Milwaukee - Madison

Passenger Rail Corridor Project

Prepared by the:

- U.S. Department of Transportation
- Federal Railroad Administration
- Wisconsin Department of Transportation

and

- National Railroad Passenger Corporation

Cooperating agency:

- U.S. Army Corps of Engineers, St. Paul District

Environmental Assessment

June 2001

FEDERAL RAILROAD ADMINISTRATION

WisDOT I.D. 0410-40-40/0499-10-39

Milwaukee-Madison Passenger Rail Corridor Project
in Milwaukee, Waukesha, Jefferson and Dane Counties, Wisconsin
from Milwaukee Amtrak Station to Dane County Regional Airport/Monona Terrace in Madison

ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to 42 U.S.C. 4332(2)(c) and 49 U.S.C. 303
by the
U.S. Department of Transportation
Federal Railroad Administration
Wisconsin Department of Transportation
and
National Railroad Passenger Corporation

Cooperating Agency:
U.S. Army Corps of Engineers, St. Paul District

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for Federal Railroad Administration

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Date of Approval

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5/31/01
Date of Approval

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The Wisconsin Department of Transportation and the National Railroad Passenger Corporation (Amtrak), are proposing to re-introduce passenger rail service between Milwaukee and Madison, Wisconsin. The Federal Railroad Administration has agreed to serve as the lead federal agency for the project. The 85-mile (136-kilometer) route would use existing CP Railway mainline tracks from Milwaukee to Madison. Reintroducing passenger rail service between Milwaukee and Madison (which links to the existing Chicago-Milwaukee rail service) would provide an alternative travel mode that avoids and minimizes additional environmental impact. The passenger rail service would initially start with six round trips per day in late 2003, ultimately increasing to ten round trips after 2005, as service is extended to Minneapolis/St. Paul. Intermediate stops are proposed at the cities of Brookfield, Oconomowoc, and Watertown, Wisconsin. Maximum operating speed in the corridor would be 110 mph (180 kph). Important issues raised by review agencies and the public include impacts from grade crossing closures, safety, noise, vibration, property values, aesthetics, neighborhood cohesion, and wildlife crossings.

Comments on this Environmental Assessment should be received by July 27, 2001, and should be sent to Ms. Rose Phetteplace, District Director, at the above address.

This document is prepared to meet the requirements of, and comply with the National Environmental Policy Act (42 U.S.C. 4321 et seq., hereinafter NEPA), especially NEPA Section 102 (2)(C) (42 U.S.C. 4332(2)(C)); Section 4(f) of the Department of Transportation Act (49 U.S.C. 303(c)); Section 106 of the National Historic Preservation Act (16 U.S.C. 470(f)); Section 309(a) of the Clean Air Act (42 U.S.C. 7609(a)); Section 307(c)(2) of the Coastal Zone Management Act (16 U.S.C. 1456(c)(2)); Section 2(a) of the Fish and Wildlife Coordination Act (16 U.S.C. 662(a)); Section 7 of the Endangered Species Act (16 U.S.C. 1536); the Noise Control Act of 1972 (42 U.S.C. 4901 et seq.); the Federal Railroad Administration's "Procedures for Considering Environmental Impact" (64 Fed. Reg. 28545, May 26, 1999); and certain Executive Orders, regulations, and guidelines cited in this document which relate to environmental assessment and environmental documentation.

The following list of acronyms will be commonly used throughout this document:

AIS	Agricultural Impact Statement
Amtrak	National Railroad Passenger Corporation
ANSI	American National Standards Institute
APE	Area of Potential Effect
AQCR	Air Quality Control Region
ASM	Alternative Safety Measures
AST	Above Ground Storage Tank
BTU	British Thermal Unit
CAAA	Clean Air Act Amendments
CFR	Code of Federal Regulations
CP Railway	Canadian Pacific Railway
CTC	Centralized Train Control
CTH	County Trunk Highway
CWT	Constant Warning Time
DB or dBA	Decibel or A-weighted Decibel
DM	Deep Marsh Wetlands
DMU	Diesel Multiple Unit
DOA	Wisconsin Department of Administration
DOE	Determination of Eligibility
DOM	Days on Market
DPW	Department of Public Works
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ERW	Exceptional Resource Water
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HSGT	High Speed Ground Transportation
HSR	High Speed Passenger Rail
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITS	Intelligent Transportation Systems
km	Kilometers

kph	Kilometers Per Hour
LAWCON	Federal Land and Water Conservation Fund Program
LUST	Leaking Underground Storage Tank
M	Meadow Wetlands
M(D)	Degraded Meadow Wetlands
MMSD	Milwaukee Metropolitan Sewerage District
MOA	Memorandum of Agreement
MP	Milepost
mph	Miles Per Hour
MPO	Metropolitan Planning Organization
MUTCD	Manual on Uniform Traffic Control Devices
MWRRI	Midwest Regional Rail Initiative
MWRRS	Midwest Regional Rail System
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OCR	Wisconsin Office of the Commissioner of Railroads
OLI	Wisconsin Operation Lifesaver, Inc.
ppm	Parts Per Million
PTC	Positive Train Control
R/W	Right-of-Way
rms	Root Mean Square
RPE	Riparian Emergent Wetlands
RPE(D)	Degraded Riparian Emergent Wetlands
RPF	Riparian Wooded Wetlands
RPF(D)	Degraded Riparian Wooded Wetlands
SHPO	State Historic Preservation Officer
SHS	State Historical Society of Wisconsin
SM	Shallow Marsh Wetlands
SS	Shrub Swamp Wetlands
SS(D)	Degraded Shrub Swamp Wetlands
SSM	Supplementary Safety Measures
STH	State Trunk Highway
TEA-21	Transportation Efficiency Act for the 21st Century
UP or UPRR	Union Pacific Railroad
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
UST	Underground Storage Tank
UW	University of Wisconsin
USFWS	United States Fish and Wildlife Service
VMT	Vehicle Miles Traveled
WDNR	Wisconsin Department of Natural Resources
WEPA	Wisconsin Environmental Policy Act
WisDOT	Wisconsin Department of Transportation
WS	Wooded Swamp Wetlands
WS(D)	Degraded Wooded Swamp Wetlands
WSOR	Wisconsin & Southern Railroad Company

S.0 EXECUTIVE SUMMARY

S.1 Proposed Action

The Wisconsin Department Transportation (WisDOT) and the National Railroad Passenger Corporation (Amtrak), in cooperation with the Federal Railroad Administration (FRA), and with input from Canadian Pacific Railway (CP Railway) and Wisconsin & Southern Railroad (WSOR), propose the return of passenger rail service between Milwaukee and Madison, Wisconsin. Through agreements that would be developed with CP Railway, the 85-mile (136-kilometer) route would primarily use CP Railway right-of-way from Milwaukee to Madison. Passenger trains would operate on rail corridors that are primarily used for freight trains. Passenger train speeds would range from 20 mph (32 kph) up to a top speed of 110 mph (180 kph) on certain segments of the route. This proposal would relay existing track and repair, replace, or leave in existing bridges, culverts, and pipes as needed to meet minimum design standards for the operation of passenger rail.

Potential station locations for passenger services were evaluated and locations recommended. Stations are proposed in Milwaukee, Madison, Brookfield, Oconomowoc, and Watertown. In Milwaukee, the existing Amtrak facility, which is planned for renovation, would be recommended. Historic train stations, such as in Brookfield and Oconomowoc, would enjoy a return to their original use. New stations would be needed in Madison and Watertown. Three station location alternatives have been identified in Madison; one location has been identified in Watertown.

Passenger rail service is scheduled to begin in late 2003, with six daily round-trip trains between Milwaukee and Madison. Service is proposed to increase to ten daily round-trips after 2005, when service to St. Paul would be initiated.

Fares between Madison and Milwaukee are currently estimated to be between $20 and $33 each way. Although fares have not yet been set, it is anticipated they would be lower for travel between the intermediate stations and either Madison or Milwaukee. It is anticipated that the fare from Milwaukee to Chicago would remain around the current $20 each way. The total trip time between Milwaukee and Madison is estimated at one hour and seven minutes.

S.2 Purpose and Need for Action

The purpose of this proposed action is:

- to return direct, convenient and attractive passenger rail service between Milwaukee and Madison by reconstructing or rehabilitating the existing rail infrastructure, within existing right-of-way;
- to offer a travel alternative that is competitive with the travel time and costs of auto, intercity bus and regional air modes;

- to offer a travel alternative that avoids or minimizes new impacts to the environment; and,
- to evaluate and propose potential passenger train station locations for consideration by host communities.

The need for the proposed action is based on vulnerabilities of available travel modes in the project corridor. Existing transportation modes including highway and air travel have their inherent problems including congestion and sensitivity to inclement weather conditions. Passenger rail service can provide an additional passenger travel alternative to congested highways and weather-sensitive airports.

Background

The existing transportation network in the Milwaukee-Madison corridor consists of highway (auto and bus), air, and passenger rail modes. Amtrak operates a single route between Chicago and Minneapolis/St. Paul (the long distance *Empire Builder* with continuing service to Seattle). The existing Amtrak service stops at Columbus, Wisconsin and does not directly serve the City of Madison.

The provision of passenger rail service has been recommended in planning studies conducted by regional, state, and local groups and agencies. Madison's numerous government, business and university destinations make it one of the most rapidly growing cities in the state, and a logical rail destination in the region. The proposed Milwaukee-Madison passenger rail service would also provide connectivity to the existing Milwaukee-Chicago rail service.

The Milwaukee-Madison passenger rail link is part of the proposed larger Chicago-Minneapolis/St. Paul high-speed rail corridor, which is a component of the proposed Midwest Regional Rail System (MWRRS). MWRRS is a nine-state/Amtrak initiative proposing to use 3,000 miles (5,000 kilometers (km)) of existing rail rights-of-way to connect rural, small urban and major metropolitan areas, using modern passenger rail trains and improved tracks and signaling. The WisDOT multimodal transportation plan (Translinks 21) and the State Rail Plan support passenger rail as a way to integrate affordable alternative modes into their transportation network.

S.3 Alternatives

S.3.1 No-Build

The "No-Build" alternative includes maintaining the existing rail corridor for continued freight service. This alternative would not provide an alternative mode of passenger transportation between Milwaukee and Madison, and would not meet the transportation planning goals as set forth by the State of Wisconsin and by the Midwest states involved in developing the MWRRS. If freight service were expected to continue for current customers along the line, maintenance to the rail corridor would be required. Environmental impacts to provide safe, efficient freight rail service would be similar, if not equal, to those of the proposed project.

S.3.2 Build

The proposed passenger rail project would provide an alternative travel mode through improvements to the existing rail corridor. These improvements would replace ties, track, ballast, and structures along the corridor, as needed, to the level of quality necessary to operate today's advanced passenger trains. The proposed project would use only existing rail rights-of-way, thereby avoiding or minimizing adverse environmental impacts.

Local communities would be expected to design, evaluate, and construct their own stations. Oconomowoc and Brookfield propose to make use of their former passenger stations. A potential new station in Watertown would be located near Third Street, south of Clyman Street.

Three alternative station sites are proposed in Madison. These three sites are the Dane County Regional Airport, Pennsylvania Avenue near the current WSOR yards, and the One West Wilson Street State Office Building next to Monona Terrace. One or two preferred Madison station sites will be determined as a result of the many public meetings already held, and the Public Hearings to be held for the project. Passenger rail service would be provided at the existing Amtrak station in Milwaukee.

The re-introduction of passenger rail service between Milwaukee and Madison would require specific safety upgrades to the existing right-of-way, crossings, and signals. A new centralized train control system would be implemented for constant train traffic management and collision avoidance at crossings. Under FRA regulations, an advanced train control system such as Positive Train Control is required to permit train operations in excess of 79 mph.

The total conceptual level infrastructure cost for upgrading the Milwaukee-Madison rail corridor is estimated to be approximately $176 million (year 2000 dollars). This estimate, based on 30 percent engineering, includes track and civil construction, grade crossing improvements, signals, structures, and contingencies. This funding would not be available for other public works projects once applied to this project. Capital costs for train sets, a layover facility, new stations, advanced train control equipment on freight locomotives, and ancillary facilities are not included in this cost estimate. Former Governor Thompson's Blue Ribbon Task Force on Passenger Rail recommended seeking funding for 80 percent of the capital costs from the federal government and the remaining 20 percent from state sources. While there is a federal program to assist with grade crossing improvements in designated high-speed corridors and there is no current federal funding program for the remainder of the proposed action. However, a $12 billion High-Speed Rail Investment Act (HSRIA) is under consideration by the U.S. Congress. This act would fund high-speed rail projects, such as proposed for this corridor.

S.3.3 Alternative Corridors Considered and Dismissed

Statewide Corridor Study

The WisDOT's Tri-State High Speed Rail Study for the Chicago – Milwaukee – Twin Cities Corridor addressed several route alternatives in two different corridors identified as the "Southern Corridor" and the "Northern Corridor". The study concluded that the Southern Corridor was preferred to the Northern Corridor in environmental, economic and financial terms. The November 1994 Translinks 21 Plan recommended the Milwaukee – Madison – Twin Cities route for high-speed rail because it provides connectivity to Madison. The Midwest Regional Rail Initiative identified this preferred route in their analyses. The Northern Corridor would not meet the purpose of providing passenger rail service to the City of Madison.

Bypasses in the Project Corridor

There were requests from local communities to examine rail bypasses as a means to minimize proximity impacts of passenger trains on existing tracks. Bypasses of communities were rejected as not being reasonable or feasible alternatives due to the added costs and negative environmental impacts of constructing new rail right-of-way. New bypasses would not meet the purpose of minimizing costs and environmental impacts associated with rail infrastructure already in use.

Alternative Speeds/Technology Considered and Dismissed

The Midwest Regional Rail Initiative study evaluated three speed/technology scenarios – Moderate, Conservative, and Aggressive – to refine its business plan[1]. These scenarios compared the investment in the technology with the potential revenue from passengers. The Moderate Scenario showed the greatest revenue per dollar invested and generated the lowest operating costs over existing passenger rail services. Thus, the 110 mph service, using new technology, was selected as the preferred scenario for the purposes of this study.

S.4 Probable Impacts

The proposed project would improve the 85-mile (136-kilometer) rail route within existing railroad rights-of-way. Table S-1 summarizes impacts to the natural and social environment that would result from the build alternatives. This Environmental Assessment considers impacts in the Milwaukee-Madison project corridor if passenger rail service is fully implemented between Chicago and Minneapolis/St. Paul as part of the Midwest Regional Rail System. Full passenger rail service is expected to be 10 daily round trips by the year 2010.

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[1] Conservative Scenario = 79-90 mph (126-144 kph); Moderate Scenario = 110 mph (176 kph); Aggressive Scenario = 125 mph (200 kph)

S.4.1 Land Use and Related Socio-Economic Characteristics

Because the rail corridor is already in place and in use, it is unlikely that land uses adjacent to the rail would change as a result of reintroducing passenger rail service into the corridor. In contrast, the passenger stations may induce some land use changes as they may trigger the development of businesses in their vicinity to serve passengers.

Minimal neighborhood disruption is anticipated along the passenger rail corridor since the railroad predates housing development. The railroad already acts as a boundary for many neighborhoods along the corridor. Proposed safety fencing of the right-of-way in communities may give the perception of severing neighborhoods. Also, many local residents may view the increased train frequency west of Watertown as a negative impact on the quality of life due to noise and safety concerns. WisDOT would continue to coordinate with individual communities to address specific local concerns in the project corridor.

Safety

Track, train control, signals, and railroad crossing upgrades are proposed to ensure the safety of the public as well as train operators. Right-of-way fencing would be replaced, repaired, and/or installed to provide safety for train operators and the adjacent property owners.

WisDOT continues to work with local communities to close crossings that are illegal or redundant. This minimizes the risk of train/vehicle exposure. Education and enforcement programs that increase public awareness of grade crossing safety is an integral part of a complete public safety program. WisDOT is involved with Wisconsin Operation Lifesaver, Inc. (OLI) through which WisDOT and private railroad staff provide grade-crossing safety education to communities.

Property Values

Local property owners have raised concerns that noise, safety and increased train traffic may potentially lower property values of residences adjacent to the proposed corridor. The FRA recently completed a related study that included a review of the effect of proximity to rail corridors on property values. The study concluded that after taking housing and neighborhood characteristics into consideration, proximity to rail lines has a negative influence on housing values within 1,000 feet of a rail line. Thus, existing property values along the corridor would likely already reflect proximity effects. However, a conclusion for the potential impact on property values in this project corridor study cannot be readily made since the FRA study does not distinguish between rail lines with relatively low activity and those with high or changing levels of activity.

Relocations

One active business would be relocated if the Pennsylvania Avenue station site in Madison were selected. A second property at the proposed station site is used for construction equipment storage. The equipment would also require relocation. A review of current real estate listings shows that adequate replacement sites are available within the city.

Economic Conditions

New construction, maintenance and operations jobs, and the purchase of local materials would be a direct economic benefit of implementing passenger rail service between Milwaukee and Madison. Indirect impacts may be realized locally as construction and maintenance crews spend money at local businesses along the corridor. Indirect economic benefits would accrue to local communities with passenger train stations as station personnel would likely live and spend wages locally. Also, new stations in served communities may induce secondary economic development from nearby station-oriented development.

Environmental Justice

Disproportionately high and adverse human health or environmental effects on minority and low-income populations are not anticipated on this project since the rail corridor moves through a number of different neighborhoods that vary widely in income levels and racial composition. No particular neighborhood would be affected by the physical environmental impacts differently than another. Therefore, any adverse effects of this project would not be predominately borne by a minority and/or a low-income population.

A review of census tracts along the project corridor shows that low-income and minority populations are located near the Menomonee Valley in Milwaukee County. However, these neighborhoods are not adjacent to the project route, which travels through industrial areas. Furthermore, no concerns were raised during discussions with local officials in the City of Milwaukee and Milwaukee County.

However, the project route does pass through low-income census tracts in Madison. WisDOT has met several times with local neighborhoods and elected officials to address specific concerns along the project corridor. As a result, the City of Madison has formally requested WisDOT to continue to work with local neighborhoods to develop a corridor management plan to address specific concerns as the design phase proceeds.

Cumulative/Secondary Impacts

The secondary and cumulative impact from potentially induced station site development could lead to increased impacts to water and other natural resources. However, all station sites are located in urban areas previously developed and additional impacts are expected to be minimal. New passenger stations in an urban area could lead to urban redevelopment rather than new development on the urban periphery. Secondary impacts of traffic from stations and diverted traffic from grade crossing closures are expected to be minimal since traffic volumes on surrounding streets are low and can absorb added traffic without degradation of operations. Passenger rail service also diverts the greatest number of riders from autos, which helps reduce individual vehicle trips.

Improved track infrastructure between Watertown and Madison may induce increased freight traffic. However, increased freight rail traffic would ultimately depend on outside market influences.

S.4.2 Transportation

Forecast Ridership

Total annual rail ridership is forecast to be approximately 872,000 riders in 2010, which includes those with origins and destinations between Milwaukee and Madison (or vice versa), as well as riders on the train from outside the project corridor. That is, through traffic passengers, such as those taking a train from Minneapolis/St. Paul to Chicago, are included in the forecast. Non-business travel accounts for most of the projected rail ridership. Business travel is forecast to be 223,000 or about one-fourth of these trips. The forecasts are based on an annual forecasting model. Therefore, additional analysis would be required to model the seasonal and daily ridership as well as peaking characteristics. This has been addressed in Section 3.2.6 of the EA.

Approximately 67 percent of the total rail ridership in 2010 is diverted from autos, 8 percent from airplanes, and 19 percent from buses. The air diverted passenger traffic cited is expected since the Madison-Milwaukee rail link would serve as a connector to the major airport hubs enhancing competition by air carriers. Diversion of local air trips with an origin and destination between Madison and Milwaukee would be negligible.

Operating Revenues and Costs

The revenues generated by the proposed passenger rail service are projected to cover the operating costs of the service within two years following the start of operations. This would be made possible by attractive travel times, increased frequencies and efficient use of equipment and crews.

Freight Operations

In coordination with CP Railway and WSOR, improvements would be made to avoid the impact of passenger rail service on freight operations. Impacts to freight operations could be increased time spent on sidings and schedule delays. Examples of mitigation would include proposed sidings in Watertown, Sun Prairie and Madison, and a second track that would be re-installed between the Union Pacific Railroad (UPRR)/CP Railway crossing in Watertown and Pewaukee. Double tracks are already in place between Pewaukee and Milwaukee. The addition of passenger service would not affect the operating hours of the existing freight rail service. Additional mitigation may require improvement of the freight route through Milwaukee. In all cases, additional sidings and facilities would be constructed within existing rights-of-way.

Local Vehicular Traffic Impact at Stations

Impacts of additional vehicle traffic going to and from rail stations on local streets is expected to be minimal as most increases are less than 10 percent of existing traffic volumes on local streets.

Grade Crossing Improvements

Improved grade crossing warning systems would include the installation of extended single-arm gates or four quadrant gates to prevent vehicles from driving around crossing barriers. Median barriers may also be proposed to prevent "drive-around" movements at gates. High traffic volume crossings may be equipped with vehicle arresting systems if further studies determine that this technology is warranted. Vehicle arresting systems are structures that physically deter vehicles from entering the grade crossing when a train is approaching the crossing.

Of the 164 road/rail at-grade crossings along this corridor, 122 are public grade crossings and 42 are private grade crossings. Of the 122 public grade crossings, nine are recommended for closure. Grade crossing closure recommendations were coordinated with each community and are based on preliminary local concurrence with the proposed closures. All of the nine proposed public at-grade crossing closures are low volume roadway facilities with nearby alternate routes. There would be no adverse impact to adjacent roadways that would receive diverted traffic.

Of the 42 private farm and non-farm grade crossings, 22 are recommended for closure. Of these 22 proposed closings, 20 are farm crossings and 2 are non-farm crossings. In each case, alternative access was identified either via public roads or by re-routing several private crossings to one private crossing. Warning devices at the remaining open crossings may include single gates, flashing light signals, and ITS (Intelligent Transportation Systems) elements such as a "trapped" vehicle detection system and an advanced warning system. Private crossings would not be closed if no alternate access is available to a property.

Crossing treatments would either be upgraded or remain the same for those public grade crossings that include existing bicycle or pedestrian facilities. For the pedestrian or bike path crossings where train speeds exceed 79 mph, the crossing warning devices would include back gates, which are gates that drop across pedestrian and bike paths at grade crossings, to deter travel along the sidewalk or bicycle path into the crossing area.

Input from the operating railroads and the Federal Railroad Administration would also be considered for the treatment of public and private crossings. The Wisconsin Office of the Commissioner of Railroads would make the final determination regarding public grade crossing closures along the corridor.

S.4.3 Farmlands

Since the proposed improvements would be confined to the existing right-of-way, no direct impacts to farmland are expected. Twenty farm crossings are proposed for closure. However, any proposed crossing closures that cause negative economic impacts to farm operations (such as land locking or loss of access) would not be closed without further negotiation with the landowners.

S.4.4 Parks and Unique Areas

The improvements to the passenger rail corridor would be confined to existing railroad right-of-way, which would avoid impacts to parklands. The proposed project would not affect current access for the Ice Age Trail in the Village of Hartland. The existing public crossing at Maple Avenue that is currently used to link the Ice Age Trail with a local village trail would be maintained and upgraded with additional crossing warning devices. The National Park Service would coordinate with CP Railway to explore the possibility of creating a grade separated crossing in the future.

S.4.5 Air Quality

The results of the air quality analyses indicate that emissions along the I-94 corridor, between Milwaukee and Madison, would decrease for HC, CO, and NO_x, as a result of reduced auto travel associated with the proposed project, compared to the No Build Alternative. This positive effect on HC, CO, and NO_x ambient concentrations in the southern Wisconsin urban air shed would help to decrease the precursor emissions for ozone.

While some emissions would decrease because of reduced auto travel, the proposed project is expected to result in a 3 pound per day (1 kilogram) increase in particulate emissions due to the introduction of passenger rail service. The increase in particulate emissions would not hinder the area’s ability to stay in attainment for particulate levels established in the National Ambient Air Quality Standards.

S.4.6 Noise and Vibration

Noise impacts associated with the re-introduction of passenger rail service were reviewed. The findings indicate that no additional impacts are expected in the project corridor between Milwaukee and Watertown. However, impacts are expected west of Watertown where current rail activity is light compared to rail activity east of Watertown. Impacts west of Watertown would require mitigation measures.

Tools to reduce noise impacts include train equipment specifications, train wheel maintenance, continuous welded rail, and noise barriers. The selection of noise abatement measures would follow federal, state, and local guidelines for noise abatement as soon as the preferred alternative is determined. Final design would require additional noise impact analysis and neighborhood involvement for areas identified to have impacts.

Ground-borne vibration occurs along most of the project corridor under both existing and future conditions. Improved rail technology proposed for the track upgrades, plus the use of lighter weight passenger trains would actually reduce ground-borne vibration levels between Milwaukee and Watertown. However, due to increased activity west of Watertown, ground-borne vibration can be expected to increase. Proposed track improvements, which include resilient tie pads and resilient fasteners would avoid or minimize vibration impacts. No ground-borne noise impacts are expected in the project corridor.

Whistle Blowing and Quiet Zones

The FRA has a proposed rule requiring train horns be sounded at every public highway/rail crossing. FRA has proposed an exception for crossings within designated "Quiet Zones." If all crossings within a Quiet Zone were equipped with approved safety measures in addition to the conventional gates and flashing lights, locomotive horns would not need to be sounded. Since the rule is currently in the draft stage, this project would include sufficient grade crossing warning devices to establish Quiet Zones in anticipation of the final rule. Under new rules proposed by FRA, enhanced grade crossing warning systems may be employed to create a Quiet Zone for a limited area. WisDOT intends to meet the requirements of the proposed rule by improving grade crossing warning systems that would provide an opportunity for communities to apply to the FRA for a Quiet Zone along the rail corridor if the FRA rule were promulgated.

S.4.7 Streams

Potential water quality impacts during construction would be minimized by using management practices such as silt fencing and promptly stabilizing/seeding exposed soils. Long-term maintenance activities can result in the temporary and localized discharge of pollutants. Some direct contact to streams from chemicals used for vegetation control may occur due to wind drift. However, the majority of sprayed and/or applied chemicals would be filtered out or adsorbed as surface runoff flows through vegetated swales and wetlands within the right-of-way. WisDOT would coordinate with WDNR during final plan development to review bridge abutment and pier placements, as well as determine the timing of construction activities in streams to avoid impacts to aquatic species.

S.4.8 Floodplains

The project crosses many floodplain areas as designated by the Federal Emergency Management Agency (FEMA). Proposed drainage structures would be designed so that backwater elevations would be no more than 0.01 foot (less than 1 centimeter) higher than that experienced with the existing structure in place. Replacement structures would typically have fewer piers, which would improve water flow and eliminate debris retention. No impacts are anticipated.

S.4.9 Wetlands

Track replacement, related embankment repairs, and new freight siding construction between Watertown and Madison would affect approximately 13.5 acres (5.4 hectares) of wetlands within the right-of-way of this 39-mile segment of the alignment. New abutments would be placed behind existing abutments in those areas where wetlands would be affected. Proposed land bridges in wetland areas between Hubbleton and Sun Prairie may act to restore some hydrologic connections historically severed by the railroad. The land bridges are long structures in areas where upper soil layers cannot adequately bear the weight of railroad tracks and equipment. Land bridges would carry the railroad tracks and transfer loads down to stable soils or bedrock.

WisDOT, the WDNR, and the USACE have agreed that mitigation at a wetland bank operated by WisDOT would be appropriate compensation for wetland impacts.

S.4.10 Wildlife

The primary impact to terrestrial vegetation and wildlife would include short-term and long-term losses of forbland vegetation through the clearing, excavating, filling, and re-grading of the railroad base in specific locations. Minimizing the zones of construction and revegetating / mulching where appropriate would reduce impacts from vegetation clearing.

Overall impacts to existing wildlife are anticipated to be minimal because proposed improvements to the railroad corridor would be relatively isolated and small in size, and because best management practices would be used to minimize unforeseen environmental damage. Operational impacts such as the noise and vibration emanating from passing trains are already a part of the existing condition along the project right-of-way. Wildlife that exists along the alignment has presumably become accustomed to this intrusion, as the entire route is used for freight rail traffic. During final design, the WDNR would be consulted to identify timing of specific construction activities.

The woven wire fence proposed to be installed along the rail right-of-way in rural areas would allow small animals to pass through. Larger animals with strong jumping abilities such as white-tailed deer and those with climbing abilities such as the raccoon could pass over the top. However, medium-sized species such as fox and coyotes would have difficulty passing the fence barrier at will. It is reasonable to predict that these species would eventually create tunnels under the fence at preferred crossing locations but they may experience difficulty escaping to protective cover as needed. Bridge crossings and the proposed land bridges noted in Section S.4.9 could act as wildlife crossings for terrestrial species.

S.4.11 Threatened and Endangered Species

A field survey identified one protected plant species occurring in the project corridor. However, habitat supporting other protected species does occur along or in the corridor. Impacts to rare plants and animals are similar to the wildlife impacts described above. In terrestrial areas, care would be taken to limit the area of disturbance and to avoid areas with known occurrences of rare species.

Rare species associated with aquatic resources such as streams and lakes may be negatively impacted by construction activities at water-crossing structures. Some of these water bodies are known to contain state-listed species of fish and plants. Continued coordination with resource agencies would help direct the appropriate timing and construction techniques to protect sensitive species and minimize impacts in the specific areas of disturbance.

S.4.12 Historic Resources

The former Oconomowoc railroad depot is listed on the National Register of Historic Places (NRHP) and the former Brookfield depot is eligible for listing on the Register. The new station for Oconomowoc is proposed as an addition to the existing depot and the Brookfield depot would be re-used as the new station, but relocated a few hundred feet east of its existing site.

The proposed alignment to a downtown station site in Madison affects two historic properties. The One West Wilson Street State Office Building, the proposed downtown station site, is listed on the NRHP. If a station is located in the One West Wilson Street State Office Building, it would not significantly change the exterior of the building. The railroad bridges over the Yahara River are considered contributing elements to the Yahara River Parkway, which is on the NRHP. The bridges over the Yahara River would remain in place and not be affected.

If federal or state funds are used for station construction, local municipalities would be responsible for further consultation with the State Historical Society (SHS) to comply with requirements of Section 106 of the Historic Preservation Act and Wisconsin Statutes 44.40. Adverse effects could be avoided if a proposed station design or reuse does not affect the historic character or setting of the properties.

S.4.13 Archeological Resources

The field reconnaissance re-identified the location of two historic Euro-American Ice Houses. These are the Helms Brothers Icehouse and the Armour Ice East House. Neither structure is standing and both are located outside the existing right-of-way. The project would not affect the sites.

The archeological studies also included an intensive field survey at station locations in Madison, Watertown, Oconomowoc, and Brookfield. Previous construction and modern land use have completely obliterated the original soils resulting in a highly disturbed context.

S.4.14 Hazardous Materials

Since construction of the proposed track upgrades would occur within the existing right-of-way, no properties presenting environmental risk would be acquired. However, the possible station site alternatives in Watertown, Brookfield and Madison have the most potential for encountering hazardous materials, requiring additional investigations and/or remediation by local communities.

S.4.15 Visual Quality

Safety and crossing upgrades are not expected to substantially change the views of, or from, the existing rail corridor. The proposed fencing of the corridor may create the perception of further severance in communities. WisDOT would coordinate with local municipalities to determine appropriate measures for corridor maintenance and to mitigate the potential negative effect of fencing. Decorative fencing may be installed in select areas. Furthermore, federal funds, including those allocated under TEA-21, may be available to communities for aesthetic improvements. The railroads (CP Railway and WSOR), through operating agreements negotiated with WisDOT, would likely be responsible for maintenance of their right-of-way, including maintenance related to fencing, trash, and snow removal.

S.4.16 Energy

The energy consumption of different travel modes between Milwaukee and Madison were estimated in the EA. Auto fuel consumption would continue to be the highest of all travel modes. The diversion of auto trips to the rail passenger mode would result in decreases in future auto fuel consumption compared to the No Build Alternative. Under current assumptions, the per passenger energy consumption of trains is less than auto and air modes of travel, but higher than the bus mode.

S.4.17 Construction Impacts

Upgrades to crossings to install new warning systems could temporarily slow automobile and truck traffic flow. Railroad track re-construction would take place within the existing right-of-way to avoid impacts to adjacent properties. CP Railway would coordinate its own construction staging and operations between Milwaukee and Watertown based on prior experience with other segments of its rail network. Accordingly, any impact to freight service would be minimized. WSOR and CP Railway have indicated that it would use detour routes during construction between Watertown and Madison and does not anticipate substantial impacts to operations. Construction noise would be controlled in accordance with local ordinances.

S.4.18 Permits Required

The passenger rail project is being coordinated under the WisDOT/WDNR Cooperative Agreement. This agreement satisfies the requirement for WDNR permits. Construction over streams and wetlands will require a USACE Individual Section 404 permit. The 404 permit is valid once the WDNR grants Section 401 Water Quality Certification for the project.

S.5 Other Projects

Other projects along the passenger rail corridor can potentially affect ongoing preliminary engineering which, conversely, could affect plans of other projects. The following are projects identified in the study area that may require additional coordination as final design proceeds.

The City of Madison is currently conducting a transportation Alternatives Analysis that includes a local rail option on the Wisconsin and Southern Railroad (WSOR)-operated portion of the project corridor between Sun Prairie and Madison. WisDOT is coordinating with the City as alternatives are being developed for both studies.

The City of Madison's East Rail Corridor Advisory Committee is in the process of developing a land use plan for an area that includes a segment of the existing UPRR alignment between Baldwin Street and Livingston Street. The Committee's project area is bounded by East Washington Avenue, South Blair Street, Williamson Street, and the Yahara River. Land uses under consideration could include residential development and a community park. A conceptual plan developed by the Committee envisions relocating the existing UPRR track one block north to a corridor that includes existing railroad sidings. The city is currently investigating the potential to acquire right-of-way to make the alignment available for freight and passenger rail use. WisDOT would cooperate with the city as their project moves forward.

In Waukesha County, the County Trunk Highway (CTH) C bridge that crosses over the CP Railway line is slated for rehabilitation in 2001. The fieldstone abutments of the bridge will be repaired. CTH J is also slated for expansion from 2 to 4 lanes. The estimated time for construction is 2003, after which time the highway will be re-designated as State Trunk Highway 164. CTH J crosses the rail corridor on a bridge which would be widened for the new road.

Milwaukee, Jefferson and Dane Counties currently report no anticipated local work at railroad crossings within their respective jurisdictions.

In WisDOT Transportation District 2, there are no major highway projects that would impact the project corridor. State Trunk Highway 181 from Glenview Avenue to Menomonee River Parkway will undergo resurfacing. The STH 181 bridge over the CP Railway tracks at the Menomonee River will be resurfaced, but it is not expected to affect rail operations.

The State of Wisconsin recently purchased the Milwaukee Amtrak train station and is sponsoring the Downtown Milwaukee Intermodal Passenger Station Study. This study is evaluating alternative connections to the station via a number of travel modes. Passenger rail service at the station would be consistent with the study objectives.

The Wisconsin Center District Board, the City of Milwaukee, the Metropolitan Milwaukee Association of Commerce, and Milwaukee County are sponsoring a Downtown Connector Study to identify ways to connect transit to all major Milwaukee downtown attractions. The study area includes the Amtrak Station.

WisDOT Transportation District 1 is currently in the process of studying or designing three highway projects that cross the passenger rail corridor:

- The proposed STH 26 bypass of Watertown will most likely occur after 2010. No matter which bypass alternative is selected, there will be a grade separation.
- STH 19 in Sun Prairie is planned for reconstruction in 2002. There will be an improved at-grade crossing.
- STH 73 in Marshall is planned for reconstruction in 2002. There will be an improved at-grade crossing.

The Dane County Regional Airport has recently undertaken an airport expansion study that includes a grade separated entrance over the proposed passenger rail corridor, as well as relocating the existing tracks west of the airport. The track relocation is required to meet clear zone requirements for an airport runway. The track relocation is scheduled for construction in 2002.

WisDOT is working with CP Railway on identifying specific projects between Milwaukee and the Oconomowoc area for making grade crossing improvements using federal Section 1103 funding. WisDOT expects to use this funding, which is available for federally designated high-speed rail corridors, for grade crossing improvements. WisDOT has $1.0 million currently available and expects to have an additional $500,000 later this year.

S.6 Summary of Impacts

Table S-1 provides a summary listing of impacts identified in the Environmental Document. For comparison purposes, Table S-1 includes expected impacts of the No-Build alternative. The No-Build alternative includes continued maintenance of the rail corridor to serve existing and future train operations. Improvements to existing tracks, structures, and grade crossings may be required over the long term. The No-Build alternative could create impacts similar to those noted for the Build alternative. The primary difference between the two alternatives is that maintenance under the No-Build alternative would happen over a longer period of time.

Table S-1
SUMMARY OF IMPACTS
Milwaukee-Madison Passenger Rail Corridor

Environmental Issue	Units	Build		No Build	
		Measure	Comment	Measure	Comment
Project Length	Miles (Km)	85 (136)	All project miles are on existing railroad right-of-way.	85 (136)	Existing right-of-way maintained.
Cost $ (Year 2000 Dollars)					
Construction	Million $	$176	Excludes purchase of train sets and station development. Costs assume upgrading alignments to serve two Madison stations.	Variable	Similar track improvements may be required over a longer period of time.
Real Estate	Million $	0	All construction within right-of-way. Does not include station acquisition.	0	Existing right-of-way maintained.
Total	Million $	$176		Variable	See comment above.
Community/Residential			Project would use existing railroad right-of-way to avoid and minimize impacts. Concerns about safety, noise and property values have been raised, especially west of Watertown.		Similar concerns may be anticipated if freight use increases west of Watertown. Fewer safety upgrades such as crossing warning devices and right of way fencing would occur.
Economic Development and Business			Project would facilitate State Transportation Plan for improved passenger mobility and providing alternative modes of travel. Benefits accrue from specific station oriented development in communities that have access to passenger rail service.		Would not meet goals of State Transportation Plan. No access to alternative passenger travel, and no secondary economic development in served communities.

Environmental Issue	Units	Build		No Build	
		Measure	**Comment**	**Measure**	**Comment**
Land Conversions					
Total area converted to right-of-way	Acres (Hectares)	0	All project alignment is on existing railroad right-of-way.	0	
Wetland area disturbed by construction (maximum estimate)	Acres (Hectares)	13.5 (5.4)	Would minimize impacts and may improve existing conditions. About 3.9 miles of land bridges near Hubbleton, Deansville, and Sun Prairie would minimize impacts.	0-13.5 (5.4)	Similar track improvements for maintenance may disturb an equal number of wetlands, but over a longer time frame. Land bridges may not be constructed.
Other area converted to right-of-way	Acres (Hectares)	0	Excludes station locations, which would be based on final decisions of local governments.	0	
Grade Crossing Closures Public Private (non-farm) Private (farm)	Number	 9 2 20	All closures are proposed and subject to local concurrence and a hearing process by the Office of the Commissioner of Railroads.	0 or variable	Redundant and illegal closures would continue to be pursued over a longer period of time, pending availability of funds.
Real Estate					
Total area from farm operations required	Acres (Hectares)	0	20 farm crossings proposed for closure, access from public roads; 3 closed, access created at new shared crossings. All closures subject to further discussion with owners.	0	See comment on road closures, above.
Agricultural Impact Statement Required?	Yes/No	No	There would be no purchase or indirect affect to farm operations property.	No	
Farmland Rating	Score	0	No farmlands affected, none required.	0	

Environmental Issue	Units	Build		No Build	
		Measure	Comment	Measure	Comment
Total Buildings Required	Number	2/0	2 commercial buildings if City of Madison selects Pennsylvania Avenue station site. No acquisitions at airport station or Monona Terrace.	0	
Housing Units Required	Number	0		0	
Commercial Units Required	Number	2	2 commercial buildings, (includes 1 active business) at Pennsylvania Avenue station Alternative. No acquisition at Airport station or Monona Terrace.	0	
Other Buildings or Structures Required	Number (Type)	0		0	
Environmental Issues					
Flood Plain	Yes/No	Yes	6,174 square feet (556 sq. meters) excavated and 17,050 square feet (1,534 sq. meters) filled.	Yes	Similar impacts anticipated for maintenance, but occurring over a longer period of time.
Stream Crossings	Number	Approx. 49	Alignment crosses through 4 major drainage basins.	Approx. 49	Same impacts for maintaining existing rail corridor.
Endangered Species	Yes/No	Yes	Avoidance expected since construction is within right-of-way. Specific protection in habitat areas and construction timeframes may be required, depending on final design.	Yes	Same impacts expected for maintaining existing rail corridor.

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1.0 PURPOSE AND NEED FOR PROPOSED ACTION

The Wisconsin Department Transportation (WisDOT) and the National Railroad Passenger Corporation (Amtrak), with input from Canadian Pacific Railway (CP Railway) and Wisconsin and Southern Railroad (WSOR) propose to restore passenger rail service between Milwaukee and Madison, Wisconsin. This service is to be provided on existing railroad right-of-way that is primarily used for freight service. The Federal Railroad Administration (FRA), an operating administration within the U.S. Department of Transportation, has agreed to serve as the lead federal agency for the project. The FRA has primary responsibility for railroad programs at the federal level, including extensive railroad safety and highway-railroad grade crossing safety responsibilities.

1.1 Purpose

The proposed passenger rail project provides an alternative regional travel mode through improvements to the level and quality of rail service in the Milwaukee – Madison corridor. This passenger rail corridor is part of the larger Chicago – Twin Cities corridor, which is a component of the proposed Midwest Regional Rail System (MWRRS) (See Figure 1-1). The existing transportation network consists of highway (auto and bus) and air modes, and rail service with a single Amtrak route between Chicago and Minneapolis (the long distance *Empire Builder* with continuing service to Seattle, Washington). The *Empire Builder* service, which provides one daily round trip, travels to Minneapolis via Watertown, Columbus and Portage and does not directly serve the City of Madison.

The purpose of this proposed action is to:

- return direct, convenient, and attractive regional passenger rail service between Milwaukee and Madison by reconstructing or rehabilitating the existing rail infrastructure within existing right-of-way;
- offer a travel alternative that is competitive with the travel time and costs of auto, intercity bus and regional air modes;
- offer a travel alternative that avoids or minimizes new impacts to the environment; and,
- identify and evaluate potential passenger train station locations to be considered by communities.

Daily passenger rail service was provided between Milwaukee and Madison for nearly 100 years, with train speeds exceeding 100 miles per hour (160 kph). Passenger rail service on the project route was discontinued in 1957. The re-establishment of passenger rail service between Milwaukee and Madison on existing railroad right-of-way is consistent with a number of planning studies conducted by WisDOT and other Midwestern DOT's. In a 1993 planning

Source: Midwest Regional Rail Initiative, Executive Report; February 2000

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	Proposed Midwest Regional Rail System	Figure 1-1

study[2], WisDOT specifically recommended restoring conventional Amtrak service (maximum speeds of 79 mph) to Madison, as well as Green Bay.

The expansion of rail service to Madison is proposed because its numerous government, business, and university destinations make it one of the most heavily populated and rapidly expanding cities in the state. In 1993, the State Legislature approved a $50 million bond authorization for Wisconsin's share of initial start-up costs for passenger rail service. WisDOT's multimodal transportation plan, Translinks 21[3], confirmed establishing conventional passenger rail service between Milwaukee and Madison to provide continuity with the already established rail passenger service between Milwaukee and Chicago. Translinks 21 further recommended expanding conventional service to high-speed rail service to match proposed high-speed rail service between Chicago-Milwaukee-Minneapolis/St. Paul. The proposed Milwaukee-Madison passenger rail corridor would neither require nor preclude future planned expansions of rail service between Chicago and Minneapolis/St. Paul.

The FRA also refers to high-speed passenger rail service as high-speed ground transportation (HSGT). The FRA defines HSGT as a "self-guided intercity passenger ground transportation that is time competitive with air and/or auto on a door-to-door basis for trips in the approximate range of 100 to 500 miles. This is a market-based, not a speed-based definition. It recognizes that the opportunities and requirements for HSGT differ markedly among different pairs of cities. High-speed ground transportation is a family of technologies ranging from upgraded steel-wheel-on-rail railroads to magnetically levitated vehicles."[4]

1.2 Project Description

The proposed project would extend a passenger rail link between the existing Milwaukee Amtrak station and one or more new stations to be sited in the Madison area (See Figure 1-2). There is existing passenger rail service between Milwaukee and Watertown. The project begins at the Amtrak station in Milwaukee, located at 433 West St. Paul Avenue. The alignment continues 85 miles (136 kilometers) to Madison along existing rights-of-way. The Canadian Pacific Railway (CP Railway) owns over 90 percent of the existing rail corridor, while Union Pacific Railroad (UPRR) owns segments of track within Madison. The project ends at two termini in Madison; 1,200 feet (366 meters) north of Darwin Road, and at the State Office Building located at One West Wilson Street in downtown Madison. The two termini are proposed to allow for two potential stations in Madison. One station, located on the northeast side of the city, would support regional rail service travelling through to Minneapolis/St. Paul. The second station, located downtown, would serve rail passengers terminating travel in Madison. The assumption is that the downtown station would be in operation by the end of

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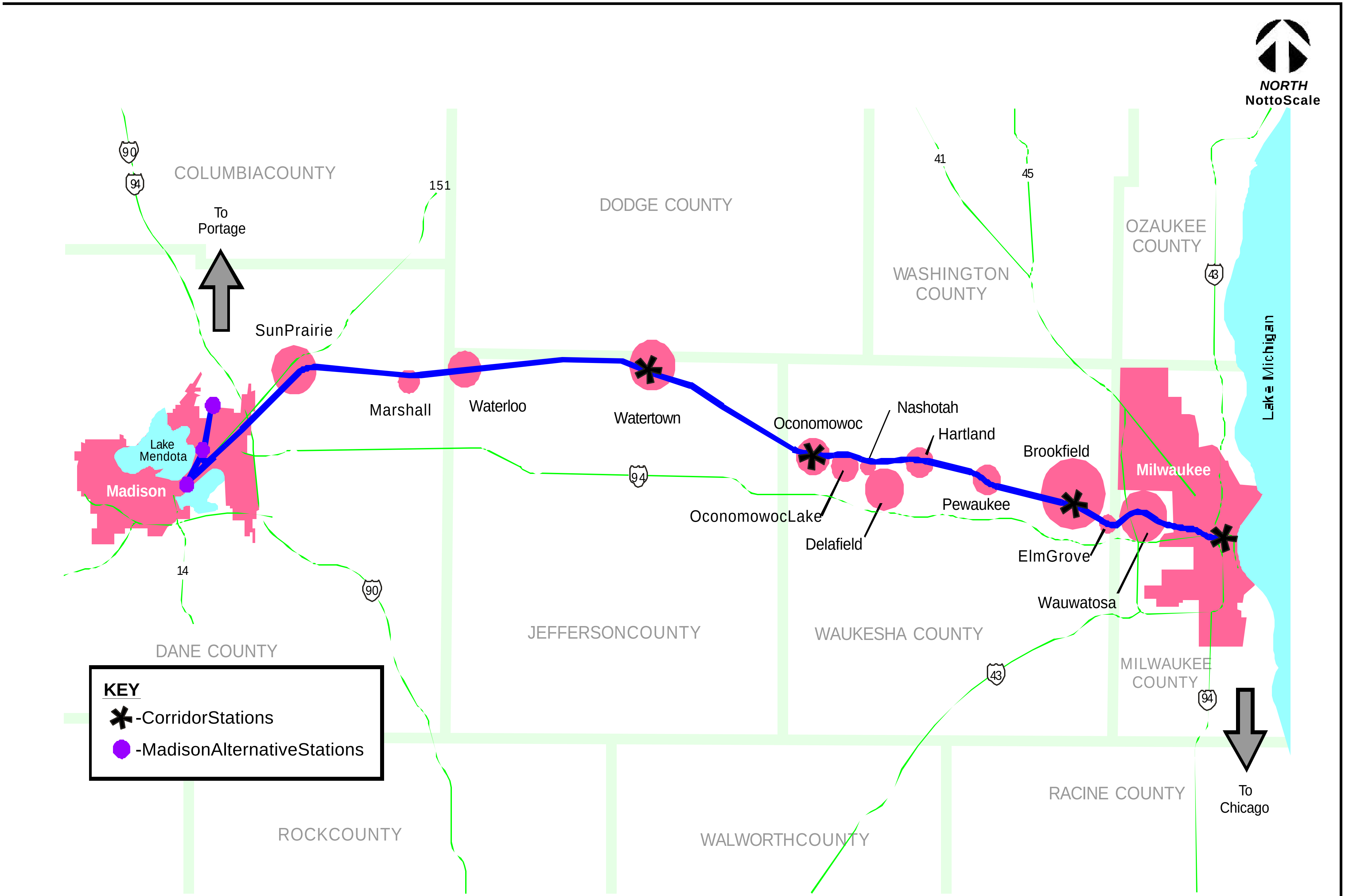
[2] Wisconsin Department of Transportation. Report to the Governor Concerning the Restoration of Rail Passenger Service to Green Bay and Madison. January 1993.
[3] Wisconsin Department of Transportation, Translinks 21: A Multimodal Transportation Plan for Wisconsin's 21st Century, November 17, 1994.
[4] http://www.fra.dot.gov/o/hsgt/definition.htm



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

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Project Corridor Map
Milwaukee-Madison

Figure 1-2

2003, and the northeast station operational by the end of 2005, when service to St. Paul is scheduled for completion.

This project proposes to restore passenger rail service to the freight line currently operating between Madison and Milwaukee. The existing rail, ties and ballast would be renewed with new material. Bridges and failing drainpipes and structures would be repaired or replaced to meet current passenger rail standards. Since the project improvements are proposed within existing railroad right-of-way, no real estate would be purchased for the project.

Passenger rail service is proposed to begin in late 2003 with six daily round-trip trains between Milwaukee and Madison. Service would ultimately increase to ten daily round-trips when service to St. Paul is initiated in 2005. Amenities on trains would be comparable to business class seating on airlines, including food service, advanced telecommunications and other business support facilities. Roundtrip train fares between Milwaukee and Madison are expected to range from approximately $19-$33.

The project route would primarily use existing CP Railway right-of-way from Milwaukee to Madison. Wisconsin and Southern Railroad (WSOR) currently leases a section CP Railway right-of-way from Watertown to Madison. Train speeds of up to 110 mph (180 kilometer per hour (kph)) are proposed in the corridor. Proposed safety improvements include installing fencing along the corridor, upgrading or closing crossings, constructing track sidings, and improving train-signaling technology. In addition, the track upgrades would allow for the safe operation of new, technologically advanced locomotives and passenger cars.

Intermediate stops are proposed at Brookfield, Oconomowoc, and Watertown (See Figure 1-2). Suggested station locations were evaluated in these communities, as well as in Madison. Several alternative routes and station sites in Madison were evaluated in this study. One to two Madison station sites will be recommended as a result of this study. Local municipalities would be responsible for constructing and operating stations within their communities. Federal and/or state funding is anticipated to be available to local communities to construct a basic station, platform, lighting and parking area. Additional amenities at station sites would require local community funding. Final station siting would require additional coordination between WisDOT and local communities.

The proposed project is expected to cost approximately $176 million (in year 2000 dollars) for construction (See Chapter 2, Table 2-4 for detailed cost estimates). Capital costs of the project would be funded primarily through federal funding as well as with state funds. Former Governor Thompson's Blue Ribbon Task Force on Passenger Rail recommended seeking 80 percent of the capital costs from the federal government with the remaining 20 percent coming from state sources.

A new multi-year federal funding program will be necessary to assure that federal funds are available throughout the MWRRS implementation schedule. Congress is currently considering the High-Speed Rail Investment Act, which would provide federal authority to sell $12 billion in bonds over a ten-year period to fund high-speed rail projects. The bonds would not use funds from the Federal Transportation Trust Fund.

1.3 Background

The FRA has been evaluating high-speed passenger rail service as an alternative transportation mode for a number of years. Both the FRA and Midwestern Departments of Transportation, including Minnesota, Illinois, Wisconsin, Michigan, Indiana, Iowa, Missouri, Ohio and Nebraska, have examined current and future travel trends. The changing economy and travel patterns in the Midwest have created a potential market for high-speed passenger rail as an alternative transportation mode.

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and its subsequent reauthorization, the Transportation Efficiency Act for the 21st Century (TEA-21) promotes, among other elements, strategic infrastructure investments, intermodalism and safety. Section 1036 of ISTEA specifically promotes high-speed ground transportation systems as an alternative modal choice. In introducing the U.S. Department of Transportation's ISTEA reauthorization proposal, former Secretary of Transportation, Rodney E. Slater stated that "High-speed rail is an important part of our vision for a safe, flexible, seamless intermodal transportation system—providing for economic growth and greater mobility for both rural and urban Americans—in the 21st century."

The high-speed rail provisions of TEA-21 extend authorizations of appropriations for the existing high-speed rail assistance program created in the Swift Rail Development Act of 1994 (49 U.S.C. 26101 *et seq*.). The law provides financial assistance for up to 50 percent of the publicly financed costs of corridor planning activities and up to the full cost of technology improvements in selected corridors.

In 1992, the Chicago-Milwaukee, Chicago-St. Louis and Chicago-Detroit corridors were designated by the USDOT as national priority corridors for high-speed rail purposes under Section 1010 of ISTEA. These were then officially dubbed the Midwest High Speed Rail Corridor; one of five such corridors designated nationwide. This designation enabled the Indiana, Illinois, Michigan and Wisconsin DOT's to obtain federal grants to eliminate highway crossing hazards in specific segments of the Midwest High Speed Rail Corridor during the six-year life of ISTEA.

The original Section 1010 program was extended and expanded under Section 1103 of TEA-21 enacted in 1998. In addition to extending the program, TEA-21 increased the potential number of national priority corridors to eleven. The Chicago-Milwaukee segment of the Midwest High Speed Rail Corridor was also extended to Minneapolis/St. Paul. In February 1999, the USDOT officially designated Chicago-Indianapolis-Cincinnati to be the fourth prong of the Midwest High Speed Rail Corridor. In October 2000, the USDOT further expanded the

Midwest High Speed Rail Corridor by adding a new route from Chicago to Toledo and Cleveland, Ohio; a new route from Indianapolis to Louisville, Kentucky; and a route linking Cleveland, Columbus, Dayton-Springfield, and Cincinnati, Ohio. It should be noted that neither the Indianapolis to Louisville nor the Cleveland-Columbus-Cincinnati corridors are currently part of the MWRRS.

The FRA's study of national high-speed rail transportation concluded that the Chicago hub network demonstrated one of the highest levels of economic benefit derived from rail investment.[5] Nine states in the Midwest, including Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio and Wisconsin have joined together to promote the development and expansion of the Chicago hub network concept. A study sponsored by the nine states evaluated technical, financial and economic analyses of a Chicago hub passenger rail network. The study concluded that a Midwest Regional Rail System (MWRRS) is economically viable when the network is fully implemented by 2010.[6] The Wisconsin portion of the MWRRS is forecast to carry more than 3 million passengers in 2020.[7]

The WisDOT's most recent comprehensive, multimodal transportation plan, Translinks 21[8] identifies the market niche that high-speed passenger rail fills. The state of Wisconsin expects that high-speed rail will have the "most significant impact on travel of any non-highway initiative in Translinks 21…"

Some benefits that passenger rail is expected to generate include improved travel times between Midwestern cities, improved service reliability, and improved passenger and freight train safety through right-of-way fencing and track and crossing upgrades. Passenger rail and rail stations, as an alternative public transportation service, can also:

- reduce energy costs by diverting trips made by auto
- provide an alternative travel mode for those who cannot or choose not to use autos
- improve access to other travel modes (bus, air, taxi, pedestrian and bicycle)
- provide reliable service during inclement weather
- avoids highway congestion in urban areas, and
- minimize new environmental impacts by using existing railroad rights-of-way

In addition to providing a new, fast, safe and cost competitive travel option, passenger rail service would offer economic benefits. Choice can promote marketplace competition, resulting in lower transportation rates, better service and more options for businesses and travelers. By

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[5] Federal Railroad Administration, High Speed Ground Transportation for America, September, 1997.
[6] Wisconsin Department of Transportation, Midwest Regional Rail Initiative Executive Report, February 2000.
[7] Wisconsin Department of Transportation, Governor Thompson's Blue Ribbon Task Force on Passenger Rail Service, Interim Report, December 27, 1999.
[8] Translinks 21.

adding a new public transportation link between the Midwest's larger commercial and economic centers (Minneapolis/St. Paul and Chicago and Milwaukee), it is expected that high-speed passenger rail will be a key link in the state's economic development strategy.

Passenger rail service can improve intermodal connectivity and thereby increase the efficiency of individual modes and enhance local access to regional, national and world transportation networks while preserving environmental assets that can enhance economic development potential. Investment in existing rail infrastructure is less intrusive on the natural and human environment, compared to new road or airport expansions. As noted in Section 5.1.7 of this report, there are a number of communities and organizations that support re-establishing passenger rail service in Wisconsin.

1.4 Factors Affecting Need

Existing transportation modes, including highway and air travel, have their inherent problems including congestion and sensitivity to inclement weather conditions. Passenger rail service can provide an alternative to congested highways and weather-sensitive airports, in addition to providing additional passenger travel alternatives in the Midwest. As an illustrated example in Table 1-1, high-speed passenger rail offers competitive cost and travel times compared to air, bus and auto travel modes.

Table 1-1
TRAVEL COST AND TIME COMPARISONS BETWEEN TRAVEL CHOICES
Madison-Chicago (2010)[1]

Mode	Cost or Fare (One-way)	Estimated Travel Time Downtown to Downtown One-way	Estimated Total Travel Time	Passenger Rail Estimated Travel Time Comparison
Passenger Rail	$38/$66		2 hours, 52 minutes	--
Walk/Auto Segment		15 minutes to Madison station		
Station Segment		10 minutes		
Train Segment		2 hours, 12 minutes		
Walk/Auto Segment		15 minutes to Downtown Chicago		
Auto	$10-$40[2] based on 152 miles	3-4 hours	3-4 hours	8 minutes to 1 hour, 18 minutes slower than train
Bus[3]	$21			
Auto/Walk Segment		15 minutes to Madison station	4 hours, 15 minutes	1 hour, 23 minutes slower than train.
Station Segment		10 minutes		
Bus Segment		4 hours		
Auto/Walk		15 minutes		
Air	$200-$500[4]			
Auto Segment		15 minutes to Madison Airport	2 hours, 35 minutes	17 minutes faster than train
Airport Segment		30 minutes		
Air Segment		50 minutes Madison-O'Hare Airport		
Auto Segment		1 hour O'Hare Airport to Downtown Chicago (includes parking time in downtown)		

Source: HNTB Corporation

[1] Full build-out of 110 mph service between Chicago-Milwaukee service included
[2] Based on Federal 2000 tax rate of 33 cents/mile
[3] Based on Greyhound Bus fares; downtown Chicago to downtown Madison using I-90 route.
[4] Based on a survey of fares of flights available out of Madison to Chicago O'Hare Airport, March 2001. Prices vary depending on advance purchase options.

Highways

Auto travel is the dominant intercity travel mode in Wisconsin, carrying over 99 percent of all intercity trips.[9] However, with increased traffic congestion, ease of access and mobility in urban areas has diminished. Furthermore, highways in Wisconsin are subject to closure and safety hazards during inclement winter weather.

Congested highways and frequent auto use have also contributed to degraded air quality. Milwaukee and Waukesha counties have not yet met air quality attainment standards for ozone. This trend is recognized by the U.S. Environmental Protection Agency, which has indicated that federal funding for highway improvement projects may be in jeopardy if air quality is not improved.

Vehicle miles of travel on the state's highways have increased 60 percent since 1982, and are expected to grow at an average annual rate of 1.5 percent through 2020.[10] The forecast growth is at a slower rate due to the assumption that travel would shift to new modes of travel recommended in Translinks 21. The miles of congested state highways are expected to increase nearly 70 percent by the year 2020.[11]

WisDOT's policy is to accept higher levels of congestion on some portions of the state system before calling for capacity improvements. WisDOT would continue to address capacity and operational solutions in its own highway improvement plans, but cannot entirely eliminate congestion on the most frequently traveled highways through conventional highway capacity expansion and operational improvements. In Milwaukee and Waukesha counties, environmental and socio-economic factors in this densely populated region preclude extensive capacity improvements to the freeway system.

Air Service

Passenger rail service responds to the need to supplement air service, which is limited in smaller communities, and provides an alternative to air service that can be delayed by weather and congestion.

The primary regional airports that serve the traveling public in the Chicago-Minneapolis/St. Paul high-speed passenger rail corridor include Minneapolis-St. Paul International Airport and

[9] Translinks 21.
[10] Wisconsin Department of Transportation, Wisconsin State Highway Plan 2020 Summary Report.
[11] Wisconsin State Highway Plan 2020 Summary Report

Chicago O'Hare International Airport (both major hubs). General Mitchell International Airport in Milwaukee serves as a hub for its largest carrier, Midwest Express, and provides feeder service to the hub airports. Dane County Regional Airport in Madison provides mostly feeder service to the hub airports.

The airline industry uses the hub-and spoke system, which feeds regional air service to hub airports. The strongest market for air service is for trips over 500 miles, which excludes most intercity travel in the Midwest. Thus, there is less frequent service to smaller cities in the Midwest and intercity airfares are more expensive compared to travel between major hub airports.

As air travel demand continues to increase, delays and congestion will continue to affect an increasing number of travelers. In terms of congestion, Chicago's O'Hare ranks as the 11th most congested airport of the 28 large-hub airports. Minneapolis-St. Paul airport is ranked seventh.[12] Growing highway congestion can also add substantial travel time between airports and central business districts. For example, during peak morning and evening travel periods, trips between O'Hare and Downtown Chicago can take from 1 to 1.5 hours.

Assuming no capacity improvements, it is predicted that between 1998 and 2008 there will be a 15 percent growth in delays exceeding five minutes at Chicago O'Hare. Minneapolis-St. Paul will see a 33 percent growth in delays in the same time period.[13] The 1999 Aviation Capacity Enhancement Plan (USDOT FAA) suggests that a steadily increasing number of aircraft operations will further exacerbate delays. According to FAA predictions, the total number of domestic passengers on U.S. air carriers is expected to grow 3.6 percent per year to 927.4 million passengers by 2012. In addition, U.S. air carrier international enplanements are projected to increase at a rate of 5.9 percent each year for total annual enplanement levels well over the one billion mark. Regional commuter airline enplanements are forecast to increase 5.7 percent per year, reaching 154.1 million in 2012.[14]

In addition to growing congestion, delays are also caused by poor weather conditions and terminal traffic volume. The Federal Aviation Administration reports that in 1998 flight delays increased 25 percent over 1997. In 1998, approximately 306,000 flights were delayed 15 minutes or more. Weather delays accounted for 74 percent of all delays[15]. Weather is less likely to affect passenger rail operations.

As part of the Midwest Regional Rail Initiative's operational feasibility analysis, it was assumed that rail could successfully capture a portion of air travel traffic using major hubs. Passengers

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[12] US Department of Transportation Federal Aviation Administration, 1999 Aviation Capacity Enhancement Plan.
[13] 1999 Aviation Capacity Enhancement Plan.
[14] FAA Office of Public Affairs Press Release March 13, 2001.
[15] 1999 Aviation Capacity Enhancement Plan.

choosing the rail option between Chicago and Minneapolis/St. Paul, which includes the Milwaukee-Madison passenger rail corridor, should experience fare savings, avoid congestion from air operations and weather delays, and experience a comfortable traveling experience.

1.5 Multi-modal Connections

One of the fundamental values featured in Translinks 21 is to provide mobility for people and products and choice among modes of transportation. This is what defines the "multimodal transportation system" for which the plan strives. Translinks 21 states that in order to foster mobility and choice in transportation, the state should "provide more transportation mode choices where feasible and effective to promote market competition among and between modes."

Translinks 21 committed $160 million over its 25-year planning period to maintain existing rail service as well as to provide new and improved rail service to communities with populations over 5,000. The plan also called for a $25 million state-funded program that would help communities to build and improve intercity passenger transportation stations that will connect bus, rail, auto and air. Translinks 21 also recognized the need to improve intercity bus service as an integral part of an Intermodal Passenger Transportation Plan. The MWRRS proposes a feeder bus system to enhance passenger rail service. The feeder bus system would allow approximately 80 percent of the Midwest regional population to be within a one-hour ride of a rail station or feeder bus connection.[16] In addition to these connections, there are others which should be provided for and encouraged including local bus systems, other transit options such as commuter or light rail, bicycles, and pedestrian activity.

An element of the proposed passenger rail system proposed under this process would be the extent to which it enhances connections to other transportation modes (auto, bus, bikes and taxis). While the existing Milwaukee train station and Dane County Regional Airport provide auto, bus, and taxi connections, the other station sites under consideration provide no bus or taxi connections. The proposed station locations in the project corridor are sited, in part, to allow for future bus and taxi access.

1.6 Summary

The purpose of this project is to upgrade an existing rail facility to accommodate a new, technologically advanced high-speed passenger rail transportation system, which provides another transportation alternative to Wisconsin's travelling public.

Higher levels of congestion are projected for future auto and air modes of transportation statewide. Increasing environmental and socio-economic concerns associated with acquiring new land for expansion purposes makes expanding highways and airports, particularly in Southeastern Wisconsin, less likely to be undertaken.

[16] Midwest Regional Rail System Executive Report. February 2000.

If approved, the proposed project would meet the purpose of providing an alternative form of transportation that is safe, efficient, has minimal environmental disruption, and available to a broad segment of Wisconsin's population. Increased energy costs and various socio-economic forces are encouraging individual choice alternatives for public transportation needs. Connectivity with various forms of transportation would create a larger, more efficient transportation system between Milwaukee and Madison, within the area, and throughout the Midwest.

2.0 ALTERNATIVES CONSIDERED

This chapter describes the alternatives that are evaluated in this document. Alternatives retained for detailed consideration were determined to be feasible and meet the purpose and need as identified in Chapter 1. This chapter describes the "No Build" alternative as well.

2.1 No-Build

The "No-Build" alternative would not provide improved passenger rail service between Milwaukee and Madison. At a minimum, it is likely that continued maintenance and committed improvements to existing freight rail facilities, highways, and aviation services would occur under this alternative. The No-Build serves as a baseline from which to compare the effects of the proposed project.

The No-Build alternative would eliminate all near-term construction impacts of the proposed action. However, over the long-term, this alternative may require some of the improvements to the rail corridor that are proposed in this project. Environmental consequences similar to the proposed project may still occur with the need to repair the existing facility for continued freight operation.

The No-Build alternative does not meet the purpose and need of the proposed project. That is, the No-Build alternative would not restore passenger rail service, would not offer a travel alternative to auto, bus and air modes, and would not support multimodal connections. The No-Build alternative would not meet the transportation planning goals as set forth by the State of Wisconsin and by the Midwestern states involved in the MWRRS. The multimodal transportation plan of the State of Wisconsin (Translinks 21) supports passenger rail service as a way to integrate alternative transportation modes into its transportation network. Passenger rail service is further supported in WisDOT's ongoing long-range State Rail Plan, which will recommend measures to preserve and enhance the state's rail system. Intercity passenger rail service is a specific element of the plan and that will be coordinated with the recommendations of the MWRRS and this study.

2.2 Build Alternative

One "Build" alternative is under consideration in this study, as described in Section 2.2.1. This section also provides detailed information on alternative station sites considered along the route. Section 2.2.2 provides additional information on alternative routes and technologies that were not evaluated in this study.

2.2.1 Rail Corridor Alternative Selected for Further Study

High Speed Passenger Rail Service from Milwaukee to Madison

One alignment, using existing railroad right-of-way for passenger rail service between Milwaukee and Madison, is under consideration. The project begins at the Amtrak station in

Milwaukee, located at 433 W. St. Paul Avenue. The alignment travels along existing rights-of-way owned by Canadian Pacific Railway and Union Pacific Railroad (see “alignment” discussion) to Madison. The project includes two termini in Madison; one ending 1,200 feet (366 meters) north of Darwin Road in Madison, the other ending at the State Office Building located at One West Wilson Street in Madison. The two termini are proposed to allow for two potential stations. One station, located on the northeast side of Madison, would serve regional rail service travelling through Madison to Minneapolis/St. Paul. The second station, located in downtown Madison, would serve passenger trains terminating in Madison. Depending on availability of funding, the stations may be constructed on separate schedules.

WisDOT has determined that the proposed project would meet the purpose and need to restore passenger rail service between Milwaukee and Madison, provide a transportation alternative to existing transportation modes, and would minimize costs and environmental impacts by using existing rail infrastructure. Initial passenger rail service between Milwaukee and Madison would provide 6 daily round trip trains, with intermediate stops at stations in Brookfield, Oconomowoc and Watertown. Ultimately, 10 roundtrip trains are proposed by the year 2005, when service to St. Paul, Minnesota is added to the Midwest Regional Rail System.

Three configurations of trains are under consideration. These configurations are described conventionally as diesel multiple unit (DMU), integral train, and locomotive-hauled.

- The DMU configuration consists of at least a pair of powered end cars with a driving position at the outer end of each car. One or more intermediate cars without driving positions may be positioned between the end cars. The intermediate cars may be powered or may be trailers, depending on train performance requirements.

- The integral train consists of a number of trailer cars with a driving power car at each end. The vehicles are connected semi-permanently and may be articulated together.

- The locomotive hauled option consists of a group of conventional trailer cars with a locomotive at one end. At the end of the trip, the locomotive must move around the trailer cars and couple on the other end to pull the train in the opposite direction.

The design, maintenance and operation of the trains would satisfy Tier I Rules for Passenger Equipment Safety Standards of the Federal Railroad Administration. The trains would meet the requirements for disabled persons in accordance with the appropriate federal and state regulations.

The presence of numerous curves on the Madison to Milwaukee route and the need to run through these curves at the highest speed considered safe while maintaining ride quality suggests that trains be equipped with “tilt technology.” Sufficient tilt capability is required to ensure passenger comfort while running through curves.

Operating speeds are proposed to a maximum of 110 mph (176 kph). Table 2-1 summarizes proposed train speeds along the corridor by segment.

Table 2-1
PROPOSED PASSENGER TRAIN SPEED
Milwaukee-Madison

Railroad Subdivision[1]	Mileposts Range		Place From	Place To	Passenger Train Speed [2,3,4] (mph)
Watertown	86.0	86.2	Milwaukee Station	Grand Avenue Junction	60
Watertown	88.2	88.4	Grand Avenue Junction	Grand Avenue Junction	35
Watertown	88.4	90.8	Grand Avenue Junction	Harwood Ave., Wauwatosa	60
Watertown	90.8	95.4	Harwood Ave	Juneau Blvd, Elm Grove	90
Watertown	95.4	101.7	Juneau Blvd	Springdale Road, Brookfield	110
Watertown	101.7	104.1	Springdale Road	Forest Grove, Pewaukee	79
Watertown	104.1	117.2	Forest Grove	Lapham St, Oconomowoc	110
Watertown	117.2	118.7	Lapham St	Elm St, Oconomowoc	79
Watertown	118.7	129.3	Elm St, Oconomowoc	Concord Ave, Watertown	110
Watertown	129.3	130.9	Concord Ave, Watertown	CPR Yard East Limit, Watertown	79
Watertown	130.9	131.2	CPR Yard East Limit, Watertown	CPR Yard West Limit, Watertown	45
Watertown	131.2	132.1	CPR Yard West Limit, Watertown	Dayton St, Watertown	79
Waterloo	132.1	144.2	Dayton St, Watertown	Adams St, Waterloo	110
Waterloo	144.2	145.5	Adams St, Waterloo	Bridge, west of Briess Rd	79
Waterloo	145.5	155.2	Bridge, west of Briess Rd	Musket Ridge, Sun Prairie	110
Waterloo	155.2	156.8	Musket Ridge, Sun Prairie	Bird St, Sun Prairie	79
Waterloo	156.8	161.8	Bird St, Sun Prairie	USH 51, Madison	110
Waterloo	161.8	163.0	Lien Road, Madison	East Frontage Road, Madison	79
Waterloo	163.0	164.4	East Frontage Road, Madison	East of Bike Path, Madison	60
Waterloo	164.4	164.6	East of Bike Path, Madison	Union Pacific RR Junction	20
Service to proposed Dane County Regional Airport passenger station					
UPRR	79.7	81.0	Union Pacific RR Junction	Johnson St, Madison (WSOR Yard)	30
Portage	32.9	30.0	Johnson St, Madison (WSOR Yard)	Dane County Regional Airport	60
Service to Pennsylvania Avenue Station					
UPRR	79.7	81.0	Union Pacific RR Junction	Johnson St, Madison (WSOR Yard)	30
Portage	32.9	32.5	Johnson St, Madison (WSOR Yard)	Pennsylvania Avenue station	30
Service to proposed Monona Terrace passenger station					
UPRR	79.7	80.6	Union Pacific Railroad Junction	First Street, Madison	45
UPRR	0.0	2.0	First Street, Madison	Monona Terrace, Madison	45

[1] Watertown and Waterloo subdivisions owned by CP Railway. UPRR is Union Pacific Railroad.
[2] Metric conversions: 110 mph = 176 kph, 90 mph=144 kph, 79 mph=126 kph, 60 mph=96 kph, 45 mph=72 kph, 35 mph=56kph, 30 mph=48 kph, 20 mph=32 kph
[3] Maximum speed on link between "from" and "to" points.
[4] Passenger train speeds greater than 79 mph would require agreement with the host rail carrier and FRA.

The estimated non-stop express trip time between Milwaukee and Madison on either route would approximately be 1 hour and 7 minutes after all track and signal improvements are completed. Draft schedules have been established for planning purposes. These would be refined as the service nears implementation. When the service is first implemented with 6 round trips to Madison, these schedules call for the earliest train to leave Madison for Milwaukee and Chicago at about 6:00 am and the last train to arrive at about 11:00 pm. East of Madison these times would be later in the morning and earlier in the evening. For example the earliest morning train would pass Watertown at about 6:30 am in the latest train would pass Watertown at about 10:30 pm. There may be some switching movements earlier and later than the times cited within Madison on a little more than one mile of track between a downtown station, if it is selected, and the WSOR rail yards near First Street.

According to most recent modeling estimates, passenger rail service between Milwaukee and Madison is expected to attract approximately 872,000 annual riders by 2010.[17] This includes all riders travelling on trains operating in the Milwaukee-Madison corridor, regardless of their origin or destination within the larger Chicago and St. Paul corridor. Of the 872,000 forecasted riders for 2010 in the corridor, 427,000 have an origin and/or destination in the Milwaukee-Madison corridor.

Alignment

As noted in Chapter 1, the proposed passenger rail service would largely use existing CP Railway track, a portion of which is leased to WSOR between Watertown and Madison. The track between Milwaukee and Watertown is referred to as the Watertown Subdivision, while the track between Watertown and Madison is referred to as the Waterloo Subdivision. A small segment of the alignment, between Marquette Street and the WSOR-leased rail yard in Madison, is owned by Union Pacific Railroad (UPRR) and leased to WSOR (See Figure 2-1). North of the WSOR yard, CP Railway owns and operates the Portage subdivision.

Mileposts are used to identify locations along the rail corridor. Mileposts increase west from Milwaukee to Madison. In Madison, due to varying ownership and subdivisions, mileposts are located as noted in Table 2-1 and on Figure 2-1.

The Watertown Subdivision is an FRA Class 4 track, that allows maximum freight speeds of 60 mph (96 kph) and maximum passenger speeds of 79 mph (126 kph). Doubletrack exists between Milwaukee and Pewaukee. Between Pewaukee and Watertown, the second track was removed leaving a single track with passing sidings. The tracks in the Watertown Subdivision are in relatively good condition. Some minor geometric changes are needed to permit increased passenger train speeds up to 110 mph (176 kph).

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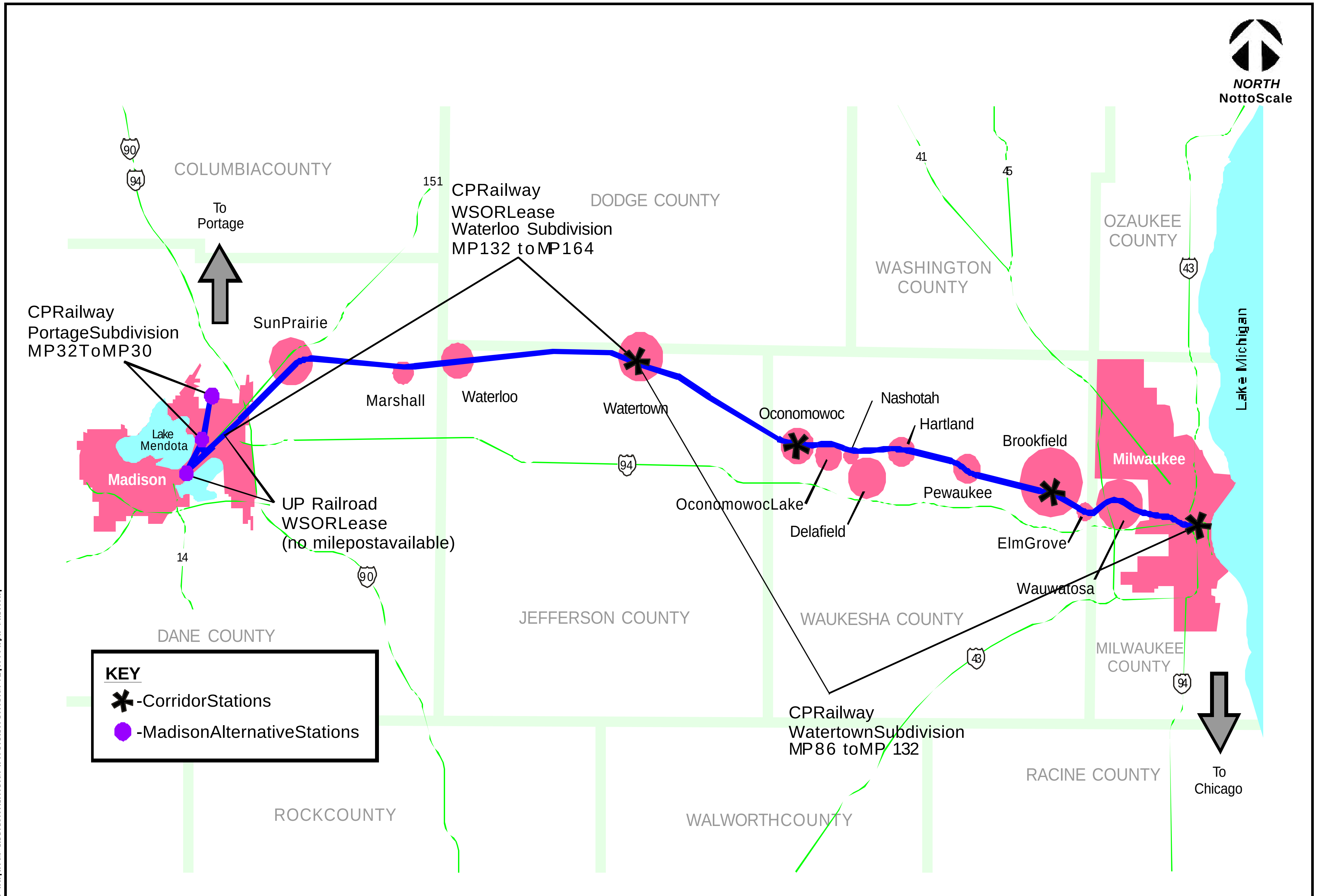
[17] TEMS ridership forecasts.



PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Subdivision andOwnership Map Milwaukee-Madison**	**Figure 2-1**

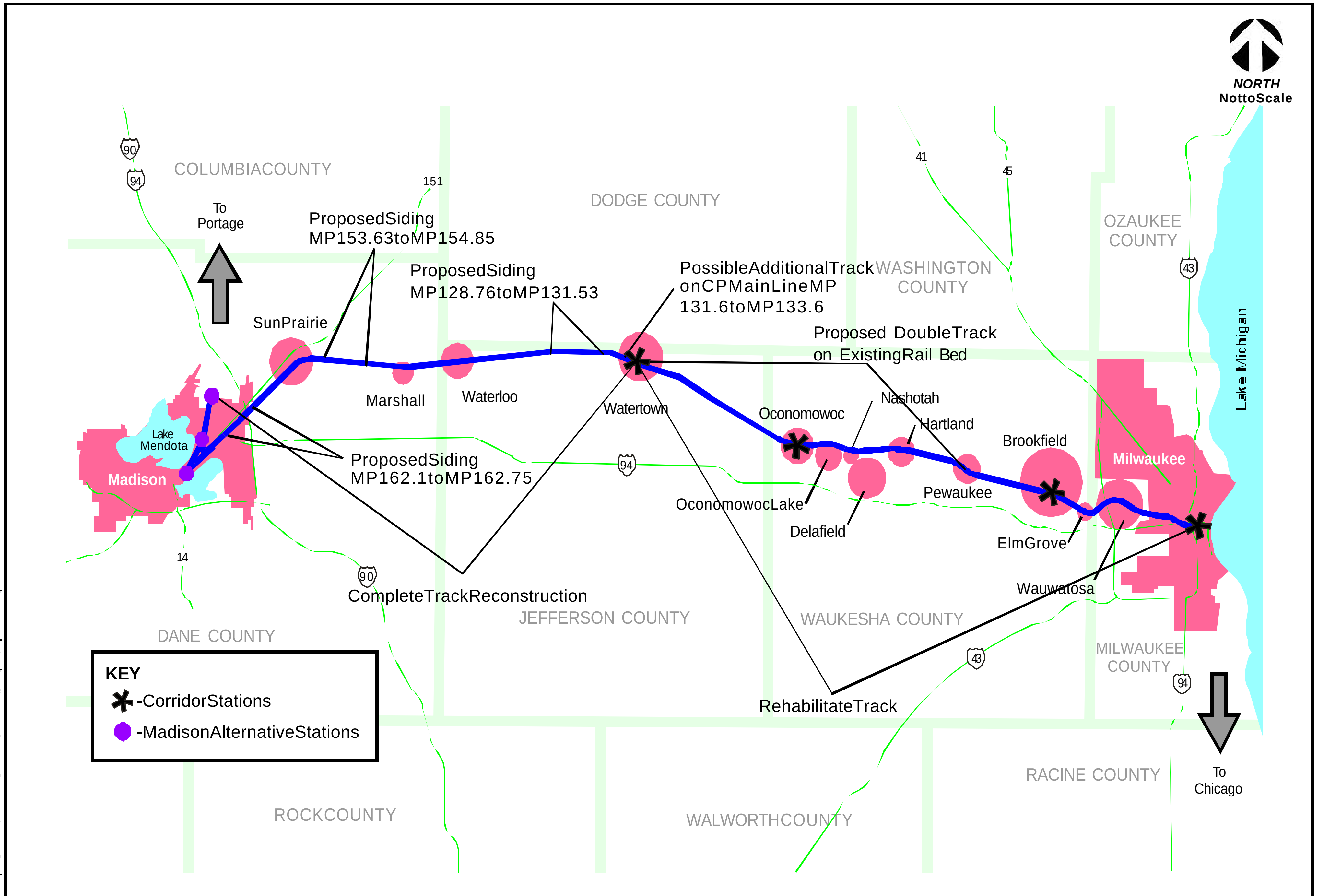
The proposed improvements on the Watertown Subdivision would restore double track between Watertown and Pewaukee. Some bridges in the Watertown Subdivision may require replacement or rehabilitation, depending on detailed inspections carried out by CP Railway. Table 2-2 summarizes preliminary recommendations for work on bridges in the Watertown Subdivision, which may be modified after CP Railway's detailed inspection of bridges.

Table 2-2
RECOMMENDED WORK ON BRIDGES
IN THE WATERTOWN SUBDIVISION
(Milwaukee-Watertown)

Milepost	Bridge Number	Recommended Work
88.74	B18, crossing the Menomonee River, near USH 41, Milwaukee County	Remove two west spans and replace pier 2 with an abutment; Fix suspected scour problems if inspection confirms.
100.3	C42, crossing the Fox River, near Brookfield, Waukesha County	Replace bridge pending findings of in-depth inspection.
106.67	C50, crossing channel to Pewaukee Lake, Waukesha County	Replace bridge pending findings of in-depth inspection.
116.34	C66, crossing Oconomowoc River near Oconomowoc, Waukesha County.	Replace bridge pending findings of in-depth inspection.
121.95	C70, crossing the Rock River near Ixonia, Jefferson County	Fix suspected scour problem on pier 2 if inspection confirms. Replace superstructure.
128.34	C80, crossing the Rock River in Watertown, Jefferson County	Fix suspected scour problems on two piers if inspection confirms.

The Waterloo Subdivision (Watertown-Madison), consists of a single FRA Class 1 track that allows maximum freight train speeds of 10 mph (16 kph). The track is in very poor condition and requires complete reconstruction of the subgrade, ditching, bridges, culverts, subballast, ballast, ties and rail. All bridges in the Waterloo Subdivision would be replaced.

In addition to replacing existing bridges west of Watertown, land bridges are proposed in areas of poor soils (typically crossing through wetland areas). Seven land bridges are proposed between Hubbleton and Deansville for a total length of about 4 miles (6.5 km). Bridge lengths range from 0.18 miles (0.3 km) to 1.5 miles (2.4 km). The bridges would be constructed on pile bents over the existing railbed. This method of construction minimizes disturbance in environmentally sensitive areas. Besides replacing all mainline track in the Waterloo Subdivision, existing turnouts would be restored, and new sidings constructed at the following locations (See Figure 2-2):



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Proposed TrackUpgrades
Milwaukee-Madison

Figure2-2

- Watertown: from west of the CP Railway /UP junction to approximately 400 feet (122 meters) west of Dayton Street. The 0.6-mile (0.96 kilometer) siding would be located on the south side of the mainline track in existing right-of-way.
- Sun Prairie: from Musket Ridge Road to Twin Lane Rd on the north side of the existing mainline track. The siding would be approximately 1.25 miles (2 kilometers) long and located in existing right-of-way.
- Madison: from Thompson Drive to Sycamore Avenue on the south side of track. The 0.6-mile (0.96 kilometers) siding would be in existing right-of-way.

Additional track improvement would be required for the UPRR-owned alignment to the proposed Monona Terrace station in downtown Madison. In this area, the track would be rebuilt within existing right-of-way, similar to the work proposed on the Waterloo Subdivision west of Watertown. Two bridges over the Yahara River would be rehabilitated, which includes painting and pointing the abutments and replacing ties. The alignment would be shifted north within the right of way to accommodate future commuter rail. The Isthmus bike path adjacent to the tracks would remain in place. All crossings would be upgraded with precast crossing panels, new gates and flashing light signals. The signal and communication system along this route and south beyond Monona Terrace would be upgraded in order to coordinate an efficient movement of freight and passenger trains.

The existing railroad right-of-way through the whole project corridor is generally 100 feet (30 meters) wide. No new construction would occur outside the existing right-of-way. In some areas, retaining walls would be installed to maintain new construction within the existing right-of-way.

Layover Facility

A layover facility for nightly cleaning and servicing of trains is proposed at the WSOR-leased railyard in Madison. Major maintenance for trains would be provided in the Chicago hub facilities. The facility would be developed and operated by the selected vendor for train equipment.

Crossings

The FRA adopted the Action Plan for Highway-Rail Crossing Safety[18] in 1994, which presents policies promoting comprehensive and systematic corridor reviews of highway-rail crossings. Eliminating little used and redundant crossings within corridors where alternatives exist and upgrading signs and signals are set forth as goals of the Action Plan. The Manual on Uniform Traffic Control Devices (MUTCD)[19], Section 8A.04 contains guidance that "any highway-rail

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[18] U.S. Department of Transportation Federal Railroad Administration. Action Plan for Highway-Rail Crossing Safety. June 13, 1994.

[19] U.S. Department of Transportation Federal Highway Administration. MUTCD 2000 Manual on Uniform Traffic Control Devices Millennium Edition. December 2000.

grade crossing that cannot be justified should be eliminated". Further, to provide closure incentives to states, 23 USC 120(c) was modified in 1996 to include crossing closure projects among those projects that are eligible for 100 percent federal funding.

The proposed increased train speed in the project corridor required an evaluation of each crossing to determine its adequacy for safety. Individual Grade Crossing Reports may be needed during the preliminary engineering phase of the project for use by the Office of the Commissioner of Railroads at hearings required for changes at grade crossing locations. No new grade separations are proposed in the Milwaukee to Madison rail corridor, but improvements and closures are proposed at numerous grade crossings. Examples of grade crossing warning systems are illustrated in Figure 3-41.

There are 164 grade crossings (122 public, 42 private) in the Milwaukee-Madison passenger rail corridor, assuming passenger rail service is provided in Madison to two station locations. Of the 122 public grade crossings, 9 are recommended for closure with municipal support. Of the 42 private grade crossings, 22 are recommended for closure.

Assuming nine public crossing closures, the remaining 113 public grade crossings that remain open, 56 are located along segments where passenger train speeds would exceed 79 mph (126 kph). These crossings would have improved warning devices, including single gates with extended arms or four quadrant gates. There is a potential to use a vehicle arresting system, depending upon test results of this new technology. Vehicle arresting systems are structures that physically deter vehicles from entering the grade crossing when a train is approaching the crossing.

For public grade crossings located where passenger train speeds would be 79 mph or less, grade crossing warning devices would either remain the same (if they are adequate) or upgraded with flashing light signals and gates.

Redundant and illegal private crossings would be closed. All public and private at-grade crossings that are not closed would be upgraded with Constant Warning Time (CWT) equipment. This equipment measures the speed of an approaching train and activates the warning devices to operate for the required 30 seconds before the train is at the crossing. The CWT system is activated regardless of train speed.

Ultimately, all decisions to close crossings would be the result of continued coordination with local public officials and affected private landowners. The Office of the Commissioner of Railroads would make the final decision on the treatment of all public grade crossing closures.

Appendix B provides a summary of proposed treatments for each at-grade crossing as well as the decision process for those recommendations. A detailed discussion of the grade crossing analysis is available in the Public and Private Grade Crossings Report, available for review at

WisDOT Transportation District 1 in Madison and Transportation District 2 in Waukesha (Pewaukee Road office).

Stations

Proposed stops between Milwaukee and Madison are in the Cities of Brookfield, Oconomowoc, and Watertown. WisDOT and project staff have met with local officials in each community to identify possible station locations. WisDOT would continue to work with local communities to finalize station locations that meet community and passenger rail service needs. Local communities would be responsible for the station construction and operation. Public funding from both federal and state sources are expected to be available to these local communities for constructing a basic station, passenger platform, lighting and parking. The stations would meet the requirements for disabled persons in accordance with the appropriate federal and state regulations. Additional amenities would be locally funded. Each of these locations is illustrated in Figures 2-3 to 2-9.

Milwaukee
The existing Amtrak station in Milwaukee would provide service for passenger rail. The State of Wisconsin recently purchased the station and is sponsoring a study to evaluate station sizing and amenities to provide for, and improve modal connections at the station.

Brookfield
The Brookfield station would be located between the existing double track east of Brookfield Road. The existing former station, currently owned by CP Railway, would be relocated approximately 200 feet east of its current site and renovated for passenger station use. Approximately 160 parking spaces can be accommodated in a lot north of the tracks. A tunnel is proposed to connect the parking lot to the station located between the tracks. The City of Brookfield supports a station at this location (See Appendix A-21).

Oconomowoc
The City of Oconomowoc has approved locating a passenger station at its existing depot (See resolution in Appendix A-20). Cross Street would be closed to accommodate a passenger platform. There is an existing parking lot north of the depot, but additional parking may be required to accommodate the approximately 120 daily trips that are projected to and from the station.

Watertown
The City of Watertown has recommended a passenger station off of Third Street, south of Clyman Street. Approximately 35 parking spaces can be accommodated on the site.

Madison
A total of six station location alternatives were examined in Madison (See Figure 2-10). The results of the detailed study of the Madison station sites is presented in the report entitled, An

NORTH

Milwaukee
Station Location

Figure 2-3

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Brookfield
Station Location

Figure 2-4

NORTH

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Oconomowoc Station Location

Figure 2-5

Watertown Station Location

Figure 2-6

Madison
Airport Station Location

Figure 2-7

NORTH

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

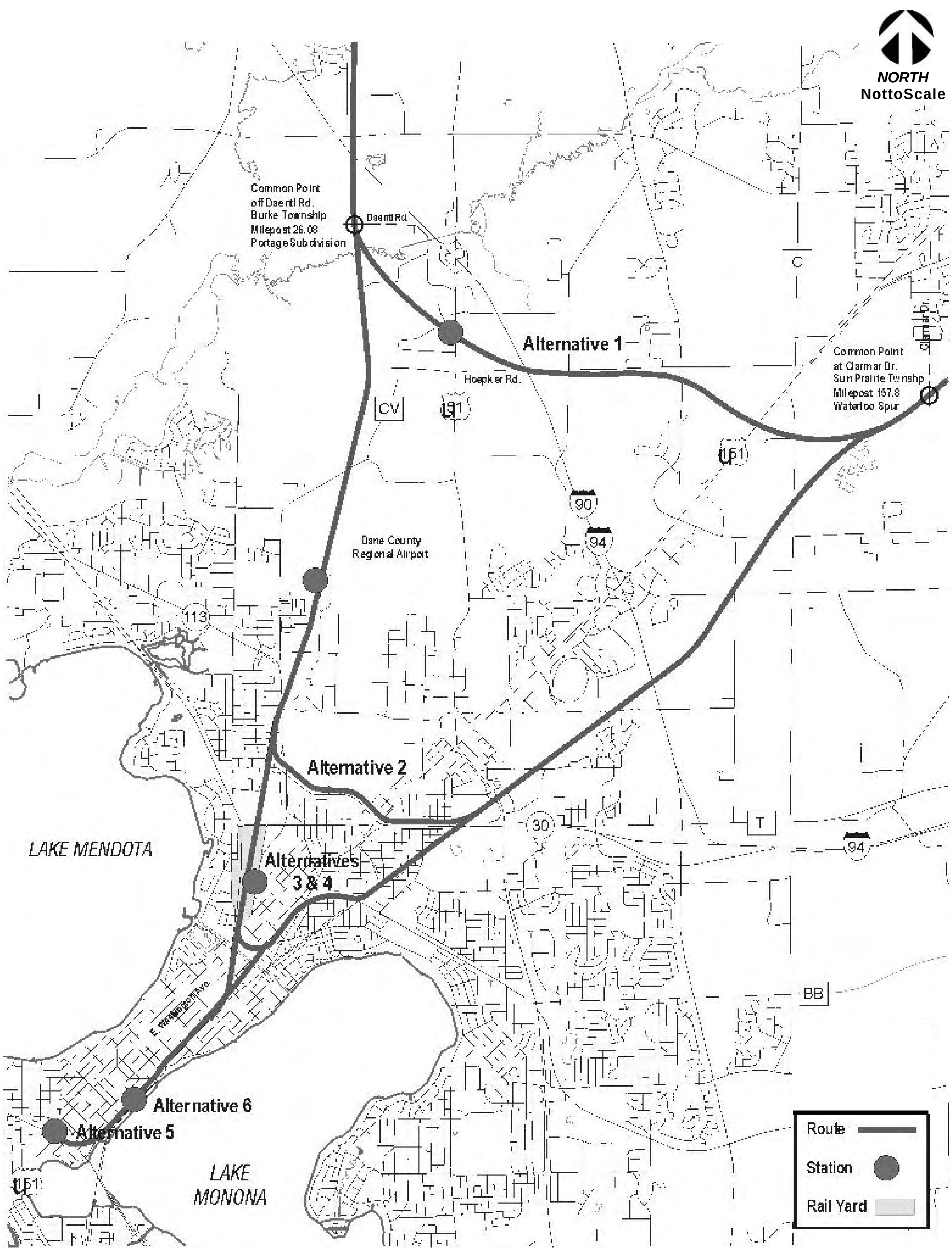
Madison- Pennsylvania Avenue
Station Location

Figure 2-8

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Madison
MononaTerraceStationLocation

Figure 2-9



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE – MADISON

Madison Station
Alternatives Analysis

Figure 2-10

Assessment of Madison Passenger Rail Access Alignments and Station Location Alternatives, dated April 2001. This report is available for review at WisDOT Transportation District 1 in Madison and WisDOT Transportation District 2 in Waukesha (Pewaukee Road office). The Monona Terrace station alternative is not included in the original study as it was added during subsequent review of station alternatives with the City of Madison, Dane County and local community groups.

Within the framework of the project purpose and need, the following objectives were developed to evaluate the station alternatives within Madison:

- Generate operating revenues greater than operating expenses
- Maximize access and connectivity to other modes
- Minimize environmental and social impacts
- Maximize safety
- Maximize ability of freight railroad to maintain level of service
- Minimize capital costs
- Create ability to serve Madison with Amtrak's long-distance *Empire Builder* service.

A series of evaluation criteria were subsequently developed to determine how well each alternative met the objectives. These criteria against which the alternatives were measured are provided in Table 2-3. Additionally, a comparison of alternatives is summarized in this table. Cost estimates for track, structures and signals, etc. are based upon MWRRS unit costs and are used in a relative way to compare alternatives. See Table 2-4 for a summary of capital costs by corridor segment and capital investment category based upon the preliminary engineering work completed for this study.

A general description of the pros and cons of each of the Madison station alternatives is provided below:

Alternative 1 – Hoepker Road Alignment/USH 51/Acker Road Station

Alternative 1 was proposed due to its minimal length and ability to move in and out of Madison as quickly as possible. The proposed alignment is seven miles long and travel time is the shortest among the alternatives at 8.9 minutes. Since travel time along the Chicago to Minneapolis/St. Paul corridor has a significant impact on ridership and revenue, this evaluation measure is important. Additionally, Alternative 1 includes lower capital costs, minimal urban/social impacts and less physical disruption to the city and existing freight operations.

Because the station is located on the far north side of Madison and avoids the urban area, it has the fewest conflicts with at-grade street and bicycle crossings, the least number of near residential dwellings and would be the least disruptive to freight operations. The construction cost for Alternative 1 is estimated at $22.7 million. Three grade separations account for over 50 percent of this alternative's capital costs.

While some of the desired objectives are met under this alternative, it ranks low with many of the other objectives, such as minimizing environmental impacts, maximizing access and connectivity to other modes, being able to attract and support passenger amenities at or near the station, fostering nearby development and redevelopment, and minimizing the need for new right of way. After consultation with the City of Madison, the alternative was eliminated from further consideration.

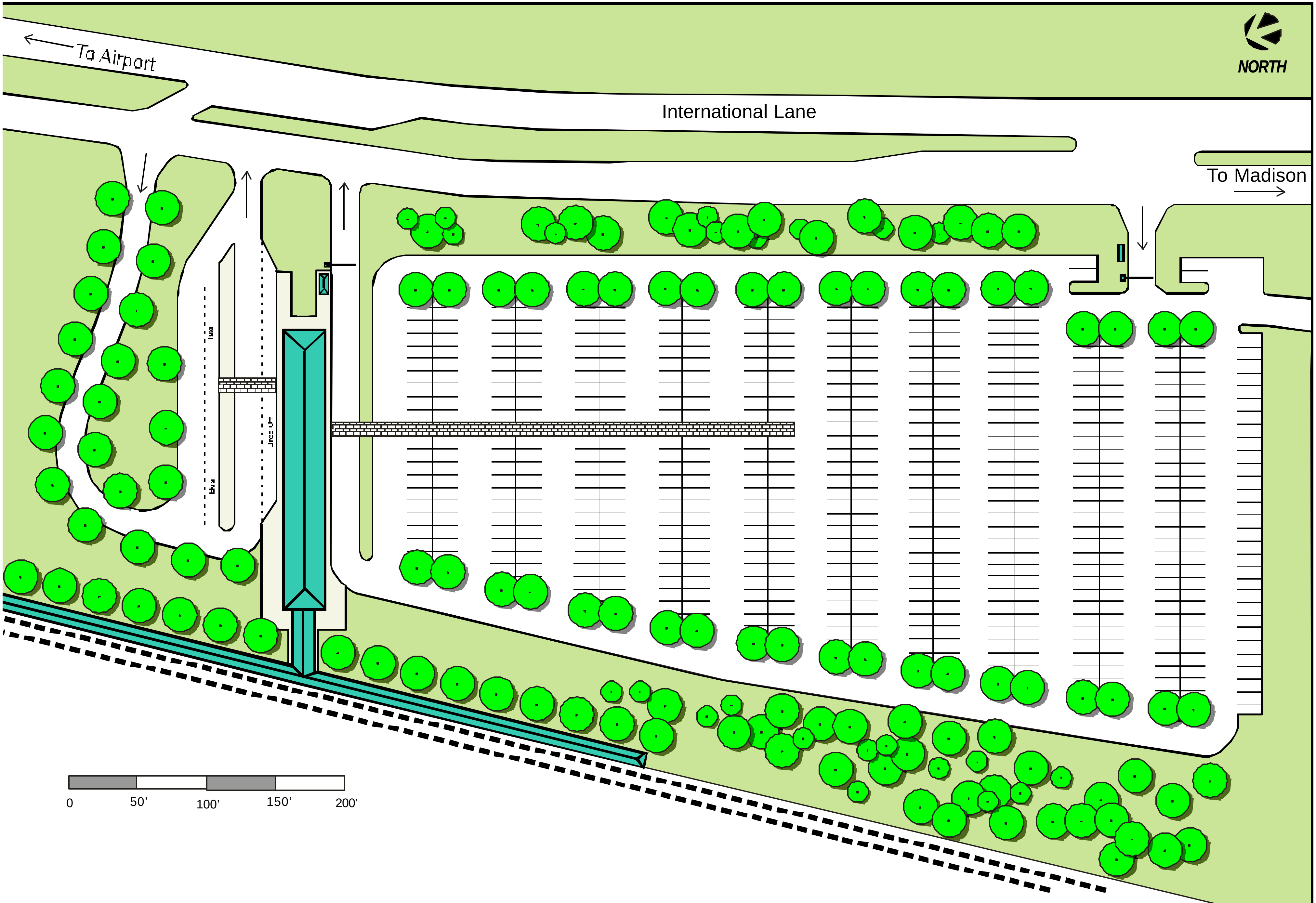
Alternative 2 – Commercial Avenue Alignment/Airport Station

Alternative 2 was selected for study because it provided the fastest access to and through the airport station. Alternative 2 requires some 2.6 miles of new alignment. The alignment length is 13 miles and travel time in and out of Madison has been set at 13.8 minutes. This alignment is in the Commercial Avenue right of way, then continues along the north side of Aberg Avenue to Packers Avenue, and takes right-of-way on the east side of Packers Avenue. The alignment crosses International Lane and meets up with the existing railroad south of Darwin Road. Considerable development has taken place and is continuing along this proposed corridor. The high number of property takings and relocations, as well as the very high track construction cost ($66 million) makes this alternative less desirable. Based on discussions with the City of Madison, the alternative was eliminated from further consideration.

Alternative 3 – First Street Alignment/Airport Station

The access route for Alternative 3, like Alternative 2, serves a station located at the airport. The main difference from Alternative 2 is that Alternative 3 follows an active rail line over the entire route. While this adds to the conflict between passenger and freight rail, no new right-of-way is needed, nor are any residential or business relocations required for this alignment. The alignment is less expensive to build compared to Alternative 2, ($35 million vs. $66 million), even though Alternative 3 is two miles longer than Alternative 2. Alternative 3 avoids the higher costs associated with the new right-of-way needed for Alternative 2. With the additional 2.3 miles of alignment, comes an additional 6.2 minutes in travel time.

Alternative 3 is the least expensive alternative with a track improvement cost of $35 million and a station development cost estimated at $1.4 million. It does not have the alignment impacts associated with Alternative 2, but captures the benefits of the airport station. Some of those benefits include; an opportunity for interconnecting travel (interlining) with airlines, readily available parking, available land for the station itself, and the potential for customer support services. A proposed layout of an Airport station is illustrated in Figure 2-11. Rail and air passengers together can generate more support for these services than each can alone. In addition, this station is more accessible by automobile compared to other alternatives. Its access time is similar to the old Milwaukee Road Depot station (Alternative 5, noted below)



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Dane CountyRegional AirportStation
Site Layout

Figure2-11

from the surrounding area, but many travelers would be able to avoid downtown traffic with the station at the airport.

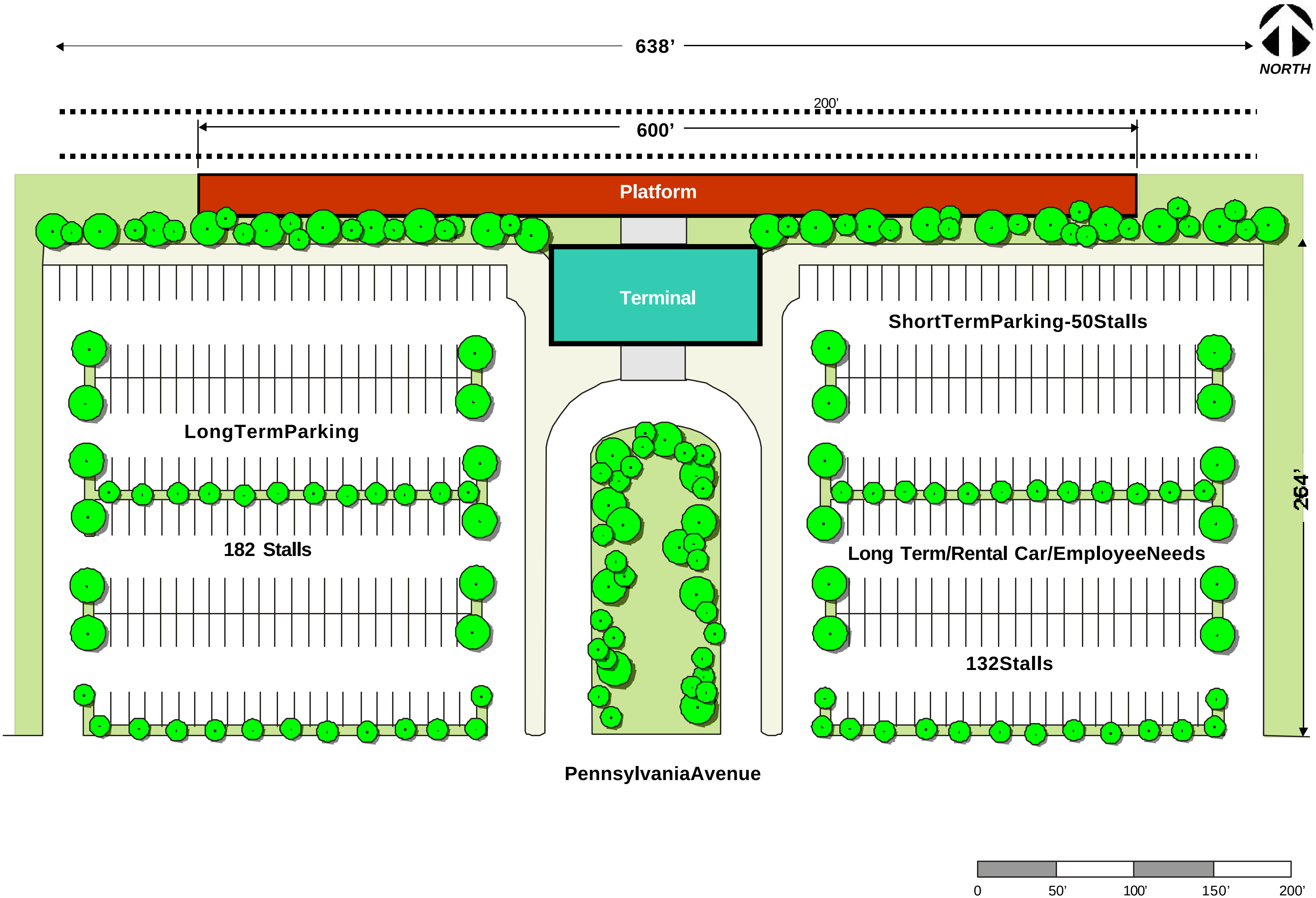
Alternative 3 ranks better than Alternatives 1 and 2 from a natural resource impact basis, but ranks behind them in neighborhood impacts, as the alignment travels through Madison's urban core. The station has fewer residents located near it than Alternatives 4 and 5 and thus does not serve potential walk-to and bike-to passengers as well. It also is not served well by Madison Metro routes. With only one bus route serving the airport, this alternative is not as well served as the more urban Alternatives 4 and 5. However, due to its ability to still serve regional rail traffic with minimal right-of-way impact, the alternative was retained for further analysis in this Environmental Assessment.

Alternative 4 – First Street Alignment / Pennsylvania Avenue Station

This alternative is much like Alternative 3 in that the access route in and out of Madison is the same. The Pennsylvania Avenue station requires the purchase of three properties. Two of these properties have buildings located on the property. One property is an active business that would require relocation should this property be selected for the station. Development costs for the Pennsylvania Avenue station site are estimated to be more than double the costs at the Airport station site ($1.4 million vs. $3.0 million). Support services are not likely to be as abundant as at the airport with its additional customers. Based upon experiences elsewhere, interlining opportunities with the airlines would not be as good as at the airport site. On the other hand, the Pennsylvania Avenue station site is served well by Madison Metro routes and passengers would be able to access the site on foot or by bicycle. Development of a passenger rail station at this location could have a positive effect on the surrounding area and could stimulate new development or redevelopment opportunities. Due to its close proximity to the Madison urban area and ability to serve regional rail traffic, the alternative was retained for further analysis in this Environmental Assessment. Figure 2-12 illustrates a proposed layout of the Pennsylvania Avenue station.

Alternative 5 – Downtown Alignment / Old Milwaukee Road Depot Station

The access route for Alternative 5 travels the furthest into Madison's urban core and consequently has the greatest impact on local neighborhoods. Some 61 at-grade street/rail crossings are affected each time a passenger train passes through Madison to a station location proposed at the former Milwaukee Road Depot station. Should this station be the only Madison station, 15 of the streets would be crossed twice, since the train would have to retrace its route over a portion of the alignment as it makes its way through Madison on its route between Chicago and Minneapolis/St. Paul. This means that these streets would be crossed 40 times daily (10 round trips equals 20 movements and each movement crosses the same streets twice). Alternative 5 travels the furthest of any alternative in and out of Madison and takes through trains 18 minutes longer than Alternatives 3 and 4. If two Madison stations are selected



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

65

PennsylvaniaAvenueStation
Site Layout

Figure 2-12

then presumably only trains terminating in Madison would use this access route, thus reducing the number of daily cross street impacts and the additional time to move through Madison.

Alternative 5 is unique in that it re-uses an old passenger rail depot. Sufficient space can be made available within the station; however, it would require relocating the current business occupying the space. Space within the station would be leased from its current owner. An old train now occupies the tracks in front of the station and this train would have to be relocated as well as the businesses currently renting space on the train. Sufficient parking for the proposed passengers is a problem at this site. Some parking is available on site but it is not adequate for anticipated passenger volumes. Virtually all nearby surface parking is dedicated to the surrounding office buildings or the University of Wisconsin. The capital cost estimate for Alternative 5 includes a one-third cost-sharing estimate for a new parking structure. The capital cost estimate for this alternative is the second highest at $55 million.

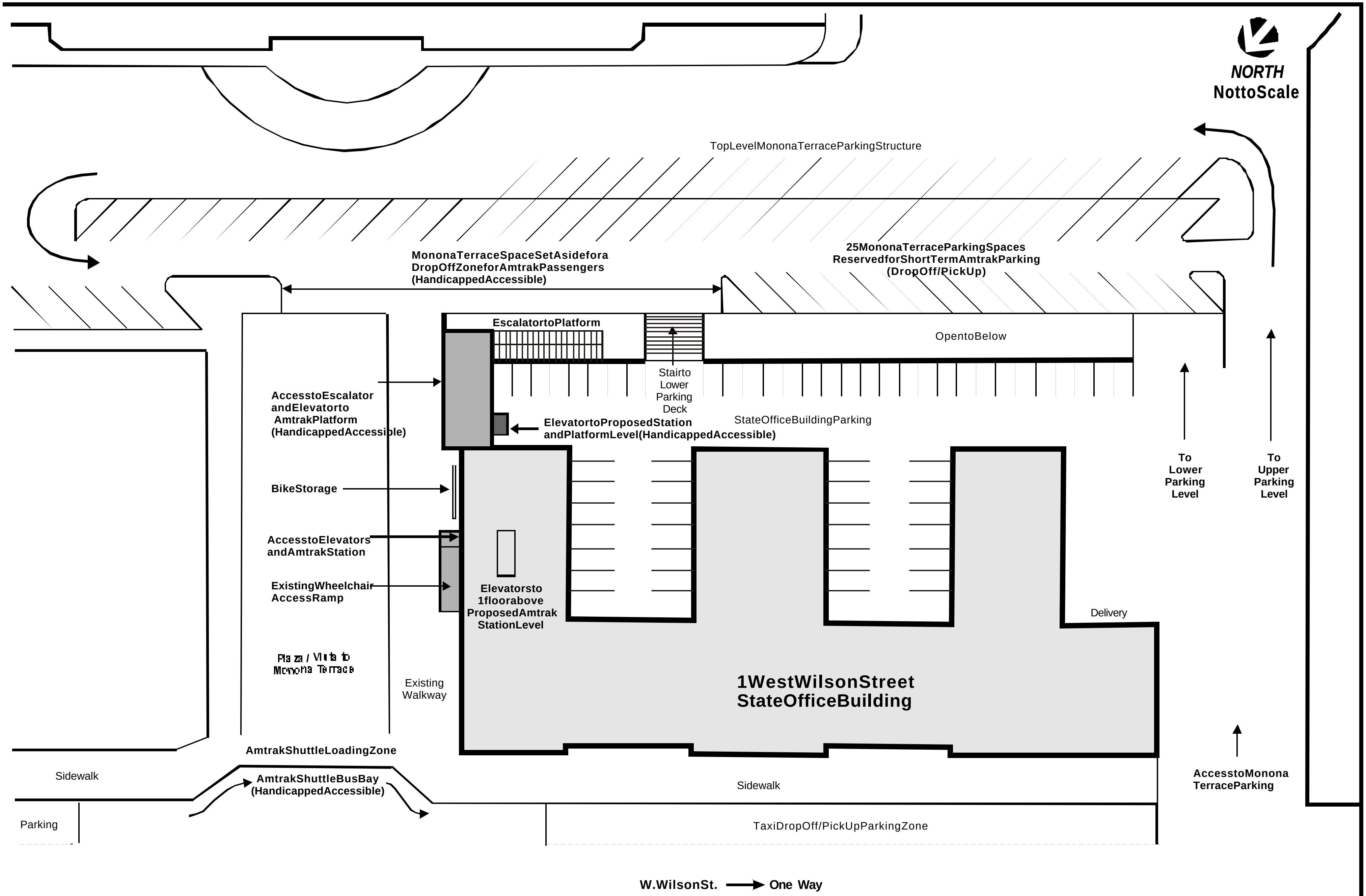
Being closer to the Capitol and Capitol Square activities is a plus for this alternative. The inter-city bus station is within walking distance of the rail station. The station is located 5 blocks from the Capitol, making it possible for some to walk to their destination. The station is closer to the University of Wisconsin and some student, faculty and staff would be able to walk or bike to the station. More residents are located within a ¼ mile of this station than any other proposed, but this number is still a very small percentage of the area's population. Due to the alternative's length of travel time to the proposed station and the large number of at-grade crossings, this alternative was eliminated from further evaluation.

Alternative 6 – Downtown Alignment Monona Terrace Station

This station location is accessed on the same alignment as Alternative 5, but rather than passing under Monona Terrace on its way to the old Milwaukee Road Depot, the passenger train would stop at the Monona Terrace. The station itself could be located on the lowest level of the State Office Building (One West Wilson Street). This station location provides the best access to downtown Madison, government and convention facilities. Walking or biking to and from this alternative station location, as well as the fact that it is convenient to bus service, makes it an attractive alternative. Short-term parking could be provided at the Monona Terrace parking facility and long- term parking could be provided at the Government East parking garage.

Renovation of the One West Wilson Street State Office Building for station space would cost between $3 to 5 million. Escalator and elevator equipment will add to the cost. Concerns for proper ventilation and noise control under the Monona Terrace must be addressed if this site is selected.

Like Alternative 5, the proposed passenger rail service would cross a high number of streets. It is likely that a Monona Terrace station, if developed, would only serve trains terminating in Madison and the through trains would likely use a station located at either the airport or along Pennsylvania Avenue. Figures 2-13a, 2-13b, and 2-13c illustrate the proposed station platform layout and station access options for drop off traffic. While this alternative has some of the same disadvantages described for Alternative 5, the City of Madison felt that it was desirable due to the Monona Terrace station's close proximity to downtown and government centers. This is particularly true if the Monona Terrace station became a second station destination for trains terminating travel in Madison, with no through service to Minneapolis/St. Paul. Either the proposed Airport or Pennsylvania Avenue stations could serve passenger trains continuing on to Minneapolis/St. Paul. Thus, Alternative 6 was retained for further analysis in the Environmental Assessment.

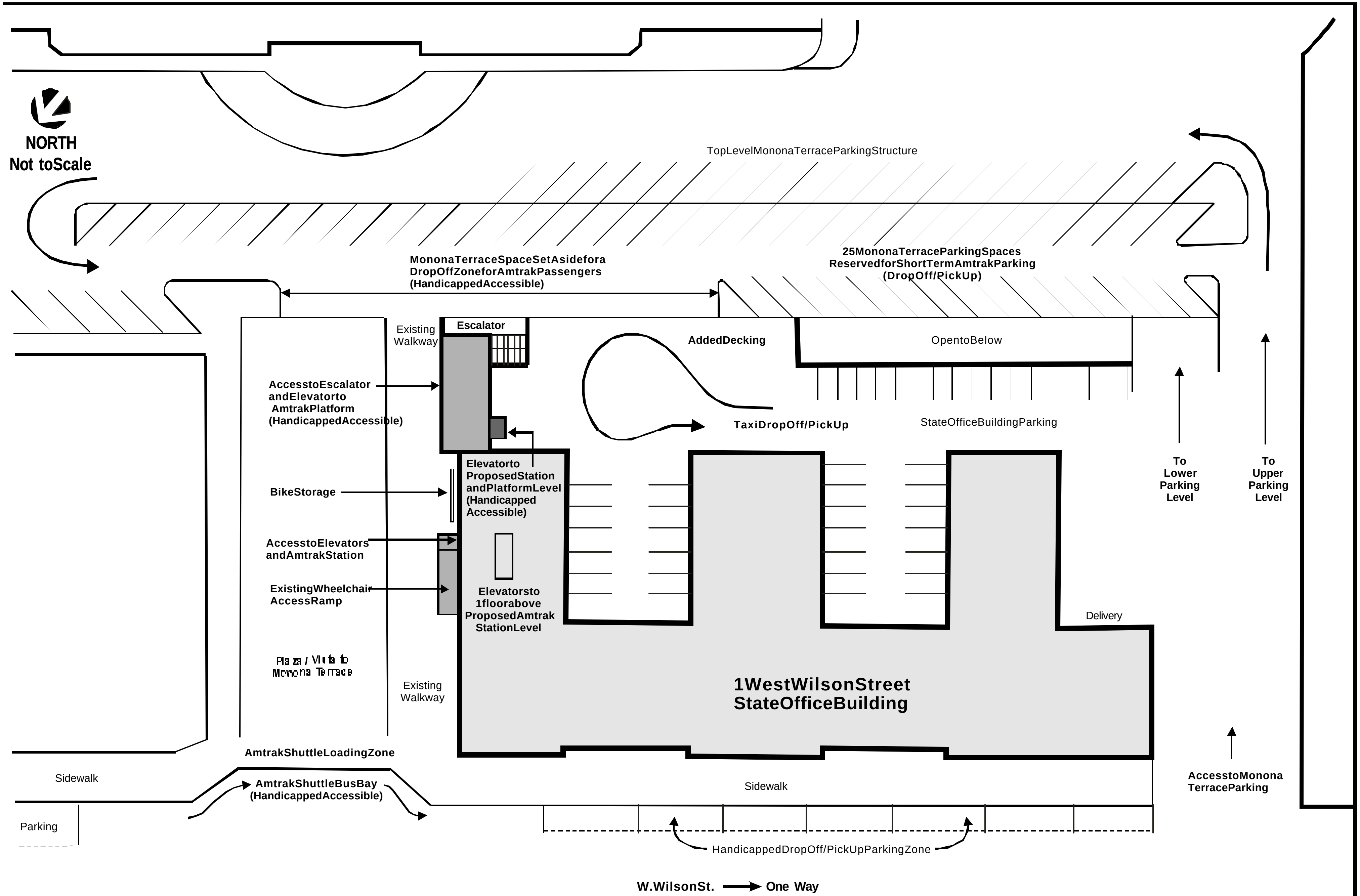


Note: LongTermAmtrakParkingattheCornerofWilsonandPinckney

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Proposed Monona Terrace StationSite
PassengerAccessPlan- Option 1

Figure2-13a

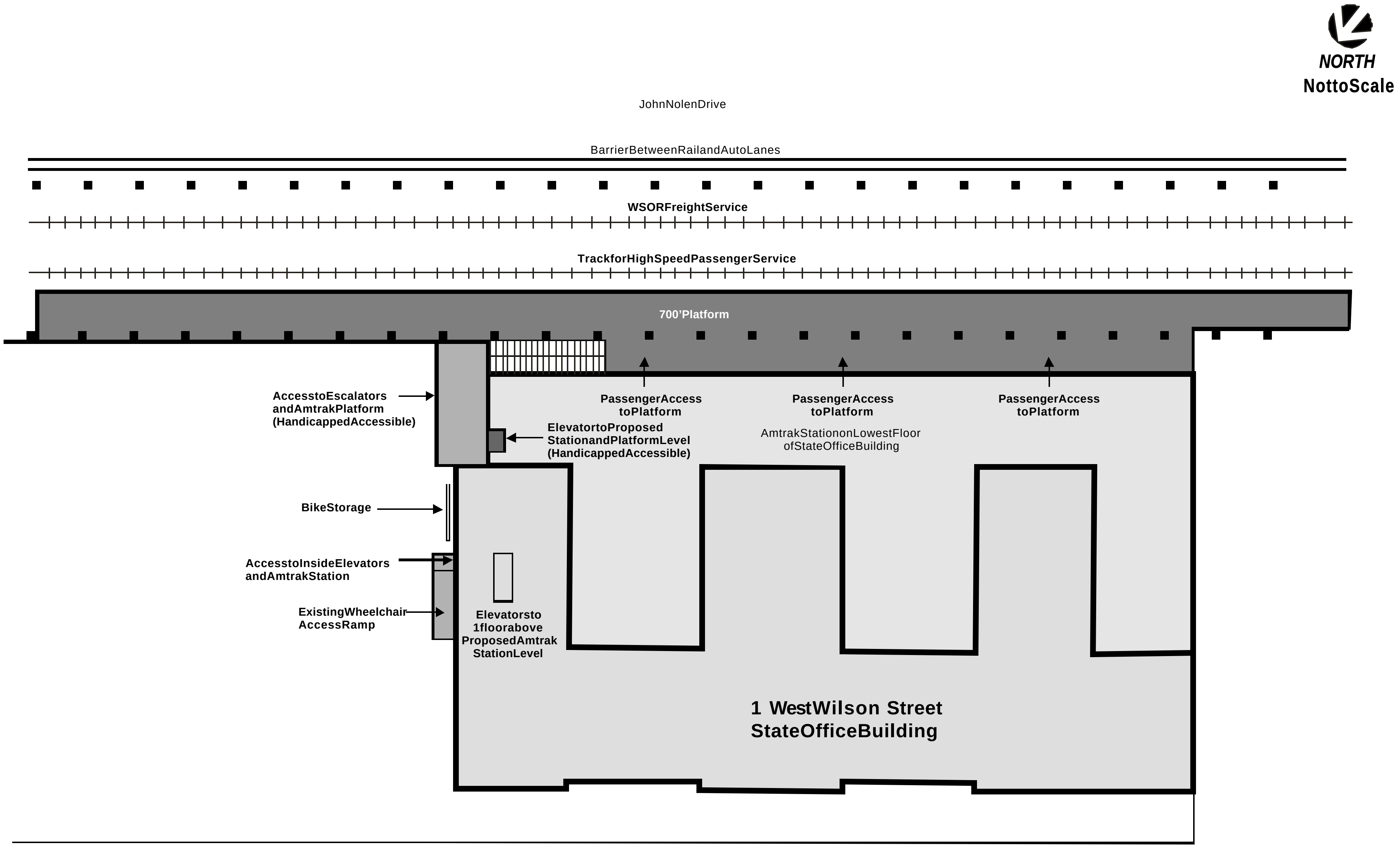


Note: LongTerm AmtrakParkingattheCornerofWilsonandPinckney

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Proposed Monona Terrace StationSite
PassengerAccessPlan- Option 2

Figure2-13b



Proposed Monona Terrace StationSite Platform and Track Layout

Figure 2-13c

Table 2-3
MADISON STATION ALTERNATIVES
EVALUATION CRITERIA SUMMARY

Evaluation Measure	**Alternative 1** Hoepker Road Alignment-USH 51/ Acker Road Station	**Alternative 2** Commercial Avenue Alignment-Airport Station	**Alternative 3** First Street Alignment-Airport Road Station	**Alternative 4** First Street Alignment- Pennsylvania Avenue Station	**Alternative 5** Downtown Alignment- Milwaukee Road Station	**Alternative 6** Downtown Alignment - Monona Terrace station
Minimize Travel Time and Operating Costs						
Alignment Length (miles (km))	7.0 (11.2)	13.0 (20.8)	15.3 (24.5)	15.3 (24.5)	19.3 (30.9)	17.7 (28.3)
Travel Time between common points (minutes)[1]	8.9	13.8	20.0	20.0	38.3 [15.0][2]	31.9 [11.8][2]
Supports Parking, Services, Amenities						
Potential for parking, support services, amenities	New site—as much parking as necessary could be created. No existing or shared services on site. Because of its remoteness fewer services are likely to be attracted.	Opportunities for shared parking at the Airport site. Ample room to expand parking. Opportunities to share with air passengers a variety of existing services at this site including ticketing, baggage handling, parking, food service, and cab/shuttle bus services.	Opportunities for shared parking at the Airport site. Ample room to expand parking. Opportunities to share with air passengers a variety of existing services at this site including ticketing, baggage handling, parking, food service, and cab/shuttle bus services.	New site—sufficient parking could be provided. Opportunity to provide station services as needed.	Very little parking at the old Milwaukee Road Depot. Requires new parking structure, possibly on the present site of the UW Warehouse. Station site has adequate room for service amenities. Can accommodate transportation services as well.	Very close to downtown offices, state facilities and convention facilities. Very little parking currently available. Use of One West Wilson Street State Office Building for the station shows promise.
Possible “interlining” with air mode for additional train revenue	Little opportunity	Best opportunity	Best opportunity	Possible opportunity	Little opportunity	Little opportunity

Evaluation Measure	Alternative 1 Hoepker Road Alignment-USH 51/ Acker Road Station	Alternative 2 Commercial Avenue Alignment-Airport Station	Alternative 3 First Street Alignment-Airport Road Station	Alternative 4 First Street Alignment- Pennsylvania Avenue Station	Alternative 5 Downtown Alignment- Milwaukee Road Station	Alternative 6 Downtown Alignment - Monona Terrace station
Maximizes Safety						
Number of public crossings affected by through trains travelling between Milwaukee and Minneapolis	8	15	30	30	61 (15 are crossed twice)	51 (10 are crossed twice)
Number of public crossings affected for trains terminating in Madison	7	12	29	23	37	32
Desired Grade Separations	3: I-90/94, USH 151, and USH 51	3: E. Washington, Fair Oaks, International Lane	0	0	0	0
Maximizes Access and Connectivity to Other Modes						
Total Accumulated Auto Travel Time to Station from each of Madison's transportation analysis zones (hours)[3]	Not Computed	218	218	Not Computed	217	217
Total Travel Time Station from all Trans. Zones Weighted by Population (hours)	Not Computed	115,414 hours	115,414	Not Computed	112,357	112,357

Evaluation Measure	**Alternative 1** Hoepker Road Alignment-USH 51/ Acker Road Station	**Alternative 2** Commercial Avenue Alignment-Airport Station	**Alternative 3** First Street Alignment-Airport Road Station	**Alternative 4** First Street Alignment-Pennsylvania Avenue Station	**Alternative 5** Downtown Alignment-Milwaukee Road Station	**Alternative 6** Downtown Alignment - Monona Terrace station
Maximizes Access and Connectivity to Other Modes						
Private Auto	Station requires the most travel by Madison-area residents since it is the furthest from central service area, but easily accessible via major highways.	Airport station is somewhat difficult to access by west side Madison. Travel through Madison can be time-consuming. Access measured in time is virtually the same as the Milwaukee Road station.	Airport station is somewhat difficult to access by west side Madison. Travel through Madison can be time-consuming. Access measured in time is virtually the same as the Milwaukee Road station.	Station easily accessible by central city residents, downtown business and Univ. of Wisconsin, but more difficult for west-side residents who must travel considerable distances over city streets.	Station easily accessible by central city residents, downtown businesses and Univ. of Wisconsin students and staff. The Milwaukee Road station has the same access rating (travel time from all TAZs) as the Airport station	Station easily accessible by central city residents, downtown businesses and Univ. of Wisconsin students and staff. Time wise, the Monona Terrace station has the same access rating (travel time from all TAZs) as the Airport station.
Pedestrians	Pedestrian access is possible; however, no one currently lives or works within walking distance.	Pedestrian access is possible to station; however, few people currently live within walking distance. Local businesses are in area, but not within easy walking distance. Population (1990) living within ¼ mile of station = 491	Pedestrian access is possible to station; however, few people currently live within walking distance. Local businesses are in area, but not within easy walking distance. Population (1990) living within ¼ mile of station = 491	Pedestrian access is possible from a few surrounding neighborhoods. Local businesses are in area, but not within easy walking distance. Population (1990) living within ¼ mile of station = 1,412	Pedestrian access is best to station as it is surrounded by more residential areas, businesses, students, etc. that currently live or work within walking distance. Population (1990) living within ¼ mile of station = 6,987	Pedestrian access is good for travel destinations since station is nearest state offices, hotel and convention center, etc. Population (1990) living within ¼ mile of station = 1,294

Evaluation Measure	**Alternative 1** Hoepker Road Alignment-USH 51/ Acker Road Station	**Alternative 2** Commercial Avenue Alignment-Airport Station	**Alternative 3** First Street Alignment-Airport Road Station	**Alternative 4** First Street Alignment-Pennsylvania Avenue Station	**Alternative 5** Downtown Alignment-Milwaukee Road Station	**Alternative 6** Downtown Alignment - Monona Terrace station
Maximizes Access and Connectivity to Other Modes						
Bike	Difficult to access station, remote from the residential area of Madison.	Difficult to access station, but not impossible.	Difficult to access station, but not impossible.	Bike access is possible for east-side residents and from the University.	Biking is convenient mode for central city dwellers and for Univ. of Wisconsin students.	Biking is convenient mode for central city dwellers and for Univ. of Wisconsin students.
Maximizes Access and Connectivity to Other Modes						
Metro Bus	Site is most remote from the population base of the City of Madison. Not currently served by transit.	Site is served by a single Madison Metro bus route. Additional shuttle service to the downtown and Univ. of Wisconsin would need to be provided.	Site is served by a single Madison Metro bus route. Additional shuttle service to the downtown and Univ. of Wisconsin would need to be provided.	Site is served by seven nearby bus lines. These routes are within ¼-mile of the station. UW Campus bus service also extends to this area.	Site is five blocks from Capitol Square. Bus service is provided by three bus lines. UW Campus bus service also extends to this area.	Site is served by numerous bus routes, using the square around the Capitol. There are bus stops located one to two blocks from the proposed station location.
Taxi Service	Taxi service may not be readily available at all times due to the remoteness of terminal.	Taxi service nearly always available at airport, thus should always be available at rail station	Taxi service nearly always available at airport, thus should always be available at rail station.	Yellow Cab facilities are located just west of proposed station on Pennsylvania Ave.; should be readily available.	Cab service should be very available at the site assuming storage space for cabs is available.	Cab service should be available. Main concern is the availability of space. Perhaps behind One West Wilson Street State Office Building.
Air Service	Connection to airport by auto, taxi, shuttle, limo, and potentially by extension of bus service.	Connection to the airport via auto, short bus trip, or it could be walked, since distance is only a few blocks.	Connection to the airport via auto, short bus trip, or it could be walked, since distance is only a few blocks.	Connection to the airport via bus or auto. Distance is only a few miles.	Connection to airport provided by auto or shuttle bus.	Connection to airport provided by auto or shuttle bus.

Evaluation Measure	**Alternative 1** Hoepker Road Alignment-USH 51/ Acker Road Station	**Alternative 2** Commercial Avenue Alignment-Airport Station	**Alternative 3** First Street Alignment-Airport Road Station	**Alternative 4** First Street Alignment-Pennsylvania Avenue Station	**Alternative 5** Downtown Alignment-Milwaukee Road Station	**Alternative 6** Downtown Alignment - Monona Terrace station
Maximizes Access and Connectivity to Other Modes						
Rental Vehicle	Rental cars would have to be brought to the station; however, a rental counter at the rail station may attract a rental company.	Very available — currently service counter at the airport.	Very available — currently service counter at the airport.	Rental cars would have to be brought to the station; however, a rental counter at the rail station may attract a rental company.	Rental cars would have to be brought to the station; however, a rental counter at the rail station may attract a rental company.	Rental Car storage at this site may present some problems. Counter space should be available.
Maximizes Access and Connectivity to Other Modes						
Future Light Rail or Future Commuter Rail	Unlikely that a connection would be made to this station location.	Could easily serve this station.	Could easily serve this station.	Could easily serve this station.	Could easily serve this station, but would add to the congestion.	Could easily serve this station, but would add to the congestion.
Minimizes Environmental and Social Impacts						
Wetland Impacts (approx. acres (ha.))	8 (12.8)	19 (30.4)	0	0	0	0
Number of New Stream Crossings	3	1	0 – Rebuild Starkweather Creek bridge	0 – Rebuild Starkweather Creek bridge	0-Upgrade bridges over Yahara River	0-Upgrade bridges over Yahara River.
Number of 4(f) Properties Affected (approx. acres (ha)	2 – Cherokee Marsh (9 acres (14.4 ha.)) and City of Madison Open Space (7 acres (11.2 ha.))	0	3 – Proximity to Dixon Parkway, Wirth Court Park, Burr Jones Field Park. No r/w acquired.	3 – Proximity to Dixon Parkway, Wirth Court Park, Burr Jones Field Park, No r/w acquired.	3 – Proximity to Dixon Parkway, Wirth Court Park, Burr Jones Field Park, No-r/w acquired.	3 – Proximity to Dixon Parkway, Wirth Court Park and Burr Jones Field Park. No-r/w acquired.
Farmland Acquired (approx. acres (ha.))	17 (27.2)	0	0	0	0	0
Number of Bike Routes/Paths Crossed (thru trains)	1/0	5/1	7/1	7/1	10/2	10/2
Residences within ¼ mile of corridor	200	1800	3,800	3,800	4,800	4,250

Evaluation Measure	Alternative 1 Hoepker Road Alignment-USH 51/ Acker Road Station	Alternative 2 Commercial Avenue Alignment-Airport Station	Alternative 3 First Street Alignment-Airport Road Station	Alternative 4 First Street Alignment-Pennsylvania Avenue Station	Alternative 5 Downtown Alignment-Milwaukee Road Station	Alternative 6 Downtown Alignment - Monona Terrace station
Minimizes Environmental and Social Impacts						
Number of Proposed Street Closings	0	1	3	3	6	5
Maximize Station Area Redevelopment Opportunities	Little, if any opportunity	Minimal opportunity	Minimal opportunity	Best opportunity	Some opportunity, but much of surrounding area developed	Most of the area around Monona Terrace has been redeveloped. Limited opportunity.
Minimize Conflict with Freight Rail Traffic						
Miles (Km) of Common Track	0.5 (0.8)	10.4 (16.6)	15.3 (24.5)	15.3 (24.5)	18.0 (28.8)	16.4 (26.2)
Minimizes Capital Costs						
Estimated Cost to Construct Track through Madison	$41 million	$66 million	$35 million	$35 million	$49 million	$45.5 million
Estimated Capital Cost for Passenger Station	$2.4 million	$1.4 million	$1.4 million	$3.0 million	$6.6 million	$3 - $5 million
Right-of-way Needed for Rail Corridor (acres (ha))	78.2 (31.3)	12.7 (5.1)	0	0	0	0
Miles (Km) of New Alignment	6.5 (10.4)	2.6 (4.2)	0	0	0	0
Residential Properties Acquired	0	20 single-family 2 duplex 9 multi-family	0	0	0	0
Commercial Properties Acquired	0	1-2 office 9 industrial 17 commercial	0	2 commercial properties	1 warehouse	0
Could Serve long-distance *Empire Builder* train	Yes	Yes	Yes	Yes	No	No

[1] In order to make comparisons between the various alternatives, each route begins and ends at the same common points. The eastern common point is identified by milepost 157.8 on the Waterloo subdivision in Sun Prairie Township; and the western common point is identified by milepost 26.08 on the Portage subdivision in Burke Township.
[2]Travel time in minutes only to proposed downtown stations since they are terminal stations.
[3] Assumes 1 auto travels from each Madison area Travel Analysis Zone (TAZ) to a station at the airport and a station downtown.

WisDOT has held several meetings with the City of Madison and residents to review the criteria for selecting a station. At WisDOT's request, the city, Dane County, and the Madison Area Metropolitan Planning Organization have provided recommendations for a station and access alignment. On March 20, 2001, the City of Madison Common Council adopted Resolution ID 27935 titled, "City Recommendations for the Intercity Passenger Rail Alternative Route and Station Location". The Common Council resolution indicates a desire to have two stations implemented, one for trains terminating in Madison and one for trains moving through Madison (Chicago – St. Paul). The Madison MPO and Dane County Board also passed resolutions (March 26, 2001 and April 19, 2001, respectively) supporting both a downtown alignment and station, and a First Street Alignment and station. WisDOT will use these recommendations and input from the public hearing process to help determine which station(s) location and alignment(s) to recommend.

Project Costs

Capital costs for track construction, crossing improvements, signals and structures for the various alternatives are summarized and compared in Table 2-4. The cost of the train sets and a maintenance facility are not included in the estimate. The table illustrates the costs of upgrading tracks to serve two Madison stations. The project costs do not include the costs to construct stations, which would be the responsibility of local communities.

Table 2-4
ESTIMATED CAPITAL COSTS
Milwaukee-Madison Passenger Rail Corridor
(Millions of Year 2000 Dollars)

Segment	Track Construction	Civil Construction	Signals	Structures	Subtotal	Contingency	Total
Milwaukee to Dayton St	$32.1	$3.4	$14.6	$3.8	$53.9	$8.1	$62.0
Dayton to Waterloo Malt	10	3.2	5.2	19.5	37.9	5.7	43.6
Waterloo Malt to Lien Rd	14	4.6	7.0	12.5	38.1	5.7	43.8
Lien Rd to E Johnson St	4.7	1.4	2.4	0.5	9.0	1.4	10.4
E Johnson St to Airport	3.9	1.3	1.3	0.2	6.7	1.0	7.7
Total	**$64.7**	**$13.9**	**$30.5**	**$36.5**	**$145.6**	**$21.9**	**$167.5**
Downtown alignment to Monona Terrace	3.6	0.7	3.0	0.2	7.5	1.1	8.6
Total (w/Monona Terrace station)	**$68.3**	**$14.6**	**$33.5**	**$36.7**	**$153.1**	**$23.0**	**$176.1**

Source: TEMS and Quandel and Associates

2.2.2 Alternative Corridors Considered and Dismissed

State-Wide Corridor Study

Prior to this passenger rail study, WisDOT prepared the Tri-State High Speed Rail Study for the Chicago – Milwaukee – Twin Cities Corridor[20] which evaluated several route alternatives in two different corridors identified as the "Southern Corridor" and the "Northern Corridor" (See Figure 2-14). Each route was analyzed based on environmental constraints (geology, topography, river crossings wetlands, presence of undeveloped land), socioeconomic constraints (regional accessibility, population and employment characteristics, financial feasibility analysis), rights-of-way inspections, and the availability of electrical power. It also considered system operations (train running times and timetables, fleet requirements, freight train interference and passenger seating capacity). Travel demand models were used to forecast ridership and the market share of total travel that could be achieved by passenger rail in the corridor.[21]

The study concluded that the Southern Corridor was preferred to the Northern Corridor in environmental, economic and financial terms. The intercity passenger rail element of WisDOT's long-range, multimodal transportation plan, Translinks 21, included the Chicago-Milwaukee-Madison-Twin Cities corridor because it provided direct service to Madison. The Secretary of WisDOT formally adopted this plan in November 1994. Because it was part of Translinks 21, this corridor was subsequently incorporated into the proposed Midwest Regional Rail System.

Bypasses in the Project Corridor

During meetings with residents and local officials in the cities of Waterloo and Sun Prairie and the Village of Marshall, there were requests to examine bypasses around the communities to minimize proximity impacts of passenger trains on existing tracks. (Dates of meetings with local communities are noted in Sections 5.1.2 and 5.1.3.) Bypassing the communities would require new alignment at substantial additional cost of approximately $180 million for new track and right-of-way. Bypassing communities would not eliminate rail traffic on the current rail line. Freight traffic will continue to use the line to serve its existing and future customers in these communities. The track and crossings on the existing line would not be improved, as they would have for passenger rail service.

Furthermore, Dane County is currently conducting a transportation Alternatives Analysis that includes a commuter rail option on the segment of the project corridor between Sun Prairie and Madison. A Sun Prairie bypass would not be desirable if commuter rail service were to be established between Madison and Sun Prairie.

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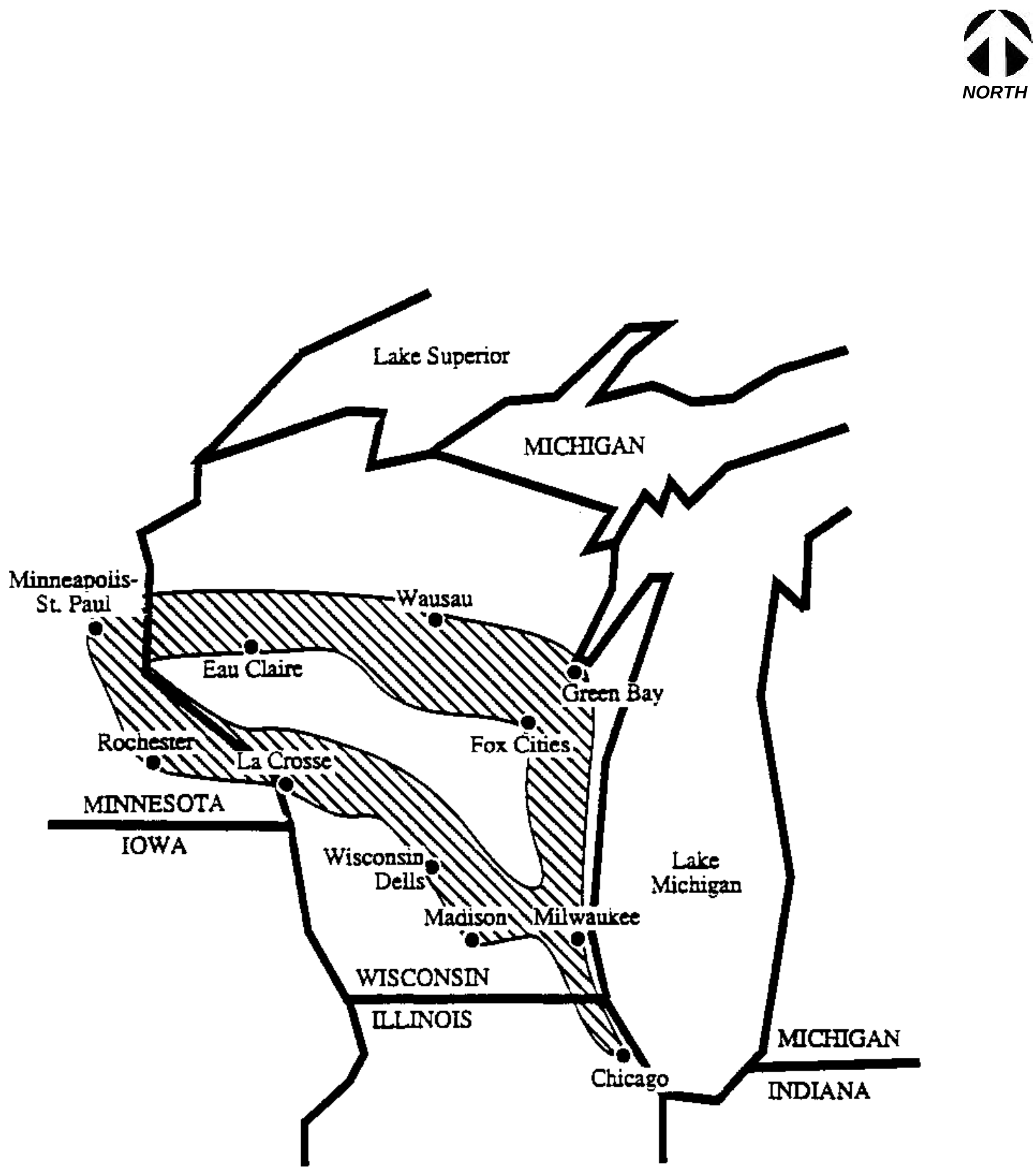
[20] Wisconsin Department of Transportation. Tri-State High Speed Rail Study for the Chicago – Milwaukee – Twin Cities Corridor. 1991.
[21] Tri-State High Speed Rail Study for the Chicago – Milwaukee – Twin Cities Corridor.



Source: Tri-StateHigh Speed RailStudyChicago-Milwaukee-TwinCitiesCorridor

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Tri-State Study of High Speed RailService**	**Figure 2-14**

Using existing rail right-of-way to connect small urban and major metropolitan areas is a major plan element of the Midwest Regional Rail System and contributes to minimizing initial capital costs for implementing the rail network. The construction of new alignment would result in substantially higher impacts to farm operations, wetlands, and other natural resources in the project corridor. It would not meet the purpose of minimizing costs and environmental impacts by using existing rail infrastructure that has been historically used for passenger and freight service. Station Alternatives 1 and 2 in Madison (discussed in Section 2.2.1), which would require new right-of-way, were eliminated from further consideration for these same reasons.

2.2.3 Alternative Speeds/Technology Considered and Dismissed

The study for the Midwest Regional Rail System (MWRRS) included an assessment to determine the most beneficial and affordable service scenarios system.[22] The plan expanded on findings of previous studies that noted rail corridors with intermediate and high speed passenger rail service have shown the greatest ability to generate revenues to cover operating costs. Thus, the study evaluated three technology/speed scenarios, summarized in Table 2-5, to refine its business plan:

Table 2-5
ALTERNATIVE TECHNOLOGY/SPEED SCENARIOS EVALUATED FOR THE MWRRS

	Conservative	**Moderate**	**Aggressive**
Train Technology	New locomotives	Diesel Multiple Units	Diesel High Speed
Maximum Train Speed (mph (kph))	79 (126- kph)	110 (176 kph)	125 (200 kph)
Operating Cost Ratio in 2010	0.85	1.36	0.93
Travel Time Saved per $ Invested	60 seconds	9.6 seconds	1.2 seconds
Revenue Generated per $ Invested	31 cents	104 cents	82 cents
Percent Reduction over Current Amtrak Operating Costs per Train Mile	30%	36%	29%

Source: TEMS, 1998

Under the Conservative Scenario, the locomotive would be a P-42 locomotive that Amtrak currently operates. The P-42 locomotive is capable of peak speeds of 110 mph (176 kph). However, under the Conservative Scenario, Amtrak would operate the P-42 at 79 mph (126 kph).

The MWRRS study concluded that the Moderate Scenario is the only alternative that showed a positive operating cost ratio of 1.36 by 2010. Compared to the other scenarios, the Moderate Scenario also showed the greatest revenue per dollar invested and generates the lowest operating costs over existing passenger rail services. Thus, the 110 mph Moderate Scenario,

[22] Transportation Economics and Management Systems, Inc. Midwest Regional Rail Initiative: Strategic Assessment and Business Plan, Final Report. August 1998.

using new technology was selected as the preferred scenario upon which to conduct further impact evaluations in this study.

The new technologies that allow 110 mph train speeds may include “tilt-train technology” which allows trains to reach these higher speeds on curves that would otherwise require them to slow down to prevent undue passenger discomfort. Using this technology would avoid the need to straighten track alignments and would avoid the subsequent environmental impacts associated with buying new right of way and constructing new track.

2.2.4 Summary and Conclusion

This chapter has examined the selected alternatives to the proposed action. The final selection of preferred alternatives will not be made until after all impacts, comments on this Environmental Assessment and comments from the public hearings and meetings have been fully evaluated.

3.0 PROBABLE IMPACTS

Impacts addressed in this Environmental Assessment considered the ultimate passenger rail service between Milwaukee and Madison should the Midwest Regional Rail System be fully implemented. This document addresses the impact of 10 daily roundtrips that would travel in the Milwaukee-Madison corridor.

3.1 Land Use and Related Socio-Economic Characteristics

3.1.1 Existing Corridor Land Use

The proposed passenger rail corridor would use a long-established existing rail corridor between Milwaukee and Madison. The railroad line to Watertown was completed in 1855. The line between Watertown and Sun Prairie was constructed in 1857, and the connection to Madison was completed in 1869. Milwaukee to Madison passenger rail service had historically operated at speeds exceeding 100 mph (160 kph). Development has historically taken place along the existing rail corridor to take advantage of rail services. The rail right-of-way serves as a natural development boundary. Many industrial uses are still located along the tracks in order to receive freight service. The rail right-of-way serves as a property boundary for many industries along the tracks.

Residential development has similarly taken place along this active corridor over the years. Most of the residential development directly adjacent to the existing tracks have back yard boundaries that abut the rail right-of-way. The tracks currently carry freight trains. Future development along the corridor would likely follow the same trend, using the rail corridor as a natural boundary. A summary of existing land uses by community follows.

Milwaukee County

City of Milwaukee

Within the City of Milwaukee, the alignment runs through the heavily industrialized Menomonee Valley. The City's future land use plans for the Menomonee Valley include restoring light industrial and business development. Recently, the Miller Park baseball stadium was completed on the west end of the Valley. The City of Milwaukee is actively pursuing additional new light industrial development east of the stadium. Existing industrial uses flank the rail corridor into the City of Wauwatosa.

City of Wauwatosa

There is a wide variety of land uses along the alignment in Wauwatosa. A mixture of manufacturing, residential and commercial land uses abut the tracks. The city's historic commercial center lies to the north of the tracks, while its Hart Park abuts the south side. The alignment travels through undeveloped Milwaukee County lands. As the alignment follows the Menomonee River and Underwood Creek, it travels along parklands maintained by Milwaukee County. Currently, there is no barrier separating park areas from the rail corridor.

Waukesha County

Village of Elm Grove

The alignment through Elm Grove is primarily light manufacturing and similar uses with the exception of the commercial node at Watertown Plank Road and a park to the north of the village hall. Large lot residential areas abut the tracks at the north end of the city.

City of Brookfield

In Brookfield, the primary land use abutting the tracks is residential. The tracks run through Wirth Park, essentially separating the park into two distinct entities with its elevated tracks. A former CP Railway station (now used for railroad storage and proposed for a new Brookfield station) and commercial node are located at Brookfield Road. At Barker Road, Mitchell Park lies adjacent to the tracks.

Village/City of Pewaukee

The land use includes both residential subdivisions and industrial properties. The city center has a pedestrian area with a park to the north and commercial businesses to the south of the tracks. At Wisconsin Avenue (Hwy. JJ) the tracks pass the historic Pewaukee train station and then follow the edge of Pewaukee Lake. Pedestrians currently cross the tracks from a parking lot to access a beach south of the tracks. The tracks also lie between residential homes and the lake. This is particularly noteworthy as residents cross the rail right-of-way to access private docks on the lake.

Town of Delafield/Village of Hartland

Much like Pewaukee, the Delafield/Hartland portion of the alignment is adjacent to an industrial area. The tracks also run adjacent to a small area of new single- and two-family dwellings. In the village, the tracks run along the south side of Nixon Park. The Ice Age Trail, a designated National Scenic Trail, is located in the park but does not currently cross the tracks (See Section 3.4). Industrial areas flank the tracks in the western part of the village.

City of Delafield/Village of Nashotah

The next stretch through the northern edge of the City of Delafield and into Nashotah is a mixture of light industrial uses, agricultural and undeveloped lands. The University Lake School maintains a prairie restoration site adjacent to the tracks in the City of Delafield.

Village of Oconomowoc Lake/City of Oconomowoc/Town of Oconomowoc

State Trunk Highway 16 travels parallel to the north side of the tracks in Oconomowoc Lake. South of the tracks agricultural land gives way to large lot residences located between the tracks and Oconomowoc Lake. Further west, car lots, industrial and commercial uses lead into the City of Oconomowoc. Industrial uses alternate with houses and apartments and one school along the tracks through the city. The existing historic station is currently used as a restaurant. Beyond the city limits in the Town of Oconomowoc, the corridor opens up to agriculture.

Jefferson County

Town of Ixonia

Agriculture dominates the land use through the town. The tracks run through a commercial town center, which contains industrial, commercial and residential land uses.

Town of Watertown/City of Watertown

Agricultural land use is predominant in the Town of Watertown. In the City of Watertown, industrial uses line the tracks, with segments of single-family housing and commercial activities backing up to it. There are some newer multi-family residential units along the route.

Town of Milford/Town of Waterloo

Agricultural land use dominates the landscape in these towns. The unincorporated farming community of Hubbleton is largely residential with some commercial land uses. The Waterloo Wildlife Area is a large area of wetlands and undeveloped uplands that straddles the tracks for approximately three miles east of the City of Waterloo.

City of Waterloo

Industrial areas line the tracks for the majority of the alignment. A large plant nursery is located adjacent to the south side of the tracks on the east side of town. The existing rails pass through a small neighborhood comprised of small single-family homes.

Town of Medina/Town of Sun Prairie

Land use is predominately agricultural in these towns. The unincorporated community of Deansville contains some residential homes and a grain elevator.

Village of Marshall

The tracks travel through the north portion of the city, but new residential development, including North Lakewood Estates has been built in recent years along the existing rail corridor. Some houses are quite near the alignment, with backyards fronting the tracks.

City of Sun Prairie

A new residential subdivision, Carriage Hills Estates, is adjacent to the tracks. Multi-family dwellings and single family dwellings are located in close proximity to the existing rail corridor. On the west side of Sun Prairie, much of the area along the corridor is adjacent to industrial areas.

Town of Burke

Land use along the tracks is primarily agricultural with scattered industrial sites abutting the tracks. The unincorporated community of Burke consists of a small area of residential, commercial and industrial land uses.

City of Madison

Land uses vary along the proposed two alignments serving the City of Madison. As the tracks enter the City, land use is largely industrial until the tracks pass under STH 30. The railroad has been used as a neighborhood boundary for many years, thus it provides a border for many of these neighborhoods along the track into Madison. The following neighborhoods abut the tracks leading to both the First Street alignment and the downtown alignment: Burke Heights, Ridgewood, Hawthorne, Worthington Park, Starkweather and Schenk-Atwood. The following neighborhoods abut the First Street Alignment to the proposed airport station: Emerson East, Sherman and Berkley Oaks. The following two neighborhoods are traversed by the rail line as it proceeds downtown to the proposed Monona Terrace station: Marquette and Capitol.

Of particular note, is the City of Madison's East Rail Corridor Advisory Committee land use planning efforts in the vicinity of the existing UPRR alignment between Baldwin Street and Livingston Street. The committee is overseeing land use planning for an area that is bounded by East Washington Avenue, South Blair Street, Williamson Street, and the Yahara River. The plan includes a concept to relocate the existing UPRR tracks one block north to an area that includes railroad sidings. The proposed relocation would consolidate tracks through the study area to enhance future redevelopment, but right-of-way acquisition for new track alignment is required. Types of future land uses in the study area are not yet specified, but they could include residential and park land uses.

3.1.2 Existing Population and Demographics

Population trends differ greatly along the proposed corridor. In Milwaukee County, census figures indicate that the Cities of Milwaukee and Wauwatosa have decreased in population over the past decade. At the same time, the western suburbs of Waukesha County have experienced substantial growth. The Town of Brookfield has experienced a 48.79 percent population increase, the City of Pewaukee, 43.99 percent, the Village of Nashotah, 66.14 percent, and the City of Delafield, 19.77 percent (See Table 3-1). According to projections prepared by the Wisconsin Department of Administration, it would appear as though the trend of western suburban growth will continue through the year 2015.

The older, long-established cities of Jefferson County and rural townships to the west of Oconomowoc have experienced modest population gains over the past decade. Further west, communities within the influence of Madison have shown increased growth. According to official state population estimates, Marshall gained 688 residents between 1990 and 2000, up nearly 30 percent. Sun Prairie showed similar growth, increasing by 30.19 percent to close to

20,000 residents in 2000. The City of Madison has also experienced substantial growth over this time, gaining 16,482 residents in ten years, up to a population of 207,248 in 2000.

Table 3-1
POPULATION TRENDS
Milwaukee-Madison Passenger Rail Corridor

Municipality/Town	1990 Population	2000 Population Estimate	percent Change 1990-2000
Milwaukee County			
Milwaukee	628,088	605,572	-3.58%
Wauwatosa	49,366	48,755	-1.24%
Waukesha County			
Brookfield (Town)	4,232	6,297	48.79%
Brookfield (City)	35,184	37,497	6.57%
Delafield (Town)	5,735	7,397	28.98%
Delafield (City)	5,347	6,404	19.77%
Elm Grove	6,261	6,304	0.69%
Hartland	6,906	8.076	16.94%
Nashotah	567	942	66.14%
Oconomowoc (City)	10,993	12,079	9.88%
Oconomowoc Lake	493	528	7.1%
Pewaukee (City)	9,339	13,447	43.99%
Pewaukee (Village)	5,287	7,245	37.03%
Jefferson County			
Ixonia (Town)	2,789	3,036	8.86%
Milford (Town)	1,007	1,078	7.05%
Waterloo (Town)	694	756	8.93%
Waterloo (City)	2,712	3,096	8.93%
Watertown (Town)	1,840	1,982	7.72%
Watertown (City)	19,142	21,420	11.9%
Dane County			
Burke (Town)	3,000	3,132	4.4%
Madison	190,766	207,248	8.64%
Marshall	2,329	3,017	29.54%
Medina (Town)	1,124	1,248	11.03%
Sun Prairie (Town)	1,839	2,147	16.75%
Sun Prairie (City)	15,352	19,987	30.19%

Source: U.S. Census Bureau, Wisconsin DOA, Demographic Services Center

3.1.3 Economic Conditions

The economic climate of the four project area counties varies substantially. The economies of the corridor municipalities range from small rural community service centers in Jefferson County to the dense urban environment of Milwaukee and Madison. The largest concentration of economic activity in Milwaukee County lies in the City of Milwaukee's central business district. The City and County remain important manufacturing centers, though the economy continues to diversify. Waukesha County has experienced growth in both population and employment since the construction of Interstate 94. Once dominated by agriculture and tourism revolving around area lakes, the County has become a major industrial and office location destination. Jefferson County remains a largely agricultural landscape, with several smaller freestanding cities housing industrial, retail, and service industries. The City of Madison is the hub of economic activity in Dane County. Madison houses the state government and the University of Wisconsin-Madison, making service and government jobs prevalent in the area.

Manufacturing plays an important role in the economy of the entire study area. Jefferson County is most heavily dependent upon manufacturing of the four counties in the study area, with 37.3 percent of the workforce engaged in this activity. The Service and Retail Trade sectors are also large employers in all four-area counties (See Table 3-2). The Service Industry and Government are the largest employment sectors in Dane County at 24.6 percent and 24 percent, respectively.

Table 3-2
EMPLOYMENT
Milwaukee-Madison Passenger Rail Corridor

Industry	Dane County	% of Dane County Workforce	Jefferson County	% of Jefferson County Workforce	Milwaukee County	% of Milwaukee County Workforce	Waukesha County	% of Waukesha County Workforce
Agriculture, Forestry, Fishing	2,642	1.0	617	1.8	1,538	0.3	2,052	1.0
Mining	NA	NA	NA	NA	49	0.1	310	0.1
Construction	12,130	4.7	1,103	3.2	12,887	2.5	13,140	6.4
Manufacturing	29,645	11.6	12,791	37.3	96,241	18.3	52,150	25.5
Transportation, Communication, and Utilities	9,157	3.6	1,526	4.5	27,838	5.3	8,456	4.1
Wholesale Trade	11,865	4.7	1,351	3.9	26,256	5.0	19,310	9.4
Retail Trade	45,300	17.7	6,270	18.3	84,985	16.2	32,563	15.9
Finance, Insurance, & Real Estate	20,699	8.1	738	2.2	42,574	8.1	11,344	5.6
Services	62,885	24.6	6,077	17.8	173,211	33.1	48,944	24.0
Government	61,147	24.0	3,771	11.0	57,982	11.1	15,910	8.0
All Industries	255,673	100.0	34,259	100.0	523,561	100.0	204,179	100.0

Source: WI Department of Workforce Development, Bureau of Workforce Information

Income

Income characteristics vary among the four counties. In 1997, Waukesha County had the highest per capita income of the counties, at $33,511 (See Table 3-3). Waukesha County also had the largest five-year increase in per capita income at 28.9 percent since 1992. The economy of Waukesha County has prospered over the past decade as the trend of western suburban growth in the Milwaukee area has continued. Jefferson County had the lowest per capita income level of the corridor counties at $21,848 in 1997. Dane County had the second highest per capita income level in 1997, influenced by a large number of high paying governmental and institutional jobs.

Table 3-3
PER CAPITA HOUSEHOLD INCOME
Milwaukee-Madison Passenger Rail Corridor

	1992	1997	% 5 year change
Dane	$22,420	$27,361	22.0
Jefferson	$17,971	$21,848	21.6
Milwaukee	$20,576	$25,535	24.1
Waukesha	$25,997	$33,511	28.9
Wisconsin	$19,331	$24,048	24.4
U.S.	$20,547	$25,288	23.1

Source: WI Department of Workforce Development, Bureau of Workforce Information

3.1.4 Land Use Impacts

Rail Alignment

Maximizing the potential of the existing corridor for rail is the highest and best use of this corridor. Using new technologies such as "tilt-train technology," the proposed passenger rail service would use existing rail rights-of-way to minimize direct and indirect adverse land use impacts. The rail corridor is already in place and in use. Communities have historically developed land uses along the rail corridor. For communities east of Watertown to the City of Milwaukee, it is unlikely that existing land uses would change substantially since the route is already a heavily used freight corridor. West of Watertown to the City of Madison, the rail corridor is less heavily used. Rapidly growing communities such as Sun Prairie and Marshall have experienced residential growth at their urban fringe along the tracks. Future land use is dependent on a number of factors including regional and local markets, plans and zoning ordinances, and economic development policies of local governments.

While the proposed rail alignment under consideration is on existing railroad right-of-way, it passes through an area in Madison that is under consideration for land use redevelopment. The downtown alignment to the proposed Monona Terrace station would travel through the East Rail Corridor study area where existing vacant and industrial land would be redeveloped to as yet undetermined land uses. As noted in Section 3.1.1, the East Rail Corridor Advisory Committee proposes consolidating track alignments one block north of the existing UPRR alignment. In order to facilitate redevelopment, the City of Madison may acquire additional right-of-way for track relocation on the downtown alignment to the proposed Monona Terrace station. The proposed realignment does not currently meet the project purpose and need of using existing rail right-of-way to avoid and minimize environmental impacts. However, WisDOT would cooperate with the city as their project moves forward.

Rural and small communities have expressed concern about the impact of proposed road crossing closures. Concerns include increased travel inconvenience, changes in access to homes and businesses, and emergency and school services. WisDOT project staff have met with all local governments and held local meetings with residents to discuss the project as well as potential closures. The final recommendation on closures would defer to local preference to avoid and minimize impacts. The Office of the Commissioner of Railroads would make the final decision about individual road closures.

Passenger Station Areas

Milwaukee

Amtrak currently uses a station at 433 West St. Paul Avenue in Downtown Milwaukee as a passenger terminal. The terminal is scheduled for major refurbishing in the near future and is also being evaluated as part of a separate study looking at a potential multimodal facility serving a variety of rail and transit services. Parking is available at the station. With increased passenger traffic, there may be opportunities for complementary service development in the area of the station, particularly if it becomes a multimodal facility.

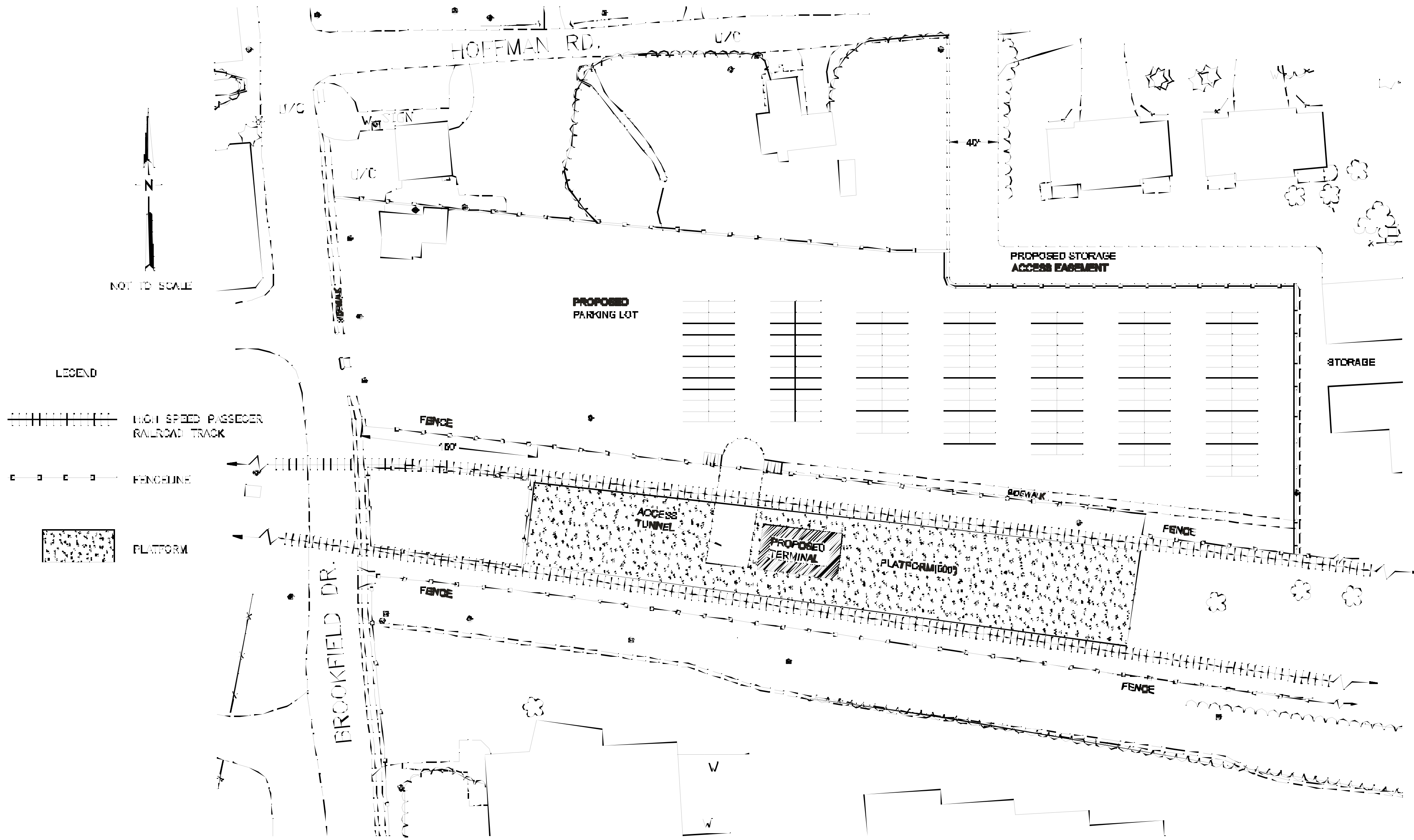
Brookfield

The Brookfield Road passenger station is proposed to be located in the former Brookfield railroad station currently used by CP Railway maintenance crews. The building is located between the two tracks. The former station building would be rehabilitated and relocated a short distance to the east for passenger use. A 160 space parking area is proposed north of the tracks on a vacant parcel (See Figure 3-1).

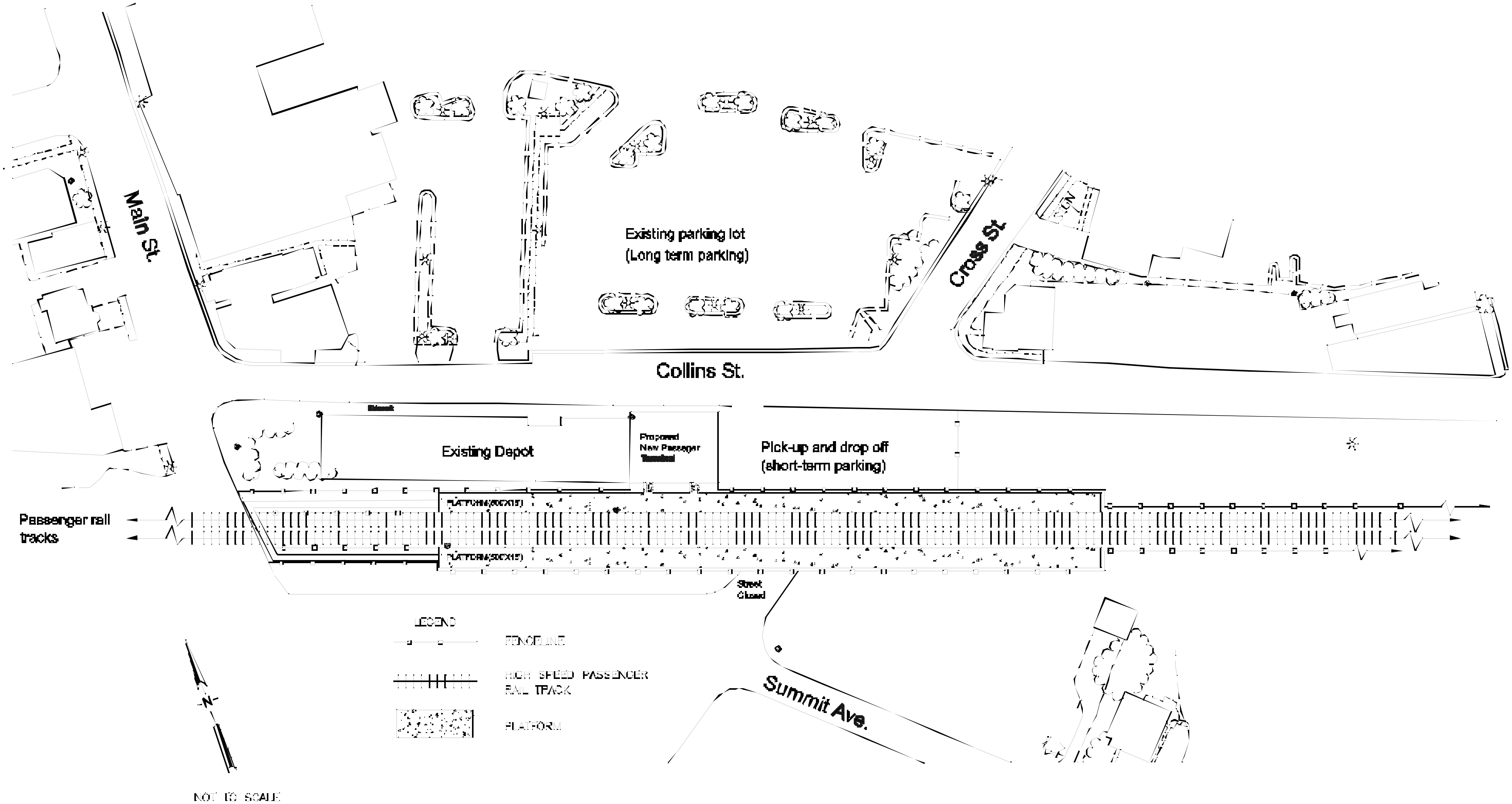
The location would provide opportunities for the continued revitalization of the Brookfield Road commercial area. In recent years, the area has experienced substantial reinvestment. Many small businesses have been attracted to the Brookfield Road commercial area because of the its historic character. The City of Brookfield has aided business development in the area with the reconstruction of Brookfield Road. A substantial investment was made with streetscape improvements. The re-introduction of passenger rail service to the area could help to further promote investment in the area and may bring increased activity and more shoppers into the area.

Oconomowoc

The Oconomowoc station is expected to be located adjacent to the former Oconomowoc Depot on the southern edge of the downtown (See Figure 3-2). A restaurant is now located in



PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Brookfield Station** **Proposed Site Plan**	**Figure 3-1**



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Oconomowoc Station
Proposed Site Plan

Figure 3-2

the station structure. A parking lot located north of the depot serves the downtown business district and may be used for passenger service, but the city has indicated that the lot is at or near capacity. Use of this parking lot for station parking could provide a physical link with the downtown that could result in more pedestrian traffic in the area if passenger rail service is re-introduced. This additional activity could help promote reinvestment or new investment in downtown Oconomowoc.

Additional space is available east of the depot. The City of Oconomowoc has suggested a parking ramp may be needed in the future, if future demand warrants construction.

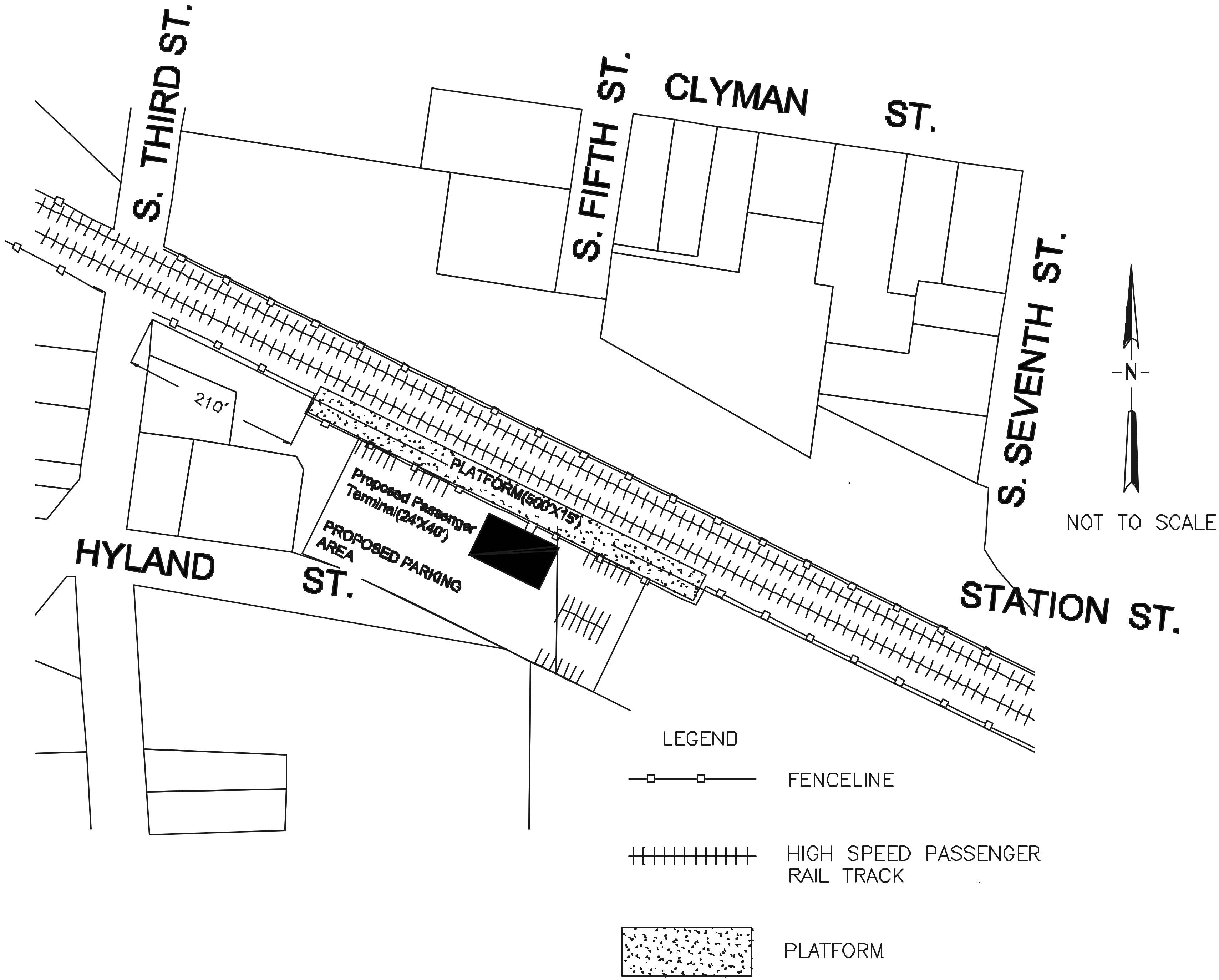
Watertown

The proposed station in Watertown is on a vacant lot, east of Third Street and on the south side of the tracks (See Figure 3-3). Approximately 35 parking spaces would also be accommodated on the site. The site is bordered by industrial land. The re-introduction of passenger service would not substantially change this land use. The area north of the site is currently vacant except for an old railroad freight building, which has been remodeled as an office. There are other industrial and commercial uses bordering the site. Further north lies a residential neighborhood. Although some of these existing industrial and commercial uses could change, the site is relatively remote from other commercial areas within the City. It is located approximately two blocks from the Rock River and four to five blocks south of the downtown commercial district.

Madison

After reviewing various potential sites for a Madison passenger station, three alternative station locations have been identified for final consideration (See Section 2.2.1 and Figures 2-7, 2-8 and 2-9). The Airport station would be located on an existing overflow parking lot owned by Dane County Regional Airport. Adequate parking is available for rail users. The location provides an opportunity for linkages with air, taxi, rental car, and bus transportation modes. Land use in the area is primarily office park and locating the station at this site could reinforce the continued business development targeted for this area. However, the proposed site is not directly adjacent to these sites or served easily by pedestrian walkways. New development in the area is also likely to be influenced by the proximity of the airport and other similar existing development.

The second alternative station site is located on Pennsylvania Avenue near the existing WSOR yard, also referred to as the Pennsylvania Avenue station site. The proposed station would be located on a series of three adjacent parcels, which are partly vacant. This site would require relocating a business. Land use in the area is presently mixed commercial and light industrial. Some buildings adjacent to the proposed station site appear to be vacant. It is possible, depending on local market economy and incentives from the City of Madison, that the area could see some commercial development induced to serve passenger traffic.



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Watertown Station
ProposedSitePlan

Figure 3-3

The third proposed station site is located in downtown Madison in the lower level of the State Office Building at One West Wilson Street. The station platform would extend beneath the Monona Terrace Convention Center. This site is referred to as the Monona Terrace station. Building remodeling would be required to provide the necessary passenger ticketing and waiting facilities. The current trackage used by WSOR passes beneath Monona Terrace just behind the State Office Building. Adequate room exists to double track the line beneath Monona Terrace. Little land use change is anticipated since the station is located in downtown Madison. A downtown station would complement and serve numerous downtown destinations.

3.1.5 Residential and Neighborhood Impacts

Neighborhoods would be indirectly affected by the proposed passenger rail service. No residential acquisitions would occur. However, changes in access would occur in some areas, as fencing and the proposed closure of some highway/rail crossings would alter movements in neighborhoods along the corridor. Short term delays would be experienced in all communities waiting for trains to clear crossings. Sidings would avoid blocking crossings for extended periods of time and may help relieve current blockage of some crossings. Increased train speeds in some communities, particularly those west of Watertown, may create a sense of discomfort and a perception of increased safety risks. Similarly, these safety concerns may arise with re-installing the second track between Watertown and Pewaukee; however this section of trackage currently carries a high number of daily freight trains.

City of Milwaukee

The proposed passenger rail service would use the existing CP Railway mainline from the Amtrak Station in downtown Milwaukee through the City and into the City of Wauwatosa. As the route passes through the City of Milwaukee, it moves through industrial areas on a route currently serving multiple heavy freight movements as well as the existing Amtrak *Empire Builder* service. The route does not pass directly through any residential areas or neighborhoods. No new impacts to city neighborhoods are anticipated by the addition of passenger service.

City of Wauwatosa

The project route continues through the City of Wauwatosa where it leaves Milwaukee County. This route travels through industrial areas east and west of the city’s commercial core. No additional residential or neighborhood impacts are anticipated from the re-introduction of passenger rail service other than an increase in the number of trains passing through the area.

Village of Elm Grove

The project route enters Waukesha County through the Village of Elm Grove. The tracks predate the community and the residential areas through which the train passes. Neighborhoods back onto the right-of-way and are generally shielded with berms and/or plantings. The additional passenger rail service would add to the rail traffic passing these subdivisions, but little disruption to neighborhoods is expected since the railroad currently serves as a boundary between neighborhoods.

The project route also passes through the commercial center of the Village of Elm Grove, where heavy pedestrian and vehicle traffic is present. Although the line is bermed or buffered from the residential subdivisions along the route, it crosses Watertown Plank Road in the center of the business district at grade. Although residents and visitors to the area are used to heavy train traffic along this corridor, the addition of up to twenty additional passenger trains per day (by 2005) providing higher speed service may be more noticeable to pedestrians and motorists. The crossing would be upgraded to appropriate safety standards.

City of Brookfield

The City of Brookfield—the first of the proposed intermediate passenger train stops— is adjacent to the Village of Elm Grove and shares many similarities with that community. This community is also familiar with to the existing passenger and freight service on the CP Railway mainline. As in Elm Grove, the tracks predate the subdivision developments that back up to the right-of-way. In general, these are buffered with berms or trees and other plantings. As with Elm Grove, the additional service would add to the rail traffic passing through the community, though little neighborhood disruption is expected.

Village of Pewaukee

The Village of Pewaukee is another Waukesha County community that has experienced passenger and freight traffic on the CP Railway mainline. As with the other communities described above, berms and plantings have generally buffered new residential developments along the route when they have been located adjacent to the tracks. The tracks do not sever any neighborhoods in the community as the tracks predate those developments.

The area where new higher speed passenger service could have an impact on the community is in the area of the downtown and lakefront. The Village downtown area fronts on Pewaukee Lake. In particular, the CP Railway mainline crosses Wisconsin Avenue at the lakefront in an area of high pedestrian activity during the summer. A new Village parking lot for the lakefront is located across the tracks thereby increasing the pedestrian movement through the area. Special care would be taken in this area to provide upgraded crossing safety equipment focusing on pedestrian, as well as vehicular traffic.

Village of Hartland

Like the other communities in Waukesha County, Hartland currently experiences both passenger and freight service through the community. Subdivision developments and neighborhoods have been designed with the railroad in place. They back up against the right-of-way and are buffered by berms and vegetation. Impacts from the proposed action include the addition of more trains passing through the Village at higher speeds. Little neighborhood disruption is expected. Given the design of existing subdivisions and other developments along the right-of-way, the proposed service would not sever neighborhoods.

Village of Oconomowoc Lake

The CP Railway mainline passes through the north edge of this village in western Waukesha County. The only impact of the proposed service on this community would be an increased number of trains passing along the track. The proposed action would not result in the severance of any neighborhood.

City of Oconomowoc

The City of Oconomowoc is the second of the proposed intermediate passenger train stops between Milwaukee and Madison. Neighborhoods in this community developed after the tracks extended through the area. Homes and businesses are buffered from the railroad tracks and neighborhoods would not be severed by the proposed action. The City currently experiences through passenger and freight rail traffic. Impacts from the proposed service include the addition of more trains passing through the city and the proposed closure of Cross Street. Safety improvements at crossings and fencing along the line would mitigate the impact of this change in service. Impacts in the station area have been discussed in the previous section.

City of Watertown

The City of Watertown, in Jefferson County, is the last community along the project route to currently experience both passenger and freight rail traffic on the existing CP Railway mainline. Although the project route does pass through a residential neighborhood from Twelfth Street to the Rock River, the residents of the area are used to the presence of the trains and the additional proposed service would incrementally change the existing conditions. Traffic patterns and access to the area would be affected by the proposed closing of the Ninth Street crossing. This would increase traffic on Tenth Street and could create a feeling of severance for residents along Ninth Street who can currently cross the tracks there. Grade crossings would be upgraded and the corridor fenced to prevent pedestrians from crossing the corridor at places other than protected crossings. This could result in a sense of separation between residential neighborhoods

City of Waterloo

The City of Waterloo in Jefferson County is the first community located on the Waterloo Subdivision of the CP Railway network. This single track line extends from Watertown to Madison and is currently characterized by less intensive maintenance, low speeds and infrequent freight service operated by WSOR.

The project route runs through the center of the City of Waterloo in an east-west direction. Currently, residents experience one to two slow freight movements daily. Under this proposal, rail traffic would increase by 10 round trip passenger trains per day through the community by the year 2005, traveling at a maximum of 79 miles per hour.

The trains would introduce a new set of experiences into the neighborhoods on either side of the tracks. The topics of noise and vibration are discussed in Sections 3.6 and 3.7. Under the current situation, the tracks can be crossed easily during the day. The low number of freight movements through the community travel at approximately 10 mph (16 kph). With the re-introduction of the proposed passenger rail service, increased train speeds can create a sense of increased safety risks. Special care would be taken in this area in providing upgraded crossing safety equipment focusing on pedestrian as well as vehicular traffic. Corridor safety would be enhanced with upgraded crossing warning systems and fencing to deter pedestrians from crossing the corridor at places other than those crossings. Fencing the rail right-of-way could result in a sense of separation between the residential neighborhoods along Jefferson, Washington, and Harrison Streets. An overhead pedestrian crossing is proposed at either Monroe or Van Buren Streets to maintain access for pedestrians and bicyclists.

Village of Marshall

The project route passes the northern edge of this community in eastern Dane County. The current track and rail service is the same as that described for the City of Waterloo. As with that community, the existing track would be completely reconstructed through this community.

Marshall residents, as well as other persons living along the alignment west of Watertown, have raised concerns about the re-introduction of passenger rail service. Issues such as noise and vibration impacts, traffic and access, and property values are addressed within this report (See Sections 3.1.7, 3.2, 3.6, and 3.7). Crossings would be upgraded and fencing installed along the corridor. Impacts and perceived impacts are similar to those noted for Waterloo. As most of the residential development is south of the tracks, the only neighborhood severance or separation would be along Hubbard Street (STH 73) and Lewellin Street. However, the residents consider the additional rail service in the existing rail corridor along the north edge of the new homes on Lakewood Terrace and Riverview Court a substantial impact on their quality of life.

City of Sun Prairie

The project route currently passes residential neighborhoods on the east side of Sun Prairie. Some of the residences on both sides of the corridor are within fifty to sixty feet of the rails. Impacts and perceived impacts are similar to those noted for Waterloo. Grade crossings would be upgraded and the corridor fenced to prevent pedestrians from crossing the corridor at places other than protected crossings. This could result in a sense of separation between the residential neighborhoods. The repair, replacement, and installation of new access fencing would provide safety to adjacent neighborhoods, passengers, and the operator of the current railroad to Sun Prairie and other communities as needed. Trespassing laws would be strictly enforced.

The addition of up to twenty trains per day traveling at up to 79 miles per hour through the community has raised concerns about safety and other issues. Residents have attended several public meetings on the project and have expressed similar concerns raised by other communities about the proposed service and impacts resulting from their proximity to the tracks; especially those related to safety, property values, and noise and vibration. These topics are discussed in Sections 3.1.7, 3.1.8, 3.6, and 3.7.

City of Madison

The City of Madison is the western terminus of this proposed project. As noted in Chapter 2, there are three station alternatives on two alignments that are under consideration. For the purposes of this Environmental Assessment, it is assumed that two Madison stations would be in place for local (Monona Terrace station on a Downtown alignment) and regional rail service (Airport or Pennsylvania Avenue station on the First Street alignment). These alternative alignments and station locations are included in Figure 2-10 as Alternatives 3, 4, and 6).

The First Street alignment follows the CP Railway Waterloo Subdivision to the Union Pacific line. In order to serve two of the proposed passenger stations (Airport and Pennsylvania Avenue station) the route would swing north, cross East Washington Avenue and enter the existing WSOR yard north of East Johnson Street. The Pennsylvania Avenue station location is approximately ½ mile north of East Johnson Street. The route then continues north to the second alternative station site located at the Dane County Regional Airport. Passenger rail service may be eventually extended north to Portage and on to St. Paul. One of these two stations would likely be selected as the station for trains continuing through Madison to either Minneapolis/St. Paul or Milwaukee/Chicago.

This proposed alignment is fairly well buffered from surrounding neighborhoods east of STH 30. However, the tracks pass through the Schenk-Atwood, Starkweather, and Yahara neighborhoods between those two points. This area is currently served by a limited number of freight movements traveling at approximately 10 miles (16 kph) per hour. The track would be upgraded and the train speed in this part of the City would increase to 30 mph (48 kph). For much of this distance, the track is at the same elevation as the buildings it passes and parts of the right-of-way are currently fenced.

The proposed Downtown alignment continues south from First Street to a proposed Monona Terrace station at the One West Wilson Street State Office Building. This station has been proposed as the site for terminating passenger trains; that is, trains not scheduled to continue onto St. Paul. Passenger train speeds would be well reduced from the 110 mph/79mph speed maintained in the rural areas of the corridor.

Neighborhood representatives have expressed concerns about the re-introduction of passenger rail service through the area. Concerns have been raised that the expanded train service would result in fencing of the corridor, which would further sever the neighborhood. The bike path, which crosses the corridor at Marquette Street, would be maintained and protected with crossing gates. Access to gardens on railroad right-of-way could be continued provided that rail corridor safety is maintained.

3.1.6 Grade Crossing Impacts

Introducing high-speed passenger rail service in the project corridor requires that all grade crossings be evaluated for improvement. The ultimate measure for improving rail safety is to close grade crossings. There are a large number of existing crossings along the corridor. Federal and state agencies, as well as private railroad companies would continue to work on closing unneeded crossings to maintain safety of train operations crews, the public crossing, the rail corridor, and neighbors adjacent to these crossings regardless of this project.

For this study, the project reviewed each individual crossing to determine recommendations for warning treatment or closure. The project staff developed a decision process to initially evaluate each crossing based on current and future automobile, bike, pedestrian and train traffic characteristics. A detailed report of the grade crossing analysis is found in the Private and Public Grade Crossings report[23] available for review at WisDOT Transportation District 1 in Madison and WisDOT Transportation District 2 in Waukesha (Pewaukee Road office). Recommendations for private farm crossings are discussed in Section 3.3.

Crossings selected for closure included redundant crossings (where other nearby crossings allow access to the same roads or areas), crossings not designated as emergency routes, crossings that have low traffic volumes, or private crossings that are no longer needed or used. While all the grade crossings were initially evaluated based on their physical and operational characteristics, many crossings in the project corridor provide essential community links in both urban and rural areas. For this reason, once initial recommendations were made for closure or providing improved warning devices, the project staff coordinated with individual communities to determine the final recommendation for grade crossing treatment. Closures that required real estate acquisition or caused adverse impacts to natural resources or farm operations were avoided. The improvements of grade crossing warning devices would not cause additional environmental impacts since right-of-way purchase for vision corners would not be required.

The proposed public crossing closures for the project corridor are summarized in Table 3-4. Figures 3-4 through 3-7 identify proposed crossing closures. Potential impacts to access for residents, businesses, and public services (such as schools, fire stations and emergency response) would be minimized through local coordination. The proposed closures are still subject to further local review and, ultimately, approval by the Office of the Commissioner of Railroads. The Railroad Commissioner will make the final finding for all closures in the corridor.

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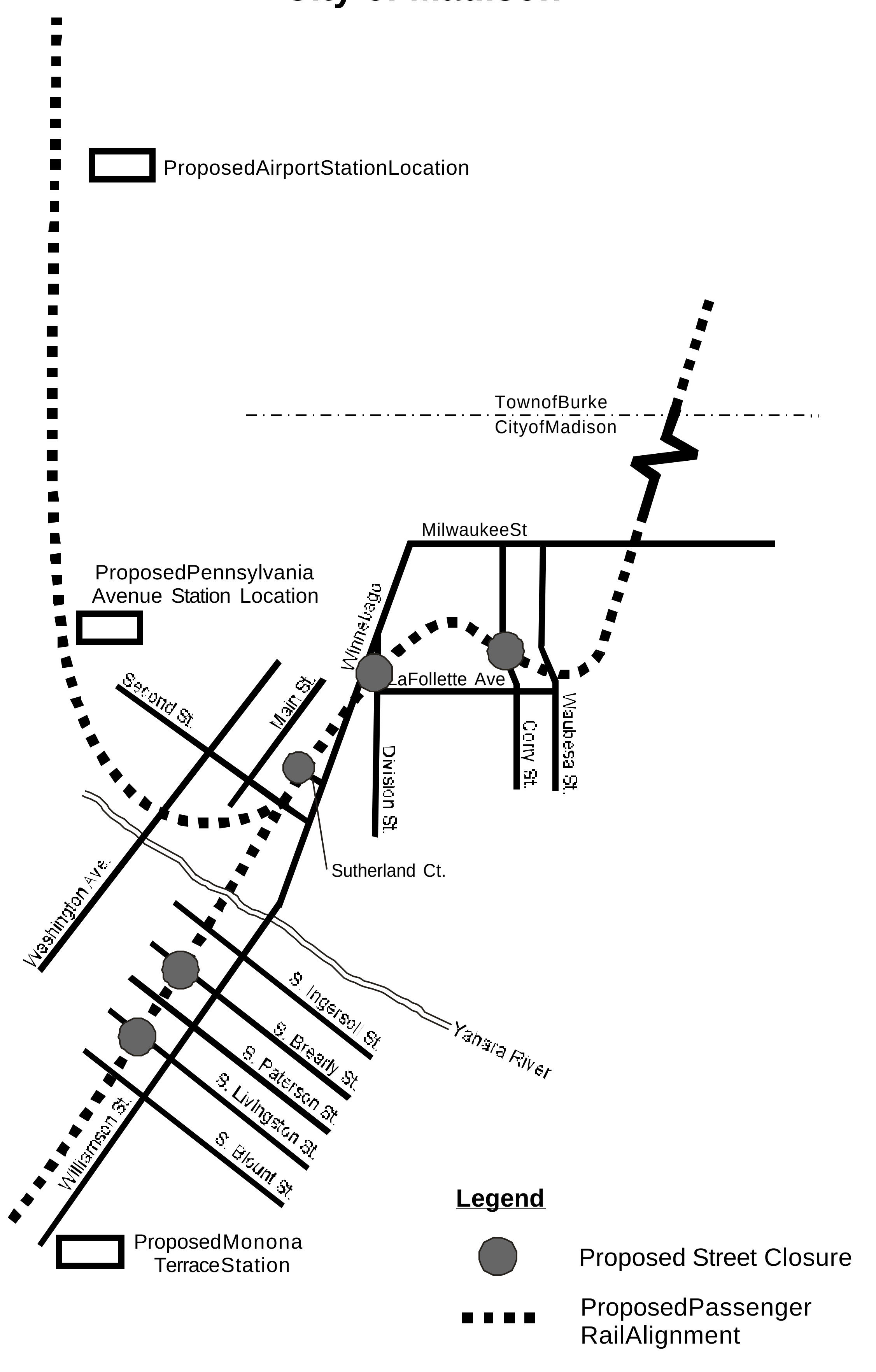
[23] Wisconsin Department of Transportation. Grade Crossing Report: Project I.D. 0410-40-40/0499-10-39 Milwaukee to Madison Passenger Rail Corridor Study.

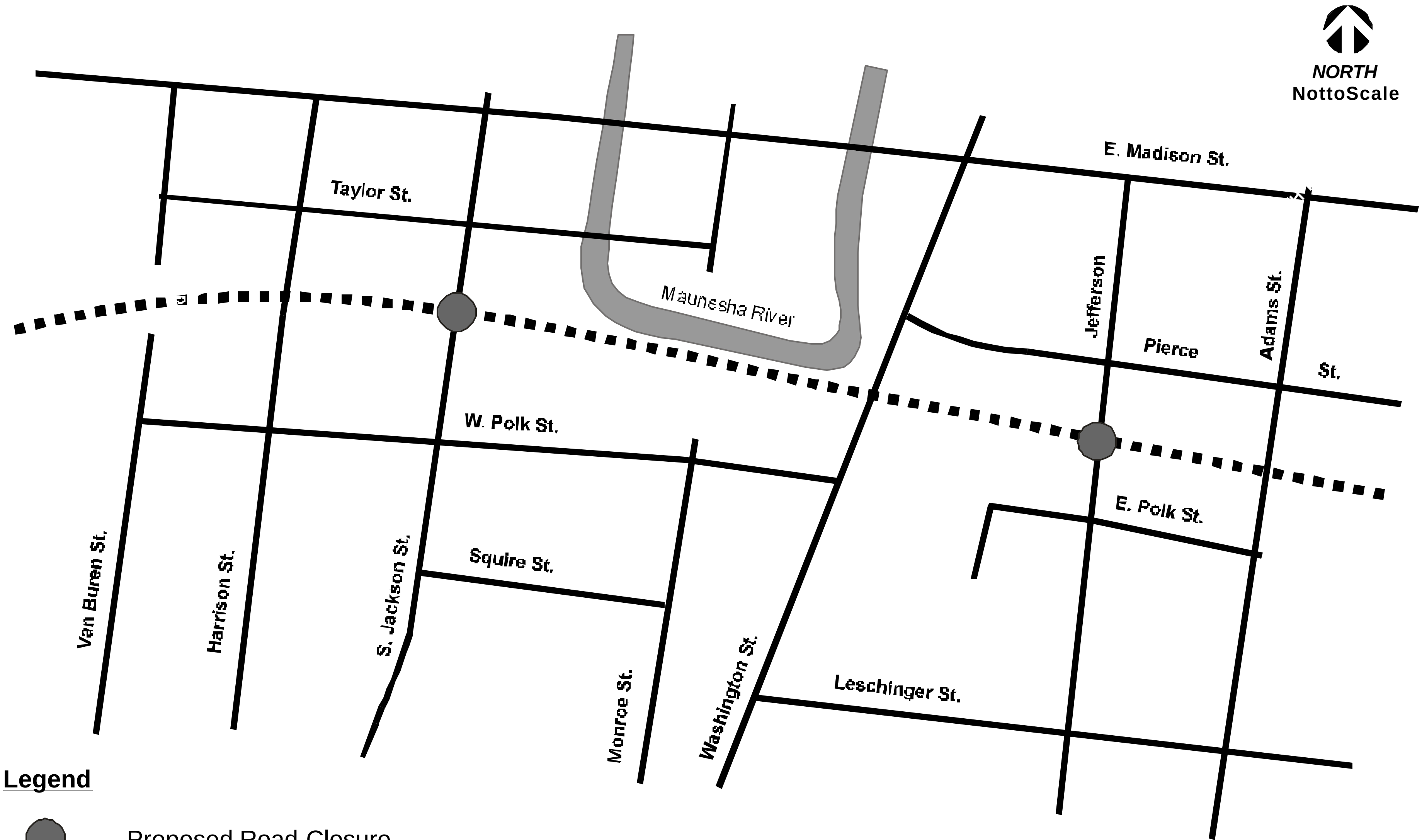
City of Madison



PASSENGER RAIL CORRIDOR STUDY MILWAUKEE – MADISON

LocationsofProposedStreetClosures within CityofMadison

Figure3-4



Legend

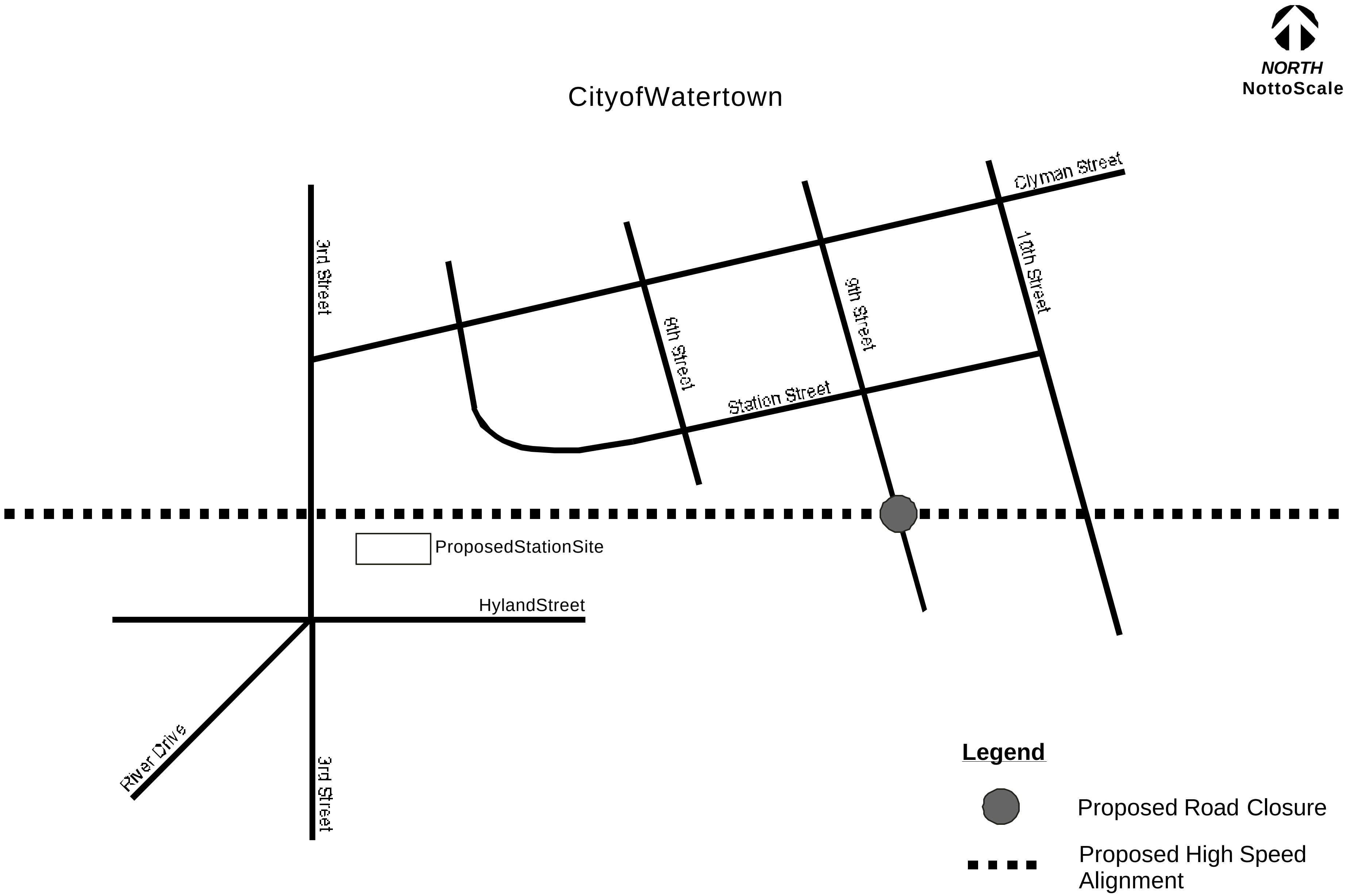
Proposed Road Closure

ProposedPassenger Rail Alignment

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Locations of ProposedRoadClosures inCityofWaterloo

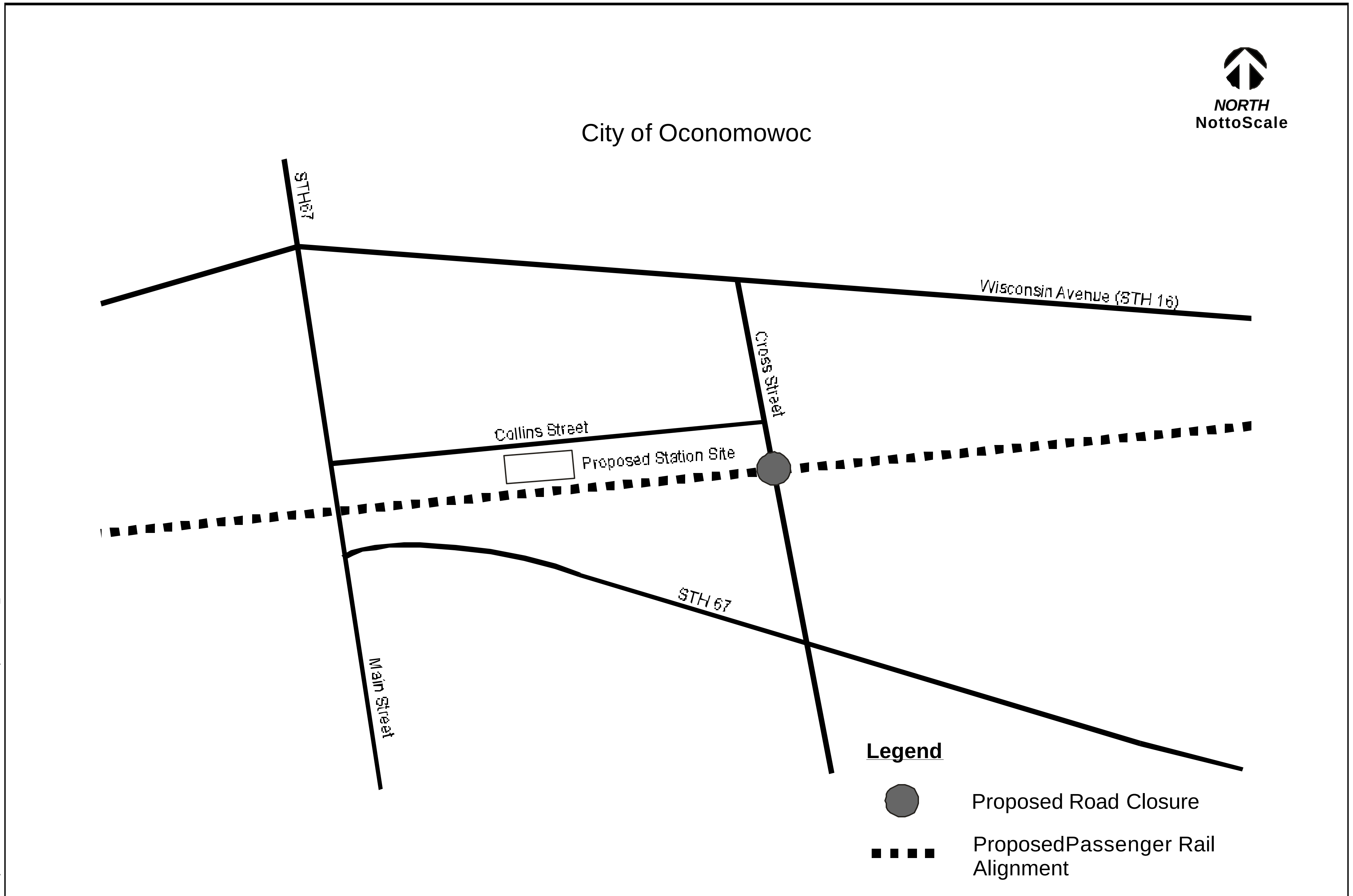
Figure3-5



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Location of ProposedRoadClosure in City o f Watertown

Figure3-6



PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Location of ProposedRoadClosure inCityofOconomowoc**	**Figure3-7**

Table 3-4
PROPOSED PUBLIC GRADE CROSSING CLOSURES

Description	Effect of Closing on Surrounding Land Use
Sutherland Court – City of Madison	Main Street is on the north side of the track as an east/west alternative. Williamson Street is an east/west alternative to the south. Sutherland Court itself is a one block long street connecting these two east/west routes. The north side of the tracks features a neighborhood which includes older single-family, duplex and multi-family residences. Alternative access to residences is available at the Second Street crossing. The south side of the tracks features the parking lots and backs of commercial and industrial properties fronting on Williamson Street.
Division Street – City of Madison	This street comes off Winnebago Street. Winnebago and East Washington Street provide an east/west connection on the north side of the tracks. La Follette Avenue from Winnebago east provides a connector on the south side. There is an auto body shop on the northwest quadrant of the crossing fronting on Winnebago Street. The Rayovac plant is in the northeast quadrant. There is a single family and duplex residential neighborhood south of the tracks and south of La Follette Avenue. Pedestrian and vehicle traffic would be diverted less than one block west to Winnebago Street on both sides of the track.
Corry Street – City of Madison	The closest east/west connection north of the tracks is Milwaukee Street – two blocks to the north. La Follette Avenue is the east/west route south of the tracks. It dead ends at Waubesa, one block to the east. However, Waubesa will be an open crossing so the east/west alternative remains. Krupp Contractors is located in the northwest quadrant of the crossing. The other three quadrants feature single-family homes representing an urban residential neighborhood pattern. There are several small single-family homes adjacent to the tracks on Corry in the northeast quadrant. Pedestrian and vehicle traffic would be diverted one block east to Waubesa Street on either side of the tracks.
South Brearly Street – City of Madison	Brearly Street is only open for a few blocks east of the tracks. There is very little activity evident between East Washington Street and Williamson Street. Brearly Street serves about a block to a block and a half of residential land southeast of Williamson Street before it dead-ends. Residents that desire to go to East Washington will be able to use South Paterson Street or South Ingersoll Street with no additional travel required.
South Livingston Street – City of Madison	There are only a few industrial access points on Livingston Street between East Washington Street and Williamson Street. The majority of these access needs could be met even with South Livingston Street closed at the railroad tracks. Like Brearly Street, Livingston Street serves a block of residential properties southeast of Williamson Street. These residents will still have full access to Williamson Street and can reach East Washington via South Paterson Street or Blount Street with no additional travel required.
Jefferson Street – City of Waterloo	The crossing is in an urban neighborhood. Pierce Street provides an east/west parallel route on the north side of the tracks. Leschinger Street provides a similar parallel route on the south side of the tracks. Land use on the north side of the tracks is an urban single family residential neighborhood. The McKay Nursery complex is located on both sides of Jefferson Street south of the tracks. Alternative access is provided via Adams Street.

Description	Effect of Closing on Surrounding Land Use
Jackson Street – City of Waterloo	The crossing is in an urban neighborhood. Polk Street provided a parallel east/west route south of the tracks. The closest parallel route on the north is Madison Street, which extends through the downtown area. There are large, industrial buildings in all four quadrants of the rail crossing. Land use north of the tracks is a mix of commercial and residential. Land use south of Polk Street is residential.
Ninth Street – City of Watertown	This crossing is located in an urban neighborhood. State Street provides an east/west parallel route on the north side of the tracks. Hart Street provides a similar parallel east/west route on the south side of the tracks. Hart Street is also signed as a truck route. A carpet and flooring business is located in the northwest quadrant. Single family housing is found in the other three. Alternative access is provided via Tenth Street, one block east.
Cross Street – City of Oconomowoc	The Cross Street crossing is at the preferred station site in downtown Oconomowoc. This crossing would be closed to accommodate the platform. Surrounding land uses include the existing historic station to the immediate west and the downtown across Collins Street to the north. Residential properties are to the south and east of the crossing and front on Summit. Traffic would be diverted to Main Street one block west or Silver Lake Street two blocks to the east to cross the tracks. The only business directly affected by this diversion is the restaurant in the station itself, which should benefit by the increased activity created by the station.

Source: HNTB Corporation

Non-farm private crossings were reviewed on a case-by-case basis. Closures are recommended where alternative access can be provided from public streets. Table 3-5 summarizes private crossing closures and recommended access.

Table 3-5
PROPOSED NON-FARM, PRIVATE GRADE CROSSING CLOSURES

Location	Municipality	Alternative Access
MP 156.05 – First grade crossing east of East Marshview Drive	City of Sun Prairie	Alternative public access available, via Railroad Street and CTH N.
MP 163.8 – First grade crossing south of STH 30	City of Madison	Safety hazard - informal urban crossing; no mitigation recommended.

Source: HNTB Corporation

3.1.7 Property Value Impacts

Residents living along the Watertown to Madison segment have raised concerns over noise, safety and increased train traffic as potential devaluation factors for real estate adjacent to the project corridor. The relative newness of high-speed passenger rail service in the United States makes it difficult to assess the potential impacts that the proposed passenger rail project could have upon property values. Although high-speed trains are now operating both here and abroad, the Milwaukee-Madison project is unique in that a segment of the corridor has accommodated freight trains traveling at very low speeds.

Property value impact studies related to new highway or airport construction do not closely parallel the circumstances associated with the proposed project. The FRA recently completed a study that analyzed 12,000 home sales between 1988-1997, to determine the effect of whistle bans on property values.[24] The study analyzed housing values along Conrail corridors in Ohio and Massachusetts. Research showed that, after accounting for the influence of housing characteristics and neighborhood features, homes located along railroad tracks typically have lower values than homes of equivalent size and similar characteristics not located along rails. According to the study, " . . . findings consistently show that proximity to rail lines has a negative and statistically important influence on residential property values". For example, homes within 1,000 feet of a Conrail line experienced lower property values of 9 percent-26 percent, as compared to homes outside the 1,000-foot range. Property values increased 1 percent-3 percent per 100 feet within the 1,000-foot range moving away from the tracks.

Based on the FRA study findings, the relative value of property adjacent to the existing Milwaukee-Madison rail corridor would reflect the presence of the facility. However, no conclusion regarding the impact on property values in this project corridor can be readily made since the FRA study does not distinguish between rail lines with relatively low or changing level of activity and those with high activity. Rail activity between Milwaukee and Watertown is high compared to currently low rail activity between Watertown and Madison.

The FRA study also found that property values in two of three study areas were not negatively influenced by Conrail using whistles in areas where bans had previously been instituted. Proximity to rail lines diminishes property values, regardless of horn-blowing policies. The study also suggests that residents sensitive to train whistle noise would likely move away from the tracks and that future residents along the tracks would likely be less concerned about train noise. This appears to be the case on the Watertown Subdivision between Milwaukee and Watertown where residential housing co-exists with heavily used railroad right-of-way throughout the suburban areas (for example, Elm Grove, Brookfield, Hartland, and Oconomowoc) of Milwaukee and Waukesha counties. Alternatively, the potential for induced development around stations (See Section 3.1.4) may increase property values and tax revenues for municipalities in those areas.

3.1.8 Public Health and Safety

Data pertaining to train/vehicle crashes in the Milwaukee-Madison project corridor between 1990 and 1999 was collected and is summarized in Table 3-6.

There were 26 crashes within the project corridor between 1990 and 1999. As expected, most crashes occur in urban areas with higher traffic volumes on local streets. All the crashes occurred at public crossings. Eleven crashes occurred in Madison, of which nine crashes occurred between Milwaukee Street and Packers Avenue. The next highest concentration of

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[24] Clark, David E. Effects of Ignoring Whistle Bans on Residential Property Value: An Hedonic Housing Price Analysis Final Non Technical Summary. (FRA, Argonne National Laboratory). January 31, 2000.

crashes occurred in Oconomowoc where six crashes have been recorded between 1990 and 1999. Three crashes were recorded in the City of Milwaukee. It is likely that there were fewer crashes in Milwaukee due to the relatively low number of at-grade crossings.

Table 3-6
SUMMARY OF TRAIN/VEHICLE CRASHES 1990-1999
Milwaukee-Madison Passenger Rail Corridor

Railroad Subdivision	Milepost	Municipality	Street	Date of Crash
Watertown	86.14	Milwaukee	12th Street	8/15/90
	86.18	Milwaukee	13th Street	2/2/96
	86.84	Milwaukee*	27th Street	10/19/92
	98.07	Brookfield	Calhoun	9/2/97
Watertown	108.19	Delafield	CTH KE	2/26/99
	117.85	Oconomowoc*	Cross Street	6/21/99
	117.93	Oconomowoc*	Main STH 67	7/9/96
	118.13	Oconomowoc	Worthington	2/26/94
	118.2	Oconomowoc	Concord	10/10/90
		Oconomowoc	Concord	3/27/92
	118.64	Oconomowoc	Elm	10/29/92
	122.57	Ixonia*	River Valley	12/20/96
	129.95	Watertown*	12th	10/5/95
	130.54	Watertown	3rd	10/30/91
	30.88	Madison	Packers	11/3/93
Waterloo	159.73	Town of Burke	Nelson	9/23/99
	161.48	Madison	Lien	5/1/97
	162.7	Madison	Sycamore	1/2/98
	164.32	Madison	Milwaukee	9/22/93
WSOR/UPRR	139.9	Madison	Johnson	9/29/93
	80.16	Madison	Division	8/20/92
	80.21	Madison	Winnebago	4/23/91
	80.33	Madison	4th	7/15/91
	80.56	Madison	E. Washington	4/1/93
		Madison	E. Washington	6/24/94
	80.56	Madison	1st	10/17/94

*Indicate crashes with Amtrak train

Source: Wisconsin Office of the Commissioner of Railroads

In addition to train/vehicle crashes the Office of the Commissioner of Railroads maintains records of pedestrian accidents. Between 1990 and 1999, there were seventeen accidents, in which there were eight deaths and nine injuries. These accidents occurred throughout the corridor.

The re-introduction of passenger rail service between Milwaukee and Madison will require train control, signal, and railroad crossing upgrades to ensure the health and safety of the public as well as train operators. Approximately 30 percent of the project cost has been allocated for safety enhancements throughout the corridor. Specific recommendations for the Milwaukee to Madison corridor include:

Fencing: Currently, fencing is proposed along both sides of the entire rail corridor. A 5-foot chain link fence would be used in urban areas to deter pedestrian crossings. Decorative fencing may be installed in lieu of chain link fence based upon continued WisDOT coordination with local communities. Four-foot high woven wire is recommended in rural areas.

Grade Crossing Warning Devices: The closing of at-grade crossings are one of the best ways to eliminate crossing crashes. However, since grade crossing closings are not always practical in the project corridor, improved warning devices are proposed. Appendix B provides detailed information for proposed treatment at each crossing. Improved warning devices include extended single-arm gates or quad gates to prevent vehicles from driving around gates. The environmental and real estate impacts of upgrading vision corners (large cleared areas to allow visibility at crossings) are avoided because of the proposed warning systems at crossings. Median barriers may also be proposed to prevent "drive-around" movements at gates. The safety features of rail-crossing barriers are illustrated in Figure 3-41. Back gates are proposed at public crossings with heavy pedestrian or bicycle use. As noted in Section 3.1.6, all crossing recommendations have, and will continue to be coordinated with local communities through the final design process.

Train Communication and Control Systems: A centralized traffic control system will be implemented to provide for train traffic management and collision avoidance. A new state-of-the-art positive train control system (PTC) for both freight and passenger traffic is proposed for the entire corridor to allow passenger train speeds in excess of 79 mph (126 kph) as required by FRA and to provide for advance activation of grade crossings.

Other Considerations: Beyond the committed safety measures noted previously, FRA has issues a proposed rule implementing 49 U.S.C. Section 20153 regarding sounding of horns at highway rail crossings.[25] The rule provides a means for communities to create a quiet environment (Quiet Zones) for their citizens while maintaining safety for train crews and passengers, and automobiles. The rule would also establish an upper limit for the loudness of train horns.

The proposed rule would implement a statutory requirement that locomotive horns sound at each highway-rail grade crossing unless certain exceptions are met. The proposed rule describes Supplementary Safety Measures (SSMs) that a community may use to establish a Quiet Zone within which locomotive horns will not be sounded. Supplementary Safety Measures are proposed to prevent careless movement by motorists over a crossing. WisDOT intends to comply with the draft FRA rules so as to allow communities to establish Quiet Zones.

[25] 65 Federal Register 2229, January 13, 2000.

Installing safety features such as lights, gates and signal systems does not preclude motorists and pedestrians from disregarding them. Education and enforcement programs that increase public awareness of the danger is also an integral part of a complete public safety program. WisDOT is involved with Wisconsin Operation Lifesaver, Inc. (OLI), through which WisDOT and private railroad staff provide grade-crossing safety education to communities.

OLI programs focus on engineering, enforcement and education to reduce injuries and fatalities as a result of grade crossing crashes and trespassing on railroad rights-of-way. Programs are tailored for various audiences by age group, educational grade levels, emergency response staff, and school bus and commercial vehicle operators. They also conduct a grade crossing crash investigation course for law enforcement officials.

3.1.9 Relocations

There will be no required relocations for the proposed alignment. All track improvements are confined to the existing right-of-way. No relocations are expected at five of the six stations evaluated.

However, if the Pennsylvania Avenue station site for the Madison station were selected, the City of Madison would need to acquire three non-residential parcels. The former Dane County Humane Society and Knabe Tool Works, Inc. currently occupy two of the parcels. Hooper Construction uses the third parcel is for equipment storage. A conceptual relocation plan has been prepared for Knabe Tool Works.

A local market survey indicates adequate replacement sites. Sites that could accommodate this business are listed for sale or lease by Cirex Web Site and the Polacheck Company at 5310 Wall Street, Madison, Wisconsin. The list prices range from $394,000 to $450,000 for a 10,000-square foot building. Larger buildings and sites are also available. Properties for lease range from $3.50 to $14.00 per square foot.

In a personal interview with staff of the Polacheck Company, a Madison real estate firm, it was indicated that there are many manufacturing lots available in the Metro Madison area. In addition, a similar building could be built in about four to six months depending on the needs of Knabe Tool Works. Equipment stored on the Hooper Construction property could be moved to other vacant parcels, or possibly to other properties owned by the business.

The business and equipment to be relocated would be aided by relocation services, supplemental business payments and moving cost payments. There will be adequate time to solve any relocation problems, which could arise. There are no foreseen problems in providing business replacement sites that would require special relocation advisory service. If an unusual hardship arises at the time of displacement, liaison will be established with local public agencies and services may be utilized for the benefit of the displacees. Estimated relocation costs are summarized in Table 3-7.

Table 3-7
BUSINESS RELOCATION COST ESTIMATE

Actual Moving Payments (Knabe Tool Works and Hooper Construction equipment)	$33,000
Owner Business Payment	$50,000
Search Costs	$ 1,000
Reestablishment Payment	$10,000
TOTAL	**$94,000**

3.1.10 Economic Impacts

Impact of Construction and Operations

Reconstructing rail infrastructure and constructing new stations in the project corridor will create direct and indirect economic impacts. Direct impacts include creating jobs that would provide construction materials and equipment, and jobs created from actual re-construction of the railroad, layover facility and stations. Re-establishing passenger rail service also creates additional jobs for operating the service. Indirect impacts accrue from construction and operation-related wages being recycled in local economies for day-to-day needs of employees.

The geographic distribution of the economic impact of passenger rail service will depend on the location of the construction materials and equipment manufacturers, construction labor force, and operations labor force. The study for the Midwest Regional Rail System estimated that approximately 4,000 construction jobs and 2,000 operations jobs would be created if the entire Chicago hub network (a 3,000-mile passenger rail system) were implemented throughout the Midwest.[26] The direct and indirect economic impact of construction and operations within the Milwaukee-Madison corridor will provide a limited benefit as most materials and equipment manufacturers are located outside of the project corridor. Indirect impacts may be realized locally as construction crews spend money at local businesses along the corridor.

While economic effects from system operations will be greatest at the Chicago hub, local impacts from expenditures for operations can be expected in communities with passenger service: Milwaukee, Brookfield, Oconomowoc, Watertown, and Madison. Railroad personnel will be located in these communities, or may commute from other nearby areas. Employees would create a secondary economic impact by spending wages in the local economy. Also as

[26] Transportation Economics and Management Systems, Inc. Midwest Regional Rail Initiative Executive Report. February 2000.

noted under Section 3.1.4, new stations in served communities may induce secondary economic impacts from nearby station-oriented development.

Impact of Local Changes due to Passenger Rail Service

Local communities expressed concern about access disruption to neighborhoods and businesses from grade crossing closures. No crossings would closed without concurrence of local officials.

Private crossings to businesses and farm operations that have no alternate routes are recommended to remain open with added warning systems. Some private farm crossings are recommended for closure (See Section 3.3) where alternate routes are available. Lack of direct access to fields may cause additional economic burden to farm operators. WisDOT staff will consult with each affected property owner to finalize closure recommendations and mitigation measures to avoid economic impacts.

An impact from lost tax revenues may occur if the Pennsylvania Avenue station site is selected in Madison. There is a potential loss of $5,442 should this business relocate outside the city. The total assessed value of commercial properties in Madison is currently estimated at $4 billion, and the affected property has a current combined assessed value of $209,800. The impact of the relocation on tax revenue for the city is not substantial.

3.1.11 Secondary and Cumulative Impacts

Secondary and cumulative impacts refer to impacts that are reasonably foreseeable and are caused either from the indirect effects of implementing the project or from the cumulative effects of other unrelated actions within local communities. In general, implementation of passenger rail service on existing rail right-of-way is not expected to substantially alter development patterns in the corridor. Potential induced effects on residential property values may be evident between Watertown and Madison where rail service will change from existing conditions. Proposed fencing for the corridor may cause some indirection of wildlife corridors. The potential secondary impact of relocated farm crossings is expected to be avoided or minimized during individual consultation with farm operators.

Most secondary and cumulative impacts in the project corridor can be expected in passenger station areas, particularly areas within walking distance of the station. As noted in Section 3.1.4, induced station-oriented development and jobs may be expected in communities where new stations are located in areas that are accessible to employment centers or services. Thus secondary development may be most likely to occur near the Brookfield and Oconomowoc stations (and possibly at the Madison Airport station site) which are located near business districts.

In general, station sites near industrial areas and freeways are less conducive to development. Thus, proposed station sites in Watertown and the Madison Pennsylvania Avenue station (which are located in generally more industrial areas) may require additional local policies that support development around stations. For example, local communities could provide development incentives through land assembly or reductions/waivers to impact fees. Local communities may also consider policies that support transit or pedestrian-friendly development to encourage station-oriented development. The traffic generated at the proposed stations is not expected to have a significant impact on the surrounding roadway operations. This is based on current area traffic volume, accident experience at the adjacent intersections, the projected amount of future traffic generated to and from the station, and the adjacent roadway's ability to safely accommodate it. See Section 3.2.7 for discussion of station access and traffic impacts.

The former Oconomowoc railroad depot and the One West Wilson Street State Office Building in Madison (site of Monona Terrace station) are both listed on the National Register of Historic Places and the former Brookfield depot is eligible for listing on the Register. The new station for Oconomowoc is proposed as an addition to the existing depot. The Brookfield depot would be re-used as the new station, but relocated a few hundred feet east of its existing site. The Monona Terrace station would have the ticket counters inside the lower level of the State Office Building, and a passenger platform outside under Monona Terrace next to John Nolen Drive. Placing new stations at these sites would require additional local consultation with the State Historical Society.

Local municipalities would be responsible for financing and constructing passenger stations. If federal or state funds are used for construction, local municipalities would need to comply with consultation requirements of Section 106 of the Historic Preservation Act and Wisconsin Statute 44.40. Adverse effects could be avoided if proposed station design or rehabilitation does not affect the historic character or setting of the property. Local communities could make beneficial use of renewed passenger train service as a way to spur restoration of the historic stations and revive their historic use as passenger stations.

All of the water bodies in the project area have been degraded to some degree by past and present land use practices within their watersheds. Increased development at station sites could further degrade water quality and aquatic habitat through increased point and nonpoint source runoff. However, all station sites are located in urban areas and any secondary development to serve station areas would not substantially contribute to adverse cumulative impacts to surface waters. New parking areas at stations may require local communities to investigate measures to control stormwater runoff to minimize impacts to local streams and rivers.

Improved rail infrastructure between Watertown and Madison may induce increased freight rail traffic. However, increased traffic is directly related to future demand for freight rail services. If demand for freight rail service in the corridor increases in the future, the upgrades to tracks may occur whether or not passenger rail service is initiated. There are also local concerns that added passenger rail service may create additional night and early morning freight traffic in neighborhoods of low freight activity between Watertown and Madison. WSOR does not have any plans to change its current operating hours to accommodate future passenger rail traffic on the corridor.

3.1.12 Environmental Justice

On February 11, 1994, President Clinton issued *Executive Order on Environmental Justice 12898* ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"). This Executive Order requires all federal agencies to address the impact of their programs with respect to environmental justice. The Executive Order states that, to the extent practicable and permitted by law, neither minority nor low-income populations may receive disproportionately high or adverse impacts as a result of a proposed project. It also requires those representatives of any low-income or minority populations that could be affected by the project in the community be given the opportunity to be included in the impact assessment and public involvement process.

Disproportionately high and adverse human health or environmental effects on minority and low-income populations are not anticipated on this project because, as the data shows, the rail corridor passes through a number of different neighborhoods that vary widely in income levels and racial makeup. The proposed passenger rail service would use existing railroad right-of-way that is actively used, and was historically used for passenger rail service for over a century. No particular neighborhood would be affected by physical environmental impacts differently than another and therefore any adverse effects of this project would not be predominately borne by a minority population and/or a low-income population. Likewise, no impacts would be suffered by the minority population and/or low-income population that are appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the non-minority population and/or non-low-income population. As noted in Section 3.1.5, concerns raised by residents in the corridor included noise (west of Watertown), effects on property values, increased safety risks, and perceived neighborhood severances from right-of-way fencing. Benefits of the project include safety improvements at grade crossings, fencing to deter trespassing on railroad rights-of-way, and potential induced development around stations. WisDOT also intends to comply with the draft FRA rules so as to allow communities to establish Quiet Zones. There would be no disruption of the availability of public or private facilities or services created by this expanded rail service.

In Milwaukee County, where the greatest concentration of minority and/or low–income population is found, the proposed route would use the existing CP Railway mainline tracks which are already heavily used for freight traffic and for Amtrak long-distance passenger service. This route is located in the Menomonee Valley and is physically isolated from any surrounding neighborhoods where U.S. Census data identifies census tracts with low-income and minority populations. The project corridor is physically separated by water, topographic, and land use features from the households within these census tracts. The proposed passenger service would not cause any disruption of community cohesion or economic vitality on the Milwaukee area.

There are also census tracts in the Madison area with relatively larger populations of low-income and minority residents. The project corridor passes through neighborhoods in these census tracts and there is the potential to create neighborhood disruption with increased train service and corridor fencing. There would be no disruption of economic vitality as no crossings would be closed without municipal support. Neighborhood disruption would be mitigated to the extent possible by the development of a Corridor Management Plan developed with the input of the neighborhood in the next phase of project development.

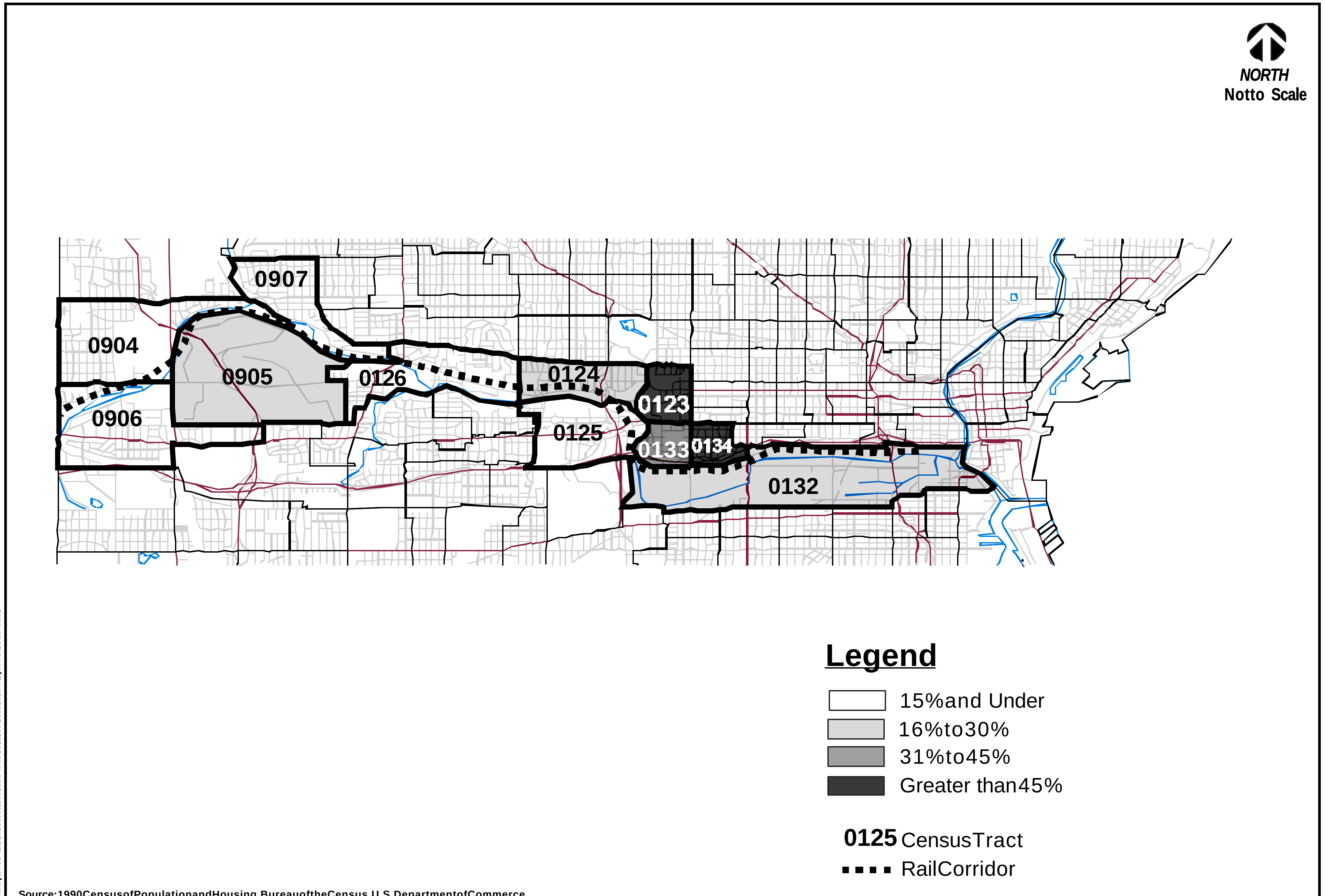
In the Midwest, as in other parts of the country, the automobile has become the most popular form of transportation. So much so that other, once commonly used forms of public transportation have been greatly reduced. The exception to this decline is the continued increase in air travel, which is also a form of public transportation. Access to intercity rail has been limited. It can be said that transit-dependent persons have been impaired by our auto-dependent society. The transit-dependent population often includes the low-income, elderly and infirm. The institution of passenger rail service would offer a transportation choice for those who do not own or cannot drive automobiles and would increase their mobility. On the other hand, the re-introduction of passenger rail service into the competition for intercity travelers, may reduce intercity bus services.

Identification of Low Income or Minority Populations

Data from the 1990 Census was analyzed to determine if there are any isolated areas of low-income or minority populations within the rail corridor. Neighborhoods were delineated using census tracts. Low-income persons are defined as persons whose median household income is at or below the U.S. Department of Health and Human Services guidelines. Minority populations are defined as set forth by the Census Bureau and include Black, Hispanic, Asian, and American Indian, Alaska Native and "Others."

Data for each census tract located near or adjacent to the corridor is compiled in Table 3-8. The racial make-up and census poverty data were used to define any tracts in which low-income or minority populations might receive disproportionately high or adverse impacts as a result of the proposed passenger rail project. Individual census tracts were analyzed for Milwaukee, Waukesha, and portions of Dane Counties where there are smaller scale census tracts. In rural areas such as Jefferson County and portions of Dane County, census data for entire incorporated places including cities, towns and villages were analyzed so that accurate judgements could be made about possible impacts. See Table 3-8 for a complete listing of the income data for these places.

The two geographical areas with the highest percentage of low income and minority populations are located within the cities of Milwaukee and Madison. These areas contain relatively higher low income and high minority populations compared to the remainder of the project corridor. Figures 3-8 through 3-13 graphically depict the percentages of minority and low-income populations. Within the City of Milwaukee, the area located to the northwest of the



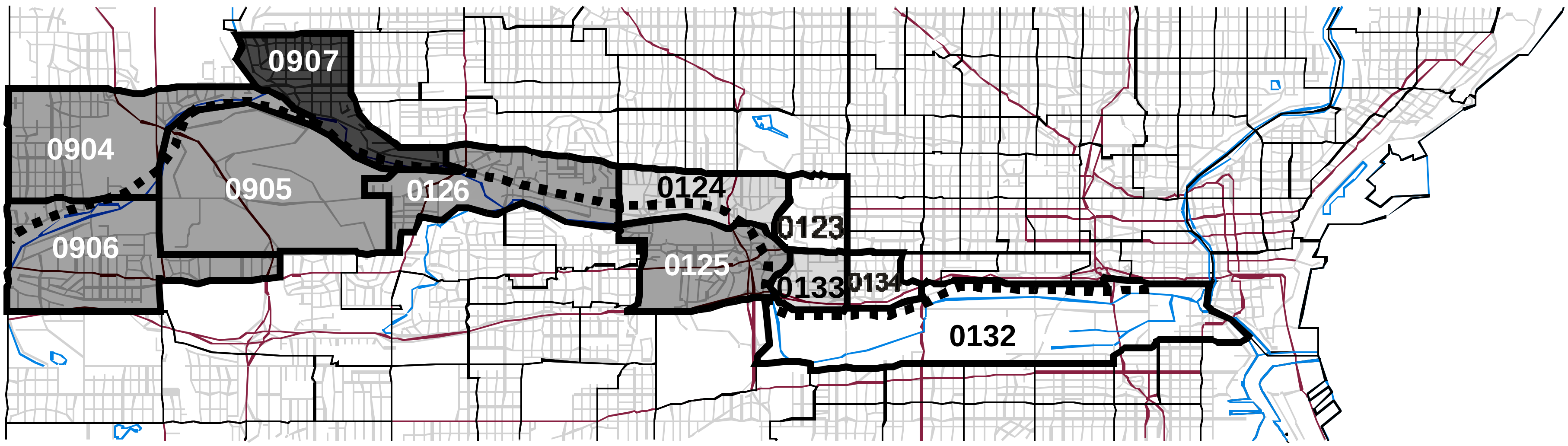
Source: 1990CensusofPopulationandHousing,BureauoftheCensus,U.S.DepartmentofCommerce

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Percent Minority Population
Milwaukee County

Figure3-8

NORTH
Not to Scale



Legend

- $15,000 and below
- $15,001 to $30,000
- $30,001 to $45,000
- Greater than $45,000

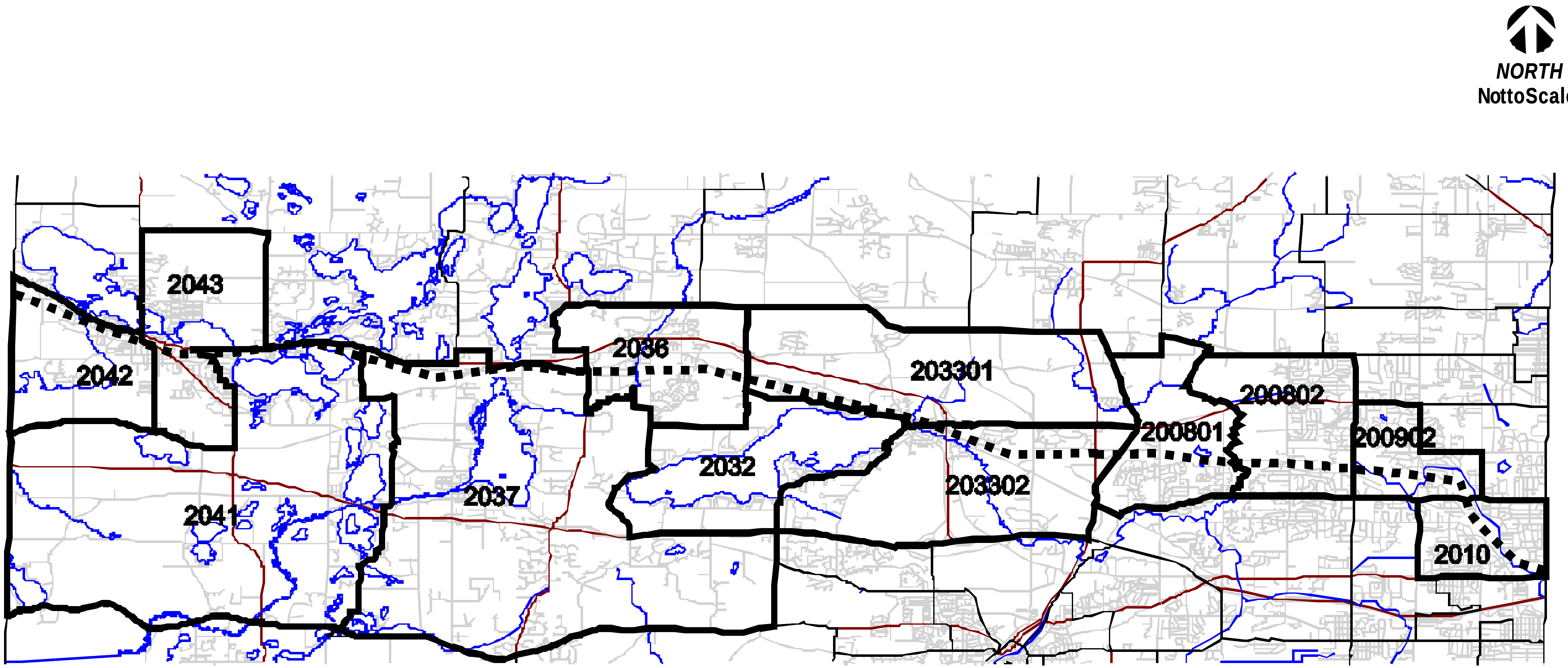
0125 Census Tract

▪▪▪▪ Rail Corridor

Source: 1990 Census of Population and Housing, Bureau of the Census, U.S. Department of Commerce

Median Household Income
Milwaukee County

Figure 3-9



Legend

15% and Under
16%to30%
31% to 45%
Greater than 45%

2042 Census Tract
■ ■ ■ ■ Rail Corridor

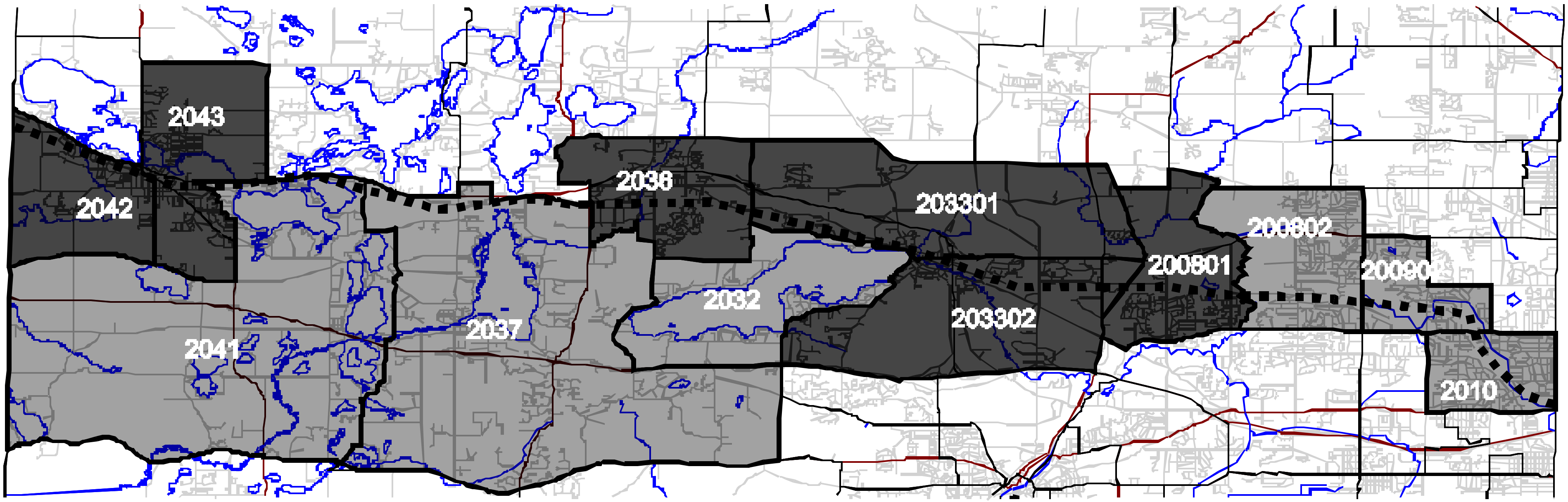
Source: 1990CensusofPopulationand Housing, BureauoftheCensus, U.S.DepartmentofCommerce

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Percent Minority Population
Waukesha County

Figure 3-10

NORTH
Not to Scale



Legend

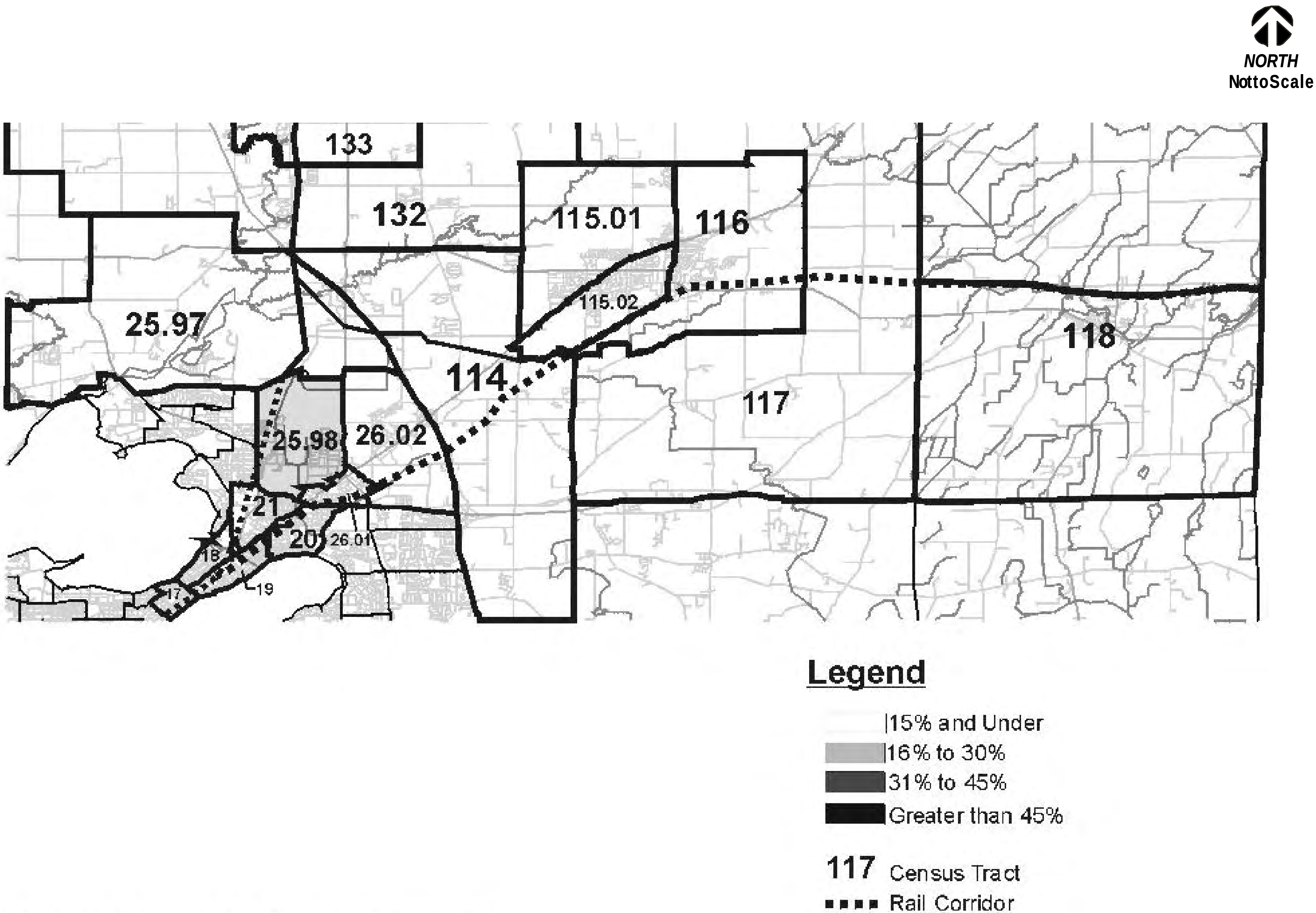
- $15,000 and below
- $15,001 to $30,000
- $30,001 to $45,000
- Greater than $45,000

2042 Census Tract

▪▪▪▪ Rail Corridor

Source: 1990 Census of Population and Housing, Bureau of the Census, U.S. Department of Commerce

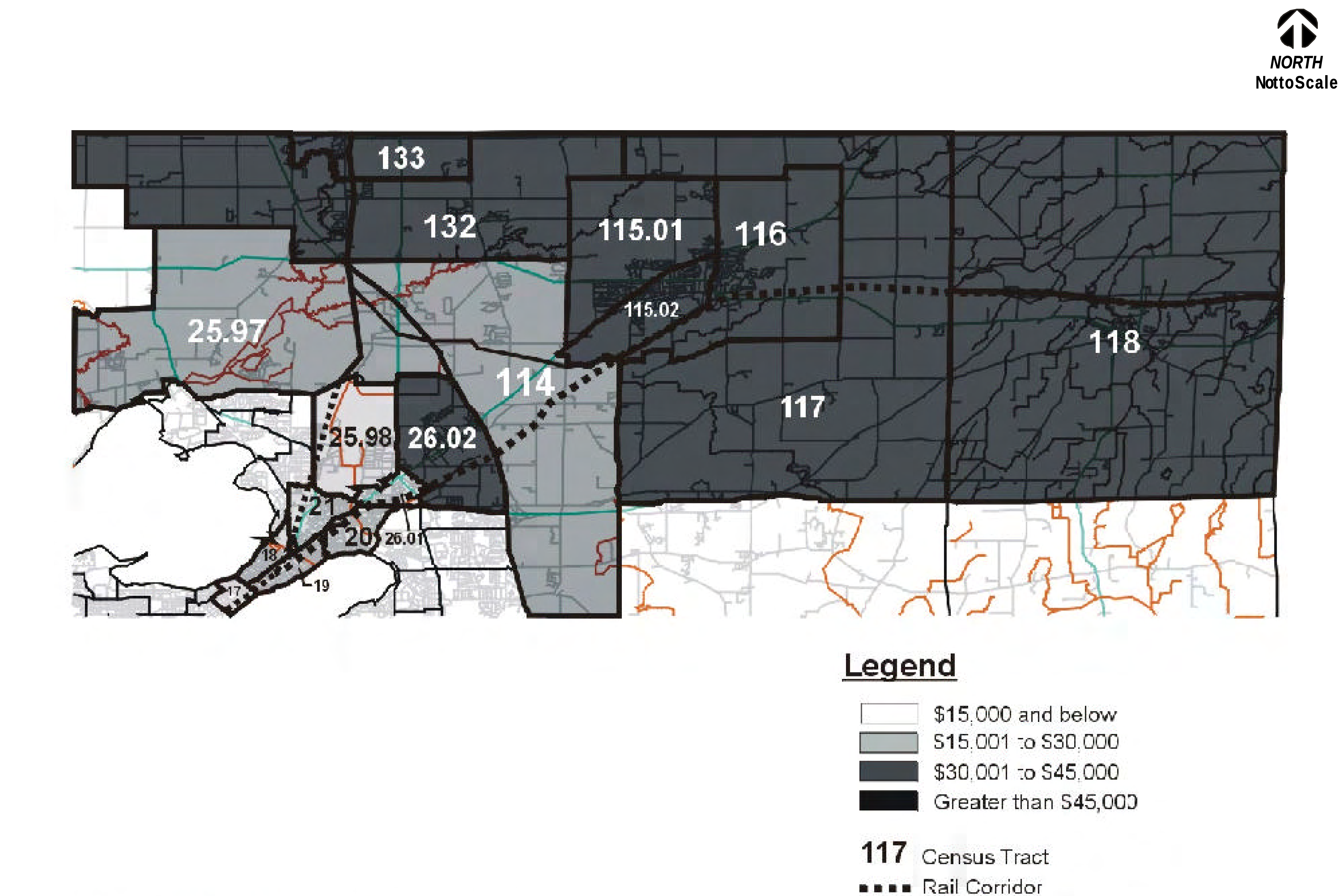
PASSENGER RAIL CORRIDOR STUDY MILWAUKEE – MADISON	**Median Household Income Waukesha County**	**Figure 3-11**



Source: 1990 Census of Population and Housing, Bureau of the Census, U.S. Department of Commerce

Percent Minority Population
Dane County

Figure 3-12



Source: 1990 Census of Population and Housing, Bureau of the Census, U.S. Department of Commerce

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Median Household Income
Dane County

Figure 3-13

Menomonee Valley near Washington Park (census tracts #123 and #134) contains 55.4 percent and 67.5 percent minority populations, respectively. Other tracts within the City of Milwaukee that are of concern include census tract #133, and #905 which are comprised of 31.4 percent and 30.2 percent minority populations, respectively. The City of Milwaukee as a whole has a minority population of 36.7 percent. The rest of the study area, including the urban areas in the City of Madison is comprised largely of non-minorities (75 percent or more white). The neighborhood surrounding the proposed Pennsylvania Street station has a relatively high level of racial minorities at 23.7 percent.

Median Household Income was used to help identify possible low-income areas along the rail corridor. Median Household Incomes under $20,000 were identified in approximately the same location as the large minority group northwest of the Menomonee River Valley near Washington Park. The lowest Median Household Income group within this area is in census tract #132, which had a Median Household Income of $8,309. This same tract has a poverty rate of 29.4 percent. Washington Park (census tracts #123 and #134) had annual Median Household Incomes of $14,167 and $12,940, respectively. The poverty rate in these tracts was the highest with 40.1 percent and 49.1 percent, respectively. Census tract #17 in Madison had a Median Household Income of $12,002 and a poverty rate of 39.7 percent and census tract #25.98 (located within Aldermanic District 17), had a Median Household Income of $16,488 and a poverty rate of 29.5 percent.

The highest median household income found was within census tract #2008.01, which is located in the City of Brookfield, where most median household incomes were in the range of $50,000 and higher. There are four tracts within the Brookfield/Elm Grove area at this range (#2008.01, #2008.02, #2009.02, and #2010). There are also tracts located in Dousman (#2011.01), Delafield (#2035, and #2037), and a portion of Wauwatosa/ Milwaukee (#907). The remaining tracts range from $20,000 to $50,000, which includes the Villages and Townships in Jefferson County.

Those census tracts directly affected by the proposed passenger station locations are indicated on Table 3-8 and include census tract 132 in the City of Milwaukee, the City of Brookfield, the City of Watertown, City of Oconomowoc and census tracts 21 and 25.98 in the City of Madison. The demographics of the areas where stations will be located do not indicate that the project as a whole will impact the low-income or minority populations more than the medium and high income and non-minority populations. This is because the stations will be located in various communities having different racial and income make-ups. For example, the Amtrak Station in Milwaukee is in census tract #132, which has a 29.4 percent poverty rate and a 23.4 percent minority population. In contrast, the City of Brookfield station site is located within one of the higher income areas in the corridor, as discussed above. This area has a poverty rate of 1.13 percent and a 3.2 percent minority population.

Table 3-8
DEMOGRAPHIC INFORMATION 1990 CENSUS DATA
Milwaukee-Madison Passenger Rail Corridor

MILWAUKEE COUNTY														
			Percent of Population Below Poverty Threshold	Racial Make-up										
				White		Black		American Indian		Asian		Other		
Census Tract Number/ Place	Median Household Income	Total Population		Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total Minority
123*•	$14,167	1,317	40.1% (528)	588	44.6%	596	45.3%	16	1.2%	62	4.7%	55	4.2%	66.4%
124	$25,726	2,883	14.3% (413)	2,290	79.4%	407	14.1%	103	3.6%	29	1.0%	54	1.9%	20.6%
125	$36,929	2,130	4.78% (102)	2,085	97.9%	0	0.0%	0	0.0%	45	2.1%	0	0.0%	2.1%
132•∇	$8,309	886	29.4% (261)	679	76.6%	65	7.3%	10	1.1%	8	0.9%	124	14.0%	23.4%
133	$22,750	1,378	22.2% (306)	945	68.6%	167	12.1%	90	6.5%	116	8.4%	60	4.4%	31.4%
134*•	$12,940	3,415	49.1% (1,678)	1,111	32.5%	1,292	37.8%	185	5.4%	641	18.8%	186	5.4%	67.5%
904	$41,279	3,459	<1% (32)	3,435	99.3%	0	0.0%	11	0.3%	13	0.4%	0	0.0%	.7%
905	$35,625	1,073	N/A**	749	69.8%	315	29.4%	0	0.0%	0	0.0%	9	0.8%	30.2%
906•	$36,678	4,766	39.7% (1892)	4,702	98.7%	0	0.0%	0	0.0%	64	1.3%	0	0.0%	1.3%
907	$50,855	3,232	1.42% (46)	3,232	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0%
912	$31,103	4,569	4.37% (200)	4,401	96.3%	59	1.3%	7	0.2%	102	2.2%	0	0.0%	3.7%
914	$42,590	2,376	2.06% (49)	2,344	98.7%	0	0.0%	10	0.4%	0	0.0%	22	0.9%	1.3%
Milwaukee (C)	$23,627	628,088	21.6% (135,583)	397,827	63.3%	191,567	30.5%	6,016	1.0%	11,831	1.9%	20,847	3.3%	36.7%
Wauwatosa (C)	$40,041	49,366	3.16% (1,558)	48,232	97.7%	595	1.2%	90	0.2%	387	0.8%	62	0.1%	2.3%
Wisconsin	$29,442	4,891,769	10.4% (508,545)	4,514,315	92.3%	244,305	5.0%	39,725	8.1%	53,058	1.1%	40,366	8.2%	1.5%

WAUKESHA COUNTY															
			Percent of Population Below Poverty Threshold	Racial Make-up											
				White		Black		American Indian		Asian		Other		
Census Tract Number/Place	Median Household Income	Total Population		Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total Minority
2008.01	$64,352	4,750	<1% (20)	4,678	98.5%	6	0.1%	7	0.1%	59	1.2%	0	0.0%	1.5%
2008.02	$57,380	7,322	<1% (65)	7,075	96.6%	15	0.2%	29	0.4%	176	2.4%	27	0.0%	3.4%
2009.02	$65,848	4,092	1.05% (43)	3,938	96.2%	10	0.2%	15	0.4%	131	3.2%	0	0.0%	3.8%
2010	$65,599	6,374	4.09% (261)	6,245	98.0%	26	0.4%	0	0.0%	96	1.5%	7	0.0%	2.0%
2011.01	$53,601	3,677	<1% (18)	3,517	95.6%	10	0.3%	0	0.0%	145	3.9%	5	0.0%	4.4%
2032	$46,970	3,512	2.85% (100)	3,482	99.1%	0	0.0%	6	0.2%	24	0.7%	0	0.0%	.9%
2033.01	$44,444	3,378	2.84% (96)	3,359	99.4%	0	0.0%	12	0.4%	7	0.2%	0	0.0%	.6%
2033.02	$39,611	5,264	3.06% (161)	5,085	96.6%	74	1.4%	0	0.0%	62	1.2%	43	0.0%	3.4%
2035	$54,022	4,882	1.66% (81)	4,834	99.0%	0	0.0%	28	0.6%	20	0.4%	0	0.0%	1.0%
2036	$38,681	7,820	3.13% (245)	7,768	99.3%	7	0.1%	35	0.4%	2	0.0%	8	0.0%	.7%
2037	$50,345	9,105	4.29% (391)	8,797	96.6%	228	2.5%	26	0.3%	13	0.1%	41	0.0%	3.4%
2041	$45,776	3,829	5.48% (210)	3,747	97.9%	22	0.6%	7	0.2%	26	0.7%	27	0.0%	2.1%
2042	$34,224	4,342	2.79% (121)	4,278	98.5%	6	0.1%	8	0.2%	43	1.0%	7	0.0%	1.5%
2043	$35,772	7,071	3.92% (277)	7,033	99.5%	22	0.3%	7	0.1%	9	0.1%	0	0.0%	.5%
2045	$40,179	7,272	3.31% (241)	7,252	99.7%	14	0.2%	2	0.0%	0	0.0%	4	0.0%	.3%
Brookfield (T)	$51,744	4,232	1.23% (52)	4,157	98.2%	0	0.0%	6	0.1%	69	1.6%	0	0.0%	1.8%
Delafield (T)	$53,686	5,735	3.80% (218)	5,479	95.5%	219	3.8%	16	0.3%	5	0.1%	16	0.3%	4.5%
Oconomowoc (T)	$41,866	7,323	2.66% (195)	7,283	99.5%	40	0.5%	0	0.0%	0	0.0%	0	0.0%	.5%
Pewaukee (T)	$52,494	9,621	1.37% (132)	9,486	98.6%	19	0.2%	13	0.1%	62	0.6%	41	0.4%	1.4%
Elm Grove (V)	$66,852	6,261	4.17% (261)	6,132	97.9%	26	0.4%	0	0.0%	96	1.5%	7	0.1%	1.4%
Hartland (V)	$37,693	6,906	3.13% (216)	6,881	99.6%	7	0.1%	8	0.1%	2	0.0%	8	0.1%	2.1%
Nashotah (V)	$50,342	548	<1% (3)	546	99.6%	0	0.0%	2	0.4%	0	0.0%	0	0.0%	.4%
Oconomowoc Lake(V)	$58,025	499	2.00% (10)	497	99.6%	0	0.0%	0	0.0%	0	0.0%	2	0.4%	.4%
Pewaukee (V)	$36,820	4,941	4.57% (226)	4,805	97.2%	66	1.3%	6	0.1%	43	0.9%	21	0.4%	.4%
Brookfield (C) [∇]	$57,132	35,184	1.13% (399)	34,047	96.8%	110	0.3%	49	0.1%	923	2.6%	55	0.2%	2.8%

WAUKESHA COUNTY														
				Racial Make-up										
Delafield (C)	$42,886	5,347	5.39% (288)	5,262	98.4%	0	0.0%	12	0.2%	25	0.5%	48	0.9%	1.6%
Oconomowoc (C) ∇	$34,061	10,993	3.48% (383)	10,902	99.2%	6	0.1%	15	0.1%	57	0.5%	13	0.1%	.8%

JEFFERSON COUNTY														
			Percent of Population below Poverty Threshold	Racial Make-up										
				White		Black		American Indian		Asian		Other		
Census Tract Number/Place	**Median Household Income**	**Total Population**		**Total**	**Percent**	**Total**	**Percent**	**Total**	**Percent**	**Total**	**Percent**	**Total**	**Percent**	**Total Minority**
Ixonia(T)	$36,891	2,789	4.27% (119)	2,786	99.9%	0	0.0%	0	0.0%	0	0.0%	3	0.1%	.1%
Milford(T)	$32,847	978	6.85% (67)	976	99.8%	0	0.0%	0	0.0%	2	0.2%	0	0.0%	.2%
Waterloo(T)	$35,167	723	10.1% (73)	703	97.2%	0	0.0%	16	2.2%	0	0.0%	4	0.6%	2.8%
Waterloo (C)	$30,678	2,712	7.67% (208)	2,706	99.8%	0	0.0%	0	0.0%	0	0.0%	6	0.2%	.2%
Watertown (C) ∇	$27,766	19,142	8.6% (1,647)	18,856	98.5%	36	0.2%	79	0.4%	78	0.4%	93	0.5%	1.5%

DANE COUNTY														
			Percent of Population Below Poverty Threshold	Racial Make-up										
				White		Black		American Indian		Asian		Other		
Census Tract Number/Place	**Median Household Income**	**Total Population**		**Total**	**Percent**	**Total**	**Percent**	**Total**	**Percent**	**Total**	**Percent**	**Total**	**Percent**	**Total Minority**
17•	$12,002	5,976	39.7% (2,372)	5,389	90.2%	374	6.3%	13	0.2%	103	1.7%	97	1.6%	9.8
18	$22,814	6,440	22.34% (1,439)	5,777	89.7%	428	6.6%	51	0.8%	88	1.4%	96	1.5%	10.3
19	$23,893	5,906	15.6% (919)	5,433	92.0%	341	5.8%	67	1.1%	24	0.4%	41	0.7%	8.0
20	$26,807	6,285	15.11% (950)	5,787	92.1%	336	5.3%	24	0.4%	123	2.0%	15	0.2%	7.9
21∇	$24,396	5,273	10.8% (572)	4,906	93.0%	217	4.1%	23	0.4%	37	0.7%	90	1.7%	7.0

DANE COUNTY														
			Percent of Population Below Poverty Threshold	Racial Make-up										
				White		Black		American Indian		Asian		Other		
Census Tract Number/Place	Median Household Income	Total Population		Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total Minority
25.98•▿	$16,488	1,078	29.5% (318)	823	76.3%	109	10.1%	0	0.0%	113	10.5%	33	3.1%	23.7
26.01	$24,849	2,669	10.3% (275)	2,436	91.3%	152	5.7%	16	0.6%	0	0.0%	65	2.4%	8.7
26.02	$31,709	4,881	9.14% (446)	4,489	92.0%	201	4.1%	0	0.0%	143	2.9%	48	1.0%	8.0
112.98	$49,242	4,328	2.17% (94)	4,255	98.3%	4	0.1%	0	0.0%	31	0.7%	38	0.9%	1.7
114	$45,359	3,326	1.68% (56)	3,303	99.3%	0	0.0%	16	0.5%	7	0.2%	0	0.0%	.7
115.01	$42,357	5,213	2.44% (127)	5,038	96.6%	59	1.1%	49	0.9%	63	1.2%	4	0.1%	3.4
115.02	$31,849	7,182	3.61% (259)	7,030	97.9%	49	0.7%	80	1.1%	12	0.2%	11	0.2%	2.1
116	$34,932	4,146	2.94% (122)	4,108	99.1%	3	0.1%	1	0.0%	14	0.3%	20	0.5%	.9
117	$41,161	2,563	2.84% (73)	2,544	99.3%	7	0.3%	2	0.1%	4	0.2%	6	0.2%	.7
118	$32,463	4,102	4.44% (182)	4,008	97.7%	8	0.2%	2	0.0%	0	0.0%	84	2.0%	2.3
119	$32,130	5,098	6.26% (319)	5,048	99.0%	18	0.4%	22	0.4%	5	0.1%	5	0.1%	1.0
132	$40,713	6,389	3.60% (230)	6,261	98.0%	90	1.4%	8	0.1%	14	0.2%	16	0.3%	2.0
133	$40,467	5,904	2.46% (145)	5,782	97.9%	9	0.2%	50	0.8%	32	0.5%	31	0.5%	2.1
Burke (T)	$43,646	3,004	1.33% (40)	2,990	99.5%	0	0.0%	7	0.2%	7	0.2%	0	0.0%	.5
Medina (T)	$38,750	1,110	3.42% (38)	1,047	94.3%	0	0.0%	2	0.2%	0	0.0%	61	5.5%	5.7
Sun Prairie (T)	$42,315	1,839	1.90% (35)	1,824	99.2%	5	0.3%	2	0.1%	2	0.1%	6	0.3%	.8
Marshall (V)	$30,174	2,329	4.03% (94)	2,306	99.0%	0	0.0%	0	0.0%	0	0.0%	23	1.0%	1.0
Sun Prairie (C)	$35,301	15,333	3.10% (475)	14,990	97.8%	100	0.7%	130	0.8%	80	0.5%	33	0.2%	2.2
Madison (C)	$29,420	191,262	14.97% (28,640)	173,690	90.8%	1925	4.1%	778	0.4%	7406	3.9%	1463	0.8%	9.2

* Relatively high minority population

• Relatively high low-income population

▿ Station locations

** No poverty data available. Looking at the Median Household Income however, it can be seen that this is one of the higher income level areas.

Public Involvement

Throughout the planning and environmental assessment process, public involvement activities included both formal and informal meetings held throughout the project corridor. These meetings are summarized in Chapter 5.0 (Public Involvement). The primary goal of the public involvement program was to focus on input and participation from each affected community. Both verbal and written comments were encouraged and received at all meetings. Meeting minutes were logged into the project file. Several questions about the project were raised during these meetings. In response, WisDOT prepared answers to frequently asked questions. The summary of these questions and answers is attached in Appendix E.

Project staff met with state and local elected officials and followed up with numerous neighborhood and community meetings throughout the corridor. The meetings provided an opportunity to present project-related information and to hear comments about the project. These meetings with elected officials and community groups continue to be held to further review project developments and proposed road closings. The public involvement process described in Chapter 5.0, was inclusive of all residents and population groups in the study area and did not exclude any persons because of income, race, color, religion, national origin, sex, age or handicap.

Several meetings were held with elected officials and neighborhood groups in the corridor to address specific concerns about the project. Briefings were held for officials representing central city areas in Milwaukee early in the project development. Representative Antonio Riley was briefed on the project on July 28, 2000. Representative Peter Bock attended the public information meeting held in Milwaukee on February 3, 2000. Supervisor James White's Transportation and Public Works Committee was briefed on October 18, 2000, and the County Board Chair, Karen Ordinans, was briefed on October 20, 2000. None of these officials expressed concerns about the new service primarily because it was confined to the existing CP Railway right-of-way and because its route is physically separated from the neighborhoods by virtue of being located within the industrial Menomonee Valley.

Most concerns were raised by residents living west of Watertown where current rail traffic is light. In Madison, special smaller group meetings were held for Aldermanic District 17, which contains a census tract (#25.98) that showed relatively high low-income population. Meetings were held on May 18, 2000 and December 14, 2000. In addition, Alderman Santiago Rosas, representing District 17, was consulted in meetings on May 4, 2000 and December 13, 2000. As a result of these meetings and others with city alders and their constituent neighborhoods, WisDOT has agreed to coordinate with residents along the rail corridor to minimize impacts during project construction and operation. No other low income or minority neighborhoods are directly adjacent to the corridor.

The EA will be made available to interested parties and circulated to public libraries, for review and comment. The EA will also be available on the Internet at www.dot.state.wi.us. A CD of the EA may be purchased for a nominal fee. The EA's availability will be publicized by advertisement in local newspapers of general circulation. Additional opportunity for public involvement in the project development process will be provided and advertised as the process continues including a public hearing on the project and the EA.

Conclusion

In summary, this project will not have disproportionately high or adverse impacts on either minority or low-income populations. This document is therefore in compliance with USDOT and FRA policies to determine whether the proposed project will have induced socioeconomic impacts or any other adverse impacts on minority or low-income population; and it meets the requirements of Executive Order on Environmental Justice 12898.

3.1.13 Mitigation for Socio-Economic Impacts

In order to enhance and maintain safety along the corridor, all grade crossings would be upgraded for safety and fencing is planned along the entire route. Decorative fencing could minimize the visual effects in urban areas. WisDOT would continue to work with all neighborhoods to develop corridor plans that minimize concerns and impacts from the proposed action if the project moves forward into implementation. The railroads (CP Railway and WSOR), through operating agreements negotiated with WisDOT would likely be responsible for maintaining their right-of-way, including maintenance related to fencing, trash removal, and snow removal. The potential impact of induced economic development and enhancements around stations may encourage additional economic and aesthetic improvements in the vicinity of stations.

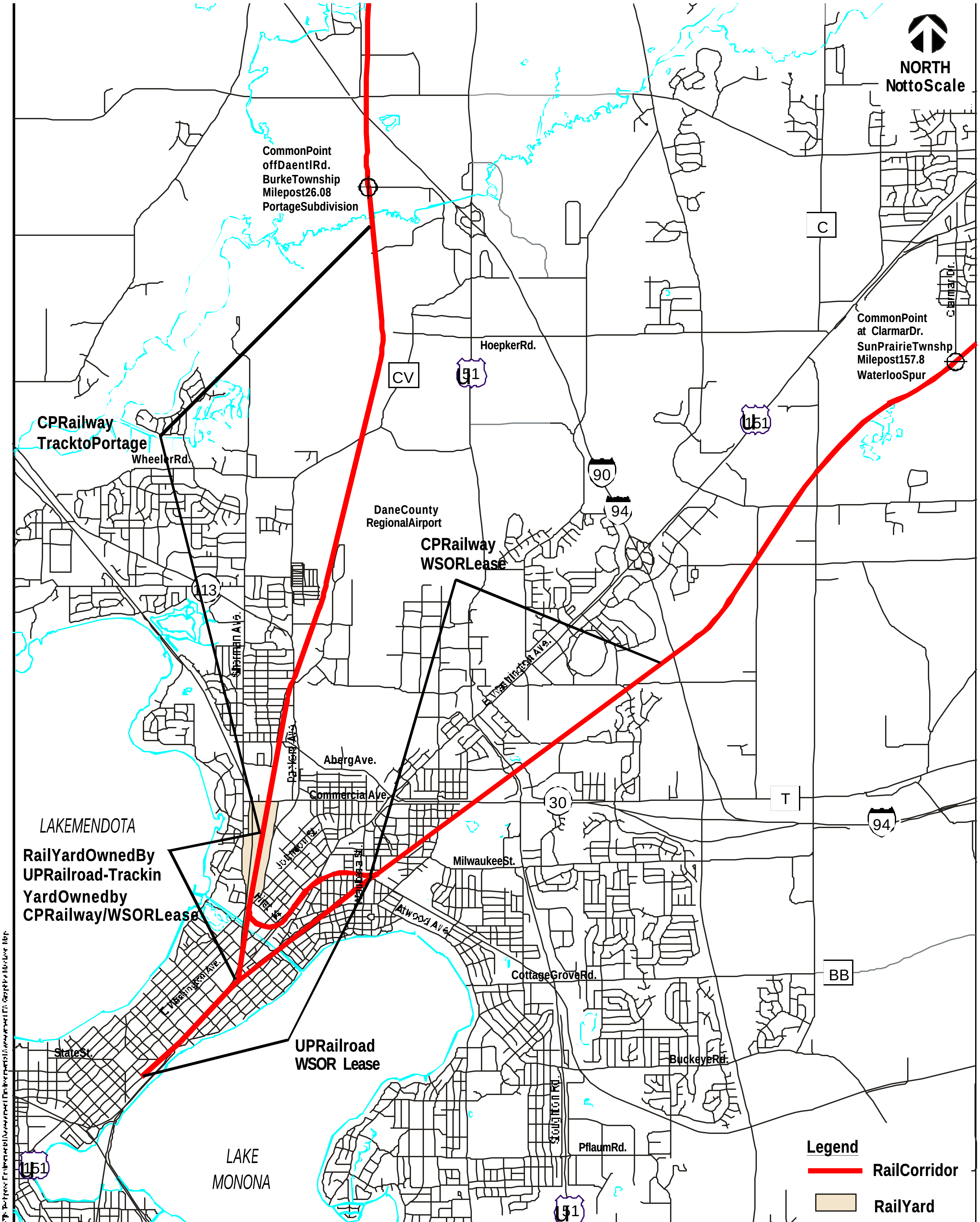
3.2 Transportation

3.2.1 Existing Railroad Conditions/Operations

The 85-mile (136 km) rail corridor that is proposed for passenger rail service is currently owned by Canadian Pacific Railway (CP Railway), with the exception of a segment between the railroad junction near Waubesa Street and East Johnson Street. This segment, as well as the existing rail yard near Johnson Street is owned by Union Pacific Railroad (UPRR) (See Figure 3-14). The UPRR also owns the track that would be used for the downtown alignment to Monona Terrace. The WSOR currently leases this track from UPRR.

The Watertown Subdivision, between Milwaukee and Watertown is part of CP Railway's mainline between Chicago and Vancouver, British Columbia. It is heavily used for freight traffic, with approximately 26 freight trains operating daily on the route. Amtrak operates one daily roundtrip passenger service, the long-distance *Empire Builder,* with service between Chicago and Seattle on this route.

CP Railway maintains the Watertown Subdivision tracks in accordance with FRA Track Safety Standards for Class 4 tracks (allowable maximum speed 60 mph (96 kph) for freight and 79



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE – MADISON

TrackOwnership- Madison

Figure 3-14

mph (126 kph) for passenger trains). The alignment contains two tracks between Milwaukee and the City of Pewaukee. Between Pewaukee to Watertown, CP Railway removed a second track, leaving a single track in place.

Since 1997, CP Railway has leased the Waterloo Subdivision (Watertown to Madison) to Wisconsin and Southern Railroad (WSOR). This track is lightly used and is maintained as FRA Class 1 track (10 mph (16 kph) maximum freight operating speed). WSOR operates one to two freight trains daily (WSOR yards to Sun Prairie and beyond) to serve local customers. Because of its lighter use, the track is not as intensively maintained as track east of Watertown. WSOR also leases track and rail yard space from UPRR in Madison. WSOR often has more than two train movements per day between East Johnson Street and Lien Road in Madison depending on industry needs. However, these freight movements seldom exceed four per day. The WSOR operates more trains on the UPRR track to Monona Terrace to serve utility and other customers beyond Monona Terrace (See Figure 3-15).

3.2.2 Base Year Travel Characteristics

The travel market between Milwaukee and Madison is predominately by auto with relatively small market shares for air and bus travel. Table 3-9 summarizes the intercity person travel within the Milwaukee and Madison corridor and the associated modal shares based on the most recent and comprehensive data available (1996). No passenger rail service presently exists to directly link the Milwaukee and Madison metropolitan areas, although the current Amtrak *Empire Builder* service between Milwaukee and Columbus partially encompasses the study corridor. The 1996 rail ridership illustrated in Table 3-9 thus refers to passengers using this existing service within the corridor area.

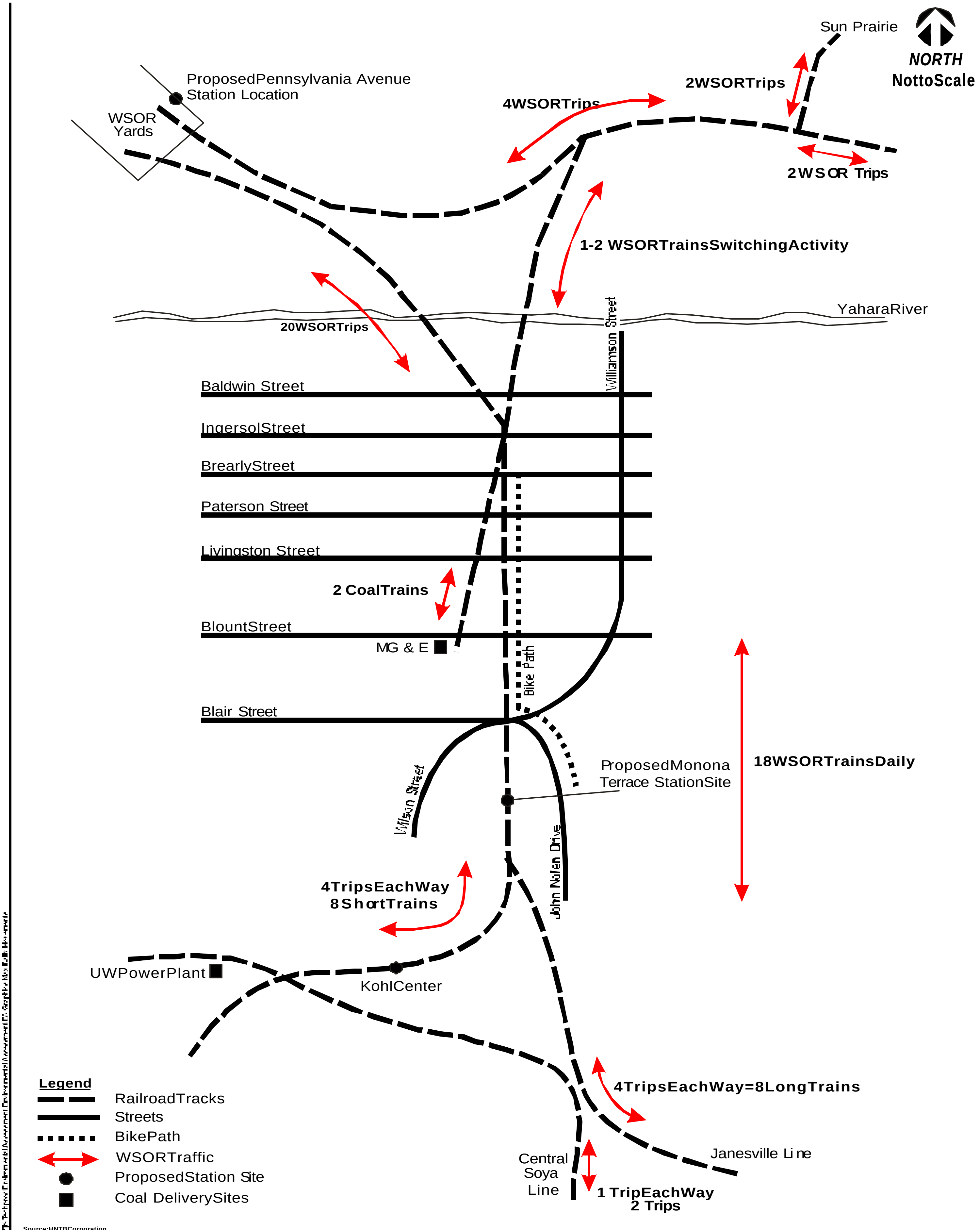
Table 3-9
MODAL SHARE OF RIDERSHIP[1]
Milwaukee-Madison

Travel Mode	Existing Person-Trips (1996) (000's)	Modal Share Percent
Rail	3.0	0.02%
Air	95.0	0.78%
Bus	121.0	0.99%
Auto	11,948.0	98.21%

Source: TEMS

[1] Includes the within corridor traffic as well as traffic with and origin or destination beyond Milwaukee-Madison corridor. Through corridor traffic volumes (i.e. Chicago-Minneapolis/St. Paul) are not included in these traffic totals.

The modal shares illustrated in the table include all passenger trip types and purposes traversing the study corridor with the exception of freight truck trips. Interstate 94 provides the primary vehicular travel corridor between Milwaukee and Madison with a travel time that ranges from



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Wisconsin and Southern Railroad
Maximum Daily Train Movement
Current Operation

Figure 3-15

approximately 1½ hours to 1¾ hours. The intercity bus service provided by Badger Bus and Greyhound Lines, Inc. provides the majority of public transportation accessibility. Presently, bus service provided by Badger Bus offers approximately seven daily trips each way, with intermediate stops, while Greyhound Lines, Inc. offers four daily non-stop trips in each direction with a travel time of approximately 1½ hours.

Airlines serving General Mitchell International Airport and Dane County Regional Airport provide passenger air service between Milwaukee and Madison. Flights between these airports primarily provide a connection for inbound and outbound air trips beyond the corridor study area. About five to seven flights (each direction) provide service between the two cities with a travel time of approximately 30-40 minutes.

3.2.3 Forecast Passenger Rail Ridership

An evaluation of the total forecast passenger rail trips traversing the study corridor illustrated that a large portion of the passenger rail service ridership is expected to be diverted from the existing modes of transportation within the corridor. Table 3-10 shows the forecast passenger rail ridership expected within the study corridor for the year 2010. This ridership forecast is broken down by trip purpose (i.e., business or other) and includes all trips whose origin or destination is within the study corridor, as well as trips traveling beyond the Milwaukee-Madison corridor. The 78.5 percent figure is the diverted percentage for all trips within and outside of the Milwaukee-Madison corridor. Induced ridership accounts for approximately 5.5 percent of total ridership. The remaining 16 percent is attributed to the base ridership that already existed in the Chicago-Minneapolis corridor. More specifically, existing rail trips between Columbus and Milwaukee with origins or destinations outside the corridor area are considered base trips and fall into this category.

Table 3-10
FORECAST 2010 PASSENGER RAIL RIDERSHIP
Milwaukee to Madison

Type of Trip	Total Ridership[1]	Total Diverted Ridership from other Modes	Percent of Rail Ridership Diverted from Other Modes
Business	223,025	189,172	84.8%
Other	648,649	495,288	76.4%
Total	**871,654**	**684,460**	**78.5%**

Source: TEMS

[1] Includes all riders between Madison-Milwaukee, does not differentiate between riders specifically travelling from Milwaukee to Madison (or vice versa) and those riders on the train from outside the project corridor.

The trip purpose breakdown in the first column (Total Ridership) illustrates that approximately 74 percent of passenger rail ridership consists of non-business travel. These numbers also reflect the assumption of connectivity to the Midwest Regional Rail System (which encompasses nine Midwest states) and includes service quality attributes anticipated for a high-speed rail service. (Section 3.2.6 illustrates a more detailed analysis that confines the scope to those trips with both an origin and destination within the corridor study area in order to evaluate the impacts of diverted person trips within the Milwaukee-Madison corridor.)

The percentage of rail ridership diverted from all other modes of transportation for trips within and outside the study corridor is 78.5 percent. Induced ridership represents between 5-6 percent (See Table 3-12) of the total. The remaining 16 percent is attributed to the base ridership that already existed in the Chicago-Minneapolis/St. Paul corridor. More specifically, present trips from train stations between Columbus, Wisconsin and Milwaukee, with origins and destinations outside the corridor area are considered base trips and fall into this category.

3.2.4 Operating Revenue/Costs

The revenues generated by this proposed service are projected to cover the operating costs of the service within two years following the start of operations. This would be made possible due to attractive travel times, increased frequencies and efficient utilization of equipment and crews

3.2.5 Impacts to Freight Rail Operations

Improvements to track infrastructure, particularly between Watertown and Madison, would allow freight service to operate more smoothly and efficiently compared to existing 10 mph conditions. The improved grade crossing warning systems and fencing would make all train operations safer for the railroad operators and local communities. Improved track infrastructure between Watertown and Madison may also induce increased freight traffic. However, increased freight rail traffic would ultimately depend on outside market influences.

Increased passenger rail traffic together with existing and anticipated future freight traffic could increase train-related operational conflicts in the rail corridor. Impacts could include increased time spent on sidings and schedule delays. Initial passenger rail service between Milwaukee and Madison would consist of six daily roundtrip trains by late 2003, and ultimately increase to10 daily roundtrip trains by 2010. The project staff has coordinated with CP Railway and WSOR to examine existing and future freight capacity needs. The passenger rail project would be responsible for mitigating freight operation impacts that result from new passenger service in the corridor.

Based on coordination with CP Railway and WSOR, there are three proposed sidings to mitigate freight operation impacts (See Figure 2-2):

- 0.6-mile (0.96 km) siding between N. Thompson Drive and Sycamore Avenue in Madison (located south of the main track in existing right-of-way).
- 1.25-mile (2 km) siding between Musket Ridge Road and CTH VV, just east of Sun Prairie (located north of the main track, within existing right-of-way).
- 0.6-mile (0.96 km) siding between the UPRR/CP Railway crossing and Dayton Street in Watertown (located south of the main track in existing right-of-way).

In addition to the proposed sidings, double track is also proposed to be re-installed between the UPRR/CP Railway crossing in Watertown (MP 131.6) to Pewaukee (MP 104.2) (See Figure 2-2). Double track is already in place between Pewaukee and Milwaukee. Additional mitigation may require improvement of the freight route through Milwaukee.

3.2.6 Impact to Other Travel Modes

An analysis of the exclusive trips within the Milwaukee-Madison corridor (trips with both an origin and a destination within the corridor) was undertaken to evaluate the impacts of the passenger rail service on alternative modes. Table 3-11 illustrates the results of this analysis.

The implemented rail system is anticipated to readjust the total modal share of persons traveling within the corridor. The bus ridership is forecast to experience the largest drop in modal share from 0.99 percent (121,000 riders in 1996) to 0.47 percent (77,200 in 2010) while rail gains a modal share of 2.59 percent (427,900 riders). The forecast growth in intercity bus ridership illustrates a declining trend as a result of diverted intercity bus trips outweighing the anticipated growth trend in the market, i.e., based on the present levels of bus service, the rail is forecast to divert more traffic from the intercity bus mode than will be realized through the growth in the total travel market. The auto and air modes experience more modest drops in modal.

Table 3-11
ESTIMATED EXISTING 1996 AND FORECAST FUTURE YEAR 2010 ANNUAL RIDERSHIP BETWEEN MILWAUKEE AND MADISON AREAS

Travel Mode	Existing Year 1996 Base Ridership (000's)	Existing Mode Share %	Forecast Year 2010* Ridership (000's)	Modal Share %	Total Ridership Change (000's)
Rail	3.0	0.02%	427.9	2.59%	424.9
Air	95.0	0.78%	103.7	0.63%	8.7
Bus	121.0	0.99%	77.2	0.47%	-43.8
Auto	11,948.0	98.21%	15,917.4	96.31%	3,969.4
Total	12,167.0	100%	16,526.2	100%	4,359.2

Source: TEMS

* Calculated for a train using 110 mph speeds.

A detailed analysis of the source of rail ridership and total trip diversion for the 2010 forecast year was performed. The results are summarized in Tables 3-12 and 3-13, respectively.

Table 3-12
SOURCE OF RAIL RIDERSHIP
Milwaukee-Madison

	Forecasted 2010 Ridership (000's)	As a Proportion of Total Ridership %
Total	425	100%
Induced	24	5.6%
Diverted	400	94.1%
Natural Growth	1.13	0.3%

Source: TEMS

Table 3-12 shows that the majority of rail passenger ridership (94 percent) would originate from trips diverted from alternative modes. The induced demand component consists of ”new trips” resulting from the service that would otherwise have never taken place. The natural growth component accounts for growth in trips resulting from socio-economic changes in the region. These latter two components account for a very small proportion of the overall rail passenger ridership in comparison to the diverted component.

Table 3-13 provides a further breakdown to illustrate the modal origins of the diverted rail passenger trips. The auto trips diverted to rail (287,000) account for the highest proportion of diverted trips (72 percent in 2010), however, these trips account for a very small share of the total auto market in the corridor (less than 2 percent in 2010). Bus and air, on the other hand, account for much smaller market shares and thus the percent of projected diverted trips from these two modes is higher than auto.

Table 3-13
IMPACT OF RAIL DIVERTED TRIPS BY MODE
MILWAUKEE-MADISON CORRIDOR
YEAR 2010

Diverted Ridership Breakdown	Forecast Ridership w/o Passenger Rail (000's)	Forecast Ridership w/ Passenger Rail (000's)	Forecast Ridership Diverted to Passenger Rail (000's)	Percent of Forecast Ridership Diverted to Rail[1]
Air	137	104	33	24.1%
Intercity Bus	157	77	80	50.9%
Auto	16,204	15,917	287	1.8%
Total	16,499	16,098	400	2.4%

Source: TEMS, HNTB Corporation

[1]Diversions are based intercity ridership of regional carriers; it does not accurately account for ridership on local commercial carriers.

The model used to determine the numbers shown in Table 3-13 is based on annual passenger volumes and is not sensitive to the day of the week (i.e., weekday to weekend variations). Thus, the ridership model does not account for any temporal differences in schedules between intercity buses and rail. The model may not recognize the train capacity constraints inherent in modal diversions of large concentrations of Milwaukee to Madison UW student trips provided by multiple busses traveling on individual scheduled weekend trip times. For example, while Table 3-13 shows that almost 51 percent of bus ridership is diverted to rail. The model more accurately reflects intercity bus ridership diversion from regional carriers such as Greyhound Lines, Inc. It does not accurately account for diversion from more local service (Badger Bus, for example) that serves a very specific travel market niche in the project corridor.

Diversion rates are determined internally within the model, based on the different travel impedances (time, cost, etc.) for the respective modes of travel. The high diversion percentage away from the intercity bus mode is reflective of the more efficient rail service and the better travel times it provides within the corridor compared to the existing intercity bus service qualities regardless of train system capacity restrictions.

The impact to the intercity bus mode also does not take into account the possibility that a proportion of this diversion can be re-absorbed through the provision of bus feeder services to rail stations. Bus feeder service to passenger rail stations could result in additional forecast intercity trips with passenger rail service. This is not reflected in Table 3-13. There are also transportation studies underway in both Milwaukee (Downtown Connector Study and Amtrak Station Multi-Modal Evaluation) and Madison (Dane County Alternatives Analysis) that are evaluating how multi-modal access can be improved and incorporated into Milwaukee-Madison passenger rail service. Furthermore, improved intercity bus service was envisioned in the

Translinks 21 planning process and could be implemented in conjunction with Midwest Regional Rail System feeder bus service.

3.2.7 Station Access and Traffic Impacts

Milwaukee

The existing Amtrak station would be used for passenger rail service. While the station is currently served by bus and taxi service, and adequate parking space is available, WisDOT is sponsoring a study to evaluate this station as a multi-modal portal for Milwaukee. The results of this multi-modal study will define access, parking, and related passenger services. No new impacts to traffic circulation and access are anticipated.

Brookfield

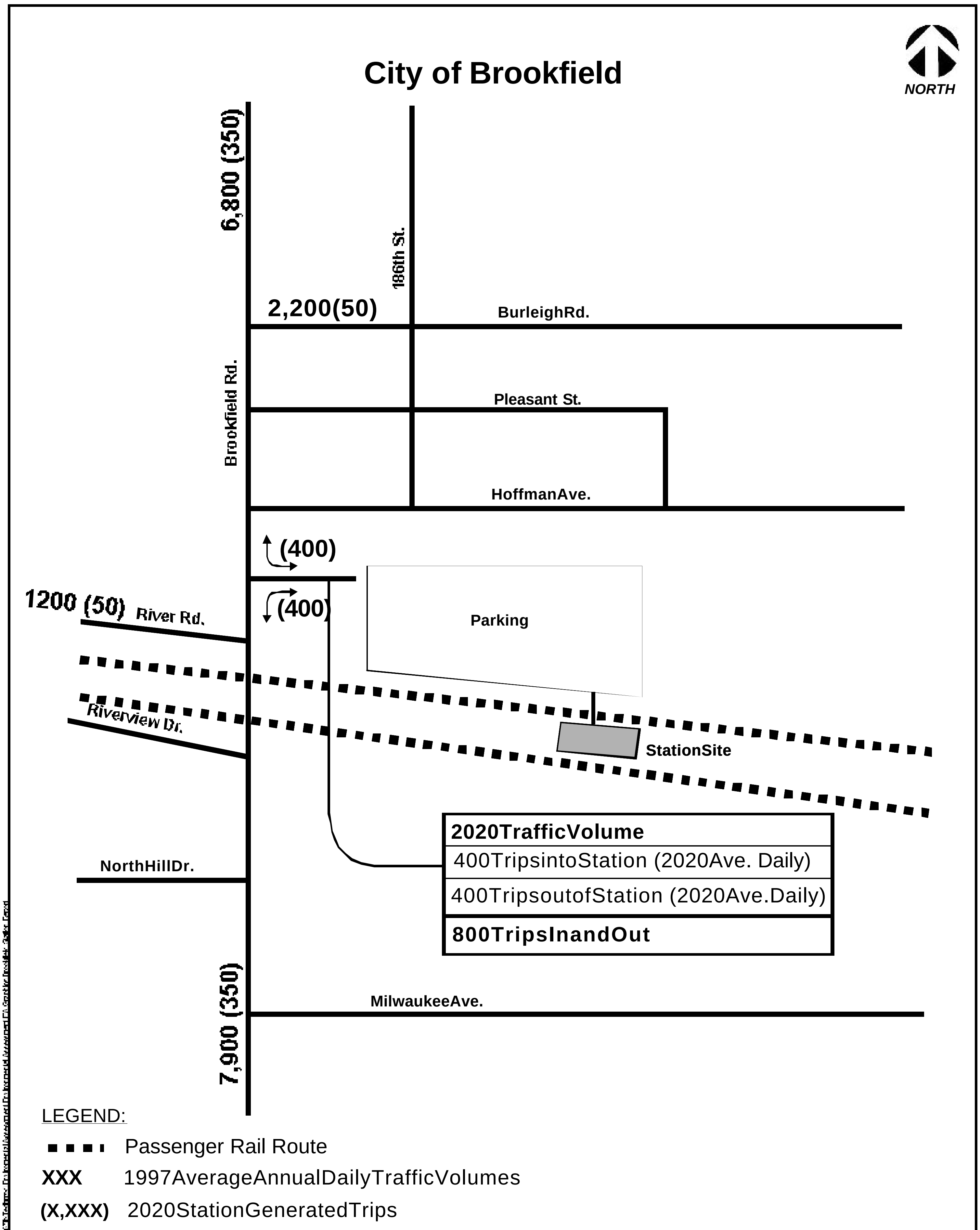
A station is proposed at the old Brookfield Depot located between the double tracks of the CP Railway mainline. The train station would have an access driveway intersection with Brookfield Road near its intersection with River Road (See Figure 3-16). Brookfield Road is a two-lane north/south arterial street. WisDOT's latest traffic volumes (1997) for local roads is shown in Figure 3-16.

The proposed station would have parking, pick-up and drop-off areas that can accommodate the train riders associated with approximately 800 vehicle trips (400 in and 400 out) to and from the station during a typical day in year 2020. As illustrated in Figure 3-16, an additional 800 vehicles per day are estimated to use Brookfield Road. When compared to existing traffic volumes, the distributed traffic accounts for less than a 10 percent increase on local street volumes. This percentage would be even smaller when compared to projected 2020 traffic on the impacted streets. This is not considered a substantial impact to local traffic.

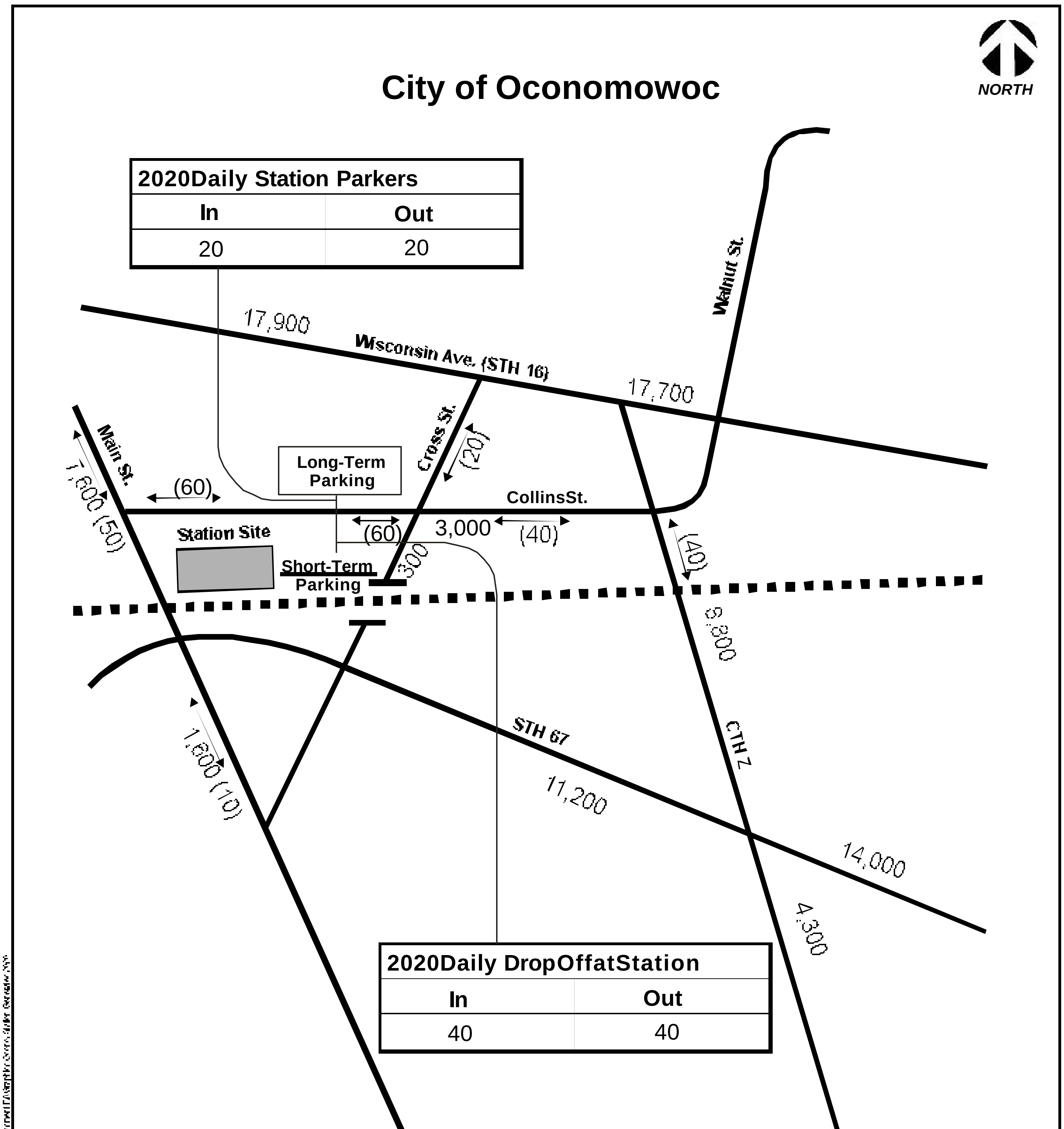
Oconomowoc

The Oconomowoc station is expected to be located adjacent to the east side of the former Oconomowoc Depot. The train station would have an access driveway to its parking lot from Collins Street near its intersection with Cross Street (See Figure 3-17). Short-term parking could possibly be provided to the east of the station between Collins Street and the rail tracks.

In the year 2020, an estimated 120 vehicles per day (60 in and 60 out) are expected to use the station site. Approximately 80 of these trips are to pick up or drop off passengers and the remainder are expected to use overnight parking facilities. While traffic is expected to be spread out throughout the day, the majority of traffic is expected to occur during the AM and PM peak traffic hours. It is expected that not all of the twenty daily trips would stop at the Oconomowoc station. As Figure 3-17 shows, projected station traffic would not be greater than 10 percent of existing traffic. This percentage would be even smaller when compared to projected 2020 traffic on the impacted streets. No adverse impacts to local traffic are expected.



PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	StationGenerated2020 Traffic CityofBrookfield	Figure3-16



■ ■ ■ ■ ■ High SpeedPassenger RailRoute

XXX 1997AverageAnnualDailyTrafficVolumes

(XXX) 2020Station Generated Traffic Volumes

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**StationGenerated2020 Traffic City of Oconomowoc**	**Figure3-17**

Watertown

The proposed Watertown station is on a vacant lot, east of Third Street and on the south side of the tracks. It would be located adjacent to the Hyland Street intersection with River Drive and Third Street. The train station would have an access driveway from Hyland Street near its intersection with Third Street. All automobile trips to and from the site are expected to utilize this driveway.

The proposed station would have parking, pick-up and drop-off areas that can accommodate an estimated 150 vehicles (75 in and 75 out) using the station daily. This amount of vehicle trip activity to and from the proposed station represents a year 2020 projection. As Figure 3-18 shows, projected station traffic would not be greater than 10 percent of existing traffic. This percentage would be even smaller when compared to projected 2020 traffic on the impacted streets. No adverse impacts to local traffic are expected.

Madison – Pennsylvania Avenue Alternative

The proposed Pennsylvania Avenue station alternative site is located on Pennsylvania Avenue adjacent to the WSOR-leased rail yard between Pennsylvania and the existing tracks. If selected, the station would have an entrance and an exit driveway along Pennsylvania Avenue. This driveway would be located between East Johnson Street and Commercial Avenue (See Figure 3-19).

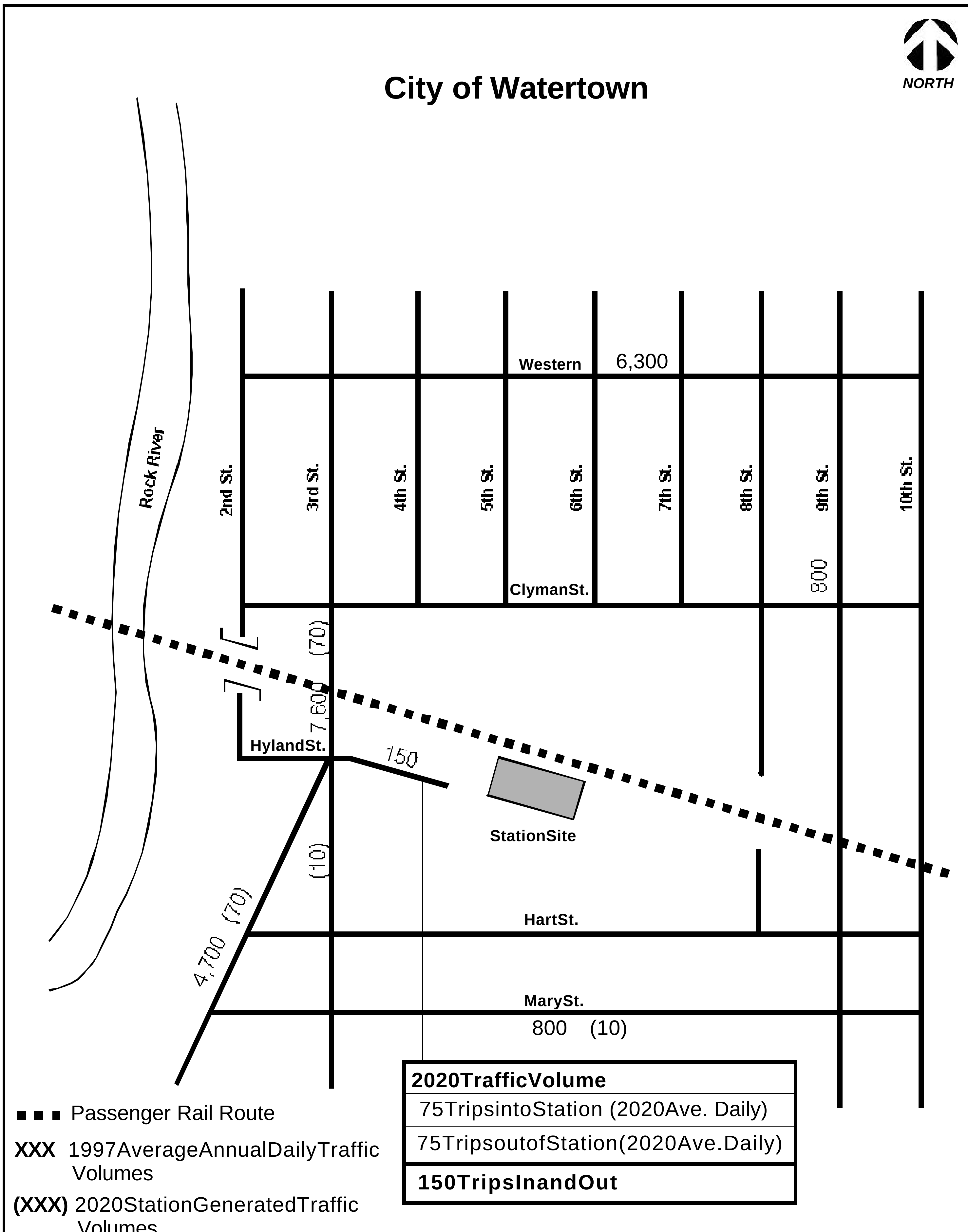
The following traffic information is based upon a “one Madison station” concept. Should a downtown Monona Terrace station be implemented, as well as the Pennsylvania Avenue alternative, traffic and parking forecasts would be reduced by 60 percent. Thus, traffic volumes shown in Figure 3-19 represent the worst case.

The station would have parking, pick-up and drop-off areas that can accommodate approximately 1,600 daily vehicle trips (800 in and 800 out) during an average day in 2020.

This traffic was assigned 50 percent north and 50 percent south on Pennsylvania Avenue. As can be seen by comparing traffic data in Figure 3-19, the daily traffic anticipated to be generated to and from the rail station in the year 2020 is less than 10 percent of the existing average daily traffic. This percentage would be even smaller when compared to projected 2020 traffic on the impacted streets. No adverse traffic impact is expected.

Madison – Airport Station Alternative

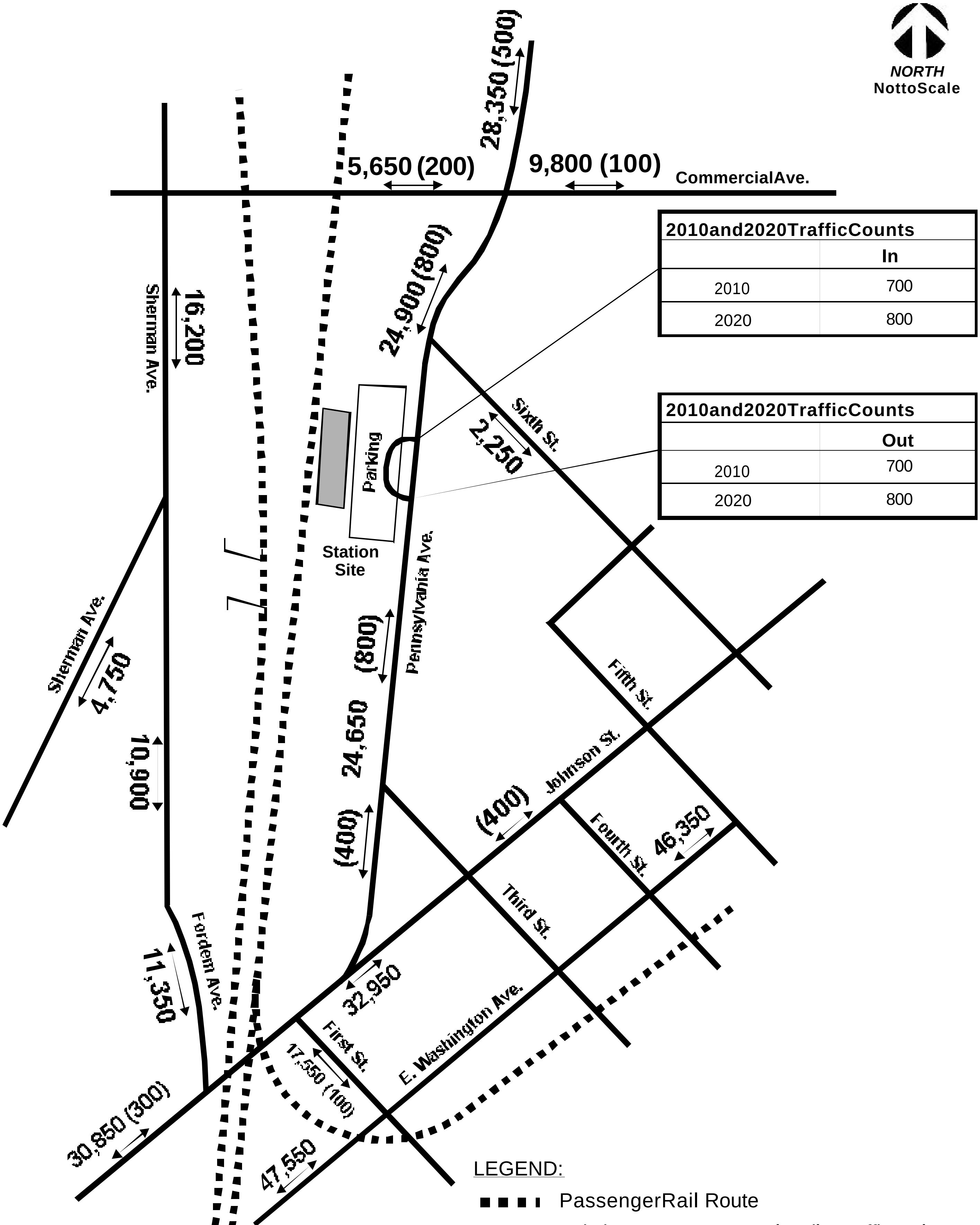
The Airport station would be located north of Darwin Street on an existing overflow parking lot owned by Dane County Regional Airport (See Figure 3-20). If chosen, the Airport station would have an entrance and an exit driveway stemming along International Drive. These driveways would be located to the north of the existing long-range parking area driveway.



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

StationGenerated2020 Traffic
CityofWatertown

Figure3-18



2010and2020TrafficCounts

	In
2010	700
2020	800

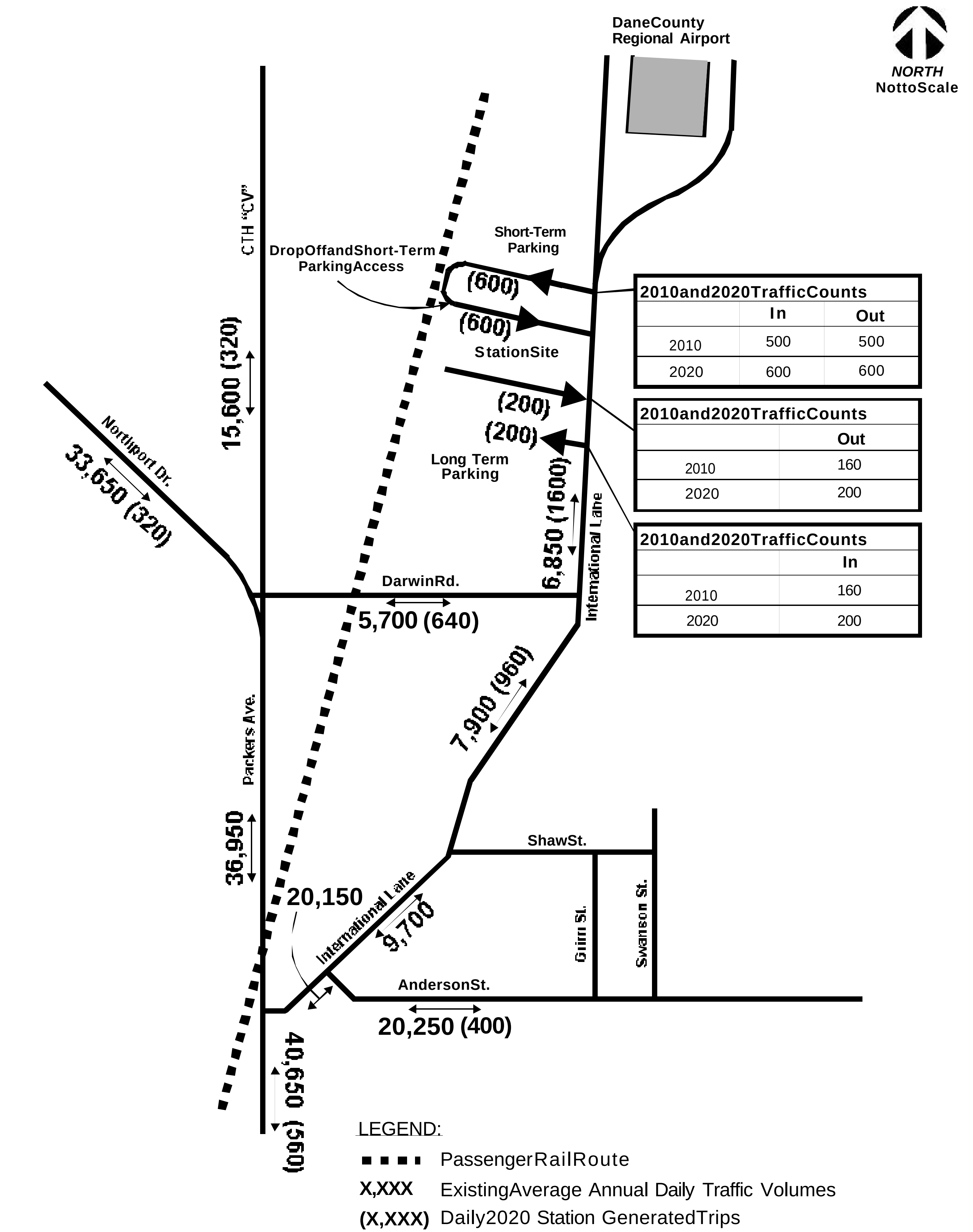
2010and2020TrafficCounts

	Out
2010	700
2020	800

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE – MADISON

StationGenerated2020 Traffic
Pennsylvania Avenue,Madison,Wisconsin

Figure3-19



2010and2020TrafficCounts

	In	Out
2010	500	500
2020	600	600

2010and2020TrafficCounts

	Out
2010	160
2020	200

2010and2020TrafficCounts

	In
2010	160
2020	200

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE – MADISON

Airport Station Generated 2020 Traffic
Madison, Wisconsin

Figure3-20

Train travelers who desired to leave their vehicle at the train station would be able to do so at the long-term parking area.

The following traffic information is based upon a “one Madison station” concept. Should a downtown Monona Terrace station be implemented, as well as the Airport station alternative, traffic and parking forecasts would be reduced by 60 percent. Thus, the traffic volumes shown on Figure 3-20 represent the worst case.

The station would have parking, pick-up and drop-off areas that can accommodate approximately 1,600 vehicle trips (800 in and 800 out) accessing the station during an average day in the year 2020.

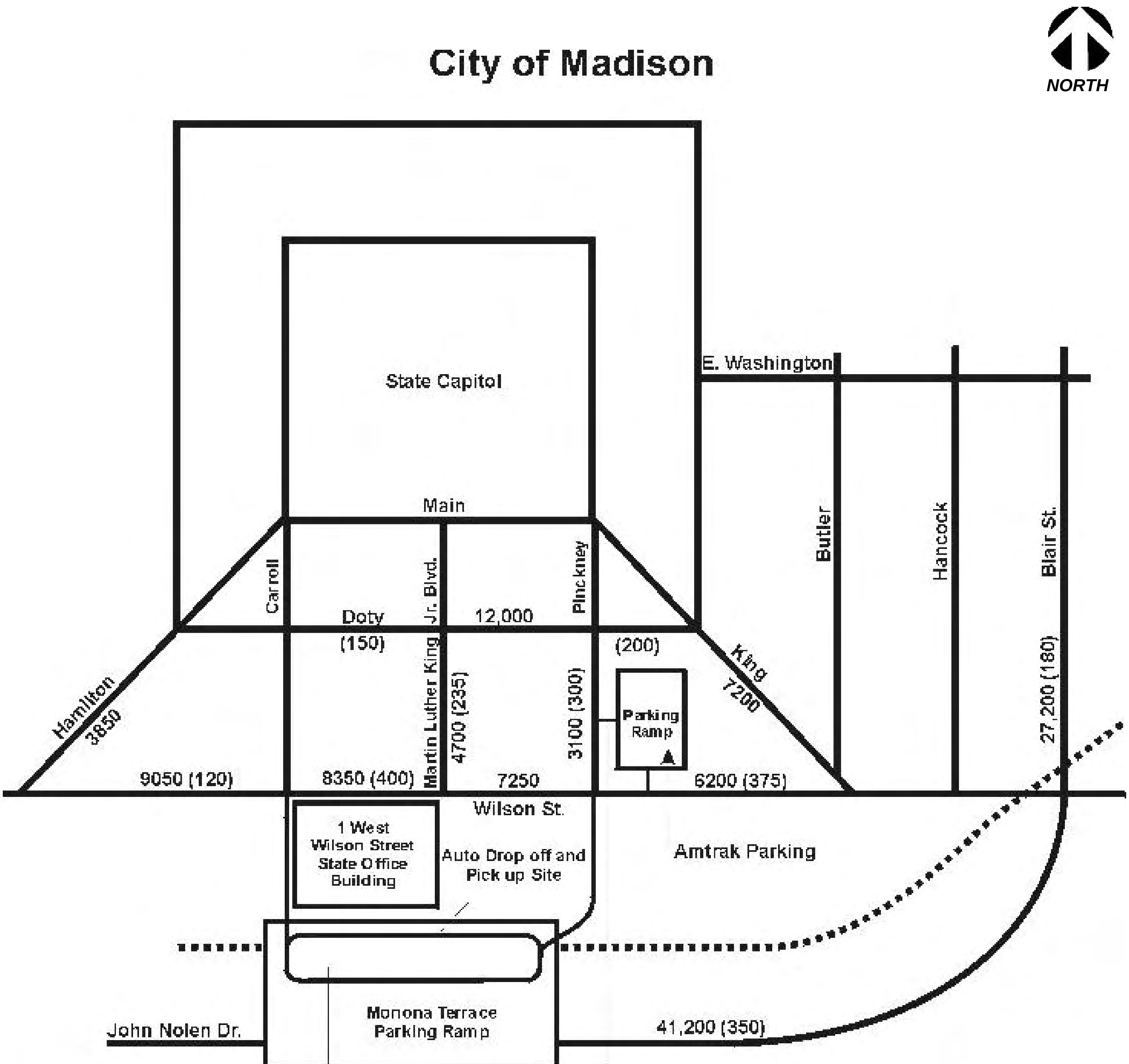
A portion of the traffic (40 percent) would use Darwin Road to connect to areas to the north (20 percent) and west of the site (20 percent). The majority of the traffic is expected to use International Lane to Anderson Street where it splits to the east (25 percent) and Packers Avenue where it would continue to the south (35 percent). Traffic is expected to be dispersed throughout the day since there would be 10 train departures and 10 arrivals daily in 2020.

The addition of 1,600 vehicles on International Lane north of Darwin adds 23 percent more traffic to International Lane at this location. The addition of 960 vehicles south of Darwin adds 12 percent more traffic to International Lane at this location. The addition of 640 vehicles, expected to use Darwin Road, will add 11 percent to current traffic volume on Darwin Road (See Figure 3-20). Peak hour turning movement counts were taken and compared with estimated peak station projections to determine intersection impact at several locations. This analysis indicated that the additional peak period rail passenger station volume would have very little impact on the intersections’ capacity. Counts of existing peak period traffic showed minimal volumes or the station-generated peak hour projections were low in comparison to peak period counts. In either case the projected 2020 rail station traffic is not expected to significantly impact the intersections’ level of service.

Madison – Monona Terrace Alternative

As shown on Figure 3-21, the proposed Monona Terrace station site (One West Wilson Street State Office Building) is located adjacent to Wilson Street, southeast of the Capitol Square. The Monona Terrace station location is proposed as a second station site and it would serve only passenger trains terminating in Madison. Through passenger trains (those connecting Chicago and St. Paul) would stop at the Pennsylvania Avenue or Airport station site in Madison. It has been estimated that 60 percent of 2010/2020 Madison passengers would use the downtown Monona Terrace station. Thus, approximately 750 of the year 2020 projected 1,200 daily passenger on’s and off’s would use this downtown station on a daily basis.

Unlike the Pennsylvania Avenue and Airport station locations, the traffic accessing the downtown site would use two different facilities. The Government East parking garage located



2020 Daily Short Term Parking and Drop Off	
In	Out
350	350

2020 Daily Long Term Parking	
In	Out
90	90

LEGEND:

- ▪▪▪▪ Passenger Rail Route
- X,XXX 1997 Average Annual Daily Traffic Volumes
- (X,XXX) Daily 2020 Station Generated Trips (Parking at Parking Ramp)

Station Generated Traffic
Monona Terrace Station Location
W. Wilson St., Madison, Wisconsin

Figure 3-21

on Pinckney Street between Wilson Street and Doty Street has been suggested as the site for long-term parking. Daily long-term parking traffic into and out of the parking facility is estimated to be 180 vehicles in 2020. Access to the parking garage will be via West Wilson Street and Doty/Pinckney due to the one-way street pattern in this area. It is proposed that rail passengers being dropped off or picked up at the passenger train station will use the Monona Terrace parking ramp. Short-term parking would need to be made available (approximately 25 stalls). Approximately 350 vehicles per day would enter and leave the designated drop off area. This includes all drop off's and pick-ups whether or not parking is required.

Traffic would approach the station via John Nolen Drive/East Wilson Street, Blair Street/East Wilson Street and Martin Luther King Jr. Boulevard/West Wilson Street. The exit location from the Monona Terrace parking area is on Pinckney Street. Traffic would travel to Doty Street or West Wilson Street and then disperse to surrounding streets.

The additional 2020 traffic added to the street system, due to the Monona Terrace station location, is shown on Figure 3-21. As also shown on Figure 3-21, the added traffic represents a very small percent increase to existing traffic volumes. This percentage would be even smaller when compared to projected 2020 traffic on the impacted streets. It is not expected that the additional traffic will have any significant impact on the level of service of any of the facilities used to approach or leave the Monona Terrace station.

3.2.8 Traffic Impact of At-Grade Crossings

The addition of passenger rail traffic onto the existing freight rail corridor would cause some additional traffic delays at grade crossings. The impact is expected to be minimal due to train speeds and short duration of crossing closures throughout most of the corridor. The proposed daily train service (10 roundtrips) would require crossing closures for about one minute for each train, or 20 minutes a day for the 20 daily train trips. Crossing closures in Madison will vary between 60 and 90 seconds due to the reduced train speeds through Madison. There is potential to minimize traffic delays by interconnecting traffic signal systems with crossing warning devices so that long queues at crossings are avoided. Currently, freight operations in Madison are restricted to very slow speeds and often create lengthy street crossing closure times in certain areas of the city. While the proposed passenger train service would add additional street closures periods, as indicated above, the proposed track upgrade would allow higher freight train speeds, which reduces the street closure time currently experienced for freight traffic.

Crossing Closures

Seven public crossings are proposed for closure in the communities along the passenger rail corridor that terminates at either Pennsylvania Avenue station or the Airport. Two additional closures are recommended if the Monona Terrace station is implemented. Each closure was evaluated for impacts that would be caused by diverting traffic to the remaining open roadways and are summarized below. Detailed evaluations of crossing closures are also available in the

Transportation, Traffic and Land Access Impacts and Mitigation report available for review at WisDOT Transportation District 1 in Madison and WisDOT Transportation District 2 in Waukesha (Pewaukee Road office).

Cross Street – City of Oconomowoc

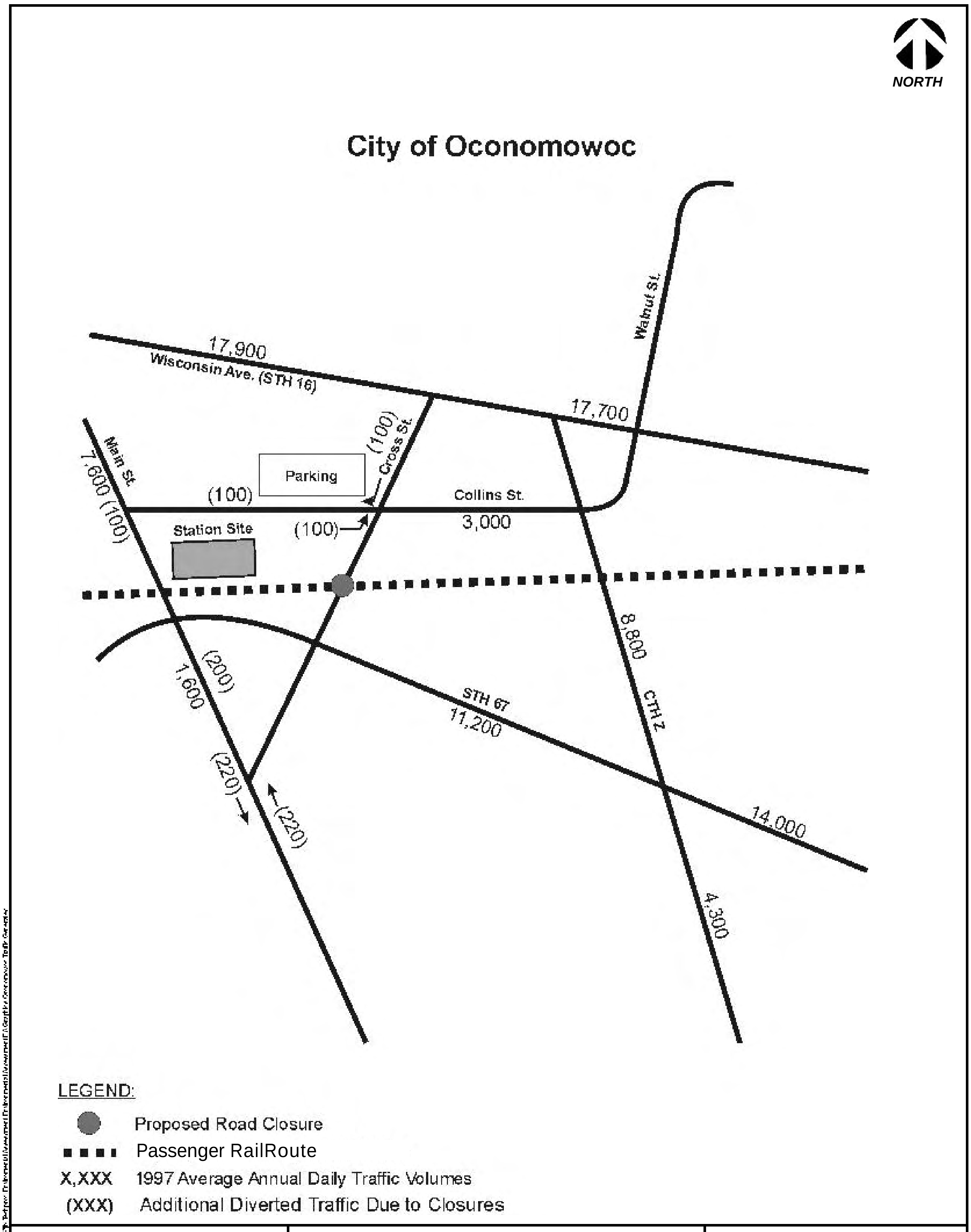
Cross Street is primarily used as a shortcut between Wisconsin Avenue and Main Street and to access the parking lot along Collins Street. It is estimated that approximately 300 vehicles use Cross Street. Closing Cross Street would place approximately 200 additional vehicles on Main Street daily (See Figure 3-22). Adding 200 vehicles to the existing 1,600 volumes that use Main Street would be negligible as these volumes are spread throughout the day. No impact is expected due to the type of traffic diverted to Main Street. Additional travel required by the closure is estimated at between one and two blocks. No new signing or traffic control devices would be needed as a result of this closure.

Ninth Street – City of Watertown

Ninth Street is a residential street connecting the south side of town to Main Street. Aside from a few light industrial buildings, the land use is exclusively residential along the street. Therefore, traffic on Ninth Street is mostly local in nature with the addition of some through traffic, since Ninth Street connects with County Trunk Highway X and State Trunk Highway 26 via Boomer Street. Closing this street would impact the people residing along the street south of the CP Railway tracks, and through trips on this street. Residents would likely take Tenth Street for trips north to and from the city. The volume of diverted traffic is estimated at 800 trips per day. Current traffic volumes on Tenth Street are estimated at 1,350 vehicles per day (See Figure 3-23). Tenth Street functions very much the same as Ninth Street, except for the additional industrial traffic using this street. Tenth Street could absorb the diverted Ninth Street traffic without reducing Tenth Street's level of service. Additional traffic would not new traffic signing or control devices. Diverted trips would extend their trip length one to two blocks on average. Tenth Street currently handles more commercial truck traffic than Ninth Street. Thus, the mix of traffic (auto and truck) diverted to Tenth Street would be less commercial than the mix of traffic currently using Tenth Street and consequently would not have any impact.

Jefferson Street and Jackson Street – City of Waterloo

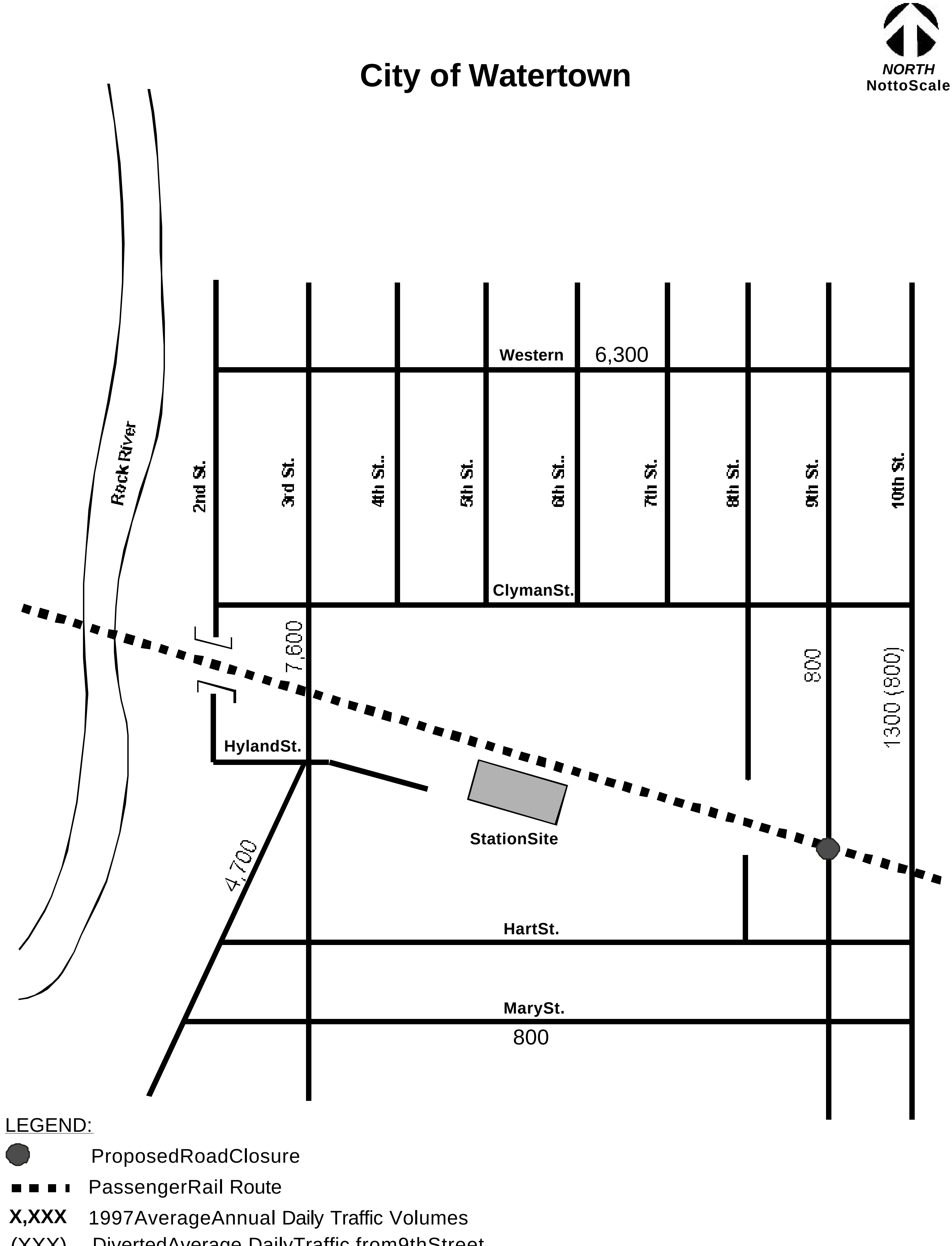
Jefferson Street is a north–south, two-lane collector serving a residential area and plant nursery on the east side of Waterloo. Traffic on Jefferson is estimated at 340 vehicles daily. If closed, Jefferson Street at the tracks would divert 150 of the trips to Adams Street and 150 trips to Washington Street. Existing traffic volumes on these two streets is low and the addition of the 150 vehicles daily would have no impact on these roadways (See Figure 3-24). There would be no reduction in service level, nor any requirement for additional signs or traffic control devices as a result of this closure. Since Jefferson Street carries few commercial vehicles, the diverted traffic would not change the mix or character of traffic on the receiving streets. Diverted trips would, on average, extend travel one to two blocks.



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

ExistingTraffic on Streets
SurroundingCross Street

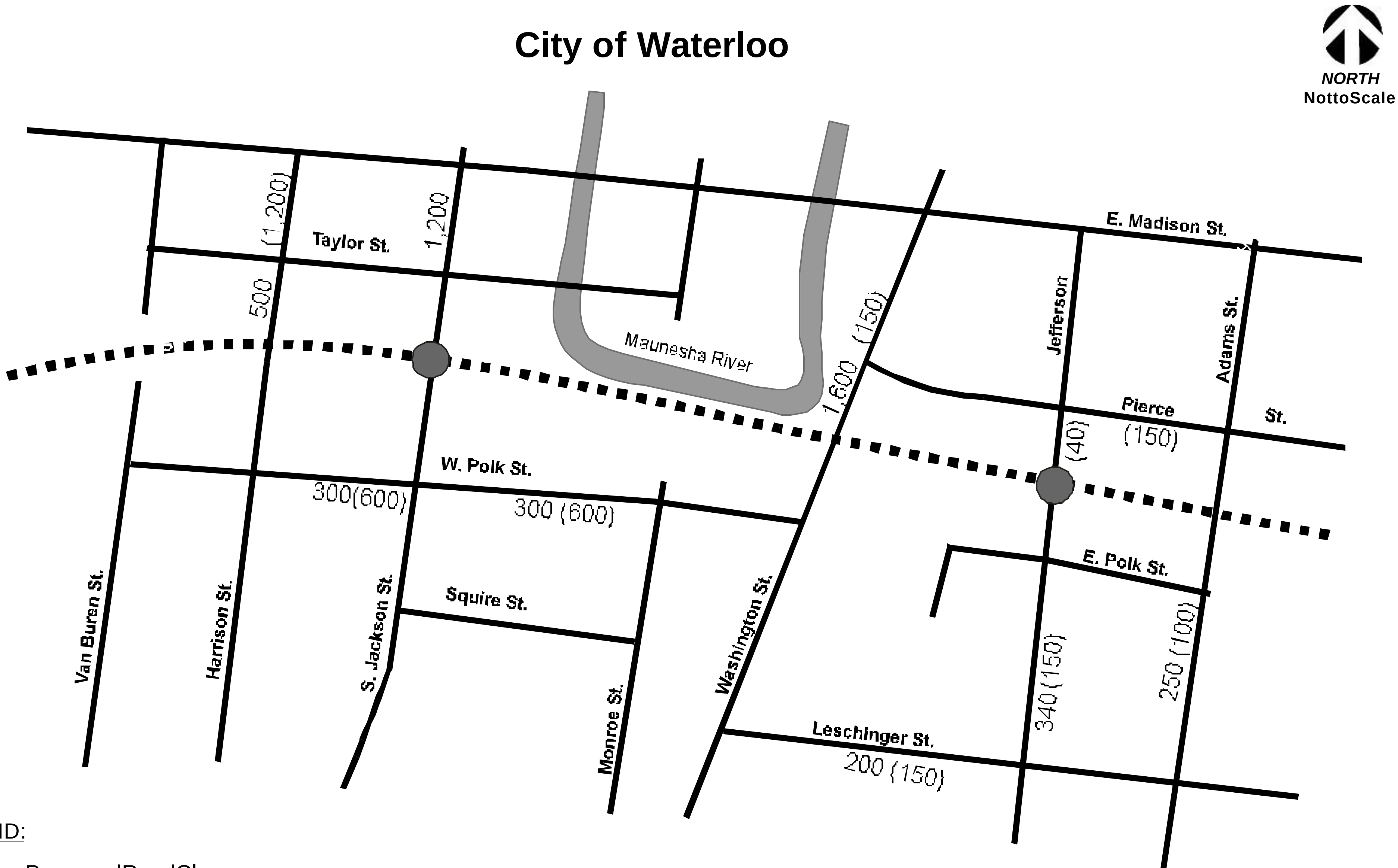
Figure3-22



Passenger Rail Corridor Study — MILWAUKEE – MADISON

Existing and Diverted Traffic on Streets Surrounding Ninth Street

Figure 3-23



LEGEND:

ProposedRoadClosure

PassengerRail Route

X,XXX ExistingAverageAnnual Daily Traffic Volumes

(XXX) Diverted AverageDailyTrafficVolumes fromJeffersonandJackson Streets

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Existing and Diverted TrafficonStreets in Waterloo DuetoClosure**	**Figure 3-24**

Land use along Jackson Street is a primarily commercial and industrial between Madison Street and the CP Railway tracks. South of the tracks on Jefferson Street, the area becomes residential. If closed, Jackson Street traffic would be diverted to Harrison Street and Polk Street. This diversion would increase existing traffic on Harrison Street from 500 vehicles daily to a maximum of 1,700 if all the traffic diverted to Harrison (See Figure 3-24). Consequently this is the worst case scenario. It is likely that a portion of this traffic may now use Washington Street and Polk Street to get to Jackson Street. Traffic destined for the industrial area on the north side of the tracks would continue to have access via Jackson Street. Diverted traffic volumes would not over burden Harrison Street, nor reduce its level of service. Traffic volumes are not expect to grow much in the future, consequently there should not be any future adverse traffic impacts as a result of this closure. Traffic diversions would result in trip length extensions on average of one to two blocks. This closure would not require additional signing or traffic control devices. The city has requested that Leschinger Street be resurfaced due to increased diverted traffic. WisDOT would take this into consideration during final design of the project and ongoing coordination with the city.

Corry Street – City of Madison

Corry Street is a short two-lane neighborhood street on the east side of Madison. Corry Street connects Milwaukee Street, a major arterial north of the tracks, with La Follette Avenue and Eastwood Drive, located south of the tracks. Current traffic volume is estimated at 800 vehicles per day on Corry Street. Through traffic, now using Corry Street, would likely be diverted to Waubesa Street as would local traffic, north of the tracks, desiring to go south. Neighborhood traffic south of the tracks desiring to go north would likely do the same. This total amount of diverted traffic has been estimated at 500 vehicles daily (See Figure 3-25). The additional diverted traffic would not reduce the level of service on Waubesa Street; thus, new traffic signs or traffic control devices would not be needed. The average additional travel required as a result of this closure is estimated to be two blocks. The traffic mix is virtually all automobiles.

Division Street – City of Madison

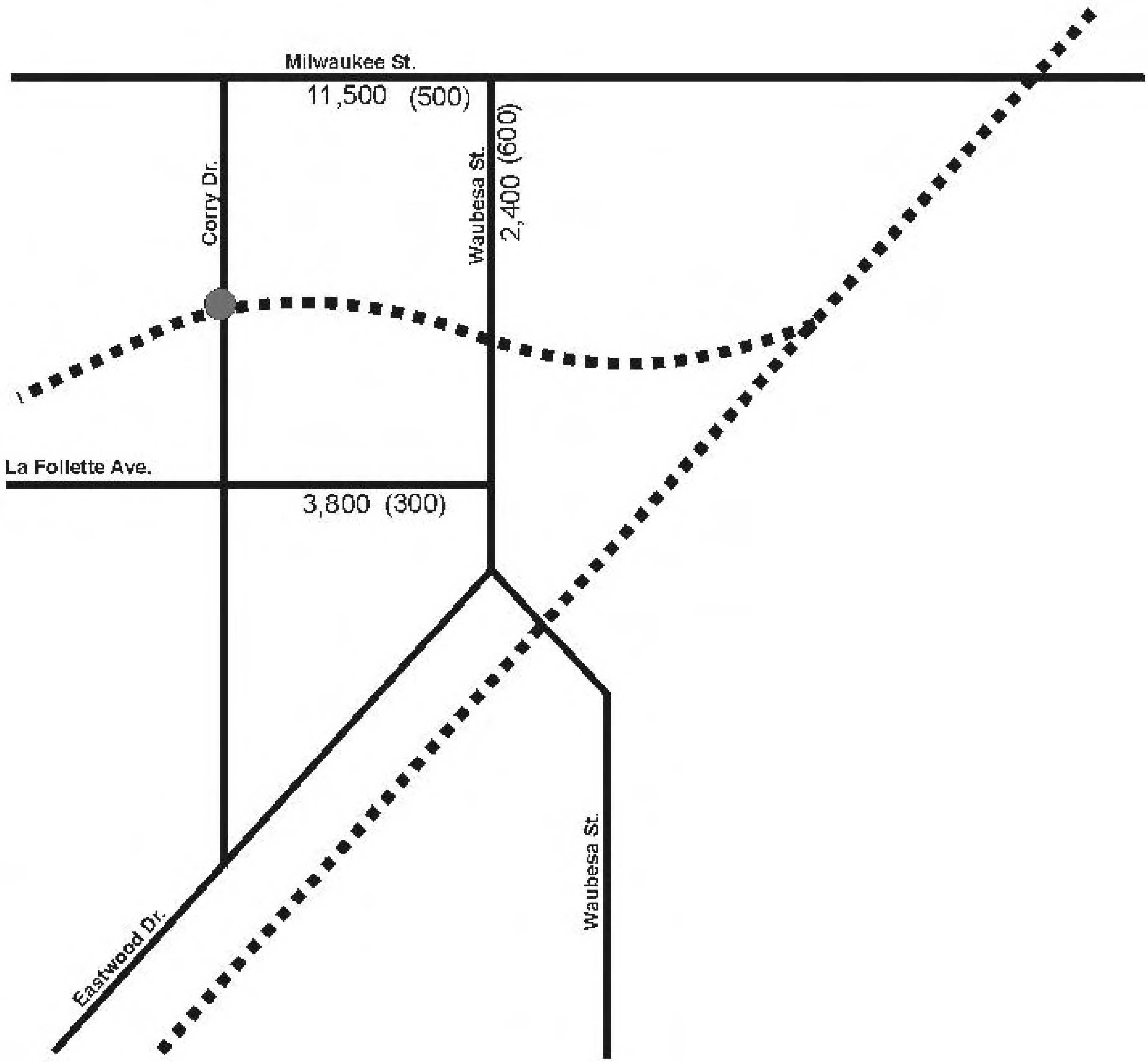
Division Street provides a short link between La Follette Avenue and Winnebago Street. With the closure of this link, diverted traffic would use Linden Court to gain access on to Winnebago Street in the eastbound direction. Closing Division Street is expected to divert about 600 vehicles daily to Linden Court (See Figure 3-26). The resulting combined traffic volume is low and would not impact the current level of service now being provided by this facility. The average additional travel required as a result of the closure is estimated at three blocks.

Sutherland Court – City of Madison

Sutherland Court is a short street connecting Winnebago Street to E. Main Street. Traffic is estimated at 150 vehicles daily. Should all of this traffic be diverted to Second Street, it would have virtually no impact on this facility (See Figure 3-27). Diversions would average one to two blocks. There would be no impact on the level of service on Second Street nor would any

City of Madison

NORTH

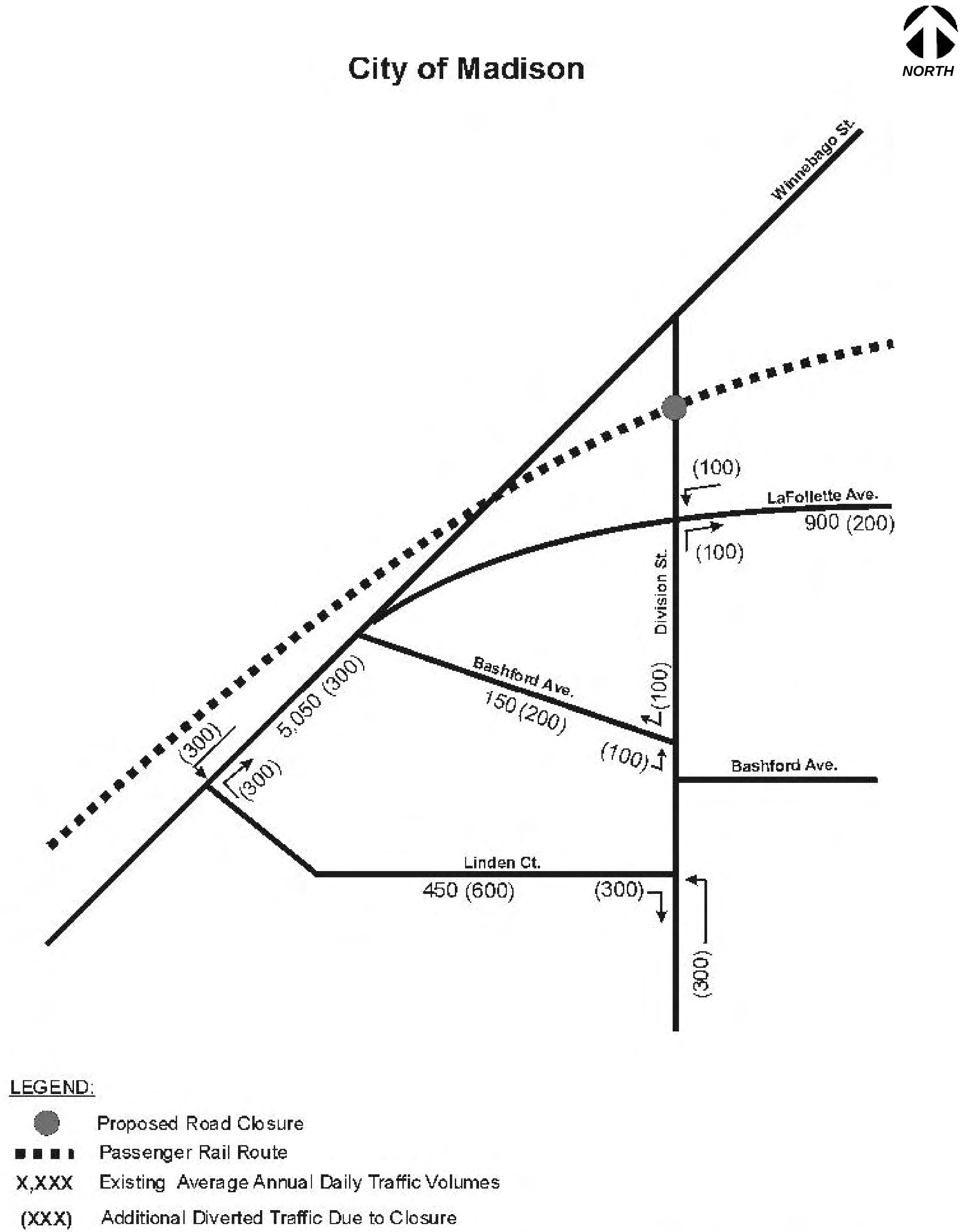


LEGEND:

- Proposed Road Closure
- Passenger Rail Route
- X,XXX 1997 Average Annual Daily Traffic Volumes
- (XXX) Additional Diverted Traffic Due to Closure

Existing and Diverted Traffic on Streets Surrounding Corry Street

Figure 3-25



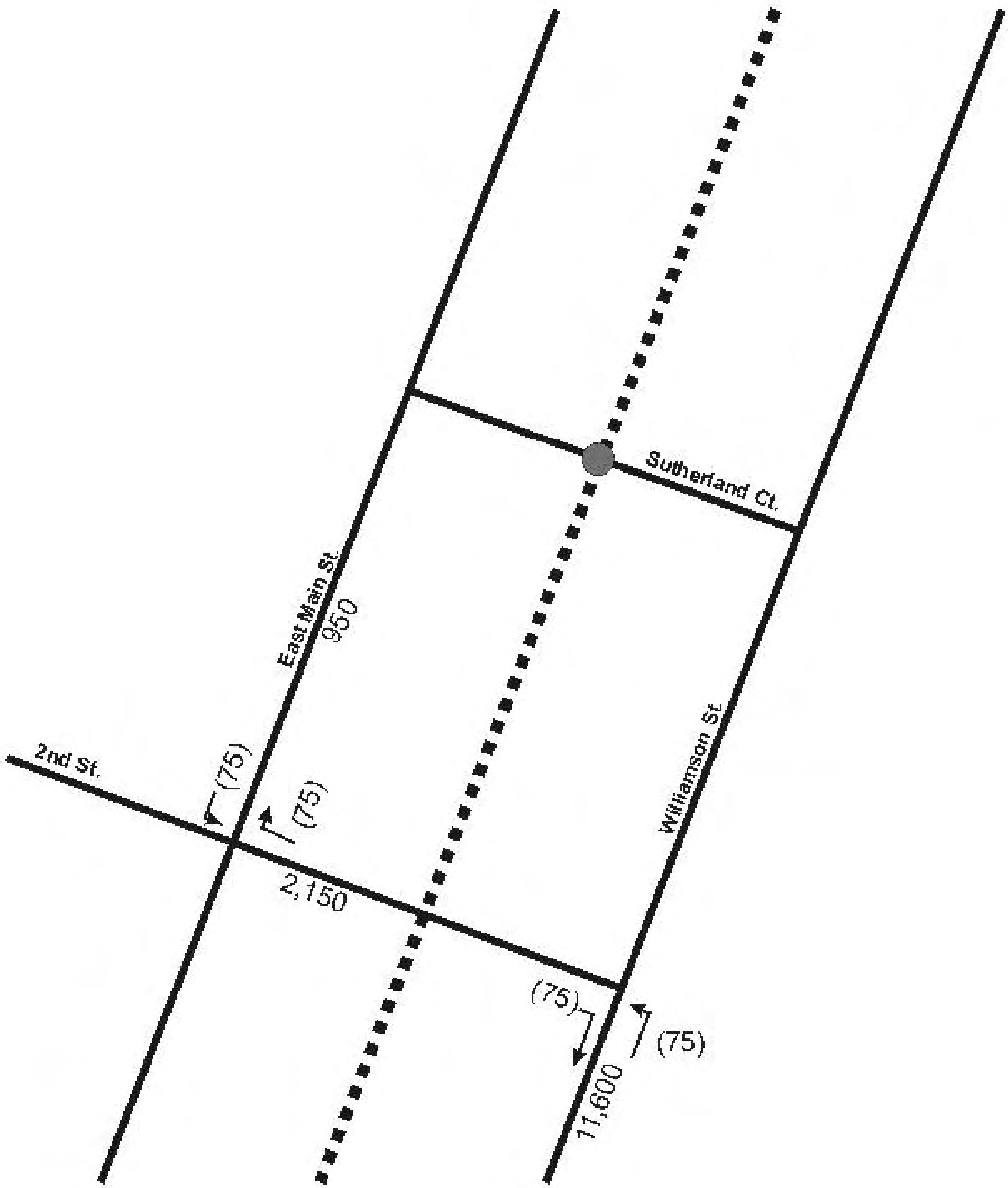
PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Existing and Diverted Traffic on Streets Surrounding Division Street

Figure 3-26

City of Madison

NORTH



LEGEND:

- Proposed Road Closure
- Passenger Rail Route
- X,XXX 1997 Average Annual Daily Traffic Volumes
- (XXX) Diverted Average Daily Traffic Volumes from Sutherland Court

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	Existing and Diverted Traffic on Streets Surrounding Sutherland Court	Figure 3-27

additional signing or traffic control devices be needed to accommodate these few additional vehicles.

The following two proposed at-grade closures are recommended should the Monona Terrace station be selected for a downtown station. This station would potentially be included as an additional Madison station, thus both the First Street alignment and the downtown alignment could be used in providing rail service to Madison.

South Brearly Street – City of Madison

South Brearly Street is proposed to be closed at a location between Williamson Street and East Washington. Daily traffic volume in 1997 was 1,300 vehicles. A portion of these trips now have destinations along South Brearly Street and these trips would continue to use this facility (See Figure 3-28). The through trips (est. 1,000) would be diverted to either Paterson Street or Ingersoll Street. Traffic volumes on either of these two facilities is in the 2,500 to 3,000 range and could accommodate the 1,000 diverted vehicles from Brearly Street without reducing the level of service of either Paterson Street or Ingersoll Street.

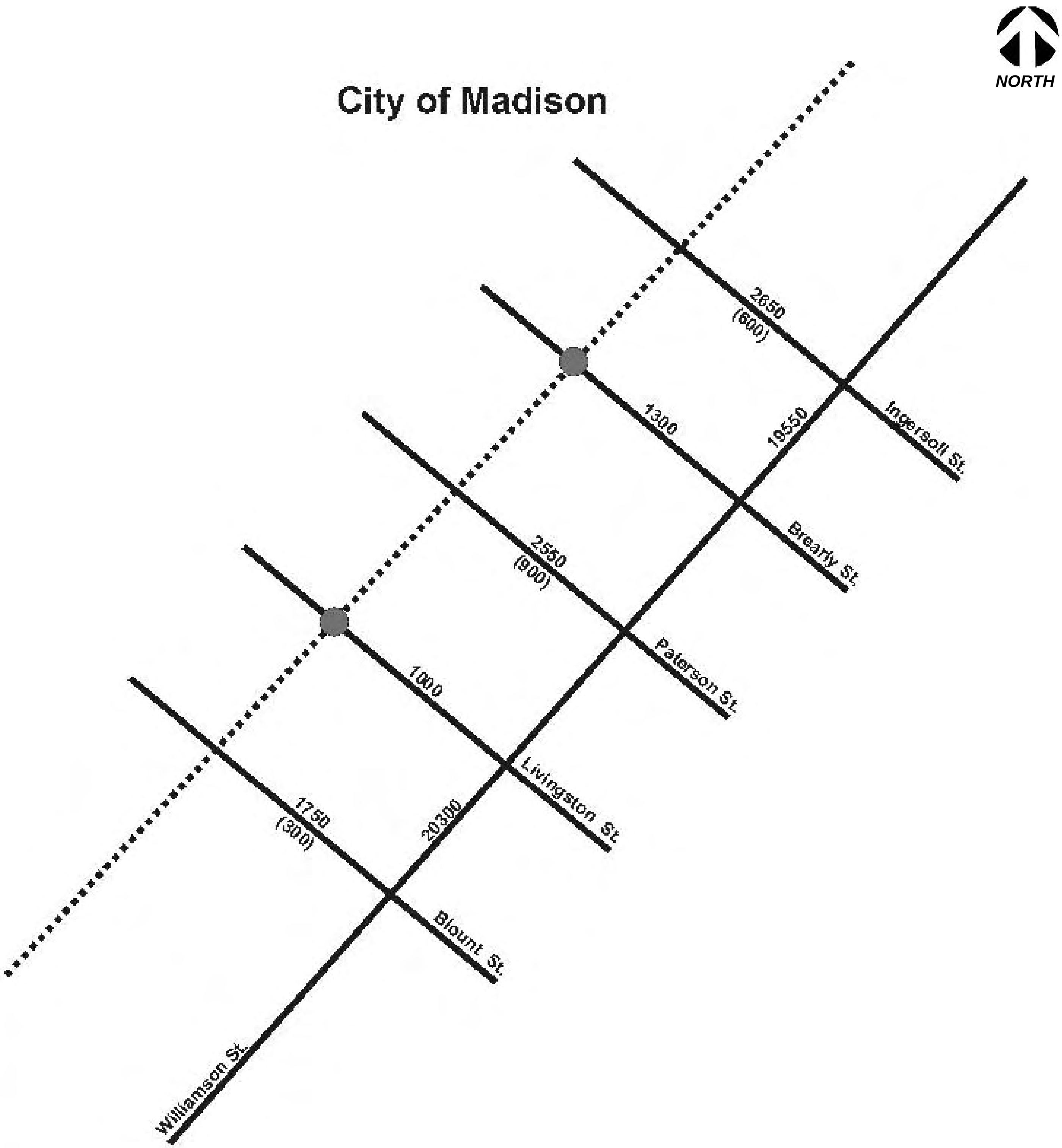
South Livingston Street – City of Madison

South Livingston Street is proposed to be closed at a location between Williamson Street and East Washington. Daily traffic volume in 1997 was 1,000 vehicles. A portion of these vehicles now have destinations along Livingston Street and these trips would continue to use the facility to reach their destination. The through trips (est. 800) would be diverted to either Blount Street or Paterson Street (See Figure 3-28). Traffic volumes on these two streets is in the 2,000 to 2,500 range and could accommodate an additional 800-1,000 vehicles without reducing their level of service. Even with Paterson Street receiving traffic diversions from both South Livingston Street and South Brearly Street, its level of service would not be substantially reduced.

3.2.9 Station Parking Impacts

Parking needs were determined for all proposed station locations. Adequate space for parking was used as one of the criteria for selecting station sites. Parking is provided at each site as follows:

- **Milwaukee**: There is existing public parking available at the Amtrak station. WisDOT is currently conducting a study to evaluate future needs to develop the station as a multimodal transportation facility. Expanded parking is part of the study.
- **Brookfield**: Approximately 160 parking spaces could be accommodated in a vacant lot north of the tracks.
- **Oconomowoc**: There is an existing parking lot north of the depot. Additional short-term parking would be available east of the station following the closing of Cross Street.
- **Watertown**: Approximately 35 spaces can be accommodated on the site.



LEGEND:

- Proposed Road Closure
- Passenger Rail Route
- X,XXX 1997 Average Annual Daily Traffic Volumes
- (X,XXX) Estimated Diverted Additional Average Annual Daily Volumes From S. Brearly St. And S. Livingston St. Closures

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Existing and Diverted Traffic on Streets Surrounding Livingston and Brearly Streets**	**Figure 3-28**

- **Madison – Pennsylvania Avenue Station**: This proposed station would require the purchase of land and the construction of a passenger station and surface parking lot for approximately 340 vehicles. This need could be reduced by 60 percent if the Monona Terrace station is selected.
- **Madison – Airport Station**: The proposed rail passenger terminal at the airport site is located in the existing overflow parking lot at the Dane County Regional Airport, where adequate parking is available.
- **Madison – Monona Terrace Station**: A parking facility currently exists at the intersection of West Wilson Street and Pinckney Street. Long-term parking needs are estimated to be between 200 and 250 spaces since this station would likely be a second Madison station, attracting 60 percent of Madison train users.

3.2.10 Pedestrian and Bicyclist Crossings

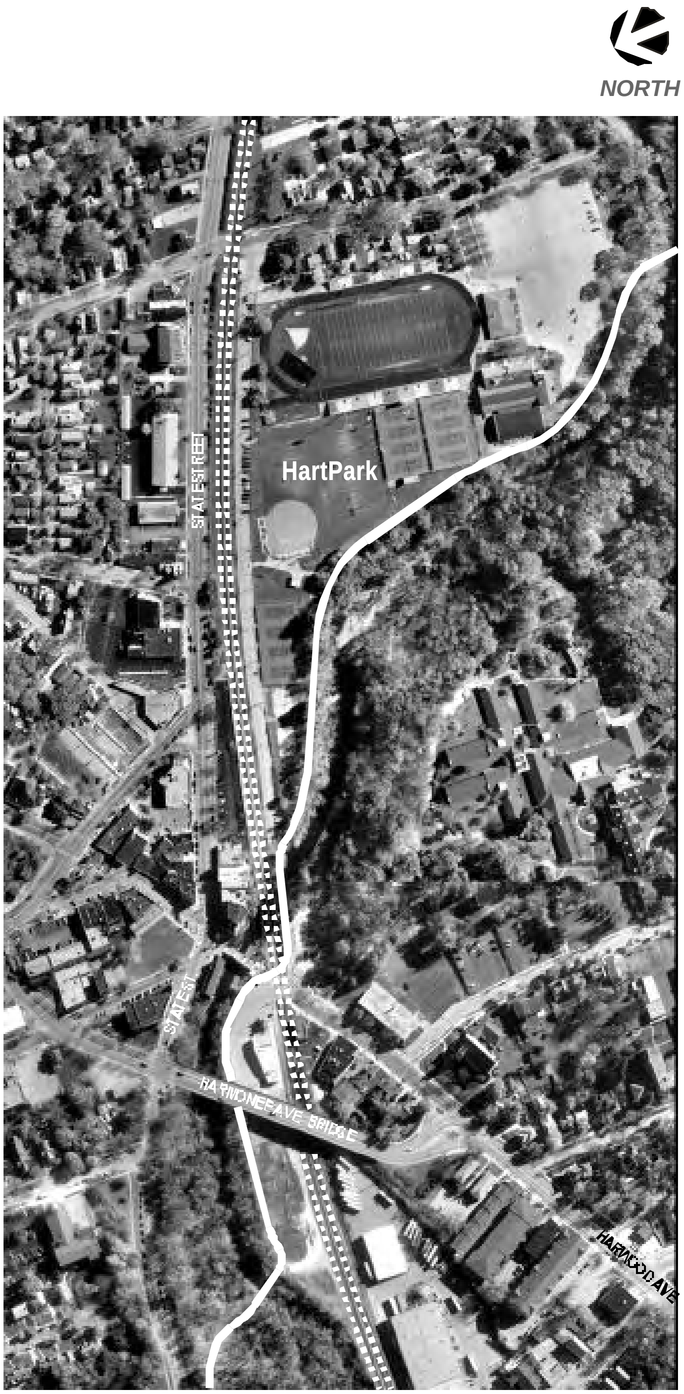
Existing bike and pedestrian paths would be accommodated within the project corridor. Fifty seven of the 122 public grade crossings along the project corridor have existing bicycle or pedestrian facilities. Most of the crossings having bicycle or pedestrian facilities are located in urban areas where train speeds would be below 79 mph (126 kph) (See Table 3-14).

Table 3-14
BIKE AND PEDESTRIAN CROSSINGS
Milwaukee-Madison Passenger Rail Corridor

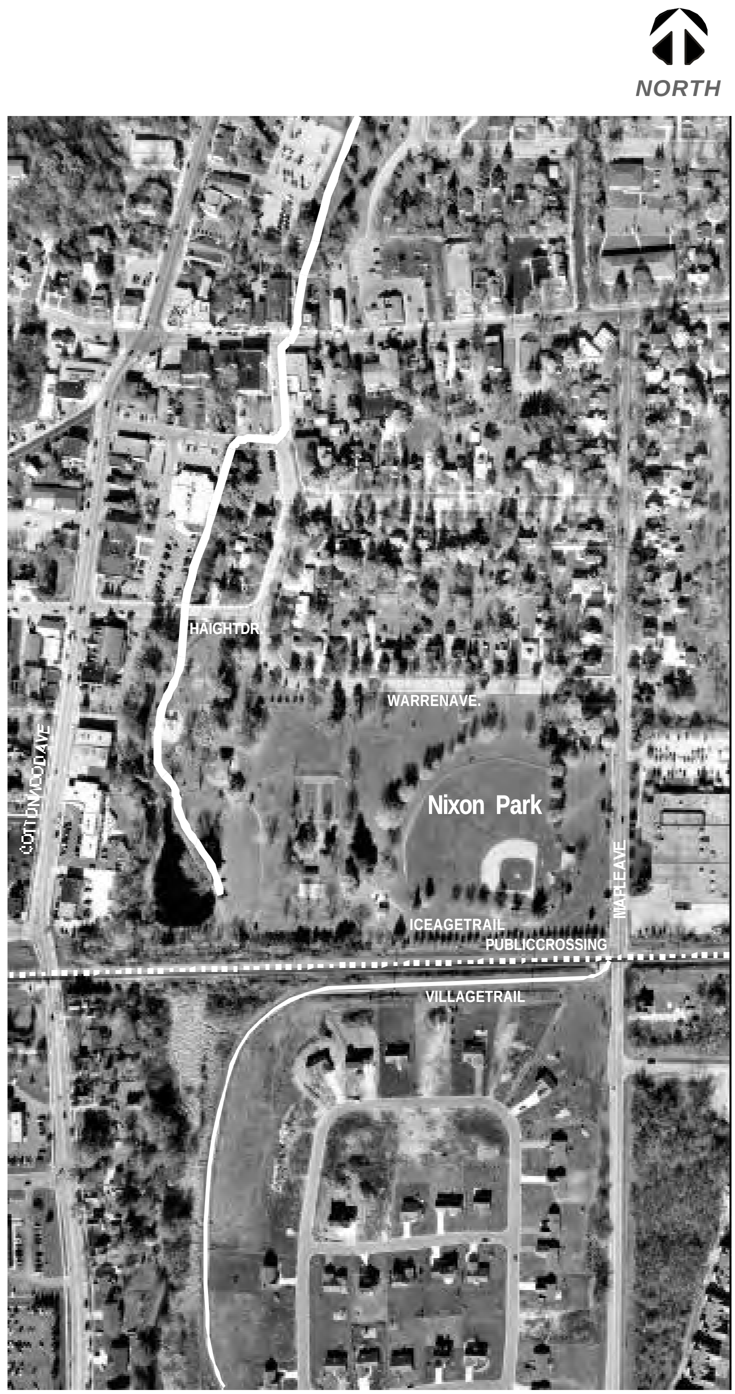
Total Bike/ Pedestrian Crossings	Crossings where Train Speed =79 mph (126 kph)	Crossings where Train Speed >79 mph (126 kph)
57	45	12

Bike path access would not be disrupted. Crossing treatments would either be upgraded or remain the same. For the 12 crossings where train speeds exceed 79 mph (126 kph), the crossing warning systems would include back gates to prevent travel along the sidewalk or bicycle path into the crossing area when trains are present (See Appendix B for individual crossing recommendations).

Three paths of note are highlighted in Table 3-15. Two existing bike paths currently cross the CP Railway/WSOR tracks on exclusive right-of-way; the Oak Leaf Trail in the City of Wauwatosa (See Figure 3-29), and a connection to the Isthmus Path in the City of Madison (Figure 3-30). The Ice Age Trail, in the Village of Hartland, is a National Scenic Trail that currently ends in Nixon Park, just north of the CP Railway tracks (See Section 3.4 regarding coordination with the National Park Service). Trail users can access a village-sponsored path, south of the tracks, via a public crossing at Maple Avenue (See Figure 3-29). Each of these paths would be maintained or upgraded as at-grade crossings.



OakleafTrail Crossing
WauwatosaVillage

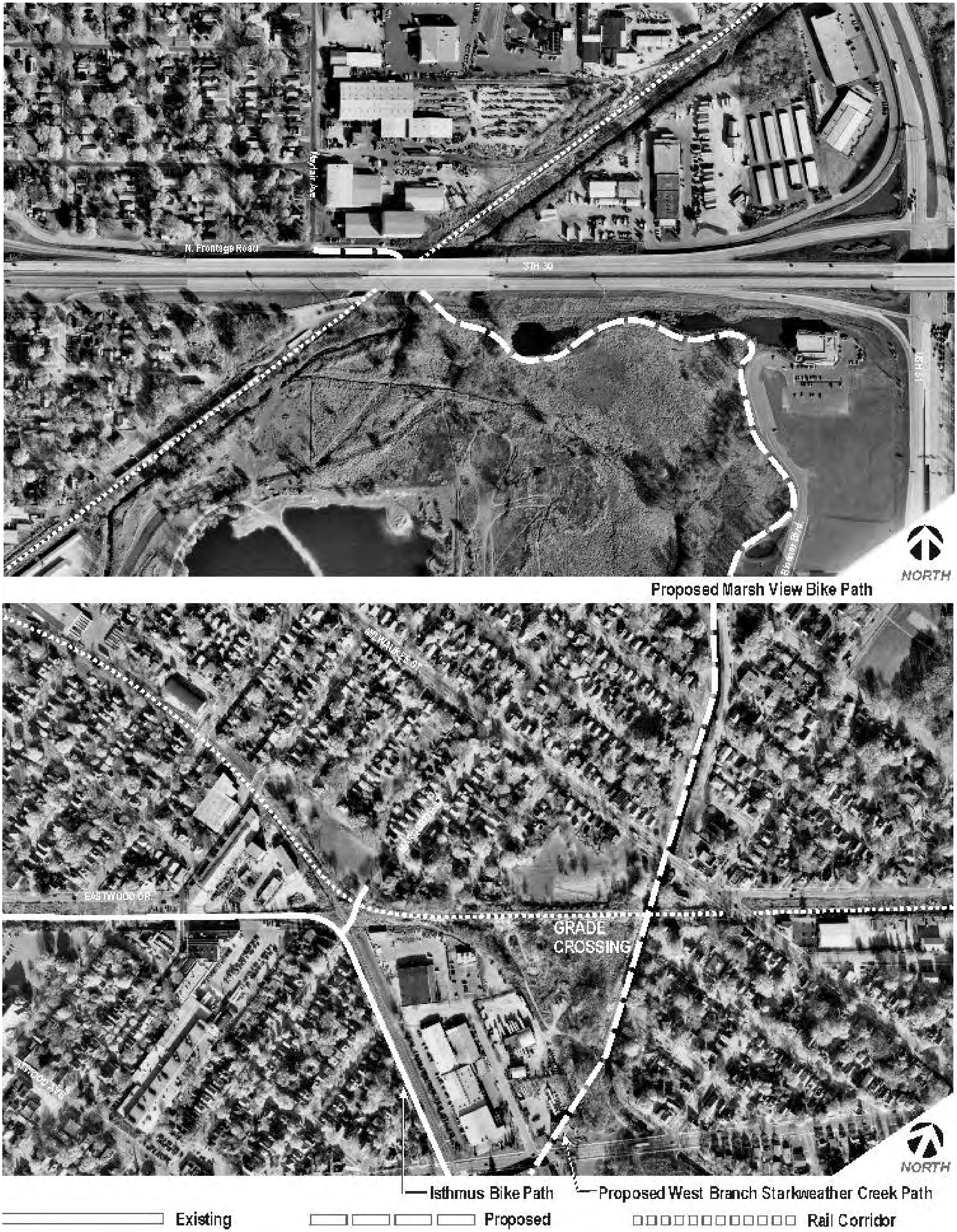


IceAge Trail
Hartland

Trail
Rail Corridor

Recreational Trail/RailCrossings

Figure 3-29



PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Recreational Trail / Rail Crossing Madison

Figure 3-30

The City of Madison requested a grade-separated crossing for the Isthmus Path connection. An overhead bridge would be visually intrusive and require substantial space for approaches. A below grade crossing may be a future option at this crossing. WisDOT would continue coordination with the City of Madison regarding additional right-of-way needs and provisions for pedestrian/bicyclist safety.

The Isthmus Path, a segment of the Capital City State Trail, runs adjacent to the railroad tracks from approximately Dempsey Road downtown to Monona Terrace where it connects to the John Nolen Path west of Monona Terrace. The Isthmus Path, which does not cross the tracks at any time, is located south of the tracks, and uses the underpass where the alternative Monona Terrace station would be located. The John Nolen Path continues following the shore of Lake Monona and eventually extends to the Military Ridge State Trail, which continues in a southerly and westerly direction.

In Dane County's Bicycle Transportation Plan for the Madison Urban Area and Dane County, there are two proposed bicycle paths that cross the rail corridor. These are listed in Table 3-15 (See Figure 3-30). Proposed trails that cross the railroad should be grade-separated and those running adjacent to the rail would need to be fenced in order to ensure user safety. The proposed West Branch Starkweather Creek path will be a grade-separated crossing. The City of Madison is preparing a request to the WSOR and Office of the Commissioner of Railroads for an at-grade crossing for the proposed Marsh View path. If the Commissioner grants the City's request, an additional protected at-grade crossing for the bike path would need to be included in the final design of the rail corridor. WSOR does not endorse an at-grade crossing at this location.

Table 3-15
EXISTING AND PROPOSED BIKE/PEDESTRIAN PATHS ON EXCLUSIVE RIGHT-OF-WAY
Milwaukee-Madison Passenger Rail Corridor

Name of Trail	**Location of Crossing**
Oak Leaf Trail	Wauwatosa (See Figure 3-29)
Ice Age Trail (Hartland Segment)*	Hartland (See Figure 3-29)
Isthmus Path (part of the Capital City State Trail route)	Runs along tracks on Isthmus.
Proposed Projects (Construction Year)	
Starkweather Creek (W. Branch) Path (unknown)	Madison, Aberg Ave. Pedestrian/Bike Overpass
Marsh View Bike Path (2002)	Madison, Commercial Avenue Frontage to Regas Road

*Trail does not cross railroad right-of-way, but the public crossing at Maple Avenue/CP Railway provides access to a village trail south of the tracks.

It should also be noted that passenger trains would provide space to bring bicycles on board, which allows additional multi-modal connections at stations.

3.2.11 Safety

Additional train traffic in the rail corridor can increase the potential for crashes at public and private crossings. Over 30 percent of infrastructure costs are associated with safety improvements in the rail corridor. Proposed at-grade crossing upgrades that include state-of-the art warning systems, added gates, flashing light signals and median barriers would enhance public safety for both passenger and freight trains that currently use the corridor, and motorists, bicyclists, and pedestrians that cross the corridor. The private crossings between Milwaukee and Madison do not typically have grade crossing warning systems. If passenger service with speeds up to 110 mph (176 kph) is implemented on this segment, all private crossings not closed would be upgraded with flashing light signals and gates to provide active warning systems.

3.2.12 Mitigation for Transportation Impacts

Safety measures, noted in Section 3.2.11, would help to mitigate much of the potential impacts to transportation safety in the corridor. Coordination with local communities on station siting locations and grade crossing closures helped to further minimize potential impacts of station-induced traffic and traffic diverted from closed crossings. Continued coordination with CP Railway and WSOR has identified where sidings and additional mainline track would need to be installed to avoid freight operation impacts. Other mitigation measures for freight operations would be further refined during the final design phase of the project.

Impacts to other travel modes, including auto and air modes are not expected to significantly affect travel markets between Milwaukee and Madison. However, impacts to bus ridership could be offset by niche markets served by intercity bus service in the Milwaukee-Madison corridor and future opportunities to provide bus feeder service to passenger rail stations.

3.3 Farmland

3.3.1 Existing Conditions

Agriculture is the one of the predominant land uses in the project corridor; several farm operations straddle the railroad right-of-way. There are an estimated 26 private farm crossings that would be affected by proposed upgrades to the corridor. Most crossings are for field to field access.

3.3.2 Impacts

Because proposed improvements will be maintained in the existing right-of-way, direct impact to farmland is not anticipated. For enhanced safety, it is desired that all private crossings be closed, or eliminated. However, closure of some private crossings may not be practical or reasonable. If alternative forms of access can not be provided for these crossing users in a reasonable or practical method, then the crossing would be retained and upgraded with flashing light signals and gates. Appendix B provides detailed information on proposed crossing closings. Table 3-16 summarizes proposed farm crossing closings.

Table 3-16
PROPOSED PRIVATE FARM CROSSING CLOSINGS
Milwaukee-Madison Passenger Rail Corridor

Location (by Milepost)	Municipality	Alternative Access
MP 125.53 – Third grade crossing west of Hilltop Lane	Town of Ixonia	Assume open unless compensation is negotiated for closure
MP 126.31 – Fifth grade crossing west of Hilltop Lane	Town of Ixonia	Provide access from Hustisford Road
MP 127.2 – First grade crossing west of Hustisford Road	Town of Watertown	Relocate west to create shared crossing with adjacent property at MP 127.4
MP 127.58 – Second grade crossing west of Hustisford Road	Town of Watertown	Relocate east to create shared crossing with adjacent property at MP 127.4
MP 133.4 – First grade crossing east of Gypsy Road	Town of Watertown	Provide access from Gypsy Road
MP 133.6 and 133.9 – First and second grade crossings west of Gypsy Road	Town of Watertown	Provide access via STH 19, Gypsy Road, and CTH T
MP 134. 6 – First grade crossing west of Ornis Road	Town of Milford	Provide access via Ornis Road
MP 135.85 – First grade crossing west of Berry Road	Town of Milford	Provide access via Berry Road
MP 138.4 – First grade crossing west of Hubbleton Road	Town of Milford	Provide access via Hubbleton Road
MP 139.75 – First grade crossing west of CTH G	Town of Milford	Illegal farm crossing, no mitigation
MP 143.98 and 143.99 - First and second grade crossings west of Fisher Road	City of Waterloo	Provide access via Fisher Road
MP 145.9 and 146.25 - Second and third grade crossings west of Harrison Road	Town of Medina	Reroute to improved crossing at MP 145.61, permanent easement required for shared access between different property owners.
MP 148.7 – First grade crossing west of Hubbel Street	Town of Medina	No mitigation for crossing between two different property owners
MP 150.4 – First grade crossing west of Berlin Road	Town of Medina	Provide access via Berlin Road
MP 150.85 – Second grade crossing west of Berlin Road	Town of Medina	Existing recorded easement provides access
MP 152.7 – First grade crossing west of Twin Lane Road	Town of Sun Prairie	Assume open unless compensation is negotiated for closure
MP 154.3 – First grade crossing west of CTH VV	Town of Sun Prairie	Provide new driveway access from Town Hall drive.

Of the 26 farm crossings, it is proposed that 20 be closed (some properties noted in Table 3-16 have more than one crossing). There are three crossings recommended for closure and combined into shared crossings. Grade crossing warning devices for the remaining open crossings may include single gates, flashing light signals, and an advanced warning system.

Each crossing that is recommended for closure, with compensation for farm impacts, would not be closed without further negotiation with the landowner. If a proposed closure severs a farm operation, the environmental assessment anticipates that the crossing would not be closed, but upgraded with grade crossing warning devices.

Several crossings, or the physical evidence of a crossing, may not be "legal." A crossing is "legal" only if a property owner owns land contiguous and along opposite sides of the railroad. A "legal" crossing usually has a written agreement between the property owner and the railroad. If private crossings do not meet this condition, then the crossings would be closed without any form of compensation or mitigation for loss of access.

3.3.3 Mitigation for Farm Impacts

As noted previously, no private farm crossings of the project corridor would be closed if adverse impacts to farm operations were expected. WisDOT would coordinate with each farm owner to avoid adverse impacts of crossing treatments.

3.4 Parks and other Unique Areas

An inventory was conducted of all parks, recreation trails and conservation areas on properties adjacent to the passenger rail corridor. (Bike and pedestrian paths are discussed in Section 3.2.10.)

Section 4(f) of the Department of Transportation Act provides that the U.S. Secretary of Transportation shall not approve any project that involves the use of any publicly owned land from a public park, recreation area, historic site, or waterfowl or wildlife refuge of national, state, or local significance unless there is no feasible and prudent alternative to the use of such land and such project includes all possible planning to minimize harm. Section 4(f) Evaluations are required for all federally funded transportation-related actions. Similarly, Section 6(f)(3) of LAWCON (Land and Water Conservation Act) requires that property acquired or developed with LAWCON funds shall not be converted to anything other than public, outdoor, or recreation uses.

No real-estate will be purchased for the project; therefore, there would be no use of, or direct effects to, identified 4(f) or 6(f) properties.

3.4.1 Existing Conditions

Several parks and parkways are located adjacent to the project corridor. These parks are listed in Table 3-17.

Snowmobile trails occur throughout the project corridor in rural areas of Waukesha, Jefferson, and Dane Counties. The trails are either maintained by the counties or by local private groups.

Snowmobile trails cross the passenger rail corridor at both public and private grade crossings. Crossing locations can change annually, depending on whether private owners grant trail access to their property.

Table 3-17
PARKS AND RECREATION AREAS
ADJACENT TO PASSENGER RAIL CORRIDOR

County/Town/Municipality	Name of Park/Conservation Area
Milwaukee County	
Milwaukee	Doyne Park
Wauwatosa	Menomonee River Parkway
Wauwatosa	Emerson D. Hoyt Park
Wauwatosa	Emerson D. Hoyt Parkway
Wauwatosa	Hawthorne Glen Field
Wauwatosa	Charles Hart Parkway
Wauwatosa	George Hansen Golf Course
Wauwatosa	Milwaukee County Grounds
Wauwatosa	Underwood Creek Parkway
Waukesha County	
Brookfield	Wirth Park
Brookfield	McCoy Park
Brookfield	Mitchell Park
Brookfield	Foxbrook Park
Elm Grove	Village Hall Park (Elm Grove Park)
Nashotah	Dichten Park
Hartland	Nixon Park
Pewaukee	Village Park
Jefferson County	
T. of Waterloo	Waterloo Wildlife Area(s)*
Waterloo	Conservancy District (zoning classification)
Dane County	
Marshall	Proposed “parkway” linear park (zoning classification)
Marshall	Langer Park
Deansville	Deansville Wildlife Area
Sun Prairie	Carriage Hills Estates Park
Sun Prairie	Angell (private)
Sun Prairie	Sheehan Park
Madison	Burr Jones Field
Madison	Yahara River Parkway**
Madison	Wirth Court Park
Madison	Dixon Greenway

*LAWCON-funded properties
**Intersected by tracks

The Ice Age Trail is a National Scenic Trail as designated by the National Park Service (NPS). It currently ends in Nixon Park in the Village of Hartland, north of the CP Railway tracks (See

Figure 3-29). Pedestrians and bicyclists can access a village trail, south of the tracks, via a public crossing at Maple Avenue.

To access the station location for the Monona Terrace station alternative in Madison, the rail will pass Burr Jones Field, which is located along the Yahara River between East Johnson Street, East Washington Avenue and First Street, within the Yahara River Parkway. The Yahara River Parkway and Environs Master Plan, adopted by the City of Madison in 1998, recommends redevelopment and expansion of Burr Jones Field (See Figure 3-31). This would be accomplished by purchasing additional acreage and making agreements with the railroad to purchase some of the existing 100-foot right-of-way. The expansion plan would result in a configuration where the railroad track bisects the park. At present the railroad is the boundary of the park. The park is currently underutilized and the Master Plan cites inadequate and unsafe access as contributing factors to this lack of use.[27] The plan for the park includes the potential for two vehicular crossings and two additional foot path crossings of the railroad tracks where presently there are no crossings. The city would need to establish a crossing agreement with the railroad company and receive approval from the Office of the Commissioner of Railroads in order to realize their plans for Burr Jones Field.

In addition to this track passing through the existing Burr Jones Field Park, it also intersects the Yahara River Parkway (See Figure 3-31). The rail corridor crosses the Yahara River at two separate locations. Plans for the Yahara River Parkway include pedestrian path crossings on both sides of the Yahara River.

3.4.2 Impacts

The improvements to the rail corridor would be confined to the existing rail right-of-way, which will avoid direct impacts to parklands. Construction staging areas would be prohibited from using these areas as described in the project specifications. Fencing along the right-of-way in public recreational areas is proposed to deter trespassing on railroad right-of-way. Snowmobile trails using at-grade crossings that are proposed for closure, would be routed to those that remain open.

Visual impacts at parks and natural areas, such as the Waterloo Wildlife Area and Deansville Wildlife Area are not expected to be substantial. Fencing treatments in urban areas would be coordinated with local communities. In rural natural areas, the proposed 4-foot woven wire fencing would not be intrusive in the context of the expansive open areas.

Noise impacts in communities are addressed in Section 3.6. Noise impacts are expected along the project corridor west of Watertown where traffic and speeds increase. In rural wildlife areas, noise impacts would be of short duration as the train passes through. Mitigation in open rural areas would be impractical given the low density use of public open areas.

[27] Yahara River Parkway and Environs Master Plan. City of Madison. 1998.

PASSENGER RAIL CORRIDOR STUDY
MILWAUKEE — MADISON

Burr JonesPark and YaharaRiverParkway
Madison, Wisconsin

Figure 3-31

The proposed project would not affect current access to the Ice Age Trail. The existing public crossing at Maple Avenue in the Village of Hartland would be replaced with quad gates and a back gate to restrict street traffic in all directions and prevent pedestrians and bicyclists from bypassing the closed gates. However, the NPS raised concerns about the future safety of the crossing for a popular national and local trail. On August 10, 2000, WisDOT and project staff met with staff from NPS, the Village of Hartland, and the WDNR to discuss options to assure safe access for the future extension of the Ice Age Trail. Since the right-of-way is owned by CP Railway, any new crossing of the right-of-way would need to be coordinated with CP Railway and approved by the Office of the Commissioner of Railroads. The CP Railway supports the NPS's request for a grade separated crossing (See email note in Appendix A-19). Field reviews of the project area indicate that a below-grade crossing may be feasible. If a grade separated crossing is pursued in the future, the NPS and/or trail sponsors would be responsible for design, funding, permitting and long-term maintenance of the crossing.

It is not expected that Burr Jones Park, as it exists, would be affected as construction would be confined to existing right-of-way. However, future park plans recommend requesting a narrowing of the right-of-way as well as additional pedestrian and vehicular crossings. The City of Madison would need to coordinate directly with Union Pacific Railroad and WSOR for additional crossings. The railroads do not support a narrowing of the right-of-way. The Office of the Commissioner of Railroads would make the final decision to allow any additional grade crossings.

The Yahara River Parkway and Environs Master Plan also has incorporated the presence of the railroad tracks. Pending completion of rail corridor studies, the Yahara River Parkway Committee[28] has reserved making recommendations regarding the "possible threats and opportunities" rail service presents to the redevelopment of the Yahara Parkway.[29] The City of Madison has designated the Yahara River Parkway as a historic landmark and it is on the National Register of Historic Places. While the proposed action is confined to the existing corridor, it would use two bridges within the parkway to cross the river. Primary concerns in the Yahara River Parkway include ensuring a park-like setting and implementing a plan for landscape treatment and historic preservation. Since the existing rail is currently used for freight traffic, it is not expected that significant additional impacts to the characteristics of the area would occur as a result of added passenger rail traffic. Additional coordination with the State Historical Society is discussed later in Section 3.13.

3.4.3 Mitigation for Parks and Other Unique Areas

No adverse impacts to parks or other unique areas are expected and no mitigation is proposed. A grade crossing warning device is proposed at the public crossing used to connect the Ice Age Trail and a Village of Heartland trail.

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[28] A City of Madison Committee.

[29] p. 25, Yahara River Parkway and Environs Master Plan, 1998.

3.5 Air Quality

3.5.1 Air Quality Standards

The Federal Clean Air Act of 1970 required the adoption of ambient air quality standards. These were established in order to protect public health, safety, and welfare from known or anticipated effects of sulfur dioxide (SO2), particulates (PM_{10}, 10-micron and smaller along with $PM_{2.5}$, 2.5 micron), carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), and lead (Pb). The Wisconsin and National Ambient Air Quality Standards (NAAQS) for these pollutants are listed in Table 3-18.

Congress directed that the standards should be reviewed at least every five years by the United States Environmental Protection Agency (EPA) to keep up with current science, and that proposals to revise them should be based solely upon the best current scientific opinion on public health effects, not economic impacts. Since initially setting standards in the early 1970s, EPA has changed the standards only twice: once, in 1979, and once in 1987. Under its 1997 review, the EPA concluded that the current primary standards for ozone and particulate matter were not adequate to protect the public from adverse health effects, and has proposed new standards that are discussed later in this section.

Table 3-18
WISCONSIN AND NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Pollutant	Averaging Time	Primary Standard[2**]	Secondary Standard[3**]
Particulate Matter (TSP)[1*]	Annual (Geometric Mean) 24 – Hour	None None	None 150 ug/m^3[*]
Particulate Matter (PM_{10})[1]	Annual (Arithmetic Mean) 24 – Hour	50 ug/m^3 150 ug/m^3[*]	(50 ug/m^3)[1] 50 ug/m^3[*]
Particulate Matter ($PM_{2.5}$)	Annual (Arithmetic Mean) 24 – Hour	15 ug/m^3 65 ug/m^3	Same as Primary Same as Primary
Sulfur Dioxides (SO_2)	Annual (Arithmetic Mean) 24 – Hour 3 – Hour	0.03 ppm (80 ug/m^3) 0.14 ppm (365 ug/m^3)[*]	 0.5 ppm (1300 ug/m^3)[*]
Carbon Monoxide (CO)	8 – Hour 1 – Hour	9 ppm (10 mg/m^3)[*] 35 ppm (40 mg/m^3)[*]	Same as Primary Same as Primary
Nitrogen Dioxide (NO_2)	Annual (Arithmetic Mean)	0.053 ppm (100 ug/m^3)	Same as Primary
Ozone (O_3)[4]	1 – Hour 8 – Hour	0.12 ppm (235 ug/m^3)[*] 0.08 ppm (157 ug/m^3)	Same as Primary
Lead (Pb)	Calendar Quarter (Arithmetic Mean)	1.5 ug/m^3	Same as Primary

Source: Code of Federal Regulations; Title 40 Part 50: Amended July, 1991; 1997 Wisconsin Air Quality Report.

[1)] PM_{10} standards were adopted and most TSP standards were deleted when the Wisconsin Administrative Code was revised in 1989. The 24 – hour secondary TSP standard was retained. The TSP secondary standard is specific to Wisconsin and should not be confused with the National Ambient Air Quality Standards, which are developed by the U.S. EPA.

2) "Primary air standard" means the level of air quality, which provides protection for public health with an adequate margin of safety.
3) "Secondary air standard" means the level of air quality, which may be necessary to protect welfare from unknown or anticipated adverse effects.
4) The U.S. EPA will enforce a new 8 – hour ruling average ozone standard beginning in 2000.
* Concentration not to be exceeded more than once (separate days for ozone) per year
** Concentration in weight per cubic meters (all except ozone corrected to 25EC and 760 mm of Hg).

The Clean Air Act Amendments (CAAA) of 1977 and 1990 required all states to submit to the EPA a list identifying those air quality regions, or portions thereof, which meet or exceed the NAAQS, or which cannot be classified because of insufficient data. Portions of air quality control regions which are shown by monitored data or air quality modeling to exceed the NAAQS for any criteria pollutant are designated "nonattainment" areas for that pollutant. The CAAA also established time schedules for the states to attain the NAAQS.

EPA has proposed to phase out and replace the previous 1-hour primary ozone standard (health-based) with a new 8-hour standard to protect against longer exposure periods. In establishing the 8-hour standard, EPA has proposed the standard at 0.08 parts per million (ppm) and defines the new standard as a "concentration-based" form, specifically the 3-year average of the annual fourth-highest daily maximum 8-hour ozone concentrations. EPA also proposed to replace the previous secondary standard (to protect the environment, including agricultural crops, national parks, and forests) with a standard identical to the new primary standard.

The previous 0.12-ppm 1-hour standard would not be revoked in a given area until that area has achieved 3 consecutive years of air quality data meeting the 1-hour standard. The purpose of retaining the 0.12-ppm 1-hour standard is to ensure a smooth, legal, and practical transition to the new standard. This project adheres to the 0.12 ppm standard.

The proposed revision to the primary (health-based) PM standard is to add a new annual $PM_{2.5}$ standard set at 15 micrograms per cubic meter (µg/m3) and a new 24-hour $PM_{2.5}$ standard set at 65 µg/m3. EPA is retaining the current annual PM_{10} standard of 50 µg/m3 and adjusting the PM_{10} 24-hour standard of 150 µg/m3 by changing the form of the standard. PM_{10} particulates are coarse particles, such as windblown dust from fields and unpaved roads. $PM_{2.5}$ particulates are fine particles generally emitted from activities such as industrial and residential combustion and from vehicle exhaust.

EPA has also proposed revising the secondary (welfare-based) standards by making them identical to the primary standards. EPA believes that the $PM_{2.5}$ and PM_{10} standards, combined with the Clean Air Act-required regional haze program, will provide protection against the major PM-related welfare effects, including visibility impairment, soiling and materials damage.

3.5.2 Existing Air Quality

The proposed project corridor extends across two air quality control regions with Milwaukee and Waukesha counties located within the Southeastern Wisconsin Intrastate Air Quality Control Region (AQCR #239) and Jefferson and Dane counties located in the Southern Wisconsin Intrastate Air Quality Control Region (AQCR #240). The project area is currently in attainment of the NAAQS for all criteria pollutants except ozone in Milwaukee and Waukesha counties (AQCR #239). The WDNR operates a statewide air quality monitoring network. The WDNR has 52 ambient air quality monitoring sites in the study area, 27 in Milwaukee County, 11 in Waukesha County, five (5) in Jefferson County, and nine (9) in Dane County. The pollutants monitored include TSP, PM_{10}, $PM_{2.5}$, SO_2, NO_2, Lead, CO and Ozone. The most recent published data is from the 1997 Wisconsin Air Quality Report. The maximum levels measured at each location are presented in Appendix C.

3.5.3 Air Quality Analysis

The primary pollutants from motor vehicles and trains are unburned hydrocarbons (HC), oxides of nitrogen (NOx), carbon monoxide, and particulates. Hydrocarbons and NOx can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone (O_3) and NO_2. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found many miles downwind of the precursor sources. These pollutants are regional problems. The modeling procedures for O_3 and NO_2 require long-term meteorological data and detailed area wide emission rates for all potential sources. Modeling concentrations of these pollutants, when an AQCR is in non-attainment, for the purpose of comparing the results with the National or State Ambient Air Quality Standards (NAAQS) is conducted by the regional air quality-planning agency for the State Implementation Plan (SIP).

Carbon monoxide (CO) is a colorless and odorless gas, which is the product of incomplete combustion. It is the major pollutant from gasoline, not diesel (train locomotives), fueled motor vehicles. CO emissions are greatest from motor vehicles operating at low speeds and prior to complete engine warm-up (within approximately eight minutes of starting). Congested urban roads and large parking lots, therefore, tend to be the principal problem areas for CO. Because the averaging times associated with the CO standards are relatively short (1 and 8 hours), CO concentrations can be modeled using simplified "worst-case" meteorological assumptions. Modeling is also simplified considerably by the stable, non-reactive nature of CO. The Wisconsin Administrative Code, Chapter NR 411, published by the Department of Natural Resources governs the criteria for micro-scale modeling of transportation sources in Wisconsin. Since none of the parking lots proposed for this project exceed NR 411's 1000 vehicle limit, the proposed improvements would not require a Construction and Operation Permit for Indirect Sources.

Particulates from motor vehicles and locomotives are made up of mineral matter from engine wear, and exhaust emissions. The ability for these particulates to stay in suspension in the air is a function of size and meteorological conditions. The larger particulates fall out of the air much quicker than the smaller and lighter particulates. The particulates of concern from transportation sources are those 10 microns in size or smaller. These particulates have much slower gravitational velocities and are much more affected by atmospheric turbulence.

Based on the above discussion, the air quality impact analysis for this project is a meso-scale or total pollutant burden analysis of the proposed project. The total pollutant burden analysis calculates the amount of pollutants created by the motor vehicles and the trains and determines the relative change comparing the two modes of transportation. Parameters used in the analysis include estimated fuel consumption of the trains, the projected reduction in vehicle miles traveled along the I-94 corridor created by the proposed project and average emission rates for the motor vehicles and the trains. The EPA-approved MOBILE5a[30] and Part5[31] models were used to analyze future proposed (2020) vehicular emissions. Variables used in MOBILE5a and Part5 included:

- Vehicle operating modes: 20.6 percent catalyst and non-catalyst cold starts, 27.3 percent catalyst hot start (National Default Averages) used.
- Vehicle mix: National default vehicle mix used.
- Ambient temperature: 19 to 23 deg. F (Winter for CO emission rates), 72 to 73 deg. F (Summer for HC and NOx emission rates).

The emission rates from MOBILE5a and Part5 are multiplied times the reduction in vehicle miles traveled along the I-94 corridor to determine the emissions per day for HC, CO, NOx and particulates

The 2020 emission rates for the diesel locomotives were proposed fleet average rates presented in EPA's Emission Factors for Locomotives[32]. These emission rates are based on the recently established emission standards for new and re-manufactured diesel-powered locomotives. Train locomotives were previously unregulated. The emission rates are multiplied times the fuel consumed in each trip times the number of trips per day to determine the daily emissions of HC, CO, NOx and particulates. The results of the total pollutant burden analysis are presented in Table 3-19.

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[30] U.S. Environmental Protection Agency. User's Guide to MOBILE5a (Mobile Source Emission Factor Model). Office of Mobile Sources, Emission Planning and Strategies Division, Air Quality Analysis Branch. Ann Arbor, Michigan: May 1994.
[31] U.S. Environmental Protection Agency. Part5 User's Guide (Particulate Emission Factor Model). Office of Mobile Sources, Emission Planning and Strategies Division, Air Quality Analysis Branch. Ann Arbor, Michigan: December 1998.
[32] U.S. Environmental Protection Agency. *Emission Factors for Locomotives*. Office of Mobile Sources, Air and Radiation, EPA-420-F-97-051, December 1997.

Table 3-19
TOTAL BURDEN ANALYSIS
Milwaukee-Madison Passenger Rail Corridor

	Total Emission per Day, I-94 Corridor, Lbs. (Kg)			
	HC	**CO**	**NO_x**	**Particulates**
Passenger Rail Emissions	69 (31)	240 (109)	1,230 (558)	42 (19)
VMT Reduction	1,191 (540)	8,978 (4,072)	1,480 (671)	39 (18)
Net Change	-1,122 (-509)	-8,738 (-3,963)	-250 (-113)	+3 (+1)

Source: HNTB October 2000

The results of the total pollutant burden analysis indicate that emissions along the I-94 corridor would decrease for HC, CO and NOx with a 3 pound per day (1 kilogram) increase in particulate emissions. The proposed project would have a positive effect on HC, CO and NO_x ambient concentrations in the southern Wisconsin urban air shed, and would aid in decreasing the precursor emissions for Ozone in the corridor. The small increase in particulate emissions would not hinder the area's ability to stay in attainment for the particulate levels established in the Wisconsin and national standards. In 1998, the EPA issued new exhaust emission standards for locomotives (40 CFR Part 92). The standards focus on reducing NO_x and PM, but HC and CO reductions are also expected. Locomotive NO_x emissions account for about 5.5 percent NO_x emissions nationwide. Locomotive PM and HC emissions account for less than one-quarter of one percent of total national emissions[33]. When the emission standards are fully implemented, the EPA expects that the new standards would reduce locomotive NO_x emissions by 41 percent in 2010, and 60 percent by 2040 (compared to 1995 levels). By 2040, hydrocarbon and PM emissions would be reduced by 46 percent, compared to 1995 levels[34]. The new locomotives for the Milwaukee-Madison passenger rail service would be manufactured according rules established in 40 CFR Part 92.

3.5.4 Mitigation for Air Quality

Since the proposed project would not affect the project area's air quality attainment status, no mitigation is required.

[33] USEPA. Regulatory Announcement: Environmental Benefits of Emission Standards for Locomotives. EPA420-F-97-049. December, 1997.

[34] USEPA. Regulatory Announcement: Final Emissions Standards for Locomotives. EPA420-F-97-048. December, 1997.

3.6 Noise

3.6.1 Noise Background

Noise is a form of vibration that causes pressure variations in elastic media such as air and water. The ear is sensitive to this pressure variation and perceives it as sound. The intensity of these pressure variations causes the ear to discern different levels of loudness. These pressure differences are most commonly measured in decibels.

The decibel (dB) is the unit of measurement for noise. The decibel scale audible to humans spans approximately 140 dB. A level of zero decibels corresponds to the lower limit of audibility, while 140 decibels produces a sensation more akin to pain than sound. The decibel scale is a logarithmic representation of the actual sound pressure variations. Therefore, a 26 percent change in the energy level only changes the sound level one dB. The human ear would not detect this change except in an acoustical laboratory. A doubling of the energy level would result in a three-dB increase, which would be barely perceptible in the natural environment. A tripling in energy sound level would result in a clearly noticeable change of five-dB in the sound level. A change of ten times the energy level would result in a ten-dB change in the sound level. This would be perceived as a doubling (or halving) of the apparent loudness.

The human ear has a non-linear sensitivity to noise. To account for this in noise measurements, electronic weighting scales are used to define the relative loudness of different frequencies. The "A" weighting scale is widely used in environmental work because it closely resembles the non-linearity of human hearing. The A-weighting scale is the most sensitive between 1000 hertz (cycles per second) and 5000 hertz dropping drastically below 1000 hertz and gradually above 5000 hertz. The A-weighting scale has been standardized throughout the world. The unit of measurement for an A-weighted noise level is dBA.

Time-varying characteristics of environmental noise are analyzed statistically to determine the duration and intensity of noise exposure. In an urban environment, noise is made up of two distinct parts. One is ambient or background noise. Wind noise and distant traffic noise make up the acoustical environment surrounding the project. These sounds are not readily recognized, but combine to produce a non-irritating ambient sound level. This background sound level varies throughout the day, being lowest at night and highest during the day. The other component of urban noise is intermittent, higher in pitch, and louder than the background noise. Transportation noise and local industrial noise are examples of this type of noise. Sounds of this nature can be very disturbing; brief and intense noises can interrupt, annoy or startle. It is for these reasons that environmental noise is analyzed statistically.

The maximum A-weighted noise level, L_{max}, represents the maximum noise level that occurs during a period of time. The most commonly used units of measure applied to community noises are based on energy averaged sound levels. These units of measure are the Equivalent Sound Level (L_{eq}) and the Day-Night Sound Level (L_{dn}).

The L_{eq} is the equivalent steady-state sound having the same A-weighted sound energy as that contained in the time-varying sound over a specific period of time. The L_{eq} correlates reasonably well the effects of noise on people. It is also easily measurable with available equipment. The Day-Night Sound Level is based on the A-weighted equivalent sound level for a 24-hour period, with an additional 10 dB weighting added to the noise levels during the nighttime hours (10 p.m. to 7 a.m.). L_{eq} and L_{dn} noise levels in this chapter refer to A-weighted equivalent sound levels. Typical L_{eq} noise levels for points of reference would be 20 to 25 dBA at an unoccupied area of the Grand Canyon, a soft whisper – 35 dBA, insects and birds – 50 to 55 dBA, general conversation – 60 to 65 dBA, at the right-of-way of a multilane Interstate – 70 to 75 dBA.

Outdoor sound generally decreases as the distance between the source and the receiver increases. There are five factors that will affect the noise levels at the residences within a mile or more of the proposed project:

- Divergence of the sound waves as the distance increases between the source and the receiver
- Atmospheric absorption of the sound waves
- Ground attenuation provided by rolling terrain, grasses, soft soil, hard soil, planted fields or tilled fields
- Buildings and other obstacles
- Sound wave refraction created by wind and temperature gradients.

The divergence of the sound waves is classically defined as 6 dB per doubling of distance for a point source, e.g., a noise level of 70 dBA at 100 feet would be 64 dBA at 200 feet and 58 dBA at 400 feet. Roadways and trains are considered line sources with a divergence that ranges from 3 to 4.5 dB per doubling of distance, e.g., a noise level of 70 dBA at 100 feet would range from 65.5 to 67 dBA at 200 feet and 61 to 64 dBA at 200 feet. Three of the other four factors listed above provide additional reduction in noise levels. The refraction created by wind and temperature gradients has the potential to increase or decrease noise levels once all the other factors are considered. This is especially true at long distances where a combination of wind and temperature gradients could increase or decrease noise levels by 5 decibels.

3.6.2 Noise Criteria

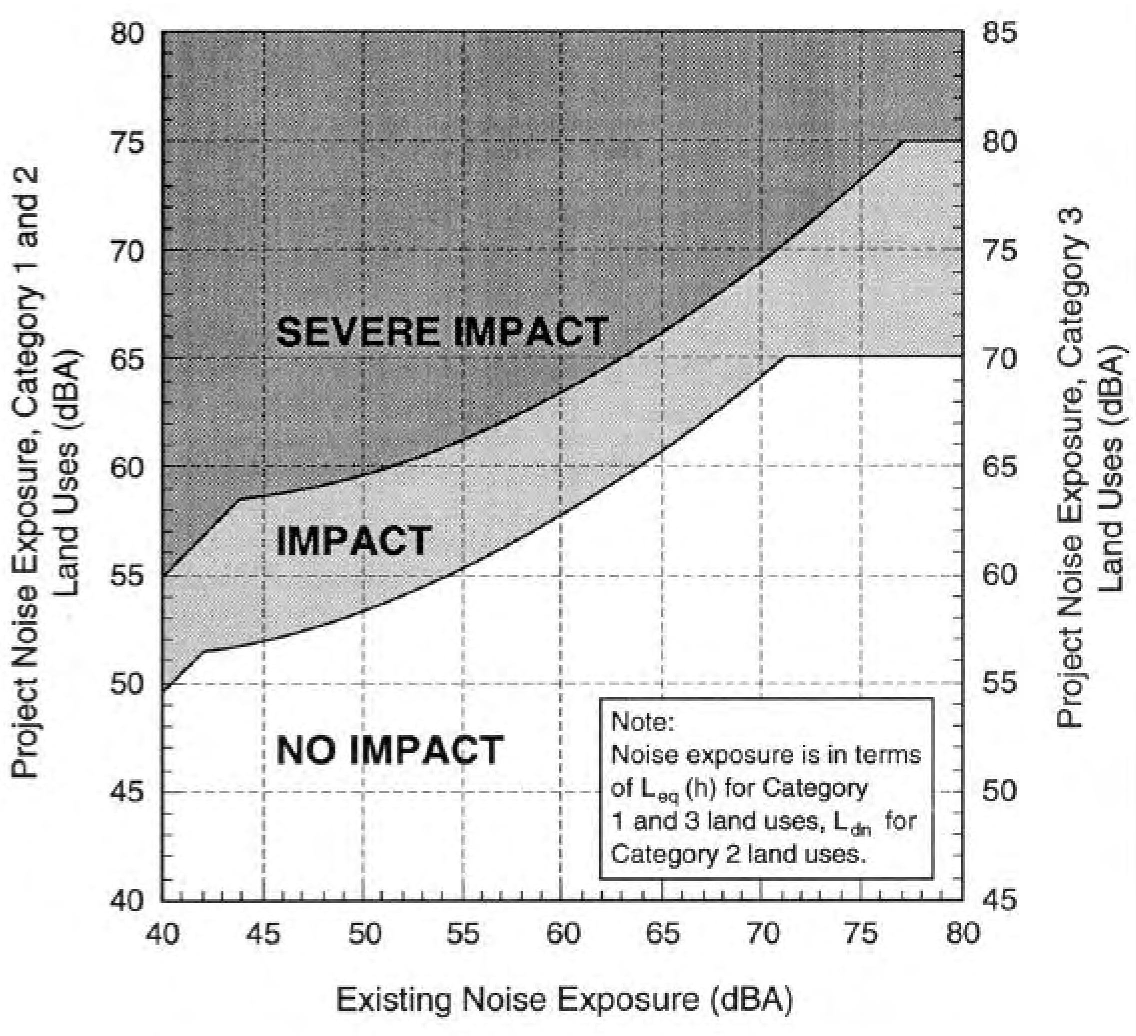
The FRA's noise impact criteria are based on a comparison of existing and future outdoor noise levels. The criteria were developed to address potential annoyance in a residential environment using L_{dn} as the noise descriptor. Noise mitigation is to be considered when negative impacts are identified. A graphical representation of the FRA criteria is presented in Figure 3-32.

The FRA established three land use categories, identified as Category 1, 2, and 3:

"Tracts of land where quiet is an essential element in their intended purpose, residences and buildings where people normally sleep, and institutional land uses with primarily daytime and evening use".[35]

The general assessment for this study was based on the criteria established for Category 2 land uses, which is primarily residential. As explained in the Note in Figure 3-32, the noise levels on the left axis of the graph, in L_{dn} was used for the project noise exposure.

Figure 3-32
FRA NOISE IMPACT CRITERIA



[35] High-Speed Ground Transportation Noise and Vibration Impact Assessment, Harris Miller Miller & Hanson, Inc., U.S. Department of Transportation Federal Railroad Administration, Office of Railroad Development, Washington, D.C., DTFR53-94-A-00056, December 1998.

3.6.3 Existing Conditions

Ambient noise measurements were taken at 12 locations along the proposed corridor. At each location, measurements were taken for a fifteen to thirty minute duration during four hours time periods; morning, afternoon, evening and late night after 10:00 p.m. If trains were heard in the distance, the time period was extended to include the passing of the train. The measurements were made with an integrating sound level analyzer meeting ANSI and IEC Type 1 specifications. The data collected at the 12 short-term sites is presented in Table 3-20. The noise measurements were conducted on September 25 and September 26, 2000 at one representative location in each of the following communities:

- Milwaukee
- Wauwatosa
- Elm Grove
- Brookfield
- Pewaukee
- Hartland
- Oconomowoc
- Watertown
- Waterloo
- Marshall
- Sun Prairie
- Madison

The locations of the field sites are presented in Appendix D.

Table 3–20
MEASURED EXISTING NOISE LEVELS
Milwaukee-Madison Passenger Rail Corridor

Field Site #	Site Description	Approx. Mile Post	Date	Start Time	Duration	Noise Level: Ambient dBA L_{eq}	Noise Level: Train dBA L_{eq}	Noise Level: Train Horn L_{max}
1	Milwaukee; North side of St. Paul at Menomonee River, 60' east of river (165' east of tracks).	88.5	9/25/00	8:45	15min.	62		
			9/25/00	12:59	15min.	60		
			9/25/00	18:43	15min.	59		
			9/25/00	22:00	15min.	60		
2	Wauwatosa; East side of 71st St. dead end at RR Tracks, 90' south of RR Tracks.	90.2	9/25/00	9:30	15min.	54		
			9/25/00	13:30	15min.	51		
			9/25/00	19:15	15min.	52		
			9/25/00	22:30	15min.	48	68	
3	Elm Grove; East side of Elm Tree Dr. Cul de sac, 175' west of RR Tracks.	96.4	9/25/00	10:26	15min.	43		
			9/25/00	14:22	15min.	43		
			9/25/00	20:10	15min.	43	67	83
			9/25/00	23:10	15min.	38		
4	Brookfield; On the Southwest corner of Milwaukee and 180th, 190' south or RR Tracks.	98.9	9/25/00	10:55	15min.	48		
			9/25/00	14:48	15min.	57		
			9/25/00	20:46	15min.	46		
			9/25/00	23:40	15min.	37		
5	Pewaukee; North side of Kopmeier Dr. approx. 450' west of RR crossing, 50' south of tracks.	106.2	9/25/00	11:31	15min.	53		
			9/25/00	15:46	15min.	57		
			9/25/00	20:13	17min.	53	81	109

Field Site #	Site Description	Approx. Mile Post	Date	Start Time	Duration	Noise Level Ambient dBA L_{eq}	Train dBA L_{eq}	Train Horn L_{max}
			9/26/00	23:55	15min.	32		
6	Hartland; West of Cottonwood on Pawling Ave. In gravel driveway 220' west of Cottonwood & 115' North of RR Tracks.	110	9/25/00	10:46	15min.	52		
			9/25/00	14:45	15min.	57	73	92
			9/25/00	19:45	15min.	52		
			9/25/00	23:25	15min.	44		
7	Oconomowoc; 2nd drive way 120' east of Blain St. On South St., 200' north of RR tracks.	118.8	9/25/00	10:00	15min.	47		
			9/25/00	14:04	16min.	63	75	88
			9/25/00	19:05	20min.	52	74	97
			9/25/00	22:40	15min.	51		
8	Watertown; Southeast Corner of Ninth And Station 65' south of Station on Ninth, 175' north of RR Tracks.	130.2	9/25/00	9:15	15min.	54		
			9/25/00	13:20	15min.	53		
			9/25/00	18:16	15min.	54		
			9/25/00	22:00	15min.	49	70	80
9	Waterloo; on east side of Jefferson 35' North of RR tracks.	144.4	9/25/00	9:07	20min.	49		
			9/25/00	13:47	20min.	52		
			9/25/00	18:34	20min.	56		
			9/25/00	22:42	20min.	41		
10	Marshall; Empty lot on Lakewood Terrace, 75' south of RR Tracks.	148.4	9/25/00	9:58	20min.	37		
			9/25/00	14:27	20min.	44		
			9/25/00	19:28	20min.	42		
			9/25/00	23:24	20min.	37		
11	Sun Prairie; West side of Musket Ridge 60' north of RR tracks.	155.2	9/25/00	10:57	20min.	56		
			9/25/00	15:13	20min.	56		
			9/25/00	20:22	20min.	52		
			9/26/00	0:06	20min.	47		
12	Madison; In front of house on bike path, 130' North of RR tracks.	164.5	9/25/00	12:12	20min.	49		
			9/25/00	16:05	20min.	51		
			9/25/00	21:14	20min.	54		
			9/26/00	0:57	20min.	49		

Source: HNTB Corporation, September 2000

The L_{dn} noise levels for each site were developed from the four measurement periods and the noise levels created by the passing trains. Each of the four measurement periods was distributed across the representative timeframe for that period. Some minor adjustments were made in the evening and late night measurements to create a more realistic gradual reduction in the ambient noise level instead of the sudden decrease that was measured at some locations. The measured train operations were then added to the extrapolated data according to the estimated operations that occur between 7:00 a.m. and 10:00 p.m. and those that occur between 10:00 p.m. and 7:00 a.m. The 24-hour data developed from the measurements was then used to calculate the 24-hour L_{dn} noise level. The resulting noise levels are presented in the second column of Table 3-21. The third column of Table 3-21 presents an estimated existing L_{dn} based upon existing train operations or population density using the methodologies presented in the FTA's General Transit Noise Assessment[36] or the FTA's Transit Noise and Vibration Impact Assessment manual.[37]

The FRA recommends using FTA's General Transit Noise Assessment, with its reference noise levels for existing diesel engines, to model existing train noise along the corridor. (As noted in Section 3.6.4, FRA guidelines for high-speed rail systems were used to model future noise levels.). The following parameters are used in this model to calculate an hourly $L_{eq}(h)$ at a specific receiver location:

- Distance between RR tracks and receiver
- Type of Train
- Hourly train volume
- Train speed
- Track conditions
- Track grade

In areas where train activity is low (Waterloo, Marshall, Sun Prairie and Madison), the population density data presented in the FTA's Transit Noise and Vibration Impact Assessment manual was used to develop the L_{dn} noise levels. In these four communities, the highest L_{dn} noise level was presented in the third column of Table 3-21.

The highest density exists in the Milwaukee Metro area and lowest in Waterloo, ranging from 6500 to 700 people per square mile. The daytime L_{eq} and L_{dn} noise levels could then range from 55 to 35 dBA. However, the ambient short-term measurements indicated that daytime noise levels did not always agree with the daytime levels based solely on population density. In areas where traffic was present, the daytime L_{eq} was greater than the population density based estimate. Therefore, the existing L_{dn} noise levels were based upon both the daytime measured L_{eq} noise levels and the population density based noise levels. The existing L_{dn} noise levels are presented in Table 3-21.

3.6.4 Future Rail Noise

Since the existing FTA modeling methodology does not address the unique features of high-speed rail systems, the methodology presented in FRA's High Speed Rail Initial Noise Evaluation[38] guidance manual was used to develop the L_{dn} noise levels along the passenger rail corridor. Factors considered in the methodology include:

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[36] FTA General Transit Noise Assessment (Transit Rail Noise Model), Prepared by Harris Miller Miller & Hanson, Inc., DTUM60-92-C-41008, Copyright 1997.
[37] Transit Noise and Vibration Impact Assessment, Harris Miller Miller & Hanson, Inc., Federal Transit Administration, DOT-T-95-16, April 1995.

[38] Federal Railroad Administration High-Speed Rail Initial Noise Evaluation (HSR Noise Model), Harris Miller Miller & Hanson, Inc., Copyright 1998.

- Distance between track and residences
- Train type
- Operation speed
- Number and length of locomotives
- Number and length of cars
- Track geometry
- Number of passenger rail operations during the daytime and night time hours

The study area was divided into two corridors, based upon land uses, existing rail activity (east of Watertown and west of Watertown) and future rail activity. The projected L_{dn} noise levels were then developed for each corridor and compared to the Noise Impact Criteria. In areas where a noise impact was projected, the distance to "No Impact" was developed. This distance represents Noise Impact Contour. The number of noise sensitive receptors between the contour and track was counted. This general assessment is based on the tracks and ground level receivers being at the same elevation, no switches, no crossovers and does not consider any intervening barriers, i.e. cuts or fills, multiple rows of buildings, etc. The results of the assessment are presented in Table 3-21.

Table 3-21
FUTURE L_{dn} IMPACT CONTOUR DISTANCE
Milwaukee-Madison Passenger Rail Corridor

Site	Existing L_{dn}		Passenger Rail L_{dn}			
	Measured	FTA Modeled	FRA Modeled	Impact Distance (Ft (m))	Number of Receivers	Impact[1]
Milwaukee	68	71	47	-	-	No Impact
Wauwatosa	64	76	56	-	-	No Impact
Elm Grove	61	65	59	-	-	No Impact
Brookfield	60	68	58	-	-	No Impact
Pewaukee	75	82	59	-	-	No Impact
Hartland	72	75	52	-	-	No Impact
Oconomowoc	70	68	55	-	-	No Impact
Watertown	66	67	55	-	-	No Impact
Waterloo	53	55	61/53[1]	75 (23)	30	Impact/No Impact
Marshall	45	49	56/51[1]	150 (46)	14	Impact/No Impact
Sun Prairie	57	51	55/50[1]	125 (38)	18	Impact/No Impact
Madison						
West of Lien Road	57	55	46	-	-	No Impact
West of Commercial Ave.	57	55	53	-	-	No Impact
West of Marquette St.	57	55	57/51[1]	55 (17)	30	Impact/No Impact
Airport Station						
North of Johnson St.	NM[2]	55	48	-	-	No Impact
Penn. Ave. Station						

Site	Existing L_{dn}		Passenger Rail L_{dn}			
	Measured	FTA Modeled	FRA Modeled	Impact Distance (Ft (m))	Number of Receivers	Impact[1]
North of Johnson	NM[2]	55	53	-	-	No Impact
Monona Terrace Station						
West of Marquette St.	57	55	57/51[1]	55 (17)	30	Impact/No Impact
West of 1st St.	NM[2]	64	58	-	-	No Impact

Source: HNTB Corporation

[1] Without mitigation/with mitigation using a 10-foot barrier assumed at existing ground elevation, which is about 7 feet below railroad grade elevation.

[2] Not Measured

The communities from Milwaukee to Watertown are presently exposed to freight trains. The existing jointed rail would be replaced with continuous welded rail throughout the corridor, making for a smoother, less noisy ride. New installed ballast would be deeper than existing ballast, which would absorb noise and vibration. Passenger trains are lighter than freight trains and have structural design characteristics that lead to a quieter ride. Therefore, the proposed project would not create a noise impact. This is because track improvements and quieter passenger trains would not increase the Ldn noise level.

Communities west of Watertown are expected to experience a more noticeable noise increase at some locations because there are not so many trains currently operating on that section of track. The increase in train traffic would cause a noise impact in some areas within this section of the project.

3.6.5 Rail Noise Mitigation

Noise mitigation generally involves the treatment of three fundamental components: the source; the propagation path; and the receiver. One method of reducing noise at the source is to apply stringent specifications in the acquisition or provision of locomotives and trainsets. Achievable noise standards can influence the design and manufacture of the train in areas such as propulsion systems, ventilation equipment, and the vehicle body. WisDOT is pursuing specifications for the purchase of locomotives and trainsets as one means to minimize noise impacts.

Noise impacts can be reduced also by implementing operational restrictions on rail vehicle speed. Halving the operating speed would provide a 4-5 dB reduction of wayside noise levels. Substantial speed restrictions on operations may be an impractical measure in some parts of the corridor when compared with other, more important service demands.

As noted in Table 3-21, another effective noise mitigation alternative is to use sound barriers placed close to the track. The necessary height of the barrier depends on the source and receiver heights and the distance between the source and receiver from the barrier. Another important consideration is the length of the barrier. The barrier must be long enough to screen out a moving train along most of its visible path. Estimated construction costs for barriers range from $72.00 to $80.00 per linear foot for a 4 foot (1.2 m) tall barrier to $180.00 to $200.00 per linear foot for a 10 foot (3.0 m) tall barrier. Depending on residential density, mitigation cost per residence along the proposed corridor would range from $12,000 to $20,000 per residence. Items to be considered for determining the appropriateness of noise barriers along the rail right-of-way would be the location of the noise source on the vehicle, the number of properties, the increase in noise levels, the noise sensitivity of the properties, the effectiveness of the mitigation, the potential to reduce existing transportation noise levels and the opinions of the community.

Presently, neither the FRA nor the FTA have any defined criteria for determining the feasibility of noise mitigation. Current practice for transportation noise abatement in the State of Wisconsin is dictated by procedures outlined in Administrative Rule, Trans 405, adopted by the Wisconsin Department of Transportation and State Legislature in August, 1989. Additional detailed analysis of impacts during design and operation of the passenger rail service, and more public involvement would be required to determine if additional mitigation using noise barriers is warranted.

Finally, the railroad horns are a significant source of noise exposure that can be mitigated through careful selection of the horn type and location. Under new rules proposed by FRA, enhanced grade crossing warning systems may be employed to create a Quiet Zone for a limited area. WisDOT intends to meet the requirements of the proposed rule by improving grade crossing warning systems that would provide an opportunity for communities to apply to the FRA for a Quiet Zone along the rail corridor if the FRA rule is promulgated. During future design phases of the project, WisDOT would continue its coordination with local communities to develop and implement plans that to allow for Quiet Zones.

3.6.6 Layover Facility

A layover facility has been proposed at the WSOR-leased rail yard in Madison. Primary activities at the site include daily cleaning and servicing of trains. The additional usage of this facility would not create an acoustical impact.

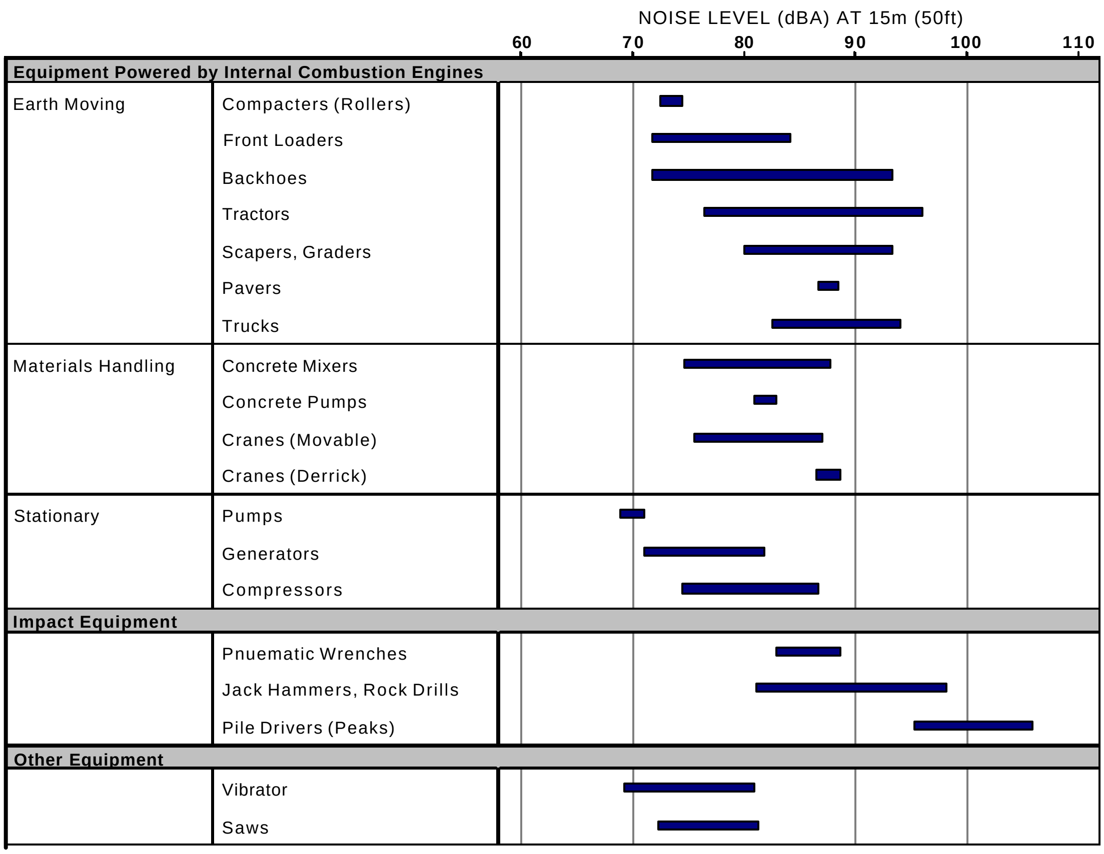
3.6.7 Construction Noise Impact

Noise generated by construction equipment would vary greatly, depending on the equipment type and model, mode and duration of operation, and specific type of work in progress. Typical sound levels at 50 feet (15 meters) would be in the 67 to 105 dBA range. See Table 3-22 for typical construction equipment sound levels for various equipment types.

It is important to note that construction sound levels refer to instantaneous maximum sound levels, as opposed to hourly average sound levels used to describe traffic noise. The loudest construction sound levels would occur during operations such as pile driving or breaking concrete. Adverse impacts resulting from construction noise are anticipated to be localized, temporary, and transitory.

One of the most effective methods of minimizing noise impact from construction activities is to include special noise/vibration requirements in the contract specifications. Specific criteria for construction noise control would be developed in the final design phase of this project. Project specifications would also incorporate local noise ordinances into the project documents to further control construction generated noise. Construction activity would be restricted to operating between the hours defined in local noise ordinances or as otherwise agreed to by the municipality and written permission by the engineer in the field. These restrictions would be added to the project specifications as appropriate.

Table 3-22
CONSTRUCTION EQUIPMENT NOISE



SOURCE: U.S. Report to the President and Congress on Noise, February, 1972.

3.7 Vibration

3.7.1 Rail Vibration Criteria

Ground-borne vibration and noise are not every day experiences to most people. Smooth roadways create hardly any noticeable vibration velocity levels. Most perceptible indoor vibration velocity levels are created by normal human activities in the building. Construction activities, rough roads, and passenger and freight trains are the source of most perceptible outdoor ground-borne vibration velocity levels. Typical background vibration velocity levels in residential neighborhoods are usually 50 VdB or lower. The human threshold of perception is 65 VdB.[39]

Ground-borne vibration and noise from trains are caused by vibration originating at the wheel/rail interface and propagating from the track bed through the intervening soil and rock to nearby buildings. The resulting vibration may be perceptible as mechanical motion (ground-borne vibration), and the acoustic radiation by the building components may cause an audible low frequency rumble (ground-borne noise).

Airborne noise from trains on at-grade or aerial structures generally overpowers the ground-borne noise and vibration. However, the impacts of ground-borne noise and vibration cannot be ignored.

Ground-borne vibration can be described in terms of the displacement, velocity or acceleration of a vibrating surface. The peak velocity of a vibration is used to assess potential building damage. However, it is not appropriate for human response to vibration. One single number descriptor, VdB, is used to assess transit vibration. Vibration velocity in decibels is the ratio of the root mean square (rms) velocity amplitude to the reference velocity amplitude. All the vibration levels in this section will be referenced to 1x10 ^{6} in./sec.

Ground-borne noise is the rumbling sound created by the vibration of a room's surfaces. The descriptor used is the A-weighted sound level, dBA. Ground-borne noise from rail facilities has a significant low frequency component. Therefore, the rumbling noise created by ground-borne noise sounds louder than broadband noise with the same dBA level. The FRA criteria for ground-borne vibration and noise[40] are presented in Table 3-23.

Table 3-23
GROUND-BORNE VIBRATION AND NOISE IMPACT CRITERIA
Milwaukee-Madison Passenger Rail Corridor

	Ground-Borne Vibration Impact Levels (VdB re 1 micro inch/sec)		**Ground-Borne Noise Impact Levels** (dB re 20 micro Pascals)	
Land Use Category	**Frequent Events[1]**	**Infrequent Events[2]**	**Frequent Events[1]**	**Infrequent Events[2]**
Category 1: Buildings where low ambient vibration is essential for interior operations.	65 VdB[3]	65 VdB[3]	- -[4]	- -[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	80 VdB	35 dBA	43 dBA

39 High-Speed Ground Transportation Noise and Vibration Impact Assessment, Harris Miller Miller & Hanson, Inc., U.S. Department of Transportation Federal Railroad Administration, Office of Railroad Development, Washington, D.C., DTFR53-94-A-00056, December 1998.
40 High-Speed Ground Transportation Noise and Vibration Impact Assessment

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 micro inch/sec)		Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events[1]	**Infrequent Events[2]**	**Frequent Events[1]**	**Infrequent Events[2]**
Category 3: Institutional land uses with primarily daytime use.	75 VdB	83 VdB	40 dBA	48 dBA

Notes

Source: FRA

1. "Frequent Events" is defined as more than 70 vibration events per day.
2. "Infrequent Events" is defined as fewer than 70 vibration events per day.
3. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.
4. Vibration-sensitive equipment is not sensitive to ground-borne noise.

3.7.2 Existing Ground-Borne Vibration and Noise

FTA's General Transit Noise Assessment[41] vibration projection procedures were used to develop the ground-borne vibration and ground-borne noise levels along the existing train corridor. FRA accepts FTA guidelines for modeling ground-borne vibration and noise of existing diesel engines. Factors considered in the methodology are identical to those considered in the section on Existing Rail Noise.

The same twelve study areas as defined for the rail noise assessment were used in the vibration assessment. The existing modeled ground-borne vibration and noise levels are presented in the second and seventh columns of Table 3-24. This general assessment is based on the tracks and ground level receivers being at the same elevation with no switches or crossovers, and does not consider any intervening barriers, i.e. cuts or fills, multiple rows of buildings, etc.

3.7.3 Future Ground-Borne Vibration and Noise

Federal Railroad Administration's High-Speed Ground Transportation Noise and Vibration Impact Assessment[42] vibration projection procedures were used to develop the ground-borne vibration and ground-borne noise levels for the proposed project corridor. FTA guidelines were not used because they do not address the unique features of high-speed train systems. Factors considered in the methodology are identical to those considered in the section on Future Rail Noise.

The projected ground-borne vibration and noise levels were then developed for each corridor and compared to the Impact Criteria, Table 3-23 (assuming Category 2 land use and infrequent events criteria). In areas where a noise impact was projected, the distance to "No Impact" was developed. This distance represents the Vibration Impact Contour. The number of vibration sensitive receptors between the contour and track was counted. This general assessment is based on the tracks and ground level receivers being at the same elevation with no switches or crossovers,

[41] Transit Noise and Vibration Impact Assessment.

[42] High-Speed Ground Transportation Noise and Vibration Impact Assessment.

and does not consider any intervening barriers, i.e. cuts or fills, multiple rows of buildings, etc. The results of the assessment are presented in Table 3-24.

Table 3-24
FUTURE GROUND-BORNE VIBRATION IMPACT CONTOUR DISTANCE
RAIL ALTERNATIVES
Milwaukee-Madison Passenger Rail Corridor

	Ground-Borne Vibration					Ground-Borne Noise		
		Passenger Rail				Passenger Rail		
Site	Existing VdB	FRA Modeled	Impact Dist	Number of Receivers	Impact	Existing dBA	FRA Modeled dBA	Impact
Milwaukee	84	78	-	-	No Impact	34	28	No Impact
Wauwatosa	84	79	-	-	No Impact	34	29	No Impact
Elm Grove	92	84	150	50	Impact	42	34	No Impact
Brookfield	96	84	150	52	Impact	46	34	No Impact
Pewaukee	98	89	150	55	Impact	48	39	No Impact
Hartland	91	84	150	5	Impact	41	34	No Impact
Oconomowoc	92	85	150	65	Impact	42	35	No Impact
Watertown	91	81	100	13	Impact	41	31	No Impact
Waterloo	80	86	100	15	Impact	30	36	No Impact
Marshall	80	89	150	20	Impact	30	39	No Impact
Sun Prairie	76	85	150	23	Impact	26	35	No Impact
Madison								
West of Lien Road	74	75	-	-	No Impact	24	25	No Impact
West of Commercial Ave.	88	86	76	35	Impact	38	36	No Impact
West of Marquette St.	84	78	-	-	No Impact	34	28	No Impact
Airport Station								
North of Johnson St.	82	80	76	28	Impact	32	30	No Impact
Penn. Ave. Station								
North of Johnson	82	68	-	-	No Impact	32	18	No Impact
Monona Terrace Station								
West of Marquette St.	84	82	63	30	Impact	34	32	No Impact

Source: HNTB Corporation

Perceptible ground-borne vibration occurs along most of the project corridor under both existing and future conditions. It is notable that the improved rail technology proposed for the track upgrades, plus the use of lighter weight passenger trains would actually reduce ground-borne vibration levels between Milwaukee and Watertown. However, due to increased activity west of Watertown, ground-borne vibration can be expected to increase in Waterloo, Marshall, and Sun

Prairie. Vibration levels are also expected to decrease in Madison because of improved rail and train technology. During the preparation of final design plans, the vibration analysis would be performed for representative properties along the corridor to better identify possible impacts.

Impacts from ground-borne noise are only projected to occur along the proposed project corridor in areas where the number of events increases due to the presence of both passenger and freight train operations. As with the ground-borne vibrations, this would be re-evaluated during final design.

3.7.4 Rail Vibration Mitigation

Several options are available to mitigate vibration impacts. Reasonable and feasible mitigation measures would continue to be investigated during the final design phase of the project. Given that the track and vehicles are in good condition, the options fit into one of seven categories:

1. changes in the track support system
2. maintenance procedures
3. location of special turnouts and crossovers
4. vehicle modifications
5. building modifications
6. adjustments to the vibration transmission path
7. operational changes

In order to avoid impacts, vibration levels would need to be reduced from one to nine VdB. Each of these options, or their combination, could reduce vibration levels below the FRA impact criteria.

Resilient tie pads that are placed under rails are economical and can be particularly effective for vibration control on ballast track. Recent tests indicate a vibration reduction potential as high as 22 VdB at 80 Hz and an effective range from 32 Hz to 160 Hz. Resilient tie pads are proposed as part of this project. This measure could eliminate or minimize vibration impacts from passenger rail service.

A large percentage of vibration impact from a rail facility is often caused by wheel impacts at turnouts and crossovers. To mitigate this impact, install ballast mat underlayment. This usually requires construction of an asphalt subbase to provide a uniform support for the mat. Ballast mats can provide 10 to 15 VdB attenuation of frequencies above 25 to 30 Hz. Ballast mat costs approximately $90,000 per 100 linear feet of ballast mat. These costs are not proposed as part of this project.

Resilient fasteners, used to fasten rails to concrete track slabs, provide some vibration reduction. These are stiff in the vertical direction, reducing vibration up to 5 to 10 VdB above 30 to 40 Hz. Resilient fasteners are proposed for this project.

Floating slabs also are very effective at controlling ground-borne vibration. They can decrease vibration above 20 to 30 Hz by up to 20 or 30 VdB. However, this approach may conflict with service demands, and they are not proposed for this project.

The reduction of operating speeds would also effectively reduce vibration. Reducing the train speed by a factor of two, lowers vibration levels approximately 6 VdB. However, restrictions on operations are an impractical measure if cost effectiveness is to be maintained. Thus, this operational mitigation is not proposed for the project.

3.8 Streams

3.8.1 Existing Conditions

The project area intersects four main drainage basins: the Milwaukee River Basin, Illinois Fox River Basin and the Lower and Upper Rock River Basins (Figure 3-33). The Upper and Lower Rock River Basins and the Illinois Fox River Basin eventually drain to the Mississippi River, while the Milwaukee River Basin drains to Lake Michigan. Numerous water bodies occur in the project area within these drainage basins. Available information on the various physical features of the streams that intersect the rail corridor is presented in Table 3-25. Various physical features of the streams from Madison to Watertown were characterized during field surveys. Due to limited reconstruction proposed between Watertown to Milwaukee, physical features of streams in this section were not surveyed. A summary of the classification and water quality features of the major perennial streams in the project area is presented in Table 3-26. This information was primarily acquired from the Wisconsin Department of Natural Resources (WDNR).

Table 3-25
PHYSICAL CHARACTERISTIC OF WATER BODIES
INTERSECTED BY PROPOSED RAIL
Milwaukee-Madison Passenger Rail Corridor

Approx. Milepost	River Basin	Water Feature	County	Flow Regime[1]	Water Depth[2]	Substrate	Adjacent Land[3]
					(ft)		
88.0	Milwaukee	Menomonee River	Milw.	Permanent	----	----	I-94, C/I
88.6	Milwaukee	Menomonee River	Milw.	Permanent	----	----	RPE, C/I
90.8	Milwaukee	Menomonee River	Milw.	Permanent	----	----	Upl. for, C/I
93.0	Milwaukee	Underwood Creek	Milw.	Permanent	----	----	Upl. for/field
95.2	Milwaukee	Underwood Creek	Wauk.	Permanent	----	----	C/I
96.0	Milwaukee	Trib. to Underwood Creek	Wauk.	Temporary	----	----	WS, Resid.
97.2	Milwaukee	Underwood Creek	Wauk.	Permanent	----	----	RPF
98.2	Milwaukee	Underwood Creek	Wauk.	Permanent	----	----	WS/SS, M(D), Upl. Field

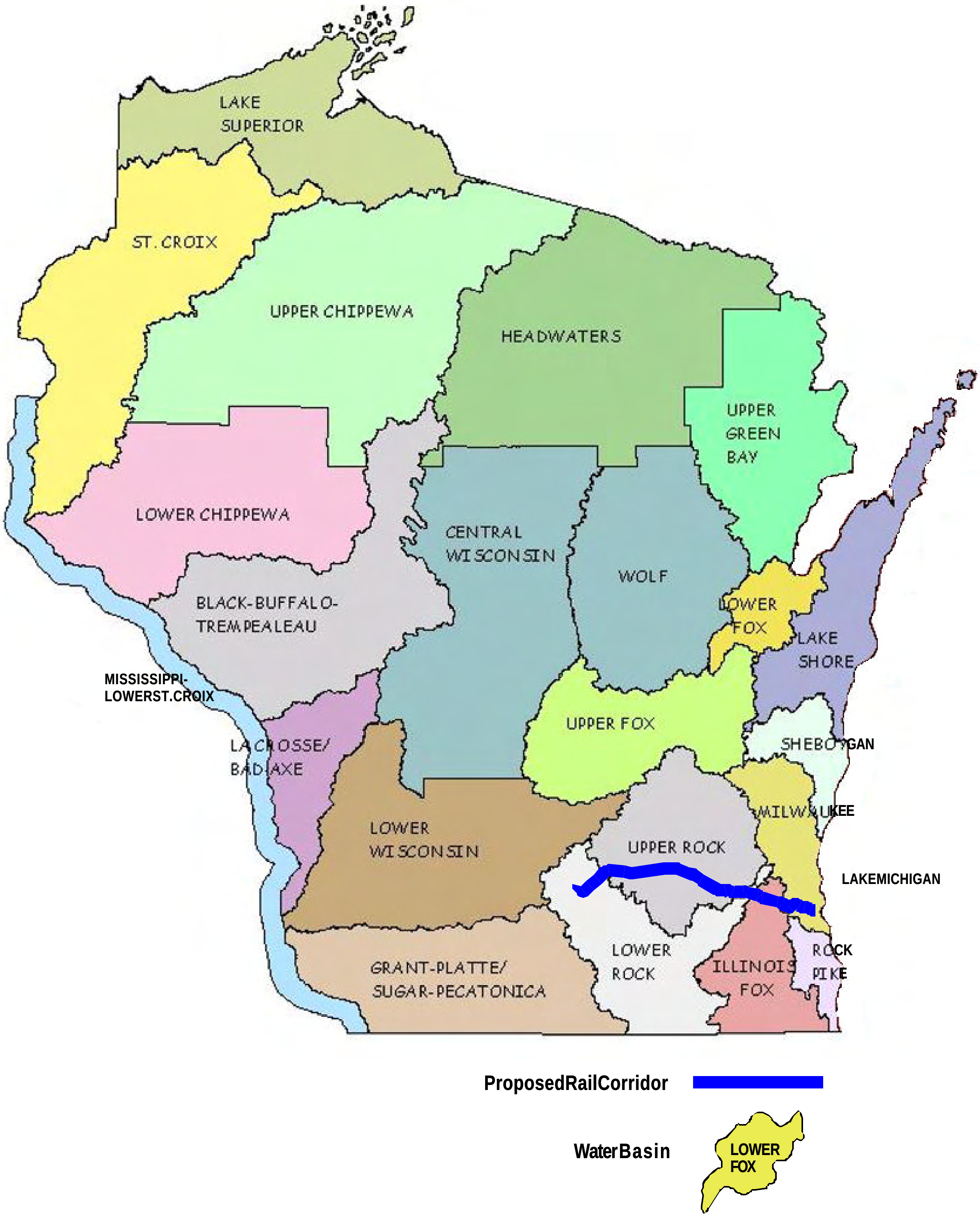
Approx. Milepost	River Basin	Water Feature	County	Flow Regime[1]	Water Depth[2]	Substrate	Adjacent Land[3]
98.5	ILL-Fox	Unnamed Creek	Wauk.	Permanent	----	----	WS, Upl. Field
99.2	ILL-Fox	Trib. to Fox River	Wauk.	Permanent	----	----	M(D), C/I, >1000' piped
100.0	ILL-Fox	Fox River	Wauk.	Permanent	----	----	RPE/F
105.3	ILL-Fox	Trib. to Pewaukee River	Wauk.	Permanent	----	----	RPE/F, Upl. for, Park
106.0	ILL-Fox	Pewaukee Lake	Wauk.	Permanent	----	----	Resid.
106.6	ILL-Fox	Pewaukee Lake	Wauk.	Permanent	----	----	RPE, SM, Resid.
110.0	Lower Rock	Bark River	Wauk.	Permanent	----	----	RPF/E, Resid., C/I
115.7	Upper Rock	Oconomowoc River	Wauk.	Permanent	----	----	RPF, Upl. for, lake
116.4	Upper Rock	Oconomowoc River	Wauk.	Permanent	----	----	RPF/E, C/I
118.9	Upper Rock	Oconomowoc River	Wauk.	Permanent	----	----	RPF, Resid., C/I
120.0	Upper Rock	Unnamed Creek	Wauk.	Temporary	----	----	M(D), Agric.
122.0	Upper Rock	Rock River	Jeff.	Permanent	----	----	RPF, Agric.
122.8	Upper Rock	Trib. to Rock River	Jeff.	Temporary	----	----	M(D), WS, Agric.
124.3	Upper Rock	Trib. to Rock River	Jeff.	Temporary	----	----	Upl. for, Agric.
124.8	Upper Rock	Trib. to Rock River	Jeff.	Permanent	----	----	M(D), Agric.
126.0	Upper Rock	Trib. to Rock River	Jeff.	Temporary	----	----	M(D), Agric.
126.4	Upper Rock	Trib. to Rock River	Jeff.	Temporary	----	----	Agric.
128.2	Upper Rock	Trib. to Rock River	Jeff.	Temporary	----	----	RPE(D), Agric.
128.4	Upper Rock	Rock River	Jeff.	Permanent	----	----	RPF, Agric., Resid.
130.7	Upper Rock	Rock River	Jeff.	Permanent	----	----	RPF, C/I
131.5	Upper Rock	Unnamed Creek	Jeff.	Temporary	----	----	C/I, Resid.
131.7	Upper Rock	Unnamed Creek	Jeff.	Temporary	<1	silt/gravel/cobble	M, Resid.
133.2	Upper Rock	Trib. to Rock River	Jeff.	Temporary	<2	frozen	Agric.
134.1	Upper Rock	Trib. to Rock River	Jeff.	Temporary	dry	firm bottom	Upl. for, Agric.
134.5	Upper Rock	Unnamed Creek	Jeff.	Temporary	<1	silt/sand	Agric.
135.9	Upper Rock	Unnamed Creek	Jeff.	Temporary	----	----	Agric.
137.2	Upper Rock	Trib. to Crawfish River	Jeff.	Temporary	----	----	Agric.
138.8	Upper Rock	Crawfish River	Jeff.	Permanent	----	----	Agric., Upl. for, M(D)
140.0	Upper Rock	Trib. to Crawfish River	Jeff.	Temporary	<1	silt/gravel	M(D), Agric.
142.5	Upper Rock	Trib. to Stony Brook Creek	Jeff.	Permanent	----	----	M
143.0	Upper Rock	Stony Brook Creek	Jeff.	Permanent	<1	cobble	M
144.6	Upper Rock	Trib. to Maunesha River	Jeff.	Temporary	<1	frozen	RPF
144.9	Upper Rock	Maunesha River	Jeff.	Permanent	3	cobble	RPE
145.0	Upper Rock	Trib. to Maunesha River	Jeff.	Temporary	1	gravel/cobble/sand	Upl. for, M
146.0	Upper Rock	Maunesha River	Dane	Permanent	2	cobble/gravel	Upl. For
146.8	Upper Rock	Maunesha River	Dane	Permanent	>3	silt	Agric., Upl. For
147.3	Upper Rock	Trib. to Maunesha River	Dane	Permanent	----	----	Agric.
147.7	Upper Rock	Trib. to Maunesha River	Dane	Temporary	----	----	Agric.
149.0	Upper Rock	Maunesha River	Dane	Permanent	>3	silt	M(D), Upl. For
149.4	Upper Rock	Maunesha River	Dane	Permanent	>3	silt w/ sand	Agric., Upl. for, M
149.6	Upper Rock	Maunesha River	Dane	Permanent	>3	silt w/ boulders	Agric., M
149.8	Upper Rock	Trib. to Maunesha River	Dane	Temporary	<1	----	M(D), Agric.
151.5	Upper Rock	Trib. to Maunesha River	Dane	Permanent	1	sand/silt/gravel	M
151.6	Upper Rock	Trib. to Maunesha River	Dane	Permanent	1	silt/gravel/cobble	M(D), Agric.
154.7	Lower Rock	Unnamed trib. To Koshkonong Creek	Dane	Temporary	<1	----	M(D), Agric.
155.6	Lower Rock	Koshkonong Creek	Dane	Temporary	<1	cement	C/I, Res.

Approx. Milepost	River Basin	Water Feature	County	Flow Regime[1]	Water Depth[2]	Substrate	Adjacent Land[3]
157.5	Lower Rock	Unnamed trib. To Koshkonong Creek	Dane	Temporary	----	----	M(D), Agric.
158.0	Lower Rock	Unnamed trib. To Koshkonong Creek	Dane	Permanent	<1	sand/cobble	M(D)
161.7	Lower Rock	E. Br. of Starkweather Creek	Dane	Temporary	0	silt	Upl. for, Agric.
162.7	Lower Rock	W. Br. of Starkweather Creek	Dane	Permanent	----	----	M(D), C/I
164.5	Lower Rock	W. Br. of Starkweather Creek	Dane	Permanent	3	silt	Res., C/I, Park, M
	Lower Rock	Yahara River	Dane	Permanent	2	cobble/gravel/silt	Park, C/I, Res., Transp.
		SOUTH CP TRACK NEAR BROOKFIELD					
NA	Milw.	Trib. to Underwood Creek	Wauk.	Permanent	----	----	WS, Resid., C/I
NA	Milw.	Unnamed Creek	Wauk.	Temporary	----	----	WS, Resid.

----Not Surveyed
[1]Based on designations on USGS 7.5-minute topographical maps
[2]At time of investigation in Fall 1999 and Winter 2000
[3]Agric. - Agricultural

RPF - Riparian wooded wetland
C/I - Commercial/Industrial
Res. - Residential
M - Wet meadow
SM - Shallow marsh
M(D) - Degraded wet meadow
SS - Shrub swamp
RPE - Riparian emergent wetland
Transp. - Transportation corridor
RPE(D) - Degraded riparian emergent wetland
Upl. for. - Upland forest
WS - Wooded swamp

NORTH
Not to Scale



Source: Department of Natural Resources Website, March 2001

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Major Wisconsin Water Basins**	**Figure 3-33**

Table 3-26
SUMMARY OF WATER QUALITY CHARACTERISTICS FOR MAJOR PROJECT AREA STREAMS
Milwaukee-Madison Passenger Rail Corridor

River Basin	Major Water Feature	County	Stream Classification[1]	Biological Use		Supporting Potential Use[4]	Environmental Problems[5]	
				Existing[2]	Potential[3]		Source	Impact
Milwaukee	Menomonee River	Milw.	WWSF[6]	WWSF	WWSF	Part	NPS, URB, SB, HM	HAB, SED, TOX, BAC
Milwaukee	Underwood Creek	Milw/Wauk	WWSF/LFF	WWSF/LFF	WWSF/LFF	Part	NPS, URB, SB, HM	HAB, SED, TOX, BAC
ILL-Fox	Fox River	Wauk.	WWSF	WWSF	WWSF	Part	HM, NPS, BY, SB	HAB, SED, TOX, DO, BAC
ILL-Fox	Pewaukee River	Wauk.	WWSF	WWSF	WWSF	Not	NPS, URB, CE, BY, HM	HAB, FLOW, SED, BAC, TOX, TURB
Lower Rock	Bark River	Wauk.	DEF	WWSF	WWSF	Part-Thr	HM, PSB, BY, CL, URB, CE, PSM, DEV	FLOW, HAB, MIG, TURB
Upper Rock	Oconomowoc River	Wauk.	WWSF	WWSF	WWSF	Part	NPS	HAB, SED
Upper Rock	Rock River	Jeff.	WWSF	WWSF	WWSF	Part	NPS, HM, CARP, PSM	HAB, SED, BAC, NH_3
Upper Rock	Crawfish River	Jeff.	WWSF	WWSF	WWSF	Part	HM, CARP, NPS	TURB, SED, DO, HM, HAB
Upper Rock	Stony Brook Creek	Jeff.	DEF	WWSF	WWSF	Part	NPS	HAB, SED
Upper Rock	Maunesha River	Dane/Jeff.	WWSF	WWSF	WWSF	Part	HM, NPS	HAB, SED
Lower Rock	Koshkonong	Dane	LAL	LAL	LAL	Fully	CE, URB, PSM	DO, FLOW, HAB,

River Basin	Major Water Feature	County	Stream Classification [1]	Biological Use		Supporting Potential Use[4]	Environmental Problems[5]	
				Existing[2]	Potential[3]		Source	Impact
	Creek							BAC, TEMP, TURB
Lower Rock	Starkweather Creek	Dane	DEF	LFF	WWSF	Not	DEV, HM, CE, URB, PSI, CL	DO, FLOW, HAB, TOX, TURB, SED
Lower Rock	Yahara River	Dane	DEF	WWSF	WWSF	Part-Thr	HM, CE, URB	HAB, SED, TURB

[1]The waterbody's classification in the project area that is formally and legally recognized by code which is used to determine water quality criteria and effluent limits, where: WWSF = Warm water sport fish, LFF = Limited Forage Fish, LAL = Limited Aquatic Life, DEF = Default, stands for streams that are assumed to meet fish & aquatic life uses, but for which no formal classification exists.

[2]Indicates the biological use that the stream currently supports. This is not a designation or classification; it is based on current condition of the surface water and biological community living in that water body.

[3]Indicates the biological use the stream or stream segment could achieve through proper management of controllable pollution sources.

[4]Indicates whether a stream is threatened, or is fully, partially or not meeting its potential biological use.

[5]Environmental Problems definitions:

Source		Impact	
NPS	Unspecified non point sources	HAB	Habitat (lack of cover, sedimentation, scouring, etc.)
URB	Urban stormwater runoff	SED	Sedimentation
BY	Barnyard or exercise lot runoff	TOX	General toxicity problems
PSB	Streambank pasturing	BAC	Bacteriological contamination
CL	Cropland erosion	FLOW	Stream flow fluctuations caused by unnatural conditions
CE	Construction site erosion	MIG	Fish migration interference
DEV	Intense development pressure	TURB	Turbidity
SB	Streambank erosion	NH_3	Ammonia toxicity
HM	Hydrologic modification	DO	Dissolved oxygen
PSM	Point source, municipal	HM	Heavy metal toxicity
PSI	Point source, industrial		

[6]Portions of Menomonee River have water quality standards that do not allow classification according to NR102.

No Outstanding Resource Waters occur in the project area. The project corridor crosses the Oconomowoc River three times. Approximately 3 miles north (upstream) of the rail corridor, from North Lake down to Okauchee Lake, this river is classified as an Exceptional Resource Water (ERW). No other ERWs occur in the project area. Additionally, no trout streams, as identified in Kmiotek (1980) exist in the project area. Sensitive aquatic species occur in the Rock, Bark, and Oconomowoc rivers. Impacts to protected species are further addressed in Section 3.12.

3.8.2 Impacts to Streams

Various construction, operation and maintenance activities in or adjacent to water bodies may affect aquatic resources or water quality. The evaluation of impacts to aquatic resources considered the proximity of the water feature to the construction area, anticipated construction methodology, existing quality and condition of project area streams as well as the specific types of impact. Potential impacts to wetlands, which are often adjacent to the water bodies, are discussed in Section 3.10. A discussion of threatened and endangered aquatic species that may be impacted by the proposed project is presented in Section 3.12.

From Milwaukee to Watertown, five existing bridges are proposed to be rehabilitated. These bridges occur over the Menomonee, Fox and Rock (two crossings) Rivers and the inlet to Pewaukee Lake. Rehabilitation activities generally include removing/restoring spalled concrete on piers, and improving scour around piers. Replacement of abutments would also occur at the Menomonee River and Pewaukee Lake crossings. These activities are anticipated to have a minimal impact on aquatic resources and water quality. Rip-rap would be placed around the existing piers with scour problems. The fill area would be localized and would stabilize the streambed in this area. New abutments would be placed upslope of existing abutments, so no additional fill would occur in the streambed. Potential water quality impacts associated with these rehabilitation activities (e.g., increased sedimentation, turbidity, etc.) would be minimized by utilizing management practices such as silt fencing and promptly stabilizing/seeding exposed soils. As such, impacts would be short-term and would not measurably affect aquatic resources.

From Watertown to Madison, twelve bridges would be replaced. Additionally, two box culverts would be installed to replace existing bridges. These bridges currently span Stoney Brook Creek, Maunesha River, Starkweather Creek and various tributaries to these and other water bodies (See Table 3-27). In-stream activities at the 12 bridge replacement locations would include removing existing pilings (cutting off at streambed) and installing new ones. Removal of the existing piles would temporarily disturb approximately 4,600 ft^2 (414 m^2) of streambed. Most of the streambed disturbance would occur at a crossing of the Maunesha River (approximate milepost 144.9) where there are numerous old piles that are forming a low-head dam. The entire area in which these piles occur was included in this area of disturbance, and as such, presents a "worst-case" estimate. Installation of the box culverts would involve excavating approximately 875 ft^2 (79 m^2) of streambed at Stoney Brook Creek (approximate milepost 143.0) and a tributary to the Maunesha River (approximate milepost 151.6). The bottom of the box culverts would be sunk approximately six inches (15 cm) below the streambed. Additionally, twenty-nine culverts would be replaced from Watertown to Madison. Aprons would be installed on each end and riprap would be placed at the downstream end to reduce scour at the outlet. It is assumed the new culverts would not alter the hydrologic regime of the streams.

Proposed construction activities from Watertown to Madison are not anticipated to substantially impact aquatic resources in the area. Pile removal would temporarily disturb the streambed, which would temporarily increase turbidity and sedimentation. Excessive sedimentation can reduce the amount of available habitat for various fishes and macroinvertebrates, reduce the chances of successful spawns for fish, etc. However, turbidity barriers, cofferdams, or other similar devices would be used to ensure potential impacts are localized and reduced to the extent practicable. Installation of the box culverts would result in a closed channel environment for a short distance under the railroad on two streams. The culvert would be buried approximately six inches (15 cm) below the streambed, which would allow for the partial reestablishment of a natural bottom. While this would result in a reduction of aquatic habitat for fishes and macroinvertebrates, it would not have a measurable impact on the streams based on the limited area of disturbance.

Long-term maintenance activities include the management of right-of-way vegetation, the cleaning of ballast, periodic repair and replacement of ties and tracks, and the maintenance of bridge facilities. These actions can result in the temporary and localized discharge of pollutants. Some direct contact to streams from chemicals may occur due to wind drift. However, the majority of sprayed and/or applied chemicals would be filtered out or adsorbed as surface runoff flows through vegetated swales and wetlands within the right-of-way. During operations, derailments, spills and leaks may occur and would be handled through standard contingency plans that would include notifying the WDNR of the incident and having qualified personnel remove the materials.

Consistency with Coastal Zone Management

The WDNR approves project consistency with the Wisconsin Coastal Zone Management Program, an implementation program for the federal Coastal Zone Management Act. Compliance with the Coastal Zone Management Program is obtained when the WDNR concurs that the project is consistent with the State's regulations that protect waterways and wetlands. The WDNR can grant compliance through its Section 401 Water Quality Certification review of preliminary plans for the project. As the project enters into more detailed preliminary engineering design, WisDOT and WDNR would continue consultation to develop plans that meet requirements for water quality and wetland protection.

3.8.3 Mitigation for Streams

Erosion control measures during construction are required of any WisDOT administrated construction. If CP Railway is required to obtain permits from the USACE for its own construction activities east of Watertown, erosion control measures would also be required for review under Section 401 Water Quality Certification. This certification is administered through the WDNR.

Construction site erosion control plans are required with all construction plans and include erosion control, sediment control, and runoff diversion. Best management practices for erosion control include planting or installing vegetation, mulch, erosion mats, and riprap. Sediment control devices include installing erosion bales, silt fences, stone ditch checks and sediment traps and basins. Runoff diversion measures can include channels/ditches, diversion dikes/intercepting embankments, slope drains, and flumes. Once the project proceeds to construction, WisDOT would develop an Erosion Control Implementation Plan, which provides the timetable for when the contractor would install erosion control devices. WDNR review of the final plan specifications and estimates would ensure that erosion control commitments, permits obtained by contractors and control measures for exotic species are included within the project specifications.

Potential contamination of surface water from herbicides during routine right-of-way maintenance would be avoided and minimized by using products approved for use near water and by adhering to application requirements for the product.

3.9 Floodplains

3.9.1 Existing Conditions

The Federal Emergency Management Agency (FEMA) has mapped 100- and 500-year floodplains for most major waterways intersected by the project alignment. Portions of the existing alignment that cross waterways also cross their floodplains. Flood events occur primarily in response to spring snowmelt and to heavy precipitation events. Problem areas typically occur where fill for development has reduced the natural extent of the floodplain, where stream channelization and associated spoil berms have narrowed the natural floodway, and at channel constrictions. Even where conveyance structures have been properly sized to accommodate the magnitude of the design storm event at the time of construction, subsequent urban development that increases surface water runoff over time eventually leads to increased flooding upstream of channel constrictions such as bridges and culverts. Flooding in problem areas can result in property and/or crop damage. In particular, severe effects of flooding have been increasing in certain areas within the highly developed Menomonee River and Underwood Creek watersheds in the Milwaukee area.

3.9.2 Impacts

National Flood Insurance Program maps from FEMA were used to identify and calculate the length of the 100-year floodplains affected by proposed construction activities. Each affected area is listed in Table 3-27. In addition, county drainage district chairpersons and the Milwaukee Metropolitan Sewerage District (MMSD) were contacted for their comments on the project. MMSD is responsible for stormwater conveyance in the Milwaukee area and is currently addressing severe flooding problems along the Menomonee River and Underwood Creek. No concerns over floodplain issues were raised by any of these contacts. However, MMSD asked to be consulted during the final design phase so that they might provide appropriate input based on their conveyance criteria and detailed knowledge of area stream hydraulics.

Construction associated with the passenger rail project would occur in 17 areas where 100-year floodplains have been identified. Activities include replacement of existing timber trestle bridges with precast, concrete, voided slab superstructures topped with ballast and supported on steel pile trestle type bents, and removal or cutting of old timber piles. Selected bridge heights may be increased if the existing elevation is below the level of the 100-year flood elevation. New abutments would be constructed at or behind the existing abutment locations in those areas where wetlands would be affected. Some of the existing bridges may be replaced with box culverts if hydraulic requirements are satisfied. The volume of excavation and fill is expected to be roughly equal.

The proposed structures would be designed so that the backwater elevations would be no more than 0.01 foot (<1 centimeter) than that experienced with the existing structures in place. The proposed structures would typically have fewer piers, which would improve water flow and eliminate debris retention. The removal and cutting of a large number of currently abandoned piles of previous structures would also allow a more natural and less turbulent flow of water. Effects on flood heights and limits in these areas are expected to be minimal. These minimal alterations would not result in significant adverse impacts on the natural and beneficial floodplain values or significant change in flood risks or damage.

3.9.3 Mitigation for Floodplains

The design for bridges and other stream crossing structures would not adversely affect the existing flood elevations or floodplain values and functions. Since the existing railbed would be used for all reconstruction, no significant filling in floodplains would be expected. No additional mitigation is proposed.

Table 3-27
ANTICIPATED FLOODPLAIN FILL
Milwaukee-Madison Passenger Rail Corridor

Structure	Crossing	Proposed Span Length (Ft) (M)	# Proposed Spans	Proposed Length (Ft) (M)	Removal Work	Wetland Excavation (Ft^2) (M^2)	In-Stream Excavation (Ft^2) (M^2)	Wetland Pile Driving (Ft^2) (M^2)	In-Stream Pile Driving (Ft^2) (M^2)	Floodplain Excavation (Ft^2) (M^2)	Floodplain Fill (Ft^2) (M^2)
C554	DITCH	24 (7.3)	2	48 (14.6)	Cut off existing piles at streambed.				48 (4.3)	200 (18.0)	150 (13.5)
C556	CRAWFISH RIVER	32 (9.8)	10	320 (97.6)	Cut off existing piles at streambed.		576 (51.8)		432 (58.9)	1,200 (180)	550 (49.5)
C564	CREEK	32 (9.8)	2	64 (19.5)	Cut off existing piles at streambed.	210 (18.9)	48 (4.3)		48 (4.3)	250 (22.5)	150 (13.5)
C566	CREEK	17 (5.2)	-	BOX CULVERT	Cut off existing piles 2 feet below streambed.		675 (60.7)			224 (20.2)	100 (9.6)
C568	STH 19	--	--	--	Retrofit with ballasted deck.					--	--
C570	MAUNESHA RIVER	32 (9.8)	6	192 (58.6)	Cut off existing piles at streambed.		3840 (345.6)	144 (13.0)		600 (54.0)	350 (31.5)
C572	FIELD	24 (7.3)	2	48 14.6)	Cut off existing piles at ground line.					200 (18.0)	150 (13.5)
C574	MAUNESHA RIVER	--	--	--	Retrofit with ballasted deck.					--	--
C576	MAUNESHA RIVER	32 (9.8)	6	192 (58.6)	Cut off existing piles at streambed.	100 (9)		96 (8.6)	96 (8.6)	600 (54.0)	350 (31.5)
C582	MAUNESHA RIVER	32 (9.8)	4	128 (39.0)	Cut off existing piles at streambed.		48 (4.3)	48 (4.3)	96 (8.6)	400 (36.0)	250 (22.5)
C584	MAUNESHA RIVER	32 (9.8)	3	96 (29.3)	Cut off existing piles at streambed.		48 (4.3)		96 (8.6)	350 (31.5)	200 (18.0)
C586	MAUNESHA RIVER	32 (9.8)	3	96 (29.3)	Cut off existing piles at streambed.		48 (4.3)		96 (8.6)	350 (31.5)	200 (18.0)

Structure	Crossing	Proposed Span Length (Ft) (M)	# Proposed Spans	Proposed Length (Ft) (M)	Removal Work	Wetland Excavation (Ft^2) (M^2)	In-Stream Excavation (Ft^2) (M^2)	Wetland Pile Driving (Ft^2) (M^2)	In-Stream Pile Driving (Ft^2) (M^2)	Floodplain Excavation (Ft^2) (M^2)	Floodplain Fill (Ft^2) (M^2)
C588	DEANSVILLE MARSH	32 (9.8)	1	32 (19.8)	Cut off existing piles at streambed.	700 (63.0)		160 (14.4)		150 (13.5)	6,800 (612)
C590	DEANSVILLE MARSH	31 (9.5)	-	BOX CULVERT	Cut off existing piles 2 feet below streambed.	1600 (144)	200 18.0)			150 (13.5)	6,800 (612)
C598 1/2	KOSHKONONG CREEK	24 (7.3)	2	48 (14.6)	Cut off existing piles at streambed.				48 (4.3)	200 (18.0)	150 (13.5)
C606	FIELD	24 (7.3)	3	72 (22.0)	Cut off existing piles at ground line.					300 (27.0)	200 (18.0)
C608	STARKWEATHE R CREEK	32 (9.8)	3	96 (29.3)	Cut off existing piles at streambed.					350 (31.5)	200 (18.0)
C610	STARKWEATHE R CREEK	24 (7.3)	2	48 (14.6)	Cut off existing piles at streambed.				48 (4.3)	400 (36.0)	300 (27.0)
C616	STARKWEATHE R CREEK	32 (9.8)	2	64 (19.5)	Cut off existing piles at streambed.				48 (4.3)	250 (22.5)	150 (13.5)
					TOTALS	**2610 (234.9)**	**5483 (493.5)**	**448 (40.3)**	**1056 (95.04)**	**6,174 (555.7)**	**17,050 (1,534.5)**

3.10 Wetlands

3.10.1 Existing Conditions

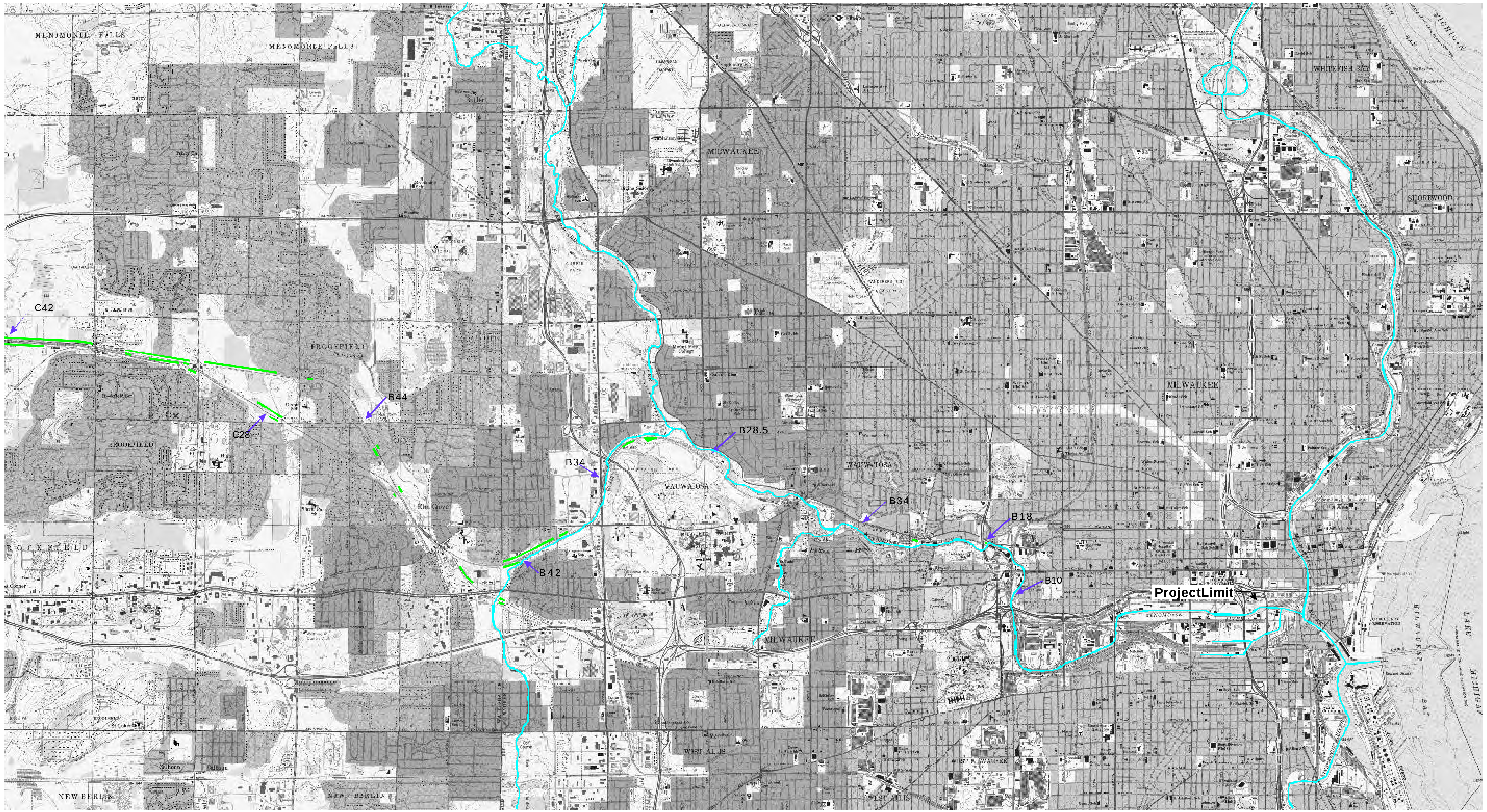
The U.S. Army Corps of Engineers (USACE) and the Wisconsin Department of Natural Resources (WDNR) regulate actions that affect wetlands. Work authorized by WisDOT is specifically reviewed through a formal WisDOT/WDNR liaison process. The USACE administers work in streams under Section 404 of the Clean Water Act. Recently, the State of Wisconsin enacted the 2001 Wisconsin Act 6. Wisconsin's newest law now gives WDNR authority to protect isolated wetlands that the USACE determines it has no jurisdiction over. No person can fill or dredge in such a wetland unless the state certifies that the project meets Wisconsin's water quality standards for wetlands.

To identify existing wetland resources in the project corridor, map sources from the Natural Resources Conservation Service (NRCS), Wisconsin Department of Natural Resources (WDNR), and October 1999 aerial photography (1 inch equals 500 feet) were reviewed prior to field reconnaissance activities. Existing maps and data were used primarily as guidance for interpreting wetland boundaries on the aerial photographs, and for ground-truthing in the field. Figures 3-34 through 3-40 indicate the portions of the alignment that intersect wetlands, as designated by blue line segments.

Wetlands along the entire alignment were delineated on aerial photographs, within a 300-foot wide (91 meter) corridor. Wetlands between Watertown and Madison falling within the 100-foot ROW, were delineated in the field during the winter of 1999/2000 (prior to substantial snowfall and ground frost). Where new stations are proposed, the survey area included the full footprint of the facility. During the field surveys, wetland investigations were conducted in accordance with methodology approved by the U.S. Army Corps of Engineers (USACE) for identifying and delineating jurisdictional wetlands. For those wetlands identified between Watertown and Madison, field indicators of soils, vegetation and hydrologic criteria were recorded. In addition, each resource was classified according to the WisDOT wetland banking classification system.

The distribution and type of wetland resources within the project corridor varies by physiographic (landscape) characteristics. The following is a generalized description of the observed wetland communities.

Wetlands along the proposed alignment fall into two general categories: emergent and wooded. Emergent wetlands are those dominated by herbaceous (non-woody) vegetation. Within each of these categories are various wetland types associated with either palustrine or riparian systems. A palustrine wetland is generally an isolated depression that is not directly associated with a river, stream or lake. Riparian wetlands are contiguous with a river, stream or lake.



Waukesha County | Milwaukee County

Wetlands
C576 Bridge Locations

Figure 3-34 Wetland Impacts

NORTH

Milwaukee/Brookfield

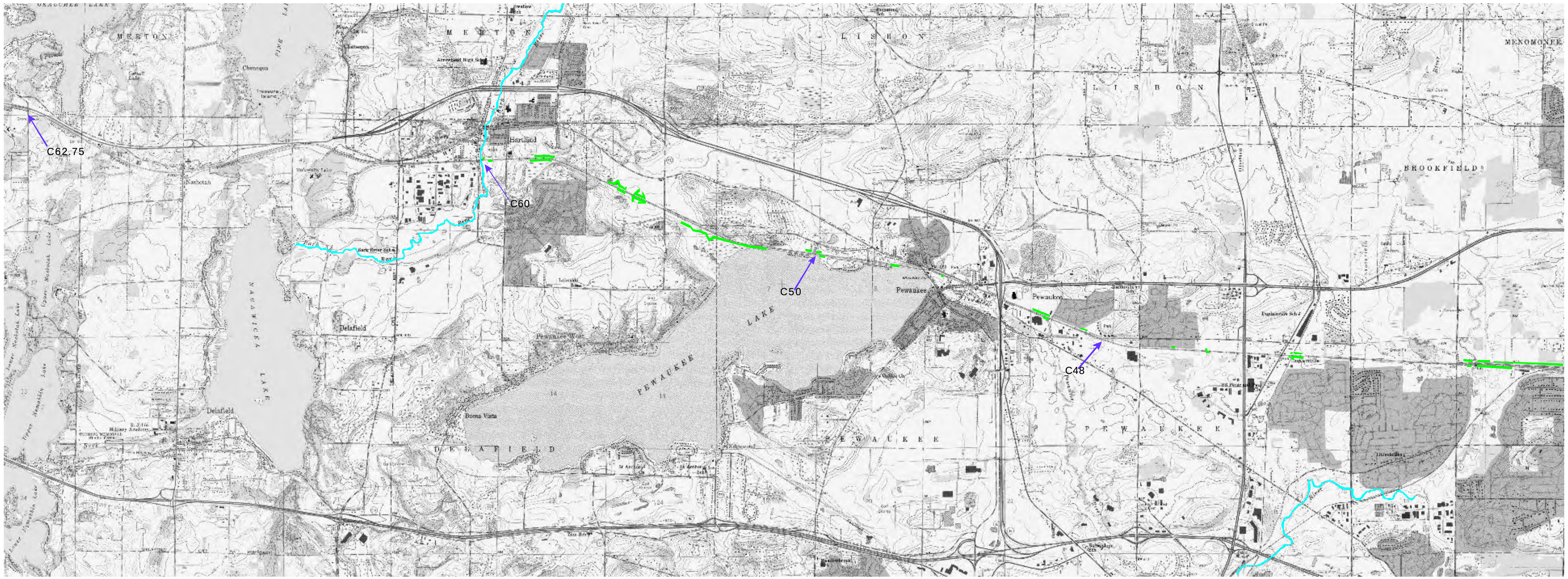


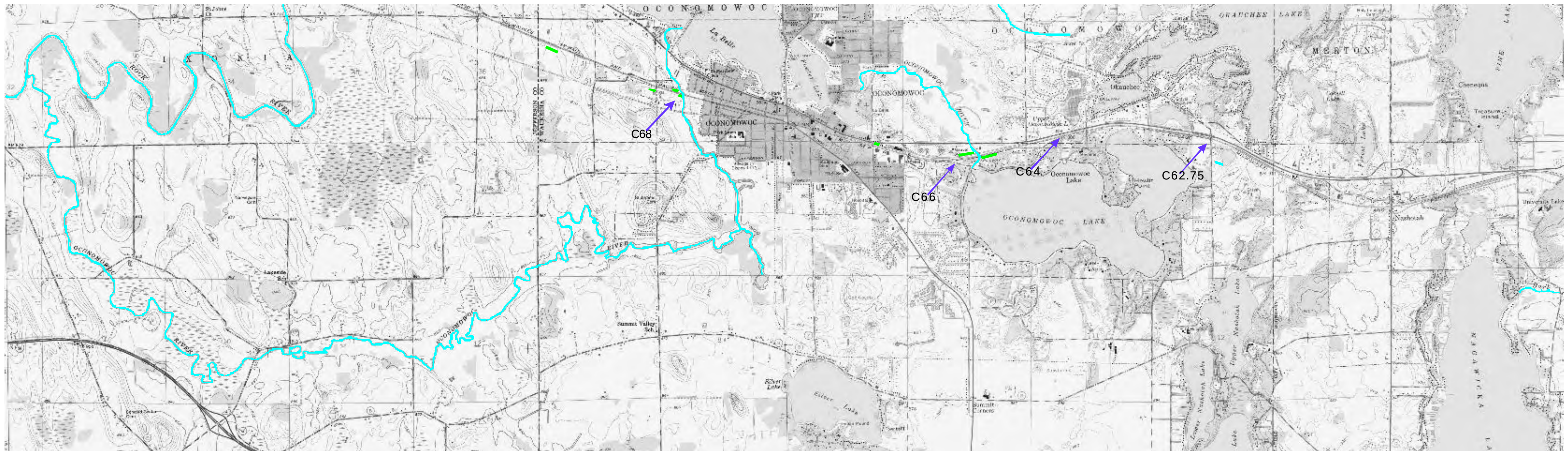
Figure3-35 Wetland Impacts

Wetlands
C576 Bridge Locations

NORTH

HIGH SPEED PASSENGER RAIL
MILWAUKEE TO MADISON

Brookfield/Waukesha



Jefferson County	WaukeshaCounty

Figure3-36 Wetland Impacts

Wetlands

C576 **Bridge Locations**

NORTH

HIGH SPEED PASSENGER RAIL
MILWAUKEE TO MADISON

Waukesha/Oconomowoc

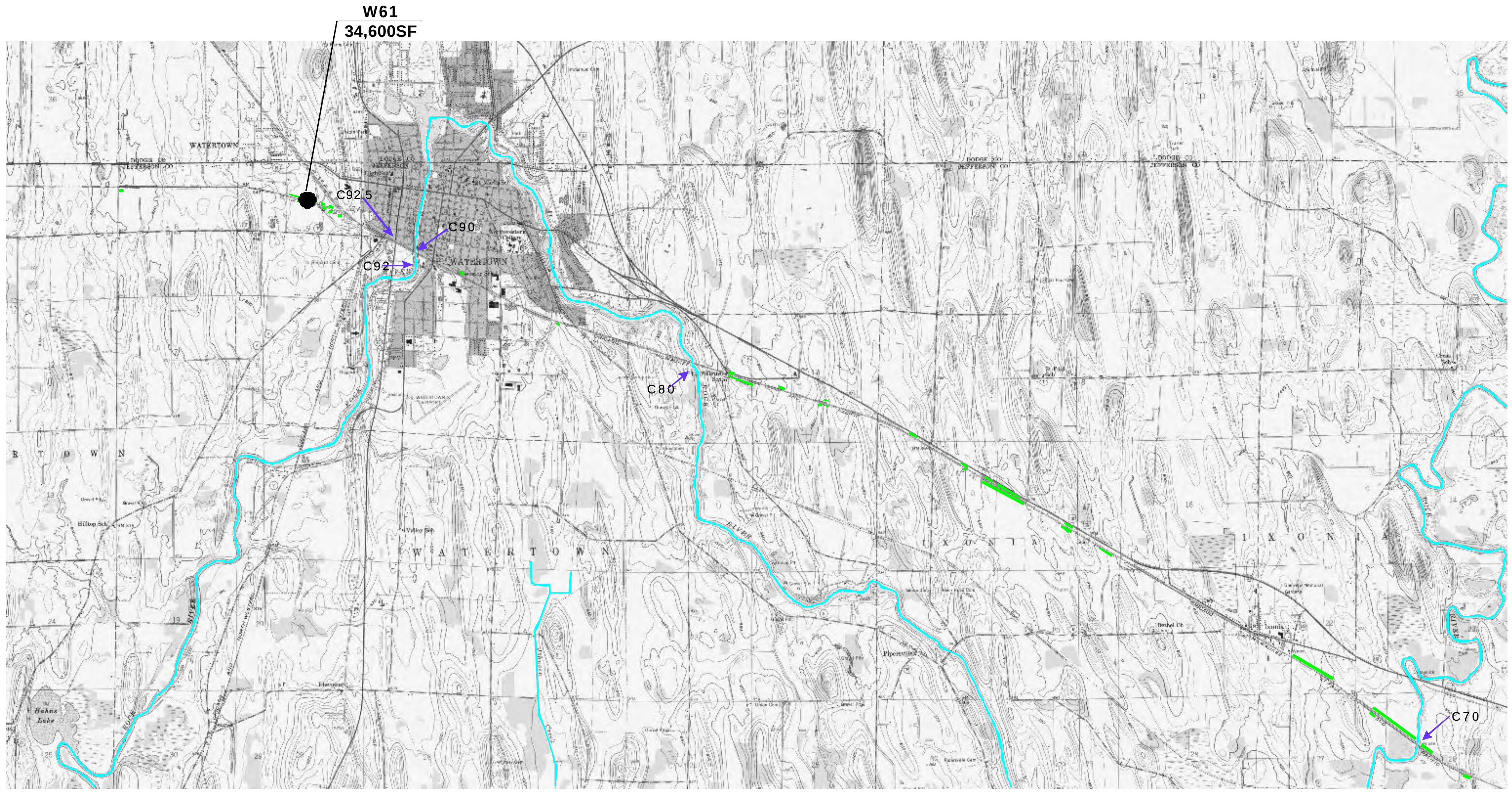


Figure 3-37 Wetland Impacts

Wetlands
C576 BridgeLocations
W61
34,600
Wetland Impact
(SeeAppendixEforWetlandDescription)

NORTH

HIGH SPEED PASSENGER RAIL
MILWAUKEE TO MADISON

Oconomowoc/Watertown

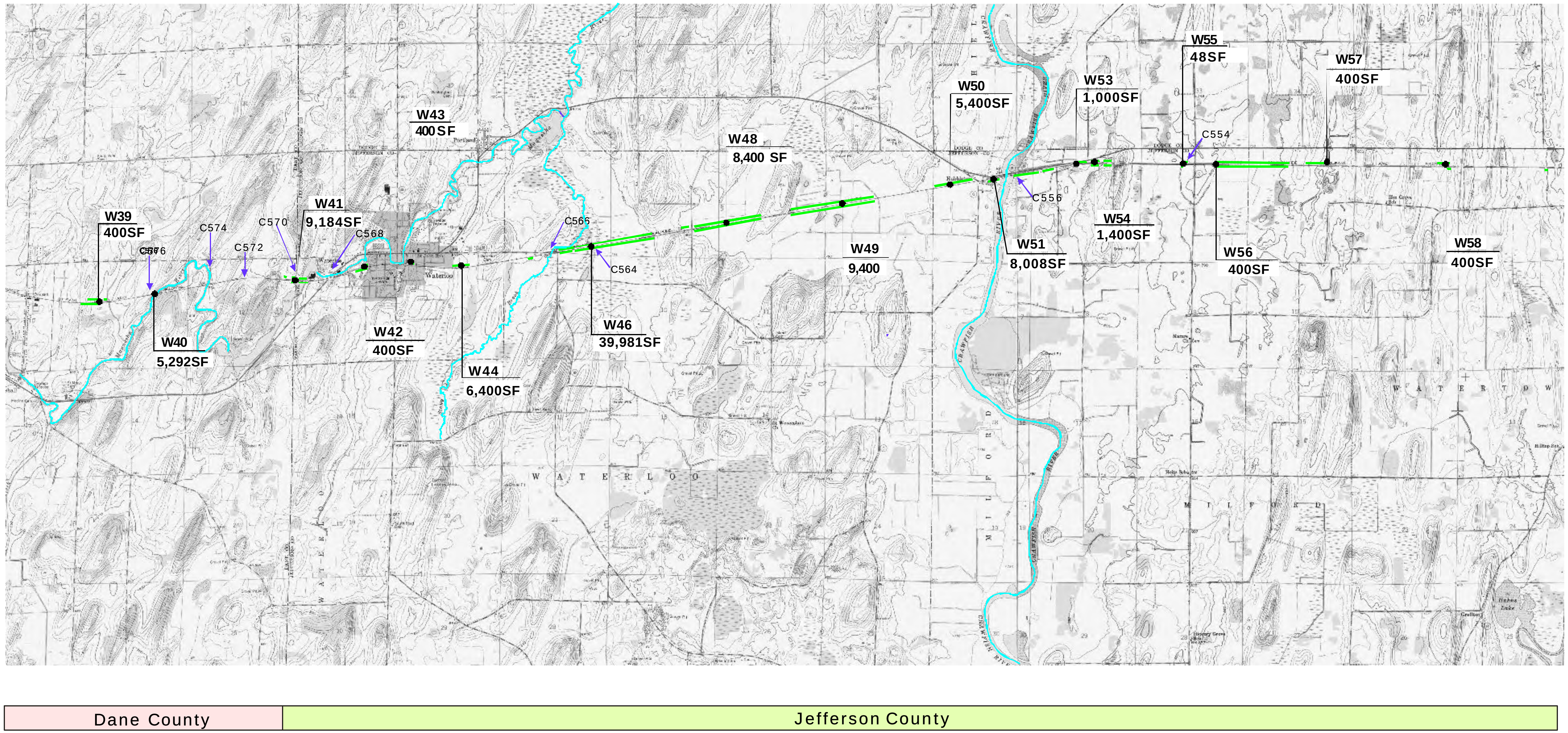


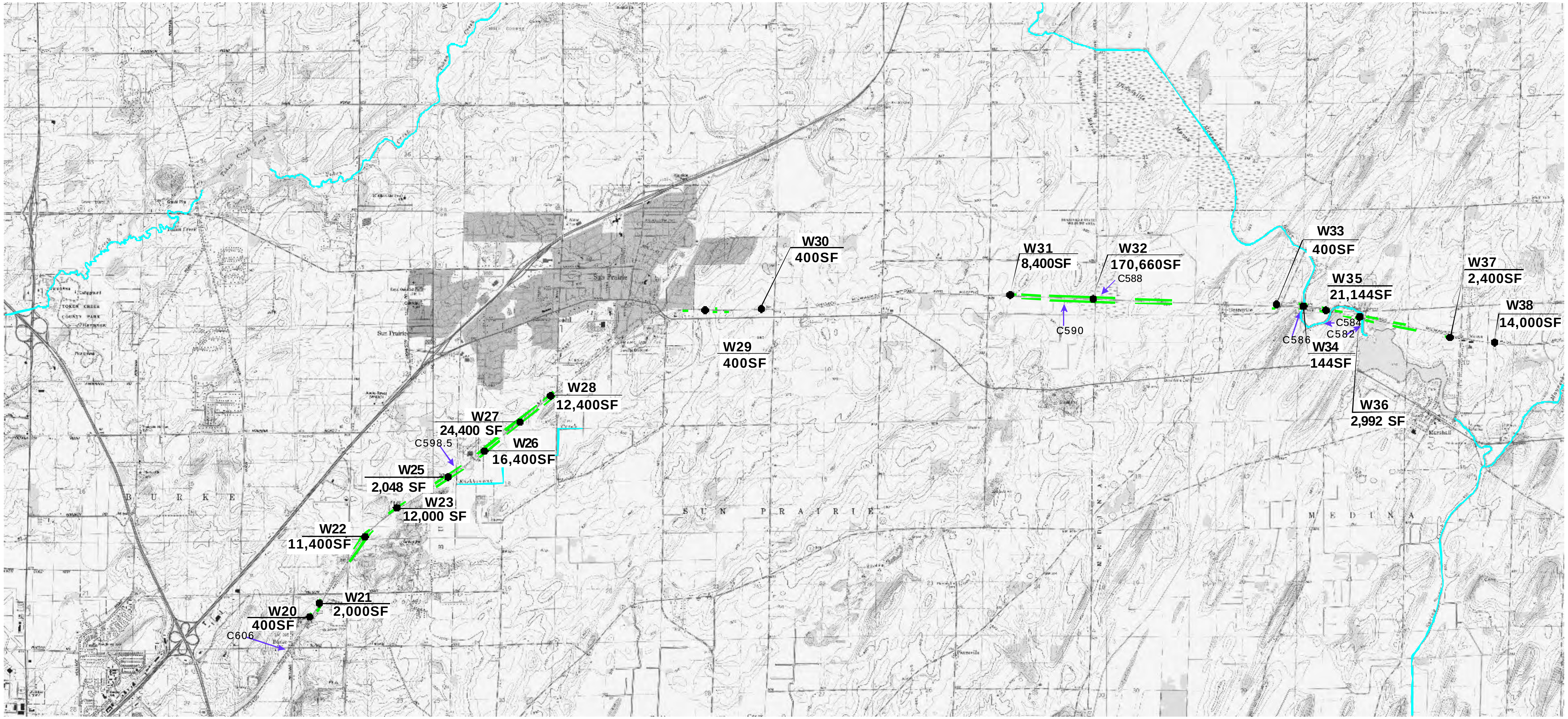
Figure3-38 Wetland Impacts

Wetlands

C576 Bridge Locations

W39 400SF **WetlandImpact** (SeeAppendixEforWetlandDescriptions)

NORTH



Dane County

Figure3-39WetlandImpacts

Wetlands

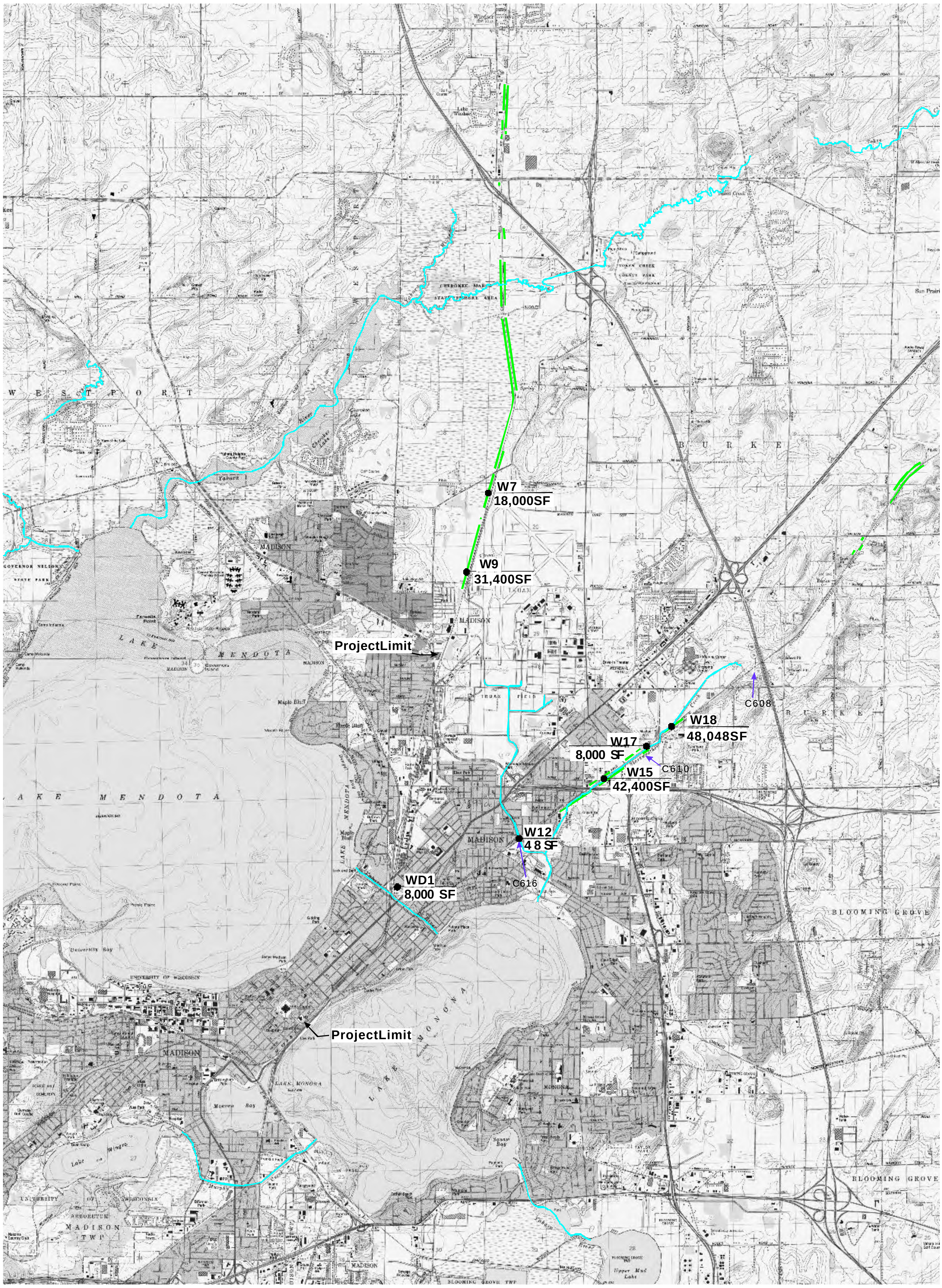
C576 Bridge L ocations

Wetland Impact
(SeeAppendixEforWetlandDescriptions)

NORTH

HIGH SPEED PASSENGER RAIL
MILWAUKEE TO MADISON

Waterloo/Sun Prairie



Dane County

Figure3-40 WetlandImpacts

Wetlands

C576 Bridge Locations

W6
34,600SF

Wetland Impact
(SeeAppendixEforWetlandDescription)

NORTH

Madison

HIGH SPEED PASSENGER RAIL
MILWAUKEE TO MADISON

Emergent Wetlands

Palustrine emergent wetlands present in the project corridor include meadow (M), degraded meadow (M(D)), shallow marsh (SM), and deep marsh (DM).

Meadow

Wetland communities observed in this classification in the project corridor include wet and sedge meadows. In general, these communities are composed of perennial forb, grass and sedge mixtures growing on saturated soils.

Wet meadows were the most commonly observed community in the project corridor, and a large proportion has been degraded by ditching, filling and agricultural drainage. These communities tend to be dominated by reed canary grass, a non-native species that typically forms dense monotypic stands. Associated species observed less frequently include saw-toothed sunflower, angelica, sedges, stinging nettle, giant goldenrod, blue vervain and cattails. Common elderberry, willow, red-osier and gray dogwood shrubs are also occasionally represented.

In wetlands subject to lesser amounts of disturbance (due primarily to large size and/or favorable land use history), dominance by reed canary grass decreases and species such as sedges, bluejoint grass, saw-toothed sunflower, angelica, aster, joe-pye weed and giant goldenrod are more prevalent.

Shallow and Deep Marshes

Marshes are characterized by emergent aquatic plants growing in permanent to seasonal shallow water.

These community types were encountered relatively infrequently along the project corridor. They are typically dominated by cattails. These communities were not observed to be directly degraded (e.g., ditching, filling, etc.) but some may have been created by the restriction in flow caused by the railroad tracks.

Riparian emergent wetlands present in the project corridor are of two types, non-degraded (RPE) and degraded (RPE(D)).

Riparian Emergent

This type of wetland is located adjacent to and contiguous with perennial waterbodies. The highest quality example within the project area is the Waterloo Wildlife Area, along Stony Brook Creek. Limited areas along the Maunesha River also support native sedges and bluejoint grass.

Wooded Wetlands

Palustrine wooded wetlands present in the project corridor include shrub swamp (SS), wooded swamp (WS) and their degraded variants (SS(D) and WS(D)).

Shrub Swamp

Shrub swamps are in isolated wet depressions dominated by woody vegetation less than 20 feet in height and with a diameter of less than 6 inches. This community type was encountered relatively infrequently within the corridor, due primarily to vegetation management within the right-of-way. Plant species typically observed include willow, gray dogwood, red-osier dogwood and common elderberry shrubs; American elm, box elder and green ash saplings; and reed canary grass, saw-toothed sunflower and sedges in the ground layer.

This community type was observed to be degraded in areas. This degradation included ditching, cutting of vegetation and placement of fill material. Sandbar willow, gray dogwood and buckthorn are indicative of these areas.

Wooded Swamp

This classification includes isolated wet depressions dominated by woody vegetation greater than 20 feet tall. It is characterized by green ash, black willow and American elm, but occurs infrequently along the project corridor. The degraded variant is often dominated by box elder.

Riparian wooded wetlands present in the project corridor include shrubby and/or forested floodplain wetlands (RPF), and the degraded variant (RPF(D)).

Riparian Forested

This type of wetland is located adjacent to and contiguous with perennial waterbodies. Within the project corridor, this classification is very similar to the palustrine wooded and shrub swamp classifications in species composition, but differs by virtue of the connection with perennial water bodies. As with the riparian emergent wetlands, the least degraded areas are found in association with the Maunesha River.

3.10.2 Impacts

Wetland impacts were determined following an environmentally conservative approach wherein a worst case area of impact was used. Direct impacts to wetlands would come from three types of activities: construction, operation, and maintenance. Impacts caused by construction activity would depend on the type of proposed construction and existing track conditions at specific locations. Where a second track would be added on an existing railbed that was originally constructed to accommodate double track, the assumption is that there would be no impacts to adjacent wetlands. Where new track would be placed on existing single-wide railbed, an estimated 20-foot wide disturbance area was used for portions of the track zone requiring re-grading. Actual impacts within this disturbance zone are unlikely to affect the entire area, as construction of new track would be done from the existing track to the maximum degree possible. Where construction of new sidings is proposed, an impact zone 40 feet wide was assumed including the existing railbed. Wetland impacts due to culvert replacements have been estimated assuming 200 square feet of impact for each end of the culvert. Direct impacts from bridge rehabilitation are site specific and the extents of disturbance zones vary according to existing conditions and required maintenance.

Direct and Indirect Impacts

Direct impacts to wetlands would include short-term and long-term losses (modification of structure, species composition, and areal extent of cover types) through clearing, excavating, filling, and re-grading of the improved railroad base, and construction of new sidings. Management practices to reduce impacts from vegetation clearing would include minimizing the zones of construction and re-vegetating/mulching disturbed areas.

Impacts from the daily operation of trains would come from the increase in the number of trains using the tracks. Currently, maintenance activities along the existing tracks consist of applying herbicides and the cutting of vegetation within the right-of-way (approximately 50 feet from the center line of the track). It is anticipated that no change would occur in the type and frequency of maintenance activities as a result of implementing passenger rail service. Currently, high quality wetland communities exist and survive successfully along the existing railroad tracks. Hence, it is likely that these existing wetland communities, if not impacted by construction, would not be further impacted by future maintenance.

A qualitative evaluation of indirect impacts was based on anticipated construction and operation procedures and current environmental literature. Indirect impacts would include the short-term and long-term increased potential for weed invasion, establishment, and expansion; reduction in plant photosynthetic capacity due to coverage by fugitive dust; exposure of soils to accelerated erosion; shifts in species composition and/or changes in vegetative density away from a more desirable condition (e.g., native communities); loss of natural biodiversity; and reduction of wildlife habitat. Construction activities and increased disturbance could introduce and provide conditions conducive to the spread of non-conservative or weedy plants in the railroad corridor. During revegetation, weeds often out-compete the more desirable species, rendering a site less productive as a source of forage and/or habitat for wildlife.

Potential direct wetland impacts are summarized in Table 3-28. Wetland locations and impact amounts are also indicated on Figures 3-34 through 3-40. Impacts occur only between Watertown and Madison where complete railbed reconstruction is proposed.

Although there is currently only one track in most areas between Milwaukee and Watertown, the existing railbed was constructed to accommodate doubletrack which had previously existed within the corridor. Therefore, with the exception of five bridge locations, wetland impacts would be avoided adjacent to the existing railbed between Milwaukee and Watertown. Minor temporary impacts resulting from proposed bridge rehabilitation activities east of Watertown are discussed in Section 3.9, and are expected to have negligible effects on wetlands.

Replacement of track, related embankment repairs, and construction of three sidings along the existing single-wide railbed between Watertown and Madison would result in adverse impacts to approximately 13.5 acres (5.4 hectares) of wetlands within the right-of-way of this 39-mile segment of the alignment (Table 3-28). Over half of the impacts affect palustrine emergent wetlands, most of which are degraded. Approximately another one-fifth of the impacts are to riparian emergent wetlands. The least heavily impacted wetland types are riparian and palustrine wooded swamp, which are also the least common within the project corridor. The majority of the impacts are due to proposed railbed embankment fill, of which sidings are a minor component. Although an effort was made to locate sidings along portions of the alignment having no wetlands, complete avoidance of wetlands was not possible due to design limitations on siding length and location. Impacts attributable to bridge and culvert replacement/rehabilitation amount to less than one acre of the total wetland impacts.

Table 3-28
SUMMARY OF WETLAND IMPACTS
Milwaukee-Madison Passenger Rail Corridor

Wetland Type[1]	Amount Impacted (acres (hectares))	Percent of Total Impact (%)
Emergent Palustrine (M, M(D), SM, DM)	7.31 (2.92)	54.0
Emergent Riparian (RPE, RPE (D))	2.61 (1.04)	19.3
Mixed Palustrine	1.60 (0.64)	11.8
Mixed Riparian	1.57 (0.63)	11.6
Wooded Palustrine (SS, WS, SS(D), WS(D))	0.31 (0.12)	2.3
Wooded Riparian (RPF, RPF(D))	0.13 (0.05)	1.0
TOTAL	**13.53 (5.41)**	**100**

[1] Includes degraded and non-degraded communities, wetland types based on descriptions provided in the WisDOT Wetland Mitigation Banking Technical Guideline.

RPF - riparian wooded wetland; M - wet meadow; SM - shallow marsh; DM - deep marsh; M(D) - degraded wet meadow; SS - shrub swamp; RPE - riparian emergent wetland; RPE (D) – degraded riparian emergent wetland; WS – wooded swamp; SS(D) – degraded shrub swamp; WS(D) – degraded wooded swamp; RPF(D) – degraded riparian wooded wetland.

Due to the poor conditions of soils in wetland areas between Hubbelton and Sun Prairie, the rail and ties would be constructed on piers instead of on a ballasted railbed to support the railroad. These structures are also referred to as land bridges. Depending on further hydraulic analysis during preliminary design and additional consultation with WDNR and the USACE, land bridges in wetlands may create an opportunity to restore hydrology in wetland areas currently bisected by the rail corridor.

3.10.3 Mitigation for Wetlands

The design and development of this project has and would continue to follow a three-step impact mitigation process prioritized as follows: 1) impact avoidance; 2) impact minimization; and 3) compensation for unavoidable impacts. WisDOT compensation ratios for wetland impacts are applicable to this project.

Wetland Impact Avoidance

Given the linear nature of the project, the ability to avoid wetland resources by relocating the project footprint is limited. However, for the majority of the alignment, wetland impacts are being avoided by:

- using the existing railroad embankment as the base for new track
- constructing land bridges to support the rail line
- building new bridge abutments behind the old ones
- using steeper fill slopes in wetland areas up to the maximum allowable slope
- locating new embankment for sidings in non-wetland areas
- constructing within the existing right-of-way
- using the existing embankment to access construction areas or locating additional construction access in non-wetland areas

Wetland Impact Minimization

Where avoidance is not possible, the area of disturbance (direct, indirect, temporary and permanent) would be minimized to the extent practicable. Impact minimization measures would use the best technology currently available. Such practices include the following elements:

- During the final design phase, consideration would be given to design elements that minimize impacts, e.g. shifting and/or shortening proposed railbed for new sidings, building retention walls and/or bridging wetland areas.
- During the final design phase, a site-specific evaluation would be made of selected wetlands affected by project activities. This evaluation would focus on: 1) identifying optimal locations for placing construction fences and erosion/siltation controls, 2) considering the source of wetland hydrologic support and generating site-specific recommendations to minimize dewatering or changes in hydrologic regime, and 3) avoiding impacts to unique or high quality wetlands adjacent to the right-of-way.
- Prior to commencement of construction activities, standard WisDOT erosion control measures would be installed at the limits of construction in zones of fill, grading, compaction or equipment movement.

- All solid waste material, including cleared vegetation, would be disposed in approved upland areas or licensed solid waste disposal sites, in accordance with state and federal regulations.
- The day-to-day enforcement of protective permit conditions and maintenance of erosion and sedimentation control measures would be provided by experienced resident staff.
- Minimization is also achieved with measures noted under impact avoidance, including placing new bridge abutments behind the old ones, and using steeper fill slopes.

Wetland Compensation

In addition to design and construction actions to avoid and minimize wetland impacts, a compensatory mitigation plan would be prepared as part of the final design and permitting process. This document would be reviewed under WisDOT/WDNR Agreement. Compensation would occur for all unavoidable, adverse impacts to wetlands. The WisDOT Wetland Mitigation Banking Technical Guideline would be used to determine appropriate compensation measures and replacement ratios.

Both the WDNR and USACE staffs were consulted during preliminary engineering to review impacts and future data needs for permit applications. In addition to an agency scoping meeting held on January 27, 2000, meetings with the USACE were held on February 3, 2000 and September 11, 2000. A follow up meeting with the WDNR was held on September 15, 2000. Conservative estimates of impacts were presented and mitigation of unavoidable impacts were discussed. Due to the length of the project, compensation at a WisDOT wetland bank is proposed as the most effective mitigation. Both agencies have agreed in concept that this approach is appropriate. WisDOT, USACE and WDNR are in the process of identifying suitable mitigation bank sites. Additional comments from WDNR are included in Appendix B.

3.11 Wildlife

3.11.1 Existing Conditions

Railroad rights-of-way and their associated vegetative cover provide habitat for wildlife. The linear characteristic of a rail line offers localized habitat value and a habitat corridor that links diverse habitat features adjacent to the right-of-way. This corridor component is important, especially where the right-of-way traverses predominantly agricultural or urban areas that otherwise offer limited habitat value and diversity. These rights-of-way provide denning sites for small mammals, nesting and roosting cover for some species of songbirds and raptors, and can provide seclusion and cover for various species of reptiles and amphibians.

The evaluation of wildlife likely to occur in the project area is based on a survey of habitat availability, wildlife species distribution, habitat preferences, as well as field observations of wildlife and/or associated sign. A field reconnaissance was conducted within the project area, focusing on areas of potential project impact and characterizing typical habitat. Existing habitat communities were then compared with published records for species distribution as well as field observations. A total of nine habitat communities were evaluated.

Upland Forest

Upland forests tend to be relatively small and scattered within the project area, and are typically confined to areas outside of the right-of-way. Upland forests account for a small percentage of vegetative cover adjacent to the project corridor.

Shrubland

Shrubland accounts for a small percentage of the habitat type within the railroad right-of-way and is typically found as a transition along forest edges and adjacent fence lines. It also tends to be associated with abandoned agricultural fields and shrubby wetlands. The shrubland habitat supports many of the same species of mammals, reptiles and amphibians as the fragmented forests. This cover type is valuable for avian species by providing a source of seeds, berries and nesting sites. Typical species include song sparrow, mourning dove, common yellow-throat, American goldfinch and brown-headed cowbird.

Hedgerow

This habitat type is common along the periphery of the right-of-way and is typically linear in orientation. The hedgerow habitat observed along the project corridor is comprised of young trees, and shrubs with a large proportion of edge relative to interior cover. The various phases of successional growth within a hedgerow provide cover, food and limited denning and nesting sites for a variety of wildlife. Seeds produced by grasses and weedy forbs provide food for birds, small mammals and insects. Additionally, the fallow nature of the herbaceous understory provides nesting cover and material for rodents and birds. Mammals such as woodchuck, skunk, raccoon, opossum, fox and coyote may find suitable cover for denning and burrows. Birds such as American goldfinch, black-capped chickadee, American robin, brown-headed cowbird, gray catbird, brown thrasher and eastern bluebird may nest in this cover type. Just as important is the use of this cover as a travel route for all species to access more extensive areas of suitable habitat.

Grassland and Forbland

Grassland is often found interspersed with forbland and as remnant prairies in many areas within the project alignment. Species considered characteristic of prairie habitat include horned lark, meadowlark, and a variety of sparrows (e.g., vesper, field, song, etc.), and game birds such as ring-necked pheasant and, to a lesser degree, bobwhite quail. A variety of small rodents and cottontail rabbits are also supported by this habitat. Areas of wet prairie offer habitat similar to the upland grassland sites with characteristic wildlife species including red-winged blackbird, swamp sparrow, mink, least weasel, meadow vole, American toad, leopard frog, sandhill crane and American bittern.

Forbland, along with grassland, account for the majority of habitat within the railroad right-of-way. In addition to the wildlife species found in the grassland habitat, small mammals such as the short-tailed shrew, and deer mouse utilize this cover type. Grasslands make good cover for drought-tolerant snakes, which hunt the abundant rodents, insects and bird eggs found near ground level. The eastern garter snake, western fox snake, American toad, and tiger salamander are representative reptiles and amphibians.

Agricultural Land

This cover type represents the greatest percentage of land use adjacent to the project corridor but little, if any, is found within the right-of-way. Grass cover in pastures is typically grazed and cropland is the most prevalent agricultural practice. Avian species using this habitat include the American robin, killdeer, common grackle, mourning dove, song sparrow, eastern meadowlark, bobwhite quail and ring-necked pheasant. Rodents such as the thirteen-lined ground squirrel, house mouse, meadow vole, and cottontail rabbit are common in this habitat. The row crops themselves are not high quality habitat for wildlife because of its lack of diversity. However, the standing crops and waste grain produce a seasonal source of food for raccoon, Canada goose, ducks and white-tailed deer.

Developed Land

Developed land is found at various locations along the project corridor but is most concentrated toward either termini. In urban areas, wildlife habitat is considerably altered from its natural state. Herbaceous vegetation is typically mowed and shrubs and trees pruned. The weeds and grasses that would provide a source of food are, for the most part, eliminated. Nevertheless, some wildlife species have adapted to this habitat. Skunks burrow under foundations and porches, bats roost in attics and garages and raccoons forage in garbage cans and bird feeders. Squirrels, rabbits, and mice have also become human-tolerant. Birds residing in urban areas include starlings, crows, American robin, mourning dove, blackbirds, cardinals, house sparrows and finches. The Canada goose has become quite accustomed to human presence and has reached nuisance status in many urban areas.

Floodplain Forest

This cover type occurs near portions of the project corridor associated with stream crossings and accounts for a very small fraction of the wildlife habitat available in the project right of way. Furbearers such as raccoon, mink and beaver can be found in this cover type along with spring peeper, cottontail rabbit, least weasel, long-tailed weasel, opossum, skunk, woodchuck and white-tailed deer. Avian species such as the belted kingfisher, tree swallow, wood thrush, downy woodpecker, yellow warbler, red-winged blackbird, house wren and Coopers hawk can also be present. In addition, wood ducks find preferred nesting cavities in the mature trees.

Wetland

Mammals utilizing aquatic /wetland areas include beaver, muskrat, and mink. Avian species use this habitat for a number of purposes ranging from migratory staging and loafing areas to breeding and nesting. Waterfowl such as mallards, blue-winged teal, wood ducks, and coots are common. Other wetland-associated wildlife include common snipe, bitterns, herons, various rails, swamp sparrow, northern harrier, long-billed marsh wren, meadow jumping mouse, and chorus frog.

3.11.2 Impacts

Impacts were assessed based on anticipated direct loss of physical habitat and indirect effects anticipated as a result of standard construction, operation and maintenance procedures.

Overall impacts to existing wildlife are anticipated to be minimal because proposed improvements to the project facilities are confined to the existing rail corridor and are relatively isolated and small in size. Also, management practices would be used to minimize environmental damage. In addition, routine maintenance practices would always limit the type and quality of habitat within the right-of-way.

However, railroad site construction along the project alignment has the potential to cause adverse impacts to wildlife in specific areas. Some effects and considerations would be common throughout the alignment and some would be location specific as described below.

Direct adverse impacts to wildlife would occur as a result of removal and/or substantial alterations to existing habitat within or immediately adjacent to the existing railroad right-of-way. This would be most important for cover types that are relatively uncommon in the project area and/or would require a long period of time to redevelop such as forests. Active agricultural land, developed land, and disturbed forb/grassland are common within the project area and can be readily replaced. Remnant prairies, hedgerows, wetlands and forests are less abundant and more critical as a wildlife value. Loss of these habitat components would be considered a long-term impact. While it is technically feasible to replace these habitats, it would require a long period of time to do so and existing wildlife would have to seek other suitable habitat or perish.

Indirect wildlife impacts can occur through disruption of secluded areas, habitat fragmentation, and disruption or severance of wildlife movement and travel routes. Physical disturbance can occur in the short term such as that associated with construction, or in the long term such as activities related to facility operation, maintenance, and animal collisions with trains.

Operational impacts such as the noise and vibration emanating from passing trains are already a part of the existing condition along the project right-of-way. Wildlife that exist along the alignment presumably have adapted to this intrusion. Although the effects on wildlife behavior resulting from various types of recurrent noise are not well known, there is evidence that some species may become desensitized to regular disturbance, such as those that might be experienced along an active rail line. However, increased disruption during the breeding or nesting season could adversely affect local wildlife, especially disturbances caused by construction activities.

The linear habitat offered by railroads provides travel corridors for wildlife to safely access larger areas of suitable cover and food. It is also important that wildlife have the ability to access suitable habitat on either side of the corridor and be able to escape from the right-of-way. A woven wire fence, approximately four feet (1.2 meters) in height, is proposed to border most of the project right-of-way and a five-foot (1.5 meters) high chain-link fence is proposed for urban areas. The woven wire fence would allow small mammals, small herptiles and rodents to pass through and larger animals with strong jumping abilities such as white-tailed deer and climbing abilities such as the raccoon, to pass over the top. However, medium-sized species such as fox, skunk, larger turtles, coyote and woodchuck would have difficulty passing the fence barrier at will. It is reasonable to predict that these species would eventually create tunnels under the fence at preferred crossing locations but they may experience difficulty escaping to protective cover as needed.

As with other forms of transportation all wildlife species that cross the path of fast-moving vehicles are susceptible to collisions. Infrequent wildlife mortality due to such collisions is likely to continue with operation of the proposed project.

3.11.3 Mitigation for Wildlife

Depending on the type of habitat and associated wildlife species present at a specific construction site, the timing of construction activities may need to be adjusted to limit disturbance during critical times of the year. Bridge crossings provide alternatives for wildlife passage. The proposed land bridges in wetland areas between Hubbleton and Sun Prairie may afford some increased movement of small and medium-sized wildlife across the corridor under the railroad. Continued coordination with WDNR during the final design and construction phases would further refine specific construction site requirements to avoid sensitive habitats.

3.12 Threatened and Endangered Species

3.12.1 Existing Conditions

Through correspondence from the US Fish and Wildlife Services (USFWS) and WDNR Bureau of Endangered Resources, dated December 16, 1999, and January 21, 2000, respectively, a list of federal and state Threatened, Endangered, and Special Concern (WI "watch list") species potentially occurring in the project area was developed. The correspondence included a review of federal databases and the Wisconsin Natural Heritage Inventory database. Initial assessments for suitable habitat within the project area were made using aerial photo interpretation. Field reconnaissance to verify suitable habitat and/or species occurrence within the project right-of-way, was conducted from November 1999 – January 2000, west of Watertown, and during August 2000, east of Watertown.

Field surveys for rare species habitats were conducted in areas of suspected occurrence and the location of proposed construction activities. The survey area for rare plants encompassed the area within the project right-of-way. Field surveys for rare animal species focused on all appropriate habitat within and adjacent to the right-of-way and proposed construction zones.

Table 3-29 lists the rare natural communities, plants and animal species identified by the USFWS and WDNR as potentially occurring within the project area and characterizes the habitat requirements of most terrestrial species. The bald eagle, a state and federal threatened species, was listed as potentially occurring in the project area. Based on habitat assessment and field survey findings, it is unlikely that the bald eagle would inhabit the project area; however, it may be a seasonal transient. Yellowish or cream gentian (*Gentiana alba)*, a Wisconsin threatened species, is the only listed species documented during the field reconnaissance that occurs within and/or adjacent to the project right-of-way. Although not directly observed, certain other listed species are likely to occur within or adjacent to the right-of-way based on the presence of suitable habitat and/or related community characteristics (i.e. associated species). Therefore, the potential exists for certain listed species to exist within the project area.

Terrestrial

Other terrestrial species that may exist *within* the project right-of-way include:

- Plants - prairie sagewort, toothed-leaved evening primrose, wild licorice, twinleaf, prairie white-fringed orchid, Ohio goldenrod, upland boneset, prairie bush-clover
- Insects – great spreadwing, little glassywing
- Herptiles – Butler's garter snake

Terrestrial species that may exist within habitat found *adjacent to and outside* of the project right-of-way include:

- Plants - prairie sagewort, forked aster, toothed-leaved evening primrose, showy lady's slipper, harbinger-of-spring, upland boneset, yellowish gentian, wild licorice, twinleaf, prairie white-fringed orchid, hop tree, blue-stemmed goldenrod, Ohio goldenrod, red trillium, prairie bush-clover
- Herptiles - Blanchard's cricket frog, Blanding's turtle, Butler's garter snake
- Insects - Great spreadwing, and little glassy wing

Table 3-29
INDIVIDUAL RECORDED OCCURRENCES
OF RARE SPECIES AND NATURAL COMMUNITIES
Milwaukee-Madison Passenger Rail Corridor

County	Location	Type	Species	Common Name	Significance	Habitat
Dane		Community		Martin Fen		
		Community		Martin's Low Prairie		
		Plant	*Glycyrrhiza lepidota*	Wild licorice	WI-SC	Shaded, sandy-stony lakeshores
Jefferson	Rock R.	Fish	*Lythrurus umbratilis*	Redfin shiner	WI-Th	
	Rock R.	Fish	*Moxostoma carinatum*	River redhorse	WI-Th	
	Rock R.	Fish	*Moxostoma valenciennesi*	Greater redhorse	WI-Th	
	Rock R.	Fish	*Noturus exilis*	Slender madtom	WI-E	
		Herp	*Acris crepitans blanchardi*	Blanchard's cricket frog	WI-E	River/flpl. marshes, fens, low prairies
	Rock R.	Herp	*Emydoidea blandingii*	Blanding's turtle	WI-Th	
		Plant	*Artemisia frigida*	Prairie sagewort	WI-SC	Rocky bluff prairies or sand prairies w/open soil
Waukesha		Community		Hartland RR Prairie		
		Community		Mt. Zion Cemetery Woods		
		Community		Bishops Woods		
	Ocon. R.	Crustacean	*Crangonyx gracilis*	Graceful sideswimmer	WI-SC	
	Ocon. R.	Fish	*Anguilla rostrata*	American eel	WI-SC	
	Ocon. R.	Fish	*Coregonus artedi*	Lake herring	WI-SC	
	Ocon. R.	Fish	*Erimyzon sucetta*	Lake chubsucker	WI-SC	
	Bark R.	Fish	*Erimyzon sucetta*	Lake chubsucker	WI-SC	
	Pew. R&L	Fish	*Erimyzon sucetta*	Lake chubsucker	WI-SC	
	Ocon. R.	Fish	*Etheostoma microperca*	Least darter	WI-SC	
	Bark R.	Fish	*Etheostoma microperca*	Least darter	WI-SC	
	Ocon. R.	Fish	*Etheostoma microperca*	Least darter	WI-SC	
	Pew. R&L	Fish	*Fundulus diaphanus*	Banded killifish	WI-SC	
	Ocon. R.	Fish	*Fundulus diaphanus*	Banded killifish	WI-SC	

County	Location	Type	Species	Common Name	Significance	Habitat
	Ocon. R.	Fish	*Notropis anogenus*	Pugnose shiner	WI-Th	
Waukesha	Pew. R&L	Fish	*Notropis anogenus*	Pugnose shiner	WI-Th	
	Ocon. R.	Fish	*Notropis anogenus*	Pugnose shiner	WI-Th	
	Ocon. R.	Fish	*Noturus exilis*	Slender madtom	WI-E	
	Bark R.	Fish	*Noturus exilis*	Slender madtom	WI-E	
	Ocon. R.	Fish	*Noturus exilis*	Slender madtom	WI-E	
	Bark R.	Herp	*Emydoidea blandingii*	Blanding's turtle	WI-Th	
		Insect	*Pompeius verna*	Little glassy wing	WI-SC	Moist forest openings; larvae feed on grasses
	Ocon. R.	Mussel	*Venustaconcha ellipsiformis*	Ellipse	WI-Th	
		Plant	*Calylophus serrulatus*	Toothed-leaved evening primrose	WI-SC	Sandy and dry bluff prairies
		Plant	*Cypripedium reginae*	Showy lady's slipper	WI-SC	No. wet/wet-mesic forest
		Plant	*Eupatorium sessilifolium*	Upland boneset	WI-SC	Well-drained open woods/thickets
		Plant	*Gentiana alba*	Yellowish gentian	WI-Th	Wet, sandy RR prairie
		Plant	*Myriophyllum farwellii*	Farwell water-milfoil	WI-SC	
		Plant	*Platanthera leucophaea*	Prairie white-fringed orchid	Fed-E/WI-Th	Wet prairies, wet meadows, bogs
		Plant	*Solidago ohioensis*	Ohio goldenrod	WI-SC	Wet/mesic prairie, calcareous marshes, fens and beach ridges
		Plant	*Triglochin maritimum*	Common bog arrow-grass	WI-SC	Acid bogs, sandy or marly shores, fens
Milwaukee		Community		Menomonee R. Parkway		L. Menom. R. floodplain and so. Mesic forest. Mix of rare natives and exotics.
		Community		Will-O-Way Woods	Natural Area	Relatively large so. mesic to dry-mesic forest remnant.
		Community		Jacobus Park Woods	Natural Area	bluffs overlooking Menomonee R.
		Crustacean	*Crangonyx gracilis*	Graceful sideswimmer	WI-SC	
	Menom. R.	Crustacean	*Procambarus gracilis*	Prairie crayfish	WI-SC	broad range of damp habitats
		Fish	*Clinostomus elongatus*	Redside dace	WI-SC	
		Fish	*Etheostoma microperca*	Least darter	WI-SC	
		Herp	*Thamnophis butleri*	Butler's garter snake	WI-Th	wet-mesic prairies, marshes, riparian zones,

County	Location	Type	Species	Common Name	Significance	Habitat
						embankments
		Insect	*Archilestes grandis*	Great spreadwing	WI-SC	eastern ridges and lowlands (so.)
Milwaukee		Plant	*Aster furcatus*	Forked aster	Fed-SC/WI-Th	deciduous woods dom. by oaks
		Plant	*Erigenia bulbosa*	Harbinger-of-spring	WI-E	rich, mesic deciduous woods
		Plant	*Glycyrrhiza lepidota*	Wild licorice	WI-SC	shaded, sandy-stony lakeshores
		Plant	*Jeffersonia diphylla*	Twinleaf	WI-SC	rich deciduous wooded floodplains and well-drained slopes
		Plant	*Ptelea trifoliata*	Hop tree	WI-SC	moist or rich woods and thickets along major rivers
		Plant	*Solidago caesia*	Blue-stemmed goldenrod	WI-E	rich no. mesic forests
		Plant	*Trillium recurvatum*	Red trillium	WI-SC	rich woodlands

Source: UWFWS and DNR/BER Natural Heritage Inventory

Key:

WI-SC: State of Wisconsin species of special concern
WI-TH: State of Wisconsin threatened species
WI-E: State of Wisconsin endangered species

Fed-SC: Federal species of special concern
Fed-E: Federal endangered species

Aquatic

No specific surveys were conducted for rare aquatic species. The potential for aquatic species of fish, crustaceans and plants to be present within the project right-of-way is limited to specific locations where the railroad bed crosses streams or portions of lakes. For the purpose of this environmental assessment, it is assumed that if the presence of a given species has been documented by the WDNR in a given water body within the project area, then the potential exists for the listed species to be present in the right-of-way. Aquatic species that fall under this assumption include:

- Fish – American eel, redside dace, lake herring, lake chubsucker, least darter, banded killfish, redfin shiner, river redhorse, pugnose shiner, slender madtom
- Crustaceans – graceful sideswimmer and prairie crayfish
- Plants – Farwell water-milfoil
- Herptiles - Blanchard's cricket frog, and Blanding's turtle

Natural Communities

A number of state listed natural communities are present adjacent to the railroad corridor and include Martin Fen, Martin's Low Prairie, Menomonee River Parkway, Mt. Zion Cemetery Woods, Bishops Woods, and Hartland Railroad Prairie. The rail corridor also passes through the Waterloo Wildlife Area and Deansville Wildlife area.

3.12.2 Impacts

An evaluation of potential impacts to threatened and endangered species was conducted by correlating available information on species distribution and habitat preferences, with habitat availability. Where specific habitats or plant communities were identified that are typically associated with rare species, potential impacts were assessed through relative loss of habitat. Impacts to vegetation or cover types were determined assuming a worst-case area of impact. Site specific impacts caused by construction activities would depend on the time of year, location and the nature of the construction activity. Dimensions of the areas of construction would vary with each location and severity of side slopes.
Direct impacts to rare species and natural communities can occur due to habitat loss or direct removal through clearing and earth-moving activities. Indirect impacts may result from construction disturbances during sensitive breeding periods or through on-going maintenance activities such as the mechanical or chemical removal of vegetation. Impacts to rare plants and animals are similar to those described in Section 3.11 for terrestrial vegetation and wildlife.

Proposed improvements in the scope of this project are located within the existing right-of-way, which in and of itself, is the product of construction disturbance. Additionally, construction activities east of Watertown would be limited to minor maintenance and rehabilitation of existing facilities. No new sidings or embankments are proposed. The proposed second track would be re-installed on the existing railbed.

Rare species associated with aquatic resources such as streams and lakes may be negatively impacted by construction activities at water-crossing structures. Five existing bridges are proposed to be rehabilitated from Milwaukee to Watertown and twelve more between Watertown and Madison. In addition, two box culverts would be installed to replace existing bridges and twenty-nine culverts would be replaced. Some of these water bodies are known to contain state-listed species of fish and plants. Potential impacts to rare species at construction locations would be similar to those described in Section 3.8 for other aquatic resources.

3.12.3 Mitigation for Threatened and Endangered Species

Actual site-specific impacts would be identified during final design, and measures would be taken to avoid and minimize effects. Impacts to rare species would be minimized through the use of appropriate management practices and time-of-year restrictions. In terrestrial areas, care would be taken to limit the area of disturbance and to avoid areas with known occurrences of rare species. Construction in waterways may be restricted during certain times of the year to avoid sensitive spawning times.

Continued coordination with the WDNR and USACE would help direct the appropriate timing and construction techniques to protect sensitive species and minimize impacts in the specific areas of disturbance. No impacts are expected to occur in the listed state natural communities, which occur outside the right-of-way.

Construction specifications would outline cleaning procedures to protect against the introduction of invasive species such as loosestrife, zebra mussels, and garlic mustard. Areas with these plants would be identified. Specifications would outline methods to aid in curtailing the incidental spread of these species.

3.13 Historic Resources

3.13.1 Results of Architecture History Survey

WisDOT consulted with the State Historical Society (SHS) to establish an area of potential effect (APE) along the project corridor. The area of potential effect defines the limits where historic resources are identified. The area of potential effect includes:

- all properties immediately adjacent to crossings where passive signs or flashing light signals are to be replaced by conventional, single–arm, extended-arm, or quad gates;
- all railroad structures along the line that would be affected by construction (i.e. bridges)
- all structures in or immediately adjacent to proposed station locations; and

- all structures adjacent to those discreet segments of historic single track west of Watertown where sidings are proposed.

Thirteen resources were identified that required investigation and are dispersed among the various towns and cities along the rail line. Table 3-30 summarizes the investigated properties and whether they are either listed on, or potentially eligible for listing on the National Register of Historic Places (NRHP).

Table 3-30
SUMMARY OF HISTORIC AND POTENTIALLY HISTORIC STRUCTURES WITHIN THE AREA OF POTENTIAL EFFECT
Milwaukee-Madison Passenger Rail Corridor

Property Address	Structure Type	NRHP Evaluation
1627 W. St. Paul Avenue, City of Milwaukee, Milwaukee County	Warehouse	Potentially eligible
2844 N. Brookfield Road, City of Brookfield, Waukesha County	Former railroad depot	Eligible
115 Collins Street, City of Oconomowoc, Waukesha County	Former railroad depot	Listed on NRHP
809 Station Street, City of Watertown, Jefferson County	Warehouse and grain elevator	Not eligible
254 Jefferson Street, City of Waterloo, Jefferson County	Former factory building	Eligible
184 S. Washington Street, City of Waterloo, Jefferson County	Residence	Not eligible
206 S. Washington Street, City of Waterloo, Jefferson County	Residence	Not eligible
Canadian Pacific Railroad Bridge over STH 19, City of Waterloo, Jefferson County	Railroad bridge	Not eligible
Canadian Pacific Railroad Bridge over Maunesha River, Town of Medina, Dane County	Railroad bridge	Not eligible
S. of RR tracks, E. of Hubbel Street, Village of Marshall, Dane County	Three warehouses	Not eligible
908 Hubbel Street Village of Marshall Dane County	Residence	Not eligible
One West Wilson Street City of Madison	State Office Building	Listed on NHRP

Property Address	Structure Type	NRHP Evaluation
Dane County		
Railroad bridges over the Yahara River	Bridges	Bridges are in the Yahara River Parkway which is on the NRHP

Source: HRL, Ltd.

Two structures, the former Brookfield Depot and the former factory buildings (now housing McKay Nursery offices) are eligible for listing on the NRHP. Determinations of Eligibility (DOE) have been prepared for the two sites and submitted to the SHS. A determination of eligibility was not made for the property located at 1627 W. St. Paul Avenue in Milwaukee, but effects on the property were determined (See Section 3.13.2). The former Oconomowoc Depot and the One West Wilson Street State Office Building are currently listed on the NRHP. The railroad bridges over the Yahara River are considered contributing elements to the Yahara River Parkway, which is listed on the NRHP.

3.13.2 Impacts

WisDOT staff met with the SHS staff on April 14, May 5, and November 2, 2000, to review the proposed project's effect on historic properties. At the St. Paul Avenue property in Milwaukee, the crossing warning system would be upgraded from flashing light signals to single gates. The Jefferson Street crossing on the east side of McKay Nursery buildings in Waterloo would be closed. The SHS has determined that the project would not adversely affect either of these properties (See Appendix A-22).

The cities of Oconomowoc and Brookfield support using the existing depot sites for passenger stations. It is currently expected that a new facility would need to be added to the existing Oconomowoc Station. The Brookfield station would be relocated about 200-feet (61 meters) east of its present site to accommodate a loading platform.

The lower level of the One West Wilson Street State Office Building would be used for the proposed Monona Terrace station, which is located below grade. This would avoid modifications to the building above street level. The station platform would be below grade, facing the tracks under Monona Terrace (See Figures 2-13 a,b,c). The Yahara River bridges would remain in place with minor rehabilitation (painting and abutment repair). The project would not affect the historic integrity of the bridge.

3.13.3 Mitigation for Historic Resources

Individual municipalities would be responsible for providing station facilities for passenger rail service. The Oconomowoc Station is currently listed on the NRHP, and the Brookfield station is potentially eligible. If federal or state funds are used to construct stations, both cities would be required to consult with the SHS, per Section 106 of the Historic Preservation Act and

Section 44.40, Wisconsin Statutes. The consultation process ensures that proposed station upgrades take the historic context of the buildings into consideration.

The SHS has determined that the proposed project would not adversely affect the depot buildings provided that the following conditions are met for each station site (Also see Appendix A-22).

Brookfield

- The depot and handcar shed on the site would be moved and rehabilitated in accordance with the Secretary of the Interior's Standards and Guidelines for Historic Preservation, so as to retain the buildings' historic integrity, and
- Consultation with SHS would be conducted during preliminary plan development to confirm that the proposed rehabilitation is consistent with the Secretary of Interior's standards for historic preservation.

Oconomowoc

- The owner of the proposed station would coordinate a pre-design meeting between the design architects and SHS staff to establish parameters for a non-intrusive solution that does not diminish the historic integrity of the existing depot.

Madison

- The City of Madison would coordinate a pre-design meeting between the design architects and SHS staff to establish parameters for a non-intrusive solution that does not diminish the historic integrity of the existing building.

3.14 Archeological Resources

3.14.1 Results of Archeological Survey

After consultation with the State Historical Society, a sampling design was established using three variables: landscape setting, previously recorded archeological and burial locations, and potential historic resources to subdivide the existing railroad right-of-way into high, moderate, and low probability areas for archeological site location. All areas of high probability were then subjected to field study.[43]

The field reconnaissance re-identified the possible remnants of two historic Euro-American icehouses, 47 WK 509 (Helms Brothers Icehouse) and 47 WK 510 (Armour Ice East House), and one station coincident with the railroad right-of-way. Both ice house sites date to circa 1873 to 1892 and are adjacent to the railroad right-of-way. The Hartland station represents a standing structure; archeological deposits associated with the station were not encountered.

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[43] Center for Archeological Research at Marquette University. Archeological Investigations for the Milwaukee to Madison High Speed Rail Project, Dane, Jefferson, Waukesha, and Milwaukee Counties, Wisconsin. Reports of Investigations No. 473. October, 2000.

The archeological studies also included an intensive field survey at five proposed stations in Madison (Airport and Pennsylvania Avenue sites), Watertown, Brookfield, and Oconomowoc. All sites were subjected to visual survey which revealed that construction and modern land use have completely obliterated the original soils resulting in a highly disturbed context.

3.14.2 Impacts

The proposed track reconstruction within the existing right-of-way would not affect the icehouse sites identified in archeological surveys. Additional provisions shall be made in construction plans to identify and protect the sites from disturbance during construction activities (See Appendix A-22).

3.14.3 Mitigation for Archeological Resources

Current conventional archeological survey techniques are inadequate to determine the presence of deeply buried archeological or paleontological deposits. In the event that these materials are encountered during the course of the project, all construction in the area of the discovery should be halted.

If archeological or paleontological materials are encountered, immediate consultation to insure compliance with (1) 36 CFR 800.11, the Regulations of the Advisory Council on Historic Preservation Governing the 106 Process; or (2) Section 44.40 Wis. Stats, may be obtained by contacting:

The Compliance Section
Historic Preservation Division
State Historical Society of Wisconsin
Phone: 608-264-6505

If human remains are encountered, immediate consultation to insure compliance with Section 157.70, Wis. Stats. is required. Guidelines may be obtained by contacting:

The Burial Sites Preservation Office
Historic Preservation Division
State Historical Society of Wisconsin
Phone: 800-342-7834

3.15 Hazardous Materials

Phase 1a hazardous materials investigations were completed from Watertown to Madison (Waterloo Subdivision). This section would be reconstructed. Phase 1a hazardous materials investigations include site reconnaissance, database and records search, review of historic and current aerial photos, soil map reviews, and interviews with local officials within a quarter mile distance from the rail corridor.

Phase 1a investigations were not required and not conducted between Milwaukee and Watertown (Watertown Subdivision). Track, ties and ballast would simply be replaced on their current location or on top of the existing railroad ballast. Contaminants found in railroad grades are ambient to all rail corridors. All excavated ballast would remain on railroad right-of- way.

For areas outlined as alternative sites for possible station locations, Phase 1b investigations were completed to determine project risk of encountering hazardous materials during construction. Phase 1b investigations include site visits, detailed research on specific property histories and interviews with current or previous owners.

New right-of-way would not be required for the project and no additional hazardous materials investigations were conducted in the corridor. Future development of off-site properties for station locations would require further hazardous materials investigations prior to purchase.

3.15.1 Existing Conditions

Between Watertown and Madison (Waterloo Subdivision), 58 sites have been identified as industrial, commercial and historic or current landfills. Identified sites included underground storage tanks, above ground storage tanks, surface staining or stressed vegetation, the presence of multiple drums and waste debris, solid or hazardous waste sites, spill sites, state and federal identified environmental sites, and potential pesticides and/or herbicides.

These sites are located outside of the railroad right-of-way and not expected to affect the proposed project. There are a number of recorded spills within the railroad right-of-way that were reported to the WDNR and remediated by the railroad owners or operators.

Station Sites

It should be noted that new station construction or improvements to existing stations would be the responsibility of local communities. This study identified potential environmental concerns at each site to recommend future potential work that may be required by local communities to construct station facilities.

Milwaukee Amtrak and Oconomowoc Stations

The existing Milwaukee Amtrak and Oconomowoc stations would serve passenger rail service; no additional investigations were conducted under this study. Further hazardous materials investigations are recommended if future work is proposed by others to upgrade or improve these stations.

Brookfield Station

This proposed station site includes property that was once used as a lumberyard. The three buildings remaining on the site are vacant. The remaining CP Railway depot building within existing right-of-way is used as office space for CP Railway staff. Records show that an underground storage tank was removed from the property. Closure status has not been assigned by DNR. An aboveground storage tank (AST) may have also been on the site. In March 1998, groundwater and soil contamination was noted on adjacent properties that are used for automotive businesses. The properties contain underground storage tanks (UST) and leaking underground storage tanks (LUST) that likely contain petroleum products. The station site is down-slope from these sites and may have received surface water runoff. Further subsurface studies are recommended to determine if contaminants are located on the site.

Watertown Station

The Phase 1b review indicates that the site is currently unoccupied, It is owned by a metal recycling business. Activities on the site include metal recycling, scrap metals, iron wholesale, secondary smelting and scrap metal refining.

The property appears on the State Spill and Environmental Repair Program database as numerous spills have been reported on the property. Follow-up investigations on the site, completed by other parties, report both soil and groundwater contamination. According to WDNR records, the property owner has been identified as the Responsible Party and has retained a consultant to clean up the property. No additional information on the progress of clean up is reported.

Automotive properties surround the property and pose an environmental risk to the proposed station site. Surrounding properties contain or did contain underground storage tanks for gasoline, but none are listed on the WDNR LUST database. The properties do not show up on other databases.

Further hazardous materials investigations are recommended if future work is proposed by others to upgrade or improve these stations.

Madison-Pennsylvania Avenue Station

Three properties would be purchased and combined for the proposed Pennsylvania Avenue station location. The first property is a tool works business. There are no state or federal records of environmental contamination on the site.

The second property, owned by 2250 Pennsylvania Avenue LLC, is a commercial property that was formerly used for the Dane County Humane Society kennels. At the time of the site review, the property was not occupied. There are no state or federal records of environmental contamination on the site. The property managers did note the property contains an on-site incinerator. No other sources of contamination are known at this time.

The third property is vacant and owned by a construction company. There are no state or federal records of environmental contamination on the site. A representative of the property owner stated that the site is used for materials and equipment storage and has been vacant since the business acquired the property at least 40 years ago.

City of Madison staff noted that all three properties could contain 1 to 6 feet of fill consisting of ash or slag from a nearby foundry. There is a closed landfill east of Pennsylvania Avenue and an old city dump was located in the vicinity of the WSOR-leased rail yard west of the site.

The WSOR-leased rail yard is listed on several state databases as containing both above and below-ground storage tanks and leaking underground storage tanks. WSOR staff indicated that storage tanks on the rail yard property are not in the vicinity of the proposed layover facility.

Madison Airport Alternative Station

The proposed Madison Airport alternative would use an existing overflow parking lot. Minor modifications to the facility would not dictate potential to encounter hazardous materials. No further hazardous materials investigations are anticipated for this site should it be selected as the preferred station location for Madison.

Madison Monona Terrace Station

The proposed Monona Terrace station alternative site would be within an existing structure. The only new construction would likely include a passenger platform, track work, railroad signals, lighting and potable water systems, roadway paving, locomotive exhaust ventilation systems, and fencing within the viaduct under Monona Terrace Convention Center. Construction work along this segment of track has been completed recently with the construction of the Convention Center. There are no indications of hazardous material contamination. No hazardous materials investigations are anticipated for this site if it is selected as a station location for Madison.

Layover Facility

The proposed layover facility would be located in the existing WSOR-leased rail yard. It is anticipated that a private operator would construct and maintain this facility. While the facility is located in an area with consistent land use, the facility owner/operator should coordinate with WSOR to avoid or remediate environmental risks associated with the facility site.

3.15.2 Impacts and Potential Remediation Measures

Identified properties having potential to encounter hazardous materials would be avoided during track, siding and bridge construction. During construction, any materials presenting environmental risk are reported and construction is suspended until qualified personnel identify and, if necessary, remove the materials. Ballast encountered would remain as railroad ballast and not leave the rail right-of-way as per railroad policy. Ties that are removed would be disposed of at an approved site or shipped to a co-generation facility for incineration.

The Watertown, Brookfield and Madison-Pennsylvania Avenue station, and/or WSOR Yard layover facility locations have the most potential to encounter hazardous materials requiring additional investigations and or remediation. Table 3-31 summarizes conditions at each station facility and recommendations for future investigations.

Environmental investigation and or remediation at the stations and layover facility would be the future responsibility of the operating agent and the scope dependent upon future station proposals. It should be noted that communities providing rail passenger service at new or existing stations may qualify for state financial incentives to clean up contaminated sites under the WDNR's Brownfields Initiatives program. There are a number of programs available to communities through the WDNR, the Wisconsin Housing and Economic Development Authority, the Wisconsin Department of Commerce, and the Wisconsin Department of Revenue. Financing programs include direct grants, tax incremental financing, loans, enterprise development zones, and sustainable urban development zones.

Table 3-31
SUMMARY OF POTENTIAL ENVIRONMENTAL CONTAMINATION PASSENGER RAIL PASSENGER STATIONS AND LAYOVER FACILITY

Station/Facility	General Existing Conditions	Further Investigation Recommended
Milwaukee	Existing station facility, not investigated	Recommended if physical expansion proposed.
Brookfield	Underground storage tank removed, no information on above ground storage tank; no signs of potential contamination observed. Soil and groundwater contamination reported on adjacent properties upslope.	Yes
Oconomowoc	Existing station facility, not investigated	Recommended if physical expansion proposed.
Watertown	Reports of previous contamination that is in process of remediation. Surrounding properties contain UST's for gasoline storage.	Yes
Madison-Pennsylvania Avenue Station	Three properties: used for construction storage, humane society and tool works business. Historic filling of sites, possibly with ash or slag from nearby foundry. Landfills located nearby.	Yes
Madison-Airport Station	Existing parking lot	No

Station/Facility	General Existing Conditions	Further Investigation Recommended
Madison-Monona Terrace Station at One West Wilson State Office Building Station	Station facility would be within an existing building, not investigated.	No
Layover facility-WSOR-leased Rail Yard	Rail yard records of UST's, LUST's, and AST's	Private owner/operator coordination with WSOR recommended

Source: HNTB Corporation

3.16 Existing Visual and Aesthetic Conditions

3.16.1 Existing Conditions

Milwaukee County – Traveling west from the Amtrak station in Milwaukee the surrounding visual resources change from the vacant and industrial areas of the Menomonee Valley, to the mixed industrial, residential and commercial center of Wauwatosa, to the natural wooded areas of parkways that line the Menomonee River and Underwood Creek.

Waukesha County – The rail corridor enters the central commercial district of Elm Grove and continues on to adjacent residential areas of Elm Grove and Brookfield. Moving further west, the visual character changes from moderately dense residential areas to rural areas currently converting to mixed residential subdivisions and light industrial areas. The rail corridor passes through or near the commercial centers of Pewaukee, Hartland and Oconomowoc. There are several residential areas that have developed along the tracks nearby the lakefronts of Pewaukee Lake and Oconomowoc Lake.

Jefferson County – With the exception of established towns, the visual landscape of Jefferson County along the rail corridor is primarily flat to rolling farm fields and the small rural communities of Ixonia and Hubbleton. The Waterloo Wildlife Area contains several low lying wetland areas east of Waterloo. Industrial uses line the track in Watertown and Waterloo with segments of residential housing and commercial activities backing up to it. The Crawfish River is a scenic crossing in this area.

Dane County – From the Dane County/Jefferson County line to Sun Prairie, the visual character is dominated by farm fields, except in Marshall and Deansville. There are several crossings of the Maunesha River that add scenic interest. The tracks travel through the north side of Marshall through predominately rural land, but new housing development is found directly adjacent to the tracks on the south side. Entering into the east side of Sun Prairie, there are single-family homes and residential subdivisions adjacent to the track which then enters into industrial areas of the city. As the tracks leave Sun Prairie, farm fields, a landfill and industrial areas dominate the landscape. The tracks continue through industrial areas in Madison as well as dense residential neighborhoods between Marquette Street and Johnson Street. In Madison, the tracks continue through an urban landscape of industrial, commercial and residential uses. Beyond Johnson Street, the tracks continue through the WSOR yards and northerly to the Dane

County Airport, where newer, large office buildings occupy the area near the airport. The proposed Downtown alignment to the Monona Terrace station travels through an area primarily occupied by commercial or industrial uses, with some stretches of vacant land. Commercial uses are more common as the alignment approaches Monona Terrace.

3.16.2 Impacts

Introducing passenger rail service would require safety upgrades to grade crossings and existing right-of-way, particularly as train speeds approach 110 mph (176 kph). Typical grade crossing warning devices are illustrated in Figures 3-41 and 3-42. Appendix B provides recommended treatments for each grade crossing in the project corridor. Most grade crossing upgrades would replace existing gates and flashing light signals. The visual character of the grade crossing is not expected to change substantially. However, some grade crossings, which currently consist only of warning signs, would be upgraded to gated grade crossings. In these cases, grade crossings are typically in rural or industrial areas where views of the grade crossing are limited on low volume roads and impact is minimal. Specific areas in each county are discussed below.

Milwaukee County – Since the proposed passenger rail service would use the existing rail corridor, new fencing, crossing gates or structures are not expected to detract from this urbanized visual landscape. While parkways along streams are sensitive visual elements, they are largely removed from heavy public use or screened by surrounding vegetation.

Waukesha County – Most development backs up to tracks through the county. The commercial node at Watertown Plank Road in Elm Grove has a certain personality that relies on its village center identity. The crossing at Watertown Plank Road would have the existing single gates replaced with quad gates and back gates extending across the sidewalks. As this is similar to the existing warning system, there would be no negative impacts.

The park at the Elm Grove Village Hall and Wirth Park are important resources, but the erection of a fence as the primary upgrade to the tracks would pose no negative impacts on the parks as the tracks already provide visual boundaries and separation. Mitchell Park is a sensitive visual resource, which is being protected by the county through its use of berming and screening, along the rail corridor. The Mitchell Park/railroad corridor property line would be fenced as part of this project.

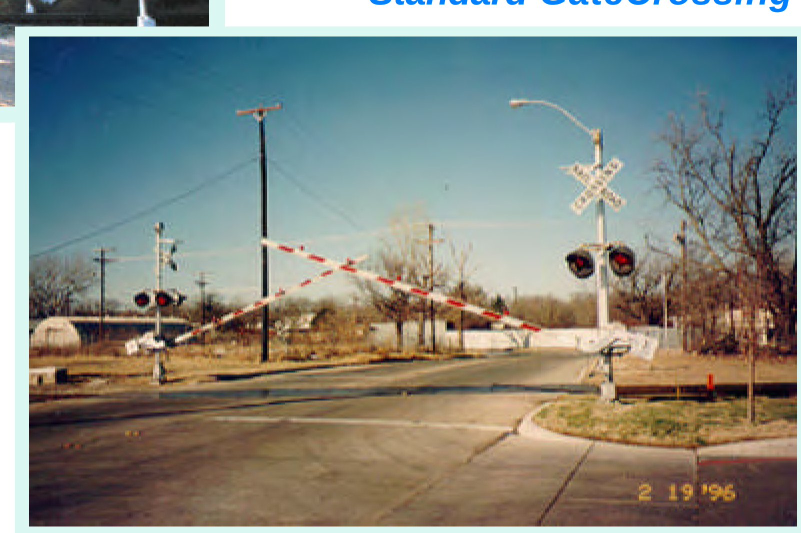
The historic Pewaukee train station and the commercial development along Wisconsin Avenue has a high visual quality when coupled with its strategic siting on the banks of Pewaukee Lake. The upgrading from single to quad gates would not detract visually from this area, but a continuous fence may have a negative impact on certain views.

CableGateArresting Barrier

Median Barrier Protection

QuadGateCrossing

Standard GateCrossing



PASSENGER RAIL CORRIDOR STUDY MILWAUKEE – MADISON	**SafetyFeatures Rail CrossingBarriers**	**Figure 3-41**

DecorativeFencing

Pedestrian & Bicycle Crossings

MILWAUKEE – MADISON	**SafetyFeatures** **Fencing & Pedestrian Crossings**	**Figure 3-42**

In Hartland, Nixon Park is a sensitive resource, particularly the more scenic western portion with the pond, mature trees and river bank. New fencing should not detract from views when vegetation at the slope base of the raised grade is reestablished.

The historic Oconomowoc train station is a sensitive resource. In contrast to the industrial land uses that run along much of the corridor, this station brings attention to the rail as a facility of interest and significance to the city. Proposed rail facilities would be consistent with the established railroad character of the site.

Jefferson County – The rail corridor is not a dominant view in this rural landscape and views would not be negatively impacted. In Watertown, the corridor is largely industrial and views would not be negatively affected. In Waterloo, views from a limited adjacent residential area may be negatively affected by proposed fencing.

Dane County – The rail corridor is not a dominant view in this rural landscape east of Sun Prairie and views would not be negatively affected. Views of the Maunesha River west of Marshall would not be affected since no obtrusive structures are proposed in this area. An exception would be in the city of Marshall, west of Hubbel Street where the tracks form the northern border of the residential development; the visual landscape is sensitive in light of the number of homes that back up directly to it. The two unavoidable impacts would be the fencing, which would provide a semi-transparent screening of the agricultural fields and the presence of additional trains. The increase from two trains per day to over 20 trains in the future can be an element that draws the viewers' attention to the corridor. In Sun Prairie, the addition of fencing, and regularly passing trains may have a similar effect in residential areas. In Madison, no impacts are expected in industrial or commercial areas, but proposed fencing in residential areas may be perceived as a negative visual impact. The City of Madison recently approved a resolution which calls for a corridor management plan to address neighborhood impacts.

3.16.3 Mitigation for Visual and Aesthetic Conditions

WisDOT would coordinate with local municipalities to determine appropriate measures to mitigate the potential negative effect of fencing. Decorative fencing may be installed in select areas. Furthermore, federal funds, including those allocated under TEA-21, may be available to communities for aesthetic improvements. The railroad owning or operating the rail corridor would be responsible for track and vegetation maintenance. WisDOT and local communities can ensure nuisance related maintenance of snow and trash through operating agreements with the railroad operators.

3.17 Energy

Upgrading the existing Milwaukee-Madison rail corridor would require additional energy beyond typical maintenance for existing train service. Additional energy consumption would be required for train detours of WSOR freight service between Watertown and Madison, and potentially by CP Railway ballast trains depending on the time of year that construction would occur between Watertown and a CP Railway ballast source in Waterloo. These are short-term energy impacts lasting as long as the construction phase of the project. No detours are expected on the Milwaukee to Watertown segment as the existing track would remain in operation while the second track is installed.

Energy consumption was estimated for the existing and future transportation modes in the Milwaukee-Madison corridor. The basic data used to calculate consumption is as follows:

- Ridership Estimates/Person-Miles of Travel. Existing and future person trip-data was derived from 1996 and 2010 ridership data, multiplied by the estimated number of miles between Madison and Milwaukee. A distance of 85 miles was used. Distances by mode would vary in actual situations, but the difference between traveling to a rail or bus station, airport, or freeway is considered negligible and not included in this estimate.
- Energy Consumption. Energy consumption for rail travel is estimated from proposed operations. Energy consumption rates for auto, bus and air travel were used to estimate annual modal energy consumption. The rates were obtained from the Draft EIS prepared for the Chicago-St. Louis High-Speed Rail Study.

Energy consumption units for all travel modes were converted to a common base unit, the British Thermal Unit (BTU) to compare between modes. Energy consumption estimates for rail differs from other modes. Capacity, and thus energy consumption, can vary by changing train consists (number and type of cars and locomotive units). Thus, rail energy consumption estimates were based on simulation of projected rail operations and use of particular equipment.

Energy consumption rates for other modes are noted below (USDOT, 2000[44]):

- Passenger Automobile: 3,600 BTUs per person-mile (2,200 BTUs per person-km)
- Intercity Bus: 1,000 BTUs per person-mile (600 BTUs per person-km)
- Aircraft: 4,600-9,200 BTUs per person-mile (2,900-5,700 BTUs per person-km)

An average rate of 6,900 BTUs per person-mile (4,300 BTUs per person-kilometer) was used for air travel. Table 3-32 shows annual energy consumption for existing modes of travel between Milwaukee and Madison. Again, annual consumption was arrived at by multiplying annual riders, by number of miles traveled, and modal energy consumption rates. Auto travel is estimated to have the highest energy consumption of all existing transportation.

[44] U.S. Department of Transportation, Federal Railroad Administration. Draft Environmental Impact Statement, Chicago-St. Louis High-Speed Rail Project. June, 2000.

Table 3-32
EXISTING ENERGY CONSUMPTION (1996)
Milwaukee-Madison Passenger Rail Corridor

	Auto	Air	Bus
Existing Riders (000's)	11,948	95	121
Person-miles (millions)	1,015	8	10
Annual Energy Consumption (billion BTUs)	3,656	56	10

Future energy consumption was estimated in a similar manner except as noted previously that rail travel was calculated based on operational characteristics. This analysis used fuel consumption data for a typical locomotive and trainset with a maximum operating speed of 110 mph (176 kph). Future annual energy consumption for rail service was estimated assuming 10 round trips per day, seven days a week. The annual gallons of diesel fuel consumed (236 gallons of fuel/roundtrip x 10 roundtrips/day x 365 days/year) is estimated at 862,495 gallons. The annual fuel consumption was converted to BTUs (multiplied by 141,000) to obtain annual BTUs. Table 3-33 summarizes estimated annual fuel consumption, with and without passenger rail service, and by mode.

Table 3-33
FUTURE ENERGY CONSUMPTION (2010)
With and Without Milwaukee-Madison Passenger Rail Service[1]

	Auto	Air	Bus	Train (110 mph)
Without Passenger Rail Service				
Ridership (000's)	16,204	137	158	NA
Person Miles of Travel (millions)	1,377	11.6	13.4	NA
Annual Energy Consumption (billions BTUs)	4,958	80	13	NA
With Passenger Rail Service				
Ridership (000's)	15,917	104	77	428
Person Miles of Travel (millions)	1,352	8.8	6.5	36.3
Annual Energy Consumption (billions BTUs)	4,870	60	6	121
Change in energy consumption (billions BTUs)	**-88**	**-20**	**-7**	**121**

[1] Diversions are based intercity ridership of regional carriers; it does not accurately account for ridership on local commercial carriers.
NA = Not Applicable

Auto fuel consumption would continue to be the highest of all modes regardless if passenger rail is implemented despite a reduced consumption of approximately 88 billion BTUs, or about 700,000 gallons of gasoline (88 billion BTU/125,000 BTUs per gallon) with the implementation of passenger rail in 2010. While energy consumption by air and bus modes are also reduced, reflecting ridership diversion to rail modes, there would be a concurrent increase in energy consumption for rail service.

Rail fuel consumption is expected to be considerably less than auto, but higher than air or bus. However, based on forecast ridership for passenger rail, rail travel is more efficient than auto or air travel with an estimated 3,333 BTUs per person mile (121 billion BTUs/36.3 million passenger miles), but less efficient than bus travel at 1,000 BTUs per person mile. It may be expected that natural growth in rail ridership in the future could reduce fuel consumption per passenger as the same number of trains carry more passengers.

3.18 Construction Impacts

Upgrades to crossings to install new warning systems may temporarily slow traffic flow, but access is expected to be maintained during construction. In some cases, temporary traffic diversion may occur where alternative access is readily available.

Railroad track reconstruction is expected to take place within the existing right-of-way to avoid impacts to adjacent properties. CP Railway would undertake the construction of the rail improvements on the segment between Milwaukee and Watertown under an agreement with the Wisconsin Department of Transportation. CP Railway would coordinate its own construction staging and operations based on prior experience with other segments of its rail network. Accordingly, any impact to existing passenger rail or freight service would be minimized.

The WSOR has indicated that it would use detour routes during construction and does not anticipate substantial impacts to operations. Construction would be staged to permit access to industry wherever possible between the Madison station and Watertown. The first construction phase includes the construction from the Madison station to MP145.3 near Briess Road in Waterloo. The section of track between Lien Road and Briess Road would be closed. Construction of this segment would take nine months. Service to a lumber facility in Sun Prairie would continue by truck with transloading from the train to truck occurring in Madison. The section of track between the airport and Lien Road would be constructed under traffic to permit access to industry in this segment. The section of track between Briess Road, Waterloo and Michel's Quarry would be constructed under traffic to permit access to industry on this segment. After the segment between Lien Road and Briess Road is completed, the segment between Watertown and Michel's Quarry, east of Waterloo would be closed. Construction of this segment is scheduled for ten months.

The selected construction contractor would identify any needed construction staging areas. However, information on wetlands and other sensitive natural resources would be provided to the contractor such that staging sites avoid these locations.

3.19 Permits Required

The Milwaukee-Madison Passenger Rail Corridor Study is being coordinated under the WisDOT/WDNR Cooperative Agreement. This cooperative agreement requires interagency consultation, resolution, and follow-up on jointly approved recommendations for design and mitigation measures that avoid or minimize environmental impacts. Construction over streams and wetlands would require a U.S Army Corps of Engineers Individual Section 404 permit. The 404 permit is valid once the WDNR grants Section 401 Water Quality Certification for the project. Section 401 certification would be obtained from the WDNR during the liaison process.

4.0 MITIGATION

During public meetings held in various communities in the passenger rail corridor, there were several concerns raised about providing grade separations (either an overpass or underpass) for pedestrians and bicyclists at some existing at-grade or potentially closed crossings. Grade separated crossings would be considered as WisDOT continues to coordinate with local officials as final design proceeds.

The preliminary engineering design plans illustrate improvements to grade crossings that include flashing light signals, gates and median barriers. These warning devices are among the treatments recognized as safety measures that could allow the local communities to comply with national "Quiet Zone" regulations now under consideration by the Federal Railroad Administration.[45] Under the proposed rule, train horns could only be silenced if approved treatments are used at grade crossings in a designated "Quiet Zone" corridor. A Quiet Zone is a rail corridor at least one half mile in length with one or more public highway-rail grade crossings at which Supplemental Safety Measures (SSMs) or Alternative Safety Measures (ASMs) are adopted by a state or local traffic control or law enforcement authority to "fully compensate for the absence of the audible warning provided by the locomotive horn."[46] WisDOT also intends to comply with the draft FRA rules so as to allow communities to establish Quiet Zones.

WisDOT would also coordinate with individual property owners to resolve final design and farm operation issues for private farm crossings that are proposed for closure. Alternatives for redirection or compensation would be reviewed with each farm operator.

Mitigation for noise impact is most appropriate in areas where the impact is severe or approaching severe, such as in the communities of Waterloo, Sun Prairie, and Marshall. The design and manufacture of the train sets would include specifications to minimize noise levels. Infrastructure features such as welded and lubricated rails would be used to further reduce noise impacts. Noise reduction barriers may also be considered if equipment and rail infrastructure do not provide sufficient noise reduction below FRA impact criteria. Items to be considered for determining the appropriateness of noise barriers along the rail right-of-way would be the location of the noise source on the vehicle, the number of properties, the increase in noise levels, the noise sensitivity of the properties, the effectiveness of the mitigation measure, the potential to reduce existing transportation noise levels and the opinions of the community.

Mitigation measures to consider for ground-borne vibration during construction and operation include changes to the track support system, vehicle modifications and maintaining tracks and

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[45] Proposed Rule: Use of Locomotive Horns at Highway-Rail Grade Crossings; 65 Fed. Reg. 2229, January 13, 2000.

[46] http://www.fra.dot.gov/s/env/horns/qa.htm

wheels. These and other measures would be determined during continued preliminary engineering and final design and through continued community outreach.

Potential water quality impacts associated with these rehabilitation activities (e.g., increased sedimentation, turbidity, etc.) would be minimized by utilizing best management practices such as silt fencing and promptly stabilizing/seeding exposed soils.

Mitigation would be required for approximately 13.53 acres (5.4 hectares) of affected wetlands in the project corridor. Mitigation for impacts in the entire project corridor would be compensated for at a newly created WisDOT statewide wetland mitigation bank with state and federal agency oversight for its creation and operation in perpetuity. Wetland takes (losses) would be compensated for as described by the Statewide Wetland Banking Guidelines document and the WisDOT/WDNR Cooperative Agreement. Impacted wetlands would be replaced at a ratio of 1:1 or higher as outlined in the agreements and guidelines.

Limiting clearing in specific sensitive areas, minimizing the zones of construction and revegetating/mulching where appropriate can minimize impacts to terrestrial communities. Potential impacts to wildlife crossings resulting from fencing may be minimized by providing bridge crossings or by leaving gaps.

Site-specific impacts to threatened and endangered species would depend on the time of year, location and the nature of the construction activity. Dimensions of the areas of construction would vary with each location and the severity of side slopes. Actual site-specific impacts would be identified during final design, and measures would be taken to avoid and minimize effects. Continued coordination with the WDNR, the USFWS and the USACE during final design would help direct the appropriate timing and construction techniques to protect sensitive species and minimize impacts in the specific areas of disturbance.

Information on sensitive natural and cultural resources would be provided to the contractor and included in contract plans, specifications and estimates protecting them from construction operations.

If state or federal funds are used to construct stations at the former Oconomowoc and Brookfield depots, individual communities should coordinate with the State Historical Society to avoid adverse impacts to the historic integrity of the depots.

Additional provisions would be made in construction plans to identify and protect former sites of two icehouses adjacent to the right-of-way. If archeological or paleontological materials are encountered, immediate consultation to insure compliance with (1) 36 CFR 800.11, the Regulations of the Advisory Council on Historic Preservation Governing the 106 Process; or (2) Section 44.40 Wis. Stats. is required. Guidelines may be obtained by contacting:

The Compliance Section
Historic Preservation Division
State Historical Society of Wisconsin
Phone: 608-264-6505

If human remains are encountered, immediate consultation to insure compliance with S. 157.70, Wis. Stats. is required. Guidelines may be obtained by contacting:

The Burial Sites Preservation Office
Historic Preservation Division
State Historical Society of Wisconsin
Phone: 800-342-7834

While no hazardous materials are anticipated in the rail corridor, there is the potential for the discovery of previous environmental contamination at the proposed Milwaukee, Brookfield, Watertown, and Madison Pennsylvania Avenue stations, as well as the layover facility at the WSOR yard. Environmental investigation and or remediation at the stations and layover facility would be the future responsibility of local municipalities constructing the stations and the operating agent for the layover facility. During construction, any materials presenting environmental risk are reported and construction is suspended until qualified personnel identify and, if necessary, remove the materials. Ties that are removed are disposed of in an approved manner.

WisDOT would coordinate with local municipalities to determine appropriate measures to mitigate the potential negative effect of fencing. The railroad owning or operating the rail corridor would be responsible for track and vegetation maintenance. WisDOT and local communities can ensure nuisance related maintenance of snow and trash through operating agreements with the railroad.

CP Railway would coordinate its own construction staging and operations to minimize any impact to freight service between Milwaukee and Watertown. During construction between Watertown and Madison, the WSOR would use detour routes. Some service may need to be continued via transloading goods to trucks for service to local customers.

WisDOT and Amtrak would continue its coordination with CP Railway and WSOR to develop mitigation measures for potential impacts to passenger rail and freight movements. Mitigation measures proposed to date include providing three siding locations between Watertown and Madison and installing a second track on existing railbed between Pewaukee and Watertown. Additional mitigation may require improvement of the freight route through Milwaukee.

5.0 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

5.1 Public Involvement

The public involvement process for the proposed passenger rail project focused on meeting with several communities and individuals to explain the project, its benefits, and its impacts. These meetings also provided valuable input on community concerns to be considered during the project design process. The public involvement program includes the following key elements:

- Public Information Meetings
- Meetings with small groups
- Meetings with local and state officials
- Speakers' Bureau presentations, and
- A Public Hearing at three locations

5.1.1 Public Information Meetings

Formal Public Information Meetings on this project were held in Madison, Watertown and Milwaukee. The purpose of the public information meetings was to provide the general public with information on the project and gather input regarding concerns, benefits and impacts in individual communities. Dates and attendance at these meetings is presented below:

Location	Date	Number in attendance
Madison	January 27, 2000	73
Watertown	February 2, 2000	91
Milwaukee	February 3, 2000	122

The public raised concerns regarding the need for the project, its economic feasibility, highway/rail crossing closures, impacts to property values, wetlands, and wildlife crossings, safety and noise. Others noted the benefit of providing the public with additional travel alternatives in the project corridor as well as in the Midwest. A detailed summary of the public information meetings is provided in WisDOT's report, Scoping Information Document, Scoping Meeting Summary, Deliverables 2 and 3, available for review at WisDOT Transportation District 1 in Madison and Transportation District 2 in Waukesha (Pewaukee Road office). Follow-up meetings with local communities and interested groups continued throughout the study. These meetings are noted in Sections 5.1.2-5.1.4. Concerns raised during public meetings are addressed in this Environmental Assessment. Additionally, WisDOT prepared and distributed answers to frequently asked questions during many follow-up public meetings (See Section 5.1.9 for further discussion).

WisDOT is also in the process of developing its State Rail Plan. WisDOT has held separate Public Information Meetings on the Plan in several locations. The State Rail Plan will include information and recommendations pertaining to passenger rail. The proposed passenger service of this project between Milwaukee and Madison was presented at the meetings held in Milwaukee and Madison, August 29, and September 14, 2000, respectively.

5.1.2 Small Group Meetings

Meetings were held with small groups located throughout the project area that expressed interest in learning more about the project and its outcome. These groups represented a wide variety of interested parties from neighborhood groups concerned about the impact of an alignment on their properties to business groups concerned about the impacts on local business districts. The purpose of these meetings was to provide information to a broad spectrum of the public in an effective way. Table 5-1 summarizes small group meetings held throughout the project study.

Table 5-1
SMALL GROUP MEETINGS
Milwaukee-Madison Passenger Rail Corridor

Date	Group
11/11/99	Evening presentation to Waterloo 2000 group
12/6/99	Briefing and discussion with Waterloo Common Council
12/14/99	Marshall/Waterloo Town Hall Meeting
1/27/00	Briefing with environmental review agencies
2/15/00	Briefing for Milwaukee County DPW section leaders
2/15/00	Meeting with City of Madison Planning staff
2/17/00	Briefing to Madison Long Range Transportation Commission
2/23/00	Follow-up meeting with City of Madison Planning staff
3/1/00	Briefing to Dane County Airport Commission
3/20/00	Sun Prairie public meeting
4/17/00	Presentation to Oconomowoc Lake Village Board
5/3/00	Briefing to Madison Northeast Side Neighborhood Council
5/17/00	Presentation to Village Board in the Village of Hartland
5/18/00	Aldermanic District 17 Neighborhood Meeting – Madison
5/22/00	Briefing to Madison Metropolitan Planning Organization
6/1/00	Follow-up Meeting with Brookfield Planning Staff
6/6/00	Presentation to Pewaukee Village Board
6/13/00	Meeting with Capitol Neighborhoods Association – Madison
6/22/00	Meeting with Pro-Rail group in Madison
7/6/00	Meeting with Schenk-Atwood-Starkweather-Yahara Neighborhood
7/18/00	Meeting with Oconomowoc Council
7/22/00	Meeting with Madison Isthmus Planning Council
8/14/00	Meeting with Sun Prairie Community
8/16/00	Meeting with Waterloo Community
8/29/00	Meeting with Marshall Community
9/12/00	Meeting with Marshall Community
10/10/00	Meeting with Village of Marshall Village Board

Date	Group
10/14/00	Potential Madison Area Station Site Tour Sponsored by Pro-Rail
10/17/00	Presentation to Dane County Staff on Madison Access and Station Location Report
10/17/00	Presentation to City of Madison City Council on Madison Access and Station Location Report
10/24/00	Attend City of Madison Pedestrian, Bike and Motor Vehicle Commission
11/9/00	Madison Neighborhood Meeting – 12th Aldermanic District
11/15/00	Madison Neighborhood Meeting re: Pennsylvania Avenue Station Location
11/20/00	Madison East Side Neighborhood Meeting
12/14/00	Madison East Side Neighborhood Meeting – 17th Aldermanic District
1/24/01	Wisconsin Section, Institute of Transportation Engineers
2/12/01	Madison Chamber of Commerce
2/17-18/01	Display at Madison Model Railroad Show
2/19/01	Madison Passenger Rail Symposium
2/26/01	Madison East Side Neighborhoods
3/5/01	Madison East Side Neighborhoods
3/12/01	East Rail Corridor Plan Advisory Committee (Madison)
3/13/01	Madison Far East Side Neighborhood Assoc.
3/13/01	Madison East Isthmus Neighborhood Meeting
3/15/01	University of Wisconsin Transportation Society
3/22/01	Association of Government Accountants
3/27/01	East Rail Corridor Plan Advisory Committee (Madison)
4/3/01	Bethel Lutheran Men's Group
4/4/01	Brotherhood of Locomotive Engineers
4/11/01	DeForest Rotary Club
4/24/01	East Rail Corridor Plan Advisory Committee (Madison)

5.1.3 Local and State Officials Meetings

Meetings with local and state elected officials provided briefings on the progress of the study over its life (See Table 5-2). These meetings were held generally with a single official rather than a group. The purpose of these meetings was to ensure that elected officials were well informed on the study, its alternatives, and the impacts of those alternatives on their constituents.

Table 5-2
SUMMARY OF MEETINGS WITH LOCAL AND STATE OFFICIALS
Milwaukee-Madison Passenger Rail Corridor

Date	Official
11/2/99	Briefing to Bob McDonald from Dane County Regional Planning Commission
11/10/99	Briefing to Ken Yunker at Southeast Wisconsin Regional Planning Commission
11/11/99	Meeting with Rail Commissioner Rodney Kruenen
12/8/99	Meeting with Waukesha County Executive Dan Finley
12/8/99	Meeting with Jefferson County Board Chair Wendell Wilson
12/10/99	Meeting with Marshall Village Board Chair Marlen Hensler
12/13/99	Meeting with Dane County Planning Director Jeanne Seiling
12/13/99	Meeting with Madison Planning Director Brad Murphy
12/14/99	Meeting with Wauwatosa Mayor Maricollette Walsh
12/20/99	Briefing for Sun Prairie Mayor Orfan and staff group
1/12/00	Meeting with Representative Hebl’s staff
1/12/00	Meeting with Senator Erpenbach and staff
1/12/00	Meeting with Senator Burke’s staff
1/13/00	Meeting with Representative Bock and staff
1/13/00	Meeting with Representative Ward and staff
1/14/00	Meeting with Waukesha County Officials
1/14/00	Meeting with Representative Pocan’s staff
1/18/00	Meeting with Senator Rosenzweig’s staff
1/25/00	Meeting with Mayor Fred Smith of Watertown
2/10/00	Milwaukee County Department of Public Works briefing
4/4/00	Meeting with Madison Alder Dorothy Borchardt
4/6/00	Meeting with Mayor Fred Smith of Watertown re: station locations
4/6/00	Meeting with Madison Alders Judy Olson and Kent Palmer
4/7/00	Meeting with Hartland Village Administrator Wally Thiel
4/11/00	Meeting with Sun Prairie Mayor JoAnn Orfan and Council President
4/26/00	Meeting with Elm Grove Village Administrator Andrea Steen Crawford and Village President Jim Nortman
4/26/00	Meeting with Mayor Bloomberg and staff in Brookfield
5/4/00	Meeting with Madison Alder Santiago Rosas
5/10/00	Briefing for State Representative Hank Urban
5/18/00	Meeting with Pewaukee Village Administrator Jennifer Schaefer
6/2/00	Meeting with Mayor Fred Smith of Watertown re: station locations
6/8/00	Briefing for Representative Steve Foti
6/19/00	Briefing for Representative Scott Walker
10/4/00	Presentation to WisDOT Rail Committee and Secretary Mulcahy
10/18/00	Meeting with Milwaukee County Dept. of Public Works project briefing
11/6/00	Madison Plan Commission
11/8/00	Madison Board of Public Works
11/16/00	Madison Board of Estimates
11/14/00	Madison Board of Transportation and Parking
11/16/00	Madison Long Range Plan Commission
11/27/00	Madison (Dane County) MPO

Date	Official
12/5/00	Madison City Council
12/14/00	Madison Ped-Bike-Motor Vehicle Commission
12/13/00	Meeting with Alder Santiago Rosa
12/20/00	Madison Long Range Transportation Planning Commission
1/2/01	City of Madison Common Council
1/3/01	Madison Board of Public Works
1/29/01	City of Madison Staff
2/5/01	Dane County Board of Supervisors Public Meeting
2/5/01	Madison Plan Commission
2/5/01	Joint meeting of Dane County Strategic Growth and Management and Transportation Committees
2/7/01	Madison Board of Public Works
2/12/01	Madison Board of Estimates
2/15/01	Madison Long Range Transportation Planning Commission
2/19/01	Madison Plan Commission
2/20/01	City of Madison Common Council
2/21/01	Madison Board of Public Works
2/19/01	City Sponsored High Speed Rail Symposium
2/26/01	Madison Area MPO
2/26/01	Madison Board of Estimates
3/5/01	Madison Plan Commission
3/6/01	City of Madison Common Council
3/7/01	Madison Board of Public Works
3/12/01	Madison Board of Estimates
3/15/01	Madison Long Range Transportation Planning Commission
3/20/01	City of Madison Common Council
3/22/01	Dane County Strategic Growth and Management Committee
3/26/01	Madison Area MPO

5.1.4 Other Meetings

Interviews were conducted with other key stakeholders early in the course of the project (See Table 5-3). The purpose of these early interviews was to identify key issues and concerns that needed to be addressed in the planning process.

Table 5-3
OTHER STAKEHOLDER MEETINGS
Milwaukee-Madison Passenger Rail Project

Date	Stakeholder
1/11/00	Meeting with Dane County Regional Airport Director Pete Drahn
4/5/00	Follow up meeting with Dane Co. Regional Airport Director Pete Drahn
5/25/00	Meeting with John Meier, owner of Badger Bus
12/15/00	Follow up meeting with Dane County Regional Airport Director Pete Drahn
1/31/01	Coordination meeting with Transport 2020 Dane County Transportation Alternatives Analysis

3/13/01	Follow up meeting with Dane County Regional Airport Director Pete Drahn
3/15/01	Meeting with Michel's Materials (business along corridor dependent on freight rail)

5.1.5 Speakers' Bureau

Presentations were made to several interested community, business and other groups throughout the course of the project (see Table 5-1). These presentations gave information on the progress of the study, and provided a forum for additional public comment.

5.1.6 Public Hearing

A public hearing on the Environmental Assessment will be conducted. The hearing will be held in three locations along the corridor to facilitate access by the interested public. There will be an open house prior to the start of the official public hearing to allow attendees time to review the project.

5.1.7 Local and Regional Support

Throughout the Midwest Regional Rail Initiative Study and this Milwaukee to Madison corridor study, numerous interest groups and elected officials have publicly endorsed high-speed passenger rail service in Wisconsin. Table 5-4 summarizes the most recent support submitted to WisDOT.

Table 5-4
WISCONSIN GROUPS SUPPORTING MIDWEST REGIONAL PASSENGER RAIL SERVICE

Agency / Organization	Form	Date written	Respondent
1. 1000 Friends of Wisconsin	Letter	June, 2000	Dave Cieslewicz Director
2. Association of Wisconsin Tourism Attractions	Letter	March 27, 2000	Chet Gerlach Executive Director
3. Brotherhood of Locomotive Engineers	Letter	March 12, 2000	Keith Luebke State Chairman
4. Columbia County Board of Supervisors	Resolution	September 16, 1999	Cathleen Lathrop County Clerk
5. Columbia County Economic Development Corporation	Resolution	August 31, 1999	Nancy Elsing Executive Director
6. Competitive Wisconsin Incorporated	Letter	June 6, 2000	Thomas R. Hefty President
7. Dane County Board of Supervisors	Resolution	March 22, 2000	Kevin Kesterson Board Chair
8. City of Fond du Lac	Letter	February 28, 2000	Stephen Nenonen Manager
9. Fox Cities Transit Commission	Resolution/ Meeting minutes	February 25, 1999	Charles Kamp Secretary

Agency / Organization	Form	Date written	Respondent
10. Green Bay Area Chamber of Commerce	Letter	May 1, 2000	Duanne Swift President
11. Hartford Area Development Corporation	Letter	March 9, 2000	Werner Wolpert, Executive Director
12. Jefferson County Board	Resolution	January 12, 1999	Barbara A. Frank County Clerk
13. City of La Crosse	Letter	February 28, 2000 March 2, 2000	John Medinger Mayor
14. Greater La Crosse Area Chamber of Commerce	Resolution	August 16, 1999	Len Rasch Chairman
15. La Crosse Area Development Corporation	Resolution	September 17, 1999	James Hill Executive Director
16. La Crosse County Economic Development Committee	Resolution	July 13, 1999	John Korpela et al
17. City of Madison	Letter	March 2, 2000	Sue Bauman Mayor
18. City of Madison Common Council	Resolution	June 21, 1999	Ray Fisher City Clerk
19. Greater Madison Chamber of Commerce	Resolution	March, 2000	Robert Brennan President
20. City of Milwaukee	Resolution	March 2, 2000	Don Richards Alderman, et al
21. Greater Milwaukee Convention & Visitors Bureau	Letter	March 8, 2000	William A. Hanbury President / CEO
22. Milwaukee County Board of Supervisors	Resolution	September 22, 2000	Mark Ryan County Clerk
23. Mississippi River Regional Planning Commission	Resolution	June 11, 1999	Gregory Flogstad Director
24. National Association of Railroad Passengers	Letter	July 31, 2000	Scott Leonard Assistant Director
25. Oconomowoc Area Chamber of Commerce	Letter Resolution	June 7, 2000 July 24, 2000	Kurt Schrang President
26. Oshkosh Chamber of Commerce	Letter	June 13, 2000	John A. Casper Executive Vice President
27. Oshkosh Convention & Visitors Bureau	Letter	March 7, 2000	Francis Weaver Executive Director
28. City of Portage	Resolution	September 24, 1999	Marie Moe City Clerk
29. Racine Area Manufacturers & Commerce	Board motion	April 17, 2000	Roger Caron Executive Director
30. Sierra Club, John Muir Chapter	Letter	April 20, 2000	Caryl Terrell Legislative Coordinator
31. Village of Sturtevant	Letter	March 6, 2000	Carolyn Milkie President
32. Tomah Area Chamber of Commerce	Letter	April 10, 2000	Eric J. Prise Executive Director
33. City of Tomah	Letter	March 2, 2000	Wayne Johnson Mayor

Agency / Organization	Form	Date written	Respondent
34. Wisconsin Alliance of Cities	Resolution	January 20, 2000	Paul Jadin President
35. Wisconsin Assn of Convention & Visitors Bureaus	Resolution	February 14, 2000	Bill Hanbury Chairman
36. Wisconsin Association of Taxicab Owners	Resolution		Gary Goyke
37. Wisconsin Council of the Blind	Resolution		Gary Goyke
38. City of Wisconsin Dells	Letter/Resolution	April 19, 2000	Craig Casey Mayor
39. Wisconsin Dells Visitor & Convention Bureau	Resolution	June 28, 2000	Romy Snyder Executive Director
40. Wisconsin Urban Transit Association	Resolution		Gary Goyke
41. Town of Sun Prairie	Resolution	October 9, 2000	Lyle Updike Town Chair
42. American Center Owner's Association	Letter	November 6, 2000	Richard Wilberg President
43. Village of Marshall	Resolution	December 5, 2000	Marlin Hensler Jr. Village President
44. City of Sun Prairie	Resolution	December 19, 2000	Jo Ann Organ, Mayor
45. City of Madison Economic Development Commission	Resolution	March 8, 2001	
46. City of Madison Common Council	Resolution	March 16, 2001	Susan Baumann Mayor
47. Madison Area MPO	Resolution	March 26, 2001	Ken Golden Chair
48. Dane County Board of Supervisors	Resolution	April 19, 2001	Kevin Kesterson Board Chair

5.1.8 Formal Community Resolutions Expressing Concerns

In addition to formal support provided from communities and organizations, local communities have also raised concerns about the impact of passenger rail service. The City of Madison, Dane County, the Village of Marshall, the Town of Sun Prairie, and the City of Sun Prairie have approved resolutions requesting that specific concerns be addressed in the project relating to safety, traffic impacts, aesthetics, corridor management, drainage and water quality. Furthermore, the City of Sun Prairie and the Village of Marshall have also requested that their communities be considered for passenger stations.

5.1.9 Response to Public Input

The public involvement program was used to provide information about the project, to answer questions and listen to concerns and issues voiced. Concerns with safety along the corridor, train noise and vibration, potential street closures along the corridor, the potential impact of trains dividing communities and neighborhoods, and the potential impact of lost property value were some of the major concerns brought out at local meetings. In response to public concerns, the study team reviewed project concepts and policies and implementation decisions were prepared with public input in mind. To better communicate this information, WisDOT prepared a list of frequently asked questions with answers. This was made available at public meetings (see Appendix E).

In addition WisDOT followed up on numerous specific public concerns. These included: an evaluation of a City of Sun Prairie rail corridor bypass; an assessment of FRA's proposed rule making on Quiet Zones; an assessment of stationary horns at crossings; an evaluation of appropriate fencing material; literature search on previous studies that addressed property values along rail corridors; and research on ways to dampen train noise. WisDOT has agreed to continue working with communities and neighborhoods on specific implementation issues as the project moves into design.

5.2 Agency Coordination

5.2.1 Scoping Meeting

An Agency Scoping meeting was held on January 27, 2000, at the WisDOT Transportation District 1 Office. Regulatory and review agencies were invited to attend the initial scoping meeting. The purpose of the meeting was to introduce the project and to request comments on issues to consider in the environmental document.

Representatives from the Wisconsin Department of Natural Resources Bureau of Endangered Resources and Bureau of Air Management, the State Historical Society, the National Parks Service, the U.S. Army Corps of Engineers and the Madison Metropolitan Planning Organization all attended the meeting. The US Fish and Wildlife Service was also contacted for their input regarding threatened and endangered species and habitat.
During the meeting, the USACE and WisDOT agreed that the USACE would be a cooperating agency to streamline the Section 404/NEPA permit process.

Issues identified to be considered in the EA included:

- impacts to wetlands
- the presence of threatened or endangered species within railroad right-of-way
- location of parking facilities and a maintenance yard
- impacts on intercity bus service
- proposed location and type of fencing in the corridor
- impacts to the State Rail Plan
- safety for pedestrians, especially at the Ice Age National Scenic Trail
- effect on archeological and historic resources
- effect of closing private farm crossings
- effect of closing public crossings
- effect on surrounding neighborhoods
- hazardous materials

5.2.2 Follow-up Agency Meetings

Several resource agencies were consulted throughout the project as specific issues arose as to how to approach impact analysis and mitigation.

Wisconsin Department of Natural Resources and U.S. Army Corps Engineers

A follow-up meeting was held with the USACE on February 3, 2000 to discuss permit requirements and the draft purpose and need statement. The USACE agreed to be a Cooperating Agency on the Environmental Assessment (See Appendix B). Draft preliminary engineering plan sheets for the proposed alignment and bridge construction were forwarded to both the WDNR and USACE to allow review of preliminary impacts to wetlands and stream crossings. A follow up meeting to discuss the plans was held on September 11, 2000 with the USACE and September 15, 2000 with the WDNR. At those meetings it was determined that an individual Section 404 permit would likely be required and that mitigation could be compensated for at a mitigation bank.

Wisconsin State Historical Society

Three follow-up meetings were held with the SHS on April 14 and May 4, 2000, and on May 1, 2001, to define the area of potential effect. Subsequent historic and archeological surveys discussed in Sections 3.13 and 3.14 are based on the agreed upon limits. Additional meetings are expected as Section 106 consultation proceeds.

National Park Service

A meeting was held with the NPS, WDNR, and local officials in the Village of Hartland on August 10, 2000, to discuss a future grade separation to continue the Ice Age Trail south of the railroad tracks. While the project would not adversely affect the trail, it was agreed that a grade separation could possibly be accommodated. The CP Railway, in follow up correspondence supports a grade separation for the trail (See Appendix A-19).

5.2.3 Other Agencies Contacted

Table 5-5 provides a list of other agencies contacted for this project. Formal responses received are included in Appendix A.

Table 5-5
OTHER AGENCIES CONTACTED

Agency Contacted	Formal Response Received
U.S. Fish and Wildlife Service	December 16, 2000
National Park Service	June 15, 2000
U.S. Coast Guard	No response received.
Fisheries Biologist/WDNR	July 24, 2000
Area Wildlife Managers/WDNR	No response received.
Bureau of Endangered Resources/WDNR	January 21, 2000
Wisconsin Department of Agriculture, Trade, and Consumer Protection	September 18, 2000
Milwaukee Metropolitan Sewerage District	No response received.
Waukesha County Drainage Board Chairperson	No response received.
Jefferson County Drainage Board Chairperson	No response received.
Dane County Drainage Board Chairperson	June 12, 2000
Dodge County Drainage Board Chairperson	No response received.

6.0 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Short-term construction impacts on nearby residents and businesses can include localized impacts to noise levels, air quality, water quality and freight and vehicular traffic. These impacts are expected to be avoided and minimized using best management practices that are specified in construction documents. Construction impacts of providing passenger rail service are also minimized by the implementation of the project on existing railroad right-of-way. Short-term benefits may include increased economic activity during construction in communities where local goods and services are purchased.

Short-term negative impacts are expected to be offset by the long-term benefits of meeting planning objectives of restoring passenger rail service in the Midwest and providing an alternative transportation mode to vehicular and air modes. The project is consistent with the Wisconsin Department of Transportation's Translinks 21 transportation plans, and the high-speed rail initiatives identified in the federal ISTEA and TEA-21 legislation. Both Translinks 21 and federal legislation (ISTEA and TEA-21) embody the long-term goal of maintaining national, regional, state, and local productivity by providing efficient, safe, and reliable transportation infrastructure.

Overall, the project would enhance the long-term productivity of the transportation system between Milwaukee and Madison, and connecting service to Chicago. The project provides an alternative transportation option for regional travelers that minimizes environmental impacts.

7.0 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION IF IMPLEMENTED

The proposed construction would commit a range of natural, physical, and funding resources. The commitment of these resources is based on the concept that local, regional, and state communities would benefit by the improved and competitive transportation choices and a reliable transportation system.

8.0 LIST OF PREPARERS

Name	Qualifications	Responsibility
Federal Railroad Administration		
David Valenstein	MPA Public Administration BFA, BA Architecture	Environmental Program Manager
Amtrak		
Robert Kollmar	BS Civil Engineering 25 Years of Railroad Operations, Engineering and Planning	Project Manager; Senior Director of Operations & Construction for Midwest Regional Rail System
WisDOT		
LeAnna Wall, P.E.	BS Civil and Environmental Engineering 10 years of experience	Project Manager
Ron Adams, P.E.	BS Civil Engineering MBA Business Administration 24 years of experience with state rail issues	Director, Bureau of Railroads and Harbors
Randy Wade	BA Economics, MS Water Resources Management – Urban Planning Specialty 20 years, environmental, economic development and transportation planning experience.	Passenger Rail Implementation Manager
Jim Merriman, RLA	BS Landscape Architecture, Environmental Analysis and Review Specialist 24 years experience in design, construction, and environmental analysis	EA review for environmental and design aspects
Al Stanek	BS Communications 21 years of experience in public transportation administration	Project review, public outreach
Michael Hall, E.I.T.	BS Civil Engineering 4 years of experience	Project Engineer

Name	Qualifications	Responsibility
HNTB Corporation		
James A. Beckwith, PE	BS Civil Engineering BS City Planning 35 years of experience in Transportation Planning	Project Manager
Charles Quandel, PE	MSCE, Civil Engineering, Professional Engineer 25 years experience, 15 years on rail projects	Deputy Project Manager and Chief Engineer
Jennifer J. Donze, PE	BS Civil Engineering 15 years of experience	Grade crossing analysis and bridge engineering
Terry A. Horst, PE	BS Civil Engineer, Transportation 28 years experience	Grade crossing analysis and recommendation process
Richard G. Cannon, PE	BS Civil Engineering 17 years related experience	Traffic analysis
Patrick J. Cashin, PE	BS Civil Engineering 16 years experience in bridge design and other civil structures.	Bridge Engineering
Joel C. Marshall, PE	BS Civil Engineering 12 years experience general civil and water resource engineering	Bridge Hydraulics
Caron S. Kloser	MS Horticulture, BS Agronomy 18 years experience in preparing environmental documents	Primary EA editor and author
John R. Jaeckel, PE	BS Applied Science and Engineering 28 years experience in preparing environmental documents	Air, Noise, Vibration Analysis
Charles W. Causier, AICP	MUP Urban Planning; MA History; BA History, Political Science, International Relations 22 years experience in preparing environmental documents	Public Involvement and Station Analysis
Jason W. Fruth	MS Urban Planning BS Geography	Land Use Planning
Constance M. White	BS Natural Resource Management	Land Use Planning

Name	Qualifications	Responsibility
Linda K. Stanek	BS Geology/State Certified Hydrogeologist 7 years experience	Hazardous Materials Investigations
Parsons Brinckerhoff		
W. Robert Moore, EIT	BS Civil Engineering MBA 27 years total experience, 17 years in transportation project management and design	Railroad Engineering Manager
W. Greg Toth, PE	BS Engineering 27 years experience in highway and railroad design, specializing in alignment and trackwork	Alignment Engineering
Aaron Chanowitz, PE	BS Civil Engineering 15 years experience in hydraulic and hydrologic engineering for transportation projects	Drainage and Hydraulic Engineering
Barry W. Lemke	Advanced Electronics U.S. Navy, Signal Electronics San Francisco Muni 19 years experience in railroad and rail transit signal design and construction	Signal Engineering
Norris and Associates, Inc.		
Rick Norris, PE	BS Civil Engineering 20 years experience in design and management of civil engineering projects	Station site layout, real estate
Tatyana Lazevnik	BS Civil/Structural Engineering 15 years experience in design and construction management.	Station site layout, real estate
Edwards and Associates, Inc.		
Bruce A. Spann, PE	BS Civil Engineering 20-years experience, 7 in transportation	Project Planning Culvert Inspections
Eyad S. Ghani, PE	BS Civil Engineering 13-years experience in bridge design and construction	Project Planning Bridge Inspections Culvert Inspections

Name	Qualifications	Responsibility
URS		
Elizabeth Day, PWS, PH	MS Water Resources BS Environmental Science	Project Mgr. for Wetlands and Natural Resources
James Ihrig, PWS	MS Fisheries BS Biology	Wetlands and Natural Resources
William Poole	BS Wildlife Management, Biology	Wildlife, Threatened and Endangered Species
Heritage Research, Ltd.		
John N. Vogel	Ph.D. American History	Project Manager for Historical Resource Survey & Evaluations
Brian J. Faltinson	MA American History	Historical Resource Survey & Evaluations
Center for Archaeological Research at Marquette University		
David F. Overstreet	PhD Anthropology MS Anthropology BS Anthropology	Principal Investigator
Jennifer R. Harvey	MA Anthropology BA Anthropology BA History	Co-Principal Investigator; Project Manager, Editor and Lead Author for Archaeological Report
Robert J. Watson	MS Anthropology BS Anthropology, History	Historical Research, Author for Archaeological Report
Georgia A. Lusk	BA Anthropology	Archival Research for Archaeological Study
Paige A. Schmidt	BA Anthropology	Field Supervisor; Conducted field work along RR
Maria Lyle	BA Anthropology	Field Technician; conducted field work along RR

APPENDIX A

AGENCY COORDINATION AND CORRESPONDENCE AND RESPONSES, AND LIST OF AGENCIES, GROUPS AND INDIVIDUALS CONTACTED FOR PROJECT

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
ARMY CORPS OF ENGINEERS CENTRE
190 FIFTH STREET EAST
ST. PAUL, MN 55101-1638

REPLY TO
ATTENTION OF

June 9, 2000

Construction-Operations
Regulatory (99-06281-JBK)

RECEIVED
JUN 14 2000
U.S. ARMY CORPS OF ENGINEERS
ST. PAUL DISTRICT
WAUKESHA FIELD OFFICE

Mr. Arrigo P. Mongini
U.S. Department of Transportation
Federal Railroad Administration
400 Seventh St. S.W.
Washington D.C. 20590

Dear Mr. Mongini:

The letter is in regard to a request by the Federal Railroad Administration for the St. Paul District, Corps of Engineers, to participate as a cooperating agency for the purpose of development of an Environmental Assessment (EA), and the public involvement process, as part of the high-speed passenger rail corridor development project between Milwaukee and Madison, Wisconsin.

99-06281

We concur with your request, and look foward to working with you, your staff, and consultants in this endeaver. If you have any questions, contact James B. Knowles in our Waukesha office at (262) 547-3064. In any correspondence or inquiries, please refer to the Regulatory number shown above.

Sincerely,

for Ralph J. Augustin

Char M. Hauger
Chief, Regulatory Branch

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Green Bay ES Field Office
1015 Challenger Court
Green Bay, Wisconsin 54311-8331
Telephone 920/465-7440
FAX 920/465-7410

December 16, 1999

Mr. James W. Ihrig
Senior Scientist
URS Greiner Woodward Clyde
5250 East Terrace Drive, Suite J
Madison, Wisconsin 53718

re: WDOT# 0410-40-40 and 0499-10-39
URGSCWC# 3309E09013.00 Task 1
Midwest Regional Rail Initiative
Milwaukee to Madison
Dane, Jefferson, Milwaukee and Waukesha Counties

Dear Mr. Ihrig:

The U.S. Fish and Wildlife Service has received your letter dated November 23, 1999, requesting comments on the subject project. Due to staff time constraints and priority work activities, we are able to only review your project for potential impacts to federally-listed threatened and endangered species or those proposed for listing. Be advised that other environmental concerns may be associated with this project such as wetland and stream impacts, erosion control needs, and effects on state-listed threatened or endangered species. State or federal permits may be needed, as well, if stream or wetland impacts will occur. If resource impacts are expected to occur, we recommend that you forward this project to the appropriate Wisconsin Department of Natural Resources office for their review.

Please provide us copies of any future review documents that may be associated with this project or of future projects you may be planning that would require Service review. This will allow us to keep our files current. We will provide comments as time and work priorities allow.

<u>Federally-Listed and Proposed Threatened and Endangered Species</u>

A review of information in our files indicates that the following federally-listed and proposed threatened or endangered species occur in Dane, Jefferson, Milwaukee and Waukesha Counties:

<u>Dane County</u>

Classification	Common Name	Scientific Name	Habitat
threatened	bald eagle	*Haliaeetus leucocephalus*	wintering
threatened	prairie bush-clover	*Lespedeza leptostachya*	dry to mesic prairies with gravelly soil
threatened	eastern prairie fringed orchid	*Platanthera leucophaea*	wet grasslands

endangered	Higgins' eye pearly mussel	Lampsilis higginsi	lower Wisconsin River

Jefferson County

Classification	Common Name	Scientific Name	Habitat
threatened	eastern prairie fringed orchid	Platanthera leucophaea	wet grasslands

Milwaukee County

None

Waukesha County

Classification	Common Name	Scientific Name	Habitat
threatened	eastern prairie fringed orchid	Platanthera leucophaea	wet grasslands

Due to the nature and location of the proposed activities, we conclude that the above listed species will not be affected. This precludes the need for further action on this project as required by the 1973 Endangered Species Act, as amended. Should the project be modified or new information become available that indicates listed or proposed species may be affected, consultation should be initiated.

We appreciate the opportunity to respond. Questions pertaining to these comments can be directed to Mr. Ronald Spry by calling 920-465-7440.

Sincerely,

Janet M. Smith

Janet M. Smith
Field Supervisor

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN DEPT. OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary
Ruthe E. Badger, Regional Director

South Central Region Headquarters
3911 Fish Hatchery Road
Fitchburg, Wisconsin 53711-5397
Telephone 608-275-3266
FAX 608-275-3338
TDD 608-275-3231

October 19, 2000

Caron Kloser
HNTB
One Park Plaza, Suite 500
11270 W. Park Place
Milwaukee, WI 53224

SUBJECT: Environmental Assessment for Proposed High Speed Rail: Milwaukee to Madison

Dear Ms. Closer:

Thank you for your summary of our Sept. 15, 2000 meeting and the preliminary plans and resource evaluation materials you have provided to our staff. As this project enters the Environmental Assessment phase of planning, we are submitting in this letter a list of those issues that we recommend the EA should address. As the project progresses, other issues may arise; we will continue to coordinate with you and communicate any additional concerns throughout the planning process.

Based on our discussions, we understand this project would occur along the existing railroad bed (Chicago, Milwaukee, St. Paul and Pacific), which would be reconstructed with bridge replacements from Madison to Watertown. From Watertown to Milwaukee, the existing bed would be upgraded, and at least five bridges would be rehabilitated.

1) **Erosion Control and Stormwater Runoff:** The EA should address how impacts from erosion and sedimentation both during and following construction will be avoided or minimized.

2) **Wetland Impacts:** A number of wetlands will be impacted by this project, both directly by construction, and with possible indirect effects from sedimentation, invasive species, hydrology alterations, etc. All acres of wetland that will be impacted should be mitigated. Some wetlands will be more sensitive than others, such as Martin's Low Prairie, and require more stringent measures to avoid impacts. It may be possible to mitigate at a bank site to be selected for the proposed STH 26 bypass project in Jefferson and Rock counties. The mitigation ratio for this project should be 1.5:1.

3) **Waterways and Waterway Crossings:** At least three rivers crossed by the project support a number of sensitive aquatic species: these are the Rock, Bark, and Oconomowoc rivers. Some habitat and/or species surveys may be necessary to determine likelihood of impacts, and if sensitive species are present, construction timing and methods may need to be modified. In addition, the EA should address what contingency plans will be in place in the event of derailment, spills, or leaks or other possible polluting events.

4) **Air Quality:** The EA should address air quality impacts and requirements both within the state's southeastern Nonattainment Areas in Milwaukee and Waukesha counties and outside of these zones.

5) **Barrier Concerns:** The EA should investigate possible impacts of a fenced corridor to wildlife movement, including endangered and threatened animals in the vicinity such as herptiles. In addition, it should address possible fragmentation of habitats, such as large connected wetland complexes.

6) **Wildlife Areas and Public Use Impacts:** What are potential visual, noise, and aesthetic impacts to users of public properties that this rail either passes through or near, such as Waterloo Wildlife Area, Deansville Wildlife Area, and Cherokee Marsh Wildlife Area? We will involve our appropriate property managers in this evaluation.

7) **Invasive Species:** Since zebra mussels are becoming more prolific in Wisconsin and have a negative affect to waters of the state, the DOT and contractors at construction sites which involve navigable water or wetlands must follow cleaning procedures to minimize the chance of zebra mussel infestation. The Department can provide contractors and project managers with cleaning procedures to be followed for equipment that comes in contact with infested waters in Wisconsin or other states; cleaning of equipment is not required if that equipment was not exposed to infested waters. The list of infested Wisconsin waters (which is updated periodically by the DNR) is as follows: Lake Michigan, Lake Superior, the Mississippi River, Big Elkhart Lake (Sheboygan County), Okauchee Lake (Waukesha County), Silver Lake (Kenosha County), Racine Quarry (Racine County), the Fox River below the DePere Dam, and the Milwaukee River. We have requested an updated list of infested waters, which we will provide to you as soon as we receive it.

Protective measures for other exotics such as purple loosestrife in wetlands and Eurasian water milfoil, should also be used on equipment that has been in infected waters. Areas of disturbed soil should be monitored for invasives after construction so they can be removed before heavy infestation occurs.

7) **Coastal Zone Management Requirements:** The EA should address whether coastal zone requirements pertain to this project or not, and if so, how the water/wetland quality impacts will be addressed.

8) **Endangered Resources:** The Bureau of Endangered Resources has provided a summary of potential endangered resources impacts in its letter of Jan. 21, 2000 to Mr. James Ihrig of URS Greiner Woodward Clyde. If the project may affect either the natural communities described, or habitats for the rare species, then further investigation, including surveys or measures to avoid these habitats, would be required. Our main concerns include: sensitive wetland communities crossed by the rail line such as Martin's Low Prairie, potential impacts to herptiles such as the Blanding's turtle and Butler's garter snake (which will vary depending on time of year), and potential impacts to rare fish and mussels at stream and river crossings. In addition, areas of remnant prairie, some supporting rare plants, occur along the railroad right-of-way in the vicinity of Hartland. The EA should address how impacts to this plant community will be avoided.

Thank you for your consideration of these issues as you prepare the environmental assessment. We look forward to the opportunity to review the document, and are happy to provide any necessary input as you prepare it.

Sincerely,

Cathy Bleser
Environmental Analysis Specialist
DNT, South Central Region

C: Russ Anderson – SCR
Jim Merriman – DOT Dist. 1, 3101 Wright St. Madison, WI
Maureen Rowe – SCR
Charlie Kilian – SCR, Lake Mills
Doug Fendry – SCR, Janesville
Andy Nelson – SCR, Horicon
Tim Galvin – SCR, Horicon
Ken Johnson – SCR
Jim Leverance – SCR, Janesville
Tom Roushar – SCR, Fitchburg

WISCONSIN DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary
Gloria L. McCutcheon, Regional Director

Southeast Region
Kettle Moraine State Forest-Southern Unit
S91 W39091 Highway 59
Eagle, Wisconsin 53119
Telephone 262-594-6200
FAX 262-594-6222

July 24, 2000

James W. Ihrig
URS Corporation
5250 East Terrace Drive, Suite J
Madison, WI 53718

Subject: Milwaukee-Madison High Speed Passenger Rail Corridor Study

Dear Mr. Ihrig:

Thank you for giving me the opportunity to comment on the proposed project impacts to fisheries resources. There are several lakes with high-quality fisheries resources along your proposed route. However, since the project will follow, and for the most part be limited to, existing railroad beds and rights-of-way, I feel the impacts will be minimal.

There are a few concerns I have regarding construction and operation at some of the more sensitive sites. The first is Pewaukee Lake. The existing rail line runs along the marsh on the north side of Pewaukee Lake. This is one of only 2 existing marshes on the lake, and is essential for fish, aquatic invertebrates, and wildlife habitat and production. I would ask that great care be given to preventing any siltation during construction, as well as preventing any fuel from getting into the marsh or water. This would not be a good site to consider for a new siding.

Another area of concern is the wetlands adjacent to the Fox River, north of the City of Waukesha. As with Pewaukee Lake, these wetlands are essential to the health of the river system, and siltation and contamination with fuel or other chemicals should be avoided.

Finally, there are a number of stream crossings along the route. As above, I would request that care be given to avoid siltation during construction, and that these areas not be considered for locating sidings. Having trains parked over a stream or wetland increases the chance of leakage or spillage of fuel.

If you have any questions, or need a more detailed analysis of impacts, please call me at (262) 594-6206. Southeast Wisconsin needs alternatives to highway travel. I look forward to working with you on this very interesting project.

Sincerely,

cc: C QUANDEL, CHQ ASSOC.
R MOORE, PB
Jim Herriman, WisDOT

Susan M. Beyler

Susan M. Beyler
Senior Fisheries Biologist
Illinois-Fox Waterbasin Team

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary

Box 7921
101 South Webster Street
Madison, Wisconsin 53707-7921
TELEPHONE 608-266-2621
FAX 608-267-3579
TDD 608-267-6897

January 21, 2000

IN REPLY REFER TO: 1650

Mr. James W. Ihrig
URS Greiner Woodward Clyde
5250 East Terrace Dr., Suite J
Madison, WI 53718

SUBJECT: Endangered Resources Information Review (Log Number 99-222)

Dear Mr. Ihrig:

The Bureau of Endangered Resources has reviewed the project area described in your letter for the proposed high-speed passenger rail service upgrade to the existing rail corridor between Milwaukee and Madison, which is part of the Midwest Regional Rail Initiative.

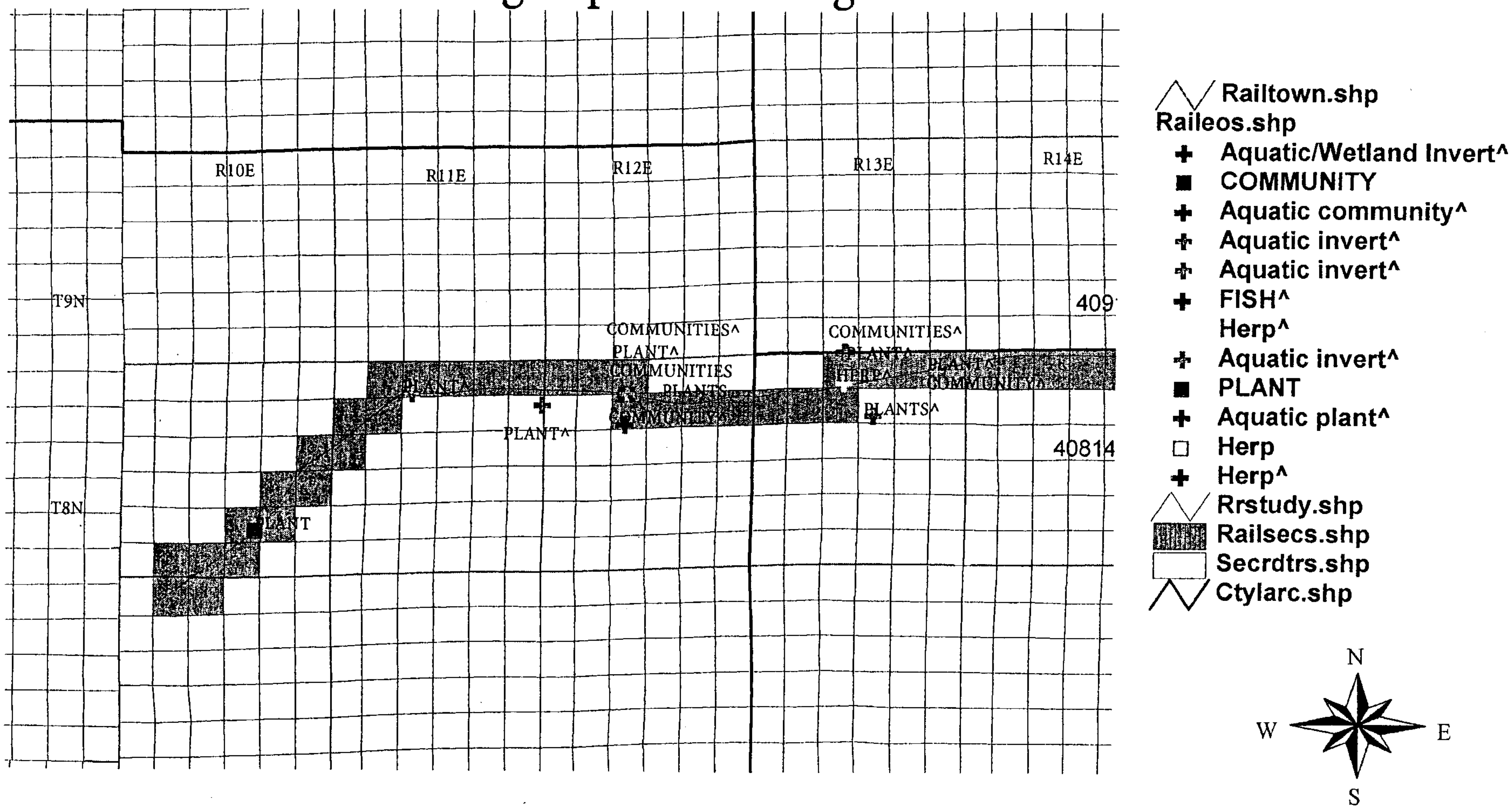
Our Natural Heritage Inventory data files contain information on the following rare species and natural communities for the project corridor located along the Chicago Milwaukee St. Paul rail lines in Dane, Jefferson, Waukesha, and Milwaukee counties, with some alternate routes that do not follow the existing corridor. These records are primarily wetland and prairie communities and rare plants as well as aquatic species associated with river crossings or wetlands adjacent to the railroad corridor. I am providing endangered resource information for an area within five miles of stream crossings for aquatic species, if existing crossings are to be improved or new bridges built, these species should be taken into consideration.

An ArcView map of the corridor was created to facilitate your review. The information presented on the map was generalized so that it could be reproduced in a publicly distributed document. However the following information is sensitive information that is provided to you for the analysis and review of this project and <u>specific locations of endangered resources should **not** be released or reproduced in any publicly disseminated documents.</u> If you need to include the following information in an environmental impact statement or other public document please contact me and I will generalize the locational data to protect these rare and sensitive species.

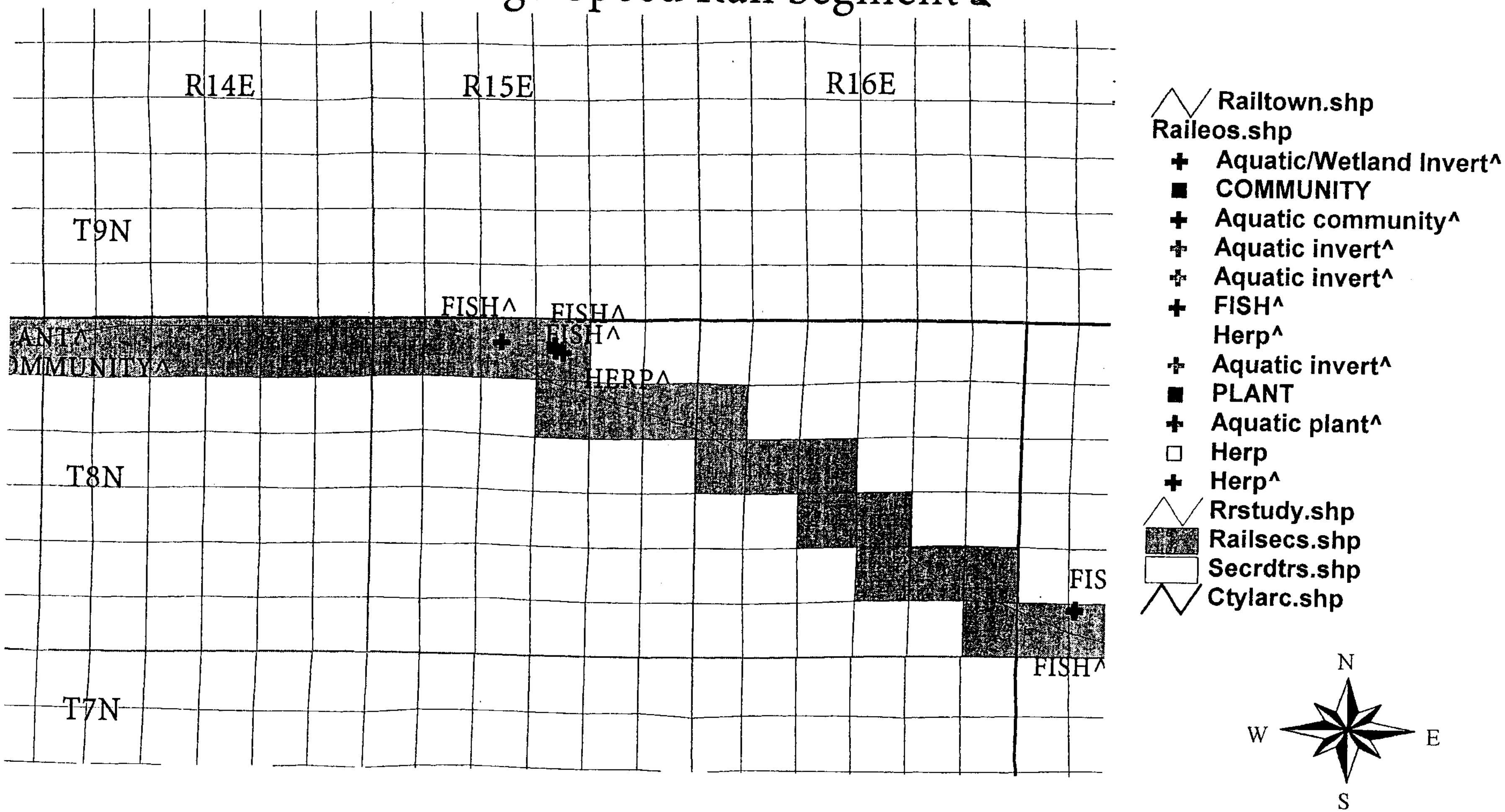
The following information is provided to you to assist in determining which rare species may occur in the project impact area if appropriate habitat exists. If a described habitat type occurs in the project corridor, then species that occur nearby may be present in the project impact area. Species information provided includes the location, date of the most recent observation, and other information useful in planning protection measures. Special Concern species are species about which some problem of abundance or distribution is suspected but not yet proved. The main purpose of this category is to focus attention on certain species <u>before</u> they become endangered or threatened. Information on aquatic species has been summarized by stream crossing. A general description is provided for natural areas and communities. The information is arranged in the same format as your letter, by county then township/range, if a township/range is not listed it means we have no records for that area.

A-9

High Speed Rail Segment 1

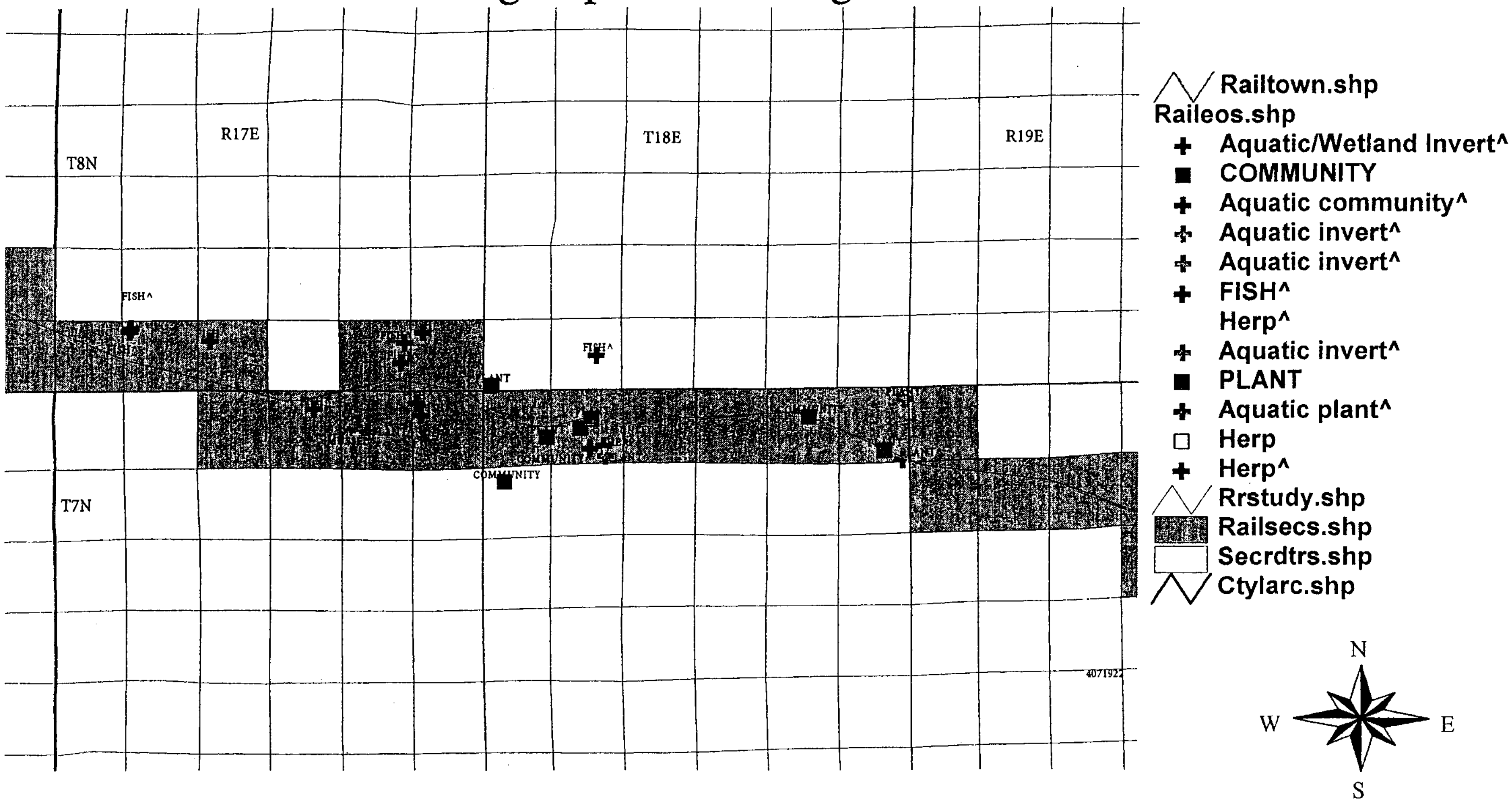


High Speed Rail Segment 2



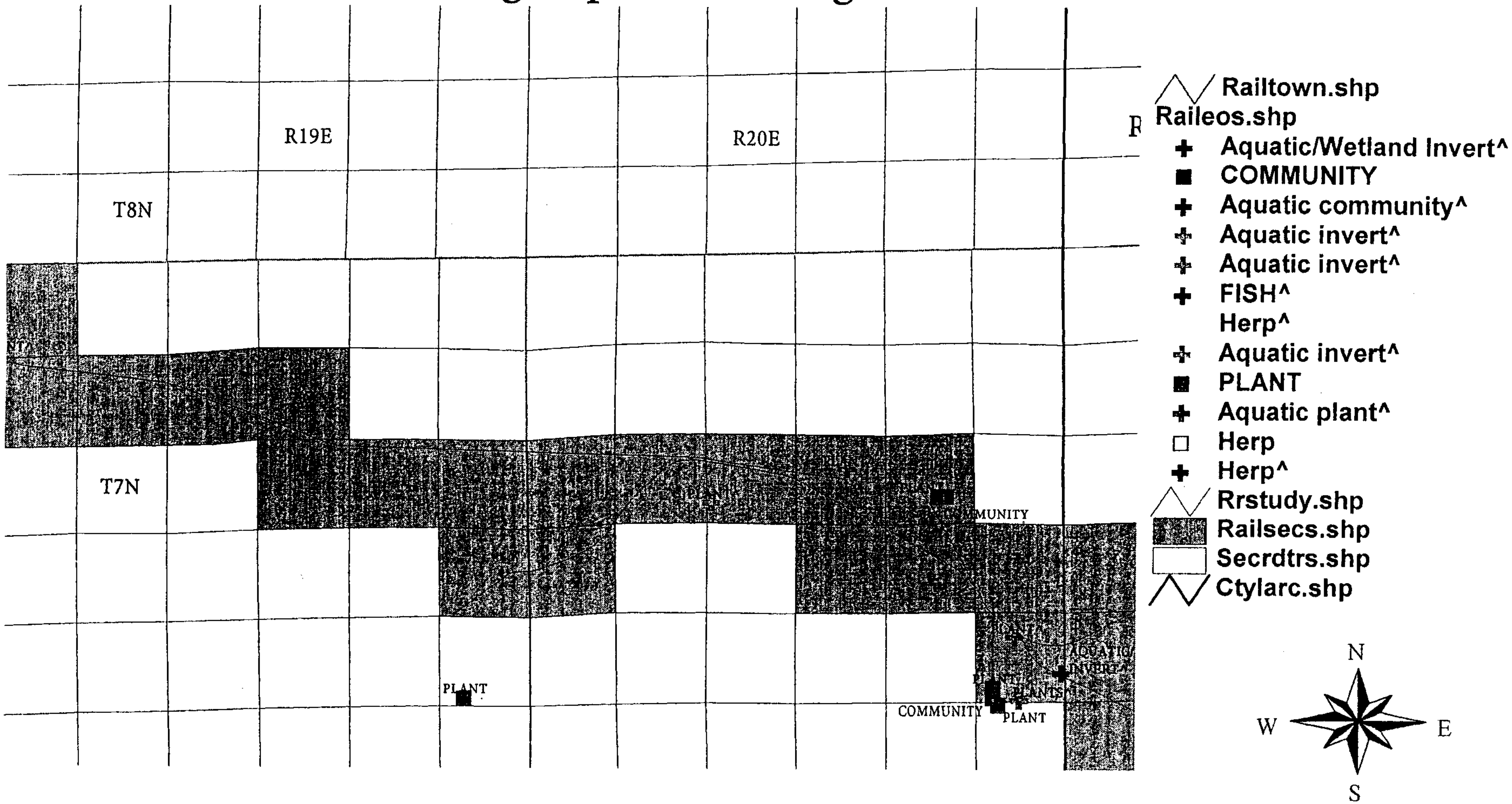
A-10

High Speed Rail Segment 3



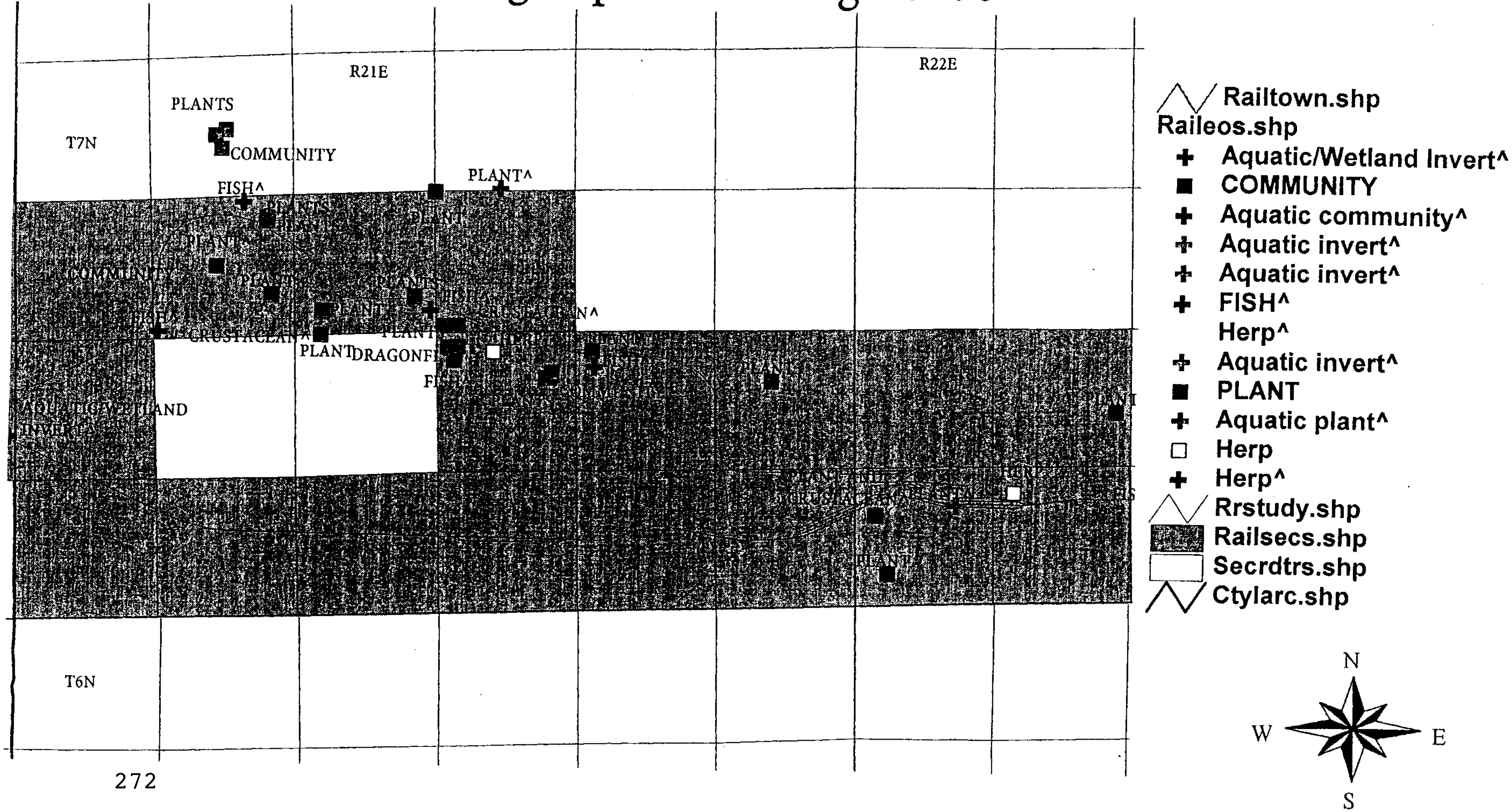
A-11

High Speed Rail Segment 4

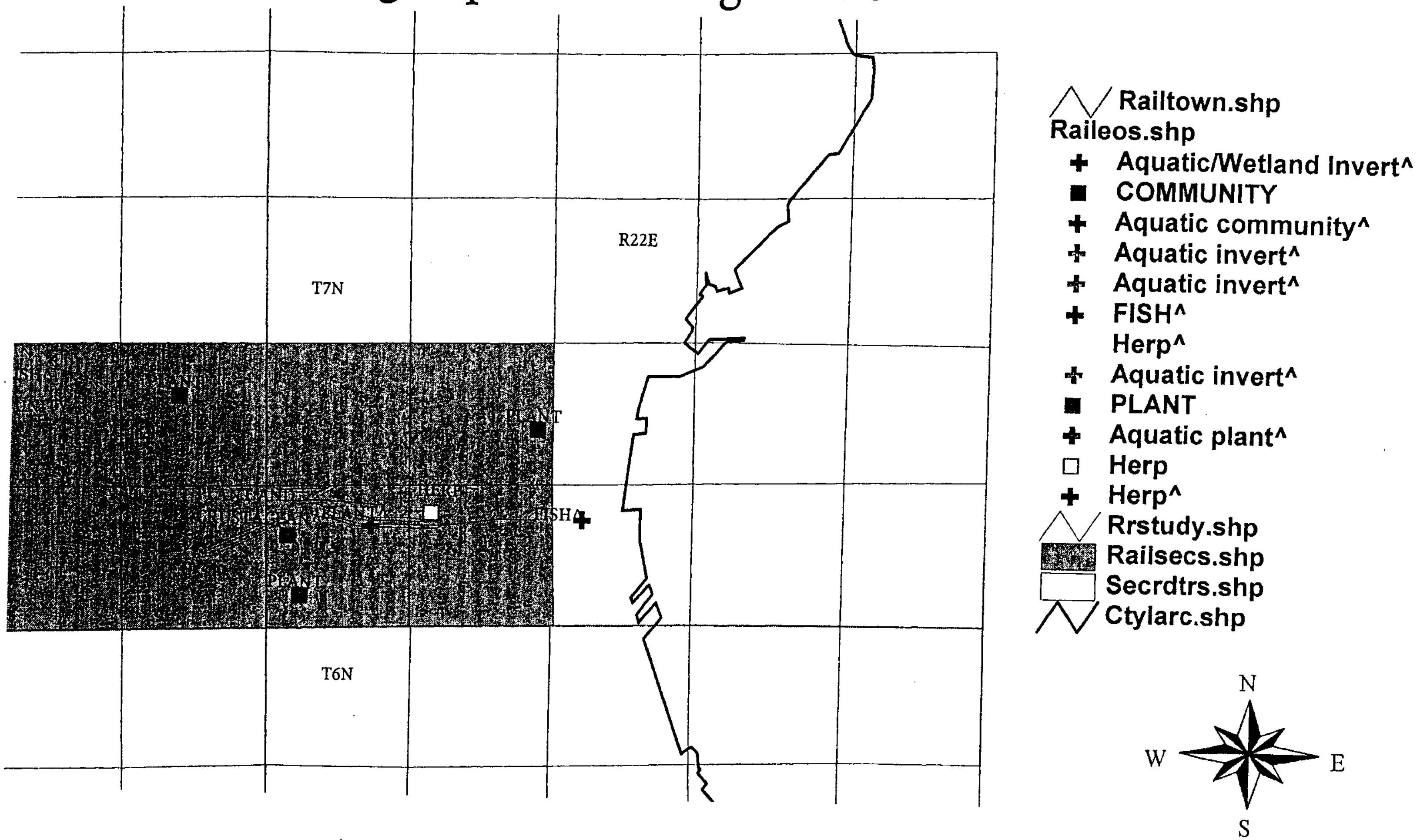


A-12

High Speed Rail Segment 5



High Speed Rail Segment 6



A-14

State of Wisconsin
Tommy G. Thompson, Governor

Department of Agriculture, Trade and Consumer Protection
Ben Brancel, Secretary

September 18, 2000

Ms. Caron S. Kloser, Senior Planner
HNTB
One Park Place, Suite 500
Milwaukee, WI 53224

Re: WisDOT I.D. 0410-40-40/0499-10-39
High Speed Passenger Rail
Milwaukee to Madison
Milwaukee, Waukesha, Jefferson, and Dane Counties

Dear Ms. Kloser:

Thank you for the information that you provided on the proposed High-Speed Rail project that would connect Milwaukee and Madison. According to your letter, WisDOT does not intend to close any existing agricultural railway crossings unless the affected farmland owner agrees to relocate the crossing. You further indicated that WisDOT does not anticipate the purchase or condemnation of any farmland for this project. If this is the case, then DATCP would not prepare an agricultural impact statement (AIS) for the project. However, if the CP Rail proposes to acquire farmland for the project, they would need to contact DATCP for a determination as to the need for an AIS.

If you have any questions regarding this matter, please contact me at 608.224.4650.

Sincerely,

Peter Nauth

Peter Nauth
Agricultural Impact Program

2811 Agriculture Drive, Madison, WI 53718-6777 • PO Box 8911, Madison, WI 53708-8911 • 608-224-5012 • Fax: 608-224-5045

United States Department of the Interior

NATIONAL PARK SERVICE
Ice Age, North Country, and
Lewis and Clark National Trails
700 Rayovac Drive, Suite 100
Madison, Wisconsin 53711

IN REPLY REFER TO:

L6017(IATR)
Waukesha County
Milwaukee-Madison Passenger Rail

JUN 15 2000

Ms. Caron Kloser
Senior Planner, HNTB
One Park Plaza, Suite 500
11270 West Park Place
Milwaukee, Wisconsin 53224

Dear Caron:

This letter is in response to the proposed Milwaukee-Madison Passenger Rail and its crossing of the Ice Age National Scenic Trail (NST) in the Village of Hartland.

As you may know, the Ice Age Trail has been part of the Wisconsin landscape since the 1950's and was designated a National Scenic Trail in 1980. It was selected as a National Scenic Trail, one of only eight in the country, because of its nationally significant Pleistocene Era geologic features and outstanding recreation potential. When complete, the trail will generally follow the terminal moraine left by the last glacial advance for over 1,200 miles; today, approximately half of the trail is developed. The National Park Service (NPS) provides overall administration of the trail at the Federal level.

The trail through the eastern part of the state passes through the North and South Units of the Kettle Moraine State Forests and connects them by tracing the interlobate moraine and numerous streams left by the glacier. In northern Waukesha County the trail generally meanders along the Oconomowoc River south to the Bark River. It then follows the Bark River through the Village of Hartland. In the future the Ice Age NST will then turn southwest and connect up to existing trail in Nagawaukee County Park and the City of Delafield. When locating the trail, the administering authorities frequently route the trail through picturesque small towns for long distance hikers to learn about local history, and to obtain sleeping accommodations and food. The local community benefits by having additional greenspace for recreation and education, increased tourism, and access to other regional parks.

The Village of Hartland has embraced the Ice Age NST and has actively pursued its development. In 1988, their 2.3-mile segment was certified as the official route for the trail. Also, their Park and Open Space Plan cites the completion of the trail as an important goal.

The Ice Age NST through the Village of Hartland begins at County Trunk K where it follows the Bark River south until it bumps into the rail corridor at the south end of Nixon Park (see map, large black arrow). The trail must then wind out to Maple Avenue to get around the railroad grade, where it currently ends. Since the Ice Age NST was certified, a lot of development has occurred in this area. On the south side of the railroad grade, opposite Nixon Park and the Ice Age NST, a sizable subdivision has been built. On the western edge of the subdivision, the Village of Hartland has constructed a trail adjacent to the Bark River (see map "Other Trails"). South of the subdivision is a large tract of land which is owned by the Ice Age Park and Trail Foundation (IAPTF) (see map).

In April, NPS Superintendent Tom Gilbert and I visited the Nixon Park and Maple Avenue area to evaluate the site. It seemed obvious to us that the ideal route for the Ice Age NST would be to continue the trail under the railroad grade and to directly connect it with the subdivision trail. From a hiker's perspective, this would continue the very pleasant walk through Hartland, Nixon Park, and eventually the IAPTF property. From a local resident's perspective, it would allay safety concerns for their children going back and forth to the park. (The day we visited there were a number of children who had ridden their bikes to the park and were having a great time catching carp in the river.) Since it is our understanding that the train through Hartland will be traveling at speeds of 90-110 mph, it is clearly more desirable to pass under the railroad then to cross it at grade on Maple Avenue.

The existing structure that allows the river to pass under the railroad tracks is lovely, but old. It might be difficult to modify it to accommodate a walkway. The Wisconsin Department of Natural Resources may also have issues with inserting structures into the waterway. Another alternative would be to place a second tunnel or large culvert near the existing structure to specifically accommodate pedestrians and bicyclists.

I recently spoke with the Village of Hartland's Administrator, Wallie Thiel, and Public Works Director, Jim Wilson, about this matter. They are also interested in finding a better way to connect the park and subdivision trails for the same reasons I have outlined above.

We would like to further explore the possibility of creating this logical and safe connection in the village's trail and greenspace system as part of the high-speed passenger rail project. We would like to propose a meeting in Hartland involving you, the Wisconsin Department of Transportation project managers, Village of Hartland officials, Ice Age Park and Trail Foundation representatives, Wisconsin Department of Natural Resources representatives, and ourselves. Please let us know if such a meeting would be agreeable. If so, we will follow up to identify a mutually agreeable date.

We look forward to hearing from you.

Sincerely,

Pamela Schuler
Manager, Ice Age NST

cc:
Tom Gilbert
Superintendent, Ice Age NST

Mike Madell
MWRO Environmental Compliance Specialist, NPS

Mike Rewey, District Chief Planning Engineer, Transportation District 1, 2101 Wright Street, Madison, Wisconsin 43704-2583

Wallie Thiel, Administrator, Village of Hartland, P.O. Box 260, 210 Cottonwood Avenue, Hartland, Wisconsin 53729

Jim Wilson, Public Works Director, Village of Hartland, P.O. Box 260, 210 Cottonwood Avenue, Hartland, Wisconsin 53729.

Melissa Cook, Henry Aaron State Park Trail Manager, 2300 N. Dr. Martin Luther King Jr. Dr., P.O. Box 12436, Milwaukee, Wisconsin 53212

Danielle Valvassori, WDNR State Trails Coordinator, 101 S. Webster, P.O. Box 7921, Madison, Wisconsin 53707

Christine Thisted, Executive Director, IAPTF, 207 E. Buffalo St., Suite 515 Milwaukee, Wisconsin 53202

Ed Muzik, Regional Trails Coordinator, IAPTF, 141 North Main St., Suite 209 West Bend, Wisconsin 53095

Andrew Hanson, Geographer and GIS Coordinator, IAPTF, LF/4 P.O. Box 7921 Madison, Wisconsin 53707-7921

Caron Kloser

Subject: FW: Ice Age Trail Follow up

-----Original Message-----
From: Gary_Mentjes@cpr.ca [mailto:Gary_Mentjes@cpr.ca]
Sent: Tuesday, September 26, 2000 8:33 AM
To: cquandel@cquandel.com
Cc: John_Nail@cpr.ca; CKloser@hntb.com; bkollmar@amtrak.com; JBurbach@hntb.com; JBeckwith@hntb.com; LeAnna.Wall@dot.state.wi.us
Subject: RE: Ice Age Trail Follow up

Charlie,
As Manager of Technical Services for Canadian Pacific Railway, I strongly support the concept of providing for grade-separated crossings of recreational trails. Permits/documents covering construction of such facilities are handled by CPR's Real Estate Department. A copy of this memo is furnished to John Nail with request that he start a file on this proposal. John can be contacted at 612/347-8254.

Action on High Speed Rail station location/crossing closings @ Common Council meeting of August 15, 2000.

Moved by Ald. Snyder, seconded by Ald. Nold that we close Cross Street and use the Depot for the train stop, but if the high speed rail is ever terminated that Cross Street be re-opened.

Motion carried - Voting aye: Cochrane, Hollatz, Jones, Snyder and Nold
Voting nay: Larsen, Erdmann and Gross

Moved by Ald. Jones, seconded by Ald. Cochrane to demand mitigation of the closing of Cross Street and that a currently closed street be re-opened as part of the mitigation.

Motion carried - Voting aye: Larsen, Erdmann, Cochrane, Hollatz, Jones, Snyder and Nold
Voting nay: Gross

Moved by Ald. Snyder, seconded by Ald. Cochrane that the crossings at Lapham Street and Worthington Street not be considered for closing.

Motion carried unanimously.

CITY OF BROOKFIELD

DEPARTMENT OF COMMUNITY DEVELOPMENT

Daniel F. Ertl, A.I.C.P., Director
2000 North Calhoun Road
Brookfield, Wisconsin 53005-5095
262-796-6695 FAX 262-796-6702

November 7, 2000

HNTB-Milwaukee
Attn: Caren Kloser
11270 West Park Place, Suite 500
Milwaukee, Wisconsin 53224

FAX: 414-359-2314

RE: High-Speed Rail Depot Location

This letter is in response to Carrie Johnson's conversation with you regarding a high-speed rail depot location in the City of Brookfield.

The Department of Community Development supports a stop at North Brookfield Road, at the southern end of the "Village" area, under the following conditions:

- The existing railroad depot – built in 1867 – remains between the railroad tracks;
- The parking requirements for the high-speed rail depot do not interfere with the historic neighborhood character of – or adversely affect the businesses within – the Village area.

As of the writing of this letter, the Department has not presented the aforementioned conditions to any legislative body. If the Department's conditions cannot be met, please contact us as soon as possible. The City of Brookfield could support a depot location at North Calhoun Road, under the right conditions.

If you have any questions, please contact me at 262-782-9650.

Sincerely,
CITY OF BROOKFIELD

Daniel F. Ertl

Daniel F. Ertl, AICP
Director
Department of Community Development

State Historical Society of Wisconsin
1846
816 State Street ♦ Madison, Wisconsin 53706-1482 ♦ 608/264-6400 ♦ Fax: 264-6404

Division of Historic Preservation
608/264-6500

RECEIVED
FEB 19 20..
HNTB

Carol D. Cutshall
Wisconsin Department of Transportation
Bureau of Environment
4802 Sheboygan Avenue
Madison, WI 53707

February 16, 2001

IN REPLY, PLEASE REFER TO SHSW # 00-0010/VA

Re: Preliminary Study for High Speed Passenger Rail Service: Milwaukee to Madison

Dear Ms. Cutshall:

We have received and reviewed all materials pertinent to the above referenced project. Pursuant to section 106 of the National Historic Preservation Act and 36 CFR Part 800: Protection of Historic Properties, the regulations of the Advisory Council on Historic Preservation governing the Section 106 review process, I offer the following comments.

With respect to the archeological survey, we agree with the findings and conclusions. We do request that a snow fence be erected around sites Wk-509 and Wk-510, prior to placement of vehicles and/or other machinery into the area and certainly prior to commencement of ground disturbing activities at those locations, to protect these sites from damage during project construction.

Next, with respect to other historic properties, we are aware that the State and National Register eligible Brookfield Depot likely will be moved from its current, original location, and likely will be transferred from private to public ownership. Therefore, we request that a National Register nomination be prepared for this building, and be submitted for the formal listing process. Additionally, we request that a public display showing the original location of the depot be created and installed in or near to the depot itself to show the public the depot's original location on and orientation to the railroad.

We understand that the current, private owner of the Brookfield Depot may object to the Depot's listing, however, we may submit for review the nomination after the property has been transferred to public ownership—assuming such a transfer takes place.

With the above provisions having been satisfied, we believe that the proposed high speed rail project will result in a conditional no adverse affect finding.

With any questions about this matter, please contact me at (608) 264-6508. I look forward to hearing from you with the above requested information. Thank you very much for your continued attention to this matter.

Sincerely,

Chip Harry L. Brown III, J.D.
Compliance Coordinator

Cc: Caren Kloser, HNTB

Ms. Caron Kloser
Senior Planner
HNTB Corporation

RECEIVED BY
JUN 14 2000
HNTB

12 June 00

Dear Ms. Kloser.

I received the Milwaukee - Madison rail corridor study Saturday June 10. It is interesting to note the hearings were held Jan. 27 Feb 2nd 3 year 2000.

I am Eugene Skaar of Cottage Grove. Over the years I have been very much in support of passenger rail service, interurban mass transit, and freight as well as railway express services.

Your HNTB Corp did the original study for Highway 12-18 at CTH N in Cottage Grove. This is a super highway built to a future century. There was no concern of wet lands, as you inquire in your correspondence with Sd. If auto and truck roads the sky the limit — Gouge the earth, rape the land, but at all costs build that super highway.

Now a question about wet lands on the proposed rail line. There are drain districts North and East of Madison on line to Sun Prairie. There should be no reason to widen R/W in those areas of the drain districts. The line is in place. If there be an bridge repair we ask that the Dane Co Drain Board be notified. Too many times water drainage is not an important consideration while roads or bridges are constructed. Farming is a minority occupation and the preserving of their land for agriculture is a last thought. Notify the Drain Boards before the plans are finalized

The trucking industry has opposed rail improvements. They opposed the rebuilding of Lock and Dam 26 on the on the Mississippi River. The milk company supported this in the 1970s. The milk company wanted to ship milk south and west by railway refrigeration cars. The lines were so deteriated and no one was interested in the high speed rail at that time. Every small town seemed to have a little industry of private trucking companies. It was the Mayor of Deerfield who asked to discontinue the Chicago North Western line be vacated as trucks would serve Deerfield. Within a year two of their industries moved out.

By the way - That Northwestern line direct from Madison to Milwaukee with three stops took just 1 hour for passenger service, also mail drops. Then every hour on the hour from Milwaukee to the La Salle Street station in Chicago. Then 37 hours to Seattle, San Francisco or Los Angeles - Pick your train or city. Auto, bus, truck or plane can't match this service and never will considering stops and service.

Not in preparation for the high fuel cost to go for high speed rail. This may force people to rethink rail transportation. We have wasted so much time and unknown amounts of energy. We polute the air and think nothing of it. Time is way past we bring rails up to par and running strong.

Only I don't know how to put these trucks to rest. I do know - never hire a truck driver to do any menial work - I guess I have been around too long and remember too much.

Sincerely

Eugene Skaar Pres

Dane Co Drain Board.

APPENDIX B

SUMMARY OF RECOMMENDED GRADE CROSSING TREATMENTS

Milwaukee to Madison Passenger Rail Corridor Study

Milwaukee, Waukesha, Jefferson & Dane Counties
Project ID 0410-40-40 / 0499-10-39

Recommended Grade Crossing (GCX) Treatment - Sheet 1 of 3

GCX #	M.P.	Station	WisDOT Xing No.	Public	Private	Location (1)	Municipality (2)	Number of Trains per Average Weekday 1999	2003	2020	Prop. Freight Speed	Prop. Pass. Speed	Prop. FRA Class	Exist. No. of Tracks	Average Weekday Traffic 1999	2003	2020	1999 Vehicular Speed	Existing GCX Type (3)	No. Lanes Rural Urban	Bicycle or Sidewalk	Existing GCX Comments	2003 Exposure Rate ($x10^3$)	2003 GCX Type (4)	2020 Exposure Rate ($x10^3$)	2020 GCX Type (4)	Community Recommendation	Consultant Recommendation
						Watertown Subdivision																						
1	86.17		386499X	■		13th Street	C - Milwaukee	18.2	32.6	67.4		60	4	2	6200	6300	6500	30	F/G	2U	S	Exist. Med. Bar./layout con	205	SG	438	SG		Exist. GCX to Remain
2	86.42		386502D	■		17th Street	C - Milwaukee	18.2	32.6	67.4		60	4	2				25	F	2U	S	GCX layout concerns	0	SG	0	SG		SG
3	86.90		386506F		■	Private, Under 27th Street Viaduct	C - Milwaukee	18.2	32.6	67.4		60	4	2				10	F			Comm./ layout concerns	0	SG	0	SG		SG
4	88.64		390490T		■	Private, Approx. 45th Street	C - Milwaukee	18.2	32.6	67.4		60	4	2	100	120	150	N.A.	F/G			Serves commercial/industr	<10	SG	10	SG		SG
5	89.00		390492G		■	Private, Approx. 50th Street	C - Milwaukee	18.2	32.6	67.4		60	4	2	150	160	200	N.A.	P			Serves concrete plant	<10	SG	13	SG		SG
6	89.44		390496J		■	Private, West of Hawley Road	C - Wauwatosa	18.2	32.6	67.4		60	4	2				N.A.	F/G			Serves Sears Appliance O	0	SG	0	SG		Exist. GCX to Remain
7	89.71		390499E	■		63rd Street	C - Wauwatosa	18.2	32.6	67.4		60	4	2	1500	1600	2000	25	F/G	2U	S	GCX layout concerns	52	SG	135	SG		Exist. GCX to Remain
8	90.05		390501D	■		68th Street	C - Wauwatosa	18.2	32.6	67.4		60	4	2	11600	12100	14300	25	F/G	2U	S	GCX layout concerns	394	SG	964	SG		Exist. GCX to Remain
9	90.18		390502K	■		70th Street	C - Wauwatosa	18.2	32.6	67.4		60	4	2	5800	6100	7200	25	F/G	2U	S	GCX layout concerns	199	SG	485	SG		Exist. GCX to Remain
10	90.30		390503S	■		72nd Street	C - Wauwatosa	18.2	32.6	67.4		60	4	2	1900	2000	2400	25	F/G	2U	S	GCX layout concerns	65	SG	162	SG		Exist. GCX to Remain
11	90.65		390504Y	■		Harwood Ave / County Bike Trail	C - Wauwatosa	18.2	32.6	67.4		60	4	2	30	40	50	25	F/G	2U	S/B		<10	SG	<10	SG		Exist. GCX to Remain
12	93.8		390512R	■		115th Street	C - Wauwatosa	18.2	32.6	67.4		90	5	2	6950	7240	8570	25	F/G	2U	S		236	GS	578	GS		QG
13	95.1		390513X	■		Watertown Plank Road	V - Elm Grove	18.2	32.6	67.4		90	5	2	14,140	14,610	16,580	25	F/G	4U	S	GCX layout concerns	476	GS	1117	GS		QG & back gates
14	95.3		390514E	■		Juneau Boulevard	V - Elm Grove	18.2	32.6	67.4		90	5	2	3,020	3,080	3,320	25	F/G	2R			100	GS	224	GS		QG
15	96.34		390515L	■		Highland Avenue (South Track)	V - Elm Grove	18.2	32.6	67.4		110	6	1	5,030	5,660	8,360	25	F/G	2R		GCX layout concerns	185	GS	563	GS		QG
16	97.04		390516T	■		North Avenue (South Track)	C - Brookfield	18.2	32.6	67.4		110	6	1	13,130	13,710	16,190	35	F/G	2R	B	GCX layout concerns/bike	447	GS	1091	GS		QG & back gates
17	97.38		390519N	■		Pilgrim Road (North Track)	C - Brookfield	18.2	32.6	67.4		110	6	1	11,670	12,320	15,090	35	CF/G	2R			402	GS	1017	GS		QG
18	97.4		695498T	■		Pilgrim Road (South Track)	C - Brookfield	18.2	32.6	67.4		110	6	1	11,670	12,320	15,090	35	CF/G	2U	B	GCX layout concerns	402	GS	1017	GS		QG
19	98.38		390520H	■		Calhoun Road (North Track)	C - Brookfield	18.2	32.6	67.4		110	6	1	15,310	16,390	21,010	25	F/G	2R	B		534	GS	1416	GS		QG
20	98.4		390517A	■		Calhoun Road (South Track)	C - Brookfield	18.2	32.6	67.4		110	6	1	15,310	16,390	21,010	25	F/G	2R	B	GCX layout concerns	534	GS	1416	GS		QG
21	99.4		390521P	■		Brookfield Road	C - Brookfield	18.2	32.6	67.4		110	6	2	8,790	9,450	12,280	25	F/G	2U	S	GCX layout concerns	308	GS	828	GS		QG
22	100.5		390522W	■		Barker Road	C - Brookfield	18.2	32.6	67.4		110	6	2	9,640	11,170	17,350	35	F/G	2R		GCX layout concerns	364	GS	1190	GS		QG
23	101.5		390523D	■		Springdale Road	C-Brkfld / C-Pew.	18.2	32.6	67.4		110	6	2	8,810	9,670	13,350	35	F/G	2R			315	GS	900	GS		QG
24	102.2		390524K	■		Duplainville Road	C - Pewaukee	18.2	32.6	57.4		79	4	2	4,600	5,050	6,970	35	F/G	2R		GCX layout concerns	165	SG	400	SG		Exist. GCX to Remain
25	104.3		390031X	■		Forest Grove Road	V - Pewaukee	18.2	32.6	57.4		79	4	1	3200	3,400	4,390	25	F/G	2U	S		111	SG	252	SG		Exist. GCX to Remain
26	105.2		390530N	■		Oakton Avenue	V - Pewaukee	18.2	32.6	57.4		110	6	1	11,330	12,820	19,130	25	F/G	2U	S	GCX layout concerns	418	GS	1098	GS		QG
27	105.7		390532C	■		Wisconsin Avenue	V - Pewaukee	18.2	32.6	57.4		110	6	1	6,600	7,250	10,000	25	F/G	2U	S	GCX layout concerns	236	GS	574	GS		QG & side gates
28	106.2		390533J	■		Kopmeier Road	V - Pewaukee	18.2	32.6	57.4		110	6	1	320	340	440	25	F/G	2R		GCX layout concerns	11	SGE	25	SGE		SGE
29	106.8		390534R	■		Parkside Road / Armour Road	C - Pewaukee	18.2	32.6	57.4		110	6	1	320	340	440	25	F	2R			11	SGE	25	SGE		SGE
30	108.2		390535X	■		CTH KE	T - Delafield	18.2	32.6	57.4		110	6	1	270	280	370	45	F/G	2R		GCX layout concerns	<10	SG	21	QG		QG
31	109.8		390537L	■		Maple Avenue	V - Hartland	18.2	32.6	57.4		110	6	1	6,070	6,240	6,930	25	F/G	2U	S	Bike paths, each side of S	203	GS	398	GS		QG & back gates
32	110.0		390538T	■		Cottonwood Avenue	V - Hartland	18.2	32.6	57.4		110	6	1	6,710	7,300	9,800	25	F/G	2U	S		238	GS	563	GS		QG & back gates
33	111.4		390540U	■		Vettleson Road	C - Delafield	18.2	32.6	57.4		110	6	1	1,680	1,840	2,510	45	F/G	2R			60	VAS	144	GS		VAS
34	115.9		390549F	■		Gifford Road	V - Ocon. Lake	18.2	32.6	57.4		110	6	1	2,270	2,540	3,660	25	F/G	2U		GCX layout concerns	83	VAS	210	GS		QG
35	117.2		390551G	■		Lapham Street	C - Oconomowoc	18.2	32.6	57.4		110	6	1	3,350	3,420	3,700	25	F/G	2R		GCX layout concerns	111	GS	212	GS	City desires warning device	CL
36	117.7		390552N	■		Silver Lake Road	C - Oconomowoc	18.2	32.6	57.4		79	4	1	9,490	9,630	10,260	25	F/G	2U	S	GCX layout concerns	314(6)	GS	589(6)	GS		Exist. GCX to Remain (6)
37	117.8		390553V	■		Cross Road	C - Oconomowoc	18.2	32.6	57.4		79	4	1	320	340	440	25	F/G	2U	S	GCX layout concerns	11	SG	25	SG	CL	CL
38	117.9		390554C	■		Main Street	C - Oconomowoc	18.2	32.6	57.4		79	4	1	9,600	10,540	14,550	25	CF/G	2U	S	GCX layout concerns	344(6)	GS	835(6)	GS		Exist. GCX to Remain (6)
39	118.0		390557X	■		Worthington Road	C - Oconomowoc	18.2	32.6	57.4		79	4	1	800	850	1,100	25	F/G	2U	S		28	SG	63	SGB	City desires warning device	CL
40	118.3		390558E	■		Concord Road	C - Oconomowoc	18.2	32.6	57.4		79	4	1	2,610	2,700	3,080	25	F/G	2U	S	Two sidings to far south (P	88(6)	SGB	177(6)	GS		SG, maintain driveway access
41	118.7		390561M	■		Elm Street	C - Oconomowoc	18.2	32.6	57.4		79	4	1	530	570	730	25	F/G	2U	S		19	SG	42	SGB		SG, maintain driveway access
42	119.5		390563B	■		Reddelein Road	T - Oconomowoc	18.2	32.6	57.4		110	6	1	50	60	75	35	F/G	2R		Near siding	<10	CL	<10	CL		SGE
43	122.57		390567D	■		River Valley Drive	T - Ixonia	18.2	32.6	57.4		110	6	1	20	25	30	55	P	2R			<10	CL	<10	CL		SGE
44	123.16		390568K	■		CTH F	T - Ixonia	18.2	32.6	57.4		110	6	1	2,940	3,460	5,880	45S/35N	F/G	2R			113	GS	328	GS		VAS
45	123.7		390569S		■	Private, West of CTH F	T - Ixonia	18.2	32.6	57.4		110	6	1	1	1	1	N.A.	N			Serves 1 res/closed	<10	CL	<10	CL	CL	CL
46	123.76		390570L	■		CTH P / Oak Street	T - Ixonia	18.2	32.6	57.4		110	6	1	450	520	840	25	F/G	2R		GCX layout concerns	17	SGE	48	QG		QG

(1) Private GCX is noted in description
(2) C = City, V = Village, T = Township
(3) N = No Signs, P = Passive Signage, F = Flashers Only, CF = Cantileverd Flashers, F/G = Flashers and Gates
(4) GCX Type is based on Exposure Rate only (see first column of appropriate Decision Tree):
CL = Closure, F = Flashers Only, SG = Single Gates, SGE = Single Gate (Extended Arm), SGB = Single Gate with Roadway Centerline Barrier, QG = Quad Gates, VAS = Vehicle Arresting Systems, GS = Grade-separated Structure
(5) GCX Type is based on Decision Tree outcome and case-by-case review. GCX Type code is same as indicated in Footnote (4).
(6) Exposure Rate does not account for diverted trips if adjacent crossings are CLOSED.

EXHIBIT 2
5/22/01

Milwaukee to Madison Passenger Rail Corridor Study

Milwaukee, Waukesha, Jefferson & Dane Counties
Project ID 0410-40-40 / 0499-10-39

Recommended Grade Crossing (GCX) Treatment - Sheet 2 of 3

GCX #	M.P.	Station	WisDOT Xing No.	Public	Private	Location (1)	Municipality (2)	Number of Trains per Average Weekday 1999	2003	2020	Prop. Freight Speed	Prop. Pass. Speed	Prop. FRA Class	Exist. No. of Tracks	Average Weekday Traffic 1999	2003	2020	1999 Vehicular Speed	Existing GCX Type (3)	No. Lanes Rural Urban	Bicycle or Sidewalk	Existing GCX Comments	2003 Exposure Rate (x10³)	2003 GCX Type (4)	2020 Exposure Rate (x10³)	2020 GCX Type (4)	Community Recommnedation	Consultant Recommendation
						Watertown Subdivision (cont.)																						
47	124.70		390571T	■		Hilltop Lane	T - Ixonia	18.2	32.6	57.4		110	6	1	20	20	20	N.A.	P	2R		Serves 2 res. & 2 farms	<10	CL	<10	CL		SGE
48	125.00		390572A		■	Private, 1st GCX W. of Hilltop Ln	T - Ixonia	18.2	32.6	57.4		110	6	1	30	20	20	N.A.	P			Serves 3 res. & 2 farm	<10	CL	<10	CL		SGE
49	125.40		390573G		■	Private, 2nd GCX W.of Hilltop Ln	T - Ixonia	18.2	32.6	57.4		110	6	1	30	30	30	N.A.	P			Serves 1 res. & salvage yar	<10	CL	<10	CL		SGE
50	125.53		390574N		■	Private, 3rd GCX W. of Hilltop Ln	T - Ixonia	18.2	32.6	57.4		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
51	125.96		390575V		■	Private, 4th GCX W.of Hilltop Ln	T - Ixonia	18.2	32.6	57.4		110	6	1	10	10	10	N.A.	P			Serves 1 res. & farm	<10	CL	<10	CL		SGE
52	126.31		390576C		■	Private, 5th GCX W.of Hilltop Ln	T - Ixonia	18.2	32.6	57.4		110	6	1	1	1	1	N.A.	N			Field access & snowmobile	<10	CL	<10	CL		CL
53	126.42		390577J	■		Hustisford Road	T - Ixonia	18.2	32.6	57.4		110	6	1	50	60	75	45	F/G	2R		GCX layout concerns	<10	CL	<10	CL		SGE
54	127.20		390579X		■	Private, 1st GCX W. of Hustisford Rd	T - Watertown	18.2	32.6	57.4		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL - Allow SGE @ 127.4
55	127.58		390580S		■	Private, 2nd GCX W. of Hustisford Rd	T - Watertown	18.2	32.6	57.4		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL	CL - Allow SGE @ 127.4	CL - Allow SGE @ 127.4
56	128.09		390581Y	■		River Road	T - Watertown	18.2	32.6	57.4		110	6	1	90	100	130	45	F/G	2R			<10	CL	<10	CL	CL - Allow SGE @ 127.4	SGE
57	128.67		390582F		■	Private, West of River Rd	T - Watertown	18.2	32.6	57.4		110	6	1	40	40	40	N.A.	P			Serves several residences	<10	CL	<10	CL		SGE
58	129.32		390584U	■		Concord Avenue	C - Watertown	18.2	32.6	57.4		79	4	1	2,470	2690	3630	25	F/G	2U		GCX layout concerns	88	SGB	208	GS		Exist.GCX to Remain(driveways
59	129.47		390585B	■		Humboldt Street	C - Watertown	18.2	32.6	57.4		79	4	1	1330	1440	2010	25	F/G	2U			47	SGB	115	GS		Exist.GCX to Remain(driveways
60	129.95		390588H	■		Twelth Street	C - Watertown	18.2	32.6	57.4		79	4	1	3,430	3670	4660	25	F/G	2U	S	GCX layout concerns	120(6)	GS	267(6)	GS		Exist.GCX to Remain(6)(drives)
61	130.07		390588W	■		Tenth Street	C - Watertown	18.2	32.6	57.4		79	4	1	1340	1450	2030	25S/15N	F/G	2U	S	GCX layout concerns	47	SGB	117	GS	City desires warning device	CL
62	130.19		390589D	■		Ninth Street	C - Watertown	18.2	32.6	57.4		79	4	1	800	870	1220	25	F/G	2U	S		28	SG	70	VAB	CL - City concurs	CL
63	130.54	2467+40	390595G	■		Third Street	C - Watertown	18.2	32.6	57.4		79	4	1	8710	9850	14730	25	F/G	2U	S		321(6)	GS	846(6)	GS		Exist.GCX to Remain(6)(drives)
64	130.97	2470+15	390609M	■		Milford Street	C - Watertown	18.2	32.6	57.4		79	4	1	4390	4830	6670	25	F/G	2U	S	GCX layout concerns	157	GS	383	GS		Rev. Exist.GCX to SGB
						Waterloo Subdivision																						
65	132.10	2533+30	392140H	■		Dayton Street	C - Watertown	2	14	22		60	4	1	5,460	6530	11080	25	F	2U			91(6)	SGB	244(6)	GS		SG, maintain driveway access (6
66	133.40		392143D		■	Private, E. of Gypsy Road	T - Watertown	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
67	133.42	2603+16	392142W	■		Gypsy Road	T- Watertown	2	14	22		110	6	1	30	300	40	55	P	2R			<10	CL	<10	CL		SGE
68	133.60	2606+39	392144K		■	Private, West of Gypsy Road	T- Watertown	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
69	133.90	2615+62	392145S		■	Private, West of Gypsy Road	T- Watertown	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
70	134.44	2656+89	392146Y	■		Omis Road	T - Milford	2	14	22		110	6	1	50	50	70	55	P	2R			<10 (6)	CL	<10 (6)	CL		SGE (6)
71	134.60		392147F		■	Private, West of Omis Road	T - Milford	2	14	22		110	6	1	1	1	1	N.A.	N			Field access & snowmobile	<10	CL	<10	CL		CL
72	135.44	2709+43	392150N	■		Berry Road	T - Milford	2	14	22		110	6	1	50	50	70	55	P	2R			<10	CL	<10	CL		SGE
73	135.85	2732+78	392152C		■	Private, 1st GCX W. of Berry Road	T - Milford	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
74	136.20	2747+16	392153J		■	Private, 2nd GCX W. of Berry Road	T - Milford	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		SGE
75	136.95	2789+42	392155X	■		CTH Q	T - Milford	2	14	22		110	6	1	680	740	1040	55	F	2R			10(6)	SGE	23(6)	QG		QG (6)
76	137.30	2802+91	392156E		■	Private, West of CTH Q	T - Milford	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		SGE
77	137.71	2829+48	392157L	■		Engelhardt Road	T - Milford	2	14	22		110	6	1	30	35	45	55	P	2R		GCX layout concerns	<10	CL	<10	CL	Town desires warning devic	CL
78	138.26	2858+17	392158T	■		East Hubbleton Road	T - Milford	2	14	22		110	6	1	50	50	70	55	P	2R		GCX layout concerns	<10 (6)	CL	<10 (6)	CL		SGE (6)
79	138.40	2865+32	392159A		■	Private, W. of Hubbleton Road	T - Milford	2	14	22		110	6	1	10	10	10	N.A.	N			Serves 1 res. & farm	<10	CL	<10	CL		CL - Divert to new driveway
80	139.00	2897+04	392160U	■		CTH G	T - Milford	2	14	22		110	6	1	910	1080	1820	55	F	2R		GCX layout concerns	15	SGE	40	QG		QG
81	139.75		392161B		■	Private, 1st GCX W. of CTH G	T - Milford	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
82	139.85	2933+54	392162H		■	Private, 2nd GCX W. of CTH G	T - Waterloo	2	14	22		110	6	1	1	1	1	N.A.	N			Field access & snowmobile	<10	CL	<10	CL		SGE
83	141.73	3041+13	392165D	■		Peschel Road	T - Waterloo	2	14	22		110	6	1	150	160	230	45	P	2R		Near siding	<10	CL	<10	CL		SGE
84	143.31	3125+09	392166K	■		STH 89	T - Waterloo	2	14	22		110	6	1	3190	3590	5260	55	F	2R			50	QG	116	GS		VAS
85	143.77	5149+07	392167S	■		Fisher Road	T - Waterloo	2	14	22		110	6	1	60	70	90	30a	P	2R		Serves cemetery, res.& far	<10	CL	<10	CL		SGE
86	143.98	3161+00	392168Y		■	Private, 1st GCX W. of Fisher Road	C / T - Waterloo	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
87	143.99	3161+82			■	Private, 2nd GCX W. of Fisher Road	C / T - Waterloo	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
88	144.28	3175+76	392169F	■		Adams Street	C - Waterloo	2	14	22		79	4	2	320	350	490	25	P	2U		Lay.concern/Siding is N.trac	<10 (6)	CL	11(6)	SG		SG (6)
89	144.35	3179+74	392170A	■		Jefferson Street	C - Waterloo	2	14	22		79	4	1	320	350	490	25	P	2U	S	GCX layout concerns	<10	CL	11	SG	City desires CL	CL
90	144.46	3185+30	392171G	■		Washington Street	C - Waterloo	2	14	22		79	4	1	1390	1570	2590	25	F	2U	S		22 (6)	SG	57(6)	SGB		SG, maintain driveway access (6
91	144.64	3195+38	392172N	■		Jackson Street	C - Waterloo	2	14	22		79	4	3	2330	2500	3230	25	P	2U	S	Sidings on each side	35(6)	SGB	71(6)	SGB	City desires CL	CL
92	144.72	3199+45	392173V	■		Harrison Street	C - Waterloo	2	14	22		79	4	3	480	520	730	25	P	2U	S	Sidings on each side	<10	CL	16	SG	City desires warning device	CL
93	145.30	3227+74	392176R		■	Private, Briess Industries	C - Waterloo	2	14	22		110	6	1	50	50	50	N.A.	N			Commercial access	<10	CL	<10	CL		SGE
94	145.61	3249+02	392177X		■	Private, 2nd GCX W. of Harrison	T - Medina	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		SGE
95	145.90	3262+49	392178E		■	Private, 3rd GCX W. of Harrison	T - Medina	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL-Allow SGE at 145.61
96	146.25	3282+06	392180F		■	Private, 4th GCX W. of Harrison	T - Medina	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
97	146.52	3294+18	392181M	■		Cherry Lane	T - Medina	2	14	22		110	6	1	50	50	70	55	P	2R		One wigwag	<10	CL	<10	CL	Town desires warning devic	CL
98	147.00	3318+74	392182U		■	Private, West of Cherry Lane	T - Medina	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		SGE
99	148.00	3372+08	392183B	■		Lewellen Street	V - Marshall	2	14	22		110	6	3	270	300	450	25	P	2R		Sidings on south side	<10	CL	<10	CL	Village desires warning devic	CL
100	148.06	3375+40	392184H	■		STH 73 / Hubbell Road	V - Marshall	2	14	22		110	6	2	9320	11040	18370	30	F	2R		Siding on south side	155(6)	GS	404(6)	GS		VAS (6)

(1) Private GCX is noted in description
(2) C = City, V = Village, T = Township
(3) N = No Signs, P = Passive Signage, F = Flashers Only, F/G = Flashers and Gates
(4) GCX Type is based on Exposure Rate only (see first column of appropriate Decision Tree):
CL = Closure, F = Flashers Only, SG = Single Gates, SGE = Single Gate (Extended Arm), SGB = Single Gate with Roadway Centerline Barrier, QG = Quad Gates, VAS = Vehicle Arresting Systems, GS = Grade-separated Structure
(5) GCX Type is based on Decision Tree outcome and case-by-case review. GCX Type code is same as indicated in Footnote (4).
(6) Exposure Rate does not account for diverted trips if adjacent crossings are CLOSED.

EXHIBIT 2
5/22/01

Milwaukee to Madison Passenger Rail Corridor Study

Milwaukee, Waukesha, Jefferson & Dane Counties

Project ID 0410-40-40 / 0499-10-39

Recommended Grade Crossing (GCX) Treatment - Sheet 3 of 3

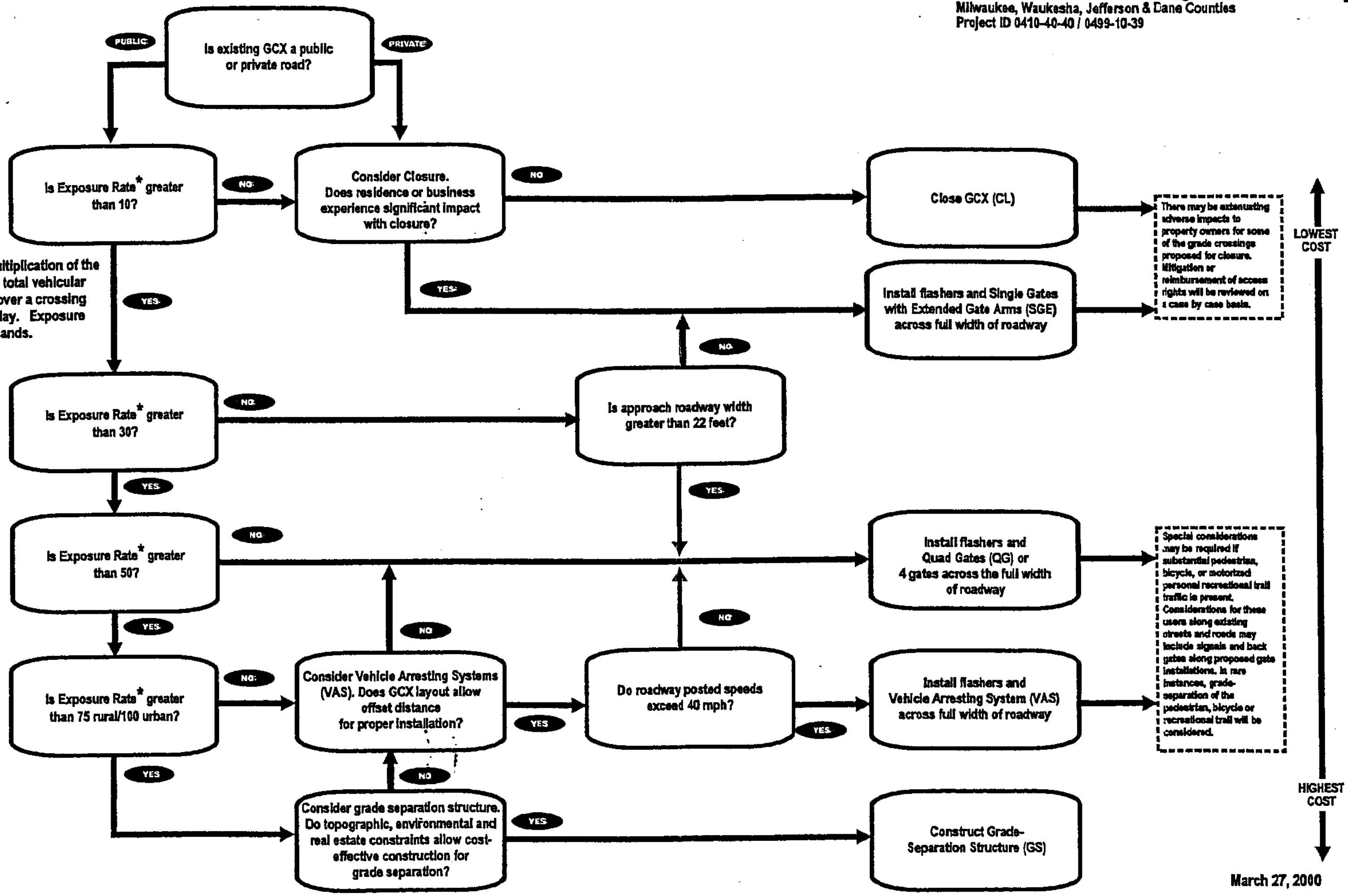
GCX #	M.P.	Station	WisDOT Xing No.	Public	Private	Location (1)	Municipality (2)	Number of Trains per Average Weekday 1999	2003	2020	Prop. Freight Speed	Prop. Pass. Speed	Prop. FRA Class	Exist. No. of Tracks	Average Weekday Traffic 1999	2003	2020	1999 Vehicular Speed	Existing GCX Type (3)	No. Lanes Rural Urban	Bicycle or Sidewalk	Existing GCX Comments	2003 Exposure Rate (x10³)	2003 GCX Type (4)	2020 Exposure Rate (x10³)	2020 GCX Type (4)	Community Recommendation	Consultant Recommendation
						Waterloo Subdivision (cont.)																						
101	148.70	3415+41	392186P		■	Private, West of Hubbel Road	V - Marshall	2	14	22		110	6	1	10	10	10	N.A.	N			Serves 1 res.	<10	CL	<10	CL		CL
102	149.40	3451+10			■	Private, West of Hubbel Road	V - Marshall	2	14	22		110	6	1	20	20	20	N.A.	N			Serves 1 res. & body shop	<10	CL	<10	CL		SGE
103	149.50	3456+73	392186W		■	Private, West of Hubbel Road	V - Marshall	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		SGE
104	149.77	3466+01	392188K	■		CTH T T	T - Medina	2	14	22		110	6	1	300	350	560	30e	P	2R		GCX layout concerns	<10	CL	12	SGE		SGE
105	150.33	3495+21	392189S	■		Berlin Road	T - Medina	2	14	22		110	6	2	80	90	120	40e	P	2R		Siding on south side	<10	CL	<10	CL		SGE
106	150.40	3501+04	392190L		■	Private, 1rst West of Berlin Road	T - Medina	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
107	150.85	3525+36	392191T		■	Private, 2nd West of Berlin Road	T - Medina	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		CL
108	151.80	3573+53	392192A		■	Private, 3rd West of Berlin Road	T - Medina	2	14	22		110	6	1	1	1	1	N.A.	N			Field access only	<10	CL	<10	CL		SGE
109	152.52	3610+79	392193G	■		Twin Lane Road	T - Sun Prairie	2	14	22		110	6	1	80	90	120	55	P	2R		GCX layout concerns	<10	CL	<10	CL		SGE
110	152.70		392194N		■	Private, West of Twin Lane Road	T - Sun Prairie	2	14	22		110	6	1	1	1	1	N.A.	N			Field access & snowmobile	<10	CL	<10	CL		CL
111	153.51	3663+48	392195V	■		CTH V V	T - Sun Prairie	2	14	22		110	6	1	270	290	400	55	P	2R			<10	CL	<10	CL		SGE
112	154.30	3701+10	392196D		■	Private, West of CTH V V	T - Sun Prairie	2	14	22		110	6	1	10	10	10	N.A.	P			Serves one res. & farm	<10	CL	<10	CL		CL
113	154.53	3717+34	392197J	■		Town Hall Road	T - Sun Prairie	2	14	22		110	6	1	270	290	410	35	P	2R			<10	CL	<10	CL		SGE
114	155.20	3747+85	392198R	■		Musket Ridge Road	C - Sun Prairie	2	14	22		79	4	1	540	580	860	25	P	4U	S		<10	CL	15	SG		SG
115	155.60	3772+93	392199X	■		Main Street (STH 19)	C - Sun Prairie	2	14	22		79	4	1	9480	11240	18700	25	CF	4U	S		157	GS	411	GS		SG, maintain driveway access
116	155.80	3784+10	392201W	■		Market Street	C - Sun Prairie	2	14	22		79	4	2	820	890	1250	25	F/G	2U	S	Siding on north side	12	SG	28	SG		Existing GCX to Remain
117	156.05	3794+80	392202D		■	Private, E. of Marshview Dr.	C - Sun Prairie	2	14	22		79	4	2	10	10	10	N.A.				Serves ?	<10	CL	<10	CL		CL
118	156.25	3806+97	696409C	■		Marshview Dr (East Crossing)	C - Sun Prairie	2	14	22		79	4	2	110	120	160	25	P	2U		Siding on south side	<10	CL	<10	CL	Village desires warning device	CL
119	156.50	3822+14	696408V	■		Marshview Dr (West Crossing)	C - Sun Prairie	2	14	22		79	4	2	160	175	240	25	P	2U		Siding on south side	<10	CL	<10	CL		SG
120	156.83	3838+03	392204S	■		Bird Street	C - Sun Prairie	2	14	22		110	6	1	2570	2780	3690	25	P	2R			39	QG	86	GS		QG
121	157.80	3889+74	392206F	■		Clarmar Drive	C - Sun Prairie	2	14	22		110	6	2	10	10	10	N.A.	N	2R		Serves 1 res./Siding on N.side	<10	CL	<10	CL		SGE
122	158.30				■	Private pedestrian crossing	C - Sun Prairie	2	14	22		110	6	2	0	0	0	N.A.	N				0	CL	0	SG		CL
123	158.37	3972+48	392207M	■		Reiner Road	T - Burke	2	14	22		110	6	1	2630	3100	5070	45	F	2R		GCX layout concerns	43(6)	QG	112(6)	GS		QG (6)
124	159.74	3992+32	392208U	■		Nelson Road	T - Burke	2	14	22		110	6	1	4020	4260	5270	45	P	4R		GCX layout concerns	60	VAS	116	GS		QG
125	160.2	4017+30			■	Private, W. of Nelson Road	T - Burke	2	14	22		110	6	1	0	0	0	N.A.	N				0	CL	0	CL	Not a true crossing, access very close to r/w	CL
126	160.32	4022+44	392209B	■		Felland Road	T - Burke	2	14	22		110	6	1	1050	1160	1600	45	P	2R		GCX layout concerns	16	SGE	35	QG	Town requests new configuratio	New Configuration
127	160.35	4024+26	392210V	■		Burke Road	T - Burke	2	14	22		110	6	1	730	830	1240	35	P	2R		GCX layout concerns	12	QG	27	QG	CL	CL
						Madison Subdivision																						
1	161.84	4102+61	392212J	■		Lien Road	C - Madison	2	14	22		110	6	1	2400	2910	5070	35	P	2R			41	QG	112	GS		QG
2	161.91	4106+70	391468V	■		Thompson Drive	C - Madison	2	14	22		110	6	1	12650	13540	16600	30	CF	4U	S		190	GS	363	GS		QG
3	162.70	4147+46	392213R	■		Sycamore Avenue	C - Madison	2	14	22		110	6	1	2410	2500	2970	25W/35E	F	2U		GCX layout concerns	35	QG	65	VAS		QG
4	163.06	4164+92	696549M	■		East Frontage Road (Commercial Ave	C - Madison	2	14	22		60	3	1	8260	8600	11340	30e	CF	4U	B		123	GS	249	GS		Rev. Exist GCX to SGB
5	163.11	4169+80	392214X	■		USH 51 (Stoughton Rd.)	C - Madison	2	14	22		60	3	1	35480	38200	48100	40e	FB	6U			536	GS	1056	GS		Rev. Exist GCX to SG
6	163.14	4171+59	696551N	■		West Frontage Road	C - Madison	2	14	22		60	3	1	1390	1460	1900	30e	F	2U			21	SG	42	SGB		SG, maintain driveway access
7	163.80	4194+00		■		Unpaved crossing within STH 30 R/W	C - Madison	2	14	22		60	3	1	1	1	1	N.A.	N			Pedestrian, bicycle path	<10	CL	<10	CL		CL
8	163.93	4213+18	392216L	■		Fair Oaks Avenue	C-Mad/T-Blmng Gr	2	14	22		60	3	1	13580	13850	15500	25e	F	2U	S	GCX layout concerns	195(6)	GS	341(6)	GS		SG, maintain driveway access (6
9	164.09	4221+48	392217T	■		Powers Avenue	C-Mad/T-Blmng Gr	2	14	22		60	3	1	480	510	660	25	P	2U	S		<10	CL	15	SG	Town desires warning device	will provide warning system
10	164.32	4233+67	392218A	■		Milwaukee St.	C - Madison	2	14	22		60	3	1	12450	12840	14500	25	F	2U	S	GCX layout concerns	180	GS	319	GS		SG, maintain driveway access
11	164.50	4249+20		■		Bike Path (only)	C - Madison	2	14	22		45	3	1	N.A.	N.A.	N.A.	N.A.	N		B	Exclusive 10-ft Bike Path	N.A.	N.A.	N.A.	N.A.	City requests SG	SG
12	79.79	4255+30	177324T	■		Waubesa Street	C - Madison	2	14	22		45	3	1	480	510	660	25	F	2U	S	GCX layout concerns	<10	CL	15	SG		SG
13	79.84	4258+25	177323L	■		Corry Street	C - Madison	2	14	22		45	3	1	480	510	660	25	F	2U	S		<10	CL	15	SG	CL - Divert to Waubesa	CL - Divert to Waubesa
14	80.16	4273+65	177322E	■		Division Street	C - Madison	2	14	22		45	3	1	2140	2270	2920	25	F	2U	S	GCX layout concerns	32	SGB	64	SGB	CL - Divert to La Follette	CL - Divert to La Follette
15	80.21	4276+40	177321X	■		Winnebago Street	C - Madison	2	14	22		45	3	1	3230	3270	3480	25	CF	2U	S	GCX layout concerns	46(6)	SGB	77(6)	SGB		SG, maintain driveway access (6
16	80.33	4282+90	177320R	■		Fourth Street	C - Madison	2	14	22		45	3	1	3060	3080	3150	25	F	2U	S		43	SGB	89	SGB	City desires warning device	SGB
17	80.62	4291+80	177319W	■		Sutherland Court	C - Madison	2	14	22		45	3	1	110	115	150	25	P	2U			<10	CL	<10	CL	CL-City concurs	CL
18	80.53	4294+19	177318P	■		Second Street	C - Madison	2	14	22		45	3	1	270	280	370	25e	F	2U	S	GCX layout concerns	<10	CL	<10	CL	City desires warning device	will provide warning system
19	80.69	4303+60	177314M	■		First Street	C - Madison	2	14	22		45	3	1	11650	11850	12700	25	F	2U	S	GCX layout concerns	168(6)	GS	279(6)	GS		SG, maintain driveway access (6
20	80.70	4309+08	177313F	■		East Washington Ave. (USH 151)	C - Madison	2	14	22		45	3	1	51790	52670	56400	35	CF	4U	S		737	GS	1241	GS		Rev. Exist GCX to SG
21	139.90	4320+38	176052U	■		Johnson Street	C - Madison	2	14	22		45	3	2	31280	32140	35800	25	F/G	4U	S	GCX layout concerns	450	GS	788	GS		Existing GCX to Remain
22	31.98	4369+63	392340S	■		Commercial Avenue	C - Madison	2	14	22		60	3	3	5540	5910	7500	25	CF	2U	S	GCX layout concerns	63	SGB	165	GS		SG, maintain driveway access
23	31.88	4385+47		■		Roth Street	C - Madison	2	14	22		60	3	1	1410	1430	1500	25e	F/G	2U	S	Oscar Mayer Track & Employee Ent.	20	SG	33	SGB		Exist. GCX to Rem. (driveways)
24	31.48	4398+94	392338R	■		Aberg Avenue	C - Madison	2	14	22		60	3	1	13840	13930	14300	25	F	2U	S	GCX layout concerns	195	GS	315	GS		SG, maintain driveway access
25	31.15	4413+65	392337J	■		Schlimgen Street	C - Madison	2	14	22		60	3	1	3120	3170	3350	25	F	2U	S		44	SGB	74	SGB		SGB
26	30.86	4541+82	392330L	■		Packers Avenue	C - Madison	2	14	22		60	3	1	37490	38760	44170	35	CF	6U	S	GCX layout concerns	543	GS	972	GS		Rev. Exist GCX to SG
27	30.41	4452+84	392329S	■		Darwin Road	C - Madison	2	14	22		60	3	1	5740	5820	6150	35	F	2U		GCX layout concerns	61	SGB	135	GS		SG, maintain driveway access
Downtown/Monona Terrace Station						UPRR Tracks																						
20				■		Thornton Street	C - Madison	2	24	40		45	3	1	700		980	25e		2U	S				39	SGB		will provide warning system
21				■		Dickinson Street	C - Madison	2	24	40		45	3	1	1940		2425	25e		2U	S				97	SGB		SG (6)
22				■		Baldwin Street	C - Madison	2	24	40		45	3	1	5800		7500	25e		2U	S				300	GS		SG
23				■		Ingersoll Street	C - Madison	2	24	40		45	3	1	2680		4900	25e		2U	S				196	GS		SG (6)
24				■		Brearly Street	C - Madison	2	24	40		45	3		1370		1700	25e		2U	S				68	SGB		CL
25				■		Paterson Street	C - Madison	2	24	40		40	3		2680		3800	25e		2U	S				194	GS		SG (6)
26				■		Livingston Street	C - Madison	2	24	40		35	3		1000		1250	25e		2U	S				50	SGB		CL
27				■		Blount Street	C - Madison	2	24	40		30	3		1840		2580	25e		2U	S				163	GS		SG (6)
28				■		Blair Street	C - Madison	2	24	40		25	3		28560		38400	30e	F	4U / 4D	S	GCX layout concerns			1536	GS		SG
29				■		Williamson Street	C - Madison	2	24	40		20	3		9680		11420	30e	F		S	GCX layout concerns			457	GS		SG

(1) Private GCX is noted in description
(2) C = City, V = Village, T = Township
(3) N = No Signs, P = Passive Signage, F = Flashers Only, CF = Cantilevered Flashers, FB = Flasher Bridge, F/G = Flashers and Gates
(4) GCX Type is based on Exposure Rate only (see first column of appropriate Decision Tree):
CL = Closure, F = Flashers Only, SG = Single Gates, SGE = Single Gate (Extended Arm), SGB = Single Gate with Roadway Centerline Barrier, QG = Quad Gates, VAS = Vehicle Arresting Systems, GS = Grade-separated Structure
(5) GCX Type is based on Decision Tree outcome and case-by-case review. GCX Type code is same as indicated in Footnote (4).

EXHIBI

Basic Decision Tree for Grade Crossing (GCX) Protection When Train Speeds Exceed 79 mph

Milwaukee to Madison Passenger Rail Corridor Study
Milwaukee, Waukesha, Jefferson & Dane Counties
Project ID 0410-40-40 / 0499-10-39



* Exposure Rate is the multiplication of the number of trains and the total vehicular traffic expected to pass over a crossing during an average weekday. Exposure Rate is reported in thousands.

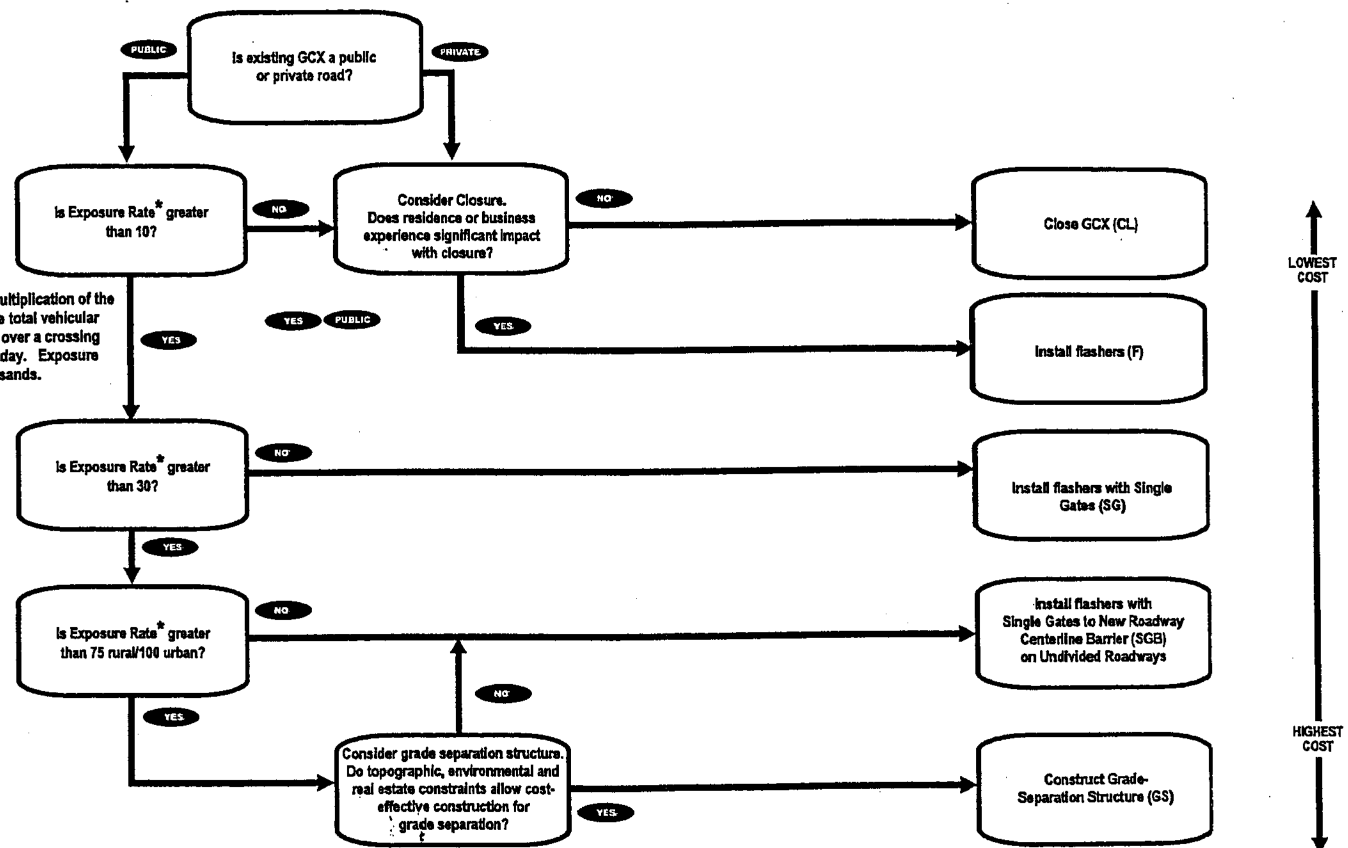
HNTB

March 27, 2000

Exhibit 3-1

Basic Decision Tree for Grade Crossing (GCX) Protection When Train Speeds Are ≤ 79 mph

Milwaukee to Madison Passenger Rail Corridor Study
Milwaukee, Waukesha, Jefferson & Dane Counties
Project ID 0410-40-40 / 0499-10-39



* Exposure Rate is the multiplication of the number of trains and the total vehicular traffic expected to pass over a crossing during an average weekday. Exposure Rate is reported in thousands.

March 27, 2000

HNTB

Exhibit 3-2

APPENDIX C

AIR QUALITY

AMBIENT AIR QUALITY DATA

1997 Maximum Levels
Milwaukee, Waukesha, Jefferson and Dane Counties

	Pollutants								
	TSP	PM_{10}	$PM_{2.5}$	Lead	NO_2	SO_2	CO, ppm		Ozone
Location	ug/m^3				ppm	ppm	1-hr	8-hr	ppm
Milwaukee County									
8321 W. Greenfield Ave.	280								
MATC, 739 West Juneau Ave.					0.021	0.027	3.8	2.2	
1337 S. 16th Street		57	57						
7166 S. 51st Street	148								
5800 W. Alwood Drive	65								
1540 West Canal Street, City Maint. Garage.	143								
2969 Howell Avenue, Fritsche Jr High.	46								
2114 E Kenwood Blvd. – UWM North.					0.016	0.040	4.0	2.5	0.147
7528 West Appleton Ave.							4.6	2.7	0.117
3841 W. Wisconsin Ave. – Advance Chemical.	52						4.0	2.2	
3401 South 39th Street – Alverno College.							2.8	1.8	0.127
4942 South 16th Street – FAA		49	49						
600 E Greenfield Ave. Great Lakes Water	129	59	59						
2300 South 51st Street –Oilgear Company	90								
601 East Ellsworth Lane – Bayside									0.154
711 West Wells Street – Fire Department.	138			0.03					
3501 Blakewood Avenue – Blakewood School.									0.132
Waukesha County									
225 North Grand Ave. - Carroll College							6.2	2.6	0.112
1238 The Strand – Melendez Site	211	85	85						
W 224 N 5045 Eastview	71								
W 227 N 5978 Avon Court	113								
W 239 N 53 Highway K – Halquist Park	138								
W 249 N 6424 Highway J – Marchese									
1310 Cleveland Ave.	96	47	47						
1300 Frame Park Court	181								
100 Bank Street – Waukesha State Bank.	43								
Jefferson County									
Jefferson High School – Willow Drive									0.094
Deer Track AM-3, North Bin Site Road	132								
Deer Track Park – N Bin (NE Site)	214								
Deer Track Park – N Bin (SE Site)	76								
Deer Track Park – Switstc	50								
Dane County									
Livingston & Dayton Sts.- Water Reservoir	128	54	54						
Rodefeld Landfill – (SE site)	72	37	37						
Rodefeld Landfill – (NE site)	74								
Hoard and 5th Street (East High)						0.025			0.097
1903 East Washington Avenue							6.6	4.5	
4733 Marsh Road	27								

Source: 1997 Wisconsin Air Quality Report.

APPENDIX D

NOISE MEASUREMENT LOCATIONS

Milwaukee

Wauwatosa

Noise Measurement Location

Scale: 1" = 200'

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Noise Measurement Location**	**Appendix D-1**

Elm Grove

Brookfield

Noise MeasurementLocation

Scale: 1" = 200'

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE – MADISON	**Noise MeasurementLocation**	**AppendixD-2**

Pewaukee

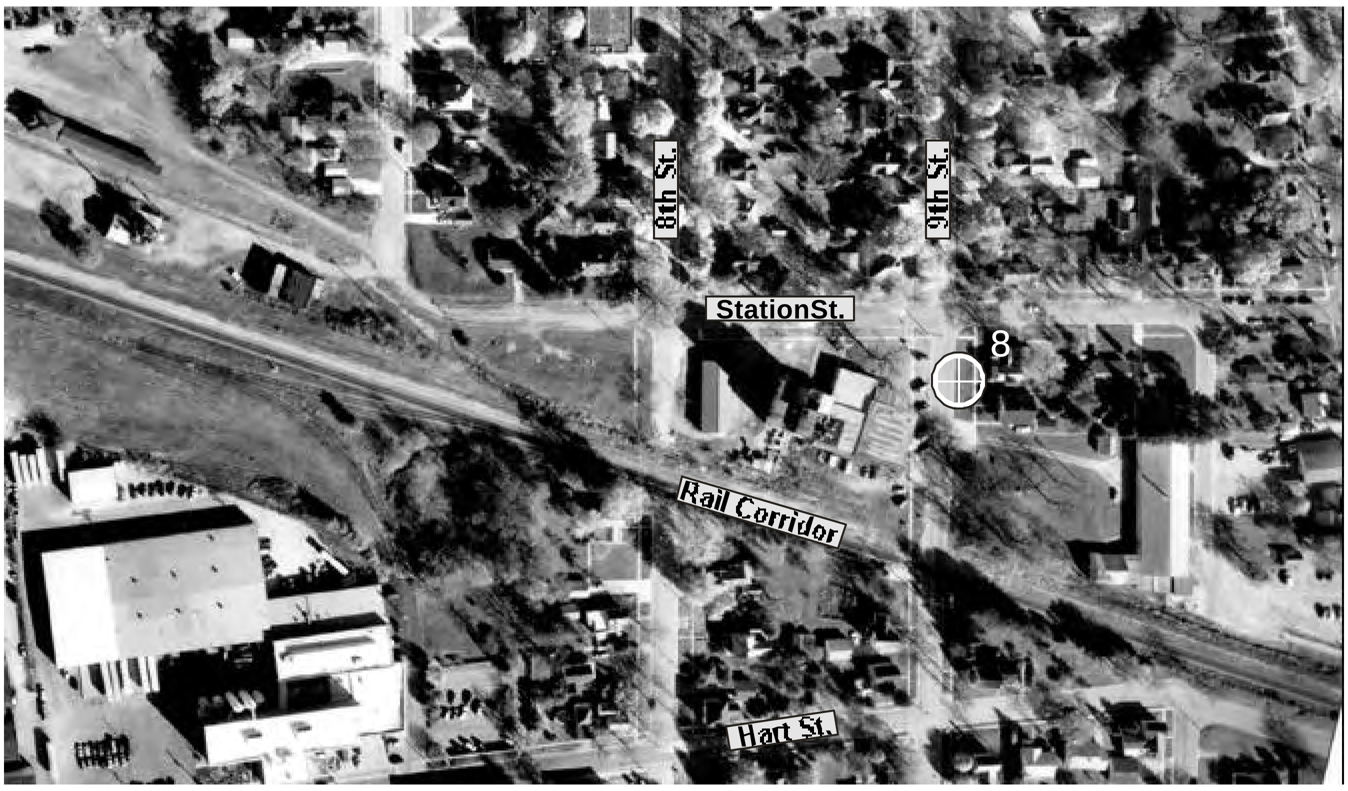
Hartland

Noise MeasurementLocation

Scale: 1” = 200’

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	Noise MeasurementLocation	AppendixD-3

Oconomowoc



Watertown

Noise MeasurementLocation

Scale: 1” = 200’

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Noise MeasurementLocation**	**AppendixD-4**

Waterloo

Marshall

Noise MeasurementLocation

Scale: 1” = 200’

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	**Noise MeasurementLocation**	**AppendixD-5**

Sun Prairie

Madison

Noise MeasurementLocation

Scale: 1” = 200’

PASSENGER RAIL CORRIDOR STUDY MILWAUKEE — MADISON	Noise MeasurementLocation	AppendixD-6

APPENDIX E

FREQUENTLY ASKED QUESTIONS, AND RESPONSES, AT LOCAL COMMUNITY MEETINGS

Wisconsin Department of Transportation

TRANSPORTATION DISTRICT 1
2101 Wright Street
Madison, WI 53704-2583

Telephone (608) 246-3800
FAX (608) 246-5383

Milwaukee-Madison Passenger Rail Corridor Study
Frequently Asked Questions

Compatibility With Other Rail Traffic

January 2001

What assurances can be given in regard to the compatibility of high-speed rail service and potential future commuter and/or light rail service (e.g., commuter-oriented transit services now being evaluated/planned for the same corridor)? How many trains, in total, could possibly travel through this corridor in the future, and which service would have operating priority along the corridor? How are the train schedules (frequencies, times of day, etc.) for freight rail, high speed rail and commuter rail being coordinated to minimize congestion—both for trains on the tracks and for traffic at street crossings?

A goal of the Milwaukee-Madison Passenger Rail project is to not interfere with the business of freight operations along the corridor, as well as be compatible with any future commuter rail service within the corridor. With proper infrastructure improvements such as improved signaling and additional track sidings, high-speed passenger rail service would not at all preclude any commuter rail service along the same rail corridor. In total, ten round-trip regional trains are planned to serve the City of Madison. Wisconsin & Southern Railroad (WSOR) currently operates one round-trip train daily between Madison and Watertown to the east, and, depending on the day, up to 16 round-trip trains through the Isthmus under Monona Terrace to the west. The Dane County Commuter Rail Feasibility Study recommended that at peak travel periods, commuter trains operate at 20-minute intervals. As schedules are refined for both regional passenger service and local commuter service, efforts will be made so that both passenger and freight trains have a minimal impact on each other's operation as well as on roadway traffic at crossings.

Can an increase in freight traffic on the rail corridor be expected if the track is improved?

The fluctuations in the market demand for freight service by Wisconsin & Southern Railroad (WSOR) along the existing rail corridor are dependent on WSOR's customers and are independent of developing high-speed passenger rail service along the same corridor. Economically, an increase in demand for freight service would be accommodated by adding additional cars to an existing train rather than operating more trains along the corridor.

For more information, contact the Wisconsin Department of Transportation at mwrri.mil-mad@dot.state.wi.us or 608.246.3800.

How will the proposed rail service affect existing freight rail schedules using the same tracks, both with the initial additional rail traffic as well as projected traffic in the future? Will it create additional late night/early morning runs?

Wisconsin & Southern Railroad (WSOR) which operates in the corridor does not have any plans to change its operating hours in response to future passenger service. The operating hours of the existing freight rail service will not be affected by the addition of passenger service.

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Compatibility With Neighborhoods Along Corridor

January 2001

Will there be a committee of stakeholders and interested parties working on final development of details—such as physical design of facilities (specific to each area of the rail corridor), corridor management issues, and various operating agreements?

WisDOT has been attending neighborhood meetings to receive input on neighborhood concerns such as aesthetics, roadway access, and safety. As the project progresses, the Department of Transportation is interested in participating in committees of stakeholders that would make aesthetic decisions to blend the rail corridor into the local neighborhoods.

How will maintenance of the rail corridor be guaranteed, and how will neighbors be notified of any spraying?

The Wisconsin Department of Transportation will work with Wisconsin & Southern Railroad to develop maintenance agreements for the existing rail corridor within Madison, should that corridor be used to access Madison. As part of that agreement, a provision for notifying neighbors of the rail corridor of any spraying can be included.

Who will have the responsibility of maintenance of the areas next to the track, specifically regarding trash, snow removal, the fencing, crime prevention in relation to the fencing, etc?

The railroad owning the rail corridor or operating in it will be responsible for maintenance. This will include track maintenance, fencing, trash collection, and snow removal. The Wisconsin Department of Transportation will ensure that regular track maintenance as well as nuisance conditions in the corridor related to trash and snow removal are addressed as a part of its operating agreement with the railroad.

What entity currently owns the railroad corridor right-of-way, and what entity would own the right-of-way after implementation of high-speed rail service?

The railroad corridor right-of-way in Madison is currently owned Canadian Pacific Railway (CP Railway) and Union Pacific Railroad (UP). It is operated under lease by Wisconsin & Southern Railroad. Amtrak has the authority to operate passenger service on freight-owned rail throughout the country. The ownership of the rail corridor need not change for Amtrak to operate high-speed passenger rail service.

For more information, contact the Wisconsin Department of Transportation at mwrri.mil-mad@dot.state.wi.us or 608.246.3800.

Will trains travel at 110 mph through the City of Madison?
No. If, for instance, a station location and alignment alternative were chosen that required trains to pass through the neighborhoods on the east side of the City of Madison, they would operate at speeds much slower than 110 mph. For example, as a westbound train from Milwaukee entered the City of Madison, it would decelerate to about 60 mph by the time it reached USH 51, and to around 20 mph at Milwaukee Street. If a station were to be located downtown or along Pennsylvania Avenue, the train would maintain a slow speed until its stop at the station, then gradually accelerate to approximately 30 mph near Aberg Avenue, and 60 mph as it approached the airport and continued west to Minneapolis/St. Paul on a future corridor. If a station were located at the airport, the train would not fully accelerate to speeds of 60 mph and above until after it stopped at the airport. Once outside the urban areas of Madison, the train would resume operation at speeds up to110 mph.

Will we have the option for fencing at a 50-foot distance?
From the perspective of safety, it is desirable to place fencing as close to the right-of-way (i.e., as far from the track) as possible. The width of the rail right-of-way varies through Madison, and the existing track is not necessarily centered within the corridor, so an exact, consistent distance cannot be called for along the entire corridor.

In certain locations along the corridor, CP Railway and UP have developed agreements with local neighborhoods to establish community gardens within the railroad right-of-way. It is expected that these gardens can be maintained as-is, and that fencing would be brought in closer to the tracks to accommodate these gardens.

Have you calculated how many trees will need to be cut, and where?
It is not expected that any trees will need to be removed within Madison to accommodate any improvements to the rail corridor, since all construction on the project would occur within the rail corridor right-of-way.

Will there will abatement available for any damages on adjacent properties?
WisDOT would cover any damages to adjacent properties during construction.

How will the new rail affect pedestrian wheelchair users crossing the tracks? How will the space between the rails with this project compare to what exists today?
The surface elevation of the crossings will continue to match the elevation of the street. The space between the rails where sidewalks currently exist will be extremely similar to the existing surface, except it will be renewed as part of this project. Sidewalk users should notice an improved crossing surface.

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Environment

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AIR QUALITY

What detail can be provided about the exhaust that would be emitted from high-speed rail vehicles? Would these emissions be harmful to air quality, particularly in areas along the rail corridor?

The emissions standards for the new high-speed rail vehicles will meet the new Environmental Protection Agency (EPA) Emissions Standards for Train Locomotives, which were previously unregulated. The following table summarizes the results of a total pollutant burden analysis that has been conducted and compares emissions from the high-speed rail locomotives (HSR) with vehicular traffic (VMT) along the I-94 corridor between Milwaukee and Madison.

TOTAL BURDEN ANALYSIS
Milwaukee-Madison Passenger Rail Corridor (2020)

	Total Emissions per Day, I-94 Corridor, Lbs. (Kg)			
	Hydrocarbons (HC)	Carbon Monoxide (CO)	Nitrogen (NOx)	Particulates
HSR Emissions	69 (31)	240 (109)	1,230 (558)	42 (19)
VMT Emissions	1,191 (540)	8,978 (4,072)	1,480 (671)	39 (18)
Net Change	-1,121 (-509)	-8,738 (-3,963)	-251 (-114)	+3 (+1)

Source: HNTB October 2000

As the table illustrates, the analysis indicates that emissions of HC, CO, and NOx will decrease along the corridor with implementation of passenger rail service, and that only a small increase in particulate emissions will occur but will not hinder the area's ability to stay in attainment for particulate levels established in Wisconsin and National Ambient Air Quality Standards (NAAQS). This net benefit to the environment is possible because passenger rail provides an alternate means of travel and reduce vehicle trips on highways. This analysis and additional information on air quality is included in the Draft Environmental Assessment (EA) document currently being prepared.

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ENVIRONMENTAL STUDY PROCESS

What is the process for environmental studies; what are the steps, who is responsible and what is the timetable for each?
A Consultant selected by WisDOT is currently preparing an Environmental Assessment (EA) of the Milwaukee-Madison Passenger Rail Corridor Study in compliance with the National Environmental Policy Act (NEPA) and the Wisconsin Environmental Policy Act (WEPA). The EA is expected to be completed by March 2001. Notification of its completion will be published in local newspapers and copies will be made available in local libraries. With the notification, a 30-day period for public comment will begin, along with the opportunity for a public hearing on the document.

NOISE

How often will whistles be used?
Currently, train whistles are blown at each roadway-rail crossing in Madison. The project will include grade crossing warning or protection device improvements at every public crossing. These improvements are being designed to meet the requirements for a quiet zone being proposed by the Federal Railroad Administration's (FRA) rule making process. The implementation of this quiet zone will eliminate the need for whistle blowing except in emergency situations by both passenger trains and existing freight trains.

How will the noise level of high-speed passenger trains compare to other trains?
High Speed Rail (HSR) trains generate noise attributable to locomotive engines, wheels on rail and horn use, and are measured in units of decibels (dB). Like all train noise events, HSR generated noise occurs in short duration and is typically infrequent. Pass-by noise of HSR trains operating between 80-110 mph, measured 100 feet away, is approximately 76-80 dB. This is less than both current conventional Amtrak trains and current freight equipment due to the advanced new train set technology, more modern and quieter locomotives, and the increased passing speed of the HSR trains. Some HSR train manufacturers have indicated that new HSR equipment will have even lower noise levels.

How will the noise change and vibration compared to what exists today?
Continuous welded rail (CWR) will be installed throughout the entire corridor. The entire track will also have new ballast installed. The new ballast will be deeper than the existing ballast. Noise emanating from the track will be minimized with the use of CWR. The current rail is jointed rail. The installation of CWR will substantially reduce the noise effect from the track not only with passenger trains, but existing freight trains as well. Additionally, the weight of the new, high technology passenger trainsets is very light, thus, assisting with minimizing noise and vibration. The sensations felt in very close proximity to the track structure should be far less for passenger trains than freight trains.

What is a "Quiet Zone"? What infrastructure improvements are required in order for a Quiet Zone to be implemented (both at street crossings and along the rail corridor)? What assurances can be given that a Quiet Zone can be implemented and fully complied with along the rail corridor?

The Federal Railroad Administration (FRA) proposed rule defines a "Quiet Zone" as a segment of a rail line within which is situated one or a number of consecutive highway/rail grade crossings at which locomotive horns are not routinely sounded. The creation of a "Quiet Zone" is discussed in regulations currently being proposed by the Federal Railroad Administration. To create a Quiet Zone, a local unit of government must designate the extent of the quiet zone, install the necessary warning devices and supplemental safety devices and comply with various notice and information requirements of Sec. 222.35(a) of the proposed rules. Sec. 222.35 requires the community desiring to designate a quiet zone to notify the affected railroad(s), the agency having jurisdiction over vehicular traffic at the crossings in the designated quiet zone, the state agency responsible for highway and traffic safety, and the FRA. Following approval by the FRA, notice must be provided to the affected parties of the FRA's approval.

Currently, the FRA is in the process of determining what the exact requirements for a Quiet Zone should be. The Wisconsin Department of Transportation (WisDOT) is anticipating what these requirements will be and is incorporating the necessary grade crossing warning devices and other infrastructure to meet them as part of this project, so that the responsibility of the local government would be only to apply to the FRA to designate a Quiet Zone and pass a local ordinance.

How much noise will the wayside horns create at the crossings?

It is not the intention of this project to install wayside horns at intersections as a substitute for locomotive mounted horns. Wayside horns are as loud as a railroad horn; approximately 96 db at 100 feet. The difference is that noise is more focused than a typical horn on a train, and therefore do not give pedestrians and motorists a sense of the train's presence. The grade crossing horn would sound for about 15-20 seconds, so it would be loud in the immediate area. Currently there are some such stationary horns are in place in rural areas of Nebraska and Texas. The horns do not work as well where there are a number of grade crossings close together, as in an urban setting, because they all sound at basically the same time. These horns are still under study by the FRA.

Can you have adjacent houses be soundproofed? Has this been done in other places?

Typically, noise abatement along rail corridors can be accomplished effectively by improving track structure such as installing continuous welded rail to reduce noise due to the track and concrete ties to absorb vibration and providing noise abatement devices on the passenger trains themselves.

The analysis conducted in the Environmental Assessment (EA) regarding noise impacts will identify methods of noise abatement. If track and train features mentioned above will not be adequate to reduce noise levels to acceptable levels, then more costly measures of noise abatement will have to be considered. These additional measures could consist of constructing noise barriers along the corridor, and, in an extreme case, soundproofing of structures near the rail corridor. At this time, it is anticipated that improvements to the track structure and possibly to the trains themselves are all that will be needed.

Do you use horns on HSR and how loud are they? Can you have any oversight on train whistles on the freight runs?

All trains are required by the Federal Railroad Administration (FRA) to have horns that have a sound level of at least 96 dBA at least 100 feet forward of the locomotive in its direction of travel. The proposed rule being reviewed by the FRA is considering establishing a maximum level for train horn sound level. The proposed maximum levels would be either 104 dBA or 111 dBA. As part of this project, the necessary safety equipment will be installed at grade crossings along the corridor for the local units of government to apply to the FRA for a Quiet Zone, which would limit the use of horns by all trains along the corridor.

What is the noise level for trains running at the lower speeds through the more urban Eastside neighborhoods?

According to measured and modeled noise levels in the Madison area, residents hear noise levels that average approximately 55 to 57 dBA. Modeled future noise levels, with improved tracks and passenger train technology, are expected to be approximately 57 dBA east of Powers Avenue, and 50 dBA west of Powers Avenue. The lower noise levels west of Powers Avenue are associated with lower train speeds.

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Grade Crossings and Safety

January 2001

What are the proposed safety treatments for the public streets at rail crossings?

A variety of safety treatments are being proposed at public rail crossings. Which technique or combination of techniques will be employed at any particular crossing will be determined by the individual circumstances of the crossing. Some two-lane crossings with very little vehicular or pedestrian traffic may have a single gate arm in each driving lane. A crossing with more activity might have a single extended gate arm or a median barrier to prevent cars from driving around the gate arm to cross the tracks. Still other crossings might have quad gates installed with four gate arms installed—two on each side of the tracks—to effectively seal off the crossing. In the case of higher speed crossings at major highways, a vehicle arresting barrier gate might be considered.

The consultant report also identifies a number of crossings as suitable for closure. These crossings are being discussed with the City of Madison and we expect these crossings will be considered in the City Council's recommendations. Crossing closures can only occur after a public hearing by the Office of the Commissioner of Railroads (OCR), an independent State agency not a part of WisDOT. WisDOT will not recommend to the OCR the closure of any crossing not supported by the City. In addition to safety features for vehicles, pedestrian and bicycle activity is also considered. Back gates will be employed on all crossings with pedestrian/bicycle traffic. If volumes warrant and other methods provide insufficient protection, grade separated pedestrian crossings would be considered.

For more information, contact the Wisconsin Department of Transportation at mwrri.mil-mad@dot.state.wi.us or 608.246.3800.

What other safety measures are being taken?

Apart from the crossings themselves, the corridor will be fenced. The fencing in the urban areas of the rail corridor will be decorative. It will be designed in cooperation with local neighborhood and community groups to blend in with surrounding housing and local development yet enhance the safety of the corridor by directing people to cross the tracks at designated crossings only. The fencing will not create a visual barrier for community residents. As a general rule, fencing would be placed at the railroad's property line. In cases such as the gardens at St. Paul Avenue and East Main Street, an exception is possible, if it can be done safely, where the railroad has made agreements for those plots to be used as neighborhood gardens.

Track improvements will include rebuilding the rail bed and providing new heavy gauge continuously welded rail. These improvements will allow all trains to safely operate along the corridor at the proposed speeds.

A new state-of-the-art positive train control (PTC) signal system will be installed along the entire corridor to ensure that both passenger and freight trains are properly separated from each other and to provide information to the train engineers on the status of warning devices at each grade crossing. If problems are detected, the trains can be automatically slowed or stopped.

What will the City of Madison be responsible for regarding grade crossing warning devices and the closure of streets?

All grade crossing warning devices (e.g., flashing lights, gates, etc.) will be paid for with federal and state funds by the project. A list of recommended street closures has been developed by the consultant. Final approval of this list by the City of Madison will be sought. The Wisconsin Department of Transportation will only recommend street closures where the City has offered its approval. The list of recommended closures will then be presented to the Office of the Commissioner of Railroads (OCR) for consideration; only the OCR has the authority to close a railroad crossing.

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Madison Station and Access Alignment Development

January 2001

What is the process for determining a station location in Madison?

The Wisconsin Department of Transportation (WisDOT) hired a consultant to prepare an evaluation of station location and access alternatives to serve the Madison area. The consultant's report, *An Assessment of Passenger Rail Access Alignments and Station Location Alternatives*, was provided to the City of Madison, Dane County, and the Madison Area Metropolitan Planning Organization (MPO) as a tool for developing their individual recommendations to WisDOT for a station and alignment alternative. WisDOT has requested that each of these three entities, with the information provided in the consultant report, form their own recommendation for a station location and access alignment and submit it to WisDOT. WisDOT will use these recommendations to determine which alternative station location and access alignment to invest in. The City of Madison Common Council has indicated they expect to make a final recommendation to WisDOT after their February 20, 2001 meeting.

What types of security measures are necessary at the station area, and what entity would be responsible for providing security (and covering those costs)? What additional detail can be provided in regard to the operating costs of a proposed station, and how such costs can be recovered?

The station and its facilities would be owned, operated, and maintained by the local unit of government. Amtrak would be a tenant of the station and pay the local agency a lease to operate train service. In addition, depending on the space available, other businesses could provide complementary service to rail passengers. Examples of these businesses would be rental car agencies, coffee shops, or regional bus providers. The leases could be structured by the local government to cover the costs of operating, maintaining, and providing security at the station.

If the high-speed rail service is not being planned to directly serve a downtown station (and downtown trip origins/destinations), why must the trains travel through central City neighborhoods?

A goal of the Midwest Regional Rail Initiative (MWRRI) is to take advantage of existing rail infrastructure and rail corridors wherever possible to minimize capital costs.

For more information, contact the Wisconsin Department of Transportation at mwrri.mil-mad@dot.state.wi.us or 608.246.3800.

Why was the Hoepker Road access alignment not given more serious consideration, given the fact that it would avoid disrupting existing neighborhoods?

The Hoepker Road access alignment is one of several that the City of Madison is looking at as they prepare to make a recommendation to the DOT on a Madison station location. The remote location of a station on this alignment, environmental impacts, and construction costs for this option were among the factors indicated in the Consultant's report to the City which make it less attractive than utilizing the existing rail corridor. The alignment would affect other neighborhoods in Sun Prairie and the Town of Burke as well.

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Market Demand and Costs

January 2001

What additional information can be provided about the market for high-speed rail ridership? For instance, what information about demographics, origins and destinations and station access transportation (modes of travel used to get to the station) can be provided about those expected to use high-speed rail service?

The Midwest Regional Rail Initiative (MWRRI) is a network of high-speed passenger rail service designed to link major midwestern cities with Chicago as a hub. The MWRRI system is intended to provide an alternative to other modes of regional transportation such as air. Rail travel is less susceptible to weather-related delays—common in the Midwest—than air travel; fares will be structured to be competitive with air travel.

Approximately 26% of the riders are expected to use the service for business purposes. The remainder of the riders will be using the service for a variety of reasons that accommodate their plans.

A study was conducted as part of the MWRRI that estimated that by 2010, there would be approximately 1,000 total boarding and alighting (500 on and 500 off) daily passengers, and that by 2020, the total forecasted ridership would be 1,200 passengers in Madison. These passengers are expected to use regional high-speed rail for similar trips as air service, such as business trips, vacations, and weekend excursions.

It has been estimated that access to rail stations in all cities will be available by a variety of means, which would likely include auto, taxi, and rental car. Where available, local transit service via bus or commuter rail, and regional bus service may also provide service to MWRRI stations.

Of the estimates of 1,000 train riders/day, how many will be getting off the train here? Also, has any evaluation of the number of Madisonians that will ride the train each day?

It is forecasted that in 2010, approximately 1,000 total boardings and alighting (estimated at 500 boardings and 500 alightings) would occur each day at the Madison station. In 2020, the total number is forecast to be 1,200. It has been estimated that 70% of passengers using the Madison station will be from the local Madison area.

What will the fares be?

Fares between Madison and Milwaukee are currently estimated at somewhere between $19 and $33 each way. Although the fares have not yet been set, it is anticipated they would be somewhat lower between the intermediate stations and either Madison or Milwaukee. The fare from Milwaukee to Chicago would remain at the current $20 each way. Discounted fares may be offered for groups, students and seniors, through promotions, or with multi-trip tickets.

Can WisDOT demonstrate that the proposed rail line will be financially viable? How did high-speed rail planners determine that the service would be able to recover its operating costs? What would happen if ridership does not meet expectations? What entities would be responsible for paying the subsidies required to continue operating the high speed rail service?

As part of the MWRRI, a study was conducted of the technical, financial, and economic aspects of a Midwest Regional Rail System and determined that the system would be financially viable when the network is fully developed in 2010. A summary of this study can be found on the Internet at http://www.dot.state.wi.us/opa/rail.html.

The study included an investment grade review of the project, which concluded that the project would cover its operating costs if developed as projected. Initially, the capital costs of constructing the system are expected to be paid for with a combination of federal bonds to Amtrak and state transportation funds. In Wisconsin, the cost share between the two would be 80% federal, 20% state. If ridership does not meet expectations, the State Legislature would be responsible for deciding whether to provide funds to continue the service.

Where is the funding for this project coming from?

Governor Thompson's Blue Ribbon Task Force on Passenger Rail recommended seeking 80% of the capital costs from the federal government with the remaining 20% from state sources. Members of Congress are preparing to introduce a bill that would provide Amtrak with the authority to sell $10 billion in bonds over a ten-year period to assist states in funding high-speed rail projects. These bonds would be available to a state at an 80%/20% share. The bonds would not use funds from the Federal Transportation Trust Fund. No decision has been made about proceeding with this project if 80% funding is not available from the federal government. The Task Force recommended that the Governor should provide additional direction to the legislature regarding other potential funding sources to support intercity passenger rail development.

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January 2001

How does the decision of a station location and access alignment for Madison affect the project schedule?
To facilitate the development of high-speed passenger rail service between Milwaukee and Madison by the project goal of the end of 2003, decisions on the access alignment and station location in Madison need to be made in early 2001 to allow for enough time to design the necessary infrastructure.

Additionally, another goal of the project is to obtain 80% funding from the federal government. The funding source for the project would come from a bill that will be reintroduced to Congress early this year, which would fund bonds to develop designated high-speed rail corridors around the United States. Anticipating passage of this bill, Wisconsin needs to be prepared with as much of the Milwaukee-Madison corridor designed to apply for this funding; the more design that is complete, the more competitive Wisconsin will be against other rail corridors under development in Illinois and the northwestern United States in acquiring funds in time to meet the first goal of implementing passenger service between Milwaukee and Madison by the end of 2003.

WisDOT staff will continue to assist local units of government to facilitate their recommendations.

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Property Values

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What information can be provided in regard to the effects of new high-speed rail service on residential and commercial property values, particularly properties directly abutting the rail corridor? What measures can be taken to mitigate the effects of the proposed additional rail service on abutting landowners, or compensate for the potential losses of those landowners?

The Milwaukee-Madison high-speed passenger rail project is one of the first of its kind in the United States. To date, there does not yet exist another corridor with similar, 110 mph passenger rail service. Because of this, data on the affect of developing this service is not yet readily available. Even so, as this project has developed over the past year, WisDOT has begun to monitor property sales along the Milwaukee-Madison corridor. At this time, there have not been any known sales to indicate what effect, if any, this project is having on property values.

WisDOT has been working with communities along the corridor to identify neighborhood concerns such as aesthetics, roadway access, and safety. This effort will continue throughout the project.

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Traffic Impact

January 2001

What information can be provided in regard to the impacts of the high speed rail service on City of Madison auto and bus traffic—particularly traffic using streets on the north and east sides of the City? Would the future implementation of commuter and/or light rail in that same corridor also impact traffic congestion? Does high-speed rail make future commuter rail more prone to congestion impact issues?

Regional passenger rail service to Madison would initially consist of six daily round-trips between Madison and Milwaukee with continuing service to Chicago. In the future, an additional four round-trip trains would provide service between Chicago and Minneapolis through Milwaukee and Madison. Coordination between the grade crossing warning devices and nearby traffic signals could assist in resuming normal traffic flow once crossings were reopened, thereby minimizing impacts to roadway traffic.

This same issue would also apply to any future commuter rail along the same corridor, and again, with proper signal coordination, impacts to traffic flow can be minimized. It is expected that high-speed passenger rail, commuter rail, and freight rail can all operate within the same rail corridor and that, with adequate track and proper signaling any one service would not preclude desirable operation and scheduling of the other two.

As part of their review of potential station locations, City of Madison staff reviewed the Consultant's recommendations regarding potential street closures. This review included the effects of traffic pattern changes. The results of this review influenced the City's recommendation to close fewer streets than originally proposed.

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