



APPENDIX C

Trail Segment Costs



MBSST Network: Master Plan

COST ESTIMATE - ALL SEGMENTS

9-Oct-2013

			SEGMENT 1		SEGMENT 2		SEGMENT 3		SEGMENT 4		SEGMENT 4A		SEGMENT 4B	
			5,600 LF / 1.06 MI		25,170 LF / 4.77 MI		5,870 LF / 1.11 MI		7,300 LF / 1.38 MI		7,470 LF / 1.41 MI		4,510 LF / 0.85 MI	
			SEGMENT LENGTH											
TYPE	UNIT	COST	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total
Rail Trail														
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162							3,520	\$570,240				
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405												
Multi-Use Paved (Class I)/Unpaved Path (12' paved, with 6' DG path): moderate terrain, drainage, utilities	LF	\$180												
SUBTOTAL			0	\$0	0	\$0	0	\$0	3,520	\$570,240	0	\$0	0	\$0
Coastal Trail														
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162					5,870	\$950,940	3,780	\$612,360				
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405												
Unpaved Trail (native soil); 6' - 8' wide, level terrain	LF	\$7	800	\$5,600							7,470	\$52,290		
Unpaved Trail (native soil); 10' - 12' wide on existing road	LF	\$11	200	\$2,200										
Class II Bike Lanes	LF	\$20											4,510	\$90,200
Class III Bike Route, wayfinding signage	LF	\$6	4,600	\$27,600	25,170	\$151,020								
SUBTOTAL			5,600	\$35,400	25,170	\$151,020	5,870	\$950,940	3,780	\$612,360	7,470	\$52,290	4,510	\$90,200
Bridge Structures														
Modified Existing Bridge	EA	Varies												
New Pre-Engineered Bridge	EA	Varies					1	\$400,000						
SUBTOTAL			0	\$0	0	\$0	1	\$400,000	0	\$0	0	\$0	0	\$0
Trail Amenities														
Trailhead signage	EA	\$4,000	1	\$4,000	2	\$8,000								
Interpretive signage	EA	\$500	3	\$1,500	2	\$1,000								
Wayfinding signage	Allow/Mile	\$2,500	1.1	\$2,750	5.0	\$12,500	1.1	\$2,750	1.4	\$3,500				
Emergency locator system signage (rail trail only)	Allow/Mile	\$3,000	1.1	\$3,300	5.0	\$15,000	1.1	\$3,300	1.4	\$4,200				
Bike rack	EA	\$1,000	2	\$2,000	2	\$2,000								
Bench	EA	\$1,500	2	\$3,000	2	\$3,000	1	\$1,500						
Shade structure with bench	EA	\$15,000	1	\$15,000										
Fencing	LF	\$40					5,883	\$235,320	2,640	\$105,600				
Lighting (at bridges/crossings within urban segments)	Each Xing	\$25,000												
Restroom	EA	\$30,000												
SUBTOTAL				\$31,550		\$41,500		\$242,870		\$113,300		\$0		\$0
Staging Area Access														
Trailhead, small (10 cars)	EA	\$30,000												
Trailhead, medium (20 cars), portable restroom	EA	\$50,000												
Trailhead, large (30 cars), restroom, drinking fountain	EA	\$80,000												
SUBTOTAL			0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Rail Track and Street Crossings														
Type A: Tie into railroad control cab, ped gates, barriers, roadway treatments	EA	\$250,000												
Type B: Traffic signal modification with new crosswalk, ped equipment, loops, striping	EA	\$50,000												
Type C: HAWK including all elec and striping/signing	EA	\$150,000							1	\$150,000				
Type D: Active Enhanced Midblock, either IRWL or overhead, pbb, yield marks, signs, path controls	EA	\$100,000												
Type E: Passive Enhanced Midblock, with yield marks, signs, crosswalk, path controls	EA	\$25,000												
Type F: Standard Midblock with signs, crosswalk, path controls	EA	\$20,000							2	\$40,000				
Type G: Traffic Calming Measures, medians or curb extensions, warning signs, crosswalk	EA	\$80,000												
Type H: Connection Facilities, with redirected path to ex xwalk and bike lanes or sharrows	EA	\$60,000												
Type I: Rail xing w/out rr signal mods, with barriers at tracks/path, roadway xing signs/markings, path yields	EA	\$40,000							1	\$40,000				
Type J: Standard Private Crossing, with stops for local road crossing and path yield signs or marks*	EA	\$10,000							1	\$10,000				
SUBTOTAL			0	\$0	0	\$0	0	\$0	5	\$240,000	0	\$0	0	\$0
SEGMENT TOTALS			\$66,950	\$192,520	\$1,593,810	\$1,535,900	\$52,290	\$90,200						
CONSTRUCTION COST TOTAL			\$66,950	\$192,520	\$1,593,810	\$1,535,900	\$52,290	\$90,200						
DESIGN, ENGINEERING AND PS&E (15%)			\$10,043	\$28,878	\$239,072	\$230,385	\$7,844	\$13,530						
ENVIRONMENTAL PERMITTING (10%)			\$6,695	\$19,252	\$159,381	\$153,590	\$5,229	\$9,020						
CONSTRUCTION MANAGEMENT (15%)			\$10,043	\$28,878	\$239,072	\$230,385	\$7,844	\$13,530						
CONTINGENCY (20%)			\$13,390	\$38,504	\$318,762	\$307,180	\$10,458	\$18,040						
COMBINED CONSTRUCTION/SUPPORT COST TOTAL			\$107,120	\$308,032	\$2,550,096	\$2,457,440	\$83,664	\$144,320						
SEGMENT AGGREGATED TOTAL			\$107,120	\$308,032	\$2,550,096	\$2,685,424								

Note: *The maps show PUC designated crossings and may not reflect all private crossings.

MBSST Network: Master Plan

COST ESTIMATE - ALL SEGMENTS

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			SEGMENT 5.1		SEGMENT 5.2		SEGMENT 5.3		SEGMENT 5A		SEGMENT 5B		SEGMENT 5C		SEGMENT 5D		SEGMENT 5E		SEGMENT 5F	
			7,890 LF / 1.49 MI		13,630 LF / 2.58 MI		18,520 LF / 3.51 MI		580 LF / 0.11 MI		3,390 LF / 0.64 MI		2,710 LF / 0.51 MI		7,280 LF / 1.38 MI		1,150 LF / 0.22 MI		570 LF / 0.11 MI	
			SEGMENT LENGTH																	
TYPE	UNIT	COST	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total
Rail Trail																				
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162	7,890	\$1,278,180	13,630	\$2,208,060	18,520	\$3,000,240												
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405																		
Multi-Use Paved (Class I)/Unpaved Path (12' paved, with 6' DG path): moderate terrain, drainage, utilities	LF	\$180																		
SUBTOTAL			7,890	\$1,278,180	13,630	\$2,208,060	18,520	\$3,000,240	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Coastal Trail																				
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162																		
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405																		
Unpaved Trail (native soil); 6' - 8' wide, level terrain	LF	\$7							580	\$4,060	3,390	\$23,730	2,710	\$18,970	7,820	\$54,740	1,150	\$8,050	570	\$3,990
Unpaved Trail (native soil); 10' - 12' wide on existing road	LF	\$11																		
Class II Bike Lanes	LF	\$20																		
Class III Bike Route, wayfinding signage	LF	\$6																		
SUBTOTAL			0	\$0	0	\$0	0	\$0	580	\$4,060	3,390	\$23,730	2,710	\$18,970	7,820	\$54,740	1,150	\$8,050	570	\$3,990
Bridge Structures																				
Modified Existing Bridge	EA	Varies																		
New Pre-Engineered Bridge	EA	Varies																		
SUBTOTAL			0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Trail Amenities																				
Trailhead signage	EA	\$4,000	1	\$4,000	1	\$4,000	2	\$8,000												
Interpretive signage	EA	\$500			2	\$1,000	3	\$1,500												
Wayfinding signage	Allow/Mile	\$2,500	1.5	\$3,750	2.6	\$6,500	3.5	\$8,750												
Emergency locator system signage (rail trail only)	Allow/Mile	\$3,000	1.5	\$4,500	2.6	\$7,800	3.5	\$10,500												
Bike rack	EA	\$1,000	2	\$2,000	2	\$2,000	4	\$4,000												
Bench	EA	\$1,500	3	\$4,500	4	\$6,000	3	\$4,500												
Shade structure with bench	EA	\$15,000																		
Fencing	LF	\$40			13,628	\$545,120	18,520	\$740,800												
Lighting (at bridges/crossings within urban segments)	Each Xing	\$25,000																		
Restroom	EA	\$30,000																		
SUBTOTAL				\$18,750		\$572,420		\$778,050		\$0		\$0		\$0		\$0		\$0		\$0
Staging Area Access																				
Trailhead, small (10 cars)	EA	\$30,000																		
Trailhead, medium (20 cars), portable restroom	EA	\$50,000																		
Trailhead, large (30 cars), restroom, drinking fountain	EA	\$80,000																		
SUBTOTAL			0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Rail Track and Street Crossings																				
Type A: Tie into railroad control cab, ped gates, barriers, roadway treatments	EA	\$250,000	3	\$750,000	1	\$250,000	1	\$250,000												
Type B: Traffic signal modification with new crosswalk, ped equipment, loops, striping	EA	\$50,000																		
Type C: HAWK including all elec and striping/signing	EA	\$150,000																		
Type D: Active Enhanced Midblock, either IRWL or overhead, pgb, yield marks, signs, path controls	EA	\$100,000																		
Type E: Passive Enhanced Midblock, with yield marks, signs, crosswalk, path controls	EA	\$25,000																		
Type F: Standard Midblock with signs, crosswalk, path controls	EA	\$20,000																		
Type G: Traffic Calming Measures, medians or curb extensions, warning signs, crosswalk	EA	\$80,000																		
Type H: Connection Facilities, with redirected path to ex xwalk and bike lanes or sharrowes	EA	\$60,000																		
Type I: Rail xing w/out rr signal mods, with barriers at tracks/path, roadway xing signs/markings, path yields	EA	\$40,000																		
Type J: Standard Private Crossing, with stops for local road crossing and path yield signs or marks*	EA	\$10,000	1	\$10,000	3	\$30,000	12	\$120,000												
SUBTOTAL			4	\$760,000	4	\$280,000	13	\$370,000	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Note: *The maps show PUC designated crossings and may not reflect all private crossings.																				
			SEGMENT 5.1		SEGMENT 5.2		SEGMENT 5.3		SEGMENT 5A		SEGMENT 5B		SEGMENT 5C		SEGMENT 5D		SEGMENT 5E		SEGMENT 5F	
			TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
SEGMENT TOTALS			\$2,056,930		\$3,060,480		\$4,148,290		\$4,060		\$23,730		\$18,970		\$54,740		\$8,050		\$3,990	
CONSTRUCTION COST TOTAL			\$2,056,930		\$3,060,480		\$4,148,290		\$4,060		\$23,730		\$18,970		\$54,740		\$8,050		\$3,990	
DESIGN, ENGINEERING AND PS&E (15%)			\$308,540		\$459,072		\$622,244		\$609		\$3,560		\$2,846		\$8,211		\$1,208		\$599	
ENVIRONMENTAL PERMITTING (10%)			\$205,693		\$306,048		\$414,829		\$406		\$2,373		\$1,897		\$5,474		\$805		\$399	
CONSTRUCTION MANAGEMENT (15%)			\$308,540		\$459,072		\$622,244		\$609		\$3,560		\$2,846		\$8,211		\$1,208		\$599	
CONTINGENCY (20%)			\$411,386		\$612,096		\$829,658		\$812		\$4,746		\$3,794		\$10,948		\$1,610		\$798	
COMBINED CONSTRUCTION/SUPPORT COST TOTAL			\$3,291,088		\$4,896,768		\$6,637,264		\$6,496		\$37,968		\$30,352		\$87,584		\$12,880		\$6,384	
SEGMENT AGGREGATED TOTAL			\$15,006,784																	



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				SEGMENT 6		SEGMENT 6A		SEGMENT 7		SEGMENT 7A		SEGMENT 8		SEGMENT 9		SEGMENT 9A		SEGMENT 9B				
				SEGMENT LENGTH		7,160 LF / 1.36 MI		670 LF / 0.13 MI		11,450 LF / 2.17 MI		4,480 LF / 0.85 MI		4,070 LF / 0.77 MI		8,100 LF / 1.53 MI		310 LF / 0.06 MI		730 LF / 0.14 MI		
TYPE				UNIT	COST	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	
Rail Trail																						
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities				LF	\$162	7,160	\$1,159,920			11,450	\$1,854,900					6,750	\$1,093,500					
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities				LF	\$405											1,350	\$546,750					
Multi-Use Paved (Class I)/Unpaved Path (12' paved, with 6' DG path): moderate terrain, drainage, utilities				LF	\$180																	
SUBTOTAL						7,160	\$1,159,920	0	\$0	11,450	\$1,854,900	0	\$0	0	\$0	8,100	\$1,640,250	0	\$0	0	\$0	
Coastal Trail																						
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities				LF	\$162							4,480	\$725,760									
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities				LF	\$405																	
Unpaved Trail (native soil); 6' - 8' wide, level terrain				LF	\$7																	
Unpaved Trail (native soil); 10' - 12' wide on existing road				LF	\$11			670	\$7,370													
Class II Bike Lanes				LF	\$20									2,000	\$40,000							
Class III Bike Route, wayfinding signage				LF	\$6													310	\$1,860	730	\$4,380	
SUBTOTAL						0	\$0	670	\$7,370	0	\$0	4,480	\$725,760	2,000	\$40,000	0	\$0	310	\$1,860	730	\$4,380	
Bridge Structures																						
Modified Existing Bridge				EA	Varies																	
New Pre-Engineered Bridge				EA	Varies					1	\$2,500,000			1	\$6,000,000	3	\$5,000,000					
SUBTOTAL						0	\$0	0	\$0	1	\$2,500,000	0	\$0	1	\$6,000,000	3	\$5,000,000	0	\$0	0	\$0	
Trail Amenities																						
Trailhead signage				EA	\$4,000					1	\$4,000			1	\$4,000	1	\$4,000					
Interpretive signage				EA	\$500																	
Wayfinding signage				Allow/Mile	\$2,500	1.4	\$3,500															
Emergency locator system signage (rail trail only)				Allow/Mile	\$3,000	1.4	\$4,200			2.2	\$6,600			0.8	\$2,400	1.5	\$4,500					
Bike rack				EA	\$1,000											2	\$2,000					
Bench				EA	\$1,500											3	\$4,500					
Shade structure with bench				EA	\$15,000											1	\$15,000					
Fencing				LF	\$40	7,160	\$286,400			3,000	\$120,000					1,500	\$60,000					
Lighting (at bridges/crossings within urban segments)				Each Xing	\$25,000	7	\$175,000			18	\$450,000			2	\$50,000	6	\$150,000					
Restroom				EA	\$30,000																	
SUBTOTAL							\$469,100	\$0		\$580,600	\$0		\$56,400		\$240,000		\$0					\$0
Staging Area Access																						
Trailhead, small (10 cars)				EA	\$30,000																	
Trailhead, medium (20 cars), portable restroom				EA	\$50,000																	
Trailhead, large (30 cars), restroom, drinking fountain				EA	\$80,000					1	\$80,000											
SUBTOTAL						0	\$0	0	\$0	1	\$80,000	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	
Rail Track and Street Crossings																						
Type A: Tie into railroad control cab, ped gates, barriers, roadway treatments				EA	\$250,000	1	\$250,000			3	\$750,000			1	\$250,000	1	\$250,000					
Type B: Traffic signal modification with new crosswalk, ped equipment, loops, striping				EA	\$50,000									2	\$100,000	1	\$50,000					
Type C: HAWK including all elec and striping/signing				EA	\$150,000																	
Type D: Active Enhanced Midblock, either IRWL or overhead, ppb, yield marks, signs, path controls				EA	\$100,000											2	\$200,000					
Type E: Passive Enhanced Midblock, with yield marks, signs, crosswalk, path controls				EA	\$25,000					10	\$250,000											
Type F: Standard Midblock with signs, crosswalk, path controls				EA	\$20,000	1	\$20,000									1	\$20,000					
Type G: Traffic Calming Measures, medians or curb extensions, warning signs, crosswalk				EA	\$80,000					1	\$80,000											
Type H: Connection Facilities, with redirected path to ex xwalk and bike lanes or sharrows				EA	\$60,000					3	\$180,000											
Type I: Rail xing w/out rr signal mods, with barriers at tracks/path, roadway xing signs/markings, path yields				EA	\$40,000											1	\$40,000					
Type J: Standard Private Crossing, with stops for local road crossing and path yield signs or marks*				EA	\$10,000	4	\$40,000			1	\$10,000											
SUBTOTAL						6	\$310,000	0	\$0	18	\$1,270,000	0	\$0	3	\$350,000	6	\$560,000	0	\$0	0	\$0	
Note: *The maps show PUC designated crossings and may not reflect all private crossings.																						
				SEGMENT 6		SEGMENT 6A		SEGMENT 7		SEGMENT 7B		SEGMENT 8		SEGMENT 9		SEGMENT 9A		SEGMENT 9B				
				TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL				
SEGMENT TOTALS				\$1,939,020		\$7,370		\$6,285,500		\$725,760		\$6,446,400		\$7,440,250		\$1,860		\$4,380				
CONSTRUCTION COST TOTAL				\$1,939,020		\$7,370		\$6,285,500		\$725,760		\$6,446,400		\$7,440,250		\$1,860		\$4,380				
DESIGN, ENGINEERING AND PS&E (15%)				\$290,853		\$1,106		\$942,825		\$108,864		\$966,960		\$1,116,038		\$279		\$657				
ENVIRONMENTAL PERMITTING (10%)				\$193,902		\$737		\$628,550		\$72,576		\$644,640		\$744,025		\$186		\$438				
CONSTRUCTION MANAGEMENT (15%)				\$290,853		\$1,106		\$942,825		\$108,864		\$966,960		\$1,116,038		\$279		\$657				
CONTINGENCY (20%)				\$387,804		\$1,474		\$1,257,100		\$145,152		\$1,289,280		\$1,488,050		\$372		\$876				
COMBINED CONSTRUCTION/SUPPORT COST TOTAL				\$3,102,432		\$11,792		\$10,056,800		\$1,161,216		\$10,314,240		\$11,904,400		\$2,976		\$7,008				
SEGMENT AGGREGATED TOTAL				\$3,114,224		\$11,792		\$10,056,800		\$1,161,216		\$10,314,240		\$11,914,384								

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			SEGMENT 10**		SEGMENT 11		SEGMENT 12		SEGMENT 13		SEGMENT 14		SEGMENT 15		SEGMENT 16		SEGMENT 16A		SEGMENT 16B	
			7,940 LF / 1.50 MI		16,880 LF / 3.20 MI		6,030 LF / 1.14 MI		4,510 LF / 0.85 MI		6,160 LF / 1.17 MI		7,240 LF / 1.37 MI		9,400 LF / 1.78 MI		2,100 LF / 0.40 MI		2,530 LF / 0.48 MI	
SEGMENT LENGTH																				
TYPE	UNIT	COST	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total
Rail Trail																				
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162			12,430	\$2,013,660	730	\$118,260	3,510	\$568,620	5,360	\$868,320	6,200	\$1,004,400	9,400	\$1,522,800				
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405	7,940	\$4,215,700	4,450	\$1,802,250	5,300	\$2,146,500	1,000	\$405,000	800	\$324,000	1,040	\$421,200						
Multi-Use Paved (Class I)/Unpaved Path (12' paved, with 6' DG path): moderate terrain, drainage, utilities	LF	\$180																		
SUBTOTAL			7,940	\$4,215,700	16,880	\$3,815,910	6,030	\$2,264,760	4,510	\$973,620	6,160	\$1,192,320	7,240	\$1,425,600	9,400	\$1,522,800	0	\$0	0	\$0
Coastal Trail																				
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162															2,100	\$340,200		
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405																		
Unpaved Trail (native soil); 6' - 8' wide, level terrain	LF	\$7																		
Unpaved Trail (native soil); 10' - 12' wide on existing road	LF	\$11																		
Class II Bike Lanes	LF	\$20																	2,530	\$50,600
Class III Bike Route, wayfinding signage	LF	\$6																		
SUBTOTAL			0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	2,100	\$340,200	2,530	\$50,600
Bridge Structures																				
Modified Existing Bridge	EA	Varies					1	\$600,000												
New Pre-Engineered Bridge	EA	Varies	1	\$450,000	2	\$400,000	3	\$3,000,000	1	\$1,000,000			2	\$1,450,000						
SUBTOTAL			1	\$450,000	2	\$400,000	4	\$3,600,000	1	\$1,000,000	0	\$0	2	\$1,450,000	0	\$0	0	\$0	0	\$0
Trail Amenities																				
Trailhead signage	EA	\$4,000	2	\$8,000	2	\$8,000	1	\$4,000			1	\$4,000								
Interpretive signage	EA	\$500																		
Wayfinding signage	Allow/Mile	\$2,500	1.5	\$3,750	3.2	\$8,000	1.1	\$2,750							1.8	\$4,500				
Emergency locator system signage (rail trail only)	Allow/Mile	\$3,000	1.5	\$4,500	3.2	\$9,600	1.1	\$3,300	0.9	\$2,700	1.2	\$3,600	1.4	\$4,200	1.8	\$5,400				
Bike rack	EA	\$1,000			6	\$6,000														
Bench	EA	\$1,500			6	\$9,000														
Shade structure with bench	EA	\$15,000																		
Fencing	LF	\$40	15,880	\$635,200	5,280	\$211,200	3,000	\$120,000												
Lighting (at bridges/crossings within urban segments)	Each Xing	\$25,000	6	\$150,000	12	\$300,000	12	\$300,000												
Restroom	EA	\$30,000																		
SUBTOTAL				\$801,450		\$551,800		\$430,050		\$2,700		\$7,600		\$4,200		\$9,900		\$0		\$0
Staging Area Access																				
Trailhead, small (10 cars)	EA	\$30,000							1	\$30,000										
Trailhead, medium (20 cars), portable restroom	EA	\$50,000																		
Trailhead, large (30 cars), restroom, drinking fountain	EA	\$80,000																		
SUBTOTAL			0	\$0	0	\$0	0	\$0	1	\$30,000	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Rail Track and Street Crossings																				
Type A: Tie into railroad control cab, ped gates, barriers, roadway treatments	EA	\$250,000	1	\$250,000	2	\$500,000	1	\$250,000						1	\$250,000					
Type B: Traffic signal modification with new crosswalk, ped equipment, loops, striping	EA	\$50,000					1	\$50,000												
Type C: HAWK including all elec and striping/signing	EA	\$150,000	2	\$300,000			1	\$150,000												
Type D: Active Enhanced Midblock, either IRWL or overhead, pgb, yield marks, signs, path controls	EA	\$100,000			1	\$100,000														
Type E: Passive Enhanced Midblock, with yield marks, signs, crosswalk, path controls	EA	\$25,000	2	\$50,000	1	\$25,000	1	\$25,000						1	\$25,000					
Type F: Standard Midblock with signs, crosswalk, path controls	EA	\$20,000									2	\$40,000								
Type G: Traffic Calming Measures, medians or curb extensions, warning signs, crosswalk	EA	\$80,000																		
Type H: Connection Facilities, with redirected path to ex walk and bike lanes or sharrowes	EA	\$60,000			2	\$120,000			1	\$60,000	1	\$60,000			1	\$60,000				
Type I: Rail xing w/out rr signal mods, with barriers at tracks/path, roadway xing signs/markings, path yields	EA	\$40,000											1	\$40,000						
Type J: Standard Private Crossing, with stops for local road crossing and path yield signs or marks*	EA	\$10,000			3	\$30,000							4	\$40,000						
SUBTOTAL			5	\$600,000	9	\$775,000	4	\$475,000	1	\$60,000	3	\$100,000	5	\$80,000	3	\$335,000	0	\$0	0	\$0
Notes: *The maps show PUC designated crossings and may not reflect all private crossings.																				
**Segment 10 Rail Trail cost includes \$1,000,000 for moving the tracks due to constrained ROW.																				
			SEGMENT 10		SEGMENT 11		SEGMENT 12		SEGMENT 13		SEGMENT 14		SEGMENT 15		SEGMENT 16		SEGMENT 16A		SEGMENT 16B	
			TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	
SEGMENT TOTALS			\$6,067,150		\$5,542,710		\$6,769,810		\$2,066,320		\$1,299,920		\$2,959,800		\$1,867,700		\$340,200		\$50,600	
CONSTRUCTION COST TOTAL			\$6,067,150		\$5,542,710		\$6,769,810		\$2,066,320		\$1,299,920		\$2,959,800		\$1,867,700		\$340,200		\$50,600	
DESIGN, ENGINEERING AND PS&E (15%)			\$910,073		\$831,407		\$1,015,472		\$309,948		\$194,988		\$443,970		\$280,155		\$51,030		\$7,590	
ENVIRONMENTAL PERMITTING (10%)			\$606,715		\$554,271		\$676,981		\$206,632		\$129,992		\$295,980		\$186,770		\$34,020		\$5,060	
CONSTRUCTION MANAGEMENT (15%)			\$910,073		\$831,407		\$1,015,472		\$309,948		\$194,988		\$443,970		\$280,155		\$51,030		\$7,590	
CONTINGENCY (20%)			\$1,213,430		\$1,108,542		\$1,353,962		\$413,264		\$259,984		\$591,960		\$373,540		\$68,040		\$10,120	
COMBINED CONSTRUCTION/SUPPORT COST TOTAL			\$9,707,440		\$8,868,336		\$10,831,696		\$3,306,112		\$2,079,872		\$4,735,680		\$2,988,320		\$544,320		\$80,960	
SEGMENT AGGREGATED TOTAL			\$9,707,440		\$8,868,336		\$10,831,696		\$3,306,112		\$2,079,872		\$4,735,680		\$3,613,600					



MBSST Network: Master Plan

COST ESTIMATE - ALL SEGMENTS

9-Oct-2013

				SEGMENT 17	SEGMENT 18	SEGMENT 18A	SEGMENT 18B	SEGMENT 19	SEGMENT 19A	SEGMENT 20		
				21,140 LF / 4.00 MI	6,350 LF / 1.20 MI	6,840 LF / 1.30 MI	7,980 LF / 1.51 MI	1,510 LF / 0.29 MI	950 LF / 0.18 MI	3,930 LF / 0.74 MI		
				SEGMENT LENGTH								
TYPE	UNIT	COST	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total	Qty.	Total
Rail Trail												
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162	10,540	\$1,707,480	6,350	\$1,028,700					3,930	\$636,660
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405	7,100	\$2,875,500								
Multi-Use Paved (Class I)/Unpaved Path (12' paved, with 6' DG path): moderate terrain, drainage, utilities	LF	\$180	3,500	\$630,000								
SUBTOTAL			21,140	\$5,212,980	6,350	\$1,028,700	0	\$0	0	\$0	0	\$0
Coastal Trail												
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162										
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405										
Unpaved Trail (native soil): 6' - 8' wide, level terrain	LF	\$7										
Unpaved Trail (native soil): 10' - 12' wide on existing road	LF	\$11										
Class II Bike Lanes	LF	\$20					6,840	\$136,800	7,980	\$159,600	950	\$19,000
Class III Bike Route, wayfinding signage	LF	\$6										
SUBTOTAL			0	\$0	0	\$0	6,840	\$136,800	7,980	\$159,600	0	\$0
Bridge Structures												
Modified Existing Bridge	EA	Varies										
New Pre-Engineered Bridge	EA	Varies	7	\$7,000,000							1	\$1,000,000
SUBTOTAL			7	\$7,000,000	0	\$0	0	\$0	0	\$0	0	\$0
Trail Amenities												
Trailhead signage	EA	\$4,000			1	\$4,000					1	\$4,000
Interpretive signage	EA	\$500										
Wayfinding signage	Allow/Mile	\$2,500	4.0	\$10,000							0.7	\$1,750
Emergency locator system signage (rail trail only)	Allow/Mile	\$3,000	4.0	\$12,000	1.2	\$3,600			0.5	\$1,500	0.7	\$2,100
Bike rack	EA	\$1,000										
Bench	EA	\$1,500										
Shade structure with bench	EA	\$15,000										
Fencing	LF	\$40	5,280	\$211,200	6,350	\$254,000			3,320	\$132,800	5,280	\$211,200
Lighting (at bridges/crossings within urban segments)	Each Xing	\$25,000			5	\$125,000			1	\$25,000	1	\$25,000
Restroom	EA	\$30,000			1	\$30,000						
SUBTOTAL				\$233,200		\$416,600		\$0		\$159,300		\$0
Staging Area Access												
Trailhead, small (10 cars)	EA	\$30,000										
Trailhead, medium (20 cars), portable restroom	EA	\$50,000										
Trailhead, large (30 cars), restroom, drinking fountain	EA	\$80,000										
SUBTOTAL			0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Rail Track and Street Crossings												
Type A: Tie into railroad control cab, ped gates, barriers, roadway treatments	EA	\$250,000										
Type B: Traffic signal modification with new crosswalk, ped equipment, loops, striping	EA	\$50,000										
Type C: HAWK including all elec and striping/signing	EA	\$150,000										
Type D: Active Enhanced Midblock, either IRWL or overhead, ppb, yield marks, signs, path controls	EA	\$100,000										
Type E: Passive Enhanced Midblock, with yield marks, signs, crosswalk, path controls	EA	\$25,000										
Type F: Standard Midblock with signs, crosswalk, path controls	EA	\$20,000			1	\$20,000						
Type G: Traffic Calming Measures, medians or curb extensions, warning signs, crosswalk	EA	\$80,000										
Type H: Connection Facilities, with redirected path to ex xwalk and bike lanes or sharrow	EA	\$60,000			2	\$120,000			1	\$60,000		
Type I: Rail xing w/out rr signal mods, with barriers at tracks/path, roadway xing signs/markings, path yields	EA	\$40,000										
Type J: Standard Private Crossing, with stops for local road crossing and path yield signs or marks*	EA	\$10,000	3	\$30,000								
SUBTOTAL			3	\$30,000	3	\$140,000	0	\$0	0	\$0	1	\$60,000
Note: *The maps show PUC designated crossings and may not reflect all private crossings.												
				SEGMENT 17	SEGMENT 18	SEGMENT 18A	SEGMENT 18B	SEGMENT 19	SEGMENT 19A	SEGMENT 20		
SEGMENT TOTALS				TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL		
CONSTRUCTION COST TOTAL				\$12,476,180	\$1,585,300	\$136,800	\$159,600	\$219,300	\$19,000	\$1,880,710		
DESIGN, ENGINEERING AND PS&E (15%)				\$1,871,427	\$237,795	\$20,520	\$23,940	\$32,895	\$2,850	\$282,107		
ENVIRONMENTAL PERMITTING (10%)				\$1,247,618	\$158,530	\$13,680	\$15,960	\$21,930	\$1,900	\$188,071		
CONSTRUCTION MANAGEMENT (15%)				\$1,871,427	\$237,795	\$20,520	\$23,940	\$32,895	\$2,850	\$282,107		
CONTINGENCY (20%)				\$2,495,236	\$317,060	\$27,360	\$31,920	\$43,860	\$3,800	\$376,142		
COMBINED CONSTRUCTION/SUPPORT COST TOTAL				\$19,961,888	\$2,536,480	\$218,880	\$255,360	\$350,880	\$30,400	\$3,009,136		
SEGMENT AGGREGATED TOTAL				\$19,961,888	\$2,536,480	\$218,880	\$255,360	\$350,880	\$30,400	\$3,009,136		

MBSST Network: Master Plan
 COST ESTIMATE - ALL SEGMENTS SUMMARY
 9-Oct-2013

			RAIL ONLY	RAIL ONLY	COASTAL ONLY	COASTAL ONLY	COMBINED	COMBINED
			QTY. TOTAL	COST TYPE TOTAL	QTY. TOTAL	COST TYPE TOTAL	QTY. TOTAL	COST TYPE TOTAL
TYPE	UNIT	COST						
Rail Trail								
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162	127,370	\$20,633,940	0	\$0	127,370	\$20,633,940
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405	28,980	\$12,736,900	0	\$0	28,980	\$12,736,900
Multi-Use Paved (Class I)/Unpaved Path (12' paved, with 6' DG path): moderate terrain, drainage, utilities	LF	\$180	3,500	\$630,000	0	\$0	3,500	\$630,000
SUBTOTAL			159,850	\$34,000,840	0	\$0	159,850	\$34,000,840
Coastal Trail								
Multi-Use Paved Path (Class I) (12' paved): moderate terrain, drainage, utilities	LF	\$162	0	\$0	16,230	\$2,629,260	16,230	\$2,629,260
Multi-Use Paved Path (Class I) (12' paved): difficult terrain, retaining walls, drainage, utilities	LF	\$405	0	\$0	0	\$0	0	\$0
Unpaved Trail (native soil); 6' - 8' wide, level terrain	LF	\$7	0	\$0	24,490	\$171,430	24,490	\$171,430
Unpaved Trail (native soil); 10' - 12' wide on existing road	LF	\$11	0	\$0	870	\$9,570	870	\$9,570
Class II Bike Lanes	LF	\$20	0	\$0	24,810	\$496,200	24,810	\$496,200
Class III Bike Route, wayfinding signage	LF	\$6	0	\$0	30,810	\$184,860	30,810	\$184,860
SUBTOTAL			0	\$0	97,210	\$3,491,320	97,210	\$3,491,320
Bridge Structures								
Modified Existing Bridge	EA	Varies	1	\$600,000	0	\$0	1	\$600,000
New Pre-Engineered Bridge	EA	Varies	23	\$28,200,000	0	\$0	23	\$28,200,000
SUBTOTAL			24	\$28,800,000	0	\$0	24	\$28,800,000
Trail Amenities								
Trailhead signage	EA	\$4,000	18	\$72,000	0	\$0	18	\$72,000
Interpretive signage	EA	\$500	10	\$5,000	0	\$0	10	\$5,000
Wayfinding signage	Allow/Mile	\$2,500	30	\$74,750	0	\$0	30	\$74,750
Emergency locator system signage (rail trail only)	Allow/Mile	\$3,000	39.6	\$118,800	0	\$0	39.6	\$118,800
Bike rack	EA	\$1,000	20	\$20,000	0	\$0	20	\$20,000
Bench	EA	\$1,500	24	\$36,000	0	\$0	24	\$36,000
Shade structure with bench	EA	\$15,000	2	\$30,000	0	\$0	2	\$30,000
Fencing	LF	\$40	96,721	\$3,868,840	0	\$0	96,721	\$3,868,840
Lighting (at bridges/crossings within urban segments)	Each Xing	\$25,000	70	\$1,750,000	0	\$0	70	\$1,750,000
Restroom	EA	\$30,000	1	\$30,000	0	\$0	1	\$30,000
SUBTOTAL				\$6,005,390		\$0		\$6,005,390
Staging Area Access								
Trailhead, small (10 cars)	EA	\$30,000	0	\$0	1	\$30,000	1	\$30,000
Trailhead, medium (20 cars), portable restroom	EA	\$50,000	0	\$0	0	\$0	0	\$0
Trailhead, large (30 cars), restroom, drinking fountain	EA	\$80,000	0	\$0	1	\$80,000	1	\$80,000
SUBTOTAL			0	\$0	2	\$110,000	2	\$110,000
Rail Track and Street Crossings								
Type A: Tie into railroad control cab, ped gates, barriers, roadway treatments	EA	\$250,000	16	\$4,000,000	0	\$0	16	\$4,000,000
Type B: Traffic signal modification with new crosswalk, ped equipment, loops, striping	EA	\$50,000	4	\$200,000	0	\$0	4	\$200,000
Type C: HAWK including all elec and striping/signing	EA	\$150,000	4	\$600,000	0	\$0	4	\$600,000
Type D: Active Enhanced Midblock, either IRWL or overhead, ppb, yield marks, signs, path controls	EA	\$100,000	3	\$300,000	0	\$0	3	\$300,000
Type E: Passive Enhanced Midblock, with yield marks, signs, crosswalk, path controls	EA	\$25,000	15	\$375,000	0	\$0	15	\$375,000
Type F: Standard Midblock with signs, crosswalk, path controls	EA	\$20,000	7	\$140,000	0	\$0	7	\$140,000
Type G: Traffic Calming Measures, medians or curb extensions, warning signs, crosswalk	EA	\$80,000	1	\$80,000	0	\$0	1	\$80,000
Type H: Connection Facilities, with redirected path to ex xwalk and bike lanes or sharrow	EA	\$60,000	11	\$660,000	0	\$0	11	\$660,000
Type I: Rail xing w/out rr signal mods, with barriers at tracks/path, roadway xing signs/markings, path yields	EA	\$40,000	3	\$120,000	0	\$0	3	\$120,000
Type J: Standard Private Crossing, with stops for local road crossing and path yield signs or marks*	EA	\$10,000	32	\$320,000	0	\$0	32	\$320,000
SUBTOTAL			96	\$6,795,000	0	\$0	96	\$6,795,000
Note: *The maps show PUC designated crossings and may not reflect all private crossings.								
SEGMENT TOTALS								
CONSTRUCTION COST TOTAL				\$75,601,230		\$3,601,320		\$79,202,550
DESIGN, ENGINEERING AND PS&E (15%)				\$11,340,185		\$540,198		\$11,880,383
ENVIRONMENTAL PERMITTING (10%)				\$7,560,123		\$360,132		\$7,920,255
CONSTRUCTION MANAGEMENT (15%)				\$11,340,185		\$540,198		\$11,880,383
CONTINGENCY (20%)				\$15,120,246		\$720,264		\$15,840,510
COMBINED CONSTRUCTION/SUPPORT COST TOTAL				\$120,961,968		\$5,762,112		\$126,724,080
SEGMENT AGGREGATED TOTAL				\$120,961,968		\$5,762,112		\$126,724,080