



Technical Memorandum

To: Alison Townsend and Ben Smith, Seattle Department of Transportation

From: Tim Boesch, CDM Smith and Nathan Anderson, KPFF

Date: March 2, 2017

Subject: Roosevelt to Downtown High Capacity Transit Study – Final Cost Estimates Memo

Cost Estimating Methodology

This methodology provides capital cost estimates and cost categories developed during the Roosevelt to Downtown High Capacity Transit (RDHCT) study. These estimates are based on 10 percent design plans for a bus rapid transit (BRT) service and will be updated as the project moves further into more detailed design phases.

Estimate Development

The estimate of project capital costs was developed in the general steps below.

First, ten percent design plans were developed which identified and established limits and locations of dedicated transit lanes, bus stations, and bicycle improvements. The selected improvements including new bus stations, sidewalks, curbs, pavement, channelization, and traffic control items were then drawn into the plans. The plans consist of scaled drawings with GIS based aerial imagery and right-of-way limits (ROW) depicted. The improvements were located and adjusted to determine how they could feasibly fit within the corridor and impacts to existing site features were identified.

Second, project components consistent with the application of unit costs and appropriate to the level of definition were identified. The project components were grouped in to cost categories to allow for efficient cost calculations as the design fluctuated.

Finally, quantities and unit costs were developed and summarized in the various cost categories.

Unit Costs

Unit costs were developed from selected historical data including engineer's estimates, SDOT bid history, and standard estimating practices. System-wide unit costs were based on an aggregation of cost elements from historical data that were applied to the length of each segment. The unit costs assume year 2016 costs.

Management of Costs

The methodology employed in the Roosevelt to Downtown HCT Study includes measures to guard against underestimation of project costs. The measures include comparing unit costs to historical unit cost bid estimates, analyzing construction costs for comparable work, and a thorough quality control review of quantities to ensure cost items were identified as accurately as is feasible at this stage of the project development.

Cost Categories

Cost categories were used to summarize project components into a comprehensive total project cost. The major cost categories were developed to allow for modification of individual elements of the project to be easily adjusted as the project evolved from initial alternative designs to the Recommended Corridor Concept. The cost categories are described in detail in the following “Definition of Cost Categories” section. These cost categories are:

- Bus Stations
- BRT Corridor Improvements
- Traffic Control and Illumination
- Overhead Contact System
- Protected Bike Lanes
- Streetcar Relocation
- ROW Acquisition and Temporary Construction Easements
- Contingency
- Professional Services

Items not included in the project costs include vehicles, vehicle storage, and bus turnaround.

Units for fixed facility items such as sidewalk, pavement, and curb were defined in the 10% Design Plans. Capital costs for these items were typically calculated by using known unit costs and measured quantities for each item. System wide costs such as channelization were calculated on an alignment length as opposed to measured quantities. Route-foot unit costs were developed from historical data to apply to the length of each segment.

The professional services and contingency categories are dependent on the total capital cost estimate and included as a percentage of the fixed facility and system-wide costs. The sum of categories listed above is the total capital cost estimate for the project.

Definition of Cost Categories

This section describes each of the major capital cost categories that were used to assemble the estimates, along with applicable assumptions that were made. Every cost category includes a lump sum item for mobilization. This item cost was assumed to be 10% of the construction cost, as is standard with most SDOT projects.

Bus Stations

Individual station locations and sizes were developed as part of the 10% Design Plans. Station sizes vary based on site specific conditions, but were designed to meet the RapidRide station layout requirements provided in the KC Metro RapidRide Passenger Facility Capital Plan, 2008 (Figure 4.1 – Station Zone Layout). The bus stations consist of 2 types as noted below.

- Curb-Side Station – The station zone is incorporated into the existing sidewalk area and maintains the existing curbline location. The widths of these stations vary, but in general are from the existing curbline to the ROW.
- Island Station – The station zone is located within an existing travelway or parking lane and a protected bicycle lane runs behind the platform at sidewalk grade. Several of these stations were constrained by existing site features in the Eastlake neighborhood. A minimum 8.5' station width was used in these locations.

The costs for bus stations include both measured quantities of major fixed facility items, lump sum items, and station amenities. The major fixed facility items included in the estimates are:

- Demolition and Removal
- Excavation
- Curb – Assumed 6" standard curb height at all stations and curb return reconstruction at several locations
- Sidewalk – Included within the station platform and replacement of existing sidewalk to the ROW along the length of the station
- ADA Ramps – Assumed all ramps at intersections adjacent to stations to be replaced with new ADA compliant ramps
- Footings – Included footing concrete and reinforcement for tech pylon and shelters at every station with shelter footings assumed to be type RR-20, KC Metro RapidRide Standard Plans
- Concrete Pavement – Included a concrete bus pad at every station that is 1-lane width wide, runs the length of the station, with a 10" depth per the KC Metro RapidRide Standard Plans
- Asphalt Pavement Restoration – Included pavement restoration for the areas adjacent to major construction activities including 1-lane width of pavement along new longitudinal curbs and curb returns
- Temporary Traffic Control – Assumed a linear per foot cost developed for temporary traffic control based on bid tabulation of previous SDOT projects for major civil work

The lump sum items are described below.

- Erosion and pollution control is assumed to be approximately 2 percent of station cost.
- Storm Drainage Modifications assumes minimal modifications to existing storm drains for many locations at \$5,000 per location and assumes 12 percent of the station costs for drainage at larger sites.
- Water Quality Treatment is assumed to be required at the Fairview Avenue N & Valley Street site. This is due to the new plus replaced pollution generating impervious surface (PGIS) being greater than 5,000 square feet and the site does not discharging to a combined

sewer system. An allowance of \$60,000 has been included for this water quality treatment facility. No other water quality facilities are anticipated for the corridor.

- It is assumed a flow control facility will be required at the Eastlake Avenue E & Harvard Avenue E site. This is because the site discharges to a combined sewer and has more than 10,000 square feet of new plus replaced impervious surface. An allowance of \$50,000 has been included for the flow control facility. No additional flow control facilities are anticipated along the corridor because all other construction sites are either less than 10,000 square feet of new plus replaced impervious or discharge to designated receiving water.
- Utility Relocations are assumed to be approximately 12 percent of station cost.
- Landscaping estimates assume five street trees will be replaced/added for each station at a cost of \$1,000 for tree, grate, and miscellaneous items per tree.

A station amenity cost was developed from an aggregation of elements that were summarized into a lump sum cost of \$130,000 and applied to each station. See Appendix A for example detailed station layouts. The station amenity lump sum cost includes the following items:

- RR-20 Shelter
- Tech Pylon
- Pedestrian railing
- Station lighting
- Station signage
- Bench
- Trash receptacles
- Bike racks

BRT Corridor Improvements

BRT improvement costs include all channelization, signage, and temporary traffic control for transit only and general purpose lanes throughout the corridor. The cost for this category was developed by using historical competitive bid data to create a route-foot cost then applied to the segment length.

Channelization and Signage – A composite cost for signage and channelization general purpose lanes was assumed to be \$20 per linear foot of each segment. The transit only lane locations have been identified in the 10% Design Plans, and will be marked with full width, solid red paint for a portion of each block. A cost of \$25 per square yard was determined for this item.

Temporary Traffic Control – A composite cost for temporary traffic control of channelization-only revisions was developed. This cost was only applied to segments of the project where channelization was the sole travelway improvement.

Traffic Control and Illumination

The BRT system will include several intelligent transportation system (ITS) elements, including transit signal priority (TSP), CCTV cameras, dynamic messaging signs, and miscellaneous conduit

and fiber optic cable. Each of these items were individually quantified and a unit cost was developed based on SDOT bid tabulation and industry experience.

Many intersections will need new traffic signal systems or modifications to the existing system due to bus station construction, geometric changes, and overhead catenary system (OCS) implementation. Twenty intersections were identified as needing new traffic signal systems, and were assumed to cost \$275,000 each. This cost includes items such as removal, poles, wiring, foundations, and controller cabinets. For intersections needing modification, the required signal elements were identified at each site and added to the cost category subtotal. This includes items such as traffic cabinets, controllers, bicycle signal heads, and accessible pedestrian signals (APS). Separate temporary traffic control costs were developed for major work such as installing a new signal system, and minor work such as the signal modification.

Illumination costs were included for bracket arms and LED luminaires with the assumption that they would be mounted on OCS poles. Costs for LED replacement of existing high pressure sodium bulbs were also included. A unit cost per 1,000 ft. was developed for these items and applied to the length of the corridor. The station lighting is included in the "Bus Station" cost category.

Overhead Contact System

The existing OCS will need to be extended to cover all segments of the project corridor. It was assumed that the existing OCS system will not need to be shifted. Segments that will require new OCS include 11th/12th Avenue NE and Roosevelt Way NE between the University Bridge and NE 67th Street. It was assumed that one substation would be needed for the 2.8 miles of new OCS (one-way). A location for the substation has not been determined, but cost for 0.25 miles of transmission duct bank was included. The following unit costs were developed on a linear foot basis:

- Catenary Wire and Support System (One-Way) – \$2.8 million per mile
- Substation – \$1.2 million each
- Transmission Duct Bank - \$650 per LF

Protected Bike Lanes (PBL)

Protected bike lanes are proposed throughout the corridor. This includes a 2-way PBL on Stewart Street and one-way PBL's (northbound and southbound) in the Eastlake and Roosevelt neighborhoods. The bike lanes will be located predominately within the existing travelway or parking lane. For these areas the costs include channelization, signage, and traffic control. Costs for new pavement and curb have been included for improvements to the Fairview Avenue N and Eastlake Avenue E intersection due to the proposed PBL configuration. For one-way PBL's, the channelization is assumed to consist of white lane lines, striped buffer, periodic bike symbols, and an allowance for full-width green paint (equivalent to 20% of the PBL segment length). Two-way PBLs consist of a centerline, periodic symbols, and an allowance for green paint.

There are two locations where PBL facility costs have been captured in other cost categories. These locations include:

- Fairview Avenue N from Valley Street to Eastlake Avenue E – Streetcar Relocation cost includes PBL pavement and curb
- Pavement for bike lanes adjacent to bus stations – Bus Station costs include pavement for PBL adjacent to bus island stations

Streetcar Relocation

In order to reduce traffic congestion and improve transit operations, relocation of the existing streetcar track is proposed on Fairview Avenue N from Valley Street to Aloha Street. This will require approximately 600 linear feet of new track and associated infrastructure. This cost category includes capital costs for installation of tracks, track slab, crossovers, track drains, catenary system, and other miscellaneous track items. Unit costs for these items were based on the Broadway Streetcar Project.

The proposed alignment of the streetcar track will require significant relocation of underground and overhead utilities. These impacts were estimated by on-site inspection and the construction plans from the Mercer East project which was completed in 2013. The bid tabulation for the Mercer East project was also used to develop the unit cost for utility relocation items with a 3.5% per year escalation to 2016. Escalation is based on Federal Transit Authority standard inflationary factor.

In addition to track and utility work, roadway improvements are needed on Fairview Avenue N from Valley Street to the Fairview Avenue N Bridge due to the streetcar relocation. These costs have been incorporated in this cost category and include items such as concrete pavement, sidewalk, curb, PBL, and storm drainage.

ROW Acquisition and Temporary Construction Easements

Right-of-way acquisition for this project is anticipated at the southwest corner of Fairview Avenue N and Eastlake Avenue E. This intersection will be reconstructed to provide protected lanes for bicycles, and reconfigure the pedestrian and vehicular movements. The northbound approach of Fairview Avenue N. was aligned more perpendicularly to Eastlake Avenue E. As a result, sidewalks at the southwest corner were shifted into the adjacent parcel. It is anticipated that this work will require approximately 2,000 square feet from parcel 2869600135. A cost of \$100,000 was established for this acquisition.

Temporary Construction Easements (TCEs) may be required in order to perform construction activities adjacent to private property. An allowance of \$300,000 was established for TCEs for the corridor.

Contingency

This cost category accounts for the uncertainties inherent in the project definition and conceptual design of this project. A contingency is added to the project cost as a percentage of all the capital cost categories except Professional Services. A contingency of 30% was used for all capital costs. This percentage was developed after review of the planning studies for the Madison BRT and the Center City Connector projects. Contingency should reflect the degree of risk associated with the level of design detail available and the characteristics of each design component.

Professional Services

This cost category includes costs for engineering, administration, and construction management services. Costs for these services are based on a percentage of the total costs of all direct capital costs categories. The total percentage for professional services applied to all capital cost categories except contingencies is 30% and is based on recent projects experience. The following cost items assumed for this category:

- Preliminary Engineering & Environmental Clearance – 5.0%
- Final Design – 7.0%
- Project Management for Design & Construction – 5.5%
- Construction Administration and Management – 5.0%
- Insurance – 2.0%
- Legal (permits and review fees by other agencies) – 2.0%
- Survey, Testing, Investigation, Inspection – 3.0%
- Start-Up Costs and Agency Force Account Work – 0.5%

Capital Cost Summary

A summary of the capital costs is presented in the table below. A more detailed list of costs can be found in Appendix B. The capital costs have been split into two segments per request from SDOT.

- Segment 1 – Downtown to NE 45th Street (includes one block north of NE 45 St.)
- Segment 2 – NE 45th Street to NE 65th Street (includes one block north of NE65th St.)

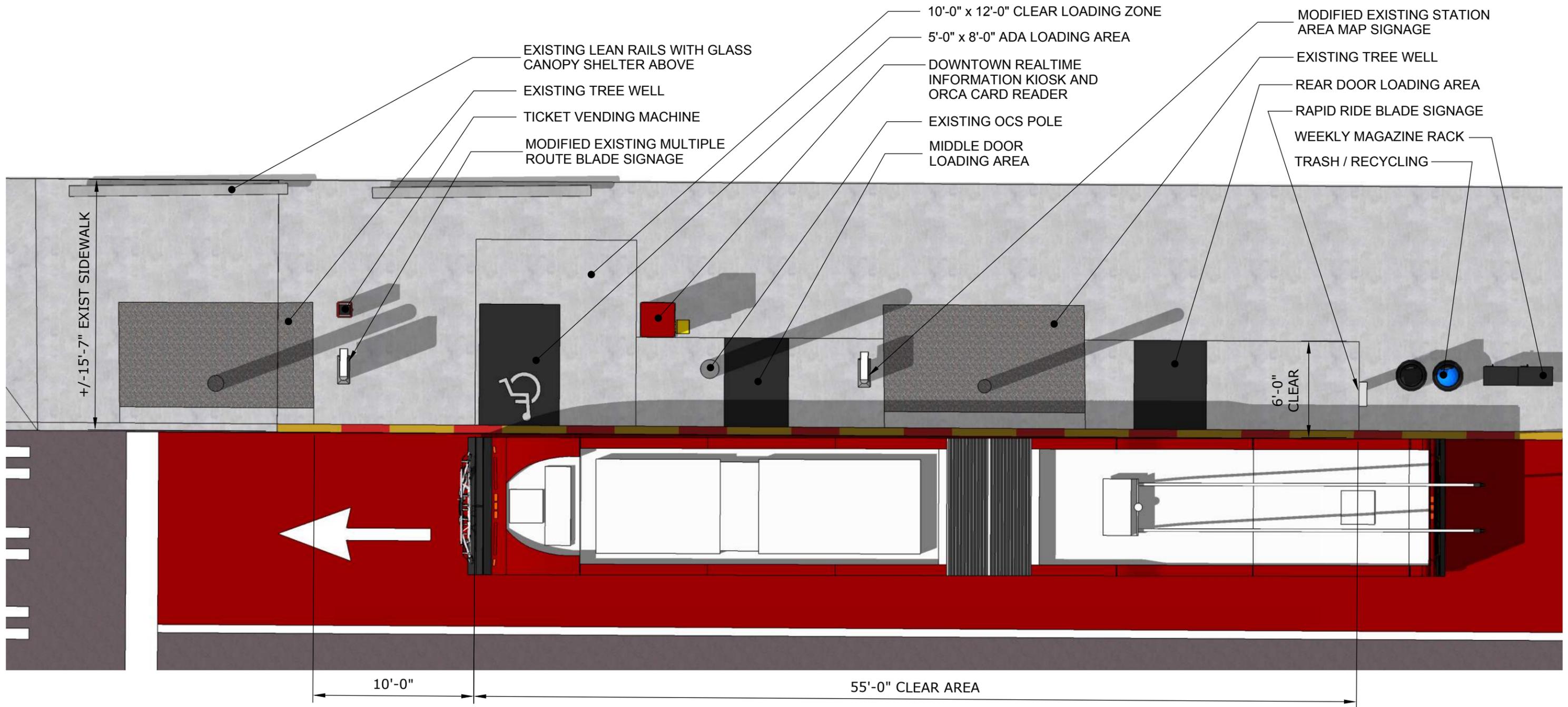
Summary of Project Costs

Cost Category	Cost (2016 Dollars)
Downtown to NE 45th Street	
Bus Stations (Incl. Amenities)	\$ 5,989,801
BRT Corridor Improvements	\$ 1,105,150
Traffic Control, Illumination, and TSP (Add \$1.1M for Ultimate TSP Build-Out)	\$ 7,549,205
Overhead Contact System	\$ 2,660,000
Protected Bike Lanes	\$ 877,849
Streetcar Relocation (Incl. Roadway Improvements)	\$ 6,616,411
ROW Acquisition and Temporary Construction Easements	\$ 350,000
Contingency (30%)	\$ 7,439,525
Sub Total	\$ 32,587,941
Professional Services (30%)	\$ 9,776,382
Total Segment Cost	\$ 42,364,000
NE 45th Street to NE 65th Street	
Bus Stations (Incl. Amenities)	\$ 1,637,253
BRT Corridor Improvements	\$ 392,613
Traffic Control, Illumination, and TSP (Add \$0.3M for Ultimate TSP Build-Out)	\$ 4,612,715
Overhead Contact System	\$ 7,938,000
Protected Bike Lanes	\$ 108,250
ROW Acquisition and Temporary Construction Easements	\$ 50,000
Contingency (30%)	\$ 4,406,649
Sub Total	\$ 19,145,480
Professional Services (30%)	\$ 5,743,644
Total Segment Cost	\$ 24,889,000
TOTAL PROJECT COST	\$ 67,253,000

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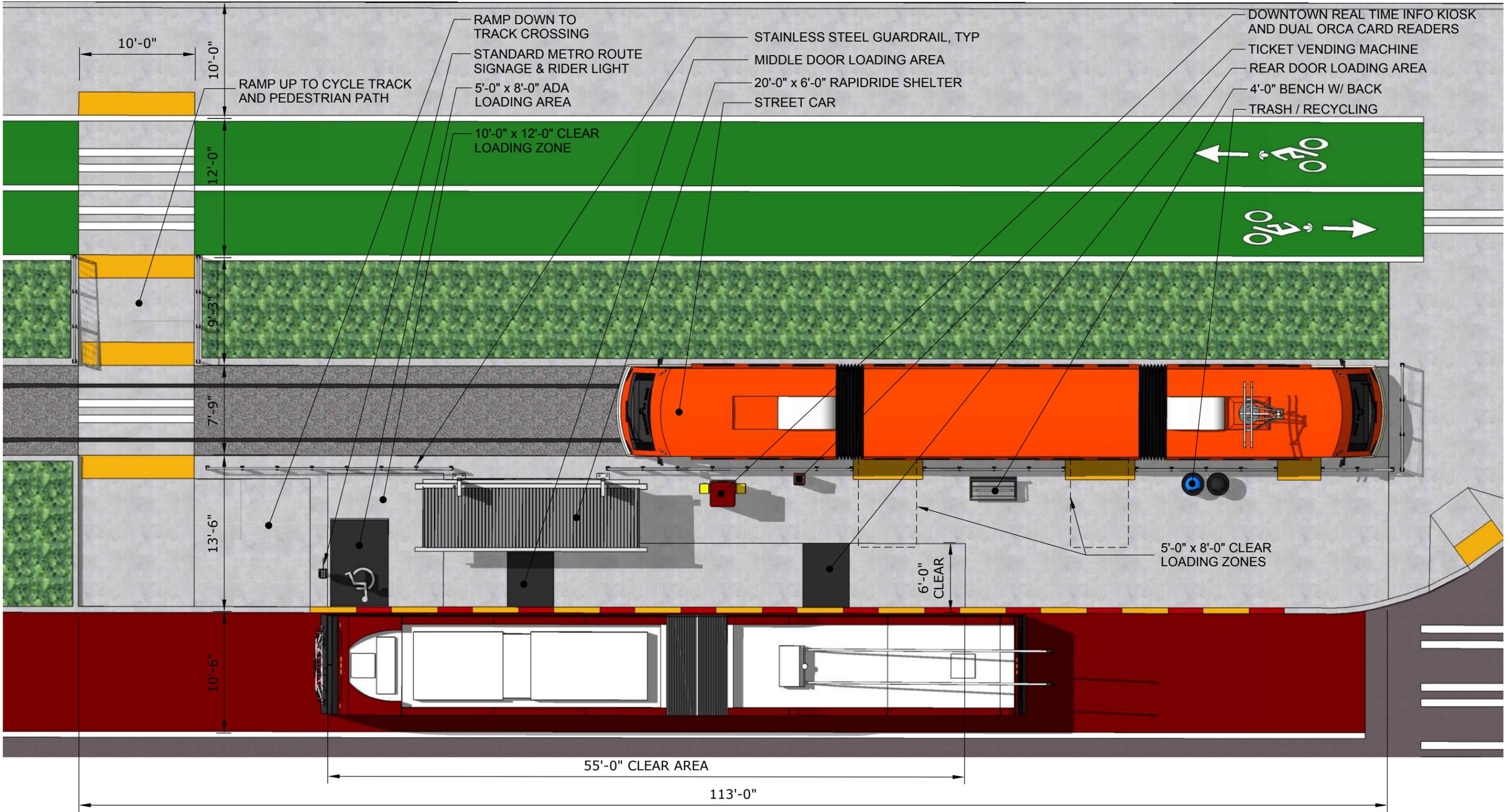
Appendix A

Example Detailed Station Layouts



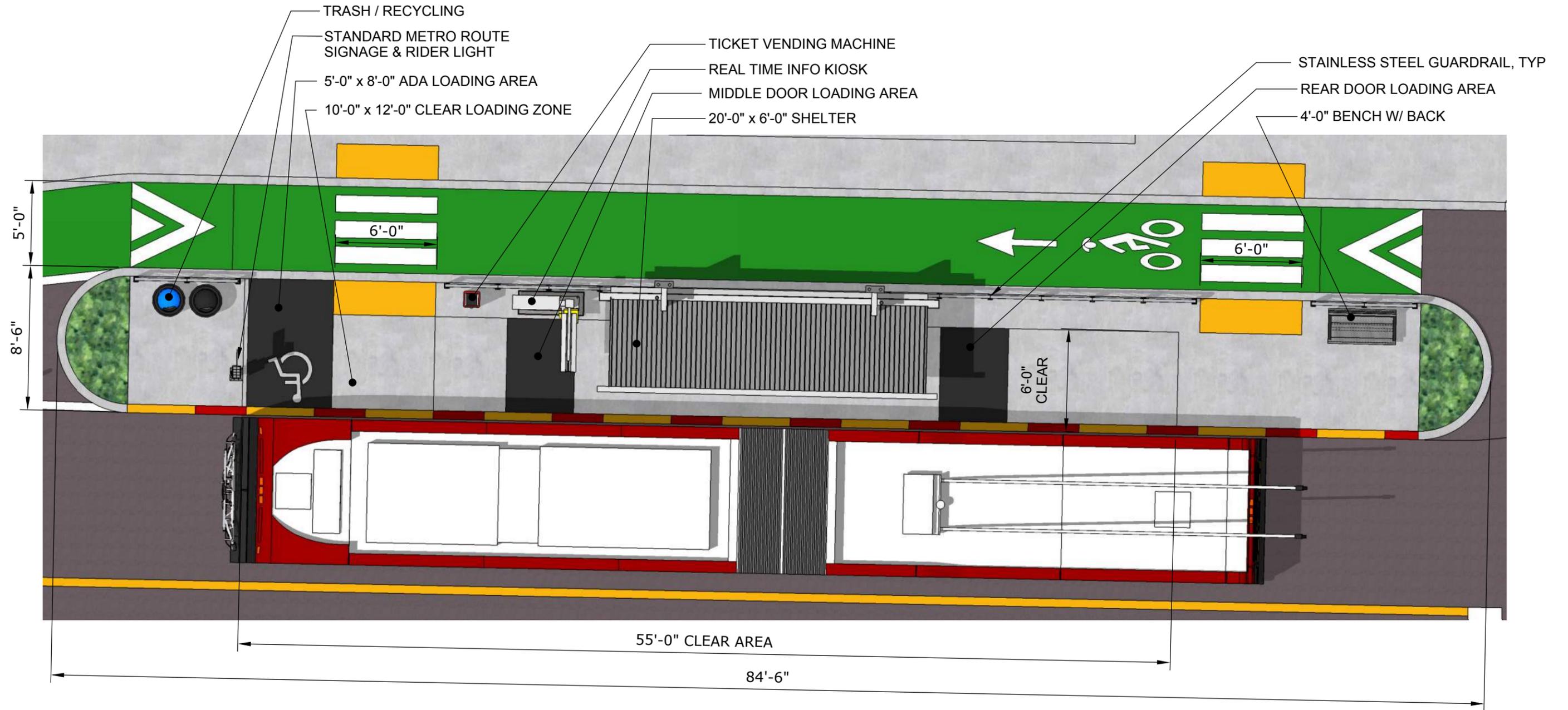
STEWART AND 9TH - STATION PLATFORM PLAN





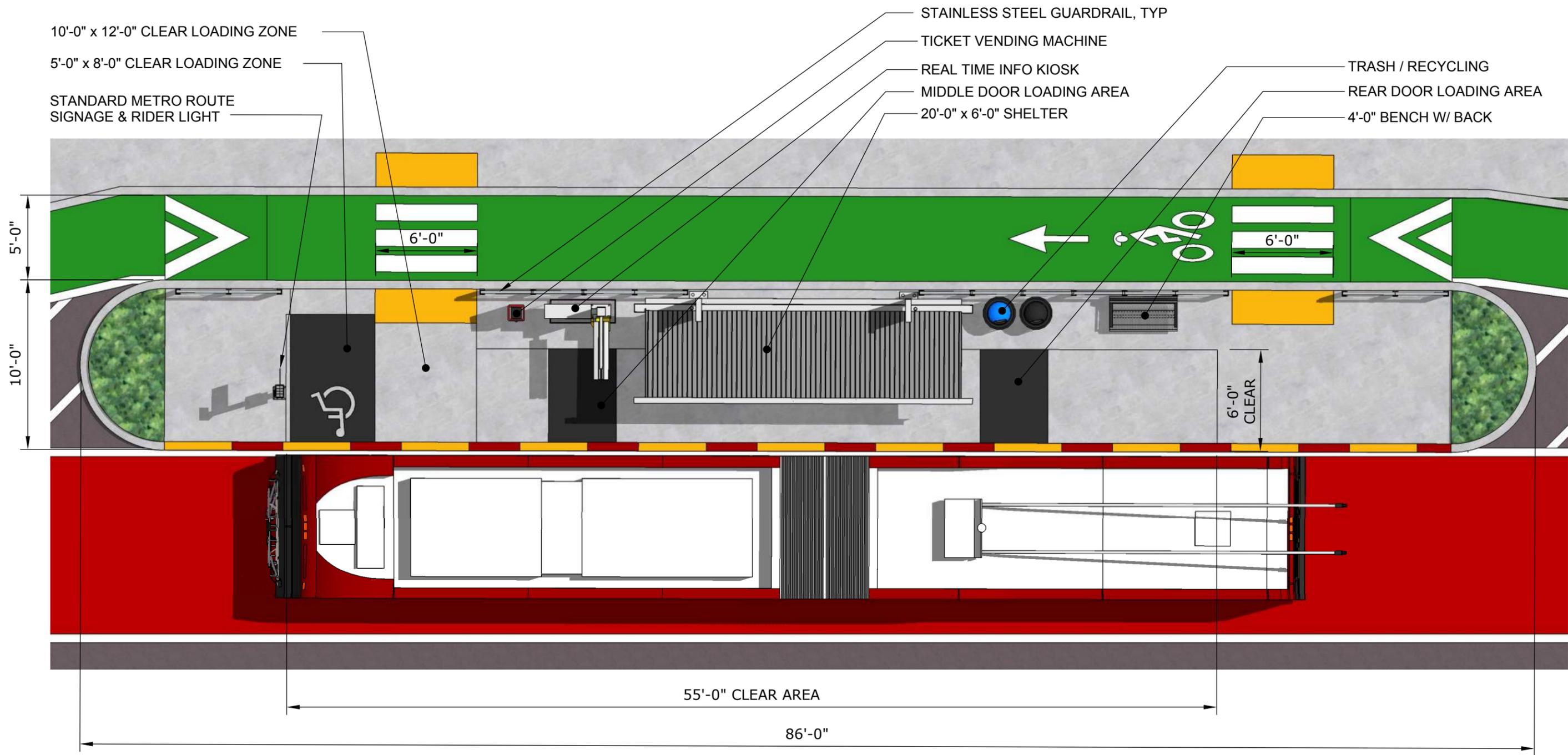
FAIRVIEW AND ALOHA - COMBINED STREET CAR AND BUS STATION PLATFORM PLAN



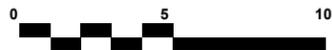


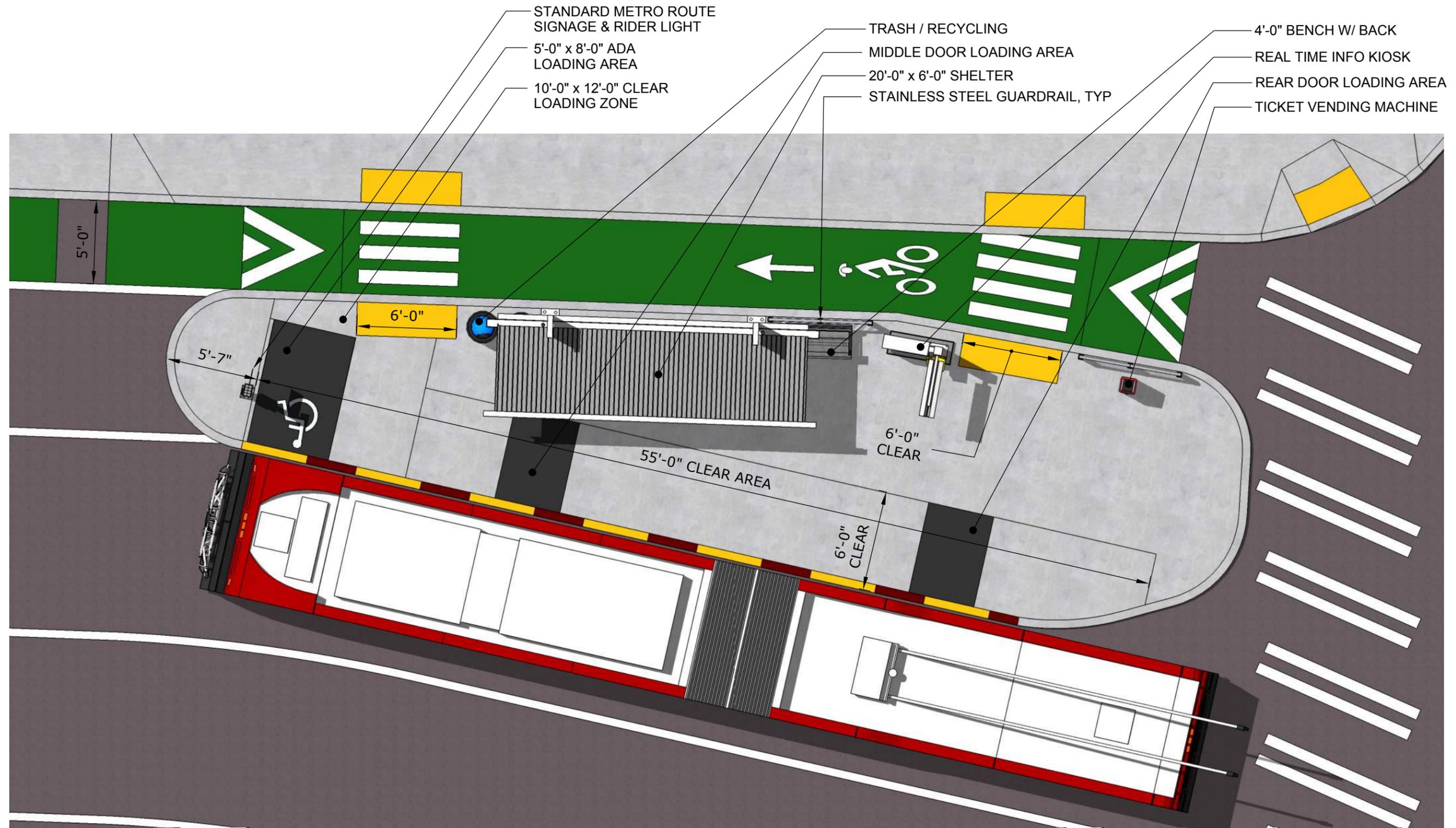
EASTLAKE AND LYNN - TYPICAL STATION PLATFORM PLAN





EASTLAKE AND HARVARD - TYPICAL STATION PLATFORM PLAN





ROOSEVELT AND 45TH - STATION PLATFORM PLAN





PROTECTED BIKE LANE
 SHARED SINGLE FAMILY RESIDENCE
 CURB CUT / GARAGE ACCESS DRIVE

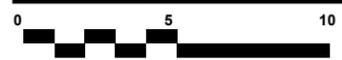
STANDARD METRO ROUTE
 SIGNAGE & RIDER LIGHT
 5'-0" x 8'-0" ADA LOADING AREA
 10'-0" x 12'-0" CLEAR LOADING
 ZONE

STAINLESS STEEL GUARDRAIL, TYP
 MIDDLE DOOR LOADING AREA
 20'-0" x 6'-0" SHELTER

TICKET VENDING MACHINE
 REAL TIME INFO KIOSK
 REAR DOOR LOADING AREA

TRASH /
 RECYCLING

RAVENNA AND 12TH - STATION PLATFORM PLAN



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Detailed Cost Sheets

Roosevelt to Downtown High Capacity Transit Study

Seattle Department of Transportation

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Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Summary of Project Costs

Downtown to NE 45th St.	TOTAL COST
Bus Stations (Incl. Amenities)	\$5,989,801
BRT Corridor Improvements	\$1,105,150
Traffic Control, Illumination, and TSP (Add'l \$1.1 mil for Ultimate TSP Build-Out)	\$7,549,205
Overhead Contact System	\$2,660,000
Protected Bike Lanes	\$877,849
Streetcar Relocation (Incl. Roadway Improvements)	\$6,616,411
ROW Acquisition and Temporary Construction Easements	\$350,000
Contingency (30%)	\$7,439,525
Sub Total	\$32,587,941
Professional Services (30%)	\$9,776,382
Total Segment Cost	\$42,364,000
NE 45th to NE 65th St.	
Bus Stations (Incl. Amenities)	\$1,637,253
BRT Corridor Improvements	\$392,613
Traffic Control, Illumination, and TSP (Add'l \$0.3 mil for Ultimate TSP Build-Out)	\$4,612,715
Overhead Contact System	\$7,938,000
Protected Bike Lanes	\$108,250
ROW Acquisition and Temporary Construction Easements	\$50,000
Contingency (30%)	\$4,406,649
Sub Total	\$19,145,480
Professional Services (30%)	\$5,743,644
Total Segment Cost	\$24,889,000
Total Project Cost:	\$67,253,000

Notes:

- 1). Vehicle costs are not included.

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Summary of Bus Station Costs

Downtown to NE 45th St.				TOTAL COST
Stewart & 9th SB				\$261,351.64
Virginia & 9th NB				\$25,000.00
Fairview & Thomas SB				\$256,404.97
Fairview & Thomas NB				\$255,428.31
Fairview & Aloha NB				\$298,560.75
Eastlake Ave E & Garfield SB				\$314,696.30
Eastlake Ave E & Garfield NB				\$379,287.36
Eastlake Ave E & Lynn SB				\$376,145.21
Eastlake Ave E & Lynn NB				\$393,145.21
Eastlake Ave E & Hamlin SB				\$379,068.44
Eastlake Ave E & Hamlin NB				\$379,068.44
Eastlake Ave E & Harvard SB				\$491,058.36
Eastlake Ave E & Harvard NB				\$971,415.29
Eastlake Ave E & NE 41st NB				\$410,041.96
11th Ave NE & NE 45th NB				\$338,328.96
ROOSEVELT STATION UPGRADES:				
Roosevelt & 41st SB				\$180,400.00
Roosevelt & 45th SB				\$180,400.00
				\$100,000.00
Construction Cost Subtotal				\$5,989,801.18

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
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Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Stewart St. & 9th Ave. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$26,000.00	\$26,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	144	SY	\$20.00	\$2,880.00
REMOVE PAVEMENT	122	SY	\$30.00	\$3,666.67
REMOVE CURB	90	LF	\$11.00	\$990.00
REMOVE TREE	2	EA	\$600.00	\$1,200.00
SAWCUT, FULL DEPTH	120	LF	\$6.00	\$720.00
MINERAL AGGREGATE, TYPE 2	38	TN	\$45.00	\$1,692.75
ROADWAY CEMENT CONCRETE, 12IN	122	SY	\$115.00	\$14,055.56
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$5,000.00	\$5,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	90	LF	\$40.00	\$3,600.00
SIDEWALK, CEM CONC	144	SY	\$60.00	\$8,666.67
SIDEWALK, THICKENED EDGE	90	LF	\$12.00	\$1,080.00
STATION AMENITIES	1	LS	\$100,000.00	\$100,000.00
Construction Cost Subtotal				\$261,351.64

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
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 N. Anderson
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Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Virginia St. & 9th Ave. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$26,000.00	\$26,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	138	SY	\$20.00	\$2,760.00
REMOVE PAVEMENT	122	SY	\$30.00	\$3,666.67
REMOVE CURB	90	LF	\$11.00	\$990.00
SAWCUT, FULL DEPTH	120	LF	\$6.00	\$720.00
MINERAL AGGREGATE, TYPE 2	38	TN	\$45.00	\$1,692.75
ROADWAY CEMENT CONCRETE, 12IN	122	SY	\$115.00	\$14,055.56
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$5,000.00	\$5,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	90	LF	\$40.00	\$3,600.00
SIDEWALK, CEM CONC	106	SY	\$60.00	\$6,333.33
SIDEWALK, THICKENED EDGE	90	LF	\$12.00	\$1,080.00
STATION AMENITIES	1	LS	\$100,000.00	\$100,000.00
Construction Cost Subtotal				\$257,698.31

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Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Fairview Ave. & Thomas St. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$26,000.00	\$26,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	120	SY	\$20.00	\$2,400.00
REMOVE PAVEMENT	122	SY	\$30.00	\$3,666.67
REMOVE CURB	90	LF	\$11.00	\$990.00
REMOVE TREE	4	EA	\$600.00	\$2,400.00
SAWCUT, FULL DEPTH	120	LF	\$6.00	\$720.00
MINERAL AGGREGATE, TYPE 2	38	TN	\$45.00	\$1,692.75
ROADWAY CEMENT CONCRETE, 12IN	122	SY	\$115.00	\$14,055.56
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$5,000.00	\$5,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	90	LF	\$40.00	\$3,600.00
SIDEWALK, CEM CONC	133	SY	\$60.00	\$8,000.00
SIDEWALK, THICKENED EDGE	90	LF	\$12.00	\$1,080.00
STATION AMENITIES	1	LS	\$100,000.00	\$100,000.00
Construction Cost Subtotal				\$256,404.97

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Fairview Ave. & Thomas St. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$28,000.00	\$28,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	120	SY	\$20.00	\$2,400.00
REMOVE PAVEMENT	122	SY	\$30.00	\$3,666.67
REMOVE CURB	80	LF	\$11.00	\$880.00
REMOVE TREE	2	EA	\$600.00	\$1,200.00
SAWCUT, FULL DEPTH	120	LF	\$6.00	\$720.00
MINERAL AGGREGATE, TYPE 2	38	TN	\$45.00	\$1,692.75
ROADWAY CEMENT CONCRETE, 12IN	122	SY	\$115.00	\$14,055.56
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$5,000.00	\$5,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	90	LF	\$40.00	\$3,600.00
SIDEWALK, CEM CONC	106	SY	\$60.00	\$6,333.33
SIDEWALK, THICKENED EDGE	90	LF	\$12.00	\$1,080.00
STATION AMENITIES	1	LS	\$100,000.00	\$100,000.00
Construction Cost Subtotal				\$255,428.31

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Fairview Ave. & Aloha St. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$29,000.00	\$29,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	160	SY	\$20.00	\$3,200.00
REMOVE PAVEMENT	106	SY	\$35.00	\$3,694.44
REMOVE CURB	90	LF	\$11.00	\$990.00
REMOVE TREE	2	EA	\$600.00	\$1,200.00
SAWCUT, FULL DEPTH	120	LF	\$6.00	\$720.00
MINERAL AGGREGATE, TYPE 2	33	TN	\$45.00	\$1,470.75
ROADWAY CEMENT CONCRETE, 12IN	106	SY	\$115.00	\$12,138.89
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$5,000.00	\$5,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	90	LF	\$40.00	\$3,600.00
SIDEWALK, CEM CONC	128	SY	\$60.00	\$7,666.67
SIDEWALK, THICKENED EDGE	90	LF	\$12.00	\$1,080.00
CURB RAMP TYPE 422A, PERPENDICULAR	4	EA	\$3,000.00	\$12,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$298,560.75

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Eastlake Ave. E & Garfield St. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$31,000.00	\$31,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	189	SY	\$20.00	\$3,777.78
REMOVE PAVEMENT	250	SY	\$30.00	\$7,500.00
REMOVE CURB	80	LF	\$11.00	\$880.00
SAWCUT, FULL DEPTH	160	LF	\$6.00	\$960.00
MINERAL AGGREGATE, TYPE 2	48	TN	\$45.00	\$2,156.79
PAVEMENT, HMA (CL 1/2 IN)	25	TN	\$110.00	\$2,783.95
ROADWAY CEMENT CONCRETE, 12IN	111	SY	\$115.00	\$12,777.78
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$5,500.00	\$5,500.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	280	LF	\$40.00	\$11,200.00
SIDEWALK, CEM CONC	267	SY	\$60.00	\$16,000.00
SIDEWALK, THICKENED EDGE	280	LF	\$12.00	\$3,360.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$314,696.30

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Eastlake Ave. E & Garfield St. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$38,000.00	\$38,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	200	SY	\$20.00	\$4,000.00
REMOVE PAVEMENT	306	SY	\$30.00	\$9,166.67
REMOVE CURB	150	LF	\$11.00	\$1,650.00
REMOVE TREE	4	EA	\$600.00	\$2,400.00
SAWCUT, FULL DEPTH	220	LF	\$6.00	\$1,320.00
MINERAL AGGREGATE, TYPE 2	70	TN	\$45.00	\$3,161.96
PAVEMENT, HMA (CL 1/2 IN)	79	TN	\$110.00	\$8,699.85
ROADWAY CEMENT CONCRETE, 12IN	89	SY	\$115.00	\$10,222.22
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$25,000.00	\$25,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$7,000.00	\$7,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	350	LF	\$40.00	\$14,000.00
SIDEWALK, CEM CONC	278	SY	\$60.00	\$16,666.67
SIDEWALK, THICKENED EDGE	350	LF	\$12.00	\$4,200.00
CURB RAMP TYPE 422A, PERPENDICULAR	4	EA	\$3,000.00	\$12,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$379,287.36

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Eastlake Ave. E & Lynn St. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$38,000.00	\$38,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	211	SY	\$20.00	\$4,222.22
REMOVE PAVEMENT	444	SY	\$30.00	\$13,333.33
REMOVE CURB	150	LF	\$11.00	\$1,650.00
REMOVE TREE	3	EA	\$600.00	\$1,800.00
SAWCUT, FULL DEPTH	100	LF	\$6.00	\$600.00
MINERAL AGGREGATE, TYPE 2	113	TN	\$45.00	\$5,093.67
PAVEMENT, HMA (CL 1/2 IN)	120	TN	\$110.00	\$13,223.77
ROADWAY CEMENT CONCRETE, 12IN	156	SY	\$115.00	\$17,888.89
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$7,000.00	\$7,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	350	LF	\$40.00	\$14,000.00
SIDEWALK, CEM CONC	289	SY	\$60.00	\$17,333.33
SIDEWALK, THICKENED EDGE	350	LF	\$12.00	\$4,200.00
CURB RAMP TYPE 422A, PERPENDICULAR	2	EA	\$3,000.00	\$6,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$376,145.21

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Eastlake Ave. E & Lynn St. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$39,000.00	\$39,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	211	SY	\$20.00	\$4,222.22
REMOVE PAVEMENT	444	SY	\$30.00	\$13,333.33
REMOVE CURB	150	LF	\$11.00	\$1,650.00
REMOVE TREE	3	EA	\$600.00	\$1,800.00
SAWCUT, FULL DEPTH	100	LF	\$6.00	\$600.00
MINERAL AGGREGATE, TYPE 2	113	TN	\$45.00	\$5,093.67
PAVEMENT, HMA (CL 1/2 IN)	120	TN	\$110.00	\$13,223.77
ROADWAY CEMENT CONCRETE, 12IN	156	SY	\$115.00	\$17,888.89
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$25,000.00	\$25,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$8,000.00	\$8,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	350	LF	\$40.00	\$14,000.00
SIDEWALK, CEM CONC	289	SY	\$60.00	\$17,333.33
SIDEWALK, THICKENED EDGE	350	LF	\$12.00	\$4,200.00
CURB RAMP TYPE 422A, PERPENDICULAR	2	EA	\$3,000.00	\$6,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$393,145.21

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Eastlake Ave. E & Hamlin St. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$38,000.00	\$38,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	211	SY	\$20.00	\$4,222.22
REMOVE PAVEMENT	417	SY	\$30.00	\$12,500.00
REMOVE CURB	150	LF	\$11.00	\$1,650.00
REMOVE TREE	4	EA	\$600.00	\$2,400.00
SAWCUT, FULL DEPTH	250	LF	\$6.00	\$1,500.00
MINERAL AGGREGATE, TYPE 2	105	TN	\$45.00	\$4,708.25
PAVEMENT, HMA (CL 1/2 IN)	133	TN	\$110.00	\$14,615.74
ROADWAY CEMENT CONCRETE, 12IN	106	SY	\$115.00	\$12,138.89
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$8,000.00	\$8,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	350	LF	\$40.00	\$14,000.00
SIDEWALK, CEM CONC	289	SY	\$60.00	\$17,333.33
SIDEWALK, THICKENED EDGE	350	LF	\$12.00	\$4,200.00
CURB RAMP TYPE 422A, PERPENDICULAR	4	EA	\$3,000.00	\$12,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$379,068.44

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Eastlake Ave. E & Hamlin St. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$39,000.00	\$39,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	200	SY	\$20.00	\$4,000.00
REMOVE PAVEMENT	417	SY	\$30.00	\$12,500.00
REMOVE CURB	150	LF	\$11.00	\$1,650.00
SAWCUT, FULL DEPTH	250	LF	\$6.00	\$1,500.00
MINERAL AGGREGATE, TYPE 2	108	TN	\$45.00	\$4,839.12
PAVEMENT, HMA (CL 1/2 IN)	127	TN	\$110.00	\$13,919.75
ROADWAY CEMENT CONCRETE, 12IN	100	SY	\$115.00	\$11,500.00
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$25,000.00	\$25,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$8,000.00	\$8,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	350	LF	\$40.00	\$14,000.00
SIDEWALK, CEM CONC	278	SY	\$60.00	\$16,666.67
SIDEWALK, THICKENED EDGE	350	LF	\$12.00	\$4,200.00
CURB RAMP TYPE 422A, PERPENDICULAR	4	EA	\$3,000.00	\$12,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$390,575.54

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Eastlake Ave. E & Harvard Ave. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$49,000.00	\$49,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	244	SY	\$20.00	\$4,888.89
REMOVE PAVEMENT	589	SY	\$30.00	\$17,666.67
REMOVE CURB	330	LF	\$11.00	\$3,630.00
REMOVE TREE	10	EA	\$600.00	\$6,000.00
SAWCUT, FULL DEPTH	600	LF	\$6.00	\$3,600.00
MINERAL AGGREGATE, TYPE 2	154	TN	\$45.00	\$6,939.04
PAVEMENT, HMA (CL 1/2 IN)	234	TN	\$110.00	\$25,751.54
ROADWAY CEMENT CONCRETE, 12IN	89	SY	\$115.00	\$10,222.22
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$45,000.00	\$45,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$40,000.00	\$40,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$10,000.00	\$10,000.00
LANDSCAPING ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
CURB, CEM CONC	530	LF	\$40.00	\$21,200.00
SIDEWALK, CEM CONC	333	SY	\$60.00	\$20,000.00
SIDEWALK, THICKENED EDGE	530	LF	\$12.00	\$6,360.00
CURB RAMP TYPE 422A, PERPENDICULAR	3	EA	\$3,000.00	\$9,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$491,058.36

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Eastlake Ave. E & Harvard Ave. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$97,000.00	\$97,000.00
TRAFFIC CONTROL PEACE OFFICER	320	HR	\$100.00	\$32,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$57,600.00	\$57,600.00
CLEARING & GRUBBING	3000	SF	\$1.00	\$3,000.00
REMOVE CEMENT CONC. SIDEWALK	611	SY	\$20.00	\$12,222.22
REMOVE PAVEMENT	1250	SY	\$30.00	\$37,500.00
REMOVE CURB	600	LF	\$11.00	\$6,600.00
REMOVE TREE	22	EA	\$600.00	\$13,200.00
SAWCUT, FULL DEPTH	1800	LF	\$6.00	\$10,800.00
COMMON EXCAVATION	444	CY	\$40.00	\$17,777.78
MINERAL AGGREGATE, TYPE 2	513	TN	\$45.00	\$23,106.80
MINERAL AGGREGATE, TYPE 17	308	TN	\$45.00	\$13,875.00
PAVEMENT, HMA (CL 1/2 IN)	604	TN	\$110.00	\$66,466.82
ROADWAY CEMENT CONCRETE, 12IN	100	SY	\$115.00	\$11,500.00
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$100,000.00	\$100,000.00
FLOW CONTROL ALLOWANCE	1	LS	\$50,000.00	\$50,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$30,000.00	\$30,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	EA	\$19,000.00	\$19,000.00
LANDSCAPING ALLOWANCE	1	LS	\$29,000.00	\$29,000.00
CURB, CEM CONC	800	LF	\$40.00	\$32,000.00
SIDEWALK, CEM CONC	778	SY	\$60.00	\$46,666.67
SIDEWALK, THICKENED EDGE	800	LF	\$12.00	\$9,600.00
CURB RAMP TYPE 422A, PERPENDICULAR	6	EA	\$3,000.00	\$18,000.00
MODULAR BLOCK RETAINING WALL	1500	SF	\$55.00	\$82,500.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$971,415.29

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Eastlake Ave. E & NE 41st St. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$41,000.00	\$41,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	211	SY	\$20.00	\$4,222.22
REMOVE PAVEMENT	428	SY	\$30.00	\$12,833.33
REMOVE CURB	240	LF	\$11.00	\$2,640.00
SAWCUT, FULL DEPTH	250	LF	\$6.00	\$1,500.00
MINERAL AGGREGATE, TYPE 2	136	TN	\$45.00	\$6,120.42
MINERAL AGGREGATE, TYPE 17	230	TN	\$45.00	\$10,350.00
PAVEMENT, HMA (CL 1/2 IN)	120	TN	\$110.00	\$13,223.77
ROADWAY CEMENT CONCRETE, 12IN	106	SY	\$115.00	\$12,138.89
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$8,000.00	\$8,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	440	LF	\$40.00	\$17,600.00
SIDEWALK, CEM CONC	322	SY	\$60.00	\$19,333.33
SIDEWALK, THICKENED EDGE	440	LF	\$12.00	\$5,280.00
CURB RAMP TYPE 422A, PERPENDICULAR	2	EA	\$3,000.00	\$6,000.00
MODULAR BLOCK RETAINING WALL	600	SF	\$55.00	\$33,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$410,041.96

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: 11th Ave. NE & NE 45th St. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$34,000.00	\$34,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	122	SY	\$20.00	\$2,444.44
REMOVE PAVEMENT	311	SY	\$30.00	\$9,333.33
REMOVE CURB	80	LF	\$11.00	\$880.00
SAWCUT, FULL DEPTH	200	LF	\$6.00	\$1,200.00
MINERAL AGGREGATE, TYPE 2	67	TN	\$45.00	\$3,012.42
PAVEMENT, HMA (CL 1/2 IN)	63	TN	\$110.00	\$6,959.88
ROADWAY CEMENT CONCRETE, 12IN	106	SY	\$115.00	\$12,138.89
STEEL REINFORCING BAR	600	LB	\$2.00	\$1,200.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$7,000.00	\$7,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	280	LF	\$40.00	\$11,200.00
SIDEWALK, CEM CONC	217	SY	\$60.00	\$13,000.00
SIDEWALK, THICKENED EDGE	280	LF	\$12.00	\$3,360.00
CURB RAMP TYPE 422A, PERPENDICULAR	4	EA	\$3,000.00	\$12,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$338,328.96

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Roosevelt Way NE & NE 41st St. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$18,000.00	\$18,000.00
TRAFFIC CONTROL PEACE OFFICER	80	HR	\$100.00	\$8,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$14,400.00	\$14,400.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
Construction Cost Subtotal				\$180,400.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Roosevelt Way NE & NE 45th St. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$18,000.00	\$18,000.00
TRAFFIC CONTROL PEACE OFFICER	80	HR	\$100.00	\$8,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$14,400.00	\$14,400.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
Construction Cost Subtotal				\$180,400.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: 11th Ave. NE & 50th St. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$36,000.00	\$36,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	128	SY	\$20.00	\$2,555.56
REMOVE PAVEMENT	278	SY	\$30.00	\$8,333.33
REMOVE CURB	200	LF	\$11.00	\$2,200.00
SAWCUT, FULL DEPTH	200	LF	\$6.00	\$1,200.00
MINERAL AGGREGATE, TYPE 2	57	TN	\$45.00	\$2,549.92
PAVEMENT, HMA (CL 1/2 IN)	44	TN	\$110.00	\$4,871.91
ROADWAY CEMENT CONCRETE, 12IN	106	SY	\$115.00	\$12,138.89
STEEL REINFORCING BAR	350	LB	\$2.00	\$700.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$7,000.00	\$7,000.00
LANDSCAPING ALLOWANCE	1	LS	\$11,000.00	\$11,000.00
CURB, CEM CONC	385	LF	\$40.00	\$15,400.00
SIDEWALK, CEM CONC	222	SY	\$60.00	\$13,333.33
SIDEWALK, THICKENED EDGE	200	LF	\$12.00	\$2,400.00
CURB RAMP TYPE 422A, PERPENDICULAR	8	EA	\$3,000.00	\$24,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$364,282.94

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: 12th Ave. NE & NE Ravenna Blvd. Northbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$38,000.00	\$38,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	244	SY	\$30.00	\$7,333.33
REMOVE PAVEMENT	361	SY	\$30.00	\$10,833.33
REMOVE CURB	80	LF	\$11.00	\$880.00
SAWCUT, FULL DEPTH	300	LF	\$6.00	\$1,800.00
MINERAL AGGREGATE, TYPE 2	91	TN	\$45.00	\$4,080.79
PAVEMENT, HMA (CL 1/2 IN)	120	TN	\$110.00	\$13,223.77
ROADWAY CEMENT CONCRETE, 12IN	83	SY	\$115.00	\$9,583.33
STEEL REINFORCING BAR	350	LB	\$2.00	\$700.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$8,000.00	\$8,000.00
LANDSCAPING ALLOWANCE	1	LS	\$11,000.00	\$11,000.00
CURB, CEM CONC	280	LF	\$40.00	\$11,200.00
SIDEWALK, CEM CONC	311	SY	\$60.00	\$18,666.67
SIDEWALK, THICKENED EDGE	180	LF	\$12.00	\$2,160.00
CURB RAMP TYPE 422A, PERPENDICULAR	8	EA	\$3,000.00	\$24,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$382,061.22

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: 12th Ave. NE & NE 65th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$35,000.00	\$35,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	133	SY	\$30.00	\$4,000.00
REMOVE PAVEMENT	206	SY	\$30.00	\$6,166.67
REMOVE CURB	80	LF	\$11.00	\$880.00
REMOVE TREE	2	EA	\$600.00	\$1,200.00
SAWCUT, FULL DEPTH	200	LF	\$6.00	\$1,200.00
MINERAL AGGREGATE, TYPE 2	39	TN	\$45.00	\$1,768.29
PAVEMENT, HMA (CL 1/2 IN)	25	TN	\$110.00	\$2,783.95
ROADWAY CEMENT CONCRETE, 12IN	83	SY	\$115.00	\$9,583.33
STEEL REINFORCING BAR	350	LB	\$2.00	\$700.00
CONCRETE CLASS 4000 FOR FOOTINGS	9	CY	\$1,200.00	\$10,800.00
STORM DRAINAGE ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$7,000.00	\$7,000.00
LANDSCAPING ALLOWANCE	1	LS	\$10,000.00	\$10,000.00
CURB, CEM CONC	280	LF	\$40.00	\$11,200.00
SIDEWALK, CEM CONC	211	SY	\$60.00	\$12,666.67
SIDEWALK, THICKENED EDGE	80	LF	\$12.00	\$960.00
CURB RAMP TYPE 422A, PERPENDICULAR	8	EA	\$3,000.00	\$24,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$349,708.91

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Roosevelt Way NE & NE 50th St. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$18,000.00	\$18,000.00
TRAFFIC CONTROL PEACE OFFICER	80	HR	\$100.00	\$8,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$14,400.00	\$14,400.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
Construction Cost Subtotal				\$180,400.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Roosevelt Way NE & NE Ravenna Blvd. Southbound

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$18,000.00	\$18,000.00
TRAFFIC CONTROL PEACE OFFICER	80	HR	\$100.00	\$8,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$14,400.00	\$14,400.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
Construction Cost Subtotal				\$180,400.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Bus Stations
 Location: Roosevelt Way NE & NE 65th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$18,000.00	\$18,000.00
TRAFFIC CONTROL PEACE OFFICER	80	HR	\$100.00	\$8,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$14,400.00	\$14,400.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$10,000.00	\$10,000.00
Construction Cost Subtotal				\$180,400.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Summary of BRT Improvement Costs

Downtown to NE 45th St.				TOTAL COST
Virginia St from 3rd Ave to Terry Ave.				\$182,650.00
Fairview Ave. N from Denny Way to Valley St.				\$234,450.00
Fairview Ave. N from Valley St. to Eastlake				\$143,350.00
Eastlake Ave. E from Fairview to Fuhrman Ave. E				\$364,500.00
11th Ave NE from NE 41st St. to 47th St.				\$123,800.00
Roosevelt Way NE from NE 45th St. to NE 47th St.				\$56,400.00
Construction Cost Subtotal				\$1,105,150.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: BRT Improvements
 Location: Virginia St: 3rd Ave to Terry Ave

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$18,000.00	\$18,000.00
TRAFFIC CONTROL PEACE OFFICER	280	HR	\$100.00	\$28,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$50,400.00	\$50,400.00
PAVEMENT MARKING, PAINT, RED BUS LANE	1610	SY	\$25.00	\$40,250.00
SIGNS AND CHANNELIZATION	2300	LF	\$20.00	\$46,000.00
Construction Cost Subtotal				\$182,650.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: BRT Improvements

Location: Fairview Ave N: Denny Way to Valley St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$23,000.00	\$23,000.00
TRAFFIC CONTROL PEACE OFFICER	240	HR	\$100.00	\$24,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$43,200.00	\$43,200.00
PAVEMENT MARKING, PAINT, RED BUS LANE	3690	SY	\$25.00	\$92,250.00
SIGNS AND CHANNELIZATION	2600	LF	\$20.00	\$52,000.00
Construction Cost Subtotal				\$234,450.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: BRT Improvements

Location: Fairview Ave N: Valley St. to Eastlake Ave.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$14,000.00	\$14,000.00
TRAFFIC CONTROL PEACE OFFICER	120	HR	\$100.00	\$12,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$21,600.00	\$21,600.00
PAVEMENT MARKING, PAINT, RED BUS LANE	1430	SY	\$25.00	\$35,750.00
SIGNS AND CHANNELIZATION	3000	LF	\$20.00	\$60,000.00
Construction Cost Subtotal				\$143,350.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: BRT Improvements

Location: Eastlake Ave: Fairview Ave. to Furhman Ave

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$36,000.00	\$36,000.00
TRAFFIC CONTROL PEACE OFFICER	600	HR	\$100.00	\$60,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$108,000.00	\$108,000.00
PAVEMENT MARKING, PAINT, RED BUS LANE	500	SY	\$25.00	\$12,500.00
SIGNS AND CHANNELIZATION	7400	LF	\$20.00	\$148,000.00
Construction Cost Subtotal				\$364,500.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: BRT Improvements
 Location: 11th Ave NE: NE 41st St. to NE 45th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$12,000.00	\$12,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
PAVEMENT MARKING, PAINT, RED BUS LANE	600	SY	\$25.00	\$15,000.00
SIGNS AND CHANNELIZATION	2600	LF	\$20.00	\$52,000.00
Construction Cost Subtotal				\$123,800.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: BRT Improvements

Location: Roosevelt Way NE: NE 45th St. to NE 47th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$5,000.00	\$5,000.00
TRAFFIC CONTROL PEACE OFFICER	80	HR	\$100.00	\$8,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$14,400.00	\$14,400.00
PAVEMENT MARKING, PAINT, RED BUS LANE	600	SY	\$25.00	\$15,000.00
SIGNS AND CHANNELIZATION	700	LF	\$20.00	\$14,000.00
Construction Cost Subtotal				\$56,400.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Summary of BRT Improvement Costs

NE 45th St. to NE 65th St.				TOTAL COST
11th Ave. NE from NE 47th St. to 67th St.				\$270,250.00
Roosevelt Way NE from NE 65th St. to NE 67th St.				\$122,362.50
Construction Cost Subtotal				\$392,612.50

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: BRT Improvements

Location: 11th Ave. NE from NE 47th St. to NE 67th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$27,000.00	\$27,000.00
TRAFFIC CONTROL PEACE OFFICER	400	HR	\$100.00	\$40,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$72,000.00	\$72,000.00
CURB RAMP TYPE 422A, PERPENDICULAR	7	EA	\$3,000.00	\$21,000.00
PAVEMENT MARKING, PAINT, RED BUS LANE	250	SY	\$25.00	\$6,250.00
SIGNS AND CHANNELIZATION	5200	LF	\$20.00	\$104,000.00
Construction Cost Subtotal				\$270,250.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: BRT Improvements
 Location: Roosevelt Way NE at NE 65th St. SB

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$12,000.00	\$12,000.00
TRAFFIC CONTROL PEACE OFFICER	80	HR	\$100.00	\$8,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$14,400.00	\$14,400.00
REMOVE PAVEMENT	60	SY	\$42.00	\$2,520.00
REMOVE CURB	70	LF	\$11.00	\$770.00
SAWCUT, FULL DEPTH	200	LF	\$6.00	\$1,200.00
MINERAL AGGREGATE, TYPE 2	19	TN	\$45.00	\$832.50
ROADWAY CEMENT CONCRETE, 12IN	60	SY	\$115.00	\$6,900.00
STORM DRAINAGE ALLOWANCE	1	LS	\$15,000.00	\$15,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$2,000.00	\$2,000.00
LANDSCAPING ALLOWANCE	1	LS	\$5,000.00	\$5,000.00
CURB, CEM CONC	70	LF	\$40.00	\$2,800.00
SIDEWALK, CEM CONC	65	SY	\$60.00	\$3,900.00
SIDEWALK, THICKENED EDGE	70	LF	\$12.00	\$840.00
CURB RAMP TYPE 422A, PERPENDICULAR	8	EA	\$3,000.00	\$24,000.00
PAVEMENT MARKING, PAINT, RED BUS LANE	200	SY	\$25.00	\$5,000.00
PAVEMENT MARKING, PAINT, RED BUS LANE	200	SY	\$26.00	\$5,200.00
SIGNS AND CHANNELIZATION	600	LF	\$20.00	\$12,000.00
Construction Cost Subtotal				\$122,362.50

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Summary of Signalization, Illumination, and TSP

Downtown to NE 45th St.				TOTAL COST
Signal Modifications & Illumination				\$5,154,705.00
TSP and ITS				\$2,394,500.00
Construction Cost Subtotal				\$7,549,205.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: J. Couples

Engineer's Estimate of Probable Costs

Item Group: Signal Modifications
 Location: Downtown to NE 45th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$515,000.00	\$515,000.00
TRAFFIC CONTROL PEACE OFFICER	3840	HR	\$100.00	\$384,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$691,200.00	\$691,200.00
SIGNAL REMOVAL				
REMOVE FOUNDATION, METAL STRAIN POLE	18	EA	\$1,000.00	\$18,000.00
REMOVE FOUNDATION, PED PUSH BUTTON POST	36	EA	\$550.00	\$19,800.00
REMOVE HANDHOLE	54	EA	\$250.00	\$13,500.00
REMOVE LUMINARIE	36	EA	\$150.00	\$5,400.00
REMOVE BRACKET ARM	36	EA	\$200.00	\$7,200.00
REMOVE POLE, WOOD	9	EA	\$450.00	\$4,050.00
REMOVE POLE, METAL STRAIN	18	EA	\$600.00	\$10,800.00
REMOVE POST, PEDESTRIAN PUSH BUTTON	36	EA	\$150.00	\$5,400.00
REMOVE PEDESTRIAN PUSH BUTTON ASSEMBLY	36	EA	\$100.00	\$3,600.00
REMOVE TRAFFIC SIGNAL CONTROLLER CABINET	9	EA	\$850.00	\$7,650.00
REMOVE FOUNDATION, TRAFFIC SIGNAL CABINET	9	EA	\$800.00	\$7,200.00
REMOVE PEDESTRIAN SIGNAL HEAD	72	EA	\$140.00	\$10,080.00
REMOVE VEHICLE SIGNAL HEAD	90	EA	\$170.00	\$15,300.00
REMOVE OVERHEAD SPAN	9	EA	\$2,000.00	\$18,000.00
REMOVE WIRING	9	EA	\$7,500.00	\$67,500.00
REMOVE 1" CD RISER	36	EA	\$150.00	\$5,400.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: J. Couples

Engineer's Estimate of Probable Costs

Item Group: Signal Modifications
 Location: Downtown to NE 45th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
SIGNAL RECONSTRUCTION				
TRAFFIC SIGNAL CABINET	9	EA	\$30,000.00	\$270,000.00
SERVICE CABINET	9	EA	\$5,000.00	\$45,000.00
FOUNDATION, TSC/SERVICE	9	EA	\$2,000.00	\$18,000.00
WIRING	1	LS	\$225,000.00	\$225,000.00
POLE, MAST ARM	36	EA	\$6,000.00	\$216,000.00
MAST ARM, 40'	36	EA	\$4,000.00	\$144,000.00
FOUNDATION, 40' MAST ARM	36	EA	\$2,900.00	\$104,400.00
PPB POST	36	EA	\$1,200.00	\$43,200.00
FOUNDATION, PPB POST	36	EA	\$500.00	\$18,000.00
PEDESTAL POLE	9	EA	\$1,300.00	\$11,700.00
PPB, ACCESSIBLE	72	EA	\$800.00	\$57,600.00
CCU, ACCESSIBLE	9	EA	\$3,500.00	\$31,500.00
FOUNDATION, PEDESTAL POLE	9	EA	\$600.00	\$5,400.00
VEHICLE SIGNAL HEADS	144	EA	\$900.00	\$129,600.00
PEDESTRIAN SIGNAL HEADS	72	EA	\$750.00	\$54,000.00
EMERGENCY VEHICLE PREEMPT, 722	36	EA	\$1,500.00	\$54,000.00
TYPE 3 HH	27	EA	\$1,200.00	\$32,400.00
TYPE 1 HH	27	EA	\$450.00	\$12,150.00
TRENCHING	3600	LF	\$20.00	\$72,000.00
1" CD	1125	LF	\$15.00	\$16,875.00
3" CD	2700	LF	\$25.00	\$67,500.00
3" CD RISER	18	EA	\$1,500.00	\$27,000.00
WIRELESS DETECTION, SPP RADIO	18	EA	\$5,000.00	\$90,000.00
WIRELESS DETECTION, REPEATER	18	EA	\$1,000.00	\$18,000.00
WIRELESS DETECTION, SENSOR	324	EA	\$800.00	\$259,200.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: J. Couples

Engineer's Estimate of Probable Costs

Item Group: Signal Modifications
 Location: Downtown to NE 45th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
CABINET REPLACEMENT				
TRAFFIC SIGNAL CONTROLLER CABINET	10	EA	\$33,000.00	\$330,000.00
FOUNDATION, TRAFFIC SIGNAL CONTROLLER C.	10	EA	\$1,500.00	\$15,000.00
WIRING	1	LS	\$25,000.00	\$25,000.00
PPB, ACCESSIBLE	80	EA	\$800.00	\$64,000.00
CCU, ACCESSIBLE	8	EA	\$3,500.00	\$28,000.00
SET TEMPORARY TSCC	10	EA	\$7,500.00	\$75,000.00
REMOVE TRAFFIC SIGNAL CONTROLLER CABINET	10	EA	\$850.00	\$8,500.00
REMOVE FOUNDATION, TRAFFIC SIGNAL CABINET	10	EA	\$800.00	\$8,000.00
MINOR SIGNAL UPGRADES				
VEHICLE SIGNAL HEAD (BICYCLE)	12	EA	\$1,500.00	\$18,000.00
VEHICLE SIGNAL HEAD (BICYCLE)	12	EA	\$900.00	\$10,800.00
WIRING	1	LS	\$12,000.00	\$12,000.00
CABINET MODIFICATIONS	1	LS	\$12,000.00	\$12,000.00
ADAPTIVE SIGNAL				
WIRELESS DETECTION, REPEATER	18	EA	\$1,000.00	\$18,000.00
WIRELESS DETECTION, SENSOR	108	EA	\$800.00	\$86,400.00
SYSTEM INTEGRATION	9	EA	\$16,000.00	\$144,000.00
ADAPTIVE SIGNAL (CABINET REPLACEMENT)				
WIRELESS DETECTION, SPP	20	EA	\$5,000.00	\$100,000.00
WIRELESS DETECTION, REPEATER	20	EA	\$1,000.00	\$20,000.00
WIRELESS DETECTION, SENSOR	120	EA	\$800.00	\$96,000.00
SYSTEM INTEGRATION	10	EA	\$16,000.00	\$160,000.00
SOFTWARE				
LICENSE, SCOOT ADD ON (PER 10)	3	EA	\$10,000.00	\$30,000.00
SOFTWARE SUPPORT, TWO YEAR (PER 10)	3	EA	\$20,800.00	\$62,400.00
Construction Cost Subtotal				\$5,154,705.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: R. Gulick

Engineer's Estimate of Probable Costs

Item Group: Transit Signal Priority (TSP) - Minimum Build-Out
 Location: Downtown to NE 45th

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$240,000.00	\$240,000.00
CCTV CAMERA (PTZ)	12	EA	\$12,000.00	\$144,000.00
CCTV MOUNTING BRACKET	12	EA	\$500.00	\$6,000.00
ETHERNET SWITCH	67	EA	\$2,000.00	\$134,000.00
FIBER OPTIC CABLE	30000	LF	\$4.00	\$120,000.00
FIBER OPTIC SPLICE ENCLOSURE	67	EA	\$1,500.00	\$100,500.00
FIBER OPTIC SPLICING	900	EA	\$30.00	\$27,000.00
FIBER OPTIC PRETERMINATED PP	67	EA	\$1,000.00	\$67,000.00
FIBER VAULTS	67	EA	\$3,000.00	\$201,000.00
COMMUNICATIONS NODE UPGRADES	1	LS	\$100,000.00	\$100,000.00
PULL BOXES	20	EA	\$1,500.00	\$30,000.00
CONDUIT	50000	LF	\$10.00	\$500,000.00
TRENCHING	30000	LF	\$20.00	\$600,000.00
MISCELLANEOUS (WIRING, ATTACHMENTS, ETC)	1	LS	\$50,000.00	\$50,000.00
TESTING AND INTEGRATION	1	LS	\$75,000.00	\$75,000.00
Construction Cost Subtotal				\$2,394,500.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Summary of Signalization, Illumination, and TSP

NE 45th St. to NE 65th St.				TOTAL COST
Signal Modifications & Illumination				\$3,921,895.00
TSP and ITS				\$690,820.00
Construction Cost Subtotal				\$4,612,715.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: J. Couples

Engineer's Estimate of Probable Costs

Item Group: Signal Modifications
 Location: NE 45th St. to NE 65th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$392,000.00	\$392,000.00
TRAFFIC CONTROL PEACE OFFICER	1760	HR	\$100.00	\$176,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$316,800.00	\$316,800.00
SIGNAL REMOVAL				
REMOVE FOUNDATION, METAL STRAIN POLE	22	EA	\$1,000.00	\$22,000.00
REMOVE FOUNDATION, PED PUSH BUTTON POST	44	EA	\$550.00	\$24,200.00
REMOVE, HH	66	EA	\$250.00	\$16,500.00
REMOVE, LUMINARIE	44	EA	\$150.00	\$6,600.00
REMOVE, BRACKET ARM	44	EA	\$200.00	\$8,800.00
REMOVE POLE, WOOD	11	EA	\$450.00	\$4,950.00
REMOVE POLE, METAL STRAIN	22	EA	\$600.00	\$13,200.00
REMOVE POST, PEDESTRIAN PUSH BUTTON	44	EA	\$150.00	\$6,600.00
REMOVE PEDESTRIAN PUSH BUTTON ASSEMBLY	44	EA	\$100.00	\$4,400.00
REMOVE TRAFFIC SIGNAL CONTROLLER CABINET	11	EA	\$850.00	\$9,350.00
REMOVE FOUNDATION, TRAFFIC SIGNAL CABINET	11	EA	\$800.00	\$8,800.00
REMOVE PEDESTRIAN SIGNAL HEAD	88	EA	\$140.00	\$12,320.00
REMOVE VEHICLE SIGNAL HEAD	110	EA	\$170.00	\$18,700.00
REMOVE OVERHEAD SPAN	1	LS	\$22,000.00	\$22,000.00
REMOVE WIRING	1	LS	\$82,500.00	\$82,500.00
REMOVE 1" CD RISER	4	EA	\$150.00	\$600.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: J. Couples

Engineer's Estimate of Probable Costs

Item Group: Signal Modifications
 Location: NE 45th St. to NE 65th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
SIGNAL RECONSTRUCTION				
TRAFFIC SIGNAL CABINET	11	EA	\$30,000.00	\$330,000.00
SERVICE CABINET	11	EA	\$5,000.00	\$55,000.00
FOUNDATION, TSC/SERVICE	11	EA	\$2,000.00	\$22,000.00
WIRING	1	LS	\$275,000.00	\$275,000.00
POLE, MAST ARM	44	EA	\$6,000.00	\$264,000.00
MAST ARM, 40'	44	EA	\$4,000.00	\$176,000.00
FOUNDATION, 40' MAST ARM	44	EA	\$2,900.00	\$127,600.00
PPB POST	44	EA	\$1,200.00	\$52,800.00
FOUNDATION, PPB POST	44	EA	\$500.00	\$22,000.00
PEDESTAL POLE	11	EA	\$1,300.00	\$14,300.00
PPB, ACCESSIBLE	88	EA	\$800.00	\$70,400.00
CCU, ACCESSIBLE	11	EA	\$3,500.00	\$38,500.00
FOUNDATION, PEDESTAL POLE	11	EA	\$600.00	\$6,600.00
VEHICLE SIGNAL HEADS	176	EA	\$900.00	\$158,400.00
PEDESTRIAN SIGNAL HEADS	88	EA	\$750.00	\$66,000.00
EMERGENCY VEHICLE PREEMPT, 722	44	EA	\$1,500.00	\$66,000.00
TYPE 3 HH	33	EA	\$1,200.00	\$39,600.00
TYPE 1 HH	33	EA	\$450.00	\$14,850.00
TRENCHING	4400	LF	\$20.00	\$88,000.00
1" CD	1375	LF	\$15.00	\$20,625.00
3" CD	3300	LF	\$25.00	\$82,500.00
3" CD RISER	22	EA	\$1,500.00	\$33,000.00
WIRELESS DETECTION, SPP RADIO	22	EA	\$5,000.00	\$110,000.00
WIRELESS DETECTION, REPEATER	22	EA	\$1,000.00	\$22,000.00
WIRELESS DETECTION, SENSOR	396	EA	\$800.00	\$316,800.00
ADAPTIVE SIGNAL				
WIRELESS DETECTION, REPEATER	22	EA	\$1,000.00	\$22,000.00
WIRELESS DETECTION, SENSOR	132	EA	\$800.00	\$105,600.00
SYSTEM INTEGRATION	11	EA	\$16,000.00	\$176,000.00
Construction Cost Subtotal				\$3,921,895.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: R. Gulick

Engineer's Estimate of Probable Costs

Item Group: Transit Signal Priority (TSP) - Minimum Build-Out
 Location: NE 45th to NE 65th

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$70,000.00	\$70,000.00
CCTV CAMERA (PTZ)	3	EA	\$12,000.00	\$36,000.00
CCTV MOUNTING BRACKET	3	EA	\$500.00	\$1,500.00
DYNAMIC MESSAGE SIGN	0	EA	\$60,000.00	\$0.00
CANTILEVER SIGN STRUCTURE	0	EA	\$40,000.00	\$0.00
CANTILEVER SIGN STRUCTURE FOUNDATION	0	EA	\$30,000.00	\$0.00
BUS ONLY LANE DETECTION	0	EA	\$8,000.00	\$0.00
DETECTION MOUNTING POST	0	EA	\$3,000.00	\$0.00
ETHERNET SWITCH	8	EA	\$2,000.00	\$16,000.00
FIBER OPTIC CABLE	12000	LF	\$4.00	\$48,000.00
FIBER OPTIC SPLICE ENCLOSURE	8	EA	\$1,500.00	\$12,000.00
FIBER OPTIC SPLICING	144	EA	\$30.00	\$4,320.00
FIBER OPTIC PRETERMINATED PP	8	EA	\$1,000.00	\$8,000.00
FIBER VAULTS	8	EA	\$3,000.00	\$24,000.00
PULL BOXES	4	EA	\$1,500.00	\$6,000.00
CONDUIT	20000	LF	\$10.00	\$200,000.00
TRENCHING	12000	LF	\$20.00	\$240,000.00
MISCELLANEOUS (WIRING, ATTACHMENTS, ETC)	1	LS	\$10,000.00	\$10,000.00
TESTING AND INTEGRATION	1	LS	\$15,000.00	\$15,000.00
Construction Cost Subtotal				\$690,820.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: R. Gulick

Engineer's Estimate of Probable Costs

Item Group: Transit Signal Priority (TSP) - Ultimate Build-Out
 Location: NE 45th to NE 65th

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$95,000.00	\$95,000.00
CCTV CAMERA (PTZ)	6	EA	\$12,000.00	\$72,000.00
CCTV MOUNTING BRACKET	6	EA	\$500.00	\$3,000.00
DYNAMIC MESSAGE SIGN	1	EA	\$60,000.00	\$60,000.00
CANTILEVER SIGN STRUCTURE	1	EA	\$40,000.00	\$40,000.00
CANTILEVER SIGN STRUCTURE FOUNDATION	1	EA	\$30,000.00	\$30,000.00
BUS ONLY LANE DETECTION	4	EA	\$8,000.00	\$32,000.00
DETECTION MOUNTING POST	4	EA	\$3,000.00	\$12,000.00
ETHERNET SWITCH	8	EA	\$2,000.00	\$16,000.00
FIBER OPTIC CABLE	12000	LF	\$4.00	\$48,000.00
FIBER OPTIC SPLICE ENCLOSURE	8	EA	\$1,500.00	\$12,000.00
FIBER OPTIC SPLICING	144	EA	\$30.00	\$4,320.00
FIBER OPTIC PRETERMINATED PP	8	EA	\$1,000.00	\$8,000.00
FIBER VAULTS	8	EA	\$3,000.00	\$24,000.00
PULL BOXES	4	EA	\$1,500.00	\$6,000.00
CONDUIT	20000	LF	\$10.00	\$200,000.00
TRENCHING	12000	LF	\$20.00	\$240,000.00
MISCELLANEOUS (WIRING, ATTACHMENTS, ETC)	1	LS	\$25,000.00	\$25,000.00
TESTING AND INTEGRATION	1	LS	\$25,000.00	\$25,000.00
Construction Cost Subtotal				\$952,320.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Overhead Contact System (OCS)
 Location: Downtown to NE 45th St.

ITEM	TOTAL	UNIT	UNIT PRICE	TOTAL COST
CATENARY WIRE AND SUPPORT SYSTEM (ONE-WAY)	0.95	MI	\$2,800,000.00	\$2,660,000.00
Construction Cost Subtotal				\$2,660,000.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Overhead Contact System (OCS)

Location: NE 45th St. to NE 65th St.

ITEM	TOTAL	UNIT	UNIT PRICE	TOTAL COST
CATENARY WIRE AND SUPPORT SYSTEM (ONE-WAY)	2.1	MI	\$2,800,000.00	\$5,880,000.00
TRACTION POWER SUBSTATION	1	EA	\$1,200,000.00	\$1,200,000.00
TRANSMISSION DUCT BANK	0.25	MI	\$3,432,000.00	\$858,000.00
Construction Cost Subtotal				\$7,938,000.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Summary of Protected Bike Lane Costs

Downtown to NE 45th St.				TOTAL COST
Stewart St. - Westlake Ave to Boren St.				\$121,350.00
Fairview Ave. N - Bridge to E Garfield St.				\$552,749.44
Eastlake Ave. E - E Garfield St. to Allison St.				\$113,750.00
Eastlake Ave. E - Allison St. to Harvard St.				\$51,000.00
11th Ave. NE - NE 41st St to NE 45th St.				\$39,000.00
Construction Cost Subtotal				\$877,849.44

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Protected Bike Lanes
 Location: Westlake Ave. to Boren Ave.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$12,000.00	\$12,000.00
TRAFFIC CONTROL PEACE OFFICER	280	HR	\$100.00	\$28,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$50,400.00	\$50,400.00
PAVEMENT MARKING, PAINT, GREEN BICYCLE LANE	320	SY	\$25.00	\$8,000.00
BICYCLE SIGNS AND CHANNELIZATION	1530	LF	\$15.00	\$22,950.00
Construction Cost Subtotal				\$121,350.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Protected Bike Lanes
 Location: Fairview Ave N: Fairview Bridge to Garfield St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$55,000.00	\$55,000.00
TRAFFIC CONTROL PEACE OFFICER	160	HR	\$100.00	\$16,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$28,800.00	\$28,800.00
REMOVE CEMENT CONC. SIDEWALK	60	SY	\$20.00	\$1,200.00
REMOVE PAVEMENT	961	SY	\$30.00	\$28,833.33
REMOVE CURB	730	LF	\$11.00	\$8,030.00
REMOVE TREE	7	EA	\$600.00	\$4,200.00
SAWCUT, FULL DEPTH	350	LF	\$6.00	\$2,100.00
MINERAL AGGREGATE, TYPE 2	363	TN	\$45.00	\$16,341.67
ROADWAY CEMENT CONCRETE, 12IN	1178	SY	\$115.00	\$135,444.44
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	EA	\$11,000.00	\$11,000.00
LANDSCAPING ALLOWANCE	1	LS	\$17,000.00	\$17,000.00
CURB, CEM CONC	950	LF	\$40.00	\$38,000.00
SIDEWALK, CEM CONC	840	SY	\$60.00	\$50,400.00
SIDEWALK, THICKENED EDGE	950	LF	\$12.00	\$11,400.00
CURB RAMP TYPE 422A, PERPENDICULAR	6	EA	\$3,000.00	\$18,000.00
STORM DRAINAGE ALLOWANCE	1	LS	\$70,000.00	\$70,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$30,000.00	\$30,000.00
PAVEMENT MARKING, PAINT, GREEN BICYCLE LANE	80	SY	\$25.00	\$2,000.00
BICYCLE SIGNS AND CHANNELIZATION	600	LF	\$15.00	\$9,000.00
Construction Cost Subtotal				\$552,749.44

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Protected Bike Lanes
 Location: Eastlake Ave: Garfield St. to Allison St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$11,000.00	\$11,000.00
PAVEMENT MARKING, PAINT, GREEN BICYCLE LANE	750	SY	\$25.00	\$18,750.00
BICYCLE SIGNS AND CHANNELIZATION	5600	LF	\$15.00	\$84,000.00
Construction Cost Subtotal				\$113,750.00

Note: Temporary Traffic Control for this segment accounted for in BRT Cost Category

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Protected Bike Lanes
 Location: Eastlake Ave: Allison St. to Furhman Ave.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$5,000.00	\$5,000.00
PAVEMENT MARKING, PAINT, GREEN BICYCLE LANE	340	SY	\$25.00	\$8,500.00
BICYCLE SIGNS AND CHANNELIZATION	2500	LF	\$15.00	\$37,500.00
Construction Cost Subtotal				\$51,000.00

Note: Temporary Traffic Control for this segment accounted for in BRT Cost Category

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Protected Bike Lanes
 Location: 11th Ave NE: NE 41st St to NE 45th St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$4,000.00	\$4,000.00
PAVEMENT MARKING, PAINT, GREEN BICYCLE LANE	260	SY	\$25.00	\$6,500.00
BICYCLE SIGNS AND CHANNELIZATION	1900	LF	\$15.00	\$28,500.00
Construction Cost Subtotal				\$39,000.00

Note: Temporary Traffic Control for this segment accounted for in BRT Cost Category

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Summary of Protected Bike Lane Costs

NE 45th St. to NE 65th St.				TOTAL COST
11th Ave. NE - NE 45st St to NE 65th St.				\$108,250.00
Construction Cost Subtotal				\$108,250.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Protected Bike Lanes
 Location: 11th Ave NE: NE 45th St to NE 65th St

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$11,000.00	\$11,000.00
PAVEMENT MARKING, PAINT, GREEN BICYCLE LANE	710	SY	\$25.00	\$17,750.00
BICYCLE SIGNS AND CHANNELIZATION	5300	LF	\$15.00	\$79,500.00
Construction Cost Subtotal				\$108,250.00

Note: Temporary Traffic Control for this segment accounted for in BRT Cost Category

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Summary of Streetcar Relocation Costs

Fairveiw Ave N: Valley St. to Aloha St.				TOTAL COST
Track Items				\$2,100,550.00
Roadway Items				\$3,325,860.51
Utility Relocation				\$1,190,000.00
Construction Cost Subtotal				\$6,616,410.51

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
 Prepared By: KPFF
 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Streetcar Relocation - Track Items
 Location: Fairview Ave N: Valley St. to Aloha St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$210,000.00	\$210,000.00
REMOVE RAIL AND PAVED TRACK - VALLEY ST. TO ALOHA ST.	2740	TF	\$70.00	\$191,800.00
REMOVE PLATFORM	1320	SY	\$50.00	\$66,000.00
REMOVE OCS - VALLEY ST. TO ALOHA ST.	1	LS	\$10,000.00	\$10,000.00
UTILITY SERVICE CONNECTIONS	1	LS	\$20,000.00	\$20,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$29,000.00	\$29,000.00
CATENARY WIRE AND SUPPORT SYSTEM	675	LF	\$550.00	\$371,250.00
RECONNECTION OF FEEDER CABLES	1	LS	\$100,000.00	\$100,000.00
PLATFORM - FAIRVIEW AVE & ALOHA ST	1	EA	\$120,000.00	\$120,000.00
PAVED TRACK - TANGENT	1050	TF	\$450.00	\$472,500.00
PAVED TRACK - CURVE	200	TF	\$650.00	\$130,000.00
TRACK TURNOUT	1	LS	\$235,000.00	\$235,000.00
TRACK DRAIN	2	EA	\$5,000.00	\$10,000.00
SWITCH MACHINE RELOCATION	1	EA	\$5,000.00	\$5,000.00
STATION AMENITIES	1	LS	\$130,000.00	\$130,000.00
Construction Cost Subtotal				\$2,100,550.00

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
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 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Streetcar Relocation - Roadway Items
 Location: Fairview Ave N: Valley St. to Bridge

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$330,000.00	\$330,000.00
TRAFFIC CONTROL PEACE OFFICER	1280	HR	\$100.00	\$128,000.00
MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL INCLUDING FLAGGING	1	LS	\$230,400.00	\$230,400.00
CLEARING & GRUBBING	22000	SF	\$1.00	\$22,000.00
REMOVE CEMENT CONC. SIDEWALK	2044	SY	\$15.00	\$30,666.67
REMOVE PAVEMENT	9170	SY	\$30.00	\$275,100.00
REMOVE CURB	2250	LF	\$11.00	\$24,750.00
REMOVE TREE	40	EA	\$600.00	\$24,000.00
SAWCUT, FULL DEPTH	2300	LF	\$6.00	\$13,800.00
COMMON EXCAVATION	458	CY	\$40.00	\$18,333.33
MINERAL AGGREGATE, TYPE 2	3437	TN	\$45.00	\$154,664.63
PAVEMENT, HMA (CL 1/2 IN)	666	TN	\$110.00	\$73,312.56
ROADWAY CEMENT CONCRETE, 12IN	9167	SY	\$115.00	\$1,054,166.67
STORM DRAINAGE ALLOWANCE	1	LS	\$350,000.00	\$350,000.00
WATER QUALITY TREATMENT ALLOWANCE	1	LS	\$60,000.00	\$60,000.00
UTILITY RELOCATION ALLOWANCE	1	LS	\$50,000.00	\$50,000.00
CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN	1	LS	\$65,000.00	\$65,000.00
LANDSCAPING ALLOWANCE	1	LS	\$100,000.00	\$100,000.00
CURB, CEM CONC	2250	LF	\$40.00	\$90,000.00
SIDEWALK, CEM CONC	2811	SY	\$60.00	\$168,666.67
SIDEWALK, THICKENED EDGE	2250	LF	\$12.00	\$27,000.00
CURB RAMP TYPE 422A, PERPENDICULAR	12	EA	\$3,000.00	\$36,000.00
Construction Cost Subtotal				\$3,325,860.51

Roosevelt to Downtown High Capacity Transit Study
Seattle Department of Transportation

Date: 12/8/2016
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 N. Anderson
 J. Fellows

Engineer's Estimate of Probable Costs

Item Group: Utility Relocations due to Streetcar
 Location: Fairview Ave N: Valley St. to Aloha St.

ITEM	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL COST
MOBILIZATION	1	LS	\$120,000.00	\$120,000.00
REMOVE EXISTING 115KV TRANSITION STRUCTURE	1	EA	\$20,000.00	\$20,000.00
CASING PIPE, 18"	150	LF	\$140.00	\$21,000.00
FURNISH AND INSTALL 115KV WOOD POLE	1	EA	\$20,000.00	\$20,000.00
TRANSMISSION CONCRETE ENCASED DUCTBANK (2EA - 2", 4 EA - 6")	115	LF	\$460.00	\$52,900.00
26KV DISTRUBUTION CONCRETE ENCASED DUCT BANK (4EA - 5")	675	LF	\$400.00	\$270,000.00
FURNISH 115KV, 3000 KCMIL, 1/C CU XLPE CABLE	460	LF	\$135.00	\$62,100.00
FURNISH AND INSTALL 115 KV ACCESSORIES	1	LS	\$160,000.00	\$160,000.00
115KV CABLE SYSTEM ACCEPTANCE TEST	1	EA	\$10,000.00	\$10,000.00
FURNISH AND INSTALL 115KV TRANSITION STRUCTURE	1	EA	\$65,000.00	\$65,000.00
FURNISH AND INSTALL 115KV CONNECTION TO EXISTING OVHD SYSTE	1	EA	\$15,000.00	\$15,000.00
FURNISH AND INSTALL 115KV TRANSITION STRUCTURE FOUNDATION	1	EA	\$123,000.00	\$123,000.00
RELOCATE 26KV OVHD SYSTEM	4	EA	\$28,000.00	\$112,000.00
CONNECT TO EXISTING 115KV UG SYSTEM	1	LS	\$17,000.00	\$17,000.00
CONNECT TO EXISTING 26 KV UG SYSTEM	1	LS	\$22,000.00	\$22,000.00
ALLOWANCE FOR OPERATIONAL SHUTDOWN OF POWER	1	LS	\$100,000.00	\$100,000.00
Construction Cost Subtotal				\$1,190,000.00