

DRAFT – Advisory, Consultative, Deliberative

2040 Roosevelt Boulevard Route for Change Project

Planning and Environmental Linkages Study
STOPS Ridership Forecasting Report

December 2024

Prepared by:

HNTB

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Introduction

The purpose of this memorandum is to document the development of the Federal Transit Administration’s (FTA) Simplified Trips on Project Software (STOPS) Model to evaluate the high-capacity transit concepts included in Tier 1 of the 2040 Roosevelt Boulevard Route for Change Project’s Planning and Environmental Linkages (PEL) Study (Project). This STOPS Ridership Forecasting Report is one part of the Tier 1 analysis to screen the transit concepts included in the long list of Project alternatives. The long list of candidate alternatives will be comparatively assessed with the aim of selecting a short list of alternatives for a more detailed analysis in the Tier 2 phase of the Project. The long list of candidate alternatives has been developed to allow for a comparative analysis of anticipated benefits, development of preliminary capital cost and operations and maintenance cost estimates, transit ridership forecasts, and other preliminary elements that focus on estimated safety, mobility, and environmental impacts. The PEL Study proposes six total alternatives (i.e., the long list):

Alternative 1A: Partially Capped Expressway with Light Rail Transit (LRT)

Alternative 1B: Partially Capped Expressway with Bus Rapid Transit (BRT)

Alternative 2A: Neighborhood Boulevard with LRT

Alternative 2B: Neighborhood Boulevard with BRT

Alternative 3: Partially Capped Expressway with Heavy Rail Transit (HRT) (Subway)

Alternative 4: Neighborhood Boulevard with HRT (Subway)

STOPS is a standalone ridership model created by FTA specifically for evaluating Capital Investment Grant (CIG) candidate transit projects. It is similar to a conventional four-step model that evaluates zone-to-zone travel markets based on socioeconomic characteristics and the existing transit network. STOPS produces base year average weekday ridership forecasts for the CIG process on mobility, congestion relief, and cost effectiveness measures. It also quantifies the projected change in daily automobile Person Miles Traveled (PMT) and Vehicle Miles Traveled (VMT) resulting from implementation of the proposed project. STOPS has been calibrated and validated using actual ridership experience on transitways including BRT, LRT, HRT, and commuter rail across the country.

STOPS Model Inputs

The following section documents the data inputs that were utilized in the development of the model.

Model Setup

The ridership forecasting efforts utilized the latest version of STOPS (version 2.52). The synthetic application of STOPS model was calibrated to 2023 existing conditions using SEPTA average weekday ridership by stop and route. It should be noted that SEPTA has continued to experience significant ridership recovery in 2024, approaching nearly average daily ridership of 800,000 unlinked passenger trips across all modes, when compared to 580,000 in 2023. The STOPS model is meant to be a "living" file and regularly updated to stay up-to-date with the most recent ridership trends, socioeconomic forecasts, and other Project specific elements as the Project develops. It is important to remember that the Project is still in its early stages of development, so ridership projections will continue to change as the Project develops and model inputs are refined.

Census Journey to Work Data

Forecasting efforts relied upon the most recently available U.S. Census Journey to Work (JTW) data available for use in the STOPS applications. The most recent data currently available for use in STOPS is the 2012-2016 American Community Survey (ACS) data, and the corresponding ACS zone structure was used—focusing on ACS data for Pennsylvania, Delaware, and New Jersey. ACS zones that are beyond the Delaware Valley Regional Planning Commission (DVRPC) model area were excluded. ACS zones were split in proximity to the regional transit corridors to provide a refined estimation of the market and access at these locations. Currently, FTA is recalibrating the STOPS model with recent ACS data to better reflect demographic changes since the COVID-19 pandemic. The updated version of STOPS is not expected until the fourth quarter of 2024, and FTA is presently collecting data from transit agencies across the country to inform this update. This update will benefit from information from transit agencies that have conducted recent transit on-board Origin-Destination Surveys since 2022 that are consistent with FTA's requirements.

DVRPC Model Data

STOPS modelling for the Project included the integration of demographic and highway travel times from the DVRPC 2019, 2025, 2040, and 2045 travel demand model. STOPS permits the integration of demographic data from regional accepted models to adjust the patterns in the ACS JTW data. The DVRPC demographics for 2019 represent the current year (2023). Data

from 2025, 2040, and 2045 are utilized for the corresponding forecast years. The ridership forecasting efforts integrated corresponding highway travel time and distance matrices for each of the forecast years. DVRPC provided three horizon year (2040) highway skim alternatives to represent future travel time assumptions. The alternatives analyzed in this report are preliminary and representative of build alternatives that will be further defined as conceptual design advances. The representative alternatives are defined below:

- **Adopted 2040 Model Alternative:** The adopted model assumes the existing roadway characteristics on Roosevelt Boulevard—including a twelve-lane cross section (three express lanes and three local lanes in each direction). The Adopted 2040 assumes that no improvements will be made to Roosevelt Boulevard, while assuming population and employment growth as forecasted in the DVRPC model.
- **Neighborhood Boulevard Alternative:** The Neighborhood Boulevard alternative assumes improvements defined in the Route for Change Program (2021)—including six at-grade general-purpose lanes (two express lanes and one local lane in each direction), a transit facility consisting of dedicated transit lanes or right-of-way (one in each direction) for the proposed BRT or LRT alternative or a Subway existing within its own operating envelope, two BAT/flex lanes (one in each direction), and active transportation improvements such as widened sidewalks and two-way cycle tracks on each side of the corridor.
- **Partially Capped Expressway Alternative:** The Partially Capped Expressway Alternative assumes improvements defined in the Route for Change Program including four below-grade expressway lanes (two in each direction), four at-grade local lanes (two in each direction), a transit facility consisting of dedicated transit lanes or right-of-way (one in each direction) for the proposed BRT or LRT alternative or a Subway existing within its own operating envelope, and active transportation improvements such as widened sidewalks and two-way cycle tracks on each side of the corridor.

SEPTA

Ridership forecasting efforts integrated existing system data from SEPTA to develop the model calibration. This included the following:

- Spring 2023 average weekday ridership by stop and by route,
- Transit timetables in General Transit Feed Specification (GTFS) format from Fall 2023,
- Park and ride locations, and
- Current fare policy.

STOPS Model Calibration

The STOPS Model was calibrated consistent with the calibration toolbox defined in the National Transit Institute's *Ridership Forecasting with STOPS for Transit Project Planning* course.

STOPS Parameter File

Through the model calibration process, the following STOPS parameters for version 2.52 were included:

- **STOPS Mode:** The model is currently operating in synthetic mode.
- **Trips/Journey to Work (JTW) by Auto Ownership:** These are default values.
- **Linked Transit Goals:**"These fields were left blank due to data not being available.
- **Unlinked/Linked Ratio:**"The default unlinked/linked trips ratio of 1.4 was utilized due to data not being available.
- **Transfer Penalty Factor:** A value of 1.2 was used to offset the adjustment to the Unlinked/Linked Ratio. This factor was found to bring the systemwide adjustment factor closer to 1.0.
- **Fixed Guideway Setting:** The fixed guideway setting (FGS) was set to 1.0. Detail on the FGS is provided later in this memorandum.
- **Partial FGS:** The partial FGS was set to 0.9, consistent with streetcar utilization.
- **Group Calibration Approach:**"Group Calibration Type 10 (OD Matrix Adjustment) was selected to refine the final calibration.
- **General Transit Feed Specification (GTFS) Connectors:** The modeling team selected Type 04 Walk, Park and Ride, and Kiss and Ride to reflect the DVRPC travel time skims. The modeling team concluded that using skims would more accurately reflect access times for longer Park and Ride (PnR) and Kiss and Ride (KnR) journeys.
- **Walk Weights:** This setting was left at the default value of 1.
- **KnR Transit Setting:** This setting was left at the default value of 1.
- **PnR Transit Setting:** This setting was adjusted to 1.1 to better represent Park and Ride utilization within the project area.
- **PnR Bus Penalty Setting:** This setting was left at the default value of 1.
- **Auto Time Factor:** For the Auto Time Factor, the modeling team utilized a value of 1.29. A random sampling of trip paths was obtained for the AM peak hour using Google Maps and compared to the DVRPC highway skims. The results are documented in Appendix A.
- **Calibration Settings:** These values are set to the default STOPS 2.52 settings.
- **PNR Settings:** These values are set to the default STOPS 2.52 settings.

Define Forecast Years

The model forecast years were defined to align with officially adopted socioeconomic forecasts produced by DVRPC. **Table 1** summarizes the forecast years defined in STOPS. Note that no separate opening year forecast is being prepared, so the 10-Year forecast parameters have been entered in the “opening year” slot, and the 20-year forecast parameters have been entered in the “10-year Forecast” slot. The “20-year Forecast” slot was defined as Model Year 2045. For purposes of this report, “horizon year” refers to Model Year 2045.

Table 1: Forecast Years

STOPS Forecast Year	Model Year	MPO Data Year	Notes
CTPP* Year	2015**	2019	*Census Transportation Planning Products **Fixed STOPS parameter. Aligns with DVRPC 2019 forecast.
Current Year	2019	2023	Aligns with DVRPC 2023 forecast
Opening Year	2025	2025	Aligns with DVRPC 2025 forecast
10-year Forecast	2040	2040	Aligns with DVRPC 2040 forecast
20-year Forecast	2045	2045	Aligns with DVRPC 2045 forecast

Districts and Station Groups

The census zones along the Roosevelt Boulevard corridor were reviewed to identify zones that should be split to better capture the activity centers along the corridor. Once the zones were reviewed, the districts for the region were developed with those near the project corridor being more granular. **Figure 1** shows the district definition in the model.

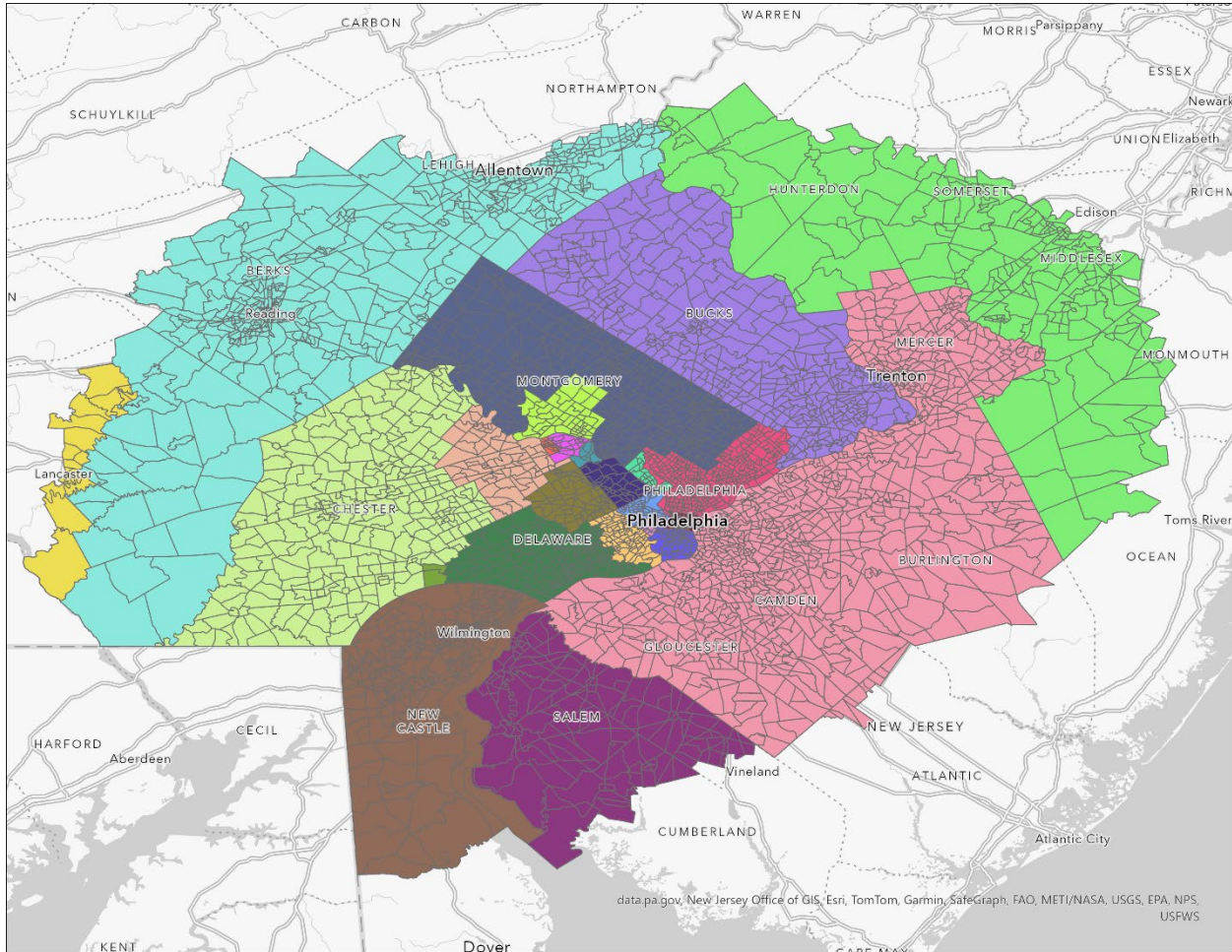


Figure 1. Philadelphia Area Districts

Station groups were assigned based on the districts in which each station and bus stop is located. The station groups were defined by mode and utilize the same geographic constraints. Local bus and commuter bus are defined in station groups 1 through 24. Regional rail is defined in station group 25. Light rail is defined in station groups 26 and 28. Metro is defined in station group 27. Systemwide station groups are shown in **Figure 2**. Station groups near the project area are shown in **Figure 3**.

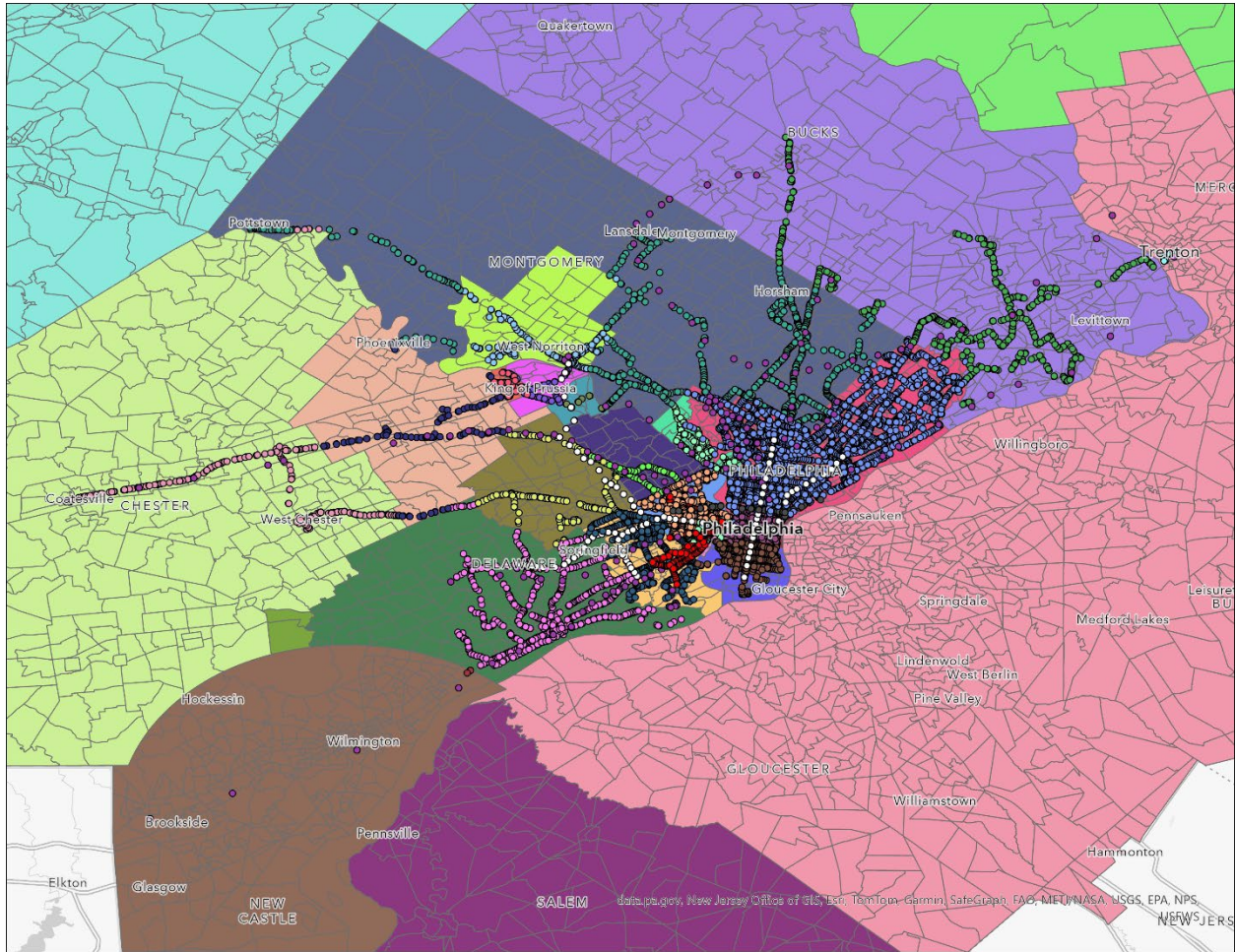


Figure 2. Philadelphia Area Station Groups

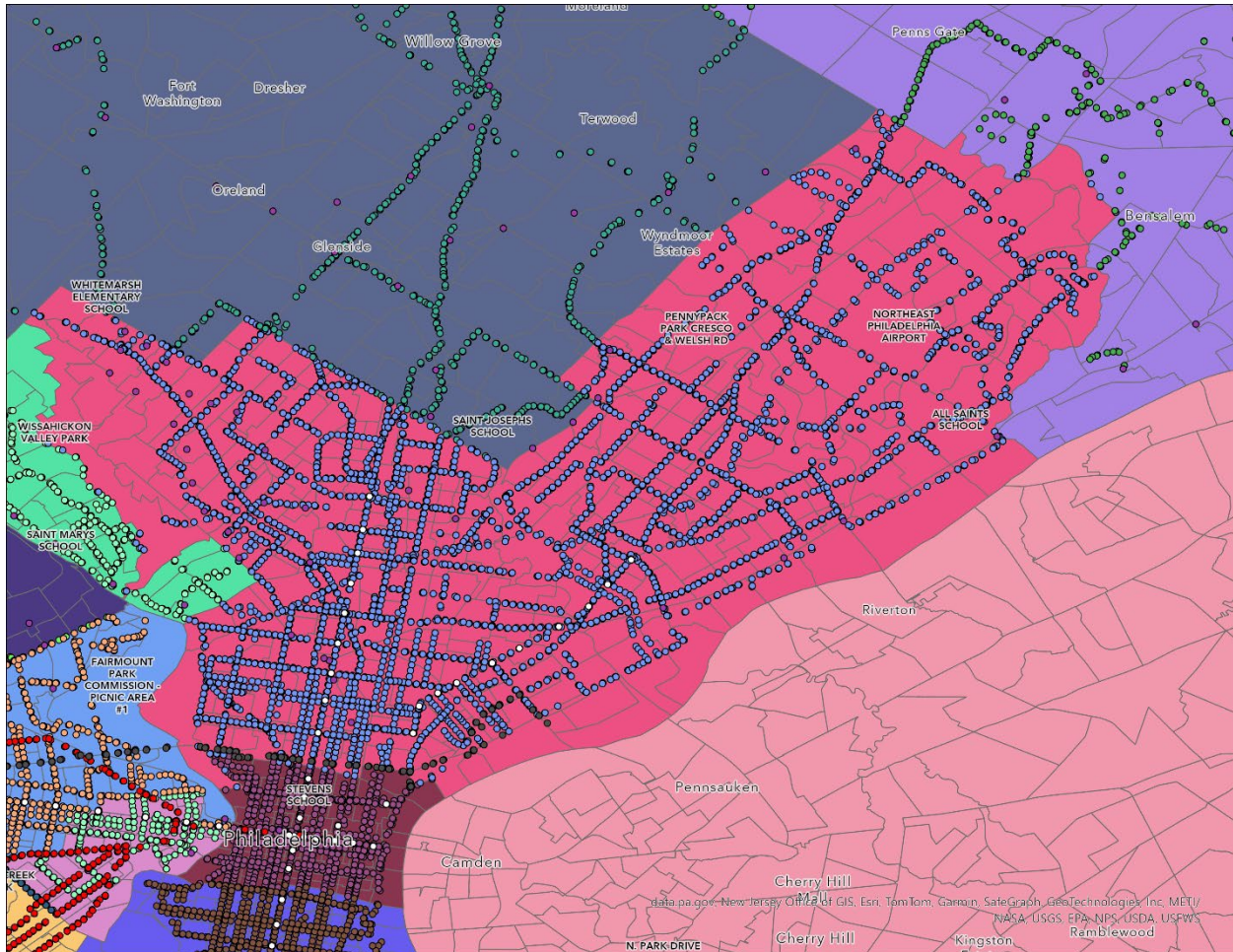


Figure 3. Project Area Station Groups

Station Access Penalties

Utilizing mode of access information from the most recent SEPTA on-board survey, time penalties were added to stations to calibrate to the mode of access. SEPTA Metro utilizes a five-minute walk penalty, two-minute KNR penalty, and two-minute PNR penalty.

Fare Control File

The STOPS fare control file was used to represent the existing SEPTA fare policy. The value of time (VOT) of \$10 per hour was assumed for the development of the fare control file. The default fare was set to \$2.50 consistent with SEPTA’s standard fare. Transfer fares were

calibrated to zero to represent free transfers, consistent with SEPTA's policy. Zone fares were incorporated into the model in accordance with the 2023 fare zone map for regional rail.

Park and Rides

Existing park-and-rides were coded into the model prior to the initial model runs. As part of the calibration, the catchment areas were adjusted to reflect utilization and capacity and to match counts. The catchment areas defined in STOPS are as follows:

- Type 1 – Attracts trips up to 25 miles
- Type 2 – Attracts trips up to 10 miles
- Type 3 – Attracts trips up to 6 miles
- Type 4 – Attracts trips up to 3 miles

A list of the park and ride locations by type is included in **Appendix C**.

Walk Shapefile

A regional walk shapefile was integrated that reflects the selection of GTFS Path Type 04. The walk shapefile more realistically reflects pedestrian walk paths—especially in instances where waterways, highways, or other physical barriers obstruct access to transit.

Fixed Guideway Setting

The STOPS Model utilizes a FGS to differentiate the attractiveness of various fixed guideway modes in the model—as measured relative to the attractiveness of full fixed guideway modes such as heavy rail. The FGS is used to indicate a higher level of attractiveness of fixed guideway transit which attracts higher ridership than would be accounted for by only considering speed and frequency improvements over existing bus service. STOPS allows the application of two different FGS parameters, a “Full FGS” for rail modes, and a “Partial FGS” for BRT and/or streetcar modes. The existing light rail was coded as type 0 (streetcar/LRT) in STOPS, and the partial FGS was utilized to represent its relative attractiveness. During calibration the partial FGS parameter was determined to be 0.9 to effectively calibrate the light rail routes.

The existing SEPTA Metro routes were coded as type 1 (metro/subway) in STOPS, and the full FGS was utilized to represent its relative attractiveness. During calibration the full FGS parameter was determined to be 1.0 to effectively calibrate the SEPTA Metro routes. To effectively calibrate regional rail, the existing lines were coded as type 3 (bus) to best align with post-COVID-19 travel patterns. Additional discussion about the FGS used for each alternative is included in the Local Route Modifications section of this report.

Calibration Results

The parameters described throughout this technical memorandum are the result of multiple rounds of calibration intended to improve the predictive ability of the model. Vcdrg"4 provides the final calibration results. The calibration of the model focuses on the Philadelphia area. The full calibration results are shown in **Appendix B**. It should be noted that SEPTA has continued to experience significant ridership recovery in 2024, approaching nearly average daily ridership of 800,000 unlinked passenger trips across all modes, when compared to 580,000 in 2023. The STOPS model will be updated at the next phase of the project, when Project design elements are further refined and with 2024 ridership figures.

Table 2: Key Calibration Parameters and Results

Key Parameter	Calibration
Calibration Methodology	Attraction Only
Add purpose totals	yes
Add Walk, KnR, & PnR links	04 Walk, KNR, PNR
Auto Time Factor	1.29
xfer Penalty	1.2
Unlinked/Linked	1.4
PnR-Bus Factor	1.00
Adjust to Counts	10 - OD Matrix Adjustment
Full FGS	1.00
Partial FGS	0.9

Key Metric	Target	Results	
Systemwide Adj.Factor	1.00	0.97	
Final Unlinked Trips	579,68	589,317	1.66%
Unlinked/Link Trips Ratio	1.40	1.52	
System Subtotals			
SEPTA City Bus	306,94	305,177	-1%
SEPTA Frontier Bus	5,800	15,618	169%

SEPTA Victory Bus	24,707	22,426	-9%
Other Bus	3,508	4,912	40%
SEPTA City Light Rail	46,541	49,430	6%
Metro	137,899	137,650	0%
Regional Rail	54,281	54,101	0%

Linked trips by Production Mode of Access

Walk	-	77%	-
Kiss and Ride	-	11%	-
Park and Ride	-	12%	-

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No Build Scenario Development

The following section documents the development of the No Build scenario utilized in the development of ridership forecasts for the Project.

Current Year Existing and No Build Network

SEPTA GTFS files for 2023 were used to represent the current year network. These files were also utilized to develop the STOPS Stations shapefile utilized by STOPS. The current year existing network also represents the current year No Build network, with the addition of any new routes currently in implementation.

Horizon Year No Build Network

SEPTA GTFS files for 2023 were used to develop the horizon year No Build Network. The projects in DVRPC's fiscally constrained long-range plan were included in the horizon year No Build network. The following projects were identified in DVRPC's Connections 2050 Plan.

- Franklin Square Station: The PATCO network was not included in this model run.
- Media-Elwyn Line Extension: Extension to Wawa Station included in the 2023 GTFS.
- King of Prussia Rail: Not assumed in the analysis.

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Build Scenario Development

The following section documents the development of the Build scenarios utilized in the development of ridership forecasts for the 2040 Roosevelt Boulevard high-capacity transit alternatives.

Current Year Build

The current year Build network utilized the current year No Build network as the basis, which is the system in place in Spring 2023. The Roosevelt Boulevard Alternatives, and accompanying local route modifications, were added to create the current year Build network.

ROOSEVELT BOULEVARD ALTERNATIVES SERVICE PLAN

The three high-capacity transit alternatives under review are BRT, LRT, and Subway. Each of these three alternatives were initially developed according to the Roosevelt Boulevard Corridor Transportation Investment Study (February 2003), and the BRT alternative was further studied in the Roosevelt Boulevard Route for Change Program (May 2021).

The following table outlines the global parameters utilized in the development of the Build scenarios.

Table 3: Global Parameters

Frequency	
Peak (6:00 AM - 9:00 AM & 3:00 PM - 6:00 PM)	6 Minutes
Off-Peak	12 Minutes
Span	
Weekday Span	5:00 AM - 11:00 PM

The following sections describe each alternative in greater detail as they are being considered by the ridership forecasting process.

SUBWAY

Service characteristics for the proposed Subway alternative are primarily derived from the Roosevelt Boulevard Corridor Transportation Investment Study.

Figure 4 provides a conceptual alignment of the proposed Subway alternative between City Hall Station and Neshaminy Mall.

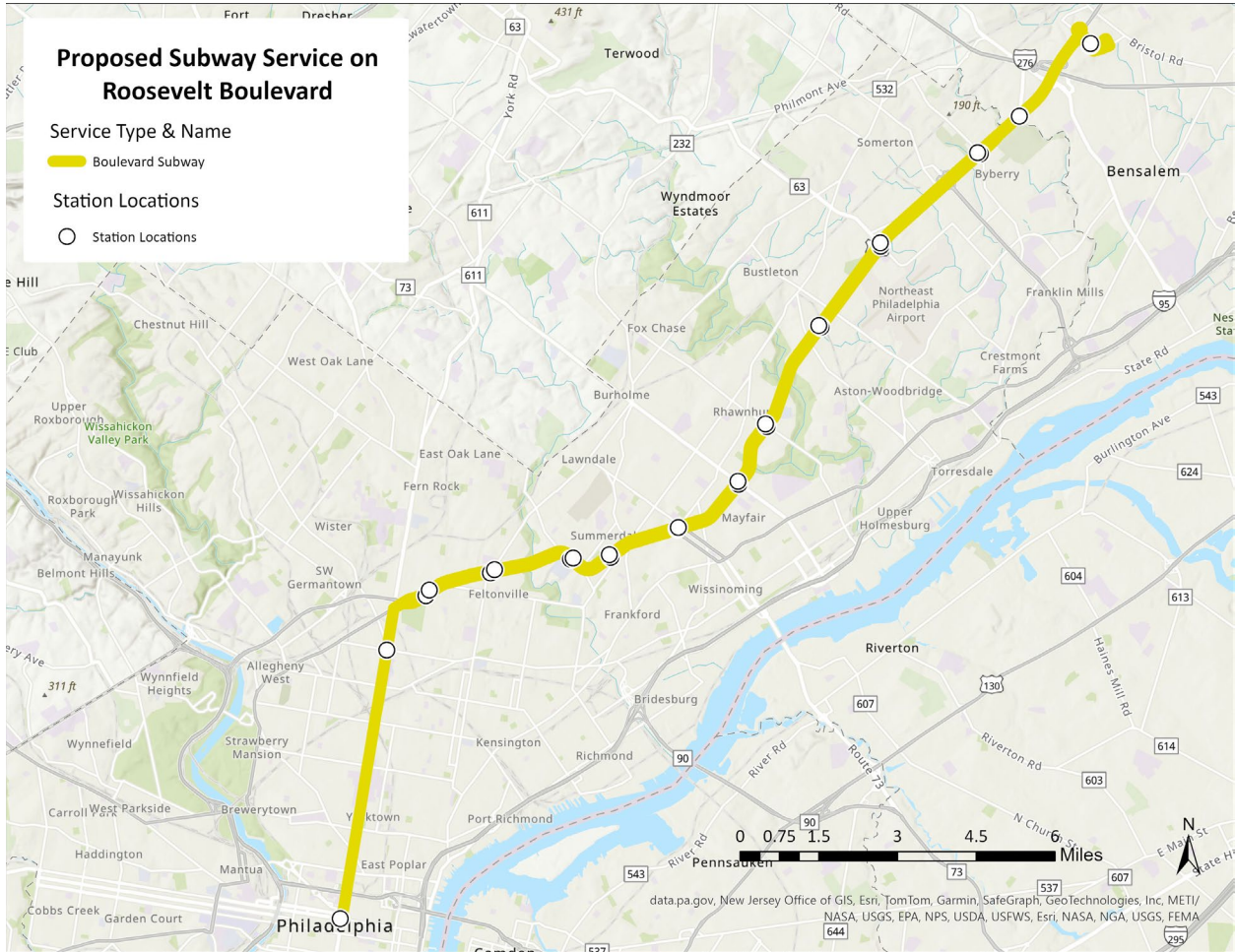


Figure 4: Proposed Subway Alignment and Station Locations

STATIONS

Initially, the Subway alternative was developed using station locations identified in previous studies. Station locations have been updated since the original Subway concept (e.g., combining the Grant Ave. and Welsh Ave. stations). Fourteen stations are represented in the model to serve as the Roosevelt Boulevard Subway service, comprised of 12 new stations along Roosevelt Boulevard and two existing stations (Erie Station and City Hall Station).

Each of the stations in the subway alternative were assumed to have one level of grade separation from ground level.

TERMINI

The Subway alternative is assumed to operate, for forecasting purposes, between Neshaminy Mall (northeastern terminus) and City Hall Station (southwestern terminus). The service would continue south after the City Hall Station to Walnut-Locust on the express tracks, and then transition to the local tracks for the BSL south of the universal interlocking between Walnut-Locust and Lombard-South. The route is assumed to operate as a local service between Neshaminy Mall and Erie Station and as an express service between Erie Station and City Hall Station (bypassing Allegheny, North Philadelphia, Susquehanna-Dauphin, Cecil B. Moore, Girard, Fairmont, Spring Garden, and Race-Vine Stations). Southbound Roosevelt Boulevard Subway trains would terminate at NRG Station. Northbound service would reverse the configuration described above.

For the purposes of ridership modeling, the subway alternative was coded to operate between Neshaminy Mall (northeastern terminus) and City Hall Station (southwestern terminus).

RUNNING TIME

The Subway alternative has a 49-minute running time. Travel time between the Erie Station and City Hall Station mimics existing Broad Street Line service, assuming a 9-minute running time. The remaining 40-minutes of running time is assumed between Erie Station and Neshaminy Mall. Station-to-station running times were derived by utilizing a 23.2 mph average speed, consistent with the *Roosevelt Boulevard Corridor Transportation Investment Study*. Speed assumptions account for pure running time, dwell time, acceleration, and deceleration. Detailed station-to-station running times are provided in **Table 4**.

Table 4: Subway Alternative - Station-to-Station Running Times

Station 1	Station 2	Running Time (mm:ss)
Roosevelt Blvd @ Rockhill	Roosevelt Blvd @ Old Lincoln Hwy	4:59
Roosevelt Blvd @ Old Lincoln Hwy	Roosevelt Blvd @ Southampton Rd	2:04
Roosevelt Blvd @ Southampton Rd	Roosevelt Blvd @ Red Lion Rd	5:10
Roosevelt Blvd @ Red Lion Rd	Roosevelt Blvd @ Welsh Rd - Grant Ave	3:53
Roosevelt Blvd @ Welsh Rd - Grant Ave	Roosevelt Blvd @ Rhawn St	4:24
Roosevelt Blvd @ Rhawn St	Roosevelt Blvd @ Cottman Ave	2:35
Roosevelt Blvd @ Cottman Ave	Roosevelt Blvd @ Bustleton Ave	3:06

Station 1	Station 2	Running Time (mm:ss)
Roosevelt Blvd @ Bustleton Ave	Roosevelt Blvd @ Pratt Street	2:51
Roosevelt Blvd @ Pratt Street	Roosevelt Blvd @ Tower Center	1:49
Roosevelt Blvd @ Tower Center	Roosevelt Blvd @ Rising Sun Ave	3:22
Roosevelt Blvd @ Rising Sun Ave	Roosevelt Blvd @ N 9th St	2:51
Roosevelt Blvd @ N 9th St	Erie Station - BSL	2:55
Erie Station - BSL	City Hall Station	9:00
City Hall Station	NRG Station	13:00
Total Running Time		1:01:59

LIGHT RAIL TRANSIT

The LRT alternative is comprised of two dedicated transit routes: Frankford Transportation Center (Frankford TC) to Neshaminy Mall (Route A), and Wissahickon Transportation Center (Wissahickon TC) to Frankford TC (Route B).

Service characteristics for the proposed LRT alternative roughly mimic the Bus Rapid Transit concept identified in the *Roosevelt Boulevard Route for Change Program*. H&M 7 provides a conceptual visual of the proposed service.

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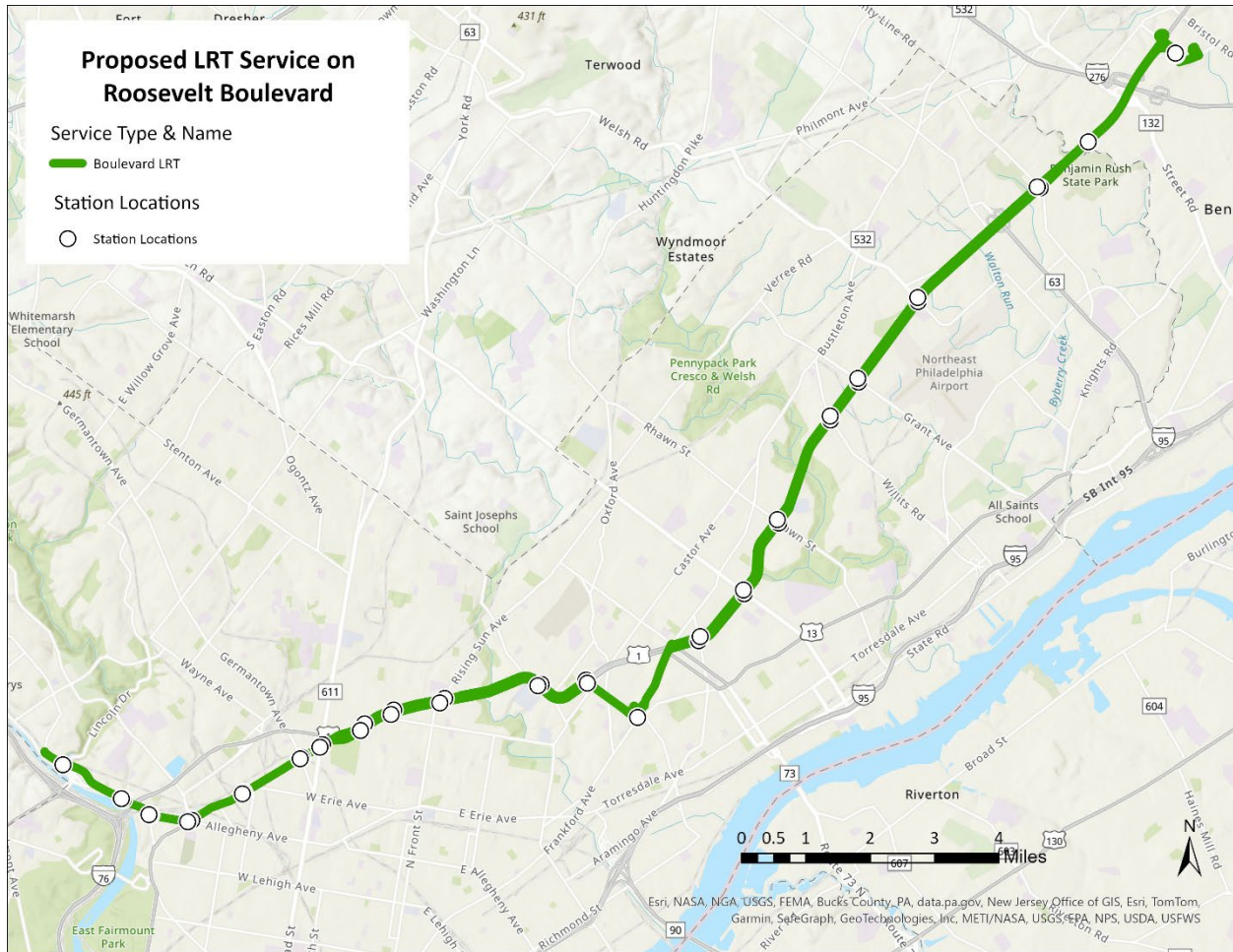


Figure 5: Proposed LRT Alignment and Station Locations

STATIONS

The LRT alternative was developed mimicking the station locations identified in the BRT alternative studied under the *Roosevelt Boulevard Route for Change Program*. The *Roosevelt Boulevard Route for Change Program* identified two routes serving 22 stations along Roosevelt Boulevard, Hunting Park Avenue, and Ridge Avenue: Route A (Frankford TC to Neshaminy Mall) and Route B (Wissahickon TC to Frankford TC). Ten station pairs serve Route A (Frankford TC to Neshaminy Mall), and 13 station pairs serve Route B (Wissahickon TC to Frankford TC). A station pair is defined as having northbound and southbound access to the station facility.

TERMINI

The LRT alternative is comprised of two dedicated transit routes that both share a termination point at the Frankford TC. Route A travels primarily on Roosevelt Boulevard

between Neshaminy Mall and the Frankford TC. Route A deviates off Roosevelt Boulevard onto Bustleton Avenue to access the Frankford TC. Route B travels primarily along Roosevelt Boulevard and Hunting Park Avenue between the Wissahickon TC and the Frankford TC. Route B deviates off Roosevelt Boulevard onto Pratt Street to access the Frankford TC.

RUNNING TIME

Route A operates a 33-minute running time between Neshaminy Mall and Frankford TC. Route B operates with a 32-minute running time between Wissahickon TC and Frankford TC. Station-to-station running times were derived by utilizing a 20-mph average speed, consistent with existing weekday operation of the Boulevard Direct route. Speed assumptions account for pure running time, dwell time, acceleration, and deceleration. Detailed station-to-station running times are provided in **Table 5**.

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Table 5: LRT Alternative - Station-to-Station Running Times

	Station 1	Station 2	Running Time (hh:mm:ss)
Route A	Roosevelt Blvd @ Rockhill	Roosevelt Blvd @ Old Lincoln Hwy	05:06
	Roosevelt Blvd @ Old Lincoln Hwy	Roosevelt Blvd @ Southampton Rd	02:24
	Roosevelt Blvd @ Southampton Rd	Roosevelt Blvd @ Red Lion Rd	06:00
	Roosevelt Blvd @ Red Lion Rd	Roosevelt Blvd @ Grant Ave	03:36
	Roosevelt Blvd @ Grant Ave	Roosevelt Blvd @ Welsh Rd	01:30
	Roosevelt Blvd @ Welsh Rd	Roosevelt Blvd @ Rhawn St	04:12
	Roosevelt Blvd @ Rhawn St	Roosevelt Blvd @ Cottman Ave	03:00
	Roosevelt Blvd @ Cottman Ave	Roosevelt Blvd @ Harbison Ave	02:24
	Roosevelt Blvd @ Harbison Ave	Frankford TC	04:48
Route B	Frankford TC	Roosevelt Blvd @ Pratt Street	02:24
	Roosevelt Blvd @ Pratt Street	Roosevelt Blvd @ Tower Center	01:48
	Roosevelt Blvd @ Tower Center	Roosevelt Blvd @ Rising Sun Ave	03:36
	Roosevelt Blvd @ Rising Sun Ave	Roosevelt Blvd @ N 5th St	01:48
	Roosevelt Blvd @ N 5th St	Roosevelt Blvd @ N 9th St	01:12
	Roosevelt Blvd @ N 9th St	N Broad St @ Roosevelt Blvd	01:48
	N Broad St @ Roosevelt Blvd	W Hunting Park Ave @ Germantown Ave	01:36
	W Hunting Park Ave @ Germantown Ave	W Hunting Park Ave @ Wissahickon Ave	04:17
	W Hunting Park Ave @ Wissahickon Ave	W Hunting Park Ave @ W Allegheny Ave	03:45
	W Hunting Park Ave @ W Allegheny Ave	Ridge Ave @ W Allegheny Ave	02:41
	Ridge Ave @ W Allegheny Ave	Ridge Ave @ Midvale Ave	02:09
	Ridge Ave @ Midvale Ave	Wissahickon Transportation Center	04:49
Route A Running Time			33:00
Route B Running Time			31:53
Total Running Time			1:04:53

BUS RAPID TRANSIT

The BRT alternative is comprised of two transit routes: Frankford TC to Neshaminy Mall (Route A), and Wissahickon TC to Frankford TC (Route B). Service is assumed to operate on dedicated lanes between Broad Street and Neshaminy Mall and with mixed traffic between Broad Street and Wissahickon TC.

Service characteristics for the proposed BRT alternative are primarily derived from the *Roosevelt Boulevard Route for Change Program* and other studies performed along the Roosevelt Boulevard corridor. **Figure 6** provides a conceptual visual of the proposed service.

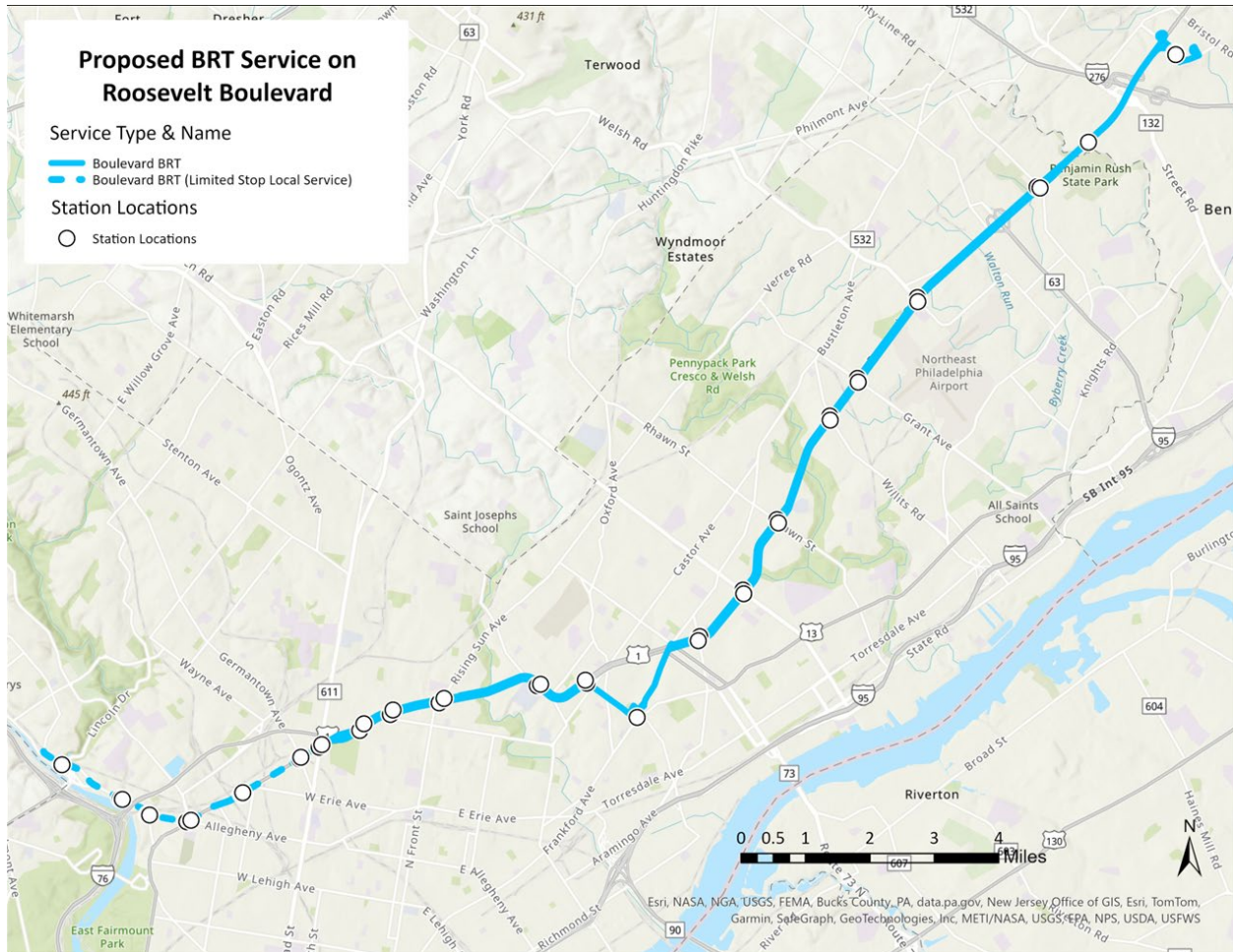


Figure 6: Proposed BRT Alignment and Station Locations

STATIONS

The BRT alternative was developed using station locations identified in the Roosevelt Boulevard Route for Change Program. The *Roosevelt Boulevard Route for Change Program* identified two routes serving 22 stations along Roosevelt Boulevard, Hunting Park Avenue, and Ridge Avenue: Route A (Frankford TC to Neshaminy Mall) and Route B (Wissahickon TC to Frankford TC). Ten station pairs serve Route A (Frankford TC to Neshaminy Mall), and 13 station pairs serve Route B (Wissahickon TC to Frankford TC).

A station pair is defined as having northbound and southbound access to the station facility.

TERMINI

The BRT alternative is comprised of two transit routes that both share a termination point at Frankford TC. Route A travels primarily on Roosevelt Boulevard between Neshaminy Mall and Frankford TC. Route A deviates off Roosevelt Boulevard onto Bustleton Avenue to access the Frankford TC. Route B travels primarily along Roosevelt Boulevard and Hunting Park Avenue between Wissahickon TC and Frankford TC. Route B deviates off Roosevelt Boulevard onto Pratt Street to access the Frankford TC. Route B operates in mixed traffic between Wissahickon TC and Broad Street and on dedicated lanes between Broad Street and Frankford TC.

RUNNING TIME

Route A operates a 33-minute running time between Neshaminy Mall and Frankford TC. Route B operates with a 32-minute running time between Wissahickon TC and Frankford TC. Ave. Station-to-station running times were derived by utilizing a 20-mph average speed, consistent with existing weekday operation of the Boulevard Direct route. Detailed station-to-station running times are provided in **Table 6**.

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Table 6: BRT Alternative - Station-to-Station Running Times

	Station 1	Station 2	Running Time (hh:mm:ss)
Route A	Roosevelt Blvd @ Rockhill	Roosevelt Blvd @ Old Lincoln Hwy	05:06
	Roosevelt Blvd @ Old Lincoln Hwy	Roosevelt Blvd @ Southampton Rd	02:24
	Roosevelt Blvd @ Southampton Rd	Roosevelt Blvd @ Red Lion Rd	06:00
	Roosevelt Blvd @ Red Lion Rd	Roosevelt Blvd @ Grant Ave	03:36
	Roosevelt Blvd @ Grant Ave	Roosevelt Blvd @ Welsh Rd	01:30
	Roosevelt Blvd @ Welsh Rd	Roosevelt Blvd @ Rhawn St	04:12
	Roosevelt Blvd @ Rhawn St	Roosevelt Blvd @ Cottman Ave	03:00
	Roosevelt Blvd @ Cottman Ave	Roosevelt Blvd @ Harbison Ave	02:24
	Roosevelt Blvd @ Harbison Ave	Frankford TC	04:48
Route B	Frankford TC	Roosevelt Blvd @ Pratt Street	02:24
	Roosevelt Blvd @ Pratt Street	Roosevelt Blvd @ Tower Center	01:48
	Roosevelt Blvd @ Tower Center	Roosevelt Blvd @ Rising Sun Ave	03:36
	Roosevelt Blvd @ Rising Sun Ave	Roosevelt Blvd @ N 5th St	01:48
	Roosevelt Blvd @ N 5th St	Roosevelt Blvd @ N 9th St	01:12
	Roosevelt Blvd @ N 9th St	N Broad St @ Roosevelt Blvd	01:48
	N Broad St @ Roosevelt Blvd	W Hunting Park Ave @ Germantown Ave	01:36
	W Hunting Park Ave @ Germantown Ave	W Hunting Park Ave @ Wissahickon Ave	04:17
	W Hunting Park Ave @ Wissahickon Ave	W Hunting Park Ave @ W Allegheny Ave	03:45
	W Hunting Park Ave @ W Allegheny Ave	Ridge Ave @ W Allegheny Ave	02:41
	Ridge Ave @ W Allegheny Ave	Ridge Ave @ Midvale Ave	02:09
	Ridge Ave @ Midvale Ave	Wissahickon Transportation Center	04:49
	Route A Running Time		
Route B Running Time			31:53
Total Running Time			1:04:53

LOCAL ROUTE MODIFICATIONS

Local route modifications were applied to the Spring 2023 current year network to reflect anticipated modifications to the existing service network. **Table 7** modifications were applied to all three high-capacity transit alternatives.

Table 7: Local Route Modifications Applied to All Alternatives

Route	Modification
Boulevard Direct (Direct Bus A) - Neshaminy Mall to Frankford TC	Service on Boulevard Direct was discontinued.
Route R - Wissahickon TC to Frankford TC	Route R was reduced to a 30 MAX route.
Route 14 - Neshaminy Mall to Frankford TC	Route 14 reduced to 120-minute headways. A 60-minute headway is achieved when combining Routes 14 and 14A.
Route 14A - Oxford Valley Mall to Frankford TC	Route 14A reduced to 120-minute headways. A 60-minute headway is achieved when combining Routes 14 and 14A.
Route 28 - Torresdale-Cottman to Fern Rock TC	Route 28 was improved to a 15 MAX route between Fox Chase Station and its eastern terminus.
Route 59 - Castor-Bustleton to Arrott TC	Route 59 was improved to a 10 MAX route.
Route 70 - Olney TC to Torresdale & Cottman Loop	Route 70 was improved to a 10 MAX route.
Route 74 - Fern Rock TC to Front-Dauphin	Route 74 was improved to a 10 MAX route during peak hours.
Route 76 - Rising Sun-Olney Loop to Pier 70	Route 76 was improved to a 15 MAX route during peak hours.
Route 83 - Willow Grove Park Mall to Torresdale Station	Route 83 was improved to a 15 MAX route during peak hours.
Route 85 - Holy Redeemer Hospital to Frankford-Knights	Route 85 was improved to a 15 MAX route during peak hours.
Route 86 - Forest Hills Station to Cornwells Heights Station	Route 86 was improved to a 15 MAX route during peak hours.

Specific local route modifications were implemented for each concept. These specific changes are primarily to remove duplicative service and to facilitate transfers unique to each alternative. These specific local route modifications are shown below in **Table 8**.

Table 8: Local Route Modifications Specific to Alternatives

HCT Alternative	Route	Modification
Subway	BSL - Broad Ridge Spur - Fern Rock TC to 8th Street	The Roosevelt Boulevard Subway alternative is anticipated to operate on the express tracks, and the Broad Ridge Spur moved to the local tracks. Slight headway adjustments were made to the Broad Ridge Spur to align with the BSL Local Route.
Subway	Market Frankford Line - Frankford TC to 69th St TC	The Market-Frankford Line was extended from Frankford TC to the intersection of Roosevelt Boulevard and Bustleton Avenue.
Subway	Route 88 - Frankford-Gregg Loop to Frankford TC	A deviation was coded into Route 88 to include a stop at Roosevelt Boulevard and Bustleton Avenue.
Subway	Route 83 - Willow Grove Park Mall to Torresdale Station	A deviation was coded into Route 83 to include a stop at the Welsh/Grant Subway Station.
LRT & Subway	Direct Bus B - Wissahickon TC to Frankford TC	The Direct Bus B was truncated at the Hunting Park Station.
BRT	Direct Bus B - Wissahickon TC to Frankford TC	Service on Direct Bus B was discontinued.

Horizon Year Build

The horizon year Build network utilized the horizon year No Build network as the basis. The transit alternatives considered in this analysis, and local route modifications, were then added to the horizon year No Build network to create the horizon year Build network.

FIXED GUIDEWAY SETTING

STOPS employs several mechanisms to represent that fixed guideway systems attract higher levels of ridership than would be predicted on service characteristics alone. Higher levels of ridership occur because fixed guideway systems are often more visible to occasional travelers, often operate in separated rights-of-way, may be more reliable, and may offer important amenities such as protection from the weather while waiting. These improvements can be accounted for through the Full and Partial FGS.

As the project advances, FGS for each of the high-capacity transit alternatives will be refined to reflect each concept’s design. The inclusion of a range of FGS options is intended to show the possibilities of various levels of investment and service characteristics.

The following subsections outline the Full and Partial FGS applied for each alternative.

SUBWAY

The subway alternative was coded as route type 1 (Metro/Subway) in STOPS. An FGS value of 1.0 was used to represent its relative attractiveness. The subway alternative is assumed to operate similar service characteristics to the Metro routes currently in operation, which reflect an FGS value of 1.0.

LRT

Multiple FGS options were run for the LRT alternative to convey the range of ridership results associated with varying levels of investment and service characteristics. The LRT alternative was coded as route type 0 (tram, streetcar, LRT, high-end BRT) in STOPS.

FGS 0.4

An FGS of 0.4 was utilized for LRT Option 1 to represent similar service characteristics to SEPTA's current trolley network. Service characteristics in this option may include no/minor transit signal priority, operation in mixed traffic, and fewer customer amenities.

FGS 0.6

An FGS of 0.6 was utilized for LRT Option 2 to reflect service characteristics that provide an increased quality of service compared to SEPTA's existing trolley network currently in operations. Service characteristics in this option may include transit signal priority, operation in mixed traffic, partial operation in dedicated guideway or fully operated in dedicated guideway, improved customer amenities, and improved reliability compared to typical SEPTA trolley operations.

FGS 0.8

An FGS of 0.8 was utilized for LRT Option 3 to reflect service characteristics that provide an increased quality of service compared to SEPTA's existing trolley network currently in operations, and more to resemble light rail operating for route segments in a separate guideway. Service characteristics assume LRT operations in a separated fixed guideway, attractive on-board and station amenities, and increased reliability compared to typical SEPTA trolley operations.

BRT

Multiple FGS options were run for the BRT alternative to convey the range of ridership results associated with varying levels of investment and service characteristics. The BRT alternative was coded as route type 0 (tram, streetcar, LRT, high-end BRT) in STOPS.

FGS 0.3

An FGS value of 0.3 was used for BRT Option 1 to represent its attractiveness, consistent with the calibration setting and trolleys currently in operation. Service characteristics in this option may include no/minor transit signal priority, operation in mixed traffic, and fewer customer amenities.

FGS 0.5

An FGS of 0.5 was utilized for BRT Option 2 to reflect service characteristics that provide an increased quality of service compared to SEPTA's existing trolley network currently in operations. Service characteristics in this option may include transit signal priority, operation in mixed traffic, partial operation in dedicated guideway or fully operated in dedicated guideway, improved customer amenities, and improved reliability compared to typical SEPTA trolley operations.

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Ridership Forecasts

Utilizing the previously outlined assumptions, ridership estimates were developed for the Build condition—including implementation of the Roosevelt Boulevard corridor high-capacity transit alternatives. Gannett Fleming reviewed the STOPS models and associated results prepared by HNTB. Gannett Fleming’s comments and HNTB’s responses are provided in **Appendix D**.

The model year 2023 represents the current year network while the 2040 forecast represents the horizon year network.

Table 9 through **Table 11** below show the Spring 2023 ridership counts and estimated ridership for each of Roosevelt Boulevard high-capacity transit alternatives for the year 2023. Analysis for the year 2023 was limited to the adopted model highway skims as it is representative of the existing layout of the Roosevelt Boulevard corridor.

Table 12 through **Table 14** display the results of the 2040 horizon year ridership analysis. Three highway skims were evaluated to compare the existing roadway layout with the two roadway alternatives presented in the Route for Change Program. Station-level ridership for each high-capacity transit alternative is provided in **Appendix E**.

Appendix F contains a comparison of weekday unlinked trips between each of the high-capacity transit alternatives and a true no-build alternative (No-Build Adopted 2040) where no transit or roadway improvements are implemented. The comparison is focused on service along Roosevelt Boulevard, where “Roosevelt Blvd Underlying Service Ridership” is representative of routes that operate along Roosevelt Boulevard, such as Route 14 and Boulevard Direct. The comparison is intended to illustrate the effects of route cannibalization and highlight the incremental increase in trips along Roosevelt Boulevard with the implementation of transit and roadway improvements.

Table 9: 2023 Ridership Forecast – BRT

Route	Existing Conditions (2023 Counts)	BRT - 2023 Adopted Model 0.3 FGS	BRT - 2023 Adopted Model 0.5 FGS
Roosevelt Boulevard Route A		9,300	11,700
Roosevelt Boulevard Route B		10,600	13,400
Roosevelt Boulevard Total		19,900	25,100
Broad Street Line	54,800	57,100	56,900
Market-Frankford Line	73,900	72,600	73,400
System Unlinked Trips (Build)*	579,500	592,900	598,200
System Unlinked Trips (No-Build)*		588,300	588,500
Difference		4,600	9,700

* Unlinked trips represent a passenger trip taken on a single transit vehicle, linked trips represent the complete trip taken by a passenger from origin to destination.

Table 10: 2023 Ridership Forecast – LRT

Route	Existing Conditions (2023 Counts)	LRT - 2023 Adopted Model 0.4 FGS	LRT - 2023 Adopted Model 0.6 FGS	LRT - 2023 Adopted Model 0.8 FGS
Roosevelt Boulevard Route A		11,200	13,700	16,600
Roosevelt Boulevard Route B		13,200	16,700	21,100
Roosevelt Boulevard Total		24,400	30,400	37,700
Broad Street Line	54,800	57,100	56,900	56,900
Market-Frankford Line	73,900	70,900	71,800	72,700
System Unlinked Trips (Build)*	579,500	593,000	599,400	608,100
System Unlinked Trips (No-Build)*		588,700	588,900	589,100
Difference		4,300	10,500	19,000

* Unlinked trips represent a passenger trip taken on a single transit vehicle, linked trips represent the complete trip taken by a passenger from origin to destination.

Table 11: 2023 Ridership Forecast – Subway

Route	Existing Conditions (2023 Counts)	Subway 2023 Adopted Model
Roosevelt Boulevard Route A		-
Roosevelt Boulevard Route B		43,800
Roosevelt Boulevard Total		43,800
Broad Street Line	54,800	56,100
Market-Frankford Line	73,900	66,100
System Unlinked Trips (Build)*	579,500	608,500
System Unlinked Trips (No-Build)*		589,300
Difference		19,200

* Unlinked trips represent a passenger trip taken on a single transit vehicle, linked trips represent the complete trip taken by a passenger from origin to destination.

Table 12: 2040 Ridership Forecast – BRT

Route	BRT - FGS 0.3			BRT - FGS 0.5		
	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Boulevard Route A	9,000	13,600	12,800	11,400	16,800	15,800
Roosevelt Boulevard Route B	10,400	17,300	16,900	13,300	21,700	21,200
Roosevelt Boulevard Total	19,400	30,900	29,700	24,700	38,500	37,000
Roosevelt Blvd Difference from Adopted 2040		11,500	10,300		13,800	12,300
Broad Street Line	60,500	95,400	95,300	60,300	95,300	95,300
BSL- Difference from Adopted 2040		34,900	34,800		35,000	35,000
Market-Frankford Line	76,700	116,200	114,900	77,400	117,000	115,600
MFL - Difference from Adopted 2040		39,500	38,200		39,600	38,200
System Unlinked Trips*	610,600	763,400	759,300	615,600	769,500	765,200
System - Difference from Adopted 2040		152,800	148,700		153,900	149,600

* Unlinked trips represent a passenger trip taken on a single transit vehicle, linked trips represent the complete trip taken by a passenger from origin to destination.

Table 13: 2040 Ridership Forecast – LRT – FGS 0.4 and FGS 0.6

Route	LRT - FGS 0.4			LRT - FGS 0.6		
	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Boulevard Route A	10,900	16,200	15,200	13,400	19,300	18,200
Roosevelt Boulevard Route B	13,100	21,800	21,200	16,700	27,100	26,600
Roosevelt Boulevard Total	24,000	38,000	36,400	30,100	46,400	44,800
Roosevelt Blvd Difference from Adopted 2040		14,000	12,400		16,300	14,700
Broad Street Line	60,700	96,100	96,100	60,500	95,600	95,600
BSL- Difference from Adopted 2040		35,400	35,400		35,100	35,100
Market-Frankford Line	74,300	111,900	110,600	75,100	112,200	110,800
MFL - Difference from Adopted 2040		37,600	36,300		37,100	35,700
System Unlinked Trips*	610,700	766,400	762,200	616,800	773,300	768,900
System - Difference from Adopted 2040		155,700	151,500		156,500	152,100

* Unlinked trips represent a passenger trip taken on a single transit vehicle, linked trips represent the complete trip taken by a passenger from origin to destination.

Table 14: 2040 Ridership Forecast – LRT FGS 0.8 and Subway

Route	LRT - FGS 0.8			Subway		
	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Boulevard Route A	16,100	22,900	21,700	-	-	-
Roosevelt Boulevard Route B	21,200	33,500	32,800	43,300	62,200	60,100
Roosevelt Boulevard Total	37,300	56,400	54,500	43,300	62,200	60,100
Roosevelt Blvd Difference from Adopted 2040		19,100	17,200		18,900	16,800
Broad Street Line	60,600	95,200	95,200	58,900	88,500	88,200
BSL- Difference from Adopted 2040		34,600	34,600		29,600	29,300
Market-Frankford Line	75,900	112,400	111,100	68,500	101,000	99,900
MFL - Difference from Adopted 2040		36,500	35,200		32,500	31,400
System Unlinked Trips*	625,200	783,400	778,700	624,200	777,200	772,200
System - Difference from Adopted 2040		158,200	153,500		153,000	148,000

* Unlinked trips represent a passenger trip taken on a single transit vehicle, linked trips represent the complete trip taken by a passenger from origin to destination.

Table 15 through **Table 26** show a breakdown of trips by type on the project. Trip types categorized as “All Other Trips” are to other activities such as education, shopping, leisure, and other non-home-based trips.

Table 15: Trips on Project Forecast – BRT - FGS 0.3

	BRT - FGS 0.3			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Transit Dependent* Trips - HBW	6,500	6,300	8,800	8,500
Transit Dependent Trips – All Other Trips	4,300	4,200	7,100	6,900
Non-Transit Dependent Trips - HBW	5,500	5,400	8,700	8,300
Non-Transit Dependent Trips – All Other Trips	3,000	2,900	5,000	4,900
Transit Dependent Trips - Total	10,800	10,500	15,900	15,400
Non-Transit Dependent Trips – Total	8,400	8,300	13,700	13,200
Total Trips on Project	19,200	18,900	29,600	28,600

* Transit dependent persons are trips made by persons in households that do not own a car.

Table 16: Trips on Project Forecast - BRT - FGS 0.5

	BRT - FGS 0.5			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Transit Dependent Trips* - HBW	7,500	7,300	9,900	9,500
Transit Dependent Trips – All Other Trips	5,300	5,200	8,400	8,200
Non-Transit Dependent Trips - HBW	7,100	7,200	11,400	11,000
Non-Transit Dependent Trips – All Other Trips	4,100	4,000	6,900	6,700
Transit Dependent Trips - Total	12,800	12,500	18,300	17,800
Non-Transit Dependent Trips – Total	11,200	11,200	18,200	17,600
Total Trips on Project	24,000	23,700	36,500	35,400

* Transit dependent persons are trips made by persons in households that do not own a car.

Table 17: Trips on Project Forecast - LRT - FGS 0.4

	LRT - FGS 0.4			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Transit Dependent Trips* - HBW	7,900	7,800	10,700	10,400
Transit Dependent Trips – All Other Trips	5,100	5,000	8,300	8,200
Non-Transit Dependent Trips - HBW	6,700	6,600	10,600	10,200
Non-Transit Dependent Trips – All Other Trips	3,800	3,700	6,400	6,200
Transit Dependent Trips - Total	13,100	12,800	19,100	18,500
Non-Transit Dependent Trips – Total	10,400	10,400	17,000	16,400
Total Trips on Project	23,500	23,100	36,100	34,900

* Transit dependent persons are trips made by persons in households that do not own a car.

Table 18: Trips on Project Forecast - LRT - FGS 0.6

	LRT - FGS 0.6			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Transit Dependent Trips* - HBW	9,000	8,800	11,800	11,500
Transit Dependent Trips – All Other Trips	6,300	6,200	9,900	9,700
Non-Transit Dependent Trips - HBW	8,600	8,600	13,700	13,200
Non-Transit Dependent Trips – All Other Trips	5,100	5,100	8,500	8,300
Transit Dependent Trips - Total	15,300	15,000	21,700	21,100
Non-Transit Dependent Trips – Total	13,700	13,700	22,200	21,500
Total Trips on Project	29,000	28,700	43,900	42,700

* Transit dependent persons are trips made by persons in households that do not own a car.

Table 19: Trips on Project Forecast - LRT - FGS 0.8

	LRT - FGS 0.8			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Transit Dependent Trips* - HBW	10,200	10,000	13,100	12,700
Transit Dependent Trips – All Other Trips	7,600	7,500	11,600	11,400
Non-Transit Dependent Trips - HBW	11,000	11,100	17,300	16,800
Non-Transit Dependent Trips – All Other Trips	6,800	6,700	11,100	10,800
Transit Dependent Trips - Total	17,800	17,500	24,700	24,100
Non-Transit Dependent Trips – Total	17,800	17,900	28,400	27,600
Total Trips on Project	35,600	35,400	53,100	51,700

* Transit dependent persons are trips made by persons in households that do not own a car.

Table 20: Trips on Project Forecast - Subway

	Subway			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Transit Dependent Trips* - HBW	10,200	9,800	12,300	11,900
Transit Dependent Trips – All Other Trips	7,100	6,900	10,500	10,200
Non-Transit Dependent Trips - HBW	18,000	18,000	25,500	24,500
Non-Transit Dependent Trips – All Other Trips	8,600	8,500	13,500	13,000
Transit Dependent Trips - Total	17,300	16,800	22,900	22,100
Non-Transit Dependent Trips – Total	26,600	26,500	38,900	37,500
Total Trips on Project	43,900	43,300	61,800	59,700

* Transit dependent persons are trips made by persons in households that do not own a car.

Table 21: Trips on Project Forecast - Trip Type – BRT – FGS 0.3

	BRT – FGS 0.3			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Home-Based Work	12,000	11,800	17,500	16,800
All Other Trips	7,200	7,100	12,100	11,800
Total	19,200	18,900	29,600	28,600

Table 22: Trips on Project Forecast - Trip Type – BRT – FGS 0.5

	BRT – FGS 0.5			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Home-Based Work	14,600	14,500	21,200	20,500
All Other Trips	9,300	9,200	15,300	14,900
Total	24,000	23,700	36,500	35,400

Table 23: Trips on Project Forecast - Trip Type – LRT – FGS 0.4

	LRT - FGS 0.4			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Home-Based Work	14,600	14,400	21,300	20,600
All Other Trips	8,900	8,800	14,700	14,400
Total	23,500	23,100	36,100	34,900

Table 24: Trips on Project Forecast - Trip Type – LRT – FGS 0.6

	LRT - FGS 0.6			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Home-Based Work	17,600	17,400	25,500	24,700
All Other Trips	11,400	11,300	18,400	18,000
Total	29,000	28,700	43,900	42,700

Table 25: Trips on Project Forecast - Trip Type – LRT – FGS 0.8

	LRT - FGS 0.8			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Home-Based Work	21,200	21,100	30,400	29,500
All Other Trips	14,400	14,300	22,700	22,200
Total	35,600	35,400	53,100	51,700

Table 26: Trips on Project Forecast - Trip Type – Subway

	Subway			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Home-Based Work	28,100	27,900	37,800	36,400
All Other Trips	15,800	15,400	24,000	23,200
Total	43,900	43,300	61,800	59,700

Capital Investment Grant Inputs

The following tables summarize the additional inputs for consideration for a potential future CIG process.

Annualization Factor

An annualization factor of 256.99 was used to convert the weekday ridership estimates to an annual ridership estimate. The annualization factor was developed using the SEPTA annual ridership for 2022 divided by the average weekday ridership utilized in the STOPS model for calibration. Utilizing the average weekday ridership, the model is calibrated to account for swings in ridership that occur through the year and produces a reliable annual estimate.

Table 27: Annualization Factor

	Weekday	Annual	Annualization Factor
System Total	572,906	147,229,654	256.99

Reduction in VMT

Reduction in VMT is estimated as it is a required input for the environmental benefits portion of FTA project evaluation process. STOPS reports the incremental (build minus no-build) number of automobile person-miles of travel that are a result of the project. An occupancy rate of 1.1 was used to convert the weekday estimates of reduction in person-miles traveled to vehicle-miles traveled. The occupancy rate utilized for Capital Investment Grant submittals was established by FTA.

STOPS reports only the incremental PMT that result from the project. The variance in VMT between horizon year alternatives cannot be evaluated, as the build and no-build PMT values are not provided as an output of the STOPS model.

Template 1 Inputs

Table 28 through **Table 33** summarize the results utilized in Template 1. To determine the weighted trips on project the transit dependent trips are given a weight of two and added to the non-transit dependent trip total.

Table 28: Capital Investment Grant Inputs – BRT – FGS 0.3

	BRT – FGS 0.3			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
New Transit Trips*	2,700	2,700	5,200	4,900
Reduction in VMT	-4,036,300	-3,829,800	-8,066,400	-7,325,500
Non-Transit Dependent Trips	2,162,800	2,142,500	3,522,300	3,386,300
Transit Dependent Trips	2,770,100	2,702,200	4,084,300	3,961,700
Weighted Trips on Project**	7,702,900	7,547,000	11,690,900	11,309,800

*New Linked Transit Trips reported as an average weekday

**A weight of two is applied to transit dependent trips in the Weighted Trips on Project calculation

Table 29: Capital Investment Grant Inputs – BRT – FGS 0.5

	BRT – FGS 0.5			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
New Transit Trips*	5,400	5,300	9,100	8,700
Reduction in VMT	-8,349,300	-8,079,700	-13,892,700	-12,902,600
Non-Transit Dependent Trips	2,882,600	2,874,700	4,686,200	4,526,800
Transit Dependent Trips	3,284,300	3,213,900	4,692,300	4,566,400
Weighted Trips on Project**	9,451,200	9,302,400	14,070,800	13,659,700

*New Linked Transit Trips reported as an average weekday

**A weight of two is applied to transit dependent trips in the Weighted Trips on Project calculation

Table 30: Capital Investment Grant Inputs – LRT – FGS 0.4

	LRT - FGS 0.4			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
New Transit Trips*	3,000	3,000	5,800	5,500
Reduction in VMT	-4,085,600	-3,863,000	-8,212,400	-7,433,700
Non-Transit Dependent Trips	2,675,500	2,661,100	4,368,800	4,215,900
Transit Dependent Trips	3,358,100	3,287,900	4,896,100	4,759,900
Weighted Trips on Project**	9,391,600	9,236,900	14,161,000	13,735,700

*New Linked Transit Trips reported as an average weekday

**A weight of two is applied to transit dependent trips in the Weighted Trips on Project calculation

Table 31: Capital Investment Grant Inputs – LRT – FGS 0.6

	LRT - FGS 0.6			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
New Transit Trips*	6,200	6,200	10,600	10,200
Reduction in VMT	-9,041,500	-8,737,800	-14,799,700	-13,760,000
Non-Transit Dependent Trips	3,509,200	3,514,000	5,704,600	5,529,300
Transit Dependent Trips	3,934,000	3,861,500	5,572,800	5,432,500
Weighted Trips on Project**	11,377,100	11,237,000	16,850,200	16,394,300

*New Linked Transit Trips reported as an average weekday

**A weight of two is applied to transit dependent trips in the Weighted Trips on Project calculation

Table 32: Capital Investment Grant Inputs – LRT – FGS 0.8

	LRT - FGS 0.8			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
New Transit Trips*	10,700	10,600	17,000	16,500
Reduction in VMT	-15,196,800	-14,824,000	-22,994,100	-21,642,500
Non-Transit Dependent Trips	4,568,500	4,595,400	7,287,700	7,084,600
Transit Dependent Trips	4,582,300	4,506,500	6,352,000	6,205,500
Weighted Trips on Project**	13,733,200	13,608,500	19,991,600	19,495,600

*New Linked Transit Trips reported as an average weekday

**A weight of two is applied to transit dependent trips in the Weighted Trips on Project calculation

Table 33: Capital Investment Grant Inputs - Subway

	Subway			
	Adopted 2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
New Transit Trips*	15,900	15,700	23,400	22,400
Reduction in VMT	-32,952,100	-32,668,900	-47,599,200	-44,906,700
Non-Transit Dependent Trips	6,835,900	6,821,500	9,999,100	9,640,600
Transit Dependent Trips	4,450,500	4,308,100	5,880,400	5,688,900
Weighted Trips on Project**	15,736,900	15,437,800	21,759,900	21,018,500

*New Linked Transit Trips reported as an average weekday

**A weight of two is applied to transit dependent trips in the Weighted Trips on Project calculation

Information presented in **Table 28** through **Table 33** is compared to FTA’s breakpoints to determine the Congestion Relief and Mobility Improvements ratings.

Congestion Relief

FTA evaluates congestion relief based on the number of new weekday linked transit trips resulting from implementation of the proposed project. This value is calculated by comparing total weekday linked transit trips for the no-build alternative with total weekday linked transit trips once the proposed project is implemented. This value is presented in the “New Transit Trips” row of **Table 28** through **Table 33**.

Table 34: Congestion Relief Rating Breakpoints

Rating	New Weekday Linked Transit Trips
High	≥ 18,000
Medium-High	10,000 - 17,999
Medium	2,500 - 9,999
Medium-Low	500 - 2,499
Low	≤ 499

Mobility Improvements

FTA evaluates mobility improvements for New Starts projects as the total number of linked trips using the proposed project, with a weight of two given to trips that would be made on the project by transit dependent persons. This value is calculated by adding together the estimated number of linked transit trips on the project taken by non-transit dependent persons and the number of linked transit trips taken by transit dependent persons multiplied by a factor of two, thereby giving extra weight to these trips. This calculation is presented in the “Weighted Trips on Project” row of **Table 28** through **Table 33**.

Table 35: Mobility Improvements Rating Breakpoints

Rating	Mobility Improvements: Estimated Annual Trips (Trips by Non-Transit Dependent Persons plus Trips by Transit Dependent Persons multiplied by 2)
High	≥ 30 Million
Medium-High	15 Million - 29.9 Million
Medium	5 Million - 14.9 Million
Medium-Low	2.5 Million - 4.9 Million
Low	≤ 2.5 Million

The following table displays each alternative’s congestion relief and mobility improvements ratings, using the breakpoints shown in **Table 34** and **Table 35**.

Table 36: Congestion Relief and Mobility Improvements Ratings

HCT Alternative	Roadway Alternative	Congestion Relief Rating	Mobility Improvements Rating
Subway	Adopted 2040	Medium-High	Medium-High
	Neighborhood Boulevard 2040	High	Medium-High
	Partially Capped Expressway 2040	High	Medium-High
LRT - FGS 0.4	Adopted 2040	Medium	Medium
	Neighborhood Boulevard 2040	Medium	Medium
	Partially Capped Expressway 2040	Medium	Medium
LRT - FGS 0.6	Adopted 2040	Medium	Medium
	Neighborhood Boulevard 2040	Medium-High	Medium-High
	Partially Capped Expressway 2040	Medium-High	Medium-High
LRT - FGS 0.8	Adopted 2040	Medium-High	Medium
	Neighborhood Boulevard 2040	Medium-High	Medium-High
	Partially Capped Expressway 2040	Medium-High	Medium-High
BRT - FGS 0.3	Adopted 2040	Medium	Medium
	Neighborhood Boulevard 2040	Medium	Medium
	Partially Capped Expressway 2040	Medium	Medium
BRT - FGS 0.5	Adopted 2040	Medium	Medium
	Neighborhood Boulevard 2040	Medium	Medium
	Partially Capped Expressway 2040	Medium	Medium

Appendix A: Travel Time Comparison Summary Table

Table 37. Travel Time Comparison Summary

Origin TAZ	Destination TAZ	Google Maps	DVRPC Skims	STOPS Adjustment Factor
1666	588	40	35.49	1.13
212	495	37	26.57	1.39
155	2883	24	17.70	1.36
248	157	26	12.19	2.13
3003	581	53	52.79	1.00
386	321	46	33.67	1.37
445	52	23	18.42	1.25
164	599	25	17.99	1.39
537	139	35	24.16	1.45
2760	1405	65	48.10	1.35
1789	134	48	35.76	1.34
138	25	11	5.99	1.84
2730	311	34	24.86	1.37
148	2150	47	43.94	1.07
2344	1781	44	50.97	0.86
72	398	25	18.14	1.38
630	151	27	20.15	1.34
569	212	37	35.27	1.05
253	1689	51	38.19	1.34
648	504	39	32.62	1.20
2869	1549	97	88.90	1.09
438	2183	44	49.00	0.90
514	667	23	18.60	1.24
386	620	30	23.23	1.29
1768	2213	45	42.44	1.06
			Average	1.29

Appendix B: Final Calibration Results

Table 38. Final Calibration Results

*2-#Rctco gvgtu	
Calibration Version	Run 35
Calibration Methodology	Attraction Only
Add purpose totals	yes
Add Walk, KnR, and PnR links	04 - PNR, KNR, Walk Links
Auto Time Factor	1.3
xfer Penalty	1.2
Walk Weight	1.0
KNR Transit	1.0
PNR Transit	1.1
PNR Bus	1.0
Unlinked/Linked	1.4
PnR-Bus Factor	1.0
Adjust to Counts	10 - OD Matrix Adjustment
BRT Route Type	NA
LRT Route Type	0.0
Full FGS	1.0
Partial FGS	0.9
Enable STOPS 2.52 Parameters	Yes
Notes	Synthetic

(1) TRN - Total Transit Trips	Target (Existing Counts)	Existing Modeled	Raw Diff	% Diff
Linked Trips	-	388,650	-	-
HBW%	-	50%	-	-
HBO%	-	36%	-	-
NHB%	-	14%	-	-
HBW 0-car %	-	23%	-	-
HBO 0-car %	-	23%	-	-
NHB 0-car %	-	10%	-	-
All 0-car %	-	56%	-	-

(2) SYS - Systemwide	Target (Existing Counts)	Existing Modeled	Raw Diff	% Diff
Systemwide Adjustment Factor	1.00	0.97	-0.03	-3%
Final Unlinked Trips	579,684	589,317	9,633	1.66%
Unlinked/Link Trips Ratio	1.40	1.52	0.12	8%
System Subtotals				
SEPTA City Bus	306,948	305,177	-1,771	-1%
SEPTA Frontier Bus	5,800	15,618	9,818	169%
SEPTA Victory Bus	24,707	22,426	-2,281	-9%
Other Bus	3,508	4,912	1,404	40%
SEPTA City Light Rail	46,541	49,430	2,889	6%
Metro	137,899	137,650	-249	0%
Regional Rail	54,281	54,101	-180	0%
Total	579,684	589,317	9,633	2%

(3) ACC - Access Modes	Target (Existing Counts)	Existing Modeled	Raw Diff	% Diff
Linked trips by P MOA				
Walk	90.0%	76.5%	-14.3%	-16%
KNR	-	11.4%	-	-
PNR	-	12.0%	-	-
All Trips		388,650		
FG Share: FG/ total boardings				
SEPTA City Light Rail	41.2%	40.9%	-0.3%	-1%
Metro	46,541	49,430	2,889	6%
Regional Rail	137,899	137,650	-249	0%
	54,281	54,101	-180	0%
PnR Utilization				
SEPTA City Bus	-	4.1%	-	-
SEPTA Frontier Bus	-	2.3%	-	-
SEPTA Victory Bus	-	1.3%	-	-
Other Bus	-	26.7%	-	-
SEPTA City Light Rail	-	7.0%	-	-
Metro	-	15.6%	-	-
Regional Rail	-	40.2%	-	-
KnR Utilization				
SEPTA City Bus	-	4.5%	-	-
SEPTA Frontier Bus	-	16.2%	-	-
SEPTA Victory Bus	-	5.2%	-	-
Other Bus	-	11.2%	-	-
SEPTA City Light Rail	-	13.1%	-	-
Metro	-	16.0%	-	-
Regional Rail	-	17.7%	-	-
Walk Utilization				
SEPTA City Bus	-	91.4%	-	-
SEPTA Frontier Bus	-	81.5%	-	-
SEPTA Victory Bus	-	93.5%	-	-
Other Bus	-	62.2%	-	-
SEPTA City Light Rail	-	79.9%	-	-
Metro	-	68.4%	-	-
Regional Rail	-	42.1%	-	-

(6) Boardings - Corridor	Target (Existing Counts)	Existing Modeled	Raw Diff	% Diff
Key Routes (Main Overlaps)	77,818	74,511	-3,307	-4%
Route 14	4,591	2,111	-2,480	-54%
Route 14	0	256	-	-
Route 28	0	1,285	-	-
Route 59	2,553	3,558	1,005	39%
Route 70	5,787	3,289	-2,498	-43%
Route 74	0	4,240	-	-
Route 76	0	8,913	-	-
Route 83	0	2,085	-	-
Route 85	0	1,913	-	-
Route 86	0	1,102	-	-
Route 88	1,392	1,391	-1	0%
Boulevard Direct	2,008	2,363	355	18%
Broad Street Line	54,722	55,308	586	1%
Light Rail	46,541	49,430	2,889	6%
Line 15	5,151	7,598	2,447	48%
Line 10	8,030	10,055	2,025	25%
Line 11	8,534	6,133	-2,401	-28%
Line 13	8,069	6,991	-1,078	-13%
Line 34	8,248	8,074	-174	-2%
Line 36	8,509	10,579	2,070	24%
Metro	137,899	137,650	-249	0%
Line 101	2,117	4,264	2,147	101%
Line 102	2,507	2,905	398	16%
Line BSL	54,722	55,308	586	1%
Line MFL	73,898	70,702	-3,196	-4%
Regional Rail	54,281	54,101	-180	0%

(6) Boardings - Corridor	Target (Existing Counts)	Existing Modeled	Raw Diff	% Diff
Airport Line	3,086	452	-2,634	-85%
Trenton Line	4,606	11,685	7,079	154%
Warminster Line	5,097	2,491	-2,606	-51%
West Trenton Line	5,307	5,528	221	4%
Wilmington / Newark Line	3,331	7,374	4,043	121%
Chestnut Hill East Line	2,184	2,591	407	19%
Chestnut Hill West Line	1,832	1,268	-564	-31%
Cynwyd Line	116	375	259	223%
Line Fox Chase Line	2,085	3,733	1,648	79%
Lansdale / Doylestown Line	7,524	4,939	-2,585	-34%
Manayunk / Norristown Line	4,433	5,725	1,292	29%
Media / Wawa Line	5,494	3,176	-2,318	-42%
Paoli / Thorndale Line	9,186	4,764	-4,422	-48%
Other Routes	340,963	348,133	7,170	2%
Route 2	4,268	7,152	2,884	68%
Route 3	-	3,152	-	-
Route 4	5,227	8,593	3,366	64%
Route 5	2,308	3,008	700	30%
Route 6	3,783	5,533	1,750	46%
Route 7	4,139	2,160	-1,979	-48%
Route 9	3,418	4,998	1,580	46%
Route 12	2,002	2,967	965	48%
Route 14	4,591	2,111	-2,480	-54%
Route 16	4,834	2,517	-2,317	-48%
Route 17	8,040	3,959	-4,081	-51%
Route 21	8,807	6,434	-2,373	-27%
Route 22	2,957	628	-2,329	-79%
Route 23	12,204	10,829	-1,375	-11%
Route 24	1,461	591	-870	-60%
Route 25	3,279	3,438	159	5%
Route 27	3,034	6,095	3,061	101%
Route 28	-	1,285	-	-

(6) Boardings - Corridor	Target (Existing Counts)	Existing Modeled	Raw Diff	% Diff
Route 29	3,105	3,861	756	24%
Route 31	3,722	2,575	-1,147	-31%
Route 33	10,236	3,303	-6,933	-68%
Route 37	2,382	1,947	-435	-18%
Route 39	1,547	1,260	-287	-19%
Route 45	4,554	2,143	-2,411	-53%
Route 46	3,682	939	-2,743	-74%
Route 47	13,897	11,124	-2,773	-20%
Route 48	7,095	2,819	-4,276	-60%
Route 52	8,464	1,974	-6,490	-77%
Route 53	1,666	5,140	3,474	209%
Route 54	5,547	1,637	-3,910	-70%
Route 55	-	1,801	-	-
Route 56	-	774	-	-
Route 57	7,389	3,173	-4,216	-57%
Route 58	5,628	5,964	336	6%
Route 59	2,553	3,558	1,005	39%
Route 60	8,431	8,527	96	1%
Route 61	3,065	4,840	1,775	58%
Route 64	4,554	4,486	-68	-1%
Route 66	5,463	6,088	625	11%
Route 68	1,500	2,122	622	41%
Route 75	1,702	2,745	1,043	61%
Route 77	630	493	-137	-22%
Route 79	3,651	4,148	497	14%
Route 84	2,442	4,371	1,929	79%
Route 88	1,392	1,391	-1	0%
Route 93	925	607	-318	-34%
Route 94	278	620	342	123%
Route 95	309	534	225	73%
Route 96	877	416	-461	-53%
Route 51	-	3,731	-	-
Route 98	566	2,066	1,500	265%

(6) Boardings - Corridor	Target (Existing Counts)	Existing Modeled	Raw Diff	% Diff
Route 99	897	199	-698	-78%
Route 104	2,177	1,695	-482	-22%
Route 105	-	1,012	-	-
Route 106	821	365	-456	-56%
Route 108	3,687	1,181	-2,506	-68%
Route 109	3,151	2,570	-581	-18%
Route 110	1,441	426	-1,015	-70%
Route 110	1,008	304	-704	-70%
Route 112	696	940	244	35%
Route 113	5,069	4,343	-726	-14%
Route 114	1,410	709	-701	-50%
Route 117	1,692	376	-1,316	-78%
Route 118	302	463	161	53%
Route 119	558	331	-227	-41%
Route 124	1,216	1,118	-98	-8%
Route 125	1,180	3,263	2,083	177%
Route 129	633	634	1	0%
Route 131	387	194	-193	-50%
Route 131	523	615	92	18%
Route 135	580	542	-38	-7%
Route 40	8,256	639	-7,617	-92%
Route 74	-	4,240	-	-
Route 83	-	2,085	-	-
Route 72	-	1,955	-	-
Route 87	-	775	-	-
Route 85	-	1,913	-	-
Route 86	-	1,102	-	-
Route 76	-	8,913	-	-
Route 127	218	3,587	3,369	1545%
Route 55	3,126	1,816	-1,310	-42%
Route 97	504	301	-203	-40%
Route 126	396	937	541	137%
Route 116	-	572	-	-

(6) Boardings - Corridor	Target (Existing Counts)	Existing Modeled	Raw Diff	% Diff
Route 137	-	1,771	-	-
Route 115	827	1,686	859	104%
Route 105	805	445	-360	-45%
Route 107	667	1,097	430	64%
Route 108	-	1,865	-	-
Route 14	-	256	-	-
Route 67	3,239	6,820	3,581	111%
Route 70	5,787	3,289	-2,498	-43%
Route 19	912	2,914	2,002	220%
Route 20	2,971	5,283	2,312	78%
Route 22	-	707	-	-
Route 24	-	980	-	-
Route 65	5,757	9,900	4,143	72%
Route 26	7,569	4,135	-3,434	-45%
Route 28	1,178	556	-622	-53%
Route 3	6,727	876	-5,851	-87%
Route 43	2,141	6,359	4,218	197%
Route 310	215	205	-10	-5%
Route 49	2,887	565	-2,322	-80%
Route 49	-	2,667	-	-
Route 38	2,067	4,126	2,059	100%
Route 44	2,466	871	-1,595	-65%
Route 42	7,892	7,751	-141	-2%
Route 45	-	1,918	-	-
Route 40	-	5,219	-	-
Route 52	-	1,193	-	-
Route 56	8,107	6,731	-1,376	-17%
Route 57	-	2,067	-	-
Route 58	-	1,410	-	-
Route 18	11,513	7,366	-4,147	-36%
Route 116	-	1,109	-	-
Route 142	-	127	-	-
Route 536	2,008	2,363	355	18%

(6) Boardings - Corridor	Target (Existing Counts)	Existing Modeled	Raw Diff	% Diff
Route 63	11,332	8,045	-3,287	-29%
Route 63	-	1,023	-	-
Route LUCYGO	824	604	-220	-27%
Route LUCYGR	479	274	-205	-43%
Route 71	3,406	4,099	693	20%
Route 41	2,200	2,349	149	7%
Route 51	4,839	1,603	-3,236	-67%
Route 82	6,765	6,491	-274	-4%
Route 81	3,851	2,276	-1,575	-41%

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Appendix C: Park and Ride by Type

Table 39. Park and Ride by Type

Park and Ride Name	Park and Ride Type
Chestnut Hill West PNR	1
Cynwyd PNR	1
Delaware Valley College PNR	1
Norristown - Elm Street PNR	1
Elwyn PNR	1
Fox Chase PNR	1
Highland PNR	1
Thorndale PNR	1
Warminster PNR	1
West Trenton PNR	1
Chestnut Hill East PNR	1
Ambler PNR	2
Ardmore PNR	2
Ardsley PNR	2
Bala PNR	2
Berwyn PNR	2
Bethayres PNR	2
Bristol PNR	2
Bryn Mawr PNR	2
Carpenter PNR	2
Chalfont PNR	2
Cheltenham Avenue PNR	2
Cheltenham PNR	2
Colmar PNR	2
Conshohocken PNR	2
Crestmont PNR	2
Croydon PNR	2
Crum Lynne PNR	2
Curtis Park PNR	2
Darby PNR	2
Daylesford PNR	2
Devon PNR	2
Downingtown PNR	2

Park and Ride Name	Park and Ride Type
Doylestown PNR	2
East Falls PNR	2
Eddystone PNR	2
Elkins Park PNR	2
Exton PNR	2
Folcroft PNR	2
Forest Hills PNR	2
Fort Washington PNR	2
Fortuna PNR	2
Gravers PNR	2
Gladstone PNR	2
Glenolden PNR	2
Glenside PNR	2
Gwynedd Valley PNR	2
Hatboro PNR	2
Haverford PNR	2
Highland Avenue PNR	2
Holmesburg Jct PNR	2
Ivy Ridge PNR	2
Gwynedd Valley PNR	2
Langhorne PNR	2
Lansdale PNR	2
Lansdowne PNR	2
Levittown-Tullytown PNR	2
Link Belt PNR	2
Malvern PNR	2
Marcus Hook PNR	2
Meadowbrook PNR	2
Media PNR	2
Link Belt PNR	2
Merion PNR	2
Miquon PNR	2
Morton-Rutledge PNR	2
Moylan-Rose Valley PNR	2
Sedgwick PNR	2
Narberth PNR	2
Neshaminy PNR	2
New Britain PNR	2



Park and Ride Name	Park and Ride Type
New Britain PNR	2
Noble PNR	2
North Hills PNR	2
North Philadelphia PNR	2
North Wales PNR	2
Norwood PNR	2
Olney PNR	2
Oreland PNR	2
Overbrook PNR	2
Paoli PNR	2
Penllyn PNR	2
Pennbrook PNR	2
Philmont PNR	2
Pine Ridge Station PNR	2
Primos PNR	2
Prospect Park - Moore PNR	2
Queen Lane PNR	2
Radnor PNR	2
Ridley Park PNR	2
Rosemont PNR	2
Roslyn PNR	2
Rydal PNR	2
Ryers PNR	2
Scenic Rd Station PNR	2
Secane PNR	2
Stenton PNR	2
Sharon Hill PNR	2
Somerton PNR	2
Spring Mill PNR	2
St. Davids PNR	2
St. Martins PNR	2
Washington Lane PNR	2
Strafford PNR	2
Swarthmore PNR	2
Torresdale PNR	2
Trevose PNR	2
Tulpehocken PNR	2
Upsal PNR	2



Park and Ride Name	Park and Ride Type
Villanova PNR	2
Wallingford PNR	2
Wister PNR	2
Wayne PNR	2
Whitford PNR	2
Willow Grove PNR	2
Wissahickon PNR	2
Woodbourne PNR	2
Woodland Av Station - FS PNR	2
Wynnefield Avenue PNR	2
Wynnewood PNR	2
Yardley PNR	2
Cornwells Heights PNR	3
Haverford Station - NHSL PNR	3
Bryn Mawr Station - NHSL PNR	3
Gulph Mills Station - NHSL PNR	3
DeKalb St Station - NHSL PNR	3
Norristown T.C. PNR	3
Providence Rd Station PNR	4
Chester PNR	4
Germantown PNR	4
Churchman's Crossing PNR	4
Claymont PNR	4
Clifton-Aldan PNR	4
Drexline Station PNR	4
Fern Rock Transportation Center PNR	4
Frankford Transportation Center PNR	4
Mount Airy PNR	4
Main Street PNR	4
Manayunk PNR	4
Newark PNR	4
NRG Station - BSL PNR	4
Springfield Mall Station PNR	4
Springfield Rd Station PNR	4
Wilmington PNR	4
Wyndmoor PNR	4



Appendix D: Gannett Fleming Review

Table 40. Gannett Fleming Review

Gannett Fleming Comment	HNTB Response
Require clear explanation on Direct Bus B i.e, is this service only introduced in LRT & Subway and if so, why is the route numbers in both the scenarios different. 997 in LRT & 998 in subway.	Route 998 was initially coded as Roosevelt LRT Route B, so Route 997 was used for LRT. Updated to use Route 997 to represent Direct Bus B for all modes.
Gtfs Files do not seem to align, missing certain routes when we import into VISUM	GTFSed was provided to Gannett Fleming.
Some routes have 0 counts in the 2045 Built scenario namely, Blvddir-536, 28(1) ?-BRT & LRT, subway (existing has counts)	Boulevard Direct is the existing local route serving Roosevelt Boulevard and will be eliminated with the project. Route 28 operates multiple service patterns. To simplify the route modifications in the build condition, the patterns were combined into a single route 28.
Results labelling does not match Table 7 modification (Page 18) eg. route 28 says it should be improved to a 15 MAX but results show this as the description(below)	Labeling updated to remove existing headway information.
Would it be possible to attach a copy of the default Stops calibration parameters as mentioned in section ‘STOPS Model Calibration’ page 3	Calibration parameters provided to Gannett Fleming.
We have checked table 13.03 for all the years and for the 4 scenarios – Travel times for each of the modes under the ‘No Built’ condition is all the same.	These values were expected. Skims data was used from the adopted DVRPC model and are expected to be the same for all modes, and be consistent between no-build and build models.
In the BRT scenario, the shapefile indicates Stop type 1 & 3 exists for this scenario in the STOPS Stations layer. Stop type 1 appears reasonable but stop type 3 does not appear reasonable since there is no park and ride lot based on the definition above. Station type coding used needs to be checked.	STOPSTYPE field reviewed for each stop and updated as needed.

Gannett Fleming Comment	HNTB Response
<p>In comparing the growth in the socio-economic data with the growth in the ridership related to the change in population/employment between 2020-2045 with the change in ridership for the same period on a district level (attached below), we noted that for several Districts the results appear counter intuitive (e.g. 22, 23).</p>	<p>HNTB reviewed the results and did not think there were causes of concern based on size and total ridership. Districts 22 and 23 in particular are located in New Jersey, where district 22 represents 15 stations across a broad service area (including Trenton) and district 23 represents the NE portion of New Jersey and does not contain any stations.</p>
<p>We have been attempting to run the STOP V2.52 model. This hasn't been successful and we think the problem is within the 'DistrictZone' layer projection for all 3 scenarios (BRT, LRT, Subway). The model crashes with the following error message.</p>	<p>District numbering was modified to be lower than 1 or greater than 98. This error message is not occurring in the HNTB model, so it is likely an issue in transmittal. HNTB re-sent the district information to Gannett Fleming.</p>

DRAFT

Appendix E: Station-Level Ridership

Table 41: Station-Level Ridership - BRT - FGS 0.3

Station	BRT - FGS 0.3			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Wissahickon Transportation Center	1,130	1,110	1,720	1,700
Ridge Ave @ Midvale Ave NB	320	350	760	740
Ridge Ave @ Midvale Ave SB	200	220	370	370
Ridge Ave @ W Allegheny Ave NB	210	240	450	450
Ridge Ave @ W Allegheny Ave SB	80	80	130	130
W Allegheny Ave @ W Hunting Park Ave NB	320	320	550	540
W Hunting Park Ave @ W Allegheny Ave SB	310	290	550	550
W Hunting Park Ave @ Wissahickon Ave NB	180	170	270	260
W Hunting Park Ave @ Wissahickon Ave SB	150	130	220	210
W Hunting Park Ave @ Germantown Ave NB	230	240	370	340
W Hunting Park Ave @ Germantown Ave SB	320	300	560	570
N Broad St @ Roosevelt Blvd NB	560	640	1,330	1,310
N Broad St @ Roosevelt Blvd SB	570	570	910	910
Roosevelt Blvd @ N 9th St NB	230	210	330	310
Roosevelt Blvd @ N 9th St SB	280	260	390	380
Roosevelt Blvd @ N 5th St NB	340	360	550	520
Roosevelt Blvd @ N 5th St SB	440	390	620	620
Roosevelt Blvd @ Rising Sun Ave NB	370	380	600	590
Roosevelt Blvd @ Rising Sun Ave SB	690	670	1,100	1,100
Roosevelt Blvd @ Tower Center NB	150	150	280	280
Roosevelt Blvd @ Tower Center SB	120	120	230	210
Roosevelt Blvd @ Pratt Street NB	460	480	720	710
Roosevelt Blvd @ Pratt Street SB	480	450	720	690
Frankford TC	6,120	5,900	9,030	8,390
Roosevelt Blvd @ Harbison Ave NB	340	330	570	540

Station	BRT - FGS 0.3			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd @ Harbison Ave SB	270	260	400	380
Roosevelt Blvd @ Cottman Ave NB	270	260	420	400
Roosevelt Blvd @ Cottman Ave SB	200	190	310	300
Roosevelt Blvd @ Rhawn St NB	620	600	920	890
Roosevelt Blvd @ Rhawn St SB	330	330	530	520
Roosevelt Blvd @ Welsh Rd NB	1,300	1,240	1,780	1,670
Roosevelt Blvd @ Welsh Rd SB	590	570	880	830
Roosevelt Blvd @ Grant Ave NB	110	100	170	160
Roosevelt Blvd @ Grant Ave SB	160	140	190	190
Roosevelt Blvd @ Red Lion Rd NB	590	600	910	830
Roosevelt Blvd @ Red Lion Rd SB	150	140	240	230
Roosevelt Blvd @ Southampton Rd NB	480	470	640	590
Roosevelt Blvd @ Southampton Rd SB	170	160	190	190
Roosevelt Blvd @ Old Lincoln Hwy NB	140	130	170	160
Roosevelt Blvd @ Old Lincoln Hwy SB	30	30	40	40
Roosevelt Blvd @ Rockhill NB	130	110	160	160
Roosevelt Blvd @ Rockhill SB	140	150	270	260

Table 42: Station-Level Ridership - BRT - FGS 0.5

Station	BRT - FGS 0.5			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Wissahickon Transportation Center	1,510	1,510	2,410	2,390
Ridge Ave @ Midvale Ave NB	510	550	1,150	1,140
Ridge Ave @ Midvale Ave SB	380	400	630	630
Ridge Ave @ W Allegheny Ave NB	270	310	510	510
Ridge Ave @ W Allegheny Ave SB	110	110	170	170

Station	BRT - FGS 0.5			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
W Allegheny Ave @ W Hunting Park Ave NB	400	400	670	660
W Hunting Park Ave @ W Allegheny Ave SB	430	410	660	650
W Hunting Park Ave @ Wissahickon Ave NB	220	210	310	300
W Hunting Park Ave @ Wissahickon Ave SB	190	170	260	260
W Hunting Park Ave @ Germantown Ave NB	290	290	440	420
W Hunting Park Ave @ Germantown Ave SB	430	420	680	700
N Broad St @ Roosevelt Blvd NB	780	910	1,950	1,930
N Broad St @ Roosevelt Blvd SB	680	680	1,050	1,050
Roosevelt Blvd @ N 9th St NB	270	260	380	360
Roosevelt Blvd @ N 9th St SB	340	310	490	480
Roosevelt Blvd @ N 5th St NB	400	430	640	610
Roosevelt Blvd @ N 5th St SB	510	460	700	700
Roosevelt Blvd @ Rising Sun Ave NB	470	470	730	730
Roosevelt Blvd @ Rising Sun Ave SB	820	800	1,250	1,250
Roosevelt Blvd @ Tower Center NB	230	220	360	360
Roosevelt Blvd @ Tower Center SB	180	170	320	300
Roosevelt Blvd @ Pratt Street NB	530	540	820	800
Roosevelt Blvd @ Pratt Street SB	570	530	860	820
Frankford TC	7,510	7,270	10,820	10,100
Roosevelt Blvd @ Harbison Ave NB	470	460	730	700
Roosevelt Blvd @ Harbison Ave SB	340	330	510	490
Roosevelt Blvd @ Cottman Ave NB	350	340	530	510
Roosevelt Blvd @ Cottman Ave SB	280	270	430	410
Roosevelt Blvd @ Rhawn St NB	800	780	1,160	1,120
Roosevelt Blvd @ Rhawn St SB	460	460	710	690
Roosevelt Blvd @ Welsh Rd NB	1,500	1,440	1,990	1,870
Roosevelt Blvd @ Welsh Rd SB	700	670	1,020	950
Roosevelt Blvd @ Grant Ave NB	160	150	230	220

Station	BRT - FGS 0.5			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd @ Grant Ave SB	210	190	250	250
Roosevelt Blvd @ Red Lion Rd NB	730	740	1,070	980
Roosevelt Blvd @ Red Lion Rd SB	200	200	320	300
Roosevelt Blvd @ Southampton Rd NB	580	570	750	690
Roosevelt Blvd @ Southampton Rd SB	210	200	250	240
Roosevelt Blvd @ Old Lincoln Hwy NB	160	150	190	180
Roosevelt Blvd @ Old Lincoln Hwy SB	40	40	60	60
Roosevelt Blvd @ Rockhill NB	150	140	190	180
Roosevelt Blvd @ Rockhill SB	220	240	420	410

Table 43: Station-Level Ridership - LRT - FGS 0.4

Station	LRT - FGS 0.4			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Wissahickon Transportation Center	1,420	1,410	2,260	2,230
Ridge Ave @ Midvale Ave NB	450	490	1,060	1,050
Ridge Ave @ Midvale Ave SB	340	370	570	570
Ridge Ave @ W Allegheny Ave NB	260	300	520	520
Ridge Ave @ W Allegheny Ave SB	110	110	170	170
W Allegheny Ave @ W Hunting Park Ave NB	380	370	640	630
W Hunting Park Ave @ W Allegheny Ave SB	390	370	630	620
W Hunting Park Ave @ Wissahickon Ave NB	210	210	310	300
W Hunting Park Ave @ Wissahickon Ave SB	180	160	250	250
W Hunting Park Ave @ Germantown Ave NB	270	270	410	390
W Hunting Park Ave @ Germantown Ave SB	410	390	680	690
N Broad St @ Roosevelt Blvd NB	770	890	1,930	1,910
N Broad St @ Roosevelt Blvd SB	900	900	1,410	1,410

Station	LRT - FGS 0.4			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd @ N 9th St NB	250	240	370	350
Roosevelt Blvd @ N 9th St SB	280	260	410	400
Roosevelt Blvd @ N 5th St NB	400	440	670	640
Roosevelt Blvd @ N 5th St SB	530	470	750	750
Roosevelt Blvd @ Rising Sun Ave NB	450	450	720	720
Roosevelt Blvd @ Rising Sun Ave SB	870	860	1,370	1,360
Roosevelt Blvd @ Tower Center NB	210	210	370	360
Roosevelt Blvd @ Tower Center SB	160	160	300	280
Roosevelt Blvd @ Pratt Street NB	610	630	940	920
Roosevelt Blvd @ Pratt Street SB	580	540	880	840
Frankford TC	7,460	7,200	10,810	10,070
Roosevelt Blvd @ Harbison Ave NB	490	480	780	750
Roosevelt Blvd @ Harbison Ave SB	380	360	550	530
Roosevelt Blvd @ Cottman Ave NB	310	300	480	460
Roosevelt Blvd @ Cottman Ave SB	280	270	440	430
Roosevelt Blvd @ Rhawn St NB	820	790	1,180	1,120
Roosevelt Blvd @ Rhawn St SB	430	430	680	650
Roosevelt Blvd @ Welsh Rd NB	1,450	1,390	1,960	1,840
Roosevelt Blvd @ Welsh Rd SB	680	650	1,000	940
Roosevelt Blvd @ Grant Ave NB	150	140	220	210
Roosevelt Blvd @ Grant Ave SB	190	170	230	230
Roosevelt Blvd @ Red Lion Rd NB	670	690	1,020	930
Roosevelt Blvd @ Red Lion Rd SB	180	180	300	280
Roosevelt Blvd @ Southampton Rd NB	540	530	720	660
Roosevelt Blvd @ Southampton Rd SB	170	160	200	200
Roosevelt Blvd @ Old Lincoln Hwy NB	160	150	190	190
Roosevelt Blvd @ Old Lincoln Hwy SB	30	30	40	40
Roosevelt Blvd @ Rockhill NB	140	130	180	170

Station	LRT - FGS 0.4			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd @ Rockhill SB	50	50	70	70

Table 44: Station-Level Ridership - LRT - FGS 0.6

Station	LRT - FGS 0.6			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Wissahickon Transportation Center	1,960	1,990	3,250	3,220
Ridge Ave @ Midvale Ave NB	730	800	1,610	1,590
Ridge Ave @ Midvale Ave SB	550	580	880	880
Ridge Ave @ W Allegheny Ave NB	320	370	590	590
Ridge Ave @ W Allegheny Ave SB	140	140	210	210
W Allegheny Ave @ W Hunting Park Ave NB	480	480	790	780
W Hunting Park Ave @ W Allegheny Ave SB	510	490	740	740
W Hunting Park Ave @ Wissahickon Ave NB	270	260	380	360
W Hunting Park Ave @ Wissahickon Ave SB	230	210	320	320
W Hunting Park Ave @ Germantown Ave NB	330	340	500	480
W Hunting Park Ave @ Germantown Ave SB	530	510	810	830
N Broad St @ Roosevelt Blvd NB	1,120	1,320	2,840	2,820
N Broad St @ Roosevelt Blvd SB	1,000	1,000	1,520	1,520
Roosevelt Blvd @ N 9th St NB	310	290	430	410
Roosevelt Blvd @ N 9th St SB	350	330	530	510
Roosevelt Blvd @ N 5th St NB	480	520	770	740
Roosevelt Blvd @ N 5th St SB	610	550	840	840
Roosevelt Blvd @ Rising Sun Ave NB	570	580	890	880
Roosevelt Blvd @ Rising Sun Ave SB	980	950	1,460	1,460
Roosevelt Blvd @ Tower Center NB	290	290	450	450
Roosevelt Blvd @ Tower Center SB	230	220	400	380
Roosevelt Blvd @ Pratt Street NB	680	700	1,030	1,020
Roosevelt Blvd @ Pratt Street SB	690	640	1,020	980
Frankford TC	8,990	8,680	12,680	11,860
Roosevelt Blvd @ Harbison Ave NB	640	630	960	930
Roosevelt Blvd @ Harbison Ave SB	440	420	660	640
Roosevelt Blvd @ Cottman Ave NB	400	390	610	590
Roosevelt Blvd @ Cottman Ave SB	370	350	560	540

Station	LRT - FGS 0.6			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd @ Rhawn St NB	1,030	1,000	1,440	1,380
Roosevelt Blvd @ Rhawn St SB	570	570	870	840
Roosevelt Blvd @ Welsh Rd NB	1,660	1,590	2,180	2,050
Roosevelt Blvd @ Welsh Rd SB	790	760	1,140	1,070
Roosevelt Blvd @ Grant Ave NB	210	200	290	270
Roosevelt Blvd @ Grant Ave SB	240	220	300	300
Roosevelt Blvd @ Red Lion Rd NB	820	830	1,190	1,090
Roosevelt Blvd @ Red Lion Rd SB	250	240	380	360
Roosevelt Blvd @ Southampton Rd NB	650	640	840	780
Roosevelt Blvd @ Southampton Rd SB	220	200	260	250
Roosevelt Blvd @ Old Lincoln Hwy NB	180	170	220	210
Roosevelt Blvd @ Old Lincoln Hwy SB	40	40	60	60
Roosevelt Blvd @ Rockhill NB	170	150	210	200
Roosevelt Blvd @ Rockhill SB	70	70	100	90

Table 45: Station-Level Ridership - LRT - FGS 0.8

Station	LRT - FGS 0.8			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Wissahickon Transportation Center	2,700	2,780	4,430	4,410
Ridge Ave @ Midvale Ave NB	1,130	1,230	2,280	2,250
Ridge Ave @ Midvale Ave SB	790	840	1,230	1,230
Ridge Ave @ W Allegheny Ave NB	390	440	670	670
Ridge Ave @ W Allegheny Ave SB	170	170	250	250
W Allegheny Ave @ W Hunting Park Ave NB	600	600	960	950
W Hunting Park Ave @ W Allegheny Ave SB	630	600	870	860
W Hunting Park Ave @ Wissahickon Ave NB	330	310	450	440
W Hunting Park Ave @ Wissahickon Ave SB	300	280	400	410

Station	LRT - FGS 0.8			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
W Hunting Park Ave @ Germantown Ave NB	420	420	620	600
W Hunting Park Ave @ Germantown Ave SB	660	640	970	990
N Broad St @ Roosevelt Blvd NB	1,690	1,960	3,890	3,870
N Broad St @ Roosevelt Blvd SB	1,140	1,130	1,660	1,660
Roosevelt Blvd @ N 9th St NB	370	350	520	490
Roosevelt Blvd @ N 9th St SB	440	410	660	640
Roosevelt Blvd @ N 5th St NB	570	610	890	860
Roosevelt Blvd @ N 5th St SB	690	640	940	930
Roosevelt Blvd @ Rising Sun Ave NB	720	720	1,080	1,070
Roosevelt Blvd @ Rising Sun Ave SB	1,090	1,060	1,590	1,590
Roosevelt Blvd @ Tower Center NB	370	370	550	540
Roosevelt Blvd @ Tower Center SB	310	290	510	490
Roosevelt Blvd @ Pratt Street NB	760	790	1,160	1,140
Roosevelt Blvd @ Pratt Street SB	810	750	1,190	1,150
Frankford TC	10,740	10,390	14,850	13,940
Roosevelt Blvd @ Harbison Ave NB	800	780	1,160	1,130
Roosevelt Blvd @ Harbison Ave SB	530	510	790	760
Roosevelt Blvd @ Cottman Ave NB	520	510	780	750
Roosevelt Blvd @ Cottman Ave SB	470	450	690	670
Roosevelt Blvd @ Rhawn St NB	1,270	1,230	1,740	1,670
Roosevelt Blvd @ Rhawn St SB	740	730	1,080	1,050
Roosevelt Blvd @ Welsh Rd NB	1,880	1,800	2,430	2,290
Roosevelt Blvd @ Welsh Rd SB	910	880	1,300	1,230
Roosevelt Blvd @ Grant Ave NB	270	260	360	340
Roosevelt Blvd @ Grant Ave SB	300	280	390	380
Roosevelt Blvd @ Red Lion Rd NB	970	990	1,380	1,270
Roosevelt Blvd @ Red Lion Rd SB	320	310	480	450
Roosevelt Blvd @ Southampton Rd NB	780	760	980	910
Roosevelt Blvd @ Southampton Rd SB	270	260	340	330

Station	LRT - FGS 0.8			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd @ Old Lincoln Hwy NB	210	190	250	240
Roosevelt Blvd @ Old Lincoln Hwy SB	50	50	70	70
Roosevelt Blvd @ Rockhill NB	200	180	240	240
Roosevelt Blvd @ Rockhill SB	90	90	120	120

Table 46: Station-Level Ridership - Subway

Station	Subway			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
City Hall Station NB	2,060	2,060	2,610	2,500
City Hall Station SB	7,130	7,340	10,850	10,660
Erie Station NB	1,520	1,550	2,190	2,070
Erie Station SB	2,430	2,330	3,390	3,320
Roosevelt Blvd @ N 9th St NB	1,180	1,160	1,610	1,520
Roosevelt Blvd @ N 9th St SB	1,450	1,370	2,070	1,990
Roosevelt Blvd @ Rising Sun Ave NB	1,120	1,090	1,580	1,540
Roosevelt Blvd @ Rising Sun Ave SB	1,890	1,850	2,830	2,800
Roosevelt Blvd @ Tower Center NB	470	480	700	690
Roosevelt Blvd @ Tower Center SB	750	720	1,130	1,110
Roosevelt Blvd @ Pratt Street NB	860	850	1,240	1,220
Roosevelt Blvd @ Pratt Street SB	1,210	1,170	1,780	1,730
Roosevelt Blvd @ Bustleton Ave NB	1,920	1,860	2,550	2,450
Roosevelt Blvd @ Bustleton Ave SB	2,510	2,410	3,490	3,380
Roosevelt Blvd @ Cottman Ave NB	810	790	1,140	1,100
Roosevelt Blvd @ Cottman Ave SB	1,250	1,190	1,750	1,700
Roosevelt Blvd @ Rhawn St NB	1,820	1,780	2,410	2,310
Roosevelt Blvd @ Rhawn St SB	1,450	1,430	2,090	2,030
Roosevelt Blvd @ Welsh Rd - Grant Ave NB	2,080	2,010	2,820	2,660

Station	Subway			
	2023	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd @ Welsh Rd - Grant Ave SB	5,440	5,410	7,960	7,610
Roosevelt Blvd @ Red Lion Rd NB	1,360	1,370	1,920	1,790
Roosevelt Blvd @ Red Lion Rd SB	320	320	450	430
Roosevelt Blvd @ Southampton Rd NB	1,210	1,190	1,510	1,410
Roosevelt Blvd @ Southampton Rd SB	260	260	320	320
Roosevelt Blvd @ Old Lincoln Hwy NB	230	220	280	270
Roosevelt Blvd @ Old Lincoln Hwy SB	70	70	90	90
Roosevelt Blvd @ Rockhill NB	300	270	360	350
Roosevelt Blvd @ Rockhill SB	730	770	1,120	1,090

Appendix F: Roosevelt Boulevard Ridership Comparison to No-Build Condition

Note: Each STOPS run incorporates a No-Build and Build condition. The No-Build element of the Adopted 2040 model represents a scenario in which there are no transit or roadway improvements. Due to different FGS inputs for each alternative, “No-Build Adopted 2040” results vary in each alternative.

Table 47: Roosevelt Boulevard Ridership Comparison to No-Build Condition - BRT - 0.3 FGS

BRT - 0.3 Partial FGS					
	Adopted 2023	No-Build Adopted 2040	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd HCT Alternative Ridership	19,900	-	19,400	30,900	29,700
Roosevelt Blvd Underlying Service Ridership	8,000	15,500	8,000	8,900	8,500
Total Roosevelt Blvd Ridership	27,900	15,500	27,400	39,800	38,200
Difference from No-Build Adopted 2040	-	-	11,900	24,300	22,700

Table 48: Roosevelt Boulevard Ridership Comparison to No-Build Condition - BRT - 0.5 FGS

BRT - 0.5 Partial FGS					
	Adopted 2023	No-Build Adopted 2040	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd HCT Alternative Ridership	25,100	-	24,700	38,500	37,000
Roosevelt Blvd Underlying Service Ridership	8,100	15,700	8,000	8,800	8,600
Total Roosevelt Blvd Ridership	33,200	15,700	32,700	47,300	45,600

Difference from No-Build Adopted 2040	-	-	17,000	31,600	29,900
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Table 49: Roosevelt Boulevard Ridership Comparison to No-Build Condition - LRT - 0.4 FGS

LRT - 0.4 Partial FGS					
	Adopted 2023	No-Build Adopted 2040	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd HCT Alternative Ridership	24,400	-	24,000	38,000	36,400
Roosevelt Blvd Underlying Service Ridership	7,500	15,800	7,400	7,900	7,800
Total Roosevelt Blvd Ridership	31,900	15,800	31,400	45,900	44,200
Difference from No-Build Adopted 2040	-	-	15,600	30,100	28,400

Table 50: Roosevelt Boulevard Ridership Comparison to No-Build Condition - LRT - 0.6 FGS

LRT - 0.6 Partial FGS					
	Adopted 2023	No-Build Adopted 2040	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd HCT Alternative Ridership	30,400	-	30,100	46,400	44,800
Roosevelt Blvd Underlying Service Ridership	7,700	16,000	7,500	8,200	7,900
Total Roosevelt Blvd Ridership	38,100	16,000	37,600	54,600	52,700
Difference from No-Build Adopted 2040	-	-	21,600	38,600	36,700

Table 51: Roosevelt Boulevard Ridership Comparison to No-Build Condition - LRT - 0.8 FGS

LRT - 0.8 Partial FGS					
	Adopted 2023	No-Build Adopted 2040	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd HCT Alternative Ridership	37,700	-	37,300	56,400	54,500
Roosevelt Blvd Underlying Service Ridership	7,900	16,200	7,800	8,500	8,300
Total Roosevelt Blvd Ridership	45,600	16,200	45,100	64,900	62,800
Difference from No-Build Adopted 2040	-	-	28,900	48,700	46,600

Table 52: Roosevelt Boulevard Ridership Comparison to No-Build Condition - Subway

Subway					
	Adopted 2023	No-Build Adopted 2040	Adopted 2040	Neighborhood Boulevard 2040	Partially Capped Expressway 2040
Roosevelt Blvd HCT Alternative Ridership	43,800	-	43,300	62,200	60,100
Roosevelt Blvd Underlying Service Ridership	18,500	17,700	18,800	26,400	26,100
Total Roosevelt Blvd Ridership	62,300	17,700	62,100	88,600	86,200
Difference from No-Build Adopted 2040	-	-	44,400	70,900	68,500