



# **APPENDIX C: Detailed Cost Elements**



Rec Code	Description	Area	Prelim Cost	Quantity	Unit	Unit Cost	Other Cost Explanation	Total Estimated Cost
<b>A-1</b>	<b>Traffic Flow and Pedestrian Safety on Columbus Circle</b>	<b>Columbus Plaza -- Area A</b>	Cost assigned to another project					
<b>B-1</b>	<b>Train Concourse Connector</b>	<b>Train Concourse -- Area B</b>	\$4,598,125					
	- Selective Demolition & Relocations			1	LS	\$150,000		\$150,000
	--- SUBTOTAL							\$150,000
	- Basic Civil & Architectural Work			4,000	SF	\$150		\$600,000
	--- SUBTOTAL							\$600,000
	- Heavy construction and preparation							
	-- Tunnel Construction (100' X 40')			100	LF	\$12,500		\$1,250,000
	-- Underpinning			200	LF	\$4,500		\$900,000
	-- Flagging & Track Support Requirements			1	LS	\$100,000		\$100,000
	-- Vertical Transportation			1	LS	\$400,000		\$400,000
	-- Miscellaneous Work			1	LS	\$150,000		\$150,000
	--- SUBTOTAL							\$2,800,000
	- Electrical and Lighting							
	-- Lighting fixtures			125	EA	\$525		\$65,625
	-- Branch conduit/wire for lighting			3,000	EA	\$18		\$54,000
	-- Upgrade electrical distribution system			1	LS	\$75,000		\$75,000
	-- Upgrade emergency electrical distribution system			1	LS	\$25,000		\$25,000
	-- Electrical feeder work			1	LS	\$110,000		\$110,000
	-- Branch conduit/wire for signage allowance			1,500	LF	\$18		\$27,000
	-- Upgrade fire alarm system - slave panel			1	LS	\$25,000		\$25,000
	-- Fire alarm system misc. devices			65	EA	\$400		\$26,000
	-- Branch conduit/wire for signage			2,000	LF	\$15		\$30,000
	-- CCTV and PA systems allowance			1	LS	\$80,000		\$80,000
	-- Electrical feeders/disconnects for escalators			4	EA	\$5,500		\$22,000
	-- Electrical feeder/disconnect switch for hydraulic elevator			1	EA	\$5,500		\$5,500
	-- Lighting Controls			1	LS	\$10,000		\$10,000
	-- Control wiring			1	LS	\$35,000		\$35,000
	--- SUBTOTAL							\$590,125
	- Plumbing, HVAC, other MEP							
	-- Sprinkler heads allowance for tunnel			100	EA	\$650		\$65,000

Rec Code	Description	Area	Prelim Cost	Quantity	Unit	Unit Cost	Other Cost Explanation	Total Estimated Cost
	-- Sprinkler fire hose cabinets			5	EA	\$2,500		\$12,500
	-- Upgrade of existing sprinkler system and piping for new heads and fire hose cabinets			1	LS	\$35,000		\$35,000
	-- Plumbing work allowance			1	LS	\$50,000		\$50,000
	-- Air handling units			2	EA	\$45,000		\$90,000
	-- Galvanized steel ductwork allowance			10,000	Lbs	\$3		\$30,000
	-- Diffusers, grilles, dampers, louvers allowance			1	LS	\$17,500		\$17,500
	-- HVAC controls allowance			1	LS	\$45,000		\$45,000
	-- Air cool unit for elevator machine room			1	EA	\$13,000		\$13,000
	-- Testing/inspection/commissioning allowance			1	LS	\$45,000		\$45,000
	-- Miscellaneous MEP work allowance			1	LS	\$55,000		\$55,000
	--- SUBTOTAL							\$458,000
	SUBTOTAL							\$4,598,125
	(Details)							
<b>B-2</b>	<b>North Entrance/Taxi Lane</b>	<b>Train Concourse -- Area B</b>	\$949,000					
	Selective Demolition & Relocations			1	LS	\$45,000		\$45,000
	Basic Civil & Architectural Work			10,000	SF	\$75		\$750,000
	Miscellaneous Work			1	LS	\$120,000		\$120,000
	Add lighting fixtures for taxi stand allowance			20	EA	\$950		\$19,000
	Miscellaneous MEP work for taxi stand			1	LS	\$15,000		\$15,000
	SUBTOTAL							\$949,000
	(Details)							
<b>B-3</b>	<b>Extend North Concourse to north    New North South Concourse</b>	<b>Train Concourse -- Area B</b>	\$21,660,000					Updated to Reflect Akridge Estimate
	Abatement & Remediation		Allowance		Allowance			\$200,000
	Demolition of bubble structure, existing vertical transportation and platform canopies		sf	20,000	sf	\$8		\$150,000
	Architectural							
	New restrooms		sf	2,500	sf	\$200		\$500,000
	Mezzanine level walkway and stair		sf	3,000	sf	\$125		\$375,000
	Full-height glass and alum window wall with blast and acoustic - west and north		sf	8,000	sf	\$150		\$1,200,000
	Gate vestibules with automatic doors		ea	15	ea	\$30,000		\$450,000
	New floor throughout - 75% terrazo and 25% carpet		sf	45,000	sf	\$25		\$1,125,000
	New clerestory to introduce natural light		sf	3,000	sf	\$150		\$450,000



Rec Code	Description	Area	Prelim Cost	Quantity	Unit	Unit Cost	Other Cost Explanation	Total Estimated Cost
	Structural							
	Foundations and concourse support columns		ea	36	ea	\$10,000		\$360,000
	Structural frame above the tracks		sf	90,000	sf	\$100		\$9,000,000
	MEP							
	MEP systems, including WiFi		sf	45,000	sf	\$25		\$1,125,000
	Lower track ventilation		sf	45,000	sf	\$5		\$225,000
	Lighting for circulation and waiting areas		sf	90,000	sf	\$10		\$900,000
	Vertical Transportation							
	Escalators connecting the concourse to the lower track level		ea	10	ea	\$300,000		\$3,000,000
	Elevators connecting the concourse to the lower track level		ea	5	ea	\$200,000		\$1,000,000
	Escalators connecting the concourse to the Burnham Place platform		ea	4	ea	\$300,000		\$1,200,000
	Elevator connecting the concourse to the Burnham Place platform		ea	2	ea	\$200,000		\$400,000
	SUBTOTAL							\$21,660,000
	(Details)							
<b>B-4</b>	<b>Expand East-West Concourse to north</b>	<b>Train Concourse -- Area B</b>	\$11,630,000					Updated to Akridge Estimate, adjusting square footage to reflect separate Mezzanine line item
	Abatement & Remediation				Allowance			\$100,000
	Demolition			42,000	sf	\$7		\$315,000
	Architectural							
	New restrooms			5,000	sf	\$200		\$1,000,000
	New retail shell space at the concourse level			15,000	sf	\$75		\$1,125,000
	New Acela lounge			4,000	sf	\$150		\$600,000
	Full-height glass and aluminum window wall with blast and acoustic enhancements			12,000	sf	\$150		\$1,800,000
	Gate vestibules with automatic doors			8	ea	\$30,000		\$240,000
	New floor throughout - 75% terrazo and 25% carpet			42,000	sf	\$25		\$1,050,000
	New skylights to introduce natural light - 300 sf each			15	ea	\$100,000		\$1,500,000
	MEP							
	New MEP systems			42,000	sf	\$40		\$1,680,000
	New lighting for circulation and waiting areas			42,000	sf	\$10		\$420,000
	Vertical Transportation							
	Two new escalators connecting the concourse to the expanded mezzanine			4	ea	\$300,000		\$1,200,000

Rec Code	Description	Area	Prelim Cost	Quantity	Unit	Unit Cost	Other Cost Explanation	Total Estimated Cost
	One new elevator connecting the concourse to the expanded mezzanine			3	ea	\$200,000		\$600,000
	SUBTOTAL							\$11,630,000
	(Details)							
<b>B-5</b>	<b>Expand the Mezzanine Level</b>	<b>Train Concourse -- Area B</b>	\$4,632,500					Updated to Akridge Estimate, adjusting square footage to reflect updated East-West Concourse line item
	- Add Vertical Access to H St., MARC, Metro & Mezzanine Bridge							
	-- Selective Demolition & Relocations			1	LS	\$80,000		\$80,000
	-- Basic Civil & Architectural Work			1,000	SF	\$150		\$150,000
	-- Miscellaneous Work			1	LS	\$45,000		\$45,000
	-- Electrical feeders for escalators and elevator including disconnect switches			3	EA	\$5,500		\$16,500
	-- Control wiring for escalators/elevators			1	LS	\$15,000		\$15,000
	-- Air cool unit for elevator machine room			1	EA	\$13,000		\$13,000
	-- Fire alarm work for escalators/elevator			1	LS	\$3,500		\$3,500
	-- Testing/Inspection/Commissioning of escalators and elevator			1	LS	\$4,500		\$4,500
	--- SUBTOTAL							\$327,500
	- Improve Mezzanine Level							
	-- Selective Demolition & Relocations			1	LS	\$85,000		\$85,000
	-- Relocation of Stores			1	LS	\$100,000		\$100,000
	- Add Structural System			30,000	SF	\$29		\$870,000
	-- Basic Civil & Architectural Work			30,000	SF	\$85		\$2,550,000
	-- Miscellaneous Work			1	LS	\$250,000		\$250,000
	-- Selective MEP demolition/relocation allowance			1	LS	\$15,000		\$15,000
	-- Allowance for MEP work for new retail stores (assuming 3 retails)			3	EA	\$145,000		\$435,000
	--- SUBTOTAL							\$4,305,000
	SUBTOTAL							\$4,632,500
	(Details)							
<b>C-1</b>	<b>Construct Bikestation</b>	<b>First Street -- Area C</b>	Cost assigned to another project					
<b>C-2</b>	<b>Metropolitan Branch Trail</b>	<b>First Street -- Area C</b>	\$27,000					
	- Signage							



Rec Code	Description	Area	Prelim Cost	Quantity	Unit	Unit Cost	Other Cost Explanation	Total Estimated Cost
	-- Signs			276	SF	\$50.00		\$13,800
	-- Sign Posts			124	ft	\$50.00		\$6,200
	-- Pavement markings - 4" wide, linear			4,000	ft	\$1.25		\$5,000
	-- Pavement markings - Bicycle Emblem			10	EA	\$200.00		\$2,000
	SUBTOTAL							\$27,000
	(Details)							
<b>C-3</b>	<b>Improvements to First Street NE</b>	<b>First Street -- Area C</b>	Cost assigned to another project					
<b>C-4</b>	<b>Conduct Metrorail Station Access Study</b>	<b>First Street -- Area C</b>	\$250,000					
<b>D-1</b>	<b>North Pedestrian Walkway</b>	<b>H Street -- Area D</b>	\$1,850,325					
	Selective Demolition & Relocations			1	LS	\$100,000		\$100,000
	Basic Civil & Architectural Work			28,025	SF	\$150		\$4,203,750
	Miscellaneous Work			1	LS	\$65,000		\$65,000
	Walkway Construction			50	LF	\$12,500		\$625,000
	Underpinning			100	LF	\$4,500		\$450,000
	Miscellaneous Work			1	LS	\$0		\$0
	Upgrade existing electrical distribution system			1	LS	\$65,000		\$65,000
	Upgrade existing emergency dist. System			1	LS	\$10,000		\$10,000
	Lighting fixtures in extended walkway			25	EA	\$525		\$13,125
	Branch conduit/wiring for lighting			1,500	LF	\$15		\$22,500
	Branch conduit/wiring for signage			800	LF	\$15		\$12,000
	Control wiring for escalators/elevator			1	LS	\$21,000		\$21,000
	Electrical feeders			1	LS	\$14,000		\$14,000
	Miscellaneous electrical work			1	LS	\$6,500		\$6,500
	Electrical feeders for mechanical equipment			1	LS	\$9,500		\$9,500
	Lighting fixtures in new retail lobby			80	EA	\$525		\$42,000
	Fire alarm conduit/wire for extended part of walkway			1	LS	\$4,500		\$4,500
	Fire alarm devices in extended part of the walkway			1	LS	\$2,200		\$2,200
	Security and PA system			1	LS	\$20,000		\$20,000
	Air handling units for extended walkway			1	EA	\$25,000		\$25,000
	Sprinkler heads for extended part of walkway			20	EA	\$650		\$13,000
	Lighting work in finished part of the walkway allowance			1	LS	\$175,000		\$175,000
	Electrical distribution system work in partially finished part of the walkway			1	LS	\$75,000		\$75,000
	Ductwork/piping/accessories for HVAC system			1	LS	\$25,000		\$25,000
	Allowance for miscellaneous HVAC work in partially finished part of the walkway			1	LS	\$10,000		\$10,000
	Allowance for sprinkler work in partially complete part of the walkway to H street			1	LS	\$45,000		\$45,000

Rec Code	Description	Area	Prelim Cost	Quantity	Unit	Unit Cost	Other Cost Explanation	Total Estimated Cost
	New retails/kiosks in new lobby			3	EA	\$40,000	If items relating to lobby are removed, these will need to go	\$0
	HVAC work in new retail lobby including the air distribution and ductwork allowance			1	LS	\$150,000	If items relating to lobby are removed, these will need to go	\$0
	Fire alarm work for new retail lobby allowance			1	LS	\$65,000	If items relating to lobby are removed, these will need to go	\$0
	Miscellaneous MEP work			1	LS	\$25,000	If items relating to lobby are removed, these will need to go	\$0
	LESS BASIC CIVIL & ARCHITECTURAL WORK (apply to First Street Lobby instead???)			28,025	SF	-\$150		-\$4,203,750
	SUBTOTAL							\$1,850,325
	(Details)							
<b>D-2</b>	<b>First Street Lobby</b>	<b>H Street -- Area D</b>	<b>\$5,035,000</b>					
	Basic Civil & Architectural Work			28,500	SF	\$150	Changed from 28025 SF as in the North Pedestrian Walkway estimate	\$4,275,000
	New retails/kiosks in new lobby			3	EA	\$40,000	Taken from North Pedestrian Walkway estimate	\$120,000
	HVAC work in new retail lobby including the air distribution and ductwork allowance			1	LS	\$150,000	Taken from North Pedestrian Walkway estimate	\$150,000
	Fire alarm work for new retail lobby allowance			1	LS	\$65,000	Taken from North Pedestrian Walkway estimate	\$65,000
	Miscellaneous MEP work			1	LS	\$25,000	Taken from North Pedestrian Walkway estimate	\$25,000
	Some sort of vertical transportation			1	LS	\$400,000		\$400,000
	SUBTOTAL							\$5,035,000
	(Details)							
<b>D-3</b>	<b>Incorporate Streetcar into H Street</b>	<b>H Street -- Area D</b>	<b>\$5,291,600</b>					
	- Track construction			6,200	LF	\$418		\$2,591,600
	- Maintenance and storage facility			1	LS	\$2,700,000		\$2,700,000



Rec Code	Description	Area	Prelim Cost	Quantity	Unit	Unit Cost	Other Cost Explanation	Total Estimated Cost
	SUBTOTAL							\$5,291,600
	(Details)							
<b>D-4</b>	<b>Emergency Egress at H Street</b>	<b>H Street -- Area D</b>	<b>\$4,986,510</b>					
	- Escalators from lower level platform							
	--Escalator (30' rise)			1	EA	\$600,000		\$600,000
	--Excavation (per 30' rise escalator)			650	CY	\$35		\$22,750
	--Hard surface excavation (per 30' rise escalator)			22	CY	\$120		\$2,640
	--Footing concrete (per 30' rise escalator)			40	CY	\$500		\$20,000
	--Wall concrete (per 30' rise escalator)			186	CY	\$480		\$89,280
	--Reinforcing steel (per 30' rise escalator)			80,000	Lb	\$1		\$120,000
	--- SUBTOTAL (per escalator)							\$854,670
	--- SUBTOTAL (provide (2) 30' rise escalators from lower level tracks)					\$854,670		\$1,709,340
	- Escalators from upper level platform							
	--Escalator (40' rise)			1		\$700,000		\$700,000
	--Excavation (per 40' rise escalator)			1,100		\$35		\$38,500
	--Hard surface excavation (per 40' rise escalator)			22		\$120		\$2,640
	--Footing concrete (per 40' rise escalator)			50		\$500		\$25,000
	--Wall concrete (per 40' rise escalator)			300		\$480		\$144,000
	--Reinforcing steel (per 40' rise escalator)			121,500		\$1		\$182,250
	--- SUBTOTAL (per escalator)							\$1,092,390
	--- SUBTOTAL (provide (3) 40' rise escalators from upper level tracks)					\$1,092,390		\$3,277,170
	Subtotal							\$4,986,510
	(Details)							
<b>D-5</b>	<b>Facilities Improvements at H Street</b>	<b>H Street -- Area D</b>	<b>\$12,868,000</b>					
	Allowance for cleanup			1	LS	\$58000		\$58,000
	Structural and Architectural Improvements			70,000	sf	\$166		\$11,620,000
	Mechanical Work			1	LS	\$490,000		\$490,000
	Electrical Work			1	LS	\$350,000		\$350,000
	Fire Life Safety Elements			1	LS	\$350,000		\$350,000
	-H St tunnel upgrades SUBTOTAL							\$12,868,000
	(Details)							
<b>E-1</b>	<b>Catenary for Platforms 8-9 / High Level Platform for Tracks 25-26</b>	<b>Tracks/Parking Garage -- Area E</b>	<b>\$320,000</b>					
	Track 8			1,700	ft	\$100		\$170,000

Rec Code	Description	Area	Prelim Cost	Quantity	Unit	Unit Cost	Other Cost Explanation	Total Estimated Cost
	Track 9			1,500	ft	\$100		\$150,000
	SUBTOTAL							\$320,000
	(Details)							
<b>E-2</b>	<b>High level platforms for Tracks 25-26</b>	<b>Tracks/Parking Garage -- Area E</b>	\$540,288					
	High level platform			50,400	SF	\$10.72		\$540,288
	SUBTOTAL							\$540,288
	(Details)							
<b>E-3</b>	<b>Intercity Bus Connections</b>	<b>Tracks/Parking Garage -- Area E</b>	\$2,479,170					
	Civil Structural and Architectural Improvement			12,000	sf	\$166		\$1,992,000
	Mechanical Work			12,000	sf	\$7		\$84,000
	Electrical Work			12,000	sf	\$5		\$60,000
	Fire Life Safety Elements			12,000	sf	\$5		\$60,000
	--SUBTOTAL							\$2,196,000
	Site Prep Labor							
	-Clean-up							
	--Crew			160	M-hr	\$40		\$6,400
	--Trucks			48	Hr	\$120		\$5,760
	---SUBTOTAL							\$12,160
	-Paving / Deck Extension							
	--Pavement - PCC slab extension			60	CY	\$820		\$49,200
	-- Sidewalks			75	CY	\$50		\$3,750
	-- PCC curb			5	CY	\$350		\$1,750
	--Pavement markings			4,248	LF	\$1		\$5,310
	---SUBTOTAL							\$60,010
	-Signing							
	Dynamic Signage Allowance				ls			200000
	--Signs			120	SF	\$50		\$6,000
	--Posts			100	ft	\$50		\$5,000
	---SUBTOTAL							\$211,000



Rec Code	Description	Area	Prelim Cost	Quantity	Unit	Unit Cost	Other Cost Explanation	Total Estimated Cost
	SUBTOTAL							\$2,479,170
	(Details)							
*	Northeast Corridor Electrification South of the Station	Other	\$43,145,800					
	Electrification South of Station							
	Track 1			5	mile	\$630,000		\$3,150,000
	Track 2			4	mile	\$630,000		\$2,709,000
	Track 3			4	mile	\$630,000		\$2,709,000
	--SUBTOTAL							\$8,568,000
	Locomotive Exchange Yard Facilities							
	Track			3	mile	\$950,000		\$3,230,000
	Electrification			3	mile	\$630,000		\$2,142,000
	Turnouts			22	each	\$300,000		\$6,600,000
	Sitework			94	acre	\$10,700		\$1,005,800
	Loco. Facility			100,000	sft	\$200		\$20,000,000
	Roads, Parking			5,000	foot	\$200		\$1,000,000
	Fuel, Sanding			1	each	\$600,000		\$600,000
	--SUBTOTAL							\$34,577,800
	SUBTOTAL							\$43,145,800
	(Details)							
*	Implement TOD Principles	Other	\$300,000					
*	Signage Program		\$720,000					
	<b>Subtotal of Program Costs</b>		<b>\$121,533,318</b>					
	<b>Contingency for Engineering and other soft costs</b>		<b>\$42,284,661</b>					
	<b>Total</b>		<b>\$163,097,979</b>					

