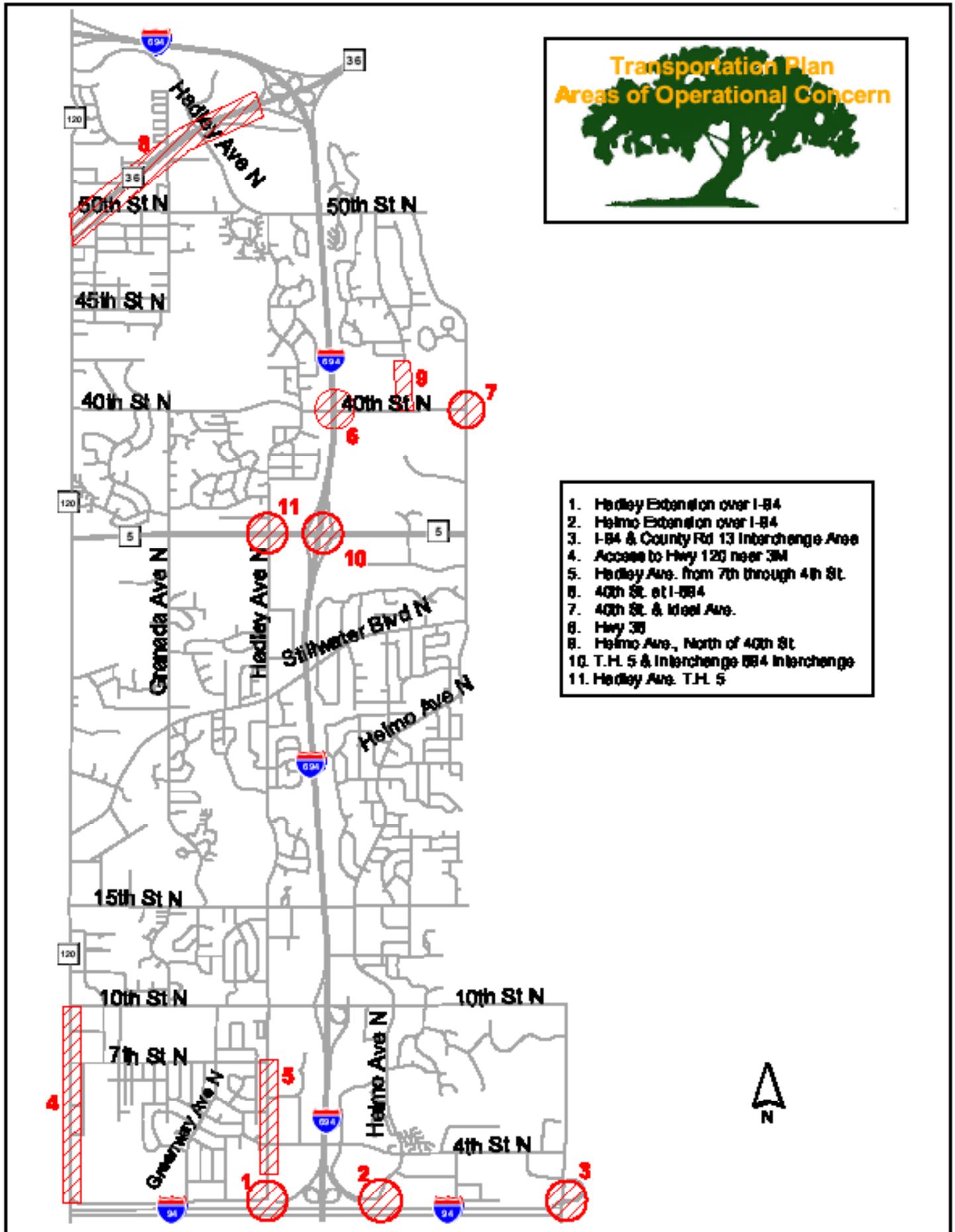


Figure 8.6 Areas of Operational Concern



Road 13. With the extensive commercial development in Woodbury on the south side of I-94, the entire interchange area in Oakdale, along with the connections to 4th Street and other local streets, becomes an operational concern. Options for improving the interchange area are limited due to proximity to the I-94-I-694 interchange. The preferred approach is to separate the I-94 destination traffic from the traffic merely wanting to travel between the communities north of the freeway with those to the south. The overpasses noted in No. 1 & 2 above would mitigate these operational concerns.

4. Access to Highway 120 Near 3M

The 3M campus generates a significant amount of traffic on a daily basis. It has major intersections at Conway Street and Innovation Boulevard. Unfortunately, these do not line up with the street system in Oakdale. The only collector street connecting to Highway 120 in this area is 7th Street that has its own intersection between 10th Street and Conway Street. Hudson Road, or the north frontage road of I-94, is also a collector street but provides access only to the westbound frontage road in front of 3M. The intersection of Hudson Boulevard with T.H. 120 is too close to the I-94 off/on ramp intersection. Mn/DOT has been attempting to develop options for relocating the frontage road intersection, however the proximity of Tanners Lake limits realignment options. Consideration should be given to developing a folded diamond interchange west of T.H. 120 that would line up with the existing frontage road intersection east of T.H. 120. The best alternative to fix the problem should be compatible with any future roadway improvements as well as the redevelopment plans for Southwest Tanners Lake.

5. Hadley Avenue From 7th Street Through 4th Street

With the anticipated development of the area, additional safety and capacity must be provided on Hadley Avenue by installing traffic signals at 4th Street and possibly at 7th Street if warranted. South of 4th Street Hadley Avenue will need to be widened to accommodate the center turn lane. Access to the vacant property south of 4th Street and east of Hadley should be limited to a single access point.

6. 40th Street at I-694

Numerous concepts have been put forth for an additional interchange at 40th Street to serve the potentially heavy utilized 3M/Imation property. It is anticipated that the Highway 5 interchange will be somewhat congested and that additional access to the north from 40th Street may be desirable. Right-of-way has been preserved for this potential partial interchange or possibly even a folded diamond interchange. At the appropriate time, all necessary agency processes and approvals (including federal & state) will be followed to assure requirements



7. 40th Street and Ideal Avenue

Currently, the Imentation property is basically bounded by 40th Street, Ideal Avenue, Highway 5 and I-694. It is possible that 40th Street can be realigned to provide either continuity with Lake Jane Trail. This roadway system must be developed in conjunction with the

8. Highway 36

North St. Paul recently completed the conversion of T.H. 36 from an expressway to a freeway from White Bear Lake Avenue to T.H. 120. As a result the only at grade intersections remaining on T.H. 36 are at: English Street (west of White Bear Avenue), T.H. 120, and at Hadley Avenue. A right-of-way plat should be prepared along the T.H. 36 corridor through Oakdale to preserve the right-of-way necessary for the ultimate conversion to a freeway. It is understood that a formal mapping process is necessary in order for this to occur and that funding may be available to assist with such a project.

9. Helmo Avenue North of 40th Street

Helmo Avenue is currently proposed to be extended from its current termini near 43rd Street to 40th Street and possibly through the 3M property. Because of the residential nature of Helmo Avenue towards 50th Street, the extension, with potential cut through traffic, should be off-set with any street extended to the south of 40th Street.

10. T.H. 5 and Interstate 694 Interchange

The Oakdale Station development in the southeast corner of the interchange required the removal of the free right north bound to east bound movement at the ramp. The right turn will now be a controlled right turn at the signalized interchange location. In the future, a second right turn lane will need to be constructed when development and traffic volumes warrant the need for the additional lane.

11. Hadley Avenue and T.H. 5

Several traffic studies have indicated the potential need to a dual left west bound to southbound lane on T.H. 5. In addition the southbound to east bound lane on Hadley Avenue may have to be extended. Additional right of way should be pursued if redevelopment occurs along Hadley Avenue north and south of the intersection.

Alternative Transportation

Background

It is recognized that a transportation system has limits for practical, physical expansion. The emphasis of this plan is to move people and goods, not vehicles. In the Metropolitan Council Transportation Policy Plan, the Council's primary transportation policy directions are to:

- Reduce vehicular travel demand
- Increase transportation capacity through better system management
- Maintain, replace and improve the existing highway system
- Improve the transit system
- Selectively expand highway capacity

Two concepts utilized to develop more efficient transportation systems are Travel Demand Management (TDM) and Transportation System Management (TSM). The two concepts are often intermixed, but do have different meanings. TDM is managing the volume of traffic to better utilize the existing systems and to take advantage of alternatives. Examples are staggered working hours to spread the peak hours of traffic and carpooling to condense movement of people to fewer vehicles.

TSM is better management of the transportation system so that it can move more vehicles or people efficiently. Specific examples are ramp metering, high occupancy vehicle (HOV) lanes and traffic signal system coordination.

Examples of the effectiveness of these efforts are the higher volumes moved on freeways with system management in place.

The City of Oakdale supports and encourages the continued development of both TDM and TSM at the state, region and local levels. Specific efforts of the City are somewhat limited because of their limited jurisdiction of the roadway system. However, both TSM and TDM are important elements of the Oakdale Comprehensive Plan. The City of Oakdale encourages and supports, in general, physical changes to the transportation system that will improve efficiency and increase capacity without physical expansion of the system.

Physical Improvements

The three principal arterials in Oakdale are I-94, I-694 and Highway 36. All are important elements in the metropolitan area transportation system. None of the three roadways have HOV lanes. HOV lanes provide priorities for multi-passenger vehicles on controlled access roadways such as I-94 and I-694. The City supports the study of potentially adding HOV lanes on freeways in Oakdale and in surrounding communities.

A second major physical improvement that is part of the TSM system is ramp metering. Ramp metering is a method of controlling the arrival rate of vehicles on the freeway from on ramps, a method of regulating the general rate at which traffic is added to a freeway system and an opportunity to discourage short trips on the freeway system during periods of heavy flow.

Ramp metering does create congestion and delays at the freeway access points where traffic volumes are heavy or concentrated and the metering rate has to respond to heavy freeway usage. However, the ramp metering system significantly improves the flow of traffic on the freeways and increases the people and vehicle

carrying capacity of the system. There are no ramp meters in place in Oakdale, and we are not aware that any ramp meters are programmed in the foreseeable future. In conjunction with ramp metering, HOV bypass lanes have been installed at some locations in the metropolitan area. These bypass lanes allow multi-passenger vehicles to bypass the queues behind the ramp meters. These are in place at other locations in the metropolitan area and provide a significant time savings for freeway access of the multi passenger vehicles. As part of the overall freeway system management, the City supports the concept of ramp metering and HOV bypasses at the meters.

The City has little opportunity to include HOV or ramp metering components in the local transportation system that it has jurisdiction over. The City will, however, support and encourage the continual coordination of the local system with HOV lanes and ramp meter bypasses in the future. The City will coordinate planning for the installation of these physical improvements to the freeway system with contingent development of the local street system. In addition, the City also supports and encourages the development of innovative ideas to further utilize the HOV system and concept.

Figure 8.7 shows future roadway improvements. Additionally, Figure 8.7 reflects changes the City of Oakdale would like to see pursued but are not identified or funded in the 2030 Transportation Policy Plan adopted by the Metropolitan Council in 2011. The projects include: the proposed interchanges at TH 36/Hadley and TH 36/TH 120 and the conversion of TH 36 to a Freeway; the interchange at I-694/40th St N; the widening of I-694 from I-94 to 10th St N; and the widening of TH 120 south of 10th St N.

*City Oakdale
Future Roadway Improvements*

*City of Oakdale
Washington Co., Minnesota*

Convert TH 36
to freeway

Interchange

MnPass
Lanes Planned

Interchange

Road Realignment

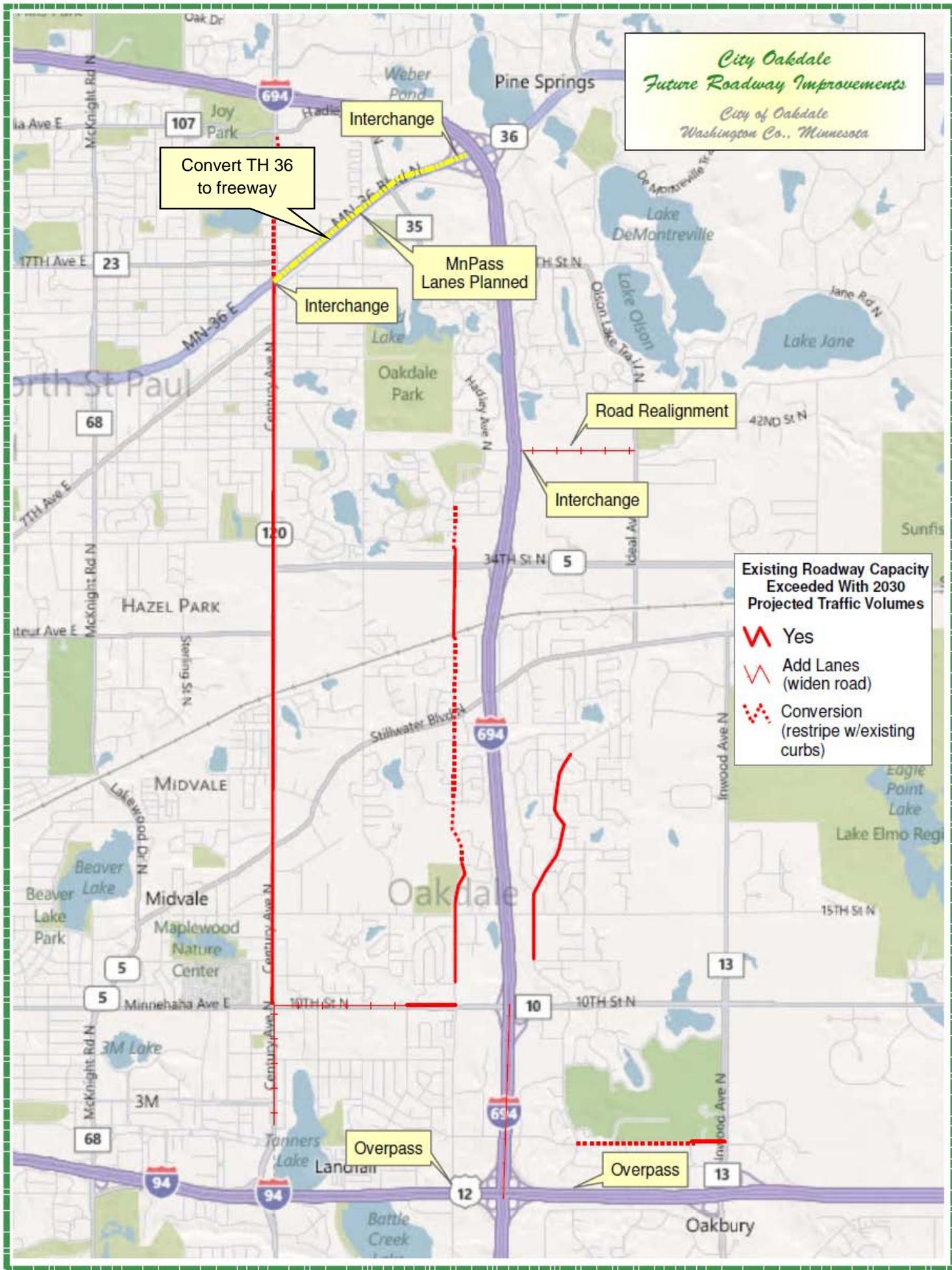
Interchange

Existing Roadway Capacity
Exceeded With 2030
Projected Traffic Volumes

- Yes
- Add Lanes
(widen road)
- Conversion
(restripe w/existing
curbs)

Overpass

Overpass



the concepts of coordinated traffic system flow along roadway systems. All traffic signals in Oakdale, regardless ownership, should be reviewed for coordination. The City should also provide general information on signal system coordination to the users of the roadways through the City newsletter.

Technology

Modern technology is providing alternatives to traditional modes of both communication and employment. This technology can significantly change the demand for transportation facilities. Applications of technology that can reduce travel demand are continuing to be developed. The City supports the use of telecommuting as an alternative to physically moving people to central places of employment. Opportunities for home-based telecommuting and telecommuting centers within or near the City of Oakdale are supported.

While distances from Oakdale residences to employment centers in the metropolitan area are generally not long, travel time at rush periods can be a disincentive to travel. Home-based telecommuting offers an opportunity to reduce peak period traffic volumes without any significant change in land use or utilization. The success of telecommuting centers offers encouragement for an alternative to home-based telecommuting. Primary opportunities for a telecommuting center in Oakdale probably rest with private involvement. A second method of reducing travel demand is through teleconferencing and other methods instead of physical meetings.

Teleconferencing is currently utilized by several major firms including Mn/DOT. It has significantly reduced travel and has potential to

reduce congestion as the peak hours expand into the business day. The City will actively consider opportunities to develop teleconferencing within the City. This could be a partnership with another governmental agency such as Mn/DOT, or with area businesses such as 3M and Imation.

Employment Based Alternatives

Much of the peak period congestion in Oakdale, and in the metropolitan area, is related to commuter trips to and from employment. The City supports the various methods used to decrease the peaking characteristics of traffic at employment centers.

The 3M Corporation has long utilized staggered work hours to decrease the peak and to spread it to two separate peak loads. The utilization of staggered work hours in other employment areas in Oakdale is encouraged. Employers in specific areas can communicate with each other and adjust hours amongst themselves to reduce the impact on the system

Employers in a specific area can adjust or stagger starting times by as little as 5 or 10 minutes and have a significant impact on the peaking characteristics of traffic at intersections immediately adjacent to them and on the Oakdale street system. Individual employers can also allow employees flexible work time which can substantially reduce peak period congestion, provided the flexible hours also meet employer production requirements and do not adversely impact transit or car pool systems.

The City supports the concept of employers providing flexible time opportunities or variable work hours to assist the employees in adjust-

ing schedules that may lower traffic flow at peak times. Employers should be reminded of the productivity and morale increases that can be associated with uncongested trips to and from work. Employers will also be encouraged to develop car pool or van pool opportunities. The success of the 3Mvan pool program, over a long period of time, will provide incentive in the area.

The City will assist in providing locations and opportunities wherever possible for car pool lots. The City will also work to promote car pools that can include incentives to an employer to provide their own incentives for car pools or van pools. Examples are a reduction in parking requirements or possibly even preferential access to a roadway for car pools or HOV vehicles.

The City will also encourage and support private locations for car pool or van pool lots and encourage shared parking wherever possible. Churches or other facilities with high non-peak parking requirements are logical locations for weekday park and ride locations. Space in or near City parking lots for parks could also be considered for car pools.

Transportation Modes

While a large majority of travel in the metropolitan area and Oakdale is made by single passenger vehicles, the City supports and encourages alternate methods to develop multi-passenger vehicle travel. Van pools and car pools can be located in conjunction with transit routes. The City will continue to encourage park and ride sites and coordinate with the transit system to provide access and priorities wherever possible. Local potential incentives include supporting transit funding at state and federal levels, development of shelters for

transit riders, transit preference on the metropolitan roadway system, preferential transit or HOV vehicle access and parking incentives and customer services at hubs.

Transit

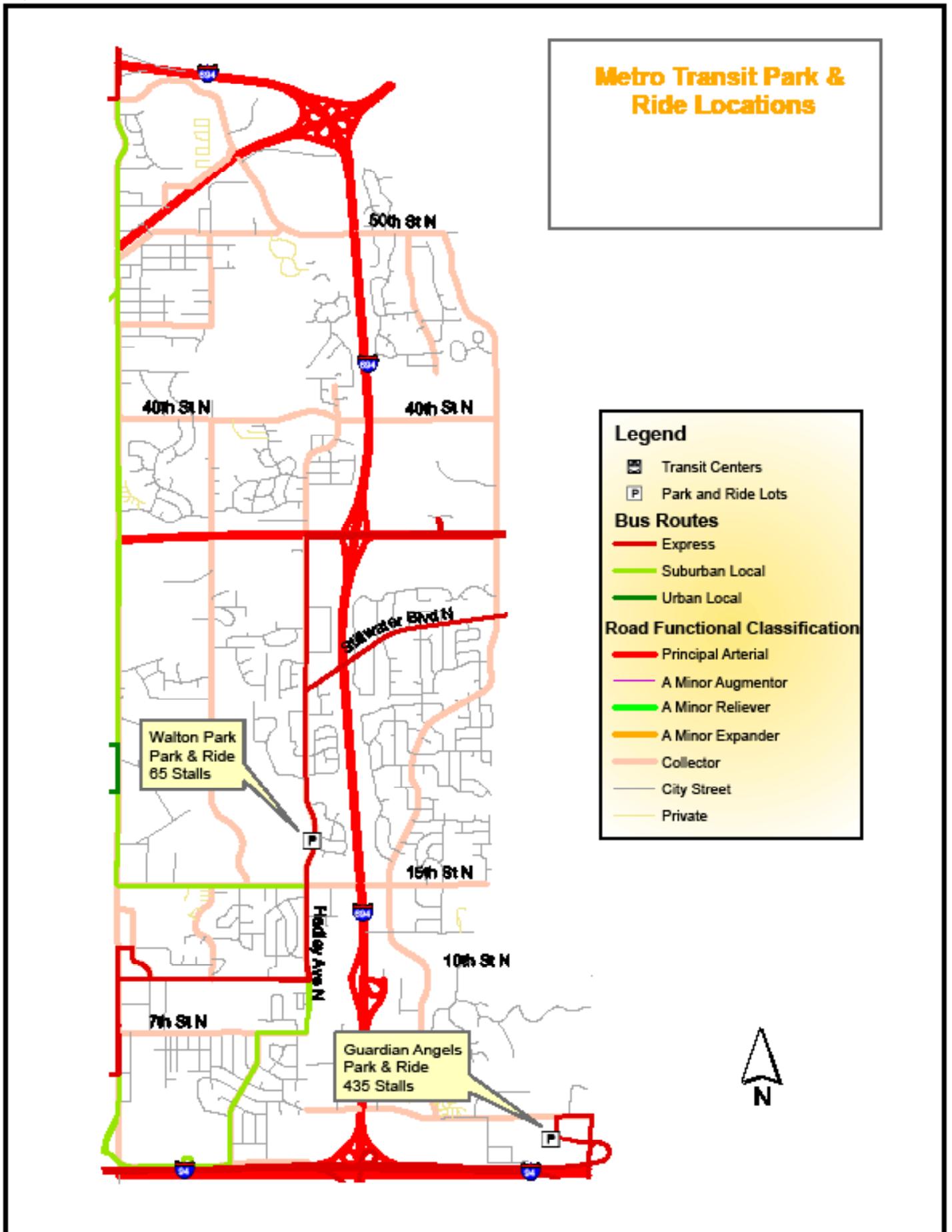
Transit is an increasingly important element of the transportation system within Oakdale. It is an attractive alternative to driving a vehicle or driving alone for many people. It also supports the economic growth of the area by providing access to labor markets, economic centers and employment. Transit is the only means of transportation some people have. It can also help to reduce auto trips, thereby conserving energy, reducing pollution and increasing the people carrying capacity of existing roadways.

Existing Service

The City is within the Metropolitan Transit Taxing District, and within the Market Area III area. The City is currently served by several Metro Transit routes. Most are primarily local routes with multiple stops in Oakdale and adjacent communities.

There are currently two park and ride facilities within the City. The City, in cooperation with Metro Transit, developed a joint use lot in Walton Park, just north of City Hall. This 65 stall lot provides parking for bus riders during the day, and park users in the evenings and weekends. Metro Transit also has a long-term lease (30 years) with Guardian Angels Catholic Church that provides 435 stalls just west of the Inwood Avenue and 4th Street intersection. See Figure 8.8 for existing park and ride locations as well as Metro Transit and Metropolitan Council contracted transit routes. The City is also served by the NE Suburban Transit Dial-a-Ride Service.

Figure 8.8: Met Council Park and Ride Locations



Other Opportunities

For many years, LRT has been a major part of the transportation debate in the Twin Cities area with several corridors being identified as having the best potential for LRT in the region. Currently, the I-94 and TH 36 Corridors are transitway candidates and are undergoing additional study.

Rail

The City of Oakdale is served by a single railroad line. The Union Pacific track travels through the central area of Oakdale. To the east, the track provides service to Chicago. Locally, it is important in providing service to some industries, none in Oakdale. The major users of the service are Andersen Corporation and the King Plant in Bayport. It is primarily a provider of freight service both locally and regionally. In other areas of the metropolitan community, railroad lines are looked at as options for some type of commuter rail. The UP line will continue to be analyzed as an alternative transit alignment. It is anticipated that the line will remain in service providing local and regional freight service and will primarily be a freight provider.

Access Management

Background

The benefits of access control on roadways have been demonstrated through studies that have taken place. The studies have consistently indicated that reductions in access reduces conflicts, which in turn reduces accidents as well as increases capacity and smooth flow of traffic. The best example is the interstate freeway system that has no access except through controlled interchanges. These

roadways have consistently had lower accident rates and higher capacity than any other type of roadway. Other roadways have restricted or limited access. These include roadways such as Highway 36 or Highway 5 that have access limited primarily to intersections. Other roadways have limited private access points at locations between major intersections. Many of these are on the state or county roadway system and the agency owning the roadway has purchased the right of access from adjacent landowners.

Studies have indicated that this restricted access is also important in lowering accident rates. The studies have shown the safety difference between controlled and uncontrolled sections of roadways. Where numerous driveways exist and turning movements can occur virtually anywhere along the roadway, the number of conflicts and the number of accidents are generally higher.

Many examples of conflicts between traffic turning at intersections that are close together and interfering with each other exist. Traffic from one intersection will back up through the adjacent intersection creating problems for traffic turning at the second intersection. As an example, westbound traffic on 50th Street seeking to enter Highway 120 is often delayed by the backup of northbound traffic on Highway 120 from the traffic signal at Highway 36.

In addition, there are often instances where driveways are located very close to an intersection creating conflicts that are often unexpected. A left turn to a driveway just beyond an intersection is often unexpected and usually results in either abrupt braking or lane changes. Left turns to driveways immediately in front of an intersection are also unexpected and lead

to erratic maneuvers on the part of many drivers. Offsetting the desirability of limiting access is a need for access to properties and areas.

Over controlling of access also can lead to problems. In many communities, a major barrier to transportation flow is the freeway system. A lack of access to an expressway can often result in too much traffic on other roadways. Residential traffic from a neighborhood that is forced to use a single access point often creates problems for the residents along the street serving as the access. As motorists seek to find alternate routes, some will choose local streets, creating other types of problems. A major concern of businesses is reasonable access to the roadway system. Access needs to be convenient for both the motorists and the onsite circulation patterns.

Access Management Program

The need exists to develop an access management program that will provide the safety benefits of reduced access and still provide reasonable access for residents and businesses. Recognizing this, some agencies have developed access policy guidelines that limit access to specific locations along their roadways. These consist of full access intersections at a specific minimum distance, partial intersections that can either be three quarter (which prohibit left turns onto the road) or right in, right out only access locations. These are specified in policy. The City of Oakdale has a system of roadways that vary widely in purpose and access needs. Single spacing guidelines for roadways would be very difficult to develop. In addition, the development of specific distance guidelines for different types of roadways is beyond the scope of a Comprehensive Plan and instead should be developed as part of the

implementation process of the plan, either as a separate plan element or part of the zoning ordinance. However, guidelines need to be provided both for the development of the Access Management Plan and consistency with the land use and transportation goals. Some of the elements that should be a part of the Access Management Plan include the following:

- Access to a specific parcel should be limited to a single driveway unless the front footage is relatively long. Some communities require 200 to 250 feet of frontage for a second driveway.
- Access to an arterial or collector street should be located a significant distance from any intersection. A distance of 150 feet should be considered.
- In residential areas, no residential driveway should be placed closer than 60 feet to an intersection.
- Direct access of residential properties to arterial streets should be discouraged.
- The location of any driveway or access should be consistent with sight distance along the roadway. Where sight distance is not adequate, an alternate access location should be required.
- Development of service roads or common driveways should be used wherever possible, especially in commercial areas.
- The use of medians should be considered to control multiple access locations and provide left turn lanes for heavier movements to private driveways or public streets.
- Access to any location where there is a designated left turn lane past the driveway should be restricted to right in, and right out only.
- Commercial driveways should be 30 to 36 feet in width but designed to fit the needs

of traffic.

- Where traffic studies show a need for out-bound right and left turns to be separated, the driveway should be widened to provide for appropriate turn lanes and adequate inbound width.
- Residential driveways should be 12 to 24 feet in width.
- In multi-family areas, there should be significant distance between the multiple driveways to provide for snow storage and maneuvering area. These types of driveways should be discouraged from occurring on City streets and restricted to private onsite streets and aisles.
- Through site plan approval, driveways should have a throat or area approaching the roadway where there is no additional conflict with an onsite circulation pattern.

Right-of-Way Needs

The Comprehensive Plan identifies few locations for new roadways but does identify operational problems and potential solutions. New roads (40th Street reorientation) or major improvements (I694/10th Street revised interchange) will require additional right-of way for construction. The City will identify potential right-of-way needs for transportation projects and coordinate site planning, land use planning and development so as to acquire the needed right-of-way in a timely and efficient manner. Right of way for new local streets is generally acquired through development and platting. Although there are few major development areas remaining in Oakdale, the City will coordinate development to provide needed right-of-way for a continuous street. A final need for right-of-way will come from development of trails through out the City. As the separate trails plan is refined, the needs for right-of-way will also

be addressed.

A right-of-way plat should be prepared along the T.H. 36 corridor through Oakdale to preserve the right-of-way necessary for the ultimate conversion to a freeway. As noted in the transit section, consideration should be given to acquiring property to facilitate the development of a park & ride facility. If appropriate, arrangements will be made with the Metropolitan Council to make use of Right of Way Acquisition Loan Fund (RALF) to accelerate the right of way acquisition.

Traffic studies have indicated the potential need to a dual left westbound to southbound lane on T.H. 5. In addition the southbound to eastbound lane on Hadley Avenue may have to be extended. Additional right of way should be pursued if redevelopment occurs along Hadley Avenue north and south of the intersection.

Future Roadway System

The Oakdale road transportation system is essentially in place. Major roadways are in operation with refinements and/or improvements needed for some (See Figure 8.6). Completion of some portions of arterials is still needed. Some collector roadways need final alignments to be established in conjunction with adjacent development. Finally; changes to traffic controls are needed to respond to changing volumes of traffic on various roadways. This section provides an overview of potential future changes to the road transportation system. Many of the suggested changes or additions will require additional study and documentation, but from an overview of the road system, the suggested changes are reasonable. The City will partner with MnDOT to enhance the future roadway system.

Hadley Avenue and Helmo Avenue

I-94 at the south border of Oakdale provides a barrier to transportation. Access across it can only be done in Oakdale at the east border (County Road 13) or the west border (Highway 120). The only other crossing is to enter and exit the freeway system. For local trips, this is undesirable. In addition, Highway 120 is becoming increasingly congested through the 3M area and, once in Woodbury; it becomes very congested through the I-494 interchange area. For many years, an alternate route for motorists was to use County Road 13. With the increased development in Woodbury and the multiple traffic signal systems along County Road 13 in Woodbury, this alternate route is also becoming congested.

Operational concerns have been described in Oakdale, including the area along County Road 13 and the area along Highway 120. As development along County Road 13 takes place, heavier volumes at intersections will cause increasing delays to turning movements. Similarly, access to Highway 120 is somewhat limited from the Oakdale side, which puts pressure on local streets. It is, therefore, very desirable to provide alternate routes with continuity through Oakdale and Woodbury.

Both the Hadley Avenue and Weir Drive connection and the Helmo Avenue and Bielenberg Drive connection across I-94 are natural continuations of routes in both communities. They would provide direct connections from the employment and commercial areas of Oakdale near 10th Street to the commercial and employment opportunities in Woodbury. It will also provide alternate routes to the congested areas now in existence along I-94. The major downside is the cost of both road extensions

and bridges. It is proposed that planning efforts for both bridge crossings of I-94 be continued, especially the Hadley Avenue connection which will provide continuity to major destinations in Woodbury from all points in Oakdale.

I-694 and County Road 10 Interchange

Mn/DOT has shown a future ramp to the north from the north side of the east intersection. This would replace the westbound to southbound left turn and would require a collector road that would include both the eastbound/northbound loop and the westbound to northbound ramp to a common access to northbound I-694. This installation will have an effect of limiting access to the parcel north of County Road 10, creating additional traffic and concerns along Helmo Avenue and adding to congestion/turning movements at Helmo Avenue and County Road 10. The need for the new ramp needs to be measured against the operational concerns and access limitations.

Imation Area

Included in the Imation area is the potential for a full or partial interchange at 40th Street and I-694. This plan shows ramps only to and from the north with no connection to and from the south on I-694. The positive effects of the ramps are to remove heavy conflicts in the a.m. peak between the southbound off ramp traffic to Highway 5 with other traffic on Highway 5. It will also reduce some of the p.m. peak weaving movements on Highway 5 near Imation. Equally important to the local transportation system is the diminishing of traffic pressure from north-south collector streets or residential streets. Without the half diamond interchange, traffic from Imation may choose to use County Road 13, Helmo Avenue if

completed or Hadley Avenue to the north. All three will result in heavier traffic volumes at the Highway 36 and Hadley Avenue intersection. This intersection has been somewhat controversial in terms of impact on the movement of traffic on Highway 36. By reducing volumes on the cross street or in conflict with east-west movement on Highway 36, the intersection will be less of a detriment to movement of traffic along Highway 36. Therefore, the Transportation Plan shows a half diamond interchange at 40th Street with a modified 40th Street and County Road 13 intersection area.

Expansion of Existing Transportation Network

Not included in the future transportation system is the expansion of several portions of the network. Most of the expansion can be accomplished by restriping the roadway to provide for three traffic lanes by prohibiting on-street parking. There are a number of capacity improvements that may be necessary at certain locations along Highway 120, especially south of 10th Street. The areas of operational concern included the Highway 36 and Highway 120 intersection area and some changes to access along Highway 120 in this vicinity will also be necessary. Oakdale will work with MnDOT to address these needs.

Traffic Signals

There are also a number of locations where traffic signals may become necessary in the future. These will come as development increases in the near future. They will be primarily the responsibility of either Mn/DOT or Washington County but will probably have a cost share for the City of Oakdale. If they are development driven, the City may take the lead in providing the signals.

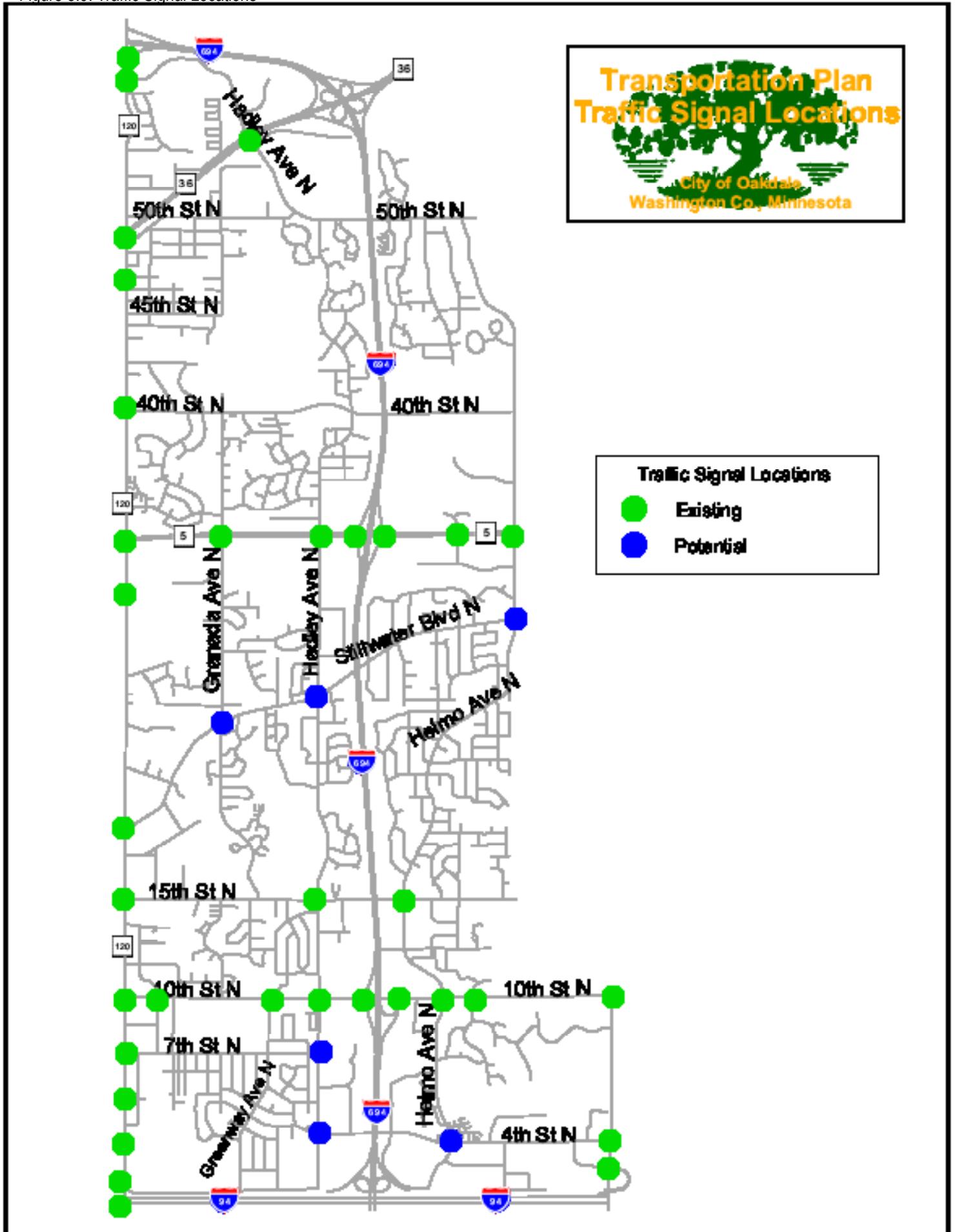
There are also a number of locations where traffic signals are possible, although four-way stop conditions may be appropriate for a significant number of years. There are also some located where cross street traffic volumes may some day generate the need for a traffic signal. These potential traffic signal locations are shown on Figure 8.9.

The City encourages the continued review and development of coordinated signal systems. The City further supports innovative techniques to utilize these roadway systems. The City should also provide general information on signal system coordination to the users of the roadways through the City newsletter.

Aviation

The City of Oakdale is not within the influence area of any metro system airport and is not affected by the existing or future airport development or operations of the Lake Elmo airport. The City is also not affected by heliport or seaplane planning considerations. Any sponsor who proposes any construction or alteration that would exceed a height of 200 feet above ground level at the site, or any construction or alteration of greater height than an imaginary surface extending upward and outward at a slope of 100:1 from the nearest point of the nearest runway of a public airport shall notify the Federal Aviation Agency at least 30 days in advance. To notify the Federal Aviation Agency, municipalities must submit Form 7460. They must also demonstrate that they have adopted local codes and ordinances for control of objects affecting navigable airspace including construction exceeding 200 feet above ground level at certain distances from aviation facilities.

Figure 8.9: Traffic Signal Locations



Trails

Trails for bicycles and pedestrians are an important element in the quality of life in the community. In 1995, the City completed a Bicycle and Pedestrian Systems Plan for future sidewalks and trails with the intent of improving transportation for all residents and providing additional recreation opportunities. It has been difficult to carry out the plan's recommendations due to abutting owner resistance to sidewalks, or the loss of on-street parking. The three principles of the systems are described below along with a map showing the existing and planned bicycle and pedestrian facilities. Refer to Figure 8.10.

Principle 1: Separate Bicyclists and Pedestrians

Presently, the City has several miles of 8-foot-wide asphalt off-street paths along major streets intended to serve both bicyclists and pedestrians. Efforts should be made to construct the missing links in order to complete the system and improve access.

Principle 2: Create a System of Bicycle Routes

The plan recommends that the City create a comprehensive network of on street bicycle routes, linking all neighborhoods, schools, major shopping centers, and adjacent communities. These would be striped on the minor arterial and collector streets using the dimensions illustrated in the attached cross-section drawings.

Relationship to Parking Lanes: All of Oakdale's Municipal State Aid (MSA) streets have a parking lane on one or both sides which is seldom used for parking. If these are signed and striped as combination parking and bicycle

lanes, there will be sufficient room for a bicycle lane on each side of these streets.

When a cyclist encounters the occasional parked car, there is normally sufficient space between the parked car and any vehicle in the adjacent travel lane. In any case, the bicyclist has the right to ride in the auto lane if he/she desires, and State law requires that a motorist give a bicyclist at least three feet of clearance when passing. While this system is not perfect, it will be a major safety improvement for the bicyclists because it will signal to the motorists the possible presence of bicycles ahead on the road, indicate to both the motorists and the bicyclists where they each should be traveling and reduce the incidence of wrong way riding.

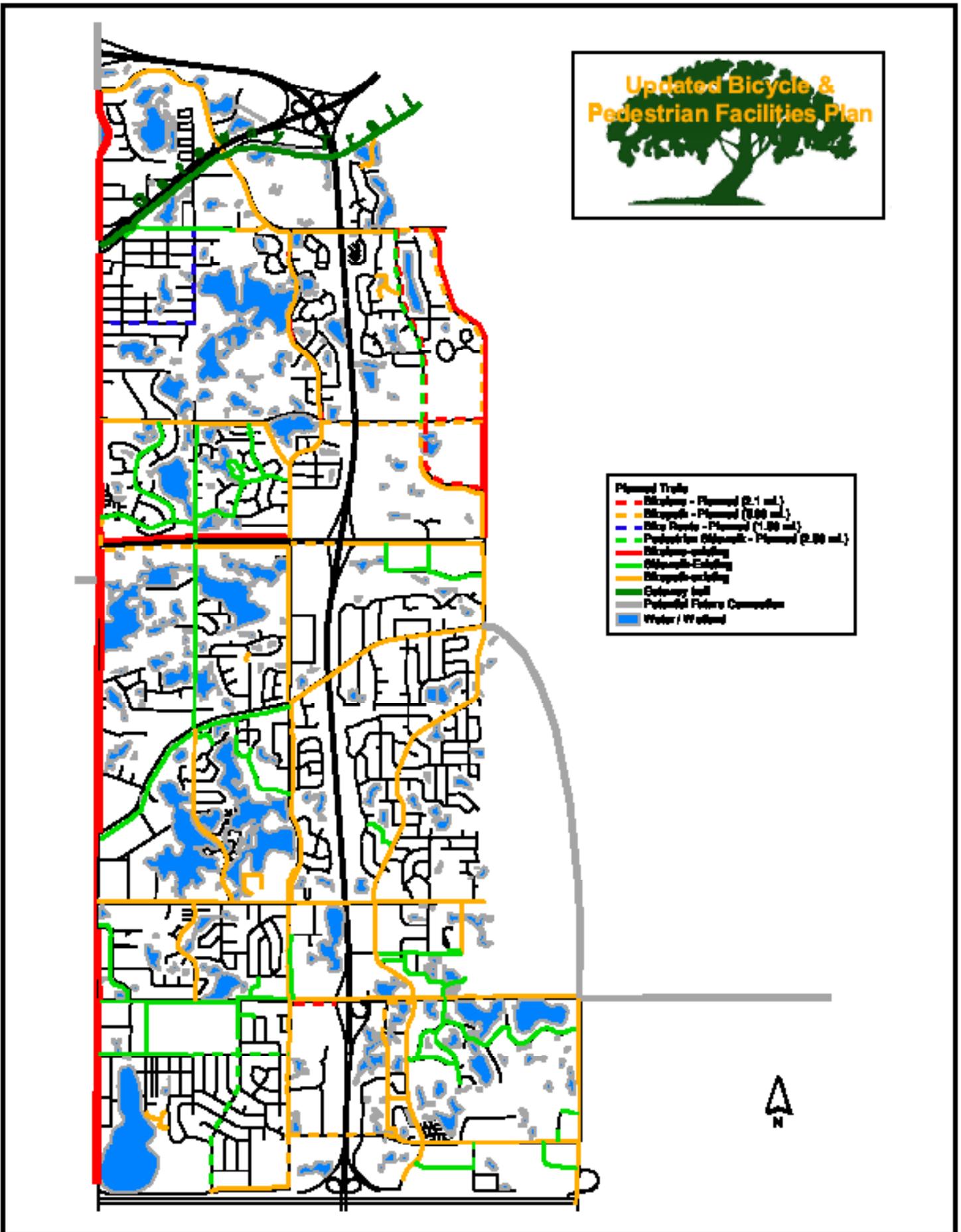
There are four sections of Municipal State Aid (MSA) roads in Oakdale that are 32 feet in width. Since the State regulations require that the auto travel lanes be at least 11 feet wide on MSA streets, it will be necessary to sign the street as a bicycle route and make the bicyclists and motorists share the road without markings (a class III route).

Century Avenue: This road can be a major bicycle route for the County as it is long, continuous and straight. The City should urge the State (or County if the road is turned back) to widen and/or repave the existing shoulders as needed and properly stripe the bicycle lane at the right-turn lanes.

Principle 3: Improve the Sidewalk System for Pedestrians

The sidewalk system should be improved for pedestrians by gradually adding key segments, especially near schools and by rebuilding existing sidewalks when they become deteriorated.

Figure 8.10: Bike and Pedestrian Plan



Several new segments of sidewalk should be installed to create loops and links, especially across I-694. The plan recommends that the full cost of all sidewalks should be paid for from general funds, not assessed to abutting property owners, because they benefit all residents.

Purpose and Function: Build an integrated and comprehensive network of bicycle facilities and pedestrian facilities that will provide alternatives to motorized transportation as well as recreational opportunities.

Aesthetics: Design the bicycle and pedestrian systems so they are an aesthetic asset to the community.

Implementation: Give priority to building those segments of the bicyclist and pedestrian systems that have the best combination of the following: approval likelihood, cost/benefit ratio, outside financial support and engineering timeliness. Special consideration should be given to those segments that can be coordinated with other projects that are scheduled to occur in the near future. The City should give highest priority to purchasing any key parcels or easements that might otherwise be lost because of imminent private or other public development. Provide a complete and continuous bicycle and pedestrian system in the shortest possible time, even if certain segments are not entirely satisfactory. For such segments, the City should work to resolve problems of cost, engineering and approvals for the eventual accomplishment of the most desired design.

User Groups: The Oakdale bicycle system should serve both adult and juvenile bicyclists. It should serve, at a minimum, riders of average skill and experience, usually adults and teenagers, but also accommodate those who

are not confident of their abilities in traffic.

Continuity: The Oakdale bicycle system should be a direct and continuous network for both purposeful and recreational trips by bicyclists, while accommodating in-line skaters. Special emphasis should be placed on creating safe crossings of I-694, I-94, TH5, and Century Avenue.

Safety: User safety should be a prime factor in the design of the bicycle system. The bicycle system should be designed to minimize conflicts between bicyclists and motorized traffic through physical separations, intersection controls, signage and visibility. The bicycle routes should be designed to reduce the number of conflicts between bicyclists and pedestrians, moving motor vehicles, parked motor vehicles and skaters.

Separating Bicyclists and Pedestrians: The pedestrian system and the bicycle system should eventually be separated from one another, to the extent possible, for reasons of safety and to promote the use of each system by the two different groups.

Sight Distance: The bicycle path should be designed with adequate stopping sight distances to allow bicyclists to see and react to the unexpected. The minimum sight distance on both vertical and horizontal curves should be calculated using values and methods suggested by AASHTO.

Signage: All designated bicycle facilities, whether on-or off-street, should be signed according to the standards of the Manual on Uniform Traffic Control Devices. This signage should include pavement markings.