

Pittsburgh Downtown-Uptown-Oakland-East End Bus Rapid Transit Project

Small Starts Application: Project Narrative

September 2018

Project Identification

The Downtown-Uptown-Oakland- East End Bus Rapid Transit (BRT) Project will provide a vital east-west connection between downtown Pittsburgh and the Uptown, Oakland, and East End neighborhoods. The project includes changes to both physical infrastructure and transit operations along the Downtown-Uptown-Oakland portion of the corridor (the “BRT Core”) along with changes to transit operations in the East End portion of the corridor – Highland Park, Squirrel Hill, and the East Busway.

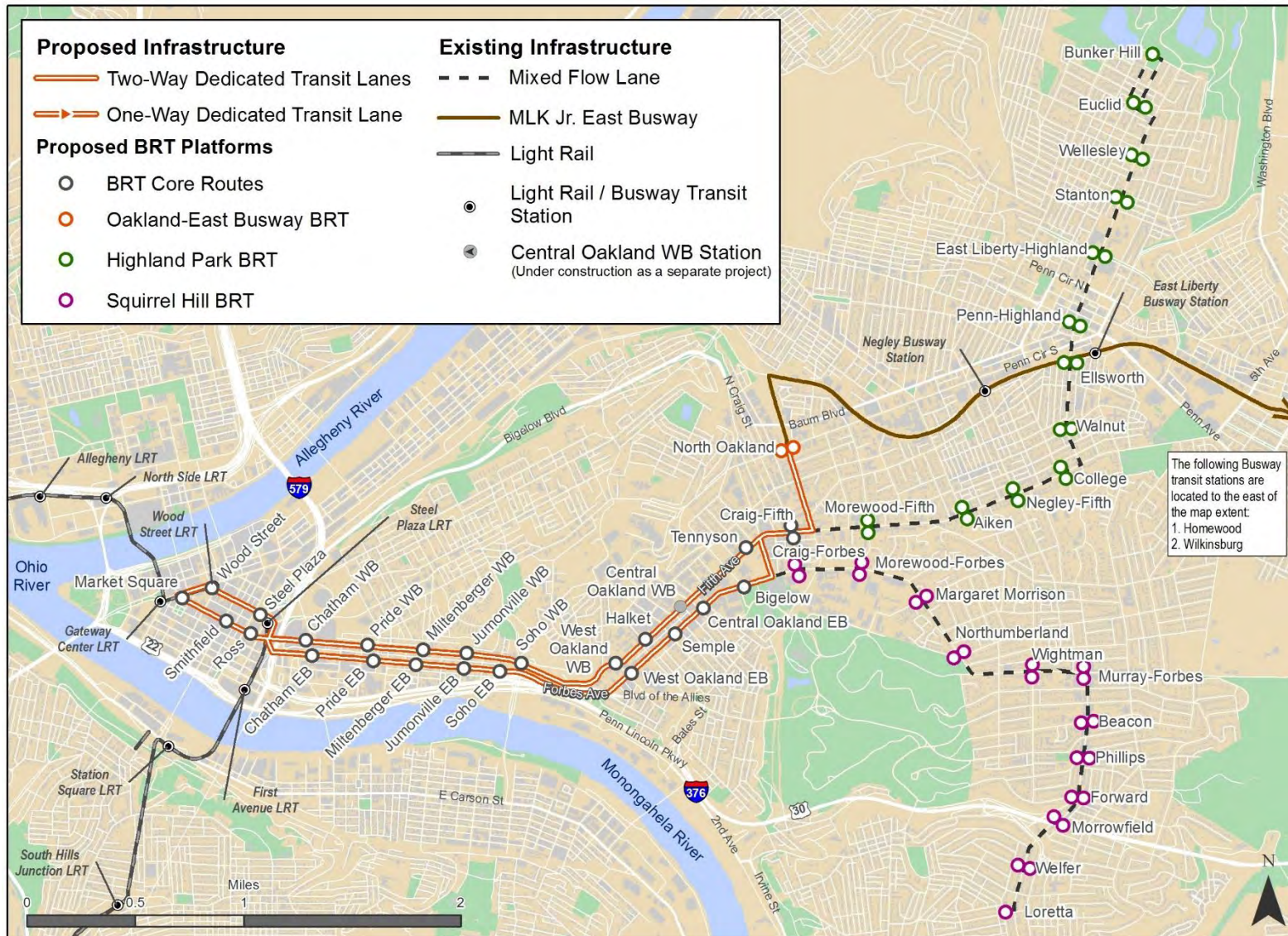
As shown on **Figure 1**, the proposed BRT Core improvements extend a total of 7.4 miles primarily along Fifth and Forbes Avenues plus an additional 3.8 miles of the existing East Busway (each direction) using dedicated lanes. The Highland Park BRT Branch extends 3.4 miles (each direction) primarily using Forbes and Murray Avenues, and the Squirrel Hill BRT Branch extends 2.9 miles (each direction) primarily using Fifth and Highland Avenues. Both the Highland Park and Squirrel Hill BRT branches will operate in mixed-flow traffic on existing surface streets. The following major capital improvements are proposed as part of the project:

- Forty-four enhanced and branded stations/pairs (72 platforms)¹
- Dedicated transit lanes in the BRT Core
- Transit signal priority (TSP) and traffic signal modifications throughout the corridor
- Bus bump outs along the Squirrel Hill and Highland Park BRT branches
- Real-time bus arrival information
- Twenty-five new battery electric articulated buses in the Core BRT and 34 existing, rebranded diesel buses for the BRT branches

Routing changes are proposed to extend outside of the BRT Core corridor along three branches: East Busway BRT (alignment along existing P3 route); Highland Park BRT (alignment along existing 71B route); and Squirrel Hill BRT (alignment along existing 61D route). The proposed BRT operations will replace and enhance existing services for the 61 series (Routes 61A, 61B ,61C, and 61D), the 71 series (Routes 71A, 71B, 71C, and 71D), and P3 routes.

¹ One station within the Core BRT portion of the corridor—the Forbes/Atwood station, which will serve westbound travel—is being constructed as part of a separate, independent project. In addition, rebranding of four existing stations along the East Busway is proposed. Both elements are considered existing conditions and therefore not included in the total number of stations/pairs and platforms requested for this project.

Figure 1: Project Infrastructure Overview Map



The Port Authority of Allegheny County (Port Authority) is currently developing a comprehensive operational plan to consolidate and streamline these services, and further coordinate other connecting bus service within and adjacent to the corridor. An overview routing map is provided with project maps in the grant submittal materials.

The proposed BRT service within the BRT Core corridor, shown in **Table 1**, will operate seven days a week, from 4:00 AM to 2:00 AM and from 5:00 AM to 2:00 AM, during weekdays and weekends, respectively. These effective headways will be achieved by overlapping the Highland Park BRT, Squirrel Hill BRT, and East Busway BRT services within the BRT Core corridor.

Table 1: Service Headways and Span

	Peak	Off-Peak	Evening
Weekday	3 – 4 minutes	4 – 8 minutes	4 – 8 minutes
Weekend	5 – 8 minutes	5 – 8 minutes	5 – 8 minutes

The project’s current estimated capital cost is \$195.5 million. The BRT parties seek 50 percent of total project costs, or approximately \$97.75 million, from the FTA Small Starts program.

Setting

The City of Pittsburgh is located in the southwestern region of the Commonwealth of Pennsylvania (Commonwealth) and is the county seat of Allegheny County. With a combined statistical area population in its metropolitan and surrounding areas of over 2.6 million, Pittsburgh is the second largest city in the Commonwealth and the 26th largest metropolitan area in the United States.² The City of Pittsburgh itself is home to approximately 300,000 people and over 389,459 jobs. Of this population, approximately 30 percent live within 0.5 miles of the proposed BRT stations. Employment in the project corridor is 258,546, which is more than 66 percent of the total employment within the city.³

Transit service in the city is provided by the Port Authority, which operates 98 bus routes, three light rail lines, and two incline planes. Bus service is operated on local streets and regional arterials as well as three exclusive bus-only busways and a High-Occupancy Vehicle Lane. Average weekday ridership totals 214,000, combining to provide over 63 million transit rides per year.

Downtown Pittsburgh and the nearby neighborhood of Oakland—areas where the BRT Core service is proposed—are, respectively, the first and second greatest traffic generators and the two largest commercial employment generators in the Pittsburgh region. They are also the second and third largest traffic generators in the Commonwealth, respectively, and serve as major hubs of commercial and retail jobs, major universities (such as the University of Pittsburgh, Carnegie Mellon University, and Duquesne University), several hospitals, as well as other cultural venues and major sports arenas. The Port Authority currently operates eight existing routes in the Downtown-Uptown-Oakland corridor and a P3 service from the suburbs into the Downtown-Oakland area, which will be restructured to form the BRT service. The average weekday ridership along these routes varies between 43,000 and 50,000 riders when the Universities are in session, representing almost a quarter of the entire transit system.

² *Annual Estimates of the Population of Metropolitan and Micropolitan Statistical Areas: April 1, 2010 to July 1, 2016” (CSV). 2016 Population Estimates. United States Census Bureau, Population Division. March 2016. Retrieved August 22, 2017.*

³ *Regional Forecast Estimates by Traffic Analysis Zones. Southwestern Pennsylvania Commission (SPC). 2015.*

Current Conditions

While the corridor is currently served by transit, several problems within the corridor make providing continued quality transit service challenging.

The concentration of employment in Downtown Pittsburgh and Oakland places large regional travel demands on access within the corridor. This contributes to congested traffic conditions for both buses and automobile traffic. Seventy-five percent of people who work in the City of Pittsburgh commute from outside of the city limits into the city daily for work. Additionally, over half of employed Pittsburgh residents are also commuting within the city daily for work. These travel demands are concentrated within the 0.25-mile study area, which collectively provides 50 percent of all jobs in the city.⁴

Although there are other high-speed roadways located south and north of Fifth and Forbes Avenues, these roadways do not provide direct access to most of the major trip generators in Downtown Pittsburgh and Oakland and are also congested in peak travel hours. Further, dense development and other transportation infrastructure along the corridor limit the ability to widen roadways any further and topographic features limit the ability of other roadways to serve demands in the corridor. As a result, both automobiles and buses must operate in mixed-flow lanes, causing additional delays to travel flow in the corridor. Additionally, delays due to congested conditions and buses operating in mixed-flow lanes cause buses to “bunch” (operate in uneven intervals). This results in overcrowding of the first vehicles in a platoon and underutilization of buses at the end of a platoon. A recent Carnegie Mellon University study found that up to 80 percent of peak hour buses along the corridor operate within 800 feet of another bus servicing the same line in the same direction.⁵ The uneven distribution of loads reduces both customer satisfaction and operational efficiency and increases operating costs.

Current bus travel times in the corridor are slow and unreliable. Average weekday bus travel speed along the proposed BRT corridor is well below the typical 25 miles per hour (mph) posted speed limits.⁶ From 2012 to 2016, the average speed for buses operating along the corridor decreased by approximately 6.6 percent. This is largely due to increasing traffic congestion. Despite the high transit ridership in the corridor, these comparative commute times indicate that public transit does not currently provide a competitive travel option compared with the automobile.

Reliability and speed of buses in the corridor have continued to decline as congestion increases and due to overcrowded conditions on buses. The average speed for buses operating along the corridor has reduced by approximately four percent between 2012 and 2016; the on-time performance for these buses is approximately 67 percent, below the Port Authority goal of 73 percent. Approximately 36 percent of all system overcrowding occurs on buses operating along the corridor.

Project Purpose and Merits of the Project

The purpose of this project is to improve access to and within the Downtown-Uptown-Oakland-East End corridor with faster, more reliable, and easy-to-use transit service that improves regional, neighborhood, and job connectivity. Fast, reliable transit investment in this corridor will support integrated transportation, land use, and economic development goals in the region in a cost-effective manner that

⁴ Longitudinal Employer Household Dynamics, Inflow Outflow Patterns - All Jobs, 2014.

⁵ Students for Urban Data Systems at Carnegie, “Do Pittsburgh’s Buses Bunch?”, 2016.

⁶ Port Authority of Allegheny County, 2016 Calendar Year Transit Operations Data, 2017.

maximizes existing capacity along the corridor. This project investment will result in several key benefits that address existing challenges in the corridor and needs both in the corridor and region. The project will:

- Provide enhanced transit service to maximize the existing roadway capacity in an already heavily congested urban area and provide time-competitive transit options within the corridor to move people more efficiently.
- Develop a premium, integrated transit service in a dense, already heavily utilized transit corridor that directly connects the major employment centers in the region with surrounding neighborhoods and connecting transit services.
- Enhance transit reliability, travel speed, and ease of use of transit by providing dedicated bus lanes along the corridor and enhanced, branded, appropriately spaced station locations.

The proposed project also effectively integrates several land use and transportation components in the city and region and will further support several economic development efforts already underway. Most notably, the City has recently undertaken an *Eco-Innovation District Plan* for the Uptown and Oakland neighborhoods that lie within the project corridor. With support from an FTA Pilot Program for TOD Planning grant, this strategic community plan is being developed to attract and guide redevelopment in these neighborhoods, enhance community identity and multimodal transportation options through complete streets and place-making strategies, reduce environmental footprints, and improve equity and access to jobs. In addition, other master planning efforts—such as *Envision Downtown*, the *Oakland 2025 Plan*, and the *Hill District Master Plan*—as well as the City’s recently adopted *Complete Streets Policy*, and county-wide and regional comprehensive planning efforts combine to make this project a key component in integrating land use and transportation solutions in the city and region.

Summary

The Downtown-Uptown-Oakland-East End BRT Project will improve connectivity and access, reduce congestion, and provide enhanced east-west mobility through some of the most congested areas of downtown Pittsburgh and Oakland, serving major employment centers, dense surrounding residential populations, and areas of significant development. These improvements will further improve transit travel time, reduce transit travel time variability, and provide greater mobility in a dense, urban transit corridor. Fast, reliable transit investment in this corridor will support integrated transportation, land use, and economic development goals in a cost-effective manner that maximizes existing transportation capacity, and provides affordable transportation options for riders requiring access to major hubs of commercial and retail jobs, major universities (such as the University of Pittsburgh, Carnegie Mellon University, and Duquesne University), several hospitals, as well as other cultural venues and major sports arenas.