12. Transportation Plan

Issues

The following issues were identified by the Transportation Subcommittee and updated through additional analysis by the consultant team.

- Access barriers. Rail storage tracks and at-grade crossings impede riverfront access and pedestrian and bicycle circulation.
- Alternative transportation modes. How can bicycle, pedestrian and transit use be encouraged and enhanced?
- Port and commercial harbor. How to maintain and improve the functioning of the Port while minimizing conflicts with recreational river use and natural resources?
- Intermodal connections. Winona is already a significant intermodal connection point. Can connections between river and rail or truck transport be improved (i.e. better container facilities)?
- Trail connections. What are the priorities for completing a citywide non-motorized trail system? What are the options for linkages to regional trails?
- Truck traffic. Can the management of truck traffic and the truck route system be improved?
- Land use. How should new development or redevelopment be designed to encourage and support increased transit use, walking and biking?

Goals and Objectives

1. River use. Continue to support the use of Mississippi River for commerce, recreation and transportation.

Objectives:

1. Balance the needs of transportation, recreation and the environment.
2. Maintain and promote a safe commercial harbor and expand Winona's commercial activity through cargo transportation on the river.

2. Rail system improvements. Improve the rail system in Winona, in terms of both passenger and cargo transportation, in a manner that minimizes conflicts with the City's motorized and non-motorized transportation system.

Objectives:

1. Support the rail industry as a viable means of goods movement and passenger transportation into and out of Winona.
2. Maximize safety and efficiency in the movement of goods via rail.
3. To the greatest extent possible, minimize the negative effect that rail lines have on other transportation in Winona.
4. Coordinate with other transit systems for smooth flow of passenger services from all entities, such as bus services, taxi and limousine services, bicycles, etc. with rail service.

3. Surface transportation improvements. Maintain and improve upon the surface transportation system's safety, efficiency and aesthetics.

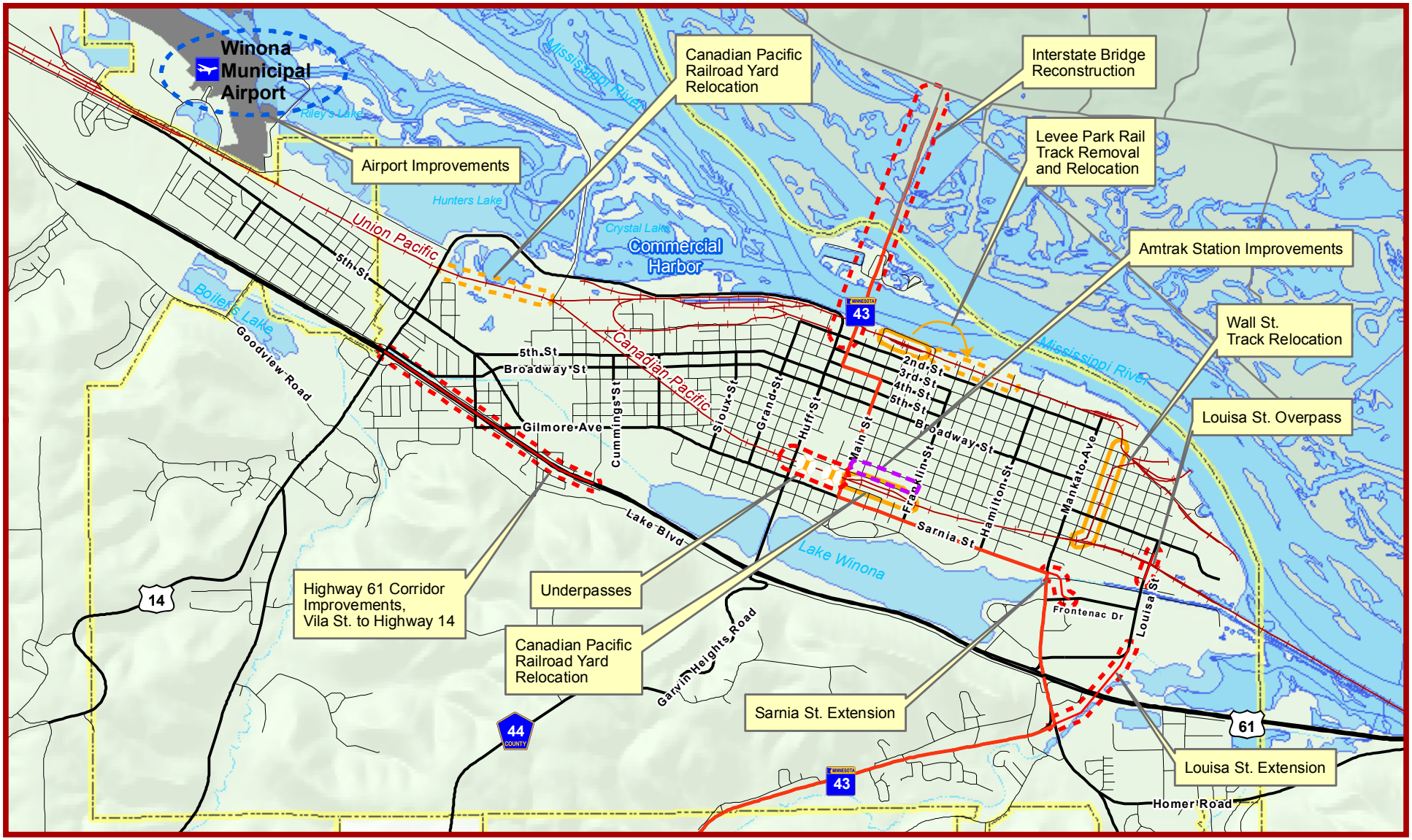
Objectives:

1. Improve safety and efficiency of truck traffic in Winona while minimizing the impacts on residential neighborhoods, commercial districts and visitor attractions.
2. Improve the aesthetics and cleanliness of all roadways through landscape improvements and code enforcement.
3. Incorporate traffic calming measures in future street construction and to address identified neighborhood problems.
4. Design new streets and reconstruct existing streets to a width that does not encourage excessive traffic speeds.

4. Non-motorized transportation. Establish a safe and efficient non-motorized transportation system that accesses all parts of Winona and the regional trails network.

Objectives:

1. Expand the City's network of sidewalks and crosswalks in order to provide comfortable and safe pedestrian access throughout Winona.
2. Expand the network of bicycle and pedestrian trails that provide transportation use along with recreation use. The network should connect residents to schools, parks, retail areas, downtown and houses of worship as well as existing trails within and near Winona.
3. Expand and improve the on-street bicycle lane and route network in order to safely connect bicycle commuters and recreational riders with trails and destinations.



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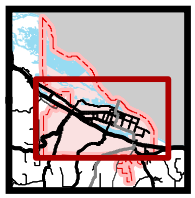


Legend

- Pedestrian Underpass
- Existing Rail Track Location
- Proposed Track Location
- Proposed Road Improvement

Data Sources: City of Winona, MnDOT, ESRI, URS

Figure 5

Road and Rail Improvements

August 2007

Miles
0 0.5

5. Public transit. Promote and improve the public transportation system as a viable alternative to driving alone.

Objectives:

1. Establish a public transportation system that is accessible by nearly all Winona residents and provides efficient service to most employers, schools, retail areas and other City attractions.
2. Promote carpooling and ridesharing.
3. Promote land use development strategies that incorporate pedestrian, bicycle and transit access and reduce dependence on private vehicles.

6. Airport improvements. Continue to support and improve the Winona Municipal Airport to serve cargo and passenger demands.

Objectives:

1. Support the aviation industry as a viable means of transportation to and out of Winona.
2. Maintain and expand upon the existing services that the Winona Municipal Airport offers.
3. Utilize air transportation to support Winona's industries.

Policies and Actions

The following recommendations are organized by transportation mode and type of facility. Locations of proposed improvements are shown in Figure 5, Road and Rail Improvements, and Figure 6, Trails Plan.

1. Commercial Harbor and Port Facilities. Continue to maintain and enhance the commercial harbor through regular dredging and related improvements. The most recent dredging project was completed in 2006. The Port Authority has worked to discourage interaction between recreational boating and commercial traffic by prohibiting mid-stream fleeting of barges. However, the new Minnesota Museum of Marine Art may attract more recreational boaters to the commercial harbor. Additional improvements to be considered in the future include:

- Improvements to docking facilities of individual East End industries, in order to better accommodate the Waterfront Trail and minimize interference with commercial traffic in the main shipping channel. These include improvements to the salt storage areas in the East End.
- A container transfer facility to accommodate river-to-rail transfers, if demand for such a facility continues to increase. A multi-modal facility would need to be evaluated in terms of its impact on truck routes and traffic, with the goal of not increasing truck traffic volumes.

2. Rail Relocations and Safety Improvements. Continue to pursue the track and storage yard relocations recommended in the Intermodal Study. These include:

- Levee Park Rail Yard relocation: Rail cars are stored and switched at Levee Park Yard, which is located directly south of Levee Park, a major recreational area and riverfront gateway. The removal of the rail storage yard will eliminate the physical and visual barrier between downtown Winona and the Mississippi River. The rail line that serves the industrial users along the river will remain while the storage area will be removed. This project eliminates switching operations for Bay State Milling at Walnut Street. Additional switching lines and storage tracks will need to be constructed east of Walnut Street to Laird Street. Grade crossings could be closed at Kansas and/or Liberty streets. This project would significantly improve safety and access for park users, while allowing for redevelopment of the current rail storage yard property and providing for future growth of rail traffic at riverfront industries.

- Canadian Pacific (CP) Rail Yard relocation and Amtrak Station improvements: CP maintains local offices and a rail yard adjacent to the Amtrak Station where rail cars are stored and switched. Switching operations block the Main Street and Franklin Street crossings. This concept proposes to construct five substitute tracks near Pelzer Street including maintenance building and engine service track for the CP.

  This project would also remove the CP yard tracks and traffic at the Amtrak Station, eliminating switching over Main and Franklin streets. This concept, in conjunction with Wall Street project, would remove the majority of all switching operations along the CP mainline, significantly reducing congestion. The project would also allow for redevelopment of the property and potentially the future development of a multimodal transit facility in the vicinity of the station.

- Wall Street track removal and switching track replacement: Canadian Pacific operates over the Wall Street track to access riverfront industries. The track is located within the street right-of-way for about 2,800 feet and intersects with seven cross streets and 30 driveways. Switching of cars from the main line to the Wall Street spur causes significant delays of vehicle traffic on Mankato Avenue. Removal of the Wall Street spur will eliminate most but not all switching conflicts on Mankato.

- Rail crossing improvements: The Canadian Pacific mainline operates over approximately 16 grade crossings within Winona's boundaries, effectively bisecting the city. The City has completed a number of crossing improvements, including grade separations and enhancements of some crossings. Remaining planned improvements include pedestrian underpasses at Johnson and Winona streets to connect the Winona State University campus with its athletic fields. Future improvements may also include a four lane Huff Street underpass for vehicular and pedestrian traffic.

3. Continue to support and enhance passenger rail service. This initiative involves pursuing Amtrak Station improvements, multimodal facility and related redevelopment in the station area, as discussed above under CP rail yard relocation. A multimodal facility could provide links to buses, taxis, and even rental car options for rail passengers. Areas around the station are identified in the Land Use Plan as suitable for redevelopment for a variety of uses, depending on a more detailed master plan for the area. The City will also continue to monitor and

support the Midwest Regional Rail Initiative (MWRRI), a cooperative, multi-agency effort to develop a nine-state, 3,000 mile regional passenger rail system. The Minnesota portion of the system includes 130 miles in southeastern Minnesota from La Crescent to St. Paul that could accommodate high-speed trains. Today, only one train brings passengers from Minnesota to Chicago in about eight hours travel time. With the MWRRI, Minnesotans could travel to Chicago on an additional six trains in a little more than 5½ hours of travel time from St. Paul, with correspondingly shorter travel times from Winona.

4. Improve transit service. Transit service in Winona can be improved through a better understanding of existing and potential customers, better amenities at transit stops, and improved publicity. Specific initiatives include:

- Completion of a survey by City staff of existing transit users and potential users. Survey information could guide adjustments of transit routes to meet demand.
- Invest in improved amenities at transit stops, such as benches, lighting, and shelters at the highest-volume locations.
- Promote the use of alternative fuels by transit vehicles.
- Evaluate the feasibility of a dial-a-ride service for those needing point-to-point transportation, as well as promotion of carpooling and ridesharing for commuters to Winona, or from Winona to Rochester, La Crosse or Arcadia, Wisconsin.
- Improve public information about transit service, including – signage, schedule information, and on-line information.
- Review transit routes periodically and adjust to meet changing demands. Explore the feasibility of transit service to the employment centers mentioned above, as well as nearby cities such as Red Wing.
- As discussed in the Downtown Revitalization Plan, continue to pursue development of a trolley or shuttle serving remote parking lots and visitor attractions. This route should be incorporated as part of the transit system, making it eligible for transit funds. Remote parking could utilize existing under-used lots, such as those at churches and shopping centers, if agreements could be negotiated with property owners.

5. Plan for Interstate Bridge reconstruction. The Trunk Highway 43 (Interstate) Bridge is tentatively programmed for reconstruction to a four-lane facility in approximately 10 to 15 years. While the planning process for this project has not yet begun, the City recognizes that this project is likely to have far-reaching impacts on circulation patterns and land uses at the bridge approach, throughout the downtown, and city-wide. The City will work with MnDOT on the planning process to maximize opportunities for enhancements and minimize disruption. Some initial assumptions regarding the process are:

- An additional bridge span will likely be necessary, since the current bridge would be difficult to widen. The existing bridge will remain in use during the reconstruction process.
- An additional span or a replacement span will be located somewhere to the west of the existing bridge.
- Improvements to traffic flow will include elimination of sharp 90 degree turns from connecting streets, to

facilitate truck traffic.
- Some acquisition of property will be necessary to accomplish the project.

The City's initial goals for the process are as follows:

- The new bridge should include safe and inviting bicycle/pedestrian facilities. The bridge is an essential link in the City's trail system, especially for connections to Latsch Island and Wisconsin trails and bike routes.
- Some buildings and properties should be protected from demolition, including the historic Huff-Lamberton House and Windom Park, and the recently renovated YMCA.
- The Municipal Boat Harbor on Latsch Island should be preserved to the extent feasible.
- Truck access to Riverview Drive is critical.
- The design of the new and rebuilt bridges should contribute as much as possible to achieving the goals and priorities of the Land Use Plan and the Downtown Revitalization Plan.
- As part of the planning process, the City will review the current route alignment of Trunk Highway 43 (Sarnia, Main, Fourth and Winona streets) and may recommend changes in the route to improve wayfinding, safety and traffic flow. Changes to truck routes will also be considered.

6. Revise truck routes. Existing routes have created problems with loading operations, noise and congestion in residential neighborhoods and the downtown. Some initial suggestions include:
- Emphasize Second Street as the primary east-west truck route and Mankato Avenue and Main Street as the primary north-south routes. Planned upgrades of Second Street should aid this process. Consider eliminating the Fourth Street route. Once Louisa Street is extended to Highway 61, consider eliminating the Franklin Street route.
- Enforce vehicle noise laws on all routes and citywide to the extent feasible.
- Consider additional truck route changes in the East End in conjunction with the priority road improvements discussed below.

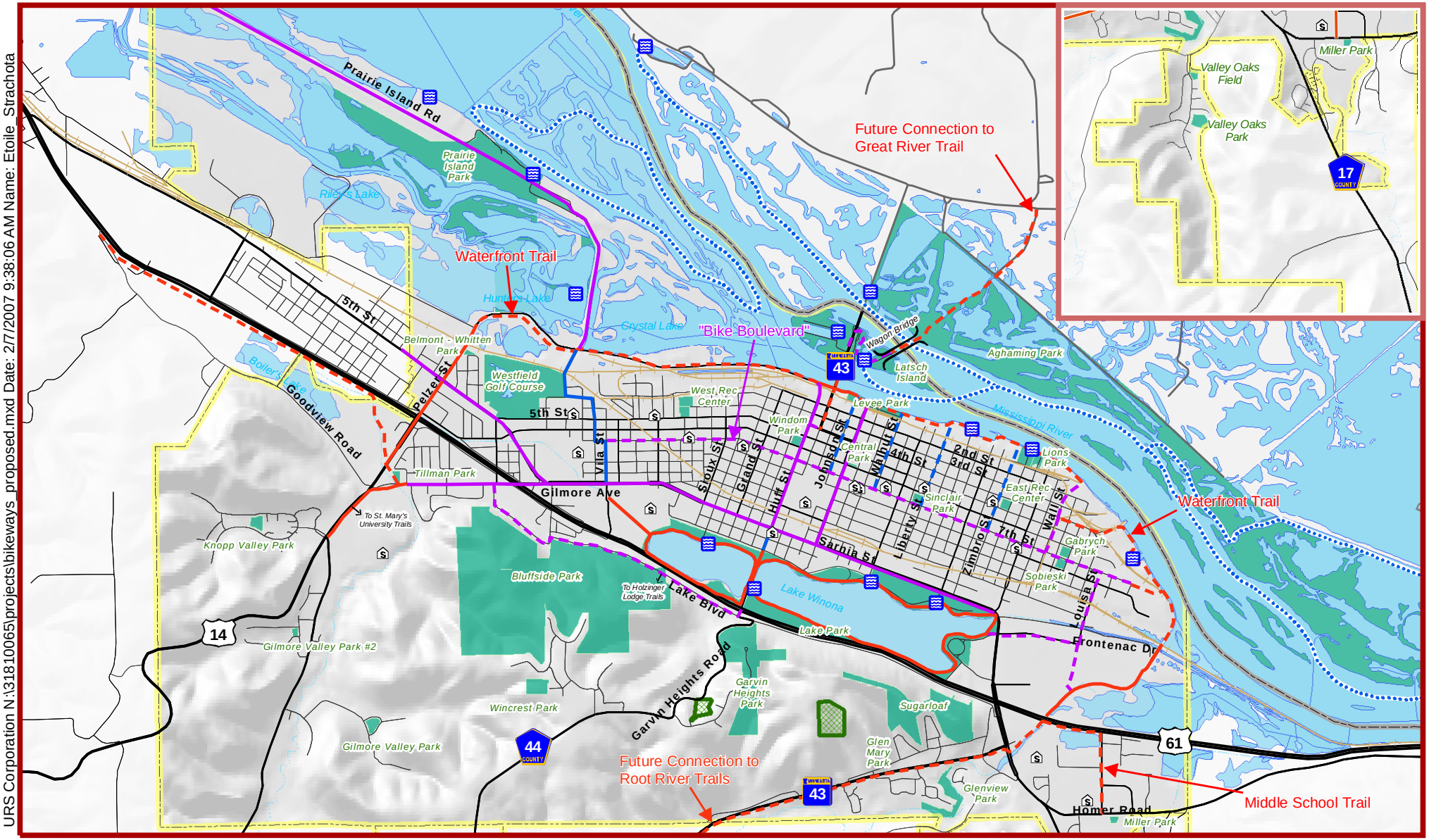
7. Improve Highway 61 access points and frontage roads. The segment of Highway 61 between Vila and Pelzer streets includes a series of intersecting roads with poor geometries and visibility, including Gilmore Avenue, Orrin Street and Clarks Lane. Accident data show a concentration of crashes in this area. Improvements should rationalize and consolidate access points, improve the frontage roads and improve the geometry of the Gilmore Avenue intersection. The City will continue to work with MnDOT on the design and funding of these improvements.

8. Pursue priority road improvements. These projects were identified by the City as critical to implementing the Land Use Plan and other planned improvements. The City will continue to pursue funding for these projects, possibly through a local-option sales tax (as was attempted in 2006). To generate public support, it will

be important to document the need for these improvements, and to prioritize and phase them in a fiscally sound manner.

- Louisa Street extension: This project is designed to provide a second access to the East End of Winona. This new street will provide access to the Riverbend Industrial Park, including many commercial and industrial businesses. Traffic will have an alternative to Mankato Avenue. The entrance to Fleet Farm and the businesses south of Highway 61 will be closed and Louisa Street will have a better designed intersection at Highway 61. The intersection will be designed with a stop light option when traffic volumes are sufficient to warrant signalization. An overpass would also be constructed over the CP rail tracks (see below).[7]
- Louisa Street overpass: The Louisa Street overpass would be a two-lane rail overpass over the CP rail, connecting with the Louisa Street extension to Highway 61. The project would eliminate delays at grade crossings in the East End and improve emergency access to the medical center. Pedestrian and bicycle access would be built as part of the overpass. Truck access would be improved to most East End industries. Traffic levels may be reduced on Mankato Avenue.
- Sarnia Street extension into the Riverbend Industrial Park (connecting to Louisa Street): The intersection at Mankato Avenue and Sarnia Street is part of the Highway 43 corridor. It is not currently a fully-functioning intersection and needs to be redesigned to facilitate circulation from Mankato to Sarnia and from Sarnia into the Riverbend area. A newly-designed intersection allowing for full traffic turns would require extension of Sarnia on the east connecting with Frontenac Drive.

[7] The Intermodal Study originally recommended an extension of Bundy Boulevard to Highway 61, but the presence of wetlands along that alignment resulted in a change to Louisa Street.



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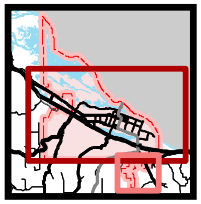
CITY OF Winona MINNESOTA

Map Location



Legend

- Water Access
- Park
- Open Space
- School

Existing Trails

- Multi-Purpose Trail
- Bicycle Lane / Shared Shoulder
- Signed Bicycle Route

Proposed Trails

- Multi-Purpose Trail
- Bicycle Lane / Shared Shoulder
- Signed Bicycle Route
- Water Trail

Figure 6

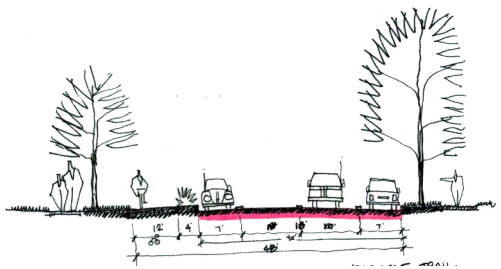
Future Trails and Bikeways Plan

June 2007

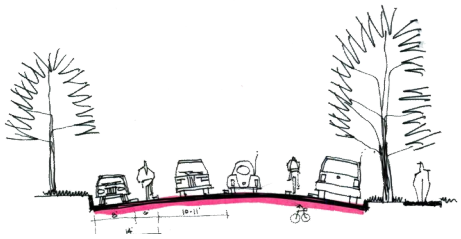
URS

Data Sources: City of Winona, MnDOT, ESRI, URS

Miles
0 0.5



Separated bike trail within right-of-way, 12' width



Bicycle lane, 6' wide with 8' parking lane

9. Citywide Trail System. These recommendations build on City and County planning efforts to develop a citywide trail system for bikes, pedestrians, and other non-motorized travel. As with the parks system, the trail system includes a hierarchy of trails serving different uses, from purely recreational to commuting and local transportation. The system also includes bike lanes, signed bike routes, sidewalks, and other facilities. Trails and other bike/pedestrian facilities can be defined based on their design and function:

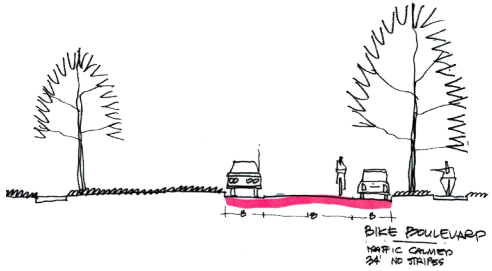
- Multi-purpose trails: A separate path for exclusive use of bikes, pedestrians, in-line skaters and similar non-motorized uses. This type makes important connections between neighborhoods, schools and workplaces, and other destinations within the City. Winona's primary planned multi-purpose trail is the 'Riverfront Trail,' which will follow or parallel the levee, with occasional detours onto shared-use streets.
- Park multi-purpose trails: A paved park trail can serve the whole spectrum of non-motorized uses, but is primarily geared to recreational use, although it can also provide general transportation. The well-used Lake Park trail is an example of this type.
- Bicycle lanes: Bicycle lanes are typically striped on-street lanes designed to provide a location for preferential bicycle use. A problem with existing bike lanes in Winona is that some of them (i.e., 5th Street) are located in the parking lane, creating multiple conflicts between users. A bike lane should be at least five feet wide from the curb, or the parking lane, to the traffic lane. (Experimental techniques include diagonal striping of a slightly narrower lane.)[8]
- Shared shoulder: Typically used on a more rural road where parking is not permitted, the shoulder acts as a bicycle route and also allows for emergency use by motorists. Shared shoulders can provide important connections to regional trails, but are more attractive to long-distance cyclists rather than family groups.
- Bicycle route: A bicycle route is typically signed but not striped, and is used on low-traffic-volume streets where bicyclists can safely share the road with motorists.
- Hiking and ski trails: These are typically located in parks, such as Bluffside Park, but may also connect parks and other semi-public lands (such as the St. Mary's University campus trails).
- Water trails: As discussed in the Riverfront and Parks and Recreation Plan sections of this report, the City will designate and sign a system of water trails and put-in/take-out locations for non-motorized boating (canoes, kayaks, etc.) The City's system of water access points, including boat ramps and canoe accesses, are an important part of this system.

The sidewalk system plays an equally important function for pedestrians. Most parts of Winona are well-served by sidewalks; policies for new sidewalks are addressed below.

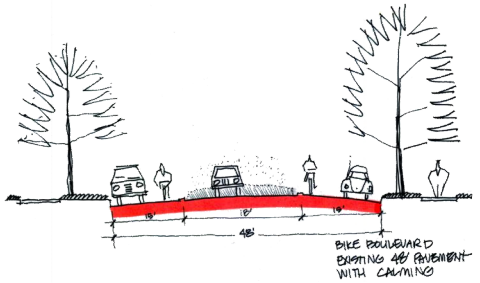
[8] *The MnDOT Bicycle Modal Plan*, 2005, page 67. See www.dot.state.mn.us/bike/pdfs/modal_plan.pdf

Figure 6, Trails System Plan, includes all of the components listed above, except for sidewalks and the water trail. Development priorities for the system are as follows:

- The Waterfront Trail. Years of planning have resulted in acquisition of easements for about half this route, which would extend from Prairie Island along the riverfront to its eastern limits, connecting across Highway 61 to the planned Middle School Trail. Details on trail opportunities, barriers, and typical designs are included in the Riverfront Plan.
- Wabasha Street "Bicycle Boulevard." This new bicycle lane was identified as part of the Downtown Design Workshop. Extending along lightly-traveled Wabasha (7th) Street, it connects several elementary and middle schools and parks, and offers a safer, more pleasant alternative to heavily traveled Broadway (6th) Street. It is also recommended as a replacement for the current shared bike/parking lane on Fifth Street, which does not meet bicycle safety standards. One design option would be a two-way lane on one side of the roadway, separated by a median from the traffic lanes. Other options could include traffic calming options, as shown in the sketches.



- Key Linkages between Trails. These include
  - A bike lane along Louisa Street (in connection with the Louisa Street road improvement projects mentioned above) connecting the Wabasha Street route to the planned Middle School Trail;
  - A bike lane or signed route along Lake Boulevard, which offers a pleasant scenic route paralleling Highway 61.



- Riverway Streets. The concept of a riverway street is that of a signed route geared towards bicycles and pedestrians as well as vehicular use, with visible bike/pedestrian connections to the Waterfront Trail. Suggested streets are: Johnson, Walnut, Liberty, Zumbro and Wall.
- Regional Connections. Linkages are needed to regional trails: the Root River Trail, which extends from Houston to Harmony, and the Great River Trail that follows the Wisconsin side of the Mississippi from Marshland south to Onalaska.
  - The main obstacle to the Great River Trail connection is the current inadequate bike/pedestrian lane on the Highway 43 bridge, which remains marginally usable if bicycles are walked (the bridge is tentatively scheduled for reconstruction after 2017). Once on the Wisconsin side, an off-road trail is planned from Aghaming Park to the Trempeleau National Wildlife Refuge, where the Great River Trail currently begins.
  - The main obstacle to a Root River Trail connection is the steep grade of all the roads leading south from Winona, and the heavy traffic on Highway 43 (the road with the gentlest grades). An interim

Sidewalk with rural character. Source: www.pedbikeimages.org /Dan Burden

A 36-foot wide local street, especially when combined with off-street parking, creates an excessive amount of impervious pavement and tends to encourage excessive traffic speeds

option for the Root River Trail connection would be the construction of a separated trail on Highway 43's additional right-of-way, which is reserved for future four-lane construction. The City recognizes that widening of Highway 43 to four lanes is a long-term prospect. Therefore, a temporary trail could serve its users for years to come. At such time as the highway is reconstructed, a permanent grade-separated trail facility could be planned.

10. Sidewalks and Paths in Neighborhoods. Sidewalks and paths are essential pedestrian features in existing and new neighborhoods. While the older parts of the city are interconnected by sidewalks, newer neighborhoods have been developed without a consistent sidewalk policy. The issue of whether or not to require sidewalks is often a controversial one. Some residents feel that the "rural character" of newer neighborhoods is incompatible with sidewalks. Others appreciate the pedestrian safety, comfort and connections that sidewalks can provide. The City will require sidewalks, or interconnected off-street trails (non-motorized) as part of new development, unless it is determined that an exception or waiver is warranted. Criteria for an exception to the sidewalk policy may include:

- Steep topography (alternative trail alignments should be considered)
- Very low density and traffic volumes
- Distance from schools, parks or citywide trails, making connections difficult or impractical

Sidewalks should generally be required on both sides of a new street, unless parkland or open space is adjacent to the street on one side, in which case an off-street trail might be preferable.

It is important to recognize that:

- Sidewalks would be provided in future development, not in existing neighborhoods, unless specifically requested by residents.
- Existing sidewalks also need to remain usable, and to be replaced on a regular maintenance cycle.
- In combination with narrower street widths, sidewalks do not result in more pavement.
- Sidewalks can be designed in a manner compatible with the rural character of some neighborhoods.

11. Related Bicycle/Pedestrian Improvements. The city will consider providing bicycle racks as a component of any new public parking facility, and will also work to provide racks in existing parking lots. The City may require bicycle parking as a component of any new private off-street parking facility. Bicycle racks within the downtown will be integrated into the overall streetscape plans, as detailed in the Downtown Revitalization Plan.

12. Local Street Improvements. Current City street design policies call for a standard 36-foot pavement width for local streets, although narrower streets may be allowed on a case-by-case basis. There is no consistent policy to require sidewalks in new development (see discussion above) and they are often omitted.

Most of Winona's older streets are 40 feet wide, but many of them are effectively narrowed by the amount of on-street parking they accommodate. Most newer streets serve larger lots and have little on-street parking. The result, combined with the lack of sidewalks, is a local street that is oversized for the traffic levels it accommodates. An overly-wide street results in additional stormwater runoff, encourages higher traffic speeds, and is not safe or comfortable for pedestrians.

Another local street safety issue is the number of uncontrolled or "yield" intersections of local streets. While stop signs are not required at such intersections, the current system is confusing to visitors and new arrivals such as students.

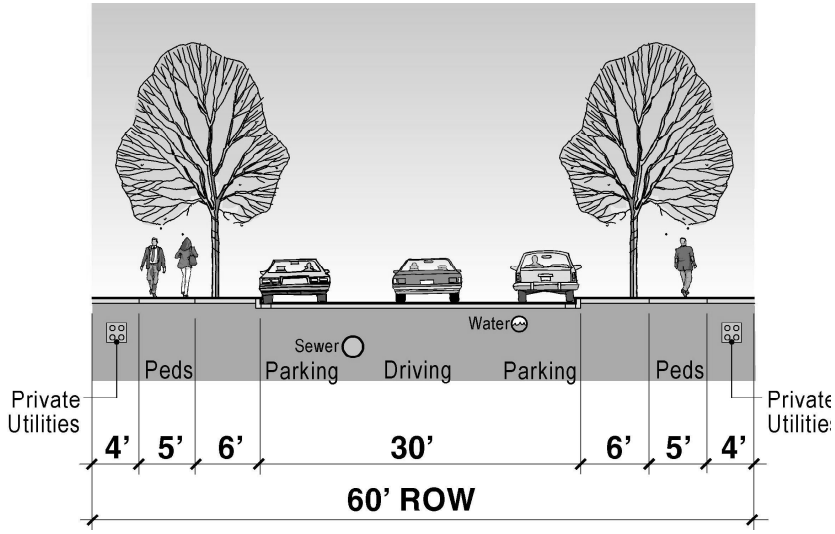
The following policies should be applied to local streets as they are developed or reconstructed.

- Connectivity. In general, streets should connect to other local or collector streets in at least one direction in order to provide pedestrian and bicycle connections and alternative routes for vehicular traffic. While the steep topography of the city's developing areas can make such connections difficult, providing such connections should always be a goal.
- Street Design. Local street policies should be reviewed and revised, to establish optimum widths for streets in order to promote safe traffic speeds and provide a pedestrian-friendly environment.
- Traffic Calming. Traffic calming should be considered for local streets or predominantly residential collector streets where problems with traffic speeds or vehicular or pedestrian safety have been identified.
- Traffic Control Devices. The City will consider the use of "Yield" signs or traffic calming measures such as small traffic circles at uncontrolled intersections.

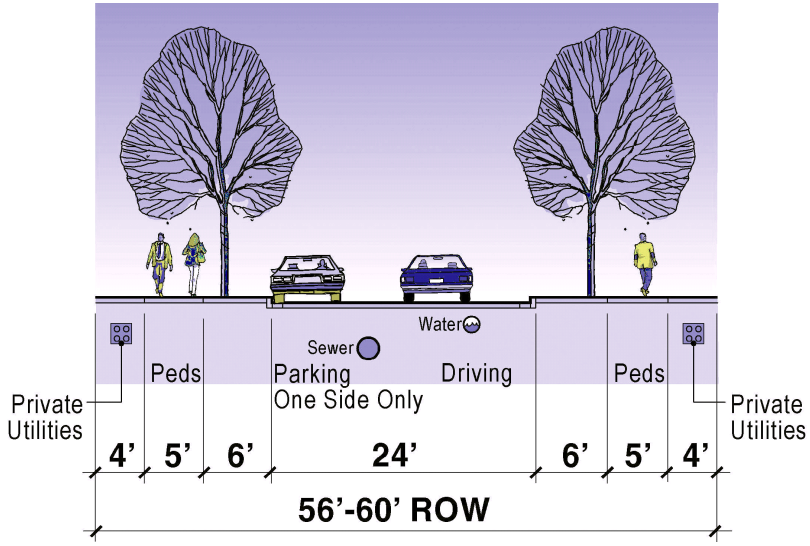
The design of new local streets should provide for traffic movement while ensuring a safe, attractive, and pedestrian and bicycle friendly neighborhood environment. The following street design provides 30-feet from curb to curb and allows for two-side parking and two-way traffic.

Figure 7. Recommended Local Residential Street Designs:

Parking on Both Sides



Parking on One Side



A 30-foot road width allows seven-feet of parking width on each side of the road leaving 16-feet of shared through-lane for traffic. Where cars are parked across from each other, on-coming vehicles will have to slow down to pass or one car will pull into the parking lane while the other car passes. In new development where substantial off-street parking is provided, the need to slow for on-coming traffic will be minimal. Unlike arterial and collector streets that allocate space for each directional lane of traffic, local streets, which have very low traffic counts, can operate with a shared through-lane that accommodates both directions of traffic

Table 4 below lists examples of design options for new residential streets. New culs-de-sac should be allowed only where topography, parks, or other protected resources limit access to properties, or when mutually agreed to by the developer and the City. Table 4 includes a minor collector street as an alternative to the local street design where proposed neighborhood development is anticipated to produce more than 1,000 vehicles per day on a local street and/or have high on-street parking demand.

Table 4. Examples of Residential Street Dimensions

Type of Street	Street Width *	Right-of-Way Width	Traffic Direction	Parking	Planting Strip	Sidewalk	Utilities
Loop around a green (fewer than 6 houses)	20	44	One way	One side	6 with trees	2 @ 5	Easement behind the sidewalk for electricity, telephone, cable TV. Sewer and water under the street.
Cul-de-sac (fewer than 8 houses)	24	48	Two ways	One side	6 with trees	2 @ 5	
Cul-de-sac (8 or more houses)	28	52	Two ways	Both sides	6 with trees	2 @ 5	
Local	24	48	Two ways	One side	6 with trees	2 @ 5	
Local	30	60	Two ways	Both sides	6 with trees	2 @ 5	
Collector (Minor)	32	60	Two ways	Both sides	8 with trees	2 @ 8-10	
Collector (Major)	36	72	Two ways	Both sides	8 with trees	2 @ 8-10	

* All dimensions are in feet to the back of the curb.

While the recommended local street design calls for a 30-foot pavement width with two-side parking, narrower streets have been used in many cities to successfully accommodate local traffic movements, parking demand, snow issues, and emergency vehicle and maintenance vehicle access.

Narrow streets have been shown to reduce traffic speeds, creating a quieter, safer, and more comfortable pedestrian and bike friendly environment. Narrow streets benefit developers by reducing costs and benefit the City by reducing maintenance, snow removal and reconstruction costs. On streets with one-side parking, weekly alternative-side parking can accommodate street cleaning and snow removal. Narrow streets can create challenges for emergency and maintenance vehicles, although many cities have been able to successfully address these challenges.

This local street easily accommodates high school marching band practice and parking on both sides.

An intersection neck-down can reduce pedestrian crossing distance and slow traffic by narrowing sight lines. This design is particularly appropriate in high pedestrian areas such as near schools or parks.

13. Traffic Calming. The Institute of Transportation Engineers defines traffic calming as "the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users." The purpose of traffic calming is to slow traffic in order to increase safety, particularly to create a safe environment for children, seniors, and the disabled, and increase neighborhood livability. Traffic control devices, such as stop signs and speed limit signs, differ from traffic calming measures, in that they are a regulatory measure that requires enforcement. Traffic calming measures are intended to be self-enforcing.

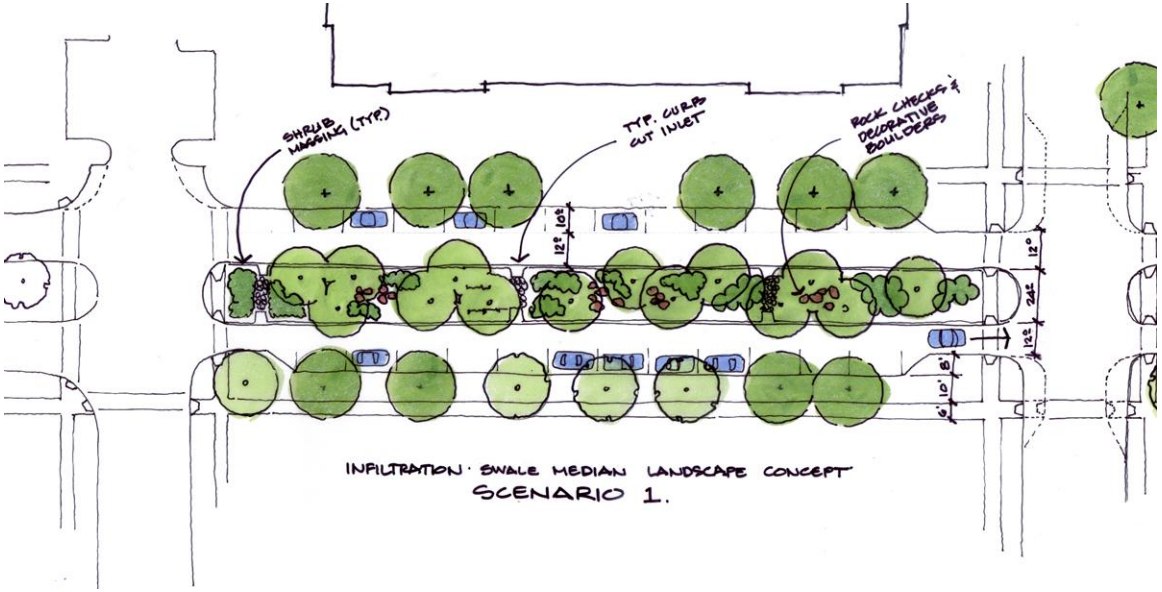
While traffic calming measures are usually applied to local residential streets, traffic calming is also appropriate for functionally classified streets in residential areas, pedestrian activity areas, and older commercial areas where buildings and sidewalks are close to the street. The City's Residential Street Reconstruction Program rebuilds local streets in the older parts of the city, replacing pavement, curbs, street trees and utilities as needed. This reconstruction process provides an opportunity to evaluate the need for traffic calming strategies

The City will consider traffic calming strategies to improve safety and livability on identified streets. As local streets are reconstructed, problems with traffic speeds or safety issues should be evaluated and traffic calming strategies should be considered. In new or redeveloped areas, traffic calming can be integrated into the street design.

Traffic calming strategies vary dramatically in type, design, and function. In general, traffic calming strategies should focus on slowing traffic to appropriate speeds and not diverting traffic from one neighborhood street to another. Traffic calming measures that alter street width or the perception of street width are more comfortable for drivers than strategies that alter the physical road environment, such as speed humps or tables. Whenever such strategies are proposed, it should be done in consultation with neighborhood residents and businesses, and with sufficient opportunities for public input.

One example of a traffic calming approach – sometimes called a "road diet" – that may be considered for a minor arterial is the concept shown in Figure 8 for East Broadway Street. Broadway carries about 7,000 to 9,000 vehicles per day, but its current four-lane configuration encourages higher speeds and creates hazards for pedestrians in crosswalks and entering traffic from cross-streets. This approach would involve the redesign of Broadway with two travel lanes and two parking lanes on either side of a planted median (a raised median or a swale), turn lanes at major intersections, and curb bump-outs at other intersections to improve pedestrian safety.

Figure 8. Concepts for Redesign of Broadway with Landscaped Median



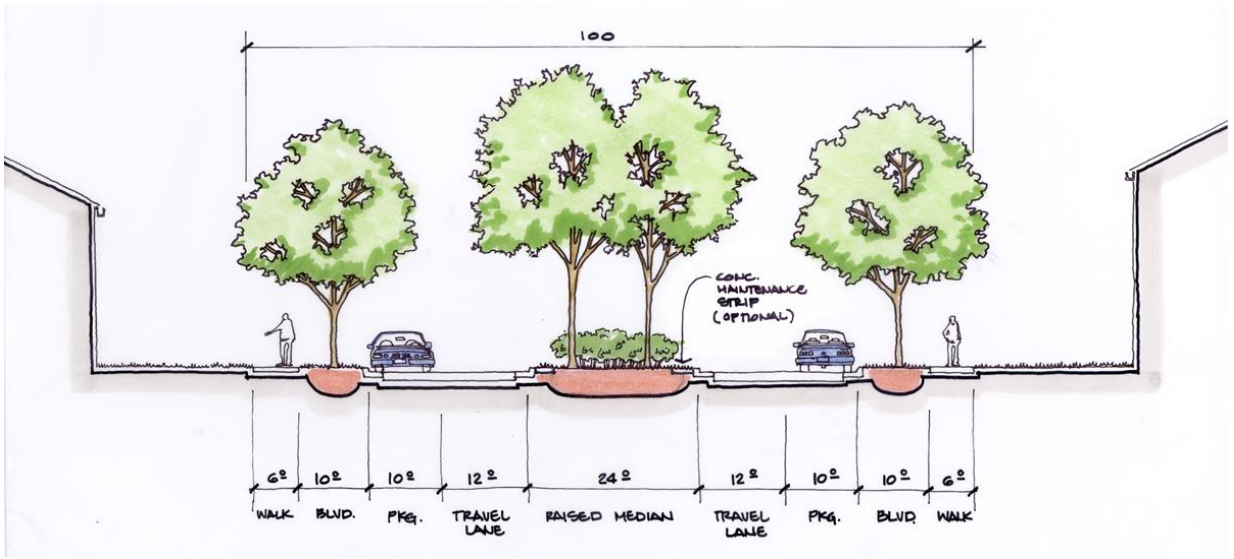
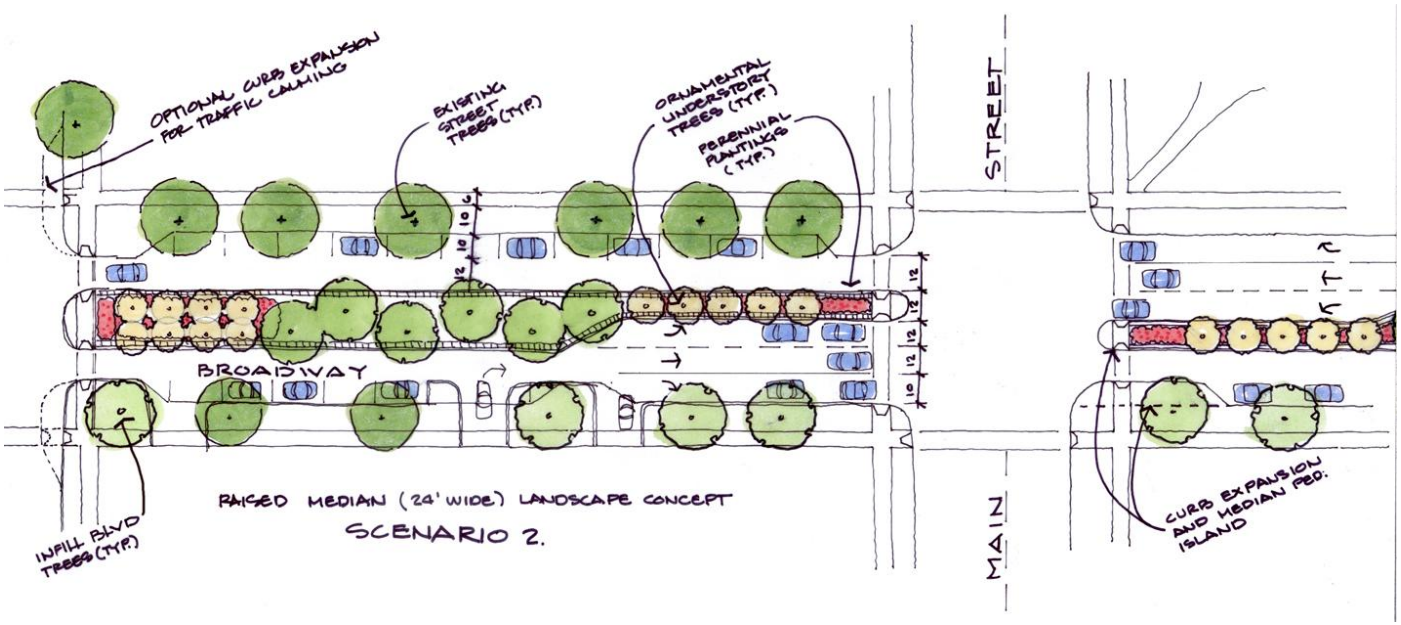
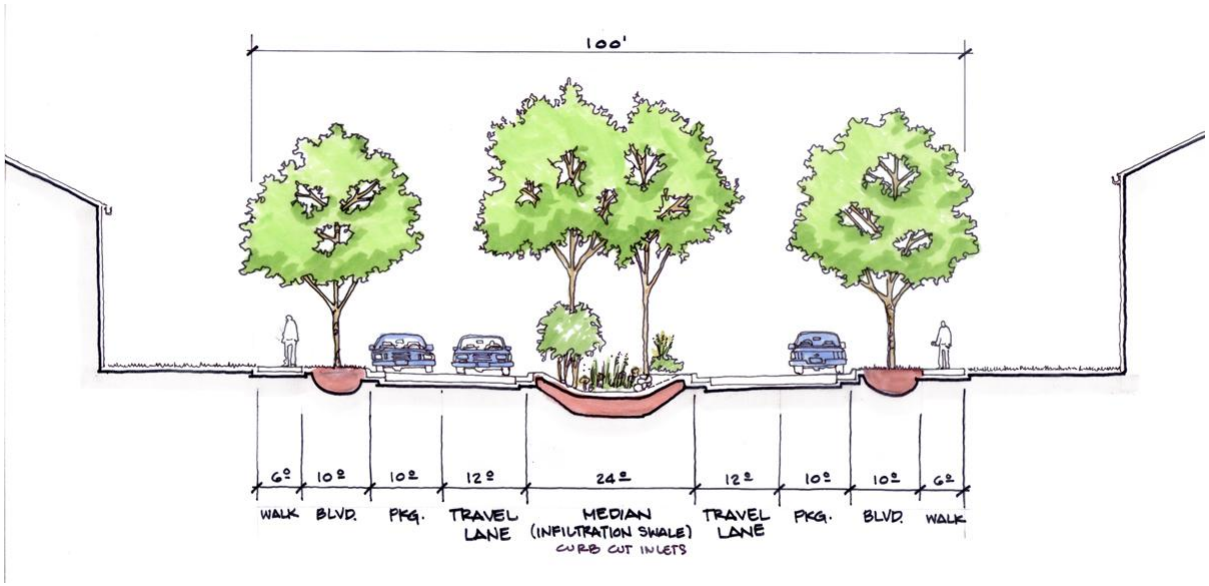


Figure 8 continued





14. Aviation Improvements. The recent 2002 Airport Layout Plan Update[9] indicated that various improvements are either needed or desired by airport users. Specifically, the airport runway length of 5,199 feet (the longer of the two runways) is marginal for the current or projected airport fleet. The result is that takeoffs in hot weather must reduce passenger or cargo load or shorten their haul length to use the airport. The plan recommends lengthening of about 300 feet. Additional improvements that airport users recommended included:

- Instrument landing system or GPS
- Additional hangar for aircraft storage
- New arrival/departure building

The City will work with MnDOT to seek funding for the runway lengthening, and will review the feasibility of other recommended improvements as funding becomes available.

[9] *Winona Municipal Airport – Max Conrad Field, Airport Layout Plan Update.* Prepared by Mead & Hunt, Inc., May 2002

Figure 9. Examples of Traffic Calming Strategies