

the milwaukee **STREETCAR**  
project



City of Milwaukee, Wis.  
**Environmental Assessment**

October 2011

*Prepared by the City of Milwaukee  
in cooperation with the Federal Transit Administration*



# MILWAUKEE STREETCAR ENVIRONMENTAL ASSESSMENT

## Milwaukee, Wisconsin

Prepared in accordance with:

National Environmental Policy Act of 1969 (42 U.S.C. 4332 et. seq.), as amended

Federal Transit Act (U.S.C. 5301 et. seq.) as amended

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)  
(Public Law 104-59)

By the:

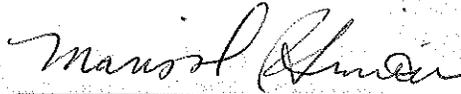
The City of Milwaukee, Wisconsin

In cooperation with:

The Federal Transit Administration, U.S. Department of Transportation

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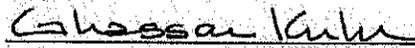
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Marisol Simon, Regional Administrator  
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## RESPONSIBLE AGENCIES

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**Project Sponsors:** City of Milwaukee

## WHERE TO FIND COPIES OF THIS DOCUMENT

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To view an electronic copy of this document, please visit the project Web site at [www.themilwaukeeestreetcar.com](http://www.themilwaukeeestreetcar.com).

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## ABSTRACT

The proposed Milwaukee Streetcar project would establish a starter streetcar system in and around downtown Milwaukee connecting workers, visitors and residents to key destinations and attractions.

This Environmental Assessment (EA) considers the effects of a streetcar starter system in the City of Milwaukee. The alternative reviewed in the EA was selected through an Alternatives Analysis conducted as part of the Milwaukee Streetcar project. This analysis resulted in a recommended locally preferred alternative (LPA) that provides streetcar service from the Milwaukee Intermodal Station on St. Paul Avenue, through downtown to Ogden Street on the City's northeast side (initial route). Proposed route extensions could expand the system north along 4<sup>th</sup> Street on the west side of the Milwaukee River and along the Prospect and Farwell corridors to the Brady Street area.

This EA considers the potential short-term and long-term effects of the project including social and economic factors, physical factors and indirect and cumulative effects. The analysis also includes a summary of the project's public involvement activities and describes the project's cost estimates.

## SUBMITTING COMMENTS

Comments on this environmental assessment must be received at the City of Milwaukee by **5:00 PM CST, Friday, December 2, 2011.**

Comments may be submitted to the City of Milwaukee via the project website:

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## PROJECT NOMENCLATURE

The locally preferred alternative (LPA) reviewed in this Environmental Assessment (EA) is a streetcar starter system in the City of Milwaukee. In the EA and supporting documentation, it is described as two separate phases as follows:

1. Initial Route (also known as Package 1, initial phase, or initial system)
2. Route Extensions (also known as Package 2)

The initial route and route extensions are mapped in Figure 1.

**Figure 1: Locally Preferred Alternative. Initial Route and Route Extensions**



# GLOSSARY OF TERMS AND ACRONYMS

## Acronyms and Abbreviations

|         |  |
|---------|--|
| ADA     | American Disabilities Act of 1990  |
| AHI     | Architecture & History Inventory of the Wisconsin Historical Society               |
| APE     | Area of Potential Effect   |
| AQMA    | Air Quality Maintenance Area   |
| AQMP    | Air Quality Maintenance Plan   |
| AST     | Aboveground Storage Tank   |
| BMP     | Best Management Practice   |
| BSPO    | Burial Sites Preservation Office   |
| CAAA    | Clean Air Act Amendments   |
| CERCLIS | Comprehensive Environmental Response Compensation and Liability Information System |
| CFR     | Code of Federal Regulations  |
| CO      | Carbon Monoxide  |
| dBA     | A-weighted decibel   |
| DBE     | Disadvantaged Business Enterprise  |
| DHHS    | U. S. Department of Health and Human Services                                      |
| DNR     | Wisconsin Department of Natural Resources  |
| DOE     | Determination of Eligibility for the National Register of Historic Places          |
| EA      | Environmental Assessment   |
| EBE     | Emerging Business Enterprises  |
| EC      | Engineering Control  |
| EJ      | Environmental Justice  |
| EPA     | U. S. Environmental Protection Agency  |
| ERNS    | Emergency Response Notification System   |
| FEMA    | Federal Emergency Management Agency  |
| FHWA    | Federal Highway Administration   |
| FONSI   | Finding of No Significant Impact   |
| FTA     | Federal Transit Administration   |
| HMA     | Hazardous Materials Assessment   |
| HNTB    | HNTB Corporation   |
| I-794   | Interstate Highway 794   |
| IC      | Institutional Control  |
| Ldn     | Day-night sound level  |
| LOS     | Level of Service   |
| LPA     | Locally Preferred Alternative  |
| LUST    | Leaking Underground Storage Tank   |
| MCTS    | Milwaukee County Transit System  |
| MOA     | Memorandum of Agreement  |
| MORE    | Milwaukee Opportunities for Restoring Employment Ordinance                         |
| NAAQS   | National Ambient Air Quality Standards   |
| NEPA    | National Environmental Policy Act  |
| NFRAP   | No Further Remedial Action Planned   |
| NHPA    | National Historic Preservation Act of 1966   |
| NOX     | Nitrogen Oxides  |
| NRHP    | National Register of Historic Places   |

|            |  |
|------------|--|
| OCS        | Overhead Contact System  |
| ppb        | Parts per billion  |
| ppm        | Parts per million  |
| RCRA       | Resource Conservation and Recovery Act   |
| RTP        | Regional Transportation Plan   |
| SAFETEA-LU | Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users |
| SEWRPC     | Southeast Wisconsin Regional Plan Commission   |
| SHPO       | State Historic Preservation Officer or Office  |
| SWL        | Solid Waste Landfill   |
| TIF        | Tax Incremental Finance District   |
| TIP        | Transportation Improvement Program   |
| TOD        | Transit Oriented Development   |
| TPSS       | Traction Power Substation  |
| USFWS      | United States Fish and Wildlife Service  |
| UST        | Underground Storage Tank   |
| VCP        | Voluntary Clean-up Program   |
| VDC        | Volts Direct Current   |

## Glossary of Technical Terms

**Americans with Disabilities Act of 1990 (ADA)** – The legislation defining the responsibilities of and requirements for transportation providers to make transportation accessible to individuals with disabilities.

**Best Management Practices (BMPs)** – In this document Best Management Practices refers to controlling stormwater runoff to minimize the release of soils and pollution into the water system. BMPs include primarily erosion control measures that capture soils before they are released either into nearby storm sewers or natural waterways, such as the Milwaukee River. To implement the national Clean Water Act, which regulates water pollution, the Department of Natural Resources and the City require the application of BMPs when excavation will be taking place.

**Capital Costs** – The expenses incurred within the year related to the construction of facilities, and purchase of vehicles and equipment.

**Disadvantaged Business Enterprise (DBE)** – Small business owned and operated by socially and economically disadvantaged individuals with at least a 51% interest. African Americans, Hispanics, Native Americans, Asian-Pacific and Subcontinent Asian Americans, and women are presumed to be socially and economically disadvantaged. Other individuals can also qualify as socially and economically disadvantaged on a case-by-case basis.

**Emerging Business Enterprise (EBE)** – An EBE is defined by the City of Milwaukee as a small business that is owned, operated and controlled by one or more individuals who meet three out of the five following criteria: are at a disadvantage with respect to education, employment, residence or business location, at a social disadvantage, and have a lack of business training.

**Environmental Justice (EJ)** – Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Formal federal policy on environmental justice was established in February 1994 with Executive Order 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*.

**Finding of No Significant Impact (FONSI)** – The lead agency will make this finding if after the environmental assessment is prepared and comments received and addressed they find that the project is not likely to have any significant impacts. The lead agency for the Milwaukee Streetcar project is the Federal Transit Administration.

**Headways** – The time between two streetcars traveling on the same route, in other words, the time between streetcars at a streetcar stop.

**Interstate Cost Estimate (ICE) Funding** - Federal funds distributed to states for transportation improvements. The ICE fund apportionment for the Milwaukee Streetcar project was based on Interstate completion needs per State and compared with overall needs.

**Low Floor Boarding** – A low floor streetcar vehicle having one or more entrances that have no steps between the entrances and the passenger cabin. Low floor boarding improves accessibility for passengers and is well suited for people who use push chairs, wheelchairs, or who have difficulty walking up and down stairs.

**Milwaukee Intermodal Station** – An intercity transit hub that is utilized by both bus and train services. It is a center for regional bus lines carrying passengers on Greyhound Lines, Jefferson Lines, Indian Trails, Lamers, and Coach USA. Passenger rail service to the Intermodal Station is provided by Amtrak through the Hiawatha and Empire Builder train routes.

**National Environmental Policy Act (NEPA)** – (40 CFR §§ 1500–1508). The federal law that requires consideration of the potential impacts of federal actions on the environment. To assist Federal agencies in effectively implementing the environmental policy the Council on Environmental Quality (CEQ) issued the guidance document: *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*.

**National Register of Historic Places (NRHP)** – The National Register of Historic Places is the official list of historic places in the United States worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.

**Opticom** – The City of Milwaukee traffic signals are currently working with 170 controllers that use emergency vehicle preemption (EVP) through the “Opticom” system. Vehicle detection equipment such as Opticom detects a signal sent when the driver pushes a button to activate a light signal to allow vehicles to travel through signalized intersections.

**Overhead Contact System (OCS)** – Overhead lines situated over the streetcar tracks, used to transmit electrical power to the streetcar. The overhead lines are mounted on a support system comprised of poles and mast arms. The power is transmitted by means of a sliding contact between the overhead wire and the current collector (pantograph) of the streetcar.

**Park Once** – Park Once is a parking enhancement concept designed to reduce traffic congestion and improve visitor friendliness. Park Once encourages downtown employees and visitors to only park once during their visit by relying on pedestrian way-finding signage, real-time parking signage and public forms of transportation. Elements of the Park Once concept include:

- Newly installed pedestrian way-finding signs, which divide downtown into districts and steer visitors to key points of interest
- Static parking signs similar to directional signage that guides visitors to parking options
- Dynamic parking signs that direct drivers to garages in a particular downtown district and provide real-time information on the number of parking spaces available

**SAFETEA-LU** – On August 10, 2005, the President signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). This federal act guaranteed funding for highways, highway safety, and public transportation totaling \$244.1 billion.

**Section 106** – Section 106 of the National Historic Preservation Act (Federal historic preservation regulations).

**Streetcar** – The type of streetcar proposed for this project is a modern public transit vehicle that runs in mixed traffic on rails embedded into the street. It is electrically powered using an overhead contact system.

**Streetcar Stops** – The streetcar stops or stations are locations where passengers can enter or exit a streetcar vehicle. They are similar in size and fashion to bus stops with some of the stops including signage and a shelter for passengers waiting for the streetcar to arrive.

**Tax Increment District** – A contiguous geographic area within a city defined and created by resolution of the local legislative body, consisting of units of property as are assessed for general property tax purposes. See also Tax Incremental Financing.

**Tax Incremental Financing** – A public financing method in which a jurisdiction borrows money to spend it on new streets, utilities, environmental cleanup work or other project expenses. The municipality can then recover those funds through the new project’s property taxes. Once the municipality’s debt is paid off, the project’s property taxes go back to the municipality, school district and other local governments.

**Title VI** – As in Title VI of the Civil Rights Act of 1964, prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance.

**Transit Oriented Development (TOD)** – This term is used to describe urban development that surrounds access to transit stops or stations. It is often made up of the mixed land uses that are attracted to transit including workplaces, homes, and shopping districts.

**Wisconsin Center District** – The Wisconsin Center District (WCD) is a government body created under Wisconsin State Statute in 1994 to fund, build and operate the Midwest Express Center (now Frontier Airlines Center) in downtown Milwaukee, and continue operating the existing venues now called the U.S. Cellular Arena and Milwaukee Theatre. Not a unit of state, county or city government, the WCD is instead a semi-autonomous municipality called a “district,” meaning its leaders are appointed and it can issue bonds and collect taxes within strict limits. The Wisconsin Center District has been the Federal Transit Administration grantee for the Milwaukee Connector Study and Milwaukee Streetcar project, through partnerships with local government bodies including the City of Milwaukee.

# 1. EXECUTIVE SUMMARY

The City of Milwaukee proposes to construct a starter streetcar system in downtown Milwaukee and the nearby neighborhoods. This executive summary explains the basics of the project, project need and the project's effects.

## 1.1 PURPOSE AND NEED

The **purpose** of the project is to implement a starter streetcar system with modern vehicle technology that circulates people around downtown, links downtown destinations, activity centers and neighborhoods and supports planned development.

The **need** for the streetcar project is based on the following issues:

- § Project need 1: Milwaukee's downtown is a large area with dispersed activity centers that has experienced a resurgence of new development over the past 15 years.
- § Project need 2: Milwaukee's downtown lacks high quality transit that circulates people around downtown and adjacent neighborhoods and destinations.
- § Project need 3: Improved transit services and facilities are needed to support local land use and development goals and objectives.
- § Project need 4: Legislation has set forth a requirement to spend reserved federal dollars on a downtown rail circulator.

## 1.2 ALTERNATIVES ANALYSIS

The City of Milwaukee developed three streetcar route alternatives along with their respective sub-options and potential route extensions. Each route focused on creating a streetcar transit connection between the major business and entertainment areas of downtown Milwaukee with nearby neighborhoods that contain high density residential housing. Each alternative was developed with an initial system that would be paid for with existing federal Interstate Cost Estimate funds. In addition, each alternative considered potential route extensions that would only be constructed if additional funding could be secured.

Figure 8 is a complete summary of the alternatives analysis process. Descriptions and maps of each alternative are included in the Environmental Assessment. Technical analysis for each alternative was completed. The City conducted a number of public outreach meetings and stakeholder briefings to obtain feedback on the route alternatives. The Environmental Assessment includes a detailed description of the public outreach efforts.

Alternatives were ranked based on a number of criteria and evaluation factors, such as public interest, ridership, engineering, cost, effects on traffic operations, environmental justice considerations, future land use and economic development potential, and how well the alternatives met the City's adopted long range goals. Details of the ranking process are included in the EA. Using this ranking and elimination process the City narrowed the alternatives down until they came to a "locally preferred alternative" (LPA), which is the alternative analyzed in the EA.

A No Action Alternative is also considered in the Environmental Assessment. The No Action Alternative, fully described in Section 3.1.4, is where the streetcar system would not be constructed. Under the No Action alternative ongoing and future planned projects may be implemented. Past, Present and Future projects are listed in Table 22 on page 139. Even though the No Action Alternative would not directly affect biological, social, and cultural resources in the study area, it also would not address the purpose and need for the project and it would not address the goals of the Milwaukee Streetcar project. It is not consistent with Milwaukee's Downtown Area Plan.

### **1.2.1 Locally Preferred Alternative (LPA)**

The City selected Alternative 1-2A, which includes an initial route that connects the Milwaukee Intermodal Station on St. Paul Avenue and circulates through downtown. The LPA also includes route extensions along 4<sup>th</sup> Street/Juneau Avenue and Prospect/Farwell Avenues. These extensions will be constructed if funds become available. The initial route would cover 2.05 miles while the extensions would be 1.5 miles for a total of 3.5 miles. A detailed description of the LPA route is included in the EA, including the routes and capital improvements including the tracks, stops and shelters, an overhead electrical power system including substations, poles and wires, and a maintenance and storage facility. The streetcar vehicle would be a modern streetcar on a fixed guideway similar to those used in Portland, Tacoma and Seattle. The LPA will require improvements to the roadways to ensure safety and good traffic flow. These improvements will include lane reconfigurations, traffic signals, transit-only lanes, and bike lanes. The project will be coordinated with other roadway projects.

The EA also describes the streetcar operating characteristics including service frequency and hours of operation. The streetcar would operate seven days a week with frequent service during busy times. The streetcar would have 10 to 15 minute headways depending on the time of day.

The streetcar service will be integrated with other modes of transportation so that people can conveniently transfer from one mode to another to get to their final destination quickly and easily. The streetcar will have a stop next to the Milwaukee Intermodal Station to provide connections to passenger rail service, regional bus service and the Milwaukee County Transit System (MCTS) bus service.

Ridership on the initial route is expected to be 1,800 rides per day and 588,000 rides per year. By 2030 the route extensions are expected to increase ridership by 19% to 3,600 rides per day and 1.16 million annual riders.

The capital costs for the initial streetcar system are estimated to be \$64.6 million. The route extensions would add \$40.2 million for a total combined capital cost of \$104.8 million. The streetcar route with extensions has an estimated annual Operation and Maintenance cost of \$2.65 million for the initial route and \$4.89 million with both route extensions based on the route characteristics and service plan.

## **1.3 ENVIRONMENTAL RESOURCES, IMPACTS AND MITIGATION**

The environmental impacts of the streetcar locally preferred alternative are summarized in the following tables. This Environmental Assessment provides greater details. The alternative of not constructing the project – the No Action Alternative - was eliminated early on in the Alternative Analysis phase but is considered in the Environmental Assessment as a baseline against which the Streetcar LPA is compared. Throughout the EA, for each resource evaluated, both the potential impacts of the Streetcar LPA and the No Action Alternative are discussed. The following table summarizes the potential effects of the Streetcar LPA.

**Table 1: Summary of Effects**

| <b>FACTORS</b>              | <b>No Build</b>  | <b>Locally Preferred Alternative</b>  |
|-----------------------------|--|---|
| Land Use                    | No impact.   | Minor impact. Land use at the maintenance facility will change from strictly freeway use to a building located under the freeway bridges.   |
| Economic Development        | Local economic development goals related to the streetcar would not be realized. | Moderate positive impact.   |
| Environmental Justice       | No impact  | The streetcar project is not expected to have disproportionately high or adverse impacts on environmental justice populations.  |
| Historic and Archaeological | No impact  | No adverse effect to historic properties located within the Area of Potential Effect.   |
| Aesthetics                  | No impact  | Minor impact. Streetcar stops, substations and the overhead electrification system will introduce new visual elements into the downtown.  |
| Section 4(f) Resources      | No impact  | No Section 4(f) resources will be used for this project.  |
| Safety and Security         | No impact  | The project includes a number of design features that will promote passenger and driver safety and the vehicles and stops will be accessible for disabled passengers. This includes design elements on the streetcar vehicles and at stops that consider crime prevention.              |
| Air Quality                 | No impact  | No impact.  |
| Noise & Vibration           | No impact  | Noise and vibration analyses indicate that there are eight residential buildings that would be exposed to noise levels 1 decibel above the moderate impact threshold, however this impact can be mitigated with streetcar design and maintenance. No vibration impacts are anticipated. |

| <b>FACTORS</b>               | <b>No Build</b>        | <b>Locally Preferred Alternative</b>  |
|------------------------------|------------------------|---|
| Hazardous Materials          | No impact              | No impact. The construction activities that take place within the public right of way for track construction are not expected to expose hazardous materials. The maintenance facility site may include historical fill such as brick fragments, wood, coal, cinders, and slag.                                |
| Traffic & Transportation     |                        |   |
| <i>Vehicular Traffic</i>     | Decreased LOS in areas | Minor impact. The streetcar operations could increase delay of vehicular traffic flow. A number of measures are proposed to eliminate conflicts and mitigate delays including lane configurations and changes to traffic signals.   |
| <i>Transit</i>               | No impact              | No impact. Streetcars are not expected to negatively affect any of the existing transit services offered downtown. Bus stop locations may be reevaluated so that they integrate well with the streetcar.  |
| <i>Bikes and Pedestrians</i> | No impact              | Minor positive impact. The streetcar is expected to benefit pedestrians and bicyclists by providing a new transit system that can extend walk and bike trips.   |
| <i>Parking</i>               | No impact              | Minor negative impact. The project is not expected to substantially affect parking with the removal of about 1.4% of the total 7,750 on-street parking spaces along the project route. Existing downtown parking structures and on street parking spaces are expected to be able to accommodate these spaces. |
| <i>Driveways</i>             | No impact              | Minor impact. Three driveways will be affected on one parcel. Access from the site's other driveways as well as from public alleys is available.  |
| Construction                 | No impact              | Minor impact. Construction activities will have temporary impacts to existing bus stops and vehicular traffic while construction is underway. Construction will create temporary noise and dust.  |
| Utilities                    | No impact              | Utilities that are in direct conflict with the placement of the streetcar alignment would need to be relocated or reinforced. The City will continue to work closely with the utility companies through design and construction.  |

| <b>FACTORS</b>              | <b>No Build</b>               | <b>Locally Preferred Alternative</b>   |
|-----------------------------|-------------------------------|--|
| Energy Use                  | Likely increase in energy use | For the initial route the total annual energy consumption would be approximately 1,400,000 kilowatt hours. The total annual energy consumption for the initial system and the extensions would be approximately 2,450,000 kilowatt hours.  |
| Stray Current & Corrosion   | No impact                     | No adverse impacts are expected; design criteria have been developed to minimize stray current.  |
| Livability & Sustainability | No impact                     | The streetcar would support sustainability by reducing automobile travel and thereby reducing greenhouse gas emissions. This additional transit option and associated transit oriented development will support compact neighborhoods and improve connections to other modes of transportation.  |
| Water Quality               | No impact                     | No impact  |
| Wetlands and Floodplains    | No impact                     | No impact  |
| Biological Impacts          | No impact                     | No impact  |
| Coastal Zone Management     | No impact                     | No impact  |
| Indirect Effects            | No impact                     | The increased mobility from the streetcar project in combination with local development policies is favorable for development. These effects may facilitate new housing development; improve the tourism and entertainment industry; and increase the City's economic development potential.   |
| Cumulative Effects          | No Impact                     | Given the history of urban development within the study area, there are many past, present and reasonably foreseeable future actions that may contribute to cumulative effects including continued land use and economic development consistent with City plans and policies; increased mobility for environmental justice populations, elderly and disabled persons; new transit service, and more bike lane mileage. |

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## 2. PURPOSE AND NEED FOR ACTION

The City of Milwaukee proposes to construct a starter streetcar system in downtown Milwaukee and the nearby neighborhoods. The purpose and need for the Milwaukee Streetcar project is discussed in this section following some background information.

### 2.1 PROJECT BACKGROUND

The Milwaukee Streetcar project originated from the Milwaukee Connector Study that was initiated to carry out transit recommendations from previous transportation planning efforts during the 1990's. At the onset, the Milwaukee Connector Study was focused on evaluating transit improvements in and around downtown Milwaukee. However, the study area expanded after a series of meetings with the public in 2000 showed a need to connect people to places, not only in downtown, but to surrounding neighborhoods. During the 2000's many different routes and types of transit technologies were evaluated, including light rail, bus and bus rapid transit. Between 2001 and 2004, the study focused on evaluating light rail transit and bus technologies. The study area also expanded to include potential routes north to Highland Avenue west of I-43, along Fond du Lac Avenue to North Avenue, 44th Street and Miller Park, and Canal Street in the Menomonee Valley. Multiple alignments were studied to connect Brady Street, Canal Street, the Historic Third Ward, 30th Street and Fond du Lac Avenue. At the request of Milwaukee County, a connection to Miller Park was included at the western terminus in all route alternatives. Figure 2 shows a map of alignments that have been considered as part of the Milwaukee Connector study.

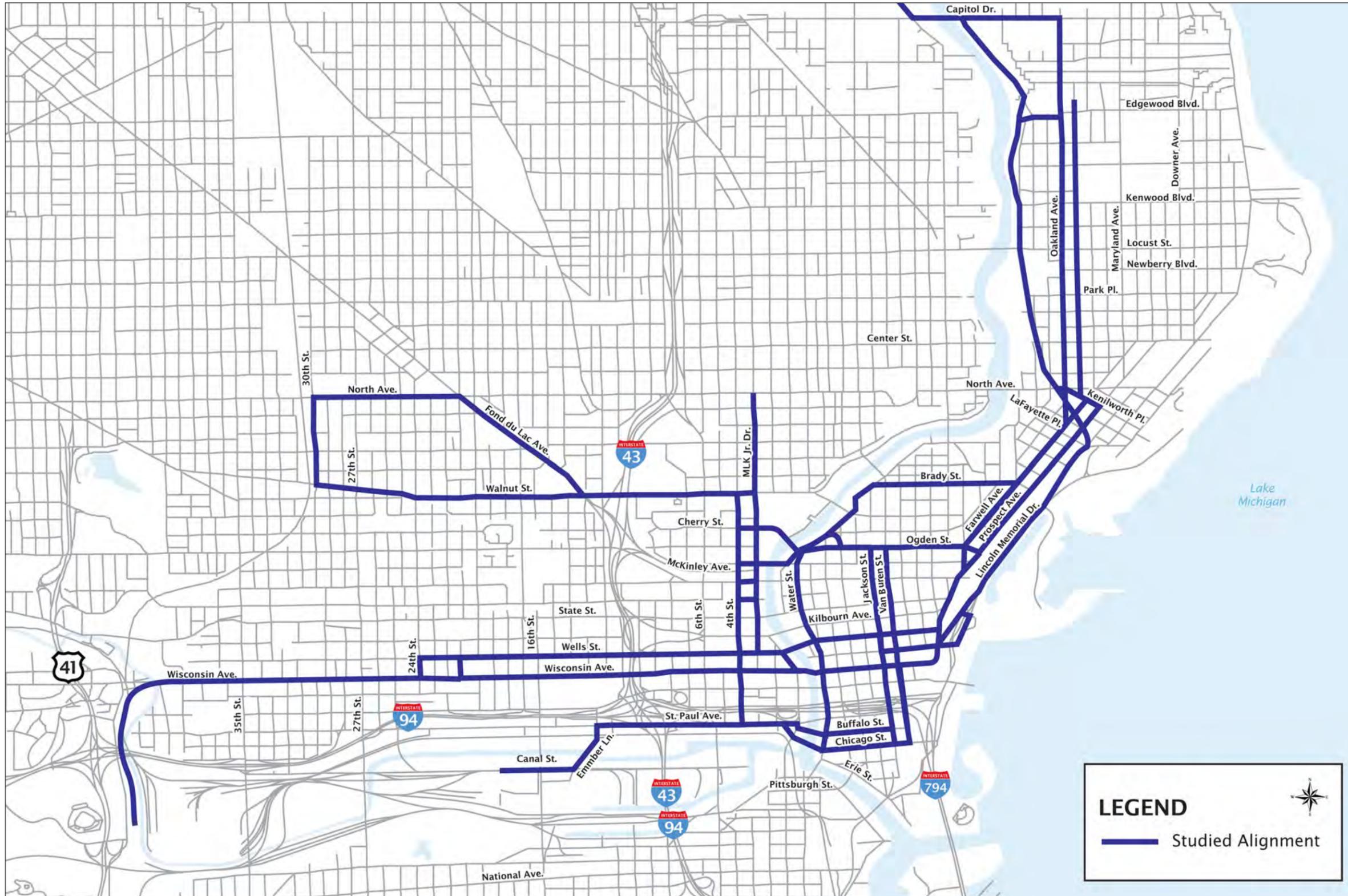
Throughout the study, ongoing public meetings were held, focus groups were conducted and workshops were held to study land use, ridership, routes, vehicle technologies, financing, and governance. In addition, hundreds of small group meetings were conducted as part of an aggressive community outreach effort. The meetings and outreach efforts focused on including the public in the decision making process. Through the course of the study and public outreach, further additions were made to the study area to include additional near-downtown neighborhoods, dozens of routes options and numerous vehicle technologies, such as bus rapid transit and streetcar. Each option was weighed against the goals of improving the transit system for transit riders, increasing transit use (ridership) and encouraging economic development along the routes.

In January of 2004, the Steering Committee approved a two-route system that would utilize guided bus technology, referred to as Guided Street Tram. An east-west line extended from Miller Park to downtown and continued northeast to the University of Wisconsin-Milwaukee. The other route ran southeast along Fond du Lac Avenue from Burleigh Street into downtown and the Third Ward. Resolutions supporting this system were approved by the Milwaukee Common Council and the Milwaukee County Board. However, the respective resolutions were vetoed due to concerns over costs.

Then, in the spring of 2007, the Milwaukee Connector Study project sponsors, comprised of representatives from Wisconsin Center District, Metropolitan Milwaukee Association of Commerce, Milwaukee County and the City of Milwaukee, initiated the next phase of the study with a refocused effort to connect downtown with adjacent neighborhoods using modern fixed rail transit technology. During this time, the City of Milwaukee was beginning to update their Downtown Plan and recognized the value of a modern streetcar transit system to attract and focus their economic development initiatives. At the same time, a bus rapid transit route that would connect the Milwaukee County Grounds to the west with downtown and the University of Wisconsin-Milwaukee to the east was also being evaluated.

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Figure 2: Previously Studied Alignments





In February 2009, the project sponsors held public scoping meetings to introduce the new project phase of the Milwaukee Connector Study. Shortly thereafter, in March 2009, the Federal Omnibus Appropriations Act of 2009 split \$91.5 million in Interstate Cost Estimate funding reserved for the results of the Milwaukee Connector Study. It directed 60% of the money to the City of Milwaukee for a downtown fixed rail circulator and 40% of the money to Milwaukee County for energy efficient buses.

Since the legislation was passed, the City of Milwaukee completed an alternatives analysis for the purpose of selecting a streetcar alignment. The project is moving forward with the Project Development phase including Preliminary Engineering and the Environmental Assessment on the locally preferred alternative (LPA) approved by the Milwaukee Connector Study Steering Committee.

## 2.2 PROJECT PURPOSE AND NEED

The **purpose** of the project is to implement a starter streetcar system with modern vehicle technology that circulates people around downtown, links downtown destinations, activity centers and neighborhoods and supports planned development.

The **need** for the streetcar project is based on the following issues:

- § Project need 1: Milwaukee's downtown is a large area with dispersed activity centers that has experienced a resurgence of new development over the past 15 years.
- § Project need 2: Milwaukee's downtown lacks high quality transit that circulates people around downtown and adjacent neighborhoods and destinations.
- § Project need 3: Improved transit services and facilities are needed to support local land use and development goals and objectives.
- § Project need 4: Legislation has set forth a requirement to spend reserved federal dollars on a downtown rail circulator.

Each of these topics will be discussed in greater detail below.

### 2.2.1 Project Need 1 – Large Downtown with Dispersed Activity Centers

Milwaukee's downtown has experienced a renaissance over the past 15 years with the development of new housing, retail and entertainment facilities. However, due to the large area of downtown, residents and visitors can often find it challenging to reach their destinations. The recent development trends affecting the study area and its existing mobility challenges are discussed below.

#### Study Area

The streetcar study area encompasses approximately 1,200 acres and incorporates a large portion of downtown Milwaukee including the central business district in East Town and the large civic and entertainment uses in the Westtown area. In addition the streetcar study area includes several mixed use neighborhoods including the Historic Third Ward, Yankee Hill, Lower East Side and Brady Street. It also includes a portion of the Park East and Pabst Brewery redevelopment areas. The streetcar study area and the neighborhoods within the study area are shown on Figure 3. The boundary for downtown as defined by the 2010 Downtown Area Plan is also shown on Figure 3 for reference.

**Figure 3: Streetcar Study Area and Neighborhoods**



## Development Patterns and Pedestrian Activity

Downtown Milwaukee has historically been centered around Wisconsin Avenue on both the east and west sides of the Milwaukee River. Over the past 15 years Milwaukee's downtown has expanded to include areas to the north and south of this core that have been redeveloped and transformed into mixed use neighborhoods such as the Historic Third Ward.

The reinvestment in downtown and the study area has brought about many positive changes such as new housing choices, new entertainment and cultural amenities, new retailers and restaurants, and the construction of a Riverwalk system along the Milwaukee River. However, it has also created a relatively large area with a dispersed development pattern. As discussed in the Downtown Area Plan<sup>1</sup>, this dispersed development pattern can present mobility challenges within downtown especially for those traveling by foot.

This is a concern for the study area because a large percentage of the population relies on walking or transit to get to work or to seek goods and services. Based on 2000 U.S. Census Bureau data, 77% of the households in the streetcar study area do not own a vehicle or only have one vehicle available.

Furthermore, the streetcar study area has large volumes of foot traffic because of the concentration of office workers, visitors and residents. Comprehensive pedestrian counts are not available for the study area. However, data collected for the locally preferred alternative (LPA) study shows over 18,000 pedestrian movements occurred during a four-hour period at the planned streetcar stops. The pedestrian counts were taken in 2009 and 2010 during the following peak travel times: 7:30 AM to 8:30 AM; 11:30 AM to 12:30 PM; 4:30 PM to 5:30 PM and 6:30 PM to 7:30 PM. Figure 4 shows the volume of pedestrian movements at each stop location.

Figure 5 shows how the various activity generators – hotels, large employers, parking facilities, attractions, government facilities, commercial centers, households and employees - are distributed across a large area within the streetcar study area. Table 2 shows the distance between many common destinations within the streetcar study area. As can be seen, many of the trips to common destinations exceed a quarter-mile, which is generally considered a comfortable walking distance.

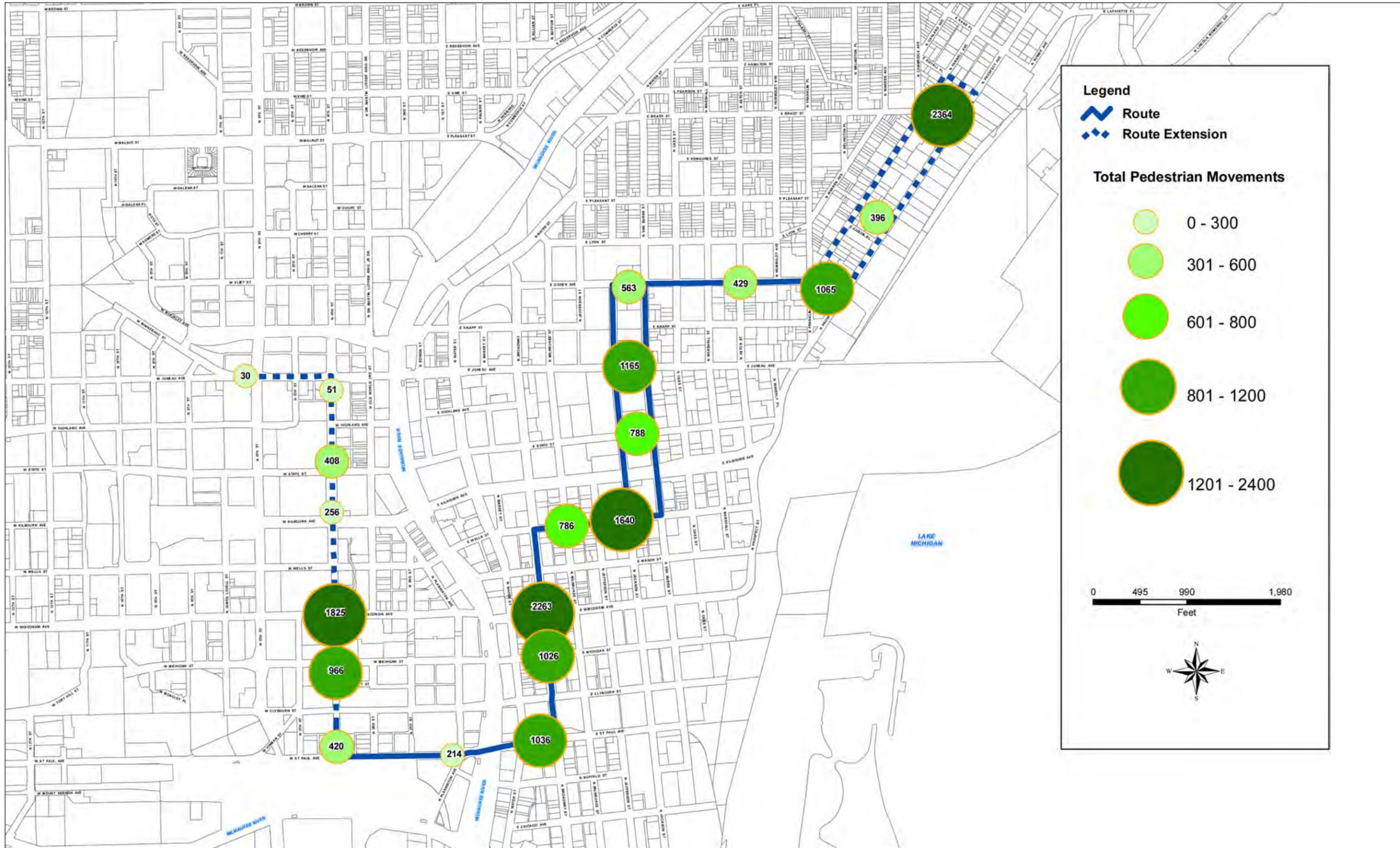
The locations of the destinations in Table 2 are shown on Figure 6.

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<sup>1</sup> *Downtown, A Plan for the Area*. City of Milwaukee, Department of City Development. October 2010.

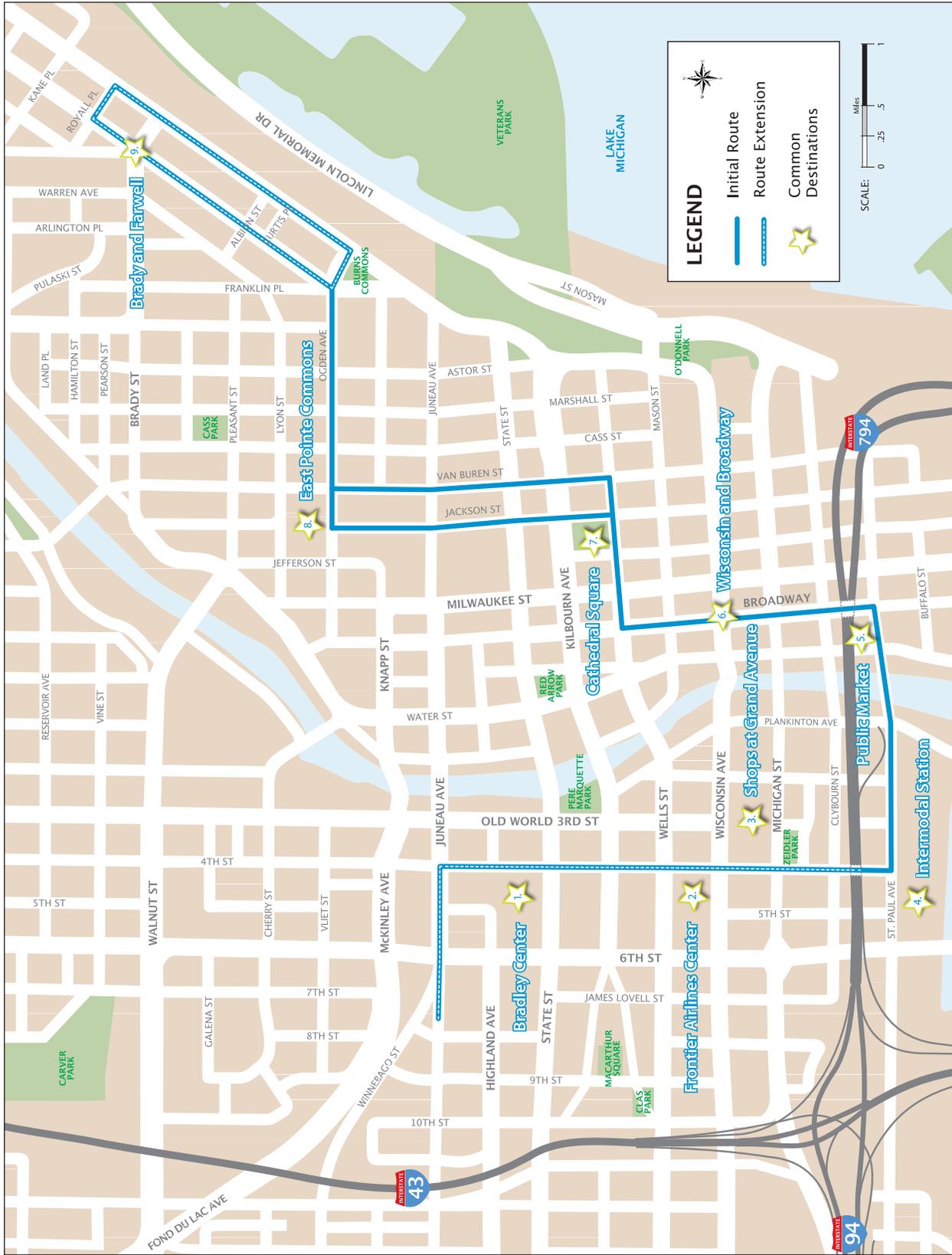
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Figure 4: Pedestrian Volumes at Streetcar Stops





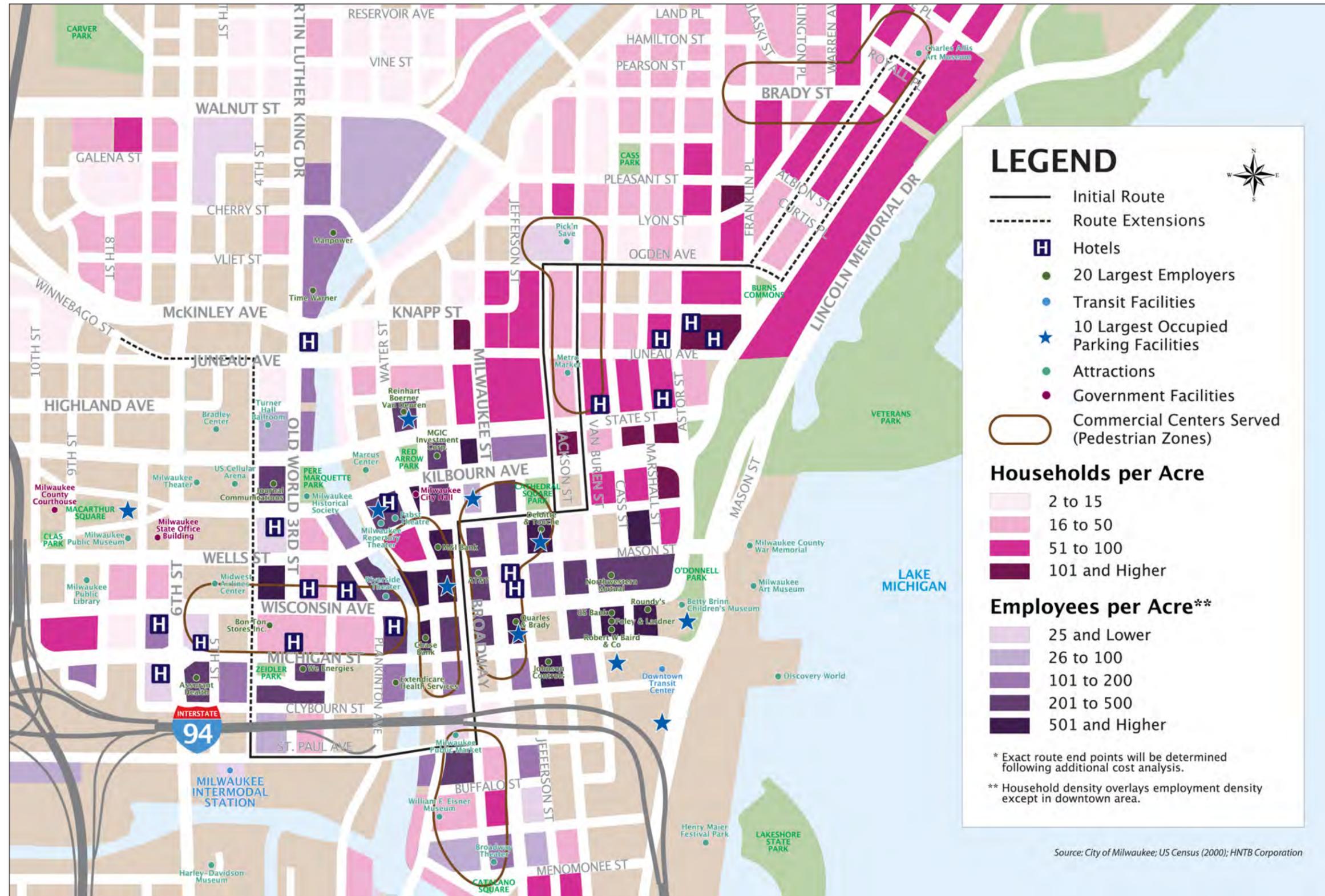
**Figure 5: Study Area Activity Generators**



**Table 2: Distances (miles) Between Common Destinations within Study Area**

| Destination |                          | Bradley Center | Frontier Airlines Center | Shops at Grand Avenue | Inter-modal Station | Public Market | Wisconsin and Broadway | Cathedral Square | East Pointe Commons | Brady and Farwell |
|-------------|--------------------------|----------------|--------------------------|-----------------------|---------------------|---------------|------------------------|------------------|---------------------|-------------------|
| 1           | Bradley Center           |                | 0.4                      | 0.4                   | 0.7                 | 0.8           | 0.7                    | 0.7              | 0.9                 | 1.6               |
| 2           | Frontier Airlines Center | 0.4            |                          | 0.1                   | 0.3                 | 0.7           | 0.5                    | 0.8              | 1.3                 | 1.9               |
| 3           | Shops at Grand Avenue    | 0.4            | 0.1                      |                       | 0.4                 | 0.5           | 0.3                    | 0.6              | 1.1                 | 1.8               |
| 4           | Intermodal Station       | 0.7            | 0.3                      | 0.4                   |                     | 0.4           | 0.7                    | 1.0              | 1.6                 | 2.2               |
| 5           | Public Market            | 0.8            | 0.7                      | 0.5                   | 0.4                 |               | 0.3                    | 0.6              | 1.2                 | 1.8               |
| 6           | Wisconsin and Broadway   | 0.7            | 0.5                      | 0.3                   | 0.7                 | 0.3           |                        | 0.3              | 0.9                 | 1.5               |
| 7           | Cathedral Square         | 0.7            | 0.8                      | 0.6                   | 1.0                 | 0.6           | 0.3                    |                  | 0.5                 | 1.1               |
| 8           | East Pointe Commons      | 0.9            | 1.3                      | 1.1                   | 1.6                 | 1.2           | 0.9                    | 0.5              |                     | 0.7               |
| 9           | Brady and Farwell        | 1.6            | 1.9                      | 1.8                   | 2.2                 | 1.8           | 1.5                    | 1.1              | 0.7                 |                   |

Figure 6: Common Destinations in Study Area





## Housing Trends

Over the past 15 years the streetcar study area has seen substantial reinvestment in new housing. The housing growth is largely due to an influx of students, young professionals and “empty nesters” relocating to, or choosing to live in downtown and adjacent neighborhoods.

In 2000, the streetcar study area had a population of 19,806, according to the U.S. Census Bureau. Since that time, over 3,400 new housing units have been added to the streetcar study area<sup>2</sup>. By multiplying an average household size of 1.63 (2000 U.S. Census Bureau for streetcar study area) by the 3,400 new housing units, it is estimated that over 5,500 new residents have been added to the study area since 2000.

Table 3 shows the population and household figures from a market analysis that was done for the Milwaukee Downtown Area Plan. These figures show a 1.3% annual increase of population and a 2% annual increase in households between 2000 and 2006 within the Downtown Area Plan boundary that is shown on Figure 3. These figures help to establish growth trends for the streetcar study area. However, these figures only partially include neighborhoods such as the Historic Third Ward, Brady Street and Lower East Side where a substantial number of new housing units have been constructed since 2000. For example, the market analysis completed for The Third Ward Area Plan shows the Third Ward’s population increased by 826 persons between 2000 and 2005, representing an annual increase of 34%<sup>3</sup>.

**Table 3: Downtown Population and Household Trends**

| Year                    | Population | Households |
|-------------------------|------------|------------|
| 1990 (Census)           | 12,701     | 5,887      |
| 2000 (Census)           | 13,829     | 6,429      |
| 2006 (Estimate)         | 14,898     | 7,201      |
| Annual Change 2000-2006 | 1.3%       | 2.0%       |

*Source: Downtown Milwaukee Business Improvement District #21 Market Analysis, 2007*

## Downtown Employment and Office Environment

The streetcar study area had an estimated 87,885 jobs in 2000<sup>4</sup>. The highest concentrations of employment are located in the office towers east of the river in the East Town neighborhood. The streetcar study area contains nearly 14.5 million square feet of occupied office space<sup>5</sup>.

Trends show a steady increase in new office space over recent decades. According to the City of Milwaukee, from 1980 to 2010 the downtown area has added over 4.4 million square feet of office space. Recent major office developments such as 875 East Wisconsin, Cathedral Place, Manpower, Time Warner, and ASQ have also brought new jobs to the area.

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<sup>2</sup> City of Milwaukee Permit Data 2000 – 2010.

<sup>3</sup> *Milwaukee Comprehensive Plan. The Third Ward, A Plan for the Neighborhood.* May 20, 2005.

<sup>4</sup> US Census Bureau. 2000 Census (Census Transportation Planning Package-CTPP)

<sup>5</sup> City of Milwaukee property records.

## Retail Environment

The streetcar study area contains over 3.2 million square feet of occupied retail space. As shown on Figure 5, commercial centers within the study area are focused around Wisconsin Avenue, Water Street, Milwaukee Street, Van Buren Street, Brady Street and Broadway in the Historic Third Ward.

Retail within the study area and downtown has seen some new investment in recent years along with the resurgence of new housing units. Restaurants have been particularly successful and make up 35% of the downtown retail mix<sup>6</sup>. According to the *Downtown Milwaukee Market Analysis*<sup>7</sup>, neighborhood-serving retail and services located within a five to ten minute walk are needed to increase access to goods and services for residents, visitors and employees in the downtown area. More convenient transit would help to minimize the walking distance for people in the study area, which would increase access to retail goods and services. It would also provide a consistent customer base for businesses located near stops.

## Attractions and Tourism

The streetcar study area has a large concentration of attractions and activity generators (as shown in Figure 5) that generate nearly 9.8 million in annual attendance from both residents and visitors<sup>8</sup>. A summary of attendance by attraction type is provided in Table 4.

**Table 4: Annual Attendance at Downtown Events**

| <b>Attraction</b>               | <b>Annual Attendance</b> |
|---------------------------------|--------------------------|
| Festivals                       | 4,319,000                |
| Entertainment and Sports Events | 3,254,000                |
| Museums                         | 2,182,000                |
| <b>Total</b>                    | <b>9,755,000</b>         |

Source: City of Milwaukee Permit Data and HNTB Corporation

According to the *2009-2010 Downtown Milwaukee Economic Report*, Milwaukee County ranks first in the state for tourist spending<sup>9</sup>. This is largely due to the annual visitors that come to Milwaukee each year to attend various downtown attractions<sup>10</sup>.

The downtown attractions have helped to support over 3,400 hotel rooms within the streetcar study area. This includes over 600 hotel rooms that have been added since 2000 from new hotel developments such as the Aloft, Residence Inn, Hampton Inn and Hilton City Center addition.

The dispersed nature of the various activity generators throughout a relatively large downtown area often makes it difficult for visitors to walk from one destination to another. The streetcar would provide

<sup>6</sup> *2009-2010 Downtown Milwaukee Economic Report*. Milwaukee Downtown Business Improvement District #21.

<sup>7</sup> *Milwaukee Downtown Market Analysis, 2007*. Milwaukee Downtown Business Improvement District #21, University of Wisconsin-Extension Center for Community and Economic Development, and University of Wisconsin-Extension Milwaukee County. 2007.

<sup>8</sup> City of Milwaukee Permit Data and HNTB Corporation. 2007.

<sup>9</sup> *2009-2010 Downtown Milwaukee Economic Report*. Milwaukee Downtown Business Improvement District #21.

<sup>10</sup> *2009-2010 Downtown Milwaukee Economic Report*. Milwaukee Downtown Business Improvement District #21.

convenient transit service that could circulate visitors between their destinations. Figure 5 shows where activity generators such as hotels, large employers, parking facilities, attractions, government facilities, commercial centers, households and employees are located.

### **2.2.2 Project Need 2 – Lack of High Quality Transit Circulator**

This section describes the second project need, which is a lack of high quality transit that circulates people around downtown and nearby neighborhoods and destinations. Figure 3 shows the boundary for downtown and shows the neighborhoods within and adjacent to downtown. Figure 5 shows activity generators within the streetcar study area.

#### **Lack of Existing Transit that Circulates**

The Milwaukee County Transit System (MCTS) currently provides a system of feeder buses to downtown and the streetcar study area. The main route to downtown for the bus system is along Wisconsin Avenue where six regular bus routes (10, 12, 14, 23, 30, 31), 11 express routes (39, 40, 43, 44, 45, 46, 47, 48, 49, 79, 143), and one special route (137) operate. Six additional bus routes (11, 15, 18, 19, 57, and 80) pass through downtown primarily in a north-south direction. In 2007, of the top ten MCTS routes by ridership, eight cross the streetcar study area (10, 12, 15, 18, 19, 23, 30 and 80).<sup>11</sup> Figure 7 shows the MCTS routes within the streetcar study area.

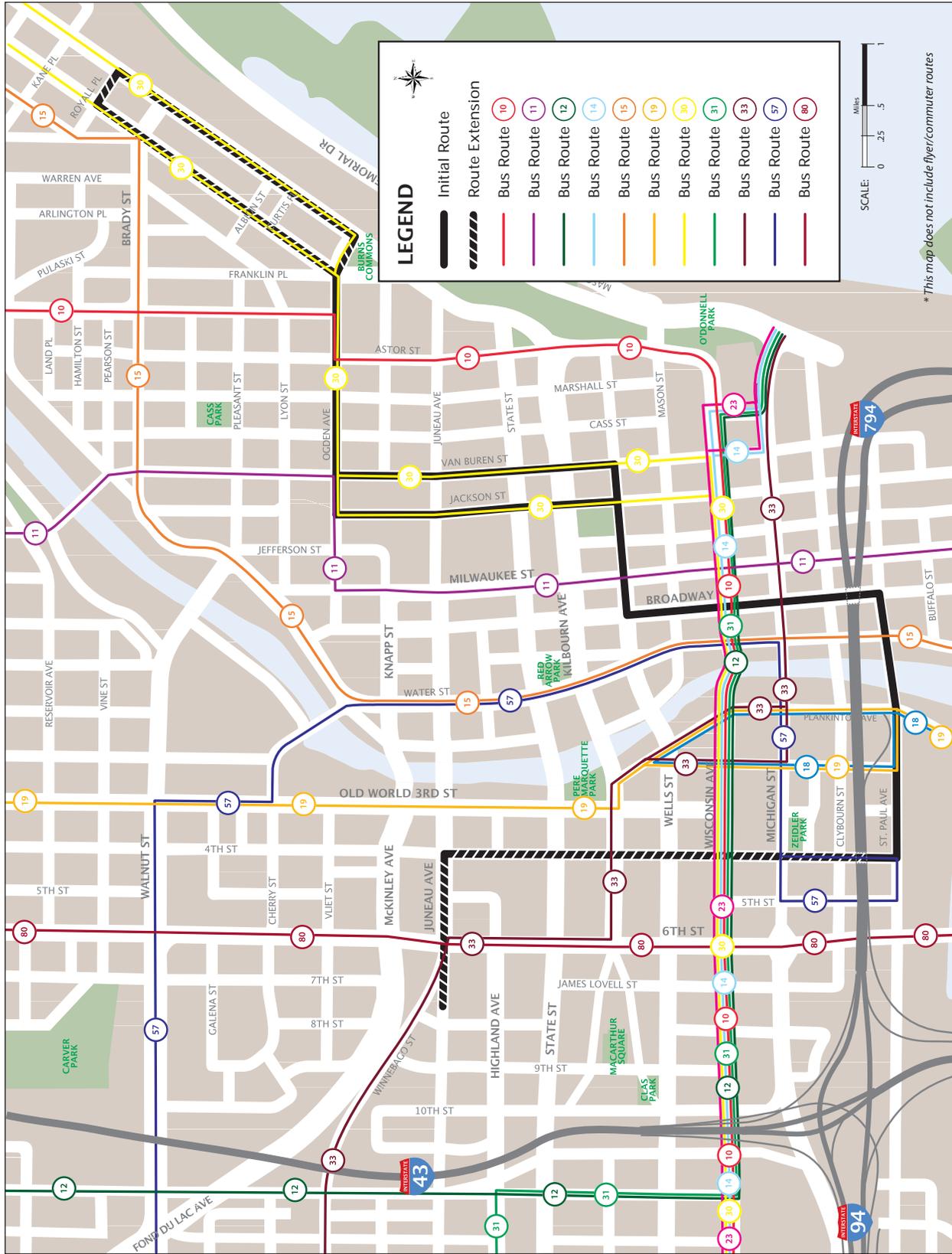
These MCTS routes are designed to move people in and out of downtown, but are not designed to circulate people within downtown. For example, the route 30 bus runs through the east side of downtown, but it does not connect the east side to the entertainment, civic and employment uses along 4<sup>th</sup> Street on the west side of downtown, the Historic Third Ward and the Intermodal Station.

Furthermore, the existing buses are not likely to capture office workers and tourists that come to downtown. The complexity of the routes can be difficult for infrequent riders to learn and may discourage them from using transit.

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<sup>11</sup> *MCTS 2007 Annual Report*. Milwaukee County Transit System.

**Figure 7: Milwaukee County Transit System Bus Routes**



## **Limited Link between Intercity and Local Transit**

The Milwaukee Intermodal Station is an important intercity transit hub for both bus and train service. According to the Wisconsin Department of Transportation, approximately 1.4 million passengers per year use the Intermodal Station. It receives regional bus lines carrying passengers on Greyhound Lines, Jefferson Lines, Indian Trails, Lamers, and Coach USA. Additionally, the Megabus passenger stop is located within a block of the Intermodal Station and Badger Coaches drops off at the Station upon request.

Passenger rail service to the Intermodal Station is provided by Amtrak through the Hiawatha (short distance, regional route) and Empire Builder (long distance, national route) train routes.

After passengers arrive at the Intermodal Station, their options for transportation are to walk, take a taxi or ride the bus. Walking from the Intermodal Station is often challenging because it is somewhat removed from the rest of downtown. As shown on Figure 6, all common destinations from the Station are greater than a quarter mile, which is considered a comfortable walking distance. Also, the area around the Intermodal Station is not pedestrian friendly because there are many parking lots and underutilized buildings that contribute to an unsafe feeling for pedestrians, especially after dark.

Taking the bus from the Intermodal Station can also be challenging. Current transit connections between the Intermodal Station and downtown are limited and do not provide a convenient connection between intercity travelers and people destined for downtown. The MCTS bus route 57, shown in Figure 7, is the only bus route that serves the Intermodal Station, and it has limited coverage to the downtown area. It heads north along Water Street, bypassing a large portion of the dense office uses on the east side of downtown and heads towards its main destination in the northwest side of Milwaukee along the Lisbon/Walnut corridor. It also does not provide a link to the City's densest residential neighborhoods on the northeast side of the study area.

### **2.2.3 Project Need 3 – Support Planned Development**

The next project need discusses how improved transit services and facilities are needed to support local land use and development goals and objectives.

#### **Downtown Area Plan**

The City of Milwaukee's Downtown Area Plan refocuses efforts to increase density and intensity within downtown and to connect activity centers such as the Intermodal Station, the convention center and offices that are dispersed throughout a relatively large downtown area. To achieve these goals, the plan has set forth policies and recommendations to support density, walking and mixed use development. The Downtown Plan can be viewed at: <http://city.milwaukee.gov/AreaPlan/Downtown.htm>.

Specifically, the plan has identified a streetcar system as a catalytic project that is needed to serve office workers, residents and visitors to downtown. The City prefers a streetcar over enhanced bus service because they feel a fixed guideway transit system will generate economic benefits such as making properties within the study area more attractive for redevelopment, and encouraging business development by providing a reliable customer base along the route.

The plan states the streetcar is needed because of the relatively large downtown area, inclement northern climate and a dispersed development pattern that makes walking inconvenient. The plan states the current transportation system does not adequately serve downtown businesses, office workers and the substantial residential populations in nearby neighborhoods.

The plan encourages more pedestrian activity within the downtown and notes that the streetcar will be a pedestrian “accelerator”, making it easier for pedestrians to go to places that are too far to comfortably walk. The plan also supports the streetcar to reduce the need for parking. Parking is often a limiting factor for development in downtown Milwaukee because financial institutions are reluctant to provide financing for developments that do not include structured parking. This is a particular impediment to the reuse of historic buildings that lack on-site parking. Furthermore, the plan discusses the need to enhance the retail environment. The streetcar supports this goal by providing a reliable customer base along its route and improving access to neighborhood goods and services.

The plan goes into detail about the need to improve connections between downtown’s dispersed districts and activity centers. A streetcar circulator supports this goal by providing a transit route that is specifically designed to circulate between the major downtown destinations and districts. As discussed in the plan, connecting popular downtown destinations will create a more cohesive environment encouraging people to spend more time downtown.

The plan also discusses establishing the Milwaukee Intermodal Station as a regional transit hub with expanded passenger rail services such as high-speed rail and commuter rail. The streetcar would support the Intermodal Station by providing a convenient and direct link to downtown and nearby destinations.

### **Citywide Policy Plan**

The Citywide Policy Plan was approved by the Common Council on March 2, 2010. The plan is available at: <http://city.milwaukee.gov/Plansandstudies/CitywidePolicyPlan.htm>.

The Plan’s Transportation chapter has many policies that support the development of transit. Specifically, the Transportation chapter states the City should support the development of bus rapid transit, streetcar, or an express bus network to promote transportation options that connect the greatest number of people to the greatest number of destinations. The plan also supports development policies that benefit transit. For example, the Transportation chapter states that the City should provide zoning and incentives for transit oriented development. The plan also supports the development of multiple modes of transportation and tries to create a balance between various modes (vehicles, transit, walking, biking) within the street and highway network.

### **Northeast Side Area Plan**

The Northeast Side Area Plan, which covers the area northeast of downtown along the Prospect/Farwell corridor, including the Lower East Side and Brady Street neighborhoods, was approved by the Common Council in 2009. The plan is available at: <http://city.milwaukee.gov/Plansandstudies/Northeast.htm>.

Regarding transit improvements, the plan states the City should develop a fixed-guideway rail system that can be used as an economic development tool that will provide confidence for real estate investors that the route will be in place for the long term. In addition, the plan states that transit should connect people to jobs by getting the majority of transit users to major employment centers in the most efficient way possible and that Farwell and Prospect Avenues are key transit corridors in the City.

### **Third Ward Area Plan**

The Third Ward Area Plan was adopted on May 20, 2006 for the historic neighborhood just south of downtown. The plan is available at: <http://city.milwaukee.gov/Plansandstudies/ThirdWard.htm>.

The Plan provides guidance for the reuse of existing structures and encourages mixed-use, infill development on vacant and underutilized parcels. The Plan recommends that all new development and

redevelopment should fit with the mid-rise urban character of the neighborhood and provide sufficient density (30 – 110 dwelling units per acre) to cover the blocks and give definition to the streets. Higher density developments are permitted at landmark sites.

The northeast section of the Third Ward is separated from downtown and the lakefront by the overhead Interstate 794 bridges to the north and east. This area has some manufacturing, office and warehousing uses, but is dominated by surface parking lots. The Third Ward Area Plan recommends redevelopment for this area in a manner that is consistent with the plan's vision for mixed use development. The plan also recommends structured parking in this area to allow visitors to park in this area and take a "transit connector" to other areas of the Third Ward, Downtown and the recreation and entertainment uses along the lakefront of Lake Michigan.

The plan also encourages improved connections to the Lake Michigan lakefront and the Maier Festival Park that borders the Third Ward on the east. A line of surface parking lots next to the festival grounds, a lack of a road network in this area and the relatively closed off nature of the festival park create a barrier between the neighborhood and lakefront. Furthermore, improvement to this area such as new mixed uses, improved transit services and a better road grid system would also enhance access to other lakefront amenities such as the Milwaukee Art Museum, Lake Shore State Park, Pier Wisconsin and Veterans Park.

The plan's transportation recommendations emphasize maintaining the traditional urban grid that provides for a multi-modal transportation network. It also encourages the extension of this transportation system into the eastern portion of the neighborhood where the grid system has been interrupted by development that expands more than one block.

### **Park East Redevelopment Plan**

The Park East Redevelopment Plan was approved by the City of Milwaukee Common Council on June 15, 2004. The planning area includes the vacant lands made available from the removal of the former Park East Freeway spur on the western side of the Milwaukee River. The land has been prepared for development and new street infrastructure has been put into place. The Park East Redevelopment Plan has dedicated the area for mixed-use urban development. The plan is available at:  
<http://city.milwaukee.gov/Redevelopment-plan.htm>.

### **The Brewery**

The Brewery is a 20-acre redevelopment site at the former Pabst Brewery complex. The project is located in downtown Milwaukee, just east of Interstate 43 between Winnebago Street and Highland Avenue. The site currently contains a mixture of historic buildings and lands that were once used by the brewery. The site is owned by a development firm that intends to rehabilitate the historic structures and attract new development to vacant parcels. The developer's plans call for a mix of residential, retail, office and educational land uses. More information is available at:  
<http://www.mkedcd.org/projects/TheBrewery/index.html>

The City of Milwaukee has been supportive of this development. The Common Council approved a Tax Increment District (TID) for the Brewery in 2007. In addition, the Common Council adopted a Brewery Project Development Incentive Zone (DIZ) on December 12, 2006. The DIZ is a planned development zoning tool that expedites site plan reviews because a master plan and specific development guidelines for the area have been developed.

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### **3. ALTERNATIVES ANALYSIS**

The City of Milwaukee completed an alternative analysis to determine a route for the streetcar. This process began in August 2009 and was completed in May 2010. This section describes the alternatives that were considered for the streetcar route, the alternative evaluation process and the selection of the locally preferred alternative. The alternatives analysis process is summarized in Figure 8 and includes several steps. These include the development of alternatives; evaluation of the alternatives using technical analysis and public input. The alternatives were ranked, and then refined before a locally preferred alternative (LPA) was chosen by the City.

#### **3.1 ALTERNATIVES DEVELOPED AND CONSIDERED**

Alternatives developed and considered included alternatives that met the project's purpose and need as described in Section 2, and that met the City's overall planning goals and objectives for a fixed guide-way transit service that would support a multi-modal transportation system. This section describes the original route alternatives that were developed and considered.

The City of Milwaukee developed three streetcar route alternatives along with their respective sub-options and potential route extensions. The start and end points of the route alternatives were developed to meet the project's primary objective of improving access to key origins and destinations within the study area. As a result, all three original route alternatives begin at the Milwaukee Intermodal Station and connect downtown employment and entertainment areas with high density residential in the northeast section of the study area. Route extensions were developed to reach additional high density residential areas in the northeast section of the study area, additional employment and entertainment areas on the west side of the study area and two redevelopment areas in the northwest section of the study area.

The availability of existing capital funds was another important factor that influenced the route alternative start and end points. The City decided the extent of the initial route must be funded by the existing federal Interstate Cost Estimate funds. The route extensions would only be constructed if additional funding could be secured.

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**Figure 8: Alternatives Analysis Summary for Streetcar Routes**



### 3.1.1 Streetcar Route Alternative 1

Alternative 1, as shown on Figure 9, originated at the recently renovated Milwaukee Intermodal Station, proceeded east along St. Paul Avenue and crossed the Milwaukee River as it entered the Historic Third Ward neighborhood. Then the route headed north along Van Buren Street and east along Ogden Street. As the route proceeded back, it traveled west along Ogden Street and then turned south along Jackson Street (the Jackson-Van Buren pair). Once the route intersected with St. Paul Avenue it traveled west and terminated at the Milwaukee Intermodal Station.

One sub-option for Alternative 1 was considered. As the route proceeded east along St. Paul Avenue from the Intermodal Station, it turned south along Water Street instead of continuing along St. Paul Avenue. Then the route turned east along Chicago Street before connecting with the Jackson-Van Buren pair.

Potential route extensions for this alternative included a segment along 4<sup>th</sup> Street between St. Paul Avenue and Wells Street and a paired segment along Prospect Avenue and Farwell Avenue between Ogden Street and Brady Street.

Alternative 1 was 2.73 miles long and the sub-option was 3.11 miles long. Mileage included the potential route extensions.

**Figure 9: Streetcar Route Alternative 1 and Sub-option 1**



### 3.1.2 Streetcar Route Alternative 2

Alternative 2, as shown on Figure 10, originated at the Milwaukee Intermodal Station and proceeded east along St. Paul Avenue. After crossing the Milwaukee River, the route entered the Historic Third Ward neighborhood and proceeded north along Water Street. Then the route turned east along Juneau Street, north along Van Buren Street and east along Ogden Street. On the way back, the route proceeded west along Ogden Street and then south along Jackson Street for two blocks before doubling back on Juneau Street and Water Street. At St. Paul Avenue the route proceeded west and terminated at the Milwaukee Intermodal Station.

Alternative 2 considered one sub-option. Instead of going north along Water Street, the route traveled north along Broadway, continued northeast along Water Street and headed east along Brady Street. Then the route turned back along Brady Street, continued south along Water Street and headed back to its destination on St. Paul Avenue.

Like Alternative 1, Alternative 2 also considered route extensions along 4<sup>th</sup> Street between St. Paul Avenue and Wells Street and along Prospect Avenue and Farwell Avenue between Ogden Street and Brady Street.

Alternative 2 was 2.83 miles long and the sub-option was 2.66 miles long. Mileage included the potential route extensions.

**Figure 10: Streetcar Route Alternative 2 and Sub-option 2**



### **3.1.3 Streetcar Route Alternative 3**

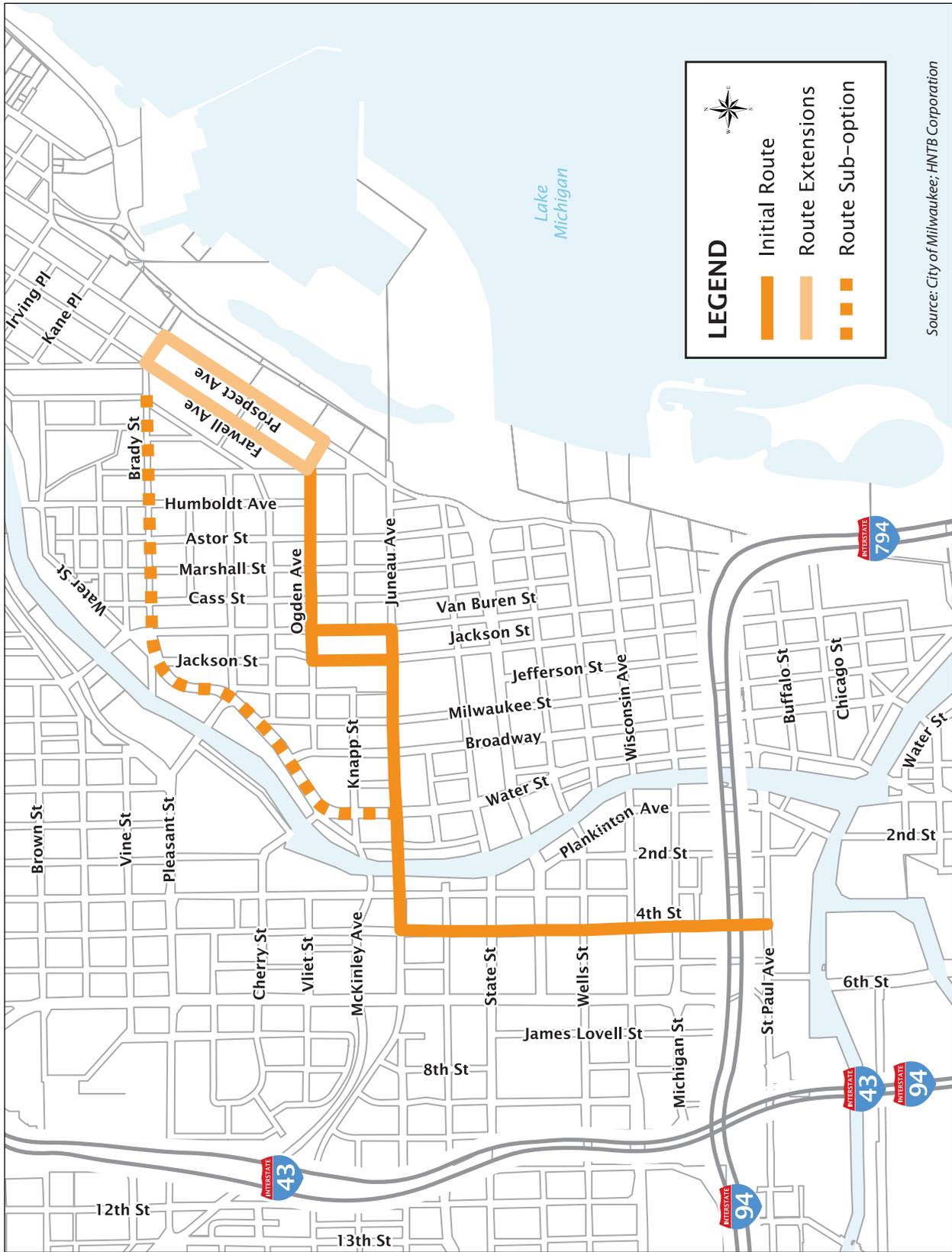
Alternative 3, as shown on Figure 11, began at the Milwaukee Intermodal Station. Then the route proceeded north along 4<sup>th</sup> Street and east along Juneau Avenue. Once the route passed Water Street on the east side of the Milwaukee River, it mirrored Alternative 2.

Alternative 3 considered one sub-option. From Juneau Avenue the route headed north along Water Street and continued along Brady Street. The sub-option then doubled back along Brady Street and continued along Water Street until it reached Juneau Avenue. At this point, the sub-option went west along Juneau Avenue and south along 4<sup>th</sup> Street to its destination.

Alternative 3 considered a route extension along Prospect Avenue and Farwell Avenue between Ogden Street and Brady Street.

Alternative 3 was 2.36 miles long and the sub-option was 2.19 miles long. Mileage included the potential route extension.

**Figure 11: Streetcar Route Alternative 3 and Sub-option 3**



### **3.1.4 No Action Alternative**

Under the No Action Alternative a streetcar system in downtown Milwaukee would not be constructed. The existing transportation choices within the study area, walking, biking, driving and taking the bus, would remain. This alternative was eliminated early on in the Alternative Analysis phase because it does not meet purpose and need, but is considered as a baseline against which the LPA is compared. Throughout the EA, for each resource evaluated, both the potential impacts of the LPA and the No Action Alternative are discussed.

Under the No Action Alternative, ongoing and future planned projects within the study area may be implemented such as bridge reconstructions, extension of the Riverwalk, and various development and redevelopment projects. See Table 22 for a list of past, present and future projects in the study area. Note that the Milwaukee Streetcar project is one of a number of catalyst projects that are proposed to enhance the likelihood of success for these listed projects.

Population and housing have been increasing as shown in Table 3. Likewise, traffic numbers are increasing as shown in and are expected to continue and Level of Service will deteriorate as discussed in Section 5.2.4. These positive growth trends are expected to continue.

## **3.2 EVALUATION OF ALTERNATIVES**

After the alternatives were developed, the City of Milwaukee used a three step process to evaluate and distinguish the alternatives that included technical analysis, public outreach and alternative ranking. The evaluation process is described below.

### **3.2.1 Technical Analysis**

Technical analysis was completed as documented in this environmental assessment and as presented in the supporting documentation included in Section 7.

### **3.2.2 Public Feedback**

The City conducted public outreach meetings to obtain feedback on the proposed streetcar and the route alternatives. The City hosted a public information meeting at the Zeidler Municipal Building on October 8, 2009 to present the streetcar alternatives to the public and to obtain feedback. The City also conducted stakeholder briefings during this project phase to obtain feedback on the proposed streetcar routes from key stakeholders, elected officials and agencies. In addition, briefings were held with several organizations that represent environmental justice populations to make sure they had an opportunity to provide feedback. A more detailed description of the public outreach efforts, including a list of stakeholders who were briefed, is included in Section 6 of this document.

### **3.2.3 Alternative Ranking**

Information gathered during the technical analysis and public outreach steps were used to evaluate and rank the alternatives, sub-options and route extensions. Table 5 lists the eight criteria and evaluation factors that were used during the evaluation process. The eight criteria are: public interest, ridership, engineering, capital cost, operations and impacts, environmental justice, future land use and economic development potential and long range City goals. The eight criteria that were developed to evaluate the route alternatives were utilized to ensure a successful streetcar starter system that could be built with the available funding.

**Table 5: Streetcar Route Criteria and Evaluation Factors**

| <b>Criteria</b>                                  | <b>Evaluation Factors</b>  | <b>Importance</b>  |
|--|--|--|
| Public Interest                                  | Written and verbal comments<br>Stakeholder comments  | Demonstrated the public's level of support for the project and LPA   |
| Ridership  | Trip generation potential<br>Housing units<br>Retail square feet<br>Office square feet<br>Hotel rooms<br>Parking spaces<br>Tourists<br>Pedestrian activity<br>Existing transit ridership                     | Ridership gave an indication of which alternative would serve the most number of people  |
| Engineering                                      | Utilities<br>Pavement conditions<br>Intersection conflicts<br>Overhead clearance<br>Steep grade<br>Bridge replacement or repairs<br>Pavement width   | Engineering helped identify potential issues that could have prevented the project from moving forward                                   |
| Capital Cost                                     | Guideway facilities<br>Utilities and environmental<br>Systems<br>Stops<br>Yard and shop<br>Miscellaneous cost  | Capital cost was important due to the project's fixed budget   |
| Operations and Impacts                           | Level of service<br>Traffic volumes<br>Number of turns<br>Traffic signals  | This criterion helped determine the alternative that would best integrate with the existing transportation network                       |
| Environmental Justice                            | Non-white population<br>Household income below \$32,000<br>Seniors<br>Rental occupied housing<br>Commuting<br>Vehicle ownership<br>Persons with disabilities<br>Elderly and senior housing locations<br>Jobs | Environmental justice populations were evaluated to ensure the selected route would provide service to all persons within the study area |
| Future Land Use & Economic Development Potential | Total developable acres<br>New housing units<br>New residents<br>New retail space<br>New office space<br>New total building space<br>New tax base<br>New employees<br>New parking spaces                     | This criterion helped to identify the alternative with the greatest potential to generate economic development benefits                  |
| Long Range City Goals                            | Connects to the Intermodal Station<br>Implements the Downtown Area Plan<br>Connects to high density residential<br>Connects to employment centers<br>Local decision makers                                   | This criterion was used to identify the alternative that was most consistent with the City's area plans                                  |

Using the criteria and the evaluation factors, a scoring process was used to identify distinguishing characteristics between the route alternatives and to guide the decision making process. Each factor was assigned a value based on how it compared to the other alternatives. Next, a total value was calculated for the criteria. Public interest, ridership and economic development potential criteria were weighted higher because those factors had a higher level of importance for the City. The higher the number, the better the alternative met the evaluation criteria. To summarize the analysis, each alternative was assigned a rank. Table 6 shows how the alternatives scored by individual criteria and overall rank.

**Table 6: Alternative Ranking Process Outcome**

| Criteria                       | Alternative Rank |                 |                 |                 |                 |                 |
|--------------------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                                | 1                | 1 sub-option    | 2               | 2 sub-option    | 3               | 3 sub-option    |
| Public Interest                | 12               | 12              | 8               | 8               | 4               | 4               |
| Ridership                      | 44               | 52              | 38              | 40              | 30              | 24              |
| Engineering                    | 16               | 16              | 17              | 16              | 18              | 19              |
| Capital Cost                   | 7                | 7               | 5               | 6               | 10              | 11              |
| Operations and impacts         | 7                | 7               | 5               | 6               | 10              | 11              |
| Environmental Justice          | 16               | 19              | 19              | 26              | 17              | 19              |
| Economic Development Potential | 38               | 52              | 22              | 46              | 22              | 24              |
| Long Range Goals               | 42               | 38              | 31              | 29              | 27              | 25              |
| Overall Score                  | 191              | 212             | 156             | 187             | 146             | 144             |
| Overall Rank                   | 2 <sup>nd</sup>  | 1 <sup>st</sup> | 4 <sup>th</sup> | 3 <sup>rd</sup> | 5 <sup>th</sup> | 6 <sup>th</sup> |

### 3.3 ALTERNATIVE ELIMINATION, REFINEMENT AND SELECTION

Based on the evaluation process, the City of Milwaukee eliminated some alternatives from further consideration, refined selected alternatives and chose a locally preferred alternative.

#### 3.3.1 Route Alternatives Eliminated from Further Study

This section describes the rationale for route alternatives and sub-options that were eliminated.

##### Alternative 1 Sub-Option

Although the sub-option for Alternative 1 was the highest ranking alternative, the City decided to eliminate it from further study for the following reasons:

- § Adds several turns to the alignment and there is not sufficient right of way to accommodate some of the turns through the Third Ward neighborhood,
- § Includes right of way constraints at Chicago and Water Streets that could affect streetcar and traffic operations, auto traffic integration, and the timing of vehicle schedules.
- § The cost exceeds the City’s planned budget for the project.

##### Alternative 2 and Alternative 2 Sub-Option

Alternative 2 and its sub-option were eliminated based on the following reasons:

- § The alternatives do not serve the east side of downtown as well as Alternative 1, including the major office district in the southeast corner of downtown and the high density residential area along Jackson and Van Buren streets,
- § The alternatives do not serve the future economic development potential of the northeast portion of the Third Ward neighborhood where several surface parking lots are currently located,
- § The Water Street alignment for Alternative 2 was too close to the 4th Street alignment and so service would be unnecessarily duplicated,
- § Potential utility concerns and conflicts along Water Street,
- § For Alternative 2 sub-option, Brady Street's narrow right of way with only two travel lanes and lack of alleys for loading and unloading goods could create operational concerns for the streetcar, and
- § For Alternative 2 sub-option, streetcar service may need to be temporarily suspended several times during the year to accommodate Brady Street festivals that close the road.

### **Alternative 3 and Alternative 3 Sub-Option**

Alternative 3 and its sub-option ranked the lowest overall in comparison to the other alternatives. Elements that contributed to the low rank included:

- § Low public interest ranking, ridership generation, and economic development factors, which were considered the three most critical elements to create a successful streetcar system,
- § For Alternative 3 sub-option, Brady Street's narrow right of way with only two travel lanes and lack of alleys for loading and unloading goods could create operational concerns for the streetcar. The narrow right of way could also create parking and traffic operation concerns, and
- § Streetcar service may need to be temporarily suspended several times during the year to accommodate Brady Street festivals that close the road.

### **3.3.2 Route Alternatives and Variations Selected for Additional Study**

Based on the evaluation process, the City selected route Alternative 1 and developed two new sub-options for further evaluation. The rationale for these decisions is discussed below.

### **Alternative 1 Selected for Further Analysis**

Alternative 1 was selected for more detailed analysis for the following reasons:

- § Best serves and links the main office district of downtown with the high density residential areas along Jackson and Van Buren streets,
- § Serves the potential redevelopment areas in the northeast section of the Third Ward neighborhood and provides the best proximity to the lakefront,
- § Received the most public interest and has the potential to generate positive ridership figures due to its proximity to activity generators along the alignment,
- § Has strong economic development potential due to its proximity to lands that could be redeveloped, and
- § Best meets the City's long range goals.

### **Developed Two New Alternative 1 Sub-Options**

- § Upon further evaluation of Alternative 1, it was determined that this alternative had some design and planning concerns as follows:

- § Overhead clearance concerns with the Interstate 794 bridges and ramps over Van Buren Street
- § Peak period traffic conflict concerns with the Interstate 794 ramp that exits northbound onto Van Buren Street
- § Does not make the strongest connection to the western portion of East Town
- § The route segment adjacent to Interstate 794 along St. Paul is not ideal for economic development, pedestrian activity, and neighborhood connectivity
- § Lower potential pedestrian activity during off-peak periods especially along the southern portion of Jackson and Van Buren streets

To address these concerns, the City determined two new sub-options for Alternative 1 (Alternative 1-2A and 1-2B) would also be evaluated. The sub-options were similar to Alternative 1 except they added some desirable elements of the original sub-option for Alternative 2. Specifically, the sub-option Alternative 1-2A (Figure 12) would run along Broadway between St. Paul Avenue and Wells Street and then connect with the Jackson and Van Buren pair via Wells Street. The other sub-option Alternative 1-2B (Figure 13) was developed due to potential traffic operation concerns with two-way transit along Broadway. Currently, Broadway is a one-way southbound street south of Clybourn Street. Additionally, the southbound entrance ramp at Clybourn Street and Interstate 794 has high left turn volumes and could present complex streetcar operations. Therefore Alternative 1-2B considers a one-way pair option along Milwaukee Street and Broadway between St. Paul Avenue and Wells Street to eliminate the need to convert a block of Broadway into a two-way street and avoid the Interstate 794 entrance ramp.

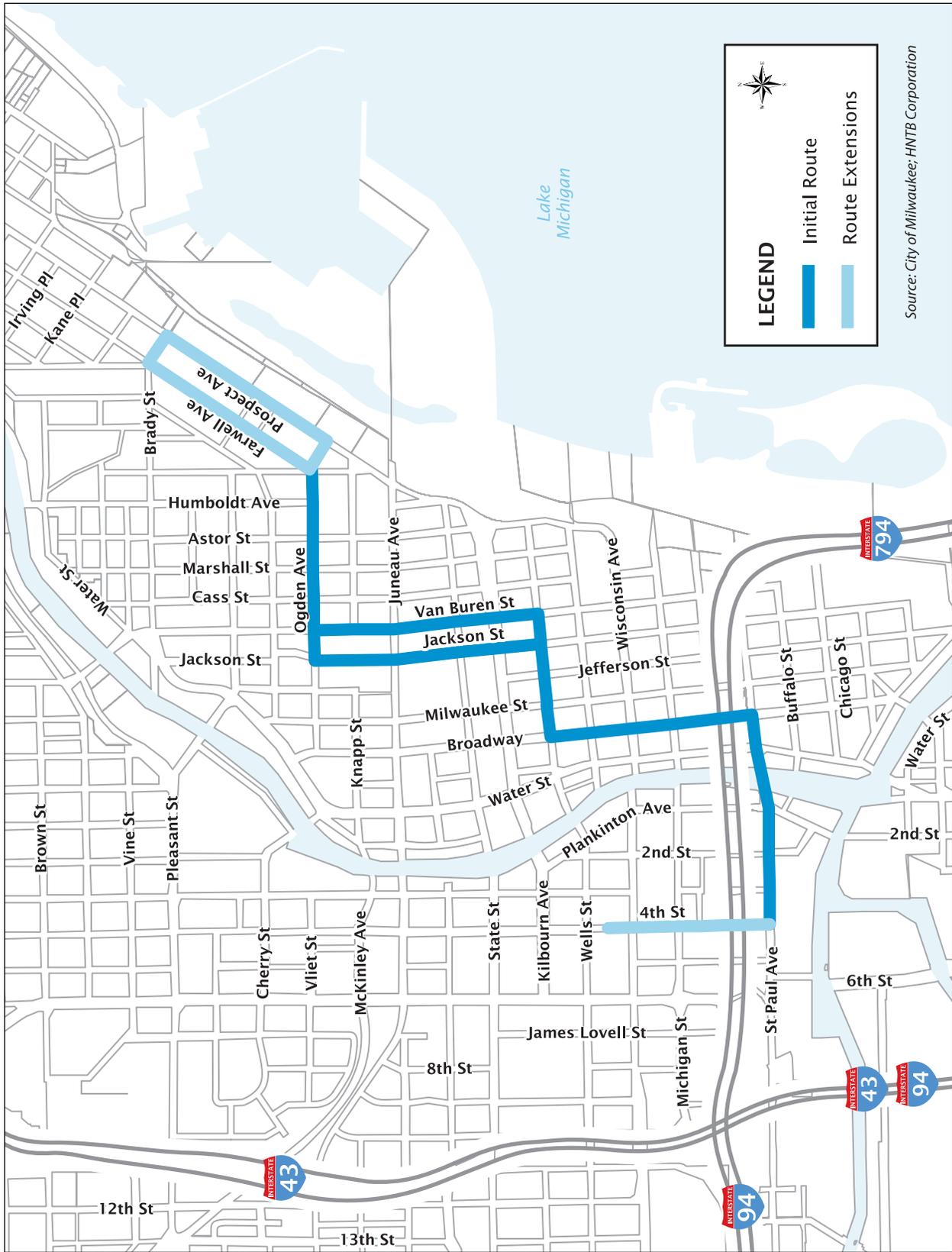
The desirable elements that Alternative 1-2A and 1-2B provide are:

- § Avoid the Interstate 794 bridges and ramps over Van Buren Street that has just over 14 feet of overhead clearance,
- § Avoid the Interstate 794 ramp that exits northbound onto Van Buren Street, creating traffic conflicts during peak travel periods,
- § Make a strong connection to the western portion of East Town while maintaining a connection to the high density residential and downtown office areas,
- § Have strong redevelopment potential for the surface parking and underutilized buildings on the southern portion of Broadway,
- § Link strong pedestrian activity along both Broadway and Milwaukee Street and serve the entertainment district along Milwaukee Street.

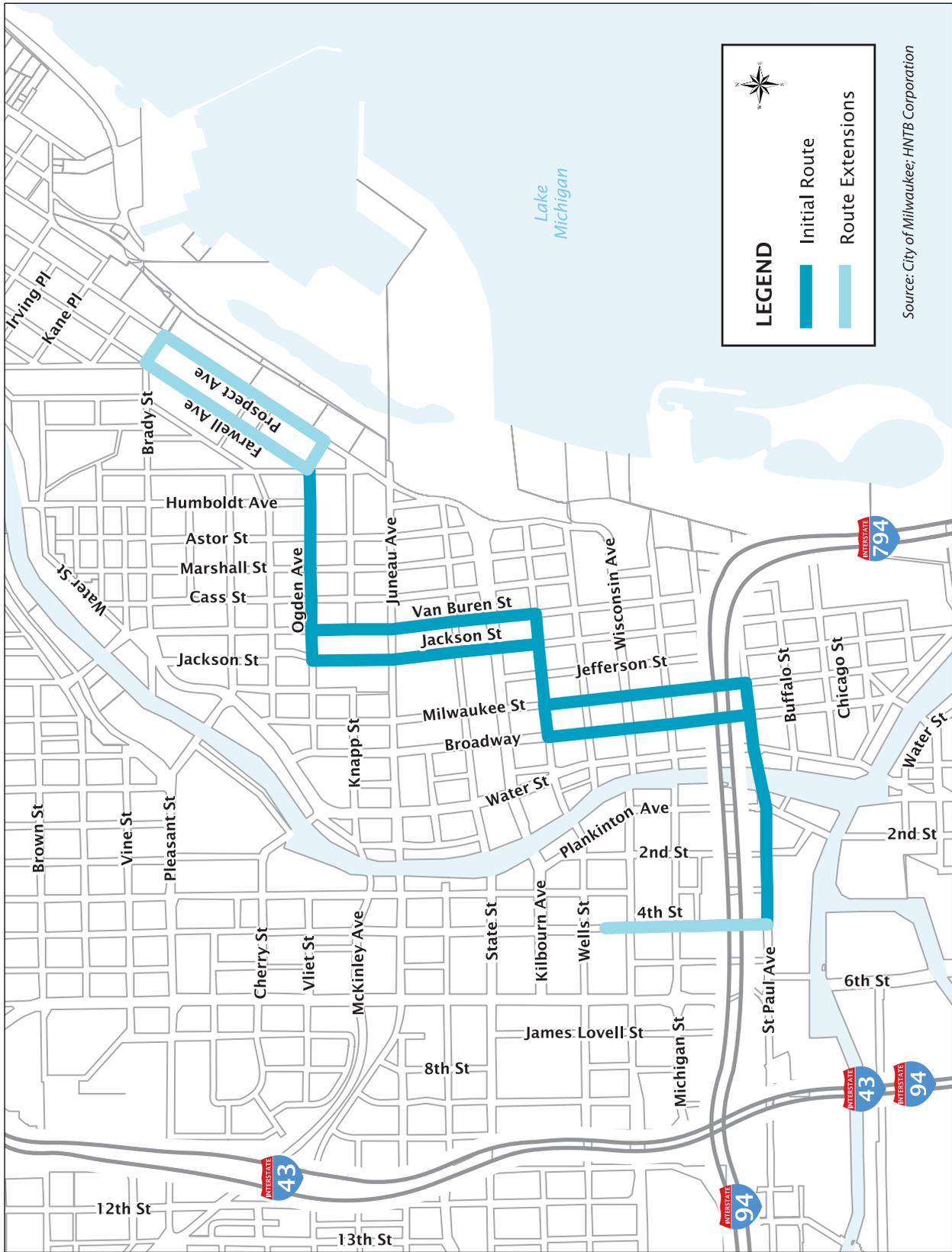
Alternative 1-2B, which utilizes a one-way pair option along Milwaukee Street and Broadway between St. Paul Avenue and Wells Street, was introduced due to some potential traffic operation concerns with two-way transit on Broadway. These concerns were alleviated; therefore the Alternative 1-2B option was eliminated from further study. In addition, the following factors were also considered as rationale for eliminating Alternative 1-2B:

- § Fewer redevelopment opportunities as compared to Alternative 1-2A, and
- § Alternative 1-2A provides better direct connection between the Third Ward and East Town, including City Hall and other municipal buildings.

Figure 12: Streetcar Route Alternative 1-2A



**Figure 13: Streetcar Route Alternative 1-2B**



### **3.4 LOCALLY PREFERRED ROUTE ALTERNATIVE SELECTION**

Alternative 1-2A is recommended as the locally preferred alternative (see Figure 14). Alternative 1-2A was developed by combining segments of the two highest ranking alternatives (Alternative 1 and sub-option for Alternative 2), using the evaluation criteria presented in Table 5 (Streetcar Route Criteria and Evaluation Factors). In addition, Alternative 1-2A avoids overhead clearance issues with Interstate 794, traffic conflicts on Van Buren Street and connects well to both the eastern and western portions of East Town. Furthermore, through design modifications to the one-way segment of Broadway and lane restriping and traffic signal enhancements at the Interstate 794 entrance ramp at Clybourn Street the traffic concerns associated with two-way transit on Broadway were alleviated.

This alternative operates with two-way transit on Broadway between St. Paul Avenue and Wells Street. The portion that can be built with available federal funding includes the initial route between the Intermodal Station at 4<sup>th</sup> Street and St. Paul Avenue and Ogden Avenue and Farwell Avenue (at Burns Commons Park), as shown in Figure 14. The initial route length is 2.05 miles.

Figure 14 also shows the locally preferred alternative's route extensions along 4<sup>th</sup> Street/Juneau Avenue and Prospect/Farwell avenues. These would only be constructed if additional funds become available. The extensions would add 1.5 miles to the initial system for a total of 3.5 miles.

#### **Steering Committee Action**

The Milwaukee Connector Steering Committee met on May 6, 2010, to review the locally preferred alternative. At this meeting, the Steering Committee voted to approve the recommended streetcar route alignment. The locally preferred alternative is described in detail in the next section of this document.

**Figure 14: Streetcar Locally Preferred Route Alternative**



## **4. DESCRIPTION OF LOCALLY PREFERRED ALTERNATIVE**

This section describes the locally preferred alternative for the streetcar. It also describes the selected route, roadway and streetcar capital improvements, operating characteristics and the capital and operating costs for the streetcar system.

Detailed preliminary-design plans have been developed for the locally preferred alternative and are available at City Hall. See Figure 14 for a map of the preferred alternative.

### **4.1 STREETCAR ROUTE**

The initial system for the streetcar route is 2.0 miles. The route originates at the Milwaukee Intermodal Station where it will serve passengers transferring from other transportation modes, such as buses and trains. It then proceeds east along St. Paul Avenue, across the Milwaukee River and into the Historic Third Ward neighborhood as shown on Figure 14. Then the route heads north along Broadway, east along Wells Street and north along Van Buren Street. At Ogden Street, the initial route extends east to Farwell Avenue (Burns Commons Park) where it terminates.

The return trip doubles back along Ogden Street, turns south at Jackson Street, west at Wells Street and south along Broadway. At St. Paul Avenue, the route travels west and finishes its cycle near the Milwaukee Intermodal Station.

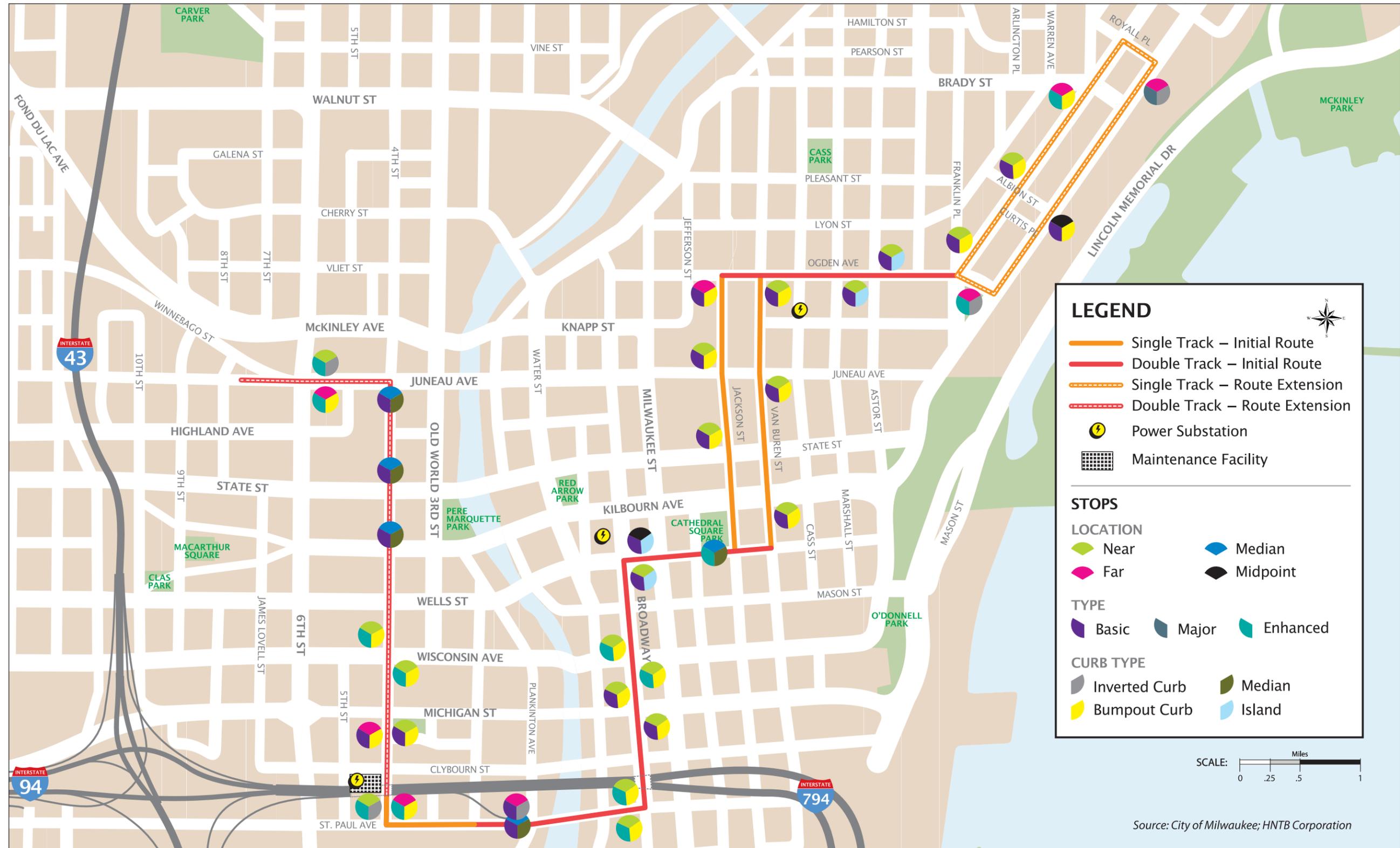
The streetcar route extensions would add approximately 1.5 miles to the route for a total of 3.5 miles. On the west side of the study area, the extended route would continue north along 4<sup>th</sup> Street between St. Paul Avenue and Juneau Avenue. Then it would turn west along Juneau Avenue for approximately three blocks where it would terminate. The Prospect/Farwell extension would continue the route north from Ogden Street along Prospect Avenue, go west along Royall Place for one block and proceed south along Farwell Avenue before doubling back along Ogden Street. The route extensions will only be constructed if additional funding becomes available.

### **4.2 STREETCAR CAPITAL IMPROVEMENTS**

The capital improvements required for the streetcar include the purchase of vehicles, the installation of tracks, new stops, an electric power system and a maintenance facility. The streetcar capital improvements are shown on Figure 15.

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Figure 15: Streetcar Capital Improvements





### 4.2.1 Streetcar Vehicle

The modern streetcar vehicle proposed for the project is a fixed guideway transit vehicle consisting of a single car with articulated sections. The vehicles would be similar to those used in the cities of Portland, Tacoma, and Seattle. Figure 16 shows an image of the streetcar used in Portland, which would be similar to the modern streetcar vehicle being proposed for Milwaukee.

Depending on the vehicle that is selected in a future project phase, it could range between 67 and 82 feet long and have a vehicle capacity of 170 to 240 passengers. Some streetcars are able to travel up to 56 miles per hour. However, a mechanism would be used to limit speeds to approximately 30 miles per hour for routes in dense urban areas operating in mixed traffic.

Four vehicles would be required for the initial system and three additional vehicles would be required for the route extensions. The vehicles would have low-floor and level boarding, electric power operations, bicycle access, and multiple doors.

**Figure 16: Illustration of a Modern Streetcar Vehicle**



*Source: Keene Studio, Portland, Oregon and Weiss and Company, Milwaukee, Wisconsin*

### 4.2.2 Streetcar Tracks

The streetcar tracks would be embedded within the existing right of way along general purpose travel lanes. A drawing of a cross section of the track zone is shown in Appendix A. Generally, where there are multiple lanes, the tracks would be located in the right-most travel lanes. The exception is along 4<sup>th</sup> Street where the tracks are located along the inside lanes to serve stops at platforms in the median. Double track as shown on Figure 15 would be installed on all streets, except for one-way running segments on Jackson and Van Buren streets and Prospect and Farwell avenues.

### 4.2.3 Streetcar Stops

Streetcar stops will be spaced every one to three blocks. The initial streetcar route would have 22 stops and the extensions would add 18 stops for a combined total of 40 stops. Figure 15 shows the location of the stops along the locally preferred alternative route. It also shows the location of the stop in relation to the intersection (near, far, median or midblock) and curb type (inverted curb, bump-out, median or island).

Three types of stops will be created – basic, enhanced, and major. Figure 17 shows a conceptual design layout of the stops and Figure 18 shows a rendering of the proposed shelters. Basic stops will be the most common type of stop as shown on Figure 15 and will include the following components:

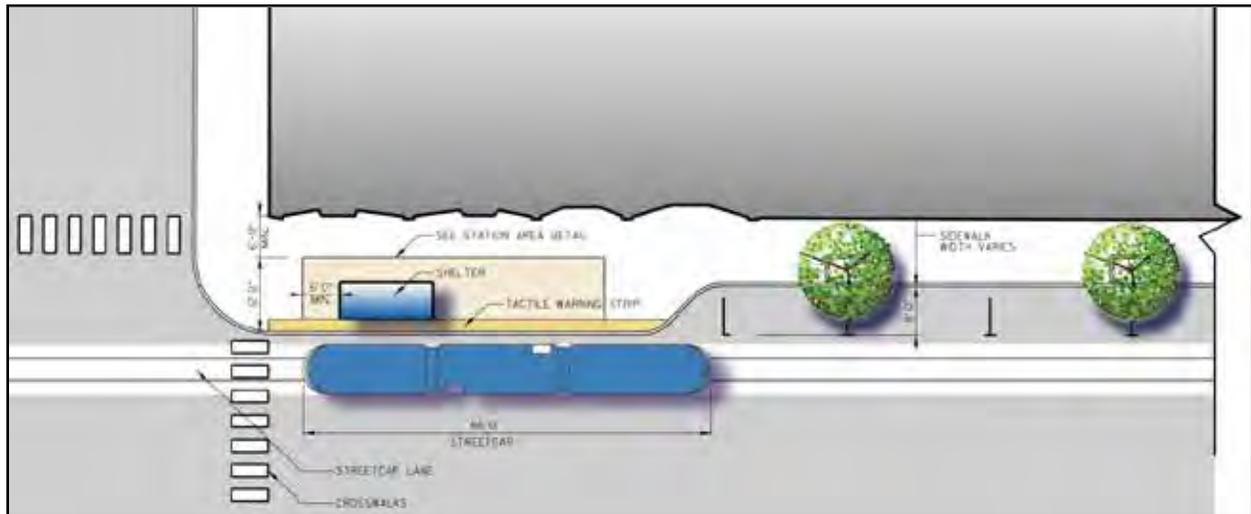
- § Shelter
- § Single vehicle length platform
- § Raised platform for level boarding

- § ADA provisions
- § Off vehicle fare collection system
- § Route and vehicle arrival information

Enhanced stops will be used at several locations and these will have the above features plus a wider shelter.

One major stop location is planned along Prospect Avenue between Brady Street and Royall Place. A major stop would include space for more than one streetcar vehicle and may have wider shelters or two shelters to accommodate more people.

**Figure 17: Conceptual Design Layout for Streetcar Stops**



Source: HNTB Corporation

**Figure 18: Streetcar Shelter Rendering**



*Source: American Design*

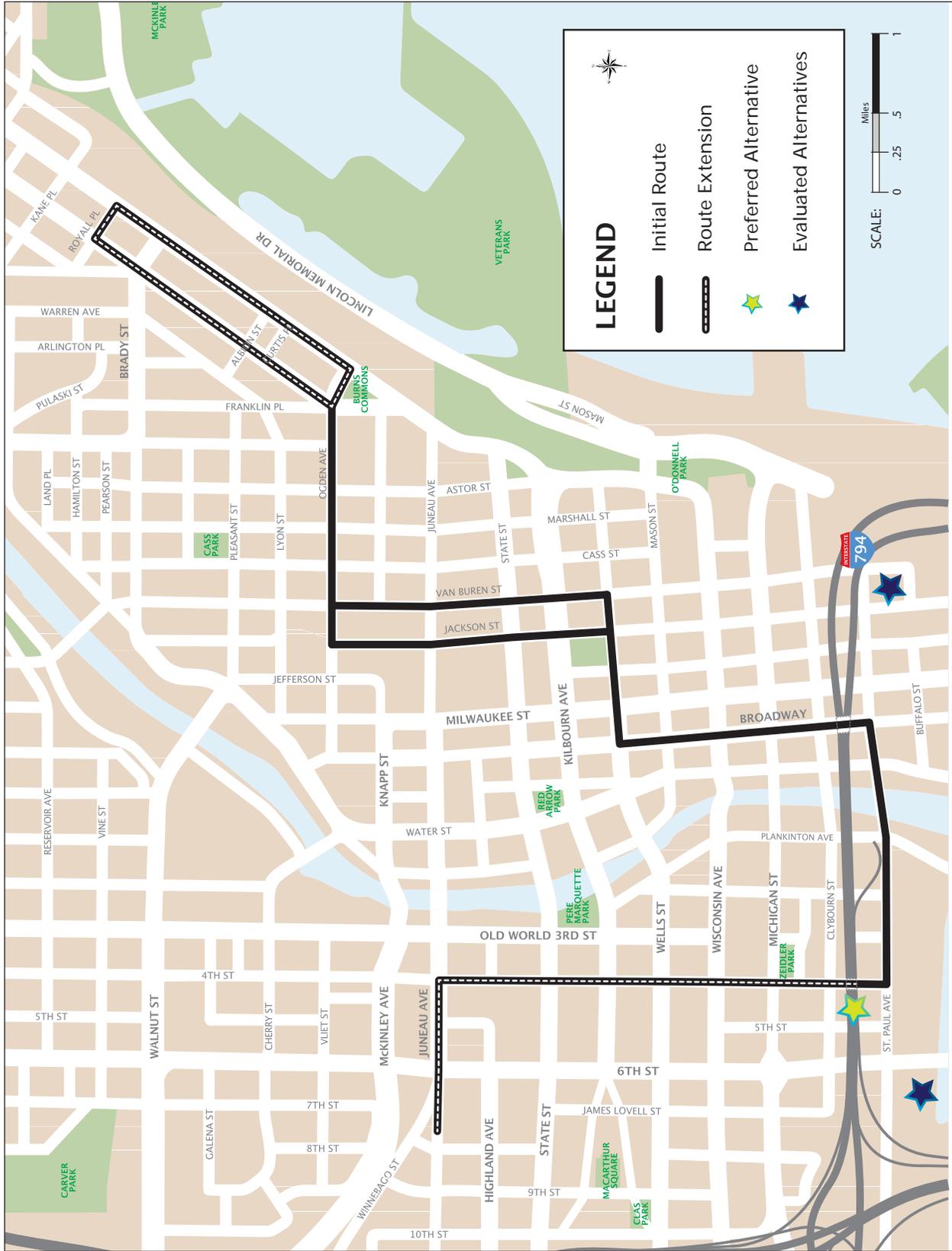
#### **4.2.4 Electric Power System**

The streetcar will be powered by electricity that will be delivered to the streetcar via an overhead contact system. Power to the overhead contact system will be supplied from substations which will be housed in single story prefabricated buildings. The initial route will require three substations, one at City Hall near the corner of Wells and Market streets, one near the maintenance facility west of 4<sup>th</sup> Street under Interstate 794 and one on Cass Street near Knapp Street. Figure 15 shows the approximate location of the substations and Appendix F shows details of the substation sites. Section 5.2.7, Energy Use, provides more details about the streetcar's power system.

#### **4.2.5 Maintenance and Storage Facility**

The maintenance facility site at 433 W. Clybourn Street was selected after a review of a number of possible locations in or near downtown Milwaukee. Ultimately, three specific locations were further analyzed. Figure 19 shows the location of the potential maintenance facility sites. The preferred maintenance facility site selection criteria was based on its proximity to the preferred streetcar route, size and availability, the cost to obtain use approval of the site and the sites development potential (ability to provide property tax revenue). The site that best addressed the selection criteria is the location at the southwest corner of Clybourn and 4<sup>th</sup> Street.

**Figure 19: Maintenance Facility Alternatives Map**



### **Maintenance Facility Sites Eliminated**

The site evaluated near the Intermodal Station is owned and controlled by the Wisconsin Department of Transportation. It would cost more than the preferred site due to its distance to the streetcar route, the need for additional track turnouts for full crossings over existing freight and passenger rail lines. This location may also have access and use limitations by freight and passenger rail entities. Due to the additional costs and coordination required, this site was eliminated from the maintenance facility options for the streetcar.

The third site evaluated near Van Buren and Buffalo streets was the most expensive option. The site is controlled under private ownership and would require four additional blocks of streetcar track to access the site. The site is partially located below Interstate 794, but the other portion of the site could be developed in the future and generate additional property tax revenues, therefore it was eliminated.

### **Preferred Maintenance Facility Site**

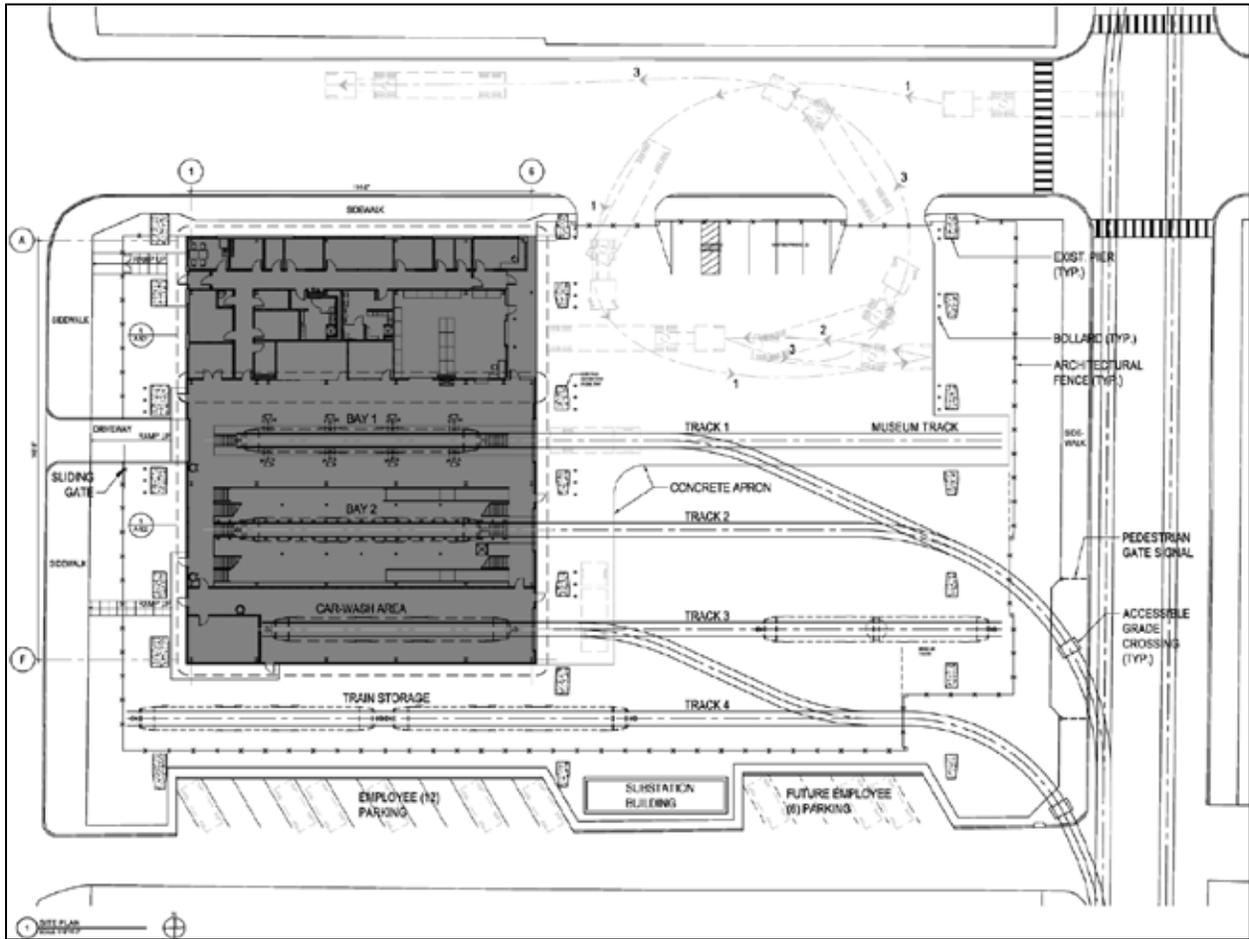
The preferred maintenance facility site is located directly adjacent to the streetcar route and contains approximately two acres which allows for the storage of at least eight modern streetcar vehicles. The site is currently owned by Milwaukee County and controlled by the Wisconsin Department of Transportation and is currently vacant and underutilized; therefore acquisition/lease costs would be minimal compared to other properties along the route. Additionally, the site is entirely located below Interstate 794 and controlled by public entities, thus it would be very difficult to ever utilize the site for a taxable use.

Figure 20 shows the site plan and Figure 21 shows architectural concepts of the proposed building.

The facility would accommodate administration offices, two maintenance bays, a shop with storage areas, a wash enclosure, locker rooms, support areas and common space. A control room where a supervisor can maintain radio contact with the streetcar operators would also be located here.

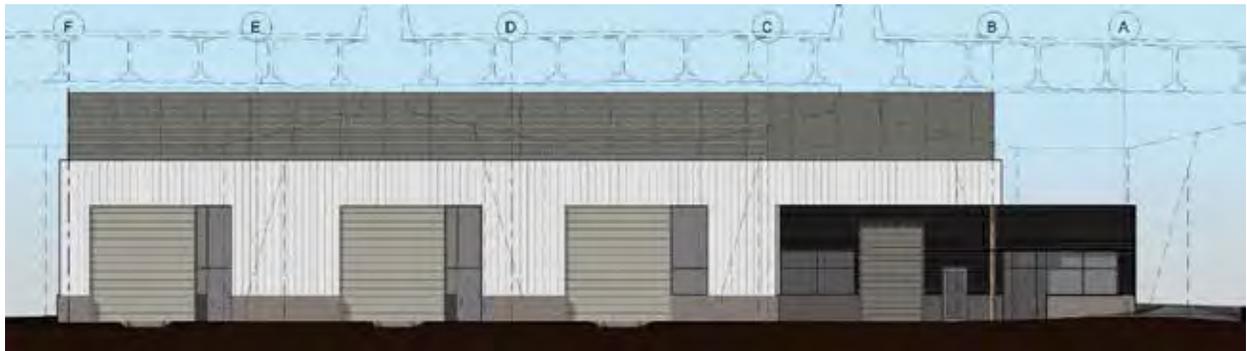
The streetcars would be stored overnight at this location, which has room to store a maximum of eight vehicles. Two streetcars would be parked in the maintenance bays and one streetcar would be stored in the wash enclosure. The remaining streetcars would be parked outdoors. The maintenance facility and rail yard are estimated to cost approximately \$8.7 million (not including design fees, contingencies or escalation costs, which could add approximately \$4.4 million in costs).

**Figure 20: Maintenance and Storage Facility Site Plan**



Source: HNTB Corporation

**Figure 21: Maintenance and Storage Facility 4<sup>th</sup> Street Elevation**



Source: HNTB Corporation

## 4.2.6 Roadway Improvements

The locally preferred alternative will require improvements to the roadways to make sure the streetcar operates efficiently and safely with other modes of transportation. Section 5.2.4 provides more details about the proposed improvements to the roadway's lanes and intersections, traffic signals, driveways, loading zones, parking, and bicycle and pedestrian facilities.

## 4.3 STREETCAR OPERATING CHARACTERISTICS

This section describes the operating characteristics of the locally preferred alternative for the streetcar.

### 4.3.1 Service Frequency and Hours of Operation

The streetcar would operate seven days per week with more frequent service during the day and somewhat less frequent service during early mornings, late night hours and on weekends. The streetcar would have 10 minute headways during the weekday daytime and 15 minute headways on weekends, late night, and early morning. It would operate Monday through Friday between 5 AM and midnight, 7 AM to midnight on Saturday, and 7 AM to 10 PM on Sundays. The headways and hours of operation are listed in Table 7. The end-to-end travel time is about 15 minutes for the initial system and 28 minutes for the system with the extensions.

**Table 7: Streetcar Operations**

| <b>Operating Hours</b>       | <b>Headways (minutes)</b> |
|------------------------------|---------------------------|
| <i>Monday through Friday</i> |                           |
| 5 AM to 7 AM                 | 15                        |
| 7 AM to 10 PM                | 10                        |
| 10 PM to 12 AM               | 15                        |
| <i>Saturday</i>              |                           |
| 7AM to 12 AM                 | 15                        |
| <i>Sunday</i>                |                           |
| 7 AM to 10 PM                | 15                        |

### 4.3.2 Integration with Other Modes

The City's goal is to create a transportation system that can accommodate everyone; including people without a car. Connectivity and convenience is needed to successfully implement streetcar service. In some cases, people need to be able to transfer from one transportation mode to another to get to their final destination. If these transfers are not convenient, people will not use the service or their trip could take too long.

The locally preferred alternative will connect with other modes of transportation. The streetcar will have a stop next to the Milwaukee Intermodal Station which serves approximately 1.4 million existing annual users with passenger rail service provided by AMTRAK, regional bus service, and Milwaukee County Transit System bus service.

The streetcar will not require modifications to the existing Milwaukee County Transit System bus routes. However, the City of Milwaukee will coordinate with Milwaukee County Transit System to determine if modifications are needed to more efficiently integrate bus service with the streetcar.

### **4.3.3 Ridership**

One year after streetcar operations begin, the initial route is anticipated to generate 1,800 rides per day and 665,000 rides per year. The route extensions are expected to increase ridership 19% by 2030 to 3,600 daily and 1.31 million annual riders.

## **4.4 CAPITAL AND OPERATING COSTS**

The capital costs for the initial streetcar system are estimated to be \$64.6 million. The route extensions would add \$40.2 million for a total combined cost of \$104.8 million. These costs will continue to be refined as the design is refined. Ways to minimize costs will be examined by the City during the design process.

Based on the route characteristics and service plan, the streetcar route with extensions has an estimated annual Operation and Maintenance cost of \$2.65 million for the initial route and \$4.89 million with both route extensions.

Additional information about the capital and operating costs for the streetcar and its financing mechanisms are provided in Appendix I.

## 5. ENVIRONMENTAL RESOURCES, IMPACTS, AND MITIGATION

This section of the EA describes the existing conditions and environmental impacts of the No Action Alternative and of the proposed streetcar locally preferred alternative (LPA). This section includes discussion about social and environmental factors, physical factors, indirect effects and cumulative effects. Descriptions of relevant laws, regulations and guidelines are described and where appropriate, proposed mitigation strategies are included.

### 5.1 SOCIAL AND ECONOMIC FACTORS

The discussions in this section focus on how the project would affect quality of life issues.

#### 5.1.1 Land Use and Property Impacts

This section summarizes the affected land use environment in the vicinity of the streetcar. Only the direct effects to land use are addressed in this section. Specifically, it focuses on the project activities that immediately result in the conversion of land from its existing use. Indirect and cumulative land use effects are discussed in Section 5.3 and 5.4 respectively.

##### Affected environment

The streetcar study area encompasses a large portion of downtown Milwaukee on both the east and west sides of the Milwaukee River and neighborhoods adjacent to downtown including the Historic Third Ward, Lower East Side and Brady Street as shown on Figure 3.

##### Existing Land Use

Table 8 provides a breakdown of the existing land use types within the streetcar study area and Figure 22 shows the existing land use on a map. Residential land uses comprise the largest land use category at 208 acres and are concentrated on the northeast side of the study area where there is a large amount of high-density multi-story housing. Public and quasi-public land uses are the second largest category within the streetcar study area at 185 acres. These uses include public lands owned by the City of Milwaukee or another governmental body and quasi-public lands that are privately owned, but provide services for the public such as churches, cemeteries, sports and entertainment facilities and the convention center. Public and quasi-public uses are concentrated on the western side of the study area where the large scale civic and entertainment facilities and Milwaukee County and State of Wisconsin buildings are located. The next largest land use category is 168 acres of commercial. The commercial land uses are focused along the Wisconsin Avenue and Michigan Street corridors to the east and west of the Milwaukee River in the area of downtown that is considered to be the traditional downtown core.

Transportation, vacant and manufacturing land uses make up smaller portions of the study area. Transportation land uses are primarily associated with Interstate 794 on the southern end of the study area as well as some of the large surface parking lots next to the freeway. Vacant lands are generally associated with the lands contained in the Park East redevelopment area (described below). The study area contains very little manufacturing, construction and warehousing land uses which is typical of the downtown urban setting.

**Table 8: Existing Land Use Acreages**

| <b>Land use type</b>                        | <b>Acres</b> |
|---|--------------|
| Residential                                 | 208          |
| Public and Quasi Public                     | 185          |
| Commercial                                  | 168          |
| Open Space                                  | 108          |
| Transportation                              | 78           |
| Vacant Land                                 | 35           |
| Manufacturing, Construction and Warehousing | 17           |
| <b>Total</b>                                | <b>799</b>   |

*Source: Milwaukee Property File, 2007*

Figure 22: Existing Land Use Map





## **Environmental Effects**

Under the No Action Alternative a streetcar system in downtown Milwaukee would not be constructed and there would be no direct land use changes.

There will be no land acquisition for the Initial Route. Land acquisition for the extensions is limited to a 100 square foot strip of landscaped buffer next to the surface parking lot of “The Palmolive” mixed-use office building parcel on the northeast corner of 4th Street and St. Paul Avenue (350 W. St. Paul Avenue). The property is currently owned by Van Buren Management Inc. The land is needed to accommodate the turning radius of the streetcar from westbound St. Paul Avenue to northbound 4<sup>th</sup> Street and to maintain at least five feet of sidewalk at the intersection. No parking spaces will be affected.

One other parcel of land that will change as a result of the project is the planned site of the streetcar maintenance facility. It is an approximately two-acre parcel located under Interstate 794 south of Clybourn Street and west of 4th Street as shown on the site plan in Figure 20. The vacant parcel is within the Interstate 794 right of way, currently owned by Milwaukee County, but under the control of the Wisconsin Department of Transportation.

## **Mitigation Measures**

Engineering designs for the impacted parcel at the northeast corner of 4<sup>th</sup> Street and St. Paul Avenue have been created to minimize the impact to property and to avoid impacts to parking spaces while maintaining at least a five foot wide sidewalk.

The City of Milwaukee will work with the property owner to purchase the land affected by the streetcar if funding is obtained for the 4<sup>th</sup> Street extension. If necessary, the City will follow their eminent domain process. Other mitigation measures may be utilized to minimize impacts to the property such as replacement of the landscaped area and notification of the impacts to the property owner throughout the project development process. Impacted landscaping at this site will be replaced by the project if requested by the property owner. Further efforts to minimize or avoid this impacted property will be made as the project design proceeds.

### **5.1.2 Economic Development**

This section describes the existing economic conditions within the streetcar study area, the economic effects associated with the project and mitigation measures.

## **Affected Environment**

Downtown Milwaukee and the streetcar study area are part of the southeastern Wisconsin region, an area defined by the counties of Washington, Ozaukee, Waukesha, Milwaukee, Walworth, Racine and Kenosha. Milwaukee County had 441,519 people employed in the labor force as of 2008. This represents nearly half of the region’s employment.

Overall, the region’s employed labor force has remained steady, declining only slightly from 1,004,963 employees in 2000 to 991,972 employees in 2008. Milwaukee County’s employed labor force declined by 4% during this time frame. It is likely that employment has continued to decline over the past two years for Milwaukee County and the region given the recent economic downturn.

The streetcar study area which encompasses a large portion of downtown, had estimated employment at 81,947 in 2009.<sup>12</sup>

The streetcar study area also contains over 3.2 million square feet of occupied retail space.<sup>13</sup>

### **Environmental Effects**

Under the No Action Alternative a streetcar system in downtown Milwaukee would not be constructed and the streetcar catalytic project from the City's Downtown Plan would not be implemented.

The Streetcar LPA is expected to create both short-term and long-term jobs that will benefit the local and regional economy. The construction of the initial route and the extensions would create approximately 475 direct construction jobs.

The ongoing operations and maintenance of the streetcar system would create a total of 20 direct local jobs for the initial route and another 15 jobs for the extensions.

Businesses along the streetcar route will experience temporary inconveniences during construction. Streetcar construction may reduce access to properties and businesses along its route, although access would not be completely eliminated during construction. During construction the number of on-street parking spaces may be reduced and alternate loading zone locations may be required. See Section 5.2.5 for a discussion of the project's construction impacts.

Overall, permanent impacts to loading zones are expected to be minimal along the proposed streetcar route since most businesses are served by alley access. The streetcar would require the removal of one officially marked loading zone on Broadway between Wisconsin Avenue and Michigan Street. Another loading zone along 4<sup>th</sup> Street between Wisconsin Avenue and Wells Street that serves the Frontier Airlines Center will be partially impacted by a streetcar stop platform.

Companies that receive deliveries in front of their businesses in areas that do not have officially designated loading zones may need to change their delivery patterns to avoid blocking the streetcar service. Some businesses may need to instruct their delivery services to drop off in the alley or delivery times may need to be adjusted.

### **Mitigation Measures**

The project will employ typical construction management practices to avoid or minimize adverse economic consequences to business establishments, such as avoiding full access closures, providing temporary alternate access and signage, and timely communications with business owners. Furthermore, streetcar construction will be staged in such a way to minimize the duration of construction impacts experienced by any given business. The City will continue to coordinate with the affected businesses and residents to inform them of changes to parking, street access and loading zones.

For the two loading zones that need to be eliminated, alternate loading zones are available. For the loading zone on Broadway, an alternative loading zone for the property is available on Michigan Street. For the loading zone on 4<sup>th</sup> Street, only a portion of the zone will be impacted and loading may continue

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<sup>12</sup> 2009-2010 Downtown Milwaukee Economic Report. Milwaukee Downtown Business Improvement District #21.

<sup>13</sup> City of Milwaukee property records.

along the remaining portion of the zone. Also, an alternate loading zone for this property is available along Wells Street.

The City of Milwaukee will also hold a series of targeted outreach meetings for business owners along the route to precede the public hearing on this Environmental Assessment. These meetings will continue during the design and construction phases of the project. The business outreach meetings will inform business owners of what they can expect before, during, and after project construction.

The City will also utilize its *Public Works Support for Business Program*<sup>14</sup> for the streetcar. Recognizing that transportation infrastructure projects are critical to long-term economic development, but can also impact surrounding businesses in the short term, the City of Milwaukee developed the program to help nearby businesses before and during construction projects. The City will communicate important project information and updates and provide businesses with support tools, such as a handbook of tips and resources, signage, project summaries, and regular e-mail updates about the projects.

The City has established a team of community liaisons with a minimum of one liaison assigned to each infrastructure project. Liaisons will serve as the lead point of contact regarding the construction project and communicate with neighborhood businesses and property owners through letters, e-mail updates, individual meetings and the program website (<http://city.milwaukee.gov/mpw/supportforbusiness/>). The liaison's primary roles will be to:

- Explain plans, procedures, and timelines to the neighborhood
- Educate neighborhood businesses and property owners on potential impact mitigation resources available
- Advocate on behalf of neighborhood members with the City, and
- Assess the impact of the planned construction on the neighborhood and request a corresponding level of support from the City.

In addition to the community liaisons, the City provides opportunities for neighborhood groups and businesses in highly affected areas to receive professional consulting on issues ranging from business management and financial planning to human resources and information technology. Qualifying entities will be selected on a case-by-case basis, based on the assessment and recommendation from the community liaison in each area. Groups may also qualify for marketing/advertising consulting through the Public Works Support for Business Program. As with business/technical consulting, qualifying entities are selected on a case-by-case basis, based on the assessment and recommendations from the community liaison in each area.

### 5.1.3 Environmental Justice

This section analyzes the streetcar's potential effects on environmental justice (EJ) populations (e.g. minority populations and/or low-income populations), to determine if there are disproportionately high and adverse impacts on those populations. This section also addresses how the City involved members of minority populations and low income populations in the project's planning and development.

#### **Methodology**

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that federal agencies consider and address disproportionately high

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<sup>14</sup> <http://city.milwaukee.gov/mpw/supportforbusiness/>

adverse environmental effects of proposed federal projects on minority and low-income populations. Minority includes persons who are American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, or Native Hawaiian or other Pacific Islander. Low-income means a person whose median household income is at or below the Department of Health and Human Services' poverty guidelines.

U.S. Census 2000 data was used to identify environmental justice communities within the study area. The study area is defined as a quarter-mile buffer around the route. This distance was chosen because it is a comfortable walking distance and therefore would capture most users of the proposed service. For the environmental justice analysis, minority and low-income areas were identified based on the guidance provided by the CEQ that "minority or low-income populations should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority or low-income population percentage of the affected area is meaningfully greater than the minority or low-income population percentage in the general population or other appropriate unit of geographic analysis."

To supplement the data analysis the project team also conducted site visits of the study area and met with various groups and organizations that represent environmental justice populations. More information is provided in the sections below.

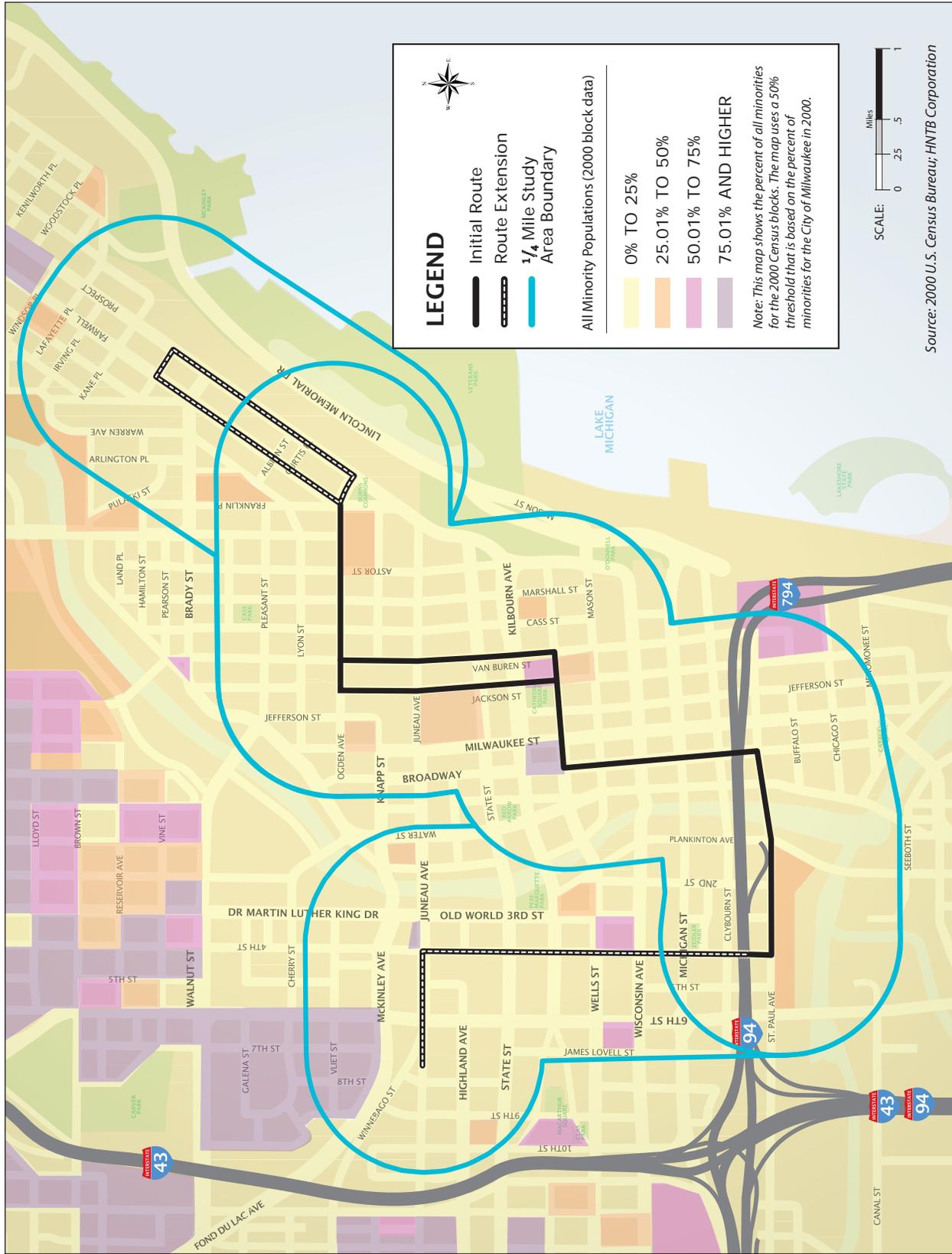
### **Affected Environment**

Minority and low income populations were analyzed using the most recent 2000 Census data to characterize the environmental justice populations present within the study area. The location of public housing and affordable housing units was also reviewed.

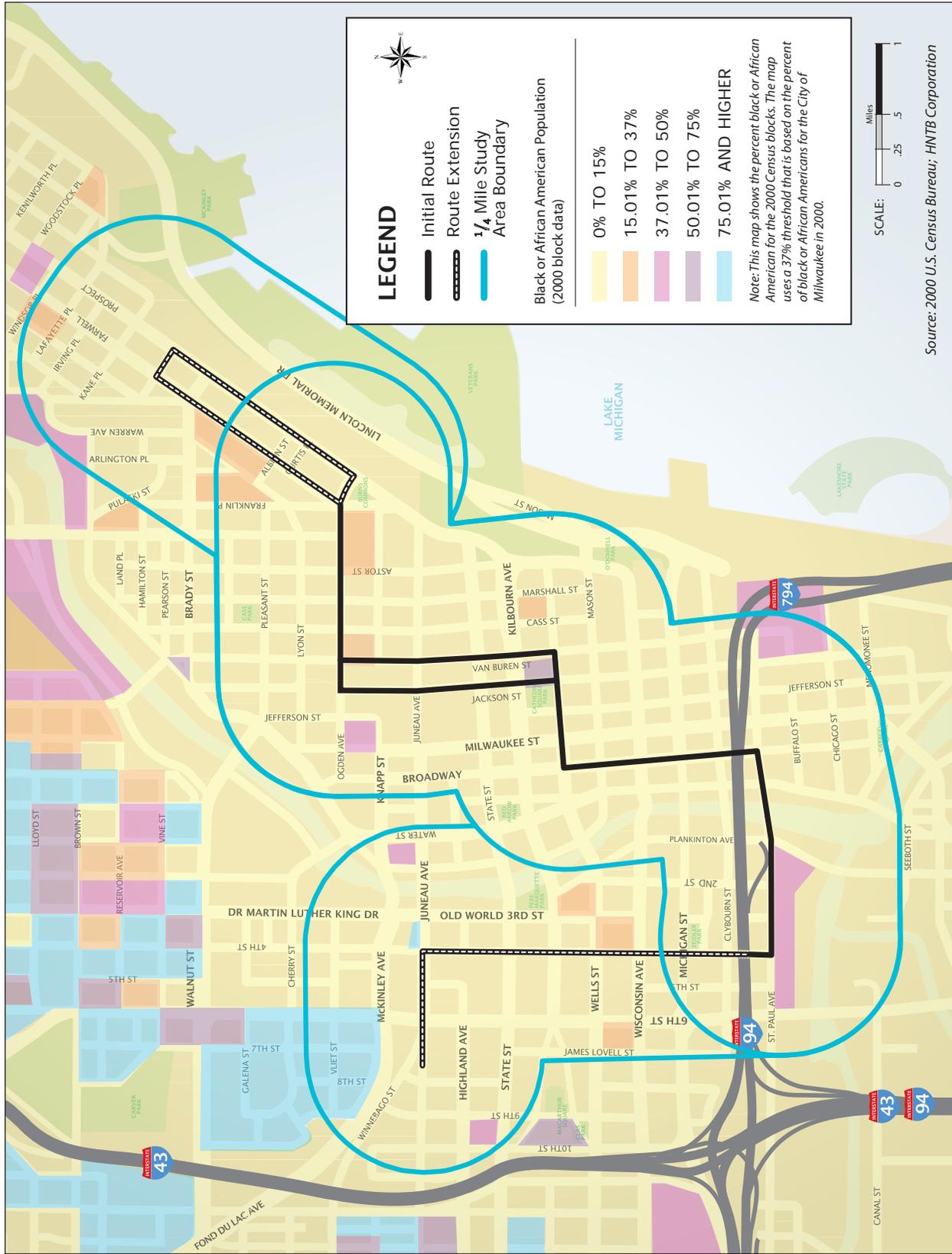
### **Minority Populations**

Table 9 shows the 2000 Census block level data for minority populations. It shows that 21% of the population within the study area is minority compared to 50% citywide. See Figure 23 for a map that shows all minorities. The Census data also shows that the largest minority population within the study area is black or African American, which accounts for 13% of the study area population. See Figure 24 for a map of black or African American populations.

**Figure 23: Map of All Minority Populations**



**Figure 24: Black or African American Population**



See Figure 24 for a map of black or African American population. This is less than the City as a whole, which has a 37% black or African American population. All other minorities (excluding black or African American), account for 7% of the study area, which is less than the citywide percentage of 13%.

**Table 9: Minority Populations (2000 Census, block level data)**

| Area              | Total Population | Total Minority | Black or African American | Other Minority (excludes African American) |
|-------------------|------------------|----------------|---------------------------|--|
| Study area        | 19,806           | 21%            | 13%                       | 7%   |
| City of Milwaukee | 596,956          | 50%            | 37%                       | 13%  |

### Low-Income Populations

According to Census figures, the 1999 median household income for the study area was \$30,080, which is slightly lower than the City of Milwaukee median household income of \$32,216. The U.S. Department of Health and Human Services (DHHS) poverty guideline was \$10,850 for a family of two in that same year. Detailed income data is not yet available for the 2010 census.

### Affordable and Public Housing Units

The various types of affordable housing units and public housing complexes that are within a quarter-mile of the streetcar route were inventoried because this is another indication of environmental justice populations. As shown on Table 10, the study area contains four City of Milwaukee Housing Authority public housing complexes. Also, the study area has several developments that have received some type of financing mechanism that requires a percentage of units to be affordable. Developments that used federal housing tax credits must maintain the affordable units for at least 30 years. The affordable housing units associated with Housing Authority developments would be maintained in perpetuity.

**Table 10: Affordable Housing Public Housing Developments**

| Financing Mechanism                 | Development       | Total Units* |
|-------------------------------------|-------------------|--------------|
| City of Milwaukee Housing Authority | Convent Hill      | 120          |
|                                     | Hillside          | 470          |
|                                     | Arlington Court   | 230          |
|                                     | Riverview         | 180          |
| Government bonding                  | Yankee Hill       | 350          |
| Federal housing tax credits         | City Hall Square  | 90           |
|                                     | Majestic Lofts    | 135          |
|                                     | Blue Ribbon Lofts | 95           |
|                                     | Park East Lofts   | 85           |

Source: City of Milwaukee

\*For government bonding and federal housing tax credits the “total units” is for the development, not necessary total affordable units.

### Summary of Affected Environment

Even though the study area has a lower percentage of minorities than the City as a whole, it is a relatively diverse area that has a substantial number of minorities that would be served by the streetcar. In addition, incomes in the study area tend to be slightly lower than the City, which may be due to several factors including the presence of college students; a relatively large amount of one unit and studio rental

apartments; several senior housing complexes; the presence of affordable housing units that use federal tax credits; and several public housing complexes.

The most notable concentration of environmental justice populations within the study area is just north of the 4th Street extension (west of 6th Street and north of McKinley Avenue) where the Hillside Terrace public housing complex is located. This area has a high concentration of black or African Americans and low income households.

Since the overall data suggested that some environmental justice populations are present in the study area, the City used environmental justice as a criterion in route selection (see Table 5) to ensure the selected route would serve environmental justice populations within the study area. Criteria for alternative selection included minority populations and household income below \$32,000 (the City's median income).

### **Public Outreach to Environmental Justice Populations**

The City made efforts to reach out to organizations that represent environmental justice populations consistent with *Executive Order 12898* that seeks greater public participation for environmental justice populations. Outreach helped the City identify and avoid or minimize potential impacts to environmental justice populations. It also allowed full and fair participation by these groups, helping them to be involved in decisions being made about transportation in their community.

To make sure environmental justice populations had an opportunity to participate in the process, the project team worked with the local American Civil Liberties Union (ACLU) to identify a list of organizations that may represent environmental justice populations or that may be able to help the City make contacts with environmental justice populations. These organizations were invited to the October 8, 2009 public information meeting and were given the opportunity to meet with members of the project team to learn about the proposed streetcar project. Individual meetings were held with the following organizations beginning in September 2009:

- § American Civil Liberties Union (advocates individual rights)
- § Urban Economic Development Association (supports housing and economic development initiatives to revitalize communities)
- § The Milwaukee Urban League (advocates for African Americans)
- § Independence First (serves people with disabilities)
- § Esperanza Unida (represents minority, injured, and unemployed workers)
- § 9 to 5 (serves disadvantaged working women)
- § Citizen Action/Good Jobs and Livable Neighborhoods (a coalition committed to achieving social, economic, and environmental justice)
- § SEIU Local 1 (State Employees International Union)
- § NAACP (National Association for the Advancement of Colored People)
- § MICAHA (Milwaukee Inner-city Congregations Allied for Hope (MICAHA) an interfaith organization committed to addressing community justice issues)
- § Disability Rights Wisconsin (advocates for rights for disabled people)

These groups generally expressed support for the streetcar project and indicated they understood the need to start with a small system that originates from downtown. Many organizations indicated they would like

to see new routes in the future to serve additional low income and minority neighborhoods. The starter system, if successful could lead to future investment in areas with environmental justice populations.

Other issues cited included: local hiring requirements; construction job opportunities; the cost to ride the streetcar; incentives and support for local business development; and accessibility for people with disabilities.

In addition to holding individual meetings, the Mayor spoke about the streetcar project on the radio station WMCS, which is committed to focusing on issues and concerns important to the Milwaukee urban community. Also, some of the groups in turn discussed the project at their organization's regular meetings.

Meetings with environmental justice organizations have generally produced expressions of support for the streetcar proposal, and offers from the organizations to publicly express their support. Organizations that represent environmental justice populations have indicated that they understand the need to start small and start downtown. Many also expressed interest in future expansion to provide additional service to low income and minority neighborhoods and populations; local hiring requirements; job opportunities for low income and minority neighborhood residents in streetcar construction and operations; the cost to ride the streetcar; incentives and support for local business development; and accessibility for people with disabilities. The comments are documented in Section 6 and Appendix B.

### **Environmental Effects**

A disproportionately high and adverse effect means that a project's adverse effect 1) is predominately borne by a minority population and/or a low-income population; or 2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low income population.

As discussed in more detail in this Chapter and throughout this EA, the project's adverse effects can be avoided, minimize or mitigated such that those adverse effects will not be significant under NEPA. It is also not likely that the project's adverse effects will be predominately borne by minority populations and/or low-income populations. The project is expected to have benefits for all members of the community, including members of EJ populations. The project will improve connectivity in the downtown Milwaukee area in a way that does not exist under the current bus system.

However, the project area contains a significant percentage of minority populations and low-income populations such that the City will continue to engage these communities during the planning, design and construction phases of the project, by taking the following measures:

- § Keeping identified groups on the project's mailing lists to receive all project and public meeting notices.
- § Advertising meetings in neighborhoods and news publications that are likely read by environmental justice populations. Media releases will also be done as appropriate to reach out to all, including minority and low-income populations.
- § Expanding their outreach to any additional groups that are identified during the continuing public outreach process and continuing to offer to provide briefings to these groups/individuals. The primary intent of these briefings will be to educate people about the streetcar project and its impacts
- § Coordinating with neighborhood property owners, residents and businesses during construction activities.

- § Continuing to maintain the Milwaukee Streetcar project website before, during, and after construction.
- § Offering to work with MCTS to announce any changes to bus service that may occur and coordinating with MCTS so they can notify riders of any bus and/or trolley detours and temporary closed/relocated bus stops.

#### **5.1.4 Historic and Archaeological Resources**

This section explains whether the streetcar will affect historic and archaeological sites. The National Historic Preservation Act requires this review.<sup>15</sup> Sites that are on or eligible to be listed on the National Register of Historic Places (NRHP) are afforded special protection.

#### **Affected Environment**

This section describes the affected environment.

#### **Area of Potential Effect (APE)**

FTA identified the project's APE<sup>16</sup> in consultation with project staff and the State Historic Preservation Office (SHPO). The streetcar project's APE is limited to those structures immediately adjacent to streets where streetcar lines are to be placed and where stops, electrical substations or the maintenance facility will be constructed. A survey of the APE was conducted by registered historians. They coordinated their survey with the Wisconsin Historical Society (SHPO) and historians in the City of Milwaukee Historic Preservation Office. The Wisconsin Department of Transportation was also consulted to help determine which properties along the route might be considered historic. Project staff conducted a walk-by survey within the APE and reviewed existing inventories and surveys of historic resources, including the NRHP, the City of Milwaukee's list of locally designated landmarks and districts, other City surveys, and prior determinations of eligibility. See Figure 25 showing the boundaries of the APE. Figure 26 is a map of the historic districts within the APE.

#### **Historic Resources in the APE**

The City of Milwaukee and the FTA solicited comments from potential consulting parties regarding the historic resources in the APE. Consulting parties can be individuals and/or organizations that may be interested in the project. In particular property owners and historic societies were asked to provide input.

The City and FTA found that the APE contains numerous historic properties. Table 11 and Table 12 list the identified resources in the project's APE and Figure 26 contains a map of the historic resources.

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<sup>15</sup> Section 106 of the National Historic Preservation Act, and its implementing regulation (36 CFR part 800 – Protection of Historic Properties).

<sup>16</sup> The APE is defined in 36 CFR § 800.16 as the: “geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effect is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

Figure 25: Map of Area of Potential Effect (APE)

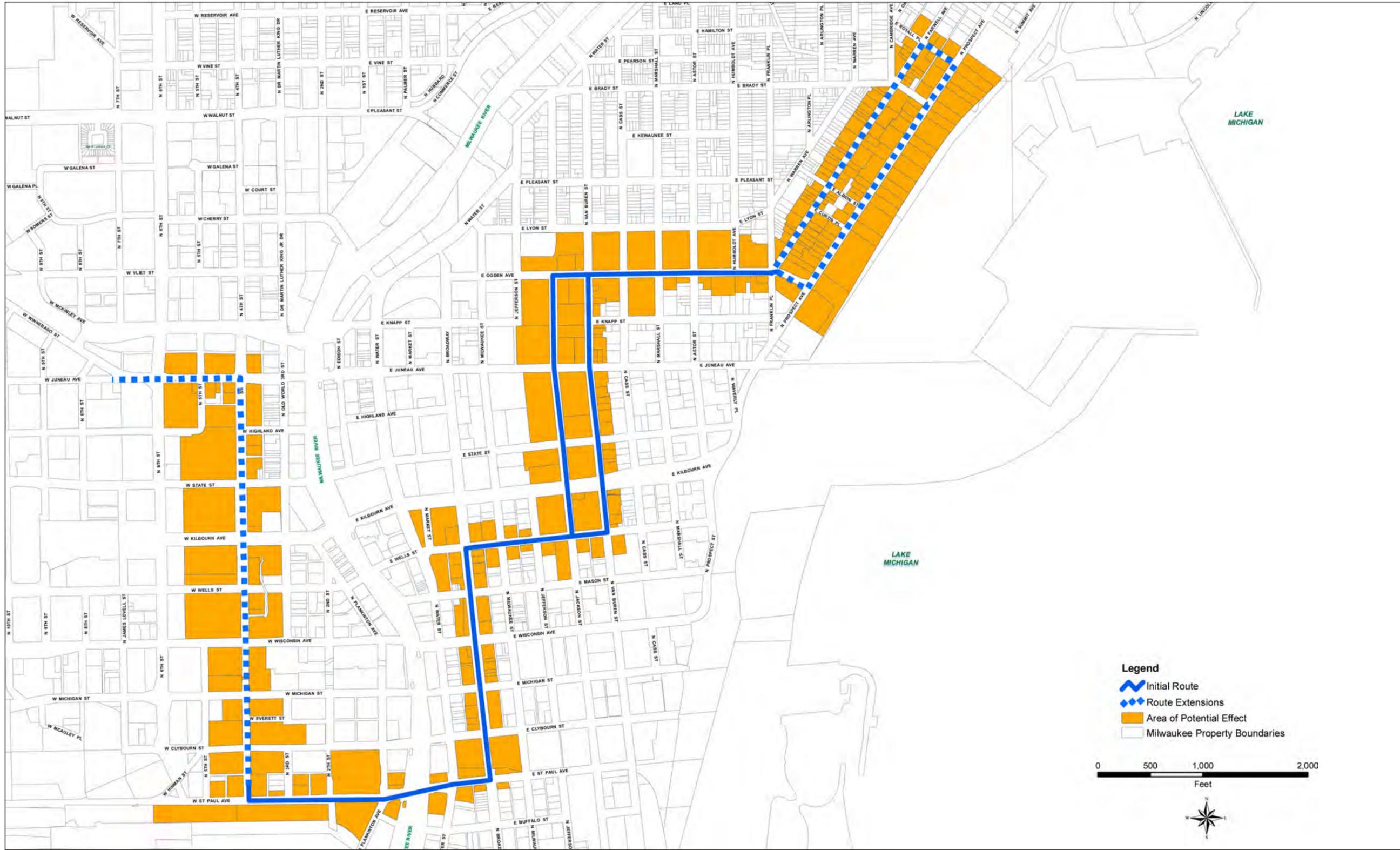




Figure 26: Historic Resources





**Table 11: National Historic Places within the Streetcar Route Area of Potential Effect**

| <b>Map ID</b> | <b>Name</b>   | <b>Address</b>           | <b>Date designated</b> |
|---------------|---|--------------------------|------------------------|
| <b>A</b>      | <b>West Side Commercial Historic District</b>                 |                          | 12/22/2000             |
|               | Plankinton Block/Julius Simon Dry Goods                       | 331 W Wisconsin Ave      |                        |
| <b>B</b>      | <b>Historic Third Ward Historic District</b>                  |                          | 03/08/1984             |
|               | F. Mayer Boot & Shoe Co.                                      | 342 N Water St           |                        |
|               | Merchant Mills Block  | 343-345 N Broadway       |                        |
|               | E.R. Godfrey & Sons Co.                                       | 400 N Broadway           |                        |
|               | Broadway Produce Co.  | 342 N Broadway           |                        |
| <b>C</b>      | <b>East Side Commercial Historic District</b>                 |                          | 09/23/1986             |
|               | Mackie Bldg   | 225 E Michigan Ave       |                        |
|               | Commercial Vernacular Bldg—No longer there                    | 511 N Broadway           |                        |
|               | Schlitz Brewing Co Bldg—No longer there                       | 525-527 N Broadway       |                        |
|               | Italianate Bldg—No longer there                               | 529 N Broadway           |                        |
|               | Mackie Bldg Addition  | 533 N Broadway           |                        |
|               | Lawrence Block  | 602-606 N Broadway       |                        |
|               | Loyalty Block   | 605-617 N Broadway       |                        |
|               | Lawrence Block  | 608 N Broadway           |                        |
|               | Lawrence Block  | 612-614 N Broadway       |                        |
|               | Commercial Bldg   | 618-624 N Broadway       |                        |
|               | Commercial Bldg; Originally associated with AHI# 110773**     | 625 N Broadway           |                        |
|               | Lawrence Block  | 626 N Broadway           |                        |
|               | Commercial Bldg   | 627-635 N Broadway       |                        |
|               | Lawrence Block  | 626-628 N Broadway       |                        |
|               | Commercial Bldg; Originally associated with AHI# 41166**      | 630 N Broadway           |                        |
|               | J.A. Noonan Block   | 307 N Broadway           |                        |
|               | Herman Building/Railway Exchange Building                     | 229-231 E Wisconsin Ave  |                        |
|               | Wisconsin Telephone Company Bldg                              | 722 N Broadway           |                        |
| <b>D</b>      | <b>Plankinton Avenue-Wells-Water Street Historic District</b> |                          | 06/13/1986             |
|               | Milwaukee City Hall   | 200 E Wells St           |                        |
| <b>E</b>      | <b>Cass/Juneau Avenue Historic District</b>                   |                          | 11/03/1988             |
|               | A. Brandt Flats   | 1210-1212 N Van Buren St |                        |
| <b>F</b>      | <b>Prospect Avenue Mansions Historic District</b>             |                          | 04/07/1990             |
|               | Collins-Elwell-Cary House                                     | 1363 N Prospect Ave      |                        |
|               | The Fenwick Apartments  | 1409 N Prospect Ave      |                        |
|               | Apartment Building  | 1417 N Prospect Ave      |                        |
|               | Willard Merrill House   | 1425 N Prospect Ave      |                        |
|               | Charles D. Mann House   | 1429 N Prospect Ave      |                        |
|               | Thomas H. Spence House  | 1437 N Prospect Ave      |                        |
|               | First Church Christ Scientist Sunday School                   | 1443 N Prospect Ave      |                        |
|               | First Church Christ Scientist                                 | 1451 N Prospect Ave      |                        |
|               | William H. Osborne House                                      | 1509 N Prospect Ave      |                        |
|               | Fred Kraus House  | 1521 N Prospect Ave      |                        |
|               | Elizabeth M. Black House                                      | 1537 N Prospect Ave      |                        |
|               | A. Story Goodrich House                                       | 1543 N Prospect Ave      |                        |
|               | Frederick T. Goll House                                       | 1550 N Prospect Ave      |                        |
|               | David Vance House   | 1551 N Prospect Ave      |                        |
| <b>G</b>      | <b>East Brady Street Historic District</b>                    |                          | 03/09/1990             |
|               | Wm. F. Mueller Garage   | 1669 N Farwell Ave       |                        |
|               | J. Kunitzky Block   | 1673-1677 N Farwell Ave  |                        |

**Table 15 continued**

| Map ID | Name  | Address                        | Date designated |
|--------|---|--------------------------------|-----------------|
|        | <b>Individual Properties (not already listed above)</b> |                                |                 |
| 1      | Turner Hall   | 1034 N. 4 <sup>th</sup> Street | 8/2/84          |
| 2      | John Pritzlaff Hardware Co.                             | 143 W. St. Paul Avenue         |                 |
| 3      | First Unitarian Church                                  | 1009 E. Ogden/1342 N. Astor    | 12/30/74        |
| 4      | Abbott Row  | 1919-43 E. Ogden               | 3/3/83          |
| 5      | St. John's Roman Catholic Church                        | 812 N. Jackson Street          | 12/31/74        |
| 6      | Wisconsin Consistory Building                           | 790 N. Van Buren Street        | 9/26/94         |
| 7      | Sixth Church of Christ Scientist                        | 1036 N. Van Buren Street       | 3/27/80         |
| 8      | McIntosh-Goodrich Mansion                               | 1584 N. Prospect Avenue        | 8/31/00         |
| 9      | Adler, Emanuel D., House                                | 1681 N. Prospect Avenue        | 9/13/91         |
| 10     | Allis, Charles, House                                   | 1630 E. Royall Place           | 1/17/75         |

\*See Historic Resources Map in Figure 28.

\*\*AHI is the Architecture & History Inventory housed at the Wisconsin Historical Society

**Table 12: Locally Designated Landmarks and Districts within the Streetcar Route Area of Potential Effects**

| Name                                   | Address                          | Date Designated |
|--|----------------------------------|-----------------|
| Turner Hall                            | 1034 N 4th St                    | 11/07/1977      |
| St. John's Roman Catholic Cathedral    | 812 N Jackson St                 | 4/15/1992       |
| Wehmer Apartment Building              | 802 N Van Buren St               | (Processing)    |
| Sixth Church of Christ Scientist       | 1036 N Van Buren St              | 5/17/1983       |
| First Unitarian Church                 | 1009 E Ogden Ave/1342 N Astor St | 2/12/1991       |
| George W. Peck Row House               | 1620-1628 N Farwell Ave          | 6/16/1998       |
| Adler, Emanuel D., House               | 1681 N Prospect Ave              | 11/26/2002      |
| McIntosh-Goodrich Mansion              | 1584 N Prospect Ave              | 12/20/1985      |
| Goll, Frederick J. House               | 1550 N Prospect Ave              | 12/11/2002      |
| Allis, Charles, House                  | 1630 E Royall Pl                 | 12/07/1982      |
| East Brady Street Historic District    |                                  | 4/9/1990        |
| East Side Commercial Historic District |                                  | 11/17/1987      |

The streetcar route passes through or is adjacent to seven NRHP-listed historic districts and nine individually listed properties. One additional property (property #2 in Table 11) was previously determined eligible for the NRHP, but is not registered. Locally designated landmarks and districts in the APE are listed in Table 12. In addition to the historic properties in Table 11 and Table 12, twenty other properties along the streetcar route were identified by the study team as potentially eligible for listing on the NRHP. These are listed in Table 13 and also mapped in Figure 26. The historians researched these properties and consulted with SHPO to determine their NRHP eligibility.

Studies showed that five of the twenty properties in Table 13 are not eligible for listing on the NRHP. The primary reasons for ineligibility included a loss of architectural integrity due to changes to the structures or the presence of better examples of the architectural style found in the City. Fifteen of the twenty resources were determined to be NRHP-eligible historic resources. These buildings were eligible because of their architecture (Criterion C) or because they were associated with people or events that contribute to the nation's history (Criteria A and B). No potentially eligible historic districts were identified within the APE. SHPO reviewed the study's findings and found that they concurred with all but five of the

eligibility determinations, disagreeing that these properties are eligible for inclusion in the NRHP because, in their opinion, the properties do not meet the NRHP criteria.

The description of the Criteria used for recommending listing in the NRHP is as follows:

- Criterion A:** Resources associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B:** Resources associated with the lives of significant persons in or past.
- Criterion C:** Resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

**Table 13: Properties Surveyed and Their Eligibility for Listing on the National Register**

| Map ID* | Property Name   | Property Address                         | Eligibility for Listing on the National Register |
|---------|---|--|--|
| 1       | Milwaukee Arena   | 444 W. Kilbourn Ave.                     | Eligible under Criteria A and C                  |
| 2       | Milwaukee Journal Buildings   | 333 W. State St.                         | Eligible under Criteria A and C                  |
| 3       | Municipal Building  | 841 N. Broadway                          | Eligible under Criterion C                       |
| 4       | Milwaukee Athletic Club   | 758 N. Broadway                          | Eligible under Criterion A                       |
| 5       | St. John Cathedral Complex  | 812 N. Jackson St.                       | Eligible under Criteria A and C                  |
| 6       | Mary Brazell Investment Property/Milwaukee Children's Free Hospital | 1462 North Farwell Ave.                  | Eligible under Criterion A**                     |
| 7       | Candon Court Apartments   | 804 N. Van Buren St.                     | Not Eligible                                     |
| 8       | Juneau Village  | 1009, 1029, 1100 and 1129 N. Jackson St. | Not Eligible                                     |
| 9       | Blackstone Apartments   | 709 E. Juneau Ave.                       | Eligible under Criterion C                       |
| 10      | Dorsey's Dancing Academy  | 1428 N. Farwell Ave.                     | Eligible under Criterion A                       |
| 11      | Devonshire Apartments   | 1504 N. Prospect Ave.                    | Eligible under Criterion C**                     |
| 12      | Summerfield Court Apartments  | 1479-1495 N. Farwell Ave.                | Eligible under Criterion C                       |
| 13      | Gainsborough Apartments   | 1531 - 1535 N. Farwell Ave.              | Not Eligible                                     |
| 14      | Paul Weise Building   | 1534 N. Farwell Ave.                     | Not Eligible                                     |
| 15      | George W. Peck Rowhouse   | 1620-1628 N. Farwell Ave.                | Eligible under Criteria B and C                  |
| 16      | Justus & Margaret Vallat Houses                                     | 1708 & 1714-1716 N. Farwell Ave.         | Eligible under Criterion C                       |
| 17      | Prospect Terrace Apartments   | 1710 – 1724 N. Prospect Ave.             | Eligible under Criterion C**                     |
| 18      | Edgewater Apartments  | 1742 N. Prospect Ave.                    | Eligible under Criterion C**                     |
| 19      | Royal Apartments & Royal Annex                                      | 1525 and 1533 E. Royall Pl.              | Not Eligible                                     |
| 20      | Royalton Apartments   | 1614 E. Royall Pl.                       | Eligible under Criterion C**                     |

\*See Historic Resources Map in Figure 28.

\*\* SHPO does not agree that these properties meet the criteria for eligibility.

### Archaeological Resources in the APE

Regarding the potential for archaeological resources within the APE (shown in Figure 25), consultation with Native American Tribes and the State Historic Preservation Office/Burial Sites Preservation Office

(SHPO/BSPO) was initiated by the FTA in coordination with the City of Milwaukee. See Appendix C for correspondence. Because of the presence of other structures, paved surfaces, and the lack of exposed soils, locations of archaeological artifacts or remains underground cannot be identified or investigated. Due to prior excavation for the highway bridges, other structures, roads, and urban infrastructure, it is not likely that any intact archaeological remains or artifacts are present. No Tribes indicated the presence of archaeological resources, undoubtedly due to the fact that the land is highly disturbed. The likelihood of intact artifacts or remains is very low.

## **Environmental Effects**

Under the No Action Alternative a streetcar system in downtown Milwaukee would not be constructed and there would be no direct effects on historic or archaeological sites in the study area from the introduction of a streetcar system.

Construction of the Streetcar LPA would require little to no new subsurface disturbance of soils. All soils in the study area have been disturbed at some time in the past. The majority of the excavations are not expected to occur below the existing roadbed where the rails will be placed. Utilities and the maintenance facility will likewise be on soils that were formerly disturbed through urban development. It is unlikely that any buried deposits would be identified, exposed or adversely affected by construction. This means that it is unlikely that archaeological resources will be uncovered during construction of the streetcar tracks or utility work. Additional construction related effects are reported in Section 5.2.5.

Based on the historic survey and the preliminary design plans, no lands from historic properties will be required and no construction will be done that would enter historic property boundaries.

The streetcar itself and the associated improvements at the stops will not be substantially different from other transportation or urban features of the landscape and so no aesthetic impact to historic structures is anticipated.

The effects of vibration on historic structures, which can be more fragile than new structures is a common concern. However, no vibration impacts were identified along the streetcar route. More information about vibration impacts is included in Section 5.2.2, Noise and Vibration.

Aesthetic changes associated with redevelopment could change the appearance of the general setting. See Section 5.1.5 for a discussion of the effects of the Streetcar LPA on aesthetics.

Transportation infrastructure in the road right of way, including such things as roads, bus stops, traffic signals and signage, is already a major part of the visual landscape of this highly urbanized area. Overall changes including the improvements at the stops and the OCS and track will be minor given the urban context.

FTA submitted a technical report which includes the determination of no adverse effect<sup>17</sup> to the SHPO for their review and concurrence. SHPO concurred that the proposed undertaking will result in a “no adverse effect to historic properties located within the Area of Potential Effect” pursuant to 36 CFR 800.5(b), if the project is constructed according to the plans. FTA’s final letter of determination is included in Appendix C. The technical report is available upon request.

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<sup>17</sup> *Historic Preservation Technical Report and Recommendation of Section 106 Finding*. Prepared for FTA by HNTB Corporation. July 2011.

## **Mitigation Measures**

If archaeological remains such as human bones are discovered during construction all work in the vicinity of the find will stop immediately and the area protected. The State Historic Preservation Office (SHPO), Burial Sites Preservation Office (BSPO), the Federal Transit Administration, and the City of Milwaukee will be notified immediately in accordance with Wisconsin Statute 157.70. This will entail evaluating the find to determine if it is significant and whether mitigation through avoidance or recovery is necessary. Work may proceed only after authorization from the BSPO.

Although it is not anticipated that the construction activities for the project will have any adverse effects on any historic properties, all construction activities will be required to comply with the City of Milwaukee's Code of Ordinances, Chapter 80, Subchapter 2, Noise Control 80-73.2, Excessive Vibration Prohibited, Temporary and Mobile Sources. The vibration limits established by this ordinance are equivalent to the Construction Vibration Damage Criteria in the FTA Guidance Manual.<sup>18</sup>

### **5.1.5 Aesthetics**

Transportation infrastructure in the road right of way, including such things as roads, bus stops, traffic signals and signage, is already a major part of the visual landscape of this highly urbanized area. Overall changes including the improvements at the stops and the OCS and track will be minor given the urban context.

## **Environmental Effects**

Under the No Action Alternative a streetcar system in downtown Milwaukee would not be constructed. The physical elements associated with the streetcar would not be introduced into the landscape and so views would not change.

The environmental effects related to the aesthetics of the Streetcar LPA are discussed below. Construction related temporary impacts are addressed in Section 5.2.5.

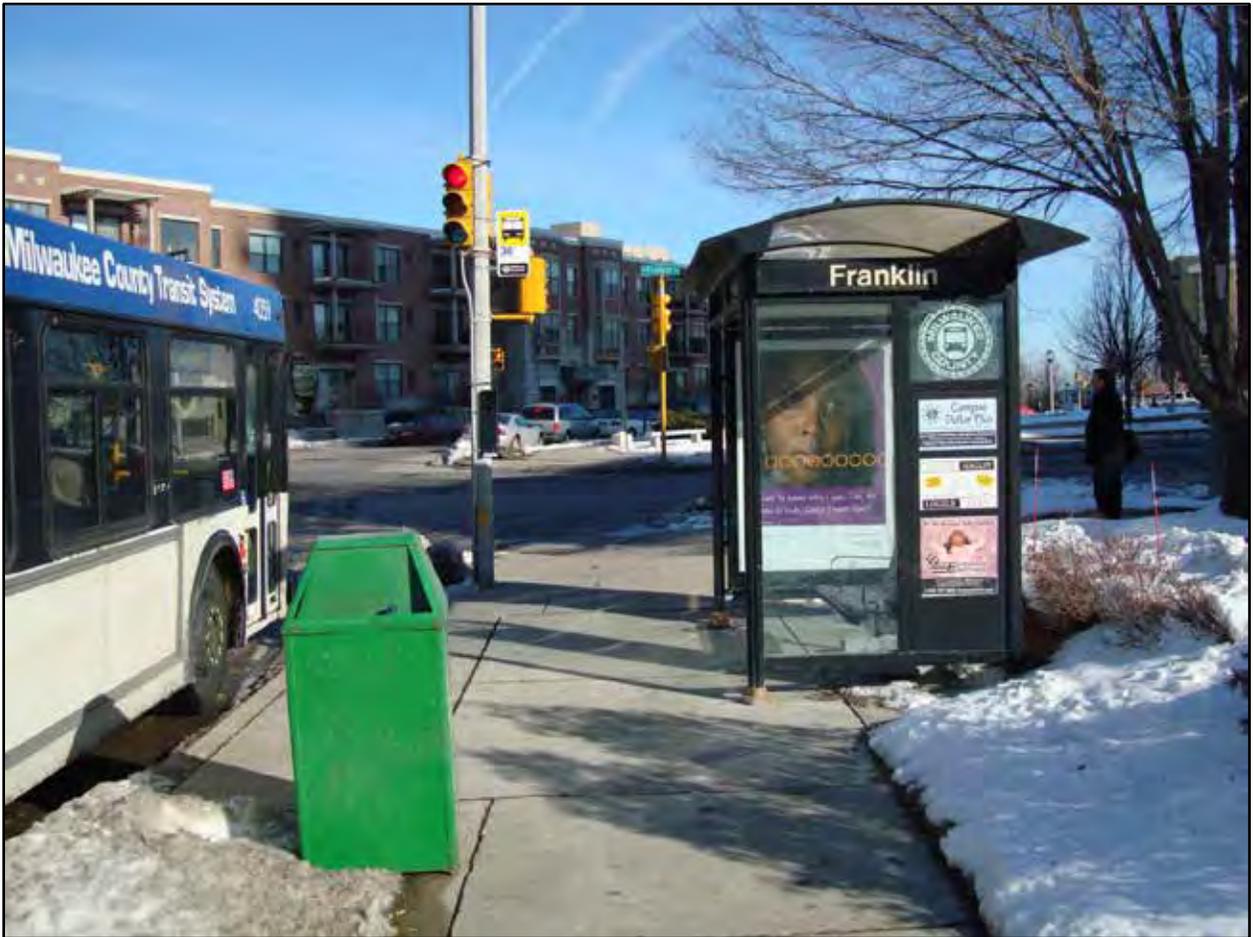
### **Streetcar Stops**

Streetcar stops as, shown in Figure 15 and Figure 18, will typically include pavement bump-outs that extend into the street, shelters, benches, trash cans and other ancillary elements. Most of these features are already used at shelters for the existing MCTS bus system as shown in Figure 27.

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<sup>18</sup> *Transit Noise and Vibration Impact Assessment*. Prepared by Harris Miller Miller & Hanson, Inc. Federal Transit Administration, FTA-VA-90-1003-06. May 2006.

**Figure 27: Photo of a Milwaukee County Transit System Bus Shelter**



*Image Source: HNTB Corporation*

The streetcar stops will be designed to blend into the existing streetscape. Shelters will be about the same size as the existing bus stops at approximately eight feet wide and nine feet high for basic shelters and 12 feet wide and 9 feet high for the enhanced shelters. All shelters will use transparent glass. A conceptual platform and shelter plan is shown in more detail in Appendix A. Ticket machines will be located at all of the shelters proposed for the streetcar. Figure 28 is a photo of an existing parking ticket machine in the City of Milwaukee; the same machines are proposed to be used for the streetcar ticket machines.

**Figure 28: Photo of a Ticket Machine**



*Image Source: HNTB Corporation*

### **Tracks**

The project will introduce tracks along the route's streets. While this is a new feature, it is expected to have a minimal effect on the physical and visual appearance of the street because the rails will be embedded in the roadway as shown in Figure 29. The track zone will be approximately two feet deep and eight feet wide. The rail itself will be about six inches deep and four feet, eight and one-half inches wide. Appendix A shows the proposed track details.

### **Electrical System**

The project will introduce an electrical overhead contact system (OCS) with wires, supporting poles and substations along the route. This will reintroduce overhead wires similar to those that provided electrical service to buildings, traffic signals, trolleys and streetcars in the past. The OCS was chosen over other electrical systems because its single wire is more aesthetically pleasing. In addition, overhead wires will utilize existing street light and traffic signal poles to reduce the potential for clutter in the street and make the OCS less visible. The City is developing a plan to match the OCS to the current poles and fixtures. Refer to Section 5.2.7, Energy Use, for more information about the electric system and see Figure 15 for substation locations for an image of a substation and Appendix F that shows the site plans for the power substations.

### **Streetcar Vehicles**

The streetcar vehicles will be no less visually appealing than buses. For some people, the streetcar will even be considered visually appealing with its modern, streamlined look.

**Figure 29: Streetcar System Rendering on Broadway**



*Rendering of proposed streetcar system located at the intersection of North Broadway and East Michigan Street. Image Source: HNTB Corporation.*

### **Street Trees**

Some of the 346 street trees within the corridor may need to be trimmed so that the streetcar can operate beneath them. The streetcar will require 20 feet of clearance between ground level and any overhanging tree branches. Currently the City requires that branches overhanging the street right of way be trimmed to a height at least 10 feet above the level of the street. Approximately five trees would be removed for the construction of the streetcar stops and up to an estimated 35 street trees may be removed or impacted due to close proximity to (within 5 feet) the OCS poles. This means up to approximately 11% of the trees along the route could be affected. Final planning would seek to minimize loss of healthy or substantial trees.

### **Historic Structures**

The potential for visual impacts to historic structures is limited since this is an existing transportation corridor and not expected to disturb or alter any of the characteristics that qualify the identified buildings as being historic. A determination of no adverse effect to historic properties within the APE was completed in consultation with SHPO as part of the historic review process under Section 106 of the National Historic Preservation Act.

### **Streetcar Maintenance Facility**

The proposed maintenance facility will include the introduction of a new building where there is currently none. Other new visible features on the site will include lighting and accessory uses such as loading

docks, parking, and the track yard. Much of the facility will not be visible because it will be constructed beneath Interstate 794. The new building will fit in with the existing uses in the area that include commercial office buildings, warehouses and many transportation uses such as Interstate 794 and surface parking lots and structures.

Providing daylight for the building will be difficult because it will be built under the Interstate 794 bridges. The facility will have large windows on the north and east sides of the building and skylights in the roof between the highway bridges above to maximize daylight. The large windows will enable people traveling past the facility to see inside. Visible interior areas include maintenance areas and administrative offices.

The building and fencing around the maintenance facility are expected to fit within the aesthetic character of its surroundings. Building materials, colors, and detailing are intended to be aesthetically pleasing. Design of the building is anticipated to be a modern style consistent with the modern streetcar theme and the nearby Milwaukee Intermodal Station. Overall, the building is not expected to change the aesthetic character of the area.

### **Mitigation Measures**

While the streetcar project will introduce some new elements into the streetscape, the project's features are urban and will be designed to fit with the context of the various neighborhoods and districts within the study area. The following features of the project are expected to minimize visual effects.

The streetcar improvements including the maintenance facility, the electrical overhead contact system (poles, wires and substations) and other physical elements at the streetcar stops will be designed to fit in with the existing surroundings with the intent of enhancing the character of downtown in a positive way to meet the purpose of the project.

Overhead wires will utilize existing street light and traffic signal poles to reduce the potential for clutter in the street and make the OCS less visible.

Mature, healthy trees will be avoided where practical. The City will replace street trees as is appropriate to the character of the project's design.

### **5.1.6 Section 4(f) Resources (Parks, Historic Lands, and Wildlife Refuges)**

This section discusses Section 4(f) resources.

#### **Affected Environment**

The Department of Transportation Act of 1966 protects properties including publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places. The Act does not allow federally funded projects to use land from these resources unless deemed by the person with authority over the property that there is no feasible and prudent avoidance alternative and that all impacts to the property have been minimized to the extent possible.

The streetcar route runs adjacent to historic buildings and through historic districts. An analysis of the historic buildings and districts along the route is included in the Historic and Archaeological Resources section of this report (See Section 5.1.4). The historic districts through which the streetcar will travel are

within an urban environment and the streetcar will operate in the existing streets. It will operate similarly to existing traffic including autos, buses, and trucks and so no impacts to the historic district are expected. A determination of no adverse effect to historic properties was made by the FTA and SHPO concurred. There is no use of historic properties under Section 4(f). (See Letter dated July 20, 2011 from SHPO in Appendix C.)

City and County owned parks are located near the streetcar route including those shown in Table 14.

The project was designed to avoid the use of Section 4(f) properties.

**Table 14: Parks and Open Space within a Quarter-Mile of Streetcar Route**

| Park Name                                    | Address                        | Type of Park   |
|--|--------------------------------|--|
| MacArthur Square                             | 901 N. 9th St.                 | Commons area next to County Courthouse<br>Not a designated City or County Park |
| Unidentified green area on Juneau Ave        | n/a                            | Not a City or County Park  |
| 4 <sup>th</sup> and Mineral Play Area        | 937 South 4th St.              | Children's play area   |
| Pere Marquette Park                          | 900 N. Plankinton              | Commons area   |
| Zeidler Union Square                         | 301 W. Michigan Street         | Commons area   |
| Red Arrow Park                               | 920 N. Water Street            | Commons area and skating rink  |
| Milwaukee School of Engineering Ball diamond | Milwaukee and State Streets    | Ball field (Not a City or County Park)   |
| Cathedral Square Park                        | 520 E. Wells Street            | Commons area   |
| O'Donnell Park                               | 910 E. Michigan Street         | Trail segment, pavilion, commons area  |
| Cass Playground                              | 1620 N. Cass Street            | Courts and children's play area  |
| Veteran's Park                               | 1010 N. Lincoln Memorial Drive | Commons area, trail  |
| Burns Commons                                | 1300 N. Franklin Place         | Commons area   |
| East Side Bike Trail                         | 1700 N. Prospect Avenue        | Bike trail, green space  |
| McKinley Park                                | 1750 N. Lincoln Memorial Drive | Open Space, lakefront, courts  |
| Pulaski Street Playfield                     | 1840 North Pulaski St.         | Sport fields and children's play area  |

**Environmental Effects**

Under the No Action Alternative, the streetcar will not be constructed and would not require the use of any publicly-owned public parkland, recreation areas or wildlife or waterfowl refuges or historic properties in the project area.

The Streetcar LPA also will not use any Section 4(f) property. The streetcar starter system and extensions run within the existing right of way and no Section 4(f) resource land will be acquired by the City for this project. The City also plans to avoid any temporary easements for construction within the adjacent parks.

## **Mitigation Measures**

No resources protected by Section 4(f) will be used therefore no mitigation measures are needed.

### **5.1.7 Safety and Security**

This section reviews the potential hazards associated with the streetcar project and the design features that will be incorporated to maximize safety and security.

## **Existing Conditions**

The study area currently contains common safety issues associated with crime and conflicts that typically occur between pedestrians, vehicles and bicyclists that share the roads. The Milwaukee Police Department is responsible for preventing, responding to and solving crimes. The city streets are equipped with typical traffic controls such as traffic lights, signs and lane markings.

## **Environmental Effects**

Under the No Action Alternative, the City would not install the safety and design features associated with the streetcar project.

The environmental effects of the Streetcar LPA related to safety for a variety of factors are discussed below.

### **Passenger and Driver Safety**

The streetcar could help improve safety within the study area and reduce crime by increasing pedestrian activity along the route and increasing “eyes on the street.” Typically transit is safe for passengers and drivers. However, there is always the possibility of crime occurring around stops and on the streetcar vehicles.

### **Accessibility**

All vehicles and stops will comply with the Americans with Disabilities Act (ADA) to accommodate the safety of disabled passengers. The vehicles will provide allocated space and/or priority seating for individuals who use wheelchairs. Also, the streetcar vehicle and stops will avoid physical barriers that prohibit or restrict access and will include low floor level boarding for easy boarding and departing.

### **Pedestrian, Vehicle and Bicycle Safety**

The streetcar project will add a new transportation mode within the street right of way. Since the streetcar will operate in mixed traffic similar to a bus, many of the safety precautions pedestrians, bicyclists and drivers currently use will continue to be applicable. Some considerations are discussed below.

The streetcar vehicles will be equipped with turn signals, side view mirrors, and emergency braking systems to aid the driver and avoid collisions. A speed governor will be used, which is a device that makes sure the streetcar stays within the speed limit.

Pedestrians will need to look and listen for the streetcar before crossing the tracks and they should avoid crossing in front of the streetcar vehicle even if it is stopped (except at crosswalks).

Automobiles will need to keep a safe distance behind the streetcars and sudden turns in front of the streetcar vehicle should be avoided, similar to how autos interact with buses.

Parked automobiles will need to check for the streetcar before opening their door because the streetcar will not be able to swerve around the door. For the same reason, parked vehicles will need to make sure their vehicle does not stick out beyond the parking lane.

Approximately 18 blocks of the streetcar routes will have painted bike lanes located between the parking lane and the streetcar track lane. Bicyclists will need to use caution with the tracks and cross at a 90-degree angle. If the bicyclist deviates too far from this ideal angle, the bicyclist's front wheel may become trapped by the gap on either side of the rail. Motorcyclists should also cross at a 90-degree angle to avoid slipping on the rail.

## **Mitigation Measures**

Mitigation measures are discussed below.

### **Passenger and Driver Safety**

A number of design elements are being incorporated to maintain safety and security on the streetcar vehicles and at stops. The project design will consider crime prevention and will provide good visibility. To increase personal security, the project will use transparent glass shelters and ample light at the stops. Fare collection will take place at meters that will be placed along the streetcar corridor instead of on the vehicles. Streetcar operators will also receive safety training to handle problems with belligerent or threatening people. In addition, the City is considering the need to install security cameras on the vehicles. Furthermore, the City may hire a roaming fare checker to randomly confirm ticket purchases. Having this official on duty may be an additional deterrent for criminal activity.

### **Accessibility**

Streetcar stops and shelters will be designed to comply with guidelines by including such things as firm stable surfaces, no steep slopes, space to maneuver from the shelter to the streetcar doors, and safe linkages to the sidewalk. Stop platforms will be positioned to coordinate smoothly with the vehicle threshold and to minimize vertical and horizontal gaps.

### **Pedestrian, Vehicle and Bicycle Safety**

The City will appropriately place warning signage and/or pavement markings to direct pedestrians, bicyclists and vehicular traffic as necessary to avoid hazards.

Openings for the streetcar wheel flanges along the track shall meet minimum standards to minimize injury to pedestrians, bicyclists and motorcyclists traveling across or along the tracks.

The streetcar design will make specific accommodations to maintain safety for bicyclists. Where there is through-traffic, bike lanes will be kept separate from the track lane to minimize the likelihood that a bike tire would become stuck in the groove that holds the streetcar wheel. Figure 30 shows an example of a sign that is used to alert bikers to this situation.

At intersections, transition zones will be provided to prepare bicyclists for interaction with the track and to provide a means for crossing the track at 90 degrees. The transition zones will include directional signage and pavement markings to guide bikes across the tracks at 90 degrees. Figure 31 shows a diagram of how these transition zones will be applied in select locations along the route.

Where stops are located, bike lanes will stay to the right of the stop between a stop island and the curb as shown on Figure 31 and Figure 32. Bike lanes may also be relocated to the opposite side of one-way streets to avoid any potential conflicts with the streetcar.

Additional design treatments intended to increase bike and pedestrian safety will be investigated and included as necessary as streetcar plans progress through to final design.

The streetcars will be equipped with a bell and a horn. The bell will be used under normal operating conditions, while the horn will only be used if the operator feels that there is a dangerous situation.

The City of Milwaukee will ensure that the streetcar operator will provide driver safety training to make sure drivers know how to identify and respond to potential conflicts with pedestrians, vehicles and bicycles.

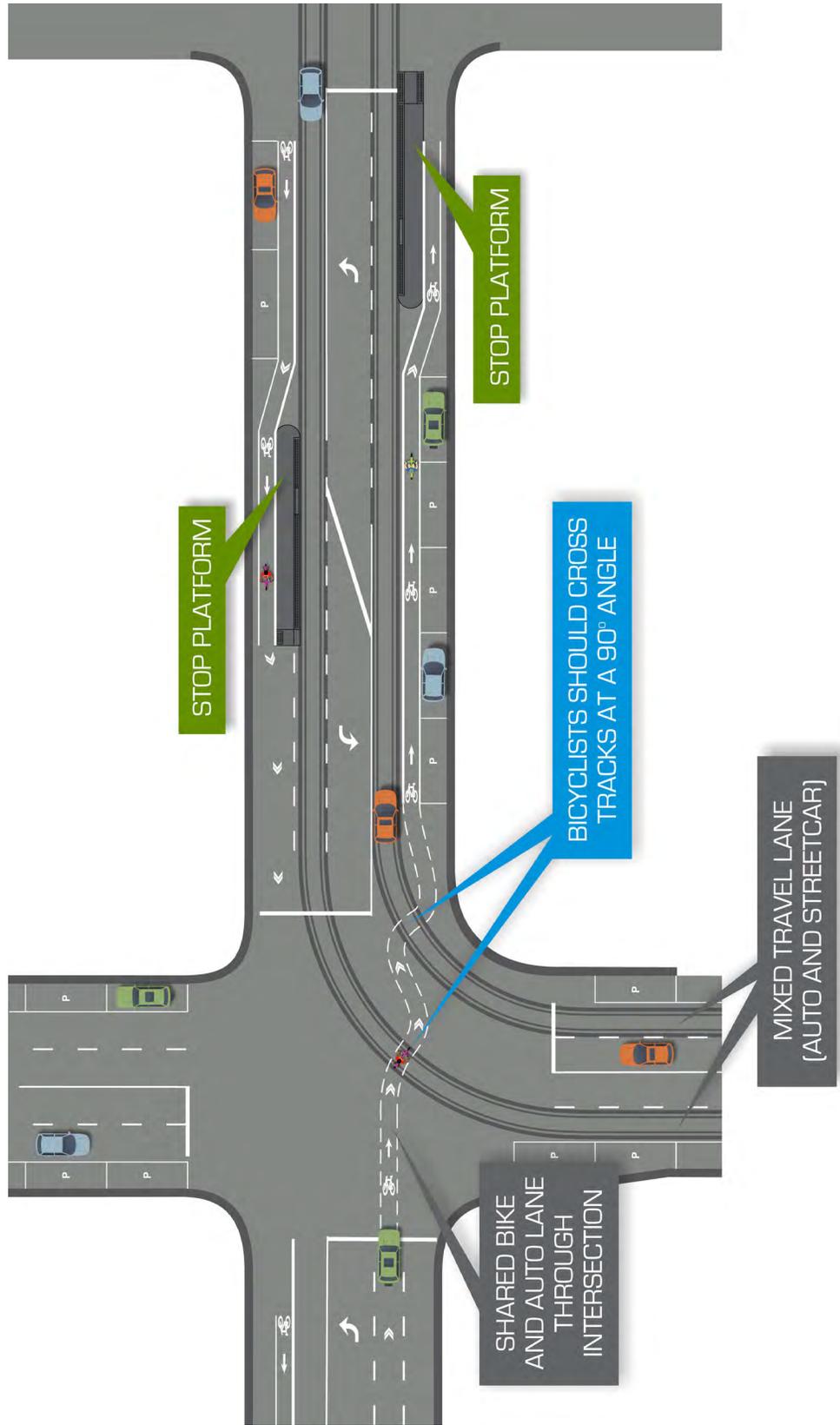
The City of Milwaukee will implement an education program before the streetcar becomes operational to prepare the public for the new transportation mode. Education efforts will continue after the streetcar service opens.

**Figure 30: Bike Sign Example**

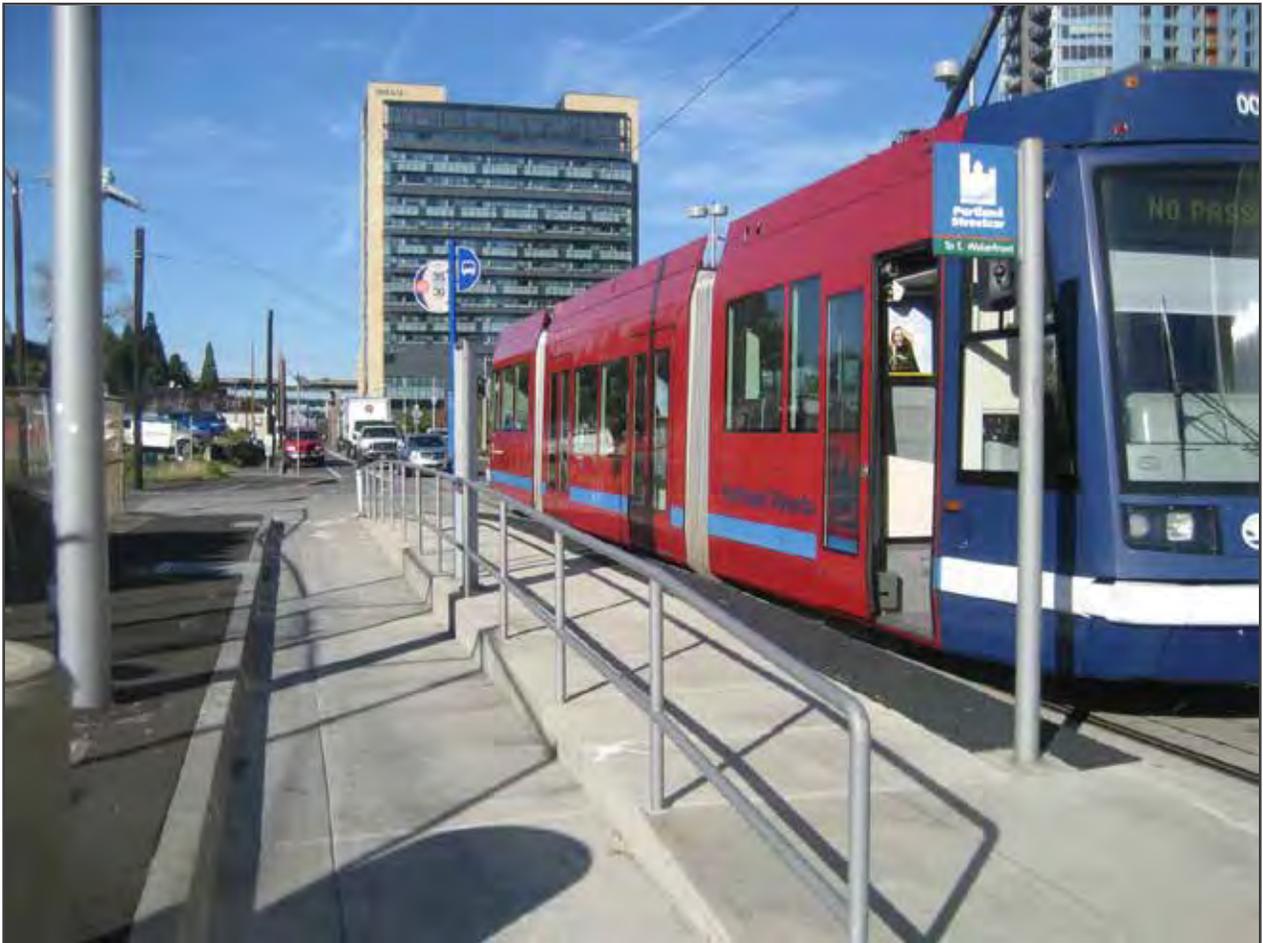


*Sign alerts bikers to be cautious around the streetcar tracks. Image Source: HNTB Corporation*

**Figure 31: Diagram of Bike Transition Zones and Stop Islands**



**Figure 32: Example of a Bike Lane at a Stop Island in Portland**



*Image Source: HNTB Corporation*

## **5.2 PHYSICAL FACTORS**

This section describes the physical factors related to the streetcar project.

### **5.2.1 Air Quality**

This section discusses the air quality factors associated with the streetcar project.

#### **Affected Environment**

The Clean Air Act of 1970 established the National Ambient Air Quality Standards (NAAQS). These were established to protect public health, safety, and welfare from known or anticipated effects of air pollutants. The NAAQS contain criteria for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), particulate matter (PM<sub>10</sub>, 10 micron and smaller along with PM<sub>2.5</sub>, 2.5 micron), ozone (O<sub>3</sub>), and sulfur dioxide (SO<sub>2</sub>). Wisconsin's ambient air quality standards are identical to NAAQS with two additional criteria for particulate matter (total suspended particulates) and a 1-hour ozone standard. Appendix D presents the National and Wisconsin Ambient Air Quality Standards.

The Clean Air Act Amendments of 1977 and 1990 required all states to submit a list to the U.S. EPA identifying those air quality regions, or portions thereof that meet or exceed the NAAQS or cannot be classified because of insufficient data. Portions of air quality control regions that exceed the NAAQS for any criteria pollutant are designated as nonattainment areas for that pollutant. The Clean Air Act Amendments also established time schedules for the states to attain the NAAQS. Exceeding the NAAQS pollutant level does not necessarily constitute a violation of the standard. Some of the criteria pollutants are allowed to exceed the maximum level once per year, while for other pollutants, criteria levels cannot be exceeded. Violation criteria for other pollutants are based on the number of times a criteria pollutant was recorded as being exceeded. Appendix D lists the number of times a U.S. EPA criteria pollutant is allowed to be exceeded.

The streetcar study area is located within the Southeastern Wisconsin Intrastate Air Quality Control Region #239, which includes the City of Milwaukee. Milwaukee is currently in attainment status for five of the seven criteria pollutants (carbon monoxide, lead, nitrogen dioxide, PM<sub>10</sub>, and sulfur dioxides), and has been classified as being in moderate nonattainment<sup>19</sup> for the 8-hour ozone standard and nonattainment for PM<sub>2.5</sub>. Therefore, the project is required to meet Transportation Conformity Rule requirements of 40 CFR Part 93.

### **Environmental Effects**

This section describes the environmental effects related to air quality.

Under the No Action Alternative, the streetcar would not be constructed and air quality would remain unaffected by the streetcar operations and construction activities.

The effects of the Streetcar LPA are discussed below.

#### **Carbon Monoxide**

The Wisconsin Department of Natural Resources NR 411 Construction and Operation Permits for Indirect Sources primary purpose is to control carbon monoxide emissions from indirect sources. The streetcar project would create changes in traffic circulation within the study area. Proposed changes on the local streets to accomplish these circulation changes will all take place within the existing pavement width. The proposed changes will not create any additional intersection legs, will not create increases in traffic of 1,200 or more vehicles per hour within 10 years of the streetcar's starting operation, and will not shift traffic closer to any doorway, window or other opening of an existing building or the building setback. Therefore, by the definitions presented in NR 411.04 (2)(b)2 and 5, the streetcar project is exempt from NR 411.

The Milwaukee area is in attainment for CO, per 40 CFR 93.116, no CO analysis is required.

#### **Ozone and PM<sub>2.5</sub>**

The Southeastern Wisconsin Regional Planning Commission (SEWRPC), the region's Metropolitan Planning Organization, completed a regional conformity analysis for ozone and PM<sub>2.5</sub> demonstrating that projected emissions from the planned transportation system do not exceed the air emission budgets established in the Wisconsin State Implementation Plan. Evidence of the conformity analysis is included in the SEWRPC Memorandum Report No. 196 titled, *Assessment of Conformity of the Year 2035*

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<sup>19</sup> There are six non-attainment classifications for ozone ranging from "Marginal" to "Extreme". A "Moderate" designation, which is the second lowest designation, means that the 3-year average of the of the annual fourth-highest daily maximum 8-hour ozone concentration for an area ranges from 0.092 to 0.106 ppm. The standard is 0.075 ppm.

*Regional Transportation Plan and the Year 2009-2012 Transportation Improvement Program With Respect to the State of Wisconsin Air Quality Implementation Plan – Six County Southeastern Wisconsin Ozone Nonattainment Area and Three County Fine Particulate (PM<sub>2.5</sub>) Nonattainment Area.*

An electric-powered streetcar will not have any impacts on PM emissions, which are primarily from diesel powered engines. No hot spot analysis is required. The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) determined the SEWRPC Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) to be in conformance with the transportation planning requirements of Titles 23 and 49 U.S.C., The Clean Air Act Amendments (CAAA), and related regulation on June 16, 2010.

### **Construction Air Quality**

Demolition and construction activities can result in short-term increases in dust and equipment-related particulate emissions in and around the project area. The potential air quality impacts will be short-term, occurring only while demolition and construction work is in progress.

### **Mitigation Measures**

The streetcar project is exempt from the carbon monoxide requirements of NR 411. The project is included in the 2009 through 2012 Transportation Improvement Program (TIP) for Southeastern Wisconsin which has been determined to be in conformance with the transportation planning requirements of Titles 23 and 49 U.S.C., The Clean Air Act Amendments (CAAA), and related regulations. Therefore, no mitigation measures are needed because the streetcar project will not cause or contribute to any new violation of any standard, increase the frequency or severity of any existing violation of any standard, or delay the timely attainment of any standard.

Dust control during construction and equipment maintenance will be done in accordance with the City of Milwaukee's Standard Construction Specifications.

## **5.2.2 Noise and Vibration**

The noise and vibration impact assessment is based on the guidelines established in the Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment* document, which is also referred to as the FTA Guidance Manual.<sup>20</sup> The FTA Guidance Manual provides background information on transit noise and vibration, establishes FTA's transit noise and vibration impact criteria, and presents methodologies for assessing and mitigating noise and vibration impacts. The following impact assessment summarizes the existing conditions along the streetcar corridor and projects future noise and vibration levels. The future levels are then compared to FTA's impact criteria to determine impacts and, if needed, potential mitigation measures to reduce the impact. A detailed noise assessment was completed for the project and is contained in Appendix E.<sup>21</sup>

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<sup>20</sup> *Transit Noise and Vibration Impact Assessment*. Prepared by Harris Miller Miller & Hanson, Inc. Federal Transit Administration, FTA-VA-90-1003-06. May 2006.

<sup>21</sup> *Milwaukee Streetcar Noise and Vibration Study Report*. HNTB Corporation. October 2011.

## Noise

### **Noise Background**

The single number descriptors, Leq(h) and Ldn, are used to assess transit noise. The Leq(h) is the equivalent steady-state sound having the same A-weighted sound energy as that contained in the time-varying sound over a one-hour period. The Leq correlates reasonably well the effects of noise on people. The Day-Night Sound Level, or Ldn, is based on the A-weighted equivalent sound level for a 24-hour period, with an additional 10 decibels added to the actual or projected noise levels during the nighttime hours (10 PM to 7 AM). All noise levels in this environmental assessment will be A-weighted sound levels. Refer to the FTA's *Transit Noise and Vibration Impact Assessment* for background information about how noise and vibration levels are measured and analyzed.

### **Noise Criteria**

The FTA'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 Ldn as the noise descriptor. The Leq descriptor is used for institutional land uses which have primarily daytime uses.

### **Affected Environment**

Land use along the streetcar corridor is a mixture of commercial, mixed commercial/residential, residential, churches, schools and public buildings. There are no known tracts of land where quiet is an essential element of the land use in the study.

To establish existing noise conditions, the project team took noise measurements in November 2010 at seven locations along the proposed route: one park, a fire house, and five residential areas. The measurements were taken throughout the day to capture morning, afternoon and evening conditions.

The existing noise levels in the corridor ranged from 55 dBA Leq in the early morning hours at Cathedral Square to 75 dBA Leq near the Milwaukee Intermodal Station, where a train was passing at the time of measurement (the train horn created an Lmax noise level of 95 dBA). Noise levels at most sites ranged between 59 and 66 dBA.

Over a 24-hour day, the Ldn noise levels developed from the short term measurements along the streetcar route are as follows:

- Juneau Avenue, 4th Street, Wells Street, and Jackson Street - 64 dBA
- Ogden Avenue, Prospect Avenue, Broadway and Farwell Avenue - from 65 to 69 dBA
- St. Paul Avenue - 75 dBA (higher noise levels as a result of the train operations through the Milwaukee Intermodal Station)

### **Environmental Effects**

Under the No Action Alternative, the streetcar would not be constructed and ambient noise levels would remain unaffected by the streetcar operations and construction activities.

Noise modeling was performed on the Streetcar LPA to determine the potential noise impacts from streetcar operations. Three streetcar types from different manufacturers were used to cover the spectrum of streetcar types and noise levels. The City has yet to determine a model and manufacturer.

There are six potential noise sources from streetcar operations:

- Wheel/rail rolling noise, which is a function of operating speed and the condition of the wheels and rails
- Wheel/rail impact noise at turnouts
- Wheel squeal on tight radius curves. This is extremely variable and was not modeled for this EA. The streetcars will be equipped with friction modifier<sup>22</sup> dispenser that when applied in the area of the wheel contact with the rail reduces the potential for wheel squeal. This friction modifier will be formulated for all weather usage. Application of the friction modifier will be controlled by the operator.
- Streetcar auxiliary equipment – ventilating units, electric drive motors, etc. (These are typically not major noise sources on modern streetcars.)
- Warning device noise is not an issue on this project as the streetcars will be sharing the right-of-way with local traffic and will only be sounded if the operator feels it is necessary to avoid a problem. The streetcars will be equipped a bell and a horn. The bell will be used under normal operating conditions while the horn will only be used if the operator feels that there is a dangerous situation.
- Traction power substations (substations) will be located at three locations within the study area. The substations consist of single story prefabricated buildings that contain transformers. These buildings will be heated and cooled with wall mounted HVAC systems. The transformers within the substation create a low frequency hum; the HVAC systems will create noise levels similar to an air conditioner.

The projected Ldn noise level is a function of the noise source (how loud the streetcar is at a given distance and speed), adjustments for operating speeds, and distance from track to a receiver (a building or a group of buildings at the same distance from the track), along with daytime and nighttime pass-bys per hour. Manufacturer’s noise source data on three different manufacturers’ modern streetcars operating at 25 mph with the proposed headways were used in the analysis.

There are 69 residential buildings along the corridor; these buildings represent single family residences, multi-family residences, condominiums and hotels. The existing Ldn noise levels adjacent to these buildings range from 64 to 69 dBA with the condominium on 2<sup>nd</sup> Street and St. Paul Avenue exposed to an Ldn of 75 dBA. Projected operations of the streetcar will create noise levels that range from 47 – 62 dBA, Ldn. Ldn, with the Ldn noise level at the condominium on 2<sup>nd</sup> Street and St. Paul Avenue remaining 75 dBA. Increases in the Ldn noise level along the corridor will range from 0 to 2 decibels.

The majority of the residential buildings along the corridor will not experience a noise impact from the operations of the streetcar system. There are eight residential buildings along the north side of Ogden Avenue, from Van Buren Street to Farwell Avenue that have an existing Ldn noise level of 65 dBA. The threshold for FTA’s Moderate Impact for this area is 61 dBA Ldn. Streetcar operations will create projected Ldn noise levels ranging from 56 to 62 dBA. The 62 dBA noise level would expose these residences to an Ldn noise level that is 1 decibel greater than the FTA Moderate Impact threshold (See Appendix E). This projected impact only occurred with the source noise data from one of the modern street cars used in the noise analysis; the other two modern streetcars did not create an impact.

There are nine institutional properties adjacent to the proposed streetcar alignment; MATC, Cathedral Square, Metrobrook Church, Tenor High School, MSOE Walter Schroeder Library, St. John Evangelist Cathedral, St. Joan Antida High School, Lincoln Center Middle School and First Unitarian Society.

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<sup>22</sup> Friction modifier is an environmentally safe liquid or solid applied to streetcar wheels to reduce wheel squeal caused by the wheels sliding on the rails through curves.

Existing hourly Leq<sup>23</sup> noise levels adjacent to these properties range from 63 to 66 dBA. Projected Leq noise levels created by the proposed streetcar operations range from 51 to 63 dBA. Projected noise levels at these institutional properties would not exceed FTA's noise impact criteria and no impacts are expected.

There are four turnouts proposed along the streetcar route. Two of the four turnouts are located in a residential area at intersection of Ogden and Farwell Avenues. The operating speeds at the turnouts are low and will not create noise impact.

There are three substations located adjacent to the proposed streetcar route. There are residences within 60 to 100 feet of the proposed substation at the northeast corner of Cass and Knapp Streets. Using noise level data provided by a substation HVAC manufacturer and the procedures presented in the FTA Guidance Manual, the Ldn noise level of the substation at the nearest residence would range from 51 to 55 dBA. Since the ambient Ldn noise level is in the low 60 dBA range, the noise from the substation will not create an impact according to FTA criteria.

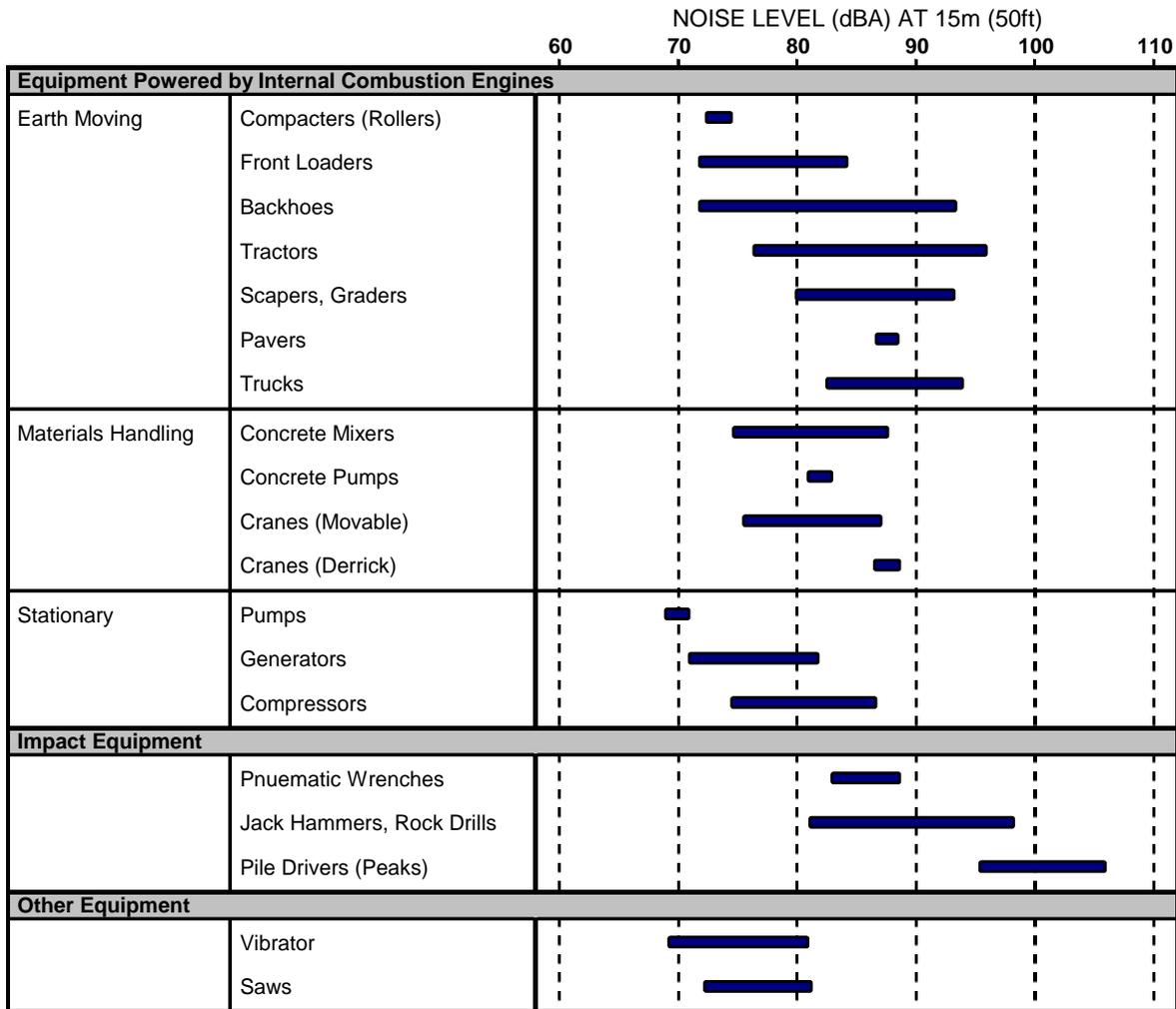
### **Construction Noise**

The major construction elements of this project are expected to be pavement removal, hauling, grading, and paving. General construction noise impacts for passersby and those individuals living or working near the project can be expected from these activities. Table 15 lists some typical peak operating noise levels at a distance of 15 m (50 feet), grouping construction equipment according to mobility and operating characteristics. Considering the relatively short-term nature of construction noise, impacts are not expected to be substantial. The structural characteristics of nearby buildings, whether wood frame, steel frame or masonry, are believed to be sufficient to moderate the effects of intrusive construction noise.

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<sup>23</sup> Per FTA guidance, Leq is the noise metric for institutional properties.

**Table 15: Construction Equipment Sound Levels**



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

**Mitigation Measures**

Noise mitigation generally involves the treatment of three fundamental components: the source, the propagation path and the receiver. The City will employ noise mitigation measures that involve the treatment of the source. A major source of noise from steel-wheel/steel-rail systems is the wheel/rail interaction. The City will use resilient wheels, which have been recommended by a number of modern streetcar manufacturers to reduce rolling noise by a minimum of 2 dB. Resilient wheels typically have rubber installed between the wheel hub and the steel wheel that rides on the rail. This mitigation measure has been utilized in the noise analysis and the City will require resilient wheels in the streetcar specifications. Likewise, the proposed rail design has a significant portion of the embedded rail that is not in contact with the steel wheel encased in rubber. This encasement or rubber boot was included in the noise analysis and can reduce noise by another 2 dB. The City will require the installation of a rubber boot. See Figure 39 for a picture of a rubber boot.

The City will develop an attainable noise specification for the streetcar that eliminates the moderate noise impact. Based on noise data from three modern streetcar manufacturers, preparing an attainable noise specification should not be difficult. In addition, the City will maintain the wheels during the life of the

streetcars by truing wheels and grinding the rails to help eliminate future increases in noise as maintaining smooth wheel/rail interaction can reduce age and wear induced noise.

The streetcars will be equipped with a friction modifier dispenser that when applied in the area of the wheel contact with the rail reduces the potential for wheel squeal. This friction modifier will be formulated for all weather usage. Application of the friction modifier will be controlled by the operator.

Construction noise will be controlled as recommended in Section 5.2.5. Construction activities will comply with the City of Milwaukee's Code of Ordinances, Chapter 80, Subchapter 2, Noise Control 80-60.

## **Vibration**

### **Background**

Ground-borne vibration and noise are caused by vibrations originating at the wheel/rail interface and propagating from the rails through the intervening soil and rock to nearby buildings. The resulting vibration may be perceptible as mechanical motion (such as windows rattling or dishes on shelves rattling). One may also hear a low-frequency rumble in buildings.

Ground-borne vibration and noise inside buildings are often near the threshold of human sensitivity. In this range, a small increase in vibration or noise levels can cause increases in human response. Unfortunately, variability in soil and rock conditions and building designs make prediction more difficult than for airborne noise levels.

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 building damage. However, the human body responds better to an average velocity. The peak velocity of a vibration is used to assess transit vibration. The unit for transit vibration is VdB<sup>24</sup> (vibration velocity in decibels).<sup>25</sup>

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.

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, 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 is 65 VdB.<sup>26</sup>

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<sup>24</sup> Vibration velocity in decibels, VdB, is defined as the ratio of the root mean square velocity amplitude to the reference velocity amplitude. All the vibration levels in this environmental assessment will be referenced to  $1 \times 10^{-6}$  in./sec.

<sup>25</sup> *Transit Noise and Vibration Impact Assessment*. Prepared by Harris Miller Miller & Hanson, Inc. Federal Transit Administration, FTA-VA-90-1003-06. May 2006. pp. 7-4.

<sup>26</sup> *Transit Noise and Vibration Impact Assessment*. Prepared by Harris Miller Miller & Hanson, Inc. Federal Transit Administration, FTA-VA-90-1003-06. May 2006. pp. 7-5.

## **Vibration Criteria**

The FTA criteria for ground-borne vibration and noise are included in Appendix E. The criteria for vibration impacts range from 65VdB to 83VdB, depending on land use. Ground-borne noise impact criteria range from 35dBA to 48dBA, again depending on land use.

## **Affected Environment**

The proposed streetcar route is within the public right-of-way of major and local streets in the central business district and adjacent neighborhoods. Therefore, typical background vibration velocity levels due to regular traffic range from 54 to 58 VdB. Vibration velocity levels due to buses can range from 62 to 68 VdB.<sup>27</sup>

## **Environmental Effects**

Under the No Action Alternative, the streetcar would not be constructed and vibration levels would remain at their current level.

The vibration assessment for the streetcar project followed the General Vibration Assessment procedures of the FTA's Guidance Manual. The proposed streetcar operations are projected to produce ground-borne vibration levels ranging from 64 to 71 VdB along the routes. The results of the vibration analysis are presented in Appendix E Table 3 (Residential) and Table 4 (Institutional) for the same residential buildings and institutional properties identified in the noise analysis. All of these levels are below the respective FTA Impact Criteria. Projected ground-borne noise levels would range from 24 to 32 dBA. None of these levels would exceed the ground-borne noise criteria.

## **Mitigation Measures**

While no vibration impacts are anticipated, streetcar maintenance and operations will minimize vibration. Vibration levels can be reduced by rail grinding to optimize track conditions, wheel truing to re-contour wheels allowing smooth contact surfaces, and proper vehicle maintenance. It is not anticipated that the construction activities for the project will adversely affect adjacent buildings. During construction, the contractor will adhere to the City of Milwaukee's Code of Ordinances, Chapter 80, Subchapter 2 Noise Control 80-73.2 Excessive Vibration Prohibited, Temporary and Mobile Sources.

### **5.2.3 Hazardous Materials**

This section assesses the potential for the accidental release and the uncontrolled disposal of hazardous waste within the vicinity of the construction and operation of the Streetcar LPA. Examples of hazardous waste materials include petroleum products, pesticides, herbicides, chlorinated volatile organic compounds, heavy metals, or other compounds that may be harmful to human health and the environment.

## **Affected Environment**

The construction activities related to the Streetcar LPA tracks and stops will be located within the existing public right of way, which has been previously disturbed and excavated. Since the proposed maintenance facility site is not within the existing right of way, a *Phase 1 Hazardous Materials Assessment (HMA) Report* (HNTB, February 8, 2011) was completed for the maintenance facility site. The Phase 1 HMA was also completed for two additional proposed electrical substation location sites because they will

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<sup>27</sup>James T. Nelson, P.E., "Superconducting Super Collider Environmental Ground Vibration Study," Wilson, Ihrig & Associates, Oakland, CA, January 1987, Figure C1-C7.

involve excavation at greater depths than the tracks and stops. Maps of the substation locations can be found in Figure 15 and Appendix F. The Phase 1 HMA scope of work included a review of applicable regulatory databases of known or potential hazardous materials sites located near the proposed maintenance facility and substation locations; review of the physical geography in the area; review of historical documentation; and site reconnaissance.

**Environmental Regulatory Database Review**

Table 21 summarizes the hazardous material sites that were identified within a quarter-mile radius of the proposed streetcar maintenance facility. No hazardous materials were found on the maintenance facility site. However a number were found within ¼ mile. Review of available information for the identified hazardous materials sites indicated a minimal potential that these sites had impacted the subsurface environment at the proposed streetcar maintenance facility site based on distance from the proposed maintenance facility.

**Table 16: Hazardous Material Sites Identified within 1/4 Mile of the Maintenance Facility**

| Site Type                 | No. of Identified Sites within 1/4 mile | Maintenance Facility Site |
|---------------------------|---|---------------------------|
| Federal, CERCLIS – NFRAP  | 1                                       | 0                         |
| Federal, RCRA Generators  | 14                                      | 0                         |
| Federal, ERNS             | 6                                       | 0                         |
| State, Spills             | 23                                      | 0                         |
| State/Tribal, SWL         | 1                                       | 0                         |
| State/Tribal, LUST        | 12                                      | 0                         |
| State/Tribal, UST/AST     | 33                                      | 0                         |
| State/Tribal, EC          | 3                                       | 0                         |
| State/Tribal, IC          | 4                                       | 0                         |
| State/Tribal, VCP         | 1                                       | 0                         |
| State/Tribal, Brownfields | 1                                       | 0                         |
| State, Other              | 13                                      | 0                         |

Source: Environmental FirstSearch Technology Corporation, July 16, 2010

Note: The Hazardous Materials study provides details of the locations of the identified sites and explanation of acronyms can be found in the Glossary.

**Table 17: Hazardous Material Sites Identified within 1/8 mile of the North Market Street Substation Location**

| Site Type                 | No. of Identified Sites within 1/8 mile | North Market Street Site |
|---------------------------|---|--------------------------|
| Federal, CERCLIS – NFRAP  | 0                                       | 0                        |
| Federal, RCRA Generators  | 12                                      | 0                        |
| Federal, ERNS             | 0                                       | 0                        |
| State, Spills             | 1                                       | 0                        |
| State/Tribal, SWL         | 0                                       | 0                        |
| State/Tribal, LUST        | 3                                       | 0                        |
| State/Tribal, UST/AST     | 8                                       | 0                        |
| State/Tribal, EC          | 0                                       | 0                        |
| State/Tribal, IC          | 0                                       | 0                        |
| State/Tribal, VCP         | 0                                       | 0                        |
| State/Tribal, Brownfields | 1                                       | 0                        |
| State, Other              | 0                                       | 0                        |

Source: Environmental FirstSearch Technology Corporation, January 21, 2011

Note: The Hazardous Materials study provides details of the locations of the identified sites and explanation of acronyms can be found in the Glossary.

**Table 18: Hazardous Material Sites Identified within 1/8 mile of the North Cass Street Substation Location**

| Site Type                 | No. of Identified Sites within 1/8 mile | North Cass Street Site |
|---------------------------|---|------------------------|
| Federal, CERCLIS – NFRAP  | 0                                       | 0                      |
| Federal, RCRA Generators  | 3                                       | 0                      |
| Federal, ERNS             | 0                                       | 0                      |
| State, Spills             | 3                                       | 0                      |
| State/Tribal, SWL         | 0                                       | 0                      |
| State/Tribal, LUST        | 1                                       | 0                      |
| State/Tribal, UST/AST     | 3                                       | 0                      |
| State/Tribal, EC          | 0                                       | 0                      |
| State/Tribal, IC          | 0                                       | 0                      |
| State/Tribal, VCP         | 0                                       | 0                      |
| State/Tribal, Brownfields | 1                                       | 0                      |
| State, Other              | 0                                       | 0                      |

Source: Environmental FirstSearch Technology Corporation, January 21, 2011

Note: The Hazardous Materials study provides details of the locations of the identified sites and explanation of acronyms can be found in the Glossary.

Table 17 and Table 18 summarize the hazardous materials sites that were identified within a 1/8 mile radius of the proposed substation locations. No hazardous materials were found on the footprints of the substation locations; however, a number were found within 1/8 mile. Review of available information for the identified hazardous materials sites indicated a minimal potential that these sites had impacted the subsurface environment at the proposed substation locations based on distance from the proposed substation locations.

## **Documentation Review**

The proposed maintenance facility will be located beneath two land bridges at milepost 0.5 that carry traffic for east and westbound Interstate 794 and the Marquette Interchange. Geotechnical soil borings were performed at the maintenance facility site in 2002-2003 for the recently completed Marquette Interchange Reconstruction project. Review of the geotechnical soil boring logs indicated that the project site was underlain with 10 to 16 feet of historic fill.<sup>28</sup> The historic fill material is comprised of brick, wood, coal, cinders and slag of unknown origin. It is probable that the historic fill has impacted near surface soil at the maintenance facility site.

Historical documents indicated that the proposed streetcar maintenance facility was the location of several former industrial facilities, including paper box, mitten, furniture, and plumbing supply manufacturers. The former industrial land uses had the potential to impact the subsurface environment at the proposed streetcar maintenance facility site.

Historical documents indicated the North Market Street proposed electrical substation location was the site of unidentified stores, but some were identified as printing, plumbing and warehouse businesses. The former commercial land uses had the potential to impact the subsurface environment at the North Market Street proposed electrical substation location.

## **Site Reconnaissance**

Site reconnaissance at the project site and surrounding properties did not reveal any evidence of the use or storage of hazardous materials.

## **Environmental Effects**

Under the No Action Alternative, the streetcar would not be constructed and so no potentially hazardous sites would be encountered. No further investigation of sites or remediation or clean up would occur on any sites.

For the Streetcar LPA, no new right of way will be purchased. Construction of the streetcar tracks will generally take place within the existing public right of way and only the top two feet of the ground will be disturbed by construction activities for track construction. According to the City of Milwaukee, the right of way within the study area has been previously excavated and no issues with hazardous materials have occurred as a result of other roadway construction projects within the vicinity of the streetcar project. For these reasons, the construction activities that take place within the public right of way for track construction are not expected to expose hazardous materials.

Construction for the streetcar's electrical substation locations will take place at three locations; first, at the maintenance facility; second, on City of Milwaukee owned property on North Market Street; and finally, within the existing right of way at North Cass Street. In general, construction of the electrical substations would consist of excavating to a depth of four feet below the ground surface. An exception to this would be the North Market Street location where no geotechnical studies were performed and the site will require excavating into a side-slope. Excavation depths at this location would range from 4 to 12 feet below ground surface.

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<sup>28</sup> Any deposit of waste material, other than by homeowners on their own property, meets the statutory definition of a landfill. Landfills that were established before 1970 and were never licensed by the Department of Natural Resources (DNR) are called "historic fill" sites.

Hazardous material issues are not expected as a result of contractor storage during construction. Contractor storage areas will be located at the ground surface. The contractor would be responsible for any spills that they generate and appropriate actions will be taken. Additional discussion of construction impacts are discussed in Section 5.2.5.

There are two locations where substantial excavation is required for this project. The first location is at the proposed streetcar maintenance facility. In general, construction of the streetcar maintenance facility would include excavations to estimated maximum depths of approximately 12 feet below ground surface. The disturbed soils may include historical fill such as brick fragments, wood, coal, cinders, and slag, as noted in the 2002-2003 geotechnical soil borings performed at the site. Proper management of the potentially impacted historic fill/soil during construction will be required as regulated by the Wisconsin Department of Natural Resources.

### **Mitigation Measures**

To reduce the project's environmental liability and risk, additional analysis of the proposed maintenance facility site and proposed substation location at North Market Street are necessary. According to the Wisconsin Department of Transportation Facilities Development Manual, Procedure 21-35-10, Phase II HMAs are warranted to characterize the historical fill and subsurface soil conditions that may be disturbed during site construction at both locations. A Phase II HMA typically includes a focused investigation of the subsurface media through soil and potential groundwater sampling with laboratory analytical analysis. If the results of the Phase II HMA indicate that the historical fill and/or subsurface soils at the project site are impacted with contaminants above regulatory standards, "Special Provisions and a Notice to Contractors" will be developed and incorporated into the construction specifications to address impacted soils.

## **5.2.4 Traffic and Transportation**

This section evaluates the streetcar project's effects on buses and other street-running vehicles, pedestrians, and bicyclists.

### **Transit**

This section describes existing transit service within the study area and how streetcar operations may or may not affect this transportation mode.

#### **Affected Environment**

The Milwaukee County Transit System (MCTS) provides existing bus service in the study area. Section 2.2.2 describes the existing transit services in detail.

The Downtown Business Improvement District (BID) owns and operates a limited service rubber tire trolley in the summer months (June-September). The trolley serves downtown attractions and operates between 11 AM and 10 PM.

#### **Environmental Effects**

Under the No Action Alternative the streetcar line would not be constructed. MCTS will continue to operate and make decisions on their routes and service without consideration of an additional transit mode (streetcar).

The Streetcar LPA will introduce a new transit transportation mode within the study area. The streetcars are intended to circulate people around downtown and to nearby neighborhoods. Streetcars will not have a

dedicated travel lane and will operate in a mixed traffic lane along with cars and trucks; similar to existing bus service. Streetcars will be in service seven days a week throughout the year between 5 AM and midnight, Monday through Friday, 7 AM to midnight on Saturday, and 7 AM to 10 PM on Sundays. There will be a 10-minute wait between cars (10-minute headways) during the weekday daytime and 15-minute headways on weekends. The details of the new service are fully described in Section 4.

Streetcars are not expected to affect existing transit services. However, the Milwaukee County Transit System (MCTS) has indicated to the City that they might evaluate the need to modify bus stop locations to integrate bus and streetcar services.

According to preliminary plans, a loading zone for Megabus<sup>29</sup> and other intra city bus services, located on the west side of 4th Street about 50 feet north of St. Paul Avenue, would also be affected. This existing passenger loading zone is not a permanent location (there is no platform or shelter) and would need to be moved to a new location.

Construction related impacts are reported in Section 5.2.5.

### **Mitigation Measures**

The City will meet with MCTS to coordinate streetcar and bus service.

The City will coordinate with Megabus and other intra city bus services to relocate their 4th Street passenger loading zone to a similarly convenient location.

### **Vehicular Traffic**

This section describes the existing vehicular traffic within the study area and how the implementation of the streetcar may affect traffic operations. The project team prepared a technical memorandum<sup>30</sup> describing the traffic operations with and without the implementation of the streetcar and describes the improvements needed for each intersection along the streetcar route. These improvements or “final requirements” include any Transit Signal Priority (TSP) strategies, Opticom equipment, additional signals or geometric improvements needed to maximize traffic safety. The results of the traffic study are summarized below. Figure 33 shows where many of the proposed changes to improve traffic operations will be located, including changes to lanes, traffic signals, driveways, parking and loading zones.

### **Affected Environment**

The existing street network in the study area is largely oriented on a grid. The network offers ample capacity for daily trips around the downtown area and to and from nearby neighborhoods. The following changes will be made to the roadway.

#### **§ Lane Reconfigurations**

The streetcar will share a general purpose travel lane with automobiles and other vehicles. As a result, the roadway cross section will generally not change except the existing exclusive auto lanes will become mixed travel lanes to accommodate automobiles and streetcars within the same travel lane. Figure 34 shows the existing and proposed typical cross section for Ogden Avenue.

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<sup>29</sup> Megabus is a low-cost intercity privately operated bus service.

<sup>30</sup> *Milwaukee Streetcar Traffic Operations* technical memorandum from HNTB Corporation to City of Milwaukee. January 5, 2011.

As shown on Figure 33 traffic lanes will be reconfigured in some locations. These changes will take place along St. Paul Avenue between 4<sup>th</sup> Street and 2<sup>nd</sup> Street, and along Broadway between St. Paul Avenue and Clybourn Street. These changes are discussed in detail below.

#### § Transit-only lanes

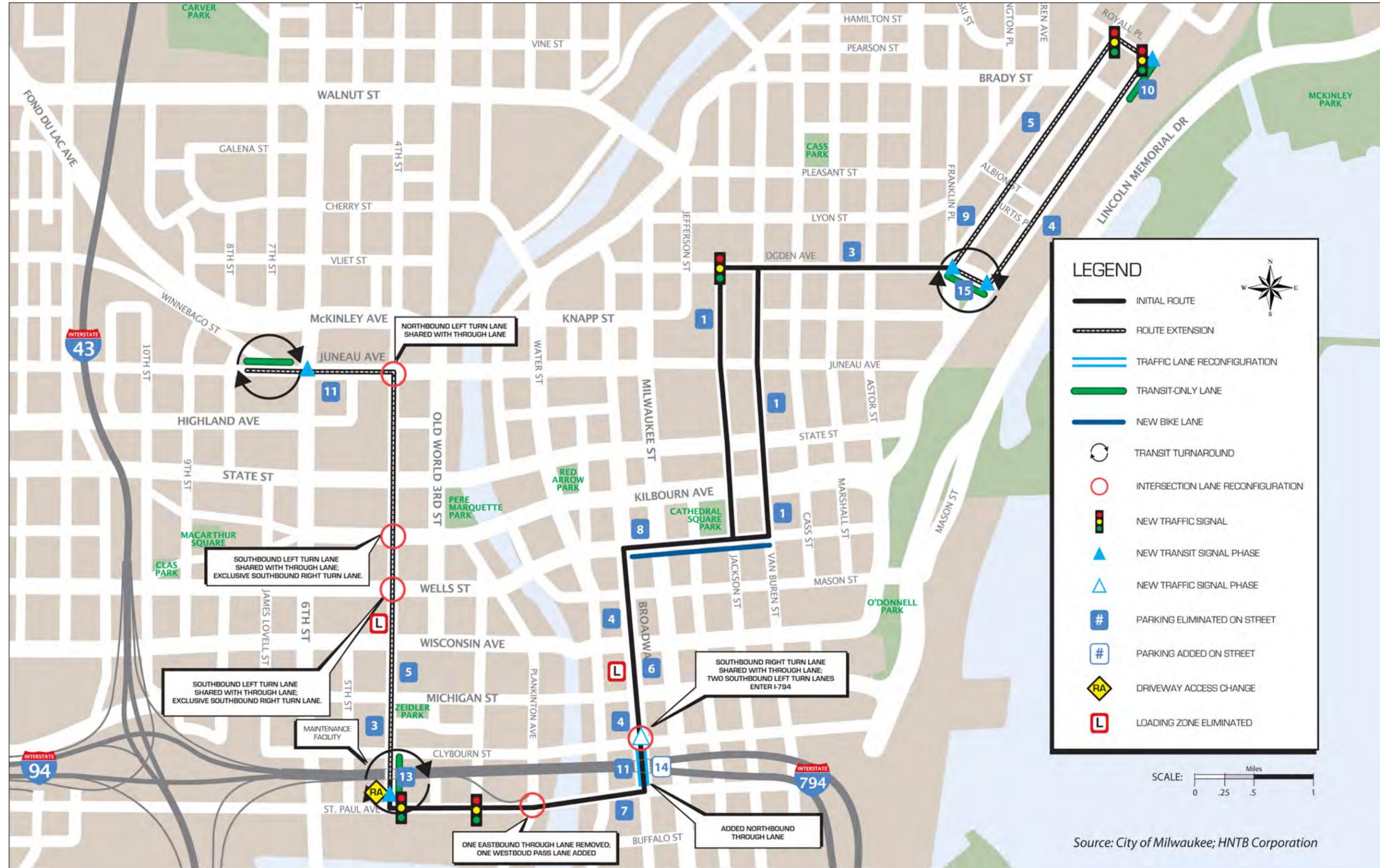
The streetcar will operate mostly in a mixed traffic lane and transit-only lanes are needed in just a few locations to avoid impacts to traffic. One segment of transit-only lane is from the maintenance facility at the southwest corner of 4<sup>th</sup> Street and Clybourn Street to 2<sup>nd</sup> Street and St. Paul Avenue. The transit-only lane is designed to accommodate additional streetcar track if future funding is obtained for extensions. Additional transit-only lanes are proposed where the streetcar would turn around, at the maintenance facility, at Ogden Avenue near Burns Commons Park for the initial route or at a transit layover along Prospect Avenue north of Brady Street and west of 6<sup>th</sup> Street on Juneau Avenue for the proposed extensions (See Figure 33).

#### § Intersections

The lanes at two intersections for the initial route will need to be modified. At St. Paul Avenue and Plankinton Avenue one eastbound through lane will be removed and one westbound pass lane will be added. The intersection of Clybourn Street and Broadway will be modified so that the southbound right turn lane will be shared with the through lane and two southbound left turn lanes will be provided to enter Interstate 794. For the route extensions, three additional intersections would be modified along 4<sup>th</sup> Street. Modifications would be to turn lanes as shown on Figure 33.

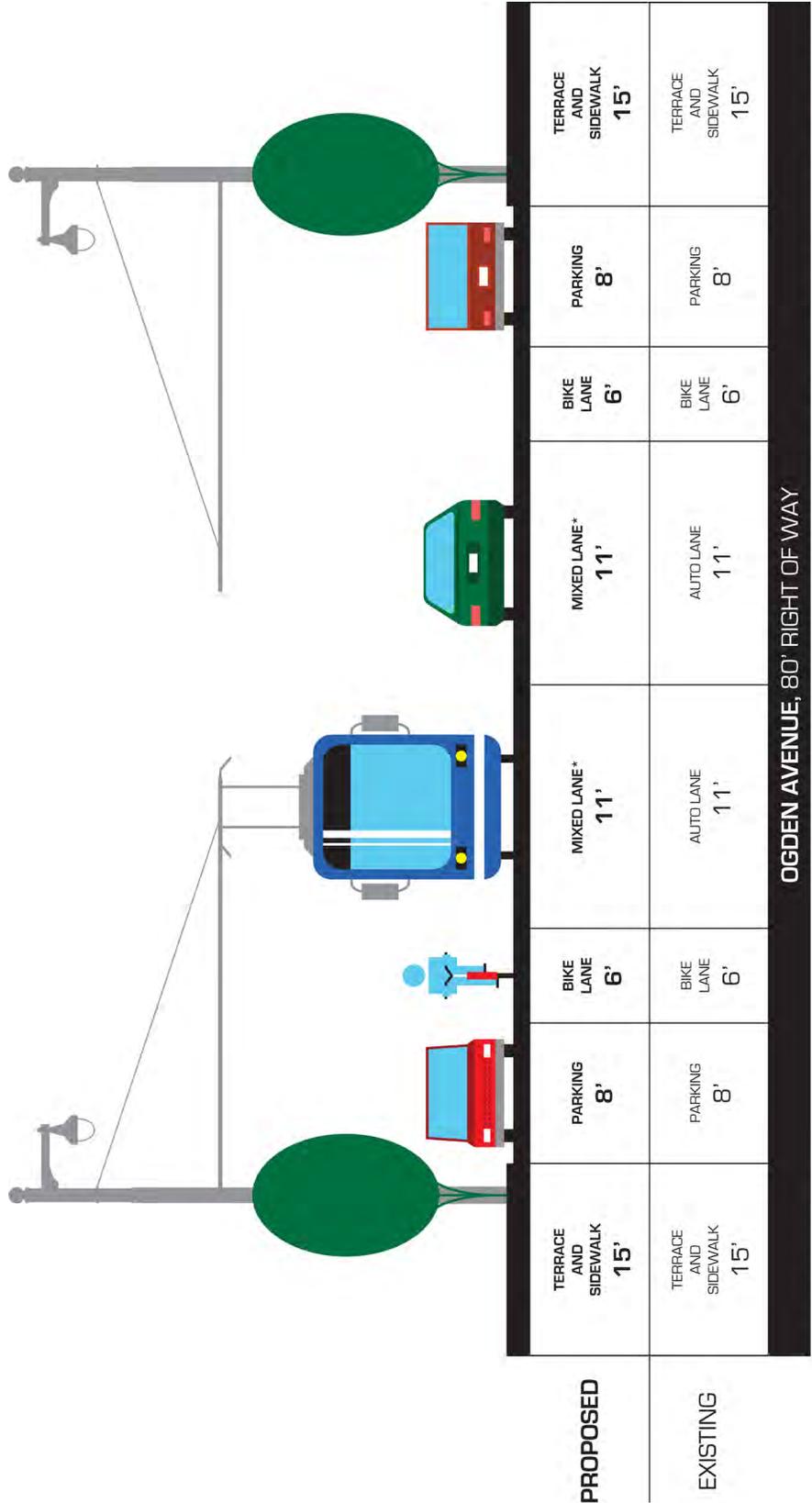
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Figure 34: Streetcar Roadway Modifications





**Figure 34: Typical Cross Section**



NOTE: diagram not to scale  
\*MIXED LANE: a shared travel lane, with streetcar and automobile travel allowed

## § Traffic signals

The City of Milwaukee traffic signals are currently working with 170 controllers that use emergency vehicle preemption (EVP) through the “Opticom” system. Vehicle detection equipment such as Opticom detects a signal sent when the driver pushes a button to activate a light signal to allow vehicles to travel through signalized intersections.

The streetcar project will require the installation of new traffic signals at some intersections and modifications to existing traffic signals at other intersections to manage traffic operations as shown on Figure 33.

Two new traffic signals would be installed for the initial route at the intersections of St. Paul Avenue and 4<sup>th</sup> Street and Jackson Street and Ogden Avenue. If the route is extended, two more traffic signals would be installed where Farwell Avenue and Prospect Avenue intersect with Royall Place.

A new transit signal phase would be added to several existing traffic signals. A transit signal phase is used when there is a potential conflict with another direction of traffic. A transit signal phase is a period of time when all directions of vehicular traffic will have a red light, and the transit vehicle will move through the intersection. The standard symbol is with a vertical bar. The vertical bar will appear and give the transit vehicle permission to proceed through the intersection. An example of a vertical bar is shown in Figure 35.

## Environmental Effects

Under the No Action alternative, the Jackson Street and Ogden Avenue intersection will have substantial delays along Ogden Avenue that result in LOS F as described in greater detail below.

The study team evaluated existing and future traffic operations at all affected intersections for the morning (AM) and afternoon (PM) peak hours<sup>31</sup> under three scenarios:

§ Existing 2010 conditions (Existing)

§ Future (2030) conditions without streetcars (No Action Alternative)

§ Future (2030) conditions with streetcars (Streetcar LPA)

Traffic operations were evaluated under each of these three scenarios using computer software that simulates existing and future traffic conditions at each intersection along the streetcar route. The results of this evaluation show the level of service and delay for the intersections and each turning movement at those intersections. The three scenarios were then compared to one another.

Level of service, or LOS, is a quality measure of traffic operations based on the delay to drivers. The scale ranges from LOS A to LOS F with LOS A representing the best operating conditions, and LOS F representing the worst operating conditions. For this analysis, LOS E or above was considered acceptable.

In general, the addition of the streetcar would increase the overall delay at most intersections along the streetcar route. Additional delay may occur when vehicles backup behind the streetcar at stops; or at intersections with a transit signal phase; or because of backups at downstream intersections. However,

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<sup>31</sup> A peak hour or rush hour is an hour of day when traffic is the heaviest. Peak hours happen primarily during the morning and evening commute periods. The AM peak hour used was from 7:00am-8:00am and the PM peak hour used was from 4:00pm-5:00pm.

nearly all the intersections still operate acceptably, that is at a LOS E or better. Appendix H contains the LOS comparison for all of the studied intersections.

The improvements proposed with the Streetcar LPA sought to maximize the efficiency of the overall system and all intersections by operating the streetcar at a satisfactory LOS. In fact at the intersections of Ogden and Jackson in the AM and Royall and Farwell in the PM, the No Action Alternative's level of service will be an unsatisfactory LOS F and the streetcar project improves operations to a LOS B and LOS D respectively. When further comparing the No Action Alternative to the Streetcar LPA, some intersections in the study corridor will benefit from a better LOS while others will have a decreased LOS. Overall LOS will worsen slightly at eight intersections in the morning peak hour and improve at three intersections. In the evening peak hour, LOS will worsen at five intersections and improve at eight intersections. Many intersections however, would be the same LOS with or without the streetcar.

Several changes to lane configurations are proposed with the implementation of the streetcar. The City of Milwaukee, under a separate project, is converting Wells Street to a two-way street east of 6<sup>th</sup> Street. This change to Wells Street is incorporated into the streetcar design. The conversion of Wells Street increases eastbound delay, or reduces the traffic operations, along Wells Street in both morning and evening peak hours at intersections along the streetcar route. The exception is at 4<sup>th</sup> Street and Wells Street in the afternoon peak hour where the eastbound delay decreases. However, it is expected that Wells Street traffic will utilize other east/west streets such as Kilbourn Avenue or Wisconsin Avenue, which would thereby reduce delays on Wells Street. The majority of the intersections along Wells Street operate acceptably, but intersection operations may be improved with signal timing adjustments.

The streetcar plans include converting Broadway from a one-way to a two-way street between St. Paul Avenue and Clybourn Street. This will require lane and signal modifications to maintain acceptable operations at the Broadway and Clybourn Street intersection. These changes will improve the future operations of the nearby intersections at Michigan Street, Wisconsin Avenue, Mason Street and Wells Street, which are influenced by traffic backups at the existing Broadway and Clybourn Street intersection.

Due to the track layout, adding streetcar service will also require changing the lane configuration on St. Paul Avenue from one lane in each direction to two lanes eastbound and one lane westbound. However, the addition of an eastbound streetcar stop in the median at the St. Paul Avenue and Plankinton Avenue intersection will reduce the number of eastbound through lanes, from two lanes to one lane, and increase delay, particularly during the morning peak hour travel time. Regardless, the eastbound left turn operates at an unacceptable LOS F in the future with or without a streetcar. All other traffic movements would still operate within acceptable levels of service.

The intersections of Juneau Avenue and 4<sup>th</sup> Street and Kilbourn Avenue and 4<sup>th</sup> Street have lane configuration changes to accommodate stop locations. The change at Juneau Street and 4<sup>th</sup> Street has minimal impact to the intersection delay while still maintaining an acceptable level of service. The change at State Street and 4<sup>th</sup> Street increases the intersection delay, however, the level of service remains within acceptable limits.

Implementing streetcar service may result in lower levels of service at some intersections due to a decrease and/or lack of available lanes for vehicles, streetcar operations within a mixed travel lane and increased pedestrian volumes at stop locations. Intersection operations can be improved with signal timing adjustments, which would be made by the City of Milwaukee as needed.

Based on the proposed track alignment and the streetcar stop locations, a total of four intersections will need to be signalized, five intersections will require a transit signal phase, and five intersections will

require the installation of the Opticom detection system described above. A transit signal phase is a period of time when all directions of vehicular traffic will have a red light, but the transit vehicle can move through the intersection. The standard symbol for this is a vertical bar as shown in Figure 35. When the vertical bar appears on the signal lights, it gives the transit vehicle permission to proceed through the intersection while all other vehicle must wait. A transit signal phase is used when there is a potential conflict with other traffic.

**Figure 35: Example of a Transit Signal Phase for Streetcar**



*Image Source: HNTB Corporation*

One intersection will require other signal improvements. These changes are necessary because the streetcar conflicts with other vehicles within the intersection. The required changes are summarized by location in Table 19.

**Table 19: Transit Signal Priority Applications and other Signal Requirements**

|  | <b>Add a new signal</b> | <b>Add a Transit Signal Phase</b> | <b>Install Opticom detection system</b> | <b>Necessary Signal Improvements</b> |
|--|-------------------------|-----------------------------------|---|--------------------------------------|
| <b>Initial Route</b>                       |                         |                                   |   |                                      |
| St. Paul Avenue and 4 <sup>th</sup> Street | X                       | X                                 | X                                       | None                                 |
| St. Paul Avenue and 2 <sup>nd</sup> Street | X                       | X                                 | X                                       | None                                 |
| Jackson Street and Ogden Avenue            | X*                      |                                   |   | None                                 |
| Farwell Avenue and Ogden Avenue            |                         | X                                 | X                                       | None                                 |
| Clybourn Street and Broadway               |                         |                                   |   | New northbound signal phase          |
| <b>Route Extensions</b>                    |                         |                                   |   |                                      |
| Juneau Avenue and 6 <sup>th</sup> Street   |                         | X                                 | X                                       | None                                 |
| Prospect Avenue and Ogden Avenue           |                         | X                                 | X                                       | None                                 |
| Prospect Avenue and Royall Place           | X                       | X                                 | X                                       | None                                 |
| Farwell Avenue and Royall Place            | X*                      |                                   |   | None                                 |

\*The addition of a signal is recommended regardless of the streetcar project due to poor traffic operations.

The new traffic signal that includes a transit signal phase and Opticom at St. Paul Avenue and 4th Street will increase delays while it allows for southbound left turning streetcars to clear the intersection before other traffic can proceed on a green signal. Eastbound and westbound delays increase with the new signal; however, the overall intersection operates acceptably.

In the No-build scenario, the Jackson Street and Ogden Avenue intersection will have substantial delays along Ogden Avenue that result in LOS F. In order to improve operations, a new traffic signal at this intersection is recommended but not required because the streetcar does not conflict with vehicles. By adding a signal, the delays decrease significantly and the intersection operates acceptably. Installing a signal at the Ogden Street and Jackson Street intersection will not only improve operations, but also reduce traffic backups and benefit operations at the Ogden Street intersections at Van Buren Street and Cass Street.

The Ogden Street intersections with Farwell Avenue and Prospect Avenue will require new transit signal phases to allow the streetcar to traverse the intersections without conflicting with traffic.

A transit signal phase at the Prospect Avenue and Royall Place intersection is required because the streetcar turns left onto Royall Place from the right lane on Prospect Avenue. To accommodate the transit signal phase, a new signal must be installed along with the Opticom system. This requirement will result in increased delay; however, the level of service will remain within acceptable limits.

The Farwell Avenue and Royall Place intersection has poor traffic operations in the No Action Alternative scenario. This is primarily due to traffic backups downstream at the Farwell Avenue and Brady Street intersection. Installing a signal for the streetcar at Royall Place will improve traffic operations in the PM peak hour. However, the signal will at the same time increase delays on Royall Place because a longer green time would be given to the heavier traffic flows on Farwell Avenue.

The temporary effects of construction activities on traffic are discussed in Section 5.2.5, Construction Impacts.

## **Mitigation Measures**

The streetcar project proposes a number of measures to eliminate conflict between the streetcar and vehicles and to mitigate delays that would occur as summarized above and described in detail in the *Milwaukee Streetcar Traffic Operations* technical memorandum. To address the conflicts and minimize delays, the City of Milwaukee will make the necessary improvements to lane configurations; install new traffic signals; install transit signal phases and Opticom; and add a signal phase to the existing signal network.

## **Bicycle and Pedestrian Facilities**

This section discusses bicycle and pedestrian facilities related to the streetcar project.

### **Affected Environment**

This section describes the effects associated with bicycle and pedestrian facilities. Issues concerning bicycles are also discussed in Section 5.1.7, Safety and Security.

The streets within the study area have sidewalks. The City of Milwaukee also has an extensive network of existing, planned and proposed bicycle routes and lanes. Bike lanes are painted on the street pavement. Streets that are not wide enough for bike lanes, but are important bike connections are signed as designated bike routes. The Oak Leaf recreation trail travels in a north-south direction along the eastern edge of the study area near Lake Michigan.

### **Environmental Effects**

Under the No Action Alternative the streetcar line would not be constructed and bike and pedestrian facilities and usage will remain as planned by the City.

Overall the Streetcar LPA system is expected to benefit pedestrians and bicyclists within the study area by providing a new efficient high quality transit system that can extend walk and bike trips. The stops and the vehicles will be ADA-compliant to make sure the system is accessible to everyone including the disabled. A description of the accessibility features can be found under Section 5.1.7, Safety and Security.

Preliminary plans indicate the potential placement of overhead contact system (OCS) poles at locations where sidewalk basements exist, between Michigan Street and Wisconsin Avenue along Broadway. In accordance with Chapter 245-5 of the City of Milwaukee Municipal Code, a sidewalk basement is entirely below a sidewalk and adjoining a building or structure that is maintained and operated by the adjoining building's property owner. The basement is within the public right of way and occupancy and use of the basements may be revoked by the City at any time. The sidewalk basements shall not interfere with any public work or improvement and the City reserves the right at any time to construct under or within the basement for public service at the expense of the property owner.

The exact location and placement of the OCS poles will be determined during future design phases of the project. If impacts are determined, the City will coordinate with sidewalk basement property owners.

The project will add approximately 1,200 linear feet of new bike lanes along Wells Street and will maintain about 8,500 linear feet of existing bike lanes along Prospect Avenue, Farwell Avenue and Ogden Avenue. The new bike lane along Wells Street will help connect missing links of the existing downtown bike system and will improve multi-modal transportation connections by allowing bicyclists to bring bikes on the streetcar. See Figure 33.

Special considerations are also being incorporated into the project's design to minimize the impact to bicyclists on roads, at intersections and at stops that contain existing and planned bike lanes. Bike lanes would stay to the right of the stop or be relocated to the opposite side of one-way streets to avoid any potential conflicts with the streetcar.

Bicyclists will need to become accustomed to the new vehicle technology and the rail system embedded in the roadway. One concern is where bicyclists would cross the rail at a non-90 degree angle and bike wheels get caught in the rail track. This situation generally occurs at intersections where the streetcar is turning. This is discussed in greater detail under Section 5.1.7, Safety and Security.

### **Mitigation Measures**

Mitigation measures recommended under Section 5.1.7, Safety and Security, will be implemented to increase bicycle and pedestrian safety. The City will appropriately place warning signage and/or pavement markings to direct bicyclist and pedestrians to avoid hazards.

### **Parking**

This section discusses impacts to parking within the study area.

### **Affected Environment**

The streetcar study area currently contains approximately 7,750 on-street parking spaces. This includes both metered and non-metered spots. The study area also has a large number of parking spaces within public parking structures and lots. The entire streetcar study area contains approximately 67,000 parking spaces. Even so, on-street parking is a valued asset, especially in the higher density residential areas on the northeast side. Demand for parking is high during the evening and nighttime hours. On-street parking is also important to the many retailers within the study area that rely on convenient access to their establishments as well events and entertainment venues.

### **Environmental Effects**

The No Action Alternative would not remove any parking.

The Streetcar LPA would remove approximately 121 on-street parking spaces at various sites along the streetcar route (see Figure 33). As a result of the streetcar project and the conversion of Broadway to a two way street, fourteen new on-street spaces will be added along Broadway between St. Paul Avenue and Clybourn Street. Therefore, 107 net on-street parking spaces would be removed as a result of this project which is approximately 1.4% of the 7,750 total on-street parking spaces in the study area.

A few of the downtown parking structures are sometimes underutilized and the City expects that the added connectivity that a streetcar would provide may encourage more use of the parking structures. The streetcar is also expected to support the City's "park once" policy, which allows passengers to have greater mobility in the study area without having to drive vehicles between locations. As noted in the City's Area Plans, the streetcar would improve connections between study area destinations which would help to reduce the need for automobiles and subsequently the need for parking. It would also increase access to parking facilities that are located beyond a property's walk zone.

To preserve the greatest amount of parking within the study area, the streetcar was designed to operate in an existing travel lane with other vehicles. This means parking is maintained along the alignment except at stop locations and limited areas requiring transit-only lanes.

### **Mitigation Measures**

The City will continue to coordinate with the affected businesses and residents to inform them of changes to parking before the streetcar begins service. See mitigation measures under Section 5.1.2, Economic Development, for more information about how the City will conduct business outreach.

### **Driveways**

This section discusses effects to driveways along the streetcar alignment.

### **Affected Environment**

The study area has relatively few driveway access points due to its urban nature. Many properties only have roadway access at the rear of the property via the alley system. However, some properties do have driveways that serve as a primary or secondary access point to the local street network.

### **Environmental Effects**

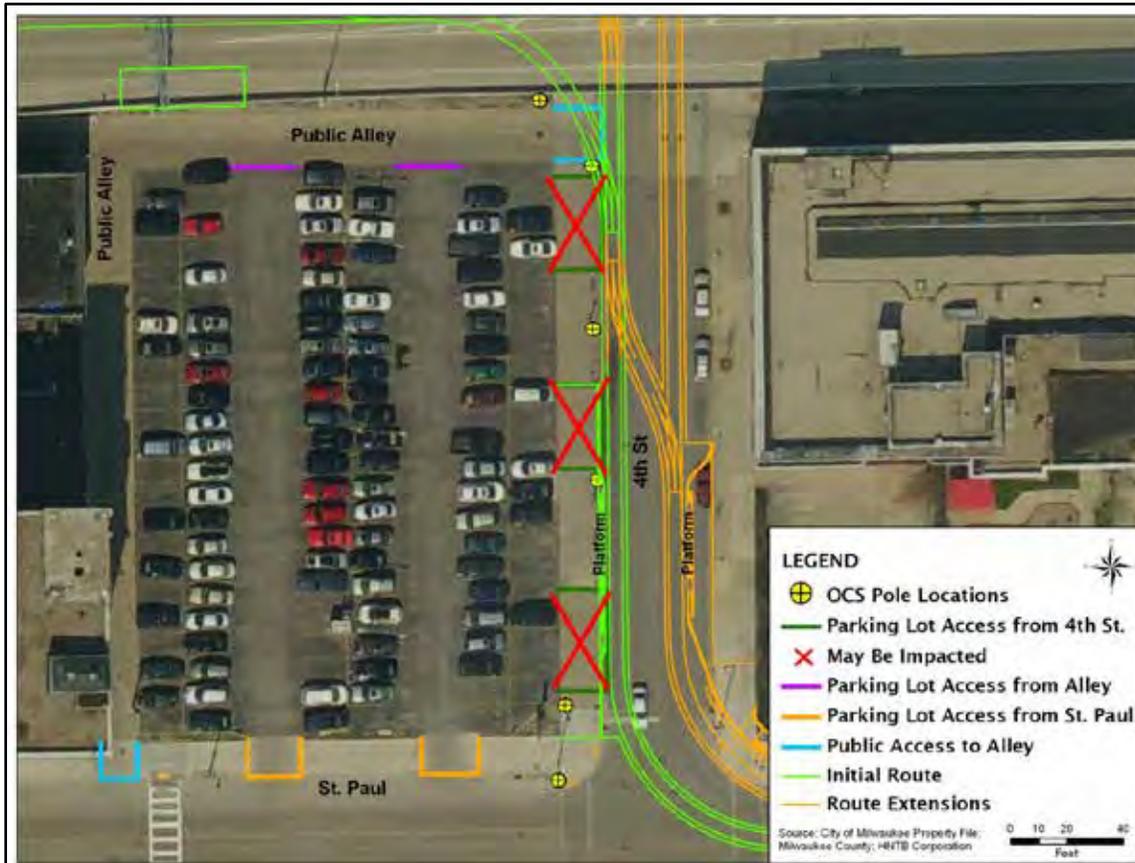
The No Action Alternative would not affect driveways.

For the streetcar project, one surface parking lot located at the northwest corner of 4th Street and St. Paul Avenue (404 W. St. Paul Avenue) will be affected. The parking lot has three driveways along 4<sup>th</sup> Street that will need to be removed for a streetcar stop. The two driveway access points on St. Paul Avenue will remain. Public alley access from St. Paul Avenue and 4<sup>th</sup> Street will also remain. See Figure 36. No other driveway access points will be affected by the streetcar project.

### **Mitigation Measure**

The City will work with the owner of the affected parking lot to ensure that driveway access is provided.

**Figure 36: Parking Lot at 4th Street and St. Paul Avenue**



Source: HNTB Corporation

### 5.2.5 Construction Impacts

This section explains construction activities and their consequences. Construction activities include:

- § Installation of tracks and associated roadway construction
- § Construction of the maintenance facility
- § Construction of the streetcar stops
- § Construction of the power system and substations
- § Installation of communications equipment
- § Signaling and signage

All work will conform to industry specifications and standards. Impacts are expected to be temporary and last the duration of construction.

#### Proposed Construction Activities

Construction of the initial phase is currently expected to last 26 months, beginning in the fall of 2012, with the goal of beginning streetcar service by the end of 2014. Actual construction schedules for the Milwaukee Streetcar will be developed during final design.

The final construction plans, including methods, staging and sequencing, will be determined in coordination with the project's yet-to-be-determined contractor. The contractor will be directed to install the track in small sections, typically two to four blocks at time, to minimize the length of time businesses and residents are affected.

A staging area could be located on the maintenance facility site to store materials, supplies and equipment. The contractor may also need several smaller staging areas throughout the project for track, materials, and equipment. Another option the City has is to use City-owned vacant lots for staging if any are conveniently located near the area of construction. The staging area locations will be finalized during the final design phase and will be communicated to the public through outreach activities including the City's Business Support Program.

The City will abide by its *Street Construction and Work on Public Ways Ordinance* (Chapter 115), which regulates construction activities within the street to protect the public from potential safety and environmental effects associated with construction activities. Welded rail to be used for the project will be temporarily stored at one of the City existing storage sites.

Prior to construction activities it will be necessary to relocate, modify, or protect in place all public and private utilities and underground structures that may conflict with excavations. This will include steam tunnels, duct banks, utility vaults, and power and communication lines. See 5.2.6 (Utilities) for more discussion about utilities.

No other conflicting road construction projects are scheduled at this time, but the City will coordinate with any other construction projects in the area of construction to avoid undue disruptions to traffic.

Overall, construction of the maintenance facility is projected to take approximately 16 months. Construction of the initial route and extensions track, power system, other streetcar infrastructure, and utility work is expected to take approximately 26 months. If portions or all of the extensions are not funded, construction could finish sooner.

The St. Paul Avenue Bridge over the Milwaukee River is scheduled for replacement in summer 2012 under a separate City program that is selectively replacing or rehabilitating the numerous City bridges across the Milwaukee River. The City is taking the opportunity to incorporate tracks as part of the replacement project rather than having to retrofit it later to accommodate the streetcar project. This will save the City both time and money. This EA does not review impacts of the bridge construction as it is a separate project.

The in-street streetcar system construction for the initial route would begin at the proposed maintenance facility near 4<sup>th</sup> Street and St. Paul Avenue and continue down St. Paul Avenue. It is expected that the project would then proceed northward. The route extensions would then be installed in a similar fashion when funding becomes available.

The streetcar tracks and overhead power system would be installed in segments of different lengths. The length of these segments will be determined in consultation with the City's traffic engineers. The decision would be based on the need to expedite construction and the need to minimize interruptions to others in the street including transit vehicles, drivers, walkers, and bicyclists.

Staging areas for construction would likely require using one or two lanes of traffic and/or parking lanes. Vehicular and pedestrian access for all residents and businesses in the vicinity of the project would be

maintained at all times through the use of signing, fencing, bridging over construction trenches, and the use of flaggers as necessary to safely direct people through the construction zones.

Streetcar system construction activities may be divided into two or more crews segregated geographically to avoid compounding the potential disruption to the public. Details such as this would be determined and implemented by the construction contractors.

Typically, system construction would begin with the relocation or adjustments of any utility lines or manholes. Crews will then install the foundation and systems for any new traffic signals and poles and overhead electrical wires. Substations would also be placed. This would entail excavation and construction of a concrete slab foundation. Metal building substations will be reused from a streetcar operation in Los Angeles, California. These will be placed on the foundations. Other construction activities will include the construction of the streetcar stops. This will involve placement of shelters and pavement improvements as indicated by the final design plans.

An eight-foot wide, 24 inch deep trench in the roadway pavement would then be cut, excavated, and prepared for the track slab. Rails would then be put into place. The track slab concrete would then be poured, finished, and cured. The adjacent pavement would then be restored to provide a smooth driving surface where necessary.

In general, construction activities would primarily occur during daytime hours. All work will comply with the City of Milwaukee's Noise Ordinance. Nighttime construction would require and conform to a noise variance to be obtained by the project from the City of Milwaukee.

### **Environmental Effects**

Under the No Action Alternative, no immediate construction related effects would occur. However, it is to be expected that at some point, similar roadway construction would be done to maintain or reconstruct the roadway.

Following is a description, by discipline area, of the potential short-term environmental effects of construction activities associated with the Streetcar LPA.

#### **Transit**

Construction will result in transit route and bus stop detours around the area of construction activities. MCTS would need to notify riders of detours and closed/temporary bus stops. Affected bus routes that currently coincide with the proposed streetcar route exist along St. Paul Avenue (bus Routes 18, 19, and 57), Ogden Avenue (Routes 10, 11 and 30), Farwell and Prospect Avenues (Route 30), and Juneau Avenue (Route 33). Bus routes cross the streetcar route along St. Paul Avenue at the intersections with 4<sup>th</sup> Street, 5<sup>th</sup> Street, 2<sup>nd</sup> Street, Plankinton Street and Water Street. Bus routes also cross the streetcar route along Broadway at the Michigan Street, Wisconsin Avenue, and Kilbourn Avenue intersections.

The Downtown Trolley route coincides with the streetcar route along Ogden Avenue between Van Buren and Farwell, as well as along Van Buren between Wells and Ogden Avenue and along Wells Street between Broadway and Van Buren.

#### **Traffic**

Traffic will be temporarily impacted because construction activities would result in the temporary closure of traffic lanes, parking lanes and/or turn lanes. Turning restrictions may also be required. The use of

segmented construction, temporary bus stops, and steel plate bridges over construction trenches to provide pedestrian and business access will minimize the effects to traffic.

Lane closures would be limited to one or two lanes and may include the parking lane. The City's intention is to maintain at least one travel lane in each direction. Side street access would also be maintained through the use of steel plates over construction trenches whenever feasible.

Local truck turning restrictions may be required at some intersections during construction. Truck detour signs would be provided as necessary. Closure of truck routes during construction is not proposed. Truck routes include WIS 32 (Wells Street, Prospect Avenue and Farwell Avenue) and WIS 18.

Local business, bicycle and pedestrian access would be maintained during construction through the use of steel plating over trenches and short-term detours when necessary.

### **Land Use and Economic Development**

The economic development effects of construction of the streetcar project include the short-term construction jobs that would be created and the economic benefits for Milwaukee's workforce.

As discussed in Section 5.1.2, Economic Development, a total of 475 construction-related jobs are anticipated for this project.

Construction could have temporary economic impacts to businesses where access is disrupted during construction. The project will use typical construction management practices to avoid or minimize adverse economic consequences, such as avoiding full access closures, providing temporary alternate access and signage, and ongoing communication with business owners.

### **Neighborhoods and Communities**

Construction activities will affect adjacent neighborhoods and communities by temporarily increasing noise, creating dust, setting up construction zones and signage, altering or reducing access, establishing detours, and temporarily disrupting utilities as they are relocated or reinforced. The project will follow industry standards to avoid or minimize these effects on neighborhoods and communities as described here under each of the discipline areas.

The City will abide by its *Street Construction and Work on Public Ways Ordinance* (Chapter 115), which regulates construction activities within the street to protect the public from potential safety and environmental effects associated with construction activities.

### **Noise**

During construction, the use of heavy equipment will cause temporary increases in sound levels near the construction and staging areas. Construction activities will occur within close proximity of some of the buildings along the alignment, including public, commercial, and residential buildings. Because construction methods will limit construction activities in any one area for extended periods, any such intrusive noise would be temporary and would not be considered a noise impact under FTA criteria.

The project will comply with the City of Milwaukee's Nuisance Ordinance (Chapter 80). In general, the project's construction activities would occur during weekday daytime hours and noise must be minimized through the use of proper equipment operation and maintenance. Projects lasting more than 10 days in residential districts are required to be shielded or located so as not to cause unnecessary noise.

More information about construction noise impacts can be found under Section 5.2.5 of this document.

## **Air Quality**

Grading and excavation activities will temporarily create dust for short durations of time. There will also be emissions from construction equipment. Construction contractors will be required to use measures to control dust, such as applying water or other dust suppressants during dry weather as required by the City Ordinance. More information about air quality impacts can be found under Section 5.2.1 of this document.

For this project, FTA would require the use of diesel engine retrofit technology on diesel construction vehicles and diesel powered equipment, since the Milwaukee region is in non-attainment for PM 2.5.

## **Soil Erosion**

Construction will require grading and/or excavation at the maintenance facility and substations, and for installation of the tracks, poles, and signals. Best Management Practices (BMPs) will be required by the Wisconsin Department of Natural Resources as part of their construction permitting process. The City also has requirements regarding construction site erosion control measures. These requirements will minimize the amount of soil that leaves the construction sites or that enters the stormwater system.

## **Visual and Aesthetic Resources**

Construction of the streetcar facilities will cause temporary visual impacts relating to the presence of construction equipment, the disruption of the streetscape, and the storage of construction materials and supplies. Due to the temporary nature and the fact that construction is a common visual element in the City of Milwaukee, the severity of visual impacts will be low. See Section 5.1.5 for a discussion of all aesthetic impacts.

## **Historic, Archaeological and Cultural Resources**

Construction of the streetcar is not expected to adversely affect any known historic, archaeological or cultural resource. Minor temporary changes in the vicinity of known resources could include: nearby excavation activities, vibration, dust, exhaust, and other airborne matter.

Unknown archaeological or cultural resources could be present. The City would protect such unknown resources from adverse effect by taking the following actions, as necessary to comply with Federal and state regulations: notification to, and consultations with regulatory agencies and/or tribes; temporarily stopping construction work at the site to conduct additional surveying and/or documentation; removal and preservation of any artifacts; or other actions as appropriate.

## **Parks**

The City plans to avoid any disruption to nearby parks and access will remain open from other sides of parks that have adjacent streetcar construction. No changes to existing access are expected. Temporary noise and dust related to streetcar construction is not expected to negatively affect use of any parks during construction.

## **Hazardous Materials**

Unknown sites contaminated by hazardous materials may or may not be present within the street right of way. The City of Milwaukee handles work in the roadway by monitoring the soil during construction and any potentially contaminated soil encountered would be managed appropriately under applicable regulations. If contaminated soil is uncovered, remedial actions could include the excavation and proper disposal of impacted soils by properly trained and equipped subcontractors before construction begins or proceeds. Remediation associated with any discovered sites could cause a delay in the project depending upon when the discovery is made.

Adverse impacts to construction workers from contamination would be avoided or minimized through the development and implementation of a hazardous materials work plan. The work plan would be designed for the project and would include actions if construction activities uncover contaminated soil, or if spills occur.

### **Water Resources**

Construction effects on water quality would be negligible because construction will follow the Wisconsin Department of Natural Resource's requirements for erosion control. The amount of exposed soils will be limited. Only a few blocks at any one time will be exposed during construction.

Sometimes very large rain storms can release sediment or cause an accidental spill into stormwater during construction. However, onsite Best Management Practices to control erosion and maintain sediment would limit the scope and effect of these events.

### **Utilities**

Some of the utilities will interfere with excavation work associated with installation of the track. Some will need to be relocated away from the proposed facilities. Temporary interruptions in services (perhaps several hours) could be experienced during relocation or rerouting of utilities. Streets will remain open, with partial lane closures as necessary. More details regarding Utilities are included in Section 5.2.6, Utility Impacts.

### **Staging Areas**

Staging areas for construction are not expected to have an impact because of the application of regulations in Chapter 115 of the City Ordinance, which are designed to handle temporary use of the public rights of way and to ensure that impacts are not adverse.

### **Mitigation Measures**

The following is a summary of the various mitigation measures that apply to construction activities. Many of these measures are addressed in greater detail in the other sections of this document where the individual topics are discussed.

The City will utilize its *Public Works Support for Business Program*<sup>32</sup>, which is designed to help nearby businesses before and during construction projects. This program incorporates best practices from around the country and provides tools such as a handbook of tips and resources, signage, project summaries, and regular e-mail updates about the projects.

The City will coordinate closely with MCTS so they can notify riders of any bus and/or trolley detours and temporary closed/relocated bus stops.

The City will continue to coordinate with property owners to manage and minimize access closures and relocations during construction. Construction management practices to minimize business impacts will be implemented including avoiding full access closures and providing temporary alternative access and signage as appropriate.

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<sup>32</sup> <http://city.milwaukee.gov/mpw/supportforbusiness/>

Construction dust and noise will be controlled as recommended in Section 5.2.1, Air Quality, and Section 5.2.2 , Noise and Vibration. Construction activities will comply with the City of Milwaukee’s Nuisance Ordinance (Chapter 80). Dust abatement shall be included in the specifications.

Best Management Practices for erosion control will be developed and applied as required by the Wisconsin Department of Natural Resources as part of their construction permitting process. The City will comply with City of Milwaukee regulations regarding construction site erosion control. Examples of these measures include lining existing storm sewer inlets with filter fabric, placing silt fence and hay bales to prevent exposed soils from running off the site during rain events. Standard details will include measures to control dirt tracking such as using tracking mats or other actions as necessary to accommodate trucks leaving the maintenance facility work zone and any staging areas along the route.

If archaeological or cultural resources are uncovered during construction, all work must stop and the contractor and/or City of Milwaukee must comply with applicable Federal and State regulations.

No changes to existing access to any public parks will be made during construction.

If the results of the planned Phase II Hazardous Materials Assessment indicate that the historical fill and/or subsurface soils at the project site are impacted with contaminants above regulatory standards, a “Soil Management Plan” will be developed to manage soils generated during site construction. “Special Provisions and a Notice to Contractors” will also be developed and incorporated into the construction specifications to address impacted soils.

The City will continue to coordinate with utility providers so that any required changes to their facilities will minimize disruption to services and be coordinated with the construction schedule.

Construction and staging areas will be maintained as required by the City under Chapter 115 and any other applicable regulations of the City’s ordinances. Site cleanliness of staging areas shall be included in the specifications. The contractor will be required to restore the staging area to its original condition once the project is completed. All standard City requirements regarding construction site control will be followed.

The City will use diesel engine retrofit technology on diesel construction vehicles and diesel powered equipment.

### **5.2.6 Utility Impacts**

This section addresses the location of utility infrastructure within the streetcar routes and how the proposed streetcar may affect them. Additional utility related items are discussed in Section 5.2.8 Stray Current and Corrosion and Section 5.2.5, Construction.

#### **Affected Environment**

The study area has an extensive public and private utility system. This includes underground gas lines, water mains, communication and data lines, storm and sanitary sewer lines, steam lines, traffic management systems, and street lights. Most of the utilities are located underground in concrete vaults with access through manholes. However, overhead power lines (mostly overhead lighting lines) can be found throughout some areas of the study area.

## **Environmental Effects**

The No Action Alternative would not result in any changes to utilities outside of ongoing planned maintenance or improvements.

Construction of the Streetcar LPA is primarily confined to the existing road right of way, which is where most public and private utilities are located. Utilities that conflict with the placement of the streetcar alignment would need to be relocated or reinforced.

Given the prevalence of underground utilities in the study area, preliminary engineering studies indicate that underground utility lines would need to be relocated or reinforced on nearly all blocks along the streetcar alignment. It is anticipated that utility relocations will be within the existing public right of way and will be placed as close as possible to their existing location. However, a few private utility companies have indicated that they may consider moving their utilities to a different street. The final locations will be determined during the final design phase of the project.

The streetcar alignment does not contain overhead utilities such as telephone, fiber optic, electric and other overhead wire utilities. However, some overhead lighting lines may need to be adjusted to accommodate the project.

The only utility-related work that is anticipated outside the streetcar right of way is related to the installation of substations which provide power to the streetcar system. See Section 4.2.4 for more information about the streetcar's power system. The power to these substations will be provided through existing WE Energies lines. The final design phase of the project will determine locations for new connections to these utilities.

Utility adjustments would be made according to standard utility construction practices. The privately owned utilities would be relocated or adjusted by the facility owner. City utilities would be relocated as part of the project's construction by the construction contractor on behalf of the City. Modifications to utilities will be coordinated with utility service providers to ensure that service disruptions are minimal. No long term utility interruptions are expected.

Other construction related impacts are further discussed in Section 5.2.5.

## **Mitigation Measures**

The City will continue to coordinate with utility providers throughout project design and make modifications to the track design to minimize impacts. The City will continue to coordinate with utilities during the construction phase to avoid any interruptions to utility services. It is anticipated that during final design memorandums of understanding will be developed with certain utilities to define scope, schedule and criteria for facility relocations.

### **5.2.7 Energy Use**

The streetcar will be powered by electricity. Streetcars typically require a peak current of 1,100 Amps during acceleration. Typically, energy will be delivered to the streetcar via an overhead contact system at 750 volts direct current (VDC). The VDC is supplied to the overhead contact system from a power substation that is housed in a single story prefabricated buildings approximately 14 feet by 40 feet (560 square feet) in size and approximately 11 feet high. Figure 45 shows an example of a substation building. The power substation would receive its power from the local utility, WE Energies, at primary distribution voltage of 13.3 KV. The power demand for a power substation would be approximately 1,500 kilowatts.

Power substations would be spaced along the route at intervals to maintain required power levels. The initial streetcar route would require two power substations. One would be located at the Milwaukee Municipal complex behind the 809 Broadway building and the other one would be within the public right of way near the northeast corner of Cass and Knapp streets. A third power substation would be required for the route extensions. This substation would be located at the streetcar maintenance facility site. Appendix F shows the site plans for the power substations. Figure 15 shows the approximate locations of the substations.

For the initial route the total annual energy consumption would be approximately 1,400,000 kilowatt hours. The total annual energy consumption for the initial system and the extensions would be approximately 2,450,000 kilowatt hours. For energy savings associated with the project, refer to Section 5.2.9, Livability and Sustainability Measures.

In addition to streetcar operations, the construction of the system will consume energy. This would be related to the energy required to obtain and transport new materials and equipment to build the maintenance facility and install the track, power system, stops and other roadway improvements. Fuel usage will depend upon vehicle types.

**Figure 37: Example Photo of a Power Substation**



*Image Source: HNTB Corporation*

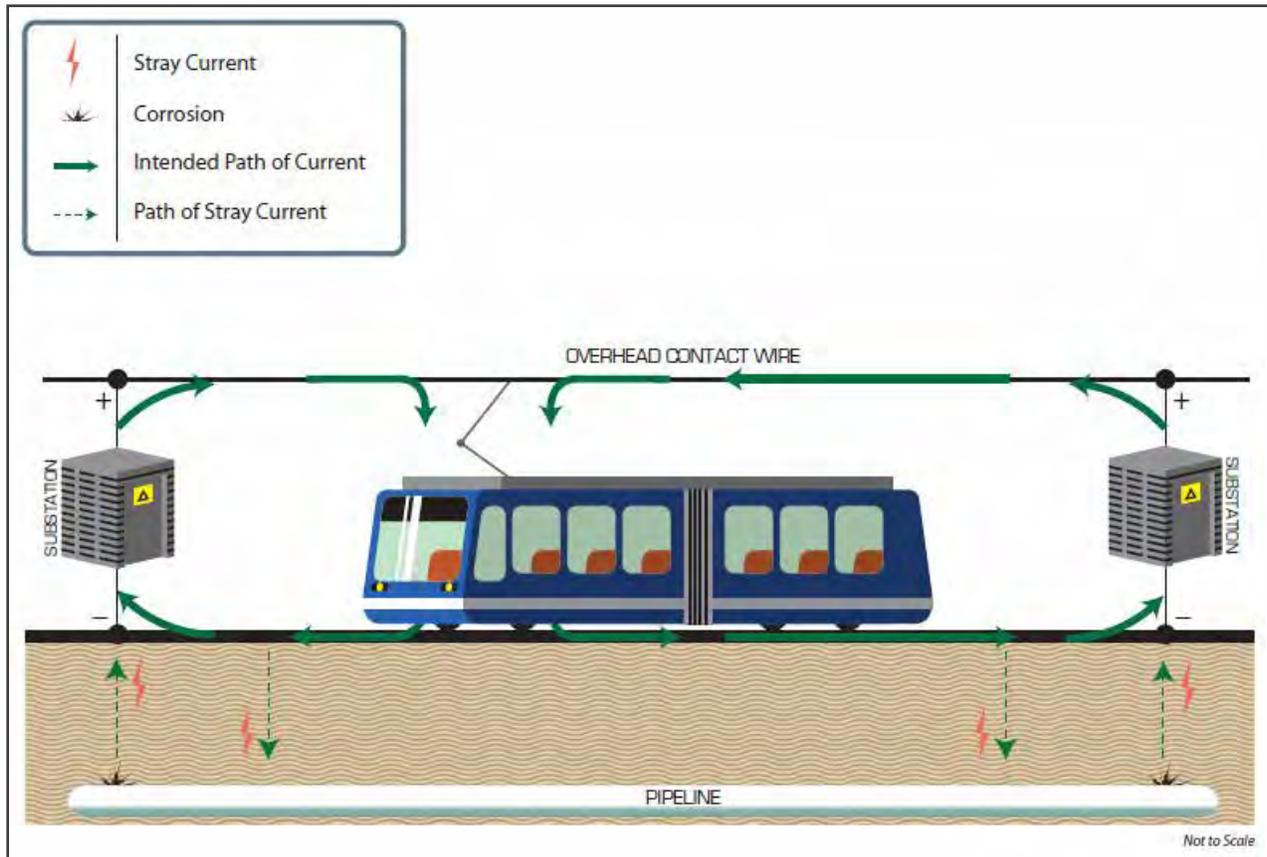
### **5.2.8 Stray Current and Corrosion**

This section discusses concerns relating to stray current and corrosion that is associated with the streetcar's electrical system.

## Affected Environment

The electricity used to power the streetcar is designed to create a current that flows between the substations, overhead wires and where the wheels touch the track. In some instances, a small portion of the electrical current may stray outside this circuit and into the ground below. Although not harmful to people, stray current has the potential to corrode nearby metal pipelines and structures that run beneath the street. Figure 38 shows how stray current reaches the pipeline.

**Figure 38: Diagram of Stray Current and Corrosion Process**



Source: HNTB Corporation

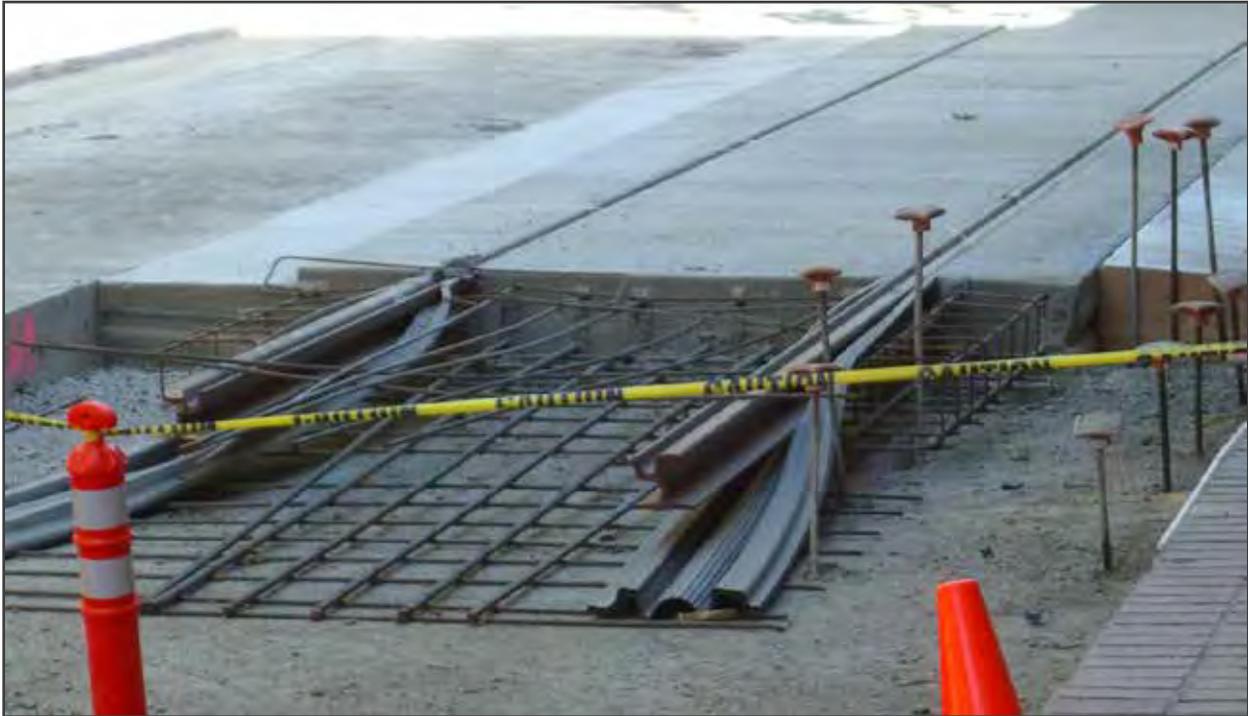
## Environmental Effects

Under the No Action Alternative, there would be no additional stray current created in the study area.

Under the Streetcar LPA, if left unchecked, stray currents could corrode pipelines and other underground structures. This could lead to extra maintenance issues for the City and others that have utilities buried beneath the ground.

Since this is a known issue, the streetcar project has developed design criteria to minimize stray current. The design criteria address ways to minimize stray current along the traction power system and along the rails. Methods to control stray current are also discussed for the maintenance facility and for the water drainage system. One of the main measures to control stray current for the streetcar system will be a “rubber boot” that wraps around the underground rail surface as shown on Figure 39.

**Figure 39: Photo Example Showing Construction of Embedded Rail with Rubber Boot**



*This is an example of a streetcar track being constructed in Portland, Oregon that shows how the rubber boot is wrapped around the rail to reduce noise, vibration and stray current. Image Source: City of Milwaukee.*

### **Mitigation Measures**

The City will continue to work with private utilities to implement feasible design methods to minimize stray current.

The City will implement corrosion control measures as discussed above to minimize stray current and minimize corrosion on streetcar facilities and public utilities. Corrosion control measures will be designed to conform or exceed the latest versions of relevant local, state, and national codes and standards.

The rail design will include the installation of a rubber boot to help minimize stray current and reduce noise and vibration. A dielectric coating made up of a material that is a poor conductor of electricity could also be applied to the rail components to prevent stray current.

### **5.2.9 Livability and Sustainability Measures**

This section describes how the streetcar project supports livability and sustainability measures that are encouraged by the Federal Transit Administration.

#### **Livability**

The City of Milwaukee is investing in the community's livability with the Milwaukee streetcar project. The Federal Transit Administration defines livability investments as projects that deliver not only transportation benefits, but also are designed and planned in such a way that they have a positive impact on qualitative measures of community life.

The streetcar project would add a new convenient transportation option that circulates residents, visitors and employees throughout downtown Milwaukee and the nearby neighborhoods. This would support Milwaukee’s compact neighborhoods and improve access to goods and services, employment, housing, recreation and entertainment. It would also improve connections to other modes of transportation by providing a direct link to the Milwaukee Intermodal Station.

The project’s improved transportation access is particularly important for the streetcar study area because its population tends to have less access to automobiles and relies on public transit and walking more frequently. As discussed in Section 5.1.3, Environmental Justice, a larger number of households, 77%, have only one vehicle or no vehicles compared to 65% citywide and 58% countywide. Also, over 35% carpool, use transit, bike or walk compared to 28% citywide and 22% countywide.

The streetcar project is a coordinated land use and transportation decision that is a critical component of the City’s Downtown Area Plan. The plan emphasizes land use policies to increase density and intensity within downtown and encourages improved connectivity between high density residential neighborhoods, the Intermodal Station, cultural and entertainment facilities, retail districts and office buildings. The plan recognizes a streetcar system is needed to support these development and connectivity goals.

**Sustainability**

The Federal Transit Administration believes transit has an important role in promoting environmental sustainability by improving air quality, reducing greenhouse emissions and saving energy.

The streetcar project would support sustainability by reducing automobile travel and reducing greenhouse gas emissions. The project team estimates an annual reduction of 205,000 vehicle miles traveled for the initial route and the route extensions. For greenhouse gas emissions, the streetcar project could have an annual reduction of 190,000 pounds from people switching from autos to the streetcar and an 835,000 pound reduction from people switching from bus to streetcar. This information is shown in Table 20.

**Table 20: Reductions in Vehicle Miles Traveled and Greenhouse Gas Emissions**

| <b>Annual reduction</b>                                    | <b>Initial Route</b> | <b>Route Extensions</b> | <b>Total</b>   |
|--|----------------------|-------------------------|----------------|
| Vehicle miles traveled                                     | 105,000 miles        | 100,000 miles           | 205,000 miles  |
| Greenhouse gas emissions (auto trips shifted to streetcar) | 100,000 pounds       | 90,000 pounds           | 190,000 pounds |
| Greenhouse gas emissions (bus trips to streetcar)          | 745,000 pounds       | 90,000 pounds           | 835,000 pounds |

*Source: HNTB Corporation*

The City is planning to purchase power substation buildings formerly used in Los Angeles, CA. Reusing the buildings in Milwaukee would eliminate the need to use new materials for construction.

The maintenance facility would be located under the Interstate 794 bridges and would receive very little sunlight. As a result, several exterior areas of the building would be constructed with an energy efficient translucent panel, called Kalwall, to maximize the penetration of natural light. According to the manufacturer, Kalwall contributes to green design because its solar reflectance helps to reduce air conditioning costs and it helps reduce the amount of energy used by the building since fewer lights are needed.

Recycled fly ash could also be used in the concrete mixture for the track zone. Fly ash is captured from the chimneys of coal fired power plants and is typically disposed of in landfills. Using this material in the

concrete would reduce waste in landfills and would reduce the demand for virgin materials that would be quarried for the production of the concrete pavement.

As the project proceeds, the City will continue to look for other opportunities to incorporate sustainability measures.

### **5.2.10 Water Quality/Resources**

This section describes the water resources within the study and the potential effects associated with the streetcar project.

#### **Affected Environment**

The project is located within the southern quarter of the Milwaukee River Basin, within the Milwaukee River South watershed.

The watershed covers about 168 square miles. Land cover in the watershed is a mix of rural and urban uses. Overall, the watershed is about 33% urban, with agriculture (25%), grasslands (21%), forests (12%) and wetlands (6%) making up the rest of the major land cover types. Fourteen cities and villages are found in this watershed.<sup>33</sup> Figure 40 shows the watersheds present in the Milwaukee region.

The Milwaukee River, shown in Figure 40 running north and south through the study area, has been extensively modified through straightening and lining with sheet pile. As with most urban rivers, the condition of the river is described by the state Department of Natural Resources as “poor” in the study area and has a limited ability to support diverse biological communities due to pollution.

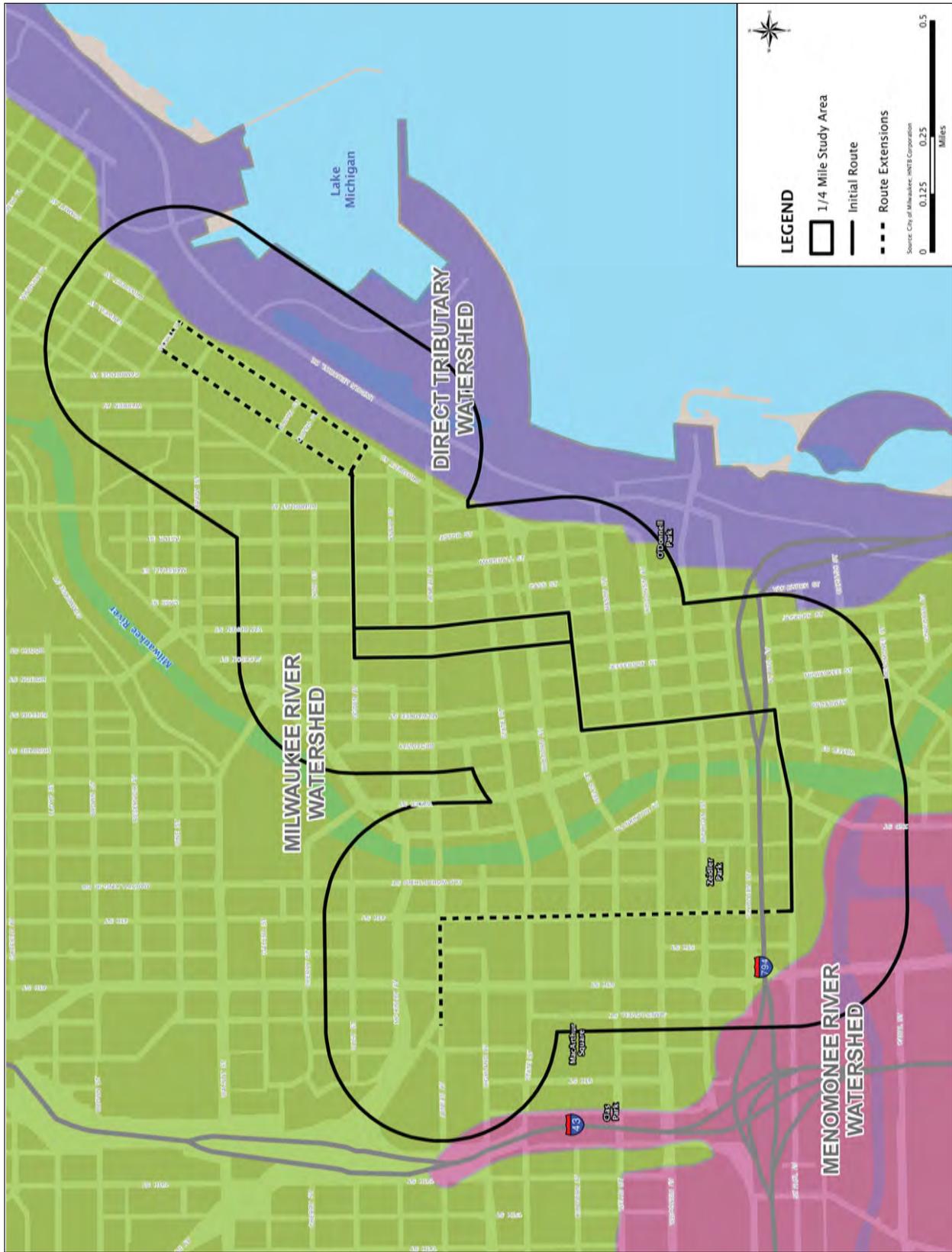
The project is entirely within an urban developed area on existing right of way. Very minimal pervious soils are present in the construction zones. Most of the maintenance facility site is covered by freeway bridges and very little rainfall reaches the surface of the site.

The project is under the jurisdiction of the Milwaukee Metropolitan Sewerage District and the City of Milwaukee stormwater management ordinances.

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<sup>33</sup> Wisconsin Department of Natural Resources. [dnr.wi.gov/water](http://dnr.wi.gov/water). Accessed online December 2010.

**Figure 40: Watersheds in the Milwaukee Area**



## **Environmental Effects**

Under the No Action Alternative, no change in impervious surfaces is expected and so no change in stormwater runoff is expected and the No Action Alternative would not adversely affect stormwater runoff or water quality. Due to the lack of change in stormwater runoff and water resource impacts, the No Action Alternative is not expected to adversely impact aquatic species.

The Streetcar LPA, like the No Action Alternative, will not be adding new impervious surfaces. The Streetcar LPA is exempt from Milwaukee Metropolitan Sewerage District permit requirements because of the lack of new impervious surfaces.

In addition, the roadway work is not applicable to the City's stormwater management ordinances. The maintenance facility would normally be required to follow the City's stormwater requirements, which is to reduce the 100-year storm peak stormwater runoff rates from the project area by 10%. However, the freeway bridges above the maintenance facility site drain east to an outfall at the Milwaukee River, and only low stormwater flows are diverted to the combined sewer system. Therefore, this area contributes a relatively small amount of runoff to the combined sewer system during severe storms, and is not a sufficient source of runoff to meet the City Ordinance's requirements for the project.

Impacts due to construction activities including mitigation measures to address soil erosion are further discussed in Section 5.2.5.

## **Mitigation Measures**

Since providing detention storage on the maintenance facility site for only 1.4 acres of land disturbance would not be practical, the preliminary assessment recommended that the City consider an exemption from meeting their Chapter 120 detention requirement for the streetcar project<sup>34</sup>. If some level of stormwater management is preferred, whatever stormwater does accumulate on the maintenance facility site during severe storm events could be captured and stored for use as wash water, landscape irrigation, or detained and discharged at a very limited rate to the combined sewer system. The City might also be able to compensate for this exemption by providing the required storage volume on another City project site.

The City requires implementation of a Stormwater Management Plan and an Erosion and Sediment Control Plan for land disturbing projects. The Milwaukee City Engineer will ensure the application of this requirement is carried through. The construction contractor will apply the required measures during construction.

During construction of the track, substations and maintenance facility, soils will be exposed. The City Engineer will ensure that the contractor uses Best Management Practices to minimize soil erosion and runoff. An erosion control plan will be developed and approved by the City Engineer to minimize release of soils into the stormwater system. See also Section 5.2.5, Construction, for examples of Best Management Practices.

DNR will not require a Construction Site Storm Water Discharge Permit, per NR216 and NR 151 Wis. Adm. Code because it does not apply if stormwater will be discharged to the combined sewer system. The

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<sup>34</sup> The City of Milwaukee Ordinances Chapter 120 – Storm Water Management Regulations sets forth requirements for detention on development sites.

City will continue to coordinate with the DNR on construction site permit requirements as design progresses.

Existing storm sewer inlets that slope down from the affected areas will be lined with filter fabric under the grates and periodically cleaned of sediments collected during construction. Silt fencing will be placed and will be maintained until the ground stabilization measures are established. Where excavation dewatering is required, sediment-laden water will be pumped into a sediment basin prior to discharge. Silt fence and hay bales may be placed as required at the perimeter of the impacted areas.

An Erosion Control Plan will be prepared and implemented and will include those items mentioned above to manage stormwater runoff. All erosion control measures will be coordinated through the City.

### **5.2.11 Wetlands and Floodplains**

This section discusses the wetlands and floodplains located within the study area.

#### **Affected Environment**

Wetland and floodplain areas are shown on Figure 41. Wetlands within a quarter mile of the route are limited to a 14.4 acre lake/pond within Veteran's Memorial Park approximately 633 feet east of the Prospect Avenue route. The Milwaukee River is a sheet pile lined channel and flooding is confined to the channel.

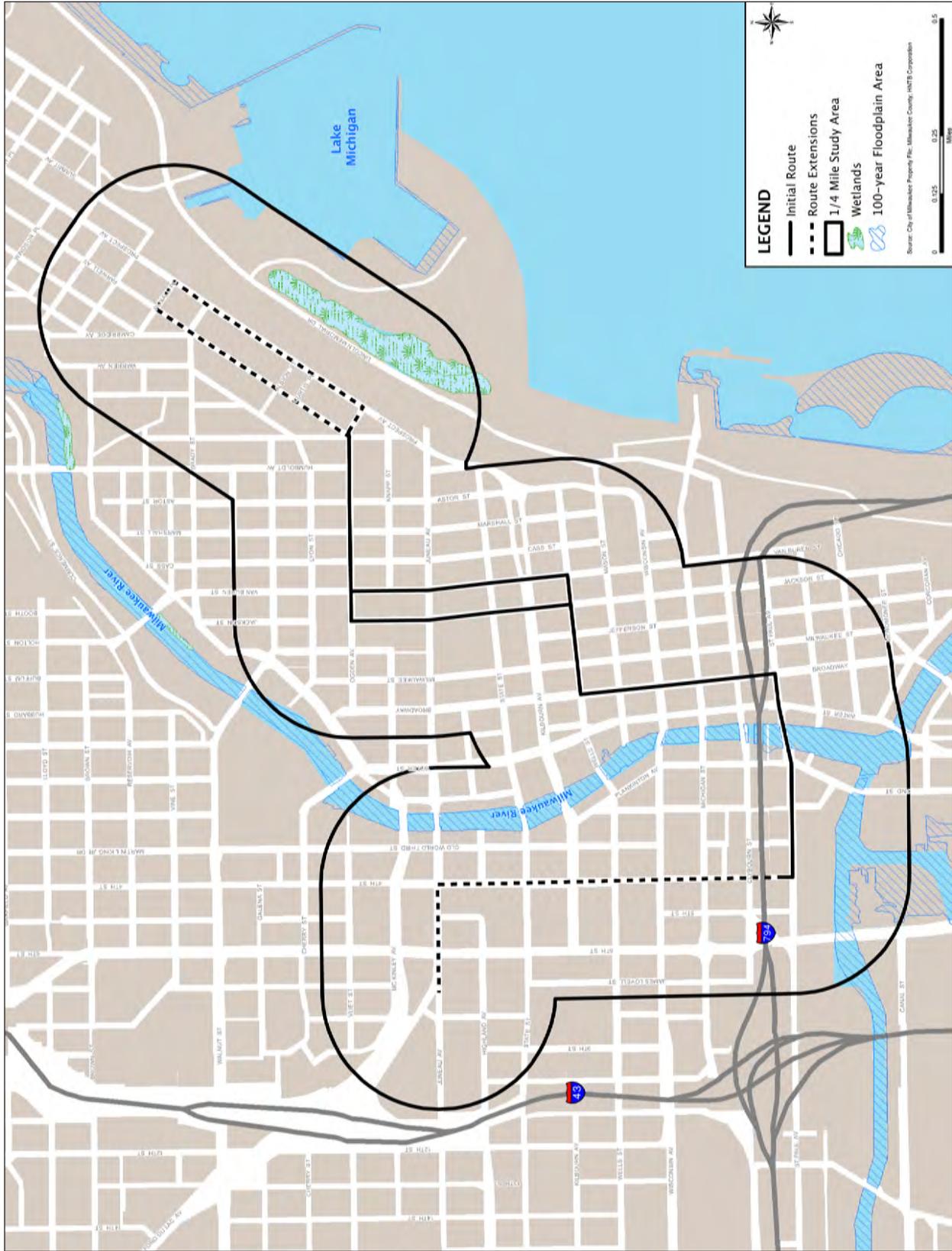
#### **Environmental Effects**

No construction will affect the wetlands or occur within a floodplain under both the No Action Alternative and the LPA. Therefore, no wetland or floodplain impacts are expected as a result of the streetcar project.

#### **Mitigation Measures**

The City of Milwaukee will use Best Management Practices during construction to make sure water resources are protected. See Section 5.2.5, Construction Impacts.

**Figure 41: Wetlands and Floodplains**



### **5.2.12 Biological Impacts**

The USFWS was consulted and determined that there are no federally listed threatened or endangered species within the project area. The Wisconsin Department of Natural Resources Natural Heritage Inventory of threatened and endangered species database was searched. Since 1975, state endangered Striped Shiner fish are present in the Milwaukee River and a Peregrine Falcon bird nest site is present on a building in the area. Neither of these species will be impacted by the No Action Alternative or by construction and operation of the Streetcar LPA. See correspondence with DNR and USFWS in Attachment G. This fully developed urban landscape does not support any protected plant communities that may provide habitat to protected species. As a result, no further action under the 1973 Endangered Species Act, as amended is needed.

### **5.2.13 Coastal Zone Management**

Through its Federal Consistency authority, the Wisconsin Coastal Zone Management Program (WCMP) reviews federally-affiliated projects that are likely to have impacts on coastal uses and resources within the coastal zone, which includes the fifteen counties adjacent to Lake Superior, Green Bay and Lake Michigan. The WCMP chose not to conduct a federal consistency review for this project, since no impacts are expected. See correspondence from the WCMP in Appendix G.

## **5.3 INDIRECT EFFECTS**

This section of the EA summarizes the indirect effects associated with the streetcar project. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (40 CFR § 1508.8)

### **5.3.1 Identification and Analysis of Indirect Effects**

This section identifies and analyzes indirect effects that may result from the construction and operation of a streetcar in the study area.

#### **Effects Related to Streetcar Infrastructure**

The No Action Alternative is not expected to have an indirect effect as a result of streetcar infrastructure.

While the Streetcar LPA's infrastructure will have some direct impacts as discussed in Section 5, no indirect effects are expected.

#### **Effects Related to Traffic Operation and Roadway Modification**

Project related effects to traffic flow and traffic operations would not occur under the No Action Alternative.

The potential for indirect effects related to traffic and roadway modifications is discussed in this section. The streetcar would add another mode of transportation to the street network, which could increase traffic congestion and affect traffic flow. It may also add some traffic delays at intersections where lanes are temporarily blocked when the streetcar stops or makes turns. This may indirectly cause roadway traffic to use other streets within the study area, which would add traffic on other streets. Although this could

happen, it is not likely to be significant because nearly all intersections would still operate with acceptable levels of service after the streetcar is in operation. In addition, delays as a result of the streetcar are minimized because the streetcar operates in a mixed traffic lane with other vehicles. Furthermore, the streetcar will only add one extra vehicle to the street about every 10 to 15 minutes.

### **Effects Related to Streetcar Service**

For the No Action Alternative, growth and development will continue to take place within the streetcar study area. However, it will be more difficult for the City to achieve their economic development and land use goals in accordance with their long range plans, which call for more compact and mixed development that is concentrated within the streetcar study area. The plans state a fixed-route transit circulator is needed to achieve this vision since land use and transportation are connected.

The streetcar operations that will improve mobility throughout the study area with a fixed route transit circulator are expected to cause growth inducing indirect effects. This section first reviews a range of factors to determine the likelihood growth inducing indirect effects would occur. Then, this section discusses the specific effects that are anticipated as a result of induced growth.

### **Likelihood of Effects**

The evaluation of growth inducing effects includes a range of factors in addition to the proposed transportation project. Other factors such as the availability of land, the availability of municipal services, local land use policies and regulations and market demand also play a large role in where and how much development could occur. If these factors are favorable to development, then there is a great likelihood that an increase in transportation mobility could encourage new development. If these factors are not favorable to development, then increased transportation mobility alone would not be enough to induce growth.

The study area is favorable to development. There is land available for redevelopment, municipal services are available and the City of Milwaukee's development policies and regulations are geared toward promoting new development. Also, past market trends show that this is a desirable place within the City for development and once the current national and local economic conditions improve, the study area is expected to see new investment.

### **Specific Growth Induced Effects**

The combination of increased mobility from the streetcar project and a favorable development environment as discussed in the Likelihood of Effects Section, above, are likely to cause growth induced effects within the study area. The growth inducing effects are generally considered positive as they will help the City of Milwaukee achieve their long range land use planning goals. These goals include facilitating new housing development, encouraging new commercial development, improving tourism and the entertainment industry, increasing economic development potential and increasing property values.

New development could also impact stormwater quality and quantity. However, this effect is not expected to be significant. Since the study area is already fully developed, new development is not likely to increase impervious areas. In cases where vacant land does exist, the City of Milwaukee's stormwater regulations would apply to any development that increases impervious surfaces by one-half acre or more. The City's stormwater regulations would also apply to redevelopment that disturbs an area larger than one acre.

Another effect often associated with new development in the study area is increased demand for on-street parking. This results when developments do not contain adequate off-street parking spaces for their tenants. This is often a concern for high density areas like the Lower East Side that already have a short supply of parking especially during the evening and nighttime hours when most residents are at home.

As noted in the City's Area Plans, the streetcar would improve connections between study area destinations which would help to reduce the need for automobiles and subsequently the need for parking. It would also increase access to parking facilities that are located beyond a property's walk zone.

This section evaluates the results of the indirect effects analysis and discusses any uncertainties associated with the results. Indirect effects, which occur later in time and are farther removed from the immediate project, come with some inherent uncertainty because future conditions can be difficult to predict. For example, the current downturn in the economy has substantially decreased the amount of new investment that has occurred in the study area over the past two years. While past trends show the study area is positioned to see continued new investment, it is difficult to say how long the current depressed economic conditions will influence local economic development potential.

Furthermore, streetcar transit is new to Milwaukee and Wisconsin. For that reason, it is difficult to predict how the local market will respond to improved transit mobility within the study area. Stakeholder briefings with local developers showed a mixture of options. Some developers were unfamiliar with streetcar and were uncertain about its benefits for development. Conversely, some developers and property owners felt the streetcar would encourage them to pursue new projects, especially historic rehabilitations that have been stalled due to a lack of parking.

### **5.3.2 Consequences and Mitigation Measures**

The growth inducing effects of the streetcar project are generally considered positive because they are consistent with the City of Milwaukee's Comprehensive Area Plans, which seek to increase housing and commercial development. The plans also recognize the need for improved transit connections to achieve their development goals. Specifically the Downtown Area Plan has identified the streetcar as a catalytic project that is needed to serve office workers, residents and visitors to downtown.

All new development will be required to follow the City of Milwaukee zoning and plan review processes to obtain permits through the City's Development Center. Also, the City Plan Commission adds an extra layer of review by approving developments in certain overlay zoning districts, approving zoning map changes and other aspects related to the development of the City.

The use of affordable housing tax credits and the preservation of existing public housing will continue to provide a range of housing options for residents in the study area and mitigate concerns related to rising property values.

Developments that may affect stormwater quality and quantity will also be managed by City regulations.

The City of Milwaukee's stormwater regulations will apply to any development that increases impervious surfaces by one-half acre or more. The City's stormwater regulations will also apply to redevelopment that disturbs an area larger than one acre.

Effects to on-street parking will be managed by the City's existing parking regulations. The majority of properties in the northeast side of the study area fall under residential zoning classifications (RM, RO and C9A) which are required to provide either one parking space per dwelling unit or two parking spaces per

three dwelling units depending on the classification. Properties within the downtown zoning districts are not required to provide on-site parking. However, residential parking is less of a concern in these areas.

## 5.4 CUMULATIVE EFFECTS

Cumulative effects as defined by the Council on Environmental Quality (CEQ) are “*the impacts on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR § 1508.7).*”

The cumulative effects analysis considers the communities and resources that could be affected directly or indirectly by the streetcar locally preferred alternative when combined with other actions that potentially affect the same resources.

### 5.4.1 Scoping

Scoping identifies cumulative effects issues, the geographic scope of the effects and the timeframe for the analysis.

#### Cumulative Effects Issues and Geographic Area of Potential Effect

The issues and/or resources of concern addressed in this section are based on the direct and indirect effects discussed earlier in this document. The geographic area of potential effect (APE) is the area where cumulative effects may occur. The APE for this cumulative effects analysis not only takes into consideration the streetcar project, but also the cumulative effects of other actions whose geographic boundaries are larger than the project study area (which is one quarter mile radius from the proposed streetcar route). Table 21 summarizes the APE for each resource.

**Table 21: Area of Potential Effect by Resource**

| <b>Resource</b>                   | <b>Area of Potential Effect</b>  |
|-----------------------------------|--|
| Land Use and Economic Development | Streetcar study area for land use and general downtown Milwaukee area for economic effects |
| Environmental Justice Populations | Streetcar study area   |
| Transit and Transportation        | Streetcar study area   |
| Parking                           | Streetcar study area   |
| Aesthetics                        | Land adjacent to the streetcar route   |
| Noise                             | Land adjacent to the streetcar route   |
| Temporary Construction Impacts    | Land adjacent to the streetcar route   |
| Hazardous Materials               | Streetcar study area   |
| Cultural Resources                | Area of potential effect for Section 106   |
| Utilities                         | Land adjacent to the streetcar route   |
| Energy                            | General metropolitan area  |
| Water Quality                     | Streetcar study area   |

#### Analysis Timeframe

The timeframe of the cumulative effects analysis assumed a maximum of 20 years, which is based on local plans and available demographic information that typically project 10 to 20 years in the future.

## 5.4.2 Identification of Past, Present and Reasonably Foreseeable Future Actions

The City of Milwaukee has seen extensive activity as the historic center of urban and economic development in the region and the state. The area of potential effect is a well-established urban area that is home to a stable population that has been increasing over the past 15 years. The area also supports numerous regional attractions and employment destinations. With the exception of the Park East redevelopment area, very little vacant land is available for new development and the City is focusing on redeveloping underutilized commercial areas and former industrial areas. The City's efforts as well as market demand are creating opportunities for new retail, office, and residential developments that could diversify and intensify land uses around the project corridor. See Sections 5.1.1, Land Use, 5.1.2, Economic Development, and 5.3, Indirect Effects for more information about land use and economic development trends and projections for the project study area.

Given the history of development around the project corridor and the existing demand for new development, there are many past (completed projects), present (currently on-going) and reasonably foreseeable future (planned) actions that may contribute to cumulative impacts within the area of potential effect for the various environmental resources identified in Table 22. This list of the more substantial actions that have occurred in the region, when considered together, may have cumulative effects on the environment.

Milwaukee's Downtown Plan (Approved in 2010) identifies eight catalytic projects, including the Milwaukee streetcar, aimed at increasing economic development and community value. These projects are viewed as significant investments and improvements and will help to further Downtown's overall development goals. These projects are mapped in Figure 42 and discussed below. Implementation of the catalytic projects is based on the economy and the City's ability to attract developers to build the projects. Past efforts by the City indicate that these projects are likely to be implemented. From the 1999 Downtown Plan, the City has actually implemented or assisted in the implementation of 10 out of 13 of the catalytic projects. It is likely the City will continue to provide resources for the implementation of catalytic projects.

**Table 22: Past, Present, and Future Actions**

| <b>Timeframe</b>  | <b>Action</b>   |
|---|---|
| Past  | Milwaukee Intermodal Station renovation   |
|   | Public Market development   |
|   | Removal of the Park East Freeway  |
|   | McKinley Avenue - Knapp Street Bridge   |
|   | Marquette interchange reconstruction  |
|   | Riverwalk implementation  |
|   | Park Once program   |
|   | Grand Avenue renovation   |
|   | Wisconsin Avenue streetscaping  |
|   | Sixth street viaduct reconstruction   |
|   | State Street Bridge reconstruction  |
|   | Historic Third Ward redevelopment   |
|   | Summerfest Grounds renovations  |
|   | Convention Center construction  |
|   | Milwaukee Theater renovation  |
|   | Past mixed use development in and around downtown   |
|   | Past office development in and around downtown  |
| Conversion of State Street from one-way to two-way                    |   |
| Conversion of Wells Street from one-way to two-way west of 6th Street |   |
| Present   | Juneau Avenue Bridge reconstruction   |
|   | Wisconsin Avenue Bridge reconstruction  |
|   | Mixed use development in and around downtown  |
|   | Riverwalk extensions  |
| Future  | A series of catalytic projects proposed in the Downtown Area Plan and the Third Ward Plan: Broadway Connection, Wisconsin Avenue Strategy, Station Plaza, Pere Marquette Square, Lakefront Gateway, Haymarket Square, Kilbourn Extension to MacArthur Square; Italian Village, Market Street reconfiguration. |
|   | St. Paul Bridge reconstruction  |
|   | Park East development   |
|   | Redevelopment of the Pabst Brewery Complex  |

**Figure 42: Map of Milwaukee's Catalytic Projects**



### **5.4.3 Environmental Consequences**

This section describes the potential cumulative effects associated with the streetcar project and their consequences. The No Action Alternative would not contribute to any potentially negative cumulative effects within the study area and it also would not provide any positive cumulative effects.

#### **Land use**

The combined effects of potential induced growth due to the streetcar project as discussed in Section 5.3.5, Indirect Effects, and other past, present and future actions as listed in Table 22 would create a cumulative land use effect within the study area. The cumulative effect would further focus development along the transit route and is likely to encourage higher density and mixed use development along the route. The cumulative effect may also accelerate the pace of development within the area of potential effect and along the route.

The cumulative effect would support planned land use and development goals established by the City's Downtown, Third Ward and Northeast Side area plans. As the indirect effects analysis shows, new development would have positive effects and any potential negative effects would be managed through the City's existing planning and permitting authority for land use and zoning as discussed in Section 5.3.7.

#### **Economic**

Cumulative economic effects are likely as a result of the past, present and future actions that have occurred in the area (Table 22) along with the direct and indirect economic effects associated with the streetcar project. Construction and operation of the streetcar creates about 1,115 direct and indirect jobs, which cumulatively contribute to the employment base in the project study area. Economic benefits would also be expected from development and redevelopment potentially induced along the streetcar routes. Anticipated land use change is supported by the City's local land use plans, zoning and other development policies including their use of TIDs and BIDs. Specifically, the Downtown Area Plan calls for increased development density and intensity, which the streetcar project would support. The Northeast Side Area Plan supports transit development as an economic development tool.

The City of Milwaukee would fund, operate and maintain the service. The City would procure capital, operating and maintenance funds from both federal and local sources. No funds from existing revenues are intended to be used to build and operate the service and no substantial cumulative effect on financing is expected. Appendix I, Estimated Project Costs, provides additional information about funding.

#### **Environmental Justice**

The streetcar project along with existing transit services in the area of potential effect would have a positive cumulative effect on environmental justice populations in the area of potential effect. See Section 5.1.3 for more information about environmental justice populations. The streetcar is expected to increase mobility and quality of life for those who depend on transit including the elderly and disabled. The streetcar service would increase access to recreation, employment and goods and services within the area of potential effect.

## **Transit**

The streetcar would provide a new transit service to the project study area. This would cumulatively benefit transit services within the project study area by creating a frequent and convenient connection to the intercity rail and bus services at the Milwaukee Intermodal Station. Additional efficiency could be realized if MCTS bus routes are modified to coordinate with streetcar stops and schedules at some point in the future.

## **Vehicular Traffic**

Section 5.2.4 describes the existing transportation conditions within the project study area and the direct effects that would occur as a result of the streetcar project. The streetcar project would add some traffic delays at intersections where lanes are temporarily blocked when the streetcar stops or makes turns. This would contribute to a cumulative effect on traffic operations in the area of potential effect when considered with projected increases in traffic as a result of other past, present and future actions. However, intersections will continue to operate at acceptable levels of service and the streetcar will not have a substantial cumulative effect on traffic operations. Also, delays as a result of the streetcar are minimized because the streetcar operates in a mixed traffic lane with other vehicles.

## **Parking**

Historic development patterns did not adequately account for parking needs in the densest areas of the on the northeast side of the project study area. These neighborhoods experience parking shortages, particularly in the evening and nighttime hours when residents are at home and during winter months when snow emergencies are in place. Additional parking removed for the streetcar service could have a negative cumulative effect in areas already experiencing parking shortages. However, this effect is not expected to be substantial because only a very small portion, 1.4% of the total on-street parking spaces in the project study area would be impacted. The streetcar service could mitigate the effect to some degree by reducing the need to own a vehicle and providing convenient access to parking facilities in other locations of the project study area. In addition, the streetcar system is designed to operate in an existing travel lane with other vehicles which preserves the greatest amount of parking spaces. See Section 5.2.4 for more information about parking.

## **Biking**

The existing bicycle facilities and the direct effects associated with the streetcar project are discussed in Section 5.1.7 and 5.2.4. Overall, the streetcar project is expected to have a positive cumulative effect on bicycling by maintaining the existing bike network and adding a new planned on-street bike route along Wells Street. However, the streetcar tracks, which could trap bicycle wheels, could create a cumulative safety effect for bicyclists by adding a new potential hazard for bicyclists traveling in the roadway with other vehicles. This effect will be mitigated with signage that alerts bicyclists (Figure 30) and the use of transition zones at intersections (Figure 31) that show bicyclists how to cross the tracks at 90 degrees and outreach to educate bicyclists about the potential hazard.

## **Aesthetics**

Streetcar infrastructure, including the electric system and streetcar stops would alter existing views as discussed in Section 5.1.5, Aesthetics. Minimal cumulative negative effects are expected as the streetcar routes are heavily used transportation corridors in a dense urban setting dominated by buildings, sidewalks, light poles and bus shelters. The materials used for streetcar are designed to be visually consistent with existing street views and architecture.

## **Noise**

Direct impacts are anticipated, but no substantial cumulative effect is expected in an existing urban setting with existing noise from daily activities. Mitigation will help reduce any effects. See Section 5.2.2 for more information about noise.

## **Construction**

Construction is expected to occur in short segments, or reaches, along streets to avoid long term disruption to local access. Concurrent or consecutive construction projects in or near streetcar construction projects could cumulatively impact access to local streets. This effect can be avoided and minimized by coordinating construction schedules through the City's capital improvement planning process. See Section 5.2.5 for more information about construction.

## **Hazardous Materials**

As discussed in Section 5.2.3, hazardous materials are expected to be found on the maintenance facility site. This along with other actions related to the development of property could cumulatively increase the potential for hazardous materials to be released into the environment. However, this effect would be minimized because existing local, state and federal laws would manage the disturbance, removal and disposal of hazardous materials. Also, induced development as discussed in Section 5.3.5 could disturb additional lands within the area of potential effect. This cumulative effect could benefit the area of potential effect as development sites would require some level of clean-up, which would improve the environment in the area of potential effect. However, the presence of hazardous materials could cause delays in development projects because hazardous waste would need to be remediated.

## **Utilities**

Streetcar construction causes short term impacts during utility relocation. A potential cumulative effect could occur if construction is concurrent or in close succession with other construction projects that cause service disruptions or inefficiencies with relocations. Ongoing utility coordination can avoid and minimize this impact. See Section 5.2.6 for more information about utilities.

## **Energy**

New streetcar service will require additional energy for construction and operations. A cumulative effect could be expected with the indirect effect of induced development activities in the area requiring greater energy demand. Some cumulative benefit may result from decreased energy consumption by diverting trips from individual vehicles to the streetcar. See Section 5.2.7, Energy Use, for more information.

## **Water Quality**

The streetcar project and any other induced development activities may cumulatively affect stormwater runoff, either through temporary construction activities or increased runoff from development. The City's ordinance requirement to reduce peak stormwater flow rates from the project areas by 10% minimizes this potential effect. See Section 5.2.10, Water Quality/Resources for more information.

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## 6. SUMMARY OF PUBLIC OUTREACH EFFORTS

This section summarizes the public outreach efforts that have been conducted for the streetcar project, the comments that have been received and future outreach activities that are anticipated.

### 6.1 OUTREACH EFFORTS

This section summarizes the public participation activities that have been completed for the streetcar. It includes outreach conducted during the scoping phase of the Milwaukee Connector project that began in February 2009 to review route alternatives for a downtown streetcar and route alternatives for bus rapid transit options. It also includes the more recent outreach efforts conducted for the Milwaukee Streetcar phase that began in October 2009.

Public participation is an early and continuing part of the project development process. The City depends on the public's participation to identify the community's values and the purpose and need of the project. Participation by the public helped the City select the locally preferred alternative. Information gathered from the public is necessary to help the City avoid, minimize, and mitigate impacts.

#### 6.1.1 Outreach for the Milwaukee Connector Study Scoping Phase

During the Milwaukee Connector Study project scoping phase that started in February 2009, briefings were held with local communities and a public scoping meeting was conducted. These are summarized below.

##### Community Briefings

Project briefings were held with the communities of Franklin, Glendale, Greenfield, Oak Creek, Shorewood, St. Francis, and Wauwatosa prior to the public scoping meetings.

##### **Meeting Intent**

The intent of the meetings was to introduce the communities to the project and to obtain their initial feedback about the project's proposed bus rapid transit routes. During this time meetings with the City of Milwaukee were also taking place to define the study area for the streetcar.

##### **Meeting Outcome**

All communities indicated interest in being part of the Milwaukee Connector study and learning more about the project.

##### Public Scoping Meetings

A series of scoping meetings were held with the public for this phase of the Milwaukee Connector Study. Six meetings as shown on Table 23 were held over a two week period from February 3 through February 12, 2009.

##### **Meeting Intent**

The intent of public meetings was to introduce the public to the scoping phase of the Milwaukee Connector Study and to obtain comments on the project goals, study area, preliminary route corridors and project technologies.

**Table 23: Milwaukee Connector Public Scoping Meetings**

| <b>Location</b>                     | <b>Date</b>       | <b>Number of people who signed in at meeting</b> |
|-------------------------------------|-------------------|--|
| Wisconsin Room - UW-Milwaukee       | February 3, 2009  | 98   |
| Fritsche Middle School              | February 4, 2009  | 43   |
| Black Historical Society            | February 5, 2009  | 14   |
| Northwestern Mutual Franklin Campus | February 10, 2009 | 50   |
| Milwaukee County Research Park      | February 11, 2009 | 53   |
| Milwaukee Downtown Transit Center   | February 12, 2009 | 87   |
| <b>All locations</b>                | <b>Total</b>      | <b>345</b>                                       |

The meetings were conducted in an open house format with staff available to provide information and answer questions. An automated presentation was placed on a continuous loop for participants to view and five stations were set up to display information about the project. Participants were also given a meeting handout that included project information and attendees were given the opportunity to participate in a routing exercise, which allowed participants to indicate on a map where they would take bus rapid transit or streetcar.

Public notifications for the meetings were extensive. Methods included:

- § Placing paid ads in print and online English and Spanish newspapers
- § Placing an ad in the “Rider Insider”, a MCTS publication
- § Displaying the meeting notice on the monitors that run on buses
- § Distributing hard copy notices throughout the Milwaukee Public Library System
- § Posting notices on several online and television event calendars
- § Posting the meeting locations on the Milwaukee Connector Web site
- § Sending a news release to Milwaukee-area print, radio, television and online media outlets

### **Meeting Outcome**

Over 200 comments were collected at the meetings and from the project website. Numerous comments provided general support for the study and highlighted how various alternatives would benefit downtown Milwaukee, as well as various attractions in Milwaukee. A few comments were opposed to the concept of the study and other comments discussed the need to expand the study to provide connections to jobs in the suburbs. Comments were also made about transit technologies. A considerable number of comments stated they support light rail transit instead of rubber tire bus technology. People offered numerous comments regarding specific origins and destinations that they would like to see served by a transit connector service. In addition, some comments discussed the study area and most often requested that parts of the Menomonee Valley be added to the study area and that the study be expanded to include transit service to the suburbs to provide access to suburban job centers.

### **6.1.2 Outreach for the Milwaukee Streetcar Project Phases**

This section discusses outreach that has occurred specifically for the Milwaukee streetcar project phase that began in October 2009.

## **Public Information Meeting**

A public information meeting was held on October 8, 2009, for the Milwaukee streetcar project phase that began in October 2009.

### **Meeting Intent**

The intent of the meeting was to obtain public feedback on the proposed streetcar routes. See Section 3 for a description of the routes that were presented at the meeting. Approximately 200 people attended the meeting.

A presentation was made and staff was available to respond to questions and address concerns. The meeting site was accessible and interpreters were available upon request. A variety of outreach methods were used to advertise the meeting to individuals and organizations.

Specific invitations were sent to local elected officials; representatives from engineering firms, housing organizations, transit groups; business associations such as chambers of commerce and business improvement districts; major transit users impacted by the proposed routes including employers, retailers, entertainment venues, schools, health care facilities; and other local organizations that represent transit-dependent populations in the study area.

Postcard notices were mailed and emails notices were sent to an extensive database of property owners and interested individuals, businesses and groups. Several stakeholder organizations also agreed to forward notices to their membership.

Paid ads were placed in seven local and statewide English and Spanish newspapers. Ads were also placed online with links to the study Web site. A news release was issued to Milwaukee area print, radio, TV and online media outlets. The meeting was also posted on several online event calendars. Posters and flyers were displayed in a number of public places in prominent places. Flyers were handed out at bus stops and at the public market.

The project Web site was updated with all of the meeting displays and the PowerPoint presentation to allow visitors to the site to attend a virtual public information meeting. Comment forms were also available online.

Meetings were held with reporters and several articles have been written about the project including several during the public comment period. Electronic media kits which included a news release, photos, video clips and project maps were available for reporters at the public meeting. The meeting was covered by three major local television stations.

### **Meeting Outcome**

Comments related to the October 8, 2009 public meeting were accepted at the meeting and taken online and via mail through October 22, 2009. In total, 129 comments were received and are shown in Appendix B. The majority of the comments expressed support for the project and discussed the need for an improved transit system in Milwaukee to enhance connections, improve quality of life for residents and encourage economic development. A few commenters stated they were opposed to the project primarily because they felt buses would provide more flexibility on routes and would be less costly.

Many commenters did not specifically discuss which route alternative they preferred. However, several comments stated they preferred Alternative 1 because it connected the most destinations and activities within the study area. Some comments also expressed support for Alternative 2 because of the

connections that this alternative made. Alternative 3 obtained the least support because participants felt it did not serve downtown's central business district and the Third Ward neighborhood even though it provided a better link to the cultural and entertainment areas along 4<sup>th</sup> Street.

### **Stakeholder Briefings**

A series of briefings with stakeholders who are located in the streetcar study area or are interested in the streetcar because of environmental justice and/or constituent interests were conducted. Briefings included elected officials (Milwaukee Aldermen, Mayor Tom Barrett, Milwaukee County Supervisors, Congresswoman Gwen Moore's office); Business Improvement Districts (Brady Street, Historic Third Ward, East Town, Westown, and downtown); Wisconsin Center District; Visit Milwaukee; Public Policy Forum; Milwaukee Urban League; Independence First; Metropolitan Milwaukee Association of Commerce; WE Energies; the Wisconsin Department of Transportation; and the American Civil Liberties Union. An invitation was also extended to the Greater Milwaukee Committee.

### **Meeting Intent**

These stakeholder briefings were held to obtain feedback on the project and its route alternatives from key stakeholders in the study area. The meetings were held prior to the October 8, 2009 public meeting to obtain key stakeholder input prior to releasing the route alternatives to the general public and to encourage attendance at the public information meeting.

### **Meeting Outcome**

The stakeholders that were briefed were overall supportive of the project. Stakeholders discussed the pros and cons of the alternatives. The connections that were made by Alternative 1 were seen as positive. Alternative 2 also connected many common destinations, but some stakeholders mentioned that it serves downtown's central business district better. Some stakeholders were concerned that Alternative 3 did not adequately service the central business district of downtown and the Third Ward. Stakeholders that represent the 4<sup>th</sup> Street area supported Alternative 3, but understood that this Alternative may not be the best starter option. Other stakeholders wanted to make sure environmental justice populations would be informed about the project and recommended that specific efforts should be made to inform the African American community as the project proceeds. Other stakeholders were concerned about how the project would affect people in wheelchairs and other stakeholders inquired if there would be local hiring requirements for the project's construction.

### **Steering Committee Meeting**

A Milwaukee Connector Steering Committee meeting was held on May 6, 2010.

### **Meeting Intent**

The intent of the meeting was to discuss the alternatives analysis that took place between October 2009 and May 2010 and to vote on the locally preferred alternative (LPA).

### **Meeting Outcome**

At the meeting, the steering committee members voted and recommended a LPA. See Section 3 for a description of the LPA.

### **Agency Scoping Meeting**

An Agency Scoping Meeting was held on August 19, 2010.

### **Meeting Intent**

The intent of the meeting was to discuss the scope of the Environmental Assessment for the Milwaukee Streetcar project with relevant agencies. The meeting included representatives from the City of Milwaukee, Southeastern Wisconsin Regional Planning Commission, Wisconsin Department of Natural Resources, U.S. Environmental Protection Agency and Wisconsin Historical Society.

### **Meeting Outcome**

The agencies brought up topics that should be addressed in the environmental assessment including noise and vibration, historic resources, indirect land use changes, stormwater, the streetcar's power system and other topics.

### **Outreach to Environmental Justice Populations**

Environmental justice has been a focus of outreach activities since the Milwaukee Connector Study started in 2000 and has continued through the more recent Milwaukee Streetcar project phases.

### **Meeting Intent**

The purpose of environmental justice outreach is to include input from environmental justice populations to make sure the project does not adversely affect these populations. Environmental justice outreach opportunities for the Milwaukee Streetcar project phase have included invitations to the October 8, 2009 public information meeting. In addition, individual meetings have been held with environmental justice organizations and individuals from the project's data base and/or recommended by the local American Civil Liberties Union. Organizational representatives with whom City staff and consulting team members met with include the American Civil Liberties Union, the Urban Economic Development Association, The Milwaukee Urban League, Independence First, Esperanza Unida, 9 to 5, Citizen Action/Good Jobs and Livable Neighborhoods, SEIU Local 1, and the NAACP. Additional information about environmental justice populations can be found in Section 5.1.3.

### **Meeting Outcome**

Meetings with environmental justice organizations have generally produced expressions of support for the streetcar proposal, and offers from the organizations to publicly express their support. Organizations that represent environmental justice populations have indicated that they understand the need to start small and start downtown. Many also expressed interest in future expansion to provide additional service to low income and minority neighborhoods and populations; local hiring requirements; job opportunities for low income and minority neighborhood residents in streetcar construction and operations; the cost to ride the streetcar; incentives and support for local business development; and accessibility for people with disabilities.

## **6.2 ANTICIPATED FUTURE PUBLIC OUTREACH**

During the final design and construction phases of the project, the City of Milwaukee will conduct additional public involvement activities, which may include:

- § Periodic updates sent to the project's mailing list and to property and business owners in the vicinity of the project's alignment;
- § Meetings with citizen, neighborhood, environmental justice and business groups to discuss and receive comment on current or future design options;
- § Updates to the project website;

- § Coordination with neighborhood property owners, residents and businesses during construction activities;
- § Media releases, as appropriate.

## 7. LIST OF REFERENCES

This is a list of technical references used in describing key elements of the affected environment and those used in the impact analyses.

Copies of these referenced materials will be available for review at:

Milwaukee Department of City Development  
809 Broadway, 1<sup>st</sup> Floor  
Milwaukee, WI 53202

*2009-2010 Downtown Milwaukee Economic Report*. Milwaukee Downtown Business Improvement District #21, 2010.

*Architecture History Survey Worksheet A – Milwaukee Downtown Connector*; SHPO # 10-0983. February 2011.

*Assessment of Conformity of the Year 2035 Regional Transportation Plan and the Year 2009-2012 Transportation Improvement Program with Respect to the State of Wisconsin Air Quality Implementation Plan – Six County Southeastern Wisconsin Ozone Nonattainment Area and Three County Fine Particulate (PM<sub>2.5</sub>) Nonattainment Area*. SEWRPC Memorandum Report No. 196.

*Downtown, A Plan for the Area*. City of Milwaukee Department of City Development. October 2010.

*Historic Preservation Technical Report and Recommendation of Section 106 Finding*. Prepared for FTA by HNTB Corporation. July 2011.

<http://city.milwaukee.gov/mpw/supportforbusiness/>

*Job Impacts of Spending on Public Transportation: An Update*. Prepared for the American Public Transportation Association. Economic Development Research Group, Inc., April 2009.

*MCTS 2007 Annual Report*. Milwaukee County Transit System.

*Milwaukee Downtown Market Analysis, 2007*. Milwaukee Downtown Business Improvement District #21, University of Wisconsin-Extension Center for Community and Economic Development, and University of Wisconsin-Extension Milwaukee County.

*Milwaukee Comprehensive Plan. The Third Ward, A Plan for the Neighborhood*. May 20, 2005.

*Milwaukee Connector Streetcar Project Phase 1 Hazardous Materials Assessment Report*. HNTB Corporation. February 8, 2011.

*Milwaukee Connector Study Locally Preferred Alternative for Streetcar Summary Report*. City of Milwaukee. May 3, 2010.

*Milwaukee Streetcar Noise and Vibration Study Report*. HNTB Corporation. May 2011.

*Milwaukee Streetcar Traffic Operations* technical memorandum from HNTB Corporation to City of Milwaukee. January 5, 2011.

*Plan of Proposed Infrastructure, Milwaukee Streetcar Phase 1, 4<sup>th</sup> St. to Ogden Ave. City Project Number WK52362008. (30% Plans) HNTB Corporation. April 29, 2011.*

*Plan of Proposed Infrastructure, Milwaukee Streetcar Phase 2, Juneau Ave. to W. St. Paul Ave. and Ogden-Prospect-Farwell Loop City Project Number WK52362008. (30% Plans) HNTB Corporation. April 29, 2011.*

*Superconducting Super Collider Environmental Ground Vibration Study. James T. Nelson, P.E., Wilson, Ihrig & Associates, Oakland, CA, January 1987, Figure C1-C7.*

*TID Capacity Analysis for Milwaukee Streetcar Project. S.B. Friedman & Company. November 2010.*

*Transit Noise and Vibration Impact Assessment. Prepared by Harris Miller Miller & Hanson, Inc. Federal Transit Administration, FTA-VA-90-1003-06. May 2006.*

Wisconsin Department of Natural Resources. [dnr.wi.gov/water](http://dnr.wi.gov/water). Accessed online December 2010.

## 8. LIST OF PREPARERS

The City of Milwaukee and other participants in the environmental assessment study and their experience is listed here.

**Table 24: List of Preparers**

| <b>Name</b>                | <b>Organization</b>            | <b>Tasks</b>   |
|----------------------------|--------------------------------|--|
| Jeffrey Polenske, PE       | City of Milwaukee              | Project Director   |
| David Windsor, PE          | City of Milwaukee              | Project Manager  |
| Daniel Casanova            | City of Milwaukee              | Land Use and Development   |
| Gregory Patin              | City of Milwaukee              | Land Use and Development   |
| Mark Kaminski              | HNTB Corporation               | Consultant Project Manager   |
| Ashley Booth               | HNTB Corporation               | Deputy Consultant Project Manager  |
| Carolyn Seboe, AICP        | HNTB Corporation               | Purpose and Need Statement, Alternatives Analysis, Indirect Effects Analysis |
| Caron Kloser, AICP         | HNTB Corporation               | Cumulative Effects Analysis  |
| Matt Spiel                 | HNTB Corporation               | Impacts Analysis and Documentation, Data Collection                          |
| Connie White, AICP         | HNTB Corporation               | Impacts Analysis and Documentation, Data Collection                          |
| Dan Pelczar, CPG, PG       | HNTB Corporation               | Hazardous Materials Impact Analysis and Documentation                        |
| Mike Zabel                 | HNTB Corporation               | GIS, Data Collection   |
| Jennifer Rybarczyk, GISP   | HNTB Corporation               | GIS, Data Collection   |
| John Jaeckel, PE           | HNTB Corporation               | Air and Noise Studies and Documentation                                      |
| Kevin Cornell, PE, RLS     | HNTB Corporation               | Utility Impacts  |
| Bernard Greig, PE, LEED AP | HNTB Corporation               | Energy Impacts   |
| John Vogel                 | Heritage Resources Ltd.        | Historical Surveys   |
| Mike McQuillen             | Heritage Resources Ltd.        | Historical Determinations of Eligibility                                     |
| Brian Faltinson            | Heritage Resources Ltd.        | Historical Surveys   |
| Andréa E. Martin           | Federal Transit Administration | Environmental Protection Specialist, Document Review                         |
| R. Stewart McKenzie, AICP  | Federal Transit Administration | Community Planner, Document Review   |
| Lois Kimmelman             | Federal Transit Administration | Environmental Protection Specialist, Document Review                         |
| Katie Grasty               | Federal Transit Administration | Environmental Protection Specialist Document Review                          |
| Christopher Bertch, AICP   | Federal Transit Administration | Community Planner, Document Review   |

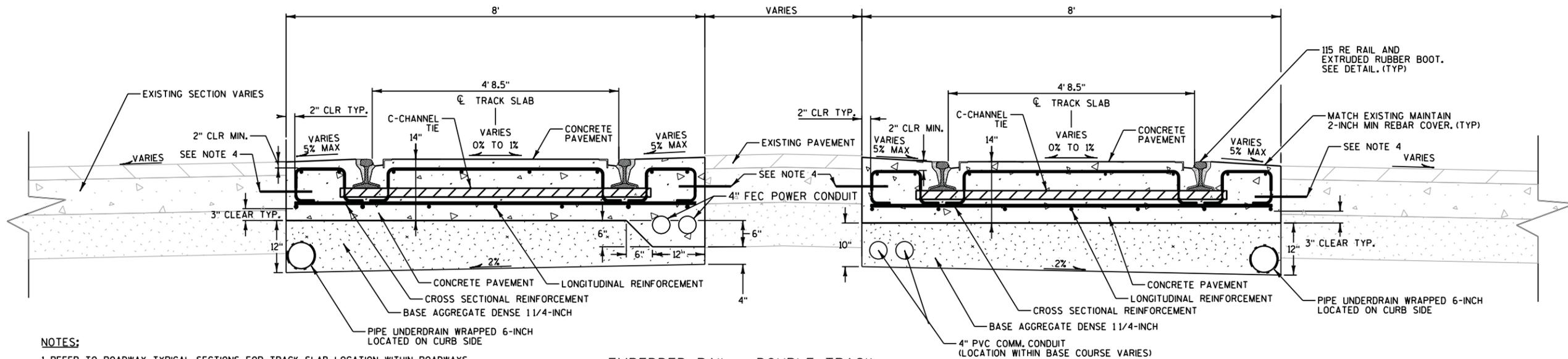
**APPENDIX A**

PHASE 1 AND 2 TRACK DETAILS – PROPOSED TRACK (TYPICAL SECTIONS)

PLATFORM DETAILS

PLATFORM SECTION & SHELTER PLANS & ELEVATION



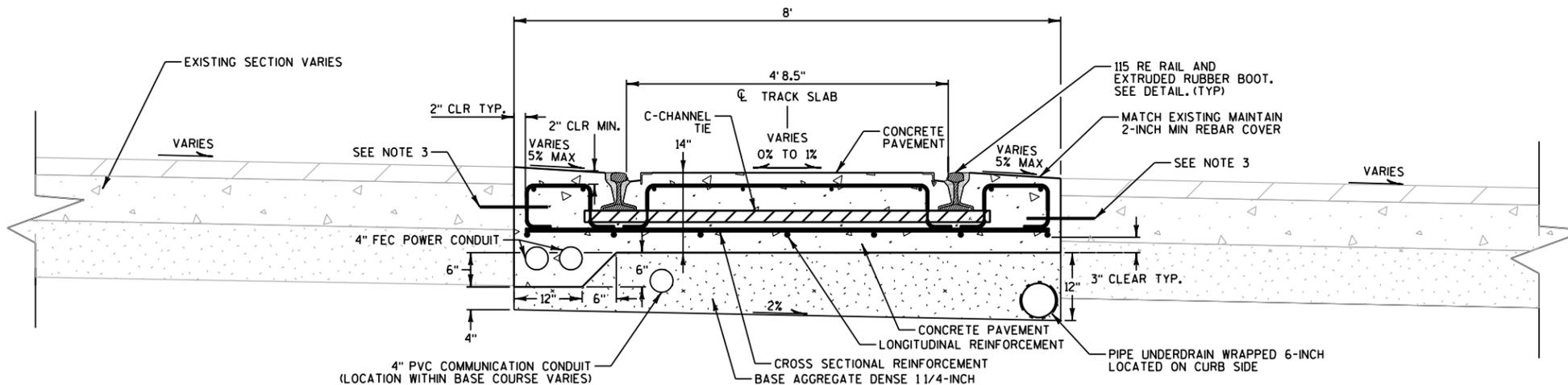


**NOTES:**

1. REFER TO ROADWAY TYPICAL SECTIONS FOR TRACK SLAB LOCATION WITHIN ROADWAYS AND ROADWAY PAVEMENT TREATMENTS.
2. C-CHANNEL TIES TO BE SPACED AT 12' O.C.
3. LOCATION OF 4" FEC POWER CONDUIT AND 4" PVC COMMUNICATION CONDUIT CAN BE LOCATED IN EITHER TRACK BED. SEE CONDUIT LAYOUT PLAN.
4. WHERE EXISTING CONCRETE ABUTS PROPOSED TRACK SLAB, USE DRILLED TIE BARS SPACED AT 24" O.C. CENTERED VERTICALLY IN EXISTING CONCRETE SECTION.

**EMBEDDED RAIL - DOUBLE TRACK**

W. ST. PAUL AVE. - N. 2ND ST. TO MILWAUKEE RIVER  
 E. ST. PAUL AVE. - MILWAUKEE RIVER TO N. WATER ST.  
 N. BROADWAY - E. CLYBOURN ST. TO E. WELLS ST.  
 E. WELLS ST. - N. BROADWAY TO N. JACKSON ST.

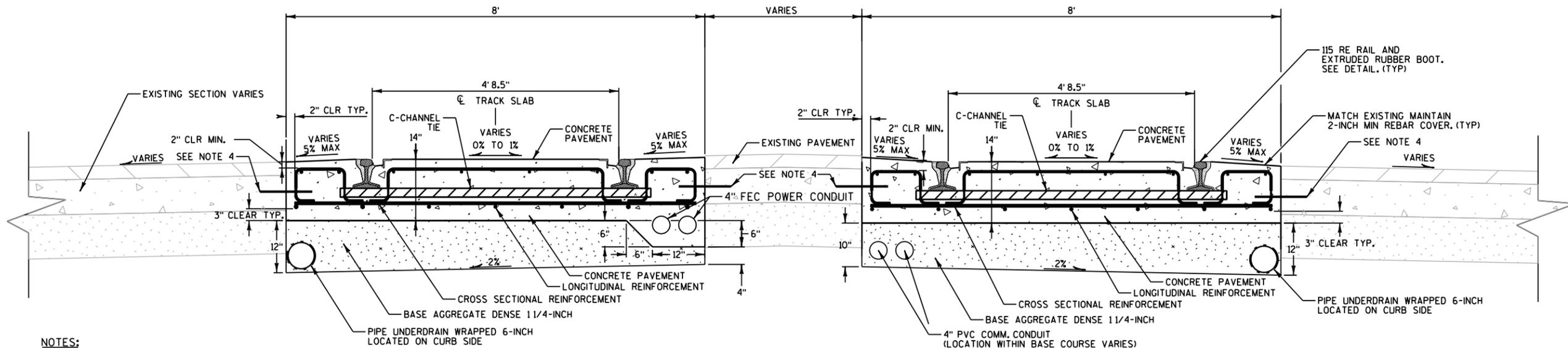


**NOTES:**

1. REFER TO ROADWAY TYPICAL SECTIONS FOR TRACK SLAB LOCATION WITHIN ROADWAYS AND ROADWAY PAVEMENT TREATMENTS.
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3. WHERE EXISTING CONCRETE ABUTS PROPOSED TRACK SLAB, USE DRILLED TIE BARS SPACED AT 24" O.C. CENTERED VERTICALLY IN EXISTING CONCRETE SECTION.

**EMBEDDED RAIL - SINGLE TRACK**

N. 4TH ST. - MAINTENANCE FACILITY TO W. ST. PAUL AVE.  
 W. ST. PAUL AVE. - N. 4TH ST. TO N. 2ND ST.  
 E. WELLS ST. - N. JACKSON ST. TO N. VAN BUREN ST.  
 N. VAN BUREN ST. - E. WELLS ST. TO E. OGDEN AVE.  
 E. OGDEN AVE. - N. VAN BUREN ST. TO N. JACKSON ST.  
 N. JACKSON ST. - E. OGDEN AVE. TO E. WELLS ST.

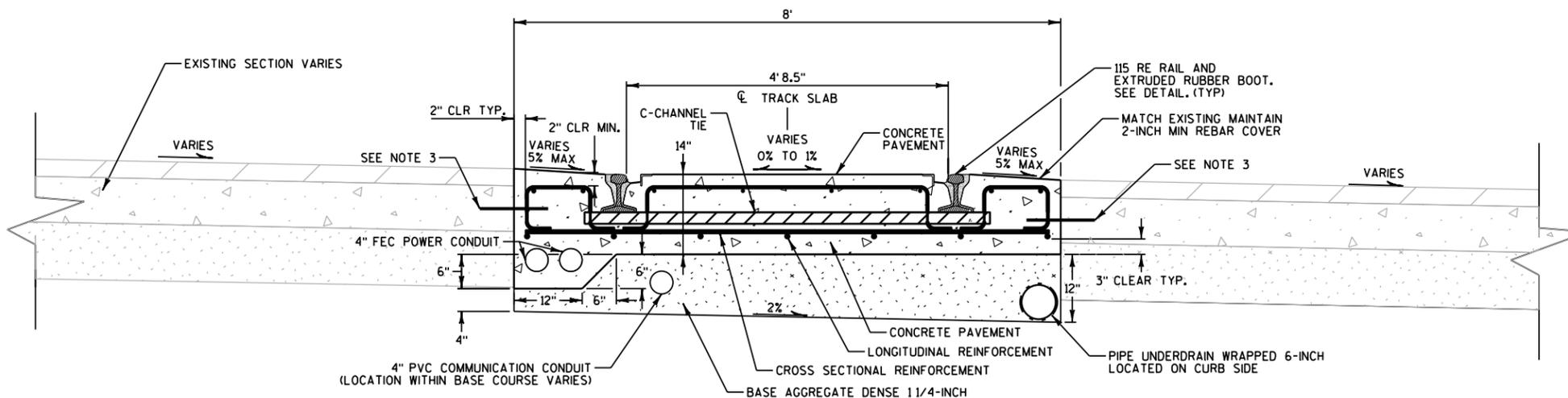


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3. LOCATION OF 4" FEC POWER CONDUIT AND 4" PVC COMMUNICATION CONDUIT CAN BE LOCATED IN EITHER TRACK BED. SEE CONDUIT LAYOUT PLAN.
4. WHERE EXISTING CONCRETE ABUTS PROPOSED TRACK SLAB, USE DRILLED TIE BARS SPACED AT 24" O.C. CENTERED VERTICALLY IN EXISTING CONCRETE SECTION.

**EMBEDDED RAIL - DOUBLE TRACK**

W. JUNEAU AVE. - N. 6TH ST. TO N. 4TH ST.  
 N. 4TH ST. - W. JUNEAU AVE. TO W. WELLS ST.  
 N. 4TH ST. - W. CLYBOURN ST. TO EXISTING PHASE 1

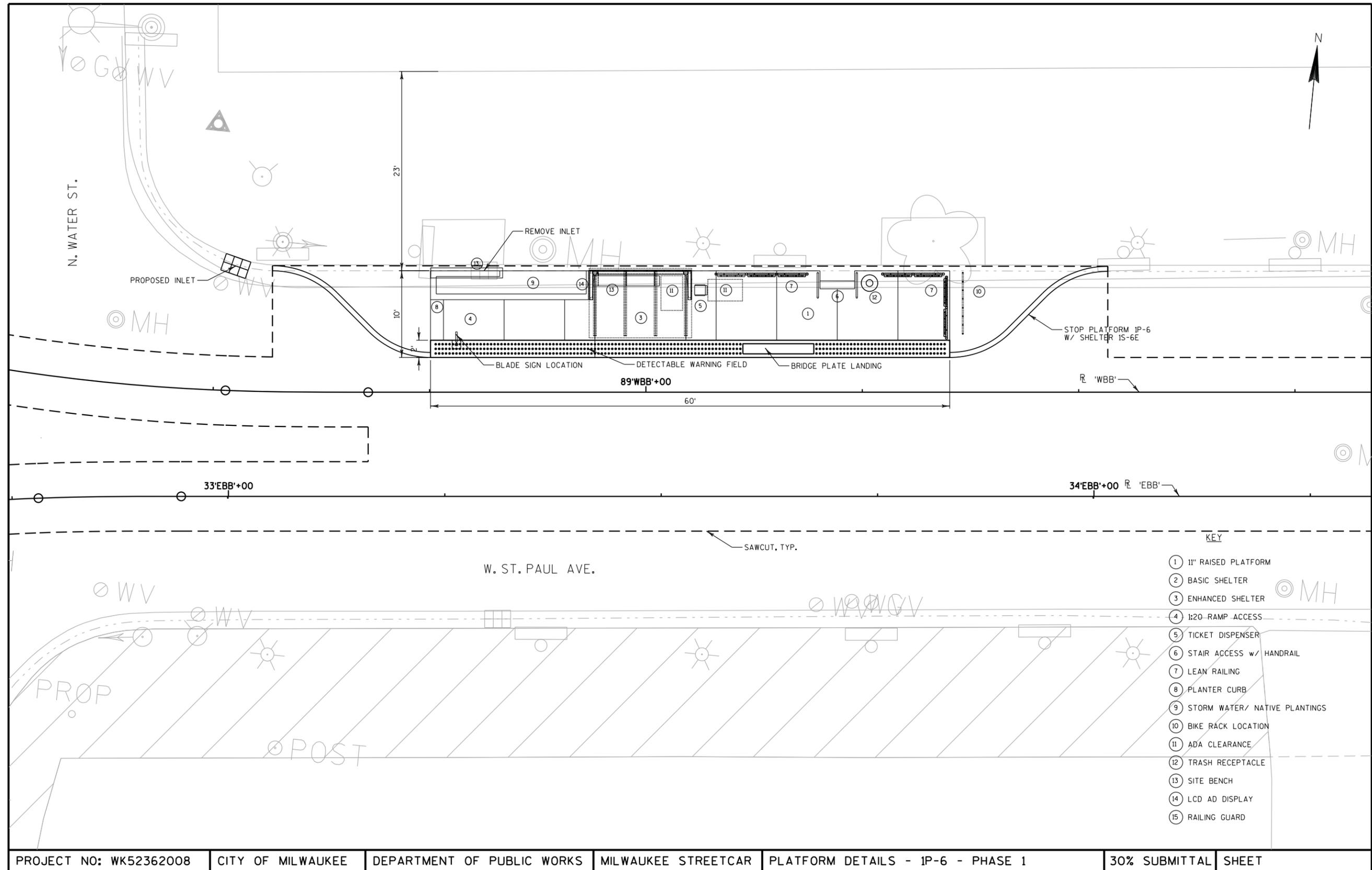


**NOTES:**

1. REFER TO ROADWAY TYPICAL SECTIONS FOR TRACK SLAB LOCATION WITHIN ROADWAYS AND ROADWAY PAVEMENT TREATMENTS.
2. C-CHANNEL TIES TO BE SPACED AT 12' O.C.
3. WHERE EXISTING CONCRETE ABUTS PROPOSED TRACK SLAB, USE DRILLED TIE BARS SPACED AT 24" O.C. CENTERED VERTICALLY IN EXISTING CONCRETE SECTION.

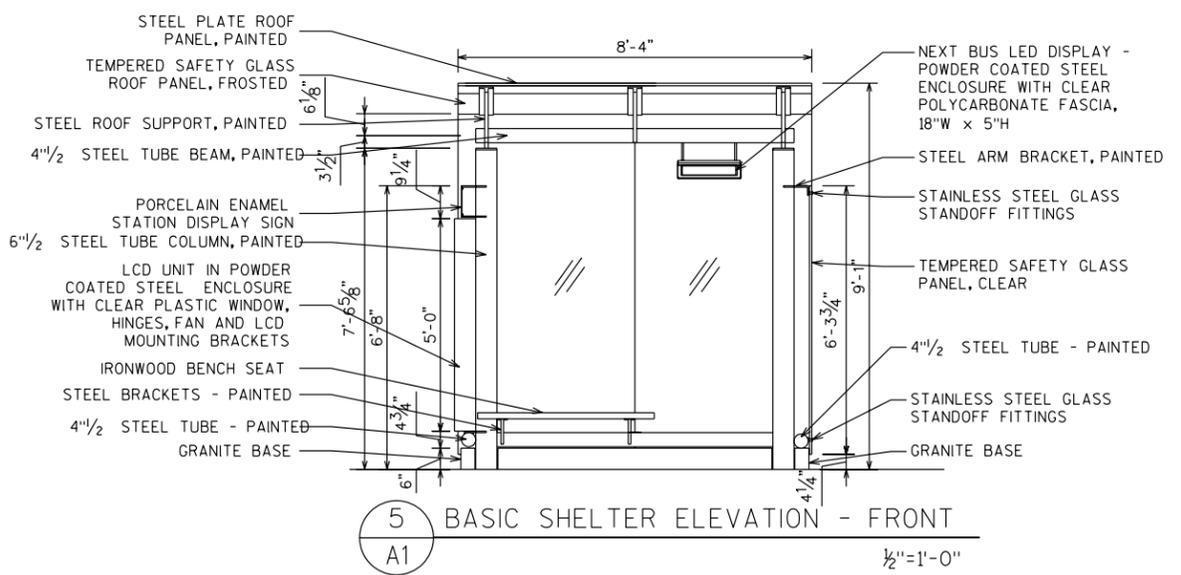
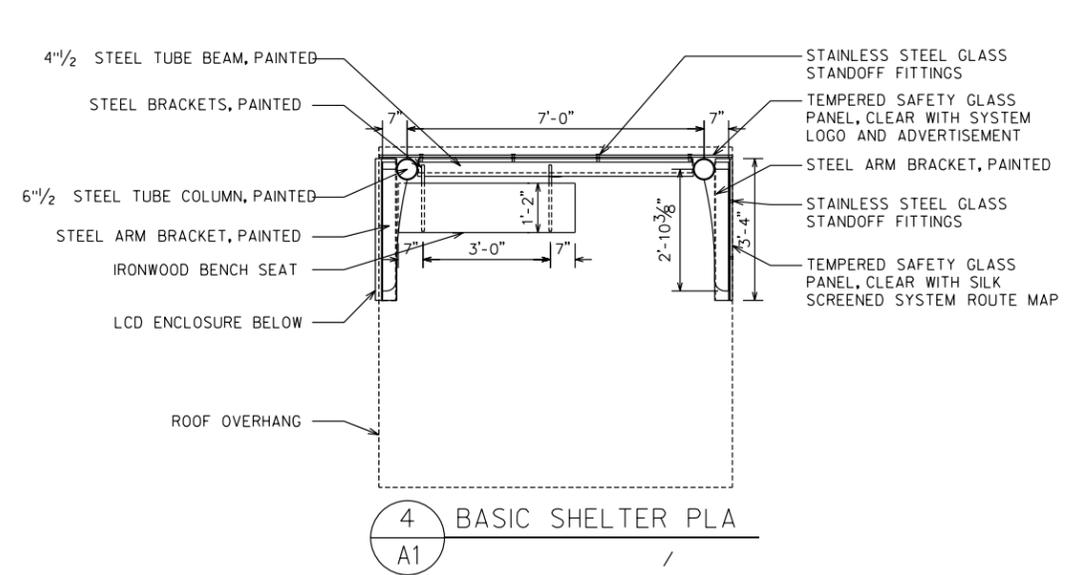
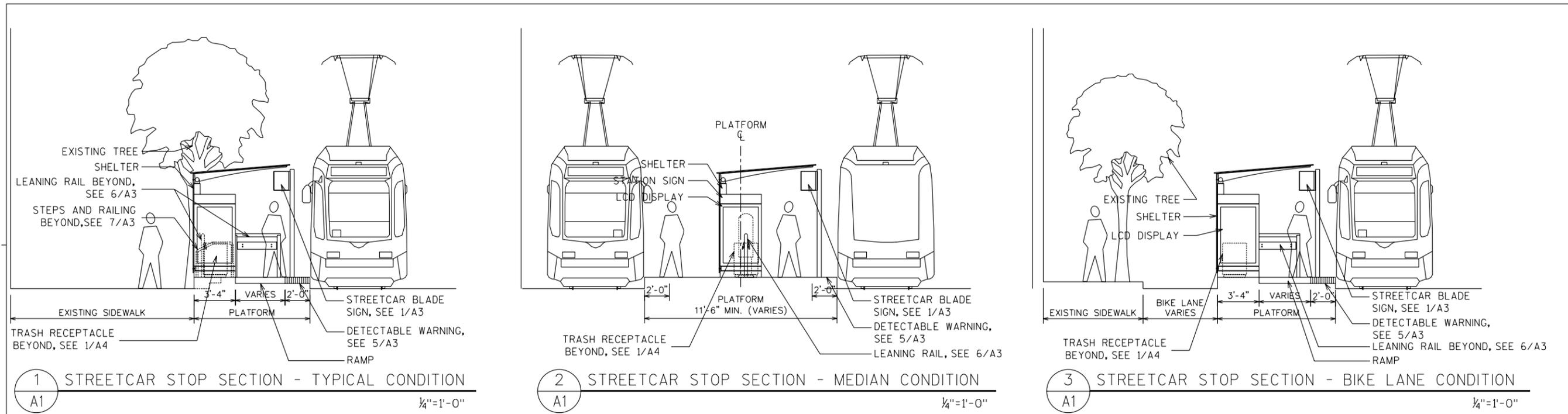
**EMBEDDED RAIL - SINGLE TRACK**

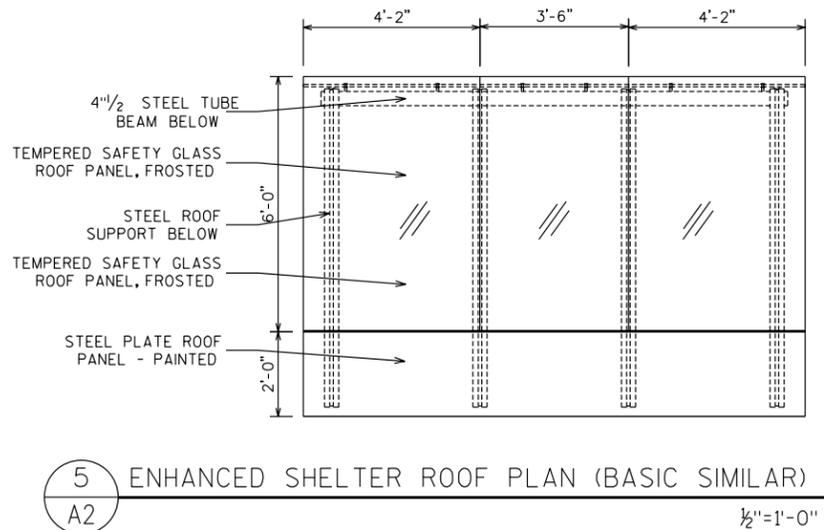
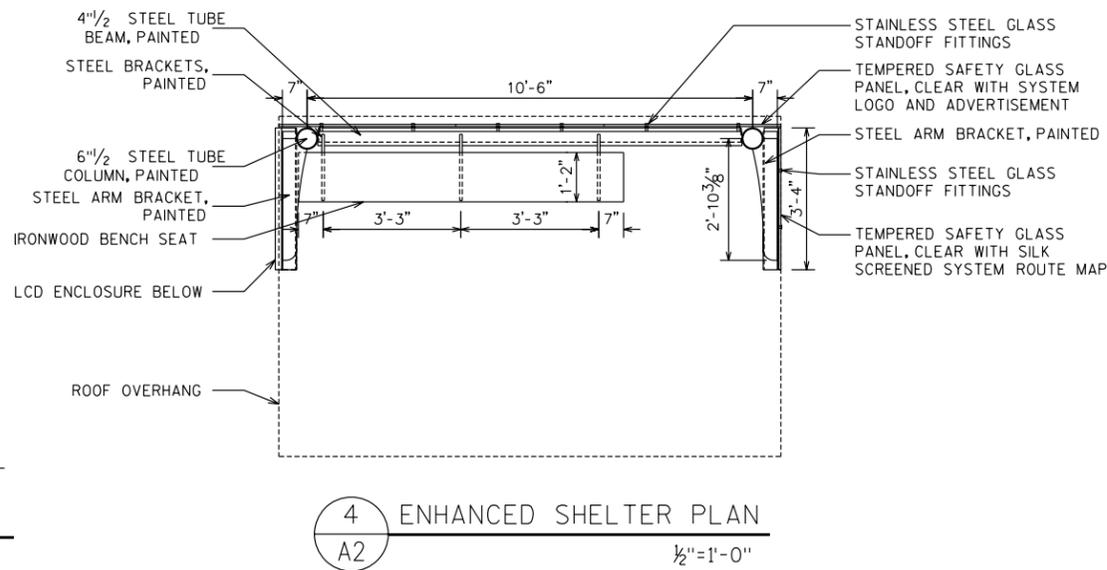
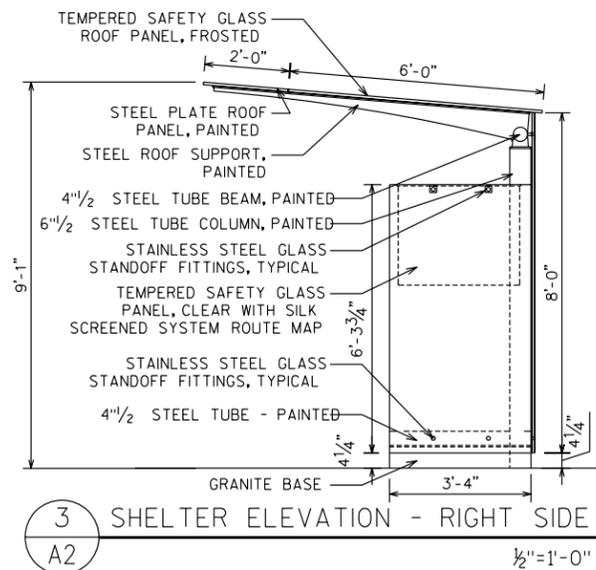
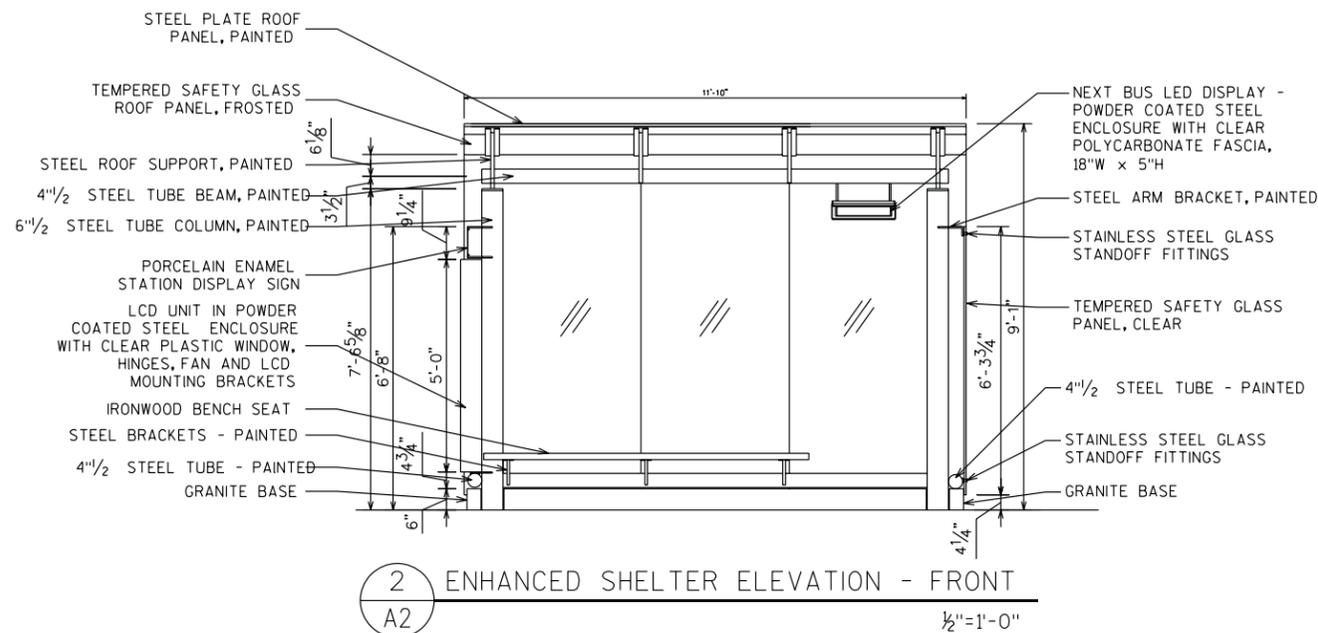
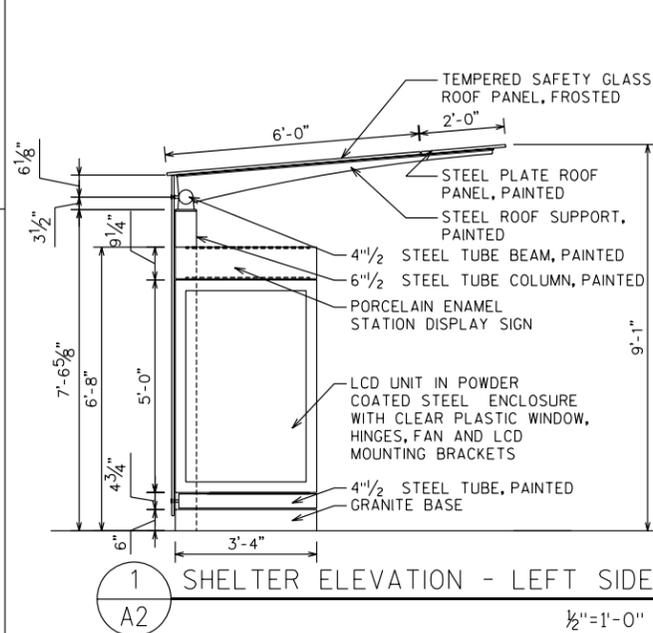
E. OGDEN AVE. - EXISTING PHASE 1 TO N. PROSPECT AVE.  
 N. PROSPECT AVE. - E. OGDEN AVE. TO E. ROYALL PL.  
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 N. FARWELL AVE. - E. ROYALL PL. TO E. OGDEN AVE.



PROJECT NO: WK52362008 | CITY OF MILWAUKEE | DEPARTMENT OF PUBLIC WORKS | MILWAUKEE STREETCAR | PLATFORM DETAILS - IP-6 - PHASE 1 | 30% SUBMITTAL | SHEET

FILE NAME : c:\cadd11b\pw\+keefe\pwgreat\_lakes\dms32471\mdc\_platforms\_1.dgn | PLOT DATE : 5:22:39 PM | PLOT BY : +keefe | PLOT NAME : | PLOT SCALE : 1:10







**APPENDIX B**

**PUBLIC COMMENTS**



## Streetcar Study Public Involvement

### Comments from October 8, 2009 Public Meeting and Website Comments Milwaukee Connector Public Information Meeting Comments as of 10/22/09

| Written Comments Received 10/8/09  | 41        | 84        | Web Comments Received 9/22-10/22/09   |
|--|-----------|-----------|---|
| <b>Written Comments Received by Mail as of 10/22/09</b>  | <b>4</b>  |           |   |
| <b>Total Support Streetcar</b>   | <b>40</b> | <b>41</b> |   |
| <b>Support Streetcar General</b>   | <b>24</b> | <b>27</b> |   |
| <p>This is critically important to the quality of life for Milwaukee residents and visitors.</p> <p>An idea long overdue for a first-class progressive city with intentions to attract the creative class and tourism.</p> <p>Looks like Milwaukee is on the right track to improve the transportation system.</p> <p>Godspeed! This will reduce drunk driving and have positive economic and social effects.</p> <p>Just build it already!</p> <p>I would love it if we had a streetcar system- as long as the old streetcar line.</p> <p>Do it. Get started.</p> <p>I am very much in favor of this project!</p> <p>An excellent presentation! (See comments on color preference.)</p> |           |           | <p>Pity Milwaukee HAD a great interurban - in favor of getting another one.</p> <p>Streetcars have more permanence and run on electricity (hopefully solar some day). Attractive to users leading to more people, development, and less congestion. Should have happened a decade ago but better late than never.</p> <p>What can neighborhood associations do to help?</p> <p>Great but should have dedicated lane. Keep up good work - those of us who do not drive are depending on you</p> <p>Excellent idea - let's get healthier and reduce dependence on cars</p> <p>Much improved plan-expandable is good-get operating sooner than 5 years</p> <p>I am very much in support of streetcar and anxiously await it. MKE needs more and better transit options and this is great beginning.</p> <p>Streetcars are my preferred mode. Look forward to progress building a system</p> <p>Worthy and much needed option in mass transit, especially if we are to reduce congestion and dependence on petroleum based fuels.</p> |

Good to connect to Intermodal station; focus on a route with greatest population density.

Good start; look forward to using the system.

Great opportunity for the City of Milwaukee to grow. The sooner the better.

Looks like a great transit program.

Like the streetcar design and routes as long as you get to Prospect/Brady.

This should be built without delay; expansions should follow soon.

I hope this really happens. Why should we be punished for not driving a car?

Excited about streetcar; must be handicapped accessible.

Support with suggestion for vintage cars.

Support with many suggestions; see comments below.

Support with many suggestions; see comments below.

After seeing proposals for streetcars I can't help but feel hope and confidence for the future of this great city.

Delighted by proposed routes - thank you for excellent understandable display and presentation

Don't have enough knowledge to select route but priority has to be getting starter streetcar that is successful so you may have to find more money and go all the way to UWM via Columbia St Mary's

Mostly in agreement with plans however no one can tell me how much fares might be

Milwaukee area needs an updated transit system.

Resident and property manager in Yankee Hill - feel vital that I add my vote for streetcar through our neighborhood

System like this will get new commercial development on lines

Firmly support transit, streetcars would make impeccable addition.

Streetcar needed to connect Amtrak Station with rest of downtown.

This could be such an asset for Milwaukee and hopefully the suburbs would get on board too.

As bus rider, am excited to have a greener shinier option for public transit.

Support streetcars but on historic streetcar routes in downtown.

In full support and hope to be a frequent rider

Supportive of concept but concerned about routes - should have T or cross route using Water and Wisconsin.

Please bring streetcars back to Milwaukee for our sake and the future generations.

Would like to see the progress with the streetcars.

Excellent idea and long overdue.

I would like to help the Milwaukee Connector streetcar initiative.

Thumbs up on streetcar - way overdue.

In favor of streetcar linked with BRT network.

Happy finally talking about streetcars for MKE.

|  |              |   |
|--|--------------|---|
|  |              | Should have streetcar running right down Brady.   |
| <b>Support Streetcar Route #1</b>  | <b>10 10</b> |   |
| <p>Many options to expand routes and connect with Intermodal options. Prefer #1.</p> <p>The sooner the better; start with route #1; have #2 and #3 ready to go.</p> <p>Think big! Build as much as you can with the money available. Prefer route #1.</p> <p>Streetcar is just one element of an improved mass transit system. Prefer route #1.</p> <p>Route #1 is optimal; going to financial district.</p> <p>Prefer route #1 with Third Ward sub option with a connection to the Grand Avenue.</p> <p>Prefer route #1--good development and expansion potential; close to downtown attractions.</p> <p>Route #1 looks great. Go Streetcar!</p> <p>Believe route #1 will be a better fit for Milwaukee's various activities.</p> <p>All alternatives will fail unless #1 extends to 4th/State to hotels and convention center.</p> |              | <p>Best option from Amtrak to Summerfest and along Farwell, too. Prefer United streetcar</p> <p>Alternative 1 strongest of three routes. I strongly support and believe if properly built may for core of larger system that could rebuild transportation throughout city.</p> <p>Long overdue for project like this. Support option 1 but would be better if it could reach Brady St.</p> <p>Rt 1 best choice if extended to Wisconsin Ave. west of river and further north to North Ave.</p> <p>As resident of E Kilbourn, strongly support alternative A that runs through Van Buren/Jackson/walking distance of MAM, Lake, Eastown.</p> <p>Absolute support of streetcar, prefer alt 1 with expansion when funds available.</p> <p>Option 1 strongest option - system needs to be immediate success and catalyst for development - let's make this happen.</p> <p>Option 1 best - most effectively connects dense commercial/office with residents who live on east side.</p> <p>Fully support option 1.</p> <p>Thumbs up on streetcar - way overdue - preferred alternative Rt 1 with sub-option and extension</p> |
| <b>Support Streetcar Route #2</b>  | <b>3 2</b>   |   |
| <p>Looking forward to construction of this project. Prefer Water and Broadway route.</p> <p>Prefer Water Street route because of bars, restaurants and increased population.</p> <p>Prefer route #2--good middle point for all downtown retail.</p>  |              | <p>So glad this is happening. I like route 2 with sub option.</p> <p>Ranks options 2, 1, 3. Rt 2 with extensions goes within 2 blocks of major hotels and MSOE.</p>   |

|  |          |           |  |
|--|----------|-----------|--|
| <b>Support Streetcar Route #1 and #2</b>   | <b>1</b> | <b>1</b>  |  |
| Get to Prospect/Brady, not on Brady. Like route #1; or #2 if on Broadway.                                    |          |           | Love that city is pursuing more public transit to complement existing bus system. I like options 1 & 2 the best  |
| <b>Support Streetcar route #2 and #3</b>   | <b>2</b> | <b>1</b>  |  |
| I support alternatives #2 and #3.<br><br>Prefer options #2 or #3. Ogden and Farwell/Prospect have potential. |          |           | Rt 2 seems to have the most potential for development and connects many popular destinations.  |
| <b>Other</b>   | <b>1</b> | <b>25</b> |  |
| Interested in this system, want to know more.  |          | <b>13</b> | <p>Propose larger circuit comprised of parts of all proposed routes. Connect to lakefront attractions, MSOE, extend down Wisconsin Ave to 7th then North on 7th to Museum/courts, then jog around MATC &amp; go north on 6th, west on Highland to 12th south on 12th through Marquette, back to Intermodal station.</p> <p>Add to mail list.</p> <p>Student at U of Colorado - case appears interesting.</p> <p>Consider connection to Northwest side - few options from 76th &amp; Good Hope to downtown - perhaps BRT could be extended.</p> <p>How can I get copy of presentation?</p> <p>Am trying to get out of work early to attend.</p> <p>Comments re "bike shortcuts."</p> <p>Concerned about streetcar noise and bicycle safety (wheels in rails). Want to see report evaluating benefits.</p> <p>3 Rt options with nothing going toward major attractions on the lake front.</p> <p>Curious about study - if company dedicated to daily commutes can be of assistance, we would be happy to help (Cream City Rickshaw).</p> |

|  |             |  |
|--|-------------|--|
|  |             | <p>In favor of system that serves resident commuters more than visitors. Urge inter-urban commuter rail on existing lines linking city and western suburbs before intra-city rail.</p> <p>In interest of cost savings, have existing tracks that run down to the lake from the eastside.</p> <p>Omnibus spelled incorrectly on home page.</p>  |
| <b>Opposed</b>   | <b>4 18</b> |  |
| <p>Buses and trolleys are empty; we need more parking; other priorities.</p> <p>Categorically opposed to any fixed streetcar route; trolley route shifts every year. Chicago trolleys good - free and go to all attractions</p> <p>Would rather see electric, cell fuel, hydrogen, natural gas buses which are flexible. See problems with deliveries and moving vans along a streetcar route.</p> <p>Sick and tired of people who don't ride transit planning transit. Trolleys go nowhere.</p> |             | <p>Cost too high - street cars can't go around repairs/accidents. Why no bus service from Franklin to downtown?</p> <p>Too complicated to install, inflexible. Use money for education and crime prevention. We need more buses at less cost - reduce road building.</p> <p>Absurd idea-transportation of the past - too expensive.</p> <p>Waste of money - use busses, no wired, no tracks. There is no lack of public transit in Milwaukee</p> <p>Wants "trackless trolleys".</p> <p>Sick of pie in sky dream-can't afford to pay for Toonerville Trolley project.</p> <p>Opposed to streetcar system - shocked at overhead lines - do not pollute streetscape.</p> <p>Is this city train that mayor want to go in square? I'm against it- we are over taxed, in recession, it would only serve a few people.</p> <p>Build true light rail to MRMC, airport and UWM.</p> <p>Take money for study and test assumptions before putting rail in the ground - worth spending \$5 million rather than wasting \$250 million.</p> <p>Nothing indicates advantage of streetcar over buses, yet cost are higher, more expensive to expand streetcar, rail has place but this isn't it.</p> |

|  |  |   |
|--|--|---|
|  |  | <p>We don't need this type transit. Needs to be stopped. Never enough riders to cover the cost of this waste of tax dollars.</p> <p>Fixed track in dense urban area is wrong, short sighted and narrowly focused.</p> <p>Need more local bus transit- not sure streetcars will accommodate people who need it. (Route 14 Southridge -DT)</p> <p>Leave Prospect Farwell alone - scrub little train running around downtown-give the \$91.5 million back to taxpayers.</p> <p>Am completely against the Mayor's ridiculous idea of a trolley or streetcar which will most certainly increase taxes and is not flexible.</p> <p>Completely against it. Grand waste of money that will benefit only a few with ongoing cost to everyone.</p> <p>Nothing wrong with current system-don't understand ripping up 2 miles of road.</p>        |
| <p><b>Comments</b></p>   |  |   |
| <p>Expand as soon as possible.</p> <p>Need an aggressive plan to expand beyond downtown.</p> <p>When streetcar routes expanded, can't stop every 1-3 blocks.</p> <p>Should go to the far south side, to the upper east side, west, northwest, southwest.</p> <p>Excellent presentation; prefer Toronto cars; color orange/cream w/ brown stripe.</p> <p>Chg to #1: move to Michigan Street instead of St. Paul between 2nd and 4th--serve Grand Ave.</p> <p>Important to accommodate wheeled suitcases; have shelves for packages.</p> <p>In the future, grow to Bay View and UWM.</p> |  | <p>How will Riverwest District be connected to the North Shore?</p> <p>Here's hoping to be riding streetcar in coming years.</p> <p>I already walk to work but would use streetcar for shopping and going out.</p> <p>Very important that streetcar continues running until at least 2 on Friday &amp; Saturday with 10-15 minute headways.</p> <p>As a property owner I would welcome paying some sort of special assessment to help pay for this but only if there is frequent service and low fares.</p> <p>Run Rt 2 from Intermodal station up Water St and down Brady with eventual extension up Prospect/Farwell to North Ave then UWM. This would help Park East, support Columbia and UWM students.</p> <p>Hope this happens soon, keep pushing for more transit options.</p> <p>Not sure what advantage St Paul has over</p> |

Safe to cross tracks with baby stroller/wheelchair? Level boarding? Off vehicle ticketing?

Future connections to airport, stadium.

Are bicycles allowed on the streetcar?  
How will this affect bus route 30?

MCTS should be involved from start.  
Extend to UWM and Bay View/KRM stations soon.

UWM should be the first extension.

Vintage street cars would be way more appealing to potential riders.

Want to know more about safety, noise.  
Full access for wheelchairs and scooters.

How will people who are deaf be alerted about upcoming stops?

Stations should be as sheltered as possible--protection from the elements.

Off-vehicle ticketing, on the honor system (with random inspections).

Run trains late to accommodate night life downtown.

Make the starter system as long as possible to attract riders.

Use low floor cars.

An RTA should run it, MCTS and KRM.

Long term possibility: replace BRT between UWM and Regional Medical Center.

Articulated cars seem to have better turning radius, carry more people, modern.

Clybourn?

Hope Shorewood is in plan.

City got rid of trolleys because they were too restrictive and replaced with buses so people could move more freely.

Streetcar will not get people to important locations - except tourist line in downtown.

Make sure if you build streetcars that they are compatible with light rail.

Please not bus ways.

Rail should be longer commute in dedicated right of way.

Any proposal for rail transit that does not make use of existing rail corridors is tragic misuse of resources.

Propose n/s line from UWM to KK/Morgan.

Route from Milwaukee/WI Ave to Lincoln.

Connect with bus routes 10,15,20,30 - vital to streetcar success.

Downtown damaged by freeways.

Buses confuse people - obvious where streetcars go and they do not use oil, clean air, and bring economic development.

Would love to see the transit system as viable as in other cities.

Can't attend meeting but looked over web info and am excited for the possibilities.

As taxpayer, any added expense passed on to Milwaukee residents will be worth gain in convenience and economic development benefit to City.

Could support alternative fuel wheeled vehicle.

Seamless Intermodal connections very important.

Must be integrated with MCTS BRT lines.

Ultimately all transit must be run by an RTA, and all ticketing must be integrated.

Arrival time signs excellent concept.

Concerns about trip frequency and governance--given MCTS declines.

Prefer Portland car.

Creating a safe, reliable and inexpensive mode of transportation linking city and suburbs can help create reciprocity.

Light rail commuting will take pressure off rat race and sprout more commerce and residential opportunities near stations, stops.

I strongly encourage the adoption of this proposal as a member of community and employee of NML.

My modes are walking and bus with trust that our city will develop efficient public transportation to maintain car-less lifestyle.

Having lived in other cities where good public transit was taken for granted, I have felt embarrassed and apologetic concerning our previous level of effort in this area.

Grateful to Kohl and Feingold for breaking logjam.

Looking forward to Milwaukee joining other great cities, just disappointed it's taken so long.

Serving right wing suburban rail opponents would help many of them buy into the idea

Important to be on main street like Water (versus Jackson).

One stop in Third Ward like at Milwaukee Public Market fine - people don't mind walking two blocks within HTW.

Currently use public transit - serve those living in downtown before visitors.

Grew up in Bulgaria and having streetcars is as logical as having cars. Every city has them and everyone used them.

Streetcars are worry free way to get around, follow predictable route, carry a lot of people, and are safe in snow.

Heard streetcar stories from my mother, desire my own interactions - would be good for everyday transportation and amazing asset for tourism and festival season.

In favor of improving bus system as long as it does not increase taxes.

We already have bus lines that run mostly empty - summer downtown trolley as well.

This is not going to help our transportation but will further tie up useful traffic.

Quality of presentation professional, informational and insightful.

Rt 2 has more opportunity for development; Rt 1 has greater office density but misses retail, Rt 3 great phase 2.

Young attorney excitedly awaits deployment of a street car - considering leaving Milwaukee for more transit friendly city.

Frequency needs to be 7 to 10 minutes or

would probably walk.

Hope plans include connecting UWM to downtown.

We need totally integrated approach to mass transit, seamless connections of air, rail, bus, streetcar.

Integration with MCTS very important for success of streetcar.

Fare options must be more numerous than MCTS cash only.

Make it extremely accessible to ride from paying, signage, comfort, overall aesthetics.

As grad student in Chicago, researched transportation system - would like to work on this - also could help with website.

Western terminus for Rt 1 should go north to Juneau.

6th St alternative with a terminus at Juneau would meet EJ criteria better than the 4th St alignment.

Do nothing approach is best alternative or give the \$91.5 to MCTS for express buses.

Favor BRT RT that would link core areas of urban area: 1-Lincoln & KK; 2-Lake Parkway and Hoan w/stops @ DT Transit Center, Carferry, Layton, College in Oak Creek; 3-Riverwest and intersections of North Ave at Fond du Lac Ave and North 27th St. 4 - DT to 27th and WI; 5-extend south across viaduct to 27th & National.

Any parking spaces added along BRT routes should be matched by subtracting off street parking spaces in structure or parking lots in downtown Milwaukee which has too much parking.

Study should include assessments measuring impact of economic development, land use and greenhouse gases.

Rail works for passengers and city. Other cities know where the tracks are put down, investments follow.

Streetcar more expensive than buses but longer life, moves more people w less energy, brings development.

Route alternatives not that different, critical to select best route for expansion – Brady to UWM.

Neighborhood residents will have easy access to downtown and the Intermodal station - also brings customers to our businesses and helps to expand retail & entertainment options.

**BRT/Streetcar Study Public Involvement  
Comments from February 3-12, 2009 Scoping Meetings and Website Comments**

The total for each category is shown below as well as a representative sample of the comments with the largest number of mentions. The "w" in the left hand column denotes comments from the website.

**Scoping Meeting Comment Summary**

|   | <b>General Study Concept</b>   | <b>73 comments</b>           |
|---|--|------------------------------|
|   | I'm excited for a better option than the bus. Milwaukee will always be a second tier city without efficient public transit.  | Pro (44)                     |
|   | We need a first-rate transit system to go with our top-notch attractions and architecture and big-city population density.   |                              |
|   | Milwaukee must invest in a 21st century comprehensive transit system.  |                              |
|   | This transportation plan should not be given any consideration; taxpayers cannot afford pie in the sky pipe dreams. Name one public transportation system that is making money.  | Con (20)                     |
| w | We have buses and don't need a trolley system. We as taxpayers can't afford it.  |                              |
| w | The Milwaukee metro area and surrounding communities have no need of increased transit. Milwaukee County transit buses are totally underutilized.  |                              |
|   |  |                              |
|   | <b>Combined Technology/Routing Comments</b>  | <b>31 comments</b>           |
| w | A modern transit system is very important to the health and development of the community. This means streetcar and light rail.   | Light rail (15)              |
|   | Implement light rail in phases, look at Minneapolis as an example. Phase I: UWM (students will ride and spread the word) through downtown/ intermodal station, Marquette, Miller Park, Research Center, State Fair Park; maybe use existing rail in the Valley. Phase II: airport, Bayshore, Mayfair, Bluemound? |                              |
| w | The streetcar loop and BRT are totally inadequate. Get back to the total light rail transit plan developed in the early '90s with lines to the airport, medical center and zoo.  |                              |
|   |  |                              |
|   | Streetcar should be linear, not a circulator loop, connecting major trip generators/destinations (e.g., downtown, UWM, County Grounds).  | Streetcar/linear/routes (13) |
| w | Streetcar should be linear--run up and down Wisconsin Avenue to, say, 25th street; remove other buses from the Avenue; drop people at a common bus station for a given route.  |                              |
|   | Terrific ideas! Streetcars should be targeted at tourists as well. Destinations should include Miller Park, Casino, Bradley Center, museums, Bayshore, east side, etc.   |                              |
|   | <b>Technology</b>  | <b>142 comments</b>          |
| w | The priority should be a streetcar to connect most of downtown.  | Streetcar only/priority      |

|   |   |                                |
|---|---|--------------------------------|
|   |   | (15)                           |
|   | Although BRT is initially lower cost, the streetcar is a better investment (a modern streetcar, modeled on Portland).   |                                |
|   | Streetcars will lead to better, faster, more modern service; I would be willing to pay more for streetcars.   |                                |
|   |   |                                |
|   | Support light rail on BRT routes.   | All light rail (16)            |
|   | Vastly prefer rail based transit over BRT; rail based system will attract new riders, will be more useful to visitors, is more environmentally friendly, and will stimulate TOD.  |                                |
|   | Drop BRT. A bus is still a bus and a lot of people will not ride a bus! Light rail.   |                                |
|   |   |                                |
|   | Oppose rail; buses are flexible.  | No rail/no streetcar (9)       |
| w | Oppose any fixed transit; opposed to the downtown loop.   |                                |
| w | I do not support rail in any form. I want faster buses, more routes, better stations, and more important I want to be able to afford to live in Milwaukee County.   |                                |
|   |   |                                |
| w | I support the BRT proposal as the best choice of the two systems. More flexible and provides the most bang for the buck.  | Support BRT/not streetcar (24) |
| w | Anything like trains and streetcars are too inflexible; bus transit is the way to go.   |                                |
| w | Fixed rails are 19th century technology and the costs to operate are unsustainable. With buses we can subtract and add routes, parts are far easier to get, replacement costs are less, accidents are easier to avoid, and more parking spaces are able to be used. |                                |
|   |   |                                |
|   | Support green transit options--solar powered stations, green roofs at stations, bike connections, etc.  | Green/energy efficient (9)     |
|   | If BRT is used it must be as sustainable as possible--electric or hybrid.   |                                |
|   | Technology choice should consider the least energy use.   |                                |
|   |   |                                |
|   | Streetcar and BRT will do wonders for Milwaukee's economic development.   | TOD (15)                       |
|   | No TOD has or ever will be spurred by BRT.  |                                |
|   | Based on my observations of German cities, the fixed rail system is more secure for economic development; a business can be certain that employees and customers can reach the business with rail; likewise for homeowners.   |                                |
|   |   |                                |

|   |  |                          |
|---|--|--------------------------|
|   | The easier it is to load and off load people with disabilities, the better the chances of staying on schedule.   | Accessibility (7)        |
| w | Are all planned vehicles, regardless of type, going to be fully accessible for people who use wheelchairs? I saw low entry or ground entry but did not see a clear commitment to 100% accessibility.   |                          |
|   |  |                          |
|   | <b>Routing</b>   | <b>78 comments</b>       |
|   | The routes are perfect and hit all major/needed areas of Milwaukee.  | Proposed routes good (6) |
|   | Important to have routes that connect all key Milwaukee areas from north to south and not just downtown (but do it with the streetcar).  | Expand routes (6)        |
|   | Phased-in approach should focus on routes that have commonalities; start with UWM to Regional Medical Center.  | East-West route (6)      |
| w | Why cut the northerly route at Capitol? There are a lot of people north of Capitol who might be riders; connections to jobs too.   | Northwest side (4)       |
|   | Most important connection is to the airport.   | Airport (9)              |
| w | I would love the bus route extended to the NM campus in Franklin on 27th street.   | 27th street (13)         |
|   | Extend service on 27th street to South County Line Road to handle a potential workforce of 40,000.   |                          |
|   | Expand the system south to Wheaton Hospital with plans to connect into Racine County.  |                          |
|   | Longer routes to get people to jobs (inner city to Wauwatosa, Waukesha).   | Regional (13)            |
|   | Get people from Milwaukee to good jobs in Franklin, Waukesha, etc.   |                          |
|   | Southeastern Wisconsin needs a regional approach to mass transit (going beyond Milwaukee County to Germantown, Menomonee Falls, Waukesha, Ozaukee, Washington Counties; New Berlin, Hales Corners, Muskego).                                 |                          |
|   |  |                          |
|   | <b>Improve MCTS</b>  | <b>17 comments</b>       |
|   | Improve MCTS now (more routes, more times, more services during off-peak hours).   |                          |
|   | Need to make our current system more user friendly if we are to attract new/more riders (being passed by because the bus is full; arriving at the intermodal station and having to walk 5-6 blocks to catch local bus is not user friendly). |                          |
| w | This is not the time to be wasting money on new capital projects and trying to fund untested systems. Invest the money in the current system by updating or replacing current buses and working to reduce fares.                             |                          |
|   |  |                          |
|   | <b>Miscellaneous</b>   | <b>49 comments</b>       |
|   | Need to address operating costs.   |                          |

|  |  |                |
|--|--|----------------|
|  | We need buses with bike racks.   | Bike racks (5) |
|  | The public needs to be educated about the cost of our current fleet--the age/replacement needs and their very low gas mileage. |                |



# Milwaukee Urban League

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Milwaukee, WI 53212-3146  
414-374-5850 414-562-8620 fax  
www.tmul.org

May 12, 2010

Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, WI 53202

Willie Hines  
Common Council President  
City of Milwaukee  
200 East Wells Street  
Milwaukee, WI 53202

Dear Mayor Barrett and President Hines:

I am writing to express my support for the proposed Milwaukee Streetcar project. It will bring more life and activity to the downtown and that is important to the economic vitality of our city.

The Milwaukee Urban League understands that reliable, affordable and safe public transit alternatives play an essential role in residents accessing jobs. Many of the people we work with do not have cars and a significant number do not have a valid driver's license.

We feel that investing the resources allocated to the city for a starter streetcar system is a step in the right direction for our future. The initial system proposed is small but has the potential to help develop our urban center and generate private investment in new housing, new retail and new business, which will add greatly needed new jobs. In addition, the system has the potential to expand to nearby neighborhoods and link even more of our residents to jobs and economic opportunities.

We think the streetcar project has the potential to be a major factor in Milwaukee's growth and redevelopment and therefore, support your efforts to keep the project moving forward.

Sincerely,

Ralph Hollmon  
President & CEO

RH/tfm



# ESPERANZA UNIDA, INC.

## Our Mission

.. to demonstrate that through unity and mutual respect we can provide service, guidance, training, education, and economic development to empower people.

...to assist people in growing personally and becoming economically self-sufficient.

...to take initiative to provide caring support and protection of rights to minorities and others who will contribute with pride to the greater Milwaukee community.

## Used Car Sales/Vehicle Donation

1329 West National Ave.  
Milwaukee, WI 53204  
(414) 671-0251  
(414) 383-7392

**International Building**  
611 W. National Ave.  
Milwaukee, WI 53204  
(414) 649-2570  
(414) 704-5826

## Esperanza Del Futuro Day Care

611 W. National Ave.  
Milwaukee, WI 53204  
(414) 649-2572  
(414) 649-2573

**Legal Assistance**  
Workers Compensation  
Unemployment  
Compensation

## Employment Center

**Learning Center**  
ESL Classes  
HSED/GED Classes  
Family Literacy

**Robert Miranda**  
Executive Director

Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Willie Hines  
Common Council President  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Dear Mayor Barrett and President Hines,

I am writing to express my support for the proposed Milwaukee Streetcar project. I urge you to get the project moving as quickly as possible.

As Executive Director of Esperanza Unida, I understand the key role that reliable, affordable, and safe public transit alternatives play in residents accessing jobs. Many of the people we work with do not have cars or, often, drivers licenses.

We support the streetcar not only for its role as a transit alternative, but also because it generates new development and redevelopment along its route. We hope you will emphasize the role of local residents and contractors as you build and expand the streetcar system.

We understand the need to get a successful starter system in place, and look forward to expansion to nearby neighborhoods--especially to the near south side--in the near future.

Sincerely

Robert Miranda, Executive Director  
Esperanza Unida, Inc.



*Creating jobs through economic development...creating opportunities through training.*

1329 West National Avenue · Milwaukee, WI 53204

(414) 671-0251 · Fax (414) 383-7392

[WWW.ESPERANZAUNIDA.ORG](http://WWW.ESPERANZAUNIDA.ORG)



Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Willie Hines  
Common Council President  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Dear Mayor Barrett and President Hines,

I am writing to express my support for the proposed Milwaukee Streetcar project.

Milwaukee urgently needs a modern transit system, including adequate funding for our bus system, a strong RTA, commuter rail, high speed rail – and the Milwaukee streetcar. The streetcar is a vital element in a comprehensive transit system.

As part of a comprehensive transit system, the Milwaukee streetcar would:

- Connect people traveling to the Intermodal Station to downtown.
- Provide transit choices and improve mobility.
- Serve renter-occupied housing, households with incomes below the median income, transit-inclined or transit dependent (households with one or no vehicle), non-white, disabled and elderly.
- Serve as a starter system and position Milwaukee to expand public transit in an efficient, modern and attractive way.
- And break nearly two decades of political deadlock over transit improvements in Milwaukee and wisely invest \$54.9 million that has long stood idle.

In addition, fixed-rail transit like the streetcar provides an important trigger for housing and economic development initiatives along the route. The streetcar as now planned is a starter system and we look forward to the time it is up and successfully operating so it can expand to other neighborhoods throughout the city.

Sincerely,

A handwritten signature in black ink, appearing to read 'William Johnson', written over a circular scribble.

William Johnson  
Executive Director

A long, flowing handwritten signature in black ink, appearing to read 'Julie', extending across the width of the page.



April 30, 2010

Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Dear Mayor Barrett:

I am writing to express my support for the proposed Milwaukee Streetcar project.

As President and CEO of the Milwaukee Area Workforce Investment Board, I understand the key role that reliable, affordable, and safe public transit alternatives play in residents accessing jobs. Not only do many of the people we work with not have cars, many do not even have drivers licenses.

A growing number of people rely on public transit to get to work at a time when limited resources are putting a strain on existing systems and limiting development of new ones. Investing the resources that have been allocated to the city for a starter streetcar system is a step in the right direction. The starter system you propose is small, but has the potential to contribute to the preservation of our urban center and generate private investment in new housing, new retail and new business resulting in new jobs. As planned, the system has the potential to expand to nearby neighborhoods and to link even more of our residents to jobs.

I think the streetcar has the potential to be a major facet in the growth and redevelopment of this City and wish you success in moving the project forward.

Sincerely

Donald Sykes

President/CEO of the Milwaukee Area Workforce Investment Board

CC: Alderman, Willie Hines





April 26, 2010

Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Dear Mayor Barrett:

Please accept this letter in support of the proposed Milwaukee Streetcar project. As a business leader who has been actively engaged in promoting job development and job training, I know that a modern, efficient, reliable and affordable transit system is one key to attracting and retaining talent and to assuring transit dependent populations can access jobs. As we move to a more regional approach to economic development, we must also move to a more regional and modern approach to transit.

A growing number of people rely on public transit to get to work at a time when limited resources are putting a strain on existing systems and limiting development of new ones. Investing the resources that have been allocated to the city for a starter streetcar system is a step in the right direction. The connection to the intermodal station supports other planned transit initiatives such as KRM commuter rail and high speed rail. I look forward to the time that the system can grow to serve more neighborhoods and employment centers providing the needed link between jobs and job seekers.

I applaud your efforts and support moving the streetcar project into the next stage of preliminary engineering and environmental assessment.

Sincerely,

A handwritten signature in blue ink, appearing to read "John Kissinger".

John Kissinger  
COO – GRAEF-USA Inc.  
MAWIB Board Chair

CC: Willie Hines, Common Council President

B-21





WRTP/BIG STEP • 3841 West Wisconsin Avenue, Milwaukee, WI 53208  
Office: (414) 342-9787 • Fax: (414) 342-3546 • Website: [www.wrtp.org](http://www.wrtp.org)

Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Willie Hines  
Common Council President  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

I am writing to express my support for the proposed Milwaukee Streetcar project. As President and CEO of WRTP/BIG STEP, I know how important investing in the city's infrastructure is to job creation.

Moving forward using the \$54.9 million available for capital investment in a streetcar starter system will mean construction jobs in the city. And building reliable, efficient, affordable public transit provides more options for workers to access jobs as well as job training opportunities. As a former board member of the Milwaukee Community Service Corps and present Board member of First Choice in Racine, I can attest to the amount of young people we serve without drivers licenses or have a drivers license but do not have access to a car.

I hope the full 3.6 mile system can be built and that we can start soon. The starter system is small, but has the potential to contribute to the preservation of our urban center and generate private investment in new housing, new retail and new business resulting in new jobs. As planned, the system has the potential to expand and connect to more education institutions, more services, nearby neighborhoods and to link even more of our residents to jobs.

I think the streetcar has the potential to be a major facet in the growth and redevelopment of this City. Please let me know how I can be of assistance as you move the project forward.

Sincerely,

A handwritten signature in black ink, appearing to read 'Earl Buford', is written over a light blue circular stamp.

Earl Buford  
President and CEO  
WRTP/BIG STEP



April 26th, 2010

Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Honorable Mayor Barrett,

I am writing to you to ensure your support for the planned construction of the Milwaukee streetcar system. After years of delay Milwaukee is now closer than ever to seeing this project become a reality. What is needed now is a bold, decisive push from our city's leaders.

The need for a streetcar system in Milwaukee is crucial if we are going to move forward as a 21<sup>st</sup> Century city. We must have a long term vision for transit in Milwaukee: the continuing reliance on an oil-based method of transit – cars and buses – simply will not be sustainable in future decades. Opponents claim; “We can’t afford to build it,” on the contrary, we can’t afford **not** to build it: The price of oil is sure to increase as both supply and production capacity diminishes. While it’s true that building and maintaining such a system is not cheap, the cost of building a streetcar system 10, 20 or 30 years from now when the price/scarcity of oil compels us to will be even higher. Moreover, as you know, the vast majority of the system’s construction funding is already available and dedicated to this plan.

I have traveled throughout the U.S. and have utilized similar streetcar systems in other cities including Portland, Denver and San Francisco. These popular transit options are heavily used, clean, quiet and offer flexibility for riders. Importantly, this system adds vitality to an urban setting, to **not** have such a system in a major urban city is unusual and, unfortunately, suggests to visitors and residents alike that Milwaukee has difficulty embracing change and planning for the future. Is this the message we want to send to the world?

Lastly, a streetcar system could also spur transit-oriented development and redevelopment – in both housing and business -- and increased property values. Our city badly needs this development.

We need a vision for the future in order for Milwaukee to become the word class city that it can be. Mayor Barrett, I ask you to lead us towards this future by supporting the construction of the Milwaukee streetcar system.

Sincerely,  
  
Dave Somerscales  
SEIU Local 1

THOMAS BALANOFF  
President

CHRIS ANDERSEN  
Secretary-Treasurer

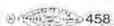
VICE PRESIDENTS  
RODERICK S. BASHIR  
JOSE BERNAL  
CHARLES BRIDGEMON  
NANCY E. CROSS  
ALEKSANDRA B. FIGUS  
VINCE PESHA  
DAN SCHLADEMAN

SHERWIN CARROLL  
Recording Secretary

SERVICE EMPLOYEES  
INTERNATIONAL UNION  
CLC

250 E. Wisconsin Ave.  
Suite 1275  
Milwaukee, WI 53202  
414.223.0090  
Fax: 414.223.0094

**Main Office**  
111 East Wacker  
Suite 2500  
Chicago, IL 60601  
312.240.1600  
Fax: 312.233.8849



Michael F. Fabishak  
Chief Executive Officer



Associated General Contractors of Greater Milwaukee  
Leading the Construction Industry Forward

April 26, 2010

Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202  
&  
Alderman Willie Hines  
Common Council President  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Gentlemen:

I was pleased to learn you were successful in breaking the nearly two decades of political deadlock over transit improvements in Milwaukee and are planning to invest the city's portion of \$91.5 million in ICE funding to build a modern streetcar system in Milwaukee.

The Associated General Contractors of Greater Milwaukee is the largest construction industry trade association in Wisconsin, consisting of 42 local general contractors and more than 400 affiliate firms, who are subcontractors, suppliers and service firms. I have been following the debate over transit funding, creation of an RTA, and various plans for high speed rail and commuter rail in SE Wisconsin. Everyone in Wisconsin stands to benefit from a balanced transportation system that serves all of our population. Transportation funding creates jobs, and the transit oriented development that results from investing in a fixed guideway system is important to our economy. We wholeheartedly support your effort to invest in a modern transportation system for Milwaukee and look forward to being called upon as TOD opportunities develop.

We urge you to move this project into the next phase of development.

Yours very truly,

A handwritten signature in blue ink that reads 'Mike Fabishak'. The signature is written in a cursive, flowing style.

Mike Fabishak  
Chief Executive Officer





April 8<sup>th</sup>, 2010

Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, WI 53202

Mayor Tom Barrett:

IndependenceFirst is a nonprofit organization that provides resources, programs, and services to people with disabilities and is a resource to the community regarding disability in the Milwaukee metropolitan area. IndependenceFirst supports innovative accessible transit options, such as the Milwaukee Streetcar. The expansion of public transit is essential in creating new opportunities for individuals with disabilities.

The availability of accessible, affordable, and reliable transportation plays a major role in determining how independent, productive, and integrated people with disabilities can be. Transportation services are crucial to providing all people with access to medical care, nutritional support, education, employment, shopping, and community events and services. Investments in transit create employment opportunities and increase economic development while encouraging self sustainability and improving quality of life.

The accessibility of the Milwaukee Streetcar to individuals with disabilities is crucial to its success. Not only does this system need to be physically accessible but also accessible to Individuals who are blind or visually impaired as well as individuals who are deaf or are hard of hearing. Throughout the process, staff from IndependenceFirst have been contacted by the planning team for Milwaukee Streetcar and provided information on achieving accessibility.

The Milwaukee Streetcar as well as its rail system, including the ground hardware, will need to be fully wheelchair accessible and have visual and auditory stop announcements. Vehicle operators will also need training on how to use accessibility equipment and understand wheelchair securement. Disability sensitivity training is also necessary.

We encourage further collaboration in ensuring that people with disabilities have full access to this exciting new transit option.

Thank you,

Autumn Misko, Resource Specialist

B-25

**First** in independent living for 30 Years



Milwaukee Environmental Consortium  
Milwaukee River Work Group

Mayor Tom Barrett

City of Milwaukee

200 East Wells Street

Milwaukee, Wisconsin 53202

March 25, 2010

Dear Mayor Barrett,

I just spent my lunch hour learning more about the Milwaukee Streetcar Plan. I am absolutely thrilled to see a modern public transit option finally coming to Milwaukee. This will give visitors and residents a safe, sustainable alternative to driving their car. Having visited cities all over the world with some fabulous transportation options I am very excited that the wait is over here in Milwaukee. I am convinced that reducing our reliance on cars will be a boost to our quality of life, encourage new development, and entice more people to choose a downtown residence. With future extensions I hope that the system will also serve low income neighborhoods, connecting them with cheap reliable transportation jobs and opportunities. In short, a good public transit system is key to a humane metropolis. Thanks for showing the leadership to get this done.

Yours truly,

A handwritten signature in blue ink that reads "Ann Brummitt". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Ann Brummitt

Mayor Tom Barrett  
City of Milwaukee  
200 East Wells Street  
Milwaukee, Wisconsin 53202

Dear Mayor Barrett,

I am writing to encourage you to do everything in your power to make sure the Milwaukee Streetcar is successfully implemented in the City of Milwaukee.

As you know, Milwaukee is in desperate need of a new system of mass transit to usher us into the 21<sup>st</sup> Century and make us a world-class city. The Milwaukee Streetcar would serve as a starter system and position Milwaukee to expand public transit in an efficient, modern and attractive way.

As we live in an urban environment, we should act as a city and make mass transit a priority and an affordable, effective way to get around. Reliable, available mass transit should be the crown of a city, not an afterthought. By implanting this system (which is covered by federal grants) we can increase pedestrian activity, which will contribute to retail and restaurant business growth and improve public health overall.

I work for Milwaukee Riverkeeper, an environmental non-profit, here in Milwaukee. As an environmentalist the benefits of a streetcar are incredibly apparent. It can serve as a safe, comfortable, reliable and economical transportation choice that can decrease household transportation costs, help to reduce dependence on foreign oil, improve air quality, reduce greenhouse gas emissions and promote public health. All of this will occur while serving your constituents a more attractive alternative than a failing bus system. It in turn can help connect bus routes, and infuse a new sense of excitement and enjoyment around mass transit, that has dwindled in recent years.

Please do whatever necessary to make the Streetcar a reality so we can break nearly two decades of political deadlock over transit improvements in Milwaukee and wisely invest \$54.9 million that has long stood idle. It will be to the advantage of all people who work, live, play or visit downtown.

Thank you for your time,



Paul Schwarzkopf  
2429 N. Dousman, Upper  
Milwaukee, WI 53212  
414-531-9053



**Michael L. Burke, Ph.D.**  
*President*

700 West State Street  
Milwaukee, Wisconsin 53233-1443  
414-297-6320  
fax: 414-297-6553  
e-mail: burkem@matc.edu

February 8, 2010

Mr. Peter M. Rogoff, Administrator  
U.S. Department of Transportation  
Federal Transit Administration  
East Building  
1200 New Jersey Avenue, SE  
Washington, DC 20590

**RE: *Urban Circulator Systems Program***

Dear Administrator Rogoff:

I am writing to express Milwaukee Area Technical College's (MATC) support for the City of Milwaukee's grant application for the Urban Circulator Systems Program. Milwaukee is proceeding with plans to build the initial segment of an electric streetcar system in the City. This grant will help Milwaukee to serve additional areas of the City and key destinations, including the downtown campus of MATC.

MATC is Wisconsin's largest publicly supported two-year technical college. MATC is a key driver of the economy and job training in southeastern Wisconsin, offering 200 degrees, diplomas, certificates, and apprenticeships and nearly 400 transfer options leading to bachelor degrees. Approximately 48,000 students per year, of whom 48% are minority students, attend MATC. Transportation is a key challenge for many of our students, and many rely on public transportation to attend classes at our four campuses.

We know that:

- 21% of the households in the City of Milwaukee do not have a vehicle, with the percentage even higher in African American households (32%);
- 50% of transit riders use the bus to get to and from work and 20% of the riders use it to go to and from schools (such as MATC);
- the lack of a driver's license is a critical issue in Milwaukee County and, obtaining or re-instating licenses has created mobility barriers;
- there are Milwaukee residents with job skills who could be matched with employers that need them, if the transportation system were flexible enough to accommodate their transit needs.

**Downtown Milwaukee Campus**  
700 West State Street  
Milwaukee, WI 53233-1443

**Mequon Campus**  
5555 West Highland Road  
Mequon, WI 53092-1199

**Oak Creek Campus**  
6665 South Howell Avenue  
Oak Creek, WI 53154-1196

**West Allis Campus**  
1200 South 71st Street  
West Allis, WI 53214-3110

**MATC.edu**  
**414-297-MATC**

Mr. Peter M. Rogoff  
February 8, 2010  
Page 2

The proposed streetcar system will help to address one of Milwaukee's most critical needs: jobs, which requires transportation to and from work. Residents who are unable to afford a car will use the system to get to work, and MATC students will have an affordable and efficient way to move between their classes, homes and jobs. For these reasons, MATC strongly supports Milwaukee's application for funding for the Urban Circulator Systems Program.

Sincerely,

A handwritten signature in black ink that reads "Michael L. Burke". The signature is written in a cursive style and is followed by a horizontal line.

Dr. Michael Burke, Ph.D.  
President



## **Hillside Family Organization**

### **President**

Sheri Reed-Daniels

### **Vice-President**

Vi Scott

February 8, 2010

Peter M. Rogoff, Administrator  
U.S. Department of Transportation  
Federal Transit Administration  
East Building  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Dear Administrator Rogoff:

I am writing to express our support for the City of Milwaukee's grant application for the Urban Circulator Systems Program, which will link four of our public housing developments with an enhanced public transportation system. An efficient public transportation system is critical to our families, elderly and disabled who need reliable public transportation for shopping and access to jobs, education, health care, and community programs and services. I hope that you will seriously consider funding the City of Milwaukee's Urban Circulator System to promote the participation and integration of our low-income residents throughout the Milwaukee community.

The City of Milwaukee is one of the largest urban areas in the United States that does not have an intra-city passenger rail system. We view this as an opportunity to promote economic growth for the surrounding community.

The residents of the Hillside community hope that there will be job opportunities directly from the project and through the expanded transportation options it will ultimately provide. We are always glad to see new and productive economic growth in our community. It will provide flexibility in transportation connecting residents with employment in other parts of the City of Milwaukee.

We thank you in advance for your cooperation and consideration of this grant for the City of Milwaukee. If you have any questions feel free to call me at 414-272-7823.

Sincerely,

Sherri Reed-Daniels  
President  
Hillside Family Organization

*1452 North Seventh Street, Milwaukee, WI 53205  
Voice: (414) 272-7823  
Fax: (414) 272-7839*



HOUSING AUTHORITY OF THE  
CITY OF MILWAUKEE

**Tom Barrett**  
Mayor

**Antonio M. Perez**  
Secretary-Executive Director

**Alderman Willie L. Hines, Jr.**  
Chair, Board of Commissioners

February 2, 2010

Peter M. Rogoff, Administrator  
U.S. Department of Transportation  
Federal Transit Administration  
East Building  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Dear Administrator Rogoff:

I am writing to express our strong support for the City of Milwaukee's grant application for the Urban Circulator Systems Program, which will link four of our public housing developments with an enhanced public transportation system. An efficient public transportation system is critical to our families, elderly and disabled who need reliable public transportation for shopping and access to jobs, education, health care, and community programs and services. I hope that you will seriously consider funding the City of Milwaukee's Urban Circulator System to promote the participation and integration of our low-income residents throughout the Milwaukee community.

The City of Milwaukee is one of the largest urban areas in the United States that does not have an intra-city passenger rail system. The Milwaukee Streetcar System will promote livable neighborhoods and a sustainable city, catalyze economic development opportunities and leverage public investments.

- Livability. The Milwaukee Streetcar System will go through a number of economically diverse, dense and walkable neighborhoods. In addition, the streetcar will connect these neighborhoods to major job centers, such as downtown Milwaukee, which will further increase the livability of those neighborhoods, particularly without a private automobile.
- Sustainability. The Milwaukee Streetcar System will have a significant and positive impact on Milwaukee's environment. The network will offer a more flexible and viable option to the use of a car, connecting residents with employment hubs in the City of Milwaukee.
- Economic Development. The Milwaukee Streetcar System will have a significant and positive impact on Milwaukee's economy. It will increase employment opportunities, property values and economic development in the City of Milwaukee as well as the broader Southeastern Wisconsin region. We know that:
  - 21% of the households in the City of Milwaukee do not have a vehicle – the percentage is higher in African American households (32%);

**Housing Management**  
809 N. Broadway, 3rd Floor  
Milwaukee, WI 53202  
(414) 286-5824 Voice  
(414) 286-0533 Fax

**Community Services**  
650 W. Reservoir Ave.  
Milwaukee, WI 53212  
(414) 286-5100 Voice  
(414) 286-3169 Fax  
(414) 286-3504 TDD

**Housing Operations**  
5125 W. Lisbon Ave.  
Milwaukee, WI 53210  
(414) 286-2192 Voice  
(414) 286-8742 Fax

**Maintenance Operations**  
2411 N. 51st St.  
Milwaukee, WI 53210  
(414) 286-2931 Voice  
(414) 286-0208 Fax

**Modernization & Development**  
5125 W. Lisbon Ave.  
Milwaukee, WI 53210  
(414) 286-2951 Voice  
(414) 286-8742 Fax

**Rent Assistance**  
5011 W. Lisbon Ave.  
Milwaukee, WI 53210  
(414) 286-5650 Voice  
(414) 286-5094 Fax  
(414) 286-5645 TDD



809 N. Broadway, 3rd Floor, Milwaukee, WI 53202  
Mailing Address: P.O. Box 324, Milwaukee, WI 53201-0324



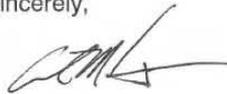
- 50% of transit riders use the bus to get to and from work and that 20% of the ridership goes to and from school;
- the lack of a Driver's License is a critical issue in Milwaukee County and, obtaining or re-instating licenses is a long and involved process that has created mobility barriers;
- there are Milwaukee residents with job skills - that could be matched with employers that need them – but the transportation system is not flexible enough to accommodate worker transit needs; and,
- the City of Milwaukee ranks 7<sup>th</sup> in the country (in cities with 250,000 or more population) in the rate of residents living in poverty.

The Streetcar System will address one of Milwaukee's most critical needs – JOBS. People will be employed to build the system. Residents who are unable to afford a car, many of whom are public housing residents, will use the system to get to their places of employment.

- Public Investments. The Milwaukee Streetcar System will leverage several major public investments, such as:
  - Intermodal Station. The State of Wisconsin and the City of Milwaukee spent \$16.9m to completely renovate the Intermodal Station in 2007.
  - High-speed rail initiative. Recently, President Obama and the FTA have announced \$8 billion for high-speed rail projects in the United States, including \$810 million for the creation of a Milwaukee to Madison route and upgrades to the existing Milwaukee to Chicago route.
  - Park East Redevelopment. In 2002, the City of Milwaukee using \$21m in tax incremental financing and \$25m in federal funds, removed the Park East freeway spur and installed new infrastructure, which opened up 60 acres of land for redevelopment.
  - Low-income and affordable housing developments. The initial segment and proposed extensions of Phase 1 of the streetcar would pass within blocks of three HACM properties: Hillside (\$50m Hope VI development, 470 units), Convent Hill (\$25.5m senior using development using \$12.7m in HUD funding; 120 elderly units), Arlington Court (180 elderly units) and Riverview (230 units for the elderly and disabled). In addition, the streetcar would serve low-income housing tax credit projects such as Majestic Lofts, City Hall Square Apartments and Blue Ribbon Lofts.

Milwaukee has both the political will and the public support to develop an important transportation component that will meet the needs of our residents and ensure economic and social growth. The future of urban areas that strive to be inclusive, healthy and economically viable will rely on a combination of public transportation systems that connect people to places. This Urban Circulator System funding will result in Milwaukee achieving a transportation network that connects our citizens with affordable housing, economic and social resources and venues.

Sincerely,



Antonio M. Pérez  
Secretary-Executive Director  
Housing Authority of the City of Milwaukee



**Tom Barrett**  
Mayor, City of Milwaukee

---

February 10, 2010

Administrator Peter Rogoff  
U.S. Department of Transportation  
Federal Transit Administration  
East Building  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Dear Administrator Rogoff:

This letter expresses my most enthusiastic endorsement of the City of Milwaukee's grant application for the Urban Circulator Systems Program. Milwaukee has already initiated the first phase of its electric Streetcar System and it will transform the manner in which residents move throughout the City of Milwaukee. If this application is successful, it will expand upon the first phase and extend to other key destinations.

As each phase is developed, it is anticipated that the Milwaukee Streetcar System will promote livable neighborhoods and a sustainable city, catalyze economic development opportunities and leverage public investments.

The system, once it is in place, will service Milwaukee's most economically diverse and highest population neighborhoods. The intent of the system is to connect residents and visitors directly to Milwaukee's industrial, educational, retail and recreation centers. In addition, the system design will link to other transportation hubs such as the Milwaukee Intermodal Station and the AMTRAK Hiawatha to Chicago, the proposed Kenosha-Racine-Milwaukee (KRM) connector and the soon to be built, high-speed rail to Madison and the Twin Cities as well as Milwaukee's General Mitchell International Airport. Every neighborhood and notable Milwaukee destination will have transportation access to local, regional and international venues.

Milwaukee recognizes that in order to stay competitive, it must have a public transportation system that is safe, economical and energy efficient. It is our intent to reduce community-wide dependence on fossil fuels and this can only be accomplished through the construction of a well-planned streetcar system.

---

Office of the Mayor • City Hall • 200 East Wells Street • Milwaukee, Wisconsin 53202  
(414) 286-2200 • fax (414) 286-3191 • [mayor@milwaukee.gov](mailto:mayor@milwaukee.gov)

The system will provide Milwaukee's residents more transportation options. On average, 21% of Milwaukee's residents do not own a vehicle (the rate is 32% for the African-American community); 50% of current bus transit ridership is for employment transportation and 20% is for educational purposes. Milwaukee residents will make the best use of an efficient public transportation system.

The time to make the investment is now. Milwaukee has both the political will and the public support to develop an important transportation component that will meet the needs of this region now and in the future. Funding will ensure that future Milwaukee residents will know that there was the foresight to provide an infrastructure that provided a foundation for the city's and the region's continued growth and vitality.

If you have any questions or require additional information, please do not hesitate to contact my office at 414.286.2200.

Sincerely,

A handwritten signature in black ink that reads "Tom Barrett". The signature is written in a cursive, flowing style.

Tom Barrett  
Mayor

GWEN MOORE  
4TH DISTRICT, WISCONSIN

COMMITTEE ON  
FINANCIAL SERVICES  
CAPITAL MARKETS, INSURANCE, AND  
GSEs SUBCOMMITTEE  
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OPPORTUNITY SUBCOMMITTEE  
DOMESTIC AND INTERNATIONAL MONETARY  
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COMMITTEE ON SMALL BUSINESS

COMMITTEE ON BUDGET



Congress of the United States  
House of Representatives

WASHINGTON OFFICE:  
1239 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 226-4672  
FAX: (202) 226-8136

DISTRICT OFFICE:  
219 NORTH MILWAUKEE STREET  
SUITE 3A  
MILWAUKEE, WI 53202-5818  
(414) 297-1140  
FAX: (414) 297-1086

February 8, 2010

Administrator Peter Rogoff  
Federal Transit Administration, U.S. Department of Transportation  
1200 New Jersey Avenue, SE, East Building  
Washington, DC 20590

Dear Administrator Rogoff:

I am writing this letter in support of the City of Milwaukee's application for an Urban Circulator System grant to expand its Electric Streetcar System currently in progress. The application the city has put together is very complete and details a comprehensive plan that will yield long-lasting economic development benefits and enhance livable neighborhoods.

The City's Streetcar System is a part of a bigger, holistic vision that will link Milwaukee to other destinations in the Midwest, nationally and internationally. Further, it will offer regional, national and international air travelers from Mitchell International Airport access to and from all of Milwaukee's neighborhoods and economic centers.

I was delighted to receive the news last month that the Obama Administration has awarded \$810 in stimulus funds to cover the remaining costs for the Milwaukee and Madison portion of this rail system. If funded, the additional grant funds Milwaukee is seeking to expand its Streetcar System, along with last month's awarded stimulus fund, will clearly strengthen Wisconsin's ties between the largest cities of the Midwest region and boost tourism, research and investment in all the areas served. The Streetcar System will connect to Milwaukee's Intermodal Station, Amtrak Rail, local and regional bus lines and the Midwest High Speed Rail System.

In 2008, Milwaukee County voters overwhelmingly supported a referendum supporting the implementation of a regional sales tax to sustain and expand public transportation options. Milwaukee ranks 7<sup>th</sup> in the country in poverty, and there is a vast array of social and economic hardships experienced by some of its most vulnerable citizens. That is why I support safe, affordable and reliable transit alternatives that link residents to job centers locally, regionally and across the state. The Milwaukee Streetcar System would help address one of Milwaukee's most critical needs – the lack of good family supporting jobs in central city neighborhoods most severely impacted by the economic downturn. The Milwaukee Streetcar System will expand transportation options that promote affordable housing, improve energy efficiency, leverage investments, enhance competitiveness, and strengthen neighborhoods.

I strongly believe the future of urban areas, like Milwaukee is to continually strive to be inclusive, healthy and economically viable and rely upon a combination of public transportation systems that connect people to places. The City of Milwaukee is one of the largest urban areas in the United States that does not have an intra-city rail system, and it requires the Urban Circulator Systems grant funding to move forward with its plans to build and expand its Streetcar System. It will put Milwaukee on a path toward achieving a first rate comprehensive transportation system – a system that not only connects our citizenry to vital social and economic resources and venues, but one that rivals the top transportation systems around our nation and the world.

Thank you for your consideration.

Sincerely,

Gwen Moore  
Member of Congress  
GM/se

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HERB KOHL  
WISCONSIN  
WASHINGTON OFFICE:  
330 HART SENATE OFFICE BUILDING  
WASHINGTON, DC 20510  
(202) 224-5653  
<http://kohl.senate.gov/>

United States Senate  
WASHINGTON, DC 20510-4903

COMMITTEES:  
APPROPRIATIONS  
JUDICIARY  
SPECIAL COMMITTEE  
ON AGING

February 8, 2010

Peter Rogoff  
Administrator  
Federal Transit Authority  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Dear Administrator Rogoff,

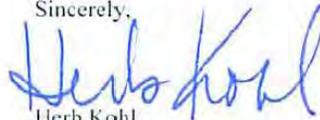
I am pleased to lend strong and enthusiastic support to the City of Milwaukee application to receive Inner-City Circulator funding from the Federal Transit Authority. These vital funds will facilitate a streetcar system to improve the city's livability and increase access to workforce opportunities while reducing emissions from personal vehicles.

The City of Milwaukee ranks 7th in the nation for the number of individuals living in poverty, and the most recent unemployment statistics report an 11% joblessness rate in our city. The impact of unemployment on minority households in Milwaukee was recently in the national spotlight when featured in an article by the Washington Post. There is clearly an immediate need to reduce the barriers, including lack of transportation and drivers license eligibility, that prevent stable employment. According to the grant proposal, 21% of households in Milwaukee, and 32% of African American homes, are without a car. The proposed first phase of the streetcar system will operate within walking distance of three public housing properties in economically diverse areas with the city's highest levels of unemployment. Residents will be connected with major job centers and have improved access to retail, small businesses, and schools.

The streetcar system is a key component in a comprehensive plan to grow our regional workforce and enhance the commute to Madison and Chicago. The system will connect with the Milwaukee Intermodal Station, which serves 1 million Amtrak and bus riders, and the proposed high speed rail system that recently received \$810 million in grant funding from your agency. The streetcar system is the next step in enhancing the area's transportation system and will address the critical need for jobs. **Therefore, I urge the Federal Transit Authority to give full consideration to the City of Milwaukee proposal.** If I may be of further assistance or provide additional information about this important effort, please do not hesitate to contact me.

Thank you in advance for your time and attention to this request.

Sincerely,



Herb Kohl  
U.S. Senator

HK:ry

MILWAUKEE OFFICE:  
310 WEST WISCONSIN AVENUE  
SUITE 950  
MILWAUKEE, WI 53203  
(414) 297-4451  
T T Y (414) 297-4485

MADISON OFFICE:  
14 WEST MIFFLIN STREET  
SUITE 207  
MADISON, WI 53703  
(608) 264-5338

EAU CLAIRE OFFICE:  
403 GRAHAM AVENUE  
SUITE 205  
EAU CLAIRE, WI 54701  
(715) 852-8424

APPLETON OFFICE:  
4321 WEST COLLEGE AVENUE  
SUITE 370  
APPLETON, WI 54914  
(920) 738-1640

LA CROSSE OFFICE:  
205 6TH AVENUE SOUTH  
SUITE 216  
LA CROSSE, WI 54601  
(608) 796-0045

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**APPENDIX C**

**HISTORIC & ARCHAEOLOGICAL RESOURCES (SECTION 106) DOCUMENTS**





U.S. Department  
of Transportation  
**Federal Transit  
Administration**

REGION V  
Illinois, Indiana,  
Michigan, Minnesota,  
Ohio, Wisconsin

200 West Adams Street  
Suite 320  
Chicago, IL 60606-5253  
312-353-2789  
312-886-0351 (fax)

August 12, 2010

Mr. David Grignon  
Tribal Historic Preservation Officer  
Menominee Indian Tribe of Wisconsin  
W2908 Tribal Office Loop  
P.O. Box 910, Keshena, WI 54135-0910

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Mr. Grignon:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

FTA will soon be preparing an Environmental Assessment for this project. We are inviting you to participate in consultation to help us identify places that may have traditional religious and cultural importance to your tribal organization. Although FTA will maintain full responsibility for the consultation process, we would like to confirm with you that it would be acceptable if the City of Milwaukee contacts you with day-to-day information about the project. Please note that we are requesting information only on such places that you believe may be impacted by the proposed project so that we may try to avoid impacts. Project planning is in preliminary phases at this time and is briefly summarized below.

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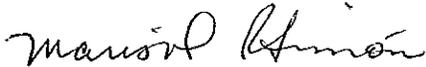
August 12, 2010  
Mr. David Grignon  
Page Two

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If you have questions or comments related to the proposed project, please contact R. Stewart McKenzie at the address above, by telephone at (312) 353-2866 or by e-mail at [stewart.mckenzie@dot.gov](mailto:stewart.mckenzie@dot.gov). We would be pleased to discuss with you project details as well as any confidential concerns you may identify.

Your timely response will greatly help us incorporate your concerns into project development. For that purpose, we respectfully request that you complete the enclosed Project Consultation Options form and forward it to FTA within 30 days.

Sincerely,



Marisol R. Simón  
Regional Administrator

Enclosures: Project Consultation Form  
Extended Project Description  
Agency Coordination Announcement with Project Location Map  
Station Description and Location Map

cc (w/o encls): Sherman Banker, Wisconsin State Historic Preservation Officer  
Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Richard Geyer, Wisconsin Center District  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation



U.S. Department  
of Transportation  
**Federal Transit  
Administration**

REGION V  
Illinois, Indiana,  
Michigan, Minnesota,  
Ohio, Wisconsin

200 West Adams Street  
Suite 320  
Chicago, IL 60606-5253  
312-353-2789  
312-886-0351 (fax)

August 12, 2010

Jerry Smith  
Tribal Historic Preservation Officer  
Lac Courte Oreilles Band of Lake Superior Chippewa Indians  
Tribal Governing Board  
13394 West Trepenia Road  
Hayward, WI 54843

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Mr. Smith:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

FTA will soon be preparing an Environmental Assessment for this project. We are inviting you to participate in consultation to help us identify places that may have traditional religious and cultural importance to your tribal organization. Although FTA will maintain full responsibility for the consultation process, we would like to confirm with you that it would be acceptable if the City of Milwaukee contacts you with day-to-day information about the project. Please note that we are requesting information only on such places that you believe may be impacted by the proposed project so that we may try to avoid impacts. Project planning is in preliminary phases at this time and is briefly summarized below.

The proposed project is a 2-miles starter Streetcar system (3.6-miles with future extensions) in downtown Milwaukee. The service is proposed to originate at the Milwaukee Intermodal Station and proceed east along St. Paul Avenue; going north along 4th Street up to Juneau Avenue. From the point of origin, it will run west along St. Paul Avenue across the Milwaukee River; north along Broadway; east along Wells; north and south between Wells and Ogden Avenue along both Van Buren and Jackson; east on Ogden; along both Farwell and Prospect up to E. Royall Place. Compliance with Section 106 requires that historic resources be identified in the project's Area of Potential Effects (APE) and that the project's effects upon historic properties be evaluated. Based

August 12, 2010  
Mr. Jerry Smith  
Page Two

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If you have questions or comments related to the proposed project, please contact R. Stewart McKenzie at the address above, by telephone at (312) 353-2866 or by e-mail at [stewart.mckenzie@dot.gov](mailto:stewart.mckenzie@dot.gov). We would be pleased to discuss with you project details as well as any confidential concerns you may identify.

Your timely response will greatly help us incorporate your concerns into project development. For that purpose, we respectfully request that you complete the enclosed Project Consultation Options form and forward it to FTA within 30 days.

Sincerely,



Marisol R. Simón  
Regional Administrator

Enclosures: Project Consultation Form  
Extended Project Description  
Agency Coordination Announcement with Project Location Map

cc (w/o encls): Sherman Banker, Wisconsin State Historic Preservation Officer  
Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation



U.S. Department  
of Transportation  
**Federal Transit  
Administration**

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Illinois, Indiana,  
Michigan, Minnesota,  
Ohio, Wisconsin

200 West Adams Street  
Suite 320  
Chicago, IL 60606-5253  
312-353-2789  
312-886-0351 (fax)

August 12, 2010

Jason Quade  
Cultural Affairs  
Sokaogon Chippewa Community (Mole Lake Band of Lake Superior Chippewa Indians)  
3051 Sand Lake Road, Crandon, WI 54520

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Mr. Quade:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

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The proposed project is a 2-miles starter Streetcar system (3.6-miles with future extensions) in downtown Milwaukee. The service is proposed to originate at the Milwaukee Intermodal Station and proceed east along St. Paul Avenue; going north along 4th Street up to Juneau Avenue. From the point of origin, it will run west along St. Paul Avenue across the Milwaukee River; north along Broadway; east along Wells; north and south between Wells and Ogden Avenue along both Van Buren and Jackson; east on Ogden; along both Farwell and Prospect up to E. Royall Place. Compliance with Section 106 requires that historic resources be identified in the project's Area of Potential Effects (APE) and that the project's effects upon historic properties be evaluated. Based

August 12, 2010  
Mr. Jason Quade  
Page Two

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Your timely response will greatly help us incorporate your concerns into project development. For that purpose, we respectfully request that you complete the enclosed Project Consultation Options form and forward it to FTA within 30 days.

Sincerely,



Marisol R. Simón  
Regional Administrator

Enclosures: Project Consultation Form  
Extended Project Description  
Agency Coordination Announcement with Project Location Map

cc (w/o encls): Sherman Banker, Wisconsin State Historic Preservation Officer  
Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation



U.S. Department  
of Transportation  
**Federal Transit  
Administration**

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Michigan, Minnesota,  
Ohio, Wisconsin

200 West Adams Street  
Suite 320  
Chicago, IL 60606-5253  
312-353-2789  
312-886-0351 (fax)

August 12, 2010

Wanda McFaggen  
Tribal Historic Preservation Officer  
St. Croix Chippewa Community  
24663 Angeline Avenue, Webster, WI 54893

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Ms. McFaggen:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

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August 12, 2010  
Ms. Wanda McFaggen  
Page Two

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Sincerely,



Marisol R. Simón  
Regional Administrator

Enclosures: Project Consultation Form  
Extended Project Description  
Agency Coordination Announcement with Project Location Map

cc (w/o encls): Sherman Banker, Wisconsin State Historic Preservation Officer  
Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation



U.S. Department  
of Transportation  
**Federal Transit  
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Ohio, Wisconsin

200 West Adams Street  
Suite 320  
Chicago, IL 60606-5253  
312-353-2789  
312-886-0351 (fax)

August 12, 2010

Larry Balber  
Tribal Historic Preservation Officer  
Red Cliff Band of Lake Superior Chippewa Indians  
88385 Pike Rd., Hwy. 13  
Bayfield, WI 54814

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Mr. Balber:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

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August 12, 2010  
Mr. Larry Balber  
Page Two

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Sincerely,



Marisol R. Simón  
Regional Administrator

Enclosures: Project Consultation Form  
Extended Project Description  
Agency Coordination Announcement with Project Location Map

cc (w/o encls): Sherman Banker, Wisconsin State Historic Preservation Officer  
Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation



U.S. Department  
of Transportation  
**Federal Transit  
Administration**

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Illinois, Indiana,  
Michigan, Minnesota,  
Ohio, Wisconsin

200 West Adams Street  
Suite 320  
Chicago, IL 60606-5253  
312-353-2789  
312-886-0351 (fax)

August 12, 2010

Corina Williams  
Tribal Historic Preservation Officer  
Oneida Nation of Wisconsin  
P.O. Box 365  
Oneida, WI 54155-0365

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Ms. Williams:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

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August 12, 2010  
Ms. Corina Williams  
Page Two

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Sincerely,



Marisol R. Simón  
Regional Administrator

Enclosures: Project Consultation Form  
Extended Project Description  
Agency Coordination Announcement with Project Location Map

cc (w/o encls): Sherman Banker, Wisconsin State Historic Preservation Officer  
Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation



U.S. Department  
of Transportation  
**Federal Transit  
Administration**

REGION V  
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Michigan, Minnesota,  
Ohio, Wisconsin

200 West Adams Street  
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Chicago, IL 60606-5253  
312-353-2789  
312-886-0351 (fax)

August 12, 2010

Sherry White  
Tribal Historic Preservation Officer  
Stockbridge-Munsee Band of Mohican Indians  
N8476 Mo He Con Nuck Road  
P.O. Box 70  
Bowler, WI 54416

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Ms. White:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

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August 12, 2010  
Ms. Sherry White  
Page Two

on the nature and scope of the project, the proposed APE would be limited to areas of direct ground disturbance and construction activity, including roadways within which the Streetcar would operate and up to 19 passenger station locations. A description and map of the various station types and proposed locations are enclosed. Also, enclosed are an extended project description and Agency Scoping Meeting invitation.

If you have questions or comments related to the proposed project, please contact R. Stewart McKenzie at the address above, by telephone at (312) 353-2866 or by e-mail at [stewart.mckenzie@dot.gov](mailto:stewart.mckenzie@dot.gov). We would be pleased to discuss with you project details as well as any confidential concerns you may identify.

Your timely response will greatly help us incorporate your concerns into project development. For that purpose, we respectfully request that you complete the enclosed Project Consultation Options form and forward it to FTA within 30 days.

Sincerely,



Marisol R. Simón  
Regional Administrator

Enclosures: Project Consultation Form  
Extended Project Description  
Agency Coordination Announcement with Project Location Map

cc (w/o encls): Sherman Banker, Wisconsin State Historic Preservation Officer  
Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation



U.S. Department  
of Transportation  
**Federal Transit  
Administration**

REGION V  
Illinois, Indiana,  
Michigan, Minnesota,  
Ohio, Wisconsin

200 West Adams Street  
Suite 320  
Chicago, IL 60606-5253  
312-353-2789  
312-886-0351 (fax)

August 12, 2010

Kelly Jackson  
Tribal Historic Preservation Officer  
Lac du Flambeau Band of Lake Superior Chippewa  
PO Box 67  
Lac du Flambeau, WI 54538

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Ms. Jackson:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

FTA will soon be preparing an Environmental Assessment for this project. We are inviting you to participate in consultation to help us identify places that may have traditional religious and cultural importance to your tribal organization. Although FTA will maintain full responsibility for the consultation process, we would like to confirm with you that it would be acceptable if the City of Milwaukee contacts you with day-to-day information about the project. Please note that we are requesting information only on such places that you believe may be impacted by the proposed project so that we may try to avoid impacts. Project planning is in preliminary phases at this time and is briefly summarized below.

The proposed project is a 2-miles starter Streetcar system (3.6-miles with future extensions) in downtown Milwaukee. The service is proposed to originate at the Milwaukee Intermodal Station and proceed east along St. Paul Avenue; going north along 4th Street up to Juneau Avenue. From the point of origin, it will run west along St. Paul Avenue across the Milwaukee River; north along Broadway; east along Wells; north and south between Wells and Ogden Avenue along both Van Buren and Jackson; east on Ogden; along both Farwell and Prospect up to E. Royall Place. Compliance with Section 106 requires that historic resources be identified in the project's Area of Potential Effects (APE) and that the project's effects upon historic properties be evaluated. Based

August 12, 2010  
Ms. Kelly Jackson  
Page Two

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Sincerely,



Marisol R. Simón  
Regional Administrator

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cc (w/o encls): Sherman Banker, Wisconsin State Historic Preservation Officer  
Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation



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312-886-0351 (fax)

August 12, 2010

William Quakenbush  
Tribal Historic Preservation Officer  
Ho-Chunk Nation  
W9814 Airport Road  
P.O. Box 667  
Black River Falls, WI 54615

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Mr. Quakenbush:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

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August 12, 2010  
Mr. William Quakenbush  
Page Two

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Sincerely,



Marisol R. Simón  
Regional Administrator

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August 12, 2010

Harold "Gus" Frank  
Chair - Executive Council  
Forest County Potawatomi Community  
P.O. Box 340  
Crandon, WI 54520

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Mr. Frank:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

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August 12, 2010  
Mr. Harold "Gus" Frank  
Page Two

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Sincerely,



Marisol R. Simón  
Regional Administrator

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Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation



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312-886-0351 (fax)

August 12, 2010

Edith Leoso  
Tribal Historic Preservation Officer  
Bad River Band of Lake Superior Chippewa Indians  
P.O. Box 39  
Odanah, WI 54861

Re: Milwaukee Streetcar Project - City of Milwaukee  
Notification of Undertaking and Request for Comments

Dear Ms. Leoso:

The City of Milwaukee, in cooperation with the Federal Transit Administration (FTA), proposes to operate a streetcar system in the downtown portion of the City of Milwaukee (see enclosed map). Because we may provide funding for the proposed project, FTA would be the Federal agency responsible for conducting government-to-government consultations with Federally-recognized tribes under the Executive Order 13084, the National Historic Preservation Act (specifically Section 106), Council on Environmental Quality Implementing Regulations of the National Environmental Policy Act, and other Federal laws and treaties.

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August 12, 2010  
Ms. Edith Leoso  
Page Two

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Sincerely,



Marisol R. Simón  
Regional Administrator

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Jeff Polenske, City of Milwaukee  
David Windsor, City of Milwaukee  
Mark Kaminski, HNTB Corporation  
Connie White, HNTB Corporation  
Ashley Booth, HNTB Corporation

## Project Consultation Options

### Menominee Indian Tribe of Wisconsin

Project Name: City of Milwaukee Streetcar Project

**For each project, please check the appropriate response. Use the back of this form or additional sheets if you wish to make comments:**

| Project                            | There are no known places of traditional religious or cultural importance present or within the vicinity of the proposed project and <b>further consultation is not requested.</b> | There are or may be places of traditional religious or cultural importance present or within the vicinity of the proposed project and <b>further consultation is requested.</b> | Our organization has no interest associated with this proposed project and <b>further consultation is not required</b> |
|------------------------------------|--|---|--|
| <b>Milwaukee Streetcar Project</b> | <input type="checkbox"/>   | <input type="checkbox"/>  | <input type="checkbox"/>   |

**If you have chosen to continue consultation, please indicate the manner in which you wish to do so:**

Mail (Address):

Phone:

Fax:

e-mail:

Other: (please describe)

If you prefer that the Federal Transit Administration not grant the local project sponsor City of Milwaukee the authority to provide you with day-to-day, project-specific updates, please indicate here:

Menominee Indian Tribe of Wisconsin designated contact for this proposed project:

\_\_\_\_\_  
NAME, TITLE (Please print) Phone: \_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Within thirty (30) days from the postmarked date of this letter, please mail to:**

**R. Stewart McKenzie, AICP – Community Planner  
Federal Transit Administration  
200 W. Adams Street, Room 320  
Chicago, Illinois 60302  
(312) 353-2866  
Or, fax to: (312) 886-0351**

## Milwaukee Connector Streetcar Project Description

The Milwaukee Connector Streetcar is a Streetcar system is being recommended to connect the heart of the Central Business District with the Milwaukee Intermodal Station and high density residential areas just north of Downtown Milwaukee. The Streetcar would provide many benefits including increased mobility, enhanced multimodal connections, and economic development.

The initial system would have five vehicles powered by an overhead electric contact system. The vehicles would operate in mixed traffic with 10 minute headways throughout most of the day and 15 minute headways during early morning and late evening hours. The vehicles would be modern low-floor Streetcars similar to those operating in the City of Portland. The initial route would have 12 station pairs that are strategically located within walking distance to numerous parking structures to facilitate Milwaukee's "Park Once" concept.

Two route extensions that would add 1.55 miles and seven stations to the initial 2-mile starter system route. The 4th Street extension would connect the Intermodal Station and several large entertainment venues with the Park East and Brewery redevelopment areas. The Prospect/Farwell extension would provide Lower East Side residents and the Brady Street commercial district with a direct connection to downtown. Service characteristics would be identical to the initial system; however, the additional route length would require one more Streetcar vehicle to maintain the planned headways.

One year after Streetcar operations begin, the initial route is anticipated to generate 1,800 rides per day and 665,000 rides per year. The route extensions are expected to increase ridership to 3,800 daily and 1.39 million annual riders. By 2030, ridership is expected to increase by 19%.

Once it is operating, the initial route and the proposed extensions would immediately be within ¼ mile of:

- 100% of all downtown hotel rooms
- 91% of all downtown first floor commercial/retail space.
- 90% of all downtown office space
- 77% of all downtown housing units
- 77% of downtown public parking facilities and lots

Recognizing that fixed guideway transit along with favorable development policies and market conditions can be a catalyst for transit-oriented development, future economic development potential within ¼ mile of the initial route and the extensions over the next 20 years could generate:

- 9,100 new housing units (63% increase)
- 13,650 new residents (55% increase)

- 1,000,000 SF of new occupied retail space (31% increase)
- 4,060,000 SF of new occupied office space (28% increase)
- 20,500 new jobs (23% increase)
- \$3.35 billion in new tax base

The capital costs for the initial Streetcar system are estimated to be \$64.3 million. The route extensions would add \$31.5 million for a total combined cost of \$95.8 million. The estimated annual cost for operating and maintaining the initial Streetcar system is \$2.62 million. The route extensions would add \$1.23 million for a total annual operating and maintenance cost of \$3.85 million.

During an alternatives analysis process, feasible funding sources are identified for the local match to build the system and annual costs to operate the system. Although it is important to identify feasible funding sources, the funding commitments and detailed financial planning is completed in the Preliminary Engineering phase.

Local Match Capital Cost Finance – As identified in the capital cost section, approximately \$16.2 million in local match will be required for the \$79.9 million in federal construction funds for the initial route and route extensions. The City will be utilizing Tax Increment Finance (TIF) funding for the local capital cost match. There is capacity within TIF districts along the route to fund the local share. In addition, there are several opportunities along the route to create new TIF districts to help fund a portion of the local share.

Annual Operating Funding – The estimated annual operations cost for the initial route is \$2.62 million and \$3.85 million for the initial route and route extensions. The annual operating costs are intended to be financed through the City's parking fund, farebox revenue and state and federal transit aid; however, if a new dedicated revenue source for a Regional Transit Authority (RTA) is approved by the State Legislature, the operating costs for the Streetcar should be financed by that source.

A local transit provider under the direction of a Regional Transit Authority is the preferred owner/operator for the Streetcar. The Wisconsin Legislature is currently considering various frameworks and funding mechanisms for an RTA in southeastern Wisconsin. Such an authority may be available to operate the proposed streetcar prior to project completion. However, until the RTA option is feasible, the City of Milwaukee will be the owner and operator of the Streetcar. It is anticipated that the City would contract for system operation and maintenance.



**TO:** Interested Agencies

**FROM:** Connie White, Environmental Planner  
HNTB Corporation  
(608) 294-5006  
cmwhite@hntb.com

**DATE:** August 12, 2010

**SUBJECT:** Agency Coordination – Agency Scoping Meeting

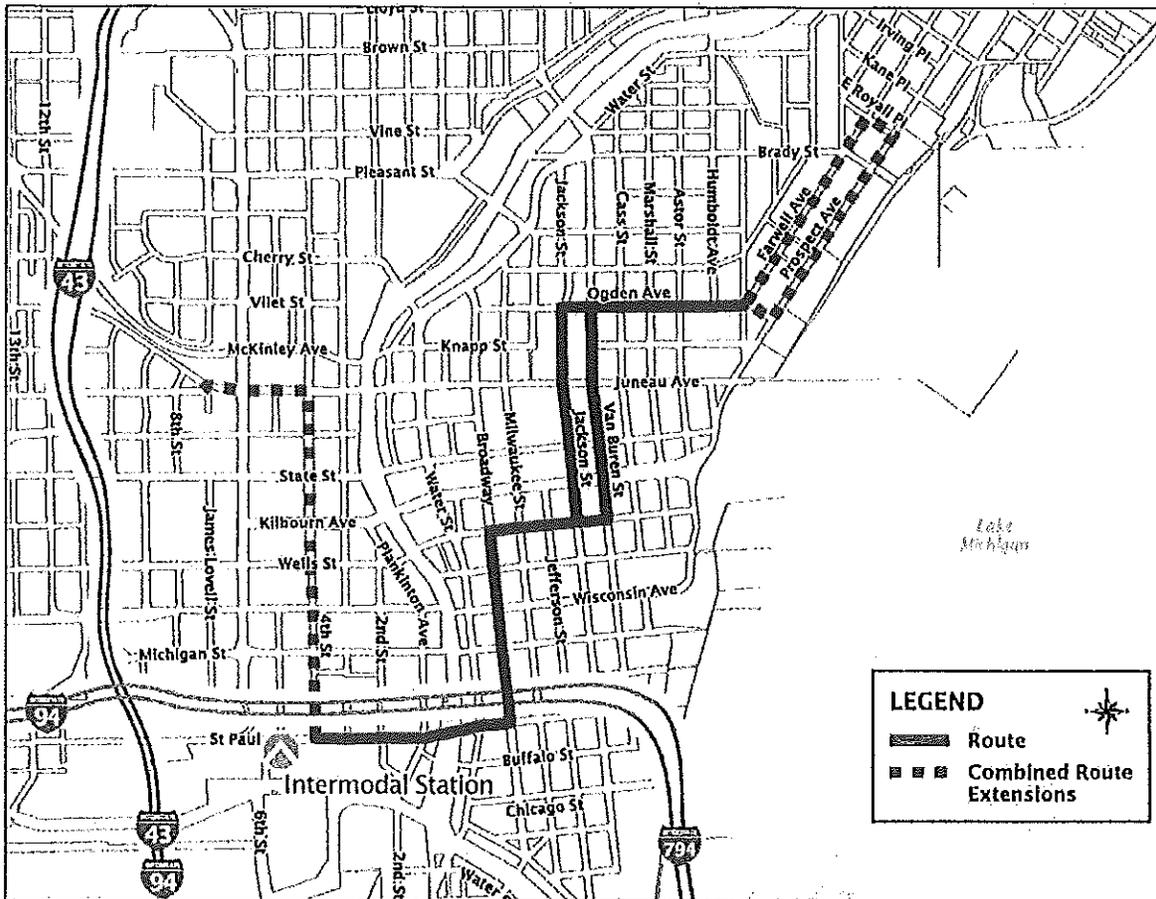
**PROJECT:** Milwaukee Connector Study – Downtown Streetcar Environmental Assessment  
City of Milwaukee, Wisconsin  
Milwaukee County

The City of Milwaukee is initiating the NEPA environmental review process and will prepare an Environmental Assessment (EA) for the above stated project. The Federal Transit Authority will be the Lead Agency for this project.

This 2-mile starter Streetcar system is being recommended to connect the heart of the Central Business District with the Milwaukee Intermodal Station and high density residential areas just north of downtown. The Streetcar would provide many benefits including increased mobility, enhanced multimodal connections, and economic development.

The initial system would have five vehicles powered by an overhead electric contact system. The vehicles would operate in mixed traffic with 10 minute headways throughout most of the day and 15 minute headways during early morning and late evening hours. The vehicles would be modern low-floor Streetcars similar to those operating in the City of Portland. The initial route would have 12 transit stops that are strategically located within walking distance to numerous parking structures to facilitate Milwaukee's "Park Once" concept.

Two route extensions, which would add 1.55 miles and up to eight additional stops to the initial route, are also under review. The 4th Street extension would connect to the Intermodal Station and several large activity generators, including the Frontier Airlines Center, Bradley Center, hotels, offices, and the Park East and Brewery redevelopment areas. The Prospect/Farwell extension would provide Lower East Side residents and the Brady Street commercial district with a direct connection to downtown. Service characteristics would be identical to the initial system; however, the additional route length would require one more Streetcar vehicle to maintain the planned headways. A map of the planned route and extensions is shown below. All improvements would be made within the existing right of way. Streetcars will operate in mixed traffic with bump-outs at the stops.



The project is being funded utilizing the City of Milwaukee's 60% share of \$91.5 million in ICE funds appropriated for building Streetcar in downtown Milwaukee.

The funding process for this project has resulted in the need to expedite the environmental review process. Your speedy response would be very much appreciated so that the environmental document can be completed in time to receive the remaining project funds.

At this time, the City is initiating early coordination with agencies regarding their needs and to identify what issues are to be addressed in the environmental assessment. Please share with us any information or concerns pertinent to your agency's mission.

An Agency Scoping meeting has been scheduled for **August 19, 2010**, at 10:00 a.m. in the main conference room at HNTB Corporation's office located at 11414 West Park Place, Milwaukee, WI 53224-3526, (414) 359-2300. At this meeting we will give an overview of the project and take your comments and any information you can provide that should be considered for inclusion in the EA.

Page 3  
August 12, 2010

We hope you or your representative can attend. If not, please give Connie White a call to discuss other ways to effectively coordinate with your agency. We will of course be happy to assist you in your review as much as possible. Feel free to email your comments and questions to me at [cmwhite@hntb.com](mailto:cmwhite@hntb.com). If you would like to review more project information before our meeting, please visit the project website at <http://www.milwaukeeconnector.com>.

cc: Kathleen Graber, Environmental Specialist, FHWA  
Mark Kaminski, Project Manager, HNTB Corporation  
Dave Windsor, City of Milwaukee  
Jeff Polenske, City of Milwaukee  
Greg Patin, City of Milwaukee  
Dan Casanova, City of Milwaukee  
Lois Kimmelman, FHWA  
Stewart McKenzie, FHWA

#### 4) Station Design Options

Three types of stations will be developed for the Streetcar – basic, enhanced and major. A basic station will be the simplest station type and serve as the baseline for all Streetcar stations. Enhanced stations will have all the elements of a basic station plus additional amenities such as curb bump-outs and raised rear platforms. Major stations are expected to be the most highly used and will have the ability to accommodate multiple vehicles.

The City of Milwaukee has received a CMAQ grant for wayfinding signage in downtown Milwaukee that will be used over the next one to two years. The Streetcar system could be integrated into the downtown wayfinding signage plan to make the Streetcar system more user friendly.

The sections below describe the elements each station will have.

##### a) Basic Station

Basic station design would be the most common type of station found along the Streetcar route. The basic station would include:

- Simple shelter design
- Single vehicle length platform
- New curb, gutter and sidewalk
- Curb bump-outs
- Utility and drainage adjustments
- Raised rear platform for no step access
- ADA provisions
- Street lighting and traffic signal adjustments
- Off vehicle fare collection system (if funding allows)
- Route and vehicle arrival information (if funding allows)

##### b) Enhanced Station

The enhanced station will have all the amenities of the basic design plus the following additional amenities;

- Unique or Enhanced Station Shelters

##### c) Major Station

The major station will only be used in a few locations that are expected to have the highest boarding and alighting rates. Major stations will have all the amenities of an enhanced station plus the following:

- Multiple vehicle capability

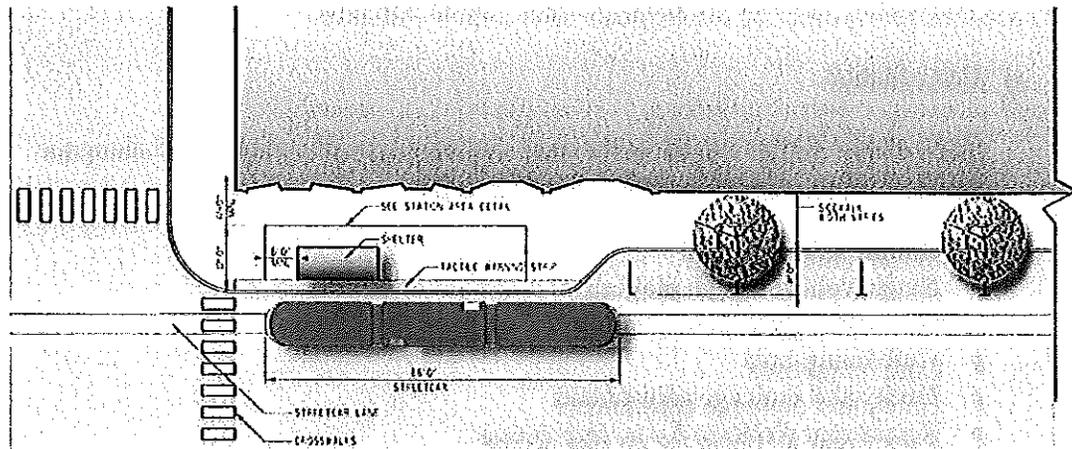
- Larger or multiple shelters and fare collection facilities
- Upgrade street and pedestrian lighting
- Vehicle marshalling areas at end of line locations

### 5) Conceptual Station Design

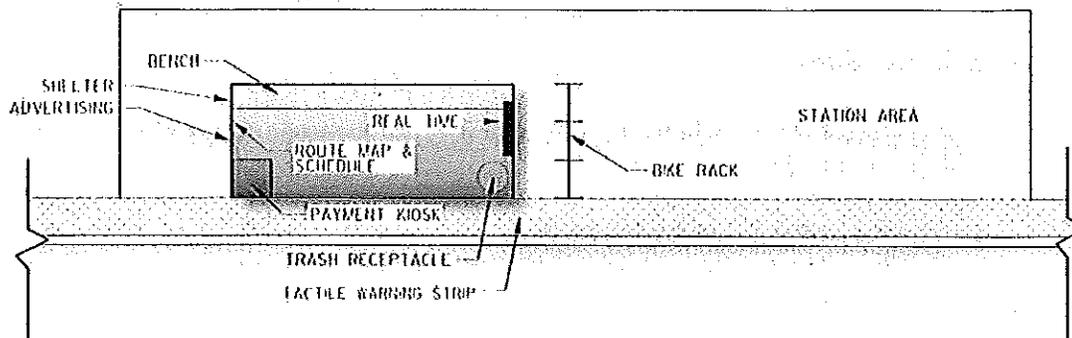
A conceptual design for a prototypical enhanced station was completed. The station concept as displayed in Exhibit 4 shows how the Streetcar vehicle and the station area relate to each other.

Exhibit 5 shows the station area in greater detail. Its features include a shelter, route map and schedule, trash receptacle, real time travel display, bike rack and tactile warning strip.

**Exhibit 4 – Enhanced Station Prototype – Conceptual Design**



**Exhibit 5 – Enhanced Station Area Detail Prototype – Conceptual Design**



6) Station locations and Design Types for the Locally Preferred Alternative.

Table 2 is a station summary for the Locally Preferred alternative. Table 3 is a listing of station locations and station types. Exhibit 6 illustrates the station locations and type as well.

**Table 2 – Locally Preferred Alternative Station Summary**

| <b>Route</b>                         | <b>Station pairs</b> | <b>Stops</b> |
|--------------------------------------|----------------------|--------------|
| Initial route                        | 12                   | 21           |
| Urban Circulator<br>Grant extensions | 7                    | 13           |
| <b>Total</b>                         | <b>19</b>            | <b>34</b>    |

**Exhibit 6 – Locally Preferred Alternative Station Locations**

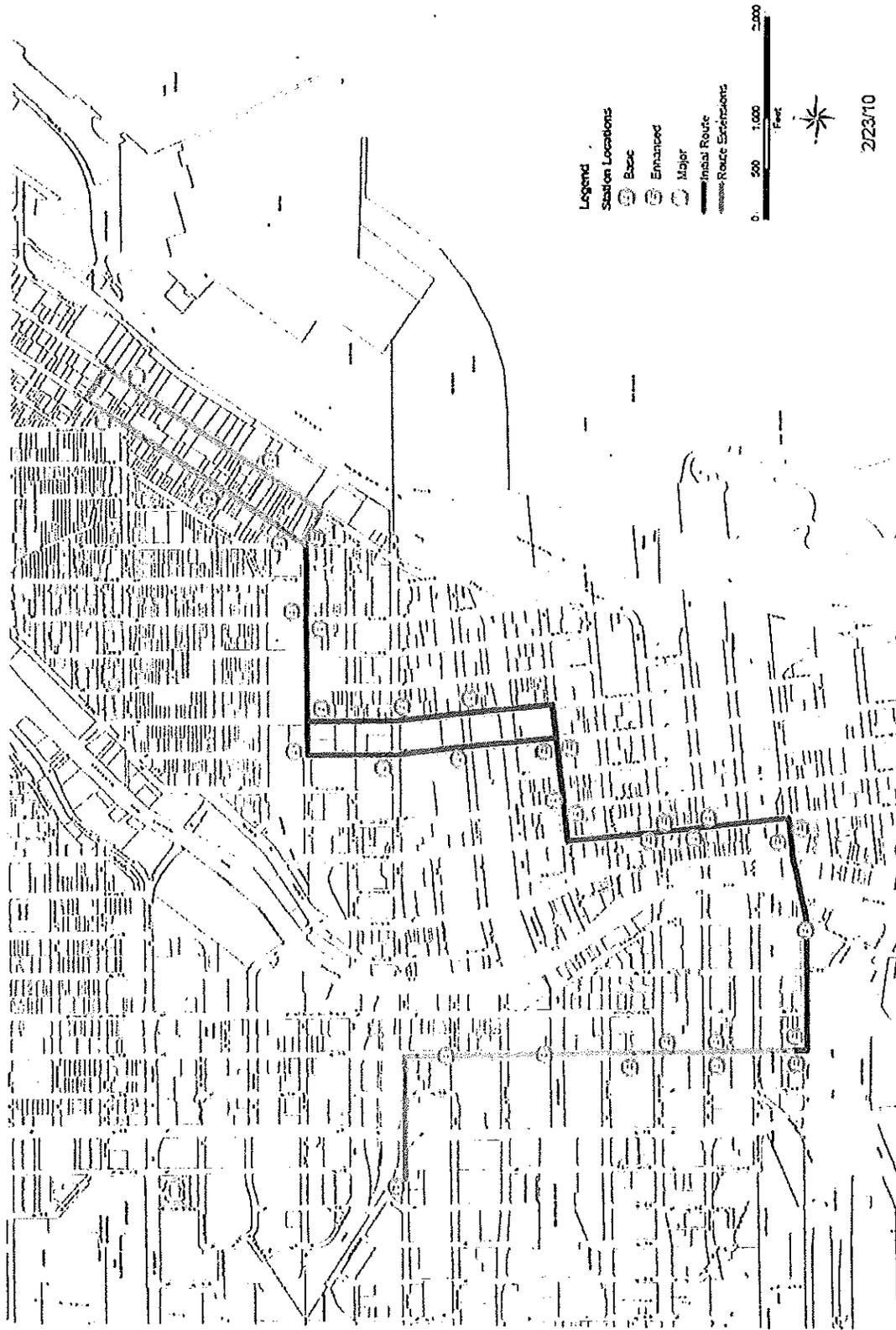


Table 3 – Locally Preferred Alternative - The station locations and types for the Preferred Alternative are also shown in Exhibit 6.

| Station Code | Stop # | Station Location |                | Corner | Station Type | Far Side/Near Side | Parking Spaces Removed | Access Conflicts |
|--------------|--------|------------------|----------------|--------|--------------|--------------------|------------------------|------------------|
|              |        | Street Name      | 6th            |        |              |                    |                        |                  |
| 1            | 1      | Juneau           | 6th            | W      | Basic        | Median             | 0                      | 0                |
| 2            | 2      | 4th              | Highland       | S      | Basic        | Median             | 0                      | 0                |
| 3            | 3      | 4th              | Kilbourn       | N      | Basic        | Median             | 0                      | 0                |
| 4            | 4      | 4th              | Wisconsin      | NW     | Enhanced     | N                  | 3                      | 0                |
| 4            | 5      | 4th              | Wisconsin      | SE     | Enhanced     | N                  | 3                      | 0                |
| 5            | 6      | 4th              | Michigan       | SE     | Basic        | N                  | 0                      | 0                |
| 5            | 7      | 4th              | Michigan       | SW     | Basic        | F                  | 4                      | 0                |
| 6            | 8      | 4th              | St Paul        | NW     | Enhanced     | N                  | 2                      | 1                |
| 6            | 9      | 4th              | St Paul        | NE     | Enhanced     | N                  | 3                      | 0                |
| 7            | 10     | St Paul          | Plankinton     | W      | Basic        | Median             | 0                      | 0                |
| 8            | 11     | St Paul          | Broadway       | SW     | Enhanced     | N                  | 3                      | 0                |
| 8            | 12     | St Paul          | Water          | NE     | Enhanced     | N                  | 4                      | 0                |
| 9            | 13     | Broadway         | Michigan       | SE     | Basic        | N                  | 4                      | 0                |
| 9            | 14     | Broadway         | Michigan       | NW     | Basic        | N                  | 4                      | 0                |
| 10           | 15     | Broadway         | Wisconsin      | SE     | Enhanced     | N                  | 4                      | 0                |
| 10           | 16     | Broadway         | Wisconsin      | NW     | Enhanced     | N                  | 4                      | 0                |
| 11           | 17     | Wells            | Milwaukee      | SW     | Basic        | N                  | 4                      | 0                |
| 11           | 18     | Wells            | Milwaukee      | NE     | Basic        | N                  | 4                      | 0                |
| 12           | 19     | Wells            | Jackson        | NW     | Enhanced     | N                  | 4                      | 0                |
| 12           | 20     | Wells            | Jackson        | SW     | Enhanced     | N                  | 4                      | 0                |
| 13           | 21     | Van Buren        | State          | SE     | Basic        | N                  | 0                      | 1                |
| 13           | 22     | Jackson          | State          | NW     | Basic        | N                  | 0                      | 0                |
| 14           | 23     | Van Buren        | Juneau         | SE     | Basic        | N                  | 0                      | 0                |
| 14           | 24     | Jackson          | Juneau         | NW     | Basic        | N                  | 0                      | 0                |
| 15           | 25     | Van Buren        | Ogden          | SE     | Basic        | N                  | 0                      | 0                |
| 15           | 26     | Ogden            | Jackson        | NE     | Basic        | N                  | 3                      | 0                |
| 16           | 27     | Ogden            | Astor          | SW     | Basic        | N                  | 3                      | 0                |
| 16           | 28     | Ogden            | Astor          | NE     | Basic        | N                  | 0                      | 0                |
| 17           | 29     | Ogden            | Prospect       | SW     | Enhanced     | N                  | 4                      | 0                |
| 17           | 30     | Farwell          | Franklin/Ogden | NW     | Basic        | N                  | 0                      | 0                |
| 18           | 31     | Prospect         | Curtis         | NE     | Basic        | F                  | 3                      | 0                |
| 18           | 32     | Farwell          | Albion         | NW     | Basic        | N                  | 1                      | 0                |
| 19           | 33     | Prospect         | Brady          | NE     | Major        | F                  | 6                      | 0                |
| 19           | 34     | Farwell          | Brady          | NW     | Major        | N                  | 2                      | 0                |

March 4, 2011

Michael McQuillen, M.S.  
Project Manager  
Heritage Research, Ltd.  
N89 W16785 Appleton Avenue  
Menomonee Falls, WI 53051

Re: Determination of Eligibility for National Register of Historic Places – Mary Brazell Property – 1462 North Farwell Avenue , Milwaukee, Wisconsin

Dear Mr. McQuillen:

I reviewed your analysis of the above property contained in the Determination of Eligibility Form and attachments sent with your letter of February 9, 2011. As its owner, I knew of some of the property's history (in particular its use as Children's Hospital), and the Children's Hospital of Milwaukee has been aware of the fact that it had been once used briefly as a children's hospital and contacted me several years ago about its history.

Until the Milwaukee Connector Streetcar Project resulted in the required review of properties along its route, no one considered this property to be of sufficient importance to be included in the National Register of Historic Places. For the reasons described in this letter, I object to a determination of this property as eligible for inclusion in the National Register of Historic Places.

Although I appreciate the description of the property and its features, I believe that its age and features and limited history as a hospital are not sufficient reasons to classify the property as eligible for inclusion on the National Register. If its age and features were sufficient, dozens of properties in the Downtown and East Side areas of Milwaukee would be eligible. The fact that it was a hospital for only four years, more than a century ago, is not a substantial, reasonable basis for declaring it historic.

Page 7 of the analysis acknowledges that the exterior of the property is not unique because the "City of Milwaukee features a number of excellent Italianate residences that are more distinctive examples of the style than the subject property." In addition, the analysis indicates that the architect is unknown and is not a factor justifying eligibility.

The only fact of significance that is set forth in the Narrative Statement of Significance to justify eligibility is that the building was once used as Milwaukee Children's Free Hospital for four years – from 1899 to 1903. However, the property was not built as a hospital; it happened to become a hospital, just as any other residence might have become a hospital. Essentially, the analysis could just as well have been done on a frame, five room, 1,200 square foot cottage built in the 1890s had it been used as a hospital for four

years and, I believe incorrectly, the analysis would have concluded that the cottage was historic.

I know that the analysis indicates that the current status of the interior is irrelevant to its historic character, but I disagree. That factor should be considered, along with the only four year usage as a hospital and the fact that the building was not constructed for hospital use, when weighing all circumstances in the analysis. The exterior of the building may be similar to the original, but the interior has been converted from a building that housed patients to a modern residence for two families, each with an up to date, 21<sup>st</sup> century kitchen, two modern bathrooms, and two bedrooms. Therefore, the interior would not in any way resemble the interior of a 19<sup>th</sup> century hospital. (If you would like to confirm this, I will arrange your visit to the property. Due to the press of other matters, and a belief that the interior was not relevant to your review, I did not arrange a visit earlier.)

Furthermore, page 6 of the analysis indicates that the Children's Hospital moved to various residences in the City, using three residences from 1894 to 1923, presumably whatever was available, and certainly not because the residences were designed for hospital use. In my view, this coincidental, brief use does not justify historic eligibility. If the other residences were still in existence, would all of them also be considered for historic status merely because of a temporary use during a 30 year period?

The fact that the current exterior of the building may be very similar to the exterior in 1900 is the only reason cited for the building's historic significance, and that fact is overshadowed by other facts: the interior in no way resembles hospital wards a century ago; the building had a very temporary use as a hospital for only four years and was not designed as a hospital; and none of the features of the building as currently in existence would give the public any idea of how a hospital was organized and set up 100 years ago.

The historic status of this building is only being considered because it happens to be on the Milwaukee Connector Streetcar route. No one visiting or viewing this building would gain any insight as to how a hospital would have operated 100 years ago because nothing is preserved from the hospital, and the exterior is no different than many other residences in that area of Milwaukee.

For these reasons I object to a determination of eligibility for this building. Please forward this response to the Wisconsin Historical Society, as you indicated in your letter of February 9, 2011. Please call me if you would like to discuss this subject further.

If there is to be any further consideration of this building as historic or a determination is being considered that is inconsistent with my objection, I would want the opportunity to present my views in more detail and personally, if necessary.

Very truly yours,

Joseph J. Ziino, Jr.

3690 Emberwood Drive  
Brookfield, WI 53005

262-783-4024  
414-412-2175

## Connie White

---

**From:** Mike McQuillen [mmcquill@hrltd.org]  
**Sent:** Monday, March 07, 2011 9:30 AM  
**To:** Connie White; Ashley Booth  
**Subject:** FW: 1462 North Farwell Avenue

My response to Mr. Ziino below.

---

**From:** Mike McQuillen [<mailto:mmcquill@hrltd.org>]  
**Sent:** Monday, March 07, 2011 9:20 AM  
**To:** 'Joseph Ziino'  
**Subject:** RE: 1462 North Farwell Avenue

Mr. Ziino –

Thank you for your response to my letter and Determination of Eligibility for your property at 1462 N. Farwell Avenue. I appreciate your comments and will pass them along to the project engineers and Wisconsin Historical Society. As I indicated in my letter, the Wisconsin Historical Society will make the final determination regarding the potential eligibility of your property, as well, their assessment is solely a determination and would not result in formal listing of your property on the National Register of Historic Places if it were found eligible. Again, thank you for your response, I will forward it on today.

Sincerely,

Michael McQuillen, Heritage Research, Ltd.

---

**From:** Joseph Ziino [<mailto:dadziino@sbcglobal.net>]  
**Sent:** Friday, March 04, 2011 4:43 PM  
**To:** [mmcquill@hrltd.org](mailto:mmcquill@hrltd.org)  
**Subject:** 1462 North Farwell Avenue

Attached is my response to your Determination for this property, objecting to the Determination. I will mail a copy to you.

We will also have a response in a few days objecting to the Determination for the properties located at 1708 and 1714 North Farwell Avenue.

March 28, 2011

Michael McQuillen, M.S.  
Project Manager  
Heritage Research, Ltd.  
N89 W16785 Appleton Avenue  
Menomonee Falls, WI 53051

Re: Determination of Eligibility for National Register of Historic Places – 1708 and  
1714-1716 North Farwell Avenue, Milwaukee, Wisconsin

Dear Mr. McQuillen:

I reviewed your analysis of the above properties contained in the Determination of Eligibility Form and attachments sent with your letter of February 9, 2011. Until the Milwaukee Connector Streetcar Project resulted in the required review of properties along its route, no one considered these properties to be of sufficient importance to be included in the National Register of Historic Places.

The only criteria for historic status cited in the analysis apparently relate to distinctive characteristics of a type or period of construction, or the work of a master, or artistic values. The buildings themselves are not associated with significant events or people. The only distinctive characteristics cited are that the buildings were of a high Victorian gothic style designed by the Douglas architectural firm and that they are next to each other. Certainly there are many other buildings of the same style from the same era that would satisfy these criteria and that are not designated as historic places. To designate all of such buildings as historic would not be reasonable and to single out these buildings is not fair. The circumstances cited for eligibility do not justify the burdens on a property owner's use of a property that historic designation would involve.

For these reasons I object to a determination of these properties as eligible for inclusion in the National Register of Historic Places.

Please forward this response to the Wisconsin Historical Society, as you indicated in your letter of February 9, 2011. If there is to be any further consideration of these buildings as historic or a determination is being considered that is inconsistent with my objection, I would want the opportunity to present views in more detail and in person, if

necessary. Please contact my son, Joseph Ziino, Jr., who is authorized to represent me in this matter, and who can provide you with further information on my behalf. He can be contacted at 3690 Emberwood Drive, Brookfield, WI 53005, and his phone number is 414-412-2175.

Very truly yours,

Joseph J. Ziino  
2462 North Prospect Avenue  
Milwaukee, WI 53211



March 30, 2011

Wisconsin Historical Society  
Division of Historic Preservation  
Office of Preservation Planning  
816 State Street  
Madison, WI 53706

**SUBJECT: REQUEST FOR SHPO COMMENT AND CONSULTATION ON A FEDERAL  
UNDERTAKING  
MILWAUKEE DOWNTOWN CONNECTOR – STREETCAR  
SHPO ID #10-0983**

With this letter we respectfully submit the following documentation regarding the Milwaukee Streetcar project.

1. Request for SHPO comment and Consultation on a Federal Undertaking form;
2. Architecture/History Survey Worksheet A and supporting materials;
3. Architecture/History Survey Worksheet B and supporting materials; and
4. Determinations of Eligibility and supporting materials.

We look forward to your review of the above materials and your concurrence on the Determinations of Eligibility so that we can continue the implementation of the Section 106 process with an assessment of effects. Thanks for your assistance!

Sincerely,

A handwritten signature in black ink that reads 'Constance M. White'. The signature is written in a cursive, flowing style.

Constance M. White, AICP  
Transportation Planner

cc: Stewart MacKenzie, FTA Region V  
Jeff Polenske, City of Milwaukee  
John N. Vogel, Heritage Research, Ltd.  
Brian Faltinson, Heritage Research Ltd.  
Mike McQuillen, Heritage Research Ltd.

April 5, 2011

Wisconsin Historical Society  
Division of Historic Preservation  
Office of Preservation Planning  
816 State Street  
Madison, WI 53706



**SUBJECT: REQUEST FOR SHPO COMMENT AND CONSULTATION ON A FEDERAL  
UNDERTAKING  
MILWAUKEE DOWNTOWN CONNECTOR – STREETCAR  
SHPO ID #10-0983**

Please see attached correspondence from a property owner at the following properties that were determined eligible by HRL in our recent submittal.

1. Letter dated March 4, 2011 from property owner Joseph J. Ziino re; 1462 North Farwell Avenue, Milwaukee, WI
2. Letter dated March 28, 2011 from property owner Joseph J. Ziino re; 1714-1716 North Farwell Avenue, Milwaukee WI

Mike McQuillen has advised Mr. Ziino that his letters will be passed along to SHPO and that the final determination regarding eligibility is made in consultation with you. Please feel free to call with questions.

Sincerely,

A handwritten signature in black ink that reads "Constance M. White".

Constance M. White, AICP  
Transportation Planner

cc: Stewart MacKenzie, FTA Region V  
Jeff Polenske, City of Milwaukee  
John N. Vogel, Heritage Research, Ltd.  
Brian Faltinson, Heritage Research Ltd.  
Mike McQuillen, Heritage Research Ltd.



June 16, 2011

Ms. Constance M. White  
HNTB Corporation  
10 W. Mifflin Street, Suite 300  
Madison, WI 53703

SHSW#: 10-0983/MI  
RE: Milwaukee Streetcar Project

Dear Ms. White:

We have reviewed the Determinations of Eligibility for the Justus & Margaret Vallat Houses at 1708 & 1714-16 North Farwell Avenue and the Blackstone Apartments at 709 East Juneau Avenue in the City of Milwaukee. We concur with your assessment that the Justus & Margaret Vallat Houses at 1708 & 1714-16 North Farwell Avenue are eligible for inclusion in the National Register of Historic Places.

We have had the opportunity to review the submitted DOE for the Blackstone Apartments at 709 E Juneau Ave. While we believe the Blackstone Apartments are eligible for inclusion in the National Register, we do not agree with the findings that it is eligible as an example of the Neoclassical Revival Style. However, we believe the building is eligible as an example of a property type: the apartment hotel. We request that the DOE be rewritten with the building reexamined within the apartment hotel context. The DOE included an illustration from Robert Cash's *Modern Type of Apartment Hotels*. The introductory pages to the publication, as well as the first page of the Blackstone Apartments feature should prove helpful. The January 2005 issue of *The Journal of Decorative and Propaganda Arts* contains an article that discusses the apartment hotel in New York. While the focus is on this trend in New York City, the general context may apply to housing in Milwaukee. Please submit the amended DOE for this property for our review and signature when the requested changes have been made.

Enclosed you will find the Determination of Eligibility form for the Justus & Margaret Vallat Houses at 1708 & 1714-16 North Farwell Avenue have been signed by Michael Stevens, Wisconsin State Historic Preservation Officer. Please return a fully executed signature page for each Determination of Eligibility Form to our office for our records.

We look forward to working with you to assess the effects the proposed undertaking will have on historic properties pursuant to 36 CFR 800.5.

Please call me at (608) 264-6507 if you have any questions concerning this matter.

Sincerely,

Sherman Banker  
Wisconsin State Historic Preservation Office



July 20, 2011

Ms. Lois Kimmelman  
U.S. Dept. of Transportation  
Federal Transit Administration  
200 West Adams St., Ste. 320  
Chicago, IL 60606-5253

SHSW#: 10-0983/MI  
RE: Milwaukee Street Car Project

Dear Ms. Kimmelman:

We have reviewed your submittal of July 14, 2011 which included "Historic Preservation Technical Report and Recommendation of Section 106 Finding" regarding the above referenced project. We concur with your assessment that the proposed undertaking will result in a no adverse effect to historic properties located within the Area of Potential Effect pursuant to 36 CFR 800.5(b) if the project is constructed according to the plans submitted for review.

Please call me at (608) 264-6507 if you have any questions concerning this matter.

Sincerely,

Sherman Banker  
Wisconsin State Historic Preservation Office

07-22-11 IN 2517  
07-22-11 IN 2518

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U.S. Department  
of Transportation  
Federal Transit  
Administration

REGION V  
Illinois, Indiana,  
Michigan, Minnesota,  
Ohio, Wisconsin

200 West Adams Street  
Suite 320  
Chicago, IL 60606-5253  
312-353-2789  
312-886-0351 (fax)

September 15, 2011

Mr. Sherman Banker  
Wisconsin State Historic Preservation Office  
Wisconsin Historical Society  
816 State Street  
Madison, WI 53707

Re: Streetcar Project, Milwaukee, Wisconsin (SHSW# 10-0983/MI)

Dear Mr. Banker:

This letter contains the Federal Transit Administration (FTA)'s determination of cultural resources effects for the above-mentioned project. The project will involve the use of FTA funds and therefore will be a federal undertaking, and is subject to the provisions of Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f) and 36 C.F.R. Part 800.

FTA is in receipt of your letter dated July 20, 2011, in which the Wisconsin State Historic Preservation Office (SHPO) stated that the project will have no adverse effect to historic properties located within the Area of Potential Effect. Based on the conclusions drawn in that letter and FTA's assessment of the project's effects on cultural resources, we find that the project will have no adverse effect on Section 106 resources.

Please contact Lois Kimmelman at (312) 353-4060 if you have any questions.

Sincerely,

Marisol R. Simón  
Regional Administrator

cc: Chris Bertch, FTA  
Lois Kimmelman, FTA  
Jeffrey Polenske, Milwaukee

**APPENDIX D**

**AIR QUALITY DATA AND INFORMATION**



### National and Wisconsin Ambient Air Quality Standards

| Pollutant                                | Primary Standards <sup>a</sup>    | Averaging Time                        | Secondary Standards <sup>b</sup>  |
|--|-----------------------------------|---------------------------------------|-----------------------------------|
| Carbon Monoxide (CO)                     | 9 ppm (10 mg/m <sup>3</sup> )     | 8 hour <sup>c</sup>                   | None                              |
|  | 35 ppm (40 mg/m <sup>3</sup> )    | 1 hour <sup>c</sup>                   | None                              |
| Lead (Pb)                                | 0.15 µg/m <sup>3</sup>            | Rolling 3-Month Average <sup>d</sup>  | Same as Primary                   |
|  | 1.5 µg/m <sup>3</sup>             | Quarterly Average                     | Same as Primary                   |
| Nitrogen Dioxide (NO <sub>2</sub> )      | 53 ppb <sup>e</sup>               | Annual (Arithmetic Mean)              | Same as Primary                   |
|  | 100 ppb                           | 1-hour <sup>f</sup>                   | None                              |
| Particulate Matter (TSP) WI <sup>g</sup> | None                              | 24 hour <sup>c</sup>                  | 150 mg/m <sup>3(c)</sup>          |
| Particulate Matter (PM <sub>10</sub> )   | 150 µg/m <sup>3</sup>             | 24 hour <sup>h</sup>                  |                                   |
| Particulate Matter (PM <sub>2.5</sub> )  | 15 µg/m <sup>3</sup>              | Annual <sup>i</sup> (Arithmetic Mean) | Same as primary                   |
|  | 35 µg/m <sup>3</sup>              | 24 hour <sup>j</sup>                  |                                   |
| Ozone (O <sub>3</sub> ) WI               | 0.12 ppm (235 µg/m <sup>3</sup> ) | 1 hour                                | Same as primary                   |
| Ozone (O <sub>3</sub> )                  | 0.075 ppm (2008 std)              | 8 hour <sup>k</sup>                   | Same as primary                   |
|  | 0.08 ppm (1997 std)               | 8 hour <sup>l</sup>                   | Same as primary                   |
| Sulfur Dioxides (SO <sub>2</sub> )       | 0.03 ppm (80 µg/m <sup>3</sup> )  | Annual (Arithmetic Mean)              |                                   |
|  | 0.14 ppm (365 µg/m <sup>3</sup> ) | 24 hour <sup>c</sup>                  |                                   |
|  |                                   | 3 hour <sup>c</sup>                   | 0.5 ppm (1300 µg/m <sup>3</sup> ) |
|  | 75 ppb <sup>m</sup>               | 1 – Hour                              | None                              |

<sup>a</sup> "Primary Standards" are the limits set to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.

<sup>b</sup> "Secondary Standards" are limits set to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

<sup>c</sup> Not to be exceeded more than once per year.

<sup>d</sup> Final Rule signed October 15, 2008.

<sup>e</sup> The official level of the annual NO<sub>2</sub> standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

<sup>f</sup> To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).

- <sup>g</sup> PM<sub>10</sub> standards were adopted and most total suspended particulate matter (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.
- <sup>h</sup> Not to be exceeded more than once per year on average over 3 years.
- <sup>i</sup> To attain this standard, the 3 year average of the weighted annual mean PM<sub>2.5</sub> concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m<sup>3</sup>.
- <sup>j</sup> To attain this standard, the 3 year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m<sup>3</sup> (effective December 17, 2006).
- <sup>k</sup> To attain this standard, the 3-year average of the fourth highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008).
- <sup>l</sup> To attain this standard, the 3-year average of the fourth highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm. The 1997 standard – and the implementation rules for that standard – will remain in place for implementation purposes as U.S. EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard. EPA is in the process of reconsidering these standards (set in March 2008).
- <sup>m</sup> Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

Source: <http://www.epa.gov/air/criteria.html>, accessed December 15, 2010 and Wisconsin Administrative Code, Chapter NR 404.04, November, 2010.

**APPENDIX E**

**NOISE DATA AND INFORMATION**



# Milwaukee Streetcar Noise and Vibration Technical Study Report

May 2011

## 1.1.1 Noise and Vibration

The noise and vibration impact assessment is based on the guidelines established in the Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment* document, which is also referred to as the FTA Guidance Manual.<sup>1</sup> The FTA Guidance Manual provides background information on transit noise and vibration, establishes FTA's transit noise and vibration impact criteria, and presents methodologies for assessing and mitigating noise and vibration impacts. The following impact assessment presents the existing conditions along the streetcar corridor, projects future noise and vibration levels, compares the future levels to the impact criteria, identifies impacts and, if needed, assesses potential mitigation measures.

### Noise

#### Noise Background

Noise is a form of vibration that can cause pressure variations in 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 like pain than sound. The decibel scale is a logarithmic representation of the actual sound pressure variations. For example, a 26% 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 3 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 5 dB in the sound level. A change of ten times the energy level would result in a 10 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. Therefore, the unit of A-weighted noise 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 disturbing; brief and intense noises can interrupt, annoy or startle. It is for these reasons that environmental noise is analyzed statistically.

---

<sup>1</sup> *Transit Noise and Vibration Impact Assessment*. Prepared by Harris Miller Miller & Hanson, Inc. Federal Transit Administration, FTA-VA-90-1003-06. May 2006.

The single number descriptors, Leq(h) and Ldn, are used to assess transit noise. The Leq(h) is the equivalent steady-state sound having the same A-weighted sound energy as that contained in the time-varying sound over a one-hour period. The Leq correlates reasonably well the effects of noise on people. The Day-Night Sound Level, or Ldn, is based on the A-weighted equivalent sound level for a 24-hour period, with an additional 10 decibels added to the actual or projected noise levels during the nighttime hours (10 PM to 7 AM). All noise levels in this environmental assessment will be A-weighted sound levels.

### **Noise Criteria**

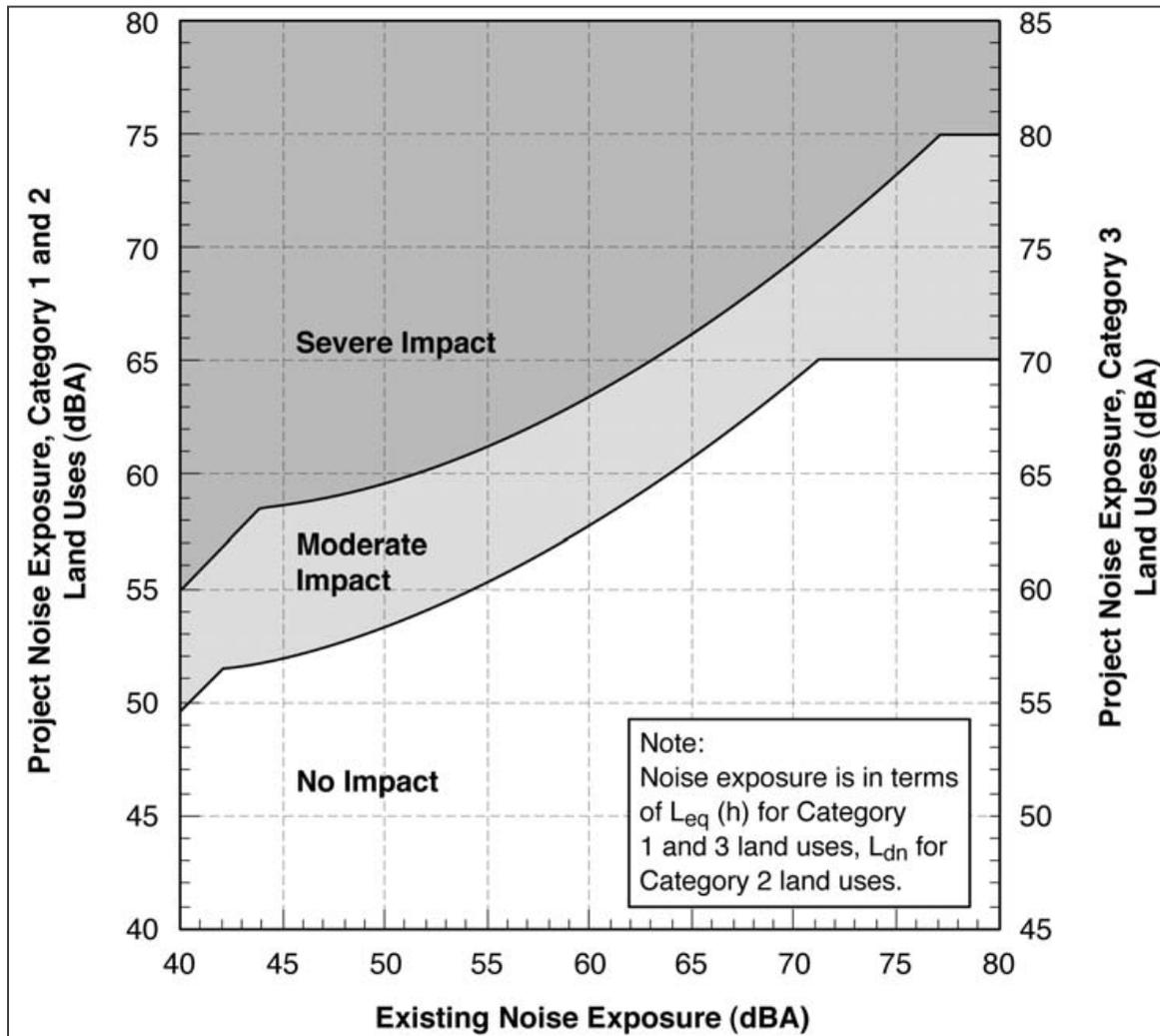
The FTA's noise impact criteria are based on a comparison of existing and future outdoor noise levels. The criteria were developed to address potential annoyance in a residential environment using Ldn as the noise descriptor. The Ldn noise level descriptor is defined as the 24-hour Leq where the nighttime noise from 10:00 PM to 7:00 AM is increased by 10 decibels prior to including the noise levels in the 24-hour calculation. A graphical representation of the FTA criteria is presented in Figure 1.

### **Affected Environment**

Ambient noise measurements were taken at seven locations along the proposed route: one park, a fire house, and five residential areas. A total of 28 measurements were taken for 15-minute durations during four time periods; morning, afternoon, evening on November 9, 2010 and late night (after 10:00 PM) on November 10, 2010. The measurements were made with an integrating sound level analyzer meeting ANSI and IEC Type 1 specifications. The data collected during each measurement is presented in Table 1.

The existing Ldn noise levels for each site were developed from the four measurement periods at each site. The 15-minute measurements were distributed over a 24-hour day to represent the diurnal nature of city noise levels. The resulting Ldn noise levels along Juneau Avenue, 4th Street, Wells Street, and Jackson Street are 64 dBA. Daily activities along Ogden Avenue, Prospect Avenue, Broadway and Farwell Avenue are slightly greater, resulting in Ldn noise levels ranging from 65 to 69 dBA. The Ldn noise level along St. Paul Avenue is 75 dBA as a result of the train operations through the Milwaukee Intermodal Station. The resulting Ldn noise levels along the study area are presented in Appendix A.

**Figure 1: Federal Transit Administration’s Noise Impact Criteria**



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

1. Tracts of land where quiet is an essential element in their intended purpose such as outdoor amphitheaters and concert pavilions,
2. Residences and buildings where people normally sleep, and
3. Institutional land uses such as schools, libraries, theaters and churches with primarily daytime and evening use.<sup>2</sup>

<sup>2</sup> *Transit Noise and Vibration Impact Assessment*. Prepared by Harris Miller Miller & Hanson, Inc. Federal Transit Administration, FTA-VA-90-1003-06. May 2006, Table 3.2, pp 3-5.

**Table 1: Measured Existing Noise Levels, dBA**

| Field Site # | Site Description   | Date     | Start Time  | Duration | Noise Level          |                    |                      |
|--------------|--|----------|-------------|----------|----------------------|--------------------|----------------------|
|              |  |          |             |          | Ambient dBA $L_{eq}$ | Train dBA $L_{eq}$ | Train Horn $L_{max}$ |
| 1            | 29 ft east of N. 2nd St., 57 ft north of W. St. Paul Ave.  | 11/9/10  | 7:30 AM     | 15 min.  | 66                   |                    |                      |
|              |  | 11/9/10  | 12:30 PM    | 15 min.  | 64                   |                    |                      |
|              |  | 11/9/10  | 8:53 PM     | 15 min.  | 75                   | 78                 | 95                   |
|              |  | 11/10/10 | 12 midnight | 15 min.  | 60                   |                    |                      |
| 2            | 49 ft east of N. Broadway St., 82 ft south of E. Wells St.   | 11/9/10  | 8:01 AM     | 15 min.  | 66                   |                    |                      |
|              |  | 11/9/10  | 12:54 PM    | 15 min.  | 65                   |                    |                      |
|              |  | 11/9/10  | 9:23 PM     | 15 min.  | 62                   |                    |                      |
|              |  | 11/10/10 | 0:21 AM     | 15 min.  | 59                   |                    |                      |
| 3            | In Cathedral Square between N. Jackson and N. Jefferson Streets, 20 feet north of E. Wells St.               | 11/9/10  | 8:27 AM     | 15 min.  | 63                   |                    |                      |
|              |  | 11/9/10  | 1:35 PM     | 15 min.  | 62                   |                    |                      |
|              |  | 11/9/10  | 9:43 PM     | 15 min.  | 59                   |                    |                      |
|              |  | 11/10/10 | 0:40 AM     | 15 min.  | 55                   |                    |                      |
| 4            | N. Van Buren St. entrance to 1300 N. Jackson St., 33 feet west of N. Van Buren St., 6 feet north of driveway | 11/9/10  | 8:57 AM     | 15 min.  | 64                   |                    |                      |
|              |  | 11/9/10  | 1:56 PM     | 15 min.  | 63                   |                    |                      |
|              |  | 11/9/10  | 10:06 PM    | 15 min.  | 61                   |                    |                      |
|              |  | 11/10/10 | 1:01 AM     | 15 min.  | 56                   |                    |                      |
| 5            | 20 feet east of N. Marshall St., 15 feet south of E. Ogden St.   | 11/9/10  | 7:28 AM     | 15 min.  | 66                   |                    |                      |
|              |  | 11/9/10  | 12:29 PM    | 15 min.  | 64                   |                    |                      |
|              |  | 11/9/10  | 9:02 PM     | 15 min.  | 60                   |                    |                      |
|              |  | 11/9/10  | 11:58 PM    | 15 min.  | 56                   |                    |                      |
| 6            | 43 feet east of N. Prospect Ave., 6 feet north of Foot Path to N. Lincoln Memorial Drive                     | 11/9/10  | 8:09 AM     | 15 min.  | 63                   |                    |                      |
|              |  | 11/9/10  | 1:00 PM     | 15 min.  | 63                   |                    |                      |
|              |  | 11/9/10  | 9:32 PM     | 15 min.  | 60                   |                    |                      |
|              |  | 11/10/10 | 0:18 AM     | 15 min.  | 57                   |                    |                      |
| 7            | 20 feet east of N Farwell Ave., 8 feet Curtis Pl.  | 11/9/10  | 8:39 AM     | 15 min.  | 69                   |                    |                      |
|              |  | 11/9/10  | 1:23 PM     | 15 min.  | 68                   |                    |                      |
|              |  | 11/9/10  | 9:55 PM     | 15 min.  | 64                   |                    |                      |
|              |  | 11/10/10 | 0:37 AM     | 15 min.  | 61                   |                    |                      |

Source: HNTB Corporation. November 2010.

**Environmental Effects**

Under the No Action Alternative, the streetcar would not be constructed and ambient noise levels would remain unaffected by the streetcar operations and construction activities.

The effects of the streetcar LPA are discussed below.

There are six potential noise sources from streetcar operations:

- Wheel/rail rolling noise, which is a function of operating speed and the condition of the wheels and rails
- Wheel/rail impact noise at turnouts

- Wheel squeal on tight radius curves. This is extremely variable and was not modeled for this EA. The streetcars will be equipped with friction modifier<sup>3</sup> dispenser, that when applied in the area of the wheel contact with the rail reduces the potential for wheel squeal. This friction modifier will be formulated for all weather usage. Application of the friction modifier will be controlled by the operator.
- Streetcar auxiliary equipment – ventilating units, electric drive motors, etc. (These are typically not major noise sources on modern streetcars.)
- Warning device noise is not an issue on this project as the streetcars will be sharing the right-of-way with local traffic and will only be sounded if the operator feels it is necessary to avoid a problem. The streetcars will be equipped a bell and a horn. The bell will be used under normal operating conditions while the horn will only be used if the operator feels that there is a dangerous situation.
- Traction power substations (substations) will be located at three locations within the study area. The substations consist of single story prefabricated buildings that contain transformers. These buildings will be heated and cooled with wall mounted HVAC systems. The transformers within the substation create a low frequency hum; the HVAC systems will create noise levels similar to an air conditioner.

Land use along the streetcar corridor is a mixture of commercial, mixed commercial/residential, residential, churches, schools and public buildings. Based upon the FTA's three land use categories, Figure 40, there are no known Category 1 land uses along the corridor and the primary areas of interest are Category 2 land uses; mixed commercial/residential and residential; and Category 3 land uses; churches and schools. Noise mitigation is to be considered when measures are necessary to mitigate severe impacts or moderate impacts that border on severe.

The projected Ldn noise levels were developed using the equations in the FTA Guidance Manual. The Ldn noise level is a function of the noise source (how loud the streetcar is at a given distance and speed), adjustments for operating speeds, and distance from track to a receiver, (a building or a group of buildings at the same distance from the track) along with daytime and nighttime pass-bys per hour. Manufacturer's noise source data on three modern streetcars operating at 25 mph with the proposed headways were used in the analysis. The resulting Ldn noise levels and impacts along the study area are presented in Appendix A, Tables A-1 and A-2.

There are 69 residential buildings along the corridor; these buildings represent single family residences, multi-family residences, condominiums and hotels. The existing Ldn noise levels adjacent these buildings range from 64 to 69 dBA with the condominium on 2<sup>nd</sup> Street and St. Paul Avenue exposed to an Ldn of 75 dBA. Projected operations of the streetcar will create noise levels that range from 47 – 62 dBA, Ldn. The resulting Ldn noise levels, existing plus streetcar operations will range from 64 – 70 dBA, Ldn, with the Ldn noise level at the condominium on 2<sup>nd</sup> Street and St. Paul Avenue remaining 75 dBA. Increases in the Ldn noise level along the corridor will range from 0 to 2 decibels.

The majority of the residential buildings along the corridor will not experience a noise impact from the operations of the streetcar system. There are eight residential buildings along the north side of Ogden Avenue, from Van Buren Street to Farwell Avenue that have an existing Ldn noise level of 65 dBA. The threshold for FTA's Moderate Impact for this area is 61 dBA Ldn. Streetcar operations will create projected Ldn noise levels ranging from 56 – 62 dBA. The 62 dBA noise level would expose these residences to an Ldn noise level that is 1 decibel greater than the FTA Moderate Impact threshold (See

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<sup>3</sup> Friction modifier is an environmentally safe liquid or solid applied to streetcar wheels to reduce wheel squeal caused by the wheels sliding on the rails through curves.

Appendix A). This projected impact only occurred with the source noise data from one of the modern street cars used in the noise analysis; the other two modern streetcars did not create an impact.

There are nine institutional properties (FTA Criteria - Land Use Category 3) adjacent to the proposed streetcar alignment; MATC, Cathedral Square, Metrobrook Church, Tenor High School, MSOE Walter Schroeder Library, St. John Evangelist Cathedral, St. Joan Antida High School, Lincoln Center Middle School and First Unitarian Society. Hourly Leq noise levels adjacent to these properties range from 63 to 66 dBA. Projected Leq noise levels created by the proposed operation of the streetcars range from 51 – 63 dBA. Noise levels at these receptors would not exceed the impact threshold.

There are four turnouts proposed along the streetcar route. Two of the four turnouts are located in a residential area at intersection of Ogden and Farwell Avenues. The operating speeds at the turnouts are low and will not create noise impact.

There are three substations located adjacent to the proposed streetcar route. The substation proposed to be located on the northeast corner of Cass and Knapp Streets would have residences within 60 to 100 feet of the substation. Using noise level data provided by a substation HVAC manufacturer and the procedures presented in the FTA Guidance Manual the Ldn noise level at the nearest residence would range from 51 to 55 dBA. Since the ambient Ldn noise level is in the low 60 dBA range, the noise from the substation will not create an impact according to FTA criteria.

### **Mitigation Measures**

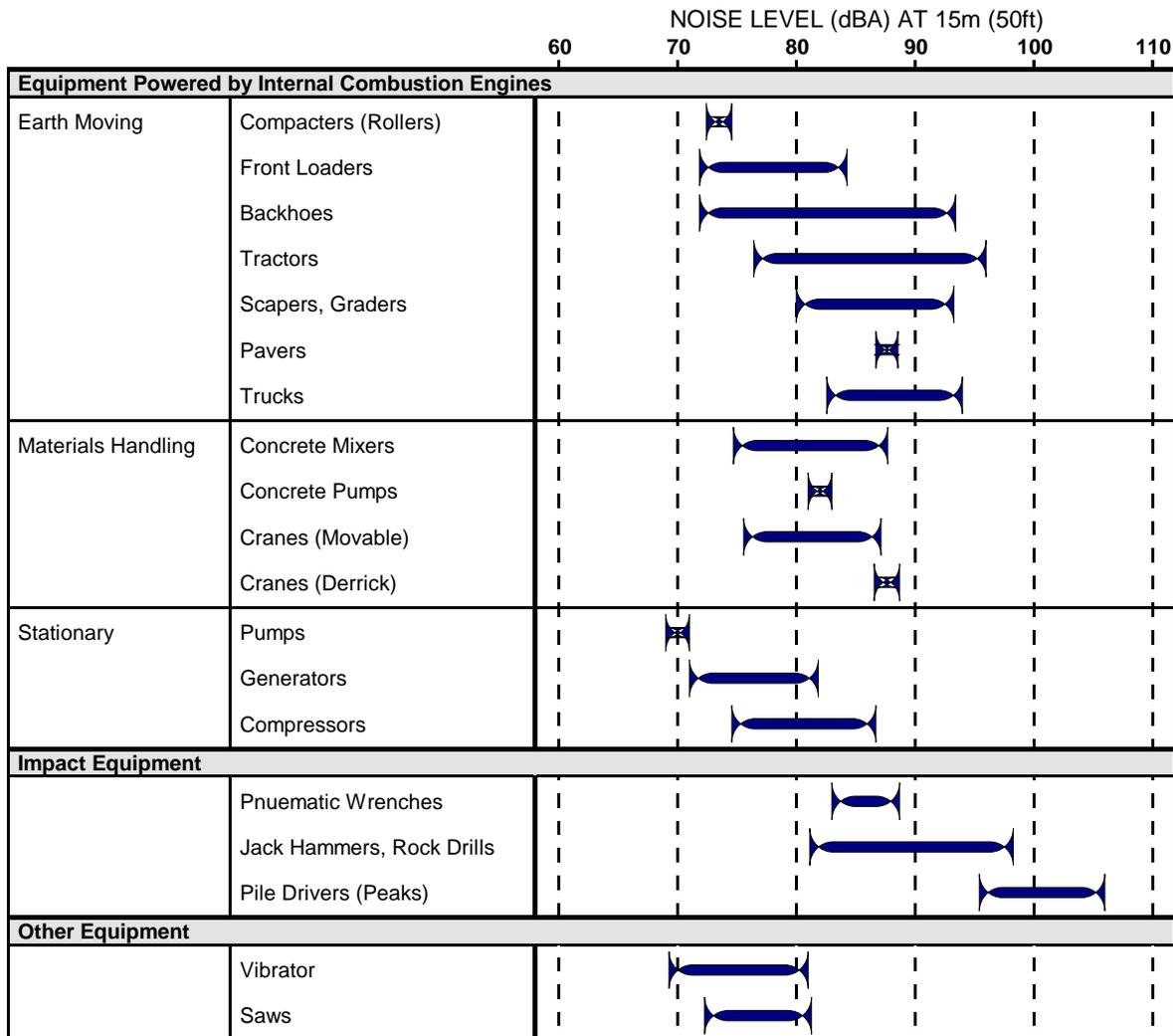
Noise mitigation generally involves the treatment of three fundamental components: the source, the propagation path and the receiver. A major source of noise from steel-wheel/steel-rail systems is the wheel/rail interaction. Resilient wheels, which have been recommended by a number of modern streetcar manufacturers, can reduce rolling noise by a minimum of 2 dB. Resilient wheels typically have rubber installed between the wheel hub and the steel wheel that rides on the rail. This mitigation measure has been utilized in the noise analysis and will be specified in the streetcar specifications. Likewise, the proposed rail design has a significant portion of the embedded rail that is not in contact with the steel wheel encased in rubber. This encasement or rubber boot can reduce noise by another 2 dB and was included in the noise analysis. The primary source of any further mitigation of the streetcar noise will be the development of an attainable noise specification for the streetcar that eliminates the Moderate Impact. Based on noise data from two modern streetcar manufacturers, preparing an attainable noise specification should not be difficult. During the life of the streetcars, maintenance of wheels by truing wheels and grinding the rails will help eliminate future increases in noise as maintaining smooth wheel/rail interaction can reduce age and wear induced noise.

### **Construction Noise**

The major construction elements of this project are expected to be pavement removal, hauling, grading, and paving. General construction noise impacts for passersby and those individuals living or working near the project can be expected from these activities. Table 2 lists some typical peak operating noise levels at a distance of 15 m (50 feet), grouping construction equipment according to mobility and operating characteristics. Considering the relatively short-term nature of construction noise, impacts are not expected to be substantial. The structural characteristics of nearby buildings, whether wood frame, steel frame or masonry, are believed to be sufficient to moderate the effects of intrusive construction noise.

Construction activities will comply with the City of Milwaukee's Code of Ordinances, Chapter 80, Subchapter 2 Noise Control 80-60.

**Table 2: Construction Equipment Sound Levels**



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

## **Vibration**

### **Background**

Ground-borne vibration and noise are caused by vibrations originating at the wheel/rail interface and propagating from the rails through the intervening soil and rock to nearby buildings. The resulting vibration may be perceptible as mechanical motion (such as windows rattling or dishes on shelves rattling). The acoustic radiation by the building components may cause an audible low-frequency rumble.

Airborne noise from streetcars generally overpowers the ground-borne noise and vibration. However, the potential impacts of ground-borne vibration and noise cannot be ignored. Ground-borne vibration and noise inside buildings are often near the threshold of human sensitivity. In this range, a small increase in vibration or noise levels can cause increases in human response. Unfortunately, variability in soil and rock conditions and building designs make prediction more difficult than for airborne noise levels.

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 building damage. However, the human body responds

better to an average velocity. Therefore, the average vibration velocity of a vibrating surface is used to assess transit vibration. The single number descriptor, or unit, is VdB.<sup>4</sup> Vibration velocity in decibels is ratio of the root mean square velocity amplitude to the reference velocity amplitude. All the vibration levels in this environmental assessment will be referenced to  $1 \times 10^{-6}$  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 broad band noise with the same dBA level.

### **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, 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 is 65 VdB.<sup>5</sup>

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 ground-borne noise sounds louder than broadband noise with the same dBA level. The FTA criteria for ground-borne vibration and noise are presented in Table 3.

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<sup>4</sup> *Transit Noise and Vibration Impact Assessment*. Prepared by Harris Miller Miller & Hanson, Inc. Federal Transit Administration, FTA-VA-90-1003-06. May 2006. pp. 7-4.

<sup>5</sup> *Transit Noise and Vibration Impact Assessment*. Prepared by Harris Miller Miller & Hanson, Inc. Federal Transit Administration, FTA-VA-90-1003-06. May 2006. pp 7-5.

**Table 3: Ground-borne Vibration and Noise Impact Criteria**

| Land Use Category  | Ground-borne Vibration Impact Levels, VdB |                                |                                | Ground-Borne Noise Impact Levels, dBA |                                |                                |
|--|---|--------------------------------|--------------------------------|---------------------------------------|--------------------------------|--------------------------------|
|  | Frequent Events <sup>1</sup>              | Occasional Events <sup>2</sup> | Infrequent Events <sup>3</sup> | Frequent Events <sup>1</sup>          | Occasional Events <sup>2</sup> | Infrequent Events <sup>3</sup> |
| <b>Category 1:</b> Buildings where low ambient vibration is essential for interior operations. | 65 VdB <sup>4</sup>                       | 65 VdB <sup>4</sup>            | 65 VdB <sup>4</sup>            | N/A <sup>5</sup>                      | N/A <sup>5</sup>               | N/A <sup>5</sup>               |
| <b>Category 2:</b> Residences and buildings where people normally sleep.                       | 72 VdB                                    | 75 VdB                         | 80 VdB                         | 35 dBA                                | 38 dBA                         | 43 dBA                         |
| <b>Category 3:</b> Institutional land uses with primarily daytime use.                         | 75 VdB                                    | 78 VdB                         | 83 VdB                         | 40 dBA                                | 43 dBA                         | 48 dBA                         |

Notes:

- 1 “Frequent Events” is defined as more than 70 vibration events per day.
- 2 “Occasional Events” is defined as between 30 and 70 vibration events per day.
- 3 “Infrequent Events” is defined as fewer than 30 vibration events per day.
- 4 This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.
- 5 Vibration-sensitive equipment is not sensitive to ground-borne noise.

### Affected Environment

The proposed streetcar route is within the public right-of-way of major and local streets in the central business district and adjacent neighborhoods. Therefore, typical background vibration velocity levels due to regular traffic range from 54 to 58 VdB. Vibration velocity levels due to buses can range from 62 to 68 VdB.<sup>6</sup>

### Environmental Effects

The vibration assessment for the streetcar project followed the General Vibration Assessment procedures of the FTA’s Guidance Manual. Ground-borne vibration levels along the proposed streetcar routes would range from 64 to 72 VdB. The results of the vibration analysis are presented in Appendix A, Tables A-3 (Residential) and A-4 (Institutional) for the same residential buildings and institutional properties identified in the noise section. All of these levels are below the respective FTA Impact Criteria, which ranges from 72 to 75 VdB, for the appropriate Land Use Categories and level of operations. Projected ground-borne noise levels would range from 24 – 32 dBA. None of these levels would exceed the ground-borne noise criteria, which ranges from 35 to 43 dBA.

### Mitigation Measures

The most important vibration mitigation measures will be proper maintenance. Vibration levels can increase substantially if rail grinding to optimize track conditions, wheel truing to re-contour wheels allowing smooth contact surfaces and proper vehicle maintenance is not performed.

<sup>6</sup>James T. Nelson, P.E., “Superconducting Super Collider Environmental Ground Vibration Study,” Wilson, Ihrig & Associates, Oakland, CA, January 1987, Figure C1-C7.

## **Construction Vibration**

It is not anticipated that the construction activities for the project will adversely affect adjacent buildings. During construction, the contractor will adhere to the City of Milwaukee's Code of Ordinances, Chapter 80, Subchapter 2 Noise Control 80-73.2 Excessive Vibration Prohibited, Temporary and Mobile Sources.

## **Conclusion**

The noise and vibration analysis for the proposed streetcar project was prepared according to the FTA's Guidance Manual. There are 69 residential buildings (FTA Criteria - Land Use Category 2) along the corridor. Projected operations of the streetcar will create noise levels that range from 47 – 62 dBA, Ldn. There are only eight residential buildings along the north side of Ogden Avenue, from Van Buren Street to Farwell Avenue that would be exposed to Ldn noise levels that are 2 decibels greater than the FTA Moderate Impact threshold.

There are nine institutional properties (FTA Criteria - Land Use Category 3) adjacent to the proposed streetcar alignment. Projected Leq noise levels created by the proposed operation of the streetcars range from 51 – 63 dBA. Noise levels at these receptors would not exceed the impact threshold.

Two of the four turnouts proposed for the streetcar route are located in a residential area at the intersection of Ogden and Farwell Avenues. The operating speeds at the turnouts are low and will not create noise impact.

One of the three substations for the proposed streetcar corridor would be located on the northeast corner of Cass and Knapp Streets. The nearest residences would be within 60 to 100 feet of the substation. The Ldn noise level created by this substation would range from 51 to 55 dBA, which by definition would not be considered an impact.

The primary mitigation measure for the predicted Moderate Impact will be the development of an attainable noise specification for the streetcar. Based on noise data from two modern streetcar manufacturers, preparing an attainable noise specification should not be difficult. During the life of the streetcar maintenance of wheels by truing wheels and grinding the rails will help eliminate future increases in noise as maintaining smooth wheel/rail interaction can reduce age and wear induced noise.

Projected ground-borne vibration and ground-borne noise levels did not exceed FTA's criteria.

Vibration levels can increase substantially if rail grinding to optimize track conditions, wheel truing to re-contour wheels allowing smooth contact surfaces and proper vehicle maintenance is not performed. Therefore, the most important vibration mitigation measures will be proper maintenance.

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## APPENDIX A

Table A-1: Noise Impact Assessment, Residences

Table A-2: Noise Impact Assessment, Institutional Lands

Table A-3: Vibration Impact Assessment Residences

Table A-4: Vibration Impact Assessment Institutional Lands

Table A-1  
Noise Impact Assessment  
Residences (FTA Category 2)  
Milwaukee Streetcar  
Milwaukee, WI

| Area  | Land Use                         | Number of Units | Land Use Category | Existing Noise Level, dBA Ldn | FTA Moderate Impact Threshold | Streetcar, dBA Ldn          |             |            |          |             |
|---|----------------------------------|-----------------|-------------------|-------------------------------|-------------------------------|-----------------------------|-------------|------------|----------|-------------|
|   |                                  |                 |                   |                               |                               | Perpendicular Distance (ft) | FTA Modeled | Cumulative | Increase | Impact      |
| N. 4th St.  | Mixed Commercial and Residential | 1               | 2                 | 64                            | 60                            | 33                          | 54-60       | 64-65      | 0-1      | No          |
| W. St. Paul Ave. (4th St. to 2nd St.)                           | Condominium                      | 1               | 2                 | 75                            | 65                            | 71                          | 51-57       | 75-75      | 0        | No          |
| N. Broadway St. (Michigan St. to Wells St.)                     | Mixed Commercial and Residential | 1               | 2                 | 66                            | 61                            | 30                          | 47-63       | 66-66      | 0        | No          |
|   | Engine House 1 (MFD)             | 1               | 2                 | 66                            | 61                            | 30                          | 55-61       | 66-67      | 0-1      | No          |
| Van Buren St. (State St. to Ogden Ave.)                         | Multi-Family                     | 2               | 2                 | 64                            | 60                            | 28                          | 54-60       | 64-65      | 0-1      | No          |
|   | Multi-Family                     | 1               | 2                 | 64                            | 60                            | 57                          | 49-55       | 64-65      | 0-1      | No          |
|   | Condominium                      | 1               | 2                 | 64                            | 60                            | 57                          | 49-55       | 64-65      | 0-1      | No          |
| Jackson St.   | Multi-Family                     | 1               | 2                 | 64                            | 60                            | 39                          | 52-58       | 64-65      | 0-1      | No          |
|   | Mixed Commercial and Residential | 1               | 2                 | 64                            | 60                            | 49                          | 50-56       | 64-65      | 0-1      | No          |
|   | Multi-Family                     | 1               | 2                 | 64                            | 60                            | 49                          | 50-56       | 64-65      | 0-1      | No          |
|   | Multi-Family                     | 1               | 2                 | 64                            | 60                            | 55                          | 50-56       | 64-65      | 0-1      | No          |
|   | Multi-Family                     | 1               | 2                 | 64                            | 60                            | 39                          | 52-58       | 64-65      | 0-1      | No          |
|   | Multi-Family                     | 1               | 2                 | 64                            | 60                            | 71                          | 48-54       | 64-64      | 0        | No          |
|   | Multi-Family                     | 1               | 2                 | 64                            | 60                            | 71                          | 48-54       | 64-64      | 0        | No          |
|   | Multi-Family                     | 1               | 2                 | 64                            | 60                            | 71                          | 48-54       | 64-64      | 0        | No          |
| Ogden Ave. (Van Buren St. to Farwell Ave. North of Ogden Ave.)  | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 30                          | 56-62       | 66-67      | 1-2      | No-Moderate |
|   | Multi-Family                     | 2               | 2                 | 65                            | 61                            | 30                          | 56-62       | 66-67      | 1-2      | No-Moderate |
|   | Condominium                      | 3               | 2                 | 65                            | 61                            | 30                          | 56-62       | 66-67      | 1-2      | No-Moderate |
|   | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 30                          | 56-62       | 66-67      | 1-2      | No-Moderate |
|   | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 30                          | 56-62       | 66-67      | 1-2      | No-Moderate |
| Ogden Ave. (Van Buren St. to Farwell Ave., South of Ogden Ave.) | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 42                          | 54-60       | 65-66      | 0-1      | No          |

Table A-1 Continued

| Area          | Land Use                         | Number of Units | Land Use Category | Existing Noise Level, dBA Ldn | FTA Moderate Impact Threshold | Streetcar, dBA Ldn          |             |            |          |        |
|---------------|----------------------------------|-----------------|-------------------|-------------------------------|-------------------------------|-----------------------------|-------------|------------|----------|--------|
|               |                                  |                 |                   |                               |                               | Perpendicular Distance (ft) | FTA Modeled | Cumulative | Increase | Impact |
| Prospect Ave. | Condominium                      | 1               | 2                 | 65                            | 61                            | 61                          | 49-55       | 65-65      | 0        | No     |
|               | Condominium                      | 1               | 2                 | 65                            | 61                            | 44                          | 51-57       | 65-66      | 0-1      | No     |
|               | Single Family                    | 2               | 2                 | 65                            | 61                            | 62                          | 49-55       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 64                          | 48-54       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 57                          | 49-55       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 62                          | 49-55       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 64                          | 48-54       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 64                          | 48-54       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 64                          | 48-54       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 64                          | 49-55       | 65-65      | 0        | No     |
|               | Hospital                         | 1               | 2                 | 65                            | 61                            | 69                          | 48-54       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 59                          | 49-55       | 65-65      | 0        | No     |
|               | Single Family                    | 1               | 2                 | 65                            | 61                            | 59                          | 49-55       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 67                          | 48-55       | 65-65      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 40                          | 52-58       | 65-66      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 65                            | 61                            | 59                          | 49-55       | 65-65      | 0        | No     |
| Multi-Family  | 1                                | 2               | 65                | 61                            | 59                            | 49-55                       | 65-65       | 0          | No       |        |
| Royall Pl.    | Mixed Commercial and Residential | 1               | 2                 | 69                            | 64                            | 30                          | 54-60       | 69-70      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 67                            | 62                            | 31                          | 53-59       | 67-68      | 0        | No     |
| Farwell Ave.  | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 22                          | 56-62       | 69-70      | 0        | No     |
|               | Single Family                    | 1               | 2                 | 69                            | 64                            | 40                          | 52-58       | 69-69      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 35                          | 53-59       | 69-69      | 0        | No     |
|               | Single Family                    | 2               | 2                 | 69                            | 64                            | 36                          | 53-59       | 69-69      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 50                          | 50-56       | 69-69      | 0        | No     |
|               | Mixed Commercial and Residential | 1               | 2                 | 69                            | 64                            | 32                          | 53-59       | 69-69      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 37                          | 53-59       | 69-69      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 22                          | 56-62       | 69-70      | 0        | No     |
|               | Multi-Family                     | 3               | 2                 | 69                            | 64                            | 37                          | 52-58       | 69-69      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 22                          | 56-62       | 69-70      | 0        | No     |
|               | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 23                          | 55-61       | 69-70      | 0        | No     |
|               | Single Family                    | 2               | 2                 | 69                            | 64                            | 26                          | 55-61       | 69-70      | 0        | No     |

Table A-1 Continued

| Area                  | Land Use                         | Number of Units | Land Use Category | Existing Noise Level, dBA Ldn | FTA Moderate Impact Threshold | Streetcar, dBA Ldn          |             |            |          |        |
|-----------------------|----------------------------------|-----------------|-------------------|-------------------------------|-------------------------------|-----------------------------|-------------|------------|----------|--------|
|                       |                                  |                 |                   |                               |                               | Perpendicular Distance (ft) | FTA Modeled | Cumulative | Increase | Impact |
| Farwell Ave. (cont'd) | Single Family                    | 3               | 2                 | 69                            | 64                            | 49                          | 50-56       | 69-69      | 0        | No     |
|                       | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 29                          | 54-60       | 69-70      | 0-1      | No     |
|                       | Mixed Commercial and Residential | 1               | 2                 | 69                            | 64                            | 23                          | 55-61       | 69-70      | 0        | No     |
|                       | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 22                          | 56-62       | 69-70      | 0        | No     |
|                       | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 62                          | 49-55       | 69-69      | 0-1      | No     |
|                       | Multi-Family                     | 1               | 2                 | 69                            | 64                            | 50                          | 50-56       | 69-69      | 0-1      | No     |

Table A-2  
 Noise Impact Assessment  
 Institutional Lands (FTA Category 3)  
 Milwaukee Streetcar  
 Milwaukee, WI

| Area   | Land Use                          | Number of Units | Land Use Category | Existing Noise Level, Leq dBA | FTA Moderate Impact Threshold | Streetcar, dBA Leq          |             |            |          |        |
|--|-----------------------------------|-----------------|-------------------|-------------------------------|-------------------------------|-----------------------------|-------------|------------|----------|--------|
|  |                                   |                 |                   |                               |                               | Perpendicular Distance (ft) | FTA Modeled | Cumulative | Increase | Impact |
| 4th St.  | School                            | 1               | 3                 | 65                            | 66                            | 33                          | 56-62       | 66-67      | 1-2      | No     |
| Wells St.  | Public Buildings/Parks/Commercial | 1               | 3                 | 63                            | 65                            | 27                          | 58-63       | 64-66      | 1-3      | No     |
| Van Buren St. (State St. to Ogden Ave).                        | Church                            | 1               | 3                 | 64                            | 65                            | 36                          | 54-61       | 64-66      | 0-2      | No     |
| Jackson St.  | School                            | 1               | 3                 | 64                            | 65                            | 30                          | 56-62       | 64-66      | 0-2      | No     |
|  | School                            | 1               | 3                 | 64                            | 65                            | 37                          | 54-61       | 64-66      | 0-2      | No     |
|  | Church                            | 1               | 3                 | 64                            | 65                            | 56                          | 51-59       | 64-65      | 0-1      | No     |
| Ogden Ave. (Van Buren St. to Farwell Ave. South of Ogden Ave.) | School                            | 1               | 3                 | 66                            | 66                            | 42                          | 56-60       | 66-67      | 0-1      | No     |
|  | School                            | 1               | 3                 | 66                            | 66                            | 42                          | 56-60       | 66-67      | 0-1      | No     |
|  | Church                            | 1               | 3                 | 66                            | 66                            | 42                          | 56-60       | 66-67      | 0-1      | No     |

Table A-3  
Vibration Impact Assessment  
Residences (FTA Category 2)  
Milwaukee Streetcar  
Milwaukee, WI

| Area   | Land Use                         | Number of Units | Land Use Category | Ground-Borne Vibration, VdB |         |        | Ground-Borne Noise, dBA |         |        |
|--|----------------------------------|-----------------|-------------------|-----------------------------|---------|--------|-------------------------|---------|--------|
|  |                                  |                 |                   | FTA                         |         | Impact | FTA                     |         | Impact |
|  |                                  |                 |                   | Criteria                    | Modeled |        | Criteria                | Modeled |        |
| N. 4th St.   | Mixed Commercial and Residential | 1               | 2                 | 72                          | 70      | No     | 35                      | 30      | No     |
| W. St. Paul Ave. (4th St. to 2nd St.)                          | Condominium                      | 1               | 2                 | 72                          | 64      | No     | 35                      | 24      | No     |
| N. Broadway St. (Michigan St. to Wells St.)                    | Mixed Commercial and Residential | 1               | 2                 | 72                          | 70      | No     | 35                      | 30      | No     |
|  | Engine House 1 (MFD)             | 1               | 2                 | 72                          | 70      | No     | 35                      | 30      | No     |
| Van Buren St. (State St. to Ogden Ave.)                        | Multi-Family                     | 2               | 2                 | 75                          | 71      | No     | 38                      | 31      | No     |
|  | Multi-Family                     | 1               | 2                 | 75                          | 66      | No     | 38                      | 26      | No     |
|  | Condominium                      | 1               | 2                 | 75                          | 66      | No     | 38                      | 26      | No     |
| Jackson St.  | Multi-Family                     | 1               | 2                 | 75                          | 68      | No     | 38                      | 28      | No     |
|  | Mixed Commercial and Residential | 1               | 2                 | 75                          | 67      | No     | 38                      | 27      | No     |
|  | Multi-Family                     | 1               | 2                 | 75                          | 67      | No     | 38                      | 27      | No     |
|  | Multi-Family                     | 1               | 2                 | 75                          | 66      | No     | 38                      | 26      | No     |
|  | Multi-Family                     | 1               | 2                 | 75                          | 68      | No     | 38                      | 28      | No     |
|  | Multi-Family                     | 1               | 2                 | 75                          | 64      | No     | 38                      | 24      | No     |
|  | Multi-Family                     | 1               | 2                 | 75                          | 64      | No     | 38                      | 24      | No     |
|  | Multi-Family                     | 1               | 2                 | 75                          | 64      | No     | 38                      | 24      | No     |
| Ogden Ave. (Van Buren St. to Farwell Ave. North of Ogden Ave.) | Multi-Family                     | 1               | 2                 | 72                          | 70      | No     | 35                      | 30      | No     |
|  | Multi-Family                     | 2               | 2                 | 72                          | 70      | No     | 35                      | 30      | No     |
|  | Condominium                      | 3               | 2                 | 72                          | 70      | No     | 35                      | 30      | No     |
|  | Multi-Family                     | 1               | 2                 | 72                          | 70      | No     | 35                      | 30      | No     |
|  | Multi-Family                     | 1               | 2                 | 72                          | 70      | No     | 35                      | 30      | No     |
| (Van Buren St. to Farwell Ave., S of Ogden Ave.)               | Multi-Family                     | 1               | 2                 | 72                          | 68      | No     | 35                      | 28      | No     |
| Prospect Ave.  | Condominium                      | 1               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|  | Condominium                      | 1               | 2                 | 75                          | 68      | No     | 38                      | 28      | No     |
|  | Single Family                    | 2               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|  | Multi-Family                     | 1               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|  | Multi-Family                     | 1               | 2                 | 75                          | 66      | No     | 38                      | 26      | No     |

Table A-3 Continued

| Area                | Land Use                         | Number of Units | Land Use Category | Ground-Borne Vibration, VdB |         |        | Ground-Borne Noise, dBA |         |        |
|---------------------|----------------------------------|-----------------|-------------------|-----------------------------|---------|--------|-------------------------|---------|--------|
|                     |                                  |                 |                   | FTA                         |         | Impact | FTA                     |         | Impact |
|                     |                                  |                 |                   | Criteria                    | Modeled |        | Criteria                | Modeled |        |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|                     | Hospital                         | 1               | 2                 | 75                          | 64      | No     | 38                      | 24      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 66      | No     | 38                      | 26      | No     |
|                     | Single Family                    | 1               | 2                 | 75                          | 66      | No     | 38                      | 26      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 68      | No     | 38                      | 28      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 66      | No     | 38                      | 26      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 66      | No     | 38                      | 26      | No     |
| <b>Royall Pl.</b>   | Mixed Commercial and Residential | 1               | 2                 | 75                          | 70      | No     | 38                      | 30      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 70      | No     | 38                      | 30      | No     |
| <b>Farwell Ave.</b> | Multi-Family                     | 1               | 2                 | 75                          | 72      | No     | 38                      | 32      | No     |
|                     | Single Family                    | 1               | 2                 | 75                          | 68      | No     | 38                      | 28      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 69      | No     | 38                      | 29      | No     |
|                     | Single Family                    | 2               | 2                 | 75                          | 69      | No     | 38                      | 29      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 67      | No     | 38                      | 27      | No     |
|                     | Mixed Commercial and Residential | 1               | 2                 | 75                          | 70      | No     | 38                      | 30      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 69      | No     | 38                      | 29      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 72      | No     | 38                      | 32      | No     |
|                     | Multi-Family                     | 3               | 2                 | 75                          | 69      | No     | 38                      | 29      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 72      | No     | 38                      | 32      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 71      | No     | 38                      | 32      | No     |
|                     | Single Family                    | 2               | 2                 | 75                          | 71      | No     | 38                      | 31      | No     |
|                     | Single Family                    | 3               | 2                 | 75                          | 67      | No     | 38                      | 27      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 70      | No     | 38                      | 30      | No     |
|                     | Mixed Commercial and Residential | 1               | 2                 | 75                          | 71      | No     | 38                      | 32      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 72      | No     | 38                      | 32      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 65      | No     | 38                      | 25      | No     |
|                     | Multi-Family                     | 1               | 2                 | 75                          | 67      | No     | 38                      | 27      | No     |

Table A-4  
Vibration Impact Assessment  
Institutional Lands (FTA Category 3)  
Milwaukee Streetcar  
Milwaukee, WI

| Area                                       | Land Use                          | Number of Units | Land Use Category | Ground Borne Vibration, VdB |         |        | Ground Borne Noise, dBA |         |        |
|--|-----------------------------------|-----------------|-------------------|-----------------------------|---------|--------|-------------------------|---------|--------|
|  |                                   |                 |                   | FTA                         |         | Impact | FTA                     |         | Impact |
|  |                                   |                 |                   | Criteria                    | Modeled |        | Criteria                | Modeled |        |
| 4th St.                                    | School                            | 1               | 3                 | 75                          | 70      | No     | 40                      | 30      | No     |
| Wells St.                                  | Public Buildings/Parks/Commercial | 1               | 3                 | 75                          | 71      | No     | 40                      | 31      | No     |
| Van Buren St. (State St. to Ogden Ave.)    | Church                            | 1               | 3                 | 78                          | 69      | No     | 43                      | 29      | No     |
| Jackson St.                                | School                            | 1               | 3                 | 78                          | 70      | No     | 43                      | 30      | No     |
|  | School                            | 1               | 3                 | 78                          | 69      | No     | 43                      | 29      | No     |
|  | Church                            | 1               | 3                 | 78                          | 66      | No     | 43                      | 26      | No     |
| Ogden Ave. (Van Buren St. to Farwell Ave.) | School                            | 1               | 3                 | 75                          | 68      | No     | 40                      | 28      | No     |
| South of Ogden Ave.)                       | School                            | 1               | 3                 | 75                          | 68      | No     | 40                      | 28      | No     |
|  | Church                            | 1               | 3                 | 75                          | 68      | No     | 40                      | 28      | No     |

**APPENDIX F**

**DETAILS OF SUBSTATION LOCATIONS**



These maps show the substation locations in detail. See also the map of capital improvements in Figure 15 of the environmental assessment.



*Substation location near Market Street and Wells Street*



*Substation location on Clybourn Street under the I-794 bridges at the proposed maintenance facility*



*Substation location on Cass Street, near Knapp Street*

**APPENDIX G**

AGENCY CORRESPONDENCE



## Connie White

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**From:** Connie White  
**Sent:** Friday, August 20, 2010 12:54 PM  
**To:** 'sherman.banker@wisconsinhistory.org'; 'debra\_imhoff@nps.gov'; 'michael.friis@wisconsin.gov'; 'Anthony.D.Jernigan@usace.army.mil'; 'Todd.M.Vesperman@usace.army.mil'; 'toni.revane@wisconsin.gov'; 'GreenBay@fws.gov'; 'boza@milwaukee.gov'; 'jon.novick@dot.state.wi.us'; 'louise\_clemency@fws.gov'; 'west.norman@epa.gov'; 'westlake.kenneth@epa.gov'; 'kyunker@sewrpc.org'; 'Scot.M.Striffler@uscg.mil'; 'MichaelC.Thompson@Wisconsin.gov'; 'kathleen.graber@dot.gov'; 'jim.draeger@wisconsinhistory.org'; 'Jill\_Utrup@fws.gov'; 'chiebert@sewrpc.org'  
**Cc:** Mark Kaminski; Ashley Booth; Angela Craugh; 'stewart.mckenzie@dot.gov'; 'jeffrey.polenske@milwaukee.gov'; 'dan.casanova@milwaukee.gov'; 'lois.kimmelman@dot.gov'; 'david.windsor@milwaukee.gov'; 'gpatin@milwaukee.gov'  
**Subject:** RE: Milwaukee Streetcar Environmental Assessment - Agency Scoping Meeting August 19

Attached is the presentation from yesterday's agency scoping meeting for the Milwaukee Streetcar. As we stated at the meeting, our deadline for written comments is set for **Friday, September 17, 2010**.

For your convenience I have also attached another copy of the Agency Coordination letter that was sent August 12, 2010 and the handouts from the meeting, including a map and a brochure explaining the particulars of the project.

Thanks for your valuable input and please feel free to call with questions.

Thanks!

Connie



Milwaukee



Milwaukee



Streetcar\_ExecSum 2010-0817\_Streetc



reetcar Agency Sco reetcar Agency Let. \_08\_16\_2010.p... ar\_Jackson\_Va...

---

**From:** Connie White  
**Sent:** Thursday, August 12, 2010 11:27 AM  
**To:** 'sherman.banker@wisconsinhistory.org'; 'debra\_imhoff@nps.gov'; 'michael.friis@wisconsin.gov'; 'Anthony.D.Jernigan@usace.army.mil'; 'Todd.M.Vesperman@usace.army.mil'; 'toni.revane@wisconsin.gov'; 'GreenBay@fws.gov'; 'boza@milwaukee.gov'; 'jon.novick@dot.state.wi.us'; 'louise\_clemency@fws.gov'; 'west.norman@epa.gov'; 'westlake.kenneth@epa.gov'; 'kyunker@sewrpc.org'; 'Scot.M.Striffler@uscg.mil'; 'MichaelC.Thompson@Wisconsin.gov'; 'kathleen.graber@dot.gov'  
**Cc:** Mark Kaminski; Ashley Booth; Angela Craugh; 'stewart.mckenzie@dot.gov'; 'jeffrey.polenske@milwaukee.gov'; 'dan.casanova@milwaukee.gov'; 'lois.kimmelman@dot.gov'; 'david.windsor@milwaukee.gov'; 'gpatin@milwaukee.gov'  
**Subject:** Milwaukee Streetcar Environmental Assessment - Agency Scoping Meeting August 19

Good morning!

Please see the attached memo inviting agencies to provide comment and input on the Environmental Assessment for the proposed Milwaukee Streetcar.

<< File: Milwaukee Connector Study.pdf >>

We have an agency scoping meeting scheduled on August 19, 2010 at 10:00 a.m. at HNTB Corporation offices. The meeting location is:

11414 West Park Place, 3<sup>rd</sup> Floor - Suite 300  
Milwaukee, WI 53224  
Tel (414) 359-2300

A map to the meeting location is attached:

<< File: Office Map.pdf >>

Feel free to call me with questions. If you cannot attend the meeting and would like to provide input, please call me and we can make arrangements to ensure your agency's concerns are included and discussed.

Thanks!  
Connie

**Connie White**  
Senior Transportation Planner

**HNTB Corporation**  
10 West Mifflin Street, Suite 300  
Madison, WI 53703

Tel (608) 294-5006  
Fax (608) 259-0084  
[www.hntb.com](http://www.hntb.com)



**TO:** Interested Agencies

**FROM:** Connie White, Environmental Planner  
HNTB Corporation  
(608) 294-5006  
cmwhite@hntb.com

**DATE:** August 12, 2010

**SUBJECT:** Agency Coordination – Agency Scoping Meeting

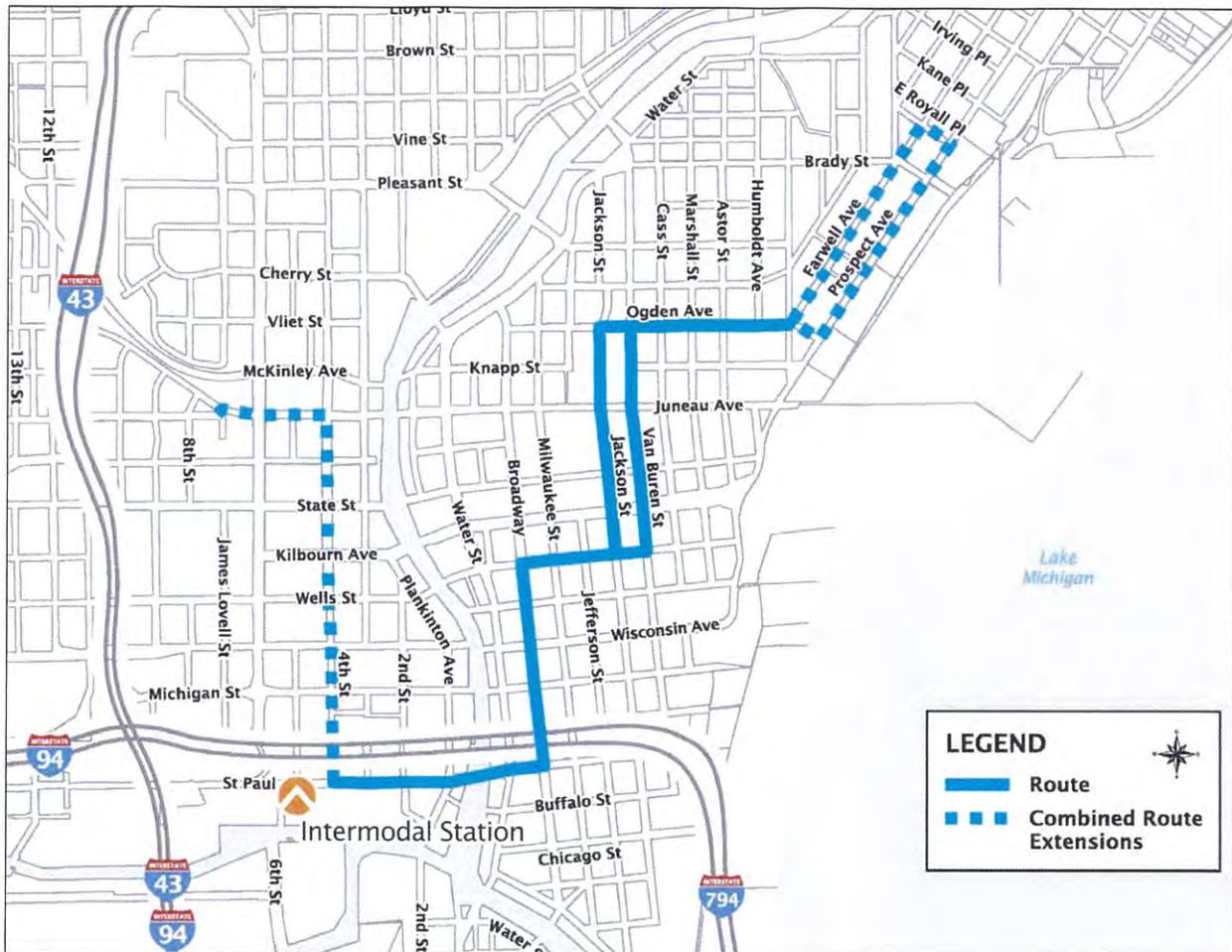
**PROJECT:** Milwaukee Connector Study – Downtown Streetcar Environmental Assessment  
City of Milwaukee, Wisconsin  
Milwaukee County

The City of Milwaukee is initiating the NEPA environmental review process and will prepare an Environmental Assessment (EA) for the above stated project. The Federal Transit Authority will be the Lead Agency for this project.

This 2-mile starter Streetcar system is being recommended to connect the heart of the Central Business District with the Milwaukee Intermodal Station and high density residential areas just north of downtown. The Streetcar would provide many benefits including increased mobility, enhanced multimodal connections, and economic development.

The initial system would have five vehicles powered by an overhead electric contact system. The vehicles would operate in mixed traffic with 10 minute headways throughout most of the day and 15 minute headways during early morning and late evening hours. The vehicles would be modern low-floor Streetcars similar to those operating in the City of Portland. The initial route would have 12 transit stops that are strategically located within walking distance to numerous parking structures to facilitate Milwaukee's "Park Once" concept.

Two route extensions, which would add 1.55 miles and up to eight additional stops to the initial route, are also under review. The 4th Street extension would connect to the Intermodal Station and several large activity generators, including the Frontier Airlines Center, Bradley Center, hotels, offices, and the Park East and Brewery redevelopment areas. The Prospect/Farwell extension would provide Lower East Side residents and the Brady Street commercial district with a direct connection to downtown. Service characteristics would be identical to the initial system; however, the additional route length would require one more Streetcar vehicle to maintain the planned headways. A map of the planned route and extensions is shown below. All improvements would be made within the existing right of way. Streetcars will operate in mixed traffic with bump-outs at the stops.



The project is being funded utilizing the City of Milwaukee’s 60% share of \$91.5 million in ICE funds appropriated for building Streetcar in downtown Milwaukee.

The funding process for this project has resulted in the need to expedite the environmental review process. Your speedy response would be very much appreciated so that the environmental document can be completed in time to receive the remaining project funds.

At this time, the City is initiating early coordination with agencies regarding their needs and to identify what issues are to be addressed in the environmental assessment. Please share with us any information or concerns pertinent to your agency’s mission.

An Agency Scoping meeting has been scheduled for **August 19, 2010**, at 10:00 a.m. in the main conference room at HNTB Corporation’s office located at 11414 West Park Place, Milwaukee, WI 53224-3526, (414) 359-2300. At this meeting we will give an overview of the project and take your comments and any information you can provide that should be considered for inclusion in the EA.

We hope you or your representative can attend. If not, please give Connie White a call to discuss other ways to effectively coordinate with your agency. We will of course be happy to assist you in your review as much as possible. Feel free to email your comments and questions to me at [cmwhite@hntb.com](mailto:cmwhite@hntb.com). If you would like to review more project information before our meeting, please visit the project website at <http://www.milwaukeeconnector.com>.

cc: Kathleen Graber, Environmental Specialist, FHWA  
Mark Kaminski, Project Manager, HNTB Corporation  
Dave Windsor, City of Milwaukee  
Jeff Polenske, City of Milwaukee  
Greg Patin, City of Milwaukee  
Dan Casanova, City of Milwaukee  
Lois Kimmelman, FHWA  
Stewart McKenzie, FHWA

| Last Name   | First Name       | Title                                  | Agency  |
|-------------|------------------|--|---|
| BANKER      | SHERMAN J        | COMPLIANCE ARCHAEOLOGIST               | WISCONSIN HISTORICAL SOCIETY  |
| IMHOFF      | DEBRA            | FEDERAL CONSISTENCY COORDINATOR        | NATIONAL PARK SERVICE MIDWEST REGIONAL OFFICE                           |
| FRIS        | MIKE             | PROJECT MANAGER                        | DEPARTMENT OF ADMINISTRATION - WISCONSIN COASTAL MANAGEMENT PROGRAM     |
| JERNIGAN    | ANTHONY          | SUPERVISOR                             | US ARMY CORPS OF ENGINEERS  |
| VESPERMAN   | TODD             | ENVIRONMENTAL ANALYSIS SPECIALIST      | US ARMY CORPS OF ENGINEERS  |
| REVANE      | TONI A           | FIELD SUPERVISOR                       | WISCONSIN DNR SE REGION HEADQUARTERS                                    |
| CLEMENCY    | LOUISE           | FLOOD PLAIN ZONING AUTHORITY           | US FISH & WILDLIFE SERVICE  |
| NOVICK      | JOHN             |  | DEPARTMENT OF CITY DEVELOPMENT - ZONING                                 |
| WINDSOR     | DAVE             |  | WISDOT BUREAU OF ENVIRONMENT  |
| POLENSKE    | JEFFREY S        | CITY ENGINEER                          | MILWAUKEE DEPARTMENT OF PUBLIC WORKS - INFRASTRUCTURE SERVICES DIVISION |
| PATIN       | GREG             | ZONING & DEVELOPMENT COORDINATOR       | MILWAUKEE DEPARTMENT OF PUBLIC WORKS - INFRASTRUCTURE SERVICES DIVISION |
| CASANOVA    | DAN              | SENIOR ECONOMIC DEVELOPMENT SPECIALIST | MILWAUKEE DEPARTMENT OF CITY DEVELOPMENT                                |
| KIMMELMAN   | LOIS             | ENVIRONMENTAL PROTECTION SPECIALIST    | MILWAUKEE ECONOMIC DEVELOPMENT CORPORATION                              |
| MCKENZIE    | STEWART R        | AICP                                   | FTA REGION V  |
| GRABER      | KATHLEEN         | ENVIRONMENTAL SPECIALIST               | COMMUNITY PLANNER - FTA REGION V  |
| WEST        | NORMAN           |  | US DEPT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION              |
| WESTLAKE    | KENNETH          |  | US EPA REGION 5   |
| YUNKER      | KENNETH          | EXECUTIVE DIRECTOR                     | US EPA REGION 5   |
| STRIFFLER   | SCOT             | COMMANDER                              | SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION                     |
| THOMPSON    | MICHAEL C        | ENVIRONMENTAL COORDINATOR              | NINTH COAST GUARD DISTRICT  |
| LEOSO       | EDITH            | THPO                                   | WISCONSIN DNR SE REGION HEADQUARTERS                                    |
| ALLOWAY     | MIKE             |  | BAD RIVER BAND OF LAKE SUPERIOR CHIPPEWA INDIANS OF WISCONSIN           |
| QUACKENBUSH | WILLIAM          | THPO                                   | FOREST COUNTY POTAWATOMI COMMUNITY OF WISCONSIN                         |
| MARTIN      | GIWEGIZHIGOOKWAY | THPO                                   | HO-CHUNK NATION EXECUTIVE OFFICES                                       |
| GRIGNON     | DAVID            | THPO                                   | LAC VIEUX DESERT BAND OF LAKE SUPERIOR CHIPPEWA INDIANS                 |
| HALE        | JOSEPH           | NAGPRA REP.                            | MENOMINEE INDIAN TRIBE OF WISCONSIN                                     |
| BALBER      | LARRY            | THPO                                   | PRAIRIE BAND POTAWATOMI NATION  |
| NIOCE       | JANE             |  | RED CLIFF BAND OF LAKE SUPERIOR CHIPPEWA INDIANS OF WISCONSIN           |
| MASSEY      | SANDRA           | NAGPRA REP.                            | SAC AND FOX NATION OF MISSOURI IN KANSAS AND NEBRASKA                   |
| BUFFALO     | JONATHAN         | NAGPRA REP.                            | SAC AND FOX NATION OF OKLAHOMA  |
| GILLEN      | BRIAN            | CULTURAL RESOURCE DIRECTOR             | SAC AND FOX OF THE MISSISSIPPI IN IOWA                                  |
| MARTIN      | MARILOU          | SUSTAINABILITY OFFICER                 | SOKAOGON CHIPPEWA COMMUNITY MOLE LAKE BAND                              |
| ALLEN       | ERICK            | STEWARDSHIP PROGRAMS COORDINATOR       | HUD REGION 5, 24 PUBLIC HOUSING   |
|             |                  | CIVIL RIGHTS OFFICER                   | US EPA REGION 5   |

## Connie White

---

**From:** Scot.M.Striffler@uscg.mil on behalf of Striffler, Scot [Scot.M.Striffler@uscg.mil]  
**Sent:** Tuesday, August 24, 2010 7:26 AM  
**To:** Connie White  
**Cc:** stewart.mckenzie@dot.gov; jeffrey.polenske@milwaukee.gov;  
david.windsor@milwaukee.gov; Pat Cashin; Ashley Booth; Soule, Lee; Stanifer, William  
**Subject:** RE: Milwaukee Streetcar Environmental Assessment - Agency Scoping Meeting August 19

Connie,

Good morning. Based on the information provided a Coast Guard (Section 9) Bridge Permit would not be required. Please include our comments regarding coordination for work in the waterway in the scoping documentation. This office should be contacted at least 30 days prior to any work in the waterway, or work that affects the operation of the drawbridge.

Please call or write again if you have any questions or wish to discuss further. Thank you.

Scot

Scot Striffler  
Bridge Program Manager  
Ninth Coast Guard District  
(216) 902-6087  
Fax: (216) 902-6088  
Scot.M.Striffler@uscg.mil

-----Original Message-----

From: prvs=844efad3a=CMWhite@HNTB.com [mailto:prvs=844efad3a=CMWhite@HNTB.com] On Behalf Of Connie White  
Sent: Monday, August 23, 2010 3:56 PM  
To: Striffler, Scot  
Cc: 'stewart.mckenzie@dot.gov'; 'jeffrey.polenske@milwaukee.gov';  
'david.windsor@milwaukee.gov'; Pat Cashin; Ashley Booth  
Subject: RE: Milwaukee Streetcar Environmental Assessment - Agency Scoping Meeting August 19

Hi Scott,

I am told that they do not anticipate substructure alterations to the St Paul Lift Bridge as part of the Milwaukee Streetcar project. The plan is that any major alterations to the vertical lift span over the navigation channel would be performed with the lift span in the raised condition during the navigational season. No permanent alterations to the navigation clearance is proposed. If they determine there is any work that would utilize work barges or other equipment in the waterway in connection with this project, they would coordinate with the Coast Guard.

Let me know if you'd like more details. We can work with Pat Cashin here at HNTB to get you the information you need. Given this information do you anticipate the need for a Section 9 permit?

Thanks!

Connie

-----Original Message-----

From: Scot.M.Striffler@uscg.mil [mailto:Scot.M.Striffler@uscg.mil]  
Sent: Monday, August 23, 2010 10:07 AM  
To: Connie White  
Cc: Stanifer, William; Soule, Lee  
Subject: RE: Milwaukee Streetcar Environmental Assessment - Agency Scoping Meeting August 19

Connie,

Good morning. I am responding to your August 12, 2010 letter regarding the Milwaukee Connector Study. It appears that the proposed project would cross only one waterway (Milwaukee River) and will utilize St. Paul Avenue Bridge. The Coast Guard Bridge Program may have jurisdiction or permit requirements if the project were to alter the permitted navigation clearances at St. Paul Avenue, or affect the operation of the drawbridge. The materials provided do not demonstrate whether either of those circumstances would apply. Therefore, this office can not provide specific comments regarding jurisdiction until these questions are answered.

Any work in Milwaukee River that utilizes work barges or other equipment in the waterway in connection with this project would have to be coordinated with the Coast Guard to allow for vessel passage and issuance of notices to mariners.

Regarding the Environmental Review processes currently underway, this office has no specific comments or requirements.

Thank you for the opportunity to provide comments on the project. Please feel free to contact me at the number below if you have any questions or wish to discuss in greater detail.

Sincerely,

Scot Striffler  
Bridge Program Manager  
Ninth Coast Guard District  
(216) 902-6087  
Fax: (216) 902-6088  
Scot.M.Striffler@uscg.mil

-----Original Message-----

From: prvs=841ce0186=CMWhite@HNTB.com [mailto:prvs=841ce0186=CMWhite@HNTB.com] On Behalf Of Connie White  
Sent: Friday, August 20, 2010 1:54 PM  
To: 'sherman.banker@wisconsinhistory.org'; 'debra\_imhoff@nps.gov';  
'michael.friis@wisconsin.gov'; 'Anthony.D.Jernigan@usace.army.mil';  
'Todd.M.Vesperman@usace.army.mil'; 'toni.revane@wisconsin.gov'; 'GreenBay@fws.gov';  
'boza@milwaukee.gov'; 'jon.novick@dot.state.wi.us'; 'louise\_clemency@fws.gov';  
'west.norman@epa.gov'; 'westlake.kenneth@epa.gov'; 'kyunker@sewrpc.org'; Striffler, Scot;  
'MichaelC.Thompson@Wisconsin.gov'; 'kathleen.graber@dot.gov';  
'jim.draeger@wisconsinhistory.org'; 'Jill\_Utrup@fws.gov'; 'chiebert@sewrpc.org'  
Cc: Mark Kaminski; Ashley Booth; Angela Craugh; 'stewart.mckenzie@dot.gov';  
'jeffrey.polenske@milwaukee.gov'; 'dan.casanova@milwaukee.gov'; 'lois.kimmelman@dot.gov';  
'david.windsor@milwaukee.gov'; 'gpatin@milwaukee.gov'  
Subject: RE: Milwaukee Streetcar Environmental Assessment - Agency Scoping Meeting August 19

Attached is the presentation from yesterday's agency scoping meeting for the Milwaukee Streetcar. As we stated at the meeting, our deadline for written comments is set for Friday, September 17, 2010.

For your convenience I have also attached another copy of the Agency Coordination letter that was sent August 12, 2010 and the handouts from the meeting, including a map and a brochure explaining the particulars of the project.

Thanks for your valuable input and please feel free to call with questions.

Thanks!

Connie

---

From: Connie White  
Sent: Thursday, August 12, 2010 11:27 AM  
To: 'sherman.banker@wisconsinhistory.org'; 'debra\_imhoff@nps.gov';  
'michael.friis@wisconsin.gov'; 'Anthony.D.Jernigan@usace.army.mil';  
'Todd.M.Vesperman@usace.army.mil'; 'toni.revane@wisconsin.gov'; 'GreenBay@fws.gov';  
'boza@milwaukee.gov'; 'jon.novick@dot.state.wi.us'; 'louise\_clemency@fws.gov';  
'west.norman@epa.gov'; 'westlake.kenneth@epa.gov'; 'kyunker@sewrpc.org';  
'Scot.M.Striffler@uscg.mil'; 'MichaelC.Thompson@wisconsin.gov'; 'kathleen.graber@dot.gov'  
Cc: Mark Kaminski; Ashley Booth; Angela Craugh; 'stewart.mckenzie@dot.gov';  
'jeffrey.polenske@milwaukee.gov'; 'dan.casanova@milwaukee.gov'; 'lois.kimmelman@dot.gov';  
'david.windsor@milwaukee.gov'; 'gpatin@milwaukee.gov'  
Subject: Milwaukee Streetcar Environmental Assessment - Agency Scoping Meeting August 19

Good morning!

Please see the attached memo inviting agencies to provide comment and input on the Environmental Assessment for the proposed Milwaukee Streetcar.

<< File: Milwaukee Connector Study.pdf >> We have an agency scoping meeting scheduled on August 19, 2010 at 10:00 a.m. at HNTB Corporation offices. The meeting location is:

11414 West Park Place, 3rd Floor - Suite 300 Milwaukee, WI 53224 Tel (414) 359-2300

A map to the meeting location is attached:

<< File: Office Map.pdf >>

Feel free to call me with questions. If you cannot attend the meeting and would like to provide input, please call me and we can make arrangements to ensure your agency's concerns are included and discussed.

Thanks!

Connie

Connie White  
Senior Transportation Planner

HNTB Corporation  
10 West Mifflin Street, Suite 300  
Madison, WI 53703

Tel (608) 294-5006  
Fax (608) 259-0084  
www.hntb.com <<http://www.hntb.com>>

## Connie White

---

**From:** Connie White  
**Sent:** Monday, August 30, 2010 11:14 AM  
**To:** 'sherman.banker@wisconsinhistory.org'; 'debra\_imhoff@nps.gov'; 'Friis, Michael J - DOA'; 'Anthony.D.Jernigan@usace.army.mil'; 'Todd.M.Vesperman@usace.army.mil'; 'Anthony.D.Jernigan@usace.army.mil'; 'toni.revane@wisconsin.gov'; 'MichaelC.Thompson@Wisconsin.gov'; 'Jill\_Utrup@fws.gov'; 'louise\_clemency@fws.gov'; 'westlake.kenneth@epa.gov'; 'west.norman@epa.gov'; 'boza@milwaukee.gov'; 'jon.novick@dot.state.wi.us'; 'kyunker@sewrpc.org'; 'Scot.M.Striffler@uscg.mil'; 'kathleen.graber@dot.gov'; 'martin.marilou@epa.gov'  
**Cc:** Mark Kaminski; Ashley Booth; stewart.mckenzie@dot.gov; jeffrey.polenske@milwaukee.gov; 'dan.casanova@milwaukee.gov'; 'lois.kimmelman@dot.gov'; david.windsor@milwaukee.gov; 'gpatin@milwaukee.gov'; 'Kristine Martinsek'  
**Subject:** Milwaukee Streetcar Agency Scoping Meeting August 19 - Meeting Notes

Good morning,

Notes from our August 19 Agency Scoping Meeting are attached. As stated, our deadline for written comments is set for **Friday September 17, 2010**.

For those who attended the meeting: let me know if you'd like me to make any corrections to the notes.

Thanks!



2010 08 19 MM  
Streetcar Agency...

Connie

**Connie White**  
Senior Transportation Planner

**HNTB Corporation**  
10 West Mifflin Street, Suite 300  
Madison, WI 53703

Tel (608) 294-5006  
Fax (608) 259-0084  
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**DRAFT**  
**Milwaukee Streetcar Agency Scoping Meeting**  
**Meeting Summary**

August 19, 2010  
10:00 a.m.  
HNTB Office Conference Room

**In attendance:**

David Windsor, Civil Engineer, Milwaukee Department of Public Works  
Christopher Hiebert, Chief Transportation Engineer, SEWRPC  
Ken Yunker, Executive Director, SEWRPC  
Gregory Patin, Strategic Development Manager, Milwaukee Department of City Development  
Mike Thompson, Environmental Analysis Team Supervisor, Wisconsin DNR  
Norman West, NEPA Review, U.S. EPA  
Jim Draeger, Deputy SHPO, Wisconsin Historical Society  
Connie White, Environmental Planner, HNTB  
Mark Kaminski, Streetcar Project Manager, HNTB  
Ashley Booth, Urban Planner, HNTB

**1. Introduction**

Everyone in attendance introduced themselves and noted the organization they represent.

**2. Streetcar Presentation**

Mark Kaminski noted that there has been a high level of public interest and input and that the project is currently in the preliminary engineering phase. He gave a PowerPoint presentation as follows.

- **Update**  
The Milwaukee Downtown Transit Connector Study project has been under development since the year 2000. The project held public meetings on the BRT and Streetcar elements in February 2009. Following the meetings the study team conducted an Alternatives Analysis for the Streetcar portion of the project. After a well attended public meeting on October 8, 2009 and further evaluation and analysis, the Locally Preferred Alternative (LPA) for the Streetcar, was approved by the project's Steering Committee on May 6, 2010.
- **Milwaukee Connector Steering Committee**  
The Steering Committee includes representatives from the Wisconsin Center District, Metropolitan Milwaukee Association of Commerce, Milwaukee County, and the City of Milwaukee.
- **Starter System Goals**  
The main goal is to create a Streetcar starter system to:
  - Circulate people around downtown and to adjacent neighborhoods.
  - Improve transit utilization in the City of Milwaukee.

- Connect the Intermodal Station with the central business district, key destinations, and attractions. These connections are very important. The Intermodal Station has over one million annual users and is expected to grow.
  - Enhance Milwaukee's *ParkOnce* program by coordinating parking facilities with a transit system that connects to activity generators.
  - Promote transit oriented development along transit corridors and on underutilized properties.
  - Provide dense downtown residential areas with additional transit choices.
  - Provide an easy-to-use Streetcar system that is integrated with other modes.
  - Create a Streetcar starter system that can expand to nearby neighborhoods and destinations. The project should have the ability to grow and extend further into the dense downtown and beyond into neighborhoods.
- **Streetcar Starter System Study Area**  
The study area includes downtown Milwaukee; the Third Ward on the south to just north of Brady Street and from Fourth Street to Lake Michigan.
  - **Riding the Streetcar**  
Mark Kaminski presented statistics on the downtown. There are over one million annual Intermodal Station users, 77,500 daily downtown employees, 5.5 million annual downtown visitors, 726,500 annual hotel stays, and 14,900 downtown residents (and growing).
  - **Defining Streetcar**
    - Fixed rail system – modern vehicles to fit in the existing urban environments.
    - Stations/stops will be about every 2-3 blocks.
    - There will be frequent service with cars stopping every 10 minutes during peak times.
    - Streetcars will primarily operate in the right traffic lane and bump-outs will be used preserving the majority of on-street parking.
    - The cars will be electric-powered and have a higher capacity than buses. The vehicles will likely be double articulated.
    - The system will be similar to those in Portland, Seattle, Tacoma, and Washington D.C.

At this time Norm West asked if the vehicles have been picked out yet. Kaminski responded that there are a few different potential manufacturers. The City is currently working on the design criteria for the vehicles. They have decided that it will be rail; not rubber tired vehicles.

- **Route Alternatives**  
Mark Kaminski presented three of the alternatives that were considered and presented to the general public at the October 8<sup>th</sup> Public Meeting and stated that one of the criteria for the alternatives was budget. Booth added that they also wanted to keep within the existing right-of-way and not acquire properties minimizing impacts outside the right-of-way. Kaminski said that the public expressly preferred Alternative 1 and liked parts of Alternative 2, especially running the Streetcar along Broadway.
- **Alternative Evaluation Criteria**

- West asked about the types of land uses on the northeast side. Booth explained that there is a high concentration of employment, retail, and population along the preferred route. Those characteristics were important in picking connection points.
  - Patin showed pictures of the Eastside of Milwaukee to West.
  - Windsor said it sets up potential expansion further to the North and East to UW – Milwaukee (UWM).
  - Yunker said UWM is transit friendly and that the area is set up well for a Streetcar expansion.
  - Kaminski and Booth talked more about the route connecting areas with activity and nightlife. The area is active 24 hours a day.
  - West asked what was on the west side of the river. Booth talked about the sports arenas, theater, and convention center. Kaminski added the redevelopment opportunities on 4<sup>th</sup> Street at the Park East and Brewery sites.
  - Kaminski said there are economic development opportunities around the route, and referred to pages 3 and 4 from the “Milwaukee Streetcar: Locally Preferred Alternative Summary” booklet. The Streetcar will connect 100% of hotels in downtown. Kaminski cited other statistics from page 1 of the “Preferred Alternative Summary” handout.
  - Booth said that the Streetcar is aimed at attracting the widest possible population: residents, people going to the areas for leisure, tourists, and more. They maximized the population served through route choice.
  - Kaminski said the Brady Street neighborhood is excited about the project. They are excited about increasing their transportation options. He said the Third Ward and Brady Street have synergy.
  - Transit integration is a key and connecting to the Intermodal Station and the future KRM commuter rail is important.
- Ridership
    - A \$1 fare is proposed.
    - The project supports the City’s *ParkOnce* initiative.
    - Automated parking meters can be used as off boarding ticket vending machines.
    - Ridership projections are 3,800 rides per day in 2015 and 4,500 rides per day in 2030 for the initial route and possible extensions (if the City is successful in receiving TIGER II or other grant funding). Booth said they are currently conducting Origin-Destination surveys of pedestrians in the study area to find out more about potential ridership. Other cities have seen consistent ridership patterns throughout the day instead of large spikes between peak and non-peak times.
- Operations Plan and Cost
    - Vehicles will operate at 10-minute headways throughout most of the day, Monday through Friday.
    - Evening and weekend service will operate at 15 minute headways.
    - Annual operating cost is estimated at \$2.62 million for the initial Streetcar route and \$3.85 million for the initial route and route extensions.
- Governance
    - Ideally, a Regional Transit Authority (RTA) would be in charge of the Streetcar, however, the City of Milwaukee is willing to be the owner and operator until the RTA is created.

- Finance
  - Approximately \$16-17 million is needed as a local match. The City is suggesting a Tax Increment Finance District for the required local funding match.
  - The funding for annual operation will come through farebox revenue, state and federal transit aid, and the City's parking fund.
  
- Expandability
  - The route is chosen so that it is easy to expand to other nearby downtown areas that are desirable for Streetcar.
  
- Next Steps
  - **Agency Comments on the Locally Preferred Alternative be provided to the study team by September 17, 2010.**
  - The Project Development Phase (Environmental Analysis & 30% Design) will be completed by the end of 2010.
  - Final Design Completed the end of 2011
  - Construction will be completed by the summer of 2013.
  - Operations will begin by the end of 2013.
  
- Questions or more information
  - Website
    - [www.milwaukeeconnector.com](http://www.milwaukeeconnector.com)
    - [www.themilwaukeestreetcar.com](http://www.themilwaukeestreetcar.com) will be running soon
  
  - Contacts for the Environmental Assessment include:
    - Mark Kaminski, HNTB
    - Connie White, HNTB
    - Stewart McKenzie, FTA

### 3. Discussion

Kaminski presented in more detail, the map and "Locally Preferred Alternative Summary". He pointed out Jackson Street and Van Buren Street noting that they are looking into removing the proposed Streetcar from Jackson. The two streets are currently a one-way pair. The City is considering changing those streets to two way streets. Jim Draeger asked if all the alternatives will be compared and studied in the EIS. White said they will review the Preferred Alternative in the Environmental Assessment (not an EIS). Draeger wondered if "the cart was being put in front of the horse" as this may foreclose the ability to look at other alternatives. Kaminski stated that the FTA recommended selection of an LPA and preparation of an Environmental Assessment (EA). Windsor added that if the EA finds significant impacts, the street the route is on could be reconsidered. White said preliminary environmental assessments were conducted and environmental effects were considered in the selection of the LPA.

West asked about the likelihood of environmental issues. Booth said the project will stay within existing rights-of-way. This will eliminate or minimize potential impacts. No wetlands will be affected. Noise impacts and impacts to historic sites are the key issues. A noise and vibration analysis is being conducted and historic surveys are underway. Parking issues have been

analyzed. Thompson said there will be no change in storm water, wetlands won't be affected and there are no conflicts with endangered species, and that the project shouldn't encounter contaminated sites. The initial DNR analysis suggests there will be low impact.

West asked about power stations and maintenance issues. He said these have been big issues in the Minneapolis project. Booth said a substation analysis has begun for the full system. It will show what the system will need, and what area is currently owned by Milwaukee that will not be affected. Kaminski said the maintenance facility and a substation are planned for the area under the Marquette Interchange. Kaminski said another substation would be in the City's municipal buildings. The third substation is planned for an area near a public school on Ogden.

West asked about Environmental Justice issues. Kaminski said there has been a pretty thorough EJ analysis. Booth discussed the demographics of the study area as follows:

- 18 % African American
- 25% non-White
- 88% renter occupied housing
- 77% own one or no vehicles
- 28% own no vehicles
- The median income is less than the City's median income.
- 16% are below poverty.

Kaminski said there is a high proportion of disabled persons along the route and *Independence First* is a strong advocate of the project. Patin said the project touches a good cross section of the population. Booth said the Eastside is very diverse in age, race and income. Fourth Street has a high minority population and future extensions would serve that population.

West suggested much of the route has been gentrified. Kaminski said there is a mix. He said portions of the area have not transitioned. There are many opportunities for infill, particularly on Broadway, which is one of the City's goals. Booth discussed the struggles of Grand Avenue Mall and the area's vacancy rates. He said the Streetcar will stabilize those areas, not gentrify them. It will be a catalyst for stabilization. Patin said that many local economies are stable, but there are a lot of opportunities as well. A lot of historic buildings are sitting in disrepair. The biggest assets are the Lake, River, and unique buildings. The City's goal is to energize these assets.

Yunker said he agrees with the DNR that the project will have very little environmental impact. It does have great potential to have positive environmental impact by encouraging infill development in the urban center. The Streetcar has the potential of encouraging higher density and improving public transit use. It is a way to support ridership on the current MCTS system. The project encourages improvement and expansion of transit in general. Yunker encouraged people to not focus on small impacts and lose sight of the beneficial, large, long-term impacts. West said that the project sounds like an excellent application of the benefits of transit.

West asked if there were issues that may arise during the project to complicate things. He used the example of needing to redo a combined sewer system. Windsor said the City doesn't have plans to separate the sewers. Yunker said that separation has never been proposed in the

downtown area. Studies say it should be treated, not run off. Booth said the City has an ordinance requirement to help with reducing peak rate flow. Conceptual analysis will be done to reduce peak flow rate by 10%. They are doing computations. Patin said Wells Street has very wide pavement. There is essentially no absorption, but there are opportunities for it.

Draeger asked about effects on historic buildings. White said the FTA is taking the lead on the Section 106 process. Heritage Research has been hired to do DOEs and will be contacting the Historical Society soon. Draeger asked whether there will be effects to the Zeidler Building. The team has asked help from Carlen Hatala from the City and Bob Newbery of WisDOT to help determine which buildings should have DOEs done. Draeger said it's important to contact the other consulting party groups early, including the Tribes, Historic Milwaukee, Inc. and the Milwaukee Preservation Alliance. Draeger said to contact Sherman Banker, who has been assigned to the project, as soon as possible to be sure the city is following the necessary steps in the process for this project.

West asked if there would be a "jump on/ jump off" or there would be tickets and a conductor. Kaminski said there would be off-board ticketing. The honor system would be used for enforcement as typical for many Streetcar systems. Booth said stops will be very simple and they will appear similar to bus shelters. Kaminski said there is interest in running the original Milwaukee Streetcars for special events, so the track would be designed to accommodate them. Draeger thought this would have great tourism appeal. He cited San Francisco as an example. Kaminski said it wouldn't be the focus but has potential.

West asked if any venues are being missed. Kaminski said, "Yes." He said the problem would be that the rail could grow too big. UWM wants to be connected. There is interest to go west to Miller Park. There is interest to go south to the airport. The public hasn't said "stay away from us." They are saying "we'd like to be the next expansion." Booth said they need to get started with the starter system then they will be able to expand to some of these areas once it's successfully in place. Patin said there are much more positive feelings now than there have been in the past.

Draeger asked if substations would be added or if they would need to get bigger after expansion. Kaminski said they'd add more. They need to be secure that if one goes out, the whole system wouldn't go down.

At this time Yunker and Hiebert left the meeting.

Thompson asked if the DNR should be on standby. White said HNTB sent out the initial letter requesting comments with the email invitation to the Agency Scoping Meeting. White said they'd like comments back by September 17th. White promised to send the presentation to all of the invited agencies. This scoping meeting is intended to kick off the request for feedback from agencies.

Thompson stated that he expected this project meets general air quality requirements. The project can be seen as a benefit as it will take cars off the road. Thompson said the DNR also has the ability to share information about contaminated sites and will do so for the EA.

Thompson asked about the proposed maintenance facility and whether it will have a paint shop or anything that requires the DNR to sign off? Kaminski said they will do light maintenance there and maybe a wash bay will be installed. Thompson said that that probably wouldn't require a DNR permit.

Thompson mentioned that asbestos should be considered in thinking about design and utility conflicts.

Booth said the conceptual design will be done soon. HNTB can coordinate with the DNR. The design should be done before the DNR offers its comments.

Thompson suggested that the stop at point eight on the map could use signage in connection with the River Walk corridor.

Thompson asked if the project proposes any modifications to the St. Paul Bridge. Kaminski said they will install track. Booth said the initial analysis says the rail should be light enough for the bridge, with no major changes.

West asked if any parks would be affected. Kaminski said Cathedral Square is near the project, but it shouldn't be affected.

Draeger said vibration impacts to historic buildings are the main concern as well as construction and operation effects. White said they are studying that. The weight of the Streetcar is less than a semi. West asked if health centers might be affected. Booth said no hospitals will be affected. He is not aware of any research institutions that would be affected. There are a couple day clinics, but no sensitive lab testing is expected to be affected. HNTB is compiling that information.

West asked if any radio stations might be affected by electrical interference from the Streetcar. Booth said Public Radio is in the area, and this is a potential impact that should be considered more. West added that police communication could also be affected. Kaminski said electrical interference is an issue with older systems. Installing a rubber boot will help. Capture lines that pull current back to substations will help too. Newer systems don't have the same problems as older ones.

White summed it up that the major concerns are vibration, noise, and history impacts.

West asked if, in general, the rivers are being enhanced in the City of Milwaukee. Patin said yes, there have been a lot of improvements made to the RiverWalk.

West reminded the group to think ahead. He thought the City's done an excellent job on the proposal. It will meet some needs. But he warned them that in selling expansion to be careful what is promised. For example, the Streetcar will take much longer to go end-to-end after it has expanded.

Patin said that the area's concentrated population makes the system fit like a glove. He said it's a different system; it is a pedestrian mover. It really supports the *ParkOnce* effort. Draeger said it is nice to connect the Third Ward to downtown. Patin said that it seems to be connecting the

dots between lots of people. Booth and Patin emphasized the revitalization work the project will do.

The meeting ended at approximately noon.

| Agency              | Name                            | Title  | Phone                   | Email                           |
|---------------------|---------------------------------|--|-------------------------|---------------------------------|
| David Windsor       | City of Milwaukee               | Civil Engineer   | 414 286 0459            | david.windsor@milwaukee.gov     |
| CHRISTOPHER HIEBERT | SEWRPC                          | CHIEF TRANSPORTATION ENGINEER                          | 202 347 6722<br>x 227   | CHIEBERT@SEWRPC.ORG             |
| Ken Yunker          | SEWRPC                          | Executive Director                                     | 262 547 6722<br>EXT 211 | kyunker@sewrpc.org              |
| Connie White        | HNTB                            | Planner  | 608 294-5006            | cwhite@hntb.com                 |
| Gregory Ann         | CITY OF MILWAUKEE<br>DCD        | <del>PLANNER</del><br>STRATEGIC DEVELOPMENT<br>PLANNER | 414-286-5728            | gpatne@milwaukee.gov            |
| Ashley Booth        | HNTB                            | Planner  | 414-410-6774            | abooth@hntb.com                 |
| Mike Thompson       | DNR                             | Environmental Analysis Team<br>Supervisor              | 414 303 3408            | MichaelC.Thompson@Wisconsin.gov |
| Norm West           | US EPA                          | NEPA Review  | 312-353-5692            | west-norman@epa.gov             |
| Jim Drager          | Wisconsin Historical<br>Society | Deputy<br>SHPO   | 608 264 6511            | JimDrager@wisconsinhistory.org  |
| Mark Kaminski       | HNTB                            |  |                         |                                 |



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Green Bay ES Field Office  
2661 Scott Tower Drive  
New Franken, Wisconsin 54229-9565  
Telephone 920/866-1717  
FAX 920/866-1710

September 14, 2010

Ms. Connie White  
HNTB Corporation  
10 West Mifflin Street  
Suite 300  
Madison, Wisconsin 53703

re: Downtown Streetcar Environmental Assessment  
City of Milwaukee  
Milwaukee County, Wisconsin

Dear Ms. White:

The U.S. Fish and Wildlife Service (Service) has received your letter dated August 12, 2010, requesting comments on the subject project. The project entails the construction of a Streetcar system in the City of Milwaukee, Milwaukee County, Wisconsin. Our comments follow.

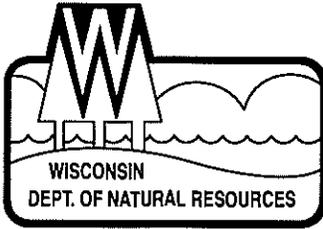
#### **Federally-Listed Species, Candidate Species, and Critical Habitat**

Due to the project's location, no federally-listed species would be expected within the project area. This precludes the need for further action on this project as required by the 1973 Endangered Species Act, as amended. Should additional information on listed or proposed species or their critical habitat become available or if project plans change or if portions of the proposed project were not evaluated, it is recommended that you contact our office for further review.

We appreciate the opportunity to respond. Questions pertaining to these comments can be directed to Ms. Jill Utrup at 920-866-1734.

Sincerely,

Louise Clemency  
Field Supervisor



## State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor  
Matthew J. Frank, Secretary  
Gloria L. McCutcheon, Regional Director

Southeast Region Headquarters  
2300 N. Dr. Martin Luther King, Jr. Drive  
Milwaukee, Wisconsin 53212-3128  
FAX 414-263-8606  
Telephone 414-263-8500  
TTY Access via relay - 711

September 17, 2010

File Ref: 1600

Ms. Connie White  
HNTB  
100 W Mifflin St., Suite 300  
Madison, WI 53703

Dear Ms. White:

Thank you for the opportunity to comment on the *Milwaukee Connector Study – Downtown Streetcar Environmental Assessment, City of Milwaukee*. The two-mile streetcar system will connect the Milwaukee Central Business District, Third Ward, Milwaukee Intermodal Station, and high density residential areas near downtown. The system will not impact threatened or endangered species or wetlands and will decrease air pollutant emissions. Please consider the following resource information during the Study.

### Air and Remediation and Redevelopment

- Information about air quality in the Study Area is available at <http://dnr.wi.gov/air/>.
- Rail projects that emit less than 100 tons of volatile organic compounds and nitrogen oxide compounds per year in the Milwaukee County and Waukesha County ozone nonattainment area are below the *de minimis* thresholds of NR 489, Wis. Admin. Code, *Conformity of general federal actions to state implementation plan*. Contact Mike Friedlander, Program and Planning Analyst, at (608) 267-0806, for more information.
- Contaminated soil and groundwater are present in the Study Area. The Department's Remediation and Redevelopment Sites Map <http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=brts2> is a web-based mapping system that allows a user to view different layers of contamination data using a Geographic Information System (GIS) tool. This information may assist excavation and utility relocation planning. Contact James Schmidt, Remediation and Redevelopment Team Supervisor, at (414) 263-8561, for more information.

### Water

- A Department *Construction Site Storm Water Discharge Permit, NR216 and NR 151 Wis. Adm. Code*, is required for temporary construction activities that disturb one acre or more of land. A permit is not needed if storm water is discharged to the combined sewer system. Contact Susan Eichelkraut, Storm Water Specialist, at (414) 263-8682, for more information.

Thanks again for the opportunity to provide information about Air, Remediation and Redevelopment, and Water Resources for the *Milwaukee Connector Study – Downtown Streetcar Environmental Assessment*. Please contact Peter McMullen, Urban Planning Specialist, at (414) 263-8751 or me for further assistance.

Sincerely,

Michael C. Thompson  
Environmental Analysis and Review Team Supervisor  
(414) 263-8648

Cc: Susan Eichelkraut, Mike Friedlander, Peter McMullen, and Jim Schmidt, DNR

## Connie White

---

**From:** Thompson, Michael C - DNR [MichaelC.Thompson@Wisconsin.gov]  
**Sent:** Tuesday, April 26, 2011 7:08 AM  
**To:** Connie White  
**Subject:** RE: Milwaukee Streetcar EA

Connie,

The Wisconsin Department of Natural Resources Natural Heritage Inventory threatened and endangered species database was searched. Since 1975, state endangered Striped Shiner fish are present in the Milwaukee River and a Peregrine Falcon bird nest site is present on a building in the area. Neither of these species will be impacted by the construction or operation of the Milwaukee Streetcar project.

Mike

### Michael C. Thompson

Team Supervisor  
Environmental Analysis & Review Program  
Bureau of Integrated Science Services  
Wisconsin Department of Natural Resources  
(☎) desk phone: (414) 263-8648  
(☎) cell phone: (414) 303-3408  
(✉) e-mail: [MichaelC.Thompson@Wisconsin.gov](mailto:MichaelC.Thompson@Wisconsin.gov)

---

**From:** Connie White [<mailto:CMWhite@HNTB.com>]  
**Sent:** Tuesday, April 19, 2011 11:29 AM  
**To:** Thompson, Michael C - DNR  
**Subject:** Milwaukee Streetcar EA

Hi Mike, We are working with FTA to complete our EA and they had a question about whether a records search was conducted for threatened and endangered species. Can you elaborate on your comment in the attached letter that the system will not impact threatened or endangered species or wetlands?

Thanks!

Connie

### Connie White

Senior Transportation Planner

### HNTB Corporation

10 West Mifflin Street, Suite 300  
Madison, WI 53703

Tel (608) 294-5006  
Fax (608) 259-0084  
[www.hntb.com](http://www.hntb.com)

## Connie White

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**From:** Martin.Marilou@epamail.epa.gov  
**Sent:** Wednesday, September 29, 2010 12:03 PM  
**To:** Ashley Booth  
**Cc:** Connie White; 'jenann olsen'; 'jenny@weissandcompany.com'; 'Kristine Martinsek'; Mark Kaminski; lois.kimmelman@dot.gov; Scagnelli.Francesca@epamail.epa.gov; West.Norman@epamail.epa.gov; Westlake.Kenneth@epamail.epa.gov; Walts.Alan@epamail.epa.gov; Lasky.Lara@epamail.epa.gov  
**Subject:** Re: Milwaukee Streetcar - Call

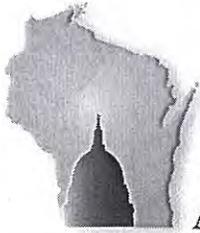
Hi All,

I want to thank you for taking time to explain the Milwaukee Streetcar Project, the process and planning aspects, and the outreach to environmental justice leaders and communities. Based on my experience getting to different meetings in different locations in Milwaukee, transit and ParkOnce will be a welcome addition to a great city. The attractions, neighborhoods, and forward-thinking planning of the City make Milwaukee one of the best kept secrets in the midwest. I learned aspects of transit, planning, and public outreach that I had not considered. You also introduced some new organizations that I was not aware of.

As I mentioned, I am an interested observer because of the Milwaukee Showcase Community Project, but our NEPA program and Norm West are EPA's primary contact for you. If you have questions about the Showcase Community Project, I am happy to talk with you. Perhaps the EPA, HUD, and DOT Sustainable Communities Partnership will have our paths cross again.

Thank you,  
Marilou

Marilou Martin  
Stewardship Programs Coordinator, Milwaukee EJ Showcase Community Coordinator U.S. EPA,  
Region 5  
77 W. Jackson Blvd.  
Chicago, IL 60604  
phone: 312-353-9660  
e-mail: [martin.marilou@epa.gov](mailto:martin.marilou@epa.gov)



**WISCONSIN DEPARTMENT OF  
ADMINISTRATION**

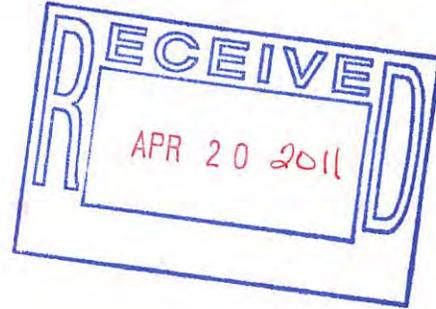
**SCOTT WALKER**  
GOVERNOR

**MIKE HUEBSCH**  
SECRETARY

Division of Intergovernmental Relations  
Post Office Box 8944  
Madison, WI 53708-8944  
Voice (608) 266-0288  
Fax (608) 267-6917

April 19, 2011

Connie White, Environmental Planner  
HNTB Corporation  
10 West Mifflin St., Suite 300  
Madison, WI 53703



RE: United States Coast Guard:  
USCG Sector Lake Michigan Facility Parking/Staging Area

Dear Ms. White:

Thank you contacting the Wisconsin Coastal Management Program (WCMP) about the proposed 2-mile starter streetcar system in Milwaukee, Wisconsin. Through its Federal Consistency authority, the WCMP reviews federally-affiliated projects that are likely to have impacts on coastal uses and resources within the coastal zone, defined as the fifteen counties adjacent to Lake Superior, Green Bay and Lake Michigan. The WCMP does not have any comments on the project and will not conduct a federal consistency review. This does not exempt the proposed project from requiring any other necessary state or local permits or authorizations. If you have any questions, please feel free to contact me at (608) 267-7988.

Sincerely,

  
Kate Angel  
Program and Planning Analyst  
Wisconsin Coastal Management Program

**APPENDIX H**

**MILWAUKEE STREETCAR LPA TRAFFIC OPERATIONS SUMMARY**



Milwaukee Streetcar LPA Traffic Operations

| Intersection                            | AM        |     |           |     |           |     | PM        |     |           |     |           |     |   |
|---|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|---|
|   | Existing  |     | No-build  |     | Build     |     | Existing  |     | No-build  |     | Build     |     | Percent Difference (Build vs. No-build) |
|   | Delay (s) | LOS |   |
| Brady/Prospect                          | 8.3       | A   | 7.1       | A   | 6.0       | A   | 15.2      | B   | 13.4      | B   | 8.9       | A   | -33%                                    |
| Knapp/VanBuren                          | 0.9       | A   | 0.9       | A   | 0.9       | A   | 0.8       | A   | 1.1       | A   | 1.1       | A   | 0%                                      |
| Parkinglot (btwn Wis and Mich)/4th      | 2.9       | A   | 3.8       | A   | 4.8       | A   | 2.7       | A   | 3.3       | A   | 4.2       | A   | 30%                                     |
| Ogden/Franklin/Farwell                  | 10.5      | B   | 12.4      | B   | 12.3      | B   | 23.5      | C   | 18.5      | B   | 17.5      | B   | -5%                                     |
| Juneau/Jackson                          | 17.7      | B   | 19.0      | B   | 21.7      | C   | 26.0      | C   | 42.5      | D   | 39.8      | D   | -6%                                     |
| Juneau/VanBuren                         | 15.5      | B   | 16.6      | B   | 18.0      | B   | 21.1      | C   | 23.9      | C   | 24.3      | C   | 2%                                      |
| State/VanBuren                          | 16.8      | B   | 18.9      | B   | 19.8      | B   | 21.2      | C   | 22.2      | C   | 23.9      | C   | 8%                                      |
| Kilbourn/Jackson                        | 20.0      | C   | 19.3      | B   | 18.3      | B   | 20.8      | C   | 16.6      | B   | 17.5      | B   | 6%                                      |
| Kilbourn/VanBuren                       | 16.1      | B   | 20.1      | C   | 14.7      | B   | 16.7      | B   | 28.9      | C   | 14.6      | B   | -49%                                    |
| Wells/Broadway                          | 13.3      | B   | 16.9      | B   | 25.9      | C   | 16.7      | B   | 42.2      | D   | 45.5      | D   | 8%                                      |
| Wells/Milwaukee                         | 16.1      | B   | 20.3      | C   | 21.1      | C   | 15.0      | B   | 24.0      | C   | 25.3      | C   | 5%                                      |
| Wells/Jefferson                         | 13.5      | B   | 20.4      | C   | 19.7      | B   | 7.7       | A   | 22.8      | C   | 24.5      | C   | 8%                                      |
| Wells/Jackson                           | 16.4      | B   | 16.3      | B   | 14.8      | B   | 16.2      | B   | 21.1      | C   | 22.7      | C   | 8%                                      |
| Wells/VanBuren                          | 13.4      | B   | 15.9      | B   | 15.4      | B   | 19.2      | B   | 14.1      | B   | 16.6      | B   | 18%                                     |
| Mason/Broadway                          | 14.2      | B   | 14.7      | B   | 15.0      | B   | 16.1      | B   | 47.2      | D   | 17.6      | B   | -63%                                    |
| Wisconsin/Broadway                      | 15.4      | B   | 17.0      | B   | 16.8      | B   | 12.7      | B   | 46.3      | D   | 25.3      | C   | -45%                                    |
| Michigan/Broadway                       | 12.0      | B   | 16.1      | B   | 16.5      | B   | 16.5      | B   | 51.5      | D   | 40.5      | D   | -21%                                    |
| Clybourn/Broadway                       | 16.3      | B   | 15.2      | B   | 17.4      | B   | 12.2      | B   | 16.1      | B   | 21.5      | C   | 33%                                     |
| St.Paul/Water                           | 14.6      | B   | 18.5      | B   | 15.3      | B   | 15.2      | B   | 20.1      | C   | 19.5      | B   | -3%                                     |
| ParkingLot (btwn Juneau and State)/Jack | 0.7       | A   | 0.8       | A   | 0.9       | A   | 0.3       | A   | 1.2       | A   | 1.2       | A   | 0%                                      |
| ParkingLot (btwn Albion and Brady)/Pros | 1.6       | A   | 1.5       | A   | 1.8       | A   | 0.5       | A   | 0.6       | A   | 0.7       | A   | 29%                                     |
| Curtis/Prospect                         | 7.0       | A   | 8.2       | A   | 8.9       | A   | 5.7       | A   | 5.7       | A   | 9.0       | A   | 58%                                     |
| Ogden/Prospect                          | 14.0      | B   | 11.7      | B   | 13.7      | B   | 13.7      | B   | 11.1      | B   | 14.9      | B   | 34%                                     |
| Ogden/Jackson                           | 15.8      | C   | 57.9      | F   | 17.1      | B   | 16.1      | C   | 46.8      | E   | 20.9      | C   | -55%                                    |
| Ogden/VanBuren                          | 14.7      | B   | 18.9      | B   | 18.0      | B   | 17.2      | B   | 19.3      | B   | 16.1      | B   | -17%                                    |
| ParkingLot (btwn Cly and Mich)/Broadway | 0.9       | A   | 1.2       | A   | 1.3       | A   | 2.2       | A   | 14.7      | B   | 4.9       | A   | -67%                                    |
| ParkingLot (btwn Kil and Wells) /4th    | 1.0       | A   | 1.2       | A   | 2.7       | A   | 0.8       | A   | 0.9       | A   | 1.2       | A   | 33%                                     |
| Royall/Farwell                          | 1.1       | A   | 2.0       | A   | 10.8      | B   | 1.7       | A   | 64.4      | F   | 40.2      | D   | -38%                                    |
| Royall/Prospect                         | 0.6       | A   | 0.6       | A   | 11.7      | B   | 0.6       | A   | 0.8       | A   | 11.9      | B   | 1383%                                   |
| Curtis/Farwell                          | 0.4       | A   | 0.6       | A   | 0.5       | A   | 0.6       | A   | 0.8       | A   | 0.9       | A   | 17%                                     |
| St.Paul/Plankinton                      | 34.2      | C   | 34.0      | C   | 43.9      | D   | 15.2      | B   | 17.7      | B   | 18.9      | B   | 7%                                      |
| Clybourn/4th                            | 15.8      | B   | 15.8      | B   | 17.3      | B   | 13.1      | B   | 13.9      | B   | 14.6      | B   | 5%                                      |
| Ogden/Humboldt                          | 1.3       | A   | 1.5       | A   | 1.5       | A   | 4.3       | A   | 2.3       | A   | 2.4       | A   | 6%                                      |
| Ogden/Astor                             | 10.3      | B   | 11.9      | B   | 13.8      | B   | 15.6      | C   | 21.1      | C   | 31.6      | D   | 50%                                     |
| Ogden/Marshall                          | 1.9       | A   | 2.1       | A   | 2.4       | A   | 2.1       | A   | 2.6       | A   | 3.6       | A   | 39%                                     |
| Michigan/4th                            | 12.2      | B   | 14.8      | B   | 13.1      | B   | 13.9      | B   | 13.9      | B   | 13.7      | B   | -2%                                     |

Milwaukee Streetcar LPA Traffic Operations

| Intersection            | Existing  |     | No-build  |     | Build     |     | Percent Difference (Build vs. No-build) |      | Existing  |      | No-build  |      | Build     |      | Percent Difference (Build vs. No-build) |
|-------------------------|-----------|-----|-----------|-----|-----------|-----|---|------|-----------|------|-----------|------|-----------|------|---|
|                         | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s)                               | LOS  | Delay (s) | LOS  | Delay (s) | LOS  | Delay (s) | LOS  |   |
| Wisconsin/4th           | 18.2      | B   | 16.2      | B   | 22.5      | C   | 39%                                     | 15.6 | B         | 15.8 | B         | 17.4 | B         | 10%  |   |
| Juneau/5th              | 1.6       | A   | 1.8       | A   | 1.9       | A   | 2%                                      | 0.7  | A         | 0.8  | A         | 0.8  | A         | 9%   |   |
| Ogden/Cass              | 1.9       | A   | 3.5       | A   | 2.2       | A   | -36%                                    | 1.9  | A         | 3.9  | A         | 2.4  | A         | -38% |   |
| St.Paul/Broadway        | 7.4       | A   | 11.1      | B   | 10.3      | B   | -7%                                     | 24.1 | C         | 22.3 | C         | 25.4 | C         | 14%  |   |
| St.Paul/2nd             | 2.1       | A   | 2.6       | A   | 2.5       | A   | -5%                                     | 2.4  | A         | 3.1  | A         | 2.9  | A         | -5%  |   |
| Wells/4th               | 16.9      | B   | 58.0      | E   | 63.0      | E   | 9%                                      | 16.8 | B         | 41.8 | D         | 37.5 | D         | -10% |   |
| Kilbourn/4th            | 15.3      | B   | 13.8      | B   | 21.4      | C   | 56%                                     | 13.8 | B         | 16.0 | B         | 17.9 | B         | 12%  |   |
| State/4th               | 17.8      | B   | 14.5      | B   | 16.1      | B   | 11%                                     | 18.6 | B         | 13.8 | B         | 16.5 | B         | 20%  |   |
| St.Paul/3rd             | 0.6       | A   | 0.9       | A   | 0.6       | A   | -36%                                    | 0.7  | A         | 0.9  | A         | 0.8  | A         | -8%  |   |
| St.Paul/4th             | 2.8       | A   | 3.8       | A   | 13.2      | B   | 250%                                    | 2.3  | A         | 3.0  | A         | 13.9 | B         | 363% |   |
| Highland/4th            | 0.8       | A   | 0.9       | A   | 1.0       | A   | 7%                                      | 7.5  | A         | 9.0  | A         | 7.7  | A         | -15% |   |
| Juneau/4th              | 15.7      | B   | 18.3      | B   | 15.6      | B   | -15%                                    | 14.2 | B         | 16.6 | B         | 13.3 | B         | -20% |   |
| Juneau/6th              | 12.8      | B   | 11.8      | B   | 15.9      | B   | 34%                                     | 13.2 | B         | 13.4 | B         | 19.4 | B         | 45%  |   |
| Brady/Farwell/Cambridge | 26.9      | C   | 27.4      | C   | 26.3      | C   | -4%                                     | 34.1 | C         | 67.1 | E         | 53.7 | D         | -20% |   |
| Albion/Farwell*         |           |     |           |     | 1.9       | A   |   |      |           |      |           | 1.7  | A         |      |   |

**APPENDIX I**

**ESTIMATED PROJECT COSTS**



## ESTIMATED PROJECT COSTS

This is a summary of the estimated project costs and potential funding sources for the Milwaukee Streetcar locally preferred alternative, including both the capital costs and the operations and maintenance costs. The City of Milwaukee will continue to work on finalizing the details of the operations and maintenance funding sources. Implementation of the funding plan depends on finalized cost estimates subsequent to further engineering analysis, coordination with stakeholders, completion of the EA, and Common Council approval.

### CAPITAL COSTS

The capital costs for the initial streetcar system are estimated to be \$64.6 million. The route extensions would add \$40.2 million for a total combined cost of \$104.8 million. All costs will be refined during final design phase. Table 1 shows the breakdown of capital costs for the initial system and the extensions based on an opening year of the streetcar system by the end of 2014.

**Table 1: Capital Cost Summary (in 2011 Dollars)**

| Item                    | Cost for initial route | Route extensions    | Total Cost           |
|-------------------------|------------------------|---------------------|----------------------|
| Construction*           | \$30,700,000           | \$17,400,000        | \$48,100,000         |
| Vehicles/Vehicle Costs  | 4/\$16,500,000         | 3/\$12,400,000      | 7/\$28,900,000       |
| Professional Services   | \$8,100,000            | \$4,800,000         | \$12,900,000         |
| Unallocated Contingency | \$7,400,000            | \$4,400,000         | \$11,800,000         |
| Escalation**            | \$1,900,000            | \$1,200,000         | \$3,100,000          |
| <b>Total</b>            | <b>\$64,600,000</b>    | <b>\$40,200,000</b> | <b>\$104,800,000</b> |

Source: Capital Cost June 2011 Draft

\*1.5% Annual Escalation from 2011-2013

\*\*Does not include public/private utilities and some roadway costs

### OPERATIONS AND MAINTENANCE COSTS

The estimated cost for operating and maintaining the initial streetcar system is \$2.65 million per year. This figure is based on the preferred operations schedule indicated in Table 7 in Section 4.4.1 Service Frequency and Hours of Operation. The route extensions would add \$2.24 million for a total operating and maintenance cost of \$4.89 million per year. Table 2 shows the estimated operating and maintenance costs.

**Table 2: Estimated Operating and Maintenance Costs**

| Route            | Cost (YOE 2015)       |
|------------------|-----------------------|
| Initial route    | \$2.65 million        |
| Route extensions | \$2.24 million        |
| <b>Total</b>     | <b>\$4.89 million</b> |

Source: Bay Ridge Consulting, Operations and Maintenance Technical Memorandum

YOE – Year of Expenditure

\*2% Annual Escalation

## PROPOSED CAPITAL FUNDING

Proposed capital funding would come from Federal Funds through the Interstate Construction Estimate funding. The City of Milwaukee’s 60% portion of the Interstate Funds covers \$54.9 million for the streetcar project’s initial route or 85%. An additional \$9.7 million will come from local funding sources as a required 15% local match. Any additional project funds needed would come from other sources. The streetcar’s local capital funds are proposed to come from City of Milwaukee Tax Incremental Finance funds. According to the Tax Incremental Capacity Analysis completed for the streetcar project there is a total bondable amount of approximately \$50.3 million<sup>1</sup> available from two existing and two proposed TIF Districts within ½ mile of the streetcar route. Table 3 shows the estimated TIF funds available for the local capital funds match.

**Table 3: Maximum Bond Amount for TIF Districts**

| Revenue Source  | Maximum Net Bondable Amount |
|-----------------|-----------------------------|
| Existing TID #1 | \$10,900,000                |
| Existing TID #2 | \$15,900,000                |
| Proposed TID #1 | \$5,500,000*                |
| Proposed TID #2 | \$18,000,000*               |
| <b>Total</b>    | <b>\$50,300,000</b>         |

Source: S.B. Friedman & Co, TID Capacity Analysis for Streetcar Project

\*The bondable amount assumes no City of Milwaukee commitments for the TID funds other than the streetcar.

## PROPOSED OPERATIONS AND MAINTENANCE FUNDING

The estimated annual operations cost for the initial route is \$2.65 million and \$4.89 million for the initial route and route extensions. FTA requires a 20-year commitment to operate a transit system. As shown in Table 4 the annual operating costs are intended to be financed through passenger revenue, City parking revenue and sponsorships. The project will also seek state and federal transit aid to provide additional revenue sources. If a new dedicated revenue source for a Regional Transit Authority (RTA) is approved by the State Legislature, the operating costs for the streetcar should be financed by that source. The finance plan includes commitments by the City of Milwaukee to assure operations support for the 20-year period.

**Table 4: Proposed Operating Revenue for Opening Year (in 2015 Dollars)**

| Item                              | Cost for initial route | Route extensions   |
|-----------------------------------|------------------------|--------------------|
| Passenger Revenue*                | \$590,000              | \$1,160,000        |
| City of Milwaukee Parking Revenue | \$1,850,000            | \$3,260,000        |
| Streetcar Sponsorships            | \$270,000              | \$490,000          |
| CMAQ Funds**                      | \$0                    | \$0                |
| <b>Total</b>                      | <b>\$2,710,000</b>     | <b>\$4,910,000</b> |

Source: HNTB, Finance Plan Technical Memorandum

\*Assumes \$1 Fare

\*\*CMAQ Funds could be available for first 3 years of service.

<sup>1</sup> TID Capacity Analysis for Milwaukee Streetcar Project. S.B. Friedman & Company. November 2010.