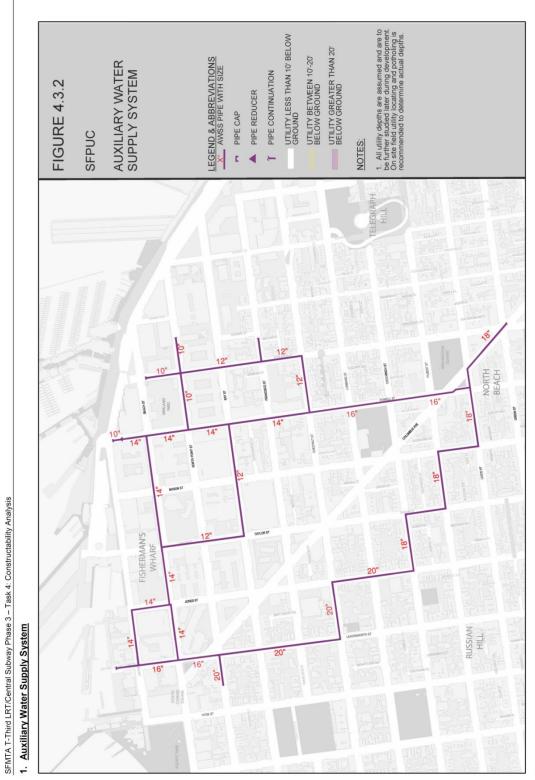
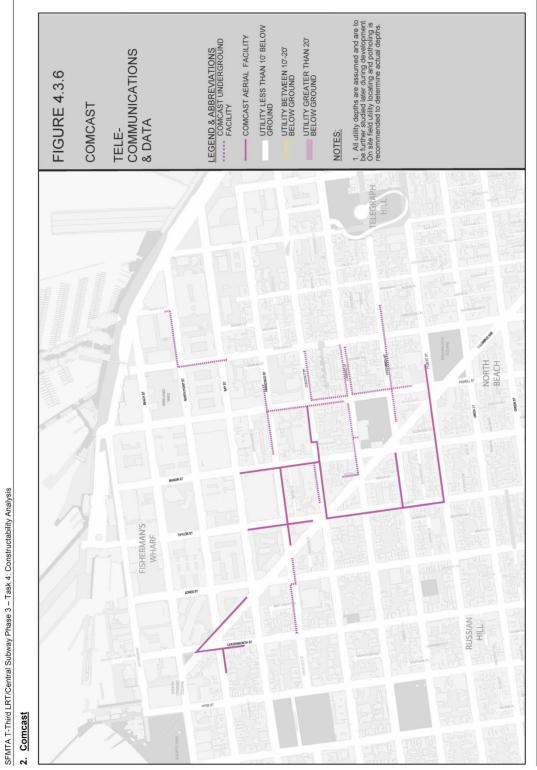
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Appendix B Utility Maps

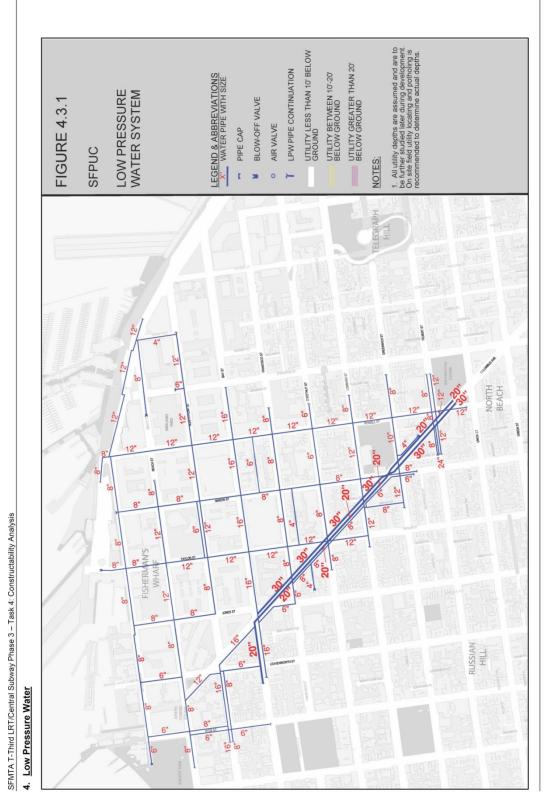
SFMTA T-Third LRT/Central Subway Phase 3 - Task 4: Constructability Analysis

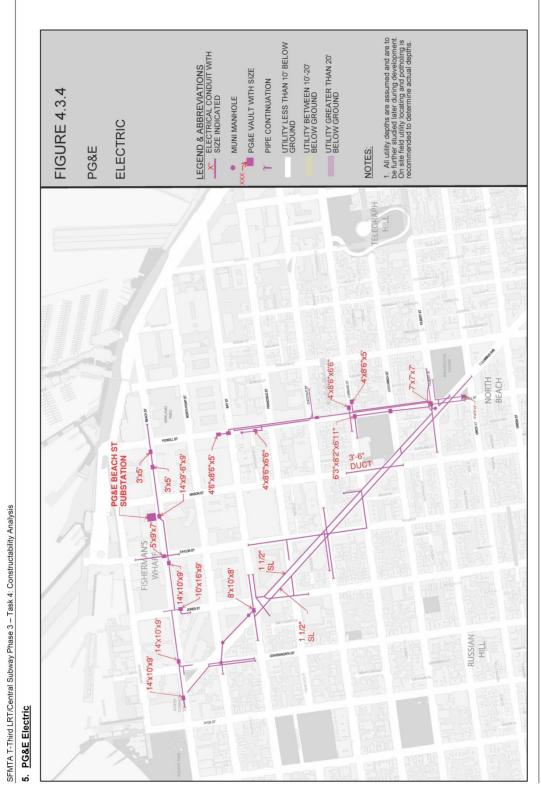




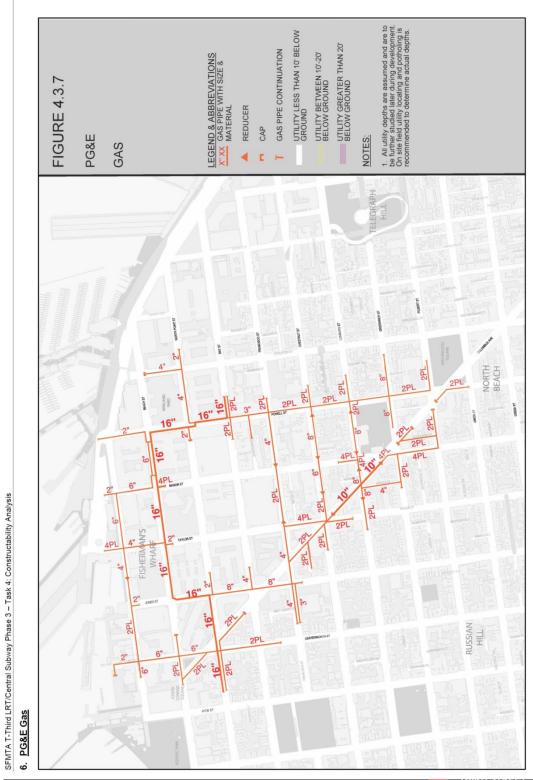


XXX CS PIPE WITH SIZE & MATERIAL POLYVINYLCHLORIDE PLASTIC UTILITY LESS THAN 10' BELOW GROUND REINFORCED CONCRETE PIPE UTILITY GREATER THAN 20' BELOW GROUND LEGEND & ABBREVIATIONS
ABV ABOVE CONCRETE CULVERT ON UTILITY BETWEEN 10'-20' BELOW GROUND CS PIPE CONTINUATION CONCRETE CULVERT VITRIFIED CLAY PIPE **FIGURE 4.3.3** COMBINED SEWER **DUTICLE IRON PIPE** IRON STONE PIPE SFDPW HYDRAULICS CAST IRON PIPE WOODEN PILES COMBINED STORM AND SEWER CS MANHOLE FIBERGLASS UNKNOWN SFMTA T-Third LRT/Central Subway Phase 3 - Task 4: Constructability Analysis 3'x5' BR-3. Combined Sewer

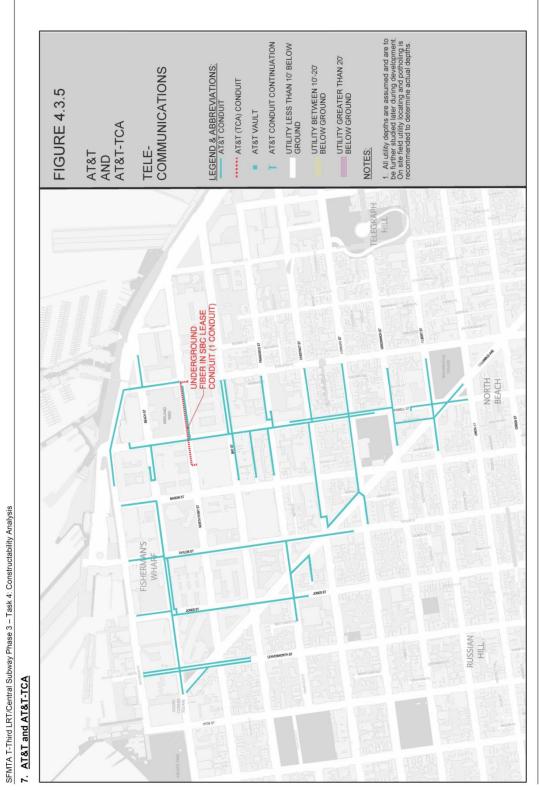




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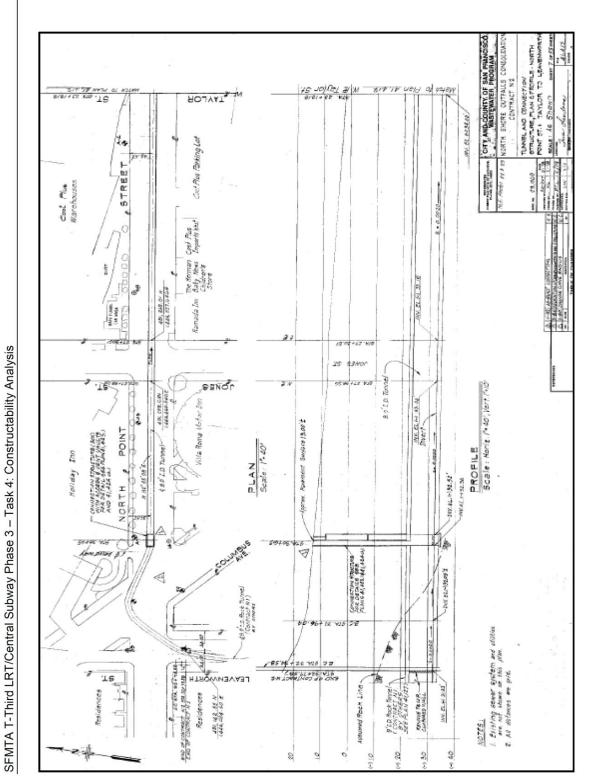




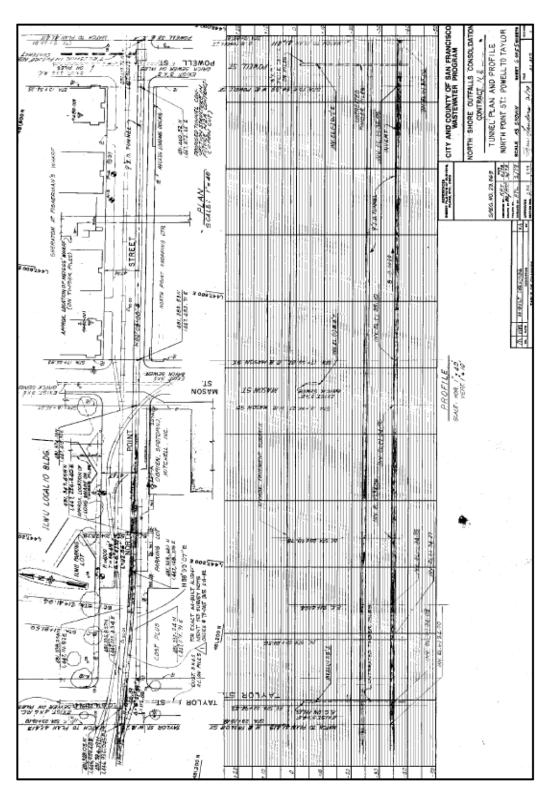
Appendix C

SFMTA T-Third LRT/Central Subway Phase 3 – Task 4: Constructability Analysis

Combined Sewer Record Drawings



SFMTA T-Third LRT/Central Subway Phase 3 - Task 4: Constructability Analysis



SFMTA T-Third LRT/Central Subway Phase 3 - Task 4: Constructability Analysis

CITY AND COUNTY OF SAN FRANCISCO WASTEWATER PROGRAM TUNNEC PLAN AND PROFILE NORTH POINT ST; POWELLTO TAYLOR CORTH SHORE OUTFALLS CONSOLDATI 20, 400 52 W 5/85.40.23.969 Ę STREET 481, 383, 534 442, 483, 77 E WC 22 C) 35 PROFILE NOSAM TS 72WU LOCAL 10 BLDG 447,48,392

Appendix D

Conceptual General Order of Magnitude (CGOM) Cost Estimates

Definitions

	ord Cost Categories for Capital Projects NITIONS	NOTE: The SCC cost breakdown is based on a traditional Design Bid Build model. If your project is Design Build, to the best of your ability, separate construction costs from design, administration, testing, etc. Put all construction costs in 10 through 50. Put design, administration, testing, etc. in 80 Professional Services.
Rev.12, July	y 31, 2009)	
4		Include guideway and track costs for all transit modes (Heavy rail, light rail, commuter rail, BRT, rapid bus, bus, monorail, cable car, etc.) The unit of measure is route miles of guideway, regardless of width. As associated with the guideway, include costs for rough grading, excavation, and concrete base for guideway where applicable. Include all construction materials and labor regardless of whom is performing the work. In your written description of the scope and in supporting graphic diagrams, indicate whether busway or rail track is single, double, triple, relocated, etc. Put guideway and track elements associated with yards in 30 Support Facilities below.
10.01	Guideway: At-grade exclusive right-of-way	
	2 Guideway: At-grade semi-exclusive (allows cross-traffic)	
	Guideway: At-grade in mixed traffic	
		Include foundation excavation; guideway structures including caissons, columns,
10.04	Guideway: Aerial structure	bridges, viaducts, cross-overs, fly-overs.
10.05	Guideway: Built-up fill	Include construction of earthen berms.
		Include excavation, retaining walls, backfill, underground guideway structure and
10.06	Guideway: Underground cut & cover	finishes.
		Include tunneling by means of a tunnel boring machine, drill blasting, mining, and
10.07	Guideway: Underground tunnel	immersed tube tunneling; tunnel structure and finishes.
4		Include excavation, retaining walls, backfill, underground guideway structure and
10.08	Guideway: Retained cut or fill	finishes.
10.09	Track: Direct fixation	Include rails, connectors.
	Track: Embedded	Include rails, ties; ballast where applicable
	Track: Ballasted	
10.11		Unclude rails, ties and hallast
		Include rails, ties and ballast.
10.12	Track: Special (switches, turnouts) Track: Vibration and noise dampening	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment; mechanical and electrical components
10.12 10.13	P Track: Special (switches, tumouts)	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station
10.12 10.13	Track: Special (switches, turnouts) Track: Vibration and noise dampening	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, station power, lighting, public address/customer information system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include all
10.12 10.13	Track: Special (switches, turnouts) Track: Vibration and noise dampening	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, station power, lighting, public address/customer information system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include all construction materials and labor regardless of whom is performing the work. Put guideway and track associated with stations in 10 Guideway & Track Elements
10.12 10.13 0 STATIO	Parack: Special (switches, turnouts) Track: Vibration and noise dampening ONS, STOPS, TERMINALS, INTERMODAL (number) At-grade station, stop, shelter, mall, terminal, platform Aerial station, stop, shelter, mall, terminal, platform	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, station power, lighting, public address/customer information system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include all construction materials and labor regardless of whom is performing the work. Put guideway and track associated with stations in 10 Guideway & Track Elements above. Include station structures Including calssons, columns, platforms, superstructures, etc.
10.12 10.13 20 STATIO 20.01 20.02 20.03	Track: Special (switches, turnouts) Track: Vibration and noise dampening ONS, STOPS, TERMINALS, INTERMODAL (number) At-grade station, stop, shelter, mall, terminal, platform Aerial station, stop, shelter, mall, terminal, platform Underground station, stop, shelter, mall, terminal, platform	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, station power, lighting, public address/customer information system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include all construction materials and labor regardless of whom is performing the work. Put guideway and track associated with stations in 10 Guideway & Track Elements above.
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20.01 20.03 20.04 20.05	Particles: Special (switches, turnouts) Track: Vibration and noise dampening ONS, STOPS, TERMINALS, INTERMODAL (number) At-grade station, stop, shelter, mall, terminal, platform Aerial station, stop, shelter, mall, terminal, platform Underground station, stop, shelter, mall, terminal, platform Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, station power, lighting, public address/customer information system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include all construction materials and labor regardless of whom is performing the work. Put guideway and track associated with stations in 10 Guideway & Track Elements above. Include station structures including calssons, columns, platforms, superstructures, etc. Include retaining walls, backfill, structure. Per FTA's Joint Development Guidance, "Joint development is any income-producing activity with a transit nexus related to a real estate asset in which FTA has an interestJoint development projects are commercial, residential, industrial, or mixed-use developments that are induced by or enhance the effectiveness of transit projects" See http://www.fta.dot.gov/17973_18027_ENG_HTML.htm
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20.01 20.02 20.03 20.04 20.05 20.06 20.07	Track: Special (switches, turnouts) Track: Vibration and noise dampening ONS, STOPS, TERMINALS, INTERMODAL (number) At-grade station, stop, shelter, mall, terminal, platform Aerial station, stop, shelter, mall, terminal, platform Underground station, stop, shelter, mall, terminal, platform Other stations, landings, terminals: Intermodal, ferry, trolley, etc. Joint development Automobile parking multi-story structure Elevators, escalators ORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, station power, lighting, public address/customer information system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include all construction materials and labor regardless of whom is performing the work. Put guideway and track associated with stations in 10 Guideway & Track Elements above. Include station structures including caissons, columns, platforms, superstructures, etc. Include retaining walls, backfill, structure. Per FTA's Joint Development Guidance, "Joint development is any income-producing activity with a transit nexus related to a real estate asset in which FTA has an interestJoint development projects are commercial, residential, industrial, or mixed-use developments that are induced by or enhance the effectiveness of transit projects" See http://www.fta.dot.gov/17973_18027_ENG_HTML.htm Include retaining walls, backfill, structure. As associated with support facilities, include costs for rough grading, excavation, support structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, facility power, lighting public address system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include fueling stations. Include all construction materials and labor regardless of whom is performing the work. Where a support facility shares the structure with a station, its cost may be included with station cost. Identify this with a note. Except for guideway and track associated with a yard, include all guideway and track
20.01 20.02 20.03 20.04 20.05 20.06 20.07	Prack: Special (switches, turnouts) Track: Vibration and noise dampening ONS, STOPS, TERMINALS, INTERMODAL (number) At-grade station, stop, shelter, mall, terminal, platform Aerial station, stop, shelter, mall, terminal, platform Underground station, stop, shelter, mall, terminal, platform Other stations, landings, terminals: Intermodal, ferry, trolley, etc. Joint development Automobile parking multi-story structure Elevators, escalators	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment, mechanical and electrical components including HVAC, ventilation shafts and equipment, station power, lighting, public address/customer information system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include all construction materials and labor regardless of whom is performing the work. Put guideway and track associated with stations in 10 Guideway & Track Elements above. Include station structures including caissons, columns, platforms, superstructures, etc. Include retaining walls, backfill, structure. Per FTA's Joint Development Guidance, "Joint development is any income-producing activity with a transit nexus related to a real estate asset in which FTA has an interestJoint development projects are commercial, residential, industrial, or mixed-use developments that are induced by or enhance the effectiveness of transit projects" See http://www.fta.dot.gov/17973_18027_ENG_HTML.htm Include retaining walls, backfill, structure. As associated with support facilities, include costs for rough grading, excavation, support structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, facility power, lighting, public address system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include fueling stations. Include all construction materials and labor regardless of whom is performing the work. Where a support facility shares the structure with a station, its cost may be included with station cost. Identify this with a note. Except for guideway and track associated with a yard, include all guideway and track costs associated with support facilities in 10 Guideway & Tra
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20.01 20.02 20.03 20.04 20.05 20.06 20.07	Track: Special (switches, turnouts) Track: Vibration and noise dampening ONS, STOPS, TERMINALS, INTERMODAL (number) At-grade station, stop, shelter, mall, terminal, platform Aerial station, stop, shelter, mall, terminal, platform Underground station, stop, shelter, mall, terminal, platform Other stations, landings, terminals: Intermodal, terry, trolley, etc. Joint development Automobile parking multi-story structure Elevators, escalators ORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS Administration Building: Office, sales, storage, revenue counting Light Maintenance Facility	Include transitional curves. Include upcharge for vib/noise dampening to any track condition above. As associated with stations, include costs for rough grading, excavation, station structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, station power, lighting, public address/customer information system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include all construction materials and labor regardless of whom is performing the work. Put guideway and track associated with stations in 10 Guideway & Track Elements above. Include station structures including caissons, columns, platforms, superstructures, etc. Include retaining walls, backfill, structure. Per FTA's Joint Development Guidance, "Joint development is any income-producing activity with a transit nexus related to a real estate asset in which FTA has an interestJoint development projects are commercial, residential, industrial, or mixed-use developments that are induced by or enhance the effectiveness of transit projects" See http://www.fta.dot.gov/17973_18027_ENG_HTML.htm Include retaining walls, backfill, structure. As associated with support facilities, include costs for rough grading, excavation, support structures, enclosures, finishes, equipment; mechanical and electrical components including HVAC, ventilation shafts and equipment, facility power, lighting public address system, safety systems such as fire detection and prevention, security surveillance, access control, life safety systems, etc. Include fueling stations. Include all construction materials and labor regardless of whom is performing the work. Where a support facility shares the structure with a station, its cost may be included with station cost. Identify this with a note. Except for guideway and track associated with a yard, include all guideway and track costs associated with support facilities in 10 Guideway & Tra



40 SITEW	ORK & SPECIAL CONDITIONS	Include all construction materials and labor regardless of whom is performing the work.
40.01	Demolition, Clearing, Earthwork	Include project-wide clearing, demolition and fine grading.
40.02	Site Utilities, Utility Relocation	Include all site utilities - storm, sewer, water, gas, electric.
	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments	Include underground storage tanks, fuel tanks, other hazardous materials and treatments, etc.
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Include other environmental mitigation not listed.
40.05	Site structures including retaining walls, sound walls	
40.06	Pedestrian / bike access and accommodation, landscaping	Include sidewalks, paths, plazas, landscape, site and station furniture, site lighting, signage, public artwork, bike facilities, permanent fencing.
40.07	Automobile, bus, van accessways including roads, parking lots	Include all on-grade paving.
40.08	Temporary Facilities and other indirect costs during construction	As a general rule and to the extent possible, appropriately allocate indirect costs among the construction costs in Categories 10 through 50. Where that is not possible, include in 40.08 Temporary Facilities costs for mobilization, demobilization, phasing; time and temporary construction associated with weather (heat, rain, freezing, etc.); temporary power and facilities; temporary construction, easements, and barriers for storm water pollution prevention, temporary access and to mitigate construction impacts; project and construction supervision; general conditions, overhead, profit. NOTE: Include contractor's general liability and other insurance related to construction such as builder's risk in Cats. 10 - 50, not in 80 Professional Services below.
50 SYSTE		Include all construction materials and labor regardless of whom is performing the work.
50.01	Train control and signals	
	Traffic signals and crossing protection	Include signal prioritization at intersections.
	Traction power supply: substations	
	Traction power distribution: catenary and third rail	
	Communications	Include passenger information systems at stations and on vehicles (real time travel information; static maps and schedules). Include equipment to allow communications among vehicles and with central control.
50.06	Fare collection system and equipment	Include fare sales and swipe machines, fare counting equipment.
	Central Control	include rare sales and swipe machines, rare counting equipment.
	ion Subtotal (10 - 50)	
COMOUNT	ion subtotal (10 - 50)	
60 ROW, L	AND, EXISTING IMPROVEMENTS	Include professional services associated with the real estate component of the project. These costs may include agency staff oversight and administration, real estate and relocation consultants, legal counsel, court expenses, insurance, etc.
60.01	Purchase or lease of real estate	If the value of right-of-way, land, and existing improvements is to be used as local match to the Federal funding of the project, include the total cost on this line item. In backup documentation, separate cost for land from cost for improvements, identify whether items are leased, purchased or acquired through payment or for free. Include the costs for permanent surface and subsurface easements, trackage rights, etc.
60.02	Relocation of existing households and businesses	In compliance with Uniform Relocation Act.
	.ES (number)	Include professional services associated with the vehicle component of the project. These costs may include agency staff oversight and administration, vehicle consultants, design and manufacturing contractors, legal counsel, warranty and insurance costs, etc.
	Light Rail	Include light rail and streetcar rail using electric, diesel or other power supply.
	Heavy Rail Commuter Rail	Include locomotives (diesel, electric, or other), trailer cars, self-propelled multiple units
70.04		(EMU electric or DMU diesel, or other power supply) Includes "rubber-tired" buses and trolleys including new, used, historic replica,
70.04		articulated, using electric, diesel, dual-power, or other power supply. Include Vans, Sedan/Station Wagon, Cable Car, People Mover, Monorail, Car/Inclined
	Non-revenue vehicles	Railway, Ferry Boat, Transferred Vehicle
	Spare parts	
70.07	opare parts	



SFMTA T-Third LRT/Central Subway Phase 3 – Task 4: Constructability Analysis

80 PROFE	SSIONAL SERVICES (applies to Cats. 10-50)	Cat. 80 applies to Cats. 10-50. Cat. 80 includes all professional, technical and management services related to the design and construction of fixed infrastructure
80.01	Preliminary Engineering	(Cats. 10 - 50) during the preliminary engineering, final design, and construction phases of the project. This includes environmental work, design, engineering and architectural services; specialty services such as safety or security analyses; value
80.02	Final Design	engineering, risk assessment, cost estimating, scheduling, Before and After studies, ridership modeling and analyses, auditing, legal services, administration and management, etc. by agency staff or outside consultants.
80.03	Project Management for Design and Construction	Include professional liability insurance and other non-construction insurance on 80.05—unless insurance for the agency and its consultants is already included in other lines.
80.04	Construction Administration & Management	Include costs associated with professional services related to real estate and vehicles in Cats. 60 and 70.
80.05	Professional Liability and other Non-Construction Insurance	(Note that costs for alternatives analysis and NEPA work done before FTA approval
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	 enter preliminary engineering (PE), regardless of funding source, are not included in an FFGA and therefore, should not be included in the Standard Cost Category worksheets. For example, on one and the same grant, costs
80.07	Surveys, Testing, Investigation, Inspection	incurred prior to FTA approval to enter PE should be omitted from these worksheets whereas costs incurred after FTA approval to enter PE should be included.)
80.08	Start up	Include start up and training. Include in Cats. 10 - 50 above access and protection work by agency staff or outside contractors.
Subtotal (1	10 - 80)	
90 UNALL	OCATED CONTINGENCY	Includes unallocated contingency, project reserves. Document allocated contingencies for individual line items on the Main worksheets.
Subtotal (1	10 - 90)	
100 FINAN	NCE CHARGES	Include finance charges expected to be paid by the project sponsor/grantee prior to either the completion of the project or the fulfillment of the New Starts funding commitment, whichever occurs later in time. Finance charges incurred after this date should not be included in Total Project Cost. (See FFGA Circular FTA C5200.1A Chapter III for additional information.) Derive finance charges from the New Starts project's financial plan, based on an analysis of the sources and uses of funds. The amount and type of debt financing required and revenues available determine the finance charges. By year, compute finance charges in year-of-expenditure (YOE) dollars. On the Inflation Calculation to
Total Proje	ect Cost (10 - 100)	YOE worksheet enter the finance charges for the appropriate years.
otal Proje	or oner (in - inn)	

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Summary of Costs - Alternative 1 Options

DESCRIPTION	GUIDEWAY LENGTH	# OF STATIONS	LOW ESTIMATE (-30%)	POINT ESTIMATE	HIGH ESTIMATE (+50%)				
	(FT)	(EA)	(\$000)	(\$000)	(\$000)				
	CONS	STRUCTION O	COSTS (SCC 10-50)					
ALTERNATIVE 1-1 (C/C)	4072	2	\$198,494	\$258,042	\$387,063				
ALTERNATIVE 1-1 (SEM)	4072	2	\$236,955	\$308,042	\$462,063				
ALTERNATIVE 1-2 (C/C)	3982	2	\$425,806	\$553,548	\$830,321				
ALTERNATIVE 1-2 (SEM)	3982	2	\$469,412	\$610,235	\$915,353				
		SOFT COSTS	(SCC 60-100)						
ALTERNATIVE 1-1 (C/C)	4072	2	\$114,461	\$148,800	\$223,199				
ALTERNATIVE 1-1 (SEM)	4072	2	\$133,467	\$173,507	\$260,261				
ALTERNATIVE 1-2 (C/C)	3982	2	\$226,426	\$294,354	\$441,531				
ALTERNATIVE 1-2 (SEM)	3982	2	\$247,974	\$322,366	\$483,549				
	T	OTAL COST	S (SCC 10-100)						
ALTERNATIVE 1-1 (C/C)	4072	2	\$312,955	\$406,841	\$610,262				
ALTERNATIVE 1-1 (SEM)	4072	2	\$370,422	\$481,549	\$722,323				
ALTERNATIVE 1-2 (C/C)	3982	2	\$652,232	\$847,902	\$1,271,852				
ALTERNATIVE 1-2 (SEM)	3982	2	\$717,386	\$932,601	\$1,398,902				

Notes:

FTA Capital Cost Database utilized for point estimate values.

Costs are in 2014 dollars, adjusted locally to San Francisco, CA.

Estimate values exclude finance charges (SCC-100).

Range values based on FTA and AACE guidelines for Probable Accuracy.

(C/C) and (SEM) designations for each option refer to the method of construction of North Beach Station [whether the station is estimated as cut--and-cover (C/C) box construction or construction by sequential excavation method (SEM)].

All deep options have bored tunnel estimated as constructed by tunnel boring machine (TBM). All shallow (surface) options have tunnel portion estimated as cut-and-cover box construction.

One cross-over was estimated for all subway station options. Adding two cross-overs before and after the underground stations adds to costs of the stations significantly (operational benefits would need to be evaluated); in addition this would be practical/feasible only for North Beach Station and the alignments under Columbus Avenue due to geometric constrains and constructability considerations.

Alternative 1-1

Cost M	odel Compared With Project Estimate is:	CENTRAL SUBWAY PHASE 3				Today's Date	8/25/2014		
Reference		ALT 1-1				Base Year	2014		
Project C	ity:	San Francisco, CA						1	
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	0.7712			\$527,535	\$406,841		
		Units	Quantity	Inlucde This Item	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars	Base Year Dollars
				(select	0120		(0) (4000)	Percentage	Percentage
				'Yes' or				of Construction	Of Total
				'No')				Construction	Total Project Cost
	Guideway & Track Elements	Lineal Miles of Guideway	0.7712		0	\$77,391	\$59,685	23%	15%
10.010 10.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19	\$0 \$0	\$0 \$0		
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	0.3282		8	\$27,171,972	\$8,918		
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0		
10.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.3506		11	\$107,955,004	\$37,846		
10.070 10.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.0924		11 6	\$0 \$65,864,817	\$0 \$6,088		
10.090	Track: Direct fixation	Track Miles	0.3506		19	\$3,705,543	\$1,299	_	
10.100	Track Embedded	Track Miles	0.4206		9	\$3,220,175	\$1,355		
10.110 10.120	Track: Ballasted Track: Special (switches, tumouts)	Track Miles Track Miles	1	Yes	18 12	\$0 \$378,486	\$0 \$292		
10.140	Special Structures	Lineal Miles of Guideway	1	Yes	3	\$5,041,732	\$3,888		
20 20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	2 1		0	\$87,700 \$16,869,180	\$175,399 \$16,869	68%	43%
20.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$16,869		
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform	Stations Stations	1		10	\$150,000 \$150.000.000	\$150,000 \$150,000		
20.031 20.032	Cut and Cover Bored Earth Soft Soils	Stations Stations	1		10 0	\$150,000,000 \$0	\$150,000 \$0		
20.033	Bored Rock Hard Soils	Stations			0	\$0	\$0		
20.034 20.060	Unspecified Automobile parking multi-story structure	Stations Spaces			4	\$0 \$0	\$0 \$0		
20.070	Elevators, escalators	Number	4		,	\$2,133	\$8,530		
20.071 20.072	Elevators Escalators	Number Number	2		4 5	\$2,217,942 \$2,047,157	\$4,436 \$4,094	_	
20.072	Passenger Overpass	Number	2		5	\$2,047,157	\$4,094		
20.090	Underground Interconnecting Tunnel	Number		No	0	\$0	\$0		
20.100 30	Signage and Graphics Support Facilities: Yards, Shops, Admin. Bldgs	Stations Vehicles	0		10 0	\$0 \$0	\$0 \$0	0%	0%
30.010	Administration Building: Office, sales, storage, revenue counting	Lineal Miles of Guideway	0.7712		Ů	\$0	\$0	078	0%
30.011	Administrative Building	Lineal Miles of Guideway	0	No	2	\$0 \$0	\$0 \$0		
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	0	\$0 \$0	\$0	_	
30.020	Light Maintenance Facility	Vehicles	0	Yes	7	\$0	\$0		
30.030 30.040	Heavy Maintenance Facility Storage or Maintenance of Way Building	Vehicles Lineal Miles of Guideway	0	Yes No	17 5	\$0 \$0	\$0 \$0		
30.050	Yard and Yard Track	Track Miles	Ō	No	5	\$0	\$0		
40 40.010	Sitework & Special Conditions	Lineal Miles of Guideway Lineal Miles of Guideway	0.7712 0.7712	Yes	12	\$15,915 \$2,033,937	\$12,274 \$1,569	5%	3%
40.010	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway	0.7712	Yes	75	\$4,266,060	\$3,290	_	
40.030	Haz. mat1, contam'd soil removal/mitigation, ground water treatmer		0.7712	Yes	5	\$2,299,074	\$1,773		
40.040 40.050	Environmental mitigation, e.g. wetlands, historic/archeologic, parks Site structures including retaining walls, sound walls	Lineal Miles of Guideway Lineal Miles of Guideway	0.7712 0.7712	Yes Yes	8	\$1,047,598 \$149.423	\$808 \$115	_	
40.060	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway	0.7712	Yes	8	\$955,612	\$737		
40.070 40.071	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces Spaces	0		8	\$0 \$0	\$0 \$0		
40.072	Auto Access	Stations			2	\$0	\$0		
40.080	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	0.7712	Yes	21 0	\$5,163,485	\$3,982	4%	3%
50 50.010	Systems Train control and signals	Track Miles Track Miles	0.7712 0.7712	Yes	26	\$13,852 \$2,966,502	\$10,683 \$2,288	478	378
50.020	Traffic signals and crossing protection	Track Miles Track Miles	0.7712	Yes	7	\$255,223	\$197		
50.030 50.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	0.7712 0.7712	Yes	23	\$1,697,988 \$3,196	\$1,310 \$2,465		
50.041	Catenary	Track Miles	0.7712	Yes	13	\$1,346,370	\$1,038		
50.042 50.043	Third Rail Power Distribution and Connections	Track Miles Track Miles	0.7712 0.7712	Yes Yes	7 4	\$1,387,266 \$462,321	\$1,070 \$357		
50.050	Communications	Track Miles	0.7712	Yes	23 28	\$2,267,613	\$1,749		
50.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	2 1	Yes	28 0	\$1,337,702 \$334,592	\$2,675 \$258,042	100%	63%
	Row, Land, Existing Improvements	Lineal Miles of Guideway	0.7712		0	\$18,474	\$14,247	100%	4%
60.010 60.020	Purchase or lease of real estate Relocation of existing households and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	0.7712 0.7712	Yes Yes	25 12	\$14,910,401 \$1,727,595	\$11,499 \$1,332		
60.020 60.030	Services	Lineal Miles of Guideway Lineal Miles of Guideway	0.7712	Yes	23	\$1,835,836	\$1,332 \$1,416		
60.040	Other Real Estate Costs	Lineal Miles of Guideway	0.7712	Yes	0	\$0	\$0		
70 70.010	Vehicles Light Rail	Vehicles Vehicles	0		0	\$0 \$0	\$0 \$0		0%
70.020	Heavy Rail	Vehicles			6	\$0	\$0		
70.060 80	Non-revenue vehicles Professional Services	Vehicles Hard Costs	\$272,288.93	Yes	11	\$0 49%	\$0 \$134,552	0%	0%
80.010	Preliminary Engineering	Hard Costs	\$272,288.93	Yes	14	6%	\$17,668	U.S.	7.0
80.020 80.030	Final Design	Hard Costs Hard Costs	\$272,288.93 \$272,288.93	Yes Yes	22 32	12% 10%	\$33,260 \$27,583		
80.030 80.040	Project Management for Design and Construction Construction Administration & Management	Hard Costs Hard Costs	\$272,288.93 \$272,288.93	Yes	32 24	10% 11%	\$27,583 \$31,276		
80.050	Professional Liability and other Non-Construction Insurance	Hard Costs	\$272,288.93	Yes	16	4%	\$11,875		
80.060	Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$272,288.93 \$272,288.93	Yes Yes	6 2	2% 0%	\$5,620 \$1,143		
		Hard Costs	\$272,288.93	Yes	23	2%	\$4,788		
80.070 80.080	Start up								
	Other	Hard Costs	\$272,288.93	Yes	10	0%	\$1,338		
80.080 80.090	Other Subtotal (10-80)			Yes	10 0 0	0% \$527,535 \$0	\$406,841 \$0		0%
80.080 80.090 90	Other	Hard Costs Lineal Miles of Guideway	\$272,288.93 1	Yes	0	\$527,535	\$406,841		0% 100% 0%



Alternative 1-1 (NBS is SEM)

	lodel Compared With Project Estimate								
Cost Ba	sis:	CENTRAL SUBWAY PHASE 3 ALT 1-1 (NBS is SEM)				Today's Date Base Year	8/25/2014 2014		
Project (San Francisco, CA				base year	2014		
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	0.7712			\$624,405	\$481.549		
0.00	TOTAL PROJECT COSTS	Units	Quantity	Inlucde	Sample	Unit Cost (\$)	Total Cost	Base Year	Base Year
				This Item (select	Size		(a) (\$000)	Dollars Percentage	Dollars Percentage
				'Yes' or				of	of
				'No')				Construction Cost	Total Project Cos
10	Guideway & Track Elements	Lineal Miles of Guideway	0.7712		0	\$77,391	\$59,685	19%	12%
10.010 10.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0		
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	0.3282		8	\$27,171,972	\$8,918	j	
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	1	
10.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.3506		- 11	\$107,955,004	\$37,846	i	
10.070 10.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.0924		11 6	\$0 \$65.864.817	\$0 \$6.088		
10.090	Track Direct fixation	Track Miles	0.3506		19	\$3,705,543	\$1,299	1	
10.100 10.110	Track: Embedded Track: Ballasted	Track Miles Track Miles	0.4206		9 18	\$3,220,175 \$0	\$1,355 \$0	1	
10.120	Track: Special (switches, tumouts)	Track Miles	1	Yes	12	\$378,486	\$292	j	
10.140	Special Structures	Lineal Miles of Guideway Stations	1 2	Yes	3	\$5,041,732 \$112,700	\$3,888 \$225,399	73%	47%
20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations	1		19	\$16,869,180	\$16,869	13%	4/%
20.020 20.030	Aerial station, stop, shelter, mall, terminal, platform	Stations Stations	1		5	\$0 \$200,000	\$0 \$200,000		
20.031	Underground station, stop, shelter, mall, terminal, platform Sequential Excavation Method	Stations	1		10	\$200,000	\$200,000	1	
20.032 20.033	Bored Earth Soft Soils Bored Rock Hard Soils	Stations			0	\$0 \$0	\$0 \$0		
20.033 20.034	Bored Rock Hard Soils Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0		
20.060	Automobile parking multi-story structure	Spaces			3	\$0	\$0 \$8,530		
20.070 20.071	Elevators, escalators Elevators	Number Number	2		4	\$2,133 \$2,217,942	\$8,530 \$4,436		
20.072	Escalators	Number	2		5	\$2,047,157	\$4,094		
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0	-	
20.100	Signage and Graphics	Stations		INU	10	\$0	\$0		
30 30.010	Support Facilities: Yards, Shops, Admin. Bldgs	Vehicles Lineal Miles of Guideway	0 0.7712		0	\$0 \$0	\$0 \$0	0%	0%
30.011	Administration Building: Office, sales, storage, revenue counting Administrative Building	Lineal Miles of Guideway	0	No	2	\$0	\$0		
30.012	Central Control Facility	Lineal Miles of Guideway	0	No	2	\$0	\$0	1	
30.013 30.020	Central Revenue Counting Facility Light Maintenance Facility	Lineal Miles of Guideway Vehicles	0	No Yes	7	\$0 \$0	\$0 \$0		
30.030	Heavy Maintenance Facility	Vehicles	0	Yes	17	\$0	\$0		
30.040 30.050	Storage or Maintenance of Way Building Yard and Yard Track	Lineal Miles of Guideway Track Miles	0	No No	5 5	\$0 \$0	\$0 \$0		
40	Sitework & Special Conditions	Lineal Miles of Guideway	0.7712		0	\$15,915	\$12,274	4%	3%
40.010 40.020	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway Lineal Miles of Guideway	0.7712 0.7712	Yes Yes	12 75	\$2,033,937 \$4,266,060	\$1,569 \$3,290		
40.030	Haz. mat1, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway	0.7712	Yes	5	\$2,299,074	\$1,773		
40.040 40.050	Environmental mitigation, e.g. wetlands, historic/archeologic, parks Site structures including retaining walls, sound walls	Lineal Miles of Guideway Lineal Miles of Guideway	0.7712 0.7712	Yes Yes	8	\$1,047,598 \$149.423	\$808 \$115		
40.060	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway	0.7712	Yes	8	\$955,612	\$737	1	
40.070 40.071	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces Spaces	0		8	\$0 \$0	\$0 \$0		
40.072	Auto Access	Stations			2	\$0	\$0	1	
40.080 50	Temporary Facilities and other indirect costs during construction Systems	Lineal Miles of Guideway Track Miles	0.7712 0.7712	Yes	21 0	\$5,163,485 \$13,852	\$3,982 \$10,683	3%	2%
50.010	Train control and signals	Track Miles	0.7712	Yes	26	\$2,966,502	\$2,288	0.1	2.10
50.020 50.030	Traffic signals and crossing protection Traction power supply: substations	Track Miles Track Miles	0.7712 0.7712	Yes Yes	7 23	\$255,223 \$1.697.988	\$197 \$1,310		
50.040	Traction power distribution: catenary and third rail	Track Miles	0.7712			\$3,196	\$2,465		
50.041 50.042	Catenary Third Rail	Track Miles Track Miles	0.7712 0.7712	Yes	13	\$1,346,370 \$1,387,266	\$1,038 \$1,070		
50.043	Power Distribution and Connections	Track Miles	0.7712	Yes Yes	4	\$462,321	\$357		
50.050	Communications	Track Miles	0.7712	Yes	23	\$2,267,613	\$1,749		
50.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	2 1	Yes	28	\$1,337,702 \$399,425	\$2,675 \$308,042	100%	64%
60	Row, Land, Existing Improvements	Lineal Miles of Guideway	0.7712	V	0	\$18,474	\$14,247		3%
60.010 60.020	Purchase or lease of real estate Relocation of existing households and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	0.7712 0.7712	Yes Yes	25 12	\$14,910,401 \$1,727,595	\$11,499 \$1,332	1	
60.030	Services	Lineal Miles of Guideway	0.7712	Yes	23	\$1,835,836	\$1,416		
60.040 70	Other Real Estate Costs Vehicles	Lineal Miles of Guideway Vehicles	0.7712	Yes	0	\$0 \$0	\$0 \$0		0%
70.010	Light Rail	Vehicles			15	\$0	\$0		
70.020 70.060	Heavy Rail Non-revenue vehicles	Vehicles Vehicles	0	Yes	6 11	\$0 \$0	\$0 \$0	1	
30	Professional Services	Hard Costs	\$322,288.93		0	49%	\$159,260	0%	0%
0.010 80.020	Preliminary Engineering Final Design	Hard Costs Hard Costs	\$322,288.93 \$322,288.93	Yes Yes	14 22	6% 12%	\$20,912 \$39.368		
0.030	Project Management for Design and Construction	Hard Costs	\$322,288.93	Yes	32	10%	\$32,648		
80.040 80.050	Construction Administration & Management	Hard Costs Hard Costs	\$322,288.93 \$322,288.93	Yes	24	11% 4%	\$37,019 \$14,056		
30.060	Professional Liability and other Non-Construction Insurance Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs Hard Costs	\$322,288.93	Yes Yes	16 6	2%	\$6,652		
30.070	Surveys, Testing, Investigation, Inspection	Hard Costs	\$322,288.93	Yes	2	0%	\$1,353		
80.080 80.090	Start up Other	Hard Costs Hard Costs	\$322,288.93 \$322,288.93	Yes Yes	23 10	2% 0%	\$5,667 \$1,584		
	Subtotal (10-80)	Lineal Miles of Guideway	1		0	\$624,405	\$481,549		-
90	Unallocated Contingency Subtotal (10-90)	Total Amount Lineal Miles of Guideway	1		0	\$0 0	\$0 \$481,549		0% 100%
100	Finance Charges	Total Amount	1		0	\$0	\$0		0%
100	Total Project Costs (10-100)	Lineal Miles of Guideway			0	\$0	\$481,549		100%



Alternative 1-2

	odel Compared With Project Estimate								
Cost Bas Reference		CENTRAL SUBWAY PHASE 3 ALT 1-2				Today's Date Base Year	8/25/2014 2014		
Project C		San Francisco, CA						1	
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	0.7542	Internal		\$1,124,289	\$847,902	B	B V/
		Units	Quantity	Inlucde This Item	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars	Base Year Dollars
				(select				Percentage	
				'Yes' or 'No')				of Constructio	of n Total
10	Guideway & Track Elements	Lincol Miles of Ouidaness	0.7542			\$151,132	\$113,978	Cost	Project Cost
10.010	Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway Lineal Miles of Guideway	0.7542		0 19	\$0	\$0	21%	13%
10.020 10.030	Guideway: At-grade semi-exclusive (allows cross-traffic) Guideway: At-grade in mixed traffic	Lineal Miles of Guideway Lineal Miles of Guideway			3	\$0 \$0	\$0 \$0		
10.030	Guideway. Ac-grade in filixed trailic Guideway. Aerial structure	Lineal Miles of Guideway			16	\$0	\$0		
10.050 10.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1326		11	\$0 \$107.955.004	\$0 \$14,312		
10.070	Guideway: Underground tunnel	Lineal Miles of Guideway	0.6216		11	\$149,268,285	\$92,784		
10.080 10.090	Guideway: Retained cut or fill Track: Direct fixation	Lineal Miles of Guideway Track Miles	0.7542		6 19	\$0 \$3,705,543	\$0 \$2,795	_	
10.100	Track: Embedded	Track Miles	0.10-12		9	\$0	\$0		
10.110 10.120	Track: Ballasted Track: Special (switches, tumouts)	Track Miles Track Miles	1	Yes	18 12	\$0 \$378,486	\$0 \$285	_	
10.140	Special Structures	Lineal Miles of Guideway	1	Yes	3	\$5,041,732	\$3,802		
20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	2		0	\$208,530 \$0	\$417,060 \$0	75%	49%
20.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0		
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Cut and Cover	Stations Stations	2		10	\$200,000 \$200,000,000	\$400,000 \$400,000		
20.032	Bored Earth Soft Soils	Stations	_		0	\$0	\$0		
20.033 20.034	Bored Rock Hard Soils Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0		
20.060 20.070	Automobile parking multi-story structure Elevators, escalators	Spaces Number	8		3	\$0 \$2,133	\$0 \$17,060		
20.071	Elevators, escalators Elevators	Number Number	4		4	\$2,133 \$2,217,942	\$8,872		
20.072	Escalators	Number	4		5	\$2,047,157	\$8,189		
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0	_	
20.100	Signage and Graphics	Stations			10	\$0	\$0		
30 30.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0 0.7542		0	\$0 \$0	\$0 \$0	0%	0%
30.011	Administrative Building	Lineal Miles of Guideway	0.0000	No	2	\$0	\$0		
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0.0000	No No	0	\$0 \$0	\$0 \$0		
30.020 30.030	Light Maintenance Facility	Vehicles Vehicles	0	Yes Yes	7 17	\$0 \$0	\$0 \$0		
30.040	Heavy Maintenance Facility Storage or Maintenance of Way Building	Lineal Miles of Guideway	0	No	5	\$0	\$0		
30.050 40	Yard and Yard Track Sitework & Special Conditions	Track Miles Lineal Miles of Guideway	0 0.7542	No	5 0	\$0 \$15,915	\$0 \$12,003	2%	1%
40.010	Demolition, Clearing, Earthwork	Lineal Miles of Guideway	0.7542	Yes	12	\$2,033,937	\$1,534	278	178
40.020 40.030	Site Utilities, Utility Relocation Haz. mat'i, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway Lineal Miles of Guideway	0.7542 0.7542	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$3,217 \$1,734		
40.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	0.7542	Yes	8	\$1,047,598	\$790		
40.050 40.060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	0.7542 0.7542	Yes Yes	1 8	\$149,423 \$955.612	\$113 \$721		
40.070	Automobile, bus, van accessways including roads, parking lots	Spaces	0	100		\$0	\$0		
40.071 40.072	Surface Parking Lot Auto Access	Spaces Stations			8	\$0 \$0	\$0 \$0		
40.080	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	1	Yes	21	\$5,163,485	\$3,894		
50.010	Systems Train control and signals	Track Miles Track Miles	1	Yes	0 26	\$13,931 \$2,966,502	\$10,506 \$2,237	2%	1%
50.020	Traffic signals and crossing protection	Track Miles	1	Yes	7	\$255,223	\$192		
50.030 50.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	1	Yes	23	\$1,697,988 \$3,196	\$1,281 \$2,410		
50.041 50.042	Catenary Third Rail	Track Miles Track Miles	1	Yes	13 7	\$1,346,370 \$1,387,266	\$1,015 \$1,046		
50.043	Power Distribution and Connections	Track Miles	1	Yes Yes	4	\$462,321	\$349		
50.050 50.060	Communications Fare collection system and equipment	Track Miles Stations	1	Yes Yes	23 28	\$2,267,613 \$1,337,702	\$1,710 \$2,675		
	Construction Subtotal (10-50)	Lineal Miles of Guideway	1	163	0	\$733,986	\$553,548	100%	65%
60 60.010	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	<u>1</u>	Yes	0 25	\$18,474 \$14,910,401	\$13,932 \$11,245		2%
60.020	Relocation of existing households and businesses	Lineal Miles of Guideway	1	Yes	12	\$1,727,595	\$1,303		
60.030 60.040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	<u> </u>	Yes Yes	23 0	\$1,835,836 \$0	\$1,385 \$0		
70	Vehicles	Vehicles	Ö		0	\$0	\$0		0%
70.010 70.020	Light Rail Heavy Rail	Vehicles Vehicles			15 6	\$0 \$0	\$0 \$0		
70.060	Non-revenue vehicles	Vehicles	0	Yes	11	\$0	\$0		
80.010	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$567,479.95 \$567,479.95	Yes	14	49% 6%	\$280,422 \$36,822	0%	0%
80.020	Final Design	Hard Costs	\$567,479.95 \$567,479.95	Yes	22	12% 10%	\$69,318 \$57,486		
80.030 80.040	Project Management for Design and Construction Construction Administration & Management	Hard Costs Hard Costs	\$567,479.95	Yes Yes	32 24	11%	\$65,182		
80.050	Professional Liability and other Non-Construction Insurance Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$567,479.95 \$567,479.95	Yes	16	4%	\$24,750		
80.060 80.070	Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$567,479.95	Yes Yes	6	2% 0%	\$11,713 \$2,383		
80.080 80.090	Start up Other	Hard Costs Hard Costs	\$567,479.95 \$567.479.95	Yes Yes	23 10	2% 0%	\$9,978 \$2,790		
	Subtotal (10-80)	Lineal Miles of Guideway	1	163	0	\$1,124,289	\$847,902		
90	Unallocated Contingency	Total Amount	1		0	\$0	\$0		0%
50	Subtotal (10-80)	Lineal Miles of Guideway							
	Subtotal (10-90) Finance Charges Total Project Costs (10-100)	Lineal Miles of Guideway Total Amount Lineal Miles of Guideway	1		0	\$0 \$0 \$0	\$847,902 \$0 \$847,902		100% 0% 100%

Alternative 1-2 (NBS is SEM)

	Model Compared With Project Estimate								
Cost Ba	asis: nce Name:	CENTRAL SUBWAY PHASE 3 ALT 1-2 (NBS is SEM)				Today's Date Base Year	8/25/2014 2014		
Project		San Francisco, CA							
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	0.7542			\$1,236,599	\$932,601		
		Units	Quantity	Inlucde This Item	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars	Base Year Dollars
				(select			(-) ()	Percentage	Percentage
				'Yes' or 'No')				of Construction	of Total
10	Outdown 9 Toron Flore and	Lineal Miles of Guideway	0.7542		0	\$151,132	\$113,978	Cost 19%	Project Cos 12%
10.010	Guideway & Track Elements Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway Lineal Miles of Guideway	0.7542		19	\$151,132 \$0	\$113,978	19%	12%
10.020 10.030	Guideway: At-grade semi-exclusive (allows cross-traffic) Guideway: At-grade in mixed traffic	Lineal Miles of Guideway Lineal Miles of Guideway			3 8	\$0 \$0	\$0 \$0	1	
10.040	Guideway: Aerial structure	Lineal Miles of Guideway			16	\$0	\$0	1	
10.050 10.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1326		0 11	\$0 \$107,955,004	\$0 \$14.312	-	
10.070	Guideway: Underground tunnel	Lineal Miles of Guideway	0.6216		11	\$149,268,285	\$92,784	1	
10.080 10.090	Guideway: Retained cut or fill Track: Direct fixation	Lineal Miles of Guideway Track Miles	0.7542		6 19	\$0 \$3,705,543	\$0 \$2,795	-	
10.100	Track Embedded	Track Miles	0.7042		9	\$0	\$0	1	
10.110 10.120	Track: Ballasted Track: Special (switches, tumouts)	Track Miles Track Miles	1	Yes	18 12	\$0 \$378,486	\$0 \$285	-	
10.140	Special Structures	Lineal Miles of Guideway	1	Yes	3	\$5,041,732	\$3,802		
20 20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	2		0 19	\$236,874 \$0	\$473,748 \$0	78%	51%
20.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0		
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Sequential Excavation Method	Stations Stations	2		10	\$228,344 \$228,343,750	\$456,688 \$456,688		
20.032	Bored Earth Soft Soils	Stations	-		0	\$0	\$0		
20.033 20.034	Bored Rock Hard Solls Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0		
20.060	Automobile parking multi-story structure	Spaces			3	\$0	\$0		
20.070 20.071	Elevators, escalators Elevators	Number Number	8 4		4	\$2,133 \$2,217,942	\$17,060 \$8,872	1	
20.072	Escalators	Number	4		5	\$2,047,157	\$8,189		
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0		
20.100	Signage and Graphics	Stations		140	10	\$0	\$0	1	
30.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0 0.7542		0	\$0 \$0	\$0 \$0	0%	0%
30.011	Administrative Building	Lineal Miles of Guideway	0.0000	No	2	\$0	\$0	1	
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0.0000	No No	2	\$0 \$0	\$0 \$0	1	
30.020	Light Maintenance Facility	Vehicles	0	Yes	7	\$0	\$0	1	
30.030 30.040	Heavy Maintenance Facility Storage or Maintenance of Way Building	Vehicles Lineal Miles of Guideway	0	Yes No	17 5	\$0 \$0	\$0 \$0	1	
30.050	Yard and Yard Track	Track Miles	0	No	5	\$0	\$0		
40 40.010	Sitework & Special Conditions Demolition, Clearing, Earthwork	Lineal Miles of Guideway Lineal Miles of Guideway	0.7542 0.7542	Yes	12	\$15,915 \$2,033,937	\$12,003 \$1,534	2%	1%
40.020 40.030	Site Utilities, Utility Relocation Haz. mat1, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway	0.7542 0.7542	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$3,217 \$1,734		
40.030	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	0.7542	Yes	8	\$1,047,598	\$7,734	<u> </u>	
40.050 40.060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	0.7542 0.7542	Yes Yes	1 8	\$149,423 \$955.612	\$113 \$721	1	
40.070	Automobile, bus, van accessways including roads, parking lots	Spaces	0.7542	163		\$0	\$0	<u> </u>	
40.071 40.072	Surface Parking Lot Auto Access	Spaces Stations			8	\$0 \$0	\$0 \$0	-	
40.080	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	1	Yes	21	\$5,163,485	\$3,894		
50 50.010	Systems Train control and signals	Track Miles Track Miles	1	Yes	0 26	\$13,931 \$2,966,502	\$10,506 \$2,237	2%	1%
50.020	Traffic signals and crossing protection	Track Miles	1	Yes	- 7	\$255,223	\$192	1	
50.030 50.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	1	Yes	23	\$1,697,988 \$3,196	\$1,281 \$2,410	-	
50.041	Catenary	Track Miles	1	Yes	13	\$1,346,370	\$1,015	1	
50.042 50.043	Third Rail Power Distribution and Connections	Track Miles Track Miles	1	Yes Yes	7	\$1,387,266 \$462,321	\$1,046 \$349		
50.050	Communications	Track Miles	1	Yes	23	\$2,267,613	\$1,710	1	
50.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	2	Yes	28 0	\$1,337,702 \$809,152	\$2,675 \$610,235	100%	65%
60	Row, Land, Existing Improvements	Lineal Miles of Guideway	1	V	0	\$18,474	\$13,932		1%
60.010 60.020	Purchase or lease of real estate Relocation of existing households and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	1	Yes Yes	25 12	\$14,910,401 \$1,727,595	\$11,245 \$1,303		
60.030 60.040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	1	Yes	23	\$1,835,836	\$1,385		
70	Vehicles	Vehicles Vehicles	0	Yes	0	\$0 \$0	\$0 \$0	1	0%
70.010 70.020	Light Rail Heavy Rail	Vehicles Vehicles			15	\$0 \$0	\$0 \$0		
70.020 70.060	Non-revenue vehicles	Vehicles	0	Yes	11	\$0	\$0		
80.010	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$624,167.45 \$624,167.45	Yes	0	49% 6%	\$308,434 \$40.500	0%	0%
80.020	Final Design	Hard Costs	\$624,167.45	Yes	22	12%	\$76,243		
80.030 80.040	Project Management for Design and Construction Construction Administration & Management	Hard Costs Hard Costs	\$624,167.45 \$624,167.45	Yes Yes	32 24	10%	\$63,229 \$71,693		
80.050	Professional Liability and other Non-Construction Insurance	Hard Costs	\$624,167.45	Yes	16	4%	\$27,222	1	
80.060 80.070	Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$624,167.45 \$624,167.45	Yes Yes	6	2% 0%	\$12,883 \$2,621		
80.080	Start up	Hard Costs	\$624,167.45	Yes	23	2%	\$10,975	1	
80.090	Other Subtotal (10-80)	Hard Costs Lineal Miles of Guideway	\$624,167.45 1	Yes	10	0% \$1,236,599	\$3,068 \$932,601		
90	Unallocated Contingency	Total Amount	1		0	\$0	\$0		0%
100	Subtotal (10-80) Finance Charges	Lineal Miles of Guideway Total Amount	1		0	0 \$0	\$932,601 \$0		100% 0%
100	Total Project Costs (10-100)	Lineal Miles of Guideway	11		0	\$0 \$0	\$932,601		100%

Summary of Costs - Alternative 2 Options

	GUIDEWAY	# OF	LOW ESTIMATE	POINT ESTIMATE	HIGH ESTIMATE
DESCRIPTION	LENGTH(FT)		(-30%)	(\$000)	(+50%)
BEGGIAII TIGIT		(EA)	(\$000)		(\$000)
	CONS	STRUCTION	OSTS (SCC 10-50		
ALTERNATIVE 2A-1 (C/C)	3602	2	\$179,269	\$233,050	\$349,575
ALTERNATIVE 2A-1 (SEM)	3602	2	\$217,731	\$283,050	\$424,575
ALTERNATIVE 2A-2 (C/C)	3611	2	\$420,967	\$547,258	\$820,886
ALTERNATIVE 2A-2 (SEM)	3611	2	\$459,429	\$597,258	\$895,886
ALTERNATIVE 2B-2 (C/C)	5382	3	\$671,614	\$873,098	\$1,309,648
ALTERNATIVE 2B-2 (SEM)	5382	3	\$710,018	\$923,023	\$1,384,535
ALTERNATIVE 2A-3 (C/C)	5270	2	\$194,362	\$252,671	\$379,007
ALTERNATIVE 2A-3 (SEM)	5270	2	\$232,824	\$302,671	\$454,007
ALTERNATIVE 2A-4 (C/C)	5279	2	\$436,061	\$566,879	\$850,319
ALTERNATIVE 2A-4 (SEM)	5279	2	\$474,522	\$616,879	\$925,319
ALTERNATIVE 2A-5 (C/C)	7420	2	\$213,817	\$277,963	\$416,944
ALTERNATIVE 2A-5 (SEM)	7420	2	\$252,279	\$327,963	\$491,944
ALTERNATIVE 2A-6 (C/C)	7429	2	\$455,516	\$592,170	\$888,256
ALTERNATIVE 2A-6 (SEM)	7429	2	\$493,977	\$642,170	\$963,256
ALTERNATVE 2B-1 (C/C)	6909	2	\$209,193	\$271,951	\$407,927
ALTERNATIVE 2B-1 (SEM)	6909	2	\$247,655	\$321,951	\$482,927
			(SCC 60-100)	* 400 000	
ALTERNATIVE 2A-1 (C/C)	3602	2	\$103,071	\$133,993	\$200,989
ALTERNATIVE 2A-1 (SEM)	3602	2	\$122,077	\$158,700	\$238,050
ALTERNATIVE 2A-2 (C/C) ALTERNATIVE 2A-2 (SEM)	3611 3611	2	\$222,543 \$241.549	\$289,306 \$314.014	\$433,959 \$471.021
ALTERNATIVE 2A-2 (SEW) ALTERNATIVE 2B-2 (C/C)	5382	3		\$459,580	\$689,370
ALTERNATIVE 2B-2 (C/C) ALTERNATIVE 2B-2 (SEM)	5382	3	\$353,523 \$372.500	\$484,250	\$726.376
ALTERNATIVE 2B-2 (SEW) ALTERNATIVE 2A-3 (C/C)	5270	2	\$117.237	\$152.409	\$228,613
ALTERNATIVE 2A-3 (C/C) ALTERNATIVE 2A-3 (SEM)	5270	2	\$136,243	\$177,116	\$265,674
ALTERNATIVE 2A-4 (C/C)	5279	2	\$236,709	\$307,722	\$461,583
ALTERNATIVE 2A-4 (SEM)	5279	2	\$255,715	\$332,430	\$498,645
ALTERNATIVE 2A-5 (C/C)	7420	2	\$135,497	\$176,146	\$264,219
ALTERNATIVE 2A-5 (SEM)	7420	2	\$154.503	\$200.854	\$301,281
ALTERNATIVE 2A-6 (C/C)	7429	2	\$254,969	\$331,460	\$497,190
ALTERNATIVE 2A-6 (SEM)	7429	2	\$273,975	\$356,167	\$534,251
ALTERNATVE 2B-1 (C/C)	6909	2	\$131,157	\$170,504	\$255,756
ALTERNATIVE 2B-1 (SEM)	6909	2	\$150,163	\$195,212	\$292,818
/	1	OTAL COST	S (SCC 10-100)	. ,	
ALTERNATIVE 2A-1 (C/C)	3602	2	\$282,340	\$367,043	\$550,564
ALTERNATIVE 2A-1 (SEM)	3602	2	\$339,808	\$441,750	\$662,625
ALTERNATIVE 2A-2 (C/C)	3611	2	\$643,511	\$836,564	\$1,254,846
ALTERNATIVE 2A-2 (SEM)	3611	2	\$700,978	\$911,272	\$1,366,907
ALTERNATIVE 2B-2 (C/C)	5382	3	\$1,025,137	\$1,332,678	\$1,999,017
ALTERNATIVE 2B-2 (SEM)	5382	3	\$1,082,518	\$1,407,274	\$2,110,911
ALTERNATIVE 2A-3 (C/C)	5270	2	\$311,600	\$405,080	\$607,620
ALTERNATIVE 2A-3 (SEM)	5270	2	\$369,067	\$479,787	\$719,681
ALTERNATIVE 2A-4 (C/C)	5279	2	\$672,770	\$874,601	\$1,311,902
ALTERNATIVE 2A-4 (SEM)	5279	2	\$730,238	\$949,309	\$1,423,963
ALTERNATIVE 2A-5 (C/C)	7420	2	\$349,314	\$454,109	\$681,163
ALTERNATIVE 2A-5 (SEM)	7420	2	\$406,782	\$528,816	\$793,224
ALTERNATIVE 2A-6 (C/C)	7429	2	\$710,485	\$923,630	\$1,385,445
ALTERNATIVE 2A-6 (SEM)	7429	2	\$767,952	\$998,338	\$1,497,507
ALTERNATVE 2B-1 (C/C)	6909	2	\$340,351	\$442,456	\$663,684
ALTERNATIVE 2B-1 (SEM)	6909	2	\$397,818	\$517,163	\$775,745

Notes:

FTA Capital Cost Database utilized for point estimate values.

Costs are in 2014 dollars, adjusted locally to San Francisco, CA.

Estimate values exclude finance charges (SCC-100).

Range values based on FTA and AACE guidelines for Probable Accuracy.

(C/C) and (SEM) designations for each option refer to the method of construction of North Beach Station [whether the station is estimated as cut--and-cover (C/C) box construction or construction by sequential excavation method (SEM)].



SFMTA T-Third LRT/Central Subway Phase 3 - Task 4: Constructability Analysis

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All deep options have bored tunnel estimated as constructed by tunnel boring machine (TBM). All shallow (surface) options have tunnel portion estimated as cut-and-cover box construction. THIRD NOTE: For options 2A-4 and 2A-6 the running tunnel under Powell Street was estimated as a shallow cut-and-cover box construction due to N2 tunnel obstruction. One cross-over was estimated for all subway station options. Adding two cross-overs before and after the underground stations adds to costs of the stations significantly (operational benefits would need to be evaluated); in addition this would be practical/feasible only for North Beach Station and the alignments under Columbus Avenue due to geometric constrains and constructability considerations.

Alternative 2A-1

	lodel Compared With Project Estimate	OFNITRAL GUESTING				Tester to D. 1	0/05/0044	_	
Cost Ba Referen	sis: ce Name:	CENTRAL SUBWAY PHASE 3 ALT 2A-1				Today's Date Base Year	8/25/2014 2014		
Project (San Francisco, CA							
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	0.6822 Quantity	Inlucde	Sample	\$538,030 Unit Cost (\$)	\$367,043 Total Cost	Base Year	Base Year
		OTHES	Guanty	This Item	Size	Oπεσου (Φ)	(a) (\$000)	Dollars	Dollars
				(select 'Yes' or				Percentage of	Percentage of
				'No')				Construction Cost	Total Project Cost
10	Guideway & Track Elements	Lineal Miles of Guideway	0.6822		0	\$54,287	\$37,034	16%	10%
10.010 10.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19	\$0 \$0	\$0 \$0	1	
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	0.4953		8	\$27,171,972	\$13,457	1	
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	1	
10.060 10.070	Guideway: Underground cut & cover Guideway: Underground tunnel	Lineal Miles of Guideway Lineal Miles of Guideway	0.1261		11	\$107,955,004 \$0	\$13,617 \$0	-	
10.080	Guideway: Retained cut or fill	Lineal Miles of Guideway	0.0608		6	\$65,864,817	\$4,004	1	
10.090 10.100	Track: Direct fixation Track: Embedded	Track Miles Track Miles	0.1261 0.5561		19 9	\$3,705,543 \$3,220,175	\$467 \$1,791	1	
10.110	Track Ballasted	Track Miles	1	Vee	18	\$0	\$0	1	
10.120 10.140	Track: Special (switches, turnouts) Special Structures	Track Miles Lineal Miles of Guideway	i	Yes Yes	12 3	\$378,486 \$5,041,732	\$258 \$3,439	1	
20 20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	2 1		0 19	\$87,700 \$16,869,180	\$175,399 \$16,869	75%	48%
20.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0	1	
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Cut and Cover	Stations Stations	1		10	\$150,000 \$150,000,000	\$150,000 \$150,000	1	
20.032	Bored Earth Soft Soils Bored Rock Hard Soils	Stations Stations			0	\$0 \$0	\$0 \$0	1	
20.033	Unspecified	Stations			4	\$0	\$0	1	
20.060 20.070	Automobile parking multi-story structure Elevators, escalators	Spaces Number	4		3	\$0 \$2,133	\$0 \$8,530	-	
20.071	Elevators	Number	2		4	\$2,217,942	\$4,436	1	
20.072 20.080	Escalators Passenger Overpass	Number Number	2		5	\$2,047,157 \$0	\$4,094 \$0	1	
20.090	Underground Interconnecting Tunnel	Number		No	0	\$0	\$0	1	
20.100 30	Signage and Graphics Support Facilities: Yards, Shops, Admin. Bldgs	Stations Vehicles	0		10 0	\$0 \$0	\$0 \$0	0%	0%
30.010	Administration Building: Office, sales, storage, revenue counting	Lineal Miles of Guideway	0.6822		Ů	\$0	\$0	- Un	0.8
30.011 30.012	Administrative Building Central Control Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0	-	
30.013	Central Revenue Counting Facility	Lineal Miles of Guideway	0	No	0	\$0	\$0	1	
30.020 30.030	Light Maintenance Facility Heavy Maintenance Facility	Vehicles Vehicles	0	Yes Yes	7 17	\$0 \$0	\$0 \$0	1	
30.040 30.050	Storage or Maintenance of Way Building Yard and Yard Track	Lineal Miles of Guideway Track Miles	0	No No	5 5	\$0 \$0	\$0 \$0	1	
40	Sitework & Special Conditions	Lineal Miles of Guideway	0.6822		0	\$15,915	\$10,857	5%	3%
40.010 40.020	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway Lineal Miles of Guideway	0.6822 0.6822	Yes Yes	12 75	\$2,033,937 \$4,266,060	\$1,388 \$2,910	-	
40.030	Haz. mat'l, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway	0.6822	Yes	5	\$2,299,074	\$1,568	1	
40.040 40.050	Environmental mitigation, e.g. wetlands, historic/archeologic, parks Site structures including retaining walls, sound walls	Lineal Miles of Guideway Lineal Miles of Guideway	0.6822 0.6822	Yes Yes	8 1	\$1,047,598 \$149,423	\$715 \$102	1	
40.060 40.070	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway	0.6822	Yes	8	\$955,612	\$652	1	
40.071	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces Spaces	0		8	\$0 \$0	\$0 \$0	1	
40.072 40.080	Auto Access Temporary Facilities and other indirect costs during construction	Stations Lineal Miles of Guideway	0.6822	Yes	21	\$0 \$5,163,485	\$0 \$3,523	7	
50	Systems	Track Miles	0.6822		0	\$14,305	\$9,759	4%	3%
50.010 50.020	Train control and signals Traffic signals and crossing protection	Track Miles Track Miles	0.6822 0.6822	Yes Yes	26 7	\$2,966,502 \$255,223	\$2,024 \$174	1	
50.030	Traction power supply: substations	Track Miles	0.6822	Yes	23	\$1,697,988	\$1,158	1	
50.040 50.041	Traction power distribution: catenary and third rail Catenary	Track Miles Track Miles	0.6822 0.6822	Yes	13	\$3,196 \$1,346,370	\$2,180 \$918		
50.042 50.043	Ancillary Elements Power Distribution and Connections	Track Miles Track Miles	0.6822 0.6822	Yes Yes	7	\$1,387,266 \$462,321	\$946 \$315	-	
50.050	Communications	Track Miles	0.6822	Yes	23	\$2,267,613	\$1,547	1	
50.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	2 0.6822	Yes	28	\$1,337,702 \$341,617	\$2,675 \$233,050	100%	63%
60	Row, Land, Existing Improvements	Lineal Miles of Guideway	0.6822	Von	0	\$18,474	\$12,603	-	3%
60.010 60.020	Purchase or lease of real estate Relocation of existing households and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	0.6822 0.6822	Yes Yes	25 12	\$14,910,401 \$1,727,595	\$10,172 \$1,179		
60.030 60.040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	0.6822 0.6822	Yes Yes	23 0	\$1,835,836 \$0	\$1,252 \$0	-	
70	Vehicles	Vehicles	0.8622	163	0	\$0	\$0	1	0%
70.010 70.020	Light Rail Heavy Rail	Vehicles Vehicles			15 6	\$0 \$0	\$0 \$0	1	
70.060	Non-revenue vehicles	Vehicles	0	Yes	11	\$0	\$0	1	0
80 80.010	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$245,652.65 \$245,652.65	Yes	14	49% 6%	\$121,390 \$15,940	0%	0%
80.020 80.030	Final Design	Hard Costs Hard Costs	\$245,652.65 \$245.652.65	Yes	22	12% 10%	\$30,007 \$24,885	-	
80.040	Project Management for Design and Construction Construction Administration & Management	Hard Costs	\$245,652.65	Yes Yes	32 24	11%	\$28,216	1	
80.050 80.060	Professional Liability and other Non-Construction Insurance Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs Hard Costs	\$245,652.65 \$245,652.65	Yes Yes	16 6	4% 2%	\$10,714 \$5,070	-	
80.070	Surveys, Testing, Investigation, Inspection	Hard Costs	\$245,652.65	Yes	2	0%	\$1,031	1	
80.080 80.090	Start up Other	Hard Costs Hard Costs	\$245,652.65 \$245,652.65	Yes Yes	23 10	2% 0%	\$4,320 \$1,208	-	
	Subtotal (10-80)	Lineal Miles of Guideway	1		0	\$538,030	\$367,043		
90	Unallocated Contingency Subtotal (10-90)	Total Amount Lineal Miles of Guideway	1		0	\$0 0	\$0 \$367,043		0% 100%
100	Finance Charges	Total Amount	1		0	\$0	\$0		0%
	Total Project Costs (10-100)	Lineal Miles of Guideway	1		0	\$0	\$367,043		100%



Alternative 2A-1 (NBS is SEM)

Cost Ba Referen	ice Name:	CENTRAL SUBWAY PHASE 3 ALT 2A-1 (NBS IS SEM)				Today's Date Base Year	8/25/2014 2014		
Project (Mode:	City:	San Francisco, CA Light Rail Transit					Chart		
.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	0.6822			\$647,541	\$441,750		
		Units	Quantity	Inlucde This Item (select 'Yes' or 'No')	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars Percentage of Construction Cost	Base Yea Dollars Percentag of Total Project Co:
0	Guideway & Track Elements	Lineal Miles of Guideway	0.6822		0	\$54,287	\$37,034	13%	8%
0.010	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0	-	
0.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	0.4953		8	\$27,171,972	\$13,457	1	
0.040 0.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	-	
0.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.1261		11	\$107,955,004	\$13,617		
0.070	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.0608		11 6	\$0 \$65,864,817	\$0 \$4,004	-	
0.090	Track: Direct fixation	Track Miles	0.1261		19	\$3,705,543	\$467		
0.100 0.110	Track Embedded Track Ballasted	Track Miles Track Miles	0.5561		9 18	\$3,220,175 \$0	\$1,791 \$0]	
0.110	Track: Ballasted Track: Special (switches, tumouts)	Track Miles	1	Yes	18	\$378.486	\$258	1	
0.140	Special Structures	Lineal Miles of Guideway	1	Yes	3	\$5,041,732	\$3,439		
0.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	2 1		0	\$112,700 \$16,869,180	\$225,399 \$16,869	80%	51%
0.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0		
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Sequential Excavation Method	Stations Stations	<u>1</u>		10	\$200,000 \$200,000,000	\$200,000 \$200,000	-	
0.032	Bored Earth Soft Soils	Stations	<u> </u>		0	\$0	\$0		
20.033	Bored Rock Hard Soils	Stations Stations			0 4	\$0 \$0	\$0 \$0	-	
0.060	Unspecified Automobile parking multi-story structure	Stations Spaces			3	\$0 \$0	\$0		
0.070	Elevators, escalators	Number	4			\$2,133	\$8,530	1	
0.071 0.072	Elevators Escalators	Number Number	2		4 5	\$2,217,942 \$2,047,157	\$4,436 \$4,094		
0.080	Passenger Overpass	Number			5	\$0	\$0		
0.090	Underground Interconnecting Tunnel	Number		No	0	\$0	\$0		
0.100 0	Signage and Graphics Support Facilities: Yards, Shops, Admin. Bldgs	Stations Vehicles	0		10	\$0 \$0	\$0 \$0	0%	0%
0.010	Administration Building: Office, sales, storage, revenue counting	Lineal Miles of Guideway	0.6822			\$0	\$0		
0.011 0.012	Administrative Building Central Control Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0	4	
0.013	Central Revenue Counting Facility	Lineal Miles of Guideway	0	No	0	\$0	\$0	1	
80.020 80.030	Light Maintenance Facility Heavy Maintenance Facility	Vehicles Vehicles	0	Yes Yes	7 17	\$0 \$0	\$0 \$0	4	
30.040	Storage or Maintenance of Way Building	Lineal Miles of Guideway	0	No	5	\$0	\$0	_	
0.050 IO	Yard and Yard Track	Track Miles Lineal Miles of Guideway	0	No	5 0	\$0	\$0 \$10,857	4%	2%
0.010	Sitework & Special Conditions Demolition, Clearing, Earthwork	Lineal Miles of Guideway	0.6822 0.6822	Yes	12	\$15,915 \$2,033,937	\$1,388	4%	2%
0.020	Site Utilities, Utility Relocation	Lineal Miles of Guideway	0.6822	Yes	75	\$4,266,060	\$2,910]	
0.030 0.040	 Haz. mat¹l, contam¹d soil removal/mitigation, ground water treatmer Environmental mitigation, e.g. wetlands, historic/archeologic, parks 	Lineal Miles of Guideway Lineal Miles of Guideway	0.6822 0.6822	Yes Yes	5 8	\$2,299,074 \$1,047,598	\$1,568 \$715	1	
0.050	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	0.6822	Yes	1	\$149,423	\$102	1	
0.060 0.070	Pedestrian / bike access and accommodation, landscaping Automobile, bus, van accessways including roads, parking lots	Lineal Miles of Guideway Spaces	0.6822 n	Yes	8	\$955,612 \$0	\$652 \$0	┨	
0.071	Surface Parking Lot	Spaces			8	\$0	\$0	1	
0.072 0.080	Auto Access Temporary Facilities and other indirect costs during construction	Stations Lineal Miles of Guideway	0.6822	Yes	21	\$0 \$5,163,485	\$0 \$3.523	4	
0	Systems	Track Miles	0.6822		0	\$14,305	\$9,759	3%	2%
0.010 0.020	Train control and signals Traffic signals and crossing protection	Track Miles Track Miles	0.6822 0.6822	Yes Yes	26 7	\$2,966,502 \$255,223	\$2,024 \$174	-	
0.030	Traction power supply: substations	Track Miles	0.6822	Yes	23	\$1,697,988	\$1,158	1	
0.040 0.041	Traction power distribution: catenary and third rail Catenary	Track Miles Track Miles	0.6822 0.6822	Yes	13	\$3,196 \$1,346,370	\$2,180 \$918	-	
0.042	Ancillary Elements	Track Miles	0.6822	Yes	7	\$1,387,266	\$946		
0.043	Power Distribution and Connections Communications	Track Miles Track Miles	0.6822 0.6822	Yes	4 23	\$462,321	\$315 \$1.547	-	
0.050 0.060	Communications Fare collection system and equipment	Track Miles Stations	0.6822 2	Yes Yes	23 28	\$2,267,613 \$1,337,702	\$1,547 \$2,675	1	
	Construction Subtotal (10-50)	Lineal Miles of Guideway	0.6822		0	\$414,909	\$283,050	100%	64%
0.010	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	0.6822 0.6822	Yes	0 25	\$18,474 \$14,910,401	\$12,603 \$10,172		3%
0.020	Relocation of existing households and businesses	Lineal Miles of Guideway	0.6822	Yes	12	\$1,727,595	\$1,179		
0.030 0.040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	0.6822 0.6822	Yes Yes	23 0	\$1,835,836 \$0	\$1,252 \$0	-	
0	Vehicles	Vehicles	0		0	\$0	\$0		0%
0.010 0.020	Light Rail Heavy Rail	Vehicles Vehicles			15 6	\$0 \$0	\$0 \$0	-	
0.060	Non-revenue vehicles	Vehicles	0	Yes	11	\$0	\$0		
0.010	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$295,652.65 \$295.652.65	Yes	0	49%	\$146,098 \$19.184	0%	0%
0.020	Preliminary Engineering Final Design	Hard Costs Hard Costs	\$295,652.65	Yes	22	6% 12%	\$36,114		
0.030	Project Management for Design and Construction	Hard Costs	\$295,652.65	Yes	32	10%	\$29,950		
0.040 0.050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$295,652.65 \$295,652.65	Yes Yes	24 16	11% 4%	\$33,959 \$12,894	1	
0.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$295,652.65	Yes	6	2%	\$6,102		
0.070 0.080	Surveys, Testing, Investigation, Inspection Start up	Hard Costs Hard Costs	\$295,652.65 \$295,652.65	Yes Yes	23	0% 2%	\$1,241 \$5,199	-	
0.090	Other	Hard Costs	\$295,652.65	Yes	10	0%	\$1,453		
	Subtotal (10-80) Unallocated Contingency	Lineal Miles of Guideway	1		0	\$647,541	\$441,750		0%
		Total Amount			0	\$0	\$0		
0	Subtotal (10-90)	Lineal Miles of Guideway	1		0	0	\$441,750		100%
00		Lineal Miles of Guideway Total Amount Lineal Miles of Guideway	1		0	\$0 \$0	\$441,750 \$0 \$441,750		100% 0% 100%



Alternative 2A-2

Cost M	lodel Compared With Project Estimate								
Cost Bas	sis:	CENTRAL SUBWAY PHASE				Today's Date	8/25/2014		
Reference Project 0		3 ALT 2A-2 San Francisco, CA				Base Year	2014		
Mode:		Light Rail Transit					Chart		
0.00			0.0000			A4 000 000			
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	0.6839 Quantity	Inlucde	Sample	\$1,223,223 Unit Cost (\$)	\$836,564 Total Cost	Base Year	Base Year
			223,104	This Item	Size		(a) (\$000)	Dollars	Dollars
				(select 'Yes' or				Percentage of	Percentage of
				'No')				Construction	Total
10	Guideway & Track Elements	Lineal Miles of Guideway	0.6839		0	\$150,385	\$102.849	Cost 19%	Project Cost 12%
10.010	Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway	0.000		19	\$0	\$0	15%	12.0
10.020 10.030	Guideway: At-grade semi-exclusive (allows cross-traffic) Guideway: At-grade in mixed traffic	Lineal Miles of Guideway Lineal Miles of Guideway			3 8	\$0 \$0	\$0 \$0		
10.040	Guideway: Aerial structure	Lineal Miles of Guideway			16	\$0	\$0	1	
10.050 10.060	Guidewa'y: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1326		0 11	\$0 \$107,955,004	\$0 \$14,312		
10.070	Guideway: Underground tunnel	Lineal Miles of Guideway	0.5513		11	\$149,268,285	\$82,295		
10.080	Guideway: Retained cut or fill	Lineal Miles of Guideway Track Miles	0.0000		6 19	\$0	\$0 \$2.534		
10.090 10.100	Track: Direct fixation Track: Embedded	Track Miles	0.6839		9	\$3,705,543 \$0	\$2,534		
10.110	Track Ballasted	Track Miles		V	18	\$0	\$0		
10.120 10.140	Track: Special (switches, turnouts) Special Structures	Track Miles Lineal Miles of Guideway	1	Yes Yes	12 3	\$378,486 \$5,041,732	\$259 \$3,448		
20	Stations, Stops, Terminals, Intermodels	Stations	2		0	\$211,874	\$423,748	77%	51%
20.010 20.020	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform Aerial station, stop, shelter, mall, terminal, platform	Stations Stations			19 5	\$0 \$0	\$0 \$0		
20.030	Underground station, stop, shelter, mall, terminal, platform	Stations	2			\$203,344	\$406,688		
20.031 20.032	Sequential Excavation Method Bored Earth Soft Soils	Stations Stations	2		10 0	\$203,343,750 \$0	\$406,688 \$0		
20.033	Bored Rock Hard Soils	Stations			0	\$0	\$0	1	
20.034	Unspecified	Stations			4	\$0	\$0		
20.060 20.070	Automobile parking multi-story structure Elevators, escalators	Spaces Number	8		3	\$0 \$2,133	\$0 \$17,060		
20.071	Elevators	Number	4		4	\$2,217,942	\$8,872		
20.072	Escalators	Number	4		5	\$2,047,157	\$8,189		
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0		
20.100	Signage and Graphics	Stations			10	\$0	\$0		
30 30.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0.6839		0	\$0 \$0	\$0 \$0	0%	0%
30.011	Administrative Building	Lineal Miles of Guideway	0	No	2	\$0	\$0		
30.012	Central Control Facility	Lineal Miles of Guideway	0	No	2 0	\$0	\$0		
30.013 30.020	Central Revenue Counting Facility Light Maintenance Facility	Lineal Miles of Guideway Vehicles	0	No Yes	7	\$0 \$0	\$0 \$0		
30.030	Heavy Maintenance Facility	Vehicles	0	Yes	17	\$0	\$0		
30.040 30.050	Storage or Maintenance of Way Building Yard and Yard Track	Lineal Miles of Guideway Track Miles	0	No No	5 5	\$0 \$0	\$0 \$0		
40	Sitework & Special Conditions	Lineal Miles of Guideway	0.6839		0	\$15,915	\$10,884	2%	1%
40.010 40.020	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway Lineal Miles of Guideway	0.6839 0.6839	Yes Yes	12 75	\$2,033,937 \$4,266,060	\$1,391 \$2,918	-	
40.030	Haz. mat1, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway	0.6839	Yes	5	\$2,299,074	\$1,572	1	
40.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	0.6839	Yes	8	\$1,047,598	\$716		
40.050 40.060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	0.6839 0.6839	Yes Yes	8	\$149,423 \$955,612	\$102 \$654		
40.070	Automobile, bus, van accessways including roads, parking lots	Spaces	0			\$0	\$0		
40.071 40.072	Surface Parking Lot Auto Access	Spaces Stations			8 2	\$0 \$0	\$0 \$0		
40.080	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	0.6839	Yes	21	\$5,163,485	\$3,531		
50 50.010	Systems Train control and signals	Track Miles Track Miles	0.6839 0.6839	Yes	26	\$14,295 \$2,966,502	\$9,777 \$2,029	2%	1%
50.020	Traffic signals and crossing protection	Track Miles	0.6839	Yes	7	\$255,223	\$175		
50.030	Traction power supply: substations	Track Miles	0.6839	Yes	23	\$1,697,988	\$1,161		
50.040 50.041	Traction power distribution: catenary and third rail Catenary	Track Miles Track Miles	0.6839 0.6839	Yes	13	\$3,196 \$1,346,370	\$2,186 \$921		
50.042	Ancillary Elements	Track Miles	0.6839	Yes	7	\$1,387,266	\$949		
50.043 50.050	Power Distribution and Connections Communications	Track Miles Track Miles	0.6839 0.6839	Yes Yes	4 23	\$462,321 \$2,267,613	\$316 \$1.551		
50.060	Fare collection system and equipment	Stations	2	Yes	28	\$1,337,702	\$2,675	1	
	Construction Subtotal (10-50)	Lineal Miles of Guideway	0.6839		0	\$800,200	\$547,258	100%	65%
60 60.010	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	0.6839 0.6839	Yes	0 25	\$18,474 \$14,910,401	\$12,634 \$10,197		2%
60.020	Relocation of existing households and businesses	Lineal Miles of Guideway	0.6839	Yes	12	\$1,727,595	\$1,182		
60.030 60.040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	0.6839 0.6839	Yes Yes	23 0	\$1,835,836 \$0	\$1,256 \$0		
70	Vehicles	Vehicles	0.0039	.00	0	\$0	\$0		0%
70.010 70.020	Light Rail Heavy Rail	Vehicles Vehicles			15 6	\$0 \$0	\$0 \$0	-	
70.060	Non-revenue vehicles	Vehicles	0	Yes	11	\$0	\$0		
	Professional Services	Hard Costs	\$559,891.93 \$559.891.93	V	0	49%	\$276,672	0%	0%
80.010 80.020	Preliminary Engineering Final Design	Hard Costs Hard Costs	\$559,891.93 \$559,891.93	Yes Yes	14 22	6% 12%	\$36,330 \$68,392	1	
80.030	Project Management for Design and Construction	Hard Costs	\$559,891.93	Yes	32	10%	\$56,718		
80.040 80.050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$559,891.93 \$559,891.93	Yes Yes	24 16	11% 4%	\$64,310 \$24,419		
80.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$559,891.93	Yes	6	2%	\$11,556		
80.070	Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$559,891.93	Yes	2	0%	\$2,351		
80.080 80.090	Start up Other	Hard Costs	\$559,891.93 \$559,891.93	Yes Yes	23 10	2% 0%	\$9,845 \$2,752		
	Subtotal (10-80)	Lineal Miles of Guideway	1		0	\$1,223,223	\$836,564		
90	Unallocated Contingency Subtotal (10-90)	Total Amount Lineal Miles of Guideway	1		0	\$0 0	\$0 \$836,564		0% 100%
100	Finance Charges	Total Amount	1		0	\$0	\$0		0%
	Total Project Costs (10-100)	Lineal Miles of Guideway	1		0	\$0	\$836,564		100%



Alternative 2A-2 (NBS is SEM)

	odel Compared With Project Estimate	0511511 015				Today (s. E.)	0050044		
Cost Bas Reference		CENTRAL SUBWAY PHASE 3 ALT 2A-2 (NBS is SEM)				Today's Date Base Year	8/25/2014 2014		
Project 0		San Francisco, CA							
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	0.6839 Quantity	Inlucde	Sample	\$1,332,460 Unit Cost (\$)	\$911,272 Total Cost	Base Year	Base Year
		Offics	Quantity	This Item	Size	Offit Cust (\$)	(a) (\$000)	Dollars	Dollars
				(select 'Yes' or				Percentage of	Percentag of
				'No')				Construction	Total
10	Guideway & Track Elements	Lineal Miles of Guideway	0.6839	 	0	\$150,385	\$102,849	Cost 17%	Project Co 11%
10.010 10.020	Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0		
10.020	Guideway: At-grade semi-exclusive (allows cross-traffic) Guideway: At-grade in mixed traffic	Lineal Miles of Guideway			8	\$0	\$0 \$0	ł	
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	1	
10.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.1326		- 11	\$107,955,004	\$14,312	1	
10.070 10.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.5513		11 6	\$149,268,285 \$0	\$82,295 \$0	1	
10.090 10.100	Track: Direct fixation Track: Embedded	Track Miles Track Miles	0.6839		19 9	\$3,705,543 \$0	\$2,534 \$0	1	
10.110	Track: Ballasted	Track Miles			18	\$0	\$0		
10.120 10.140	Track: Special (switches, turnouts) Special Structures	Track Miles Lineal Miles of Guideway	1	Yes Yes	12 3	\$378,486 \$5,041,732	\$259 \$3,448	}	
20	Stations, Stops, Terminals, Intermodels	Stations	2	103	0	\$236,874	\$473,748	79%	52%
20.010 20.020	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform Aerial station, stop, shelter, mall, terminal, platform	Stations Stations			19 5	\$0 \$0	\$0 \$0		
20.030	Underground station, stop, shelter, mall, terminal, platform	Stations	2			\$228,344	\$456,688		
20.031 20.032	Sequential Excavation Method Bored Earth Soft Soils	Stations Stations	2		10 0	\$228,343,750 \$0	\$456,688 \$0		
20.033 20.034	Bored Rock Hard Soils Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0		
20.060	Automobile parking multi-story structure	Spaces			3	\$0	\$0		
20.070 20.071	Elevators, escalators Elevators	Number Number	8		4	\$2,133 \$2,217,942	\$17,060 \$8,872		
20.072	Escalators	Number	4		5	\$2,047,157	\$8,189	1	
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0	}	
20.100	Signage and Graphics	Stations		INU	10	\$0	\$0		
0.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0.6839	-	0	\$0 \$0	\$0 \$0	0%	0%
30.011	Administrative Building	Lineal Miles of Guideway	0	No	2	\$0	\$0	1	
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2 0	\$0 \$0	\$0 \$0	ł	
30.020	Light Maintenance Facility Heavy Maintenance Facility	Vehicles	0	Yes	7	\$0	\$0	1	
30.030 30.040	Storage or Maintenance of Way Building	Vehicles Lineal Miles of Guideway	0	Yes No	5	\$0 \$0	\$0 \$0	1	
30.050 10	Yard and Yard Track Sitework & Special Conditions	Track Miles Lineal Miles of Guideway	0.6839	No	5 0	\$0 \$15,915	\$0 \$10,884	2%	1%
40.010	Demolition, Clearing, Earthwork	Lineal Miles of Guideway	0.6839	Yes	12	\$2,033,937	\$1,391	2.0	176
10.020 10.030	Site Utilities, Utility Relocation Haz. mat1, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway Lineal Miles of Guideway	0.6839 0.6839	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$2,918 \$1,572		
10.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	0.6839	Yes	8	\$1,047,598	\$716	1	
10.050 10.060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	0.6839 0.6839	Yes Yes	1 8	\$149,423 \$955,612	\$102 \$654	ł	
10.070 10.071	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces Spaces	0		8	\$0 \$0	\$0 \$0	1	
10.072	Auto Access	Stations			2	\$0	\$0	1	
40.080 50	Temporary Facilities and other indirect costs during construction Systems	Lineal Miles of Guideway Track Miles	0.6839 0.6839	Yes	21	\$5,163,485 \$14,295	\$3,531 \$9,777	2%	1%
50.010	Train control and signals	Track Miles	0.6839	Yes	26	\$2,966,502	\$2,029		
50.020 50.030	Traffic signals and crossing protection Traction power supply: substations	Track Miles Track Miles	0.6839 0.6839	Yes Yes	7 23	\$255,223 \$1,697,988	\$175 \$1,161		
50.040 50.041	Traction power distribution: catenary and third rail	Track Miles	0.6839			\$3,196	\$2,186		
50.042	Catenary Ancillary Elements	Track Miles Track Miles	0.6839 0.6839	Yes Yes	13 7	\$1,346,370 \$1,387,266	\$921 \$949		
50.043 50.050	Power Distribution and Connections Communications	Track Miles Track Miles	0.6839 0.6839	Yes Yes	4 23	\$462,321 \$2,267,613	\$316 \$1.551		
50.060	Fare collection system and equipment	Stations	2	Yes	28	\$1,337,702	\$2,675		
30	Construction Subtotal (10-50) Row, Land, Existing Improvements	Lineal Miles of Guideway Lineal Miles of Guideway	0.6839 0.6839		0	\$873,309 \$18,474	\$597,258 \$12,634	100%	66% 1%
50.010	Purchase or lease of real estate	Lineal Miles of Guideway	0.6839	Yes	25	\$14,910,401	\$10,197	1	1.0
60.020 60.030	Relocation of existing households and businesses Services	Lineal Miles of Guideway Lineal Miles of Guideway	0.6839 0.6839	Yes Yes	12 23	\$1,727,595 \$1,835,836	\$1,182 \$1,256		
60.040	Other Real Estate Costs	Lineal Miles of Guideway	0.6839	Yes	0	\$0	\$0	1	
0.010	Vehicles Light Rail	Vehicles Vehicles	0		0 15	\$0 \$0	\$0 \$0		0%
0.020	Heavy Rail Non-revenue vehicles	Vehicles Vehicles	0	Yes	6	\$0 \$0	\$0 \$0		
10	Professional Services	Hard Costs	\$609,891.93		0	49%	\$301,380	0%	0%
0.010 0.020	Preliminary Engineering Final Design	Hard Costs Hard Costs	\$609,891.93 \$609.891.93	Yes Yes	14 22	6% 12%	\$39,574 \$74,499		
0.030	Project Management for Design and Construction	Hard Costs	\$609,891.93	Yes	32	10%	\$61,783		
0.040 0.050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$609,891.93 \$609,891.93	Yes Yes	24 16	11% 4%	\$70,053 \$26,600		
0.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$609,891.93	Yes	6	2%	\$12,588		
30.070 30.080	Surveys, Testing, Investigation, Inspection Start up	Hard Costs Hard Costs	\$609,891.93 \$609,891.93	Yes Yes	23	0% 2%	\$2,561 \$10,724		
80.090	Other Subtotal (10-80)	Hard Costs Lineal Miles of Guideway	\$609,891.93	Yes	10	0% \$1,332,460	\$2,998 \$911,272		
90	Unallocated Contingency	Total Amount	1		0	\$0	\$0		0%
100	Subtotal (10-90) Finance Charges	Lineal Miles of Guideway Total Amount	1		0	0 \$0	\$911,272 \$0		100% 0%
100	Total Project Costs (10-100)	Lineal Miles of Guideway	1		0	\$0 \$0	\$0 \$911,272		100%



Alternative 2A-3

Cost Ba Referen Project (ce Name:	CENTRAL SUBWAY PHASE 3 ALT 2A-3 San Francisco, CA				Today's Date Base Year	8/25/2014 2014		
Mode:		Light Rail Transit					Chart		
.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	0.9981 Quantity	Inlucde This Item (select 'Yes' or	Sample Size	\$405,848 Unit Cost (\$)	\$405,080 Total Cost (a) (\$000)	Base Year Dollars Percentage	Base Y Dollar Percent of
				'No')				Construction	Total Project (
)	Guideway & Track Elements	Lineal Miles of Guideway	0.9981		0	\$48,440	\$48,348	19%	12%
0.010 0.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0	4	
0.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	0.8112		8	\$27,171,972	\$22,041	Dollars Percentage of Construction Cost	
0.040 0.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0		
0.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.1261		11	\$107,955,004	\$13,617		
1.070 1.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.0608		11 6	\$0 \$65,864,817	\$0 \$4,004		
0.090	Track: Direct fixation	Track Miles	0.1261		19	\$3,705,543	\$467	1	
0.100	Track: Embedded Track: Ballasted	Track Miles Track Miles	0.8720		9 18	\$3,220,175 \$0	\$2,808 \$0	Dollars Percentage of Construction Cost 19% 65% 65%	
0.120	Track: Special (switches, tumouts)	Track Miles	1	Yes	12	\$378,486	\$378		
0.140	Special Structures	Lineal Miles of Guideway	1 2	Yes	3	\$5,041,732	\$5,032	0011	401
0.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	1		19	\$87,700 \$16,869,180	\$175,399 \$16,869	69%	431
1.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0	1	
0.030 0.031	Underground station, stop, shelter, mall, terminal, platform Cut and Cover	Stations Stations	1		10	\$150,000 \$150,000,000	\$150,000 \$150,000	1	
0.032	Bored Earth Soft Soils	Stations			0	\$0	\$0	1	
0.033 0.034	Bored Rock Hard Soils Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0	1	
0.060	Automobile parking multi-story structure	Spaces			3	\$0	\$0	1	
0.070 0.071	Elevators, escalators Elevators	Number Number	4		4	\$2,133 \$2,217,942	\$8,530 \$4,436	4	
0.072	Escalators	Number	2		5	\$2,047,157	\$4,094	1	
0.080	Passenger Overpass	Number		Nie	5	\$0	\$0	1	
.090 .100	Underground Interconnecting Tunnel Signage and Graphics	Number Stations		No	0 10	\$0 \$0	\$0 \$0	1	
	Support Facilities: Yards, Shops, Admin. Bldgs	Vehicles	0		0	\$0	\$0	0%	09
.010 .011	Administration Building: Office, sales, storage, revenue counting Administrative Building	Lineal Miles of Guideway Lineal Miles of Guideway	0.9981 n	No	2	\$0 \$0	\$0 \$0	1	
.012	Central Control Facility	Lineal Miles of Guideway	0	No	2	\$0	\$0	1	
0.013 0.020	Central Revenue Counting Facility Light Maintenance Facility	Lineal Miles of Guideway Vehicles	0	No Yes	7	\$0 \$0	\$0 \$0	-	
0.030	Heavy Maintenance Facility	Vehicles	0	Yes	17	\$0	\$0	1	
0.040 0.0 5 0	Storage or Maintenance of Way Building Yard and Yard Track	Lineal Miles of Guideway Track Miles	0	No No	5 5	\$0 \$0	\$0 \$0	4	
)	Sitework & Special Conditions	Lineal Miles of Guideway	0.9981		0	\$15,915	\$15,885	6%	4
0.010 0.020	Demolition, Clearing, Earthwork	Lineal Miles of Guideway	0.9981 0.9981	Yes	12	\$2,033,937	\$2,030	4	
0.030	Site Utilities, Utility Relocation Haz. mat/l, contam/d soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway Lineal Miles of Guideway	0.9981	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$4,258 \$2,295	1	
0.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	0.9981	Yes	8	\$1,047,598	\$1,046	1	
0.050 0.060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	0.9981 0.9981	Yes Yes	1 8	\$149,423 \$955,612	\$149 \$954	1	
0.070	Automobile, bus, van accessways including roads, parking lots	Spaces	0			\$0	\$0	1	
0.071 0.072	Surface Parking Lot Auto Access	Spaces Stations			8	\$0 \$0	\$0 \$0	4	
0.080.0	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	0.9981	Yes	21	\$5,163,485	\$5,154	<u> </u>	
) 0.010	Systems Train control and signals	Track Miles Track Miles	0.9981 0.9981	Yes	0 26	\$13,064 \$2,966,502	\$13,039 \$2,961	5%	39
0.020	Traffic signals and crossing protection	Track Miles	0.9981	Yes	- 7	\$255,223	\$255		
0.030 1.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	0.9981 0.9981	Yes	23	\$1,697,988 \$3,196	\$1,695 \$3,190	-	
0.040	Catenary	Track Miles	0.9981	Yes	13	\$1,346,370	\$1,344	1	
0.042 0.043	Ancillary Elements Power Distribution and Connections	Track Miles Track Miles	0.9981 0.9981	Yes Yes	7 4	\$1,387,266 \$462,321	\$1,385 \$461	1	
).043).050	Power Distribution and Connections Communications	Track Miles Track Miles	0.9981	Yes	23	\$2,267,613	\$2,263	1	
.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations	2	Yes	28	\$1,337,702	\$2,675	4000	
1	Row, Land, Existing Improvements	Lineal Miles of Guideway Lineal Miles of Guideway	0.9981 0.9981		0	\$253,151 \$18,474	\$252,671 \$18,439	100%	62 5°
1.010	Purchase or lease of real estate	Lineal Miles of Guideway	0.9981	Yes	25	\$14,910,401	\$14,882		Ť
.020	Relocation of existing households and businesses Services	Lineal Miles of Guideway Lineal Miles of Guideway	0.9981	Yes Yes	12 23	\$1,727,595 \$1,835,836	\$1,724 \$1,832	1	
.040	Other Real Estate Costs	Lineal Miles of Guideway	0.9981	Yes	0	\$0	\$0	1	
010	Vehicles Light Rail	Vehicles Vehicles	0		0 15	\$0 \$0	\$0 \$0	1	09
.020	Heavy Rail	Vehicles			6	\$0	\$0	1	
.060	Non-revenue vehicles Professional Services	Vehicles Hard Costs	0 \$271,110.08	Yes	11 0	\$0 49%	\$0 \$133,970	0%	09
.010	Preliminary Engineering	Hard Costs	\$271,110.08	Yes	14	6%	\$17,591	U7s	0.
.020	Final Design Project Management for Design and Construction	Hard Costs	\$271,110.08	Yes	22	12%	\$33,116	-	
.030	Project Management for Design and Construction Construction Administration & Management	Hard Costs Hard Costs	\$271,110.08 \$271,110.08	Yes Yes	32 24	10% 11%	\$27,464 \$31,140	1	
.050	Professional Liability and other Non-Construction Insurance	Hard Costs	\$271,110.08	Yes	16	4%	\$11,824	1	
1.060 1.070	Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$271,110.08 \$271,110.08	Yes Yes	6	2% 0%	\$5,596 \$1,138	1	
0.080	Start up	Hard Costs	\$271,110.08	Yes	23	2%	\$4,767	1	
.090	Other Subtotal (10-80)	Hard Costs Lineal Miles of Guideway	\$271,110.08	Yes	10 0	0% \$405,848	\$1,333 \$405,080		
	Unallocated Contingency	Total Amount	1		0	\$ 405,848 \$0	\$405,080		09
	Subtotal (10-90)	Lineal Miles of Guideway	1		0	0	\$405,080		100
0	Finance Charges Total Project Costs (10-100)	Total Amount Lineal Miles of Guideway	1		0	\$0 \$0	\$0 \$405,080		100
	Total Troject costs (10-100)	Enreal villes of Guideway	1			30	\$400,080		100



Alternative 2A-3 (NBS is SEM)

Cost Ba	Model Compared With Project Estimate isis: ice Name:	CENTRAL SUBWAY PHASE 3 ALT 2A-3 (NBS IS SEM) San				Today's Date Base Year	8/25/2014 2014		
Project Mode:		Francisco, CA Light Rail Transit					Chart		
.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	0.9981		_	\$480,698	\$479,787		
.50	TOTAL TROCES OUTS	Units	Quantity	Inlucde This Item (select 'Yes' or 'No')	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cos
0	Guideway & Track Elements	Lineal Miles of Guideway	0.9981		0	\$48,440	\$48,348	Dost Dase Year Dollars Percentage of Construction Cost 16% 16% 16% 16% 16% 16% 16% 16% 16% 16%	10%
0.010 0.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0		st Base Year D) Dollars Percentage of Construction Cost 3 16% 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	
0.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	0.8112		8	\$27,171,972	\$22,041	Dollars Percentage of Construction Cost 18% 74% 74% 4%	
0.040	Guideway: Aerial structure	Lineal Miles of Guideway			16	\$0	\$0	Dollars Percertage of Construction Cost 16% 74% 74% 4% 100%	
0.050 0.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1261		0 11	\$0 \$107 955 004	\$0 \$13.617	Dollars Percentage of Construction Cost 16% 74% 4%	
0.070	Guideway: Underground tunnel	Lineal Miles of Guideway	0.1201		11	\$0	\$0	Dollars Percentage of Construction Cost 16% 74% 4%	
0.080	Guideway: Retained cut or fill	Lineal Miles of Guideway	0.0608		6	\$65,864,817	\$4,004	Dollars Percentage of Construction Cost 16% 74% 6% 6%	
0.090 0.100	Track: Direct fixation Track: Embedded	Track Miles Track Miles	0.1261 0.8720		19 9	\$3,705,543 \$3,220,175	\$467	Dollars Percentage of Construction Cost 16% 74%	
0.110	Track Ballasted	Track Miles	0.0120		18	\$0	\$0	Dollars Percentage of Construction Cost 16% 74% 5%	
0.120	Track: Special (switches, tumouts)	Track Miles	11	Yes	12	\$378,486	\$378	Dollars Percentage of Construction Cost 16% 74% 5%	
0.140	Special Structures Stations, Stops, Terminals, Intermodels	Lineal Miles of Guideway Stations	1 2	Yes	3 0	\$5,041,732 \$112,700	\$5,032 \$225,399	Dollars Percentage of Construction Cost 16% 74% 6% 6% 100%	47%
0.010	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations	1		19	\$16,869,180	\$16,869	14%	41.0
0.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0		
0.030 0.031	Underground station, stop, shelter, mall, terminal, platform Sequential Excavation Method	Stations Stations	1		10	\$200,000 \$200.000.000	\$200,000 \$200,000	1	
0.032	Bored Earth Soft Soils	Stations	<u>'</u>		0	\$0	\$0		
0.033	Bored Rock Hard Soils	Stations Stations			0 4	\$0 \$0	\$0	9,787 10 Cost	
0.034 0.060	Unspecified Automobile parking multi-story structure	Stations Spaces			3	\$0 \$0	\$0 \$0	Base Year Dollars Percentage of Construction Cost Sales Cost Co	
0.070	Elevators, escalators	Number	4			\$2,133	\$8,530	Dollars Percertage of Construction Cost 16% 74% 74% 100%	
0.071 0.072	Elevators Escalators	Number Number	2		4 5	\$2,217,942	\$4,436		
0.072	Passenger Overpass	Number			5	\$2,047,157 \$0			
0.090	Underground Interconnecting Tunnel	Number		No	0	\$0	\$0		
0.100	Signage and Graphics	Stations			10	\$0	\$0		
0.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0.9981	_	0	\$0 \$0		0%	0%
0.011	Administrative Building	Lineal Miles of Guideway	0.5561	No	2	\$0	\$0	1	
0.012	Central Control Facility	Lineal Miles of Guideway	0	No	2	\$0	\$0]	
0.013 0.020	Central Revenue Counting Facility Light Maintenance Facility	Lineal Miles of Guideway Vehicles	0	No Yes	0 7	\$0 \$0		4	
0.030	Heavy Maintenance Facility	Vehicles	Ö	Yes	17	\$0	\$0	1	
0.040	Storage or Maintenance of Way Building	Lineal Miles of Guideway	0	No	5	\$0	\$0]	
0.050	Yard and Yard Track Sitework & Special Conditions	Track Miles Lineal Miles of Guideway	0.9981	No	5 0	\$0 \$15,915	\$U \$15,885	5%	3%
0.010	Demolition, Clearing, Earthwork	Lineal Miles of Guideway	0.9981	Yes	12	\$2,033,937	\$2,030		0.0
0.020	Site Utilities, Utility Relocation	Lineal Miles of Guideway	0.9981	Yes	75	\$4,266,060	\$4,258		
0.030 0.040	 Haz. matl, contam'd soil removal/mitigation, ground water treatmer Environmental mitigation, e.g. wetlands, historic/archeologic, parks 	Lineal Miles of Guideway Lineal Miles of Guideway	0.9981 0.9981	Yes Yes	5 8	\$2,299,074 \$1,047,598	\$2,295 \$1,046	┨	
0.050	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	0.9981	Yes	1	\$149,423	\$149		
0.060 0.070	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway	0.9981	Yes	8	\$955,612	\$954	4	
0.070	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces Spaces	0		8	\$0 \$0	\$0	-	
0.072	Auto Access	Stations			2	\$0	\$0]	
0.080 0	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	0.9981	Yes	21	\$5,163,485	\$5,154	49/	3%
0.010	Systems Train control and signals	Track Miles Track Miles	0.9981 0.9981	Yes	26	\$13,064 \$2,966,502	\$2,961	471	5 m
0.020	Traffic signals and crossing protection	Track Miles	0.9981	Yes	7	\$255,223	\$255		
0.030	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	0.9981 0.9981	Yes	23	\$1,697,988 \$3,196	\$1,695 \$3,190	-	
0.041	Catenary	Track Miles	0.9981	Yes	13	\$1,346,370	\$1,344		
0.042	Ancillary Elements	Track Miles	0.9981	Yes	7	\$1,387,266	\$1,385		
0.043 0.050	Power Distribution and Connections Communications	Track Miles Track Miles	0.9981	Yes Yes	23	\$462,321 \$2,267,613	\$461 \$2,263	-	
0.060	Fare collection system and equipment	Stations	2	Yes	28	\$1,337,702	\$2,675	1	
	Construction Subtotal (10-50)	Lineal Miles of Guideway	0.9981		0	\$303,246	\$302,671	100%	63%
0.010	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	0.9981 0.9981	Yes	0 25	\$18,474 \$14.910.401	\$18,439 \$14.882	1	4%
0.020	Relocation of existing households and businesses	Lineal Miles of Guideway	0.9981	Yes	12	\$1,727,595	\$1,724		
0.030	Services	Lineal Miles of Guideway	0.9981	Yes	23	\$1,835,836	\$1,832	-	
0.040 0	Other Real Estate Costs Vehicles	Lineal Miles of Guideway Vehicles	0.9981	Yes	0	\$0 \$0	\$U \$0	1	0%
0.010	Light Rail	Vehicles			15	\$0	\$0]	
0.020 0.060	Heavy Rail Non-revenue vehicles	Vehicles Vehicles	0	Yes	6 11	\$0 \$0	\$0 \$n	4	
).080	Professional Services	Hard Costs	\$321,110.08	165	0	49%	\$158,677	0%	0%
0.010	Preliminary Engineering	Hard Costs	\$321,110.08	Yes	14	6%	\$20,836		
0.020 0.030	Final Design	Hard Costs	\$321,110.08 \$321,110.08	Yes	22 32	12% 10%	\$39,224 \$32,529	-	
1.030	Project Management for Design and Construction Construction Administration & Management	Hard Costs Hard Costs	\$321,110.08	Yes Yes	24	10%	\$32,529 \$36,883	1	
0.040			\$321,110.08	Yes	16	4%	\$14,005		
0.040 0.050	Professional Liability and other Non-Construction Insurance	Hard Costs							
0.040 0.050 0.060	Professional Liability and other Non-Construction Insurance Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$321,110.08	Yes	6	2%	\$6,628	_	
0.040 0.050 0.060 0.070	Professional Liability and other Non-Construction Insurance Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$321,110.08 \$321,110.08	Yes Yes Yes	6 2 23	2% 0% 2%	\$6,628 \$1,348 \$5,646		
0.040 0.050 0.060 0.070 0.080	Professional Liability and other Non-Construction Insurance Legal; Pemits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection Start up Other	Hard Costs Hard Costs Hard Costs Hard Costs Hard Costs	\$321,110.08	Yes	2 23 10	0% 2% 0%	\$1,348 \$5,646 \$1,578		
0.040 0.050 0.060 0.070 0.080 0.090	Professional Liability and other Non-Construction Insurance Legal, Permits, Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection Start up Clart Subtotal (10-80)	Hard Costs Hard Costs Hard Costs Hard Costs Hard Costs Lineal Miles of Guideway	\$321,110.08 \$321,110.08 \$321,110.08 \$321,110.08 1	Yes Yes	2 23 10 0	0% 2% 0% \$480,698	\$1,348 \$5,646 \$1,578 \$479,787		
0.040 0.050 0.060 0.070 0.080 0.090	Professional Liability and other Non-Construction Insurance Legal; Pemist; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection Start up Other Subtotal (10-80) Unallocated Cortingency	Hard Costs Hard Costs Hard Costs Hard Costs Hard Costs Lineal Miles of Guideway Total Arnount	\$321,110.08 \$321,110.08 \$321,110.08 \$321,110.08	Yes Yes	2 23 10 0	0% 2% 0% \$480,698 \$0	\$1,348 \$5,646 \$1,578 \$479,787 \$0		0% 100%
0.040 0.050 0.060 0.070 0.080 0.090	Professional Liability and other Non-Construction Insurance Legal, Permits, Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection Start up Clart Subtotal (10-80)	Hard Costs Hard Costs Hard Costs Hard Costs Hard Costs Lineal Miles of Guideway	\$321,110.08 \$321,110.08 \$321,110.08 \$321,110.08 1	Yes Yes	2 23 10 0	0% 2% 0% \$480,698	\$1,348 \$5,646 \$1,578 \$479,787	Dollars Percentage of Construction Cost 16% 74% 74% 4%	0% 100%



Alternative 2A-4

	sis:	CENTRAL SUBWAY PHASE				Today's Date	8/25/2014			
						Base Year	2014			
							Chart			
00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	0.9998			\$874.767	\$874 601	т		
	TOTAL TROOLS TO SOLO	Units	Quantity	Inlucde	Sample	Unit Cost (\$)	Total Cost	Base Year	Base Y	
					Size		(a) (\$000)		Dollar Percent	
				'Yes' or				of	of	
Project City. Mode: TOTAL PROJECT COSTS Lineal Miles of Guideway Units Units Couldeway & Track Elements Units Couldeway & Track Elements Units Couldeway & Track Elements Couldeway Adaptace exclusive dipricef-way Units Couldeway Adaptace exclusive dipricef-way Units Couldeway Adaptace exclusive dipricef-way Units Miles of Guideway Units Of Couldeway Adaptace exclusive dipricef-way Units Miles of Guideway Units Of Couldeway Adaptace exclusive dipricef-way Units Miles of Guideway Units Of Couldeway Adaptace exclusive dipricef-way Units Miles of Guideway Units Of Couldeway Adaptace exclusive dipricef-way Units Miles of Guideway Units Miles		'No')					Tota Project			
			0.9998		0	\$114,184	\$114,162	20%	13%	
								1		
0.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	0.3159		8	\$27,171,972	\$8,584	1		
	Guideway: Aerial structure Guideway: Built-un fill							### Base Year Dollars Dollars Percertage Construction Cost 20%		
0.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.1326		11	\$107,955,004	\$14,312			
			0.5513							
0.090	Track Direct fixation	Track Miles	0.6839		19	\$3,705,543	\$2,534			
			0.3159					7		
		Track Miles	1	Yes	12	\$378,486	\$378	Dollars Percertage of Construction Cost 20% 75% 75% 100%		
	Special Structures	Lineal Miles of Guideway	1	Yes	3	\$5,041,732	\$5,041	<u> </u>		
	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform		2		0 19	\$211,874 \$0	\$423,748 \$0	75%	48	
0.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0	1		
			2		10			1		
0.032	Bored Earth Soft Soils	Stations			0	\$0	\$0	1		
								-		
0.060	Automobile parking multi-story structure	Spaces			3	\$0	\$0	1		
			8		4	\$2,133	\$17,060	-		
			4		5	\$2,217,942 \$2,047,157	\$8,872	1		
0.080					5	\$0	\$0	1		
				No				-		
)	Support Facilities: Yards, Shops, Admin. Bldgs	Vehicles	0		0	\$0	\$0	0%	0	
	Administration Building: Office, sales, storage, revenue counting			Me	0		\$0	-		
			0	No No	2	\$0 \$0	\$0	1		
			0	No	0	\$0	\$0	1		
	Light Maintenance Facility Heavy Maintenance Facility		0		17			1		
0.040			0	No	5	\$0	\$0	1		
	Yard and Yard Track Sitework & Special Conditions			No				3%	2	
0.010	Demolition, Clearing, Earthwork	Lineal Miles of Guideway	0.9998	Yes	12	\$2,033,937	\$2,034		_	
								-		
	Environmental mitigation, e.g. wetlands, historic/archeologic, parks		0.9998	Yes	8	\$1,047,598	\$1,047	1		
	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	0.9998	Yes	1	\$149,423	\$149	1		
			0.9996	res	8	\$955,612	\$900	Dollars Percertage of Construction Cost 20% 76% 0% 2%	1	
	Surface Parking Lot				8	\$0	\$0			1
			0.9998	Yes				-		
0	Systems	Track Miles	0.9998		0	\$13,059	\$13,057	2%	15	
								-		
0.030	Traction power supply: substations	Track Miles	0.9998	Yes	23	\$1,697,988	\$1,698	1		
	Traction power distribution: catenary and third rail		0.9998			\$3,196	\$3,195	-		
0.042	Ancillary Elements	Track Miles	0.9998	Yes	- 7	\$1,387,266	\$1,387	1		
	Code	1								
	Fare collection system and equipment		0.9998 2					1		
	Construction Subtotal (10-50)	Lineal Miles of Guideway			0	\$566,986	\$566,879	100%	65	
		Lineal Miles of Guideway Lineal Miles of Guideway		Yes		\$18,474 \$14,910,401		1	2	
0.020	Relocation of existing households and businesses	Lineal Miles of Guideway	0.9998	Yes	12	\$1,727,595	\$1,727	1		
								-		
1	Vehicles	Vehicles		.03	0	\$0	\$0	1	0	
		Vehicles Vehicles			15			-		
	Non-revenue vehicles	Vehicles Vehicles		Yes	11		\$0	1	L	
)	Professional Services			V			\$289,252	0%	0	
								1		
0.030	Project Management for Design and Construction	Hard Costs	\$585,349.36	Yes	32	10%	\$59,296	1		
							\$67,234 \$25,529	-		
0.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$585,349.36	Yes	6	2%	\$12,081	1		
								-		
0.090	Other	Hard Costs			10	0%				
			1			\$874,767	\$874,601			
J			1						100	
00	Finance Charges		1						09	
									100	



Alternative 2A-4 (NBS is SEM)

Cost M	lodel Compared With Project Estimate	CENTRAL SUBWAY PHASE				Today's Date	8/25/2014		
		3 ALT 2A-4 (NBS is SEM)				Base Year	2014		
Project 0		San Francisco, CA							
Mode:		⊔ght Rail Transit					Chart		
.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	0.9998			\$949,489	\$949,309		
		Units	Quantity	Inlucde This Item	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars	Base Y Dolla
				(select	0120		(4) (4000)	Percentage	Percent
				'Yes' or				of Construction	of Total
				'No')				Cost	Tota Project
0	Guideway & Track Elements	Lineal Miles of Guideway	0.9998		0	\$114,184	\$114,162	19%	12%
0.010 0.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0	1	
0.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	0.3159		8	\$27,171,972	\$8,584	1	
0.040 0.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	-	
0.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.1326		- 11	\$107,955,004	\$14,312	1	
0.070 0.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.5513		11 6	\$149,268,285 \$0	\$82,295 \$0	-	
0.090	Track: Direct fixation	Track Miles	0.6839		19	\$3,705,543	\$2,534	1	
0.100 0.110	Track: Embedded Track: Ballasted	Track Miles Track Miles	0.3159		9 18	\$3,220,175 \$0	\$1,017 \$0	1	
0.120	Track: Special (switches, tumouts)	Track Miles	1	Yes	12	\$378,486	\$378	1	
0.140	Special Structures	Lineal Miles of Guideway	1	Yes	3	\$5,041,732	\$5,041		-
0.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	2		0 19	\$236,874 \$0	\$473,748 \$0	77%	501
0.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0		
0.030 0.031	Underground station, stop, shelter, mall, terminal, platform Sequential Excavation Method	Stations Stations	2		10	\$228,344 \$228,343,750	\$456,688 \$456,688	+	
0.032	Bored Earth Soft Soils	Stations	-		0	\$0	\$0	1	
0.033 0.034	Bored Rock Hard Soils Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0	-	
0.060	Automobile parking multi-story structure	Spaces			3	\$0	\$0	1	
).070).071	Elevators, escalators Elevators	Number Number	8		4	\$2,133 \$2,217,942	\$17,060 \$8.872	-	
1.071	Escalators	Number	4		5	\$2,217,942	\$8,189	1	
0.080	Passenger Overpass	Number			5	\$0	\$0	1	
1.090 1.100	Underground Interconnecting Tunnel Signage and Graphics	Number Stations		No	0 10	\$0 \$0	\$0 \$0	-	
	Support Facilities: Yards, Shops, Admin. Bldgs	Vehicles	0		0	\$0	\$0	0%	0
.010	Administration Building: Office, sales, storage, revenue counting	Lineal Miles of Guideway	0.9998			\$0	\$0	1	
.011 .012	Administrative Building Central Control Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0	1	
.013	Central Revenue Counting Facility	Lineal Miles of Guideway	0	No	0	\$0	\$0	1	
.020 .030	Light Maintenance Facility Heavy Maintenance Facility	Vehicles Vehicles	0	Yes Yes	7 17	\$0 \$0	\$0 \$0	1	
.040	Storage or Maintenance of Way Building	Lineal Miles of Guideway	0	No	5	\$0	\$0	1	
.050	Yard and Yard Track Sitework & Special Conditions	Track Miles Lineal Miles of Guideway	0.9998	No	5 0	\$0 \$15,915	\$0 \$15,912	3%	2
.010	Demolition, Clearing, Earthwork	Lineal Miles of Guideway	0.9998	Yes	12	\$2,033,937	\$2,034		-
.020 .030	Site Utilities, Utility Relocation Haz. mat1, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway Lineal Miles of Guideway	0.9998 0.9998	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$4,265 \$2,299	-	
.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	0.9998	Yes	8	\$1,047,598	\$1,047	1	
.050 .060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	0.9998	Yes Yes	1 8	\$149,423 \$955,612	\$149 \$955	1	
.070	Automobile, bus, van accessways including roads, parking lots	Spaces	0.9990	163	0	\$0	\$0	1	
.071	Surface Parking Lot	Spaces			8 2	\$0	\$0	1	
.072 .080	Auto Access Temporary Facilities and other indirect costs during construction	Stations Lineal Miles of Guideway	0.9998	Yes	21	\$0 \$5,163,485	\$0 \$5,163	1	
	Systems	Track Miles	0.9998		0	\$13,059	\$13,057	2%	1
.010 .020	Train control and signals Traffic signals and crossing protection	Track Miles Track Miles	0.9998	Yes Yes	26 7	\$2,966,502 \$255,223	\$2,966 \$255	1	
.030	Traction power supply: substations	Track Miles	0.9998	Yes	23	\$1,697,988	\$1,698	1	
.040 .041	Traction power distribution: catenary and third rail Catenary	Track Miles Track Miles	0.9998	Yes	13	\$3,196 \$1.346.370	\$3,195 \$1,346	-	
.042	Ancillary Elements	Track Miles	0.9998	Yes	7	\$1,387,266	\$1,387	1	
.043 .050	Power Distribution and Connections Communications	Track Miles Track Miles	0.9998 0.9998	Yes Yes	23	\$462,321 \$2,267,613	\$462 \$2,267	-	
.060	Fare collection system and equipment	Stations	2	Yes	28	\$1,337,702	\$2,675	1	
	Construction Subtotal (10-50)	Lineal Miles of Guideway	0.9998		0	\$616,996	\$616,879	100%	65
.010	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	0.9998 0.9998	Yes	0 25	\$18,474 \$14,910,401	\$18,470 \$14,908	1	2
.020	Relocation of existing households and businesses	Lineal Miles of Guideway	0.9998	Yes	12	\$1,727,595	\$1,727		
.030 .040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	0.9998 0.9998	Yes Yes	23 0	\$1,835,836 \$0	\$1,835 \$0	1	
	Vehicles	Vehicles	0		0	\$0	\$0	1	0
.010 .020	Light Rail Heavy Rail	Vehicles Vehicles			15 6	\$0 \$0	\$0 \$0	-	
060	Non-revenue vehicles	Vehicles	0	Yes	- 11	\$0	\$0		
010	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$635,349.36 \$635,349.36	Yes	0	49% 6%	\$313,960 \$41,226	0%	0
.020	Final Design	Hard Costs	\$635,349.36	Yes	22	12%	\$77,609		
030	Project Management for Design and Construction Construction Administration & Management	Hard Costs	\$635,349.36	Yes	32 24	10%	\$64,361	-	
.040 .050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$635,349.36 \$635,349.36	Yes Yes	24 16	11% 4%	\$72,978 \$27,710	1	
.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$635,349.36	Yes	6	2%	\$13,113		
.070 .080	Surveys, Testing, Investigation, Inspection Start up	Hard Costs Hard Costs	\$635,349.36 \$635.349.36	Yes Yes	23	0% 2%	\$2,668 \$11,172	+	
.090	Other	Hard Costs	\$635,349.36	Yes	10	0%	\$3,123		
	Subtotal (10-80) Unallocated Contingency	Lineal Miles of Guideway	1		0	\$949,489	\$949,309		0
	Subtotal (10-90)	Total Amount Lineal Miles of Guideway	1		0	\$0 •	\$0 \$949,309		10
	Finance Charges	Total Amount	1		0	\$0	\$0		09
10	Total Project Costs (10-100)	Lineal Miles of Guideway			0	\$0	\$949,309		100

Alternative 2A-5

Cost M	lodel Compared With Project Estimate								
Cost Bas	sis:	CENTRAL SUBWAY PHASE				Today's Date	8/25/2014		
Reference Broject C		3 ALT 2A-5				Base Year	2014		
Project 0 Mode:	ony.	San Francisco, CA Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	1.4053 Quantity	Inlucde	Sample	\$323,139 Unit Cost (\$)	\$454,109 Total Cost	Base Year	Base Year
		01110	adding	This Item	Size	51.11.0 GSE (4)	(a) (\$000)	Dollars	Dollars
				(select 'Yes' or				Percentage of	Percentage of
				'No')				Construction	Total
10	Guideway & Track Elements	Lineal Miles of Guideway	1.4053		0	\$44,781	\$62,930	Cost 23%	Project Cost 14%
10.010	Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway	11100		19	\$0	\$0		
10.020 10.030	Guideway: At-grade semi-exclusive (allows cross-traffic) Guideway: At-grade in mixed traffic	Lineal Miles of Guideway Lineal Miles of Guideway	1.2184		3 8	\$0 \$27,171,972	\$0 \$33,106	ł	
10.040	Guideway: Aerial structure	Lineal Miles of Guideway			16	\$0	\$0	1	
10.050 10.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1261		11	\$0 \$107.955.004	\$0 \$13.617	ł	
10.070	Guideway: Underground tunnel	Lineal Miles of Guideway Lineal Miles of Guideway	0.0608		11	\$0 \$65.864.817	\$0 \$4,004	1	
10.080 10.090	Guideway: Retained cut or fill Track: Direct fixation	Track Miles	0.0608		6 19	\$3,705,543	\$4,004 \$467		
10.100	Track: Embedded	Track Miles	1.2792		9	\$3,220,175	\$4,119	1	
10.110 10.120	Track: Ballasted Track: Special (switches, turnouts)	Track Miles Track Miles	1	Yes	18 12	\$0 \$378,486	\$0 \$532	ł	
10.140	Special Structures	Lineal Miles of Guideway	1	Yes	3	\$5,041,732	\$7,085		
20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	2		0 19	\$87,700 \$16,869,180	\$175,399 \$16,869	63%	39%
20.020	Aerial station, stop, shelter, mall, terminal, platform	Stations	1		5	\$0 \$150,000	\$0	1	
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Cut and Cover	Stations Stations	1		10	\$150,000,000	\$150,000 \$150,000		
20.032 20.033	Bored Earth Soft Soils Bored Rock Hard Soils	Stations			0	\$0 \$0	\$0 \$0		
20.033	Unspecified	Stations Stations			4	\$0	\$0		
20.060 20.070	Automobile parking multi-story structure Elevators, escalators	Spaces Number	4		3	\$0 \$2,133	\$0 \$8,530	1	
20.070	Elevators, escalators Elevators	Number	2		4	\$2,133	\$4,436		
20.072	Escalators	Number	2		5	\$2,047,157	\$4,094	1	
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0	ł	
20.100	Signage and Graphics	Stations			10	\$0	\$0		
30 30.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0 1.4053		0	\$0 \$0	\$0 \$0	0%	0%
30.011	Administrative Building	Lineal Miles of Guideway	0	No	2	\$0	\$0	1	
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0	ł	
30.020	Light Maintenance Facility	Vehicles	0	Yes	7	\$0	\$0	1	
30.030 30.040	Heavy Maintenance Facility Storage or Maintenance of Way Building	Vehicles Lineal Miles of Guideway	0	Yes No	17 5	\$0 \$0	\$0 \$0	ł	
30.050	Yard and Yard Track	Track Miles	0	No	5	\$0	\$0		
40.010	Sitework & Special Conditions Demolition, Clearing, Earthwork	Lineal Miles of Guideway Lineal Miles of Guideway	1.4053 1.4053	Yes	12	\$15,915 \$2,033,937	\$22,366 \$2,858	8%	5%
40.020	Site Utilities, Utility Relocation	Lineal Miles of Guideway	1.4053	Yes	75	\$4,266,060	\$5,995	1	
40.030 40.040	 Haz. mat¹, contam¹d soil removal/mitigation, ground water treatmer Environmental mitigation, e.g. wetlands, historic/archeologic, parks 	Lineal Miles of Guideway Lineal Miles of Guideway	1.4053 1.4053	Yes Yes	5 8	\$2,299,074 \$1,047,598	\$3,231 \$1,472	1	
40.050	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	1.4053	Yes	1	\$149,423	\$210	1	
40.060 40.070	Pedestrian / bike access and accommodation, landscaping Automobile, bus, van accessways including roads, parking lots	Lineal Miles of Guideway Spaces	1.4053	Yes	8	\$955,612 \$0	\$1,343 \$0	1	
40.071	Surface Parking Lot	Spaces			8	\$0	\$0	1	
40.072 40.080	Auto Access Temporary Facilities and other indirect costs during construction	Stations Lineal Miles of Guideway	1.4053	Yes	21	\$0 \$5,163,485	\$0 \$7,256	1	
50	Systems	Track Miles	1.4053		0	\$12,287	\$17,267 \$4,169	6%	4%
50.010 50.020	Train control and signals Traffic signals and crossing protection	Track Miles Track Miles	1.4053 1.4053	Yes Yes	26 7	\$2,966,502 \$255,223	\$4,169 \$359		
50.030 50.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	1.4053 1.4053	Yes	23	\$1,697,988 \$3,196	\$2,386 \$4,491		
50.041	Catenary	Track Miles	1.4053	Yes	13	\$1,346,370	\$1,892		
50.042 50.043	Ancillary Elements Power Distribution and Connections	Track Miles Track Miles	1.4053 1.4053	Yes Yes	7 4	\$1,387,266 \$462,321	\$1,950 \$650	-	
50.050	Communications	Track Miles	1.4053	Yes	23	\$2,267,613	\$3,187		
50.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	2 1.4053	Yes	28 0	\$1,337,702 \$197,795	\$2,675 \$277,963	100%	61%
	Row, Land, Existing Improvements	Lineal Miles of Guideway	1.4053		0	\$18,474	\$25,961		6%
60.010 60.020	Purchase or lease of real estate Relocation of existing households and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	1.4053 1.4053	Yes Yes	25 12	\$14,910,401 \$1,727,595	\$20,954 \$2,428		
60.030	Services	Lineal Miles of Guideway	1.4053	Yes	23	\$1,835,836	\$2,580	1	
60.040 70	Other Real Estate Costs Vehicles	Lineal Miles of Guideway Vehicles	1.4053	Yes	0	\$0 \$0	\$0 \$0		0%
70.010	Light Rail	Vehicles			15	\$0	\$0		7
70.020 70.060	Heavy Rail Non-revenue vehicles	Vehicles Vehicles	0	Yes	6 11	\$0 \$0	\$0 \$0	1	
	Professional Services	Hard Costs	\$303,923.91		0	49%	\$150,185	0%	0%
80.010 80.020	Preliminary Engineering Final Design	Hard Costs Hard Costs	\$303,923.91 \$303,923.91	Yes Yes	14 22	6% 12%	\$19,721 \$37,125	1	
80.030	Project Management for Design and Construction	Hard Costs	\$303,923.91	Yes	32	10%	\$30,788		
80.040 80.050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$303,923.91 \$303,923.91	Yes Yes	24 16	11% 4%	\$34,909 \$13,255		
80.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$303,923.91	Yes	6	2%	\$6,273		
80.070 80.080	Surveys, Testing, Investigation, Inspection Start up	Hard Costs Hard Costs	\$303,923.91 \$303,923.91	Yes Yes	23	0% 2%	\$1,276 \$5,344	1	
80.090	Other	Hard Costs	\$303,923.91	Yes	10	0%	\$1,494		
90	Subtotal (10-80) Unallocated Contingency	Lineal Miles of Guideway Total Amount	1		0	\$323,139 \$0	\$454,109 \$0		0%
	Subtotal (10-90)	Lineal Miles of Guideway	1		0	0	\$454,109		100%
100	Finance Charges Total Project Costs (10-100)	Total Amount Lineal Miles of Guideway	1		0	\$0 \$0	\$0 \$454,109		0% 100%
	rotal Project Costs (10-100)	Linear Miles of Guideway	1		U	30	\$454,105		100%



Alternative 2A-5 (NBS is SEM)

Cost Bas		CENTRAL SUBWAY PHASE				Today's Date	8/25/2014		
Reference Project C		3 ALT 2A-5 (NBS IS SEM) San Francisco, CA				Base Year	2014		
Mode:	otty.	Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	1.4053			\$376,301	\$528,816		
7.00	TOTAL PROJECT COSTS	Units	Quantity	Inlucde This Item (select 'Yes' or	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars Percentage of	Base Yea Dollars Percentag
				'No')				Construction Cost	Total Project Co
	Guideway & Track Elements	Lineal Miles of Guideway	1.4053		0	\$44,781	\$62,930	19%	12%
0.010	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0	+	
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	1.2184		8	\$27,171,972	\$33,106	1	
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0		
10.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.1261		11	\$107,955,004	\$13,617	1	
10.070 10.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.0608		11 6	\$0 \$65,864,817	\$0 \$4 004	-	
0.090	Track: Direct fixation	Track Miles	0.1261		19	\$3,705,543	\$467		
10.100 10.110	Track: Embedded Track: Ballasted	Track Miles Track Miles	1.2792		9 18	\$3,220,175 \$0	\$4,119 \$0		
10.120	Track: Special (switches, tumouts)	Track Miles	1	Yes	12	\$378,486	\$532		
10.140 20	Special Structures Stations, Stops, Terminals, Intermodels	Lineal Miles of Guideway Stations	1 2	Yes	3	\$5,041,732 \$112,700	\$7,085 \$225,399	69%	43%
20.010	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations	1		19	\$16,869,180	\$16,869	U3 11	45%
20.020 20.030	Aerial station, stop, shelter, mall, terminal, platform Underground station, stop, shelter, mall, terminal, platform	Stations Stations	1		5	\$0 \$200,000	\$0 \$200,000		
20.031	Sequential Excavation Method	Stations	1		10	\$200,000,000	\$200,000		
20.032	Bored Earth Soft Soils	Stations			0	\$0	\$0		
20.033 20.034	Bored Rock Hard Soils Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0		
20.060	Automobile parking multi-story structure	Spaces			3	\$0	\$0		
20.070 20.071	Elevators, escalators Elevators	Number Number	2		4	\$2,133 \$2.217.942	\$8,530 \$4,436	1	
20.072	Escalators	Number	2		5	\$2,047,157	\$4,094	1	
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0	Dollars Percentage of Construction Cost	
0.100	Signage and Graphics	Stations		NU	10	\$0	\$0		
	Support Facilities: Yards, Shops, Admin. Bldgs	Vehicles Lineal Miles of Guideway	0 1.4053		0	\$0 \$0	\$0 \$0	0%	0%
0.010 0.011	Administration Building: Office, sales, storage, revenue counting Administrative Building	Lineal Miles of Guideway	1,4053	No	2	\$0 \$0	\$0		
80.012	Central Control Facility	Lineal Miles of Guideway	0	No	2	\$0	\$0	1	
80.013 80.020	Central Revenue Counting Facility Light Maintenance Facility	Lineal Miles of Guideway Vehicles	0	No Yes	7	\$0 \$0	\$0 \$0	1	
80.030	Heavy Maintenance Facility	Vehicles	0	Yes	17	\$0	\$0		
30.040 30.050	Storage or Maintenance of Way Building Yard and Yard Track	Lineal Miles of Guideway Track Miles	0	No No	5 5	\$0 \$0	\$0 \$0		
0	Sitework & Special Conditions	Lineal Miles of Guideway	1.4053		0	\$15,915	\$22,366	7%	4%
10.010 10.020	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway Lineal Miles of Guideway	1.4053 1.4053	Yes Yes	12 75	\$2,033,937 \$4,266,060	\$2,858 \$5,995		
0.030	Haz. mat1, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway	1.4053	Yes	5	\$2,299,074	\$3,231	i	
0.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks Site structures including retaining walls, sound walls	Lineal Miles of Guideway Lineal Miles of Guideway	1.4053 1.4053	Yes Yes	8	\$1,047,598 \$149,423	\$1,472 \$210		
0.060	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway	1.4053	Yes	8	\$955,612	\$1,343	i	
0.070	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces	0		8	\$0	\$0		
0.071	Auto Access	Spaces Stations			2	\$0 \$0	\$0 \$0		
0.080	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	1.4053	Yes	21	\$5,163,485	\$7,256		
0.010	Systems Train control and signals	Track Miles Track Miles	1.4053 1.4053	Yes	0 26	\$12,287 \$2,966,502	\$17,267 \$4,169	5%	3%
0.020	Traffic signals and crossing protection	Track Miles	1.4053	Yes	7	\$255,223	\$359		
0.030 50.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	1.4053 1.4053	Yes	23	\$1,697,988 \$3,196	\$2,386 \$4,491		
0.041	Catenary	Track Miles	1.4053	Yes	13	\$1,346,370	\$1,892		
0.042 0.043	Ancillary Elements Power Distribution and Connections	Track Miles Track Miles	1.4053 1.4053	Yes Yes	7	\$1,387,266 \$462,321	\$1,950 \$650		
0.050	Communications	Track Miles	1.4053	Yes	23	\$2,267,613	\$3,187		
0.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	2 1.4053	Yes	28	\$1,337,702 \$233,375	\$2,675 \$327,963	100%	62%
	Row, Land, Existing Improvements	Lineal Miles of Guideway	1.4053		0	\$18,474	\$25,961	.50%	5%
0.010 0.020	Purchase or lease of real estate Relocation of existing households and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	1.4053 1.4053	Yes Yes	25 12	\$14,910,401 \$1,727,595	\$20,954 \$2,428	-	
0.020	Services	Lineal Miles of Guideway	1.4053	Yes	23	\$1,835,836	\$2,428 \$2,580		
0.040	Other Real Estate Costs Vehicles	Lineal Miles of Guideway Vehicles	1.4053	Yes	0	\$0 \$0	\$0 \$0		0%
0.010	Light Rail	Vehicles Vehicles	U		15	\$0 \$0	\$0 \$0		0%
0.020	Heavy Rail	Vehicles			6	\$0	\$0		
0.060	Non-revenue vehicles Professional Services	Vehicles Hard Costs	0 \$353,923.91	Yes	0	\$0 49 %	\$0 \$174,892	0%	0%
0.010	Preliminary Engineering	Hard Costs	\$353,923.91	Yes	14	6%	\$22,965		
0.020 0.030	Final Design Project Management for Design and Construction	Hard Costs Hard Costs	\$353,923.91 \$353,923.91	Yes Yes	22 32	12% 10%	\$43,232 \$35,853		
0.040	Construction Administration & Management	Hard Costs	\$353,923.91	Yes	24	11%	\$40,652		
0.050 0.060	Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$353,923.91 \$353.923.91	Yes Yes	16 6	4% 2%	\$15,436 \$7,305		
0.060 0.070	Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$353,923.91 \$353,923.91	Yes Yes	2	2% 0%	\$7,305 \$1,486		
0.080	Start up	Hard Costs	\$353,923.91	Yes	23	2%	\$6,223		
0.090	Other Subtotal (10-80)	Hard Costs Lineal Miles of Guideway	\$353,923.91 1	Yes	10	0% \$376,301	\$1,740 \$528,816		
0	Unallocated Contingency	Total Amount	1		0	\$0	\$0		0%
00	Subtotal (10-90)	Lineal Miles of Guideway	1		0	0 \$0	\$528,816 \$0		100%
00	Finance Charges Total Project Costs (10-100)	Total Amount Lineal Miles of Guideway	1		0	\$0 \$0	\$0 \$528,816		100%



Alternative 2A-6

Project C	e Name:	CENTRAL SUBWAY PHASE 3 ALT 2A-6 San Francisco, CA				Today's Date Base Year	8/25/2014 2014		
Mode:		Light Rail Transit					Chart		
00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	1.4070 Quantity	Inlucde This Item (select 'Yes' or 'No')	Sample Size	\$656,450 Unit Cost (\$)	\$923,630 Total Cost (a) (\$000)	Base Year Dollars Percentage of Construction	Base Ye Dollan Percenta of Total
)	Guideway & Track Elements	Lineal Miles of Guideway	1.4070		0	\$91,503	\$128,745	22%	Project C 14%
0.010	Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway			19	\$0	\$0		
0.020 0.030	Guideway: At-grade semi-exclusive (allows cross-traffic) Guideway: At-grade in mixed traffic	Lineal Miles of Guideway Lineal Miles of Guideway	0.7231		3	\$0 \$27.171.972	\$0 \$19,648	1	
0.040	Guideway: Aerial structure	Lineal Miles of Guideway			16	\$0	\$0	Dollars Percentage of Construction Cost	
0.050 0.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1326		11	\$0 \$107,955,004	\$0 \$14.312		
0.070	Guideway: Underground tunnel	Lineal Miles of Guideway	0.5513		11	\$149,268,285	\$82,295	1	
0.080 0.090	Guideway: Retained cut or fill Track: Direct fixation	Lineal Miles of Guideway Track Miles	0.6839		6 19	\$0 \$3,705,543	\$0 \$2.534	1	
0.100	Track: Embedded	Track Miles Track Miles	0.7231		9	\$3,220,175 \$0	\$2,329 \$0	Dollars Percertage of Construction Cost 22% 72% 72% 100%	
).110	Track: Ballasted Track: Special (switches, tumouts)	Track Miles	1	Yes	18 12	\$378,486	\$533		
0.140	Special Structures	Lineal Miles of Guideway	1	Yes	3	\$5,041,732	\$7,094	1	
0.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	2		0 19	\$211,874 \$0	\$423,748 \$0	72%	46%
0.020	Aerial station, stop, shelter, mall, terminal, platform	Stations	2		5	\$0	\$0	1	
0.030 0.031	Underground station, stop, shelter, mall, terminal, platform Sequential Excavation Method	Stations Stations	2		10	\$203,344 \$203,343,750	\$406,688 \$406,688	1	
0.032	Bored Earth Soft Soils	Stations	_		0	\$0	\$0	1	
.033	Bored Rock Hard Solls Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0	Dollars Percertage of Construction Cost 22% 72% 4% 100%	
.060	Automobile parking multi-story structure	Spaces			3	\$0	\$0		
1.070 1.071	Elevators, escalators Elevators	Number Number	8		4	\$2,133 \$2,217,942	\$17,060 \$8,872		
.072	Escalators	Number	4		5	\$2,047,157	\$8,189		
.080	Passenger Overpass	Number		N	5	\$0	\$0	1	
.090 .100	Underground Interconnecting Tunnel Signage and Graphics	Number Stations		No	0 10	\$0 \$0	\$0 \$0	1	
	Support Facilities: Yards, Shops, Admin. Bldgs	Vehicles	0		0	\$0	\$0	0%	0%
.010 .011	Administration Building: Office, sales, storage, revenue counting Administrative Building	Lineal Miles of Guideway Lineal Miles of Guideway	1.4070 0	No	2	\$0 \$0	\$0 \$0	1	
.012	Central Control Facility	Lineal Miles of Guideway	0	No	2	\$0	\$0	1	
.013 .020	Central Revenue Counting Facility Light Maintenance Facility	Lineal Miles of Guideway Vehicles	0	No Yes	7	\$0 \$0	\$0 \$0	1	
.030	Heavy Maintenance Facility	Vehicles	0	Yes	17	\$0	\$0	1	
).040).050	Storage or Maintenance of Way Building Yard and Yard Track	Lineal Miles of Guideway Track Miles	0	No No	5 5	\$0 \$0	\$0 \$0	-	
1	Sitework & Special Conditions	Lineal Miles of Guideway	1.4070		0	\$15,915	\$22,393	4%	2%
1.010 1.020	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway Lineal Miles of Guideway	1.4070 1.4070	Yes Yes	12 75	\$2,033,937 \$4,266,060	\$2,862 \$6,002	4	
.030	Haz. mat1, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway	1.4070	Yes	5	\$2,299,074	\$3,235	1	
.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks Site structures including retaining walls, sound walls	Lineal Miles of Guideway Lineal Miles of Guideway	1.4070 1.4070	Yes Yes	8	\$1,047,598 \$149.423	\$1,474 \$210	4	
.060	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway	1.4070	Yes	8	\$955,612	\$1,345	1	
.070 .071	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces Spaces	0		8	\$0 \$0	\$0 \$0	4	
.072	Auto Access	Stations			2	\$0	\$0	1	
.080	Temporary Facilities and other indirect costs during construction Systems	Lineal Miles of Guideway Track Miles	1.4070 1.4070	Yes	21 0	\$5,163,485 \$12,285	\$7,265 \$17,285	28	29
.010	Train control and signals	Track Miles	1.4070	Yes	26	\$2,966,502	\$4,174	J , ,	- 27
.020 .030	Traffic signals and crossing protection Traction power supply: substations	Track Miles Track Miles	1.4070 1.4070	Yes Yes	7 23	\$255,223 \$1,697,988	\$359 \$2,389	-	
.040	Traction power distribution: catenary and third rail	Track Miles	1.4070			\$3,196	\$4,497	1	
.041 .042	Catenary Ancillary Elements	Track Miles Track Miles	1.4070 1.4070	Yes Yes	13 7	\$1,346,370 \$1,387,266	\$1,894 \$1,952	-	
.043	Power Distribution and Connections	Track Miles	1.4070	Yes	4	\$462,321	\$650	1	
.050 .060	Communications Fare collection system and equipment	Track Miles Stations	1.4070	Yes Yes	23 28	\$2,267,613 \$1,337,702	\$3,191 \$2.675	-	
	Construction Subtotal (10-50)	Lineal Miles of Guideway	1.4070	163	0	\$420,872	\$592,170	100%	64
010	Row, Land, Existing Improvements Pumhase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	1.4070 1.4070	Yes	0	\$18,474 \$14.910.401	\$25,993 \$20.979	-	3%
.020	Purchase or lease of real estate Relocation of existing households and businesses	Lineal Miles of Guideway	1.4070	Yes	25 12	\$1,727,595	\$2,431	1	
030 040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	1.4070 1.4070	Yes Yes	23 0	\$1,835,836 \$0	\$2,583 \$0	-	
	Vehicles	Vehicles	1,4070 0	163	0	\$0	\$0	1	09
010 020	Light Rail	Vehicles Vehicles			15	\$0 \$0	\$0 \$0	-	
060	Heavy Rail Non-revenue vehicles	Vehicles	0	Yes	11	\$0	\$0	1	
	Professional Services	Hard Costs Hard Costs	\$618,163.19		1/1	49%	\$305,467 \$40,111	0%	09
010 020	Preliminary Engineering Final Design	Hard Costs Hard Costs	\$618,163.19 \$618,163.19	Yes Yes	14 22	6% 12%	\$40,111 \$75,509	1	
030	Project Management for Design and Construction	Hard Costs	\$618,163.19	Yes	32	10%	\$62,620	-	
040 050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$618,163.19 \$618,163.19	Yes Yes	24 16	11% 4%	\$71,003 \$26,960	1	
	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$618,163.19	Yes	6	2%	\$12,759	1	
060		Hard Costs	\$618,163.19	Yes	2	0%	\$2,596		
060 070 080	Surveys, Testing, Investigation, Inspection Start up		\$618,163.19	Yes	23	2%	\$10,870		
070 080	Start up Other	Hard Costs Hard Costs	\$618,163.19 \$618,163.19	Yes Yes	23 10	2% 0%	\$3,039		
070 080 090	Start up Other Subtotal (10-80)	Hard Costs Hard Costs Lineal Miles of Guideway	\$618,163.19 \$618,163.19 1		10 0	0% \$656,450	\$3,039 \$923,630		D9
070 080 090	Start up Other	Hard Costs Hard Costs	\$618,163.19 1		10	0%	\$3,039		0% 100



Alternative 2A-6 (NBS is SEM)

Cost Basis: Reference Name: Project City: Mode: 10 00	stimate								
Project City. Mode: TOTAL PROJECT COSTS TOTAL COSTS Guideway A-Ergade semi-exclusive (allows cros costs) Total Costs Guideway A-Ergade semi-exclusive (allows cros costs Guideway A-Ergade semi-ex		CENTRAL SUBWAY PHASE				Today's Date	8/25/2014		
Mode: TOTAL PROJECT COSTS		3 ALT 2A-6 (NBS is SEM) San Francisco, CA				Base Year	2014		
10 Guideway & Track Elements 10 010 Guideway A-t-grade exclusive right-of-way 10 020 Guideway A-t-grade semi-exclusive (allows cros 10 040 Guideway A-t-grade in mixed traffic 10 050 Guideway A-t-grade in mixed traffic 10 050 Guideway Polith-up fill 10 060 Guideway Polith-up fill 10 060 Guideway Polith-up fill 10 060 Guideway Retained cut or fill 10 060 Guideway Retained cut or fill 10 060 Track Embedded 10 110 Track Embedded 10 110 Track Embedded 10 110 Track Special (switches, tumouts) 10 140 Statuctures 20 Statons, Stops, Terminals, Intermodels 20 051 Ad-Grade Station, Stop, Shelter, Mail, Terminal, Aerial station, stop, Shelter, mail, terminal part of the fill of the fi		Light Rail Transit					Chart		
10 Guideway & Track Elements 10 010 Guideway A-t-grade exclusive right-of-way 10 020 Guideway A-t-grade semi-exclusive (allows cros 10 040 Guideway A-t-grade in mixed traffic 10 050 Guideway A-t-grade in mixed traffic 10 050 Guideway Polith-up fill 10 060 Guideway Polith-up fill 10 060 Guideway Polith-up fill 10 060 Guideway Retained cut or fill 10 060 Guideway Retained cut or fill 10 060 Track Embedded 10 110 Track Embedded 10 110 Track Embedded 10 110 Track Special (switches, tumouts) 10 140 Statuctures 20 Statons, Stops, Terminals, Intermodels 20 051 Ad-Grade Station, Stop, Shelter, Mail, Terminal, Aerial station, stop, Shelter, mail, terminal part of the fill of the fi		Lineal Miles of Cuidous:	1.4070			\$700 E47			
10.010		Lineal Miles of Guideway Units	Quantity	Inlucde	Sample	\$709,547 Unit Cost (\$)	\$998,338 Total Cost	Base Year	Base Year
10.010				This Item (select	Size		(a) (\$000)	Dollars Percentage	Dollars Percentage
10.010				'Yes' or				of	of
10.010				'No')				Construction Cost	Total Project Cos
10.020		Lineal Miles of Guideway	1.4070		0	\$91,503	\$128,745	20%	13%
10.030	-Of-Way a (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19	\$0 \$0	\$0 \$0	4	
10.050		Lineal Miles of Guideway	0.7231		8	\$27,171,972	\$19,648	1	
10.060		Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	1	
10.080	er	Lineal Miles of Guideway	0.1326		11	\$107,955,004	\$14,312	1	
10.090		Lineal Miles of Guideway Lineal Miles of Guideway	0.5513		11 6	\$149,268,285 \$0	\$82,295 \$0	-	
10.110		Track Miles	0.6839		19	\$3,705,543	\$2,534	1	
10.120		Track Miles Track Miles	0.7231		9 18	\$3,220,175 \$0	\$2,329 \$0	-	
Statons, Stops, Terminals, Intermodels)	Track Miles	1	Yes	12	\$378,486	\$533	1	
Act-Grade Station, Stop, Shelter, Mail, Terminal, Act-Grade Station, Stop, Shelter, Mail, Terminal, Jacob 20	odels	Lineal Miles of Guideway Stations	1 2	Yes	3	\$5,041,732 \$236,874	\$7,094 \$473,748	74%	47%
20.030	all, Terminal, Platform	Stations			19	\$0	\$0	.47/	41.0
20.031		Stations Stations	2		5	\$0 \$228,344	\$0 \$456,688	-	
20.033	and an interest beautiful.	Stations	2		10	\$228,343,750	\$456,688	1	
20.034 Unspecified 20.060 Automobile parking multi-story structure 20.070 Elevators escalators 20.071 Escalators 20.072 Escalators 20.073 Escalators 20.080 Passenger Overpass 20.090 Underground Interconnecting Tunnel 20.100 Support Facilities 'Yards, Shops, Admin. Bldgs 30.010 Administration Building, Office, sales, storage, r 30.011 Administration Ebuilding 30.012 Central Control Facility 30.013 Central Control Facility 30.013 Central Control Facility 30.020 Hayon Maintenance of Way Building 30.030 Hayon Maintenance of Way Building 30.040 Yard and Yard Track 40 Sitework & Special Conditions 40.010 Demoition, Cleaning, Earthwork 40.010 Emoition, Cleaning, Earthwork 40.010 Extraction State Unitides, Unlify Relocation 40.010 Emoition, Cleaning, Earthwork 40.010 Extraction State United State United State 40.010 Emoition, Cleaning, Earthwork 40.010 Emoition, Cleaning, Earthwork 40.010 Extraction State United State 40.010 Emoition, Cleaning, Earthwork 40.010 Emoition, Cleaning, Earthwork 40.010 Emoition, Cleaning, Earthwork 51.010 Emoition, Cleaning, Earthwork 51.010 Emoition, Cleaning, Earthwork 50.010 Emoit		Stations Stations			0	\$0 \$0	\$0 \$0	-	
20 070		Stations			4	\$0	\$0	1	
20.071	cture	Spaces Number	8		3	\$0 \$2,133	\$0 \$17,060	-	
20.080		Number	4		4	\$2,217,942	\$8,872	1	
20.090 Underground Interconnecting Tunnel 20.100 Signage and Graphics 30 Support Facilities: Yards, Shops, Admin. Bidgs 30.010 Administration Building, Office, sales, storage, 1 30.011 Administration Building, Office, sales, storage, 1 30.012 Central Control Facility 30.013 Central Revenue Counting Facility 30.013 Central Revenue Counting Facility 30.020 Lydr Maintenance Facility 30.030 Yard Maintenance Facility 30.030 Yard and Yard Track 40.030 Hz. and Yard Track 40.010 Demoition, Clearing, Earthwork 40.020 Site Utilities, Utility Recoation 40.020 Hz. matt, contain'd soil removal/mitigation, gro 40.020 Environmental mitigation, e.g. wetlands, historic 40.020 Hz. matt, contain'd soil removal/mitigation, gro 40.021 Hz. matt, contain'd soil removal/mitigation, gro 40.022 Hz. matt, contain'd soil removal/mitigation, gro 40.023 Hz. matt, contain'd soil removal/mitigation, gro 50.020 Traffic Signals and other indirect costs dui 50.020 Traffic signals and crossing protection 50.020 Traffic signals and crossing protection 50.020 Traffic signals and crossing protection 50.021 Traffic signals and crossing protection 50.020 Traffic signals signals 50.020 Traffic signals 50.020 Traffic signals		Number Number	4		5	\$2,047,157 \$0	\$8,189 \$0	-	
20.100 Signage and Graphics	el	Number		No	0	\$0	\$0	i	
Administration Building: Office, sales, storage, f. Administration Building: Office, sales, storage, f. Administrative Building: Ocentral Control Facility Central Revenue Counting Facility		Stations	0		10	\$0	\$0	0%	0%
30.011	es, storage, revenue counting	Vehicles Lineal Miles of Guideway	1.4070		J	\$0 \$0	\$0 \$0	0%	0%
30.013	-	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0	-	
30.020	lity	Lineal Miles of Guideway	0	No No	0	\$0	\$0	1	
Storage or Maintenance of Way Building		Vehicles Vehicles	0	Yes Yes	7 17	\$0 \$0	\$0 \$0	-	
	ilding	Lineal Miles of Guideway	0	No	5	\$0	\$0	1	
40.010 Demoillion, Cleaning, Earthwork		Track Miles Lineal Miles of Guideway	0 1.4070	No	5	\$0 \$15,915	\$0 \$22,393	3%	2%
40 020 Site Utilities, Utility Relocation 40 030 Hz. matt, contain' d soil removal/mitigation, gro 40 040 Environmental mitigation, e.g. wetlands, historic 40 040 Environmental mitigation, e.g. wetlands, historic 40 050 Site structures including retaining walls, sound via 40 050 Pedestrian' Dike access and accommodation, is 40 070 Automobile, bus, van accessways including roai 40 071 Surface ParlingLot 40 072 Auto Access Temporary Facilities and other indirect costs du 50 070 Train control and signals 50 000 Train contro		Lineal Miles of Guideway	1.4070	Yes	12	\$2,033,937	\$2,862	3%	276
40.040 Environmental mitigation, e.g. wetlands, historic 340.050 Site structures including retaining walls, sound video 60 Pedestrian / bike access and accommodation, it also 70 Autonobile, bus, van accessways including roai 40.071 Auto Access 70 Systems Train control and signals 10.000 Train control and crossing protection 150.000 Train control and crossing protection 150.000 Train control and control and control and the signal 10.000 Train control and co	itigation, ground water treatme	Lineal Miles of Guideway	1.4070 1.4070	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$6,002 \$3,235	-	
40 060 Pedestrian / bike access and accommodation, is duronoble, bus, van accessways including road 40 071 Auto Access 40 072 Auto Access 50 070 Train control and signals 10 080 Train control and signals 10 080 Train control and signals 10 080 Traction power supply: substations 10 080 Traction power supply: substations 10 080 Traction power distribution: catenary and third in Catenary 10 080 Architecture of the control and signals 10 080 Traction power distribution: catenary and third in Catenary 10 080 Architecture of the control and signals 10 080 Catenary 10 080 Architecture of the control and signals 10 080 Communications 10 080 Communications 10 080 Construction Substati (10-80) 10 080 Construction Administration & Management Construction Administration & Management Construction Administration & Management Construction Substati (10-80) 10 080 Construction Administration & Management Construction Administration & Management Construction Administration & Management Construction Administration & Management Construction Substation Su	ands, historic/archeologic, park	s Lineal Miles of Guideway	1.4070	Yes	8	\$1,047,598	\$1,474	1	
Automobile, bus, van accessways including roat 40 071		Lineal Miles of Guideway Lineal Miles of Guideway	1.4070 1.4070	Yes Yes	1 8	\$149,423 \$955,612	\$210 \$1,345	-	
40.072		Spaces	0	163		\$0	\$0	1	
		Spaces Stations			8	\$0 \$0	\$0 \$0	-	
50.010	rect costs during construction	Lineal Miles of Guideway	1.4070	Yes	21	\$5,163,485	\$7,265		
50.020		Track Miles Track Miles	1.4070 1.4070	Yes	0 26	\$12,285 \$2,966,502	\$17,285 \$4,174	3%	2%
50.040		Track Miles	1.4070	Yes	7	\$255,223	\$359	1	
50.041		Track Miles Track Miles	1.4070 1.4070	Yes	23	\$1,697,988 \$3,196	\$2,389 \$4,497	-	
50.043	-,	Track Miles	1.4070	Yes	13	\$1,346,370	\$1,894	1	
50.050	ions	Track Miles Track Miles	1.4070 1.4070	Yes Yes	7	\$1,387,266 \$462,321	\$1,952 \$650	-	
Construction Subtotal (10-60)		Track Miles	1.4070	Yes	23	\$2,267,613	\$3,191	1	
60 Row, Land, Existing Improvements 60 010 Purchase or leas of real estate 60 020 Refocation of existing households and business 60 040 Services 60 040 Cher Peaal Estate Costs 70 Ught Rail 17 0 020 Heaving Rail 17 0 020 Non-revenue vehicles 80 Professional Services 80 0.010 Perilimnary Engineering 80 0.02 Final Design 80 0.03 Professional Lability and other Non-Construction 80 0.05 Crostruction Administration & Management 80 0.06 Professional Lability and other Non-Construction 80 0.06 Legal; Permits; Review Fees by other agencies, 80 0.070 Surveys, Testing, investigation, investigation, inspection	ent	Stations Lineal Miles of Guideway	2 1.4070	Yes	28 0	\$1,337,702 \$456,409	\$2,675 \$642,170	100%	64%
Refocation of existing households and business		Lineal Miles of Guideway	1.4070		0	\$18,474	\$25,993		3%
60.030 Services	and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	1.4070 1.4070	Yes Yes	25 12	\$14,910,401 \$1,727,595	\$20,979 \$2,431	1	
70 Vehicles 70 10 70 10 Heavy Rail Heavy Rail 70 80 Professional Services 80 10 80 10 80 20 80 20 80 20 80 20 80 20 70 20 80 20 80 20 80 40 80 40 80 40 80 40 80 40 80 40 80 40 80 40 80 40 80 60 80 60 80 60 80 60 80 60 80 60 80 60 80 60 80 60		Lineal Miles of Guideway	1.4070	Yes	23	\$1,835,836	\$2,583		
70.010		Lineal Miles of Guideway Vehicles	1.4070	Yes	0	\$0 \$0	\$0 \$0	1	0%
70.060 Non-revenue vehicles 80 Prefessional Services 80.010 Preliminary Engineering 80.020 Final Design 80.030 Preject Management for Design and Construction 80.040 Construction Administration & Management 80.050 Professional Liability and other Non-Construction 80.050 Legal, Permits, Review Fees by other agencies, 80.070 Surveys, Testing, Investigation, Inspection		Vehicles			15	\$0	\$0	1	V.0
Professional Services		Vehicles Vehicles	0	Yes	6 11	\$0 \$0	\$0 \$0	-	
80.020 Final Design 80.030 Project Management for Design and Construction 80.040 Construction Administration & Management 80.050 Professional Liability and other Non-Construction Legal, Permits, Review Fees by other agencies, 80.070 Surveys, Testing, Investigation, Inspection		Hard Costs	\$668,163.19		0	49%	\$330,175	0%	0%
80.030 Project Management for Design and Constructo 80.040 Construction Administration & Management 80.050 Professional Llability and other Non-Construction 80.060 Legal; Permits, Review Fees by other agencies, 80.070 Surveys, Testing, Investigation, Inspection		Hard Costs Hard Costs	\$668,163.19 \$668,163.19	Yes Yes	14 22	6% 12%	\$43,355 \$81,617	-	
80.050 Professional Liability and other Non-Construction 80.060 Legal; Permits; Review Fees by other agencies, 80.070 Surveys, Testing, Investigation, Inspection		Hard Costs	\$668,163.19	Yes	32	10%	\$67,685	1	
80.060 Legal; Permits; Review Fees by other agencies, 80.070 Surveys, Testing, Investigation, Inspection		Hard Costs Hard Costs	\$668,163.19 \$668,163.19	Yes Yes	24 16	11% 4%	\$76,747 \$29,141	-	
	ner agencies, cities, etc.	Hard Costs	\$668,163.19	Yes	6	2%	\$13,791		
	pection	Hard Costs Hard Costs	\$668,163.19 \$668,163.19	Yes Yes	23	0% 2%	\$2,806 \$11,749	-	
80.090 Other		Hard Costs	\$668,163.19	Yes	10	0%	\$3,284		
Subtotal (10-80)		Lineal Miles of Guideway	1		0	\$709,547	\$998,338		00/
90 Unallocated Contingency Subtotal (10-90)		Total Amount Lineal Miles of Guideway	1		0	\$0 •	\$0 \$998,338		100%
100 Finance Charges Total Project Costs (10-100)		Total Amount Lineal Miles of Guideway	1		0	\$0 \$0	\$0 \$998,338		0% 100%

Alternative 2B-1

Cost Basi		CENTRAL SUBWAY PHASE				Today's Date	8/25/2014		
Reference Project C		3 ALT 2B-1 San Francisco, CA				Base Year	2014		
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	1.3085	Introde	Comple	\$338,134	\$442,456	Boss Voor	Base Year
		Units	Quantity	Inlucde This Item (select 'Yes' or 'No')	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Dollars Percentage of Construction	Dollars Percentag of Total Project Co:
	Guideway & Track Elements	Lineal Miles of Guideway	1.3085		0	\$45,444	\$59,465	22%	13%
10.010 10.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19	\$0 \$0	\$0 \$0	-	
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	1.1216		8	\$27,171,972	\$30,476	1	
10.040	Guideway: Aerial structure	Lineal Miles of Guideway			16	\$0	\$0		
10.050 10.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1261		0 11	\$0 \$107,955,004	\$0 \$13.617	1	
10.070	Guideway: Underground tunnel	Lineal Miles of Guideway			11	\$0	\$0	1	
10.080 10.090	Guideway: Retained cut or fill Track: Direct fixation	Lineal Miles of Guideway Track Miles	0.0608 0.1261		6 19	\$65,864,817 \$3,705,543	\$4,004 \$467	Percentage of Construction Cost	
10.100	Track: Embedded	Track Miles	1.1824		9	\$3,220,175	\$3,807		
10.110	Track: Ballasted	Track Miles Track Miles	1	Vee	18 12	\$0	\$0 \$495		
10.120 10.140	Track: Special (switches, tumouts) Special Structures	Lineal Miles of Guideway	1	Yes Yes	3	\$378,486 \$5,041,732	\$495	1	
	Stations, Stops, Terminals, Intermodels	Stations	2		0	\$87,700	\$175,399	64%	40%
20.010 20.020	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform Aerial station, stop, shelter, mall, terminal, platform	Stations Stations	1		19 5	\$16,869,180 \$0	\$16,869 \$0	1	
20.030	Underground station, stop, shelter, mall, terminal, platform	Stations	1			\$150,000	\$150,000	1	
20.031	Cut and Cover	Stations	1		10	\$150,000,000	\$150,000		
20.032 20.033	Bored Earth Soft Soils Bored Rock Hard Soils	Stations Stations			0	\$0 \$0	\$0 \$0	1	
20.034	Unspecified	Stations			4	\$0	\$0		
20.060 20.070	Automobile parking multi-story structure Elevators, escalators	Spaces Number	4		3	\$0 \$2,133	\$0 \$8,530	-	
20.070	Elevators	Number	2		4	\$2,133	\$4,436		
20.072	Escalators	Number	2		5	\$2,047,157	\$4,094		
20.080 20.090	Passenger Overpass	Number Number		No	5 N	\$0 \$0	\$0 \$0	1	
20.090	Underground Interconnecting Tunnel Signage and Graphics	Stations		NU	10	\$0	\$0	Dollars Percertage of Construction Cost 22% 64% 64%	
30 !	Support Facilities: Yards, Shops, Admin. Bldgs	Vehicles	0		0	\$0	\$0	0%	0%
0.010 0.011	Administration Building: Office, sales, storage, revenue counting Administrative Building	Lineal Miles of Guideway Lineal Miles of Guideway	1.3085 0	No	2	\$0 \$0	\$0 \$0	-	
30.012	Central Control Facility	Lineal Miles of Guideway	0	No	2	\$0	\$0	1	
30.013	Central Revenue Counting Facility	Lineal Miles of Guideway	0	No	7	\$0	\$0		
30.020 30.030	Light Maintenance Facility Heavy Maintenance Facility	Vehicles Vehicles	0	Yes Yes	17	\$0 \$0	\$0 \$0	1	
30.040	Storage or Maintenance of Way Building	Lineal Miles of Guideway	0	No	5	\$0	\$0	1	
30.050 40 !	Yard and Yard Track Sitework & Special Conditions	Track Miles Lineal Miles of Guideway	1.3085	No	5 0	\$0 \$15,915	\$0 \$20,825	91/	5%
40.010	Demolition, Clearing, Earthwork	Lineal Miles of Guideway	1.3085	Yes	12	\$2,033,937	\$2,661	0.11	5 %
40.020	Site Utilities, Utility Relocation	Lineal Miles of Guideway	1.3085	Yes	75	\$4,266,060	\$5,582	1	
40.030 40.040	 Haz. mat'l, contam'd soil removal/mitigation, ground water treatmer Environmental mitigation, e.g. wetlands, historic/archeologic, parks 	Lineal Miles of Guideway Lineal Miles of Guideway	1.3085 1.3085	Yes Yes	5 8	\$2,299,074 \$1.047.598	\$3,008 \$1,371	-	
40.050	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	1.3085	Yes	1	\$149,423	\$196	1	
40.060 40.070	Pedestrian / bike access and accommodation, landscaping Automobile, bus, van accessways including roads, parking lots	Lineal Miles of Guideway Spaces	1.3085 n	Yes	8	\$955,612 \$0	\$1,250 \$0	-	
0.070	Surface Parking Lot	Spaces	U		8	\$0	\$0	•	
0.072	Auto Access	Stations			2	\$0	\$0	1	
10.080 50 !	Temporary Facilities and other indirect costs during construction Systems	Lineal Miles of Guideway Track Miles	1.3085 1.3085	Yes	21 0	\$5,163,485 \$12,428	\$6,757 \$16,262	6%	4%
50.010	Train control and signals	Track Miles	1.3085	Yes	26	\$2,966,502	\$3,882		
0.020 0.030	Traffic signals and crossing protection Traction power supply, substations	Track Miles Track Miles	1.3085 1.3085	Yes Yes	7	\$255,223 \$1,697,988	\$334 \$2,222	-	
50.030	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles	1.3085	162	23	\$1,697,988	\$2,222 \$4,182		
0.041	Catenary	Track Miles	1.3085	Yes	13	\$1,346,370	\$1,762		
50.042 50.043	Ancillary Elements Power Distribution and Connections	Track Miles Track Miles	1.3085 1.3085	Yes Yes	7	\$1,387,266 \$462,321	\$1,815 \$605	st Base Year (1) Dollars Percentage of Construction Cost (2%) (2%) (3%) (4%) (4%) (4%) (4%) (4%) (4%) (4%) (4	
0.050	Communications	Track Miles	1.3085	Yes	23	\$2,267,613	\$2,967		
0.060	Fare collection system and equipment	Stations Lineal Miles of Guideway	2	Yes	28 0	\$1,337,702	\$2,675 \$271,951	1000	041
i0 I	Construction Subtotal (10-50) Row, Land, Existing Improvements	Lineal Miles of Guideway Lineal Miles of Guideway	1.3085 1.3085		0	\$207,831 \$18,474	\$271,951 \$24,173	100%	61% 5%
0.010	Purchase or lease of real estate	Lineal Miles of Guideway	1.3085	Yes	25	\$14,910,401	\$19,511	1	
60.020 60.030	Relocation of existing households and businesses Services	Lineal Miles of Guideway Lineal Miles of Guideway	1.3085 1.3085	Yes Yes	12 23	\$1,727,595 \$1,835,836	\$2,261 \$2,402	-	
0.040	Other Real Estate Costs	Lineal Miles of Guideway	1.3085	Yes	0	\$0	\$0		
0 '	Vehicles	Vehicles	0		0	\$0	\$0		0%
0.010	Light Rail Heavy Rail	Vehicles Vehicles			15 6	\$0 \$0	\$0 \$0	1	
0.060	Non-revenue vehicles	Vehicles	0	Yes	11	\$0	\$0		
0 1	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$296,124.90 \$296,124.90	Yes	14	49% 6%	\$146,331 \$19,215	0%	0%
0.020	Preliminary Engineering Final Design	Hard Costs	\$296,124.90	Yes	22	12%	\$36,172	1	
0.030	Project Management for Design and Construction	Hard Costs	\$296,124.90	Yes	32	10%	\$29,998		
0.040 0.050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$296,124.90 \$296,124.90	Yes Yes	24 16	11% 4%	\$34,013 \$12,915	-	
30.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$296,124.90	Yes	6	2%	\$6,112	1	
80.070	Surveys, Testing, Investigation, Inspection	Hard Costs	\$296,124.90	Yes	2	0%	\$1,243		
30.080 30.090	Start up Other	Hard Costs Hard Costs	\$296,124.90 \$296,124.90	Yes Yes	23 10	2% 0%	\$5,207 \$1,456	1	
	Subtotal (10-80)	Lineal Miles of Guideway	1		0	\$338,134	\$442,456		
30 I	Unallocated Contingency	Total Amount	1		0	\$0	\$0		0% 100%
,	Subtetal (10 BO)								
	Subtotal (10-90) Finance Charges	Lineal Miles of Guideway Total Amount	1		0	0 \$0	\$442,456 \$0		0%



Alternative 2B-1 (NBS is SEM)

	Model Compared With Project Estimate								
Cost Ba		CENTRAL SUBWAY PHASE				Today's Date	8/25/2014		
Project	nce Name: City:	3 ALT 2B-1 (NBS IS SEM) San Francisco, CA				Base Year	2014		
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	1.3085			\$395,227	\$517,163	1	
0.00	TOTAL TROOLET GOSTS	Units	Quantity	Inlucde	Sample	Unit Cost (\$)	Total Cost	Base Year	Base Year
				This Item (select	Size		(a) (\$000)	Dollars Percentage	Dollars Percentage
				'Yes' or				of	of
				'No')				Construction Cost	Total Project Cost
10	Guideway & Track Elements	Lineal Miles of Guideway	1.3085		0	\$45,444	\$59,465	18%	11%
10.010 10.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0	-	
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	1.1216		8	\$27,171,972	\$30,476		
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	-	
10.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.1261		- 11	\$107,955,004	\$13,617	1	
10.070 10.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.0608		11 6	\$0 \$65,864,817	\$0 \$4,004	-	
10.090	Track: Direct fixation	Track Miles	0.1261		19	\$3,705,543	\$467		
10.100 10.110	Track: Embedded Track: Ballasted	Track Miles Track Miles	1.1824		9 18	\$3,220,175 \$0	\$3,807 \$0	-	
10.120	Track: Special (switches, tumouts)	Track Miles	1	Yes	12	\$378,486	\$495		
10.140 20	Special Structures Stations, Stops, Terminals, Intermodels	Lineal Miles of Guideway Stations	2	Yes	3	\$5,041,732 \$112,700	\$6,597 \$225,399	70%	44%
20.010	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations	1		19	\$16,869,180	\$16,869		-7//
20.020 20.030	Aerial station, stop, shelter, mall, terminal, platform Underground station, stop, shelter, mall, terminal, platform	Stations Stations	1		5	\$0 \$200,000	\$0 \$200,000	-	
20.031	Sequential Excavation Method	Stations	1		10	\$200,000,000	\$200,000		
20.032 20.033	Bored Earth Soft Soils Bored Rock Hard Soils	Stations Stations			0	\$0 \$0	\$0 \$0	-	
20.034	Unspecified	Stations			4	\$0	\$0	1	
20.060 20.070	Automobile parking multi-story structure Elevators, escalators	Spaces Number	4		3	\$0 \$2,133	\$0 \$8,530	-	
20.071	Elevators	Number	2		4	\$2,217,942	\$4,436	1	
20.072	Escalators Passenger Overpass	Number	2		5 5	\$2,047,157	\$4,094	1	
20.080 20.090	Underground Interconnecting Tunnel	Number Number		No	0	\$0 \$0	\$0 \$0	1	
20.100	Signage and Graphics	Stations			10	\$0	\$0	1	
0.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0 1.3085		0	\$0 \$0	\$0 \$0	0%	0%
0.011	Administrative Building	Lineal Miles of Guideway	0	No	2	\$0	\$0	1	
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	0	\$0 \$0	\$0 \$0	1	
30.020	Light Maintenance Facility	Vehicles	0	Yes	7	\$0	\$0	1	
80.030 80.040	Heavy Maintenance Facility Storage or Maintenance of Way Building	Vehicles Lineal Miles of Guideway	0	Yes No	17 5	\$0 \$0	\$0 \$0	1	
30.050	Yard and Yard Track	Track Miles	0	No	5	\$0	\$0		
10 40.010	Sitework & Special Conditions Demolition, Clearing, Earthwork	Lineal Miles of Guideway Lineal Miles of Guideway	1.3085 1.3085	Yes	12	\$15,915 \$2,033,937	\$20,825 \$2,661	6%	4%
10.020	Site Utilities, Utility Relocation	Lineal Miles of Guideway	1.3085	Yes	75	\$4,266,060	\$5,582	1	
10.030 10.040	 Haz. mat¹l, contam¹d soil removal/mitigation, ground water treatmer Environmental mitigation, e.g. wetlands, historic/archeologic, parks 	Lineal Miles of Guideway Lineal Miles of Guideway	1.3085 1.3085	Yes Yes	5 8	\$2,299,074 \$1.047.598	\$3,008 \$1,371	-	
10.050	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	1.3085	Yes	1	\$149,423	\$196	1	
10.060 10.070	Pedestrian / bike access and accommodation, landscaping Automobile, bus, van accessways including roads, parking lots	Lineal Miles of Guideway Spaces	1.3085 n	Yes	8	\$955,612 \$0	\$1,250 \$0	-	
0.071	Surface Parking Lot	Spaces			8	\$0	\$0	1	
40.072 40.080	Auto Access Temporary Facilities and other indirect costs during construction	Stations Lineal Miles of Guideway	1.3085	Yes	21	\$0 \$5.163.485	\$0 \$6,757	-	
50	Systems	Track Miles	1.3085		0	\$12,428	\$16,262	5%	3%
50.010 50.020	Train control and signals Traffic signals and crossing protection	Track Miles Track Miles	1.3085 1.3085	Yes Yes	26 7	\$2,966,502 \$255,223	\$3,882 \$334	1	
0.030	Traction power supply: substations	Track Miles	1.3085	Yes	23	\$1,697,988	\$2,222	1	
0.040 0.041	Traction power distribution: catenary and third rail Catenary	Track Miles Track Miles	1.3085 1.3085	Yes	13	\$3,196 \$1.346.370	\$4,182 \$1,762	-	
0.042	Ancillary Elements	Track Miles	1.3085	Yes	7	\$1,387,266	\$1,815	1	
0.043 0.050	Power Distribution and Connections Communications	Track Miles Track Miles	1.3085 1.3085	Yes Yes	4 23	\$462,321 \$2,267,613	\$605 \$2,967	-	
50.060	Fare collection system and equipment	Stations	2	Yes	28	\$1,337,702	\$2,675		
60	Construction Subtotal (10-50) Row, Land, Existing Improvements	Lineal Miles of Guideway Lineal Miles of Guideway	1.3085 1.3085		0	\$246,042 \$18,474	\$321,951 \$24,173	100%	62% 5%
0.010	Purchase or lease of real estate	Lineal Miles of Guideway	1.3085	Yes	25	\$14,910,401	\$19,511	1	
0.020 0.030	Relocation of existing households and businesses Services	Lineal Miles of Guideway Lineal Miles of Guideway	1.3085 1.3085	Yes Yes	12 23	\$1,727,595 \$1,835,836	\$2,261 \$2,402	-	
0.040	Other Real Estate Costs	Lineal Miles of Guideway	1.3085	Yes	0	\$0	\$0	1	
0.010	Vehicles Light Rail	Vehicles Vehicles	0		0 15	\$0	\$0 \$0	1	0%
0.020	Heavy Rail	Vehicles			6	\$0	\$0	1	
0.060 0	Non-revenue vehicles Professional Services	Vehicles Hard Costs	\$346,124.90	Yes	11	\$0 49 %	\$0 \$171,039	0%	0%
80.010	Preliminary Engineering	Hard Costs	\$346,124.90	Yes	14	6%	\$22,459	J 7 7	
0.020 0.030	Final Design Project Management for Design and Construction	Hard Costs Hard Costs	\$346,124.90 \$346,124.90	Yes	22 32	12% 10%	\$42,280 \$35,063	-	
0.040	Construction Administration & Management	Hard Costs	\$346,124.90	Yes Yes	24	11%	\$39,757		
80.050	Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$346,124.90 \$346,124.90	Yes	16	4%	\$15,096	-	
80.060 80.070	Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs	\$346,124.90 \$346,124.90	Yes Yes	6	2% 0%	\$7,144 \$1,453	1	
80.080	Start up	Hard Costs Hard Costs	\$346,124.90	Yes	23	2%	\$6,086	1	
0.090	Other Subtotal (10-80)	Hard Costs Lineal Miles of Guideway	\$346,124.90 1	Yes	10 0	0% \$395,227	\$1,701 \$517,163		
0	Unallocated Contingency	Total Amount	1		0	\$0	\$0		0%
	Subtotal (10-90)	Lineal Miles of Guideway	1		0	0	\$517,163		100%
00	Finance Charges	Total Amount	1		0	\$0	\$0		0%



Alternative 2B-2

	odel Compared With Project Estimate	CENTRAL CURVACA DUALE				Today da Cinto	0/05/0044		
Cost Bas Reference		CENTRAL SUBWAY PHASE 3 ALT 2B-2				Today's Date Base Year	8/25/2014 2014		
Project C		San Francisco, CA							
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	1.0193 Quantity	Inlucde	Sample	\$1,307,421 Unit Cost (\$)	\$1,332,678 Total Cost	Base Year	Base Year
		OTILS	Guarinty	This Item	Size	Offic Obst (4)	(a) (\$000)	Dollars	Dollars
				(select 'Yes' or				Percentage of	Percentage of
				'No')				Construction	Total
10	Guideway & Track Elements	Lineal Miles of Guideway	1.0193		0	\$150,334	\$153,238	Cost 18%	Project Cost 11%
10.010 10.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19	\$0 \$0	\$0 \$0		
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway			8	\$0	\$0	1	
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0		
10.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.1989		11	\$107,955,004	\$21,468	1	
10.070 10.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.8205		11 6	\$149,268,285 \$0	\$122,468 \$0	+	
10.090 10.100	Track: Direct fixation Track: Embedded	Track Miles Track Miles	1.0193		19 9	\$3,705,543	\$3,777	1	
10.110	Track: Ballasted	Track Miles			18	\$0 \$0	\$0 \$0		
10.120 10.140	Track: Special (switches, turnouts) Special Structures	Track Miles Lineal Miles of Guideway	1	Yes Yes	12	\$378,486 \$5,041,732	\$386 \$5,139		
20	Stations, Stops, Terminals, Intermodels	Stations	3	165	0	\$229,680	\$689,041	79%	52%
20.010 20.020	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform Aerial station, stop, shelter, mall, terminal, platform	Stations Stations			19 5	\$0 \$0	\$0 \$0		
20.030	Underground station, stop, shelter, mall, terminal, platform	Stations	3			\$221,150	\$663,450		
20.031 20.032	Cut and Cover Bored Earth Soft Soils	Stations Stations	3		10	\$221,150,000 \$0	\$663,450 \$0		
20.033	Bored Rock Hard Soils	Stations			0	\$0	\$0		
20.034 20.060	Unspecified Automobile parking multi-story structure	Stations Spaces			3	\$0 \$0	\$0 \$0	1	
20.070 20.071	Elevators, escalators Elevators	Number Number	12 6		4	\$2,133 \$2,217,942	\$25,591 \$13,308		
20.071	Escalators	Number	6		5	\$2,047,157	\$12,283		
20.080	Passenger Overpass	Number			5	\$0	\$0		
20.090 20.100	Underground Interconnecting Tunnel Signage and Graphics	Number Stations		No	0 10	\$0 \$0	\$0 \$0		
30 30 010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0 1.0193		0	\$0 \$0	\$0 \$0	0%	0%
30.011	Administrative Building	Lineal Miles of Guideway	0	No	2	\$0	\$0		
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0		
30.020	Light Maintenance Facility	Vehicles	0	Yes	7	\$0	\$0		
30.030 30.040	Heavy Maintenance Facility Storage or Maintenance of Way Building	Vehicles Lineal Miles of Guideway	0	Yes No	17 5	\$0 \$0	\$0 \$0	-	
30.050	Yard and Yard Track	Track Miles	0	No	5	\$0	\$0		481
40 40.010	Sitework & Special Conditions Demolition, Clearing, Earthwork	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193 1.0193	Yes	12	\$15,915 \$2,033,937	\$16,223 \$2,073	2%	1%
40.020 40.030	Site Utilities, Utility Relocation Haz. mat'l, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193 1.0193	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$4,348 \$2,343		
40.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	1.0193	Yes	8	\$1,047,598	\$1,068	<u> </u>	
40.050 40.060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193 1.0193	Yes Yes	8	\$149,423 \$955,612	\$152 \$974		
40.070	Automobile, bus, van accessways including roads, parking lots	Spaces	0	100		\$0	\$0		
40.071 40.072	Surface Parking Lot Auto Access	Spaces Stations			8	\$0 \$0	\$0 \$0	-	
40.080	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	1.0193	Yes	21	\$5,163,485	\$5,263		481
50 50.010	Systems Train control and signals	Track Miles Track Miles	1.0193 1.0193	Yes	0 26	\$14,320 \$2,966,502	\$14,597 \$3,024	2%	1%
50.020	Traffic signals and crossing protection	Track Miles Track Miles	1.0193 1.0193	Yes	7	\$255,223	\$260		
50.030 50.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles	1.0193	Yes	23	\$1,697,988 \$3,196	\$1,731 \$3,258		
50.041 50.042	Catenary Ancillary Elements	Track Miles Track Miles	1.0193 1.0193	Yes Yes	13	\$1,346,370 \$1,387,266	\$1,372 \$1,414		
50.043	Power Distribution and Connections	Track Miles	1.0193	Yes	4	\$462,321	\$471		
50.050 50.060	Communications Fare collection system and equipment	Track Miles Stations	1.0193 3	Yes Yes	23 28	\$2,267,613 \$1,337,702	\$2,311 \$4,013		
	Construction Subtotal (10-50)	Lineal Miles of Guideway	1.0193		0	\$856,551	\$873,098	100%	66%
60 60.010	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193 1.0193	Yes	0 25	\$18,474 \$14,910,401	\$18,831 \$15,198		1%
60.020 60.030	Relocation of existing households and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193	Yes	12	\$1,727,595	\$1,761		
60.040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193	Yes Yes	23 0	\$1,835,836 \$0	\$1,871 \$0		
70 70.010	Vehicles Light Rail	Vehicles Vehicles	0		0 15	\$0 \$0	\$0 \$0		0%
70.020	Heavy Rail	Vehicles			6	\$0	\$0		
70.060 80	Non-revenue vehicles Professional Services	Vehicles Hard Costs	\$891,929.14	Yes	11	\$0 49 %	\$0 \$440,749	0%	0%
80.010	Preliminary Engineering	Hard Costs	\$891,929.14	Yes	14	6%	\$57,874		
80.020 80.030	Final Design Project Management for Design and Construction	Hard Costs Hard Costs	\$891,929.14 \$891,929.14	Yes Yes	22 32	12% 10%	\$108,950 \$90,353		
80.040	Construction Administration & Management	Hard Costs	\$891,929.14 \$891,929.14	Yes	24	11%	\$102,449		
80.050 80.060	Professional Liability and other Non-Construction Insurance Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs Hard Costs	\$891,929.14	Yes Yes	16 6	4% 2%	\$38,900 \$18,409		
80.070	Surveys, Testing, Investigation, Inspection	Hard Costs	\$891,929.14 \$891,929.14	Yes	2	0%	\$3,745		
80.080 80.090	Start up Other	Hard Costs Hard Costs	\$891,929.14 \$891,929.14	Yes Yes	23 10	2% 0%	\$15,683 \$4,384		
90	Subtotal (10-80) Unallocated Contingency	Lineal Miles of Guideway Total Amount	1		0	\$1,307,421 \$0	\$1,332,678 \$0		0%
	Subtotal (10-90)	Lineal Miles of Guideway	1		0	0	\$1,332,678		100%
100	Finance Charges	Total Amount	1		0	\$0 \$0	\$0 \$1,332,670		0% 100%
	Total Project Costs (10-100)	Lineal Miles of Guideway	1		0	\$0	\$1,332,678		100%



Alternative 2B-2 (NBS is SEM)

Cost Bas		CENTRAL SUBWAY PHASE				Today's Date	8/25/2014		
Reference		3 ALT 2B-2 (NBS is SEM)				Base Year	2014		
Project C Mode:	ity.	San Francisco, CA Light Rail Transit					Chart		
.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	1.0193 Quantity	Inlucde	Sample	\$1,380,603 Unit Cost (\$)	\$1,407,274 Total Cost	Base Year	Base Year
				This Item (select	Size		(a) (\$000)	Dollars Percentage	Dollars Percentage
				'Yes' or				of	of
				'No')				Construction Cost	Total Project Cos
	Guideway & Track Elements	Lineal Miles of Guideway	1.0193		0	\$150,334	\$153,238	17%	11%
0.010 0.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0	1	
10.030	Guideway: At-grade in mixed traffic Guideway: Aerial structure	Lineal Miles of Guideway			- 8	\$0	\$0	1	
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	i	
10.060 10.070	Guideway: Underground cut & cover Guideway: Underground tunnel	Lineal Miles of Guideway Lineal Miles of Guideway	0.1989 0.8205		11	\$107,955,004 \$149,268,285	\$21,468 \$122,468		
0.080	Guideway: Retained cut or fill	Lineal Miles of Guideway			6	\$0	\$0		
0.090	Track: Direct fixation Track: Embedded	Track Miles Track Miles	1.0193		19 9	\$3,705,543 \$0	\$3,777 \$0	1	
10.110	Track: Ballasted	Track Miles	1		18	\$0	\$0		
0.120 0.140	Track: Special (switches, turnouts) Special Structures	Track Miles Lineal Miles of Guideway	1	Yes Yes	12 3	\$378,486 \$5,041,732	\$386 \$5,139		
20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Sheiter, Mall, Terminal, Platform	Stations	3		0 19	\$246,322 \$0	\$738,966 \$0	80%	53%
20.020	Aerial station, stop, shelter, mall, terminal, platform	Stations Stations			5	\$0	\$0		
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Sequential Excavation Method & Cut and Cover	Stations Stations	3		10	\$237,792 \$237,791,667	\$713,375 \$713,375		
0.032	Bored Earth Soft Soils	Stations			0	\$0	\$0		
0.033 0.034	Bored Rock Hard Solls Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0		
20.060 20.070	Automobile parking multi-story structure Elevators, escalators	Spaces Number	12		3	\$0 \$2,133	\$0 \$25,591		
20.071	Elevators	Number	6		4	\$2,217,942	\$13,308		
20.072 20.080	Escalators Passenger Overpass	Number Number	6		5 5	\$2,047,157	\$12,283 \$0		
0.090	Underground Interconnecting Tunnel	Number		No	0	\$0 \$0	\$0		
0.100	Signage and Graphics Support Facilities: Yards, Shops, Admin. Bldgs	Stations Vehicles	0		10 0	\$0 \$0	\$0 \$0	0%	0%
0.010	Administration Building: Office, sales, storage, revenue counting	Lineal Miles of Guideway	1.0193		Ů	\$0	\$0	V 76	- 0/8
0.011 0.012	Administrative Building Central Control Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0		
30.013	Central Revenue Counting Facility	Lineal Miles of Guideway	0	No	0	\$0	\$0		
80.020 80.030	Light Maintenance Facility Heavy Maintenance Facility	Vehicles Vehicles	0	Yes Yes	7 17	\$0 \$0	\$0 \$0	1	
30.040	Storage or Maintenance of Way Building Yard and Yard Track	Lineal Miles of Guideway Track Miles	0	No No	5 5	\$0 \$0	\$0 \$0		
80.050 IO	Sitework & Special Conditions	Lineal Miles of Guideway	1.0193	NU	0	\$15,915	\$16,223	2%	1%
10.010 10.020	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193 1.0193	Yes Yes	12 75	\$2,033,937 \$4,266,060	\$2,073 \$4,348		
40.030	Haz. mat'l, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway	1.0193	Yes	5	\$2,299,074	\$2,343		
10.040 10.050	Environmental mitigation, e.g. wetlands, historic/archeologic, parks Site structures including retaining walls, sound walls	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193 1.0193	Yes Yes	8	\$1,047,598 \$149,423	\$1,068 \$152	1	
10.060 10.070	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway	1.0193	Yes	8	\$955,612	\$974	1	
10.070	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces Spaces	0		8	\$0 \$0	\$0 \$0		
40.072 40.080	Auto Access Temporary Facilities and other indirect costs during construction	Stations Lineal Miles of Guideway	1.0193	Yes	21	\$0 \$5,163,485	\$0 \$5,263		
i0	Systems	Track Miles	1.0193		0	\$14,320	\$14,597	2%	1%
50.010 50.020	Train control and signals Traffic signals and crossing protection	Track Miles Track Miles	1.0193 1.0193	Yes Yes	26 7	\$2,966,502 \$255,223	\$3,024 \$260		
50.030	Traction power supply: substations	Track Miles	1.0193	Yes	23	\$1,697,988	\$1,731		
50.040 50.041	Traction power distribution: catenary and third rail Catenary	Track Miles Track Miles	1.0193 1.0193	Yes	13	\$3,196 \$1,346,370	\$3,258 \$1,372		
50.042 50.043	Ancillary Elements Power Distribution and Connections	Track Miles Track Miles	1.0193 1.0193	Yes Yes	7 4	\$1,387,266 \$462,321	\$1,414 \$471		
0.050	Communications	Track Miles	1.0193	Yes	23	\$2,267,613	\$2,311		
50.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	3 1.0193	Yes	28 0	\$1,337,702 \$905,530	\$4,013 \$923,023	100%	66%
30	Row, Land, Existing Improvements	Lineal Miles of Guideway	1.0193	Ų.	0	\$18,474	\$18,831		1%
60.010 60.020	Purchase or lease of real estate Relocation of existing households and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193 1.0193	Yes Yes	25 12	\$14,910,401 \$1,727,595	\$15,198 \$1,761		
0.030 0.040	Services	Lineal Miles of Guideway Lineal Miles of Guideway	1.0193 1.0193	Yes	23 0	\$1,835,836 \$0	\$1,871 \$0		
70	Other Real Estate Costs Vehicles	Vehicles	1.0193	Yes	0	\$0	\$0		0%
0.010 0.020	Light Rail Heavy Rail	Vehicles Vehicles			15 6	\$0 \$0	\$0 \$0		
0.060	Non-revenue vehicles	Vehicles	0	Yes	11	\$0	\$0		
0.010	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$941,854.14 \$941,854.14	Yes	14	49% 6%	\$465,420 \$61,114	0%	0%
0.020	Final Design	Hard Costs	\$941,854.14	Yes	22	12%	\$115,049		
0.030 0.040	Project Management for Design and Construction Construction Administration & Management	Hard Costs Hard Costs	\$941,854.14 \$941,854.14	Yes Yes	32 24	10% 11%	\$95,411 \$108,183		
0.050	Professional Liability and other Non-Construction Insurance	Hard Costs	\$941,854.14	Yes	16	4%	\$41,078	1	
10.060 10.070	Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$941,854.14 \$941,854.14	Yes Yes	6 2	2% 0%	\$19,440 \$3,955		
80.080 80.090	Start up Other	Hard Costs Hard Costs	\$941,854.14 \$941,854.14	Yes Yes	23 10	2% 0%	\$16,561 \$4,630		
	Subtotal (10-80)	Lineal Miles of Guideway	1	162	0	\$1,380,603	\$1,407,274		
0	Unallocated Contingency Subtotal (10-90)	Total Amount Lineal Miles of Guideway	1		0	\$0 •	\$0 \$1,407,274		0% 100%
00	Finance Charges	Total Amount	1		0	\$0	\$0		0%
	Total Project Costs (10-100)	Lineal Miles of Guideway	1		0	\$0	\$1,407,274		100%



Summary of Costs - Alternative 3 Options

DESCRIPTION	GUIDEWAY LENGTH	# OF STATIONS	LOW ESTIMATE (-30%)	POINT ESTIMATE	HIGH ESTIMATE (+50%)						
	(FT)	(EA)	(\$000)	(\$000)	(\$000)						
CONSTRUCTION COSTS (SCC 10-50)											
ALTERNATIVE 3-1 (C/C)	8472	3	\$232,410	\$302,133	\$453,199						
ALTERNATIVE 3-1 (SEM)	8472	3	\$270,871	\$352,133	\$528,199						
ALTERNATIVE 3-2A (C/C)	8530	3	\$536,533	\$697,493	\$1,046,240						
ALTERNATIVE 3-2A (SEM)	8530	3	\$563,416	\$732,441	\$1,098,661						
ALTERNATIVE 3-2B (C/C)	8427	3	\$534,594	\$694,972	\$1,042,458						
ALTERNATIVE 3-2B (SEM)	8427	3	\$561,476	\$729,919	\$1,094,879						
		SOFT COSTS	S (SCC 60-100)								
ALTERNATIVE 3-1 (C/C)	8472	3	\$148,915	\$193,589	\$290,384						
ALTERNATIVE 3-1 (SEM)	8472	3	\$167,921	\$218,297	\$327,446						
ALTERNATIVE 3-2A (C/C)	8530	3	\$299,432	\$389,261	\$583,892						
ALTERNATIVE 3-2A (SEM)	8530	3	\$312,716	\$406,531	\$609,796						
ALTERNATIVE 3-2B (C/C)	8427	3	\$298,059	\$387,477	\$581,215						
ALTERNATIVE 3-2B (SEM)	8427	3	\$311,343	\$404,746	\$607,119						
	1	OTAL COST	S (SCC 10-100)								
ALTERNATIVE 3-1 (C/C)	8472	3	\$381,325	\$495,722	\$743,583						
ALTERNATIVE 3-1 (SEM)	8472	3	\$438,792	\$570,430	\$855,644						
ALTERNATIVE 3-2A (C/C)	8530	3	\$835,965	\$1,086,754	\$1,630,131						
ALTERNATIVE 3-2A (SEM)	8530	3	\$876,132	\$1,138,971	\$1,708,457						
ALTERNATIVE 3-2B (C/C)	8427	3	\$832,653	\$1,082,448	\$1,623,673						
ALTERNATIVE 3-2B (SEM)	8427	3	\$872,819	\$1,134,665	\$1,701,998						

Notes:

FTA Capital Cost Database utilized for point estimate values.

Costs are in 2014 dollars, adjusted locally to San Francisco, CA.

Estimate values exclude finance charges (SCC-100).

Range values based on FTA and AACE guidelines for Probable Accuracy.

(C/C) and (SEM) designations for each option refer to the method of construction of North Beach Station [whether the station is estimated as cut--and-cover (C/C) box construction or construction by sequential excavation method (SEM)].

All deep options have bored tunnel estimated as constructed by tunnel boring machine (TBM). All shallow (surface) options have tunnel portion estimated as cut-and-cover box construction.

One cross-over was estimated for North Beach Station.

Alternative 3-1

Cost Ba	fodel Compared With Project Estimate sis: ce Name:	CENTRAL SUBWAY PHASE 3 ALT 3-1				Today's Date Base Year	8/25/2014 2014			
Project Mode:		San Francisco, CA Light Rail Transit					Chart			
.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	1.6045	_	_	\$308,949	\$495,722	T	г —	
		Units	Quantity	Inlucde This Item (select 'Yes' or 'No')	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars Percentage of Construction Cost	Base Yea Dollars Percentag of Total Project Co	
0	Guideway & Track Elements	Lineal Miles of Guideway	1.6045		0	\$39,671	\$63,654	21%	13%	
0.010 0.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0	4		
0.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	1.0489		8	\$17,661,782	\$18,525	1		
0.040	Guideway: Aerial structure	Lineal Miles of Guideway			16 0	\$0	\$0]		
0.050 0.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.4455		11	\$0 \$70.170.752	\$0 \$31,258	1		
0.070	Guideway: Underground tunnel	Lineal Miles of Guideway			11	\$0	\$0	1		
0.080 0.090	Guideway: Retained cut or fill Track: Direct fixation	Lineal Miles of Guideway Track Miles	0.1102 0.4455		6 19	\$42,812,131 \$2,408,603	\$4,719 \$1,073	-		
0.100	Track Embedded	Track Miles	1.1591		9	\$2,093,114	\$2,426			
0.110 0.120	Track: Ballasted Track: Special (switches, tumouts)	Track Miles Track Miles	2	Yes	18 12	\$0 \$246.016	\$0 \$395	4		
0.140	Special Structures	Lineal Miles of Guideway	2	Yes	3	\$3,277,126	\$5,258	1		
0.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	3		0	\$64,090 \$16,869,180	\$192,269 \$33,738	64%	39%	
0.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0			
0.030 0.031	Underground station, stop, shelter, mall, terminal, platform Cut and Cover	Stations Stations	1		10	\$150,000 \$150,000,000	\$150,000 \$150.000	-		
0.032	Bored Earth Soft Soils	Stations			0	\$150,000,000	\$150,000			
0.033	Bored Rock Hard Soils	Stations			0	\$0	\$0			
0.034 0.060	Unspecified Automobile parking multi-story structure	Stations Spaces			3	\$0 \$0	\$0 \$0	-		
0.070	Elevators, escalators	Number	4			\$2,133	\$8,530			
0.071 0.072	Elevators Escalators	Number Number	2		4 5	\$2,217,942 \$2,047,157	\$4,436 \$4,094	4		
0.080	Passenger Overpass	Number	-		5	\$0	\$0	-		
0.090	Underground Interconnecting Tunnel	Number		No	0	\$0	\$0			
0.100)	Signage and Graphics Support Facilities: Yards, Shops, Admin. Bldgs	Stations Vehicles	0		10	\$0 \$0	\$0 \$0	0%	0%	
0.010	Administration Building: Office, sales, storage, revenue counting	Lineal Miles of Guideway	1.6045			\$0	\$0			
0.011 0.012	Administrative Building Central Control Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0	┨		
0.013	Central Revenue Counting Facility	Lineal Miles of Guideway	0	No	0	\$0	\$0	1		
0.020 0.030	Light Maintenance Facility Heavy Maintenance Facility	Vehicles Vehicles	0	Yes Yes	7 17	\$0 \$0	\$0 \$0	4		
0.040	Storage or Maintenance of Way Building	Lineal Miles of Guideway	0	No	5	\$0	\$0	_		
0.050	Yard and Yard Track Sitework & Special Conditions	Track Miles Lineal Miles of Guideway	0 1.6045	No	5 0	\$0 \$15,915	\$0 \$25,537	8%	5%	
0.010	Demolition, Clearing, Earthwork	Lineal Miles of Guideway	1.6045	Yes	12	\$2,033,937	\$3,264			
0.020 0.030	Site Utilities, Utility Relocation Haz. mat'l, contam'd soll removal/mitigation, ground water treatmer	Lineal Miles of Guideway Lineal Miles of Guideway	1.6045 1.6045	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$6,845 \$3,689	4		
0.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	1.6045	Yes	8	\$1,047,598	\$1,681			
0.050 0.060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	1.6045 1.6045	Yes Yes	1 8	\$149,423 \$955,612	\$240 \$1,533			
0.070	Automobile, bus, van accessways including roads, parking lots	Spaces	0	100	ŭ	\$0	\$0			
0.071 0.072	Surface Parking Lot Auto Access	Spaces Stations			8	\$0 \$0	\$0 \$0	7		
0.072	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	1.6045	Yes	21	\$5,163,485	\$8,285	_		
0.010	Systems Train control and signals	Track Miles Track Miles	1.6045 1.6045	Yes	0	\$12,884 \$2,966,502	\$20,674 \$4,760	7%	4%	
0.020	Traffic signals and crossing protection	Track Miles	1.6045	Yes	26 7	\$255,223	\$4,760			
0.030	Traction power supply: substations	Track Miles Track Miles	1.6045 1.6045	Yes	23	\$1,697,988 \$3,196	\$2,724			
0.040 0.041	Traction power distribution: catenary and third rail Catenary	Track Miles Track Miles	1.6045 1.6045	Yes	13	\$3,196 \$1,346,370	\$5,128 \$2,160	-		
0.042	Ancillary Elements	Track Miles	1.6045	Yes	7	\$1,387,266	\$2,226			
0.043 0.050	Power Distribution and Connections Communications	Track Miles Track Miles	1.6045 1.6045	Yes Yes	23	\$462,321 \$2,267,613	\$742 \$3,638	1		
0.060	Fare collection system and equipment	Stations	3.0000	Yes	28	\$1,337,702	\$4,013			
0	Construction Subtotal (10-50) Row, Land, Existing Improvements	Lineal Miles of Guideway Lineal Miles of Guideway	1.6045 1.6045		0	\$188,298 \$18,474	\$302,133 \$29,642	100%	61% 6%	
0.010	Purchase or lease of real estate	Lineal Miles of Guideway	1.6045	Yes	25	\$14,910,401	\$23,924	1		
0.020 0.030	Relocation of existing households and businesses Services	Lineal Miles of Guideway Lineal Miles of Guideway	1.6045 1.6045	Yes Yes	12 23	\$1,727,595 \$1.835.836	\$2,772 \$2,946	4		
0.040	Other Real Estate Costs	Lineal Miles of Guideway	1.6045	Yes	0	\$0	\$0			
D.010	Vehicles Light Rail	Vehicles Vehicles	0		0	\$0 \$0	\$0 \$0	4	0%	
0.020	Heavy Rail	Vehicles			6	\$0	\$0			
0.060	Non-revenue vehicles Professional Services	Vehicles Hard Costs	0 \$331,774.68	Yes	11 0	\$0 49 %	\$0 \$163,947	0%	0%	
0.010	Preliminary Engineering	Hard Costs	\$331,774.68	Yes	14	49% 6%	\$21,528	0%	0%	
0.020	Final Design	Hard Costs	\$331,774.68	Yes	22 32	12%	\$40,527			
0.030 0.040	Project Management for Design and Construction Construction Administration & Management	Hard Costs Hard Costs	\$331,774.68 \$331,774.68	Yes Yes	32 24	10% 11%	\$33,609 \$38,108	1		
	Professional Liability and other Non-Construction Insurance	Hard Costs	\$331,774.68	Yes	16	4%	\$14,470			
	The state of the s	Hard Costs	\$331,774.68	Yes Yes	6	2% 0%	\$6,848 \$1,393	-		
0.060	Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs	\$331,774.68							
0.060 0.070 0.080	Surveys, Testing, Investigation, Inspection Start up	Hard Costs Hard Costs	\$331,774.68 \$331,774.68	Yes	23	2%	\$5,834			
0.060 0.070 0.080	Surveys, Testing, Investigation, Inspection Start up Other	Hard Costs Hard Costs Hard Costs	\$331,774.68 \$331,774.68		23 10 0	2% 0%	\$5,834 \$1,631			
0.060 0.070 0.080 0.090	Surveys, Testing, Investigation, Inspection Start up Other Subtotal (10-80) Unallocated Cortingency	Hard Costs Hard Costs Hard Costs Hard Costs Lineal Miles of Guideway Total Amount	\$331,774.68 \$331,774.68 2 2	Yes	10 0 0	2% 0% \$308,949 \$0	\$5,834 \$1,631 \$495,722 \$0		0%	
0.050 0.060 0.070 0.080 0.090 0	Surveys, Testing, Investigation, Inspection Start up Cther Subtotal (10-80)	Hard Costs Hard Costs Hard Costs Lineal Miles of Guideway	\$331,774.68 \$331,774.68 2	Yes	10 0	2% 0% \$308,949	\$5,834 \$1,631 \$495,722		0% 100% 0%	



Alternative 3-1 (NBS is SEM)

	Todel Compared With Project Estimate	OFFICE OFFI					0.005.004.4		
Cost Ba Referen	sis: ce Name:	CENTRAL SUBWAY PHASE 3 ALT 3-1 (NBS is SEM)				Today's Date Base Year	8/25/2014 2014		
Project (San Francisco, CA							
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	1.6045			\$355,509	\$570,430		
		Units	Quantity	Inlucde This Item (select	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars Percentage	Base Year Dollars Percentage
				'Yes' or				of	of
				'No')				Construction Cost	Total Project Cost
10	Guideway & Track Elements	Lineal Miles of Guideway	1.6045		0	\$39,671	\$63,654	18%	11%
10.010 10.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0	-	
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway	1.0489		8	\$17,661,782	\$18,525		
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	-	
10.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.4455		- 11	\$70,170,752	\$31,258]	
10.070 10.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.1102		11 6	\$0 \$42,812,131	\$0 \$4,719	-	
10.090	Track Direct fixation	Track Miles	0.4455		19 9	\$2,408,603 \$2,093,114	\$1,073		
10.100 10.110	Track: Embedded Track: Ballasted	Track Miles Track Miles	1.1591		18	\$2,093,114	\$2,426 \$0	_	
10.120 10.140	Track: Special (switches, tumouts) Special Structures	Track Miles	2	Yes Yes	12	\$246,016 \$3,277,126	\$395 \$5,258	4	
20	Stations, Stops, Terminals, Intermodels	Lineal Miles of Guideway Stations	3	165	0	\$80,756	\$242,269	69%	42%
20.010 20.020	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform Aerial station, stop, shelter, mall, terminal, platform	Stations Stations	2		19 5	\$16,869,180 \$0	\$33,738 \$0	-	
20.030	Underground station, stop, shelter, mall, terminal, platform	Stations	1			\$200,000	\$200,000		
20.031 20.032	Sequential Excavation Method Bored Earth Soft Soils	Stations Stations	1		10 0	\$200,000,000 \$0	\$200,000 \$0	-	
20.033	Bored Rock Hard Soils	Stations			0	\$0	\$0		
20.034 20.060	Unspecified Automobile parking multi-story structure	Stations Spaces			4	\$0 \$0	\$0 \$0	-	
20.070	Elevators, escalators	Number	4			\$2,133	\$8,530		
20.071 20.072	Elevators Escalators	Number Number	2		4 5	\$2,217,942 \$2,047,157	\$4,436 \$4,094	-	
20.080	Passenger Overpass	Number			5	\$0	\$0		
20.090	Underground Interconnecting Tunnel	Number		No	0	\$0	\$0		
20.100 30	Signage and Graphics Support Facilities: Yards, Shops, Admin. Bldgs	Stations Vehicles	0		10 0	\$0 \$0	\$0 \$0	0%	0%
30.010	Administration Building: Office, sales, storage, revenue counting	Lineal Miles of Guideway	1.6045	No	0	\$0 \$0	\$0 \$0	_	
30.011 30.012	Administrative Building Central Control Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0	-	
30.013 30.020	Central Revenue Counting Facility	Lineal Miles of Guideway Vehicles	0	No	0	\$0 \$0	\$0 \$0		
30.030	Light Maintenance Facility Heavy Maintenance Facility	Vehicles	0	Yes Yes	17	\$0	\$0	_	
30.040 30.050	Storage or Maintenance of Way Building Yard and Yard Track	Lineal Miles of Guideway Track Miles	0	No No	5	\$0 \$0	\$0 \$0	4	
40	Sitework & Special Conditions	Lineal Miles of Guideway	1.6045		0	\$15,915	\$25,537	7%	4%
40.010 40.020	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway Lineal Miles of Guideway	1.6045 1.6045	Yes Yes	12 75	\$2,033,937 \$4,266,060	\$3,264 \$6,845	_	
40.030	Haz. matl, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway	1.6045	Yes	5	\$2,299,074	\$3,689		
40.040 40.050	Environmental mitigation, e.g. wetlands, historic/archeologic, parks Site structures including retaining walls, sound walls	Lineal Miles of Guideway Lineal Miles of Guideway	1.6045 1.6045	Yes Yes	8	\$1,047,598 \$149,423	\$1,681 \$240	4	
40.060	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway	1.6045	Yes	8	\$955,612	\$1,533		
40.070 40.071	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces Spaces	0		8	\$0 \$0	\$0 \$0	4	
40.072	Auto Access	Stations			2				
40.080 50	Temporary Facilities and other indirect costs during construction Systems	Lineal Miles of Guideway Track Miles	1.6045			\$0	\$0		
50.010	Train control and signals		1.6045	Yes	21 0	\$5,163,485	\$8,285	6%	4%
50.020		Track Miles	1.6045 1.6045	Yes	21 0 26	\$5,163,485 \$12,884 \$2,966,502	\$8,285 \$20,674 \$4,760	6%	4%
00.030	Traffic signals and crossing protection		1.6045 1.6045		0	\$5,163,485 \$12,884	\$8,285 \$20,674 \$4,760 \$410	6%	4%
50.030 50.040	Traffic signals and crossing protection Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles Track Miles Track Miles	1.6045 1.6045 1.6045 1.6045	Yes Yes Yes	0 26 7 23	\$5,163,485 \$12,884 \$2,966,502 \$255,223 \$1,697,988 \$3,196	\$8,285 \$20,674 \$4,760 \$410 \$2,724 \$5,128	6%	4%
50.040 50.041 50.042	Traffic signals and crossing protection Traction power supply: substations	Track Miles Track Miles Track Miles	1.6045 1.6045 1.6045	Yes Yes	0 26 7	\$5,163,485 \$12,884 \$2,966,502 \$255,223 \$1,697,988	\$8,285 \$20,674 \$4,760 \$410 \$2,724	6%	4%
50.040 50.041 50.042 50.043	Traffic signals and crossing protection Traction power supply, substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections	Track Miles	1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045	Yes Yes Yes Yes Yes Yes Yes Yes	26 7 23 13 7 4	\$5,163,485 \$12,884 \$2,966,502 \$255,223 \$1,697,988 \$3,196 \$1,346,370 \$1,387,266 \$462,321	\$8,285 \$20,674 \$4,760 \$410 \$2,724 \$5,128 \$2,160 \$2,226 \$742	6%	4%
50.040 50.041 50.042	Traffic signals and crossing protection Traction power supply, substations Traction power distribution, catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment	Track Miles Stations	1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 3.0000	Yes Yes Yes Yes	0 26 7 23 13 7 4 23 28	\$5,163,485 \$12,884 \$2,966,502 \$255,223 \$1,697,988 \$3,196 \$1,346,370 \$1,387,266 \$462,321 \$2,267,613 \$1,337,702	\$8,285 \$20,674 \$4,760 \$410 \$2,724 \$5,128 \$2,160 \$2,226 \$742 \$3,638 \$4,013		4%
50.040 50.041 50.042 50.043 50.050 50.060	Traffic signals and crossing protection Traction power supply, substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Faire collection system and equipment Construction Subtotal (10-80)	Track Miles Of Guideway	1,6045 1,6045 1,6045 1,6045 1,6045 1,6045 1,6045 1,6045 1,6045 3,0000	Yes	0 26 7 23 13 7 4 23 28 0	\$5,163,485 \$12,884 \$2,966,502 \$255,223 \$1,697,988 \$3,196 \$1,345,370 \$1,387,266 \$462,321 \$2,267,613 \$1,337,702 \$219,469	\$0.285 \$20,674 \$4,760 \$410 \$2,724 \$5,128 \$2,160 \$2,226 \$742 \$3,638 \$4,013 \$362,133	6%	62%
50.040 50.041 50.042 50.043 50.050 50.060 60 60.010	Traffic signals and crossing protection Traction power supply, substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Subtotal (10-80) Row, Land, Existing improvements Purchase or lease of real estate	Track Miles Stations	1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 3.0000	Yes	0 26 7 23 13 7 4 23 28	\$5,163,485 \$12,884 \$2,966,502 \$255,223 \$1,697,988 \$3,196 \$1,346,370 \$1,387,266 \$462,321 \$2,267,613 \$1,337,702	\$8,285 \$20,674 \$4,760 \$410 \$2,724 \$5,128 \$2,160 \$2,226 \$742 \$3,638 \$4,013		
50.040 50.041 50.042 50.043 50.050 50.060 60 60.010 60.020	Traffic signals and crossing protection Traction power supply. substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Subotal (10-60) Row, Land, Existing Improvements Purchase or lease of real estate Perchase or dexisting nouserholds and businesses	Track Miles Unack Miles Track	1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045	Yes	0 26 7 23 13 7 4 23 28 0 0 25	\$5,163,485 \$12,884 \$2,966,502 \$2,255,223 \$1,697,988 \$3,196 \$1,346,370 \$1,367,266 \$462,321 \$2,267,613 \$1,337,702 \$2,247,459 \$18,474 \$14,910,401 \$1,727,595	\$9.285 \$20.674 \$4.760 \$4.10 \$2.724 \$3,128 \$2,120 \$2,226 \$742 \$3,538 \$4,013 \$20,642 \$23,924 \$23,924 \$23,924		62%
50.040 50.041 50.042 50.043 50.050 50.060 60 60.010	Traffic signals and crossing protection Traction power supply. substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Substati (10-60) Row, Land, Existing Improvements Purchase or lease of real estate Purchase or desking households and businesses Services Cher Peal Estate Costs	Track Miles Under Miles Track	1 6045 1 6045 1 6045 1 6045 1 6045 1 6045 1 6045 1 6045 3 0000 1 6045 1 6045 1 6045 1 6045 1 6045 1 6045 1 6045 1 6045 1 6045 1 6045	Yes	0 26 7 23 13 7 4 23 28 0 0 0 25 12 23	\$5,163,495 \$12,884 \$2,966,502 \$255,223 \$1,697,998 \$3,196 \$1,346,370 \$1,387,266 \$462,521 \$2,267,613 \$1,337,702 \$219,459 \$14,910,401 \$1,727,595 \$14,910,401 \$1,727,595 \$1,805,806 \$00	\$3.285 \$20.674 \$4.760 \$4.10 \$2.724 \$3.128 \$2.100 \$2.225 \$7.42 \$3.638 \$4.013 \$2.642 \$2.324 \$2.324 \$3.538 \$4.073 \$2.642 \$2.324 \$3.448 \$3.		62% 5%
50.040 50.041 50.042 50.043 50.050 50.060 60 60.010 60.020 60.030 60.040 70	Traffic signals and crossing protection Traction power supply, substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications For collection system and equipment Construction Subtotal (10-80) Row, Land, Existing Improvements Purchase or clease of real estate Relocation of existing households and businesses Services Cither Real Estate Costs Vehicles	Track Miles Stations Lineal Miles of Guideway Valicides	1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 1.6045 3.0000 1.6045 1.6045 1.6045 1.6045	Yes	0 26 7 23 13 7 4 23 28 0 0 25 12 23	\$5,163,495 \$12,884 \$2,966,502 \$255,223 \$1,697,968 \$3,196 \$1,346,370 \$1,387,266 \$462,267,613 \$1,387,702 \$219,469 \$11,277,595 \$18,474 \$14,910,401 \$1,727,595 \$18,053,636 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$9.285 \$20,674 \$47,60 \$47,60 \$2,724 \$5,128 \$2,126 \$2,226 \$742 \$3,638 \$4,013 \$362,133 \$29,642 \$2,272 \$2,294 \$3,294 \$3,00		62%
50.040 50.041 50.042 50.050 50.050 50.060 60 60 60.010 60.020 60.040 70 70.010 70.020	Traffic signals and crossing protection Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications	Track Miles Guideway Lineal Miles of Guideway Vehicles Vehicles Vehicles Vehicles	1 6045 1	Yes	0 26 7 7 23 13 7 4 23 28 0 0 0 25 12 23 0 0	\$5,163,495 \$12,884 \$2,966,502 \$255,223 \$1,897,968 \$3,196 \$1,346,370 \$1,387,266 \$462,221 \$2,267,613 \$1,337,702 \$219,459 \$1,347,451,451,451,451,451,451,451,451,451,451	\$9.285 \$20,674 \$47,60 \$41,0 \$2,724 \$5,126 \$2,226 \$742 \$3,638 \$4,013 \$382,133 \$29,642 \$2,272 \$2,346 \$5,0 \$5,0 \$5,0 \$5,0 \$5,0 \$5,0 \$5,0 \$5,0		62% 5%
50.040 50.041 50.042 50.050 50.060 60 60 60.010 60.020 60.030 60.040 70 70 70 70 70	Traffic signals and crossing protection Traction power supply, substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Substatal (10-80) Row, Land, Existing improvements Purchase or clease of real estate Relocation of existing households and businesses Services Other Real Estate Costs Vehicles Light Rail Heavy Rail Non-revenue vehicles	Track Miles Track	1 6945 1	Yes	0 26 7 23 13 7 4 23 28 0 0 0 25 12 23 0 0	\$5,183.485 \$12,884 \$2,986,502 \$255,5223 \$1,687,988 \$3,198 \$1,387,268 \$4,387,268 \$4,387,268 \$4,387,702 \$2,267,613 \$1,387,702 \$219,469 \$1,397,702	\$3,285 \$20,674 \$4,760 \$4,110 \$2,724 \$3,128 \$2,160 \$2,265 \$3,689 \$4,013 \$362,133 \$362,133 \$26,642 \$2,946 \$3,046 \$3,047 \$3,046 \$4,046 \$3,046 \$4,	100%	62% 5%
50.040 50.041 50.042 50.050 50.050 60 60 60.020 60.020 60.030 60.040 70 70.010 70.000 80 80 80	Traffic signals and crossing protection Traction power supply, substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Subtotal (10-60) Row, Land, Existing Improvements Purchase or lease of real estate Relocation of existing households and businesses Services Cither Real Estate Costs Vehicles Ught Rail Heavy Rail Non-revenue vehicles Professional Services Professional Services Professional Services	Track Miles Stations Lineal Miles of Guideway Lineal Miles of Tudideway Lineal Miles Vehicles Vehicles Vehicles Hard Costs Hard Costs Hard Costs	1 6945 1 6945 1 6945 1 6945 1 6946 1 6946 1 6946 1 6946 1 6946 1 6946 1 6946 1 6945 1	Yes	0 26 7 23 13 7 4 23 28 0 0 25 12 23 0 0 15 6 11 0	\$5,163.495 \$12,884 \$2,966.502 \$295,223 \$1,697,988 \$3,196 \$1,346,370 \$1,387,266 \$462,231 \$2,267.613 \$1,337,702 \$219,459 \$14,971 \$1,377,795 \$1,37	\$2.285 \$20,674 \$4,760 \$410 \$4,760 \$410 \$2,724 \$5,128 \$2,266 \$742 \$3,638 \$4,013 \$362,133 \$25,642 \$2,772 \$3,946 \$5,00 \$0 \$0 \$10 \$10,86665 \$24,772		62% 5%
50.040 50.041 50.042 50.043 50.050 60.050 60.010 60.020 60.040 70.010 70.010 70.010 80.010 80.010	Traffic signals and crossing protection Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Subtotal (10-50) Row, Land, Existing Improvements Purnase or lease of real estate Relocation of existing households and businesses Services Cither Real Estate Costs Vehicles Light Rail Non-revenue vehicles Prefessional Services Preliminary Engineering Final Design	Track Miles Track	1 6045 1	Yes	0 26 7 23 13 7 4 23 28 0 0 25 25 12 23 0 0 15 6 11	\$5,163,485 \$12,884 \$2,966,502 \$255,5223 \$1,697,988 \$3,186 \$1,346,370 \$1,387,266 \$462,221 \$2,267,613 \$1,337,702 \$219,459 \$18,474 \$14,910,401 \$1,727,595 \$1,835,836 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$2.285 \$20,874 \$4,760 \$41,60 \$2,724 \$5,126 \$2,226 \$742 \$3,638 \$4,013 \$302,133 \$302,133 \$302,133 \$302,133 \$30,942 \$2,265 \$742 \$3,638 \$4,013 \$302,133 \$30,013 \$3	100%	62% 5%
50.040 50.041 50.042 50.043 50.050 60 60 60.010 60.030 60.040 70 70.010 70.020 70.010 80.020 80.030 80.040	Traffic signals and crossing protection Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Subtotal (10-60) Row, Land, Existing Improvements Purchase or rieses of real estale Relocation of existing households and businesses Services Cither Real Estate Costs Vehicles Uight Rail Heavy Rail Non-revenue vehicles Prefessional Services Preliminary Engineering Final Design Prinal Design Priget Management for Design and Construction Construction Administration & Management	Track Miles Einea Miles of Guideway Lineal Miles Vehicles Vehicles Vehicles Vehicles Hard Costs	1 6045 1	Yes	0 26 7 23 13 7 4 23 28 0 0 0 25 12 23 0 0 0 15 6 11 0	\$5,163.485 \$12,884 \$2,966,502 \$255,5223 \$1,697,988 \$3,186 \$1,346,370 \$1,397,266 \$462,221 \$2,267,613 \$1,337,702 \$219,459 \$18,474 \$14,910,401 \$1,727,595 \$1,835,836 \$0 \$0 \$0 \$0 \$0 \$0 \$1,296 \$0 \$0 \$0 \$0 \$1,296 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$9.285 \$20,674 \$4.760 \$4.760 \$4.10 \$2.724 \$5,126 \$2.226 \$742 \$3,638 \$4,013 \$302,133 \$302,133 \$29,642 \$23,924 \$23,924 \$23,924 \$3,638 \$4,013 \$302,133 \$303,133	100%	62% 5%
50.040 50.041 50.042 50.043 50.050 60.050 60.020 60.020 60.020 60.020 70.010 70.020 70.060 80.020 80.020 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030 80.030	Traffic signals and crossing protection Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Subtotal (10-80) Row, Land, Existing improvements Purchase or lease of real estate Relocation of existing households and businesses Services Cither Real Estate Costs Vehicles Light Rail Heavy Rail Non-revenue vehicles Professional Services Prefermany Engineering Final Design Project Management for Design and Construction Construction Administration & Management Professional Lability and other Non-Construction Construction Administration & Management Professional Lability and other Non-Construction Insurance	Track Miles Stations Lineal Miles of Guideway Lineal Miles Vehicles Vehicles Vehicles Vehicles Hard Costs	1 6945 1	Yes	0 26 7 23 13 7 4 23 28 0 0 5 12 23 0 0 15 6 11 0 14 22 32 24 16 16	\$5,163,495 \$12,884 \$2,966,502 \$295,223 \$1,697,968 \$3,196 \$1,346,370 \$1,387,266 \$462,221 \$2,267,613 \$1,337,702 \$219,459 \$18,474 \$14,910,401 \$17,27,595 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$9.285 \$20,674 \$47,60 \$41,00 \$41,00 \$5,724 \$5,128 \$5,128 \$2,266 \$742 \$3,638 \$4,013 \$3,62,133 \$25,642 \$2,772 \$3,638 \$4,013 \$3,62,133 \$25,642 \$4,772 \$4,66,671 \$4,0,651	100%	62% 5%
50.040 50.041 50.042 50.043 50.050 50.060 60 60.010 60.020 60.030 70 70.010 70.020 80.010 80.020 80.040 80.050 80.050 80.050	Traffic signals and crossing protection Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fair collection system and equipment Construction Subtotal (10-80) Row, Land, Existing improvements Purchase or lease of real estate Relocation of existing households and businesses Services Cither Real Estate Costs Vehicles Light Rail Heavy Rail Non-revenue vehicles Professional Services Professional Services Cristing in Services Professional Services Professional Services Construction Administration & Management Construction Administration & Management Professional Lability and other Non-Construction Construction Administration & Management Professional Lability and other Non-Construction Construction Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Track Miles Stations Lineal Miles of Guideway Lineal M	1 6045 1	Yes	0 26 7 23 13 7 4 23 28 0 0 0 15 6 11 0 14 22 32 24 16 6 2	\$5,163,495 \$12,884 \$2,966,502 \$255,223 \$1,697,968 \$3,196 \$1,346,370 \$1,397,266 \$462,231 \$2,267,613 \$1,337,702 \$219,459 \$18,374,025 \$18,374 \$1,377,025 \$18,474 \$14,910,401 \$1,727,595 \$18,053,036 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$9.285 \$20,854 \$41,760 \$41,00 \$41,00 \$2,724 \$5,128 \$2,126 \$2,226 \$742 \$3,638 \$4,013 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,62,133 \$3,63,133 \$3	100%	62% 5%
50.040 50.041 50.043 50.050 50.060 60 60 60.010 60.020 60.020 60.040 70.010 70.000 80 80.010 80.010 80.020 80.020 80.030 80.050 80	Traffic signals and crossing protection Traction power supply, substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Substatal (10-80) Row, Land, Existing improvements Purchase or clease of real estate Relocation of existing households and businesses Services Other Real Estate Costs Vehicles Light Rail Heavy Rail Non-revenue vehicles Professional Services Preliminary Engineering Final Design Pray Engineering Final Design Pray Construction Administration & Management Professional Liability and other Non-Construction Construction Administration & Management Professional Liability and other Non-Construction Insurance Legal, Permits, Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection Stat up	Track Miles Lineal Miles of Guideway Lineal Miles Track Miles Miles Trac	1 6945 1	Yes	0 26 7 7 23 13 7 4 23 28 0 0 25 12 23 0 0 15 6 6 111 0 14 22 24 16 6 2 23	\$5,183.485 \$12,884 \$2,966,507 \$255,5223 \$1,697,988 \$3,196 \$1,346,370 \$1,397,266 \$462,221 \$2,267,613 \$1,337,702 \$219,459 \$18,474 \$14,910,401 \$1,727,595 \$1,835,836 \$0 \$0 \$0 \$0 \$0 \$1,246,221 \$1,267,613 \$1,275,955 \$1,835,836 \$0 \$0 \$0 \$0 \$1,246,241 \$1,247,445 \$1,247,44	\$9.285 \$20.674 \$4.760 \$4.10 \$2,724 \$5,128 \$2,160 \$2,226 \$742 \$3,638 \$4,013 \$362,133 \$362,133 \$362,133 \$362,133 \$30,042 \$2,946 \$3 \$1 \$1 \$1 \$1 \$1,00 \$1 \$1,00	100%	62% 5%
50 040 50 041 50 042 50 043 50 050 50 060 60 60 60 020 60 030 60 040 70 70 010 70 020 70 060 80 80 020 80 030 80 040 80 050 80 050 80 060 80 070 80 080	Traffic signals and crossing protection Traction power supply, substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Substatal (10-60) Row, Land, Existing improvements Purchase or lease of real estate Relocation of existing households and businesses Services Cther Real Estate Costs Vehicles Ught Rail Heavy Rail Non-revenue vehicles Professional Services Prefishinary Engineering Final Design Friget Management for Design and Construction Construction Administration & Management Professional Liability and other Non-Construction Insurance Legal, Permits, Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection Stat up Cther Substati (10-80)	Track Miles Station St	1 6945 1	Yes	0 26 7 7 23 13 7 7 4 23 28 0 0 25 12 23 0 0 14 22 24 16 6 2 23 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$5,183.495 \$12,884 \$2,966,507 \$255,223 \$1,697,988 \$3,196 \$3,196 \$1,346,370 \$1,397,266 \$462,267 \$2,267,613 \$1,397,702 \$219,459 \$462,267 \$1,397,702 \$219,459 \$18,474 \$14,910,401 \$1,727,595 \$1,835,836 \$0 \$0 \$0 \$0 \$0 \$1,2% \$1,835,836 \$0 \$1,2% \$1,835,836 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$9.285 \$20.674 \$4.760 \$4.10 \$2.724 \$5,128 \$5,128 \$2,266 \$742 \$3,638 \$4,013 \$362,133 \$362,133 \$362,133 \$362,133 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10	100%	62% 5% 0%
50.040 50.041 50.043 50.050 50.060 60 60 60.010 60.020 60.020 60.040 70.010 70.000 80 80.010 80.010 80.020 80.020 80.030 80.050 80	Traffic signals and crossing protection Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fair collection system and equipment Construction Subtotal (10-80) Row, Land, Existing Improvements Purchase or lease of real estate Relocation of existing households and businesses Services Cither Real Estate Costs Vehicles Uight Rail Heavy Rail Non-revenue vehicles Prefessional Services Preliminary Engineering Final Design Priget Management for Design and Construction Construction Administration & Management Professional Liability and other Non-Construction Insurance Legal, Permits, Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection Start up Chall	Track Miles Stations Lineal Miles of Guideway Vehicles Vehicles Vehicles Vehicles Vehicles Hard Costs	1 6045 1	Yes	0 26 7 23 13 7 4 23 28 0 0 25 12 23 0 0 15 6 111 0 14 22 32 24 16 6 2 2 3 10 0 0 0	\$5,163.495 \$12,884 \$2,966,502 \$255,223 \$31,897,988 \$3,186 \$3,186 \$3,186 \$3,186 \$3,186 \$3,186 \$3,186 \$3,186 \$3,186 \$462,221 \$2,267,613 \$1,387,206 \$41,387,206 \$41,387,206 \$11,387,206 \$11,387,206 \$11,387,207 \$11,3	\$2.285 \$20,8574 \$47,60 \$41,0 \$41,0 \$41,0 \$41,0 \$52,724 \$53,126 \$52,226 \$742 \$36,38 \$4,013 \$382,133 \$29,642 \$23,394 \$50,772 \$2,246 \$50 \$50 \$50 \$50 \$50 \$50 \$50 \$50 \$50 \$50	100%	62% 5% 0%
50 040 50 041 50 042 50 043 50 050 50 050 60 60 60 020 60 030 60 040 70 70 010 80 80 80 020 80 030 80 040 80 050 80 060 80 060	Traffic signals and crossing protection Traction power supply, substations Traction power distribution: catenary and third rail Catenary Ancillary Elements Power Distribution and Connections Communications Fare collection system and equipment Construction Substatal (10-60) Row, Land, Existing improvements Purchase or lease of real estate Relocation of existing households and businesses Services Cther Real Estate Costs Vehicles Ught Rail Heavy Rail Non-revenue vehicles Professional Services Prefishinary Engineering Final Design Friget Management for Design and Construction Construction Administration & Management Professional Liability and other Non-Construction Insurance Legal, Permits, Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection Stat up Cther Substati (10-80)	Track Miles Station St	1 6945 1	Yes	0 26 7 7 23 13 7 7 4 23 28 0 0 25 12 23 0 0 14 22 24 16 6 2 23 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$5,183.495 \$12,884 \$2,966,507 \$255,223 \$1,697,988 \$3,196 \$3,196 \$1,346,370 \$1,397,266 \$462,267 \$2,267,613 \$1,397,702 \$219,459 \$462,267 \$1,397,702 \$219,459 \$18,474 \$14,910,401 \$1,727,595 \$1,835,836 \$0 \$0 \$0 \$0 \$0 \$1,2% \$1,835,836 \$0 \$1,2% \$1,835,836 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$9.285 \$20.674 \$4.760 \$4.10 \$2.724 \$5,128 \$5,128 \$2,266 \$742 \$3,638 \$4,013 \$362,133 \$362,133 \$362,133 \$362,133 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10 \$10	100%	62% 5% 0%



Alternative 3-2A

Cost M Cost Basi	odel Compared With Project Estimate	CENTRAL SUBWAY PHASE 3				Today's Date	8/25/2014		
Reference	e Name:	ALT 3-2A				Base Year	2014		
Project C Mode:		San Francisco, CA Light Rail Transit					Ohra		
							Chart		
.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	1.6155 Quantity	Inlucde	Sample	\$672,692 Unit Cost (\$)	\$1,086,754 Total Cost	Base Year	Base Yea
		OTILO	addinaty	This Item	Size	OTHE COSE (4)	(a) (\$000)	Dollars	Dollars
				(select 'Yes' or				Percentage of	Percentag of
				'No')				Construction	Total
0 (Guideway & Track Elements	Lineal Miles of Guideway	1.6155		0	\$99,651	\$160,989	Cost 23%	Project Co 15%
10.010	Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway	1.0100		19	\$0	\$0	20%	10%
10.020 10.030	Guideway: At-grade semi-exclusive (allows cross-traffic) Guideway: At-grade in mixed traffic	Lineal Miles of Guideway Lineal Miles of Guideway			3 8	\$0 \$0	\$0 \$0	{	
10.040	Guideway: Aerial structure	Lineal Miles of Guideway			16	\$0	\$0	1	
10.050 10.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1989		0 11	\$0 \$70.170.752	\$0 \$13,954	ł	
10.070	Guideway: Underground tunnel	Lineal Miles of Guideway	1.4167		- 11	\$97,024,385	\$137,451	1	
10.080 10.090	Guideway: Retained cut or fill Track: Direct fixation	Lineal Miles of Guideway Track Miles	1,6155		6 19	\$0 \$2,408,603	\$0 \$3.891	ł	
10.100	Track: Embedded	Track Miles			9	\$0	\$0	1	
10.110 10.120	Track: Ballasted Track: Special (switches, tumouts)	Track Miles Track Miles	2	Yes	18 12	\$0 \$246,016	\$0 \$397	ł	
10.140	Special Structures	Lineal Miles of Guideway	2	Yes	3	\$3,277,126	\$5,294		
20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	3		0 19	\$163,335 \$0	\$490,006 \$0	70%	45%
20.020	Aerial station, stop, shelter, mall, terminal, platform	Stations	۰		5	\$0	\$0		
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Cut and Cover	Stations Stations	3		10	\$154,805 \$154,805,000	\$464,415 \$464,415		
20.032	Bored Earth Soft Soils	Stations			0	\$0	\$0		
20.033 20.034	Bored Rock Hard Soils Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0		
20.060	Automobile parking multi-story structure	Spaces	12		3	\$0 \$2,133	\$0		
20.070 20.071	Elevators, escalators Elevators	Number Number	6		4	\$2,217,942	\$25,591 \$13,308	İ	
20.072	Escalators	Number	6		5	\$2,047,157	\$12,283		
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5	\$0 \$0	\$0 \$0	ł	
20.100	Signage and Graphics	Stations			10	\$0	\$0		
30 : 30.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0 1.6155		0	\$0 \$0	\$0 \$0	0%	0%
30.011	Administrative Building	Lineal Miles of Guideway	0	No	2	\$0	\$0	1	
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0	ł	
30.020	Light Maintenance Facility	Vehicles	0	Yes	7 17	\$0 \$0	\$0 \$0	1	
30.030 30.040	Heavy Maintenance Facility Storage or Maintenance of Way Building	Vehicles Lineal Miles of Guideway	0	Yes No	5	\$0	\$0	i	
30.050	Yard and Yard Track	Track Miles	0	No	5 0	\$0	\$0	411	011
10 ! 40.010	Sitework & Special Conditions Demolition, Clearing, Earthwork	Lineal Miles of Guideway Lineal Miles of Guideway	1.6155 1.6155	Yes	12	\$15,915 \$2,033,937	\$25,711 \$3,286	4%	2%
40.020 40.030	Site Utilities, Utility Relocation Haz. mat1, contam'd soil removal/mitigation, ground water treatmen	Lineal Miles of Guideway Lineal Miles of Guideway	1.6155 1.6155	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$6,892 \$3,714	1	
40.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	1.6155	Yes	8	\$1,047,598	\$1,692	i	
40.050 40.060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	1.6155 1.6155	Yes Yes	8	\$149,423 \$955,612	\$241 \$1,544	1	
40.070	Automobile, bus, van accessways including roads, parking lots	Spaces	0	100		\$0	\$0	1	
40.071 40.072	Surface Parking Lot Auto Access	Spaces Stations			8	\$0 \$0	\$0 \$0	1	
40.080	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	1.6155	Yes	21	\$5,163,485	\$8,342		
50.010	Systems Train control and signals	Track Miles Track Miles	1.6155 1.6155	Yes	0 26	\$12,867 \$2,966,502	\$20,788 \$4,792	3%	2%
50.020	Traffic signals and crossing protection	Track Miles	1.6155	Yes	- 7	\$255,223	\$412		
50.030 50.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	1.6155 1.6155	Yes	23	\$1,697,988 \$3,196	\$2,743 \$5,163		
50.041	Catenary	Track Miles	1.6155	Yes	13	\$1,346,370	\$2,175		
50.042 50.043	Ancillary Elements Power Distribution and Connections	Track Miles Track Miles	1.6155 1.6155	Yes Yes	4	\$1,387,266 \$462,321	\$2,241 \$747		
50.050 50.060	Communications	Track Miles	1.6155	Yes	23	\$2,267,613	\$3,663		
U0U.U0U	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	3 1.6155	Yes	28 0	\$1,337,702 \$431,743	\$4,013 \$697,493	100%	64%
0 I	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	1.6155 1.6155	Yes	0 25	\$18,474 \$14,910,401	\$29,845 \$24,088		3%
60.020	Relocation of existing households and businesses	Lineal Miles of Guideway	1.6155	Yes	12	\$1,727,595	\$2,791		
0.030 0.040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	1.6155 1.6155	Yes Yes	23 0	\$1,835,836 \$0	\$2,966 \$0		
0	/ehicles	Vehicles	0	163	0	\$0	\$0		0%
70.010 70.020	Light Rail Heavy Rail	Vehicles Vehicles			15 6	\$0 \$0	\$0 \$0		
70.060	Non-revenue vehicles	Vehicles	0	Yes	11	\$0	\$0		
30.010	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$727,338.25 \$727,338.25	Yes	0	49% 6%	\$359,416 \$47,195	0%	0%
30.020	Final Design	Hard Costs	\$727,338.25	Yes	22	12%	\$88,845		
30.030 30.040	Project Management for Design and Construction Construction Administration & Management	Hard Costs Hard Costs	\$727,338.25 \$727,338.25	Yes Yes	32 24	10% 11%	\$73,680 \$83,544		
30.050	Professional Liability and other Non-Construction Insurance	Hard Costs	\$727,338.25	Yes	16	4%	\$31,722		
30.060 30.070	Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$727,338.25 \$727.338.25	Yes Yes	6	2% 0%	\$15,012 \$3,054		
30.080	Start up	Hard Costs	\$727,338.25	Yes	23	2%	\$12,789		
30.090	Other Subtotal (10-80)	Hard Costs Lineal Miles of Guideway	\$727,338.25 2	Yes	10 0	0% \$672,692	\$3,575 \$1,086,754		
90 (Jnallocated Contingency	Total Amount	2		0	\$0	\$0		0%
	Subtotal (10-90)	Lineal Miles of Guideway Total Amount	2		0	0 \$0	\$1,086,754 \$0		100% 0%
100 I	Finance Charges								

Alternative 3-2A (NBS is SEM)

Cost Ba		CENTRAL SUBWAY PHASE 3				Today's Date	8/25/2014		
Project (de Name: City:	ALT 3-2A (NBS is SEM) San Francisco, CA				Base Year	2014		
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	1.6155 Quantity	Inlucde This Item (select 'Yes' or 'No')	Sample Size	\$705,014 Unit Cost (\$)	\$1,138,971 Total Cost (a) (\$000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cos
10	Guideway & Track Elements	Lineal Miles of Guideway	1.6155		0	\$99,651	\$160,989	22%	14%
10.010 10.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19	\$0 \$0	\$0 \$0	1	
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway			8	\$0	\$0	1	
0.040 0.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0		
0.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.1989		- 11	\$70,170,752	\$13,954		
0.070	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	1.4167		11 6	\$97,024,385 \$0	\$137,451 \$0		
10.090	Track Direct fixation	Track Miles	1.6155		19	\$2,408,603	\$3,891		
0.100	Track Embedded	Track Miles Track Miles			9 18	\$0 \$0	\$0 \$0		
10.110 10.120	Track: Ballasted Track: Special (switches, tumouts)	Track Miles	2	Yes	12	\$246,016	\$397		
0.140	Special Structures	Lineal Miles of Guideway	2	Yes	3	\$3,277,126	\$5,294		
20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	3		0	\$174,984 \$0	\$524,953 \$0	72%	46%
0.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0		
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Sequential Excavation Method & Cut and Cover	Stations Stations	3		10	\$166,454 \$166,454,167	\$499,363 \$499.363		
20.032	Bored Earth Soft Soils	Stations			0	\$0	\$0		
0.033	Bored Rock Hard Soils	Stations			0	\$0	\$0 \$0		
0.034 0.060	Unspecified Automobile parking multi-story structure	Stations Spaces			3	\$0 \$0	\$0 \$0		
0.070	Elevators, escalators	Number	12			\$2,133	\$25,591		
20.071 20.072	Elevators Escalators	Number Number	6	_	4 5	\$2,217,942 \$2,047,157	\$13,308 \$12,283	-	
20.080	Passenger Overpass	Number			5	\$0	\$0		
20.090	Underground Interconnecting Tunnel	Number		No	0	\$0	\$0		
0.100	Signage and Graphics Support Facilities: Yards, Shops, Admin. Bldgs	Stations Vehicles	0		10 0	\$0 \$0	\$0 \$0	0%	0%
0.010	Administration Building: Office, sales, storage, revenue counting	Lineal Miles of Guideway	1.6155			\$0	\$0		
0.011 0.012	Administrative Building Central Control Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0		
0.013	Central Revenue Counting Facility	Lineal Miles of Guideway	0	No	ō	\$0	\$0		
30.020 30.030	Light Maintenance Facility Heavy Maintenance Facility	Vehicles Vehicles	0	Yes Yes	7 17	\$0 \$0	\$0 \$0		
30.040	Storage or Maintenance of Way Building	Lineal Miles of Guideway	0	No	5	\$0	\$0		
80.050	Yard and Yard Track	Track Miles	0	No	5	\$0	\$0		
IO.010	Sitework & Special Conditions Demolition, Clearing, Earthwork	Lineal Miles of Guideway Lineal Miles of Guideway	1.6155 1.6155	Yes	12	\$15,915 \$2,033,937	\$25,711 \$3,286	4%	2%
0.020	Site Utilities, Utility Relocation	Lineal Miles of Guideway	1.6155	Yes	75	\$4,266,060	\$6,892	1	
10.030 10.040	Haz. mat'l, contam'd soil removal/mitigation, ground water treatmer Environmental mitigation, e.g. wetlands, historic/archeologic, parks		1.6155 1.6155	Yes Yes	5 8	\$2,299,074 \$1,047,598	\$3,714 \$1,692	-	
10.050	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	1.6155	Yes	1	\$149,423	\$241		
0.060	Pedestrian / bike access and accommodation, landscaping Automobile, bus, van accessways including roads, parking lots	Lineal Miles of Guideway Spaces	1.6155 0	Yes	8	\$955,612 \$0	\$1,544 \$0	-	
0.071	Surface Parking Lot	Spaces			8	\$0	\$0	1	
0.072	Auto Access Temporary Facilities and other indirect costs during construction	Stations Lineal Miles of Guideway	1.6155	Yes	21	\$0 \$5,163,485	\$0 \$8.342		
0	Systems	Track Miles	1.6155		0	\$12,867	\$20,788	3%	2%
0.010 0.020	Train control and signals Traffic signals and crossing protection	Track Miles Track Miles	1.6155 1.6155	Yes Yes	26 7	\$2,966,502 \$255,223	\$4,792 \$412		
0.020	Traction power supply: substations	Track Miles	1.6155	Yes	23	\$255,223 \$1,697,988	\$412 \$2,743		
0.040 0.041	Traction power distribution: catenary and third rail Catenary	Track Miles Track Miles	1.6155 1.6155	Yes	13	\$3,196 \$1,346,370	\$5,163		
0.041	Ancillary Elements	Track Miles	1.6155	Yes	7	\$1,346,370	\$2,175 \$2,241		
0.043	Power Distribution and Connections	Track Miles	1.6155	Yes	4	\$462,321	\$747		
0.050	Communications Fare collection system and equipment	Track Miles Stations	1.6155 3	Yes Yes	23 28	\$2,267,613 \$1,337,702	\$3,663 \$4,013		
	Construction Subtotal (10-50)	Lineal Miles of Guideway	1.6155		0	\$453,375	\$732,441	100%	64%
0.010	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	1.6155 1.6155	Yes	0 25	\$18,474 \$14.910.401	\$29,845 \$24,088		3%
0.020	Relocation of existing households and businesses	Lineal Miles of Guideway	1.6155	Yes	12	\$1,727,595	\$2,791		
0.030	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	1.6155 1.6155	Yes Yes	23 0	\$1,835,836 \$0	\$2,966 \$0		
0.040	Vehicles	Vehicles	0	162	0	\$0	\$0		0%
0.010	Light Rail Heaw Rail	Vehicles			15	\$0	\$0		
0.020 0.060	Heavy Rall Non-revenue vehicles	Vehicles Vehicles	0	Yes	6 11	\$0 \$0	\$0 \$0		
0	Professional Services	Hard Costs	\$762,285.75		0	49%	\$376,685	0%	0%
0.010 0.020	Preliminary Engineering Final Design	Hard Costs Hard Costs	\$762,285.75 \$762,285.75	Yes Yes	14 22	6% 12%	\$49,462 \$93,114		
0.030	Project Management for Design and Construction	Hard Costs	\$762,285.75	Yes	32	10%	\$77,220		
0.040 0.050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$762,285.75 \$762,285.75	Yes Yes	24 16	11% 4%	\$87,558 \$33,246		
0.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$762,285.75	Yes	6	2%	\$15,733		
0.070	Surveys, Testing, Investigation, Inspection	Hard Costs	\$762,285.75 \$762,285.75	Yes	2	0%	\$3,201		
0.080	Start up Other	Hard Costs Hard Costs	\$762,285.75 \$762,285.75	Yes Yes	23 10	2% 0%	\$13,404 \$3,747		
	Subtotal (10-80)	Lineal Miles of Guideway	2		0	\$705,014	\$1,138,971		
0	Unallocated Contingency Subtotal (10-90)	Total Amount Lineal Miles of Guideway	2		0	\$0 0	\$0 \$1,138,971		100%
00	Finance Charges	Total Amount	2		0	\$0	\$0		0%
	Total Project Costs (10-100)	Lineal Miles of Guideway	2		0	\$0	\$1,138,971		100%



Alternative 3-2B

	Model Compared With Project Estimate									
Cost Ba	asis: nce Name:	CENTRAL SUBWAY PHASE 3 ALT 3-28				Today's Date Base Year				
Project		San Francisco, CA				Dago rodi	2017			
Mode:		Light Rail Transit					Chart			
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	1.5960			\$678,216	\$1,082,448			
		Units	Quantity	Inlucde This Item (select 'Yes' or 'No')	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars Percentage of Construction	Base Year Dollars Percentage of Total	
10	Guideway & Track Elements	Lineal Miles of Guideway	1.5960		0	\$99,610	\$158,980	Cost 23%	Project Cost 15%	
10.010	Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway	1.5560		19	\$0	\$0	20%	10%	
10.020 10.030	Guideway: At-grade semi-exclusive (allows cross-traffic) Guideway: At-grade in mixed traffic	Lineal Miles of Guideway Lineal Miles of Guideway			3 8	\$0 \$0	\$0 \$0	4		
10.040	Guideway: Aerial structure	Lineal Miles of Guideway			16	\$0	\$0	1		
10.050 10.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1989		0 11	\$0 \$70,170,752	\$0 \$13,954	-		
10.070	Guideway: Underground tunnel	Lineal Miles of Guideway	1.3972		- 11	\$97,024,385	\$135,559	1		
10.080 10.090	Guideway: Retained cut or fill Track: Direct fixation	Lineal Miles of Guideway Track Miles	1.5960		6 19	\$0 \$2,408,603	\$0 \$3,844	1		
10.100	Track: Embedded	Track Miles	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		9	\$0	\$0	1		
10.110 10.120	Track: Ballasted Track: Special (switches, tumouts)	Track Miles Track Miles	2	Yes	18 12	\$0 \$246.016	\$0 \$393	-		
10.140	Special Structures	Lineal Miles of Guideway	2	Yes	3	\$3,277,126	\$5,230	1		
20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	3		19	\$163,335 \$0	\$490,006 \$0	71%	45%	
20.020	Aerial station, stop, shelter, mall, terminal, platform	Stations			5	\$0	\$0			
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Cut and Cover	Stations Stations	3		10	\$154,805 \$154,805,000	\$464,415 \$464,415			
20.032	Bored Earth Soft Soils	Stations	-		0	\$0	\$0			
20.033 20.034	Bored Rock Hard Soils Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0			
20.060	Automobile parking multi-story structure	Spaces	10		3	\$0	\$0			
20.070 20.071	Elevators, escalators Elevators	Number Number	12 6		4	\$2,133 \$2,217,942	\$25,591 \$13,308			
20.072	Escalators	Number	6		5	\$2,047,157	\$12,283	1		
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0	-		
20.100	Signage and Graphics	Stations		110	10	\$0	\$0	1		
30 30.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0 1.5960		0	\$0 \$0	\$0 \$0	0%	0%	
30.011	Administrative Building	Lineal Miles of Guideway	0	No	2	\$0	\$0	1		
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	0	\$0 \$0	\$0 \$0	1		
30.020	Light Maintenance Facility	Vehicles	0	Yes	7	\$0	\$0	1		
30.030 30.040	Heavy Maintenance Facility Storage or Maintenance of Way Building	Vehicles Lineal Miles of Guideway	0	Yes No	17 5	\$0 \$0	\$0 \$0	1		
30.050	Yard and Yard Track	Track Miles	0	No	5	\$0	\$0	1		
40 40.010	Sitework & Special Conditions Demolition, Clearing, Earthwork	Lineal Miles of Guideway Lineal Miles of Guideway	1.5960 1.5960	Yes	0	\$15,915 \$2,033,937	\$25,401 \$3,246	4%	2%	
40.020	Site Utilities, Utility Relocation	Lineal Miles of Guideway	1.5960	Yes	75	\$4,266,060	\$6,809	1		
40.030 40.040	Haz. mat'l, contam'd soil removal/mitigation, ground water treatmer Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway Lineal Miles of Guideway	1.5960 1.5960	Yes Yes	5 8	\$2,299,074 \$1.047.598	\$3,669 \$1.672	1		
40.050	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	1.5960 1.5960	Yes	1	\$149,423	\$238 \$1,525	1		
40.060 40.070	Pedestrian / bike access and accommodation, landscaping Automobile, bus, van accessways including roads, parking lots	Lineal Miles of Guideway Spaces	1.5960	Yes	8	\$955,612 \$0	\$1,525	1		
40.071	Surface Parking Lot	Spaces			8	\$0	\$0	1		
40.072 40.080	Auto Access Temporary Facilities and other indirect costs during construction	Stations Lineal Miles of Guideway	1.5960	Yes	21	\$0 \$5,163,485	\$0 \$8,241	1		
50 50.010	Systems Train control and signals	Track Miles Track Miles	1.5960 1.5960	Yes	0 26	\$12,898 \$2,966,502	\$20,585 \$4,735	3%	2%	
50.020	Traffic signals and crossing protection	Track Miles	1.5960	Yes	26 7	\$255,223	\$4,735 \$407			
50.030 50.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	1.5960 1.5960	Yes	23	\$1,697,988 \$3.196	\$2,710 \$5.101	-		
50.041	Catenary	Track Miles	1.5960	Yes	13	\$1,346,370	\$2,149			
50.042 50.043	Ancillary Elements Power Distribution and Connections	Track Miles Track Miles	1.5960 1.5960	Yes Yes	7	\$1,387,266 \$462,321	\$2,214 \$738	-		
50.050	Communications	Track Miles	1.5960	Yes	23	\$2,267,613	\$3,619			
50.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	3.0000 1.5960	Yes	28 0	\$1,337,702 \$435,440	\$4,013 \$694,972	100%	64%	
60	Row, Land, Existing Improvements	Lineal Miles of Guideway	1.5960		0	\$18,474	\$29,485	150 /8	3%	
60.010 60.020	Purchase or lease of real estate Relocation of existing households and businesses	Lineal Miles of Guideway Lineal Miles of Guideway	1.5960 1.5960	Yes Yes	25 12	\$14,910,401 \$1,727,595	\$23,797 \$2,757			
60.030	Services	Lineal Miles of Guideway	1.5960	Yes	23	\$1,835,836	\$2,930			
60.040 70	Other Real Estate Costs Vehicles	Lineal Miles of Guideway Vehicles	1.5960 0	Yes	0	\$0 \$0	\$0 \$0		0%	
70.010	Light Rail	Vehicles			15	\$0	\$0	1	- J //	
70.020 70.060	Heavy Rail Non-revenue vehicles	Vehicles Vehicles	0	Yes	6 11	\$0 \$0	\$0 \$0			
80	Professional Services	Hard Costs	\$724,456.42		0	49%	\$357,992	0%	0%	
80.010 80.020	Preliminary Engineering Final Design	Hard Costs Hard Costs	\$724,456.42 \$724,456.42	Yes Yes	14 22	6% 12%	\$47,008 \$88,493	1		
80.030	Project Management for Design and Construction	Hard Costs	\$724,456.42	Yes	32	10%	\$73,388			
80.040 80.050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$724,456.42 \$724,456.42	Yes Yes	24 16	11% 4%	\$83,213 \$31,596			
80.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$724,456.42	Yes	6	2%	\$14,953			
80.070 80.080	Surveys, Testing, Investigation, Inspection Start up	Hard Costs Hard Costs	\$724,456.42 \$724,456.42	Yes Yes	23	0% 2%	\$3,042 \$12,739			
80.090	Other	Hard Costs	\$724,456.42	Yes	10	0%	\$3,561			
90	Subtotal (10-80) Unallocated Contingency	Lineal Miles of Guideway Total Amount	2		0	\$678,216 \$0	\$1,082,448 \$0		0%	
	Subtotal (10-90)	Lineal Miles of Guideway	2		0	0	\$1,082,448		100%	
100	Finance Charges Total Project Costs (10-100)	Total Amount Lineal Miles of Guideway	2		0	\$0 \$0	\$0 \$1.082.448		0% 100%	



Alternative 3-2B (NBS is SEM)

	Model Compared With Project Estimate								
Cost Ba	isis: ice Name:	CENTRAL SUBWAY PHASE 3 ALT 3-2B (NBS is SEM)				Today's Date Base Year	8/25/2014 2014		
Project		San Francisco, CA				Super real	2014		
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	1.5960			\$710,933	\$1,134,665		
		Units	Quantity	Inlucde This Item	Sample Size	Unit Cost (\$)	Total Cost (a) (\$000)	Base Year Dollars	Base Year Dollars
				(select	0.20		(3) (4555)	Percentage	Percentage
				'Yes' or 'No')				of Construction	of Total
				1107				Cost	Project Cos
10 10.010	Guideway & Track Elements Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway Lineal Miles of Guideway	1.5960		19	\$99,610 \$0	\$158,980 \$0	22%	14%
10.020	Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway			3	\$0	\$0	1	
10.030 10.040	Guideway: At-grade in mixed traffic Guideway: Aerial structure	Lineal Miles of Guideway Lineal Miles of Guideway			8 16	\$0 \$0	\$0 \$0	-	
10.050	Guideway: Built-up fill	Lineal Miles of Guideway			0	\$0	\$0	1	
10.060 10.070	Guideway: Underground cut & cover Guideway: Underground tunnel	Lineal Miles of Guideway Lineal Miles of Guideway	0.1989 1.3972		11	\$70,170,752 \$97,024,385	\$13,954 \$135,559	-	
10.080	Guideway: Retained cut or fill	Lineal Miles of Guideway			6	\$0	\$0	1	
10.090 10.100	Track: Direct fixation Track: Embedded	Track Miles Track Miles	1.5960		19 9	\$2,408,603 \$0	\$3,844 \$0	-	
10.110	Track: Ballasted	Track Miles			18	\$0	\$0	1	
10.120 10.140	Track: Special (switches, tumouts) Special Structures	Track Miles Lineal Miles of Guideway	2	Yes Yes	12	\$246,016 \$3,277,126	\$393 \$5,230	4	
20	Stations, Stops, Terminals, Intermodels	Stations	3	100	0	\$174,984	\$524,953	72%	46%
20.010 20.020	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform Aerial station, stop, shelter, mall, terminal, platform	Stations Stations			19 5	\$0 \$0	\$0 \$0	-	
20.030	Underground station, stop, shelter, mall, terminal, platform	Stations	3			\$166,454	\$499,363		
20.031 20.032	Sequential Excavation Method & Cut and Cover Bored Earth Soft Soils	Stations Stations	3		10 0	\$166,454,167 \$0	\$499,363 \$0	-	
20.033	Bored Rock Hard Soils	Stations			0	\$0	\$0		
20.034 20.060	Unspecified Automobile parking multi-story structure	Stations Spaces			4 3	\$0 \$0	\$0 \$0	-	
20.070	Elevators, escalators	Number	12			\$2,133	\$25,591		
20.071	Elevators Escalators	Number Number	6		4 5	\$2,217,942	\$13,308	-	
20.072 20.080	Passenger Overpass	Number	6		5	\$2,047,157 \$0	\$12,283 \$0	1	
20.090	Underground Interconnecting Tunnel	Number		No	0	\$0	\$0	1	
20.100 30	Signage and Graphics Support Facilities: Yards, Shops, Admin. Bldgs	Stations Vehicles	0		10 0	\$0 \$0	\$0 \$0	0%	0%
30.010	Administration Building: Office, sales, storage, revenue counting	Lineal Miles of Guideway	1.5960			\$0	\$0		
30.011 30.012	Administrative Building Central Control Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0	No No	2	\$0 \$0	\$0 \$0	-	
30.013	Central Revenue Counting Facility	Lineal Miles of Guideway	0	No	0	\$0	\$0	1	
30.020 30.030	Light Maintenance Facility Heavy Maintenance Facility	Vehicles Vehicles	0	Yes Yes	7 17	\$0 \$0	\$0 \$0	-	
30.040	Storage or Maintenance of Way Building	Lineal Miles of Guideway	0	No	5	\$0	\$0	1	
30.050 40	Yard and Yard Track Sitework & Special Conditions	Track Miles Lineal Miles of Guideway	0 1.5960	No	5 0	\$0 \$15,915	\$0 \$25,401	3%	2%
40.010	Demolition, Clearing, Earthwork	Lineal Miles of Guideway	1.5960	Yes	12	\$2,033,937	\$3,246		
40.020 40.030	Site Utilities, Utility Relocation Haz. mat'l, contam'd soil removal/mitigation, ground water treatmer	Lineal Miles of Guideway Lineal Miles of Guideway	1.5960 1.5960	Yes Yes	75 5	\$4,266,060 \$2,299,074	\$6,809 \$3,669	-	
40.040	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway	1.5960	Yes	8	\$1,047,598	\$1,672	1	
40.050 40.060	Site structures including retaining walls, sound walls Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Lineal Miles of Guideway	1.5960 1.5960	Yes Yes	8	\$149,423 \$955,612	\$238 \$1,525	-	
40.070	Automobile, bus, van accessways including roads, parking lots	Spaces	0	100		\$0	\$0		
40.071 40.072	Surface Parking Lot Auto Access	Spaces Stations			8	\$0 \$0	\$0 \$0	-	
40.080	Temporary Facilities and other indirect costs during construction	Lineal Miles of Guideway	1.5960	Yes	21	\$5,163,485	\$8,241		
50 50.010	Systems Train control and signals	Track Miles Track Miles	1.5960 1.5960	Yes	0 26	\$12,898 \$2,966,502	\$20,585 \$4,735	3%	2%
50.020	Traffic signals and crossing protection	Track Miles	1.5960	Yes	7	\$255,223	\$407	1	
50.030 50.040	Traction power supply: substations Traction power distribution: catenary and third rail	Track Miles Track Miles	1.5960 1.5960	Yes	23	\$1,697,988 \$3,196	\$2,710 \$5,101	-	
50.041	Catenary	Track Miles	1.5960	Yes	13	\$1,346,370	\$2,149		
50.042 50.043	Ancillary Elements Power Distribution and Connections	Track Miles Track Miles	1.5960 1.5960	Yes Yes	7	\$1,387,266 \$462,321	\$2,214 \$738	-	
50.050	Communications	Track Miles	1.5960	Yes	23	\$2,267,613	\$3,619		
50.060	Fare collection system and equipment Construction Subtotal (10-50)	Stations Lineal Miles of Guideway	3.0000 1.5960	Yes	28 0	\$1,337,702 \$457,336	\$4,013 \$729,919	100%	64%
30	Row, Land, Existing Improvements	Lineal Miles of Guideway	1.5960		0	\$457,336	\$729,919	100%	3%
50.010	Purchase or lease of real estate	Lineal Miles of Guideway	1.5960	Yes	25	\$14,910,401	\$23,797	1	
60.020 60.030	Relocation of existing households and businesses Services	Lineal Miles of Guideway Lineal Miles of Guideway	1.5960 1.5960	Yes Yes	12 23	\$1,727,595 \$1,835,836	\$2,757 \$2,930	1	
60.040	Other Real Estate Costs	Lineal Miles of Guideway	1.5960	Yes	0	\$0	\$0		
70.010	Vehicles Light Rail	Vehicles Vehicles	0		0 15	\$0 \$0	\$0 \$0	1	0%
70.020	Heavy Rail	Vehicles			6	\$0	\$0	1	
0.060	Non-revenue vehicles Professional Services	Vehicles Hard Costs	9759,403.92	Yes	11 0	\$0 49 %	\$0 \$375,261	0%	0%
30.010	Preliminary Engineering	Hard Costs	\$759,403.92	Yes	14	6%	\$49,275		
30.020 30.030	Final Design Project Management for Design and Construction	Hard Costs Hard Costs	\$759,403.92 \$759.403.92	Yes Yes	22 32	12% 10%	\$92,762 \$76.928	1	
30.040	Construction Administration & Management	Hard Costs	\$759,403.92	Yes	24	11%	\$87,227		
30.050 30.060	Professional Liability and other Non-Construction Insurance Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs Hard Costs	\$759,403.92 \$759.403.92	Yes Yes	16 6	4% 2%	\$33,120 \$15.674	+	
30.070	Surveys, Testing, Investigation, Inspection	Hard Costs	\$759,403.92	Yes	2	0%	\$3,189	1	
80.080 80.090	Start up Other	Hard Costs Hard Costs	\$759,403.92 \$759,403.92	Yes Yes	23 10	2% 0%	\$13,353 \$3,733	-	
00.000	Subtotal (10-80)	Lineal Miles of Guideway	\$759,403.92 2	162	0	\$710,933	\$1,134,665		
			2		0	\$0	\$0		0%
90	Unallocated Contingency	Total Amount	2						
90 100	Unallocated Contingency Subtotal (10-90) Finance Charges	Lineal Miles of Guideway Total Amount	2 2 2		0	\$0 0 \$0	\$1,134,665 \$0		100% 0%



Summary of Costs - Alternative 4 Options

DESCRIPTION	GUIDEWAY LENGTH	# OF STATIONS	LOW ESTIMATE (-30%)	POINT ESTIMATE	HIGH ESTIMATE (+50%)
	(FT)	(EA)	(\$000)	(\$000)	(\$000)
	CONS	STRUCTION	COSTS (SCC 10-50		
ALTERNATIVE 4-1 (C/C)	650	1	\$175,014	\$227,519	\$341,278
ALTERNATIVE 4-1 (SEM)	650	1	\$255,850	\$332,605	\$498,907
		SOFT COSTS	S (SCC 60-100)		
ALTERNATIVE 4-1 (C/C)	650	1	\$89,098	\$115,827	\$173,741
ALTERNATIVE 4-1 (SEM)	650	1	\$129,043	\$167,756	\$251,633
	1	OTAL COST	S (SCC 10-100)		
ALTERNATIVE 4-1 (C/C)	650	1	\$264,112	\$343,346	\$515,019
ALTERNATIVE 4-1 (SEM)	650	1	\$384,892	\$500,360	\$750,540

Notes:

FTA Capital Cost Database utilized for point estimate values.

Costs are in 2014 dollars, adjusted locally to San Francisco, CA.

Estimate values exclude finance charges (SCC-100).

Range values based on FTA and AACE guidelines for Probable Accuracy.

(C/C) and (SEM) designations for each option refer to the method of construction of North Beach Station [whether the station is estimated as cut--and-cover (C/C) box construction or construction by sequential excavation method (SEM)].

One cross-over was estimated for North Beach Station.

Alternative 4-1

	Model Compared With Project Estimate								
Cost Ba		CENTRAL SUBWAY PHASE 3				Today's Date	8/25/2014		
Project (ALT 4-1 San Francisco, CA				Base Year	2014		
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lincol Miles of Ordelesson	0.4004			40 700 004			
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway Units	0.1231 Quantity	Inlucde	Sample	\$2,789,024 Unit Cost (\$)	\$343,346 Total Cost	Base Year	Base Year
				This Item (select	Size		(a) (\$000)	Dollars Percentage	Dollars Percentage
				'Yes' or				of	of of
				'No')				Construction Cost	Total Project Cost
10	Guideway & Track Elements	Lineal Miles of Guideway	0.1231		0	\$117,081	\$14,413	6%	4%
10.010 10.020	Guideway: At-grade exclusive right-of-way	Lineal Miles of Guideway			19	\$0	\$0 \$0		
10.020	Guideway: At-grade semi-exclusive (allows cross-traffic) Guideway: At-grade in mixed traffic	Lineal Miles of Guideway Lineal Miles of Guideway			8	\$0 \$0	\$0		
10.040	Guideway: Aerial structure	Lineal Miles of Guideway			16	\$0	\$0		
10.050 10.060	Guideway: Built-up fill Guideway: Underground cut & cover	Lineal Miles of Guideway Lineal Miles of Guideway	0.1231		0 11	\$0 \$107,955,004	\$0 \$13,290		
10.070 10.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway			11 6	\$0 \$0	\$0 \$0		
10.090	Track: Direct fixation	Lineal Miles of Guideway Track Miles	0.1231		19	\$3,705,543	\$456		
10.100 10.110	Track: Embedded Track: Ballasted	Track Miles Track Miles			9 18	\$0 \$0	\$0 \$0		
10.110	Track: Special (switches, tumouts)	Track Miles	0	Yes	12	\$378,486	\$47		
10.140	Special Structures	Lineal Miles of Guideway	0	Yes	3	\$5,041,732	\$621	000	048
20 20.010	Stations, Stops, Terminals, Intermodels At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations Stations	1		19	\$208,530 \$0	\$208,530 \$0	92%	61%
20.020	Aerial station, stop, shelter, mall, terminal, platform	Stations	A		5	\$0	\$0		
20.030 20.031	Underground station, stop, shelter, mall, terminal, platform Cut and Cover	Stations Stations	1		10	\$200,000 \$200,000,000	\$200,000 \$200,000		
20.032	Bored Earth Soft Soils	Stations			0	\$0	\$0	1	
20.033 20.034	Bored Rock Hard Soils Unspecified	Stations Stations			0 4	\$0 \$0	\$0 \$0		
20.060	Automobile parking multi-story structure	Spaces			3	\$0	\$0		
20.070 20.071	Elevators, escalators Elevators	Number Number	4 2		4	\$2,133 \$2,217,942	\$8,530 \$4,436		
20.072	Escalators	Number	2		5	\$2,047,157	\$4,094	1	
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0		
20.100	Signage and Graphics	Stations		INU	10	\$0	\$0		
30.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0 0.1231		0	\$0 \$0	\$0 \$0	0%	0%
30.011	Administrative Building	Lineal Miles of Guideway	0.0000	No	2	\$0	\$0		
30.012 30.013	Central Control Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0.0000	No No	2 0	\$0	\$0		
30.020	Central Revenue Counting Facility Light Maintenance Facility	Vehicles	0.0000	No	7	\$0 \$0	\$0 \$0		
30.030	Heavy Maintenance Facility	Vehicles Lineal Miles of Guideway	0	No No	17	\$0	\$0 \$0	1	
30.040 30.050	Storage or Maintenance of Way Building Yard and Yard Track	Track Miles	0	No No	5 5	\$0 \$0	\$0		
40 40.010	Sitework & Special Conditions	Lineal Miles of Guideway Lineal Miles of Guideway	0.1231 0.1231	Yes	0	\$15,915 \$2,033,937	\$1,959 \$250	1%	1%
40.020	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway	0.1231	Yes	75	\$4,266,060	\$525		
40.030 40.040	 Haz. mati, contamid soil removal/mitigation, ground water treatmer Environmental mitigation, e.g. wetlands, historic/archeologic, parks 	Lineal Miles of Guideway Lineal Miles of Guideway	0.1231 0.1231	Yes Yes	5 8	\$2,299,074 \$1,047,598	\$283 \$129		
40.050	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	0.1231	Yes	1	\$149,423	\$129		
40.060 40.070	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway Spaces	0.1231 0	Yes	8	\$955,612 \$0	\$118 \$0		
40.070	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces	U		8	\$0	\$0		
40.072 40.080	Auto Access	Stations Lineal Miles of Guideway	n		2 21	\$0 \$5.163.485	\$0 \$636	1	
40.000 50	Temporary Facilities and other indirect costs during construction Systems	Track Miles	0.1231	Yes	0	\$21,250	\$2,616	1%	1%
50.010 50.020	Train control and signals	Track Miles	0.1231	Yes	26	\$2,966,502	\$365		
50.030	Traffic signals and crossing protection Traction power supply: substations	Track Miles Track Miles	0.1231 0.1231	Yes Yes	7 23	\$255,223 \$1,697,988	\$31 \$209		
50.040	Traction power distribution: catenary and third rail	Track Miles	0.1231			\$3,196	\$393		
50.041 50.042	Catenary Ancillary Elements	Track Miles Track Miles	0.1231 0.1231	Yes Yes	13 7	\$1,346,370 \$1,387,266	\$166 \$171		
50.043	Power Distribution and Connections	Track Miles	0.1231	Yes	4	\$462,321	\$57		
50.050 50.060	Communications Fare collection system and equipment	Track Miles Stations	0.1231 1.0000	Yes Yes	23 28	\$2,267,613 \$1,337,702	\$279 \$1,338		
	Construction Subtotal (10-50)	Lineal Miles of Guideway	0		0	\$1,848,152	\$227,519	100%	66%
60 60.010	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	0	Yes	0 25	\$18,474 \$14,910,401	\$2,274 \$1,836		1%
60.020	Relocation of existing households and businesses	Lineal Miles of Guideway	0	Yes	12	\$1,727,595	\$213		
60.030 60.040	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	0	Yes Yes	23 0	\$1,835,836 \$0	\$226 \$0		
70	Vehicles	Vehicles	0		0	\$0	\$0		0%
70.010 70.020	Light Rail Heavy Rail	Vehicles Vehicles			15 6	\$0 \$0	\$0 \$0		
70.060	Non-revenue vehicles	Vehicles	0 \$229,792.99	Yes	11	\$0	\$0	0.00	0%
80 80.010	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$229,792.99	Yes	14	49% 6%	\$113,553 \$14,911	0%	0%
80.020	Final Design	Hard Costs	\$229,792.99 \$229,792.99	Yes	22	12%	\$28,070		
80.030 80.040	Project Management for Design and Construction Construction Administration & Management	Hard Costs Hard Costs	\$229,792.99	Yes Yes	32 24	10% 11%	\$23,278 \$26,394		
80.050	Professional Liability and other Non-Construction Insurance	Hard Costs	\$229,792.99	Yes	16	4%	\$10,022		
80.060 80.070	Legal; Permits; Review Fees by other agencies, cities, etc. Surveys, Testing, Investigation, Inspection	Hard Costs Hard Costs	\$229,792.99 \$229,792.99	Yes Yes	6 2	2% 0%	\$4,743 \$965		
80.080	Start up	Hard Costs	\$229,792.99	Yes	23	2%	\$4,041	1	
80.090	Other Subtotal (10-80)	Hard Costs Lineal Miles of Guideway	\$229,792.99 0	Yes	10 0	0% \$2,789,024	\$1,130 \$343,346		
90	Unallocated Contingency	Total Amount	0		0	\$0	\$0		0%
100	Subtotal (10-90) Finance Charges	Lineal Miles of Guideway Total Amount	0		0	0 \$0	\$343,346 \$0		100% 0%
.00	Total Project Costs (10-100)	Lineal Miles of Guideway	0		0	\$0 \$0	\$343,346		100%

Alternative 4-1 (NBS is SEM)

	Model Compared With Project Estimate								
		CENTRAL SUBWAY PHASE 3 Today's Date ALT 4-1 (SEM) Base Year					8/25/2014 2014		
Project		San Francisco, CA							
Mode:		Light Rail Transit					Chart		
0.00	TOTAL PROJECT COSTS	Lineal Miles of Guideway	0.1231	1		\$4,064,464	\$500,360	I	
		Units	Quantity	Inlucde This Item	Sample Size	Unit Cost (\$)	Total Cost	Base Year Dollars	Base Year Dollars
				(select	3126		(a) (\$000)	Percentage	Percentage
				'Yes' or				of Construction	of
				'No')				Construction Cost	Total Project Cost
10	Guideway & Track Elements	Lineal Miles of Guideway	0.1231		0	\$158,394	\$19,499	6%	4%
10.010 10.020	Guideway: At-grade exclusive right-of-way Guideway: At-grade semi-exclusive (allows cross-traffic)	Lineal Miles of Guideway Lineal Miles of Guideway			19 3	\$0 \$0	\$0 \$0	1	
10.030	Guideway: At-grade in mixed traffic	Lineal Miles of Guideway			8	\$0	\$0	1	
10.040 10.050	Guideway: Aerial structure Guideway: Built-up fill	Lineal Miles of Guideway Lineal Miles of Guideway			16 0	\$0 \$0	\$0 \$0	1	
10.060	Guideway: Underground cut & cover	Lineal Miles of Guideway	0.4004		11	\$0	\$0		
10.070 10.080	Guideway: Underground tunnel Guideway: Retained cut or fill	Lineal Miles of Guideway Lineal Miles of Guideway	0.1231		11 6	\$149,268,285 \$0	\$18,376 \$0	1	
10.090	Track: Direct fixation	Track Miles	0.1231		19	\$3,705,543	\$456		
10.100 10.110	Track Embedded Track Ballasted	Track Miles Track Miles			9 18	\$0 \$0	\$0 \$0	1	
10.120	Track: Special (switches, tumouts)	Track Miles	0	Yes	12	\$378,486	\$47	1	
10.140 20	Special Structures Stations, Stops, Terminals, Intermodels	Lineal Miles of Guideway Stations	0 1	Yes	3 0	\$5,041,732 \$308,530	\$621 \$308,530	93%	62%
20.010	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	Stations			19	\$0	\$0	55/1	94 N
20.020 20.030	Aerial station, stop, shelter, mall, terminal, platform Underground station, stop, shelter, mall, terminal, platform	Stations Stations	1		5	\$0 \$300,000	\$0 \$300,000		
20.031	Cut and Cover or SEM	Stations	1		10	\$300,000,000	\$300,000		
20.032 20.033	Bored Earth Soft Soils Bored Rock Hard Soils	Stations Stations			0	\$0 \$0	\$0 \$0	-	
20.034	Unspecified	Stations			4	\$0	\$0		
20.060 20.070	Automobile parking multi-story structure Elevators, escalators	Spaces Number	4		3	\$0 \$2,133	\$0 \$8,530		
20.071	Elevators	Number	2		4	\$2,217,942	\$4,436		
20.072	Escalators	Number	2		5	\$2,047,157	\$4,094		
20.080 20.090	Passenger Overpass Underground Interconnecting Tunnel	Number Number		No	5 0	\$0 \$0	\$0 \$0	-	
20.100	Signage and Graphics	Stations		- 110	10	\$0	\$0		
0.010	Support Facilities: Yards, Shops, Admin. Bldgs Administration Building: Office, sales, storage, revenue counting	Vehicles Lineal Miles of Guideway	0 0.1231		0	\$0 \$0	\$0 \$0	0%	0%
80.011	Administrative Building	Lineal Miles of Guideway	0.0000	No	2	\$0	\$0		
30.012 30.013	Central Control Facility Central Revenue Counting Facility	Lineal Miles of Guideway Lineal Miles of Guideway	0.0000	No No	2 N	\$0 \$0	\$0 \$0	-	
30.020	Light Maintenance Facility	Vehicles	0	No	7	\$0	\$0		
30.030 30.040	Heavy Maintenance Facility Storage or Maintenance of Way Building	Vehicles Lineal Miles of Guideway	0	No No	17 5	\$0 \$0	\$0 \$0	-	
30.050	Yard and Yard Track	Track Miles	0	No	5	\$0	\$0		
40 40.010	Sitework & Special Conditions	Lineal Miles of Guideway Lineal Miles of Guideway	0.1231 0.1231	Yes	12	\$15,915 \$2,033,937	\$1,959 \$250	1%	0%
40.010	Demolition, Clearing, Earthwork Site Utilities, Utility Relocation	Lineal Miles of Guideway	0.1231	Yes	75	\$4,266,060	\$525	1	
40.030 40.040	Haz. mat'i, contam'd soil removal/mitigation, ground water treatmer Environmental mitigation, e.g. wetlands, historic/archeologic, parks	Lineal Miles of Guideway Lineal Miles of Guideway	0.1231 0.1231	Yes Yes	5 8	\$2,299,074 \$1,047,598	\$283 \$129	1	
40.040	Site structures including retaining walls, sound walls	Lineal Miles of Guideway	0.1231	Yes	1	\$149,423	\$18	1	
40.060	Pedestrian / bike access and accommodation, landscaping	Lineal Miles of Guideway	0.1231	Yes	8	\$955,612	\$118		
40.070 40.071	Automobile, bus, van accessways including roads, parking lots Surface Parking Lot	Spaces Spaces	0		8	\$0 \$0	\$0 \$0	1	
40.072	Auto Access	Stations			2	\$0	\$0		
40.080 50	Temporary Facilities and other indirect costs during construction Systems	Lineal Miles of Guideway Track Miles	0 0.1231	Yes	21 0	\$5,163,485 \$21,250	\$636 \$2,616	1%	1%
50.010	Train control and signals	Track Miles	0.1231	Yes	26	\$2,966,502	\$365		
50.020 50.030	Traffic signals and crossing protection Traction power supply: substations	Track Miles Track Miles	0.1231 0.1231	Yes Yes	7 23	\$255,223 \$1,697,988	\$31 \$209		
50.040	Traction power distribution: catenary and third rail	Track Miles	0.1231			\$3,196	\$393		
50.041 50.042	Catenary Ancillary Elements	Track Miles Track Miles	0.1231 0.1231	Yes Yes	13 7	\$1,346,370 \$1,387,266	\$166 \$171		
50.043	Power Distribution and Connections	Track Miles	0.1231	Yes	4	\$462,321	\$57		
50.050 50.060	Communications Fare collection system and equipment	Track Miles Stations	0.1231 1.0000	Yes Yes	23 28	\$2,267,613 \$1,337,702	\$279 \$1,338		
	Construction Subtotal (10-50)	Lineal Miles of Guideway	0		0	\$2,701,773	\$332,605	100%	66%
0.010	Row, Land, Existing Improvements Purchase or lease of real estate	Lineal Miles of Guideway Lineal Miles of Guideway	0	Yes	0 25	\$18,474 \$14.910.401	\$2,274 \$1,836		0%
0.020	Relocation of existing households and businesses	Lineal Miles of Guideway	0	Yes	12	\$1,727,595	\$213		
0.030	Services Other Real Estate Costs	Lineal Miles of Guideway Lineal Miles of Guideway	0	Yes Yes	23 0	\$1,835,836 \$0	\$226 \$0		
0	Vehicles	Vehicles	0	163	0	\$0	\$0		0%
0.010 0.020	Light Rail Heavy Rail	Vehicles Vehicles			15	\$0 40	\$0 40		
0.060	Non-revenue vehicles	Vehicles Vehicles	0	Yes	11	\$0	\$0 \$0		
0 0.010	Professional Services Preliminary Engineering	Hard Costs Hard Costs	\$334,878.91 \$334,878.91	Yes	0 14	49% 6%	\$165,481 \$21,729	0%	0%
0.020	Final Design	Hard Costs	\$334,878.91	Yes	22	12%	\$40,906	1	
0.030	Project Management for Design and Construction	Hard Costs	\$334,878.91	Yes	32	10%	\$33,924		
0.040 0.050	Construction Administration & Management Professional Liability and other Non-Construction Insurance	Hard Costs Hard Costs	\$334,878.91 \$334,878.91	Yes Yes	24 16	11% 4%	\$38,465 \$14,605		
30.060	Legal; Permits; Review Fees by other agencies, cities, etc.	Hard Costs	\$334,878.91	Yes	6	2%	\$6,912		
30.070 30.080	Surveys, Testing, Investigation, Inspection Start up	Hard Costs Hard Costs	\$334,878.91 \$334,878.91	Yes Yes	23	0% 2%	\$1,406 \$5,888		
80.090	Other	Hard Costs	\$334,878.91	Yes	10	0%	\$1,646		
30	Subtotal (10-80) Unallocated Contingency	Lineal Miles of Guideway Total Amount	0		0	\$4,064,464 \$0	\$500,360 \$0		0%
	Subtotal (10-90)	Lineal Miles of Guideway	0		0	0	\$500,360		100%
00	Finance Charges	Total Amount	0		0	\$0	\$0		0%
	Total Project Costs (10-100)	Lineal Miles of Guideway	0		0	\$0	\$500,360		100%

