



Wave Modern Streetcar

Supplemental Environmental Assessment

March 2015

**WAVE MODERN STREETCAR
FORT LAUDERDALE, BROWARD COUNTY, FLORIDA**

**SUPPLEMENTAL
ENVIRONMENTAL ASSESSMENT**

DOCUMENT PREPARED BY:

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION**

and

**SOUTH FLORIDA REGIONAL
TRANSPORTATION AUTHORITY, FLORIDA**

Pursuant to the National Environmental Policy Act (NEPA) of 1969 as amended, 42 U.S.C. §4322(2); the regulations of the Council on Environmental Quality (CEQ), 40 CFR 1500-1508; the Federal Transit Laws, 49 U.S.C. Chapter 53; the National Historic Preservation Act of 1966, 16 U.S.C. §470(f); Section 4(f) of the Department of Transportation Act of 1966, as amended, Title 49 U.S.C. §303; the Federal Clean Air Act Amendments of 1990; the Endangered Species Act of 1973, 16 U.S.C. §1531; Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 U.S.C. §4601; Section 402 of the Clean Water Act, 33 U.S.C. §1342; Executive Order 12898, Federal Actions to Address Environmental Justice in Minority & Low Income Populations; Executive Order 11990, Protection of Wetlands; Executive Order 11988, Floodplain Management; Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency; and all relevant laws and procedures of the State of Florida.

FOR: FEDERAL TRANSIT ADMINISTRATION, REGION IV

For


YVETTE G. TAYLOR
REGIONAL ADMINISTRATOR

3/27/15
DATE

FOR: SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY


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List of Referenced Documents & Technical Reports

WAVE STREETCAR EA/FONSI (AUGUST 2012) [LINK TO DOCUMENT]
 WAVE STREETCAR LOCALLY PREFERRED ALTERNATIVE CONCEPT PLANS (APRIL 2012)..... [LINK TO DOCUMENT]
 NOISE AND VIBRATION IMPACT ASSESSMENT REPORT (NOVEMBER 2008) [LINK TO DOCUMENT]
 CONTAMINATION SCREENING EVALUATION REPORT (JULY 2008)..... [LINK TO DOCUMENT]
 CULTURAL RESOURCE ASSESSMENT SURVEY (JULY 2007)..... [LINK TO DOCUMENT]



1 INTRODUCTION

This Supplemental Environmental Assessment (Supplemental EA) has been prepared for the Wave Modern Streetcar project, located in Fort Lauderdale, Florida. The Supplemental EA addresses siting the Project's vehicle maintenance and storage facility (VMSF) at an alternative location and extending the Project's alignment by approximately two blocks at the southern end to access the alternate VMSF site. The Supplemental EA also addresses minor adjustments to the Project's alignment and the locations of stations. The minor adjustments include shifting the eastbound alignment from SE 7th Street to SE 6th Street between S Andrews Avenue and SE 3rd Avenue, and providing an alternative end-of-line treatment on the northern end of the alignment known as the Flagler Loop. These adjustments are based on design changes developed in the Project's Preliminary Engineering (PE) phase of Project Development.

1.1 Background

An EA for the Project was approved for Public Availability by FTA on April 25, 2012. EA documents were placed on display for public review on July 9, 2012. A Public Hearing was conducted on July 30, 2012, and public comments were received through August 10, 2012. The EA was updated in August 2012 to document the outcome of the Public Hearing. The Finding of No Significant Impact (FONSI) was approved by FTA and issued on September 10, 2012.

In April 2013, the Project was granted entry into Project Development by the Federal Transit Administration (FTA) and PE activities were initiated for the Project. The Project is advancing in two phases, Phase 1(A) and Phase 1(B), based on funding streams. Phase 1(A) is an approximately 1.4 mile segment, which is being funded in part by a grant through the United States Department of Transportation (USDOT) Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant program. In July 2013, the TIGER grant was obligated. Phase 1(B) includes extensions on both the south and north ends of the Phase 1(A) alignment. Funding is actively being pursued for Phase 1(B) through FTA's Small Starts program.

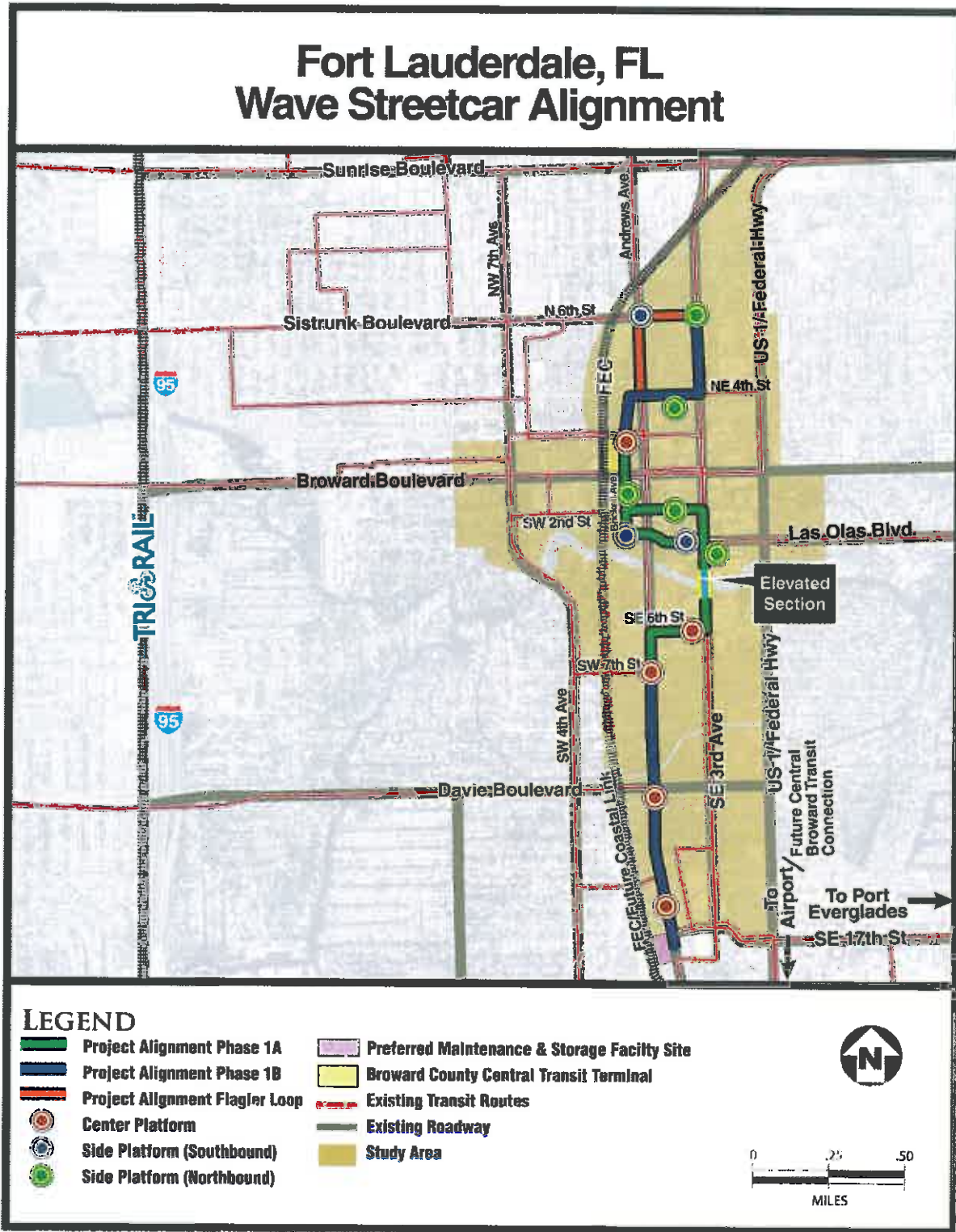
On May 9, 2013, the South Florida Regional Transportation Authority (SFRTA), serving as the Project Sponsor, issued a Notice to Proceed for PE on Phase 1(A). On March 10, 2014, SFRTA issued a Notice to Proceed for PE on Phase 1(B). In June 2014, 30% Design Plans were completed for Phase 1(A). Presently, 75% Design Plans are being prepared for Phase 1(A) and 30% Design Plans are being prepared for Phase 1(B).

1.1.1 Project Description

The Project is located in Downtown Fort Lauderdale in Broward County, Florida. The Fort Lauderdale Wave Modern Streetcar system will provide bi-directional service on track embedded in the street (see Figure 1: Project Alignment Map (2014)). The alignment is approximately 2.8 miles in length with two guideways, one in each direction. The alignment extends from S 17th Street and S Andrews Avenue to NE 6th Street and NE 3rd Avenue, primarily utilizing Andrews Avenue, Brickell Avenue and E 3rd Avenue for north/south movement. The stations are a combination of side and center platform configurations. The location and configuration of stations is being finalized during the PE phase. The station platforms are proposed to be approximately 60 feet in length, ranging from 10 to 15 feet wide, and with a ramp located at either one or both ends of the station platform. Additional elements of the streetcar system include: electrical and power supply system, traction power substations (TPSS), five modern streetcars (including spare), and the VMSF.



Figure 1: Project Alignment Map (2014)





2 DESCRIPTION OF PROPOSED CHANGES TO THE PROJECT SCOPE/DESIGN

Four proposed changes to the Project have been identified and are the subject of this Supplemental EA:

- VMSF is proposed to be located at an alternate site and an extension to the alignment at the southern end is required to access the alternate VMSF site
- Minor refinements are proposed to station locations along the alignment
- Minor refinements are proposed to the alignment along SE 6th Street and SE 7th Street
- An alternative end-of-line treatment known as the Flagler Loop is proposed at the northern terminus of the alignment to facilitate the crossover of streetcar vehicles to proceed in the opposite direction of travel

These adjustments are based on design changes developed in the Project's PE phase of Project Development. The design changes are in response to site conditions identified during the preparation of the 30% Design Plans.

2.1 VMSF Site Location and Alignment Extension

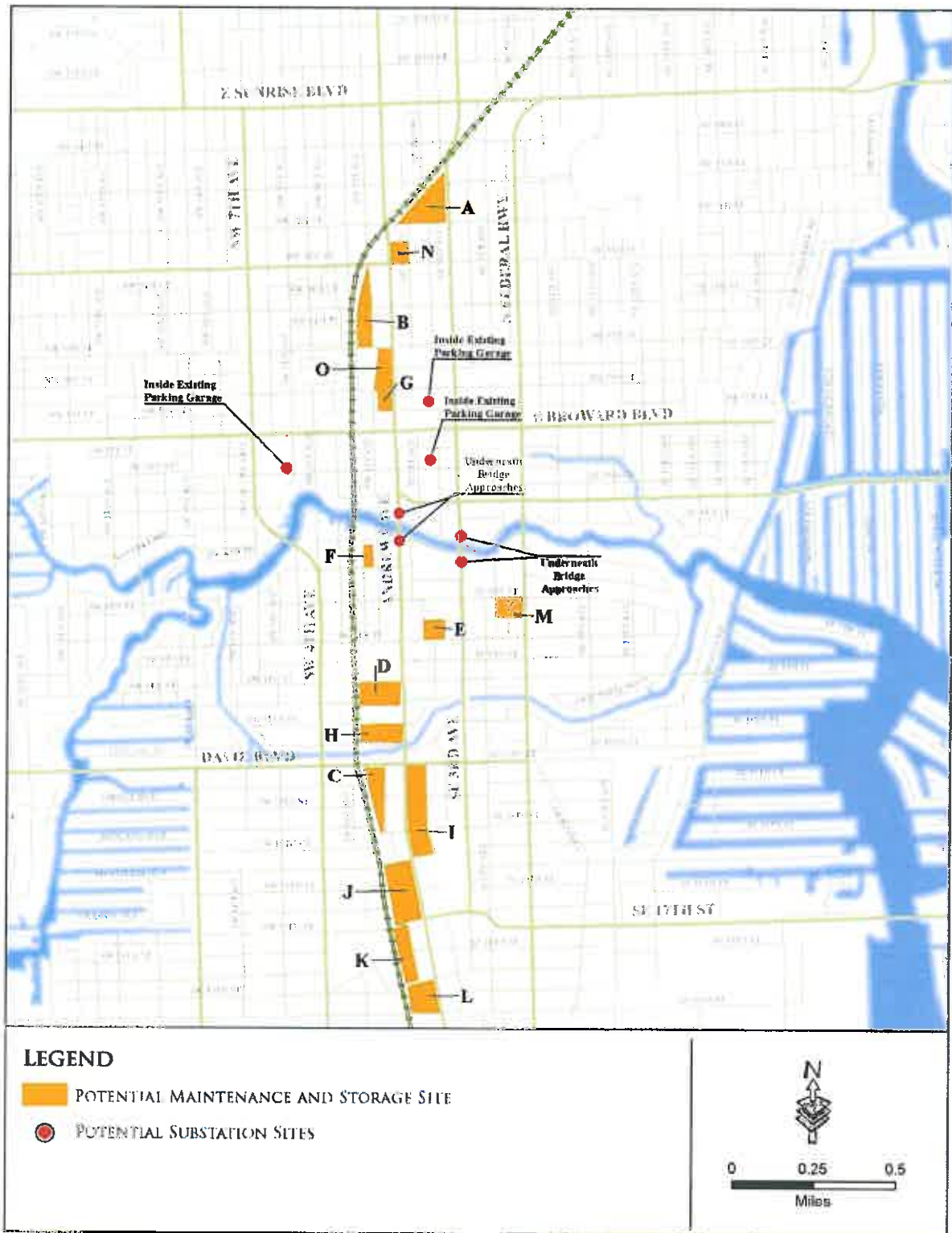
During the preparation of the EA for the Project, 15 potential sites, identified as Sites A through O, were initially identified as alternatives to accommodate the VMSF (see Figure 2: Potential Maintenance and Storage Facility Sites (EA/FONSI, 2012)). These potential sites were reduced to six potential alternatives (Sites F, G, H, J, K, and O) through a preliminary evaluation. Subsequently, Site O was identified in the EA (2012) as the "preferred location for the VMSF moving forward and pending additional site investigation and analysis," primarily due to the site being owned by the City of Fort Lauderdale and, therefore, not requiring property acquisition.

Site K, located at 1801 SW 1st Avenue, is currently proposed to serve as the location for the VMSF based on the following considerations.

- Site K is located in an industrial area immediately adjacent to the Florida East Coast (FEC) Railway, whereas Site O is located in the downtown core in the City's high-intensity Regional Activity Center-City Center (RAC-CC) downtown zoning district, which is intended to accommodate a wide range of employment, shopping, service, cultural, higher density residential and other more intense land uses. As a result of locating the VMSF at Site K, Site O will be available for higher intensity uses more appropriate for the downtown core.
- Site K is located in the South Regional Activity Center (RAC) – Special Area (SA) West zoning district that is designated for heavy non-residential business uses, wholesale, warehousing, storage operations, and establishments conducting activities of the same general character. This zoning district follows the zoning boundary of the previous Heavy Commercial/Light Industrial Business District. The types of activities associated with the VMSF are consistent with the character of the surrounding area.
- Site K would provide a central location along the alignment if the Wave Streetcar is extended in the future to Fort Lauderdale/Hollywood International Airport and the Broward County Convention Center/Port Everglades.



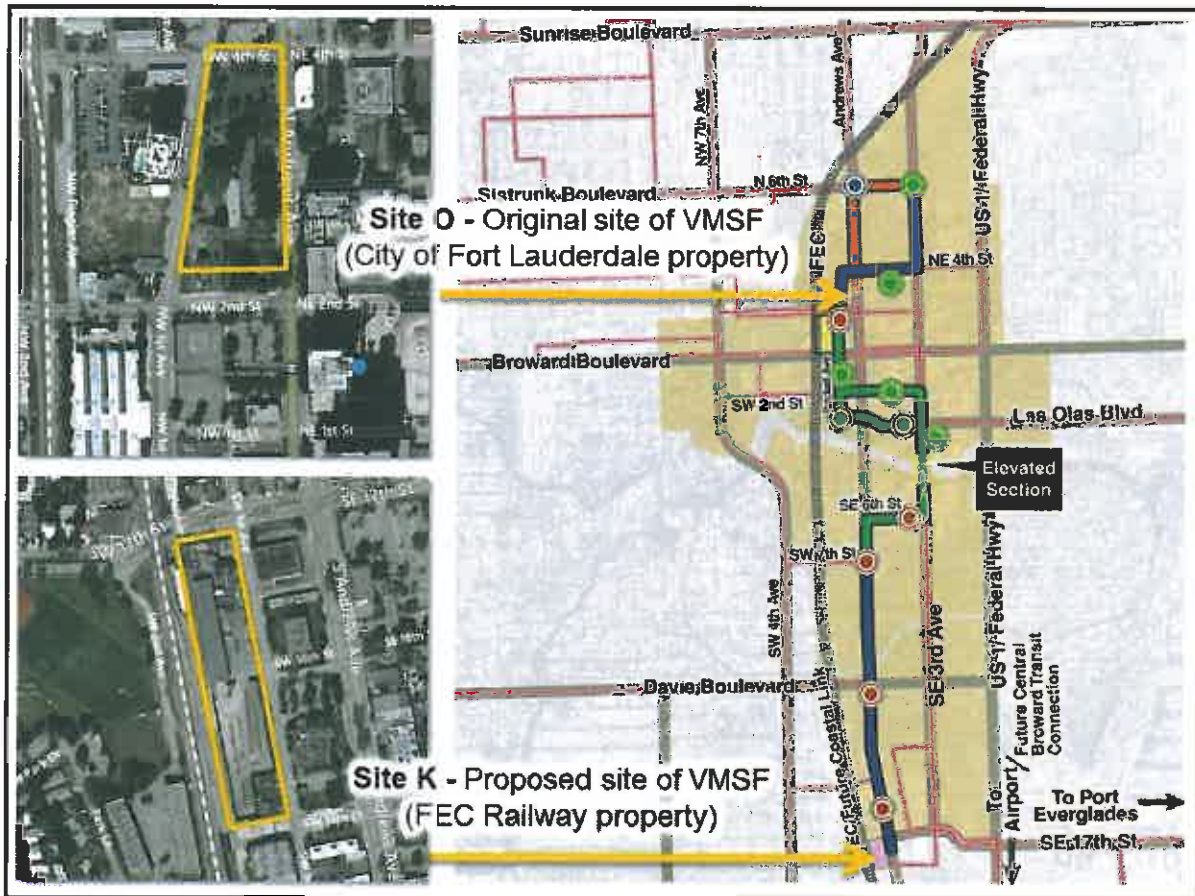
Figure 2: Potential Maintenance and Storage Facility Sites (EA/FONSI, 2012)



- Site K is under the sole ownership of the FEC Railway and is operated by the current owner for intermodal transfer activities. A portion of the site is leased to Decks and Docks Lumber Company. Trucks regularly access the site for the transfer of goods. The Wave Modern Streetcar is proposed to access Site K via SW 18th Street. Site access to adjacent properties is provided by South Andrews Avenue and SW 1st Avenue; therefore, access to these properties will not be adversely impacted and will not impact streetcar access to Site K.

Site K has been identified by the Project Partners as the preferred location for the VMSF based on land use and visual resource compatibility that are more favorable than Site O (see Figure 3: Proposed VMSF Sites). Review of the current conditions for Site K was conducted on April 17, 2014, to confirm that no substantial changes to the site have occurred since the EA/FONSI was completed.

Figure 3: Proposed VMSF Sites





The Project alignment identified in the EA/FONSI terminated at S 17th Street and S Andrews Avenue, which is located approximately two blocks to the northeast of the VMSF Site K location (see Figure 4: VMSF Site K). The Project alignment will be required to be extended approximately 800 feet to access Site K. This extension will be a non-revenue segment that will not accommodate streetcar passengers. Streetcars will only use this portion of the alignment at the beginning and ending of shifts in revenue service. The alignment will be extended one block to the south along S Andrews Avenue to S 18th Street and one block to the west along SW 18th Street to access VMSF Site K. New traffic signals will be required at the intersections of S 18th Street and S Andrews Avenue and SW 18th Street and SW 1st Avenue to facilitate the streetcar movements.

Figure 4: VMSF Site K



2.2 Station Locations

In Section 2.3.3 (Stations) of the EA (2012), 12 potential station locations were identified over the length of the Locally Preferred Alternative (LPA) alignment (see Table 1: Proposed Station Locations). The LPA assumed that the majority of the stations along the alignment would provide center platforms serving both directions of travel.

The station locations have been adjusted in the Preliminary Engineering (PE) design primarily reflecting accommodations to local conditions to minimize impacts to driveway access, to reduce vehicular traffic operations conflicts, and to address design considerations such as locating the stations along tangent sections of track and facilitating pedestrian access. The current station locations reflected in the 30% Design Plans are presented in Figure 1: Project Alignment Map (2014). Table 1



compares the station locations identified in the approved EA/FONSI (2012) to the current locations proposed for the stations in the 30% Design Plans.

Table 1: Proposed Station Locations

EA/FONSI (2012) Station Locations	30% Design Plans (2014) Station Locations
S Andrews Avenue and S 17 th Street	S Andrews Avenue and S 16 th Street (Center Platform)
S Andrews Avenue and S 13 th Street	S Andrews Avenue and S 13 th Street (Center Platform)
S Andrews Avenue north of S 8 th Street	None
S Andrews Avenue south of S 6 th Street or SE 7 th Street east of SE 3 rd Avenue	S Andrews Avenue south of S 6 th Street (Center Platform)
SE 6 th Street west of SE 3 rd Avenue	SE 6 th Street west of SE 3 rd Avenue (Center Platform)
SE 3 rd Avenue and E Las Olas Boulevard	SE 3 rd Avenue and E Las Olas Boulevard (Side Platforms)
SE 2 nd Street and SE 1 st Avenue or SW 1 st Avenue and W Las Olas Boulevard	SE 2 nd Street east of SE 1 st Avenue (Side Platform – northbound only) and SW 1 st Avenue and W Las Olas Blvd (Side Platform – southbound only) and SW 1 st Avenue north of SW 2 nd Street (Side Platform – northbound only)
NW 1 st Avenue south of NW 2 nd Street	NW 1 st Ave south of NW 2 nd Street (Center Platform)
NE 4 th Street and NE 2 nd Avenue	NE 4 th Street and NE 2 nd Avenue (Side Platform – northbound only) and N Andrews Avenue south of N 6 th Street (Center Platform – southbound only)
NE 3 rd Avenue south of NE 6 th Street	NE 3 rd Avenue south of NE 6 th Street (Side Platform – northbound only)



2.3 Alignment along SE 6th Street and SE 7th Street

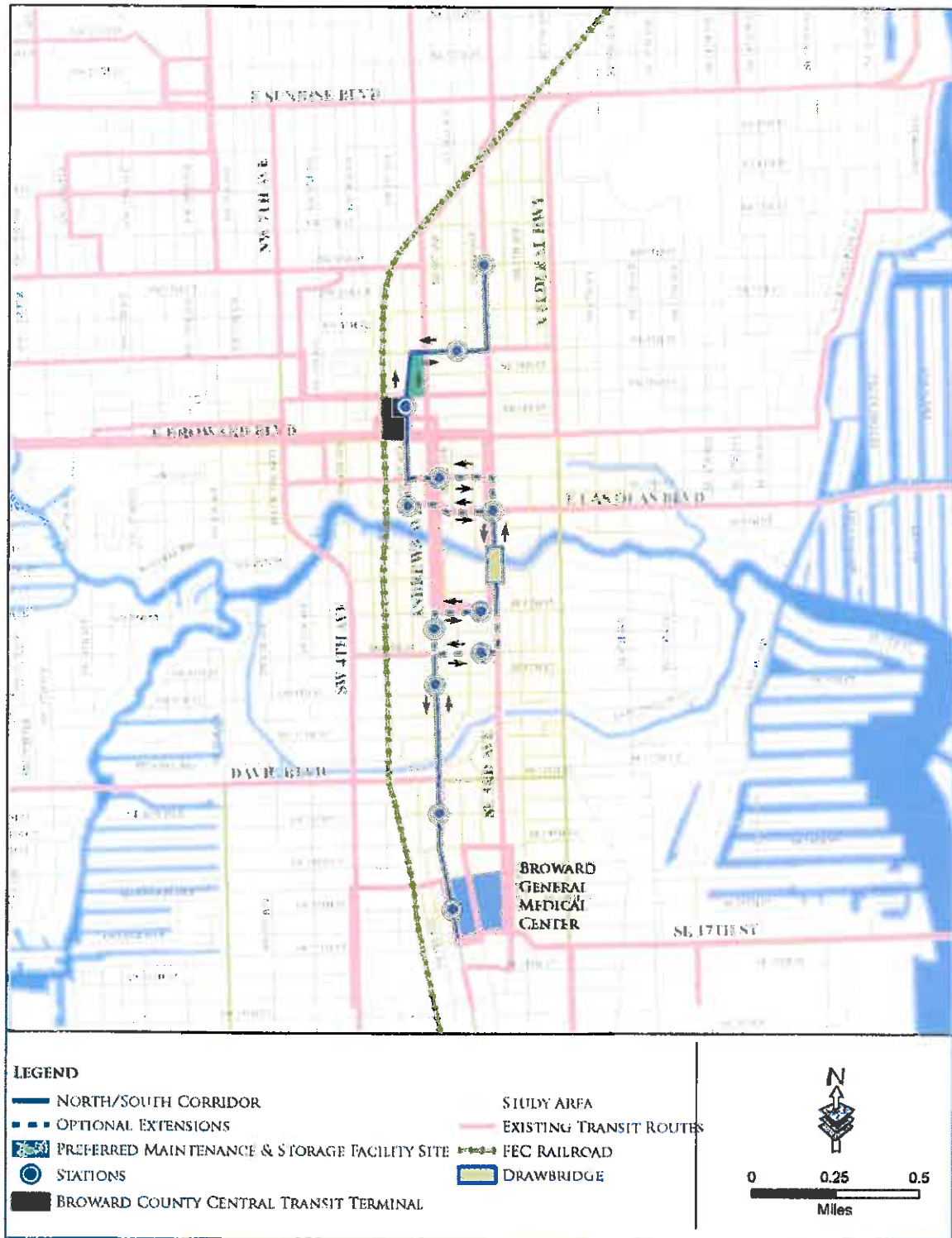
The Project alignment extends from S 17th Street and S Andrews Avenue to NE 6th Street and NE 3rd Avenue, primarily utilizing Andrews Avenue, Brickell Avenue and E 3rd Avenue for north/south movements. On either side of the New River, the approved EA/FONSI included streetcar segments traveling in the east/west direction in a series of one-way pairs. These one-way east/west pairs were identified as "optional extensions" along S 2nd Street, Las Olas Boulevard, SE 6th Street and SE 7th Street (see Figure 5: Locally Preferred Alternative (EA/FONSI, 2012)). SE 6th Street (westbound) and SE 7th Street (eastbound) were identified for the east/west movement south of the New River to accommodate the shift in the north-south alignment from S Andrews Avenue to SE 3rd Avenue, which is required to cross the New River on the 3rd Avenue Bridge.

In order to mitigate traffic impacts to the streetcar operations resulting from the opening of the 3rd Avenue Bridge for marine vessels, the Preliminary Engineering design shifted the eastbound streetcar alignment from SE 7th Street to SE 6th Street between S Andrews Avenue and SE 3rd Avenue. As a result, the Project alignment south of the New River is proposed to be solely on SE 6th Street, accommodating both directions of travel between S Andrews Avenue and SE 3rd Avenue. Consequently, SE 7th Street will no longer be used for the alignment. The alignment along SE 6th Street proposed for bi-directional travel was previously evaluated in the EA/FONSI (2012) in Section 2.2 (Development and Screening of Conceptual Transit Circulator (Build) Alternatives), for Alternatives C1, D1, D3, and D4.

SE 6th Street is a City of Fort Lauderdale public right-of-way. Currently, SE 6th Street operates as a one-way street (westbound) between S Andrews and SE 3rd Avenue. Broward County is currently making a major investment with the construction of a new courthouse complex along this segment of SE 6th Street. The City, in conjunction with Broward County, has determined that SE 6th Street will be redesigned to remove vehicular traffic from this segment. Access will be limited to pedestrians, bicycles, streetcars, and emergency response vehicles. The intent of these changes is to create a more favorable environment for pedestrians, bicyclists, and transit riders.



Figure 5: Locally Preferred Alternative (EA/FONSI, 2012)





2.4 Flagler Loop – Alternative End-of-Line Treatment at Northern Terminus

The Project alignment presented in the EA/FONSI (2012) assumed that a tail track would be provided at the northern terminus of the alignment to facilitate the transition of streetcar vehicles from the northbound to the southbound direction of travel (see Figure 5: Locally Preferred Alternative (EA/FONSI, 2012)). That track alignment would use a small portion of dedicated streetcar-only right-of-way, in which the operator would pull into a tail track beyond the northernmost station located at NE 3rd Avenue south of NE 6th Street, move to the opposite end of the vehicle, and proceed in the southbound direction (see Figure 6: Previous Northern Terminus Tail Track Alignment).

On October 22, 2014, the Fort Lauderdale City Commission and Community Redevelopment Agency (CRA) adopted inclusion of the Flagler Loop as part of the Wave Streetcar Project and approved \$7.5 million for design and construction. The Flagler Loop would extend the Project alignment by adding one-way track eastbound on NE 6th Street from NE 3rd Avenue to N Andrews Avenue and southbound on N Andrews Avenue from N 6th Street to N 4th Street. As a result, the streetcar would operate in a single direction traveling eastbound on NE 4th Street from N Andrews Avenue to NE 3rd Avenue, northbound on NE 3rd Avenue from NE 4th Street to NE 6th Street, westbound on NE 6th Street from NE 3rd Avenue to N Andrews Avenue, and southbound on N Andrews Avenue from N 6th Street to N 4th Street (see Figure 7: Proposed Flagler Loop Alternative End-of-Line Treatment). The Flagler Loop would facilitate the transition of the streetcar from the northbound to southbound direction of travel and eliminate the need to provide a tail track at the northern terminus of the alignment. The southbound station previously planned for NE 4th Street and NE 2nd Avenue would be relocated to N Andrews Avenue south of N 6th Street (see Figure 1: Project Alignment Map (2014) and Figure 7: Proposed Flagler Loop Alternative End-of-Line Treatment). The Flagler Loop would improve service to the growing Flagler Village neighborhood and the historically underrepresented community along N 6th Street (Sistrunk Boulevard). The Flagler Loop alignment was previously evaluated in the EA/FONSI (2012) in Section 2.2 (Development and Screening of Conceptual Transit Circulator (Build) Alternatives) for Alternatives A1, A2 and A3.



Figure 6: Previous Northern Terminus Tail Track Alignment





Figure 7: Proposed Flagler Loop Alternative End-of-Line Treatment





3 AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES OF DESIGN CHANGES

The proposed design changes described in Section 2 of this Supplemental EA are not expected to result in any substantial environmental consequences other than those previously identified in the approved EA/FONSI (2012).

3.1 VMSF

An FTA Environmental Reevaluation Consultation Worksheet was completed in April 2014 to evaluate the proposed VMSF location at Site K and associated alignment extension. The reevaluation included a review of the EA/FONSI (2012) and the Supporting Technical Studies, a site visit, and an update of existing databases to document potential changes in the environment.

No changes in impact were determined to the following resource categories:

- Transportation
- Neighborhoods & Populations (Social)
- Air Quality
- Ecosystems (Vegetation & Wildlife)
- Water Resources
- Energy & Natural Resources
- Geology & Soils
- Utilities
- Historic, Cultural & Archaeological Resources
- Parklands & Recreation
- Construction
- Secondary and Cumulative

Potential changes to impacts were identified to the following resource categories: Land Use and Economics; Acquisitions, Displacements and Relocations; Visual Resources and Aesthetics; Noise and Vibration; Hazardous Materials; and Public Services. Table 2 provides a summary of the impacts initially identified in the approved EA/FONSI (2012) and the change in impacts associated with VMSF Site K.



Table 2: VMSF Summary of Environmental Effects

Impact Category	Impacts as Initially Disclosed	New Impacts	Change in Impacts
Transportation	Project will have temporary transportation impacts during construction.	Site K is under the sole ownership of the FEC Railway and is operated by the current owner for intermodal transfer activities. Trucks regularly access the FEC intermodal facility site for the transfer of goods. The Wave Modern Streetcar is proposed to access Site K via SW 18 th Street. Site access to adjacent properties is provided by S Andrews Avenue and SW 1 st Avenue, therefore, access to these properties will not be adversely impacted and will not impact access to Site K. No additional traffic related issues are anticipated. No impacts to parking are anticipated.	New traffic signals will be required at the intersections of S 18 th Street and S Andrews Avenue and SW 18 th Street and SW 1 st Avenue to facilitate the streetcar movements.
Land Use and Economics	Initial impacts involved demolishing a vacant commercial building in the downtown core and constructing the VMSF transportation facility on Site O, which is located in the City of Fort Lauderdale's high-intensity Regional Activity Center-City Center (RAC-CC) downtown zoning district.	New impacts involve redeveloping an existing industrial site (Site K), which is currently owned by the FEC Railway and used for shipping and storage operations, into the VMSF for the Wave Modern Streetcar project. Site K is located in the South Regional Activity Center (RAC) – Special Area (SA) West zoning district that is designated for heavy non-residential business uses, wholesale, warehousing, storage operations and establishments conducting activities of the same general character.	The change in location of the VMSF to Site K will locate the facility in an area that is more compatible to the proposed use. Land use and economics impacts are reduced.
Acquisitions, Displacements, & Relocations	VMSF Site O is owned by the City of Ft. Lauderdale, so there are no acquisitions, displacements, or relocations.	VMSF Site K is owned by FEC Railway. There is currently a business leasing space on the FEC owned parcel – Decks and Docks Lumber Company, which is a wholesale decking supply business.	The City will secure Site K and provide the property for the VMSF. As a result, Site O will be available for higher intensity uses more appropriate for the downtown core.



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Neighborhoods & Populations (Social)	No Impact	None	None
Visual Resources & Aesthetics	VMSF Site O is located in a mixed-use area of multi-story buildings in the downtown core area.	VMSF Site K is located in an area predominately characterized by single story buildings and industrial land uses.	The change in location of the VMSF to Site K will locate the facility in an area that is more compatible to the proposed use. Impacts to visual resources and aesthetics are reduced.
Noise & Vibration	No Impact	A preliminary noise assessment was performed in accordance with the guidelines and procedures outlined in the FTA's Transit Noise and Vibration Impact Assessment (2006) guidebook to evaluate the potential impact of noise from the VMSF on the future fire station, which is proposed to be located on Site K to the north of the VMSF. The assessment determined there would be a moderate noise impact to the proposed fire station from the VMSF. Note that Site K is located immediately adjacent the Florida East Coast (FEC) Railway, and is subject to noise from trains using the corridor.	The City of Fort Lauderdale anticipates implementing soundproofing measures in the design and construction of the proposed fire station to reduce noise impacts from the FEC Railway, which will also mitigate noise impacts from the VMSF.
Ecosystems (Vegetation & Wildlife)	No net negative effect	None	None
Water Resources	Minimal potential increased runoff	None	None
Energy & Natural Resources	Positive Impact	None	None
Geology & Soils	Minimal to zero adverse effect	None	None
Hazardous Materials	Additional site assessment was recommended for VMSF Site O based on the findings of a Phase I ESA.	A Phase I ESA was conducted for VMSF Site K and two Recognized Environmental Conditions were noted. Results of a Phase II ESA are summarized in Section 3.1.4.	Both VMSF Sites K and O have potential contamination concerns. The extent of contamination will be assessed and remediated, if applicable or required.



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Impact Category	Impacts as Initially Disclosed	New Impacts	Change in Impacts
Public Services	No Impact	A fire station is proposed to be located adjacent to the VMSF on the northern portion of Site K.	A new traffic signal is proposed for the intersection of SW 18 th Street and SW 1 st Avenue at the entrance/exit to the VMSF. The traffic signal will include pre-emption to facilitate emergency response by fire vehicles. Streetcars will be held at the traffic signal during emergency responses.
Utilities	No Impact	None	None
Historic, Cultural & Archaeological Resources	No impact	None	None
Parklands & Recreation	No significant adverse effect	Croissant Park is located to the west of VMSF Site K across the FEC Railway tracks	No permanent impacts are anticipated to Croissant Park from the construction of the VMSF on Site K. Although temporary noise and air quality impacts associated with construction could occur, the use of Best Management Practices (BMPs) during construction would minimize these impacts.
Construction	Retrofit of 3 rd Avenue Bridge will require a temporary closure of the bridge and detour of traffic over the Andrews Avenue Bridge.	None	None
Secondary and Cumulative	Positive Impact. The net effect of the streetcar alternative would be positive, greatest effects would occur along the alignment and near proposed stations.	The change in location of the VMSF to Site K will locate the facility in an industrial zoned area that is compatible to the proposed use.	As a result of locating the VMSF at Site K, Site Q will be available for higher intensity uses more appropriate for the downtown core.

Source: FTA Environmental Re-Evaluation Consultation Form. Data compiled by Kimley-Horn and Associates, Inc., May 2014.



The following sections describe the potential resources affected by the proposed change from Site O to Site K and the potential environmental consequences of this action.

3.1.1 Land Use and Economics

Site K is located in the South Regional Activity Center (RAC) – Special Area (SA) West zoning district that is designated for heavy non-residential business uses, wholesale, warehousing, storage operations, and establishments conducting activities of the same general character.

Impacts to Site K involve redeveloping an existing industrial site into the VMSF for the Wave Modern Streetcar Project. Site K will locate the VMSF in an area that is more compatible with the proposed use; therefore, land use and economics impacts are reduced.

3.1.2 Acquisitions, Displacements, & Relocations

Site K is owned by the FEC Railway and is operated by the current property owner for intermodal transfer activities. A portion of the site is leased to Decks and Docks Lumber Company. While the terms of the lease have not been determined, the business is anticipated to be relocated with the sale of the property by FEC Railway. The City of Fort Lauderdale will acquire the necessary property for the VMSF and will subsequently transfer the property to the Project. Coordination will occur with the FEC Railway and with the tenants regarding locating the VMSF on Site K.

Under the requirements of federal law and state statute, property owners will be paid fair market value for their property, and assistance in finding replacement business sites will be provided (Florida Statute 339.09 and The Uniform Relocation Assistance and Real Property Acquisition Act of 1970 [Public Law 91-646 as amended by Public Law 100-12]). Under this Act, all federal agencies are required to meet certain standards for the fair and equitable treatment of persons displaced by federally supported actions. Advanced notification would be given of impending property acquisition.

3.1.3 Visual Resources & Aesthetics

A visual assessment considered the quality of the existing visual environment as defined by the aesthetic character of the surrounding area. This assessment relates to the level of compatibility or contrast a project would have with the existing man-made and/or natural environment.

Site K is located in an area predominately characterized by single-story buildings and industrial land uses. Site K will locate the VMSF in an area that is more compatible to the proposed use. Therefore, impacts to visual resources and aesthetics are reduced.

3.1.4 Noise and Vibration

A preliminary noise assessment was performed in accordance with the guidelines and procedures outlined in the FTA's Transit Noise and Vibration Impact Assessment (2006) guidebook to evaluate the potential impact of noise from the VMSF on the future fire station, which is proposed to be located on Site K to the north of the VMSF. The assessment determined there would be a moderate noise impact to the proposed fire station from the VMSF.

Site K is located immediately adjacent the Florida East Coast (FEC) Railway, to and is subject to noise from freight trains along the corridor. Accordingly, the City of Fort Lauderdale anticipates implementing soundproofing measures in the design and construction of the proposed fire station to reduce noise impacts from the FEC Railway, which will also mitigate noise impacts from the VMSF.



3.1.5 Hazardous Materials

Air Quest Environmental, Inc. conducted a Phase I Environmental Site Assessment (ESA) on Site K in November 2013. The Phase I ESA recommended assessment of soil and groundwater quality to evaluate potential impacts from several recognized environmental conditions (RECs – as defined by ASTM 1527-05), including historic storage of treated lumber in an uncovered area, presence of current and former on-site railroad spurs, documented on-site discharges of ethanol during transfer operations, and stained soil and/or concrete near the ethanol transfer station.

SCS Engineers conducted a Phase II ESA in August 2014. The following summary of the soil and groundwater sampling results was excerpted from the Phase II ESA.

3.1.5.1 Soil Results

Review of the laboratory analytical data indicates that contaminants of concern (COCs) were either not detected at the method detection limit (MDL) or were below their respective soil cleanup target level (SCTL), with the following exceptions:

- Arsenic exceeded the residential direct exposure SCTL of 2.1 mg/kg in composite samples collected in the eastern, southern, and western portions of the site;
- Benzo(a)pyrene (BaP) and BaP toxicity equivalents (BaPE) exceeded the residential SCTLs in samples collected in the upper four feet in the eastern and western portions of the site; and
- BaP and BaPE exceeded the commercial/industrial SCTLs in soil samples collected from the western portion of the site and at soil boring DN-2 (0-2' interval).

3.1.5.2 Groundwater Results

Review of the groundwater analytical data indicates that total arsenic was detected in excess of the groundwater cleanup target level (GCTL) of 10 micrograms per liter ($\mu\text{g/L}$) in samples collected from four monitoring wells at concentrations ranging from 15 $\mu\text{g/L}$ to 55 $\mu\text{g/L}$. All other COCs were either not detected at the MDL or were below their respective GCTL per Florida Department of Environmental Protection (FDEP) regulations found in Chapter 62-777 of the Florida Administrative Code (FAC).

Due to the reported arsenic concentrations and in light of the fact that falsely elevated concentrations of heavy metals are common in groundwater samples, filtered groundwater samples were analyzed to evaluate dissolved arsenic content. Review of the filtered groundwater data indicates that dissolved arsenic in excess of the GCTL was detected in samples collected from only two monitoring wells at concentrations of 27 $\mu\text{g/L}$ and 52 $\mu\text{g/L}$.

The reported concentrations of arsenic are below the natural attenuation default concentration (NADC) of 100 $\mu\text{g/L}$. Concentrations below the NADC indicate the contaminant is at a concentration level that is expected to decrease to levels below the cleanup target level over a period of time. Additionally, with the exception of one monitoring well, the arsenic concentrations are below the fresh surface water GCTL of 50 $\mu\text{g/L}$.

3.1.5.3 Vapor Encroachment Results

Review of the soil vapor screening indicates that all samples were below one part per million.



3.1.5.4 Conclusions and Recommendations

According to the results and conclusions in the Phase II ESA, the concentrations of COCs identified during the assessment would not deter commercial or light industrial property use. Based on commercial/industrial exposure assumptions, the site would qualify for a Level II (No Further Action with Conditions) closure, which would consist of institutional and engineering controls. During redevelopment of the site, a plan for soil management, stormwater planning/management, and dewatering (if proposed) will need to be developed to minimize the effects of soil and groundwater contamination at the site. Additional evaluation and remediation may be required and will be completed during design, permitting, and construction for the site in accordance with applicable local, state, and federal laws.

3.1.6 Public Services

A fire station is proposed to be located adjacent to the VMSF on the northern portion of Site K. A new traffic signal is proposed for the intersection of SW 18th Street and SW 1st Avenue at the entrance/exit to the VMSF. The traffic signal will include pre-emption to facilitate emergency response by fire vehicles. Streetcars will be held at the traffic signal during emergency responses, thus adverse impacts to emergency responses will be mitigated.

3.2 Stations

The minor refinements to the station locations described in Section 2.2 are based on design changes developed in the Project's PE phase of Project Development and occur exclusively within the existing roadway right-of-way along the alignment previously evaluated in the approved EA/FONSI (2012). The environmental impacts are not expected to substantially differ from those previously evaluated.

3.2.1.1 Refinements to Station Locations Evaluated in EA/FONSI (2012)

The following station locations were refined based on design changes required to reduce or eliminate potential transportation and property access impacts identified during the preliminary design and engineering phase. The station locations are consistent with the evaluation completed during the EA. The refinements are considered minor and will improve project implementation and service operations (see Table 3: Proposed Station Location Refinements).



Table 3: Proposed Station Location Refinements

EA/FONSI (2012) Station Locations	30% Design Plans (2014) Station Locations	Proposed Refinement/Change	Potential Impacts
S Andrews Avenue and S 17 th Street	S Andrews Avenue at S 16 th Street	Station shifted north by approximately a half block	No adverse impacts; located along alignment evaluated in EA
S Andrews Avenue and S 13 th Street	S Andrews Avenue at S 13 th Street	No Change	-
S Andrews Avenue north of S 8 th Street	None	Removed	Eliminates station at low density location. Design will accommodate a future station, when warranted.
S Andrews Avenue south of S 6 th Street or SE 7 th Street east of SE 3 rd Avenue	S Andrews Avenue south of S 6 th Street	Northbound station on SE 7 th Street combined with southbound station on S Andrews Avenue	None; same location as evaluated in EA
SE 6 th Street west of SE 3 rd Avenue	SE 6 th Street west of SE 3 rd Avenue	No Change	-
SE 3 rd Avenue and E Las Olas Boulevard	SE 3 rd Avenue at E Las Olas Boulevard	No Change	-
SE 2 nd Street and SE 1 st Avenue or SW 1 st Avenue and W Las Olas Blvd	SE 2 nd Street east of SE 1 st Avenue and SW 1 st Avenue and W Las Olas Blvd	No Change	-
NW 1 st Avenue south of NW 2 nd Street	NW 1 st Avenue south of NW 2 nd Street	No Change	-
NE 4 th Street and NE 2 nd Avenue	NE 4 th Street and NE 2 nd Avenue	No Change	-
NE 3 rd Avenue south of NE 6 th Street	NE 3 rd Avenue south of NE 6 th Street	No Change	-



3.2.1.2 New Station Locations Within Proposed Alignment

The following station locations are proposed based on design changes identified during the preliminary design and engineering phase. The new station locations are not expected to produce any adverse impacts. The proposed station locations are located within the existing roadway right-of-way, and the adjustments will improve accessibility to the streetcar system (see Table 4: Proposed New Station Locations).

Table 4: Proposed New Station Locations

30% Design Plans (2014) Proposed Station Locations	Proposed Design Change	Potential Impacts
SW 1 st Avenue north of SW 2 nd Street	Northbound station platform provided as pair to the southbound station platform on SW 1 st Avenue south of W Las Olas Boulevard (See Figure 8)	No adverse impacts; located along alignment evaluated in EA
N Andrews Avenue south of N 6 th Street	Southbound station platform provided to serve neighborhood with the addition of Flagler Loop (See Figure 9)	No adverse impacts; located along alignment evaluated in EA

3.2.1.2.1 Station at SW 1st Avenue north of SW 2nd Street

The proposed side platform station at SW 1st Avenue north of SW 2nd Street (northbound) was added to complement the side platform station at SW 1st Avenue and W Las Olas Boulevard (southbound) located along the east-west, one-way pair alignment north of the New River (see Figure 8). This station location refinement was identified in PE design to provide improved access to major destinations and activity centers within the core of Downtown Fort Lauderdale, including the Broward County Government Center, Himmarshee Village entertainment district, Museum of Discovery and Science, and Broward Center for the Performing Arts.

The proposed station platform is located within the existing roadway right-of-way near the rear entrance of the Broward County Governmental Center building, located within the Downtown Fort Lauderdale mixed-use area. This proposed northbound platform location provides improved access for passengers and does not result in any adverse impacts to parking, driveway access, visual or cultural resources.



Figure 8: Refined Station Location at SW 1st Avenue and SW 2nd Street



3.2.1.2.2 Station at N Andrews Avenue south of N 6th Street

The proposed side platform station at N Andrews Avenue south of N 6th Street (southbound) was added to supplement the side platform at NE 4th Street and NE 2nd Avenue (northbound) along the Flagler Loop alignment, as described in Section 2.4 and illustrated in Figure 9.



Figure 9: Refined Station Location at N Andrews Avenue south of N 6th Street



This station location refinement was identified in PE design to provide improved access for the predominantly lower-income Northwest-Progresso-Flagler Heights Community Redevelopment Area (CRA) neighborhood, providing connectivity to employment opportunities in Downtown Fort Lauderdale and the Broward Medical Center district which are directly served by the proposed streetcar alignment. This proposed southbound platform location is located within the existing roadway right-of-way and does not result in any adverse impacts to parking, driveway access, visual, noise or cultural resources.



3.3 Alignment along SE 6th Street and SE 7th Street

The alignment along SE 6th Street proposed for bi-directional travel between S Andrews Avenue and SE 3rd Avenue was previously evaluated in the EA/FONSI (2012) – Section 2.2 Development and Screening of Conceptual Transit Circulator (Build) Alternatives. The bi-directional service along this segment of SE 6th Street was evaluated as part of the EA/FONSI (2012) for Alternatives C1, D1, D3, and D4, prior to the definition and selection of Alternative E1 as the LPA. The SE 6th Street and SE 7th Street segments between S Andrews Avenue and were identified as optional extensions in the adopted LPA (see Figure 5: Locally Preferred Alternative (EA/FONSI, 2012)).

The minor refinement to the proposed alignment along SE 6th Street between S Andrews Avenue and SE 3rd Avenue for bi-directional service, as described in Section 2.3, occurs exclusively within the existing roadway right-of-way and does not result in any adverse impacts to parking, driveway access, visual, noise or cultural resources.

3.4 Flagler Loop Alignment

The Flagler Loop alignment described in Section 2.4 is proposed within the existing roadway right-of-ways and is located within the study area that was evaluated in the approved EA/FONSI (2012) (see Figure 5: Locally Preferred Alternative (EA/FONSI, 2012)). Environmental impacts are not expected to differ substantially from those previously evaluated.

The Flagler Loop provides several benefits including travel time savings resulting from eliminating the need to access a non-revenue section of the alignment (tail track) in order to reverse the streetcar's direction to travel back south from the northern terminus of the route. In addition, the introduction of an additional stop along the Flagler Loop will likely result in increased ridership, as access to the system will be enhanced to the growing Flagler Village neighborhood and the historically underrepresented community along N 6th Street (Sistrunk Boulevard).

An FTA Environmental Reevaluation Consultation Worksheet was completed as a tool to evaluate the impacts associated with the Flagler Loop alignment extension. The reevaluation included a review of the EA/FONSI (2012) and supporting technical evaluations, site visits, and an update of existing databases to document potential changes in the environment.

No substantial changes in impact were determined for the following resource categories:

- Acquisitions, Displacements and Relocations
- Visual Resources and Aesthetics
- Air Quality
- Noise & Vibration
- Ecosystems (Vegetation & Wildlife)
- Water Resources
- Energy & Natural Resources
- Geology & Soils
- Hazardous Materials
- Utilities
- Historic, Cultural & Archaeological Resources
- Parklands & Recreation
- Construction



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Potential changes to impacts were identified for the following resource categories: Transportation; Land Use and Economics; Neighborhoods & Populations (Social); Public Services; and Secondary and Cumulative. Table 5 provides a summary of the impacts initially identified in the approved EA/FONSI and the change in impacts associated with the Flagler Loop. The following sections describe the potential resources affected by the proposed change with the Flagler Loop and the potential environmental consequences of this action.



Table 5: Flagler Loop Summary of Environmental Effects

Impact Category	Impacts as Initially Disclosed	New Impacts	Change in impacts
Transportation	<p>Traffic analysis presented in Chapter 4 of the Environmental Assessment dated September 10, 2012, indicated that only marginal changes to traffic volumes and level of service are expected.</p> <p>The project will have no adverse impact on transit and will provide improvements to the quality of service.</p> <p>The project will not have a significant impact on overall parking within the project area, although there will be a loss of some on-street parking.</p>	<p>A traffic impact analysis was performed to evaluate the impacts associated with the proposed Flagler Loop alignment.</p> <p>The Wave Streetcar project was determined to have negligible impact on roadway segment level of service (LOS) within the Flagler Loop alignment. All roadway segments are expected to operate at LOS C or D, which meets the adopted level of service standards.</p> <p>Level of service analyses were performed for the signalized intersections within the Flagler Loop alignment. The analyses considered the addition of a special signal phasing to serve the operational needs of the streetcar system. All intersections are expected to operate at LOS C or better, which meets the adopted LOS standard.</p> <p>The Flagler Loop alignment will not require the loss of any on-street parking.</p>	<p>Positive Impact. The Flagler Loop end-of-line treatment eliminates the need to extend the project alignment on NE 3rd Avenue to the north of NE 6th Street in order to access a tail track along a non-revenue section of the alignment, for the streetcar to reverse direction at the project's northern terminus. Eliminating the tail track and non-revenue streetcar movements at the northern terminus will reduce the project's impact on traffic operations.</p>
Land Use and Economics	No Impact	<p>The Flagler Loop is located within the predominantly lower-income Northwest-Progresso-Flagler Heights Community Redevelopment Area (CRA) neighborhood, where revitalization efforts are currently underway. The CRA is located within the Downtown-Regional Activity Center (D-RAC) that encourages higher density, transit oriented development. In February 2015, the City of Fort Lauderdale amended their land use plan to allow 5,000 additional residential units with a requirement of at least 15% affordable units.</p> <p>The Flagler Loop alignment and station areas will provide improved access from the low-income and adjacent minority neighborhood to employment opportunities located in Downtown Fort Lauderdale and the Broward Medical Center district, which are directly served by the proposed streetcar alignment.</p>	<p>Positive Impact. The Flagler Loop will support City neighborhood investment plans, and will provide improved access to the Wave Streetcar system and connectivity to destinations and employment opportunities along the alignment.</p>



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Impact Category	Impacts as Initially Disclosed	New Impacts	Change in Impacts
Acquisitions, Displacements, & Relocations	No impact	None	None
Neighborhoods & Populations (Social)	No impact	Based on the 2010 Census, approximately 31% of the population in the Census Tract (045) containing the Flagler Loop is living below the federal poverty level (see Section 3.1.1.1 of the September 10, 2012, Environmental Assessment). The Flagler Loop with the proposed station on N Andrews Avenue south of N 6 th Street will provide enhanced access to the Wave Streetcar system for the surrounding low income neighborhood.	Positive Impact. A low-income population will be provided greater access to the Wave Streetcar system and connectivity to destinations and employment opportunities along the alignment.
Visual Resources & Aesthetics	The streetcar system's infrastructure will include an over-head contact system (OCS), consisting of support poles, cantilever brackets, and overhead wires.	The streetcar's OCS will be extended along NE 6 th Street between NE 3 rd Avenue and N Andrews Avenue, and along N Andrews Avenue between N 6 th Street and N 4 th Street for the Flagler Loop. The proposed Flagler Loop is located in a mixed-use area of multi-story buildings adjacent to the downtown core area. The number of OCS support poles will be reduced on NE 3 rd Avenue between NE 6 th Street and NE 4 th Street, and on NE 4 th Street between NE 3 rd Avenue and N Andrews Avenue, because the streetcar will operate in one direction (versus in two directions) with the addition of the Flagler Loop. In addition, the Flagler Loop end-of-line treatment eliminates the need to extend the OCS north of NE 6 th Street on NE 3 rd Avenue to serve the tail track required for the prior alignment.	No net impact. The infrastructure associated with the streetcar's OCS will be extended along NE 6 th Street and N Andrews Avenue, but will be reduced along NE 3 rd Avenue and NE 4 th Street. The new OCS poles may also be able to support streetlight and signage to provide an improved visual image with fewer overall poles along the alignment.

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Impact Category	Impacts as Initially Disclosed	New Impacts	Change in Impacts
Air Quality	Temporary impacts on air quality would occur during construction from dust and mobile source emissions. State and local regulations for dust control and other air quality emissions would be followed.	Temporary air quality impacts during construction along NE 6 th Street between NE 3 rd Avenue and N Andrews Avenue, and along N Andrews Avenue between N 6 th Street and N 4 th Street, are possible.	During the construction of the Flagler Loop, temporary air quality impacts along NE 6 th Street and N Andrews Avenue are possible, but air quality should return to normal levels with completion of the project.
Noise & Vibration	A Noise Impact and Vibration Assessment Report dated November 2008 was conducted for the project and findings were summarized in the Environmental Assessment dated September 10, 2012. The operations of the project were not expected to result in noise or vibration impacts.	One noise and vibration sensitive receptor (R-2) was identified along the Flagler Loop alignment in the Environmental Analysis dated September 10, 2012 (see Sections 3.4.2.3 and 3.4.2.4). R-2 is a residential use which is located along a tangent section of the proposed alignment within the Flagler Loop. The estimated noise from the project's operation is less than the existing noise level at this location. Likewise, the estimated vibration levels at R-2 are expected to be below FTA's impact threshold for residential resources.	None
Ecosystems (Vegetation & Wildlife)	No net negative effect	None	None
Water Resources	The project will operate within the existing street right-of-way and therefore will have minor increases in impervious surface. Construction of the project could temporarily increase runoff during storm events.	Existing stormwater management facilities are adequate to accommodate the proposed Flagler Loop alignment. On-site treatment will be provided.	None
Energy & Natural Resources	Positive Impact	None	None

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Impact Category	Impacts as Initially Disclosed	New Impacts	Change in Impacts
Geology & Soils	Minimal to zero adverse effect	None	None
Hazardous Materials	A Contamination Screening Evaluation Report (CSER) dated July 2008 was conducted for the project and findings were summarized in the Environmental Assessment dated September 10, 2012. Additional site assessment was recommended for Medium and High hazardous material rated sites within the project area, as identified in Section 8.0 of the CSER.	No Medium or High hazardous material rated sites were identified along the Flagler Loop alignment in the CSER. A windshield survey of the area was performed in February 2015 to confirm that no potential hazardous material sites were present along the Flagler Loop alignment.	None
Public Services	Access routes and travel time for emergency and public services could be impacted during construction of the project	Additional lane closures will be required along NE 6 th Street between NE 3 rd Avenue and N Andrews Avenue, and along N Andrews Avenue between N 6 th Street and N 4 th Street, during the construction of the Flagler Loop	Temporary construction impacts to access routes and travel time for emergency and public services will be experienced in the Flagler Loop segment
Utilities	The project will not result in significant impacts to utilities. Where there is a conflict between the project and a utility facility, the utility facility will be relocated. Disruptions to utilities will be kept to a minimum.	Additional utility relocations may be required along NE 6 th Street between NE 3 rd Avenue and N Andrews Avenue, and along N Andrews Avenue between N 6 th Street and N 4 th Street. However, utility relocations will likely be reduced on NE 3 rd Avenue between NE 6 th Street and NE 4 th Street, and on NE 4 th Street between NE 3 rd Avenue and N Andrews Avenue as the streetcar operating in one direction along the Flagler Loop instead of two directions with the initial alignment. In addition, the Flagler Loop end-of-line treatment eliminates utilities impacts on NE 3 rd Avenue to the north of NE 6 th Street, as a tail track is no longer required at the northern terminus of the alignment.	No net impact. Utilities impacts will be extended along NE 6 th Street and N Andrews Avenue, but will be reduced along NE 3 rd Avenue and NE 4 th Street.



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Impact Category	Impacts as Initially Disclosed	New Impacts	Change in Impacts
Historic, Cultural & Archaeological Resources	A Cultural Resource Assessment Survey dated July 2007 was conducted for the project and findings were summarized in the Environmental Assessment dated September 10, 2012. The operations of the project were not expected to result in permanent impacts to historic or archaeological resources.	No historic or archaeological resources were identified in the vicinity of the proposed Flagler Loop in the Environmental Analysis dated September 10, 2012 (see Sections 3.7.1.2 and 3.7.1.3). A windshield survey of the area was performed in February 2015 to confirm that no potential historic resources were present along the Flagler Loop alignment.	None
Parklands & Recreation	No permanent adverse impacts or right-of-way acquisition as a result of the project.	None	None
Construction	Temporary impacts are expected to occur during construction including temporary street closure/detours, air emissions, and noise. Best management practices (BMPs) will be implemented to reduce construction impacts.	With the Flagler Loop construction impacts will be extended along NE 6 th Street between NE 3 rd Avenue and N Andrews Avenue, and along N Andrews Avenue between N 6 th Street and N 4 th Street. However, construction impacts will be reduced on NE 3 rd Avenue between NE 6 th Street and NE 4 th Street, and on NE 4 th Street between NE 3 rd Avenue and N Andrews Avenue as the streetcar operating in one direction along the Flagler Loop instead of two directions with the initial alignment. In addition, the Flagler Loop end-of-line treatment eliminates construction impacts on NE 3 rd Avenue to the north of NE 6 th Street, as a tail track is no longer required at the northern terminus of the alignment.	No net impact. Construction impacts will be extended along NE 6 th Street and N Andrews Avenue, but will be reduced along NE 3 rd Avenue and NE 4 th Street.
Secondary and Cumulative	Positive Impact. The effect of the streetcar alternative would be positive. The project will improve access and mobility in an area designated as a Regional Activity Center (RAC) and zoned for high-density mixed-use development.	The proposed Flagler Loop will provide greater access to the Wave Streetcar system within an area that is experiencing rapid growth and redevelopment.	Net Positive. The Flagler Loop will provide greater access to the Wave Streetcar system for an area where growth and redevelopment is being directed. The greatest effects will occur along the new section of the proposed alignment and near the new proposed station.

Source: FTA Environmental Re-Evaluation Consultation Form. Data compiled by Kimley-Horn and Associates, Inc., February 2015.

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The following sections describe the potential resources affected by the proposed change from the northern terminus tail track alignment to the Flagler Loop alignment.

3.4.1 Transportation

A traffic impact analysis was performed to evaluate the impacts associated with the proposed Flagler Loop alignment. Roadway segment level of service (LOS) and intersection LOS were considered.

The Wave Streetcar project was determined to have negligible impact on roadway segment LOS within the Flagler Loop alignment. All roadway segments are expected to operate at LOS C or D, which meets the adopted level of service standards. The results of the roadway segment LOS analysis are presented in Table 6.

Table 6: Roadway Segment LOS Summary

Roadway Segment	AM Peak Hour LOS/ Volume (vph)	PM Peak Hour LOS / Volume (vph)
<i>2014 Existing Conditions (2018 Conditions with Wave Streetcar Flagler Loop Alignment)</i>		
N Andrews Avenue between N 4 th Street and N 6 th Street	D / 1,469 vph (D / 1,537 vph)	D / 1,707 vph (D / 1,784 vph)
NE 3 rd Avenue between NE 4 th Street and NE 6 th Street	D / 1,460 vph (D / 1,529 vph)	D / 1,844 vph (D / 1,931 vph)
NE 4 th Street between N Andrews Avenue and NE 3 rd Avenue	C / 329 vph (C / 351 vph)	C / 435 vph (C / 461 vph)
NE 6 th Street between N Andrews Avenue and NE 3 rd Street	D / 564 vph (D / 595 vph)	D / 671 vph (D / 707 vph)

Level of service analyses were performed for the signalized intersections within the Flagler Loop alignment. The analyses considered the addition of special signal phasing required to serve the operational needs of the streetcar system. All intersections are expected to operate at LOS C or better, which meets the adopted LOS standard. A comparison of the previously proposed tail track option and the newly proposed Flagler Loop alignment option is provided in Table 7.

Table 7: Intersection LOS Summary

Intersection	AM Peak Hour LOS	PM Peak Hour LOS
<i>2018 Conditions – Northern Terminus Tail Track Alignment {2018 Conditions - Flagler Loop Alignment}</i>		
N Andrews Avenue and N 4 th Street	B {C}	C {C}
N Andrews Avenue and N 6 th Street	B {C}	B {C}
NE 3 rd Avenue and NE 4 th Street	D {C}	D {C}
NE 3 rd Avenue and NE 6 th Street	B {B}	B {B}
Average Vehicle Delay (seconds)	81.0 sec {87.5 sec}	106.6 sec {90.2 sec}

The Flagler Loop end-of-line treatment eliminates the need to extend the project alignment on NE 3rd Avenue to the north of NE 6th Street in order to access a tail track along a non-revenue section of the



alignment, for the streetcar to reverse direction at the project's northern terminus. Eliminating the tail track and non-revenue streetcar movements at the northern terminus will reduce the project's impact on traffic operations.

3.4.2 Land Use and Economics

The Flagler Loop is located within the predominantly lower-income Northwest-Progresso-Flagler Heights Community Redevelopment Area (CRA) neighborhood, where revitalization efforts are currently underway. The CRA is located within the Downtown-Regional Activity Center (D-RAC) that encourages higher density, transit oriented development. The purpose of the CRA is to direct redevelopment activity through targeted toward infrastructure improvements, to assist the private sector in property development, and to provide business incentives to redevelop blighted commercial properties. In February 2015, the City of Fort Lauderdale amended their land use plan to allow 5,000 additional residential units in the D-RAC, with a requirement of at least 15 percent affordable units.

Impacts from the Flagler Loop are positive by supporting ongoing revitalization efforts along the historic African-American N 6th Street (Sistrunk Boulevard) corridor, Flagler Village neighborhood, and CRA area through capital infrastructure investment and improved community access.

3.4.3 Neighborhood and Populations (Social)

Based on the 2010 Census, approximately 31 percent of the population in the Census Tract (045) containing the Flagler Loop is living below the federal poverty level (see EA/FONSI (2012) - Section 3.1.1.1). The Flagler Loop with the proposed station on N Andrews Avenue south of N 6th Street will provide enhanced access to the Wave Streetcar system for the surrounding low income neighborhood.

Impacts from the Flagler Loop are positive by providing improved access from the adjacent, low-income, high minority population neighborhood, to employment opportunities located in Downtown Fort Lauderdale and at the Broward Medical Center, which are directly served by the Wave Streetcar alignment.

3.4.4 Public Services

During the construction of the Flagler Loop, additional lane closures will be required along NE 6th Street between NE 3rd Avenue and N Andrews Avenue, and along N Andrews Avenue between N 6th Street and N 4th Street. Temporary construction impacts to access routes and travel time for emergency and public services will be experienced. Construction activities will be planned in coordination with police and fire rescue personnel to minimize potential effects on public safety and security during construction.

3.4.5 Secondary and Cumulative

The Flagler Loop eliminates a tail track segment at the previous terminus location at NE 3rd Avenue and NE 6th Street. The proposed alignment would use existing roadways, previously identified and evaluated as part of alternatives considered in the EA/FONSI (2012).

Impacts from the Flagler Loop are positive by eliminating a non-revenue crossover movement and associated infrastructure and traffic impacts, as well as providing improved operations and access to the adjacent neighborhood.



4 COMMENTS AND COORDINATION

Public outreach will be conducted for the Supplemental EA in a manner consistent with the approved EA/FONSI (2012).

Meetings are planned with property owners and affected businesses. This Supplemental EA will be made available for public review and comment. Advance notice of public meetings will be provided and a Public Hearing will be conducted to officially record public comments.



5 COMMITMENTS AND RECOMMENDATIONS

Commitments and recommendations will be identified following the public outreach process. The commitments and mitigation measures identified in the approved EA/FONSI (2012) will subsequently be updated.

No substantive commitments are anticipated based on the changes in potential impacts outlined in Table 2 and Table 5.