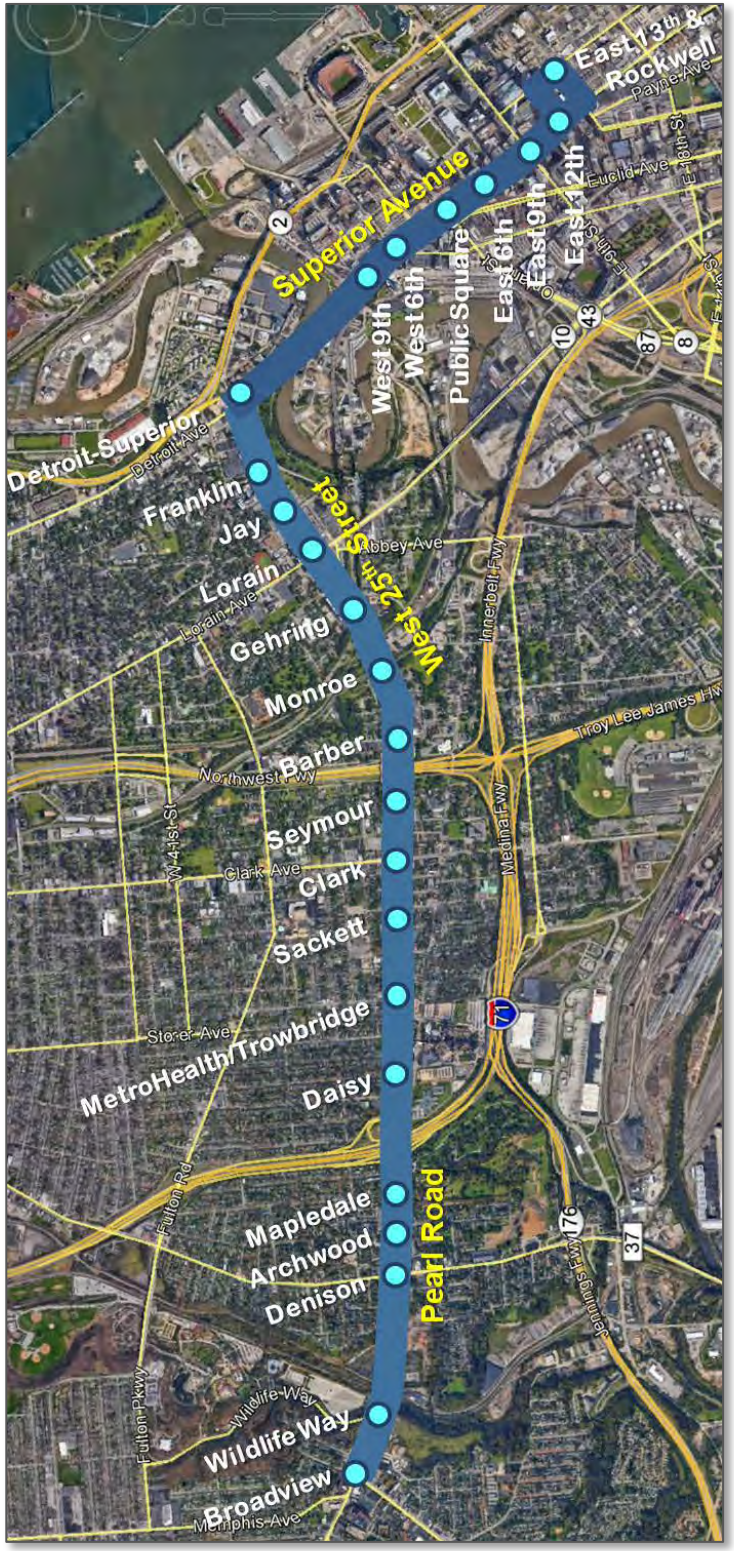

West 25th Street Bus Rapid Transit Development Project

January 2019

Prepared for:

Cleveland Neighborhood Progress

Greater Cleveland Regional Transit Authority

Prepared by:

WSP USA

Introduction

The West 25th Street Bus Rapid Transit Development Project is a critical step in the development of higher-order transit service in one of most important transit corridors operated by the Greater Cleveland Regional Transit Authority (RTA). The project has four key elements:

- Developing an Initial Bus Rapid Transit (BRT) concept
- Coordination with local transportation and planning Agencies
- Cost estimation
- Preparation for Federal Transit Administration (FTA) New Starts and other funding submission(s)
- Traffic review to assess the ability of corridor to achieve bus only lanes for at least 50 percent of its length for the peak direction during each peak hour

The purpose of this work is to advance the planning and conceptual design of the West 25th Street Bus Rapid Transit project and to identify the next steps that will be required to continue the project's progress, particularly if the project is to seek funding through the FTA New Starts process and continue coordinated planning and design with ongoing dialog among stakeholders to further transit improvements along W. 25th Street to allow it to realize its potential as a true BRT corridor.

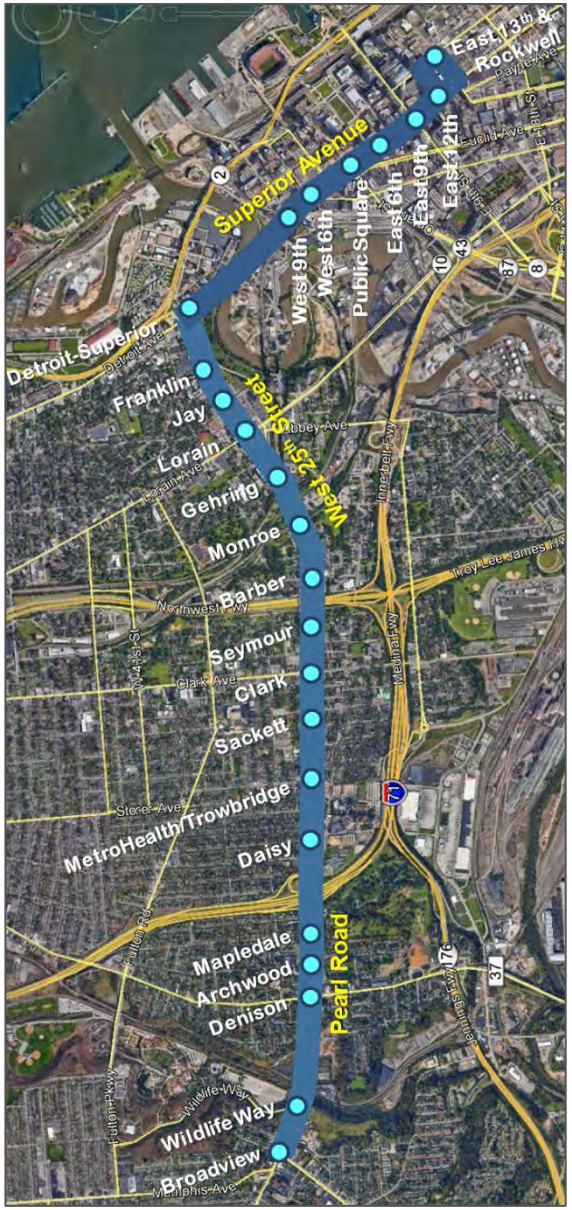

Figure 1: W.25th Street BRT Corridor

Project Purpose & Need

The purpose of the West 25th Street BRT project is to implement priority transit improvements in the West 25th Street corridor for the defined BRT corridor between downtown Cleveland and Broadview Road. Such improvements include reduced and reliable travel speed, operational service reliability and passenger amenities. These improvements will support ridership and promote transit-oriented development (TOD) along the corridor.

The need for the project is demonstrated by the delay experienced by buses in the corridor as compared to auto travel, the low level of passenger amenities in the corridor, the uneven pace of development within the corridor, and the need to ensure transit-supportive development as the corridor continues to redevelop.

RTA identified West 25th Street as a priority transit corridor in its 2010-2020 Strategic Plan. The plan defined RTA's priority corridors based on high transit ridership, the corridor's importance in regional auto travel patterns, the degree of transit propensity, the presence of regional destinations within the corridor, and the corridor's existing transit-supportive development and/or redevelopment potential. RTA's intention for the priority corridors is to make improvements that may include the following elements:

- Higher capacity vehicles
- Frequent bus service and timed connections to connect with and provide efficient transfers to other routes within the RTA network
- Traffic signal priority improvements to allow buses to move faster in traffic
- A brand identity for each priority corridor to build corridor identity and public awareness through special vehicle, station and bus stop paint schemes, logos and signage
- Overlay zoning districts designated to encourage transit-oriented development (TOD) including transit friendly development forms, land uses and densities
- Incentives to develop TOD adjacent to transit stops and facilities
- Stations with high degrees of amenities that reflect their context within the neighborhood.

The West 25th Street priority corridor as defined in the Strategic Plan follows much of the alignment of RTA Route 51, including its southern branches on Pearl (Ohio Route 42) and Ridge Roads. This corridor was identified as a priority corridor because it is among the busiest in the RTA bus network and because it serves regional arterial roadways that support critical north-south auto travel patterns in southwestern Cuyahoga County. The 2016 revision of the priority corridors modified the West 25th Street BRT corridor branches to follow the alignments of the bus routes then serving the corridor, extending the terminus of the Pearl Road branch to match the alignment of RTA route 51 (serving Drake and Howe Roads in Strongsville), and eliminating the branch serving Ridge Road. The 2016 revision also added State and Broadview Roads, which at that time were served by Routes 20 and 35, respectively. These routes shared a common alignment with Route 51 from their Pearl Road connection to downtown Cleveland. Figure 2 shows RTA's priority corridors as of 2016.

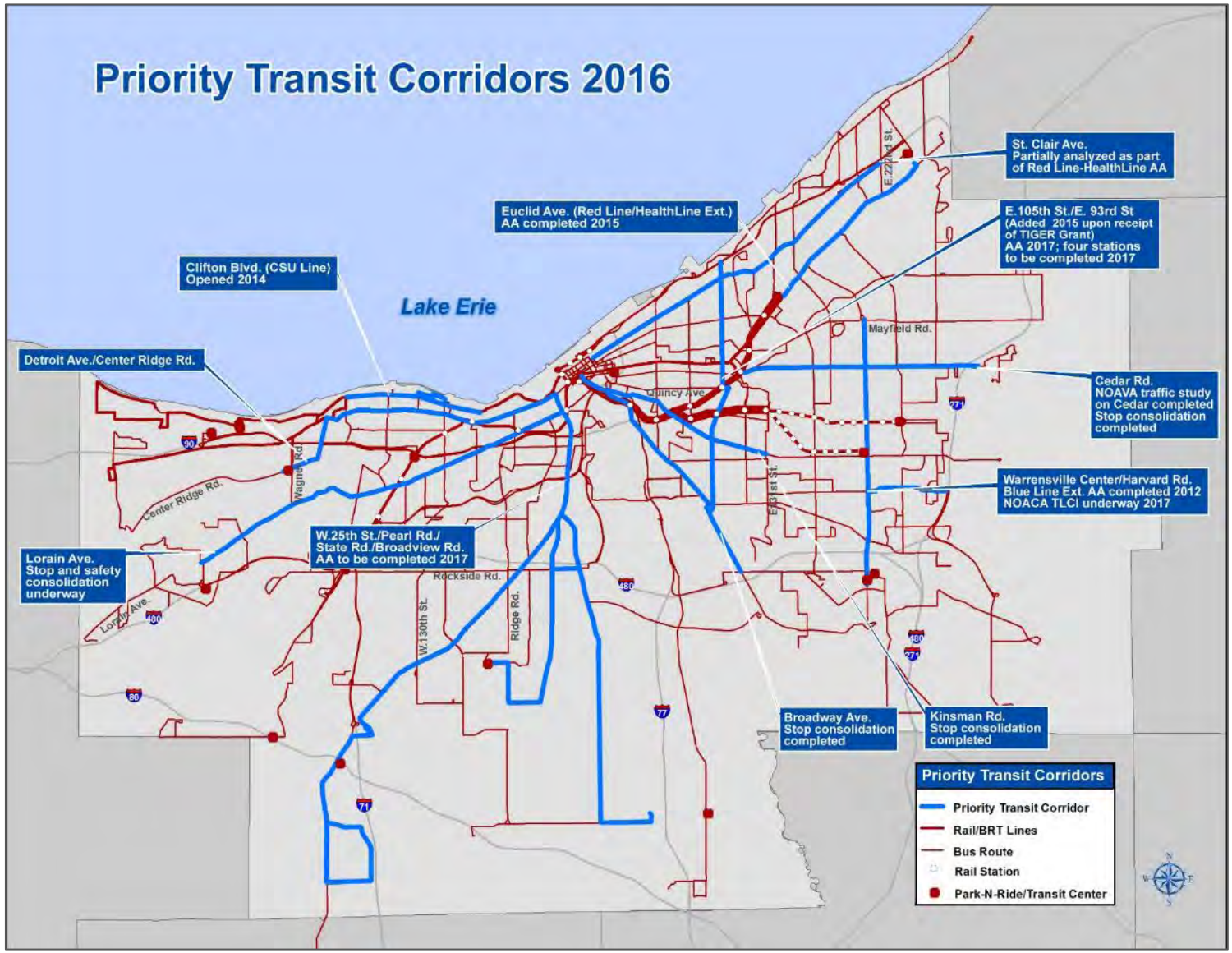

Figure 2: RTA Priority Transit Corridors, 2016

Transit Service Delay

Route 51 does not benefit from transit-priority treatments, except for portions of its alignment along Superior Avenue between West 2nd Street and East 13th Street in downtown Cleveland. This includes 24-hour dedicated bus only lanes that were implemented as part of the Transit Zone improvements for the FTA-funded Euclid Corridor (HealthLine) project. Route 51 is delayed by traffic congestion along West 25th Street and the Detroit-Superior Bridge, resulting in bus travel times that are slower and less reliable than they would be if transit priority treatments were provided.

Annual Average Daily Traffic (AADT), traffic signals and terminal locations for the West 25th Street BRT corridor are shown on the graphic in Figure 2.

Traffic volumes along the West 25th Street-Pearl Road portion of the BRT corridor range from a low of 12,800 vehicle per day on West 25th Street north of Columbus Road, to 19,530 vehicles per day on West 25th Street north of Barber Avenue as recorded on the Ohio Department of Transportation (ODOT) database. These volumes reflect the impact of commuter traffic traveling on Columbus Road. Traffic volumes along Superior Avenue between West 25th Street and East 13th Street range from 8,000 to 16,760 vehicles per day.

While these daily traffic volumes are not exceptionally high for a four-lane roadway, the volumes are highly concentrated during peak periods resulting in congested conditions in which RTA's buses must operate. RTA's public timetables for Routes 51 and 51A-C estimate the travel time from Denison and W. 25th Street (the nearest time point to Pearl and Broadview) at 25 minutes northbound during the morning and southbound during the evening. By comparison, Google Maps estimates the northbound auto travel time at as little as 14 minutes to as long as 35 minutes for trips traveling northbound during the morning peak period, and 14 to 40 minutes for southbound trips during the afternoon peak period. Morning traffic congestion is at its highest between 8:00 and 9:00 AM.

Traffic along the West 25th Street corridor experiences delay:

- South of Memphis avenue across Broadview Road to Krather Road;
- South of Bradwell Avenue north across Denison Avenue;
- I-71 north to Southpointe Drive and from MetroHealth Drive north to Selzer;
- Erin Avenue south to Wade Avenue (south of I-90);
- Carter Road north to Detroit Road, across the Detroit Superior Bridge to its terminus at East 13th Street and Rockwell Avenue

The online program estimates southbound travel time to be at its worst during the afternoon from 3:45 to 5:30 PM. During the afternoon peak period, vehicles experience delay over most of the Route 51 alignment, including these segments:

- Through downtown Cleveland between the route terminus at East 13th Street and Rockwell to West 25th Street and Detroit Avenue
- North of Lorain Avenue south to Gehring Street
- North of Queen Avenue across I-90 to Wade Avenue
- Seymour Avenue across Clark Avenue to Kinkel Avenue
- Sackett Avenue (north of MetroHealth Drive) to Denison Avenue
- North of Wildlife Way to south of Broadview Road
- Devonshire Avenue to State Road

Figure 3: Annual Average Daily Traffic (AADT) and traffic signal locations along the West 25th Street Corridor

Table 1: West 25th Street Corridor Southbound Stop Locations, Detroit Road to Broadview Road

Location	Amenity
W 25th & Detroit Ave	Shelter
W 25th & Franklin Ave	Shelter
W 25th & Jay Ave	Shelter
W 25th & Lorain Ave	Shelter, Special
W 25th & Chatham	Sign
W 25th & Monroe Ave	Shelter
W 25th & Swift Ave	Sign
W 25th & Vega Ave	Sign
W 25th & Erin Ave	Sign
W 25th & Walton Ave	Sign
W 25th & Clark Ave	Shelter
W 25th & Blatt Ct	Sign
W 25th & Holmden Ave	Sign
W 25th & Meyer Ave	Sign
W 25th & MetroHealth Dr	Sign
W 25th & Trowbridge Ave	Sign
W 25th & Marvin Ave	Sign
W 25th & Daisy Ave	Sign
Pearl Rd & Mapledale Ave	Sign
Pearl Rd & Archwood Ave	Sign
Pearl Rd & Denison Ave	Shelter
Pearl Rd & Bradwell Ave	Sign
Pearl Rd & Wildlife Way	Sign
Pearl Rd & Broadview Rd	Shelter

Inadequate Passenger Amenities

Given the high passenger volumes at bus stops along the proposed West 25th Street BRT corridor and the high volumes of passenger transfers that occur at many of the key intersections along the corridor, the amount of passenger amenities in the corridor is low.

Table 1 shows northbound station locations, with 20 bus stops located between Broadview Road and Detroit Avenue, of which eight are equipped with shelters. No shelter is provided at Lorain Avenue or at Clark Avenue due to right-of-way constraints, but both are important transfer locations

Southbound station locations are shown in Table 2. In this direction, there are 21 stops with shelters provided at eight of them. These shelters are provided at key transfer locations including at Clark Avenue and Lorain Avenue, but shelters are not provided at MetroHealth Hospital, likely due to right of way constraints on the west side of West 25th Street.

Table 2: West 25th Street Corridor Northbound Stop Locations, Broadview Road to Detroit Road

Location	Amenity
Pearl Rd & Broadview Rd	Shelter
Pearl Rd & Wildlife Way	Sign
Pearl Rd & Denison Ave	Shelter
Pearl Rd & Archwood Ave	Sign
Pearl Rd & Mapledale Ave	Shelter
W 25th & Daisy Ave	Sign
W 25th & Trowbridge Ave	Shelter
W 25th & MetroHealth Dr	Shelter
W 25th & Meyer Ave	Sign
W 25th & Holmden Ave	Sign
W 25th & Clark Ave	Sign
W 25th & Seymour Ave	Sign
W 25th & Barber Ave	Sign
W 25th & Potter Ct	Sign
W 25th & Monroe Ave	Shelter
W 25th & Gehring	Sign
W 25th & Lorain Ave	Sign
W 25th St & Jay Ave	Shelter
W 25th St & Franklin Ave	Sign
W 25th St & Detroit Ave	Shelter
Detroit Ave & W 25th St	Sign

Promotion of Transit-Oriented Development

Development along the West 25th Street corridor largely reflects a typical early 20th Century streetcar-corridor pattern; this style of development is nearly optimal for supporting public transit. Buildings facing West 25th Street are predominantly two to four stories with little or no setback on the front or along the sides. Retail development predominates at the ground level and residential or office development above. Medium density residential development predominates in the blocks east and west of West 25th Street.

The northern segment of the West 25th Street corridor, between Detroit Avenue and Gehring Avenue, is located in the Ohio City neighborhood; this is one of the highest priced real estate markets in Cleveland. This part of the corridor has experienced significant redevelopment over the past ten years, with ongoing development planned along the east side of West 25th Street. Recent and planned developments have generally maintained or increased the development density and the development style is predominantly mixed-use.

West 25th Street to the south of Columbus Road includes vacant parcels, other parcels that have been redeveloped since the 1960s at lower densities, and both newer and older developments that are at the end of their useful life and may be ripe for potential redevelopment. Several cleared parcels present a significant redevelopment opportunity on the west side of West 25th Street between Barber Avenue and Columbus Road. South of Columbus Road, newer development that consists of smaller, single-story shopping centers and fast-food restaurants with parking along West 25th Street are interspersed with older development. Except for fast food restaurants, many of the retail spaces within the West 25th Street corridor to the south of Columbus Road are in need of renovation or redevelopment. Vacancy does not appear to be high, but many of the storefront occupants are lower-rent tenants like stores selling antiques or used merchandise and offices of service professionals like plumbers and home renovators. Some of the larger spaces are occupied by medical or social service offices.

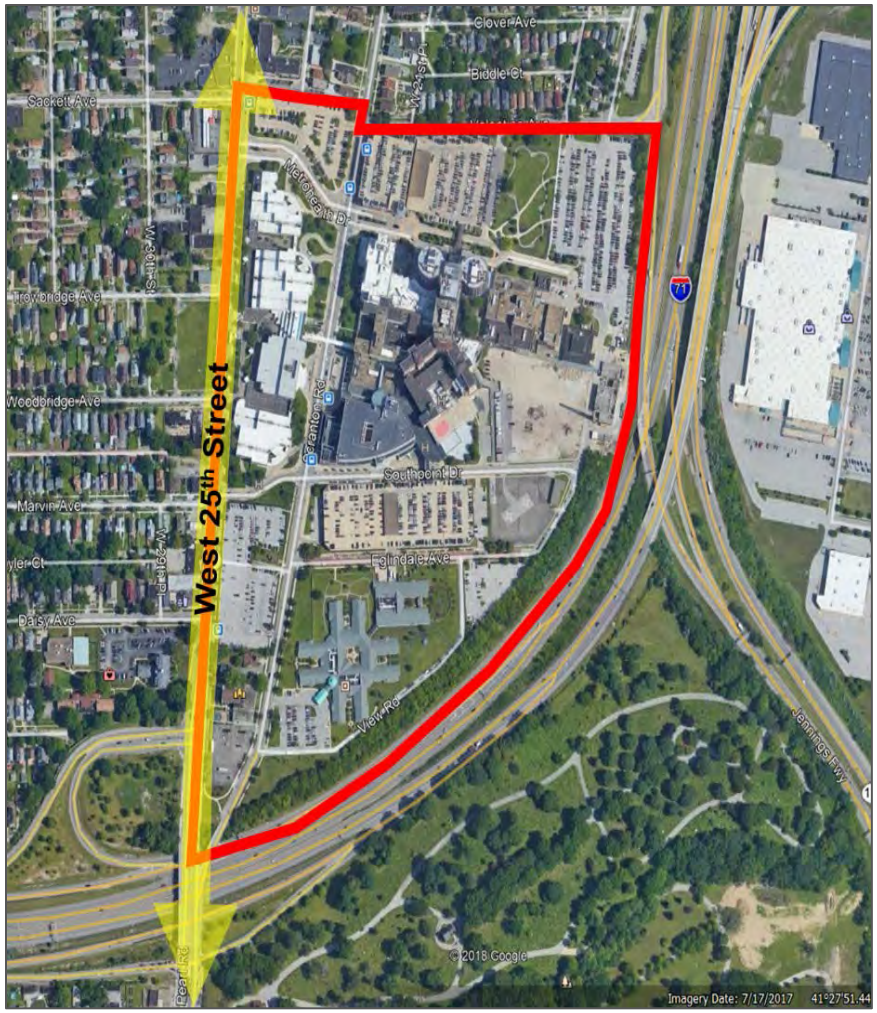

Figure 5: Existing MetroHealth Hospital Campus

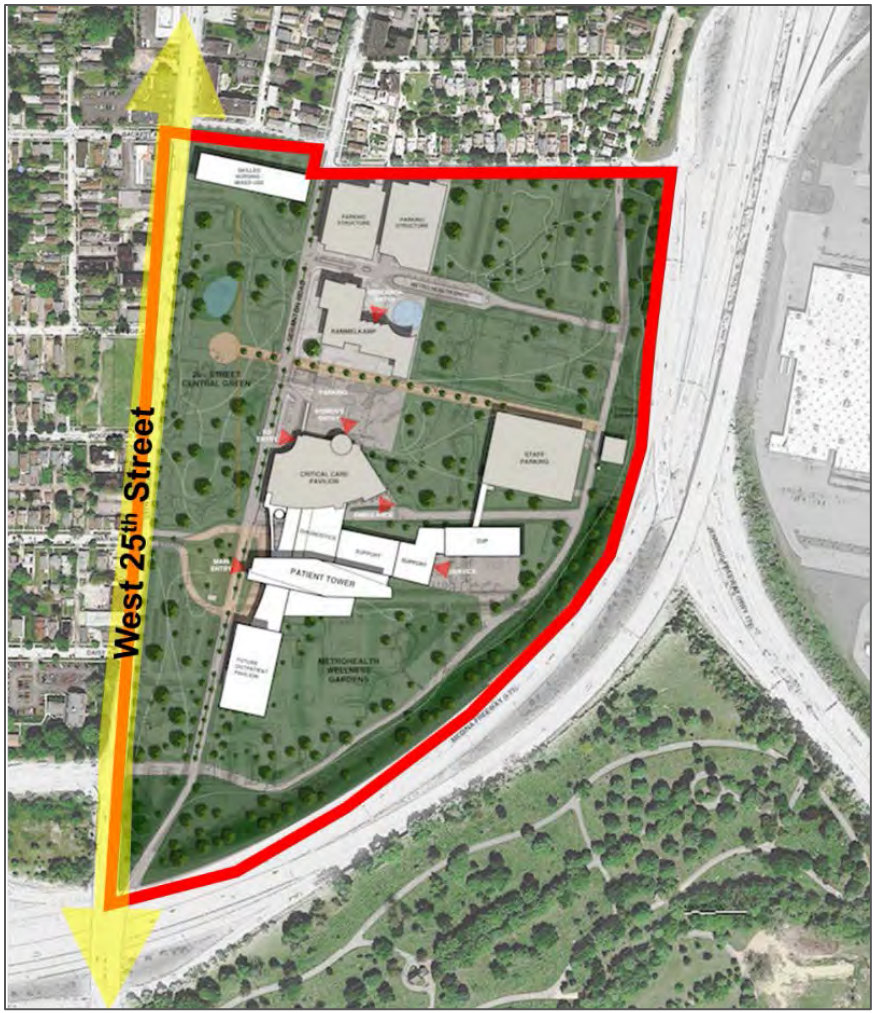

Figure 4: MetroHealth Campus Master Plan

Nearly one quarter-mile of West 25th Street frontage, between I-71 and Sackett Avenue, is occupied by MetroHealth Hospital. MetroHealth controls nearly 70 contiguous acres on the east side of West 25th Street and has acquired most of the properties on the west side of West 25th Street. The aerial photograph in Figure 4 shows the MetroHealth Campus.

MetroHealth recently unveiled its master plan for redevelopment of most of its West 25th Street campus over the next ten years.

This plan includes replacement of the main hospital building and construction of new buildings for outpatient services, offices and other hospital-related uses, as well as new parking structures. Most of the new buildings are proposed to be built in the portion of the campus east of Scranton Road, leaving vacant most of the 14-acre wedge of land between West 25th Street and Scranton Road, from I-71 to MetroHealth Drive. The plan proposes to convert this land to public open space, some of it over below-ground parking. This vacant land would be landscaped and programmed with outdoor amenities like walking trails and an outdoor fitness course. A rendering of the plan is shown in Figure 5

With few remaining developable parcels north of I-90, prices for properties south of I-90 in the West 25th Street corridor are rising. Many of the cleared and under-utilized parcels south of I-90 are almost certain to be developed in the next decade. Implementation of MetroHealth's master plan, which includes incentives to encourage up to 500 hospital employees to live in the surrounding neighborhood, also could spur redevelopment in the areas of the corridor near I-71. Improved public transit is critical to serving the growing volume of residents and workers in the corridor and to promote transit-supportive densities and development forms in the corridor.

Investment in transit stations and other amenities in the corridor is a key element in a strategy to promote transit-oriented development in the corridor. Transit corridor investments will be particularly important in developing transit facilities that will improve connections to the new MetroHealth facilities and to promote uses along the hospital's West 25th Street frontage that are more supportive of high levels of transit service and to maintaining the area's urban scale, density and character.

Project Development Since 2015

Since the implementation of RTA's median-running HealthLine BRT service in October 2008, the concept of BRT has become increasingly popular and flexible concept. Recent projects have emphasized transit and roadway operational improvements over guideway infrastructure investments to increase bus travel speed and reliability. The Cleveland State Line which opened in 2016 and runs on Clifton Boulevard is an example of a streamlined approach to BRT.

Cleveland Neighborhood Progress (CNP) and RTA, working together with their consultant team led by WSP. began the process of planning transit corridor improvements for the West 25th Street corridor as a follow-up to a larger corridor improvement project conducted by CNP in 2014-2015. This project analyzed the existing bus and rail transit services in the corridor as well as the existing and potential markets for transit service in the corridor. The project recommended several improvements to transit service and infrastructure in the corridor to improve transit system performance, enhance the passenger experience, and attract and shape development along the corridor. Recommendations included developing limited-stop and, ultimately, BRT service for the West 25th Street corridor along with no cost and low cost improvements that could be easily implemented. RTA began implementing some of these improvements shortly after completion of the project. The following sections outline some of the recommended improvements that RTA has made to transit service in the corridor since 2015.

Bus Operational Improvements

In 2015, RTA operated eight bus routes that used a portion of West 25th Street, including Routes 20, 21, 22, 35, 45A, 51, 79A/79B and 81. WSP's analysis in the previous CNP study noted

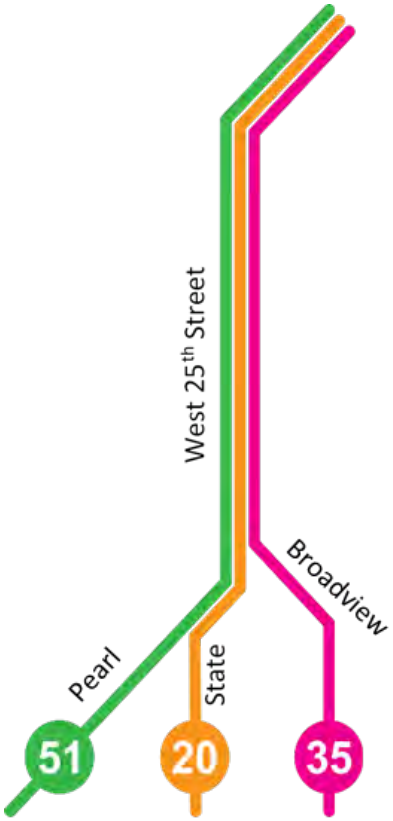

Figure 6: Before 2016, RTA routes 20 (State Road) 35 (Broadview Road) and 51 (Pearl Road) shared the same alignment along West 25th Street from Broadview Road north to downtown Cleveland, but operated as three separate bus routes. The schedules on the three routes were not coordinated, resulting in highly variable intervals between buses on West 25th Street.

that the volume of transit service on West 25th Street was among the highest in the RTA network. On West 25th Street between Lorain and Detroit Avenues, the *composite headway* (the average number of minutes between buses of all routes that pass a given point) was less than five minutes during peak periods, and less than ten minutes on segments south of Lorain Road. Although this gave the West 25th Street corridor the potential for more frequent bus service than the HealthLine or many other BRT lines operated in other cities, the schedules on the various West 25th Street bus routes were not coordinated to produce even intervals between bus trips along West 25th Street or coordinate transfers to other potential route connections. The result was an uneven pattern of arrival and departure times with buses from various routes sometimes arriving within 1-2 minutes (or even back to back), followed intervals of 10, 15 or more minutes between buses. Because of this irregular arrival pattern, the high volume of transit service operated on West 25th Street was not able to produce the high quality of transit experience or the high level of transit ridership that normally accompanies such high levels of transit investment.

In 2016, RTA's Scheduling Department remedied the situation by combining three of the bus routes that originated south of the Pearl-Broadview intersection into a single, branched bus route. As shown in the diagram in Figure 6, routes 20 (State Road), 35 (Broadview) and 51 (Pearl) originated in suburban areas south of Cleveland and shared a common alignment along Pearl Road/West 25th Street and the Detroit-Superior Bridge from Broadview Road north to Downtown Cleveland. RTA combined these three routes into a single route with multiple branches to serve the southern portions of the original routes.

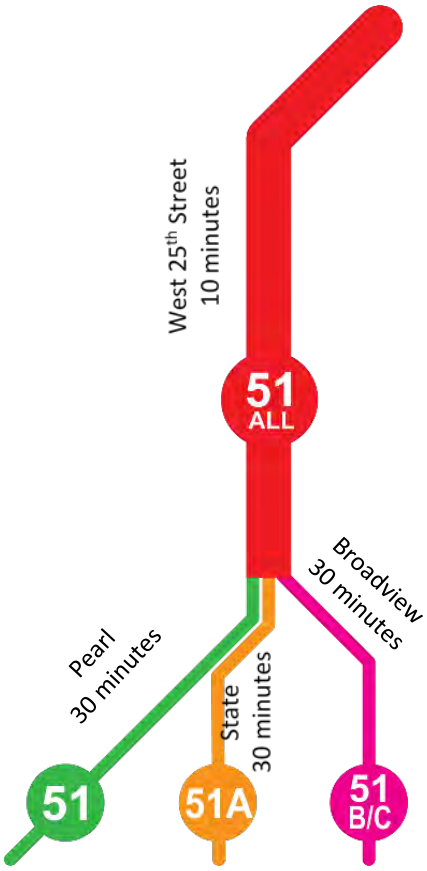

Figure 7: The combined route 51 incorporates the southern portions of the route 20, 35 and 51 alignments as branches of the common route. During weekday daytime hours (5:00 AM to 7:00 PM), the three branches each operate every 30 minutes, combining to serve the portion West 25th Street north of Broadview every ten minutes. The schedules are coordinated to provide an even interval between buses on West 25th Street.

The diagram in Figure 7 shows the new combined Route 51 incorporates Routes 20 and 35 as routes 51A and 51 B/C, respectively. Each of these branches now operates at 30-minute headway throughout the day (5:00 AM to 7:00 PM on weekdays). The three branches combine at Pearl and Broadview Roads, resulting in service running at ten-minute frequency along West 25th Street to downtown Cleveland. The common (trunk) portion of the route operates at a minimum of 15-minute headways during daytime operations on Saturdays and 30 minute headways during evenings, Sundays, and Holidays, and 60 minute headways overnight. The schedules for the new routes have been designed to provide even intervals between buses on the portion of the route that operates on West 25th Street and into downtown Cleveland. This change generated an increase in ridership, making it one of the few RTA routes that gained ridership during a period of overall ridership decline since 2016. These operational changes were "budget neutral" and did not increase the cost of operating and maintaining RTA services.

Branding

In 2017, RTA entered into an agreement with MetroHealth Hospital to brand Route 51 A-B-C, as the "MetroHealth Line." Branding elements initially included twenty new vehicles wrapped with MetroHealth advertising; 200 bus stop signs bearing the MetroHealth colors and logo; and installation of 37 standard RTA bus shelters, repainted and bearing MetroHealth colors and logos. Route 51 A-B-C bus schedules also are color coordinated with the branding and bear the MetroHealth line logo and designation, which also appears in other RTA advertising and informational materials. Figure 8 shows the branded signage and shelter treatments. The improvements thus far have been developed by RTA and funded entirely by the funds provided by MetroHealth under the branding agreement.

Stop Consolidation and Station Amenities

RTA implemented stop consolidation in the West 25th Street corridor in 2015, removing and relocating several bus stops for both northbound and southbound directions. Pending further traffic, environmental and design analysis in future phases of the West 25th Street BRT project, the number and location of stops is proposed to remain the same through implementation. Existing stop locations and amenities (shelters) at each stop are listed in Tables 1 and 2, in the previous section of this report.

Bus stop amenities within the West 25th Street corridor are limited to branded signs at bus stops and shelters at the stops indicated in Tables 1 and 2. Coinciding with MetroHealth's sponsorship of the line in 2017, branded signage was erected at bus stops in the corridor, and RTA's standard shelters were repainted in silver and received window adhesive treatments carrying the MetroHealth branding scheme. Other than the aforementioned repainting and branding, the shelters are identical to those found throughout the RTA system in non-BRT applications except for the expanded shelter at Lorain Avenue and West 25th Street which was improved as part of a separate project.

Initial Bus Rapid Transit Concept

The initial BRT concept for the West 25th Street corridor would provide a bus rapid transit line that meets the needs and takes advantage of the opportunities throughout the corridor. It would combine operational refinements to MetroHealth Line and other routes that use West 25th Street with physical and technological improvements that increase bus speed and reliability and it would provide additional customer amenities in the corridor. The

following package of improvements was developed by the Project Team with refinements based on review and input from CNP and corridor stakeholders.

Project Limits and Termini

The project's southern terminus is located at the intersection of Pearl and Broadview Roads. The northern terminus is located at East 13th Street and Rockwell Avenue in downtown Cleveland, the present terminus of the MetroHealth Line. Physical improvements are limited to the area between Broadview Road and Detroit Avenue. No improvements are proposed for the Detroit-Superior Bridge. Through downtown Cleveland, the BRT line would make use of the existing dedicated bus lanes, upgraded shelters and passenger amenities in Public Square and on Superior Avenue.

Proposed Alignment

The project alignment is along Pearl Road from Broadview Road north to I-71 and continues on West 25th Street to the north of I-71. The alignment follows West 25th Street from I-71 to Detroit Avenue. The alignment turns east at the Detroit-Superior Bridge and into downtown Cleveland, following Superior Avenue through Public Square to East 13th Street. The alignment turns north of East 13th Street to Rockwell and west on Rockwell to East 13th Street. In the southbound direction, the route turns west on

Figure 8: MetroHealth Line branding elements include distinctive signage with MetroHealth logo and color scheme (left) and distinctively painted shelters with adhesive treatments that also feature MetroHealth colors and logos (right). Photo Source: cleveland.com

Superior Avenue and from there follows the same alignment as northbound.

Exclusive Running Way

As noted in the Purpose and Need section of this report, traffic delay in the corridor is significant, and concentrated with peak travel periods during the morning and afternoon peak hours. This delay makes bus travel slower, rendering bus schedules less reliable and discouraging transit use. Given the pattern of peak period traffic delay and the potential opportunity to increase bus travel speeds and schedule reliability for buses in the corridor, the designation of part-time dedicated bus lanes are warranted in the corridor. The right (curb) lane should be restricted to bus-only use (or bus-and-bicycle-only) during peak periods in the peak direction of travel, which is toward downtown Cleveland in the morning peak and away from downtown Cleveland in the afternoon peak. This designation should be implemented in segments of the corridor where the reduction in roadway capacity caused by the bus-only restriction does not cause excessive traffic congestion and where roadway capacity could be increased without causing significant right-of-way impacts (property acquisition), which could result in high financial costs and potential environmental concerns.

Preliminary traffic analysis based on reported ODOT average daily traffic volumes and other studies in the project area indicate that peak period bus-only restrictions could be implemented in two segments of the corridor:

1. West 25th Street between Detroit Road and Bridge Avenue
2. Pearl Road-West 25th Street between MetroHealth Drive and Broadview Road.

Bus exclusive lanes are currently in place in the downtown Cleveland in the established Superior Avenue transit zone between West 3rd Street and East 9th Street.

West 25th Street between Detroit Avenue and Bridge Avenue is the subject of a recently completed study of improvements in the Irishtown Bend area. The proposed improvements offer the opportunity to add bus priority lanes as part of the overall changes to traffic and pedestrian patterns.

Analysis of the corridor between Bridge Avenue and MetroHealth Drive, and across the Detroit-Superior Bridge indicates that traffic volumes are too high to allow bus-only restrictions within the existing roadway cross section, and right of way constraints would prevent roadway widening to provide additional capacity with the exception of a few short, isolated segments which would be of limited value due to their discontinuous nature.

BRT buses would use the existing transit zone lanes within downtown Cleveland and the peak hour restricted dedicated lanes on the other segments of the West 25th Street BRT corridor, as identified. The preliminary designation of corridor segments is shown in Figure 9. Each segment is discussed in detail in the following sections.

Superior Avenue, Northern Terminus to Huron Road

The BRT corridor segment on Superior Avenue from Huron Road and the Detroit-Superior Bridge to the corridor's terminus at East 13th and Rockwell is shown in Figure 10. This segment of the BRT corridor travels along the HealthLine Corridor Transit Zone which provides dedicated bus lanes between West 3rd and West 13th Streets.

Figure 9: West 25th St Transit Corridor Proposed Dedicated Lanes

Figure 10: Superior Avenue - Northern Terminus to Huron Road

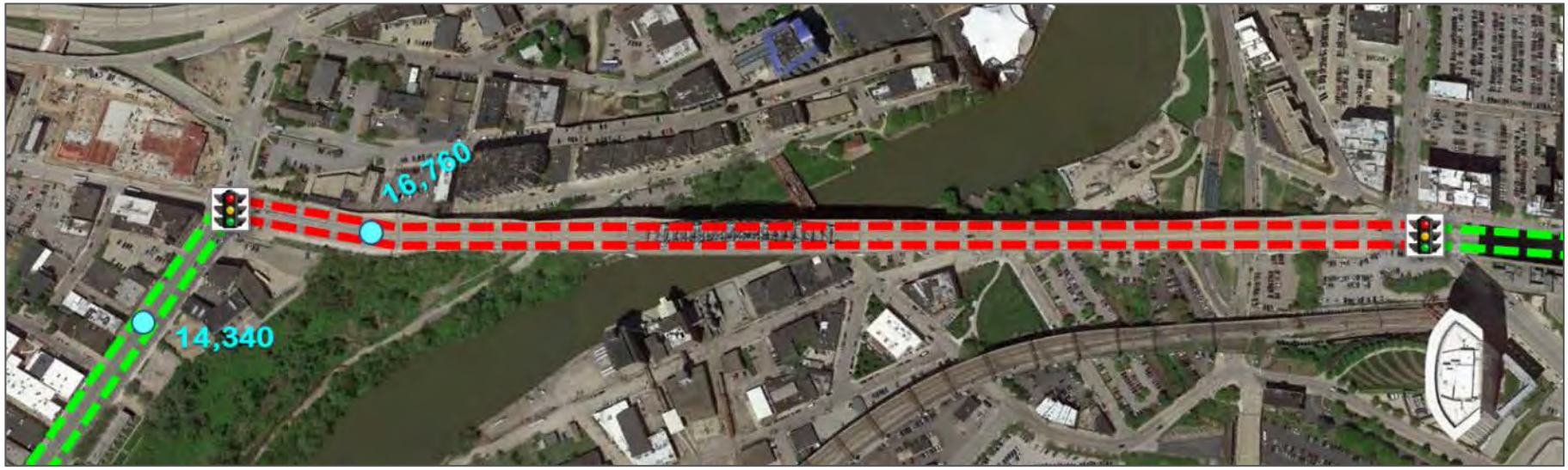

Figure 11: Detroit-Superior Bridge – Huron Road to West 25th Street

Detroit Superior Bridge

The segment of the corridor on the Detroit-Superior Bridge is shown in Figure 11.

The City of Cleveland and NOACA recently completed a project that reconfigured the travel lanes on the Detroit-Superior Bridge to create dedicated bicycle lanes in both directions along most of the bridge alignment. The implementation of these bicycle lanes in 2016 effectively precluded provision of dedicated bus lanes on the bridge, even though the bridge was designated as a segment of three of RTA's priority transit corridors that continue to Detroit Avenue, Lorain Avenue and West 25th Street in RTA's 2010 Transit Master Plan. The possibility of reconfiguring the eastbound bike lane for bus only (or bus and bikes only) use would result in a significant enhancement to transit service and operations.

Figure 12: West 25th Street – Detroit Road to Bridge Ave

West 25th Street, Detroit Road to Bridge Avenue

The segment of West 25th Street from Detroit Road to Bridge Avenue is shown in Figure 12. This segment was included as part of the study area for the Irishtown Bend study, which proposed narrowing West 25th Street and reconfiguring the roadway to operate with two lanes in each direction with left turn lanes at intersections. This configuration is expected to provide sufficient capacity to allow the curb lane to be dedicated to bus-only use in the peak direction during peak periods. The West 25th Street segment is shown in Figure 12 and the concept plan is shown in Figure 13. The proposed roadway cross section is illustrated in Figure 14. However, RTA does not concur with the 11 foot width for the travel lanes that would carry RTA buses; they would prefer a wider lane, optimally 13 feet. Further traffic analysis is needed to confirm that sufficient capacity would exist to allow for the implementation of the bus-only restriction.

Figure 13: Irishtown Bend Design Project – Master Plan

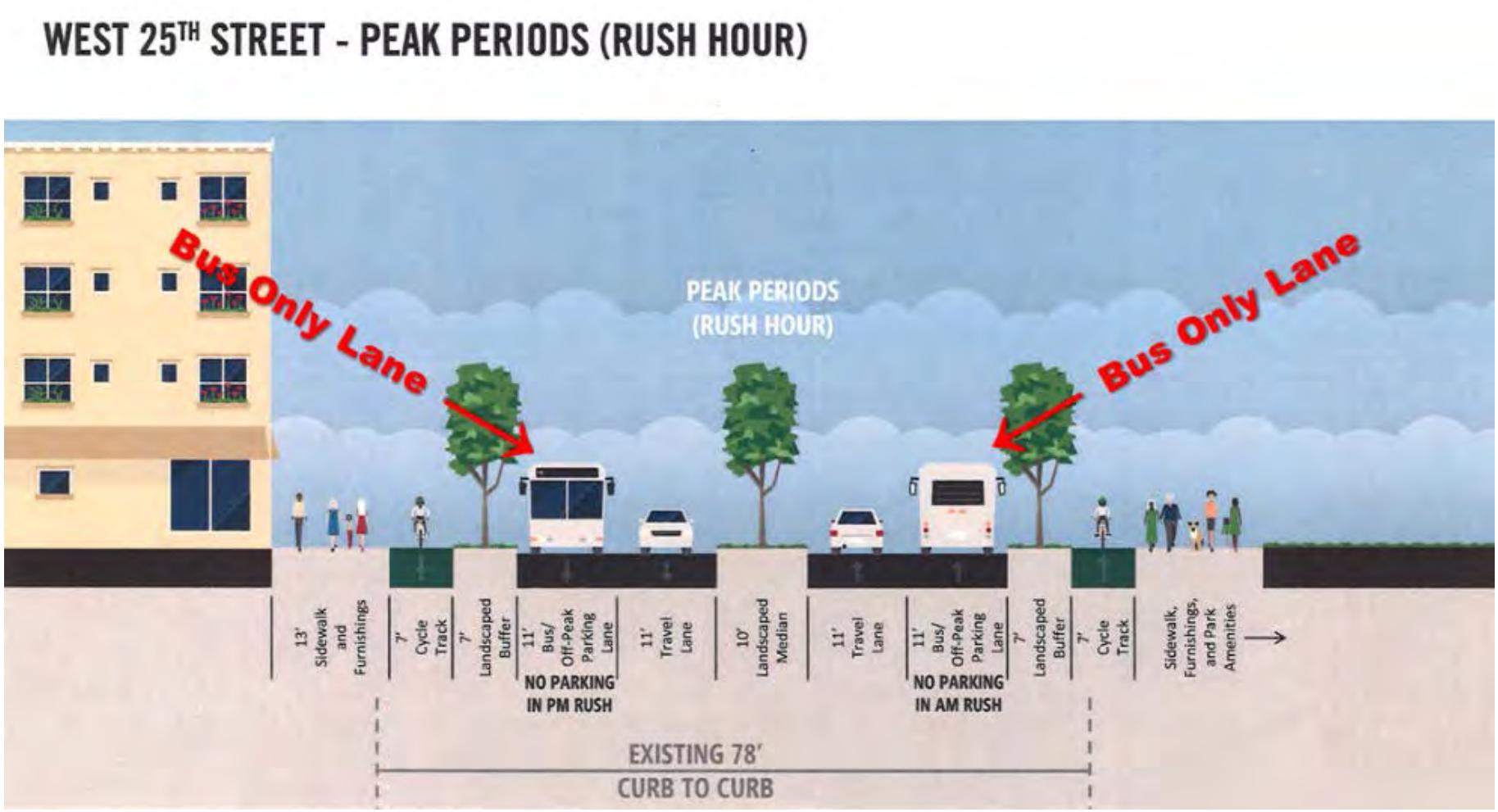

Figure 14: Irishtown Bend Design Project - Road Section Concept

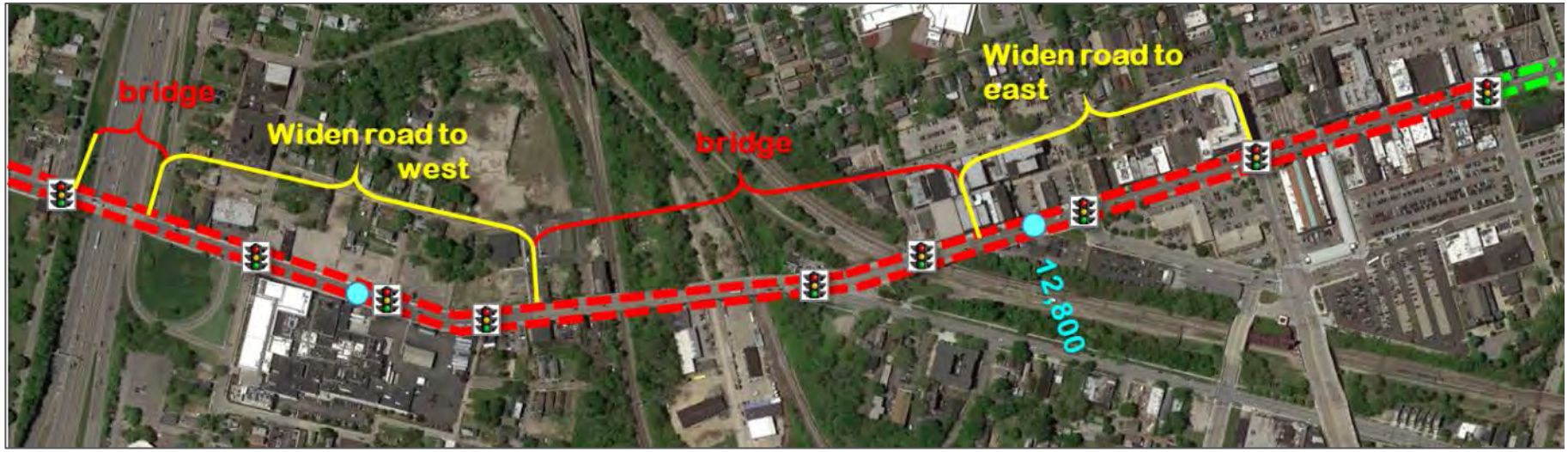

Figure 15: West 25th Street – Bridge Ave to I-90

West 25th Street, Bridge Avenue to I-90

The segment from Bridge Avenue to I-90 (shown in Figure 14) includes the segment from Bridge Avenue to Gehring, which is among the most congested segments in the corridor. This area includes the retail area around the West Side Market, and supports high volumes of pedestrian and bicycle activity as well as congested auto traffic conditions. West 25th Street north of Lorain Avenue has two travel lanes with peak hour, peak direction restricted on-street parking in some areas. However, enforcement is lacking so there are frequent violations of the peak hour parking restrictions.

West 25th Street is a four-lane road to the south of Lorain Avenue. Lack of dedicated left turn lanes along West 25th Street in this segment precludes the designation of one of the two travel lanes as a dedicated bus lane during peak periods, as left turning traffic would block through traffic movement. Left turn volumes at several of the intersections are too high to allow for left turn movements to be banned during this period. Furthermore, right of way constraints including numerous occupied buildings with zero lot lines along much of the corridor preclude roadway widening without significant right-of-way acquisition.

Figure 16: West 25th Street – I-90 to MetroHealth Drive

West 25th Street, I-90 to MetroHealth Drive

The segment from I-90 south to MetroHealth Drive is shown in Figure 16. Like the segment to the north, this part of West 25th Street is a two-lane road without designated left turn lanes at most intersections. On-street parking is permitted with peak hour, peak direction restrictions. The absence of dedicated left turn lanes precludes the potential to provide dedicated bus only lanes, since left turning vehicles would block the travel lane, which would be the only remaining through lane.

Figure 17: West 25th Street – MetroHealth Drive to I-71

West 25th Street, MetroHealth Drive to I-71

Implementation of MetroHealth Hospitals Master Plan provides the opportunity to widen West 25th Street and add left turn lanes at intersections between MetroHealth Drive and I-71, as shown in Figure 17. This reconfiguration would allow dedication of the curb lanes for bus-only operations in the peak direction during peak hours.

Figure 18: West 25th Street – MetroHealth Drive to I-71

West 25th Street, I-71 to Broadview Road

The segment from I-71 south to Broadview Road is shown in Figure 18. West 25th Street remains a four-lane cross section throughout much of this segment, but with left turn lanes at intersections, this segment has the potential to allow dedicated bus lanes during peak periods.

Signal Operations and Transit Signal Priority

Implementation of Intelligent Transportation Systems (ITS) technologies, specifically Transit Signal Priority (TSP) could improve transit service travel and reliability, even without other changes to the roadway network. A TSP system is used to improve transit operations through signal timing controls that reduce cross street red and/or lengthen main street green signal phases to accommodate approaching buses. This is a relatively low cost means of improving transit service because it can be added to the existing traffic signal controllers and buses, and it does not involve geometric changes to the roadway, like widening for turn lanes.

Roadway Improvements at MetroHealth

The section of West 25th Street that runs along the MetroHealth Hospital campus should be widened with their redevelopment plan to allow for the provision of dedicated bus lanes for peak hour, peak direction operations. MetroHealth supports this roadway widening as the addition of the proposed left turn lanes will facilitate access to their campus. The proposed reconfiguration concept is shown in Figure 19 and the proposed roadway cross section is illustrated in Figure 20.

Station Locations

Proposed station locations for the West 25th BRT corridor are shown in Figure 21, with 26 stations in each direction with seven stations in downtown Cleveland, including six existing stations along Superior Avenue in the HealthLine Transit Zone and the seventh station at the route terminus and layover point at East 13th Street and Rockwell. Nineteen stations would be located at existing bus stop locations along the West 25th Street BRT corridor between Detroit Avenue and Broadview Road. This reflect bus stops consolidation that was completed by RTA in 2015.

Figure 19: Roadway Widening at MetroHealth Campus

Figure 20: West 25th Street Reconfiguration at MetroHealth

The stations along West 25th Street and Pearl Road would include all existing stops between Broadview and Detroit except the southbound stops at Vega Avenue, Walton Avenue, Blatt Court and Bradwell Avenue, which have no corresponding northbound stop and would be consolidated into adjacent stations, Some stop locations could be modified as the result of traffic and engineering considerations in subsequent stages of design and project development.

Station Amenities

RTA currently operates two BRT lines: the HealthLine on Euclid Avenue and the CSU Line on Clifton Avenue. Station amenities for both BRT lines include architecturally sensitive bus stations with lighting, seating, real time bus arrival information and line-specific branding and signage. They may also include additional amenities such as public art, trash receptacles, bike racks, and security infrastructure. The two lines differ operationally, the HealthLine is median running and the CSU line is curb running, and they also differ in the magnitude of station architecture.

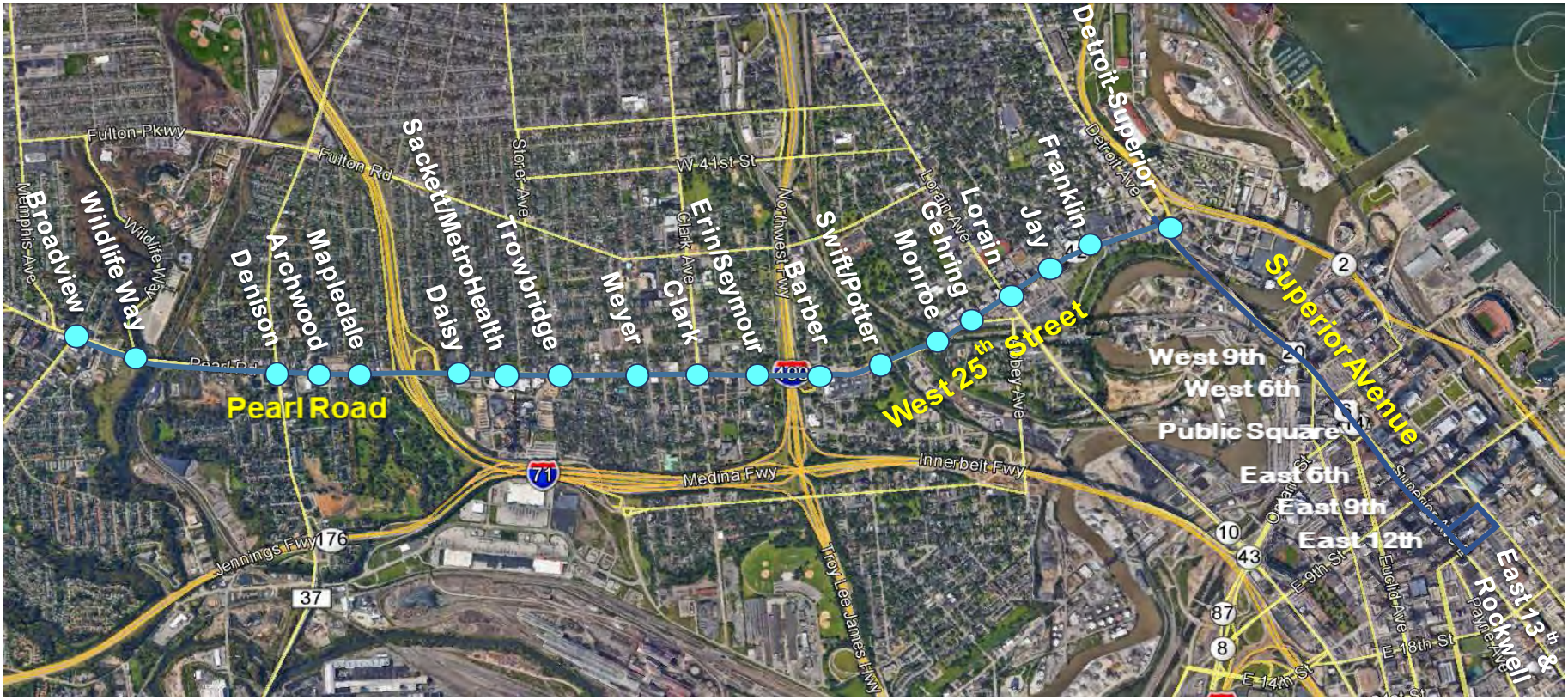

Figure 21: Station Locations

RTA's future BRT lines like the MetroHealth Line would incorporate similar customer focused amenities. The goal is to providing high-quality, low-maintenance amenities for customers with stations that reflect a place-making celebration of the context of each site within a seamless, sleek transportation system.

Coordination with Local Transportation and Planning Agencies

Multiple meetings were held to coordinate with project stakeholders, to inform them on progress and seek input in the continuing development of the plan as part of the Cleveland Neighborhood Progress outreach program. Five stakeholder

meetings were held with representatives from the following organizations:

- Bike Cleveland
- Cleveland City Council (Wards 3, 12, 13)
- Cleveland Clinic
- Cleveland Metroparks
- Cleveland Planning Commission
- Cleveland State University
- Cuyahoga County Planning Commission
- Hispanic Alliance
- LAND Studio
- MetroHealth Hospital
- MetroWest Community Development Corporation
- Nestle
- NOACA
- Ohio City Inc.
- Ohio Canal Corridor
- Old Brooklyn Community Development Corporation
- Tremont Near West Development Corporation
- Voss Industries

In addition, the Project Team met with Cleveland Traffic Engineering multiple times to discuss the project and to understand and address their concerns related to BRT operations. Their input was valuable in the development of plan recommendations and identifying the next steps, notably the traffic analysis that would need to be completed to request City approval.

Opinion of Probable Costs

WSP prepared an opinion of probably costs for the proposed West 25th Street BRT corridor based on unit costs prepared by AECOM for the City of Cleveland's Thrive 105 BRT (E. 105th to E. 34th Street); this cost basis is intended to maintain consistency between the two projects, with some minor changes based on WSP's typical BRT capital cost estimating methodology. The costs are shown in 2018 dollars. The unit costs are shown in Table 3 and as a means of validation, these costs were cross-checked with the actual costs of the Clifton Avenue CSU Line.

WSP estimates that capital improvements for the corridor would cost approximately $21.5 million (2017 dollars), including unallocated contingency costs of 35%. Adding this contingency to relevant cost categories results in a total estimated cost of $29.1 million. This does not include the Irishtown Bend project costs which are estimated at up to $5.9 million. Costs for major categories of improvements are shown in Table 4.

Table 3: Planning Opinion of Probable Capital Costs: Unit Costs

Greater Cleveland RTA West 25th Street MetroHealth Corridor

Preliminary Opinion of Probable Capital Cost

Unit Costs (2017 US$)

ITEM DESCRIPTION	UNITS	HISTORIC COST	UNIT COST SOURCE
10 Guideway & Track Elements			
Guideway: At-grade in mixed traffic			
Guideway: At-grade in mixed traffic (Concrete, Bus Pads)	*LF*	*$ 400*	*Clifton Final Quantities*
Guideway: At-grade in mixed traffic (Asphalt Roadway at MH)	*Miles*	*$ 325,000*	*ODOT 2013, inflated to 2017*
20 Stations, Stops, Terminals, Intermodal			
At-grade station, stop, shelter, mall, terminal, platform (Corner)	**LSUM**	**$ 392,000**	*Clifton Final Quantities, based on twice the cost of "B" Station*
Station "B" Complete x 2	*EA*	*$ 330,000*	*Based on Clifton Final Quantities, AECOM E. 105-E. 93 ("Concrete Bus Pads Unit Cost (C)"*
Lighted Pylon (2 per Station)	*EA*	*$ 15,000*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
Emergency Phone	*EA*	*$ 15,000*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
Corner Parklet	*EA*	*$ 32,000*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
At-grade station, stop, shelter, mall, terminal, platform (Medium)	**LSUM**	**$ 176,000**	*Clifton Final Quantities, based the cost of "B" Station*
Station "B" Complete	*EA*	*$ 165,000*	*Based on Clifton Final Quantities, AECOM E. 105-E. 93 ("Concrete Bus Pads Unit Cost (C)"*
Lighted Pylon (1 per Station)	*EA*	*$ 7,500*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
Emergency Phone	*EA*	*$ 3,500*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
At-grade station, stop, shelter, mall, terminal, platform (Medium w/o shelter)	**LSUM**	**$ 94,000**	*Clifton Final Quantities, based one-half the cost of "B" Station*
Station "B" Complete/2	*EA*	*$ 83,000*	*Based on Clifton Final Quantities, AECOM E. 105-E. 93 ("Concrete Bus Pads Unit Cost (C)"*
Lighted Pylon (1 per Station)	*EA*	*$ 7,500*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
Emergency Phone	*EA*	*$ 3,500*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
At-grade station, stop, shelter, mall, terminal, platform (Narrow)	**LSUM**	**$ 142,000**	*Clifton Final Quantities, based one-half the cost of "A" Station*
Station "A" Complete	*EA*	*$ 131,000*	*Based on Clifton Final Quantities, AECOM E. 105-E. 93 ("Concrete Bus Pads Unit Cost (C)"*
Lighted Pylon (1 per Station)	*EA*	*$ 7,500*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
Emergency Phone	*EA*	*$ 3,500*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
At-grade station, stop, shelter, mall, terminal, platform (Narrow w/o shelter)	**LSUM**	**$ 77,000**	*Clifton Final Quantities, based one-half the cost of "A" Station*
Station "A" Complete/2	*EA*	*$ 66,000*	*Based on Clifton Final Quantities, AECOM E. 105-E. 93 ("Concrete Bus Pads Unit Cost (C)"*
Lighted Pylon (1 per Station)	*EA*	*$ 7,500*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
Emergency Phone	*EA*	*$ 3,500*	*AECOM E.105-E.93 ('Estimate Base Costs (by site)')*
30 Support Facilities: Yards, Shops, Admin. Bldgs			
40 Sitework & Special Conditions			
Site Utilities, Utility Relocation (5.3% of Bus Pad, Roadway Construction Cost)			*AECOM E.105-E.93 SCC Worksbook*
Maintenance of Traffic (20% of Bus Pad, Roadway Construction Cost)			*Based on Jack Gonsalves Estimate of 18-22% of Roadway Costs*
50 Systems			
Traffic Signals and Crossing Protection (Transit Signal Priority - Wayside Equipment)	**EA**	**$ 4,000**	*based on AECOM E.105-E.93 ('Estimate Base Costs (by length)')*
Traffic Signals and Crossing Protection (Transit Signal Priority - Signal Controller)	**EA**	**$ 4,000**	*based on AECOM E.105-E.93 ('Estimate Base Costs (by length)')*
Traffic Signals and Crossing Protection (Controller/Cabinet Upgrade)	**EA**	**$ 15,000**	*based on AECOM E.105-E.93 ('Estimate Base Costs (by length)')*
Traffic Signals and Crossing Protection (Traffic Control and Signage for Dedicated Lanes)	**LF**	**$ 35**	*based on AECOM E.105-E.93 ('Estimate Base Costs (by length)')*
60 ROW, Land, Existing Improvements			
Purchase or lease of real estate	**LF**	**$ 134**	*based on AECOM E.105-E.93 ('Estimate Base Costs (by length)')*
70 Vehicles			

Table 4: Planning Opinion of Probable Capital Costs for Major Categories of Improvements

	ITEM DESCRIPTION	UNITS	QTY	UNIT COST	SUB-TOTAL	CONTINGENCY %	TOTAL COST
	10 Guideway & Track Elements (route miles)						
10.03	Guideway: At-grade in mixed traffic (Concrete, Bus Pads)	LF	3,300	$ 400	$ 1,320,000	35%	**$ 1,782,000**
10.03	Guideway: At-grade in mixed traffic (Asphalt Roadway at MH)	Miles	1.89	$ 325,000	$ 615,530	35%	**$ 830,966**
	20 Stations, Stops, Terminals, Intermodal (number)						
20.01	At-grade station, stop, shelter, mall, terminal, platform (Corner)	EA	10	$ 392,000	$ 3,920,000	35%	**$ 5,292,000**
20.01	At-grade station, stop, shelter, mall, terminal, platform (Medium)	EA	11	$ 176,000	$ 1,936,000	35%	**$ 2,613,600**
20.01	At-grade station, stop, shelter, mall, terminal, platform (Medium w/o shelter)	EA	7	$ 94,000	$ 658,000	35%	**$ 888,300**
20.01	At-grade station, stop, shelter, mall, terminal, platform (Narrow)	EA	5	$ 142,000	$ 710,000	35%	**$ 958,500**
20.01	At-grade station, stop, shelter, mall, terminal, platform (Narrow w/o shelter)	EA	6	$ 77,000	$ 462,000	35%	**$ 623,700**
20.01	Public Art (1% of station costs)				$ 76,860	35%	**$ 103,761**
	30 Support Facilities: Yards, Shops, Admin. Bldgs						
	40 Sitework & Special Conditions						
40.02	Site Utilities, Utility Relocation (5.3% of Bus Pad, Roadway Construction Cost)				$ 102,583	35%	**$ 138,487**
40.01	Maintenance of Traffic (20% of Bus Pad, Roadway Construction Cost)				$ 387,106	35%	**$ 522,593**
	50 Systems						
50.02	Traffic Signals and Crossing Protection (Transit Signal Priority - Wayside Equipment)	EA	31	$ 4,000	$ 124,000	35%	**$ 167,400**
50.02	Traffic Signals and Crossing Protection (Transit Signal Priority - Signal Controller)	EA	31	$ 4,000	$ 124,000	35%	**$ 167,400**
50.02	Traffic Signals and Crossing Protection (Controller/Cabinet Upgrade)	EA	31	$ 15,000	$ 465,000	35%	**$ 627,750**
50.02	Traffic Signals and Crossing Protection (Traffic Control and Signage for Dedicated Lanes	FT	26,690	$ 35	$ 934,150	35%	**$ 1,261,103**
	SUBTOTAL - CONSTRUCTION COSTS						**$ 15,977,560**
	60 ROW, Land, Existing Improvements						
60.01	Purchase or lease of real estate	LF	2,000	$ 134	$ 268,939	35%	**$ 363,068**
	70 Vehicles						
	80 Professional Services						
80.01	Project Development		5.0%		$ 591,761	35%	**$ 798,878**
80.02	Engineering		11.5%		$ 1,361,051	35%	**$ 1,837,419**
80.03	Project Management for Design and Construction		4.2%		$ 497,080	35%	**$ 671,057**
80.04	Construction Administration & Management		4.4%		$ 520,750	35%	**$ 703,013**
80.05	Professional Liability and other Non-Construction Insurance		0.1%		$ 11,835	35%	**$ 15,978**
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.		2.4%		$ 284,045	35%	**$ 383,461**
80.07	Surveys, Testing, Investigation, Inspection		3.7%		$ 437,903	35%	**$ 591,170**
80.08	Start up		1.3%		$ 153,858	35%	**$ 207,708**
	90 Unallocated Contingency		***35%***				**$ 7,542,259.36**
	100 Finance Charges						
	PLANNING OPINION OF PROBABLE CAPITAL COST						**$ 29,091,572**
	Excludes Irishtown Bend Project Cost of $5.9 million						

Station Improvements

Stations make up the largest portion of project costs. The nominal cost of amenity and platform paving improvements at the 39 proposed BRT stations is about $7.8 million, an average of about $200,000 per station. Adding allocated (35%) and unallocated (35%) contingency increases the cost to about $14.1 million, or about $361,000 per station. This cost excludes bus pads at the stations, which are covered in running way improvements, and professional services, which are also covered separately.

Signal Improvements

Signal improvements related to implementing transit signal priority would add a nominal cost of about $1.65 million, or about $53,000 for each of the 31 intersections that would receive signal priority improvements. Contingency increases this cost to about $3 million, or about $97,000 per signalized intersection.

Running Way Improvements

Running way improvements make up about $1.9 million of the project costs, or about $3.5 million including contingencies. The proposed improvements include adding a new 12-foot travel lane reconstructing the other four traffic lanes on West 25th Street from Vega Avenue and the I-71 westbound ramp to north of Sackett Avenue, through the MetroHealth Campus (about 2,000 linear feet). The widening would take about 12 feet from the MetroHealth property on the eastern side of West 25th Street. This would constitute about 1.9 lane-miles of new pavement, at a cost of about $616,000, or about $1.12 million with contingencies.

The larger portion of running way cost is for the construction of bus pads at 33 station locations. Concrete bus pads, running 100 feet along the curb, would be constructed at all stations along West 25th Street and Pearl Road except those in the MetroHealth area. At a cost of $40,000 each, or $400 per linear foot, the cost of these pads would be about $1.3 million, or $2.4 million with contingencies.

Professional Services

Professional services, at 33% of construction cost, represent more than $3.9 million of the estimated project cost, or $7.3 million with contingencies.

Year-of-Expenditure Capital Costs

Projected costs for improvements in year-of-expenditure (YOE) dollars based on a phasing of design and construction over the next five years is shown in Table 5. Costs were inflated to future year dollars at a rate of 3% per year. With the phasing as shown in Table 5, inflation would increase project costs (including allocated and non-allocated contingency) from $29.2 to $32.1 million in YOE dollars.

Table 5: Projected Costs for Improvements in Year-Of-Expenditure Dollars from 2019 To 2023

										Allocation by Year					
										2018	2019	2020	2021	2022	2023
										Annual	3%	3%	3%	3%	3%
ITEM	DESCRIPTION	FY 2018 COST	Year of Expenditure 2019	2020	2021	2022	2023	YOE Total		Inflation	103.0%	106.1%	109.3%	112.6%	115.9%
10 Guideway & Track Elements (route miles)															
10.03	Guideway: At-grade in mixed traffic (Concrete, Bus Pads)	$ 1,782,000	$ -	$ -	$ 973,620	$ 1,002,828	$ -	$ 1,976,448					50%	50%	
0.00	Guideway: At-grade in mixed traffic (Asphalt Roadway at MH)	$ 830,966	$ -	$ -	$ 454,009	$ 467,630	$ -	$ 921,639					50%	50%	
20 Stations, Stops, Terminals, Intermodal (number)															
20.01	At-grade station, stop, shelter, mall, terminal, platform (Corner)	$ 5,292,000	$ -	$ -	$ 2,891,356	$ 2,978,096	$ -	$ 5,869,452					50%	50%	
20.01	At-grade station, stop, shelter, mall, terminal, platform (Medium)	$ 2,613,600	$ -	$ -	$ 1,427,976	$ 1,470,815	$ -	$ 2,898,791					50%	50%	
20.01	At-grade station, stop, shelter, mall, terminal, platform (Medium w/o shelter)	$ 888,300	$ -	$ -	$ 485,335	$ 499,895	$ -	$ 985,229					50%	50%	
20.01	At-grade station, stop, shelter, mall, terminal, platform (Narrow)	$ 958,500	$ -	$ -	$ 523,689	$ 539,400	$ -	$ 1,063,090					50%	50%	
20.01	At-grade station, stop, shelter, mall, terminal, platform (Narrow w/o shelter)	$ 623,700	$ -	$ -	$ 340,767	$ 350,990	$ -	$ 691,757					50%	50%	
20.01	Public Art (1% of station costs)	$ 103,761	$ -	$ -	$ 56,691	$ 58,392	$ -	$ 115,083					50%	50%	
30 Support Facilities: Yards, Shops, Admin. Bldgs															
40 Sitework & Special Conditions															
40.02	Site Utilities, Utility Relocation (5.3% of Bus Pad, Roadway Construction Cost)	$ 138,487	$ -	$ -	$ 75,664	$ 77,934	$ -	$ 153,599					50%	50%	
40.01	Maintenance of Traffic (20% of Bus Pad, Roadway Construction Cost)	$ 522,593	$ -	$ -	$ -	$ -	$ 605,829	$ 605,829							100%
50 Systems															
50.07	Traffic Signals and Crossing Protection (Transit Signal Priority - Wayside Equip	$ 167,400	$ -	$ -	$ -	$ 188,410	$ -	$ 188,410						100%	
50.02	Traffic Signals and Crossing Protection (Transit Signal Priority - Signal Control	$ 167,400	$ -	$ -	$ -	$ 188,410	$ -	$ 188,410						100%	
50.02	Traffic Signals and Crossing Protection (Controller/Cabinet Upgrade)	$ 627,750	$ -	$ -	$ -	$ 706,538	$ -	$ 706,538						100%	
50.02	Traffic Signals and Crossing Protection (Traffic Control and Signage for Dedica	$ 1,261,103	$ -	$ -	$ -	$ 1,419,382	$ -	$ 1,419,382						100%	
SUBTOTAL - CONSTRUCTION COSTS		**$ 15,977,560**	**$ -**	**$ -**	**$ 7,229,107**	**$ 9,948,721**	**$ 605,829**	**$ 17,783,657**							
60 ROW, Land, Existing Improvements															
60.01	Purchase or lease of real estate	$ 363,068	$ -	$ 192,590	$ 198,367	$ -	$ -	$ 390,957				50%	50%		
70 Vehicles															
80 Professional Services															
80.01	Project Development	$ 798,878	$ -	$ 84,753	$ 261,887	$ 539,487	$ -	$ 886,126				10%	30%	60%	
80.02	Engineering	$ 1,837,419	$ 378,508	$ 974,659	$ 602,339	$ -	$ -	$ 1,955,507			20%	50%	30%		
80.01	Project Management for Design and Construction	$ 671,057	$ 69,119	$ 71,192	$ 219,985	$ 377,641	$ -	$ 737,937			10%	10%	30%	50%	
80.02	Construction Administration & Management	$ 703,013	$ -	$ 74,583	$ 307,280	$ 395,623	$ -	$ 777,486				10%	40%	50%	
81.02	Professional Liability and other Non-Construction Insurance	$ 15,978	$ 6,583	$ 6,780	$ 3,492	$ -	$ -	$ 16,855			40%	40%	20%		
82.02	Legal; Permits; Review Fees by other agencies, cities, etc.	$ 383,461	$ 157,986	$ 162,726	$ 83,804	$ -	$ -	$ 404,516			40%	40%	20%		
83.02	Surveys, Testing, Investigation, Inspection	$ 591,170	$ 60,890	$ 376,303	$ 193,796	$ -	$ -	$ 630,990			10%	60%	30%		
84.02	Start up	$ 207,708	$ -	$ 88,143	$ 136,181	$ -	$ -	$ 224,324				40%	60%		
90 Unallocated Contingency		$ 7,542,259.29	$ 235,580.32	$ 711,105.08	$ 3,232,683.34	$ 3,941,514.95	$ 212,040.05	$ 8,332,923.74							
100 Finance Charges															
PLANNING OPINION OF PROBABLE CAPITAL COST		**$ 29,091,572**	$ 908,667	$ 2,742,834	$ 12,468,921	$ 15,202,986	$ 817,869	**$ 32,141,277**							
Excludes Irishtown Bend Project Cost of $5.9 million															

Preparation for FTA New Starts Submission

RTA proposes to apply for funding under the Federal Transit Administration (FTA) Small Starts program. This program was developed in the mid-2000s to provide a streamlined process for projects requesting lower levels of funding under the FTA New Starts program.

As the diagram in Figure 22 shows, projects are evaluated for potential FTA New Starts funding under nine criteria related to the characteristics of the service that the investment would facilitate, the benefits that the investment would provide, the characteristics of the corridor that the investment would serve, and the financial capacity and preparedness of the sponsoring agency and the region to provide the non-federal matching funds for the project. These nine criteria are combined into two summary ratings. Project justification rates the proposed project on the project, dividing the financial capacity and preparedness from the other criteria. These two ratings combine to generate the overall project rating.

The Small Starts program substituted some simple benchmarks for the proposed service to reduce the time required and cost to agencies of analyzing potential new starts corridors. Under Small Starts, projects receive an automatic "medium" rating on the mobility improvements, cost-effectiveness and congestion relief criteria if the proposed project meets two criteria:

- The total capital cost of the project is less than $50 million
- Existing transit ridership in the corridor exceeds 3,000 boardings per average weekday

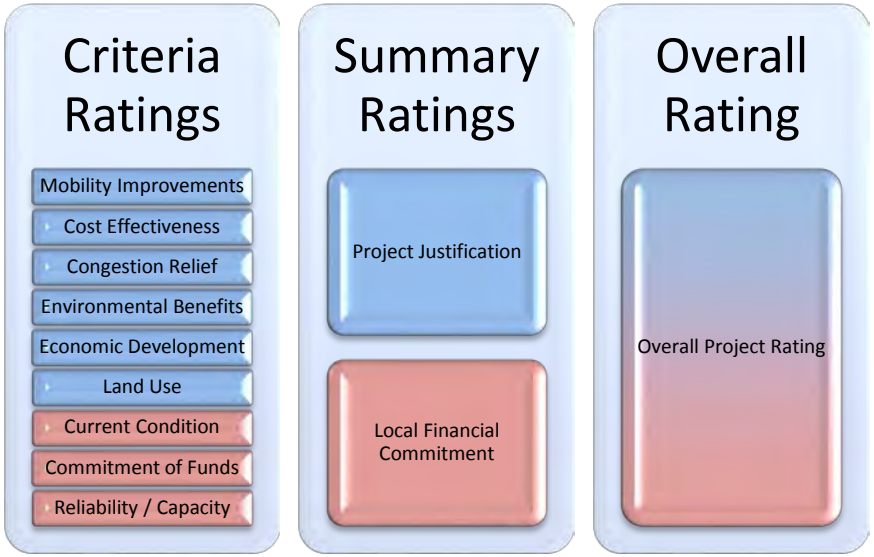

Figure 22: : FTA New Starts Criteria and Ratings

At a project cost of less than $32 million and daily boardings of 5,400 (in 2017), the West 25th Street project meets both criteria. Provided the projected increase in annual operating cost represents less than 5% of the agency's total annual operating cost and the project sponsor (presumably RTA) can demonstrate that it is in good financial condition and can demonstrate a plan to secure local share, the project also can take advantage of a simplified financial evaluation. The project's operating cost will be minimal and thus meets the 5% threshold; securing financial commitments for the non-Federal portion of the project, including RTA's internal commitment, is among the further work that must be completed before RTA can apply for Small Starts funding.

If the project meets other requirements, the environmental benefits criterion also can be calculated using a simplified formula

based on existing ridership (this does not eliminate the need for NEPA documentation).

The two criteria for which there are no simplifying assumption are the economic development and land use criteria. The economic development criteria includes the following items:

- Transit-supportive corridor policies
- Supportive zoning near transit
- Tools to implement transit-supportive plans and policies
- Performance of transit-supportive plans and policies
- Potential impact of transit project on regional development
- Plans and policies to maintain or increase affordable housing in corridor

The key to meeting these criteria is for the City of Cleveland to apply the transit overlay-district zoning category, which was developed for the Midtown section (E 30th to E 79th Streets) of the HealthLine corridor project. This zoning category, which would fulfill these criteria, is not currently in use in the West 25th Street corridor.

The land use criteria includes the following items:

- Existing corridor and station area development
- Existing corridor and station area development character
- Existing station area pedestrian facilities, including access for persons with disabilities
- Existing corridor and station area parking supply

Table 6: FTA New Starts Quantitative Ratings for Existing Land Use Criteria

	Station Area Development		Parking Supply	
Rating	**Employees within ½ mile of Stations**	**Persons/ square mile within ½ mile of stations**	**CBD typical parking cost per day**	**CBD parking spaces per employee**
High (5)	>220,000	>15,000	>$16	<0.2
Medium-High (4)	140,000-219,999	9,600-15,000	$12-$16	0.2-0.3
Medium (3)	70,000-139,999	5,760-9,559	$8-12	0.3-0.4
Low-Medium (2)	40,000-69,000	2,561-5,759	$4-$8	0.4-0.5
Low (1)	<40,000	<2,560	<$4	>0.5

Source: Guidelines for Land Use and Economic Development Effects for New Starts and Small Starts Projects, US DOT Federal Transit Administration Office of Planning, August 2013. Table 12, Page 35.
https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/Land_Use_and_EconDev_Guidelines_August_2013.pdf *Accessed 10-29-18*

- Proportion of existing legally binding affordability restricted housing in the corridor compared to the proportion of legally binding affordability restricted housing in the counties in which the project travels.

The degree to which a corridor or project meets the land use is expressed quantitatively, with ranges associated with each rating. Table 6, below, shows the targets for each rating for the existing land use.

As Table 7, below, shows, the corridor's performance on these criteria place the project in the Medium to Low-Medium level

Table 7: West 25th Street Corridor Performance Against New Starts Existing Land Use Criteria

Criterion	W. 25th Street Corridor Value	Rating
Employees within ½ mile of stations	108,500	Medium
Population Density	4,000	Low-Medium
Typical CBD parking cost/day	$12	Medium-High
CBD parking spaces per employee		

Ratings for corridor policies and station area zoning also are based on quantitative measurements of characteristics of the existing corridor and CBD, as shown in Table 8, below:

Table 8: New Starts Corridor Policies and Station Area Zoning Measures

	Station Area Development			Parking Supply	
Rating	**Floor Area Ratio in CBD**	**Non-CBD Corridor Floor Area Ratio**	**Residential Dwelling Units per Acre**	**CBD spaces per 1,000 Square Feet Commercial Space**	**Non-CBD Spaces per 1,000 Square feet of Commercial Space**
High (5)	>10	>2.5	>25	<1	<1.5
Medium-High (4)	8-10	1.75-2.5	15-25	1-1.75	1.5-2.25
Medium (3)	6-8	1-1.75	10-15	1.75-2.5	2.25-3
Low-Medium (2)	4-6	0.5-1.0	5-10	2.5-3.25	3.0-3.75
Low (1)	<4	<0.5	<5	>3.25	>3.75

Source: Guidelines for Land Use and Economic Development Effects for New Starts and Small Starts Projects, US DOT Federal Transit Administration Office of Planning, August 2013. Table 12, Page 35. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/Land_Use_and_EconDev_Guidelines_August_2013.pdf *Accessed 10-29-18*

Implementation

Completion of the conceptual design and opinion of costs is a major step towards implementation of capital investments in the West 25th Street Corridor. However, several major steps remain before Federal funding can be requested and major investments completed. The steps to implementation are shown in the graphic in Figure 23.

Traffic Analysis

Completion of a traffic study that assesses traffic operations and corridor capacity along the West 25th Street BRT corridor is the next step towards implementation. Transit signal priority, queue jump facilities at intersections, and part-time dedicated bus lanes are desirable to improve bus travel speed and reliability. Increasing bus travel speed through implementation of transit signal priority and other improvements also is an FTA Small Starts funding requirement. However, the City of Cleveland is unlikely to approve the implementation of these improvements without a traffic study to analyzes the impact of these changes to intersection level of service in the corridor. The roadway and intersection configuration changes that MetroHealth Hospital is proposing in its Master Plan also need to be studied. It will be necessary to complete both traffic studies to finalize the plans and cost estimates for the proposed BRT corridor improvements. CNP, RTA and MetroHealth should fund or seek funding for both studies (or combine them into a single study) as the next step to continue to advance the West 25th Street BRT project for the MetroHealth Line.

Land Use & Zoning Changes

Enacting a change in the City of Cleveland's land use plan and zoning code to include a transit overlay district in much, or all, of the West 25th Street Corridor, is also a necessary step to meeting FTA funding requirements. Zoning that permits higher-density, mixed-use, transit-oriented development is essential for ensuring that future development in the corridor supports high-capacity transit service and warrants the investment in improvements.

Securing Funding

Once traffic analysis is complete and the City of Cleveland approves the traffic analysis, land use and zoning changes, the next hurdles involve project finances. Federal grants typically require the grant recipient to pay a non-federal match, which can be comprised of funds from local government, state government or private sources, of at least 25% of the grant amount, or 20% of the total project cost. In the case of the FTA New Starts and Small Starts programs, which often are under-funded and highly competitive, non-federal match amounts in the range of 50% of the total project cost are more typical. At a total project cost of nearly $32 million, the non-federal match would range from $6.4 million for a 20% match to $16 million for a 50% match. Potential funding sources include:

- RTA funds, from RTA's sales tax revenues or other local or state revenues.
- Funding provided by ODOT, such as through the Transportation Review Advisory Council (TRAC) or other ODOT or State of Ohio program.
- Funding provided by local government, including the City of Cleveland and/or Cuyahoga County.
- Federal transportation funding administered by NOACA.
- Funding provided by a private source, including additional funding by MetroHealth Hospital or funding provided by one or more private charities, businesses or individuals.

Figure 23: : Steps to Implementation

Funding by other federal transportation or non-transportation programs also could provide a portion of the cost of the project, provided the total federal share of the cost does not exceed 80%. Several USDOT-funded programs administered by NOACA, including Federal Enhancement grants and Congestion Mitigation-Air Quality grants are possible non-New Starts/Small Starts program funding sources.

At a total project cost of $32 million and assuming 80% New Starts funding, a potential funding scenario might include:

- FTA New Starts Program: $25.6 million (80%)
- Greater Cleveland RTA local funds: $1.9 million (5.9%)
- City of Cleveland: $1.8 million (5.6%)
- Cuyahoga County: $1.8 million (5.6%)
- MetroHealth Hospital (a division of Cuyahoga County): $0.9 million (2.8%)

Assuming 50% New Starts funding, a package might include:

- FTA New Starts: $16 million (50%)
- Greater Cleveland RTA local funds: $3 million (9.4%)
- City of Cleveland: $2 million (6.3%)
- Cuyahoga County: $2 million (6.3%)
- MetroHealth Hospital $1 million (3.1%)
- State of Ohio/Ohio Department of Transportation: $3.2 million (10%)
- Federal CMAQ/Enhancement Grants: $6 million (18.8%)

Another potential approach to funding is to assign various parts of the project to specific funding agencies for which they have a particular competence. For example, ODOT and Cuyahoga County could be responsible for the costs (and procurement) of design and construction services (about $4.4 million), the City of Cleveland could be responsible for the cost and procurement of signal and signage improvements (about $2.2 million), and the Cuyahoga County Engineer's office could be responsible for maintenance of traffic (about $2 million).

While funds need to be committed by each entity in advance, the funds do not have to be paid in a single year, but over a period of five years, reducing the potential budgetary impact. Using the funding scenario shown in Table 5, the year of greatest expenditure would be year 3, when about $12.5 million of the $31.5 million project budget—less than 40% of the total—would be expended. Expenditure in other years would be significantly less than 40% of the total.

Finally, investments in analyzing the corridor for potential improvements and the improvements already made in the MetroHealth Corridor that would not be replaced by the new project potentially could serve as a portion of the local match for the purpose of matching the New Starts grants. Those costs and improvements should be quantified for potential use in the funding plan.

In addition to gaining agreement on a funding package from the funding partners, RTA, as the project sponsor, must demonstrate its financial soundness, providing FTA with various financial statements and audit documents for review.

Environmental Analysis

The final step before submission for FTA Small Starts funding is completion of appropriate environmental documentation. With improvements entirely, or nearly entirely, within the public right-of-way, the environmental documentation retired should be limited to a level II Categorical Exclusion document. This document must be

completed and approved by the appropriate agencies before submission of the Small Starts application.

Remaining Steps to Implementation

With approval of the environmental analysis, the remaining steps for project implementation are as follows

- Submission of New Starts/Small Starts Application
- Approval for Preliminary Engineering
- Full-Funding Grant Agreement (approval of Environmental Document, Financial Plan and Cost Estimates)
- Final Design
- Construction