

Supplemental Environmental Assessment

WOODWARD AVENUE STREETCAR PROJECT

Detroit, Michigan

February 2013



U.S. Department
of Transportation
**Federal Transit
Administration**

 **MDOT**
MICHIGAN DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
for
WOODWARD AVENUE STREETCAR
City of Detroit, Wayne County, Michigan

By the
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
and the
MICHIGAN DEPARTMENT OF TRANSPORTATION
in cooperation with the
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

2-1-2013
Date of Approval


Regional Administrator, Region V
Federal Transit Administration

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This Supplemental Environmental Assessment describes the social, economic, and environmental impacts associated with the Woodward Avenue Streetcar. The preferred alternative consists of a 3.3-mile, fixed-rail, at-grade streetcar system located entirely within the right-of-way of Woodward Avenue. It is comprised of 11 stations, with a potential twelfth station, and supporting facilities, including trackwork, one vehicle storage maintenance facility, a traction power electrical system consisting of an overhead catenary, the poles supporting the catenary, and four traction power substations.

Comments on this Supplement Environmental Assessment should be received within 30 days of the date of publication and should be sent to: Robert H. Parsons, Public Involvement and Hearings Officer, Michigan Department of Transportation, P.O. Box 30050, Lansing, MI 48909, Phone (517) 373-9534; FAX (517) 373-9255; E-mail: parsonsb@michigan.gov

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Introduction and Abstract

Responsible Agencies

The lead Federal agency for the project is the U.S. Department of Transportation, Federal Transit Administration. The Project Sponsor is the Michigan Department of Transportation. The U.S. Department of Transportation, Federal Highway Administration, is a Cooperating Agency.

Comments on the Supplemental EA

There is a 30-day period for submittal of comments on the Supplemental Environmental Assessment (EA). This 30-day period begins February 12, 2013 and ends on March 14, 2013. Comments should be submitted to the Project Sponsor on or before March 14, 2013. Comments may be submitted via the project website (<http://www.mi.gov/woodwardstreetcar>) or made in person at the public hearing. Information on the public hearing will be published in local and regional newspapers and on the project website. This Supplemental Environmental Assessment will be available at local public libraries and on the project website.

Project Contacts

For additional information concerning the project and/or the Supplemental EA, please contact:

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Abstract

Federal Transit Administration (FTA), as the lead Federal agency, and the Michigan Department of Transportation (MDOT), as the Project Sponsor, jointly prepared this Supplemental EA. This document supplements the Final Environmental Impact Statement (FEIS) for the Woodward Avenue Light Rail Transit (LRT) project. Consistent with the requirements of the National Environmental Policy Act (NEPA), this Supplemental EA has been prepared to evaluate and assess potential impacts to the human and natural environment, which may result from the construction and operation of the Woodward Avenue Streetcar Project (the Project) in the City of Detroit, Wayne County, Michigan.

The Project is similar to Alternative B3, studied as part of the FEIS for the Woodward Avenue LRT project. The FEIS, completed in June 2011 by FTA, concluded with a Record of Decision signed on August 31, 2011. The FEIS evaluated a number of alternatives and design options for LRT service along Woodward Avenue and assessed potential impacts on the human and natural environment that may have resulted from the proposed LRT project. This Supplemental EA has a substantially smaller scope, focusing on changes from Alternative B3 assessing the impacts of those proposed changes to the Streetcar Alternative. The change from the FEIS Preferred Alternative (A4) to the Streetcar Alternative was largely due to financial limitations faced by the City of Detroit.

The purpose of the proposed project is the same as the Woodward Avenue LRT project, which is to: improve public transit service and provide greater mobility options for the Woodward

Avenue corridor; improve transportation equity among all travelers; improve transit capacity in the corridor; improve linkages to major activity centers in the corridor; and support the City's economic development goals and encourage reinvestment in Detroit's urban core.

The need for the proposed project is the same as the Woodward Avenue LRT project and based on: strong existing bus ridership and large potential ridership; a heavily transit-dependent population along the corridor; overcrowding, reliability issues, and lack of rapid transit alternatives with the current bus system; air quality issues due to the region's nonattainment status; and focus of local policy on transit improvements as part of a more balanced and sustainable approach to future growth.

The Project is a 3.3-mile, fixed-rail, at-grade streetcar system located entirely within the right-of-way of Woodward Avenue. It would operate in mixed traffic and run from Larned Street in Downtown Detroit (Downtown) north to Chandler Street/Delaware Street, north of Grand Boulevard, in New Center.

The Streetcar Alternative consists of 11 stations, with a potential twelfth station, and supporting facilities, including trackwork, one vehicle storage maintenance facility (VSMF), a traction power electrical system consisting of an overhead catenary, the poles supporting the catenary, and four traction power substations. There is one preferred and three alternate VSMF sites considered within this supplemental EA. Eight of the southernmost stations are curbside stations and four of the northernmost are median stations, all within the existing transportation right-of-way.

Potential impacts of the alternatives on key resources of the natural and human environment are evaluated in this EA. The legal and regulatory context, analysis methodology, existing conditions, long-term effects, short-term construction effects, and mitigation measures for unavoidable impacts are summarized for each resource. Technical Reports supporting the Supplemental EA are included with this document and are incorporated by reference. A Section 4(f) Evaluation is included with this EA, which documents impacts to Section 4(f) resources.

Following a formal public hearing and receipt of comments, an Amended Record of Decision would follow the Supplemental EA to document FTA's decision to proceed with an approved alternative and mitigation commitments.

List of Acronyms and Abbreviations

AAI	All Appropriate Inquiries	NO ₂	Nitrogen Dioxide
ADA	Americans with Disabilities Act	NPS	National Park Service
APE	Area of Potential Effects	NRHP	National Register of Historic Places
ASTM	American Society for Testing and Materials	NRCS	Natural Resources Conservation Service
BRT	Bus Rapid Transit	OCS	Overhead Catenary System
CAA	Clean Air Act	O ₃	Ozone
CBD	Central Business District	PM _{2.5}	Particulate Matter less than 2.5 micrometers in diameter
CFR	Code of Federal Regulations	PM ₁₀	Particulate Matter less than 10 micrometers in diameter
CO	Carbon Monoxide	REC	Recognized Environmental Conditions
CSA	Construction Staging Area	ROD	Record of Decision
dBA	Decibels (A-weighting)	RTA	Regional Transit Authority
DDOT	Detroit Department of Transportation	RTCC	Regional Transit Coordinating Council
DEIS	Draft Environmental Impact Statement		
DTOGS	Detroit Transit Options for Growth Study	RTP	Regional Transportation Plan
DPM	Detroit People Mover	SEMCOG	Southeast Michigan Council of Governments
DTC	Detroit Transportation Corporation	SHPO	State Historic Preservation Office
EA	Environmental Assessment	SIP	State Implementation Plan
EIS	Environmental Impact Statement	SMART	Suburban Mobility Authority for Regional Transportation
EJ	Environmental Justice	TIP	Transportation Improvement Program
ESA	Environmental Site Assessment	TOD	Transit-Oriented Development
FEIS	Final Environmental Impact Statement	TPSS	Traction Power Substation
FHWA	Federal Highway Administration	TRU	Transit Riders United
FTA	Federal Transit Administration	USC	United States Code
Ldn	Day-Night Noise Level	USDOT	U.S. Department of Transportation
Leq	Equivalent Noise Level	USEPA	U.S. Environmental Protection Agency
LOS	Level of Service	VdB	Vibration Level
LRT	Light Rail Transit	VMT	Vehicle Miles Traveled
LRTP	Long Range Transportation Plan	VSMF	Vehicle Storage and Maintenance Facility
MDOT	Michigan Department of Transportation		
MOA	Memorandum of Agreement		
MPO	Metropolitan Planning Organization		
MSAT	Mobile Source Air Toxics		
NAAQS	National Ambient Air Quality Standards		
NEPA	National Environmental Policy Act		
NHL	National Historic Landmark		

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Executive Summary

ES.1 Project Background

The Federal Transit Administration (FTA), as the lead Federal agency, and the Michigan Department of Transportation (MDOT), as the project sponsor, jointly prepared this Supplemental Environmental Assessment (EA). This document supplements the Final Environmental Impact Statement (FEIS) for the Woodward Avenue Light Rail Transit (LRT) project. Consistent with the requirements of the National Environmental Policy Act (NEPA), this Supplemental EA has been prepared to evaluate and assess potential impacts to the human and natural environment, which may result from the construction and operation of the Woodward Avenue Streetcar Project (the Project) in the City of Detroit, Wayne County, Michigan.

The Project is similar to Alternative B3, studied as part of the FEIS for the Woodward Avenue LRT project. The FEIS was completed in June 2011, with a Record of Decision signed on August 31, 2011. The FEIS evaluated a number of alternatives and design options for LRT service along Woodward Avenue and assessed potential impacts on the human and natural environment that may have resulted from the proposed LRT project. This Supplemental EA has a substantially smaller scope, focusing on changes from Alternative B3 and assessing the impacts of those proposed changes to the Streetcar Alternative. The change from the FEIS Preferred Alternative (A4) to the Streetcar Alternative was largely due to financial limitations by the City of Detroit.

ES.2 Summary of Purpose and Need

The purpose and need of the Project remains unchanged since the release of the FEIS. Woodward Avenue is a heavily transit-dependent corridor. Bus service along the corridor is unreliable, with many buses overcrowded. Due to major activity centers along the corridor, there is the potential for even greater transit ridership. Air quality in the region is not as healthy as it should be. Plus, there is both a desire and need for a sustainable approach to future growth within the corridor. Thus, the purpose of the proposed Streetcar Project is to:

- Improve public transit service and provide additional mobility options in the Woodward Avenue corridor;
- Improve transportation equity among all travelers;
- Improve transit capacity along the corridor;
- Improve linkages to major activity centers along the corridor; and
- Support the City's economic development goals and encourage reinvestment in Detroit's urban core.

ES.3 Alternatives Considered and Evaluated

This Supplemental EA evaluates a Streetcar Alternative that is a modification of Alternative B3 evaluated by the Project Team in the Woodward LRT FEIS.

The Streetcar Alternative consists of 11 stations, with a potential twelfth station, and supporting facilities, including trackwork, one vehicle storage and maintenance facility (VSMF), a traction power electrical system consisting of an overhead catenary, the poles supporting the catenary,

and four traction power substations. There is one preferred and three alternate VSMF sites considered within this supplemental EA. Eight of the southernmost stations are curbside stations and four of the northernmost are median stations, all within the existing transportation right-of-way.

The Project is a 3.3-mile, fixed-rail, at-grade streetcar system located entirely within the rights-of-way of Woodward Avenue. It would operate in mixed traffic and run from Larned Street in Downtown Detroit (Downtown) north to Chandler Street/Delaware Street, north of Grand Boulevard, in New Center.

ES.4 Summary of Environmental Consequences and Mitigation Measures

A summary of environmental consequences reported in this Supplemental EA follows for several key resources.

Transportation. The Project would result in lower transit travel times for those riding the streetcar as compared to other bus routes along Woodward Avenue, while no other change to transit service is proposed along the route. Between Congress Street and Burroughs Street, the streetcar would be in a curb-side streetcar shared-use lane with no change in the number of travel lanes. Between Burroughs Street and Milwaukee Street, the streetcar would be in the median in transit-only lanes and vehicle traffic would be reduced by one lane in each direction. North of Milwaukee Street, the streetcar would still be median-running in a streetcar shared-used lane and vehicle traffic would be reduced by one lane in each direction. Vehicle traffic travel times are expected to increase by one to two minutes with the Streetcar Alternative; however, all intersections and approaches are expected to operate at acceptable levels of service. On-street parking would be removed on one side of Woodward Avenue which will be determined in the later, design stage of the project. The maximum number of parking spaces removed would be 344 spaces, from the current 572 spaces. Pedestrian access along the corridor would not change significantly. With the streetcar vehicle in the curb-side lane, there could be impacts to cyclists riding along Woodward Avenue due to the risk of narrow cycle wheels falling into the streetcar rail flange. Mitigation would be to encourage use of alternate routes along parallel roadways and to provide signage along Woodward Avenue.

Project Air Quality. The Project will not result in any adverse regional or local air quality impacts. The Project is included in the amended RTP, Direction2035 and the amendment to the 2011-2014 TIP. As the Project is predicted to reduce the vehicle miles travelled (VMT) in the study area, it is predicted to have a beneficial impact on regional air quality levels. The Project is not expected to measurably affect MSAT or PM_{2.5} levels, and it has been determined to not be a project of air quality concern by the Interagency Working Group.

Historic Properties. FTA determined the Woodward Avenue Streetcar Project would have an adverse effect on historic properties. Details of the effects determinations for historic structures are provided in the Woodward Avenue Streetcar Project's Section 106 Technical Report. Of the 65 NRHP-listed and eligible properties in the Streetcar Alternative Area of Potential Effects, the Project would adversely affect five historic properties, have no adverse effect to 23 historic properties, and have no effect to 37 historic properties (Table 4-5). FTA determined that there would be no adverse effect to the two National Historic Landmarks. No direct physical impacts would occur to those properties, and no indirect adverse effects, such as visual, noise and vibration impacts, were anticipated. Generally, the adverse effects consisted of visual impacts to historic properties' setting, feeling, or association.

Noise and Vibration. The findings of the noise and vibration exposure from the streetcar operations and VSMF sites are expected to remain below FTA impact criteria thresholds at all representative sites evaluated. The Project Team found moderate noise impacts may occur adjacent to the preferred VSMF Site 1 based on analysis of Site R17 (Metropolitan United Methodist Church – 7730 Woodward Avenue). These noise impacts would be a direct result of wheel squeal noise generated from sharp turning movements as streetcars enter and leave the designated storage areas. Noise generated by wheel squeal is best controlled by track design modifications which lessen sharp turning movements of streetcars into and out of the VSMF area.

Hazardous Materials. The prior Modified Phase I Environmental Site Assessment (ESA) conducted for the FEIS was updated to reflect the Streetcar Alternative alignment. The re-evaluation of potential hazardous material impacts for the Project showed that 123 contaminated or potentially contaminated properties of concern were situated along the Streetcar Alternative alignment. In addition to the alignment re-evaluation, three additional candidate VSMF sites, not previously evaluated in the FEIS, were assessed by conducting a Phase I ESA Screening. Based on the Phase I ESA Screening findings, all three additional candidate VSMFs (1 through 3) contain recognized environmental conditions (REC). The long-term and short-term effects, as well as the mitigation measures are the same as those presented in the FEIS.

Resources with limited or no effect were documented with reference to the FEIS, and included the following categories: Land Use, Zoning, Public Policy, Community Facilities and Services, Parkland, Visual and Aesthetic Conditions, Energy, Parking, Storm Water Management, and Indirect and Cumulative Effects.

ES.5 Section 4(f)

A FTA-funded project must comply with the provisions of law at 49 U.S.C. § 303 (hereinafter referred to as “Section 4(f)”) and that statute’s implementing regulation. The implementing regulation (23 CFR part 774) provides certain protections for public parklands and recreational lands, wildlife and waterfowl refuges, and historic sites. These resources are referred to as Section 4(f) properties.

The Project has no direct, temporary or constructive use impacts of any Section 4(f) properties that would disrupt the use or enjoyment of these properties or result in a finding of adverse effect to historic properties. The latter determination was made by FTA, in consultation with SHPO and is documented in Appendix F of this Supplemental EA.

ES.6 Public Participation and Agency Consultation and Coordination

A number of public participation and agency consultation and coordination activities were completed in preparing this Supplemental Environmental Assessment (EA). FTA and MDOT hosted an open house in August 2012, to update the public on the Project and to give notice that FTA and MDOT were preparing a Supplemental EA to analyze potential impacts of the Project. MDOT created a Project Web site (<http://www.mi.gov/woodwardstreetcar>). The purpose was to provide updated information about the Project and provide a resource for the public to turn to if they had questions. To address specific bicycle/pedestrian concerns, MDOT attended a meeting with the City of Detroit Non-Motorized Facilities Task Force to discuss the status of the Project and receive comments, while later hosting a meeting with interested stakeholders on January 3, 2013. The Project Team also coordinated with the Michigan State Historic Preservation Officer

(SHPO). Coordination began with FTA sending a letter to SHPO on August 3, 2012 to reinstate consultation on the Project. Letters were sent to the consulting parties, and the tribes indicating coordination efforts were formally reinstated under Section 106 for consideration of historic properties. Additional coordination continued with the SHPO to address potential adverse effect findings, eligibility determinations, and preparation of an Amended Memorandum of Agreement, included with this document.

ES.7 Next Steps in the NEPA Environmental Review Process

Key next steps in the project's environmental review process include:

- The Project Sponsor to circulate this Supplemental Environmental Assessment for public and agency review and comment.
- The Project Sponsor to hold a public hearing during the 30-day review period.
- FTA to issue an Amended Record of Decision to conclude the NEPA process and present FTA's decision to proceed with the Streetcar Alternative and mitigation commitments.

Context sensitive design meetings regarding the VSMF and TPSS sites will occur during the design phase of the Project.

1.0 Purpose and Need

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1.0 Purpose and Need

1.1 Project Background

Federal Transit Administration (FTA), as the lead Federal agency, and the Michigan Department of Transportation (MDOT), as the project sponsor, jointly prepared this Supplemental Environmental Assessment (EA). This EA supplements the Final Environmental Impact Statement (FEIS) for the Woodward Avenue Light Rail Transit (LRT) project. Consistent with the requirements of the National Environmental Policy Act (NEPA), this Supplemental EA has been prepared to evaluate and assess potential impacts to the human and natural environment, which may result from the construction and operation of the Woodward Avenue Streetcar Project (the Project) in the City of Detroit, Wayne County, Michigan.

The Project is similar to Alternative B3, studied as part of the FEIS for the Woodward Avenue LRT Project. The FEIS was completed in June 2011, with a Record of Decision signed on August 31, 2011. The FEIS evaluated a number of alternatives and design options for LRT service along Woodward Avenue and assessed potential impacts on the human and natural environment that may have resulted from the proposed LRT project. The FEIS identified a Preferred Alternative, Alternative A4; however, this alternative was eventually not pursued due to financial limitations faced by the City of Detroit.

This Supplemental EA has a substantially smaller scope; it focuses on changes from Alternative B3 and assesses the impacts of those proposed changes to the Streetcar Alternative. These primary changes include:

- A 3.3-mile route, as opposed to a 9.3 mile route
- Use of streetcar vehicles rather than LRT vehicles
- Location of the Vehicle Storage and Maintenance Facility (VSMF)
- Reduced station number (from 18 to 12), size (from 200 to 90 feet in length) and scope
- Slight adjustments to station locations
- Location of Center and Curb-running operation

Similar to the first phase of the larger Woodward Avenue LRT project, this Project is a 3.3-mile, fixed-rail, at-grade streetcar system located entirely within the rights-of-way of Woodward Avenue. The Project would operate in mixed traffic and run from Larned Street in Downtown Detroit (Downtown) north to Chandler Street/Delaware Street, north of Grand Boulevard, in New Center. Eleven stations comprising a mix of curb-side and center platforms are proposed along the alignment; a potential twelfth station would entail relocation of the existing Amtrak station to south of the tracks.

This chapter reiterates the purpose and need for the proposed Project, and how this Project will continue to promote economic development within the study area, as well as its potential to connect to other transit opportunities within the area and region.

1.2 Summary of Purpose and Need

Much of the transportation facilities and services along the corridor have not changed since the FEIS. The Detroit Department of Transportation (DDOT) Route 53, which runs the length of Woodward Avenue, has experienced some decline in service in their weekday late evening and weekend service. However, weekday services through much of the day remains the same as the FEIS with 10-minute headways. Given that the needs are still the same, the purpose of the project remains as it was in the FEIS and is summarized below.

The need for the proposed Project reflects the following considerations:

- Strong existing bus ridership and large potential ridership due to major activity centers along the Corridor;
- A heavily transit-dependent population along the Corridor; and
- Overcrowding, reliability issues, and lack of rapid transit alternatives with the current bus system;
- Air quality issues due to the region's nonattainment status;
- Focus of local policy on transit improvements rather than roadway improvements as part of a more balanced and sustainable approach to future growth.

Based on these identified needs, the purpose of the proposed Project is to:

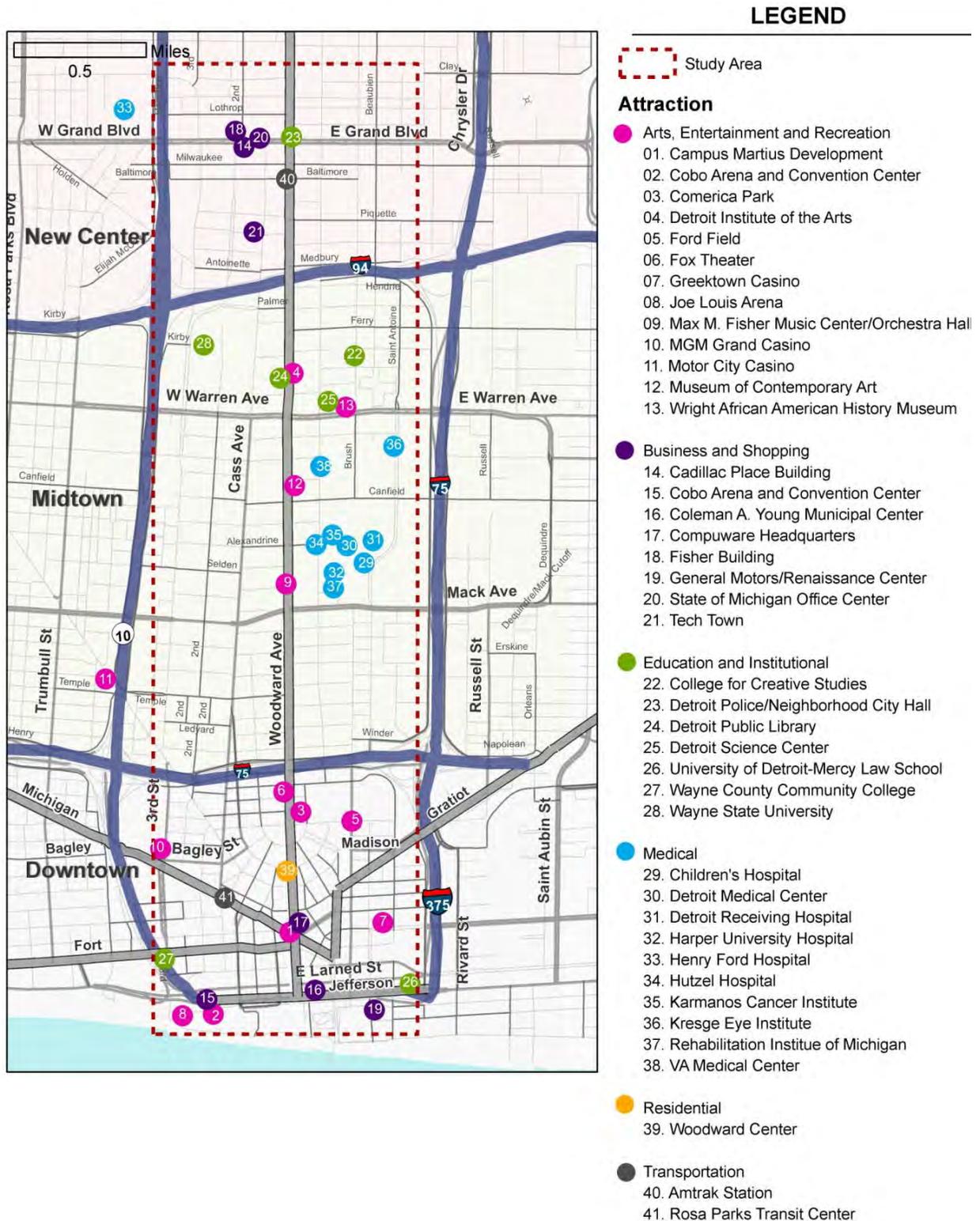
- Improve public transit service and provide additional mobility options in the Woodward Avenue Corridor;
- Improve transportation equity among all travelers;
- Improve transit capacity along the Corridor;
- Improve linkages to major activity centers along the Corridor; and
- Support the City's economic development goals and encourage reinvestment in Detroit's urban core.

1.2.1 Economic Development

The revised study area (Figure 1-1), located entirely within the City of Detroit, comprises the 3.3-mile-long segment of Woodward Avenue from Larned Street in Downtown to Chandler Street/Delaware Street, north of Grand Boulevard, in New Center. The study area boundary extends approximately one-half mile to the east and west of Woodward Avenue and is the area within which project impacts may occur. From south to north, the study area includes the densely developed Downtown Central Business District (CBD) and many of the City's prominent historic sites, civic buildings, sports venues and cultural attractions, and medical, higher education, and additional cultural institutions north of the CBD.

Since publication of the FEIS, there have been a number of economic development studies that further support the Purpose and Need of this Project. Within the corridor, the Detroit Economic Growth Corporation and the Downtown Detroit Partnership completed a Greater Downtown Transit Oriented Development (TOD) Strategy in 2011. The Plan outlines a strategy to double the residential population in the greater Central Business District, Midtown, and New Center areas of Detroit in the next ten years by leveraging the streetcar investment to catalyze growth of

Figure 1-1: Study Area Boundary and Cultural, Entertainment, Government, and Recreational Attractions and Destinations



Source: Woodward Avenue Streetcar Project Team, 2012

existing districts and neighborhoods. The Plan stated that “implementation of a Streetcar will permanently connect the major regional destinations, employment, educational and medical centers in the greater downtown area with neighborhoods, improve access to jobs and services for residents along the corridor, and offer a new opportunity to live in a walkable environment.”

The core principle of the Greater Downtown TOD Strategy is to use increased density to create vibrant and walkable districts and neighborhoods. As part of the TOD planning process, Planning Group members representing the public, private and philanthropic sectors have set a goal of doubling the Greater Downtown residential population in the next ten years from 27,000 to 46,000 Greater Downtown residents. This goal is aligned with parallel Greater Downtown initiatives such as Hudson-Webber’s “15 by 15” (15,000 new residents by 2015) and Live Midtown/Live Downtown residential financial incentive programs offered to Greater Downtown employees to move Downtown. The two major objectives of the Greater Downtown TOD Strategy are:

1. Focus development to create density in three Core Districts: CBD, Midtown and New Center. Develop each Core District starting with the District Center, then build out from the Center per the recommended phasing.
2. Provide infrastructure to connect all other districts and neighborhoods back to the District Center and Woodward Light Rail. Use these infrastructure investments to leverage future development after the build-out of the Core District.

This Project supports the Greater Downtown TOD Strategy which promotes economic development not only within the corridor, but as an engine for further economic development within the region.

1.2.2 Potential for Future Transit Connections

The Woodward Avenue LRT project was considered the first step in a larger regional rapid transit system within Metropolitan Detroit. This system was first described in the Southeast Michigan Council of Governments (SEMCOG) Regional Transit Plan in October 2001. It was further supported by the Comprehensive Regional Transit Service Plan developed by the Regional Transit Coordinating Council (RTCC) in 2008. The RTCC’s regional transit plan recommended implementation of a light rail system along Woodward Avenue from Downtown to the New Center area of Detroit. In December 2011, a regional BRT transportation strategy was unveiled by SEMCOG that seeks to provide fast, frequent, and comfortable transit service along four corridors within metro Detroit that have the greatest potential to generate high transit use. The Southeastern Michigan Regional Transit Authority (RTA) concept seeks to establish a regional authority to provide service to 22 communities in four counties along the Michigan Avenue, Woodward Avenue, Gratiot Avenue, and M-59 corridors. In July 2012, SEMCOG began the Woodward Avenue Rapid Transit Alternatives Analysis, which is considering various transit alternatives along the entire 27-mile length of Woodward Avenue from Downtown Detroit to Downtown Pontiac.

This Project would serve as a first step in the larger Southeastern Michigan regional transit system, which can and should be pursued in parallel with regional efforts related to the proposed RTCC system, BRT system, and the Woodward Avenue Transit Alternatives Analysis. As the Woodward Avenue Transit Alternatives Analysis moves forward with more definition on modes and operating strategies, the possibilities for shared stations with future rapid transit and/or opportunities to use parallel or alternate routes for better coverage will be explored.

There are three other major transportation facilities along Woodward Avenue within the study area. These include the Amtrak station within New Center, the Rosa Parks Transit Center, and the Detroit People Mover within Downtown Detroit. The Amtrak station is located west of Woodward Avenue south of Baltimore Street. The Rosa Parks Transit Center is located off Michigan Avenue approximately four blocks west of Woodward Avenue. The Detroit People Mover is a 2.9 mile loop within Downtown Detroit with 13 stations located within the study area.

The Project directly supports intermodal connectivity for each of these existing facilities with a streetcar station proposed immediately adjacent to the existing Amtrak station to facilitate seamless transfers. Similarly, a streetcar station is proposed four blocks from the Rosa Parks Transit Center, and the Times Square and the Michigan Avenue People Mover stations. There is also a streetcar station proposed adjacent to the Grand Circus Park People Mover station.

The Project is envisioned to be a single project within a program of larger and interconnected transit investments. The system is envisioned to support possible future system extensions at both the northern and southern terminus to provide additional connections to key land use and transportation destinations within the City of Detroit, including the Rosa Parks Transit Center. The streetcar system also would support future extensions north of the route termini including any other future rapid transit options, as well as a possible Light Rail Transit route consistent with the Woodward Avenue LRT FEIS.

1.3 Consistency with Local/Regional Planning

The Woodward Avenue LRT project is included in the financially constrained *Direction2035 Regional Transportation Plan* (the Plan) of the Southeast Michigan Council of Governments (SEMCOG), the Metropolitan Planning Organization (MPO). On December 14, 2012, SEMCOG amended the Plan to remove the Woodward Avenue LRT, replacing it with the Woodward Avenue Streetcar Project. The amendment process required that all proposed projects undergo the same evaluation as was done for the original *Direction2035* projects, which includes:

- The fiscal constraint analysis has *Direction2035* remain fiscally constrained.
- The air quality conformity analysis indicates future year emissions of ozone precursors and carbon monoxide will remain below established mobile source emissions budgets, and future year fine particulate matter emissions will be below base year levels.
- The environmental sensitivity review summarizes possible impacts of *Direction2035* projects on environmentally sensitive resources.
- The environmental justice analysis indicates impacts related to implementation of the *Direction2035* remain balanced across the region.

The Project is consistent with local land use and transportation plans and is supported by a series of local, regional, and state plans that have expressed the need to expand transit options in the Detroit region. The Project would be undertaken in close coordination with MDOT's reconstruction of Woodward Avenue from Chandler Street to Adams Street, which is also included in the SEMCOG Transportation Improvement Program for 2013. Coordination will result in cost efficiencies accruing to both projects.

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2.0 Alternatives

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2.0 Alternatives

2.1 Introduction

This chapter summarizes the project's planning background, followed by descriptions of the Woodward Avenue Light Rail Transit (LRT) Alternative B3 and the Streetcar Alternative which are evaluated in this Supplemental Environmental Assessment (EA). The proposed Streetcar Alternative, while based on Alternative B3 evaluated (but not selected) in the Woodward Avenue LRT Final Environmental Impact Statement (FEIS), has been refined in terms of mode, alignment and stations as described in more detail below. An assessment of the No-Build Alternative remains unchanged, and is incorporated by reference from the LRT FEIS.

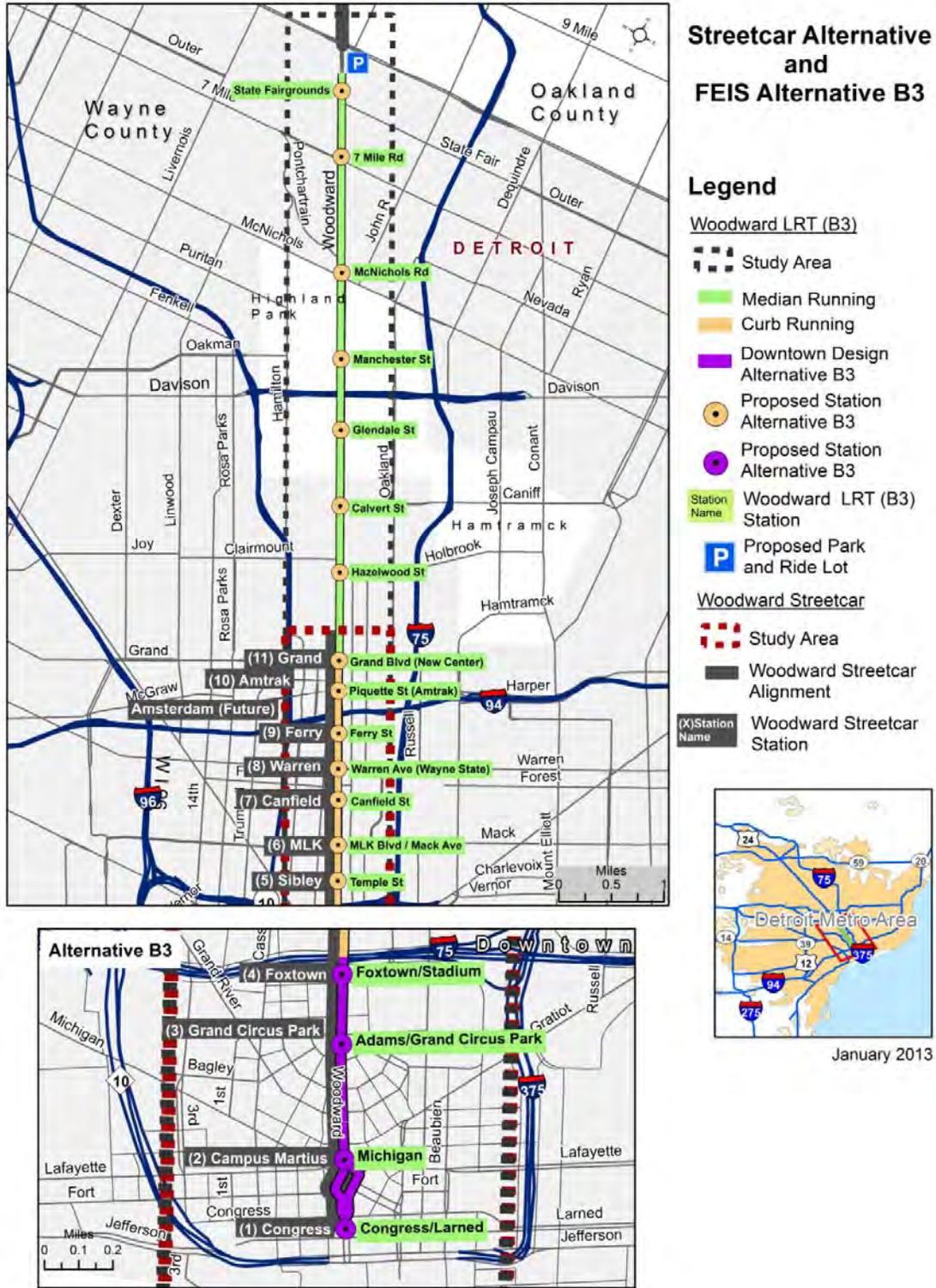
2.2 Planning Background

An Environmental Impact Statement (EIS), pursuant to the National Environmental Policy Act (NEPA), was prepared previously to evaluate the proposed LRT Project. Two Woodward Avenue alignments (median-running [Option A] and curb-running [Option B]) and three Downtown design options (Options 1, 2, and 3), the latter focused on the central business district, were evaluated in the Draft EIS (DEIS). The DEIS Notice of Availability (NOA) was published in the *Federal Register* on January 28, 2011.

Following issuance of the DEIS, the City of Detroit evaluated a fourth Downtown design option, A4, based on public comments received during the DEIS public comment period. The A4 Alternative was subsequently identified as the Preferred Alternative for inclusion in the FEIS. The Section 4(f) Evaluation and the signed Section 106 Memorandum of Agreement (MOA) with the Michigan State Historic Preservation Officer (SHPO) were included in the FEIS. The NOA for the FEIS was published in the *Federal Register* on July 1, 2011. The Record of Decision (ROD) was signed by the FTA on August 31, 2011. The FEIS and ROD may be viewed on the Project website at <http://www.mi.gov/woodwardstreetcar>, along with prior transit studies completed by the City of Detroit and documented in the Detroit Transit Options Growth Study (DTOGS).

Following completion of the FEIS and issuance of the ROD, the LRT Project was terminated due to financial limitations faced by the City of Detroit. A coalition of support from corporate and private institutions in southeast Michigan then coalesced around the proposed Streetcar Alternative that is evaluated in this Supplemental EA. This alternative is similar to Alternative B3, studied as part of the previous LRT Project. The primary differences between Alternative B3 and the Streetcar Alternative are: 1) the streetcar alignment is shorter in length (3.3 miles from 9.3 miles); 2) the location and number of several proposed stations has changed (12 from 18); 3) location of the preferred vehicle storage maintenance facility (VSMF) site; 4) use of streetcar vehicles instead of LRT vehicles; and 5) location of center and curb-running operations. The general location of the Streetcar Alternative, as compared to Alternative B3 as evaluated in the FEIS, is shown in Figure 2-1. A more detailed description of the Streetcar Alternative evaluated in this EA follows in Section 2.3 and is shown in Figure 2-3.

Figure 2-1: Alternative B3 and Streetcar Alternative



Source: Woodward Streetcar Project Team, 2012

2.3 Alternatives Evaluated in This EA

2.3.1 Light Rail Alternative B3

The Light Rail Alternative B3 evaluated previously in the FEIS consisted of a curb-running (Option B) LRT operating in the right-most travel lane of Woodward Avenue from Adams Street to just north of Grand Boulevard. From north of Grand Boulevard to the Michigan State Fairgrounds, the LRT would operate in the median. Within the curb-running/mixed traffic section, the LRT would be running with vehicular traffic.

This option also included a Downtown Design Option 3 running only on Woodward Avenue. It would consist of curb-running single tracks south on Woodward Avenue to Campus Martius, counter-clockwise travel around Campus Martius with vehicular traffic, and then continuing south on Woodward Avenue to a stop on Woodward Avenue between Congress and Larned streets. It would then reverse direction to travel north on Woodward Avenue, counter-clockwise around Campus Martius with vehicular traffic and then continue north. This option would lie entirely within existing available right-of-way.

2.3.2 Streetcar Alternative

The Streetcar Alternative comprises a fixed-rail, at-grade streetcar on Woodward Avenue with service operating in mixed traffic from Larned Street in Downtown Detroit (Downtown) north to Chandler Street/Delaware Street in New Center. Twelve stations are proposed along Woodward Avenue, eleven with Project implementation and a potential twelfth station in the future (Figure 2-3 and Table 2-1). (See additional alignment maps in Appendix D of this EA and online at <http://www.mi.gov/woodwardstreetcar>).

While the proposed Project would be fully functional as a stand-alone system, it would be designed to accommodate possible future extensions.

Existing roadway rights-of-way vary along Woodward Avenue within the study area. In Downtown, the right-of-way is 109 feet along Woodward Avenue south of Adams Street. North of Adams Street, the right-of-way widens to 120 feet until reaching Grand Boulevard. The narrowest section of Woodward Avenue – at 100 feet – is found north of Grand Boulevard.

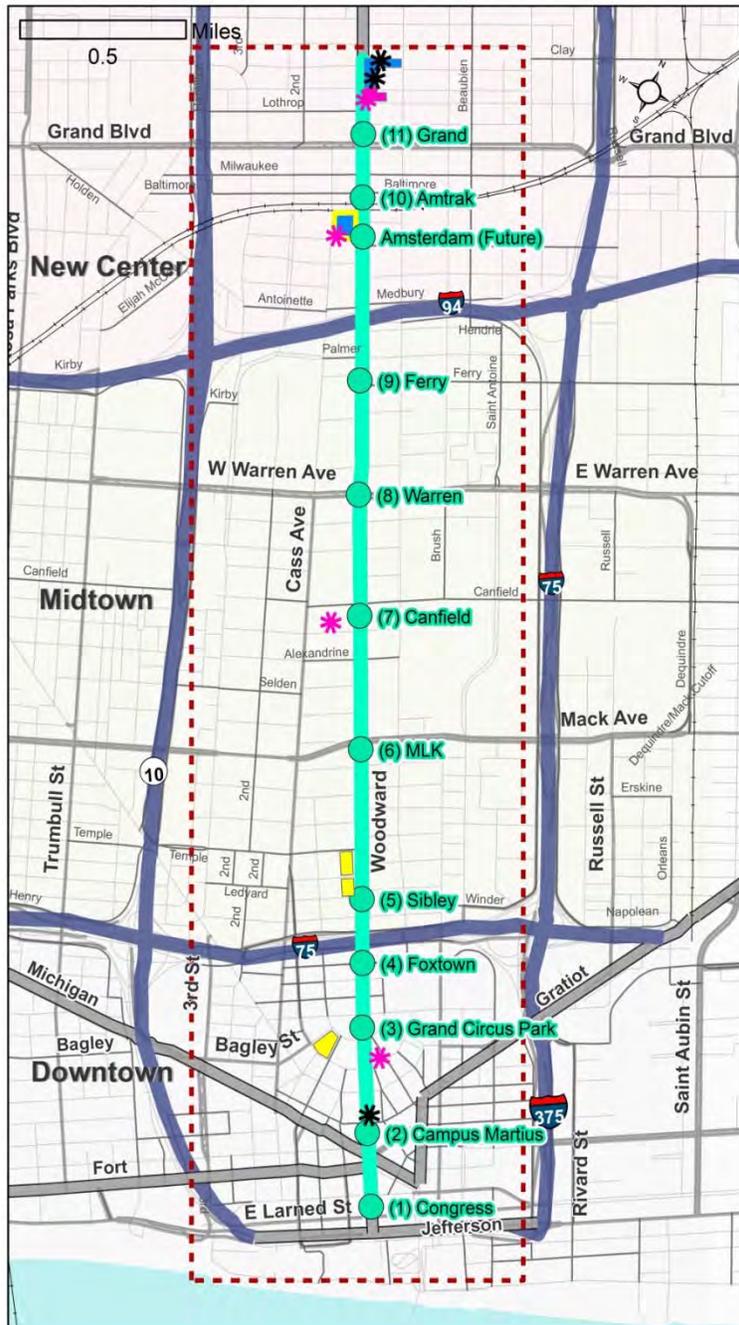
The Project would operate in mixed traffic in the right-most travel lane of Woodward Avenue from Larned Street to approximately Piquette Street (see Figure 2-2). An on-street parking lane will be present between the streetcar and the curb on one side of the street, which will be determined during the later design phase of the project. The Project would run adjacent to the curb on the opposite side of the roadway and no on-street parking would be allowed, but a two-foot buffer area is proposed between the travel lane and the curb.

Figure 2-2: Streetcar Example

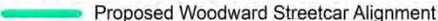


Source: Portland Streetcar, 2010

Figure 2-3: Streetcar Alignment and Station Locations



LEGEND

- | | |
|--|--|
|  Study Area |  Alternate Vehicle Storage and Maintenance Facility Site (VSMF) |
|  Proposed Woodward Streetcar Alignment |  Preferred Vehicle Storage and Maintenance Facility Site (VSMF) |
|  Proposed Woodward Streetcar Station |  Alternate Traction Power Substation Site (TPSS) |
|  Proposed Construction Staging Area (CSA) |  Preferred Traction Power Substation Site (TPSS) |

Source: Woodward Streetcar Project Team, 2012

From north of Piquette Street to Chandler Street/Delaware Street, the Project would operate in mixed traffic in the left-most travel lanes with on-street parking on the east (northbound) side of the roadway. (See Figure 2-4 for a typical roadway cross-section with the streetcar in mixed traffic.)

Table 2-1: Streetcar Station Locations

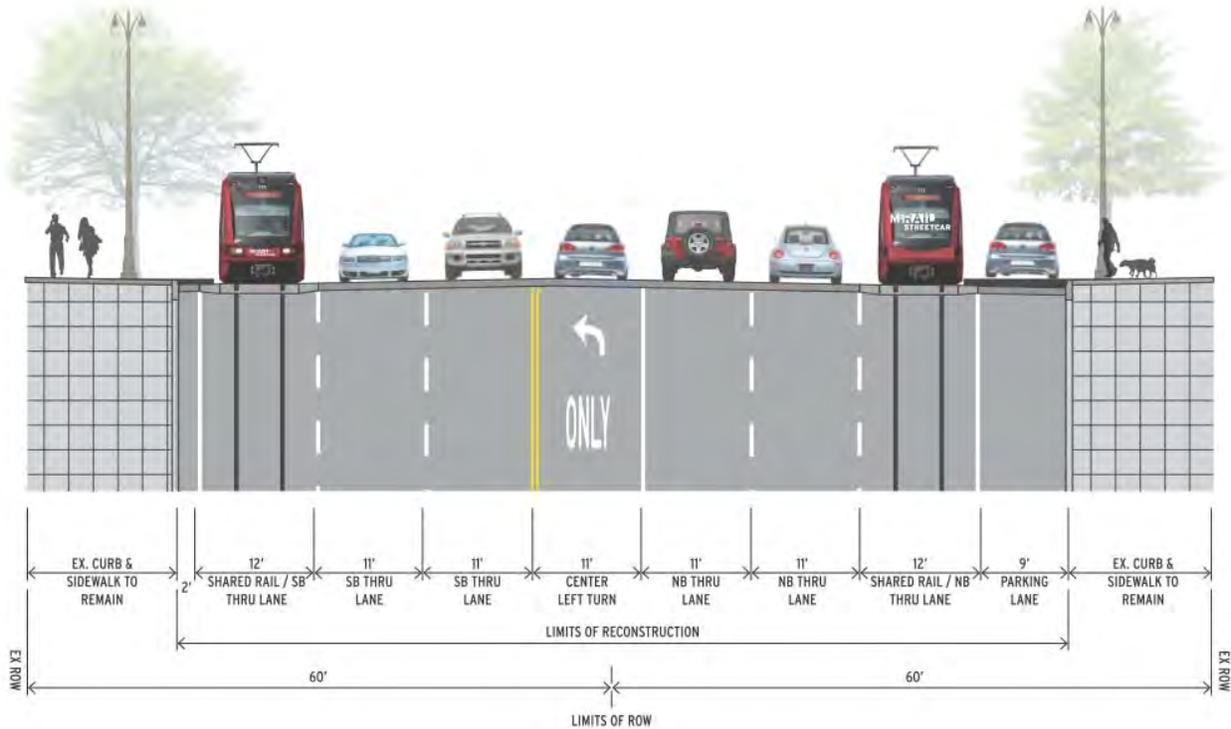
Station Number	Station Name	Station Location	Curb	Median
1	Congress Street	Larned and Congress		X
2	Campus Martius	Michigan and Gratiot	X	
3	Grand Circus Park	Park and Adams	X	
4	Foxtown	Montcalm and Eastbound I-75 Service Drive	X	
5	Sibley Street	Henry and Sproat	X	
6	MLK	Martin Luther King Jr. Boulevard and Mack Ave	X	
7	Canfield Street	Willis and Canfield	X	
8	Warren Avenue	Hancock and Farnsworth	X	
9	Ferry Street	Kirby and Ferry	X	
Future station	Amsterdam Street	Burroughs and Amsterdam		X
10	Amtrak	Baltimore and Milwaukee		X
11	Grand Boulevard	Grand Blvd and Horton		X
Total Stations			8	4

Source: M-1 RAIL Business Plan, 2012

The Project would travel counter-clockwise around Campus Martius with vehicular traffic, and then continue south on Woodward Avenue to a stop on Woodward Avenue between Congress and Larned streets. It would then reverse direction to travel north on Woodward Avenue, counter-clockwise around Campus Martius with vehicular traffic and then continue north.

The Project would operate with single electric rail vehicles, each of which would be approximately 80 feet in length. Along most of its alignment, the streetcar vehicles would be powered by an overhead catenary system (OCS) comprising overhead wires supported by poles positioned along both sides of the roadway, with power fed from traction power substations (TPSS) (Figure 2-8). The overhead wire is typically suspended 17 to 22 feet above the street over each track. The poles are typically located every 100 to 120 feet. At sharp curves, the poles and support wires would need to be more closely spaced. The OCS wires are electrically charged and present a safety risk if contact with the wires occurs. Existing streetcar systems, similar to that proposed for this project, use warning signs to illustrate the risks of severe electric shock if contact occurs with the wires.

Figure 2-4: Streetcar Typical Cross-Section



Source: Woodward Avenue Streetcar Project Team, 2013

The use of off-wire technology, such as ground-level continuous power supply, on-board energy storage or on-board power generation is being considered in three locations:

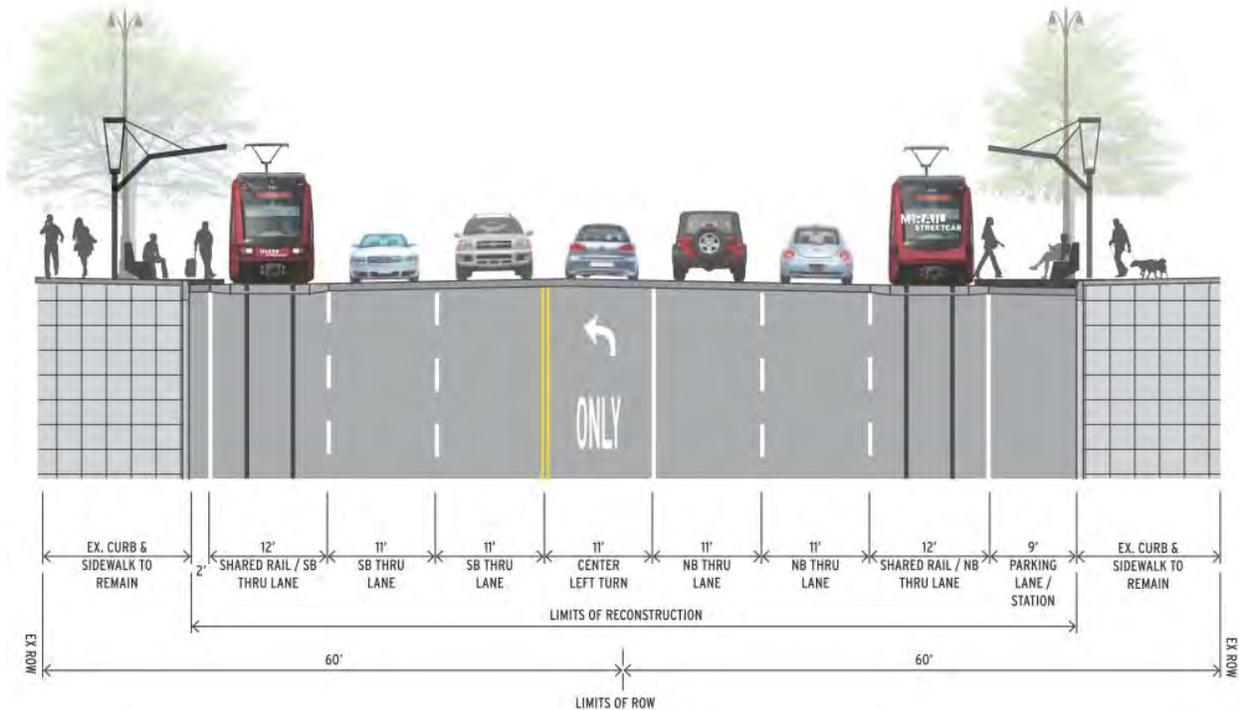
- From Congress Street to Montcalm Street
- From Piquette Street to Baltimore Street
- At the Vehicle Storage and Maintenance Facility

Because Woodward Avenue is designated as a National Scenic Byway and an All-American Road (known as the Automotive Heritage Trail on the America's Byways system), all signage for the Project would be visually consistent with and would complement existing signage from the Woodward Avenue Framework Signage Plan (Woodward Avenue Action Association, 2003). Signage design and further coordination efforts with the Woodward Avenue Framework Signage Plan would occur during project design.

In general, streetcar stations are designed to include several components that are essential for traveler safety and security, as well as amenities for passenger comfort and convenience. Streetcar station design also will comply with Americans with Disabilities Act (ADA) requirements. Primary elements of streetcar stations comprise platform(s), shelter, wheelchair ramps and station amenities such as lighting, information displays, and may include benches, bicycle racks, and security systems. Station platforms for the Streetcar Alternative would be compatible with low-floor streetcar vehicles, typically requiring a 14-inch station platform height to provide for level boarding. The platform length would be a minimum of 60 feet long, with a preferred length of 90 feet.

Station widths would vary between 9 and 16 feet. Stations on the east (northbound) side of Woodward Avenue would bump out approximately 9 feet from the existing edge of sidewalks into the parking lane. Stations on the west (southbound) side of Woodward Avenue would occupy the 2-foot buffer area, as well as a portion of the sidewalk. (See Figure 2-5 for typical cross-section at stations.)

Figure 2-5: Streetcar Typical Cross-Section at Station



Source: Woodward Avenue Streetcar Project Team, 2013

The stations would include a canopy less than 12 feet in height and between 12 and 30 feet long, depending on station design. The design of the stations would be refined during preliminary engineering and the final design phase of project development. The canopy would cover the ticketing and message display area, and potentially a seating area.

2.3.3 Ancillary Facilities

Ancillary facilities supporting operation and maintenance of the Streetcar Alternative will consist of a vehicle storage and maintenance facility and traction power substations, each of which is described below.

Vehicle Storage and Maintenance Facility

The proposed vehicle storage and maintenance facility (VSMF) would provide sufficient space for indoor storage, inspection, repair, and light maintenance of streetcar equipment and administrative offices. The facility is anticipated to be between 17,000 and 20,000 square feet in size, depending on site size, configuration and VSMF design. The facility is envisioned to be a two-story industrial-like building with the first floor dedicated to supporting maintenance and operations of the streetcar system, while the second floor would provide required storage. The facility is planned to have indoor storage for three streetcar vehicles and a loading dock to

support delivery of required supplies. Some on-site employee parking would be provided. The total amount of on-site parking would depend upon the site size selected and the configuration and facility design of the VSMF. The VSMF site would be fenced for security purposes and landscaping would be provided to help in screening views of the facility from adjacent properties. The facility is envisioned to be similar to other maintenance facilities operating around the country, as shown in the representative photograph in Figure 2-6 (Tacoma, Washington).

Figure 2-6: VSMF Example

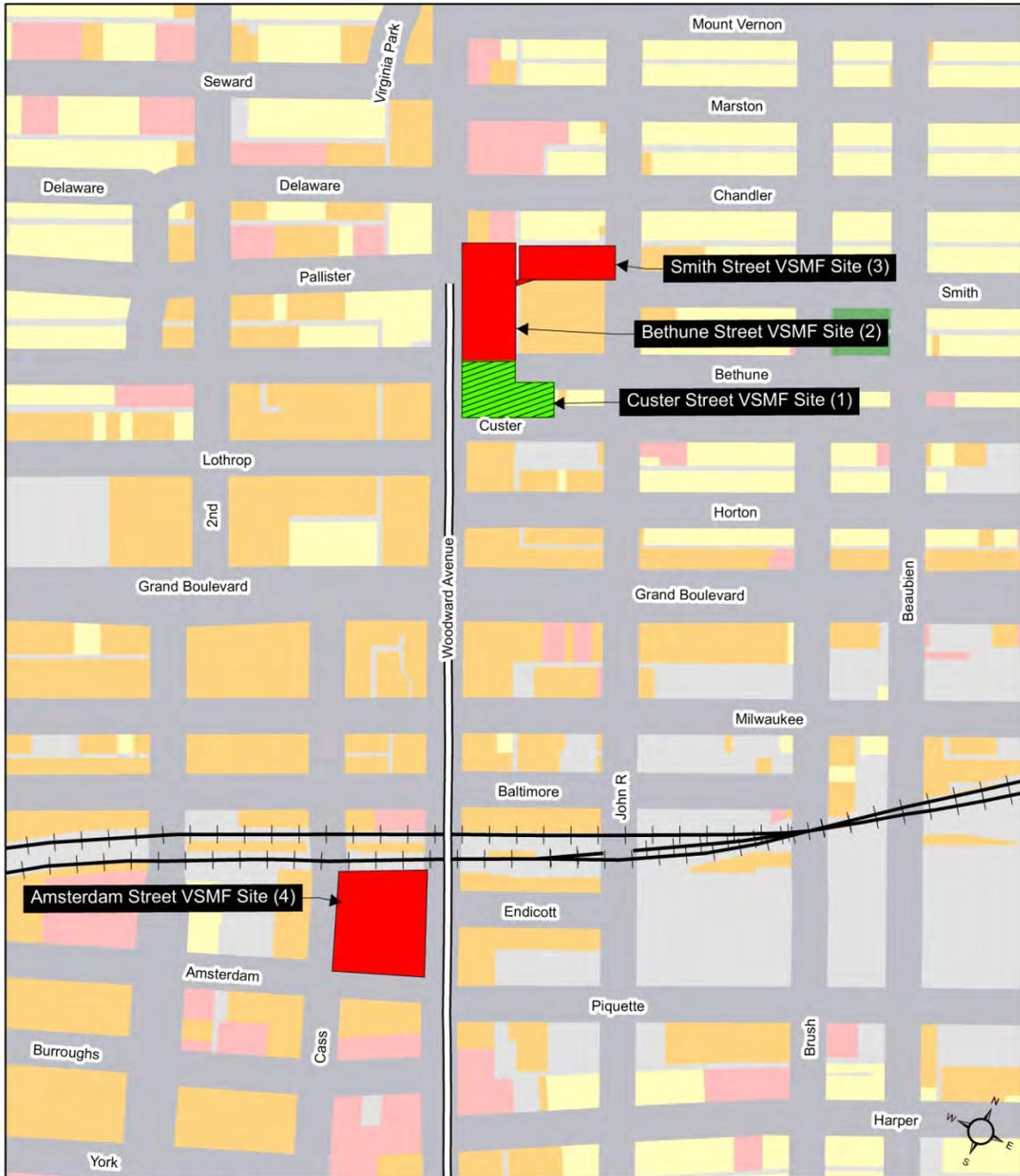


Source: Sound Transit, 2012

One preferred and three alternate sites are evaluated in this EA for the VSMF (Figure 2-7), although only a single site will be advanced during preliminary engineering and the final design phase of project development. Each of the sites was identified on the basis of proximity to Woodward Avenue, site size and configuration, applicable zoning, sensitivity of nearby land uses, site ownership, and potential utility and traffic impacts resulting with project implementation. The four potential sites are as follows:

- Preferred Site 1 Custer Street Site (1.6 acres) – The VSMF would occupy the block between Custer and Bethune streets on the east side of Woodward Avenue. The site would require acquisition of a portion of Bethune Street and construction of a traffic turn-around on the east side of the site. VSMF frontage and access at this site would be on Woodward Avenue with service bays facing Bethune Street. It is zoned B4 (Business District). This site was chosen as the preferred VSMF site due to its direct access from Woodward Avenue, separation from residential properties and overall consistency with existing land use and zoning.
- Alternate Site 2 Bethune Street Site (2.3 acres) – The VSMF would occupy a portion of the block between Bethune and Chandler streets on the east side of Woodward Avenue. The facility would have over 450 feet of frontage on Woodward Avenue, from where the site would be accessed. It is zoned B4 (Business District).
- Alternate Site 3 Smith Street Site (1.6 acres) – The VSMF would occupy an area west of John R Street, north of Smith Street. This is the only potential site without frontage on Woodward Avenue. Vehicles would access the site via a driveway constructed in the former Smith Street right-of-way, east of Woodward Avenue with service bays facing Woodward Avenue. It is zone R4 (Residential District).
- Alternate Site 4 Amsterdam Street Site (4.6 acres) – The VSMF would occupy the block bounded by Woodward Avenue, Amsterdam Street, Cass Avenue, and the Conrail and Grand Trunk Western Railroad Bridges on the west side of Woodward Avenue with service bays facing Woodward Avenue. The site is located south of and proximate to the Amtrak station. The VSMF would have frontage and site access on Woodward Avenue. It is zoned SD2 (Special Development District). The Project Team evaluated this site in the LRT EIS.

Figure 2-7. Vehicle Storage and Maintenance Facility Sites



Source: SEMCOG Generalized Land Use 2008

Legend

- Woodward Streetcar Alignment
- Preferred VSMF Site Location
- Alternate VSMF Site Location
- Residential

- Recreation
- Commercial
- Industrial
- Governmental / Institutional

Preferred and Alternate Vehicle Storage and Maintenance Facility (VSMF) Sites

January 2013

Source: Woodward Avenue Streetcar Project Team, 2013

Traction Power Substations

The streetcar's electric traction power system requires placement of a traction power substation (TPSS) approximately every mile along the alignment, depending on the frequency and size of the vehicles. These substations, which are approximately 25 feet by 60 feet in dimension, require vehicular access and a relatively small site (35 feet by 70 feet), and do not need to be immediately adjacent to the tracks. Because of this flexibility, substations can be located to minimize visual intrusion on surrounding uses and can be visually shielded by fencing, landscaping, or walls, or can be incorporated into existing buildings. Figure 2-8 shows a typical substation, for illustrative purposes only. Four preferred and three alternate TPSS sites have been preliminarily identified for evaluation in this EA, three of which were evaluated previously in the LRT FEIS. The two new TPSS sites are located at Farmer and John R streets and north of Willis Avenue. Of these sites, only four will be advanced during preliminary engineering and the final design phase of project development. The locations would be refined during preliminary engineering and the final design phase of project development. The locations (from south to north) are:

Figure 2-7: TPSS Example



Source: Woodward Avenue LRT Project Team, 2010-2011

- Alternate TPSS Site 1: Approximately 170 feet north of the northeast corner of Woodward and Gratiot avenues.
- Preferred TPSS Site 2: Approximately 100 feet north of the intersection of Farmer and John R streets (not previously studied in the LRT FEIS).
- Preferred TPSS Site 3: Approximately 170 feet north of Willis Avenue and approximately 400 feet west of Woodward Avenue (not previously studied in the LRT FEIS).
- Preferred TPSS Site 4: On the west side of Woodward Avenue in the block between Amsterdam Street and the Conrail and Grand Trunk Western Railroad Bridges, this is located within alternate VSMF Site 4.
- Preferred TPSS Site 5: On the east side of Woodward Avenue between Custer and Bethune streets, located on preferred VSMF Site 1 (not previously studied in the LRT FEIS).
- Alternate TPSS Sites 6 and 7: On the east side of Woodward Avenue between Bethune and Chandler streets, depending on the selected alternate VSMF Sites 2 or 3, respectively (not previously studied in the LRT FEIS).

Construction Staging Areas

During construction of the Project, several small sites required for temporary storage of materials and equipment would be located in the general vicinity of the alignment. Following construction, the staging areas would be made available for other, more permanent development. Four potential staging-area sites have been initially identified (Figure 2-3). One site is located at alternate VSMF Site 4, Amsterdam Street Site, which is approximately 4.6 acres in size. Two sites, located north of I-75 and west of Woodward Avenue, are approximately 0.9 acre and 1.6 acres in size, respectively. A fourth site, 1.2 acres in size, is proposed on the southwestern corner of the intersection of Washington Boulevard and Park Avenue. Each of these four parcels is presently undeveloped and vacant.

3.0 Transportation

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3.0 Transportation

This chapter summarizes changes in the transportation environment associated with the Streetcar Alternative in comparison to Alternative B3, as documented in the Woodward Avenue Light Rail Transit (LRT) Final Environment Impact Statement (FEIS). The Existing and No-Build transit, non-motorized transportation, and vehicular transportation systems did not change from the FEIS. Additional details on changes to the Streetcar Alternative, in comparison to Alternative B3, are provided in the *Woodward Avenue Streetcar Environmental Assessment Transportation Technical Report* (2013).

3.1 Public Transportation

Proposed operations, as well as the number of stations, of the Streetcar Alternative changed only slightly from that of Alternative B3. The streetcar would serve as an additional transit mode along Woodward Avenue between Larned Street and Grand Boulevard. As stated in Chapter 2, the streetcar would have 12 stations, 11 with project implementation and a potential 12th station at Amsterdam Street in the future. The station locations are the same as Alternative B3, except with an additional station located near Baltimore Street. Proposed streetcar service is slightly different from what was presented in the FEIS, and is proposed as follows:

- Seven-day operations, from 6:00 AM to 10:00 PM Monday through Friday and 8:00 AM to 10:00 PM Saturday and Sunday.
- Weekday operations would have 7.5-minute headways in the morning and mid-day, 8-minute headways in the evening, and 12-minute headways in the off-peak hours.
- Saturday operations would have 9-minute headways in the morning through evening and 12-minute headways in the off-peak hours.
- Sunday operations would have 12-minute headways throughout the day.
- During special events, service may operate between Grand Boulevard and Sibley Street with 5-minute headways.

DDOT Bus Route 53 (Woodward Avenue) would continue to operate. With the proposed Project, Route 53 bus service would remain as in the existing condition, with 10-minute-headway service during the day and 15- to 30-minute-headway service after the evening rush hour.

Table 3-1: Transit Travel Times on Woodward Avenue*

Alternative	Transit Mode	Transit Travel Time
Existing	DDOT Route 53	15 - 17 minutes
Alternative B3	LRT	12 - 14 minutes
Streetcar Alternative	Streetcar	14 - 16 minutes

*Woodward Avenue between Congress Street and Grand Boulevard
Source: DDOT, 2012

The Project Team forecasts the streetcar to have approximately 5,400 riders per day when service begins in 2015, with up to 8,000 riders on days with special events along the Woodward Avenue corridor (e.g., sports events, opera, theatre). By 2022, ridership is expected to increase to more than 5,700 riders per day on typical days and approximately 8,300 per day on days with special events in the corridor.

The proposed Project, combined with the local bus service along Woodward Avenue, would result in transit service with 5-minute headways in the peak direction during the morning and evening peak periods, and 7-minute headways in the off-peak period, including weekends. This is a slight increase in transit travel time over Alternative B3 presented in the FEIS, and is due to the additional station at Baltimore and additional signals along the corridor.

Consistent with Alternative B3, the Detroit People Mover and Suburban Mobility Authority for Regional Transportation (SMART) may have an increase in ridership due to the Project. Current DDOT and SMART transit stops along Woodward Avenue may be reviewed during later phases of the Project to determine possible consolidation or relocation of bus stops.

3.2 Safety and Security (Motorized and Non-Motorized)

Vehicular Safety Impacts and Mitigation

The Project is proposed to run in either the outermost or the innermost lanes along Woodward Avenue in mixed traffic with other vehicles. Transit signal priority would be given to streetcar vehicles, and transit-only signal phases would be implemented where the streetcar alignment shifts from one lane to another. There would be no change to traffic operations at intersections. With streetcar vehicles traveling in the same lane as autos, potential conflict between streetcar vehicles and autos is likely to occur. This was documented within the FEIS and is not a change from Alternative B3.

Pedestrian/Bicycle Safety Impacts and Mitigation

As noted in the FEIS for Alternative B3, streetcar service will not adversely affect pedestrian safety. Eight of the 12 Project stations would be located in the outside parking lane along existing sidewalks, with sufficient space to accommodate passengers waiting to board or exit streetcar vehicles. Four of the 12 stations would be in the center of Woodward Avenue; at those locations, pedestrian safety would be improved because the stations would provide a refuge for pedestrians who cannot cross the avenue entirely during one pedestrian-signal phase. The stations would also provide a visible, elevated place to wait for the next light.

While no traffic signals would be removed with the Project, the following intersections would have new signals to accommodate streetcar lane transitions or proposed station locations. This is slightly different from Alternative B3 presented in the FEIS, more information provided in the Transportation Technical Report (2013).

- East Ferry Avenue
- Burroughs Street (new from Alternative B3)
- Amsterdam Street/Piquette Street (with future station)
- Lothrop Road (new from Alternative B3)
- Custer Avenue (new from Alternative B3)

With these additional signalized intersections, the time for pedestrians to cross Woodward Avenue at a signalized intersection would be decreased along the corridor.

Consistent with Alternative B3, the cross-section does not include provision for bicycle lanes. Bicycles on Woodward Avenue would continue to ride in the rightmost lane, either in the rightmost travel lane north of Burroughs Street, the streetcar/shared-use lane south of Burroughs Street or the parking lane when it is available. While most of the streetcar/shared-use lane would be a smooth surface, a groove would be necessary in the pavement adjacent to each rail to accommodate the wheel flanges on streetcar vehicles. This could adversely affect bicyclists, as there is potential for a bicycle wheel to get caught in the groove.

There are a number of nearby alternate routes parallel to Woodward Avenue, including Cass Avenue (one block west) and John R Street (one block east). One option to provide bicycle accommodations in the study corridor would be to provide bicycle facilities on these adjacent streets, rather than on Woodward Avenue. Cass Avenue may be a better alternative route than John R Street for bicyclists since it has a direct connection to Downtown. In addition, the John R Street bridge over I-94 is proposed to be removed with the reconstruction of I-94 in the study area. This reconstruction is expected to occur within the next 20 years.

While providing bicycle facilities on streets paralleling Woodward Avenue would be an improvement in bicycle accommodation in the overall study corridor, it would not necessarily address safety concerns on Woodward Avenue. According to the State of Michigan Vehicle Code, bicycles would still be permitted on Woodward Avenue and would still be allowed to travel in the right-most lane. Some cyclists may opt to use adjacent routes if bicycle lanes are added to parallel roadways. However, under State law, there is no provision for enforcing which roads cyclists use. Wayfinding signage could be placed along Woodward Avenue to inform cyclists of a nearby alternate route. Signage along Woodward Avenue indicating the potential for a bicycle wheel to get caught in the groove or locations of alternate routes available to cyclists could improve safety. In addition, wayfinding signage of popular destinations along Woodward Avenue could be placed along Cass Avenue or John R Street to inform cyclists how to reach those destinations via alternate routes.

Transit Safety and Security Impacts and Mitigation

This remains unchanged from Alternative B3 presented in the FEIS.

Emergency Services Impacts and Mitigation

This remains unchanged from Alternative B3 presented in the FEIS.

3.3 Parking

As indicated in the FEIS, parking would need to be removed on either the west side or east side of Woodward Avenue between Adams Street and Chandler/Delaware streets. The Project Team analyzed the number of lost parking spaces and the amount of other available parking to businesses within the study corridor under two scenarios: parking maintained on the northbound (east) side and parking maintained on the southbound (west) side of Woodward Avenue (See Transportation Technical Report for details of the analysis).

The Streetcar Alternative would reduce the total number of parking spaces by 314 from Downtown to Chandler Street/Delaware Street with parking maintained on the northbound (east) side of Woodward Avenue (Table 3-2). Approximately 123 of the lost spaces are metered spaces, leaving 94 metered parking spaces. The 172 unmetered spaces that would remain on Woodward Avenue could be converted to metered parking spaces to offset the impact to revenue that the City of Detroit receives from the meters.

The Streetcar Alternative would reduce the total number of parking spaces by 352 from Downtown to Chandler Street/Delaware Street with parking maintained on the southbound (west) side of Woodward Avenue (Table 3-2). Approximately 124 of the lost spaces are metered spaces, leaving 93 metered parking spaces. The 135 unmetered spaces that would remain on Woodward Avenue could be converted to metered parking spaces to offset the impact to revenue that the City of Detroit receives from the meters.

Both scenarios represent an increase in the number of parking spaces when compared to Alternative B3. The Streetcar Alternative results in a loss of less parking than Alternative B3 due to its shorter station length and the relocation of some of the stations.

Table 3-2: Parking Spaces Retained by Alternative

Woodward Section	Existing*	Alternative B3	Streetcar Alternative	
			Northbound (East)	Southbound (West)
Larned to Campus Martius	3 (3/0)	9	3	0
Campus Martius to State	6 (6/0)	0	1	0
State to Adams	18 (18/0)	18	18	0
Adams to I-75	0 (0/0)	0	0	0
I-75 to Alexandrine	176 (31/145)	56	71	92
Alexandrine to Kirby	162 (82/80)	34	90	56
Kirby to Grand	132 (75/57)	11	44	45
Grand to Chandler	83 (2/81)	0	39	35
Total Spaces	580 (217/363)	128	266	228
Number of Spaces Removed	N/A	452	314	352

* Total = Total number of spaces (Metered / Non-Metered)
Source: Woodward Avenue Streetcar Transportation Technical Report, 2013

3.4 Vehicular Operations

Lane and Vehicle Mix

The number of travel lanes along Woodward Avenue with the Streetcar Alternative is the same as proposed for Alternative B3. Woodward Avenue typically has three or four 10-foot wide through lanes in each direction. For the Streetcar Alternative, lane width would be increased to 11 feet and parking would be removed from one side of the street to accommodate the additional lane width. Non-transit vehicle mix along Woodward Avenue corridor is not expected to change with the streetcar.

Operations and Travel Speeds

The 2030 traffic volumes along the corridor for the Streetcar Alternative are consistent with Alternative B3; additional information can be found in the Transportation Technical Report (2013). There would be turning-movement restrictions in six locations, as follows:

- Northbound Woodward Avenue to westbound Amsterdam Street would be restricted due to the future Amsterdam Station's location in the center left-turn lane south of Piquette Street as well as the dedicated transit-only lane. With the new station and transit-only lane, northbound vehicles on Woodward Avenue would not be able to access the left-turn lane. Vehicles wishing to make a left turn would have to turn left at Burroughs Street, which is one street to the south, or at Baltimore Street, which is one street to the north.
- Southbound Woodward Avenue to eastbound Piquette Street would be restricted due to the dedicated transit-only lane in the median. With the transit-only lane, southbound vehicles on Woodward Avenue would not be able to access the left-turn lane. Vehicles wishing to make a left turn would have to turn left at Milwaukee Street to the north, or Harper Street, which is one street to the south.
- Northbound Woodward Avenue to westbound Baltimore Street would be restricted to the median dedicated transit-only lane. With the transit-only lane, northbound vehicles on Woodward Avenue would not be able to access the left-turn lane. Vehicle wishing to make a left-turn would have to turn left at Milwaukee Street to the north or Burroughs Street to the south.
- Southbound Woodward Avenue to eastbound Baltimore Street would be restricted due to the Baltimore Station's location in the median north of Baltimore Street as well as the dedicated transit-only lane. With the new station and the transit-only lane, southbound vehicles on Woodward Avenue would not be able to access the left-turn lane. Vehicles wishing to make a left turn would have to turn left at Milwaukee Street, which is one street to the north, or at Harper Street, which is three streets to the south.
- Southbound Woodward Avenue to eastbound Custer Street would be restricted due to the Streetcar's transition from northbound to southbound, using the center left-turn lane for the transition. With the location of the switch, the center left-turn lane between Custer and Bethune streets would be restricted for Streetcar use. Other vehicles wishing to make a left-turn would have to turn left at Bethune Street or at Horton Street, which is one street to the south.
- Northbound Woodward Avenue to westbound Bethune Street would be restricted due to Streetcar transition from northbound to southbound utilizing the center left-turn lane for the transition. With the location of the switch, the center left-turn lane between Custer Street and Bethune Street would be restricted to Streetcar vehicles only. Vehicles wishing to make a left-turn would either have to turn left at Lothrop Road, which is one street south, or at Pallister Street (depending on the VSMF site chosen), which is one street to the north.

All other turning movements at signalized and unsignalized intersections that are currently allowed would continue to be permitted for non-streetcar vehicles. To improve streetcar travel time, transit signal priority would be used at all new signalized intersections or signals adding transit-only phases north of Downtown to give priority to the streetcar.

With these changes in comparison to Alternative B3, all signalized intersections would still operate at LOS D or better during the morning and evening peak hours, which is the same as

Alternative B3. Non-streetcar-vehicle travel times are expected to increase by one to two minutes in the peak hours, which is slightly greater than Alternative B3 (Table 3-3). This may be due to the addition of new signals along the corridor as described previously. This is actually a benefit to Woodward Avenue since traffic speeds are typically higher than the posted speed limit.

Table 3-3: Vehicular Travel Times and Average Speed on Woodward Avenue*

Alternative	Southbound in the Morning	Northbound in the Evening
Existing	7 min 24 sec (25 mph)	7 min 32 sec (25 mph)
Alternative B3	8 min 41 sec (21 mph)	9 min 36 sec (19 mph)
Streetcar Alternative	9 min 41 sec (19 mph)	10 min 42 sec (17 mph)

Source: Woodward Streetcar Project Team, 2013

*Woodward Avenue between Congress Street and Grand Boulevard

3.5 Permits and Approvals

This remains unchanged as presented in the FEIS.

3.6 Short-Term Construction Effects and Mitigation

Construction of the entire 3.3-mile Woodward Avenue Streetcar would be completed as a single phase. The Project Team expects streetcar construction to take about 27 to 35 months. This is a shorter construction period than Alternative B3 since this is a shorter section and less complex.

Within Downtown, construction of the streetcar system would either result in Woodward Avenue being closed from south of Park Avenue/Witherell Street to Congress Street or closed in one direction (northbound or southbound). Roadways crossing Woodward Avenue south of Park Avenue/Witherell Street would also be closed at Woodward Avenue with the full closure; the cross streets would be open if only one direction were closed.

North of Park Avenue/Witherell Street, there would be one lane open in each direction with a center left-turn lane maintained during construction. Pedestrian access would be maintained all along Woodward Avenue and maintained at the signalized intersections. Pedestrian access would also be permitted to Campus Martius Park within Downtown Detroit. The Project Team expects construction within Downtown to last one construction season, or approximately 8 months. These changed conditions from those described in the FEIS have resulted in updates to safety and security, parking and vehicular operations as described in the following sections.

Access to businesses would be maintained during all phases and stages of construction.

3.6.1 Transit

Bus routes and stops along Woodward Avenue south of Park Avenue / Witherell Street would need to be rerouted and/or moved due to a full or partial roadway closure. North of Park Avenue/Witherall Street, buses currently utilize the parking lane for bus stops. In those areas, buses would stop along the one travel lane and a clear accessible path would be maintained from the sidewalk through the construction zone. In areas where construction would prevent buses

from pulling into existing stops, bus stops would be relocated outside the immediate construction zone and a clear accessible path from the sidewalk through the construction zone would be maintained. Construction of station platforms adjacent to the existing sidewalks may necessitate shifts in bus stop locations. Where temporary detours or stop relocations are necessary, DDOT and/or SMART would issue a Rider Alert, which would be posted at affected stops, on buses, at schedule distribution outlets and on the DDOT and/or SMART website. Traffic detours for motor vehicles and bicycles would also be posted, as needed.

3.6.2 Safety and Security (Motorized and Non-Motorized)

A full or partial closure within Downtown and the lane closures north of Downtown would result in existing traffic patterns being adversely affected during construction, which could result in longer travel times for motor vehicles.

With construction of curb-running stations within Downtown and along Woodward Avenue south of Piquette Street, construction fencing would be placed between the construction zone and the adjoining sidewalk. At curbside streetcar stops under construction, a through path would be maintained along the sidewalk behind the construction zone. Cyclists would continue to ride in the rightmost traffic lane. Construction would likely result in reduced vehicle travel speeds, allowing cyclists to mix with vehicle traffic more safely.

Crosswalks across Woodward Avenue may need to be closed at signalized intersections while center stations and streetcar tracks are under construction. Construction would be staged so that at least one crosswalk would be maintained at each intersection and signage would be placed to guide pedestrians to available crossing locations. Construction fencing would be placed between the construction zone and the adjoining sidewalk during construction of curb-running stations. At curbside streetcar stations under construction, a continuous sidewalk/path would be maintained along the sidewalk behind the construction zone.

3.6.3 Parking

Within Downtown, construction of the streetcar would cause the temporary loss of all parking along Woodward Avenue. Within Downtown, there is adequate available parking along side streets and within garages during the closure of Woodward Avenue.

There is one parking garage located off Grand River Avenue west of Woodward Avenue that would be impacted by the full closure of Woodward Avenue, but not by the partial closure. This garage only has access to Grand River Avenue. Currently, Grand River Avenue is one-way eastbound within Downtown Detroit. With a full closure of Woodward Avenue, vehicles would be able to access the parking garage, but would not be able to leave due to Grand River Avenue being one-way eastbound and the roadway being closed at Woodward Avenue. Grand River Avenue would need to be converted to two-way between Griswold Street and Woodward Avenue, at a minimum, if Woodward Avenue is fully closed within Downtown to allow for vehicles to leave the garage off of Grand River Avenue west of Woodward Avenue.

Construction of the streetcar along Woodward Avenue north of Downtown would entail closing half of Woodward Avenue. One travel lane along Woodward Avenue would be maintained in each direction, and left-turn lanes would be maintained at signalized intersections. Left-turn access at unsignalized intersections and driveways may not be maintained; however, right-turn access would be maintained. No on-street parking will be permitted along Woodward Avenue during construction. In the areas where on-street parking is removed, side-street parking

immediately adjacent to Woodward Avenue or off-street parking within two blocks will be available as metered, non-metered, and paid parking. No other mitigation is proposed at this time.

3.6.4 Vehicular Operations

Construction of the Streetcar Alternative between Adams Street and Chandler Street / Delaware Street would entail closing half of Woodward Avenue. One travel lane along Woodward Avenue would be maintained in each direction and left-turn lanes would be maintained at signalized intersections. Left-turn access at unsignalized intersections and driveways may not be maintained; however, right-turn access would be maintained. Drivers should expect to have longer travel times along the corridor with construction in place. North of Downtown, with a reduction in laneage along Woodward Avenue, there are adjacent available roadways that have additional capacity to handle any traffic diversion from Woodward Avenue due to the construction. No mitigation for vehicle operations is proposed at this time. Currently, all intersections operate at an overall LOS D or better along Woodward Avenue and are expected to during construction.

In areas where a roadway may be closed, detours will be in place directing motorists to an alternate route. Within Downtown Detroit, traffic along Woodward Avenue between Congress Street and Park Avenue/Witherell Street would need to be detoured to other roadways within Downtown with a full or partial closure. These roadways would include Washington Boulevard, Broadway Street, and Randolph Street. With a full closure, vehicles wishing to cross from the east side of Downtown to the west side of Downtown could utilize Park Avenue/Witherell Street, Adams Street, Larned Street, and Jefferson Avenue. All of these roadways currently have enough capacity to handle the traffic utilizing Woodward Avenue and the roadways crossing Woodward Avenue. Maintenance of traffic plans will be prepared by M1-Rail during the design phase of project development following completion of the environmental review process.

Deliveries would be coordinated during construction; alternate delivery times and/or locations may be required.

4.0 Affected Environment and Environmental Consequences

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4.0 Affected Environment and Environmental Consequences

4.1 Introduction

This chapter describes the environmental resources present in the Woodward Avenue Streetcar study area and the potential environmental impacts that would occur with construction and operation of the Streetcar Alternative (the Project). Aerial maps and diagrams of the Streetcar Alternative are provided in Appendix D. Detailed data and information are provided in technical reports, as referenced in this chapter.

Environmental resources and analyses presented in this chapter are as follows:

- Air Quality
- Hazardous Materials
- Historic Resources
- Archaeological Resources
- Noise
- Vibration
- Environmental Justice
- Land Use, Zoning, and Public Policy
- Neighborhood Character
- Community Facilities and Services
- Parklands
- Visual and Aesthetics
- Utilities
- Energy
- Construction Impacts
- Roadways and Level of Service
- Stormwater Management
- Natural Resources
- Indirect and Cumulative Effects

Existing conditions have been described previously in the Woodward Avenue Light Rail Transit (LRT) Final Environmental Impact Statement (FEIS) for 2009 or 2010, when the data were collected for each of the environmental resource categories. Analysis years for potential construction- and operations-related impacts are 2012 and 2030, respectively.

The discussion of each environmental resource is organized, as appropriate, by legal and regulatory context, methodology, existing conditions, long-term (operations-phase) effects, short-term (construction-phase) effects, and mitigation. The consequences of the No-Build Alternative remain unchanged as described in the FEIS and are incorporated by reference to this chapter.

4.2 Air Quality

4.2.1 Legal and Regulatory Context

Air quality is a term used to describe the amount of air pollution to which the public is exposed. Air quality is governed by the Federal Clean Air Act (CAA), administered by the United States Environmental Protection Agency (USEPA). As required by the CAA, the USEPA has established health-based National Ambient Air Quality Standards (NAAQS) for certain transportation-related air pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and particulate matter of 10 microns or less in diameter (PM₁₀) and 2.5 microns or less in diameter (PM_{2.5}). The standards for a particular air pollutant are set by the USEPA. By law, the USEPA must set the standards at a level that protects human health. States whose air quality does not meet one or more of the established health-based standards must develop a State Implementation Plan (SIP) for attaining the standards.

The CAA states that Federal Transit Administration (FTA)-assisted transit projects are subject to air quality conformity analysis (i.e., a proposed transit project must conform to the SIP for attaining air quality standards). Project-level air quality conformity has two parts: regional analysis and local or “hot-spot” analysis. The regional analysis consists of the development and adoption of a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) that include the Project. The hot-spot analysis, which is required only for certain pollutants, must demonstrate the Project would not produce localized concentrations of air pollutants that would cause or contribute to a localized exceedance of the USEPA standards for that pollutant. The project conforms to the SIP if it is included in the conforming RTP and TIP, and if the Project will not cause or contribute to a hot-spot.

4.2.2 Methodology

The attainment status of the study area is the same as presented in the FEIS. The most recent RTP and TIP are the same as those presented in the FEIS, although they were amended in December 2012 to include the Streetcar Project. Due to updated local traffic since the FEIS, a new screening analysis of intersections in the study area has been performed in order to determine if CO hot-spot modeling would be required. Air quality hot-spot modeling for CO was previously performed for the FEIS.

4.2.3 Existing Conditions

Monitored data has been updated since the FEIS to report the most recent years of data. Furthermore, two of the previously reported monitoring locations (6050 Linwood and 6921 West Fort) have been replaced since they no longer are reporting appropriate data information for this project; the monitor at 11600 7 Mile Road remains the same as in the FEIS. The three monitoring stations near the Project area (at 11600 East 7 Mile Road in Detroit, 150 Waterman Street in Detroit, and 14700 Goddard Street in Allen Park) reported exceedances of the eight-hour standard for O₃ and the one-hour and 24-hour standards for SO₂ in the latest three years of data. No other violations of the health-based standards were reported.

4.2.4 Long-Term Effects

Regional Air Quality

The Project is included in the December 14, 2012 amendment to SEMCOG’s RTP, Direction2035, as Project #4430, and in the December 14, 2012 amendment to the 2011-2014 TIP as Project #2010353. The amendment to the RTP is available at http://www.semco.org/direction2035_Amendment_20121108.aspx. All other information regarding the RTP and TIP is the same as presented in the FEIS.

Hot-Spot Analysis

Due to updates to local traffic information since the FEIS, a new screening analysis of intersections in the project area was conducted in order to determine if detailed CO hot-spot modeling would be required. No intersections in the project area failed the screening analysis, as all intersections are predicted to operate at LOS C or better under future build conditions. Furthermore, based on the results of the microscale air quality analysis conducted for the FEIS, the three intersections which previously failed the screening analysis did not show any violations of the NAAQS for 1-hour or 8-hour CO under existing (2005) or future (2030) conditions. As such, no violations of the NAAQS are predicted.

Due to the Project location within PM nonattainment areas, the Project Team considered whether the Project would warrant a PM hot-spot analysis. The InterAgency Working Group (IAWG) on

air quality determined the LRT Project assessed in the FEIS would not be a project of air quality concern—the Project will not expand or create any new diesel bus or diesel rail terminals and is not expected to increase diesel traffic and associated PM emissions at any location within the study area—and, therefore, would not require a PM hot-spot analysis. Given that the Streetcar Alternative is a smaller version of the LRT Project, a PM hot-spot analysis was not performed. Levels of mobile source air toxics (MSAT) are not predicted to be adversely affected by the Project for the same reasons.

Air Quality Conformity of the Project

As detailed above, the Project is included in the December 2012 amendment to SEMCOG's conforming RTP and TIP, and it will not cause or contribute to any localized exceedance of the health-based standards. Therefore, the Project conforms to the Michigan SIP for metropolitan Detroit.

Details of the air quality analysis methods and results are provided in the *Air Quality Technical Report* (2012).

4.2.5 Short-Term Construction Effects

The short-term construction effects are the same as those presented in the FEIS.

4.2.6 Mitigation

The proposed mitigation is the same as presented in the FEIS.

4.3 Hazardous Materials

This section summarizes the changes in the hazardous materials environment from Alternative B3 documented in the Woodward Avenue LRT FEIS to the Streetcar Alternative. The section analyzes potential contaminant sources that may be present within the streetcar study area, discussing the changes from the Alternative B3 alignment.

The Project Team updated the Modified Phase I Environmental Site Assessment, conducted along the corridor for the Hazardous Material Final Technical Report (2011) of the FEIS. The purpose and objective of this hazardous material evaluation was to update and assess current and historical conditions to help identify known or potential sources of contamination and evaluate the potential impact of those potential issues to the Project.

In addition, the team assessed three additional vehicle storage maintenance facility (VSMF) sites not previously evaluated by conducting a Phase I environmental site assessment (ESA) screening. The objective of the Phase I ESA screening was to identify, to the extent feasible, any Recognized Environmental Conditions (RECs), i.e., contamination or potential sources of contamination on the VSMF sites.

Two hazardous material summary reports (*Streetcar Alternative Hazardous Material Evaluation* (2013) and *VSMF Sites Phase I ESA Screening* (2013)) are included as attachments in the *Woodward Avenue Streetcar Environmental Assessment Hazardous Materials Technical Report* (2013).

4.3.1 Legal and Regulatory Context

The primary Federal and state regulations and standards regulating hazardous waste and materials are the same as those presented in the FEIS.

4.3.2 Methodology

Using the data, findings, and conclusions of the prior Modified Phase I ESA report conducted for the 9.3-mile corridor of the LRT Project, the Project Team re-evaluated prior findings based on the Project's 3.3-mile route. In addition, the team updated and analyzed government database record information to reflect current conditions. The government database record information update provided current information about facilities that use, or store chemicals, or that have suspected or known contamination.

The Project Team conducted a Phase I ESA screening to evaluate the three additional VSMF sites. The Phase I ESA screening was not intended to satisfy an "all appropriate inquiries" (AAI) assessment in accordance with 40 CFR Part 312 or a Phase I ESA in accordance with ASTM E1527-05, although several research elements and components from each were utilized in the evaluation. Elements included a site visit, environmental database records search, historical aerial photograph review, fire insurance map review, and street directory review. The Phase I ESA screening was intended to provide preliminary information regarding the current and historical site conditions to help identify known or potential sources of contamination and evaluate the potential impact of those potential issues to the Project.

4.3.3 Existing Conditions

The prior Modified Phase I ESA report identified about 300 contaminated or potentially contaminated properties of concern along the length of the 9.3-mile LRT corridor. Based on the northern terminus of the Streetcar Alternative (Chandler Street) and the updated environmental record search, the re-evaluation showed 123 contaminated or potentially contaminated properties of concern situated along the alignment. The updated government database record information identified seven additional potential sites of concern, not previously identified in the prior Modified Phase I ESA report. Table 1 in Appendix A of the *Woodward Avenue Streetcar Hazardous Material Evaluation* (2013) lists the 123 potential sites of concern. The locations of these sites are shown on Figures 2A through 2G in Appendix B of the same report.

Sites most commonly identified include former and current gasoline stations (known or suspected), dry cleaners, auto repair shops, industrial buildings, and other commercial properties. The potential contamination sources and characteristics from these types of facilities were discussed in the FEIS, and remain unchanged.

While the extent of potential subsurface contamination from individual properties may not result in widespread contamination, there may be localized areas along the alignment with significant levels of contamination.

Based on the Phase I ESA Screening findings, all three VSMFs (Site 1 - Custer Street, Site 2 - Bethune Street, and Site 3 - Smith Street) contain RECs. The Amsterdam Street VSMF was previously evaluated in the FEIS. RECs for the three additional VSMFs are summarized in Table 4-1 below. Phase II ESA testing, as recommended in the *Woodward Avenue Streetcar Environmental Assessment Hazardous Materials Technical Report*, should be conducted after the VSMF site is selected and as part of sale negotiations when environmental due diligence activities can be completed prior to property acquisition.

Table 4-1: Summary of RECs at VSMF Sites

VSMF site	Potential Environmental Concerns
1 - Custer Street (Preferred)	On-site historical dry cleaners, auto repair facilities, paint company, hatter/furrier, and unknown source of backfill soil. Several adjacent historical dry cleaners and gas stations.
2 - Bethune Street (Alternate)	On-site historical dry cleaners, hatter, unknown source of backfill soil. Several adjacent historical dry cleaners and gas stations.
3 - Smith Street (Alternate)	Unknown source of backfill soil, Several adjacent gas stations and dry cleaners.

Source: *VSMF Sites Phase I ESA Screening* (2013)

4.3.4 Long-Term Effects

The long-term effects of the Project are the same as those presented in the FEIS.

4.3.5 Short-Term Construction Effects

The short-term construction effects are the same as those presented in the FEIS. While one viaduct (between Endicott Street and Baltimore Street) needing deeper excavation for adequate vehicle underclearance remains within the Streetcar Alignment, the short-term construction effect of that work is the same as that presented in the FEIS.

4.3.6 Mitigation

The mitigation measures are the same as those presented in the FEIS.

4.4 Historic and Archaeological Resources

This section discusses changes in built historic structures and archaeological resources, including buried historic and prehistoric sites, from that presented in the FEIS.

4.4.1 Historic Resources

Legal and Regulatory Context

This remains unchanged from the FEIS.

Section 106 Process

Consulting Parties and Public Involvement

FTA, in cooperation with MDOT and in consultation with the Michigan SHPO, reinitiated consultation with the Project’s consulting parties, inviting them to participate as before in the Section 106 process. FTA also reinitiated government-to-government consultation with federally-recognized Indian tribes with potential interest in the Project area.

Area of Potential Effect

In consultation with the SHPO, FTA and MDOT developed the Streetcar Project’s APE by adopting the APE for the Woodward Avenue LRT Project since the two projects are substantially similar. The APE for the Streetcar Alternative encompasses Woodward Avenue and the area surrounding the proposed streetcar system, stations, VSMF, and other ancillary facilities where there is the potential for project effects on historic properties (Figure 4-1). The APE for built historic resources includes Woodward Avenue, where the streetcar would run, properties adjacent to that street, and select areas of expansion, including properties surrounding the potential VSMF and TPSS sites. The Project Team also included select properties near the

alignment where streetcar facilities are a significant visual element. These properties were typically within 250 feet of streetcar facilities. Maps of the APE are included in Appendix E.

The team revised the previously developed APE from the 9.3-mile Woodward Avenue LRT Project to reflect the shortened 3.3-mile Streetcar Alternative, and expanded it in the vicinity of preferred and alternate VSMF sites near Bethune Street and in select areas for additional proposed TPSS sites along the alignment. For the VSMF sites, the APE was expanded to include the north and south parcels along Chandler, Smith, Bethune, and Custer streets between Woodward Avenue and approximately one half block east of John R Street; the east parcels along John R Street between Chandler and Custer streets; and other parcels at 100 Bethune Street and 88 Custer Street directly adjacent and with a view to the Custer Street Site, respectively. For the TPSS sites, the APE was expanded to include these facilities and adjacent parcels.

As a result of adopting the LRT's APE for this project, the Streetcar Alternative's APE extends beyond Woodward Avenue in the Downtown area and encompasses roadways and parcels within which the former Woodward Avenue LRT Project alternatives and facilities were located, as well as properties that flanked those roadways and facilities. Any NRHP-listed or eligible historic properties located in these areas of the APE were also assessed for project effects.

Identification of Historic Properties

Within the Streetcar Alternative's APE, the Project Team identified 58 NRHP-listed and eligible historic properties previously identified and evaluated in the Woodward Avenue LRT's Section 106 technical reports, including two National Historic Landmarks (NHL), namely the Guardian Building and Fox Theatre.¹

In addition to identifying NRHP-listed and eligible historic properties previously evaluated for the Woodward Avenue LRT Project, the Project Team identified and evaluated 39 other properties within the expanded APE for the Streetcar Alternative that would approach 50 years of age or older during the potential construction period for the Streetcar Project. Of these properties, the team identified one NRHP-listed property and determined that five additional properties were eligible for the NRHP.

Any prehistoric or historic district, site, building, structure, or object eligible for the NRHP are known under the Section 106 process collectively as historic properties. To evaluate the NRHP eligibility of the identified properties in the expanded APE, the team used the criteria for NRHP eligibility as set forth at 36 CFR part 60.4:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

¹ The following Section 106 technical reports were referenced: *Phased Section 106 Submittal, Downtown Detroit to Interstate 75/Fisher Freeway* (September 2010); *Phased Section 106 Submittal, Assessment of Effects, Downtown Detroit to Interstate 75/Fisher Freeway* (October 2010); *Phased Section 106 Submittal, Interstate 75/Fisher Freeway to Grand Boulevard* (September 2010); *Phased Section 106 Submittal, Assessment of Effects, Interstate 75/Fisher Freeway to Grand Boulevard* (October 2010); *Phased Section 106 Submittal, Grand Boulevard to M-8/Davison Freeway* (November 2010); *Phased Section 106 Submittal, Assessment of Effects, Grand Boulevard to M-8/Davison Freeway* (November 2010); *Phased Section 106 Submittal, Supplemental Report I* (February 2011); and *Phased Section 106 Submittal, Supplemental Report II* (February 2011).

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or*
- (b) that are associated with the lives of persons significant in our past; or*
- (c) 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; or*
- (d) that have yielded, or may be likely to yield, information important in prehistory or history.*

Built resources are typically evaluated under Criteria A, B, and C; Criterion D applies primarily to archaeological resources.

If a property was determined to possess historic significance, its integrity was evaluated using the following seven aspects of integrity to determine if it conveys historic significance: location, design, setting, materials, workmanship, feeling, and association. If a property was determined to possess historic significance under one or more criteria and retains integrity to convey its significance, the property was deemed eligible for the NRHP during the Section 106 review of this Project.

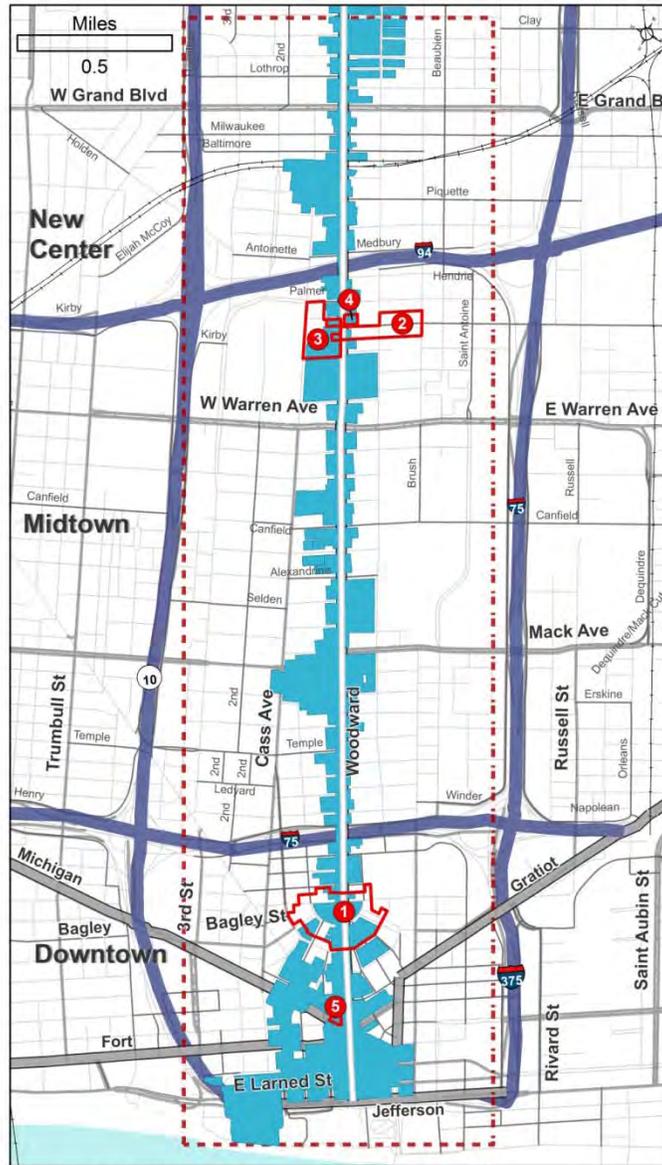
The Project Team identified historic properties by conducting surveys of all built resources within the APE, paying particular attention to all properties approaching 50 years old or older. For those properties that were clearly not eligible for inclusion in the NRHP, the team briefly described them in a table; this methodology differs from the LRT methodology which fully documented all properties in the LRT APE, regardless of apparent or potential NRHP eligibility. For those properties in the Streetcar Alternative APE that warranted additional research to evaluate their NRHP eligibility, the team conducted background research and completed architectural descriptions, historic context statements, and applied the NRHP criteria of eligibility to each property to make a determination of NRHP eligibility; these properties are documented in a survey data form.

Per SHPO review of the Project's Section 106 Technical Report, the SHPO identified an additional NRHP-eligible property, the First Federal Building.

Therefore, the team identified a total of 65 NRHP-listed properties and properties considered eligible for the NRHP within the Streetcar Alternative's APE.² Table 4-4 provides a list of all NRHP-listed and NRHP-eligible properties within the Streetcar Alternative's APE.

² Detailed documentation and evaluation of historic properties for NRHP eligibility are provided in the Woodward Avenue LRT Section 106 Technical Reports and the Woodward Avenue Streetcar Section 106 Technical Report.

Figure 4-1: Adversely Affected Historic Properties



Adversely Affected Historic Properties

- KEY**
- 1. Grand Circus Park Historic District
 - 2. East Ferry Avenue Historic District
 - 3. Woodward-West Palmer-Cass-West Kirby Historic District
 - 4. Colonel Frank J. Hecker House
 - 5. First Federal Building

LEGEND

-  Study Area
-  Adversely Impacted Historic Property
-  Proposed Woodward Streetcar Alignment
-  Area of Potential Effects

Source: Woodward Avenue Streetcar Project Team, 2013

Table 4-2: Historic Properties within the Woodward Avenue Streetcar Project Area of Potential Effects

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [◆]		Photograph
				Alternative B3	Streetcar Alternative	
1-1	Detroit Financial District Historic District <i>Listed 2009</i>	Eight blocks in Downtown Detroit roughly bounded on the south by West Jefferson Avenue, east by Woodward Avenue, north by Lafayette Avenue, and west by Washington Boulevard	Listed under A, B, and C for associations with financial industry and prominent businessmen, and examples of office buildings	No adverse effect: No property acquisition within district or adverse effect to integrity	No adverse effect: No property acquisition within district or adverse effect to integrity	
1-4	Guardian Building National Historic Landmark <i>Listed 1989; Designated NHL 1989</i>	500 Griswold Street	Listed under C as significant example of Art Deco skyscraper designed by Wirt C. Rowland	No effect	No effect	
1-5	Coleman A. Young Municipal Center <i>Determined Eligible 2010</i>	2 Woodward Avenue	Eligible under A, B, and C for associations with post World War II development and Mayor Coleman A. Young, and Neo-Formalist style	No adverse effect: No direct impact to resource or adverse effect to integrity	No adverse effect: No direct impact to resource or adverse effect to integrity	
1-6	Wayne County Building <i>Listed 1975</i>	600 Randolph Street	Listed under A and C for association with political history of Detroit and Beaux Arts style	No effect	No effect	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [◆]		Photograph
				Alternative B3	Streetcar Alternative	
1-7	Lawyers Building <i>Listed 1982</i>	137 Cadillac Square	Listed under A, B, and C for associations with social and commercial history and local developer John J. Barlum, and Commercial Style	No effect	No effect	
1-8	130 Cadillac Square <i>Determined Eligible 2010</i>	130 Cadillac Square	Eligible under C as rare local example of triangular-shaped, late-19th century commercial building	No effect	No effect	
1-10	Vinton Building <i>Listed 1983</i>	600 Woodward Avenue	Listed under A and C for association with the Vinton Company and as a work of prominent local architect Albert Kahn	No adverse effect: No direct impact to resource or adverse effect to integrity	No adverse effect: No direct impact to resource or adverse effect to integrity	
1-11	State Savings Bank <i>Listed 1982</i>	151 West Fort Street	Listed under A and C for association with financial history and as Beaux Arts-style work of prominent architects McKim, Mead & White	No effect	No effect	
1-13	Detroit Club <i>Listed 2004</i>	712 Cass Avenue	Listed under A and C for associations with social history and local clubhouse architecture	No effect	No effect	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [◆]		Photograph
				Alternative B3	Streetcar Alternative	
1-17	Gabriel Richard Building <i>Determined Eligible 2010</i>	305 Michigan Avenue	Eligible under C as example of Commercial Style and work of Chicago architects Marshall & Fox	No effect	No effect	
1-18	Washington Boulevard Historic District <i>Listed 1982</i>	Washington Boulevard between Michigan and Clifford streets on the east and between State and Grand River streets on the west	Listed under A and C for associations with planned community development and City Beautiful Movement, and as early 20 th -century commercial streetscape	No effect	No effect	
1-21	Capitol Park Historic District <i>Listed 1999</i>	Bounded by Grand River Avenue on the north, Michigan Avenue on the south, the north-south alley between Griswold Street and Woodward Avenue on the east	Listed under A and C for association with commercial history, and for late 19 th - and early 20 th -century architecture and commemoration of first Mi. Gov. Stevens T. Mason	No effect	No effect	
1-22	Michigan Soldiers' and Sailors' Monument <i>Listed 1984</i>	Southeast corner of Campus Martius Park	Listed under C as example of Neoclassical-style commemorative work of sculptor Randolph Rogers	No adverse effect: No direct impact to resource or adverse effect to integrity	No adverse effect: No direct impact to resource or adverse effect to integrity	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect♦		Photograph
				Alternative B3	Streetcar Alternative	
1-23	First Federal Building <i>Determined Eligible 2013</i>	1001 Woodward Avenue	Eligible under C and Criteria Consideration G as an example of International Style and work of Detroit architectural firm Smith, Hinchman, & Grylls.	N/A	Adverse effect: Visual adverse effect to setting from station proximate to historic boundary	
1-30	John J. Bagley Memorial Fountain <i>Listed 1971</i>	1 Cadillac Square	Listed under B and C for association with former Mi. Gov. John J. Bagley and as example of Romanesque Revival-style commemorative work of architect Henry Hobson Richardson	No effect	No effect	
1-31	Barlum Tower <i>Listed 2005</i>	65 Cadillac Square	Listed under C as example of Late Gothic Revival style high-rise building designed by local architects Bonnah and Chaffee	No effect	No effect	
1-32	New Cadillac Square Apartments <i>Determined Eligible 2011</i>	111 Cadillac Square	Eligible under A, B, and C for associations with Downtown development and developer John J. Barlum, and as example of Commercial Style	No effect	No effect	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [◆]		Photograph
				Alternative B3	Streetcar Alternative	
1-33	Detroit Public Library Downtown Branch <i>Determined Eligible 2011</i>	121 Gratiot Avenue	Eligible under A and C for association with Detroit Public Library system and as Classical Revival-style work of local architect William E. Kapp	No effect	No effect	
1-24	Lower Woodward Avenue Historic District <i>Listed 1999</i>	Roughly bounded on the west by State Street and Clifford Street, and on the east by Grand River Avenue and John R. Street	Listed under A and C for association with Judge Augustus B. Woodward's original Detroit plan and for commercial architecture	No adverse effect: No property acquisition within district or adverse effect to integrity	No adverse effect: No property acquisition within district or adverse effect to integrity	
1-25	Grand Circus Park Historic District <i>Listed 1982</i>	Roughly bounded by Clifford Street on the south and west, John R. Street on the south and east, and the north side of Adams Street on the north	Listed under A and C for association with Detroit's early 20 th -century entertainment and social development and for commercial architecture	Adverse effect: No property acquisition within district; adverse effect to setting and design by station within historic district boundary Update: Billboards are no longer included as part of this alternative. However, the presence of the station would still constitute an adverse effect to the historic district's setting and design.	Adverse effect: No property acquisition within district; cumulative adverse effect to setting and design by station within historic district boundary	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [◆]		Photograph
				Alternative B3	Streetcar Alternative	
1-26	Central United Methodist Church <i>Listed 1983</i>	23 East Adams Avenue	Listed under C as example of Gothic Revival-style religious architecture	Adverse effect: Visual adverse effect to setting by station proximate to historic boundary Update: The Michigan SHPO did not concur with the adverse effect determination; a determination of no adverse effect was accepted by FTA.	No adverse effect: No direct impact to resource or adverse effect to integrity	
1-27	Francis Palms Building and State Theater <i>Listed 1982</i>	2101 Woodward Avenue	Listed under C as example of Beaux Arts and Italian Renaissance Revival style movie theater designed by architect C. Howard Crane	No effect	No adverse effect: No direct impact to resource or adverse effect to integrity	
1-28	Fox Theatre Building National Historic Landmark <i>Listed 1985; Designated NHL 1989</i>	2211 Woodward Avenue	Listed under C as example of Art Deco-style movie palace designed by C. Howard Crane	No adverse effect: No direct impact to resource or adverse effect to integrity	No adverse effect: No direct impact to resource or adverse effect to integrity	
1-29	St. John's Episcopal Church <i>Listed 1982</i>	2326 Woodward Avenue	Listed under C as example of Gothic Revival-style religious architecture	No adverse effect: No direct impact to resource or adverse effect to integrity	No adverse effect: No direct impact to resource or adverse effect to integrity	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect♦		Photograph
				Alternative B3	Streetcar Alternative	
2-2	First Unitarian Church of Detroit <i>Listed 1982</i>	2870 Woodward Avenue	Listed under C as example of Romanesque Revival-style church designed by local architects Donaldson and Meier	No effect	No effect	
2-3	First Presbyterian Church <i>Listed 1982</i>	2930 Woodward Avenue	Listed under A and C for association with oldest local Protestant congregation and as example of Romanesque Revival-style church designed by local architect George D. Mason	No effect	No effect	
2-4	Midtown Woodward Historic District <i>Listed 2008</i>	Approximately two blocks of Woodward Avenue between Charlotte and Stimson streets, including two buildings at 14 Charlotte Street and 25 Peterboro Street	Listed under A and C for association with commercial development and for commercial architecture	Adverse effect: No property acquisition within district; visual adverse effect to setting and feeling from VSMF site proximate to historic district boundary Update: The MLK Jr. Boulevard VSMF site was removed from further consideration. Therefore, this alternative would have no adverse effect on the historic property.	No adverse effect: No property acquisition within district or adverse effect to integrity	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect♦		Photograph
				Alternative B3	Streetcar Alternative	
2-5	Peterboro-Charlotte Historic District <i>Determined Eligible 2010</i>	Properties along the north side of Charlotte Street and the south side of Peterboro Street between Woodward and Park avenues, and the east side of Park Avenue between Charlotte and Peterboro streets	Eligible under C for eclectic collection of middle-class residences in streetcar-associated development	No adverse effect: No property acquisition within district or adverse effect to integrity Update: The MLK Jr. Boulevard VSMF site was removed from further consideration. Therefore, this alternative would have no adverse effect on the historic property.	No effect	
2-6	Clarence Burton School <i>Nominated 2010*</i>	3420 Cass Avenue	Nominated under A and C for association with public education and as work of architects Malcomson & Higginbotham	Adverse effect: Visual adverse effect to setting and feeling from VSMF site proximate to historic boundary Update: The MLK Jr. Boulevard VSMF site was removed from further consideration. Therefore, this alternative would have no adverse effect on the historic property.	No effect	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [♦]		Photograph
				Alternative B3	Streetcar Alternative	
2-7	Temple Beth-El <i>Listed 1982</i>	3424 Woodward Avenue	Listed under C as first local synagogue planned according to modern Jewish religious practices and theater conversion by architect C. Howard Crane	No effect	No effect	
2-16	Cass-Davenport Historic District <i>Listed 1997</i>	3527, 3550, and 3566 Cass Avenue, and 149 Davenport Street	Listed under A and C for associations with automobile industry and residential development, and for revival-style apartment architecture	Adverse effect: No property acquisition within district; visual adverse effect to setting, feeling, and association from VSMF site proximate to historic district boundary Update: The MLK Jr. Boulevard VSMF site was removed from further consideration. Therefore, this alternative would have no adverse effect on the historic property.	No effect	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [♦]		Photograph
				Alternative B3	Streetcar Alternative	
2-17	Hotel Stevenson <i>Listed 1997</i>	40 Davenport Street	Listed under A, B, and C for associations with residential development and Charles Hugh Stevenson, and for building's Georgian Revival style	Adverse effect: Visual adverse effect to setting and association from VSMF site proximate to historic boundary Update: The MLK Jr. Boulevard VSMF site was removed from further consideration. Therefore, this alternative would have no adverse effect on the historic property.	No effect	
2-18	Orchestra Hall <i>Listed 1971</i>	3711 Woodward Avenue	Listed under A and C for associations with Detroit Symphony Orchestra and cultural development, and as Beaux Arts-style theater designed by architect C. Howard Crane	No effect	No effect	
2-21	Willis-Selden Historic District <i>Listed 1997</i>	Roughly bounded on the north by the alley north of West Willis Street, on the east by Woodward Avenue, on the south by the alley south of Selden Street, and on the west by Third Avenue	Listed under A and C for associations with Detroit's rapid turn-of-the-century commercial, industrial and residential neighborhood development	No adverse effect: No property acquisition within district or adverse effect to integrity	No adverse effect: No property acquisition within district or adverse effect to integrity	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect♦		Photograph
				Alternative B3	Streetcar Alternative	
2-23	Garden Bowl <i>Listed 2008</i>	4104-4120 Woodward Avenue	Listed under A as Detroit's oldest operating bowling alley	No effect	No effect	
2-24	Majestic Theater <i>Listed 2008</i>	4126-4140 Woodward Avenue	Listed under C as example of Art Deco style theater	No effect	No effect	
2-26	Detroit Edison Company Willis Avenue Station <i>Listed 1997</i>	55 Willis Avenue	Listed under A for association with Detroit's central heating system	No effect	No adverse effect: No direct impact to resource or adverse effect to integrity	
WS-39	Graybar Electric Company Building <i>Listed 1997</i>	55 West Canfield Street	Listed under A for association with commercial and industrial development of Cass Farms area	Not assessed	No effect	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [◆]		Photograph
				Alternative B3	Streetcar Alternative	
2-29	David Whitney House <i>Listed 1972</i>	4421 Woodward Avenue	Listed under B and C for association with lumber baron David Whitney, Jr. and as example of Romanesque Revival-style architecture	Adverse effect: Visual adverse effect to setting, feeling, and association from station proximate to historic boundary Update: Billboards are no longer included as part of this alternative. Therefore, FTA has determined that there would be no adverse effect to this historic property.	No adverse effect: No direct impact to resource or adverse effect to integrity	
2-31	Edwin S. George Building <i>Listed 1993</i>	4612 Woodward Avenue	Listed under A, B, and C for associations with commercial development and developer Edwin S. George, and as example of Chicago Style	No effect	No effect	
2-32	First Congregational Church <i>Listed 1979</i>	33 East Forest Street	Listed under C as example of Richardsonian Romanesque-style religious architecture	No effect	No effect	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect♦		Photograph
				Alternative B3	Streetcar Alternative	
2-33	Warren-Prentis Historic District <i>Listed 1997</i>	Approximately bounded on the north by Warren Avenue, on the east by Woodward Avenue, on the west by Third Avenue, and on the south by Prentis and Canfield avenues	Listed under A and C for association with residential development and for late 19 th - and early 20 th - century residential architecture	No adverse effect: No property acquisition within district or adverse effect to integrity	No adverse effect: No property acquisition within district or adverse effect to integrity	
2-34	Cathedral Church of St. Paul Complex <i>Listed 1982</i>	4800 Woodward Avenue	Listed under C as example of Gothic Revival-style work of architect Ralph Adams Cram	No effect	No effect	
2-35	Samuel L. Smith House <i>Listed 1986</i>	5035 Woodward Avenue	Listed under B and C for association with entrepreneur William C. Williams and lumber and automobile pioneer Samuel L. Smith and as example of Queen Anne style	No effect	No effect	
2-36	Maccabees Building <i>Listed 1983</i>	5057 Woodward Avenue	Listed under A and C for association with Order of the Maccabees beneficiary society and as the work of architect Albert Kahn	No adverse effect: No direct impact to resource or adverse effect to integrity	No adverse effect: No direct impact to resource or adverse effect to integrity	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect♦		Photograph
				Alternative B3	Streetcar Alternative	
2-37	Cultural Center Historic District <i>Listed 1983</i>	5200 Woodward Avenue, 5201 Woodward Avenue, and 100 Farnsworth Avenue	Listed under A and C for associations with Cultural Center plan and community planning, and for civic architecture by architects Cass Gilbert, Paul Philippe Cret, and Harley, Ellington & Day	No adverse effect: No property acquisition within district or adverse effect to integrity	No adverse effect: No property acquisition within district or adverse effect to integrity	
2-38	Detroit Historical Museum <i>Determined Eligible 2010</i>	5401 Woodward Avenue	Eligible under A and C for association with Cultural Center development and as example of mid-20 th -century institutional architecture in Prairie and International Styles	No effect	No effect	
2-39	The Wardell <i>Listed 2007</i>	15 East Kirby Street	Listed under A, B, and C for associations with early 20 th -century luxury hotel development and developer Fred Wardell, and as Italian Renaissance-style work of local architects Weston and Ellington	No effect	No effect	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect♦		Photograph
				Alternative B3	Streetcar Alternative	
2-42	Colonel Frank J. Hecker House <i>Listed 1973</i>	5510 Woodward Avenue	Listed under B and C for association with prominent citizen Colonel Frank J. Hecker and as example of Chateausque style	Adverse effect: Visual adverse effect to setting, feeling, and association from station proximate to historic boundary Update: Billboards are no longer included as part of this alternative. Therefore, FTA has determined that there would be no adverse effect to this history property.	Adverse effect: Visual adverse effect to setting, feeling, and association from station proximate to historic boundary Billboards under Alternative B3 did not solely constitute an adverse effect. Therefore, FTA has determined the station location would be an adverse effect to this historic property.	
2-43	East Ferry Avenue Historic District <i>Listed 1980</i>	Approximately three blocks of East Ferry Avenue between Woodward Avenue and Beaubien Street	Listed under A and C for association with residential development and for late 19 th - and early 20 th - century residential architecture	Adverse effect: Visual adverse effect to setting and feeling from station proximate to historic boundary Update: Billboards are no longer included as part of this alternative. Therefore, FTA has determined that there would be no adverse effect to this history property.	Adverse effect: Visual adverse effect to setting and feeling from station proximate to historic boundary Billboards under Alternative B3 did not solely constitute an adverse effect. Therefore, FTA has determined the station location would be an adverse effect to this historic property.	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [◆]		Photograph
				Alternative B3	Streetcar Alternative	
2-44	Barlum Apartments <i>Determined Eligible (n.d.)</i> †	25 East Palmer Avenue	Eligible under B and C for association with developer John J. Barlum and as example of Art Deco-influenced apartment building	No effect	No effect	
2-61	Woodward - West Palmer - Cass - West Kirby Historic District <i>Determined Eligible 2011</i>	Bounded by West Palmer Avenue on the north, Woodward Avenue on the east, West Kirby Avenue on the south, and Cass Avenue on the west	Eligible under A and C for association with development of University-Cultural Center Area and for architecture designed by notable local architects and firms	Adverse effect: No property acquisition within district; visual adverse effect to setting from station within historic district boundary Update: Billboards are no longer included as part of this alternative. Therefore, FTA has determined that there would be no adverse effect to this history property.	Adverse effect: No property acquisition within district; visual adverse effect to setting from station within historic district boundary Billboards under Alternative B3 did not solely constitute an adverse effect. Therefore, FTA has determined the station location would be an adverse effect to this historic property.	
2-51	St. Joseph's Episcopal Church <i>Listed 1982</i>	5930 Woodward Avenue	Listed under C as example of Richardsonian Romanesque-style church designed by architects Malcomson & Higginbotham	No effect	No effect	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect♦		Photograph
				Alternative B3	Streetcar Alternative	
2-54	New Amsterdam Historic District <i>Listed 2001</i>	Located primarily west of Woodward Avenue approximately between Amsterdam Street on the north and Antoinette Street on the south	Listed under A and C for association with industrial history and for automobile-related architecture	No effect	No effect	
2-57	Piquette Avenue Industrial Historic District <i>Listed 2004</i>	Roughly bounded by Endicott Avenue and the Grand Trunk Western Railroad on the north, Hastings Street on the east, Harper Avenue on the south, and Woodward Avenue on the west	Listed under A, B, and C for associations with automobile industry and automotive pioneers, and for automobile-related architecture	No effect	No effect	
2-58	Conrail and Grand Trunk Western Railroad Bridges <i>Determined Eligible 2010</i>	Two bridges spanning Woodward Avenue between Endicott and Baltimore avenues	Eligible under A and C for association with Depression-era public works and as Art Deco-style railroad bridges	No adverse effect: No anticipated impacts to historic elements; no adverse effect to integrity	No adverse effect: No anticipated impacts to historic elements; no adverse effect to integrity	
2-60	New Center Commercial Historic District <i>Determined Eligible 2010</i>	Properties along Woodward Avenue from Baltimore Avenue to Grand Boulevard	Eligible under A for association with development of early suburban Detroit	Adverse effect: No property acquisition within district; visual adverse effect to setting, feeling, and association from station within historic district boundary	No adverse effect: No property acquisition within district or adverse effect to integrity	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect♦		Photograph
				Alternative B3	Streetcar Alternative	
3-6	Michigan Bell Telephone Company Madison Central Exchange Building <i>Determined Eligible 2010</i>	105 East Bethune Street	Eligible under A and C as important local telephone switching station and as example of Art Deco-style utilitarian architecture	No effect	No adverse effect: No direct impact to resource or adverse effect to integrity	
3-9	Metropolitan United Methodist Church <i>Listed 1982</i>	8000 Woodward Avenue	Listed under C as example of Gothic Revival-style church designed by architect William E.N. Hunter	No effect	No effect	
WS-2	CBS Outdoor Advertising/Walker & Co./Cadillac Motor Car Company, Plant #4 <i>Determined Eligible 2013</i>	88 Custer Avenue	Eligible under A for its nearly 100-year association with the outdoor advertising industry	Not assessed	No effect	
WS-3	Detroit Police Department – Mounted Division <i>Determined Eligible 2013</i>	100-105 East Bethune Avenue	Eligible under A for its association with the Detroit Police Department’s Mounted Division and its distinct police functions	Not assessed	No effect	
WS-25	Henry L. & California Obetz House <i>Determined Eligible 2013</i>	80 Chandler Avenue	Eligible under B for association with Dr. Henry L. Obetz, a leading physician, surgeon, and educator in Ann Arbor and Detroit	Not assessed	No adverse effect: No direct impact to resource or adverse effect to integrity	

Survey ID	Name and NRHP Status	Address	NRHP Criteria	Determination of Effect [◆]		Photograph
				Alternative B3	Streetcar Alternative	
WS-26	Sol & Ida Cohn House <i>Determined Eligible 2013</i>	100 Chandler Avenue	Eligible under C as an intact, well-preserved example of the work of architect John C. Stahl, Jr.	Not assessed	No adverse effect: No direct impact to resource or adverse effect to integrity	
WS-30	Terrace Apartments <i>Determined Eligible 2013</i>	203, 209, 211 Chandler Avenue; 8008, 8012; 8018; 8022 John R Street	Eligible under C as an excellent example of a terrace apartment building influenced by the Tudor Revival and Craftsman styles	Not assessed	No adverse effect: No direct impact to resource or adverse effect to integrity	
4-121	Woodward Avenue <i>Determined Eligible 2010</i> ‡	The entire length of Woodward Avenue between its intersections with Jefferson Avenue and M-102/Eight Mile Road, spanning the existing right-of-way and including the median where applicable	Eligible under A and B as major transportation corridor and for association with Judge Augustus B. Woodward	Adverse effect: Visual adverse effect to feeling from stations within proposed historic boundary Update: Billboards are no longer included as part of this alternative. Therefore, FTA has determined that there would be no adverse effect to this historic property.	No adverse effect: No impacts to historic character; no adverse effect to integrity.	

* Pending NRHP listing.

† Determined eligible as part of prior, unrelated Section 106 project review; no documentation on file. Updated determination of eligibility provided in *Phased Section 106 Submittal: Interstate 75/Fisher Freeway to Grand Boulevard* (September 2010).

‡ A portion of Woodward Avenue, as part of the Historic Woodward Avenue Plan of 1805, was previously determined eligible in 1979.

◆ All effects determinations include noise and vibration assessments. In cases where there is a potential for noise and vibration effects, FTA will implement measures to avoid adverse effects and testing/monitoring to confirm that no adverse effects to historic properties are present.

Assessment of Effects to Historic Properties

The presence of the streetcar guideway and its catenary system within the transportation right-of-way would not constitute an adverse effect to historic properties. Adverse effects would primarily be from the streetcar stations and their potential to diminish the integrity of the property's setting, feeling, and association.

Woodward Avenue, determined NRHP-eligible, historically included mass transit vehicles, most notably a horse-drawn rail car system from 1863-1892, an electric streetcar system from 1892-1956, and bus service from 1956 to the present. The existing bus service includes bus shelters along Woodward Avenue within the transportation right-of-way. For historic districts that include the roadway as a contributing element and historic properties that flank the roadway, introduction of the proposed streetcar alignment and catenary system was not determined to be an adverse effect because these historic properties would retain integrity of setting, feeling, and association.

Alternative B3 Evaluation

Adverse effects to aboveground historic properties were identified with Alternative B3; therefore, FTA determined the Woodward Avenue LRT Project would have an adverse effect on historic properties. Details on Alternative B3 effects determinations for historic structures are provided in the Woodward Avenue LRT Project's Section 106 Technical Reports. Of the 58 NRHP-listed and eligible properties that are concurrently located in the previous Alternative B3 APE and the revised Streetcar Alternative APE, two historic properties would have been adversely affected by the LRT Project (Table 4-5). FTA also determined that Alternative B3 would not adversely affect the two NHLs. No direct physical impacts would occur to those properties, and no indirect adverse effects, such as visual, auditory, or vibratory impacts, were anticipated. Generally, the adverse effects consisted of visual impacts to historic properties' setting, feeling, or association.

Streetcar Alternative Evaluation

FTA determined the Woodward Avenue Streetcar Project would have an adverse effect on historic properties. Details of this determination are provided in the Section 106 Technical Report. In summary, of the 65 NRHP-listed and eligible properties in the Streetcar Alternative APE, the Project would adversely affect five historic properties, have no adverse effect to 23 historic properties, and have no effect to 37 historic properties (Table 4-5). The team determined that there would be no adverse effect to the two National Historic Landmarks (NHL). No direct physical impacts would occur to those properties, and no indirect adverse effects, such as visual, auditory, or vibratory impacts, were anticipated. Generally, the adverse effects consisted of visual impacts to historic properties' setting, feeling, or association.

As shown in Table 4-5 under Alternative B3, FTA revised the adverse effects to the Colonel Frank J. Hecker House, East Ferry Avenue Historic District, and Woodward-West Palmer-Cass-West Kirby Historic District to no adverse effect due to the removal of station billboards from consideration, although the station location remained the same proximate to those properties and would have constituted an effect to their integrity of setting, feeling, and association; the station billboards alone did not constitute an adverse effect. Under the Streetcar Alternative, the station location is similar to Alternative B3 and FTA has identified adverse effects to the above-mentioned properties because the station location between historic properties would adversely affect their integrity of setting, feeling, and association.

Noise and Vibration Analysis

As discussed in Section 4.5 and shown in Table 4-2, Alternative B3 was anticipated to have moderate transit noise impacts to the Central United Methodist Church if no mitigation measures were applied; no transit noise impacts were anticipated for all other historic properties along the alignment due to LRT operations staying below the FTA impact thresholds. Comparatively, the noise analysis findings for the Streetcar Alternative indicate that transit noise generated from Streetcar operations are expected to stay below the FTA impact thresholds and will have no impact to historic properties along the alignment. Since transit noise is expected to stay below the impact thresholds, noise impacts previously reported under the LRT Alternative at the Central United Methodist Church are no longer projected to occur with the Streetcar Alternative. For the Streetcar Alternative’s preferred and alternate VSMF sites, moderate noise impacts are expected for the preferred Custer Street Site 1 at the NRHP-listed Metropolitan United Methodist Church and for the alternative Smith Street Site 3 at the NRHP-listed Metropolitan United Methodist Church, NRHP-eligible 80 Chandler Street, NRHP-eligible 100 Chandler Street, and NRHP-eligible Terrace Apartments due to wheel squeal noise generated from sharp turns as streetcars enter and leave the designated storage areas.

Per FTA’s *Transit Noise and Vibration Impact Assessment Guidance* (2006), FTA requires that noise and vibration impacts are disclosed both before proposed mitigation and after mitigation is applied. Noise impacts due to wheel squeal at the proposed VSMF sites could be mitigated by increasing the radius of curvature into and out of the VSMF site. MDOT would not modify historic properties or add visual elements in front of historic properties to mitigate noise impacts. FTA determined the Project noise would not affect the NRHP qualifying characteristics of any historic property within the APE.

Table 4-3: Historic Properties Where Building Occupants Would Experience Moderate Noise Impact

Project Alternative	Name and NRHP Status
B3 Alternative	Central Methodist Church (aka Central United Methodist Church) <i>NRHP Listed</i> <i>Contributing building within the NRHP-listed Grand Circus Park Historic District</i>
Streetcar Alternative	Metropolitan United Methodist Church <i>NRHP Listed</i>
	80 Chandler Avenue <i>NRHP Eligible</i>
	100 Chandler Avenue <i>NRHP Eligible</i>
	Terrace Apartments <i>NRHP Eligible</i>

Source: Woodward Avenue LRT Project Team, 2011; and Woodward Avenue Streetcar Project Team, 2013

As discussed in detail in Section 4.6 and shown in Table 4-3, the general transit vibration assessment for Alternative B3 predicted there may be vibration and ground-borne noise impacts to the Fox Theatre Building prior to the implementation of vibration mitigation; however, no vibration or ground-borne noise impacts were anticipated for all other historic properties along the LRT alignment. Comparatively, no vibration or ground-borne noise impacts to historic properties are projected to occur for the Streetcar Alternative because the estimated general

transit vibration levels are expected to remain below the minimum FTA impact thresholds at all representative receptor sites evaluated for the Streetcar Alternative. Therefore, under the Streetcar operating conditions, no mitigation measures are necessary.

Table 4-4: Vibration and Ground-Borne Noise Impacts on Historic Resources Prior to Mitigation

Project Alternative	Name and NRHP Status	Vibration Impact	Ground-Borne Noise Impact	Impact Predicted After Mitigation
B3 Alternative	Fox Theatre Building <i>National Historic Landmark</i>	Impact	Impact	No Impact
Streetcar Alternative	Fox Theatre Building <i>National Historic Landmark</i>	No Impact	No Impact	No Impact

Source: Woodward Avenue LRT Project Team, 2011; and Woodward Avenue Streetcar Project Team, 2013

For the LRT Project, the National Park Service (NPS) expressed concern that vibration impacts during construction may negatively affect the NHLs in the study area, especially the Fox Theatre. Although vibration impacts previously reported for Alternative B3 at the Fox Theatre Building are no longer projected to occur with the Streetcar Alternative due to lower operating speeds resulting in vibration levels remaining below FTA impact thresholds, FTA remains committed to ensuring that methods used to construct the stations and trackwork would not impact historically significant features of the NHLs, including the Fox Theatre.

Local Historic Districts

The City of Detroit municipal code (Detroit City Code, Chapter 25 {1964}) also establishes protocol for designating local historic districts. (The district nomenclature includes both districts with multiple properties as well as individual properties.) Prior to authorization or approval of the proposed Project, MDOT would need to closely coordinate with the Historic District Commission to identify whether the Project would have demonstrable effects on local historic districts. Prior to construction of any element of the Project that is located within a local historic district, MDOT would need to file an application for a building permit that will be reviewed by the Historic District Commission. Using the guidelines established by the Secretary of Interior's Standards for Rehabilitation as a basis for review of the permit, the Historic District Commission would decide whether to issue a certificate of appropriateness, issue a notice to proceed, or deny the building permit.

Within the APE established to review the Streetcar Alternative's effects on NRHP listed or eligible historic properties for the Federal Section 106 process, there are 17 locally designated historic districts. Most of these districts overlap geographically with historic properties evaluated for the Section 106 review; in all cases, properties requiring Section 106 determinations of eligibility and effect have been assessed appropriately as part of that Federal process. The locally designated historic districts or structures are:

- Vinton Building Historic District
- State Savings Bank Building
- Washington Boulevard Local Historic District

- Soldiers and Sailors Monument
- Bagley Memorial Fountain
- Lower Woodward Avenue Historic District
- David Whitney Building Historic District
- Women’s Exchange Building
- Grand Circus Park Historic District
- Brush Park Historic District
- Peterboro-Charlotte Historic District
- Orchestra Hall
- Garfield Building Historic District
- Warren-Prentis Historic District
- East Ferry Avenue Historic District
- Woodward – West Palmer- Cass-West Kirby Historic District
- New Amsterdam Historic District

While there may be some impacts on local historic districts from the Streetcar Alternative, the stipulations identified in the Federal Section 106 Memorandum of Agreement currently being updated for historic properties eligible for or listed on the NRHP and the design review required under City of Detroit ordinance should already minimize and/or mitigate any of these potential impacts. FTA is not proposing separate mitigation for local historic districts and the local ordinance does not require mitigation as part of the application and approval process.

Short-Term Construction Effects

Historic properties located adjacent to the Streetcar Alternative would experience short-term noise impacts related to construction. The level of impact would depend on the time of day during which the construction activity occurs, the noise characteristics of the equipment being used, the duration of each of the impact-causing construction activities, the construction staging schedule, and the distance between the noise-generating equipment and the noise-sensitive properties. Although preliminary sites for construction staging areas (CSAs) are located within the boundaries of the NRHP-listed Grand Circus Park Historic District, it would not affect access to any historic properties because the CSAs would be temporary and consistent with the existing land use in those areas. See the Section 4.5 *Noise* and Section 4.6 *Vibration* for additional details.

Mitigation

For adverse effects that could not be avoided for the Woodward Avenue Streetcar Alternative, FTA is proposing the same types of mitigation that were developed in the Woodward Avenue LRT Project’s Federal Section 106 Memorandum of Agreement (MOA) and will amend that document in consultation with the Michigan SHPO, NPS, and other consulting parties. An amended draft MOA for the Streetcar Alternative is available in Appendix F.

4.4.2 Archaeological Resources

Legal and Regulatory Context

This remains unchanged as presented in the FEIS.

Methodology

The Project Team updated previous studies done for the LRT FEIS with a Phase I land use history and archaeological disturbance assessment. This investigation was completed to determine the Project’s potential to affect archaeological sites that may be eligible for the NRHP. Over the course of the two archaeological investigations, a field inspection was conducted

consisting of visual inspection and photo documentation of Woodward Avenue in the study area and the preferred and alternate VSMF sites. Details of the archaeological investigations are provided in the Archaeological Resources Technical Reports titled *Phase I Archaeological Literature Review, Land-Use History, and Disturbance Assessment, Woodward Avenue Light Rail Transit Project, City of Detroit, Wayne County, Michigan* (Klinge 2010) and *Phase I Land-Use History and Disturbance Assessment, Woodward Avenue Streetcar Project, City of Detroit, Wayne County, Michigan* (Klinge 2012).

Existing Conditions

There have been no changes to the existing archaeological conditions since the FEIS. The Project Team reviewed cartographic sources for the three additional VSMF Sites 1 through 3. The review found that the properties went from rural farmland in the mid-nineteenth century to densely packed neighborhoods through the twentieth. Towards the end of the twentieth century, when the properties were finally demolished, they were generally regraded to match the street level and paved to make parking areas. This implies that a substantial amount of material, including much of the building superstructures, was removed from the sites to keep surface grade at the adjacent street level.

Long-Term Effects

North of Grand Circus Park, implementation of the Project would have no impact on significant archaeological resources. Redevelopment and urban renewal projects would likely have destroyed or compromised any archaeological sites that may exist in the preferred VSMF Site 1 and alternate VSMF Sites 2 and 4. These sites are not considered NRHP-eligible according to the Michigan State Historic Preservation Office (SHPO).

The Project may affect archaeological sites within the project corridor south of Grand Circus Park. The pre-1805 city does not correspond with the modern street grid in Downtown Detroit. While the pallisaded city was located largely south and west of the current project alignment, intact eighteenth-century sites have been located within or adjacent to the project corridor. This includes the Original Protestant Cemetery (20WN379), which has been documented within the street rights-of-way on the east side of the intersection of Woodward Avenue and Larned Street. It is possible that other features or structures, not documented on contemporary cartographic sources, persist within the modern street grid in the vicinity of the historic city limits.

Short-Term Construction Effects

This is the same as presented in the FEIS.

Mitigation

Mitigation for archaeological resources is detailed in the Draft Section 106 MOA included in Appendix F. Once the site layout and facility design plans, including specific information on the horizontal and vertical extent of excavation, are advanced during Final Design, Phase I subsurface archaeological field investigations would be completed. Such investigations would be guided by the recommendations discussed below.

With few exceptions, there is no potential for the Project in the proposed street rights-of-way to impact intact archaeological sites; no further work is necessary for the majority of the area. However, as there is likely historic and cultural significance attached to any sites associated with the pre-1805 city, particularly with the Original Protestant Cemetery, a construction-phase monitoring plan will be drafted and a qualified archeologist meeting the Secretary of Interior's qualifications present for all excavations extending more than 24 inches below current ground surface south of Grand Circus Park.

No additional archaeological investigation is warranted for the preferred VSMF Site 1.

4.5 Noise

4.5.1 Legal and Regulatory Context

FHWA published a revised 23 CFR 772 which took effect on July 13, 2011, this was the only change from the FEIS.

4.5.2 Methodology

Existing Noise

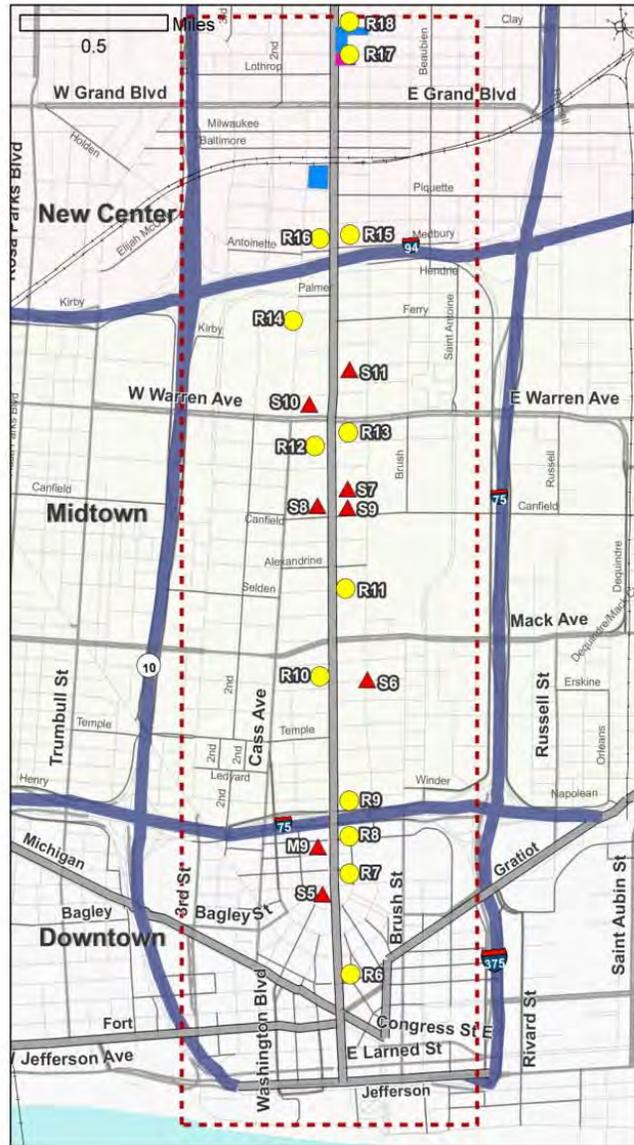
Existing noise levels within the study area were assessed based on noise measurements collected at representative sites. Noise-sensitive locations were selected for noise monitoring based on the proposed Streetcar Alternative alignment and VSMF locations. These specific noise-sensitive sites were selected in order to consider noise generated from both stationary and mobile sound sources at each representative site and to provide adequate geographic coverage within the project study area corridor.

Twenty-one sites within the study area were identified to coincide with the more than 70 receptor locations evaluated during the DEIS/FEIS project phase. Land uses along the proposed Streetcar Alternative alignment consist of a mixture of residential (FTA Category 2) and non-residential (FTA Category 3) uses. Non-sensitive commercial or industrial land uses are not included within FTA land-use categories and are exempt from noise analysis. There are a total of 21 noise measurement locations of the Streetcar Alternative that coincide with the Woodward Avenue LRT alignment which are depicted in Figure 4-3. All noise measurements were recorded in 2009 during the DEIS phase at exterior areas of each of the representative properties. Existing noise levels throughout the study area are typical of noise levels found in urban communities. Motor vehicles are the principal source of noise within the study area. The proposed alignment would follow existing travel routes where most adjacent communities are exposed to moderate to high ambient noise levels.

4.5.3 Existing Conditions

Within the study area, long-term 24-hour noise measurements were collected at 13 locations represented by Sites R6 to R18 as shown in Figure 4-2. Short term peak hour noise measurements were collected during commuter peak travel periods of 7:00-8:00 AM and 5:00-6:00 PM at eight other locations represented by sites S5 to S11 and M24 in Table 4-5. Existing noise levels throughout the study area are typical of noise levels found in urban communities. Existing peak hour noise levels ranged from a maximum of 80 dBA at Our Lady of the Rosary Parish (Site R15) to 60 dBA at a residence located at 42 Chandler Street (Site R18). Day-night (Ldn) noise levels at these two sites showed a similar range varying from 82 dBA at R15 to 63 dBA at R18.

Figure 4-2: Noise and Vibration Measurement Site Locations



LEGEND

- Study Area
- Long-Term Measurement Site Location
- Short-Term Measurement Site Location
- Alternate Vehicle Storage and Maintenance Facility Site (VSMF)
- Preferred Vehicle Storage and Maintenance Facility Site (VSMF)

Source: Woodward Avenue Streetcar Project Team, 2010-2013
 Note: See Table 4-5 for receptor site descriptions

Table 4-5: Woodward Avenue Streetcar Alternative Noise Impact Assessment and Comparison with Woodward Avenue LRT Alternative B3 Estimated Noise Levels

Receptor Number	Receptor (Site Description)	FTA Land Use Category	Existing Noise Level (dBA)	FTA Noise Impact Thresholds (moderate/severe) (dBA)	Alt “B3” Predicted Noise Level (dBA)	Alt “B3” Noise Impact	Streetcar Predicted Noise Level (dBA)	Streetcar Noise Impact Condition
R6	1450 Woodward Avenue	2	73	≥66 < 72 = Moderate ≥72 = Severe	63	None	47	None
R7	Central United Methodist Church – 23 East Adams Avenue	3	66	≥62 < 68 = Moderate ≥68 Severe	64	Moderate	47	None
R8	Saint John’s Episcopal Church – 50 East Fisher Freeway	3	68	≥68 < 74 = Moderate ≥74 Severe	59	None	47	None
R9	2440 Woodward Avenue	2	73	≥66 < 72 = Moderate ≥72 Severe	60	None	49	None
R10	3501 Stimson Street	2	68	≥63 < 69 = Moderate ≥69 Severe	60	None	48	None
R11	Bi-Centennial Tower – 4 Alexandrine Street	2	70	≥65 < 70 = Moderate ≥70 Severe	51	None	51	None
R12	4501 Woodward Avenue, Apartment 2	2	74	≥66 < 73 = Moderate ≥73 Severe	62	None	50	None
R13	Hannah House – 4750 Woodward Avenue	2	72	≥66 < 72 = Moderate ≥72 Severe	60	None	52	None
R14	5501 Woodward Avenue	2	68	≥63 < 69 = Moderate ≥69 Severe	60	None	49	None
R15	Our Lady of the Rosary Parish – 5930 Woodward Avenue	3	80	≥71 < 80 = Moderate ≥81 Severe	58	None	47	None
R16	5979 Woodward Avenue	2	71	≥66 < 71 = Moderate ≥71 Severe	55	None	50	None
R17	Metropolitan United Methodist Church – 7730 Woodward Ave	3	71	≥66 < 71 = Moderate ≥71 Severe	62	None	53	None
R18	42 Chandler Street	2	63	≥65 < 71 = Moderate ≥71 Severe	59	None	44	None
S5	Maybury Park at Corner of Woodward Avenue & Adams	3	65	≥66 < 72 = Moderate 72 Severe	57	None	47	None
S6	American Red Cross – 3510 Woodward Avenue	3	70	≥70 < 75 = Moderate ≥75 Severe	60	None	50	None

Receptor Number	Receptor (Site Description)	FTA Land Use Category	Existing Noise Level (dBA)	FTA Noise Impact Thresholds (moderate/severe) (dBA)	Alt "B3" Predicted Noise Level (dBA)	Alt "B3" Noise Impact	Streetcar Predicted Noise Level (dBA)	Streetcar Noise Impact Condition
S7	Woodward Avenue at Canfield St	3	73	$\geq 71 < 77 =$ Moderate ≥ 77 Severe	58	None	51	None
S8	Whitney House – 4421 Woodward Avenue	3	69	$\geq 69 < 75 =$ Moderate ≥ 75 Severe	55	None	50	None
S9	4420 Woodward Avenue	3	70	$\geq 70 < 75 =$ Moderate ≥ 75 Severe	58	None	49	None
S10	Wayne State University, Welcome Center	3	78	$\geq 71 < 81 =$ Moderate ≥ 81 Severe	59	None	49	None
S11	Detroit Institute of Arts	3	68	$\geq 68 < 74 =$ Moderate 74 Severe	52	None	47	None
M9	Fox Theater – 2211 Woodward Avenue	3	66	$\geq 67 < 73 =$ Moderate ≥ 73 Severe	64	None	50	None

Source: Woodward Avenue Streetcar Alternative Project Team, 2013

Note: Refer to Figure 4-2 for receptor locations

4.5.4 Long-Term Effects

Long term effects of the operation of the proposed Project are described below. Future noise exposure from line operations within the study area were determined based on the procedures and methodology described in detail in Chapter 6 of FTA's Transit Noise and Vibration Impact Assessment Manual (2006).

Traffic Noise

The noise from automobile traffic is not expected to change measurably as a result of the Streetcar Alternative. If there were any change at all, it would be a small reduction of less than 1 dBA in noise from automobiles. This is because the Streetcar Alternative is expected to reduce automobile use and the speed of the remaining cars would be slightly reduced due the introduction of streetcar operations along Woodward Avenue, see the *Transportation Technical Report* for more information.

Transit Noise

The project-generated noise level at each noise-sensitive property or "receptor" is calculated by determining four principal components: the noise level generated by each streetcar pass-by, the hour-by-hour number of Streetcar Alternative pass-by movements over a typical 24-hour week day time period, the speed at which the Streetcar Alternative travels between stops, and the centerline distance between the proposed Streetcar Alternative alignment and a given noise sensitive site (receptor). The final calculated noise level is determined after applying adjustments for shielding provided by intervening buildings, ground attenuation and adjustments for wheel squeal in areas where there are sharp curves in the tracks. For land uses where people normally sleep, noise impact is assessed using the 24-hour day-night noise level (Ldn). For land uses involving daytime activities, noise impact is assessed using the peak hour equivalent noise level (Leq). All measured and calculated noise levels are adjusted to the "A" weighted scale, which best accounts for perception of loudness by the human ear.

Potential noise impacts from streetcar daily line operations were determined based on a comparison of the measured noise level and its associated FTA land use category at each receptor site with the estimated future noise exposure level. Table 4-5 provides a summary of the noise levels expected from Streetcar Alternative daily operations and compares those noise level estimates with the FTA impact thresholds derived from Figure 4-2. In addition, for comparison purposes Table 4-5 includes noise level estimates derived for the Woodward Ave LRT Alternative B3 scenario. The noise analysis findings indicate that transit noise generated from Streetcar operations are expected to stay below the FTA impact thresholds throughout the project study area limits. Furthermore, a comparison with Alternative B3 reveals that noise impacts for Site R7, the Central United Methodist Church located at 23 East Adams Avenue, will no longer occur with the Streetcar Alternative.

Vehicle Storage and Maintenance Facility

One preferred and three alternate vehicle storage and maintenance facilities (VSMF) are presently under consideration. The Project Team determined noise exposure for each location and configuration in accordance with the 2006 FTA guidance manual methodology. The team expects moderate noise impacts under the preferred VSMF Site 1 at Site R17 (Metropolitan United Methodist Church – 7730 Woodward Avenue) and under the alternate VSMF Site 3 at Sites R17 and R18 (42 Chandler Street representative of ambient noise conditions across the

street at residential properties facing Woodward Avenue between Bethune and Delaware Streets). Noise impacts reported under the preferred VSMF Site 1 and the alternate VSMF Site 3 are a direct result of wheel squeal noise generated from sharp turns as streetcars enter and leave the designated storage areas.

4.5.5 Mitigation of Operational Noise

Traffic Noise

No traffic noise impacts are predicted. Therefore, no mitigation is required or proposed.

Transit Noise

No transit noise impacts from line operations are predicted. Therefore, no mitigation is required. Noise generated by wheel squeal for a streetcar based transit system could be mitigated with a lower radius of curvature.

4.5.6 Short-Term Construction Effects

Noise from construction activities would temporarily impact properties in the immediate vicinity, resulting in elevated noise levels for people in adjacent properties. The level of impact would depend on the time of day during which the construction activity occurs, the noise characteristics of the equipment being used, the duration of each of the impact-causing construction activities, the construction staging schedule, and the distance between the noise-generating equipment and the noise-sensitive properties.

4.5.7 Mitigation of Construction Noise

This remains unchanged as presented in the FEIS.

4.6 Vibration

4.6.1 Legal and Regulatory Context

This remains unchanged as presented in the FEIS.

4.6.2 Methodology

This remains unchanged as presented in the FEIS.

4.6.3 Existing Conditions

This remains unchanged as presented in the FEIS.

4.6.4 Long-Term Effects

The vibration analysis findings presented in this document are limited to a comparison of the 21 receptor sites along the Streetcar alignment that coincide with the operational area of the Woodward Avenue LRT Project.

The FTA vibration impact criteria were derived based on a set of vibration levels that would disturb the building's occupants. Vibration levels would have to be significantly above the FTA vibration impact criteria to result in structural damage to buildings and therefore structural damage is not considered an issue. Vibration levels were estimated in accordance with the General Vibration Assessment procedures defined in Chapter 10 of *Transit Noise and Vibration Impact Assessment* (FTA, May 2006). The method uses a generalized curve of vibration as a function of distance from the track to the building, and then adjusts the result to take into account

streetcar vehicle speeds, vehicle specifications, track conditions, geological transmission conditions, and interior building transmission conditions.

Estimated vibration levels generated by streetcar operations, as shown in Table 4-6, are expected to remain below the minimum FTA impact thresholds at all representative receptor sites evaluated in the study area. A comparison with the previous vibration level estimates derived for Alternative B3 shows that vibration impacts previously reported for Alternative B3 at Site M9, the Fox Theater, are no longer projected to occur with the Streetcar Alternative. Noise impacts reported at other receptor sites identified in the Woodward Avenue LRT FEIS study are north of the Streetcar project limits and therefore would not need to be considered in the present study.

4.6.5 Mitigation of Vibration and Ground-Borne Noise Impacts

Estimated vibration levels as indicated in Table 4-6 are projected to remain below the FTA impact thresholds and, therefore, under these operating conditions no mitigation measures are necessary.

Table 4-6: Estimated Vibration Levels Due to Woodward Avenue Streetcar Operations and Comparison with Woodward Avenue LRT Alternative B3 Vibration Levels (in V dB)

Receptor Number	FTA Land Use Category	FTA Vibration Criteria	Vibration Level (VdB)	FTA Vibration Impact Condition	Vibration Level (VdB)	FTA Vibration Impact Condition
			Woodward LRT Alternative B3		Streetcar Alternative	
R6	2	72	71	No	58	No
R7	2	72	64	No	58	No
R8	3	75	67	No	59	No
R9	2	72	62	No	62	No
R10	2	72	61	No	66	No
R11	2	72	56	No	60	No
R12	2	72	64	No	64	No
R13	2	72	61	No	68	No
R14	2	72	61	No	62	No
R15	3	75	65	No	58	No
R16	2	72	55	No	65	No
R17	2	72	64	No	65	No
R18	3	75	65	No	49	No
S6	3	75	62	No	64	No
S7	3	75	64	No	66	No
S8	3	75	61	No	64	No
S9	3	75	64	No	64	No
S10	3	75	65	No	64	No
S11	3	75	65	No	56	No
M9	2	72	72	Yes	62	No

Source: Woodward Streetcar Project Team, 2013

4.6.6 Short-Term Construction Effects

This remains unchanged as presented in the FEIS.

4.6.7 Construction Mitigation

This remains unchanged as presented in the FEIS.

4.7 Resources with Limited or No Effect

Environmental resource categories on which the Project would have a limited or no effect are discussed below.

Limited Effects

This section describes resources on which the Project would have only limited effect. Limited effects are considered to have minor impacts that can be readily mitigated.

4.7.1 Land Use, Zoning, and Public Policy

Methodology

This remains unchanged as presented in the FEIS.

Existing Conditions

Land Use, Zoning and Plans and Policies

The study area has experienced some economic redevelopment activity since the publication of the FEIS, most notably in Downtown and New Center area(s). Several public and private initiatives that focus on redevelopment and revitalization of the Downtown have been undertaken within the greater Downtown, as well as in Midtown Detroit. The Detroit Strategic Framework Plan (Framework Plan) and the Woodward Avenue Transit-Oriented Development (TOD) Strategy are two key ongoing economic development initiatives promoting sustainable development and transit-supportive and targeted growth. The Woodward Avenue TOD Strategy targets to increase residential and employment density within Greater Downtown within the next five years. This goal is aligned with parallel Greater Downtown initiatives such as Hudson-Webber's "15 by 15" (15,000 new residents by 2015) and Live Midtown/Live Downtown residential financial incentives programs offered to Greater Downtown employees to move Downtown. Over the last ten years over 4,000 new housing units have been added to the Greater Downtown area to accommodate the growing need for additional residential housing units.

Long-Term Effects

The location and operation of the Project would not directly affect land use as it would be within existing roadway rights-of-way already traveled by autos, buses, and trucks. In general, existing plans and policies are transit-supportive, and Woodward Avenue is designated as a mass transit and non-motorized route.

The preferred and any of the three alternate VSMF facilities, once located, would generally be compatible with existing land use.

A TPSS may have visual impacts on surrounding land uses. The Project Team considered the potential sensitivity of these locations, each requiring approximately 0.5 acre parcels of property along the corridor. All the TPSS sites, preferred or alternate, as preliminarily identified would be compatible with on-site and surrounding land uses. Refer to Figure 2-3 for a location of TPSS sites.

Mitigation

Context-sensitive design of the TPSS will mitigate the facilities' potential impacts on nearby residential uses.

4.7.2 Neighborhood Character

Methodology

The methodology within the FEIS remains unchanged.

Existing Conditions

The existing neighborhood character remains unchanged as described in the FEIS.

Long-Term Effects

This remains unchanged as presented in the FEIS. Of the four potential VSMF sites, all four are located within areas of principally industrial, commercial and government/institutional use. Alternate VSMF Sites 2 and 3 are adjacent to nearby residential uses, while the preferred VSMF Site 1 is not directly adjacent to any residential uses. However, neighborhood character would not be altered by alternate VSMF Sites 2 and 3 near residential uses because it would be consistent with the existing urban setting of the Project area.

Mitigation

Project planning to minimize construction effects on neighborhood activity patterns in the study area, particularly near the proposed construction staging areas, would include appropriate signage and notifications of roadway and sidewalk detours and closures.

4.7.3 Community Facilities and Services

This remains unchanged as presented in the FEIS.

4.7.4 Parkland

No parkland would be impacted by the Streetcar Alternative or by any of the VSMF or TPSS sites. The proposed streetcar stations and required infrastructure (e.g., rails, catenary wires, TPSS, VSMF) would be visible to users of some of the parklands, but consistent with the otherwise urban visual environment. This is consistent with what was presented in the FEIS. Long-Term Effects, Short-Term Construction Effects and Mitigation remains the same as presented in the FEIS.

4.7.5 Visual and Aesthetics

Methodology

This remains unchanged as presented in the FEIS.

Existing Conditions

This remains unchanged as presented in the FEIS.

Long-Term Effects

Most of the design elements of the Streetcar Alternative are the same as presented in the FEIS, except for the VSMF sites. All four potential VSMF sites are located within areas of principally industrial, commercial and government/institutional uses. Alternate VSMF Sites 2 and 3 are adjacent to nearby residential uses. Alternate VSMF 2 would be directly across from a residential development and would be adjacent to Woodward Avenue. Alternate VSMF 3 is further from Woodward Avenue, however, closer to single family residential homes. The streetcar would be generally compatible with the character of roadways and neighborhoods in the

study area. The VSMF site would have some visual effect, but would still be suitable to the character of the urban Woodward Avenue corridor.

Short-Term Construction Effects

This remains unchanged as presented in the FEIS.

Mitigation

This remains unchanged as presented in the FEIS.

4.7.6 Utilities

This remains unchanged as presented in the FEIS.

4.7.7 Energy

This remains unchanged as presented in the FEIS.

4.7.8 Construction Impacts

Methodology

The Project Sponsor intends to build the entire 3.3 mile Streetcar system at once, this is smaller than the original 9.3 mile LRT system that was going to be built presented in the FEIS. Construction activities would be the same as presented in the FEIS. See Section 3.6 for more information on maintenance of traffic during construction.

Existing Conditions

This remains unchanged as presented in the FEIS.

Long-Term Effects

The Project

Short-Term Construction Effects

Project construction is expected to take approximately 27 to 35 months in total. This is shorter than what was presented for Alternative B3 in the FEIS, which was a 36 to 42 month period. It is expected that the Project would be operational by 2015. Short-term construction effects are the same as presented in the FEIS.

Mitigation

This would be the same as presented in the FEIS.

4.7.9 Roadways and Level of Service

The Methodology, Existing Condition, and Long-Term Effects remain unchanged as presented in the FEIS.

Short-Term Construction Effects

While traffic re-routings and detours would be required along discrete alignment segments during Project construction, one lane of traffic would be maintained in each direction north of Adams Street and parts of Woodward Avenue would be closed south of Adams Street. Reasonable access should be provided to all businesses and residences.

Mitigation

This remains unchanged as presented in the FEIS.

4.7.10 Stormwater Management

This remains unchanged as presented in the FEIS.

4.8 Resource Categories of No Concern

This remains unchanged as presented in the FEIS.

4.9 Indirect and Cumulative Impacts

This remains unchanged as presented in the FEIS.

4.10 Environmental Justice

There is no substantial difference in effects between Alternative B3 and the Streetcar Alternative.

The impacts to long-term effects, short-term construction effects, and mitigation are the same as presented in the FEIS. Since the publication of the FEIS, FTA issued a new Environmental Justice Circular, which became effective on August 15, 2012.

Due to the introduction of the three additional VSMF sites (1-3), the Project Team conducted an environmental justice review near the sites. These sites are located east of Woodward Avenue, west of John R Street, north of Custer Street, and south of Chandler Street. These sites are within a three block radius of many single-family and multi-family unit dwellings. There are townhomes with frontage on east of Woodward Avenue that would have a direct viewshed of alternate VSMF Sites 2 and 3 and would have visual impacts. The preferred VSMF Site 1 and alternate VSMF Site 4 are not in the direct viewshed for residential homes. The Project Team used the 2010 census block group data for the area north of Grand Boulevard that falls within the study area buffer. The proposed VSMF facilities are in majority minority, transit dependent (zero-car or one-car household), and low-income populations. Low-income populations comprise between 24 and 48 percent of block group populations and over 82 percent of households have access to one or no vehicles.

Alternate VSMF Site 2 (Bethune Street Site) is directly adjacent to the Metropolitan United Methodist Church, a place of worship that also provides related recreational and social activities for the neighborhood. Mitigation may be needed at this location if it is selected as the VSMF site. This is due to any additional site specific noise impacts that may be caused by the facility and its closeness to the Church. Any mitigation that may be needed is outlined in the Noise Mitigation section earlier in this chapter.

The VSMF related impacts to long-term effects, short-term construction effects, and mitigation are the same as presented in the FEIS with the VSMF Site 4.

Mitigation

This remains unchanged as presented in the FEIS.

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5.0 Section 4(f) Evaluation

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5.0 Section 4(f) Determinations

5.1 Legal and Regulatory Context

5.1.1 Section 4(f) Statute and Regulation

A Federal Transit Administration (FTA)-funded project must comply with the provisions of law at 49 U.S.C. § 303 (hereinafter referred to as “Section 4(f)”) and that statute’s implementing regulation. The implementing regulation (23 CFR part 774) provides certain protections for public parklands and recreational lands, wildlife and waterfowl refuges, and historic sites. These resources are referred to as Section 4(f) properties.

In compliance with Section 4(f), FTA may not approve the use of a Section 4(f) property unless FTA determines that:

- there is no prudent and feasible alternative to the use of land from the property and the project includes all possible planning to minimize harm resulting from such use; or
- the use results in impacts to the Section 4(f) property that are *de minimis*, as defined in the regulation.

5.1.2 Exceptions to the Requirements for Section 4(f) Approval

FHWA and FTA have identified exceptions to the requirement for Section 4(f) approval at 23 CFR 774.13. These exceptions include the restoration, rehabilitation, or maintenance of transportation facilities that are on or eligible for the National Register when FTA concludes that such work will not adversely affect the historic transportation facility and the officials with jurisdiction have not objected to FTA’s no adverse effect determination.

5.2 Description of the Streetcar Alternative

The Streetcar Alternative is a modification of Alternative B3 that the Project Team evaluated in the Woodward Avenue Light Rail Transit (LRT) Final Environmental Impact Statement (FEIS).

The Project consists of 11 stations, with a potential twelfth station, and supporting facilities, including trackwork, one VSMF, a traction power electrical system consisting of an overhead catenary, the poles supporting the catenary, and TPSS. Eight of the southernmost stations are curbside stations and four of the northernmost are median stations, all within the existing transportation right-of-way. The Streetcar Alternative, like Alternative B3 presented in the Draft Environmental Impact Statement (DEIS), does not require the use of any Section 4(f) resource, and as a result, alternatives to avoid a Section 4(f) resource have not been considered in this Supplemental Environmental Assessment. Note: while the DEIS assessed Section 4(f) impacts of the three alternatives carried forward for analysis (including Alternative B3), the FEIS assessed only the impacts of the Preferred Alternative (A4).

5.3 Identification of Section 4(f) Properties

5.3.1 Public Parks and Recreational Areas

Similar to Alternative B3, the Streetcar Alternative would not use any land from a public park or recreational resource.

5.3.2 Historic Sites

FTA, in consultation with SHPO, identified the historic properties listed in, or eligible for listing in, the National Register of Historic Places (NRHP) and located within the Project's Area of Potential Effects (Chapter 4, Section 4.4), in accordance with Section 106 of the National Historic Preservation Act. Of those historic properties considered in the Section 106 review, the Section 4(f) analysis which follows consider only those historic properties that might be used by the Streetcar Alternative, where the meaning of "use" is as defined in the regulation and as previously summarized. The FEIS assessed each NRHP and NRHP-eligible site that was considered in accordance with Section 4(f), and those findings remain valid for the Streetcar Alternative. This EA reviewed two sites were not previously considered, these sites are the Woodward-West Palmer-Cass-West Kirby Historic District determined eligible in 2011, and the First Federal Building determined eligible in 2013 (see Table 5-1). The physical relation of the Streetcar Alternative to these historic properties is described, and FTA's Section 4(f) determination for that resource is stated. Figures 5-1 through 5-4 show the relationship of the Streetcar Alternative to NRHP-listed and NRHP-eligible historic districts.

5.3.3 Archaeological Sites

An archaeological literature review revealed that 39 previously documented archaeological sites exist within the 0.25 mile of the streetcar corridor, although it was concluded that the Project would have no impact on archaeological resources north of Grand Circus Park. Construction-phase monitoring would be required for all excavations extending more than 24 inches below current ground surface for portions of the project south of Grand Circus Park.

No additional archaeological investigation is warranted, per the literature, for preferred VSMF Site 1 and alternate VSMF Sites 2 or 4, but the Project Team will conduct a Phase I subsurface archaeological investigation in advance of any planned impacts within alternate VSMF Site 3, should it be selected. Of the four candidate VSMF locations, alternate VSMF Site 3 has the most potential to contain archaeological deposits that may provide significant data on past conditions. If archaeological properties are encountered during construction and are determined to be eligible for the NRHP, a separate Section 4(f) evaluation would be prepared in accordance with 23 CFR part 774.9(e).

5.3.4 Wildlife or Waterfowl Refuges

There are no wildlife or waterfowl refuges in the study area.

5.4 Use of Section 4(f) Properties

FTA's Section 4(f) determinations are presented in Table 5-1 for the direct use of Section 4(f) properties. Woodward Avenue was determined eligible for listing in the NRHP and the Woodward Streetcar proposes to locate both tracks and stations within the limits of this historic property. As shown, the Project Team concluded that there would be no 'use' given the exception for historic transportation facilities (23 CFR 774.13). Additionally, the evaluation of historic properties in Section 4.3 determined that an adverse effect to the Colonel Frank J. Hecker House, First Federal Building and certain contributing properties in the Grand Circus Park Historic District, East Ferry Avenue Historic District and Woodward-West Palmer-Cass-West Kirby Historic District would result due to interrupted viewsheds associated with the proposed Project. Given the reduced station size and potential design mitigation opportunities, these effects were found not to result in substantial impairment to these properties.

Table 5-1: Section 4(f) Properties and Determinations

Name of Historic Property and NRHP Status	Location or Address	Description of Property	Direct Use of Section 4(f) Property and Determination	
			DEIS B3 Alternative	Streetcar Alternative
Historic Properties				
Detroit Financial District Historic District <i>Listed 2009</i>	Eight blocks in Downtown Detroit roughly bounded on the south by West Jefferson Avenue, east by Woodward Avenue, north by Lafayette Avenue, and west by Washington Boulevard	Historic office buildings and financial core contains 36 buildings, all but one constructed between 1900 and 1964. Most buildings are in the Neoclassical style; Renaissance, Romanesque, Commercial, Art Deco, and International styles are also represented. The district was listed in the NRHP under Criteria A, B, and C. ³	Alignment within district; One (1) LRT station located in the median of Woodward Avenue within the district boundary. Use – De minimis Impact. ⁴	This alternative has tracks and a station entirely within transportation ROW within the historic district. The project will be physically located within Woodward Avenue, a contributing element of the historic district. But this project, which would restore streetcar service to Woodward Avenue, will not adversely affect Woodward Ave per 36 CFR 800 and would not result in a “use” of Woodward Avenue because of the exception for historic transportation facilities in 23 CFR 774.13. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.
First Federal Building <i>Determined Eligible 2013</i>	1001 Woodward Avenue	Eligible under C and Criteria Consideration G as an example of International Style and work of Detroit architectural firm Smith, Hinchman, & Grylls.	N/A	No elements of the Streetcar Alternative are within the boundary of this NRHP eligible property. FTA finds there is no use of this historic property by the Streetcar Alternative.
Grand Circus Park Historic District <i>Listed 1982</i>	Roughly bounded by Clifford Street on the south and west, John R. Street on the south and east, and the north side of Adams Street on the north	Collection of late 19th- and early 20th-century high-rise commercial buildings surrounding a semi-circular public park. The district was listed in the NRHP under Criteria A and C.	Alignment within district; two (2) LRT curbside station platforms located within district boundary. Use – De minimis Impact. ²	The Streetcar Alternative has its tracks and a station entirely within transportation right-of-way within the historic district. The project will be physically located within Woodward Avenue, a contributing element of the historic district. But this project, which would restore streetcar service to Woodward Avenue, will not adversely affect Woodward Avenue per 36 CFR 800 and would not result in a “use” of Woodward Avenue because of the exception for historic transportation facilities in 23 CFR 774.13. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.

³ Criteria for Evaluation

Criteria for Evaluation of NRHP Eligibility: The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That are associated with the lives of significant persons in or past; or
- C. 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; or
- D. That have yielded or may be likely to yield, information important in history or prehistory.

⁴ The Section 106 adverse effect on the project on this property would preclude the possibility of a Section 4(f) *de minimis* impact determination (and avoidance alternatives would have to be considered.) However, with historic context-sensitive design and siting of the proposed facility (station or VSMF) in relation to its surrounding, the project may have no adverse effect on the historic district and the resulting *de minimis* impact determination would make this alternative viable.

Name of Historic Property and NRHP Status	Location or Address	Description of Property	Direct Use of Section 4(f) Property and Determination	
			DEIS B3 Alternative	Streetcar Alternative
Midtown Woodward Historic District <i>Listed 2008</i>	Approximately two blocks of Woodward Avenue between Charlotte and Stimson Streets, including two buildings at 14 Charlotte Street and 25 Peterboro Street	Thirteen commercial and residential buildings constructed in early 20 th century representing Renaissance Revival, Neoclassical, Chicago Style, and Art Deco architectural styles. The district was listed in the NRHP under Criteria A and C.	Alignment within district; no proximate LRT stations. MLK Blvd vehicle storage maintenance facility (VSMF) site located proximate to district. Use – <i>De minimis</i> Impact².	The Streetcar Alternative has tracks and the electrical catenary system entirely within transportation right-of-way within the historic district. The project will be physically located within Woodward Avenue, a contributing element of the historic district. But this project, which would restore streetcar service to Woodward Avenue and will not adversely affect Woodward Avenue per 36 CFR 800, would not result in a “use” of Woodward Avenue because of the exception for historic transportation facilities in 23 CFR 774.13. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.
Colonel Frank J. Hecker House <i>Listed 1973</i>	5510 Woodward Avenue	Imposing three-story mansion in a Châteauesque style distinguished by three corner towers; a similarly styled carriage house is located at the property’s southeast corner. Constructed in 1888. The property was listed in the NRHP under Criteria B and C.	No Use.	No elements of the Streetcar Alternative are within the boundary of this NRHP property. FTA finds there is no use of this historic property by the Streetcar Alternative.
East Ferry Avenue Historic District <i>Listed 1980</i>	Approximately three blocks of East Ferry Avenue between Woodward Avenue and Beaubien Street	Twenty-four large, single-family houses constructed between 1885 and 1920 representing the progression of residential architecture in Detroit; including Queen Anne, Romanesque Revival, Colonial Revival, Mediterranean Revival, and Arts and Crafts styles. The district was listed in the NRHP under Criteria A and C.	Alignment within district; two (2) curbside station platforms, outside district, proximate to contributing buildings. Use – <i>De minimis</i> Impact².	The Streetcar Alternative has its tracks and a station entirely within transportation right-of-way within the historic district. The project will be physically located within Woodward Avenue, a contributing element of the historic district. But this project, which would restore streetcar service to Woodward Avenue and will not adversely affect Woodward Avenue per 36 CFR 800, would not result in a “use” of Woodward Avenue because of the exception for historic transportation facilities in 23 CFR 774.13. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.
Woodward-West Palmer-Cass-West Kirby Historic District <i>Determined eligible 2011</i>	Bounded by West Palmer Avenue on the north, Woodward Avenue on the east, West Kirby Avenue on the south, and Cass Avenue on the west	Collection of late nineteenth to mid-twentieth-century residential, commercial, and institutional buildings representing a range of architectural styles popular during those eras; seventeen buildings are contributing resources. The district was determined eligible for the NRHP under Criteria A and C.	N/A	The Streetcar Alternative has its tracks and a station entirely within transportation right-of-way within the historic district. The project will be physically located within Woodward Avenue, a contributing element of the historic district. But this project, which would restore streetcar service to Woodward Avenue and will not adversely affect Woodward Avenue per 36 CFR 800, would not result in a “use” of Woodward Avenue because of the exception for historic transportation facilities in 23 CFR 774.13. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.

Name of Historic Property and NRHP Status	Location or Address	Description of Property	Direct Use of Section 4(f) Property and Determination	
			DEIS B3 Alternative	Streetcar Alternative
<p>New Center Commercial Historic District <i>Determined eligible 2010</i></p>	Properties along Woodward Avenue from Baltimore Avenue to Grand Boulevard	<p>Fifteen late 19th- and early-20-century commercial buildings located along Woodward Avenue; eleven buildings are contributing resources. The district includes two architecturally notable buildings: an Art Deco-style commercial building and Neoclassical bank branch building.</p> <p>The district was determined eligible for the NRHP under Criterion A.</p>	Alignment within district; two (2) curbside station platforms, outside district, proximate to contributing buildings. Use – <i>De minimis</i> Impact².	The Streetcar Alternative has its tracks, electrical system, and a station entirely within transportation right-of-way within the historic district. The project will be physically located within Woodward Avenue, a contributing element of the historic district. But this project, which would restore streetcar service to Woodward Avenue and will not adversely affect Woodward Avenue per 36 CFR 800, would not result in a “use” of Woodward Avenue because of the exception for historic transportation facilities in 23 CFR 774.13. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.
<p>Woodward Avenue <i>Determined eligible 2010</i></p> <p>A portion of Woodward Avenue, as part of the Historic Woodward Avenue Plan of 1805, was determined eligible in 1979.</p>	Woodward Avenue between its intersections with Jefferson Ave (Downtown) and M-102/8 Mile Road, spanning the existing right-of-way and including the median wherever one exists.	<p>A northwest-southeast running road that originates in Downtown Detroit and passes through 11 municipalities before its termination 27 miles northwest in the City of Pontiac.</p> <p>The 8-mile portion of Woodward Avenue between Jefferson Avenue and 8 Mile Road was determined eligible for listing in the NRHP under Criteria A and B.</p>	Alignment within proposed district; LRT curbside stations within proposed district boundary. Use – <i>De minimis</i> Impact².	This project, which would restore streetcar service to Woodward Avenue has been determined to not adversely affect Woodward Avenue per 36 CFR 800. Thus, the project would not result in a “use” of Woodward Avenue because of the exception for historic transportation facilities in 23 CFR 774.13. Section 4(f) does not apply.

Source: Federal Transit Administration, 2011

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5.4.1 Public Park and Recreational Resources

Similar to Alternative B3, the Streetcar Alternative would not use any land from a public park or recreational resource. The streetcar would be confined to the existing Woodward Avenue right-of-way as it would pass in the immediate vicinity of Campus Martius, or through Grand Circus Park. No direct use or no temporary occupancy of parkland would occur. Although the tracks and stations would occur proximate to these parklands, FTA determined that the presence of these facilities associated with the Streetcar Alternative would not substantially impair these properties for their intended purpose.

5.4.2 Detroit Financial District Historic District

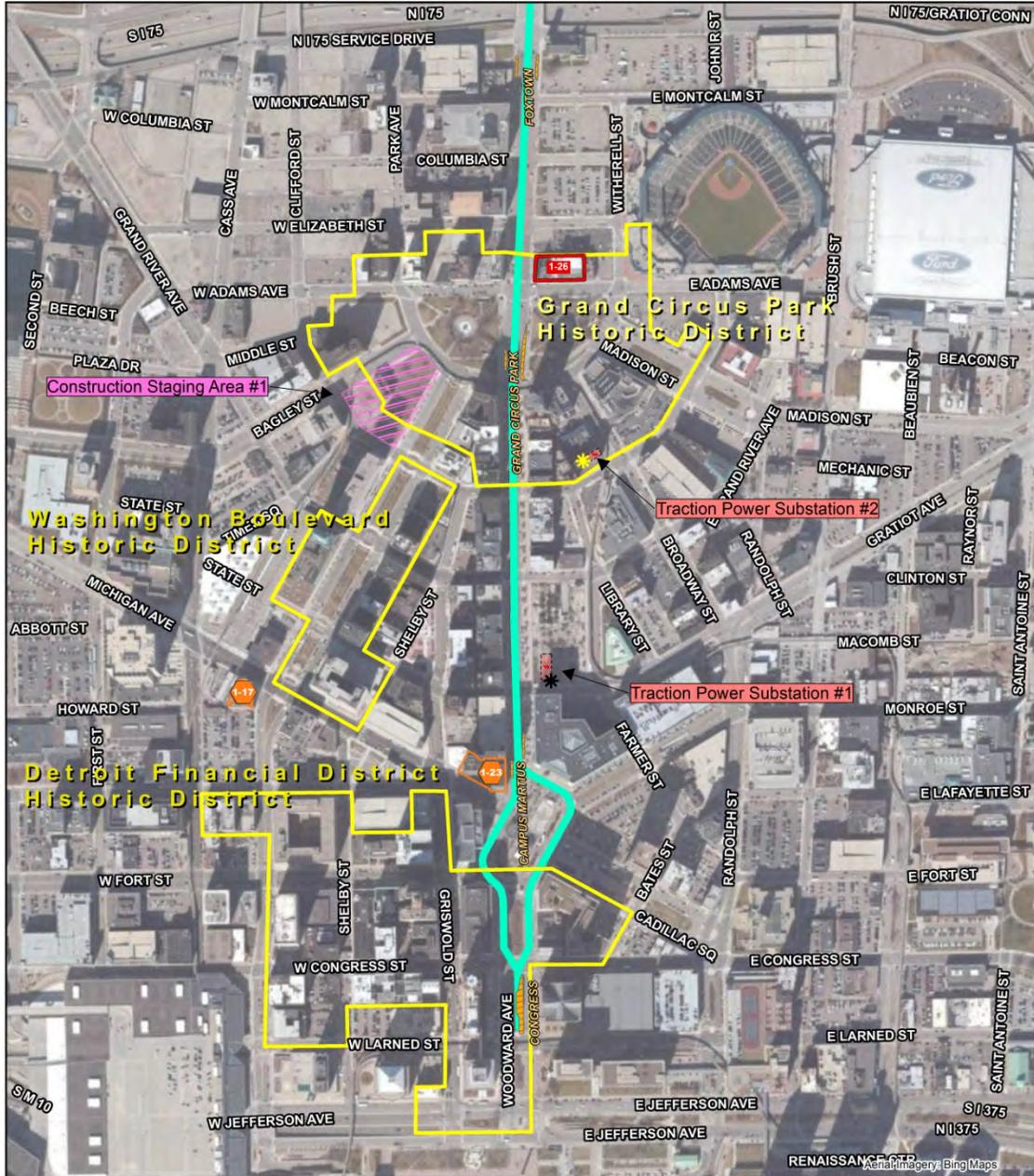
Similar to Alternative B3, the Streetcar Alternative has one streetcar station (Larned Street) that would be located in the median of Woodward Avenue, on the eastern edge of the boundary. The station would be located approximately 170 feet from the nearest contributing building (Guardian Building National Historic landmark which is also individually listed). This alternative has tracks and a station entirely within transportation right-of-way within the historic district. The street used (Woodward Avenue) is a contributing element of the historic district. Because Woodward Avenue is a historic transportation facility that qualifies under Section 4(f) exceptions in 23 CFR 774.13 and because the Streetcar Alternative will restore historic streetcar service to Woodward Avenue and not adversely affect the property per 36 CFR 800, FTA determined that there is no use of this contributing element. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.

5.4.3 Midtown Woodward Historic District

The district covers about two blocks of Woodward Avenue between Charlotte and Stimson streets, including two buildings at 14 Charlotte Street and 25 Peterboro Street (see Figure 5-2). It consists of 13 commercial and residential buildings, which were constructed in the early 20th century, representing Renaissance Revival, Neoclassical, Chicago Style, and Art Deco architectural styles. The district was listed in the NRHP under Criteria A and C for its significance in the commercial development of Detroit and for its significant examples of high-style architecture, some of which are works of master architects.

The Streetcar Alternative passes through the historic district on Woodward Avenue, though there is no station located within the district. The Streetcar Alternative has tracks and the electrical catenary system entirely within transportation right-of-way within the historic district. The street used (Woodward Avenue) is a contributing element of the historic district. Because Woodward Avenue is a historic transportation facility that qualifies under Section 4(f) exceptions in 23 CFR 774.13 and because the Streetcar Alternative will restore historic streetcar service to Woodward Avenue and not adversely affect the property per 36 CFR 800, FTA determined that there is no use of this contributing element. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.

Figure 5-1: Section 4(f) Properties – Downtown Detroit



LEGEND

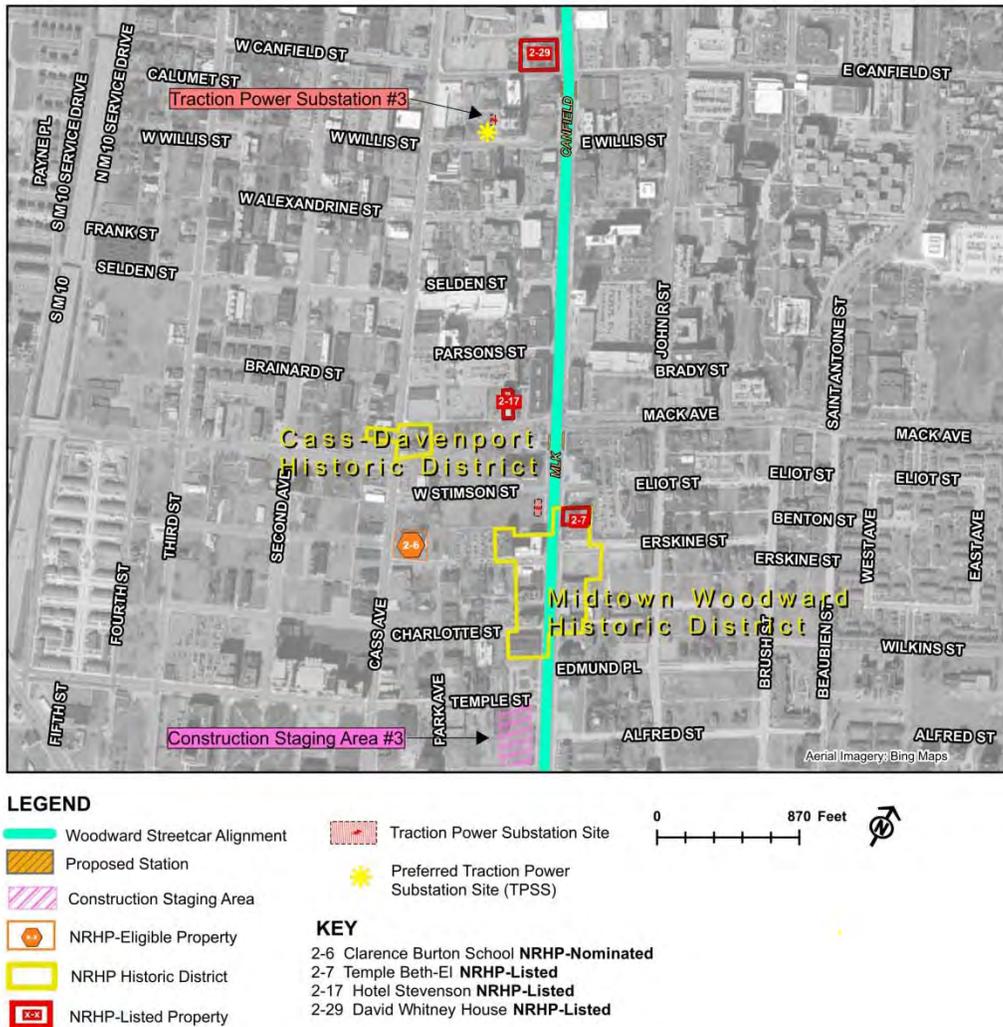
- Woodward Streetcar Alignment
- Proposed Station
- Construction Staging Area
- NRHP Historic District
- NRHP-Listed Property
- NRHP-Eligible Property

- Traction Power Substation Site
- Alternate Traction Power Substation Site (TPSS)
- Preferred Traction Power Substation Site (TPSS)

KEY

- 1-17 Gabriel Richard Building NRHP-Eligible
- 1-23 First Federal Building NRHP-Eligible
- 1-26 Central United Methodist Church NRHP-Listed

Figure 5-2: Section 4(f) Properties – Midtown Woodward Historic District



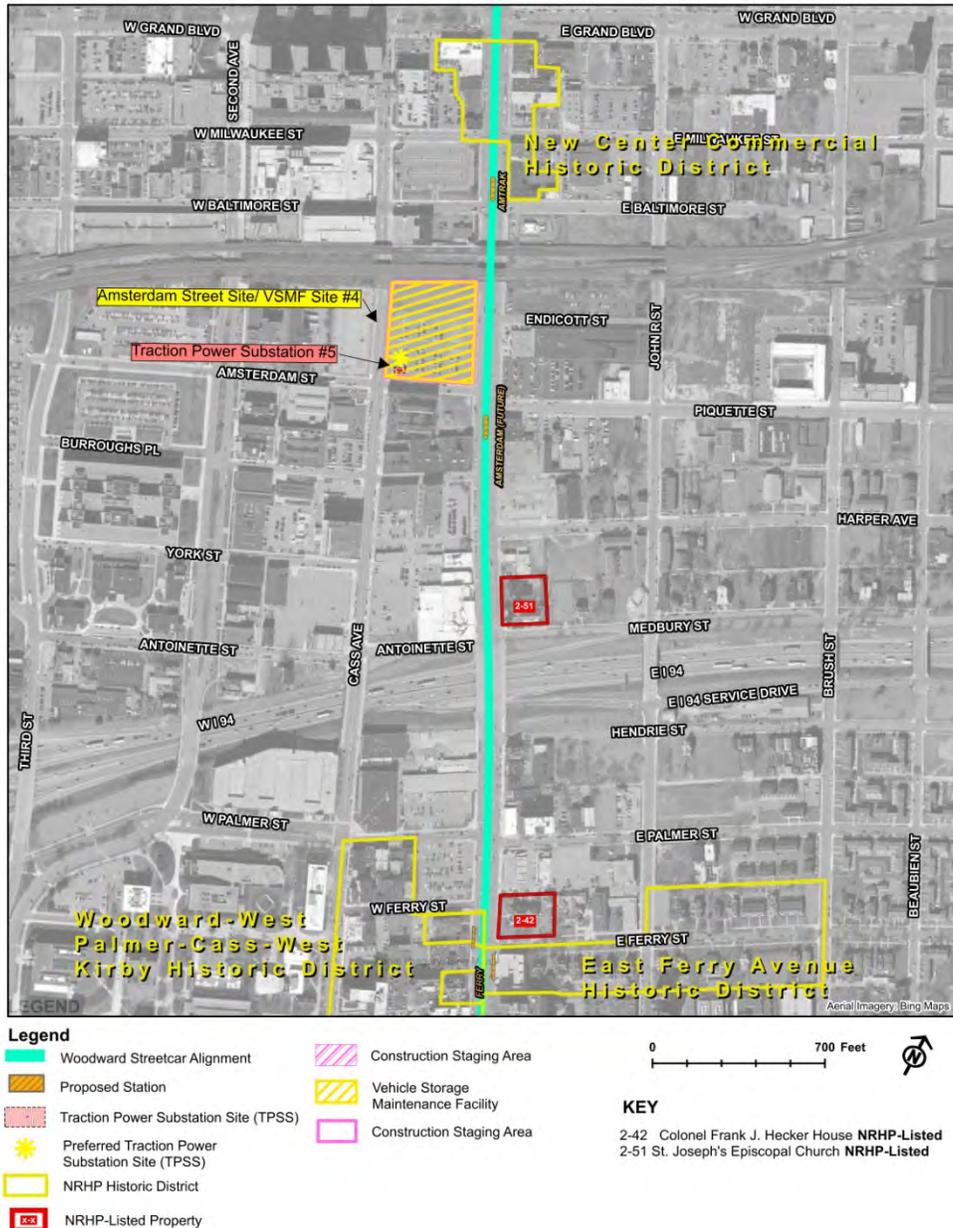
5.4.4 East Ferry Avenue Historic District

The district covers approximately three blocks of East Ferry Avenue between Woodward Avenue and Beaubien Street and contains 24 single-family houses constructed between 1885 and 1920 (see Figure 5-3). The buildings represent the progression of residential architecture in Detroit, including Queen Anne, Romanesque Revival, Colonial Revival, Mediterranean Revival, and Arts and Crafts styles. The district was listed in the NRHP under Criteria A and C for its significance in the social history of Detroit and for its significant examples of high-style architecture.

Unlike Alternative B3, the Streetcar Alternative has a split-platform station located within the district boundaries. The station would be located approximately 40 feet from the nearest contributing building (the Beecher House). The Streetcar Alternative has tracks and a station entirely within transportation right-of-way within the historic district. The street used (Woodward Avenue) is a contributing element of the historic district. Because Woodward Avenue is a historic transportation facility that qualifies under Section 4(f) exceptions in 23 CFR

774.13 and because the Streetcar Alternative will restore historic streetcar service to Woodward Avenue and not adversely affect the property per 36 CFR 800, FTA determined that there is no use of this contributing element. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.

Figure 5-3: Section 4(f) Properties – East Ferry Avenue Historic District and New Center Commercial Historic District



5.4.5 Woodward-West Palmer-Cass-West Kirby Historic District

The district contains a collection of late nineteenth to mid-twentieth-century residential, commercial, and institutional buildings representing a range of architectural styles popular

during those eras bounded by West Palmer Avenue on the north, Woodward Avenue on the east, West Kirby Avenue on the south, and Cass Avenue on the west. Seventeen buildings contribute to the district. The district was determined eligible for listing in the NRHP under Criterion A for its association with the development of the University-Cultural Center Area from a primarily upper-class, single-family residential area to a mixed-use residential and institutional area. It was also determined eligible under Criterion C for its collection of buildings expertly designed by some of Detroit's most notable architects and firms, including Smith, Hinchman and Grylls, Malcomson & Higginbotham, George D. Mason, Harley & Atcheson, and Charles N. Agree.

The Streetcar Alternative runs adjacent to the historic district's east boundary on Woodward Avenue and the streetcar station's southbound platforms would be located within the district boundaries. The station platform would be located approximately 40 feet from the nearest contributing building (the Beecher House). This alternative has tracks and a station entirely within transportation right-of-way within the historic district. The street used (Woodward Avenue) is a contributing element of the historic district. Because Woodward Avenue is a historic transportation facility that qualifies under Section 4(f) exceptions in 23 CFR 774.13 and because the Streetcar Alternative will restore historic streetcar service to Woodward Avenue and not adversely affect the property per 36 CFR 800, FTA determined that there is no use of this contributing element. No other contributing element of the historic district is used by the Streetcar Alternative. FTA finds there is no use of this historic district by the Streetcar Alternative.

5.4.6 Woodward Avenue

An eight-mile portion of Woodward Avenue between its intersections with Jefferson Avenue in Downtown Detroit and M-102/8 Mile Road was determined eligible for the NRHP during the Section 106 review of this Project. Woodward Avenue was determined eligible under Criteria A and B as a historically significant major transportation corridor that has contributed to Detroit's history and development, and as the central element of the plan for the City of Detroit created by Judge Augustus B. Woodward in 1805.

The Streetcar Alternative would follow Woodward Avenue for approximately 3.3 miles from Downtown Detroit to the New Center area and would include stations, tracks, and an electrical system within the boundary of the road. Because Woodward Avenue is a historic transportation facility that qualifies under Section 4(f) exceptions in 23 CFR 774.13 and because the Streetcar Alternative will restore historic streetcar service to Woodward Avenue and not adversely affect the property per 36 CFR 800, FTA determined that there is no use of this Section 4(f) property.

5.5 Measures to Avoid the Use of Section 4(f) Resources

The Streetcar Alternative would not use any Section 4(f) public parkland. At every public park encountered, the streetcar would only occupy existing transportation rights-of-way in passing alongside or through the park. During construction, no temporary occupancy of parkland would occur. The Michigan Department of Transportation and the City of Detroit would direct the city's Recreation Department to take action during construction to maintain public access to each park and to minimize the construction's proximity effects on park users, vegetation, and wildlife.

During construction, all excavations that may extend more than 24 inches below current ground surface on or immediately adjacent to the station locations near Grand Circus Park and the Original Protestant Cemetery would be monitored by an archaeologist who satisfies the Secretary

of the Interior's qualifications for that profession. If archaeological resources are encountered during construction, construction in that location would be paused while the archaeological resource is evaluated for NRHP eligibility; if it is determined eligible, a separate Section 4(f) evaluation would be prepared in accordance with 23 CFR part 774.9(e), and its results would be carried out.

Within each NRHP or NRHP-eligible historic district, the Streetcar Alternative would only occupy existing transportation right-of-way. For individual historic properties outside of the historic districts, the Streetcar Alternative would not use any NRHP or NRHP-eligible property.

6.0 Public Participation and Agency Consultation and Coordination

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6.0 Public Participation and Agency Consultation and Coordination

This chapter summarizes public participation and agency consultation and coordination activities conducted during preparation of this Supplemental Environmental Assessment (EA).

6.1 Public Open House

The Federal Transit Administration (FTA) and the Michigan Department of Transportation (MDOT), in cooperation with the Southeast Michigan Council of Governments (SEMCOG), hosted an open house on August 21, 2012, to update the public on the Woodward Avenue Streetcar Project. The purpose was to provide information about the Project and give notice that FTA and MDOT were initiating a supplemental environmental assessment to analyze potential impacts of the proposed project. The open house, held from 3:00 to 7:00 p.m. at Michigan State University's Detroit Center is located midway along the planned route. Various media outlets, including MLive.com and The Detroit News, picked up a press release provided by SEMCOG. Transit Riders United (TRU) also sent an email blast to their membership with information on the date, time and location of the meeting. Approximately 90 people attended the open house.

Staff from FTA, MDOT, and SEMCOG manned four display boards with Project information and responded to questions from the public. The public was invited to submit comments either directly on the boards or on comment forms. Project staff received 43 total comments during the open house. Comments generally addressed seven topic areas, including multi-modal connections, concerns about the speed of the streetcar, bicycle accommodations, expansion, purpose and need, impacts, and the need for a regional transit agency.

A project website is in place to provide information on the status of the project and documentation. The website address is www.mi.gov/woodwardstreetcar.

6.2 Coordination Regarding Non-Motorized Interests

Separate from the Open House, MDOT sought to engage the public and partner agencies through other meetings. MDOT attended the City of Detroit's Non-Motorized Facilities Quarterly Task Force Meeting on November 14, 2012 to discuss the status of the Project and receive comments regarding it. The meeting also addressed non-motorized transportation projects along and adjacent to the corridor. Meeting participants included MDOT, M1 Rail, the City of Detroit, SEMCOG, Michigan Trails and Greenways, and others, see Appendix G for meeting minutes.

The Project Team held a meeting for the follow stakeholders on January 3, 2013, to discuss accommodation of bicycles with the Woodward Avenue Streetcar Project:

- MDOT
- M-1 Rail
- Wayne State University
- Michigan Trails and Greenways Alliance
- Community Foundation for Southeast Michigan

Various bicycle-accommodation options along Woodward Avenue and adjacent roadways with the Streetcar Alternative were discussed at the meeting.

6.3 Section 106 Coordination

To reinstate Section 106 coordination FTA sent a letter to the Michigan State Historic and Preservation Office (SHPO) on August 3, 2012, informing them of the continuation of consultation regarding the Project. On October 5, 2012 and October 10, 2012, FTA sent letters to the consulting parties, and the tribes, as previously identified by the Project Team for the Woodward Avenue LRT Project. The letters confirmed that coordination efforts were formally reinstated for Section 106 consideration of historic resources (36 CFR Part 800) (see Chapter 4, Section 4.4 Historic and Archaeological Resources). The Project Team held a Section 106 meeting, with SHPO on November 29, 2012 to discuss revisions to the Area of Potential Effects (APE) for the three new potential vehicle storage and maintenance facilities (VSMF) sites. A second meeting, held on December 27, 2013, with SHPO discussed additional revisions to the APE as well as Eligibility Determination and Effects Assessment, including associated methodologies and study progress and findings.

The team attended a third Section 106 meeting on January 23, 2013, to discuss adverse effect determinations, remaining questions on eligibility determinations and the Memorandum of Agreement (MOA). The draft MOA (see Appendix F) reflecting the Streetcar Alternative and applicable mitigation was also distributed for comment to the SHPO and consulting parties. FTA has determined that the Project would have an adverse effect on historic properties and has notified the Advisory Council on Historic Preservation, per Section 106.

Appendix A

List of Preparers

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Appendix A. List of Preparers

A. Public Agencies

Federal Transit Administration – Lead Federal Agency

- Cecelia Comito, Region V, Chicago, IL
- Sean Libberton, Headquarters, Washington DC
- Terence Plaskon, Headquarters, Washington, DC
- Christopher Van Wyk, Headquarters, Washington DC

Michigan Department of Transportation – Project Sponsor

- Jonathan Loree, PE, Project Manager
- Geralyn Ayers, Environmental Coordinator
- Lloyd Baldwin, Lead Historian
- Bob Parsons, Public Hearing Officer

B. Consultant Staff

Name	Project Role	Degree
Parsons Brinckerhoff		
Steven Ott, RLA	Project Manager	B.S. / M.S. Michigan State University
Sarah Binkowski, PE, PTOE	Deputy Project Manager / Transportation	B.S. / M.S. Michigan State University
Alice Lovegrove	Air Quality	B.E. / M.S. State University of New York
Matthew McDaniel	Historic Resources	M.H.P. University of Georgia M.A. Louisiana State University B.A. Hampden-Sydney College
Arthur Morrone	Noise and Vibration	B.S. / M.S. City College of New York
Sharmila Mukherjee, AICP	Planning / Environmental Justice	M.S. University of Illinois B.A. / M.A. Jadavpur University
Aimee Paquin	Historic Resources	M.S. Eastern Michigan University B.A. University of Michigan
Hannah Remtema, PE	Transportation	B.S. / M.S. Michigan State University
Chelsea Shelling	Socioeconomic Resources/ GIS Mapping	M.A. University of New Orleans B.A. Howard University
Edward Tadross	Air Quality	B.A. (2) Tulane University
David R. VanGoethem, PE	Hazardous Materials	M.B.A. Walsh College B.S.C.E. Michigan State University
Judith Versenyi, AICP	NEPA Advisor	M.U.P. New York University B.A. Bucknell University
Chi Cheung (Ronald) Ying, PE	Noise and Vibration	B.S. Lehigh University
ASC Group		
David Klinge, MA	Archaeological Resources Principal Investigator	B.A. University of Michigan M.A. Northern Arizona University

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Appendix B

List of EA Recipients

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Appendix B. List of EA Recipients

Federal Agencies

Advisory Council on Historic Preservation

Federal Emergency Management Agency, Region 5

Federal Highway Administration

Federal Transit Administration

U.S. Department of Commerce, Economic Development Administration

U.S. Department of Housing and Urban Development

U.S. Department of the Interior

U.S. Environmental Protection Agency

State Agencies

Michigan Department of Transportation

Michigan Department of Natural Resources

Michigan Department of Environmental Quality

Michigan State Historic Preservation Office

Local Agencies

City of Detroit

Considine Recreation Center

Community Access Centers (Central District, Northwest District, East District, Southwest District)

Department of Environmental Affairs

Department of Finance

Department of Municipal Parking

Department of Planning and Development

Department of Public Lighting

Department of Public Works

Department of Transportation

Detroit Historic District Commission

Detroit Recreation Commission

Fire Department

Historic Designation Advisory Board

Historic District Commission

Planning Commission
Police Department
Headquarters
Central District
12th Precinct
Water and Sewer Department

City of Hamtramck
Community and Economic Development

City of Highland Park
City Council
Community and Economic Development
Planning Commission

Wayne County Department of Public Services
Administration Division
Deputy Chief Operating Officer

Elected Officials

Detroit Mayor Dave Bing Office, City of Detroit Executive Office

Detroit City Council Members
Council President Charles Pugh
Council President Pro Tem Gary Brown
Councilwoman Saunteel Jenkins
Councilman Kenneth V. Cockrel Jr.
Councilwoman Brenda Jones
Councilman Andre Spivey
Councilman James Tate
Councilman Kwame Kenyatta
Councilwoman JoAnn Watson

U.S. House of Representatives, 13th Congressional District

U.S. House of Representatives, 14th Congressional District

U.S. Senator Carl Levin

U.S. Senator Debbie Stabenow

Native American Tribes

Bay Mills Indian Community

Hannahville Potawatomi Indian Community

Keweenaw Bay Indian Community

Lac Vieux Desert Band of Lake Superior Chippewa Indians

Little River Band of Ottawa Indians

Little Traverse Bay Band of Odawa Indians

Match-e-be-nash-she-wish Band of Potawatomi Indians, Gun Lake Tribe

Nottawaseppi Band of Huron Potawatomi Indians

Pokagon Band of Potawatomi

Saginaw Chippewa Indian Tribe

Sault Ste. Marie Tribe of Chippewa Indians

Local Organizations

Detroit Economic Growth Corporation

Detroit Historic Neighborhoods Coalition

Detroit Historical Society

Detroit Medical Center

Detroit Regional Chamber of Commerce

Detroit Regional Convention Facility Authority

Detroit Transportation Corporation

Downtown Development Authority

M-1 Rail

Michigan Historic Preservation Network

MotorCities National Heritage Area

NAACP Detroit Office

New Center Council

Preservation Wayne

Regional Transit Coordinating Council

Southeast Michigan Council of Governments

Suburban Mobility Authority for Regional Transportation

TechTown

Transit Windsor

Transportation Riders United

University Cultural Center Association

Wayne State University

Woodward Avenue Action Association

Libraries

Detroit Public Library

Main Library

Duffield Branch

Frederick Douglass Branch for Specialized Services

Skillman Branch

Appendix C

References

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Appendix C. References

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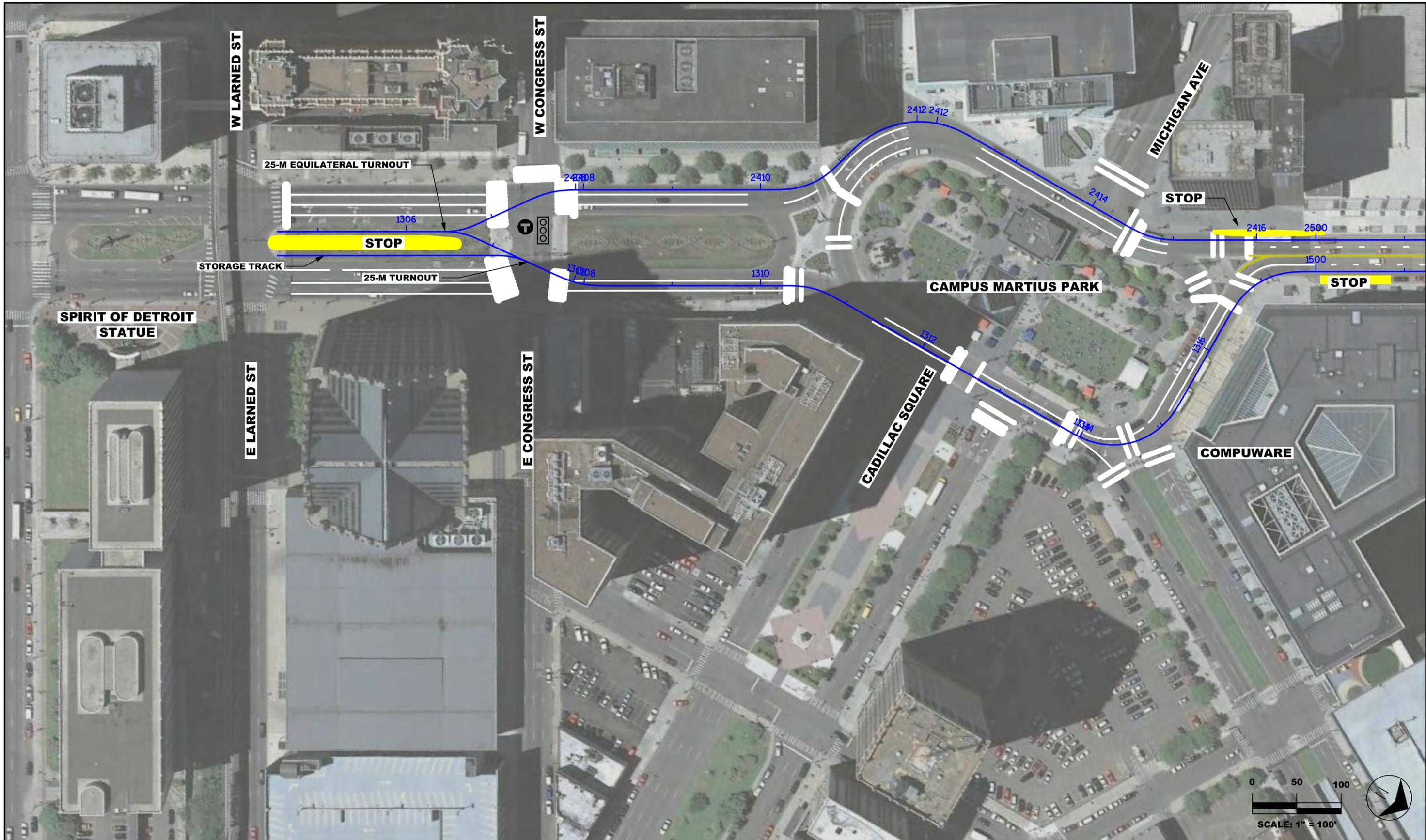
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Appendix D

Map Set of Alignment

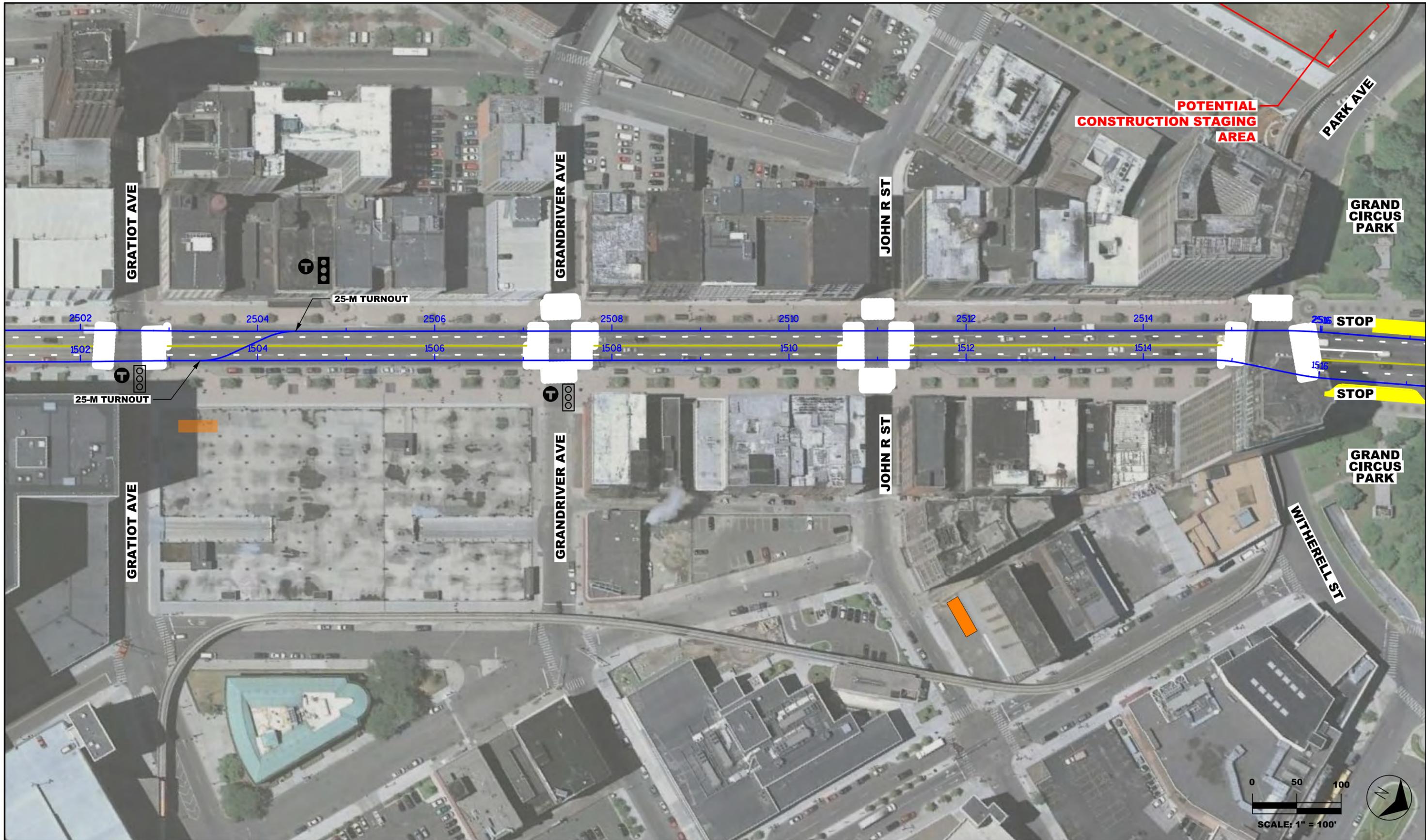
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		FUTURE STOP			
		PREFERRED SUBSTATION LOCATION			
		POTENTIAL SUBSTATION LOCATION			

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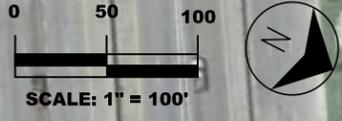
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WOODWARD AVENUE STREETCAR SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT EXHIBIT A



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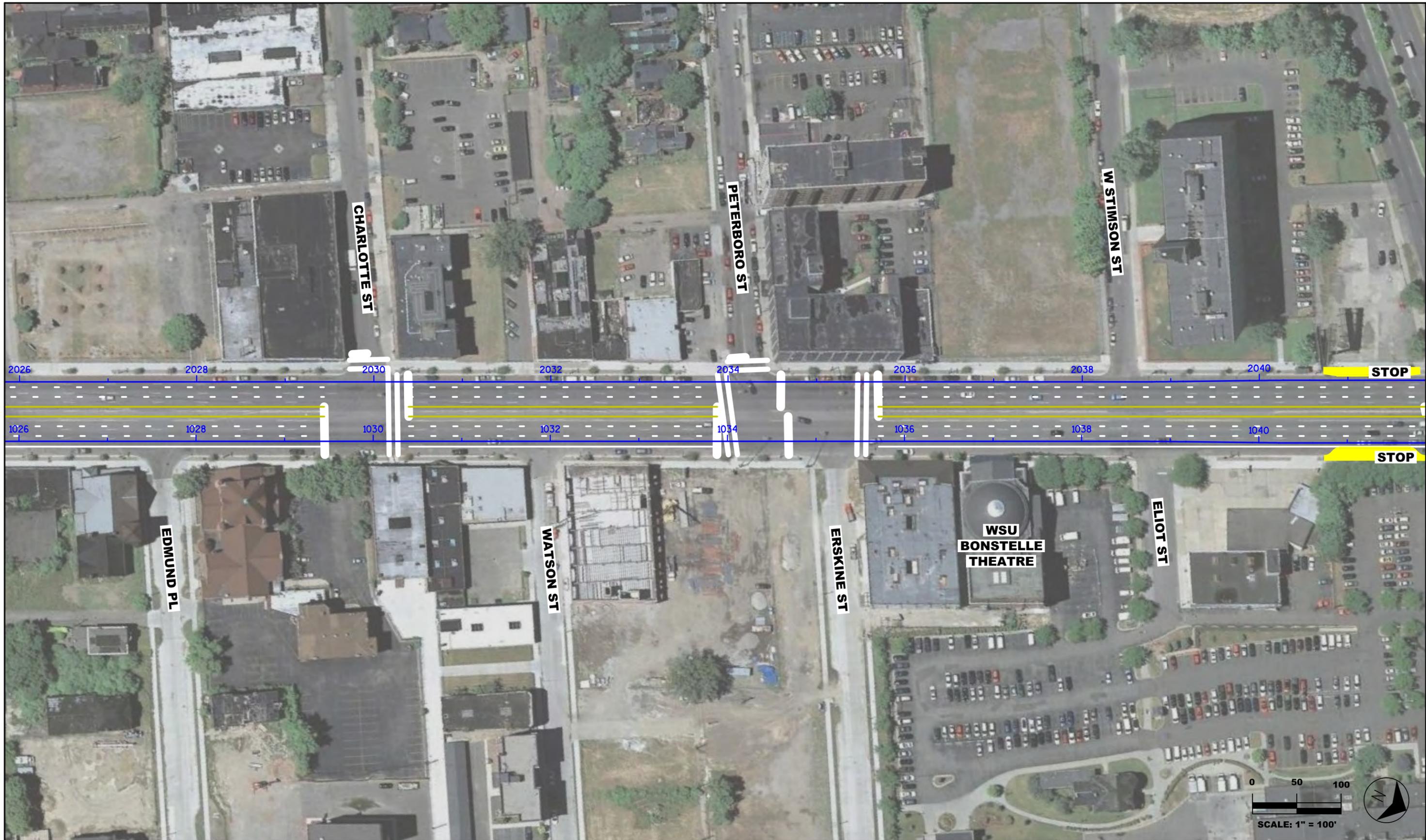


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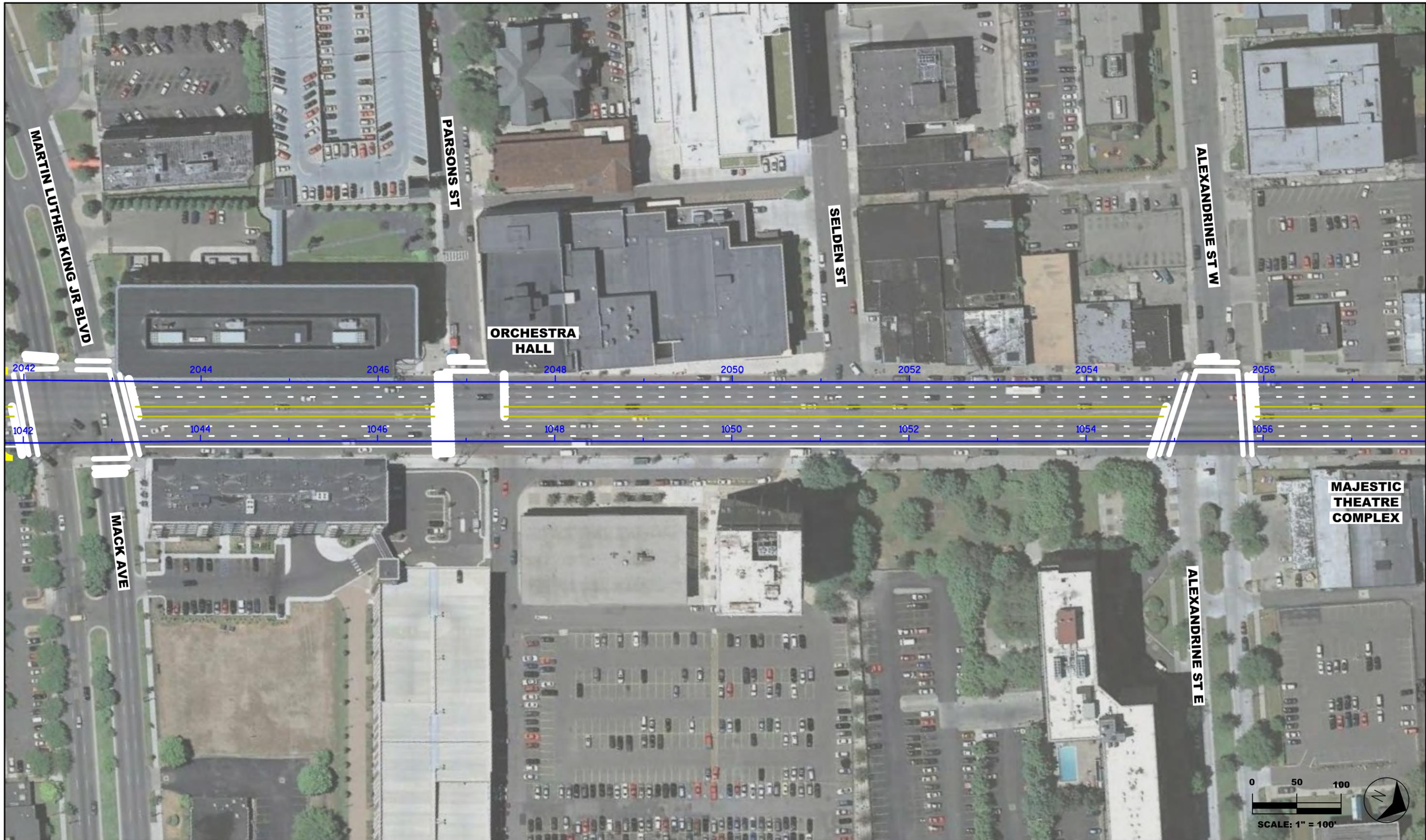


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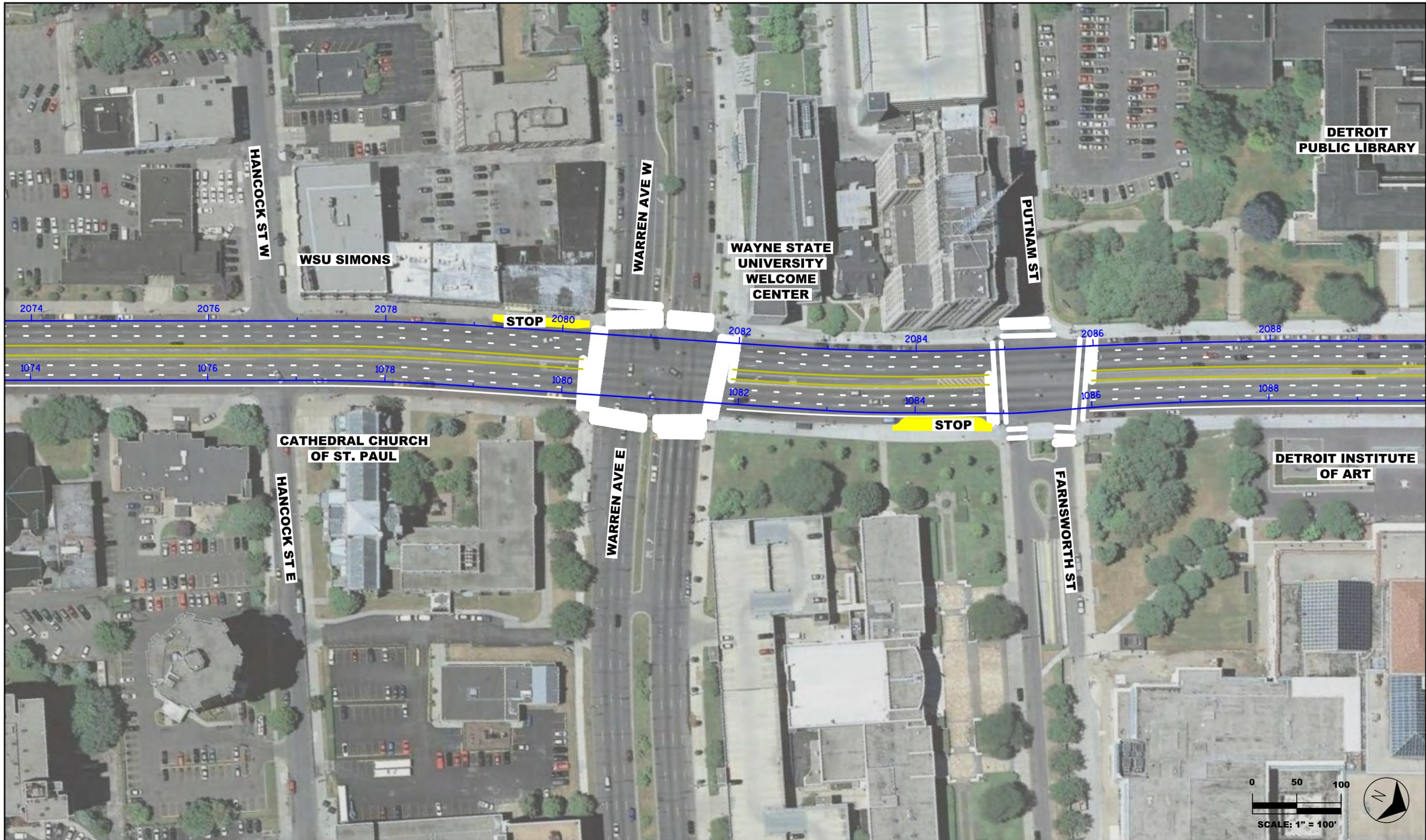


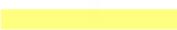
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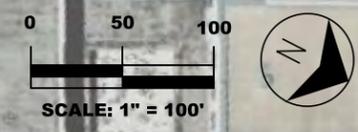
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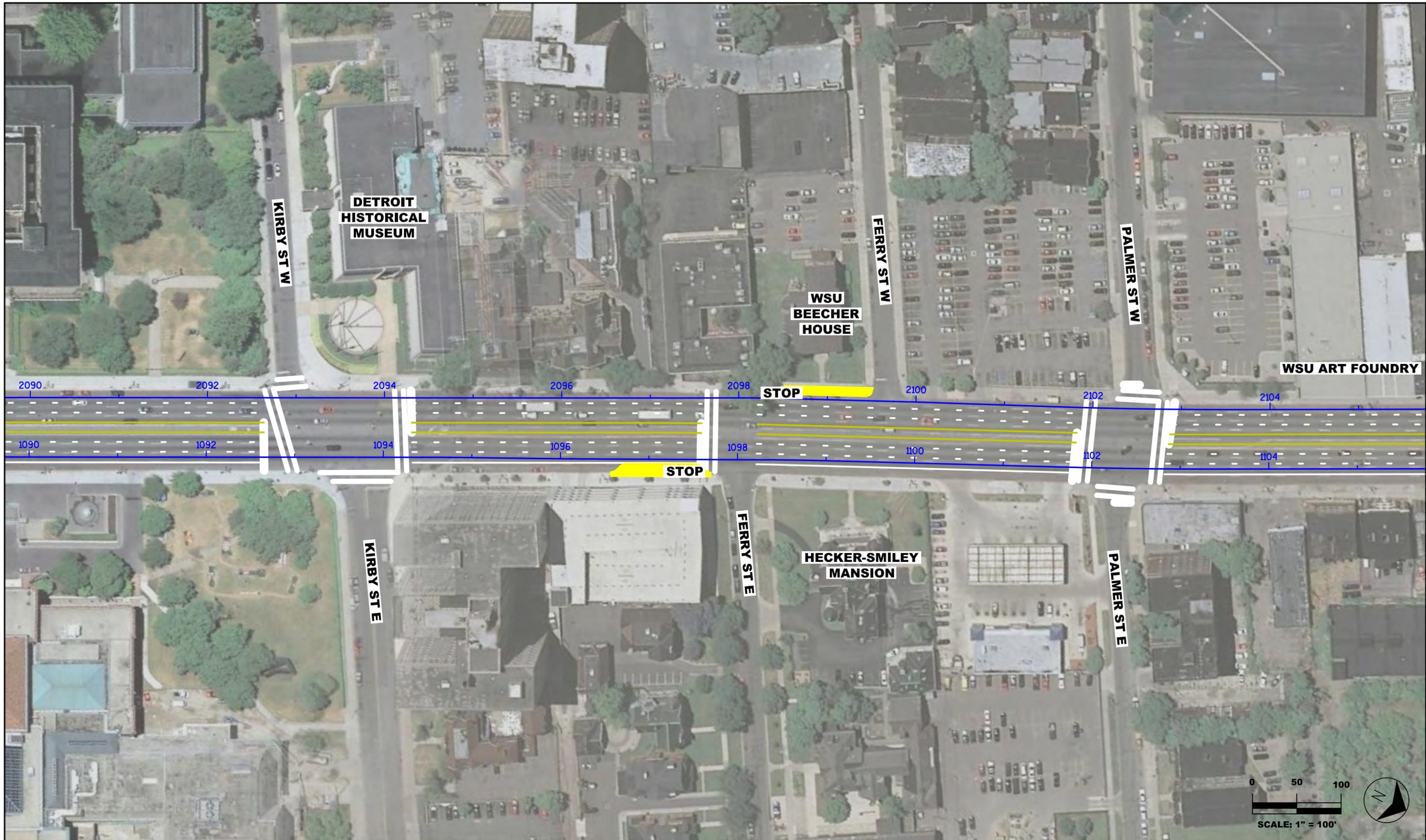
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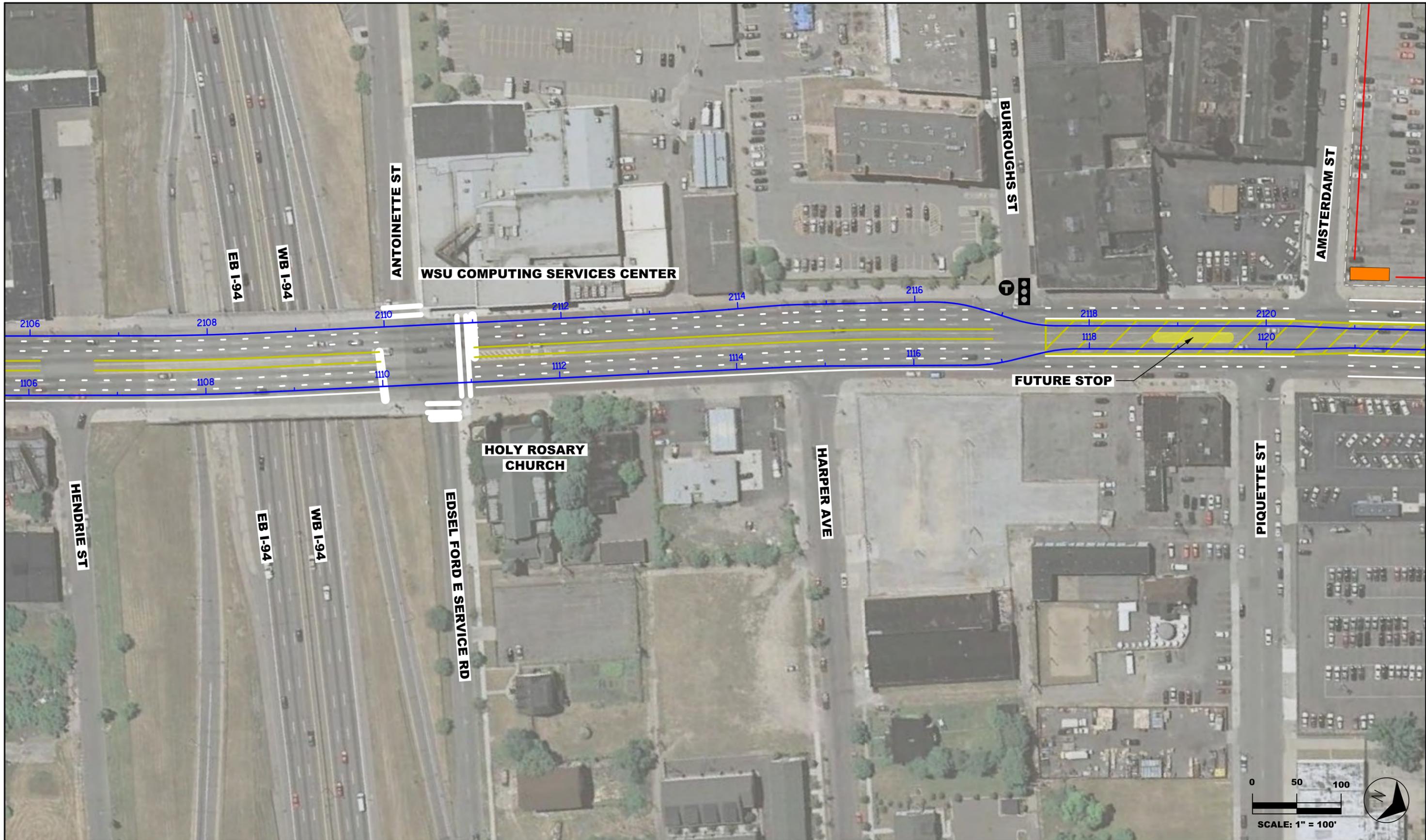


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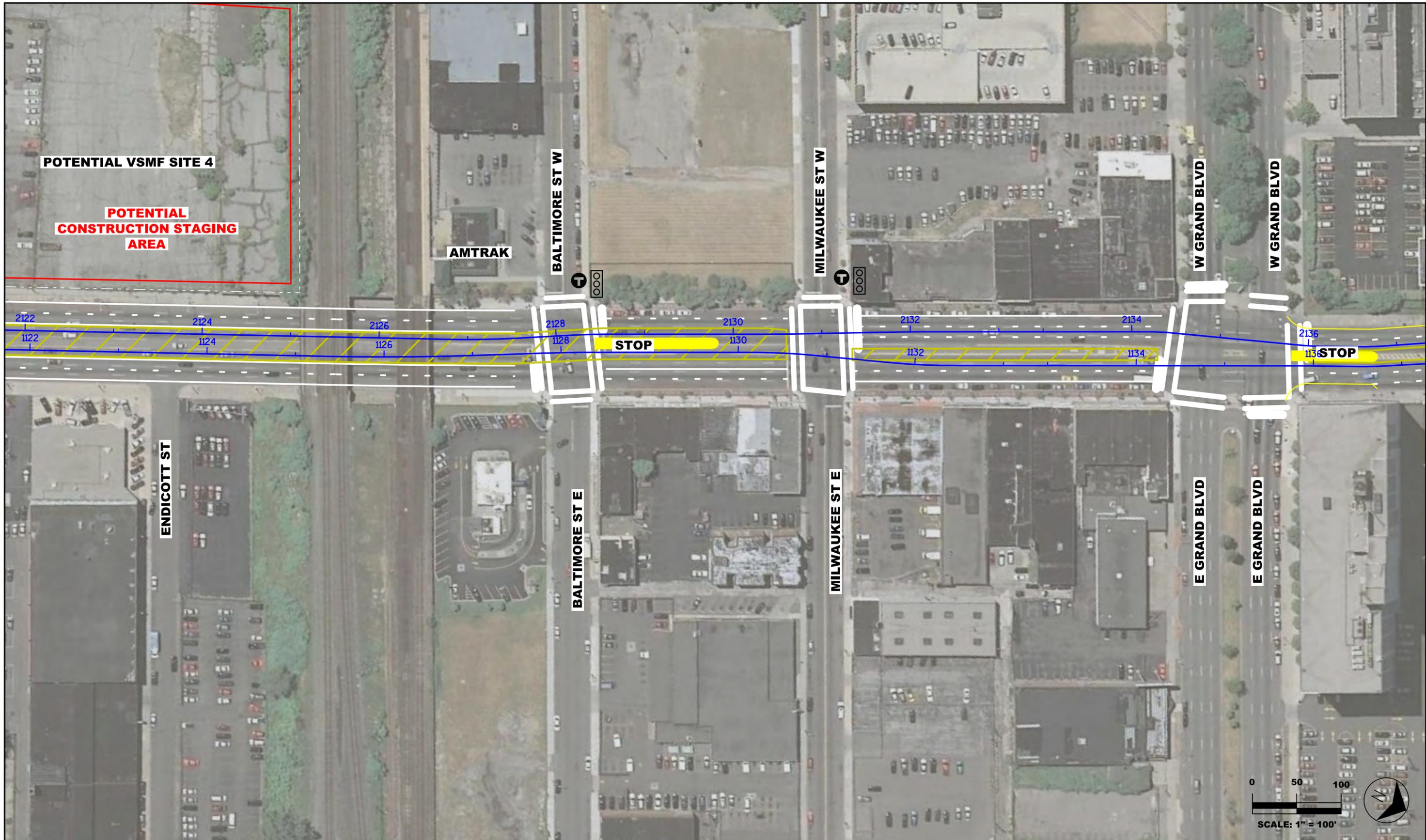
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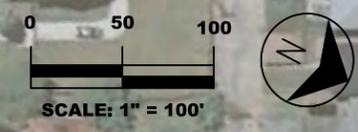
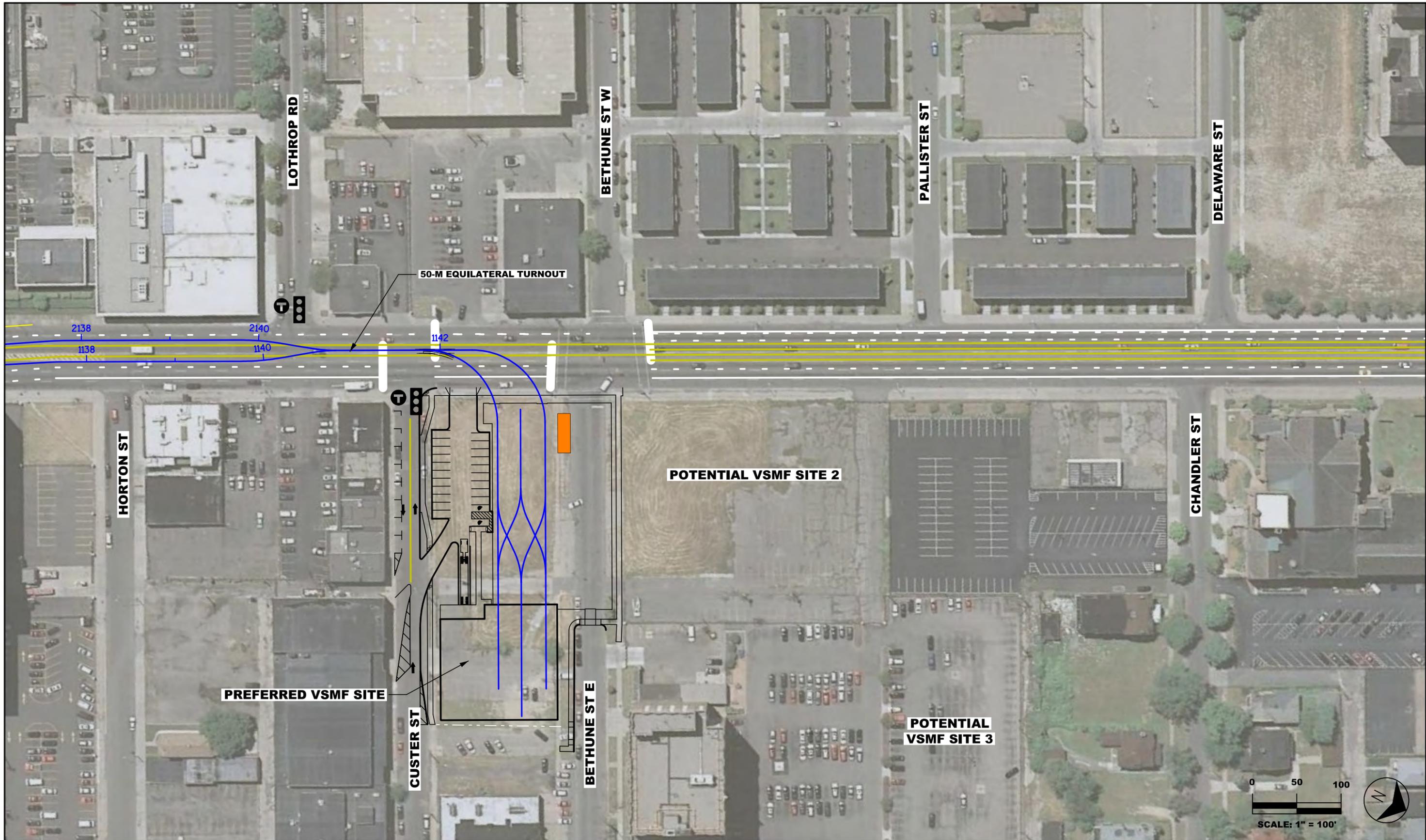


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