



CANDLESTICK POINT HUNTERS POINT SHIPYARD PHASE II

TRANSPORTATION PLAN APPENDIX
SEPTEMBER 2019



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TABLE OF CONTENTS

ONE **Introduction.....2**

TWO **Proposed Transit Plan 3**

THREE **Transit Operating Costs 5**

3.1 Operations and Maintenance Costs 5

3.2 Capital Costs..... 6

FOUR **Phasing..... 7**

4.1 Conclusion..... 11

DRAFT
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FIGURES & TABLES

Figure 1 Proposed Transit Improvements 4

Table 1 Transit Service Proposal Costs at Project Buildout 6

Table 2 Transit Vehicle Capital Costs..... 6

Table 3 Transit Phasing 8

Tables 4A-4B Transit Phasing and Associated Costs by Year 9-10

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CHAPTER ONE: INTRODUCTION

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This report describes the transit service plan for the Candlestick Point / Hunters Point Shipyard Phase II (CP/HPS) project, including elements of the plan and the expected costs associated with operating that service. This analysis and the resulting transit service plan is the product of close collaboration between the Mayor's Office of Economic and Workforce Development, the Office of Community Investment and Infrastructure, the Planning Department, and SFMTA. There has been general consensus regarding the suitability and financial feasibility of this plan to provide robust transit service to the southeastern portion of San Francisco. SFMTA service planning staff will retain the discretion to implement the most appropriate transit service as conditions in the area warrant. However, this transit service plan represents the currently-anticipated transit service improvements.

This report is divided into four chapters. This chapter provides a brief introduction to the report and describes its purpose. The second chapter provides a brief summary of the proposed transit plan. The third chapter describes the costs associated with operating the proposed service plan at completion of the project, and the fourth chapter describes the anticipated phasing of transit service increases (and associated costs) relative to project buildout.

CHAPTER TWO: PROPOSED TRANSIT PLAN

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Fehr & Peers has worked collaboratively with staff from the Mayor's Office of Economic and Workforce Development, the Office of Community Investment and Infrastructure, the San Francisco County Transportation Authority, the Planning Department, and SFMTA to develop reliable projections of transit ridership associated not just with the proposed project, but with other proposed and planned projects in the area. These detailed, route-specific ridership projections were used to develop and refine the transit service plan for buildout conditions. Specifically, the transit operating plan would include the following peak period service improvements at buildout:

- Extension of the 24-Divisadero, the 44-O'Shaughnessy, and the 48-Quintara-24th Street into Hunters Point Shipyard, and increased frequency in the AM and PM peak periods¹.
- Extension of the 29-Sunset from its current terminus near the Alice Griffith housing development, near Gilman Avenue and Giants Drive, into the proposed Candlestick Point Center. The 29-Sunset would operate a short line between Candlestick Point and the Balboa Park BART station. This would increase frequencies on the 29-Sunset by reducing headways between buses from 10 minutes to 5 minutes during the AM and PM peak periods between Candlestick Point and the Balboa BART station. Every other bus would continue to serve the Sunset District at 10 minute headways.
- Extension of the 28R-19th Avenue Limited from its Muni Forward, formerly known as the Transit Effectiveness Program (TEP), proposed terminus on Geneva Avenue, just east of Mission Street, into the Hunters Point Shipyard transit center. Ultimately, the 28R-19th Avenue Limited would travel along Geneva Avenue across U.S. 101 via the proposed Geneva Avenue extension and new interchange with U.S. 101, to Harney Way. As an interim service, prior to construction of the Geneva Avenue extension and new interchange with US 101, the 28R-Geneva Avenue Limited would travel through the Little Hollywood neighborhood on an exact route to be determined. East of Bayshore Boulevard, the 28R-19th Avenue Limited would operate as BRT, traveling in exclusive bus lanes into the Candlestick Point area. The BRT route would travel through the Candlestick Point, and cross over

¹ Initially, the 23-Monterey would be extended into the Hunters Point Shipyard instead of the 24-Divisadero. Approximately during Major Phase 3, the 23-Monterey would return to its existing route and the 24-Divisadero would be extended into the site.

Yosemite Slough into the Hunters Point Shipyard transit center. The 28R-19th Avenue Limited would operate a short line to the Balboa Park BART station. This would increase frequencies on the 28R-19th Avenue Limited by reducing headways between buses from 8 minutes to 5 minutes for the segment between Hunters Point Shipyard and the Balboa Park BART station, traveling in exclusive lanes throughout the project site. Every other bus would continue to the Sunset District at 10-minute headways².

- New CPX-Candlestick Express to downtown serving the Candlestick Point site, traveling along Harney Way (with potential stops at Executive Park), before traveling on U.S. 101 toward downtown, terminating at or near the Transbay Terminal³.
- New HPX-Hunters Point Shipyard Express to downtown serving the Hunters Point Shipyard site, traveling from the Hunters Point Shipyard Transit Center, along Innes Avenue, with stops at the India Basin and Hunters View areas. The HPX would continue non-stop to a destination near the Transbay Terminal in Downtown San Francisco.
- Convert T-Third service between Bayview and Chinatown via the Central Subway from one-car to two-car trains or comparable service improvement⁴.

This new transit service would be complemented by the provision of a new transit center in the Hunters Point Shipyard site, which would include space for bus stops, bus layovers, transit operator restrooms, customer information, and other amenities as described in the Candlestick Point & Hunters Point Shipyard Phase II Transportation Plan and the project's Infrastructure Plan.

As noted in Chapter 1, the proposed transit service would complement service changes proposed by the Muni Forward, and is illustrated on **Figure 1**. As currently contemplated, the relative difference between off-peak and peak period transit service would be similar to the relative differences proposed as part of Muni Forward.

Figure 1: Proposed Transit Improvements



2 The Transit Operating Plan includes a complimentary publicly accessible shuttle that is privately-funded, which will provide service between the project site and the Balboa BART station, replicating service that will ultimately be offered by the 28R BRT route. The shuttle will operate at approximately 7.5-minute frequency. The shuttle will serve as an interim service until the 28R BRT route, or other comparable transit service is implemented.

3 Although preliminary routes between the project area and the Transbay Terminal have been identified, SFMTA staff will ultimately determine precise routing at the time the routes are initiated.

4 Improvements to service on the T-Third light rail line are not expected to be phased based on project development; instead, improvements on the T-Third will be phased according to construction on the Central Subway project and regional demand needs.



CHAPTER THREE: TRANSIT OPERATING COSTS

Fehr & Peers worked with SFMTA staff to develop cost estimates for operating and maintaining the proposed transit service and for capital costs associated with additional rolling stock. These costs are increases over the proposed TEP operating scenario and include extensions of transit routes into the project site and increased frequencies on some routes.

Table 1 provides the percentage of ridership increases between existing conditions and year 2030 conditions (project buildout) on each route that is attributable to the CP/HPS project⁵. Table 1 also provides the annual operations and maintenance costs and the capital costs for providing the proposed service on each route. Finally, by multiplying the CP/HPS project's percentage contribution to transit ridership by the capital costs and operations and maintenance costs, the CP/HPS fair-share contribution to the proposed transit service improvements can be determined.

3.1 OPERATIONS & MAINTENANCE COSTS

The annual costs associated with operating the proposed service were determined using SFMTA's cost estimation model, originally developed for Muni Forward. This document only discusses costs and does not account for increased revenue to the City associated with farebox recovery, advertising revenue, or other revenue source. Those offsetting revenues are discussed separately in the project's fiscal analysis.⁶

⁵ The method used in the analysis summarized on Table 1 is based on the project's contribution of ridership at the maximum load point of each route. This is reasonable, since the maximum load point is usually the controlling point in determining route frequency and capacity (and therefore, operating cost). However, another way to look at ridership contribution is based on the project's contribution to overall growth in total number of boardings along each route. This method may be better suited to indicate the proportion of riders realizing benefits to improved frequencies and running times. The method of determining a cost contribution from a project is a policy decision; however, both methods produced similar fair-share contributions for the CP/HPS project. The analysis described in this report is based solely on the maximum load method.

⁶ Fiscal and Economic Analysis, Economic & Planning Systems, March 2018

3.2 CAPITAL COSTS

The number of new transit vehicles required to operate the proposed transit plan was also determined using SFMTA's cost estimation model. SFMTA staff have reviewed and concurred with the projections from this model. The unit costs for new rolling stock were also provided by SFMTA, and are summarized in **Table 2**. The Fiscal and Economic Analysis (June 2019) assume capital costs are financed over several years. Additionally, through discussions with SFMTA staff, the 24-Divisadero will eventually be served by battery electric buses; thus, trolley wires are no longer proposed.⁷

As shown, the total additional cost to operate the proposed transit service includes nearly \$194 million in capital costs for rolling stock and will require an annual operations and maintenance cost of nearly \$48 million. Based on the portion of ridership increases attributable to the CP/HPS project between now and full project buildout, the CP/HPS project's share includes over \$55 million in capital costs for rolling stock and nearly \$18 million annually for operations and maintenance.

Table 1: Transit Service Proposal Costs at Project Buildout

Route	Number of Vehicles Added	Project Contributions	Total Costs (FY 2017 Dollars) ^{1, 2}			
			Proposed Service Plan Total Costs		CP-HPS Share	
			Annual O&M Costs	Capital Costs	Annual O&M	Capital Costs
CPX	12	92%	\$3,348,800	\$11,520,000	\$3,080,900	\$10,576,000
HPX	20	56%	\$5,275,400	\$19,200,000	\$2,954,200	\$10,729,000
Route 48	7	20%	\$2,916,500	\$6,720,000	\$583,300	\$1,341,000
Route 28R	17	51%	\$11,145,100	\$16,320,000	\$5,684,000	\$8,306,000
Route 29	11	27%	\$4,266,700	\$10,560,000	\$1,152,000	\$2,845,000
Route 24	10	46%	\$3,733,000	\$15,800,000	\$1,717,200	\$3,634,000
T-Third	19	16%	\$17,318,100	\$114,000,000	\$2,770,900	\$18,240,000
Others	-	100%	-	-	-	-
Total			\$48,003,900	\$194,120,000	\$17,942,500	\$55,671,000

Notes:

- O&M Costs updated to reflect 2017 dollars by increasing original amounts by 15%. This was done by calculating the increase in SFMTA's Cost Per Revenue Hour from 2007 to 2017
- Capital costs updated based on Muni cost/bus estimates from Frank Markowitz, SFMTA (2018).

Table 2: Capital Cost per Transit Vehicle¹

Vehicle Type	Cost Provided by MTA (FY 2017 Dollars)
Trolley Coaches	\$1.58 Million
Motor Coaches	\$0.96 Million
Light Rail Vehicle	\$6.00 Million

Source: SFMTA, 2017

Notes:

- Capital costs updated based on Muni cost/bus estimates from Frank Markowitz, SFMTA (2018).

⁷ The 2010 capital costs did not include the extension of trolley wires into the project site; therefore capital costs associated with the 24-Divisadero, shown in Table 1, are not affected by the removal of the trolley wires.



DRAFT CHAPTER FOUR: PHASING

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The transit phasing plan has been designed to ensure that the level of transit service provided generally anticipates the CP/HPS project's transit demand. This will ensure that the Project maintains its "transit orientation" throughout the development horizon.

Table 3 presents the various levels of transit service expected to be provided at the site throughout various points of development.

To serve the Candlestick Point Center, the 29-Sunset would be extended to the Candlestick Point Center and its frequency would be increased from

10 minutes to its ultimate frequency of 5 minutes upon opening of the center. Additionally, due to the relatively high number of residential units expected under the first major phase, the CPX will start out at 15 minutes and increase to its ultimate frequency of 10 minutes upon opening of the Candlestick Point Center. The CPX would provide connections between Candlestick Point, Downtown and regional transit systems. However, the 28R/BRT would not be as useful under the early years of the Project because the infrastructure connecting it to Geneva Avenue to the west would not be in place and therefore, will be implemented later in the overall schedule.

Phasing of other transit service, relative to development phasing, has been established in cooperation with SFMTA.

The phasing levels were selected to correspond to ridership demand and to ensure that the initiation of service is relatively early in the overall development timeline. Service would be gradually increased up to full buildout service frequencies to maintain robust and attractive transit service throughout the Project phasing. The service frequency increases would be managed by SFMTA to maintain ridership conditions below SFMTA's 85% capacity utilization standard, a PM peak period external transit mode split of approximately 20% or higher, and an overall transportation system where vehicle traffic congestion (i.e., intersection level of service) along the major transit corridors would be similar to or better than conditions identified in the EIR at study intersections.

Preliminary development schedules provided by FivePoint forecast occupancy of the first building by year 2024 and completion of the final development by year 2039. **Table 4** presents the annual capital and operating and maintenance costs expected to accrue based on the projected project buildout and projected implementation of transit service by year.

Notes:

- 1 The 23 Monterey service may extend into HPS until SFMTA's fleet is modified to eliminate the need for OCS wires extended into the HPS site, at which point the 24 Divisadero would be extended and the 23 Monterey would return to its original (existing) routing.
- 2 Until construction of the Geneva Avenue extension, the BRT service may operate independently from the 28R – 19th Avenue/Geneva Avenue limited between the Hunters Point Transit Center and the Bayshore Caltrain Station via Alana Way and Beatty Avenue.
- 3 The 28R/BRT is triggered with CP-07; however, due to the delay in construction at HP, the BRT is only expected to serve CP. The BRT route would not extend into HP until HP-04, approximately 2037. Additionally, the construction of the Yosemite Slough Bridge would not be triggered until the BRT extends from CP to HP (HP-04).
- 4 Increased capacity on the T-Third shown here is accommodated within the overall implementation of the Central Subway service capacity and frequency enhancements and is not triggered by project development. Extension to the Bayshore Caltrain station is also proposed as part of the overall Bi-County study. In Phase 3, service will likely be provided by two-car trains.

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Table 3: Transit Phasing			
Route	Frequency (Minutes)	Major Phase / Sub-Phase	Approximate Year
Hunters Point Shipyard			
Hunters Point Express (HPX)	20 10 6	1 / HP-01 2 / HP-04 3 / HP-06	2034 2037 2037
23 Monterey ¹ (Temporary)	20	1 / HP-01	2034
24 Divisadero	15 10	2 / HP-04 3 / HP-06	2037 2037
44 O'Shaughnessy	10 7.5 6.5	1 / HP-02 2 / HP-03 3 / HP-06	2033 2035 2037
48 Quintara	15 10	1 / HP-01 2 / HP-03	2034 2035
Candlestick Point			
Candlestick Point Express (CPX)	15 10	1 / CP-03 1 / CP-02	2024 2025 (Residential)
Extension of 29 Sunset	10 5	1 / CP-03 1 / CP-02	2024 2026 (Residential)
Routes Serving Both Sites			
Extension of 28R/BRT ^{2,3}	5	3 / CP-07 2 / HP-04	2028 2037
Increase serve on T-Third Light Rail ⁴	6 5	No Change - Not triggered by project development	

Table 4A: Transit Phasing and Associated Cost by Year

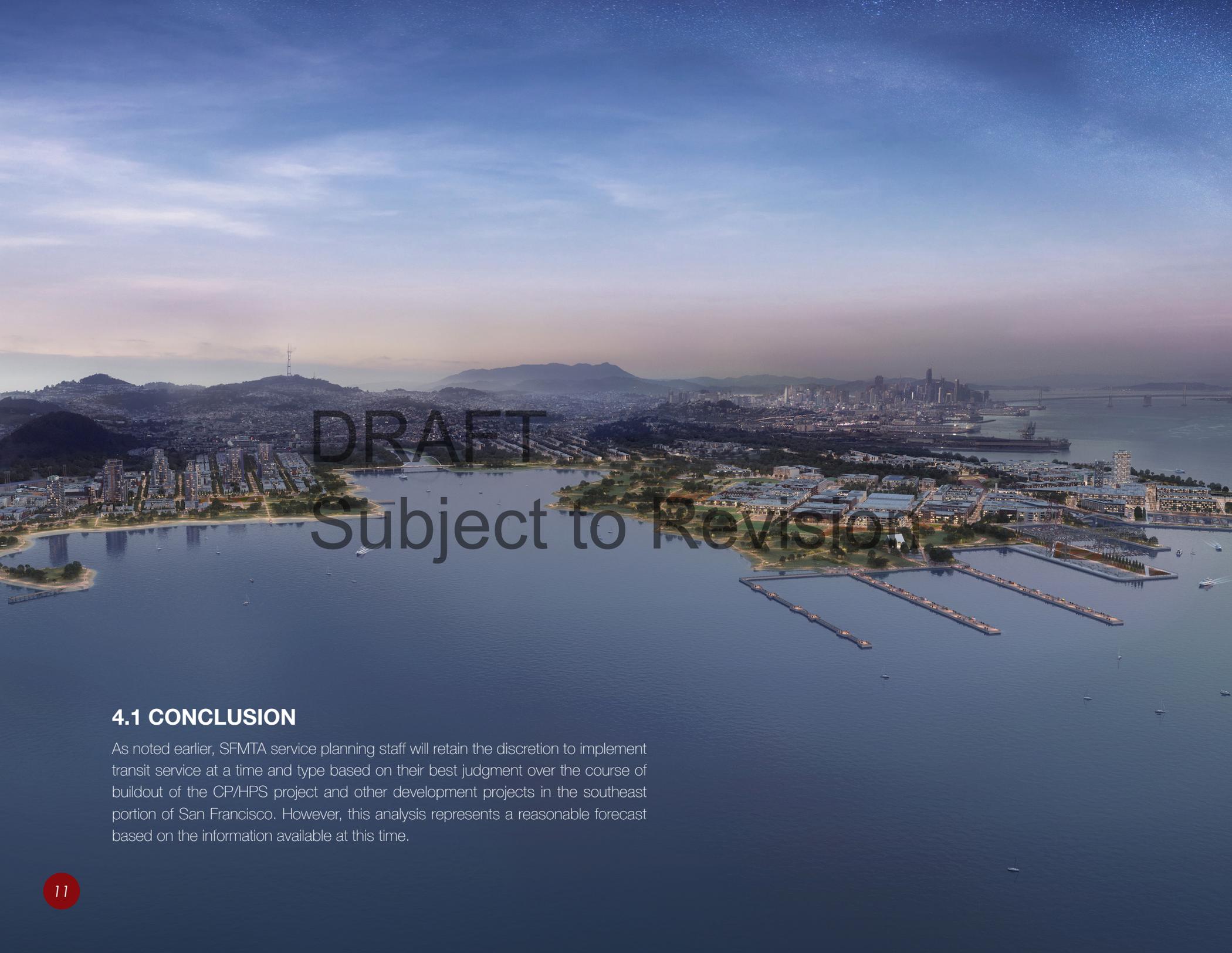
Annual Costs Based on Hunters Point Development														
Improvement	Headway (min.)	Major Phase	Yearly O&M Costs (2017)	Capital Costs (2017)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Begin Hunters Point Express (HPX)	20	1	\$886,300	\$3,218,800.00	-	-	-	-	-	-	-	-	-	-
	10	2	\$1,772,600	\$6,437,600	-	-	-	-	-	-	-	-	-	-
	6	3	\$2,954,200	\$10,729,000	-	-	-	-	-	-	-	-	-	-
Extend 23-Monterey	20	1	\$438,700	\$545,000	-	-	-	-	-	-	-	-	-	-
	15	2	\$438,700	-	-	-	-	-	-	-	-	-	-	-
Extend 24-Divisadero	10	3	\$1,717,200	\$3,634,000	-	-	-	-	-	-	-	-	-	-
Extend 48-Quintara	15	1	\$146,200	\$192,000	-	-	-	-	-	-	-	-	-	-
	10	2	\$583,300	\$1,341,000	-	-	-	-	-	-	-	-	-	-
Total PM Transit Trips from HP Development Area					0	0	0	0	0	23	23	23	23	23
HP Generated Annual Cost					-	-	-	-	-	-	-	-	-	-
Annual Costs Based on Candlestick Point Development														
Improvement	Headway (min.)	Major Phase	Yearly O&M Costs (2017)	Capital Costs (2017)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Begin Candlestick Point Express (CPX)	15	1	\$2,064,000	\$7,051,000	\$9,105,000	-	-	-	-	-	-	-	-	-
	10	1	\$3,080,900	\$10,576,000	-	\$6,605,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900
Extend 29-Sunset	10	1	\$125,100	\$259,000	\$384,100	\$125,100	-	-	-	-	-	-	-	-
	5	1	\$1,152,000	\$2,845,000	-	-	\$8,738,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000
Total PM Transit Trips from CP Development Area					384	591	1213	1276	1482	1520	1622	1672	1672	1768
CP Generated Annual Cost					\$9,489,100	\$6,731,000	\$6,818,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900
Annual Costs Based on Total Development														
Improvement	Headway (min.)	Major Phase	Yearly O&M Costs (2017)	Capital Costs (2017)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Begin/Extend 28L/BRT	5	3	\$5,684,000	\$8,306,000	-	-	-	-	\$11,006,000	\$4,466,000	\$4,466,000	\$4,466,000	\$4,466,000	\$4,466,000
	6	2	-	\$18,240,000	\$10,505,450	\$1,385,450	\$1,385,450	\$1,385,450	\$1,385,450	-	-	-	-	-
T-Third	6	2	-	\$18,240,000	\$10,505,450	\$1,385,450	\$1,385,450	\$1,385,450	\$1,385,450	-	-	-	-	-
	5	3	\$2,770,900	-	-	-	-	-	-	\$11,890,900	\$2,770,900	\$2,770,900	\$2,770,900	\$2,770,900
Total PM Transit Trips from HP/CP Development Area					384	591	1213	1276	1482	1543	1645	1695	1695	1791
Combined Development Costs					\$10,505,450	\$1,385,450	\$1,385,450	\$1,385,450	\$12,391,450	\$16,356,900	\$7,236,900	\$7,236,900	\$7,236,900	\$7,236,900
Total Operating & Maintenance Costs					\$3,564,550	\$4,591,450	\$5,618,350	\$5,618,350	\$10,084,350	\$11,469,800	\$11,469,800	\$11,469,800	\$11,469,800	\$11,469,800
Total Capital Costs					\$16,430,000	\$3,525,000	\$2,586,000	-	\$6,540,000	\$9,120,000	-	-	-	-

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Table 4B: Transit Phasing and Associated Cost by Year

Annual Costs Based on Hunters Point Development														
Improvement	Headway (min.)	Major Phase	Yearly O&M Costs (2017)	Capital Costs (2017)	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Begin Hunters Point Express (HPX)	20	1	\$886,300	\$3,218,800.00	\$4,105,100	\$886,300	\$886,300	-	-	-	-	-	-	-
	10	2	\$1,772,600	\$6,437,600	-	-	-	-	-	-	-	-	-	-
	6	3	\$2,954,200	\$10,729,000	-	-	-	\$10,464,400	\$2,954,200	\$2,954,200	\$2,954,200	\$2,954,200	\$2,954,200	\$2,954,200
Extend 23-Monterey	20	1	\$438,700	\$545,000	\$983,700	\$438,700	\$438,700	-	-	-	-	-	-	-
	15	2	\$438,700	-	-	-	-	-	-	-	-	-	-	-
Extend 24-Divisadero	10	3	\$1,717,200	\$3,634,000	-	-	-	\$4,806,200	\$1,717,200	\$1,717,200	\$1,717,200	\$1,717,200	\$1,717,200	\$1,717,200
Extend 48-Quintara	15	1	\$146,200	\$192,000	\$338,200	-	-	-	-	-	-	-	-	-
	10	2	\$583,300	\$1,341,000	-	\$1,732,300	\$583,300	\$583,300	\$583,300	\$583,300	\$583,300	\$583,300	\$583,300	\$583,300
Total PM Transit Trips from HP Development Area					431	686	686	1228	1430	1514	1514	1514	1522	1522
HP Generated Annual Cost					\$5,427,000	\$3,057,300	\$1,908,300	\$15,853,900	\$5,254,700	\$5,254,700	\$5,254,700	\$5,254,700	\$5,254,700	\$5,254,700
Annual Costs Based on Candlestick Point Development														
Improvement	Headway (min.)	Major Phase	Yearly O&M Costs (2017)	Capital Costs (2017)	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Begin Candlestick Point Express (CPX)	15	1	\$2,054,000	\$7,051,000	-	-	-	-	-	-	-	-	-	-
	10	1	\$3,080,900	\$10,576,000	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900	\$3,080,900
Extend 29-Sunset	10	1	\$125,100	\$259,000	-	-	-	-	-	-	-	-	-	-
	5	1	\$1,152,000	\$2,845,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000	\$1,152,000
Total PM Transit Trips from CP Development Area					1768	1768	1768	1768	1768	1768	1768	1768	1768	1768
CP Generated Annual Cost					\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900	\$4,232,900
Annual Costs Based on Total Development														
Improvement	Headway (min.)	Major Phase	Yearly O&M Costs (2017)	Capital Costs (2017)	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Begin/Extend 28L/BRT	5	3	\$5,684,000	\$8,306,000	\$4,466,000	\$4,466,000	\$4,466,000	\$7,450,000	\$5,684,000	\$5,684,000	\$5,684,000	\$5,684,000	\$5,684,000	\$5,684,000
T-Third	6	2	-	\$18,240,000	-	-	-	-	-	-	-	-	-	-
	5	3	\$2,770,900	-	\$2,770,900	\$2,770,900	\$2,770,900	\$2,770,900	\$2,770,900	\$2,770,900	\$2,770,900	\$2,770,900	\$2,770,900	\$2,770,900
Total PM Transit Trips from HP/CP Development Area					2199	2454	2454	2996	3198	3282	3282	3282	3290	3290
Combined Development Costs					\$7,236,900	\$7,236,900	\$7,236,900	\$10,220,900	\$8,454,900	\$8,454,900	\$8,454,900	\$8,454,900	\$8,454,900	\$8,454,900
Total Operating & Maintenance Costs					\$12,941,000	\$13,378,100	\$13,378,100	\$17,942,500	\$17,942,500	\$17,942,500	\$17,942,500	\$17,942,500	\$17,942,500	\$17,942,500
Total Capital Costs					\$3,955,800	\$1,149,000	-	\$12,365,200	-	-	-	-	-	-

Notes:
 1. Fiscal impact analysis assumes capital costs incurred over time and includes capital costs associated with mitigation measures.
 2. No transit costs incurred until 2024.

An aerial photograph of San Francisco, California, taken at dusk. The city's skyline is visible in the distance, with the Golden Gate Bridge and other bridges spanning the bay. The foreground shows a large body of water with several piers and boats. A large, semi-transparent watermark reading "DRAFT Subject to Revision" is overlaid across the center of the image.

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4.1 CONCLUSION

As noted earlier, SFMTA service planning staff will retain the discretion to implement transit service at a time and type based on their best judgment over the course of buildout of the CP/HPS project and other development projects in the southeast portion of San Francisco. However, this analysis represents a reasonable forecast based on the information available at this time.

TABLE OF CONTENTS

ONE	Introduction	13
TWO	Implementation Strategies & Funding Overview.....	14
THREE	Transportation Coordinator & TDM Funds	16
3.1	Implementation.....	16
3.2	Costs & Funding	17
	Appendix A: TDM Figures Detail.....	19
	Appendix B: TDM Strategies Costs Calculations.....	20-22

Subject to Revision

TABLES & FIGURES

Table 2-1	TDM Strategies - Implementation of Funding	15
Table 3-1	TDM Strategies Cost	18
Table 3-2	TDM Strategies Funding	18
Table A-1	Assumptions for TDM Figures	19
Table B-1	TDM Strategies Cost Detail.....	20-22



CHAPTER ONE: INTRODUCTION

The Candlestick Point – Hunters Point Shipyard (CP-HPS) Phase II Transportation Plan included a commitment to develop and implement a Transportation Demand Management (TDM) Program designed to reduce use of single-occupant vehicles and to increase the use of rideshare, transit, bicycle, and walk modes for trips to and from, as well as within, the Development Plan Area. The TDM Program was envisioned to highlight and support the demand management qualities of the overall Development Plan, including:

- Jobs-Housing linkage. By providing a range of job types (retail, research, hospitality, office, etc.) and a range of housing types from affordable apartments to single family homes, the Development Plan will maximize the potential jobs/housing “matches” on site. Each match reduces the number of vehicle trips that will enter/leave the Development Plan Area during peak hours.
- Streets designed for low speed and safe crossings. In addition to new residential and commercial buildings, the Development Plan will provide significant infrastructure, including streets. All new streets and intersection upgrades will consider the needs of pedestrians.
- Land uses and transit located to encourage walking. People walk more when destinations are within close proximity, along flat routes with easy street crossings, and through interesting areas with storefronts, street trees, street furniture and other pedestrian-oriented amenities. The Development Plan embraces these principles, with all homes located within a 15-minute walk of transit and neighborhood retail services integrated into residential blocks. Many existing neighborhoods will also benefit from their proximity to enhanced transit service, schools, retail locations, and jobs with the Development.

The TDM Program includes a menu of tools that, when employed, will make the most of the above design qualities of the Development Plan. This document further refines the tool menu and sets forth a funding and implementation plan for the TDM Program.

A detailed description of the TDM Plan is included in the Transportation Plan. The purpose of this appendix is to describe the implementation and funding mechanisms used to support the TDM Plan.



CHAPTER TWO: IMPLEMENTATION STRATEGIES & FUNDING OVERVIEW

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To move forward with the TDM Program outlined in the Transportation Plan, an implementation and funding plan is needed. This chapter summarizes the anticipated funding source and implementation lead for each TDM strategy to be provided inherently with the Development and through other sources. Subsequent chapters in this Plan will go into further detail for the funding and implementation of strategies that will not be inherent to the Development and/or will require on-going maintenance and monitoring to ensure their effectiveness.

Strategies to be implemented and funded with the Development include: transit infrastructure and operations, parking strategies, pedestrian infrastructure, and a majority of the bicycle improvement strategies, as shown in **Table 2-1**.

Of the strategies listed in **Table 2-1**, those requiring TDM funds as their funding source will be discussed in detail in Chapter 3. TDM support strategies for residents are typically implemented or supported by the On-Site Transportation Coordinator (TC) with TDM funds (paid by all residents and employers). Employee TDM strategies will be funded by the employers but the TC will provide the employer with support in implementing the programs. The TC will also implement and fund monitoring strategies with TDM funds.

The transit and parking revenues associated with the above strategies have been calculated separately and are not addressed in this Plan as they are largely meant to offset costs incurred by SFMTA of operating increased transit service to the site. The EcoPass transit pass will also help to subsidize the cost of enhancing transit service to the Project area. All residents will be required to purchase an EcoPass, and employers will be encouraged to participate as well.

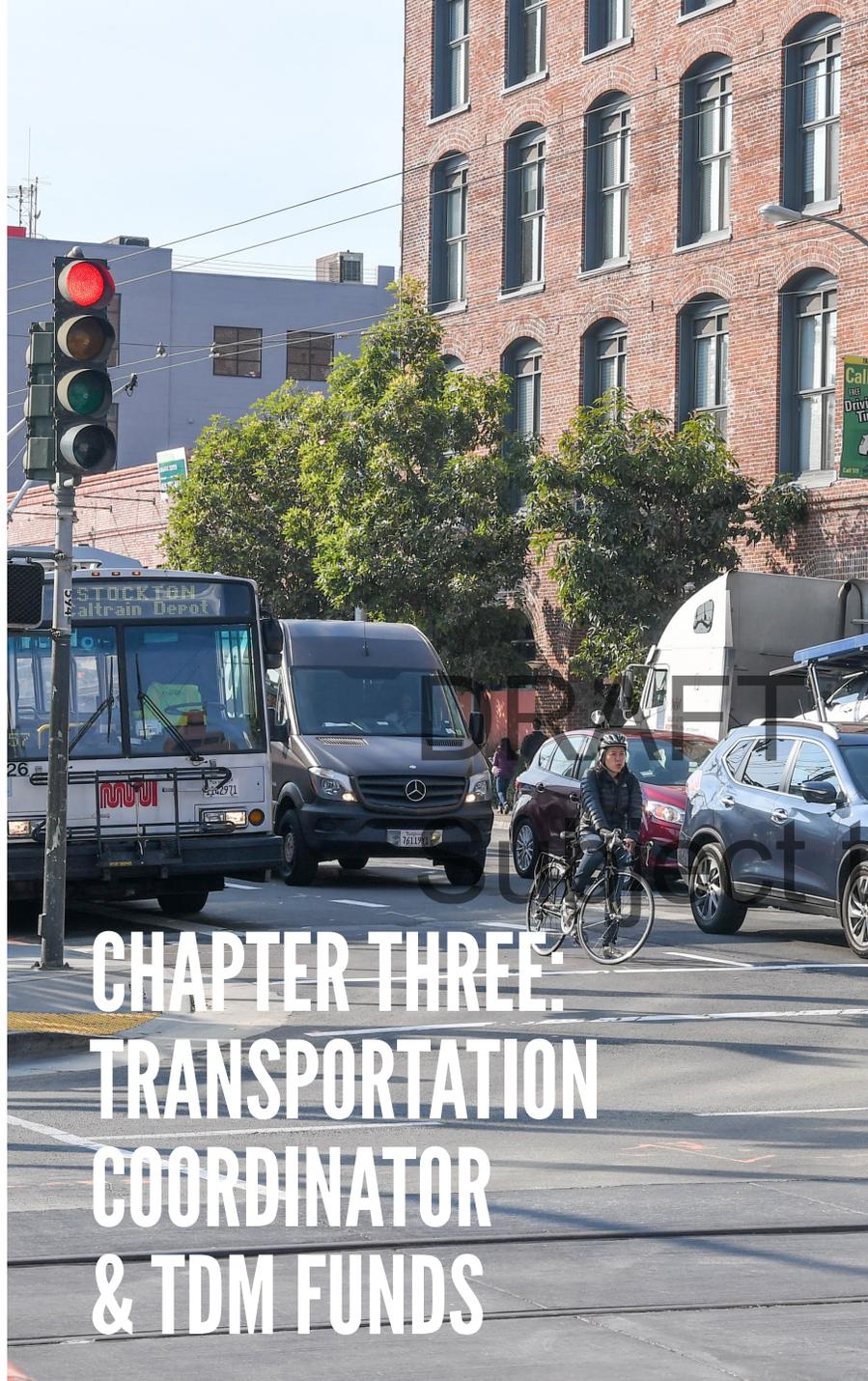
Table 2-1: TDM Strategies - Implementation and Funding

Implementation Strategy	Implementation Source	Funding Source
Overall		
Jobs-Housing Linkage	Project Development	
Streets designed for low speed and safe crossings	Project Development	
Land uses and transit located to encourage walking	Project Development	
Transit Strategies		
Central Transit Hub and Ferry Terminal	Project Development	
Enhanced Transit Service	SFMTA	Resident and Employee EcoPass (subsidy), Project Development
Transit Preferential Street (Palou Avenue)	Project Development	
BRT, Bicycle, Pedestrian Bridge over Yosemite Slough	Project Development	
Bicycle Improvement Strategies		
Enhanced Bicycle Facilities	Project Development	
Bicycle racks, indoor/long-term parking, lockers, and showers	Project Development	
Bicycle Station (attended parking, repair facilities)	Transportation Coordinator and Bicycle Station staff	Project Development and TDM funds (subsidy)
Bicycle Sharing Kiosks	Bicycle Sharing Company	
TDM Support Strategies		
Employee TDM Programs		
Information boards/kiosks, marketing of alternative travel options, special event planning	Transportation Coordinator and Employer	Employers
Commute subsidies, parking cash-out, commuter checks, Ecopass	Transportation Coordinator and Employer	Employers
Carpool/Vanpools	Transportation Coordinator and Employer	Employers
Guaranteed Ride Home Program	Transportation Coordinator and Employer	City of San Francisco and Employers
Compressed work week, flex time, telecommuting options	Employer	

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All Other TDM Support Strategies		
Wayfinding	Project Development	
Ecopass	Transportation Coordinator	Residents and Employers
High-speed wireless internet	Project Development	
Carshare Services	Carshare company	
Carpool pick-up points	Transportation Coordinator	Project Development
Off-Peak Commercial Deliveries	Transportation Coordinator	Project Development
Parking		
Unbundled Residential Parking	Project Development	
Visitor Variable, Market Rate Parking Pricing	Transportation Coordinator, SFMTA, Project Development, and Private Parking Operator	Project Development
Parking Maximum Ratio	Project Development	
Shared parking	Project Development	
Preferential parking spaces reserved for carpoolers in commercial zone and near transit centers	Project Development	TDM funds (subsidy)
Free designated spaces in parking facilities to vanpools; Free short-term parking spaces in commercial zones reserved for carshare parking	Project Development	TDM funds (subsidy)
Carshare vehicles hubs	Carshare company	TDM funds (subsidy)
Ongoing Implementation and Monitoring		
On-Site Transportation Coordinator		
Salary and Rent	--	TDM funds
Transportation Website	Transportation Coordinator	TDM funds
Marketing of TDM Programs	Transportation Coordinator	TDM funds
Monitoring of Transportation Demand	Transportation Coordinator	TDM funds
Monitoring Effectiveness of Congestion Reducing/Traffic Calming	Transportation Coordinator	TDM funds

Notes:
1 Project development will fund the capital costs of the bike station. TDM funds will subsidize rent and provide a partial operating subsidy. The bicycle shop operating the station will provide the remaining operating costs for staffing and running the station and the Candlestick Point bicycle kiosk.



CHAPTER THREE: TRANSPORTATION COORDINATOR & TDM FUNDS

This chapter discusses the role of the Transportation Coordinator (TC), the associated logistics and organization of the TC's office, the estimated costs of all strategies requiring TDM funds, and proposed funding sources to cover these strategies.

3.1 IMPLEMENTATION

Roles

The role of the Transportation Coordinator is extensive, as shown by all the strategies with a "TC" label under the Implementation Source column in **Table 2-1**. At full build-out, the Development may require at least one and up to three full-time positions to implement the TDM strategies. This estimate is based on other TDM plans in the San Francisco Bay Area (see Appendix B for detail). For three full-time positions, the roles would be: one Transportation Liaison in charge of working with other entities; one Technical Coordinator managing website, car/vanpool database, rideshare; and one Marketing Coordinator managing TDM marketing to residents and employers (hereafter known as the TC team). The Transportation Liaison will be the bridge between residents and employers and the transportation agencies and the City of San Francisco. The Liaison will also be working with carshare companies, homeowners associations, and other entities involved with the relevant TDM strategies. The Marketing Coordinator will be the contact person and informational resource to support the project goal of providing residents and employees with alternatives to using a single-occupancy vehicle. Implementation and support of all Transportation Coordinator related TDM strategies will be covered by one of the three positions.

Logistics

The TDM office will house the TC team and will be located next to the bike station at the project transit center. The location is appropriate as the TDM office and bike station will have the option to be within a shared space, since rent for both are supported through the TDM funds. The TDM office will be the location where residents can pick up EcoPasses (if lost, etc.) and obtain general TDM support.

Organization

The TC team will act as staff to the Candlestick Point-Hunters Point Shipyard Transportation Management Association (CPHPSTMA). CPHPSTMA will be formed to develop, implement, operate and administer strategies and programs to manage transportation resources in Candlestick Point-Hunters Point Shipyard (including Phase I and Phase II) in accordance with the Transportation Demand Management Plan for Candlestick Point – Hunters Point Shipyard. The Articles of Incorporation for the Candlestick Point – Hunters Point Shipyard TMA were filed with the State of California on July 18, 2016. Therein, the activities, property, and affairs of the Corporation are dictated to be spelled out by the Board of Directors, the number of which will be dictated by the filed bylaws. The bylaws establish the entity as a non-profit established to further the goals of the approved TDM Program, namely, to reduce traffic congestion, reduce air pollution, reduce commuting costs, generate public/private measures to solve transportation problems, and create a central information service for ridesharing, public transportation, and other transportation related subjects. The Board of Directors of CPHPSTMA representing private property owners will be initially appointed by FivePoint. The Board of Directors is assigned to include three (3) groups, each of whom will get to appoint their representative for a one (1) year term: CP Development Company, LP, the Commercial Property Owners, and the Residential Property Owners. CPHPSTMA will enter into Participation Agreements with each and every owner of real property in CP-HPS Phase I and Phase II, setting forth the rights and obligations of each such owner relating to the programs and fees imposed by CPHPSTMA.

Monitoring

The TDM programs will be monitored by the TC team on an annual basis to determine the success of the programs and to allow the TC team and the CPHPSTMA Board of Directors to make decisions about the allocation of resources and/or changes in the services that may be needed.

3.2 COSTS AND FUNDING

The costs for each TDM strategy supported by TDM funds are estimated in **Table 3-1**. See Appendix B for detailed assumptions and calculations of TDM strategies costs.

Implementation of the above strategies costs an estimated total of \$1,882,219 annually. An annual TDM fee for all residents and employees in the Plan Area including an additional 1,600 homes in Hunters Point Shipyard Phase I, will cover the annual costs. The fee will be assessed as an add-on to the mandatory EcoPass (transit pass) fee discussed in Chapters 2. The project is expected to have a residential population of 24,866, with 10,672 housing units, and 16,155 employees at full build-out. This population would be in addition to a residential population of 3,328 in 1,428 housing units associated with Phase I, for a total residential population of 28,193. Based on these estimates, an annual TDM fee of \$135.19 per household² (assessed through rents or HOA dues) and \$58.02 per employee (incorporated into employer leases) will be able to cover the costs of implementing these TDM strategies. This fee will increase over time as the operating costs increase with inflation and/or with any significant changes in the TDM tool menu.

² This amount does not include the cost of an EcoPass transit pass, but the two costs would likely be combined into one monthly assessment.

Table 3-1: TDM Strategies Costs

Implementation Strategy	Funding Source	Annual Operating Cost
Bicycle Improvement Strategies		
Bicycle station (attended parking, repair facilities)	Project Development and TDM funds	\$240,000 ¹
Parking		
Preferential parking spaces reserved for carpoolers in commercial zone and near transit	TDM funds	Assume carpool spaces pay same parking rate
Free designated spaces in parking facilities to vanpools; free short-term parking spaces in commercial zones reserved for carshare parking	TDM funds	\$602,875 ²
Carshare vehicles hubs	TDM funds	\$384,344 ²
Parking		
On-Site Transportation Coordinator		
Salary	TDM funds	\$510,000.00
Rent	TDM funds	\$60,000
Transportation Website	TDM funds	\$10,000
Administrative costs, expenses, printing, etc.	TDM funds	\$60,000
Tech consulting	TDM funds	\$15,000
Marking of TDM Programs	TDM funds	Assume included in Transportation Coordinator's salary and administrative costs
Monitoring of Transportation Demand	TDM funds	Assume included in Transportation Coordinator's salary and administrative costs
Monitoring Effectiveness of Congestion Reducing / Traffic Calming	TDM funds	Assume included in Transportation Coordinator's salary and administrative costs
Total		\$1,882,219

Notes:

- 1 This cost estimate is only from TDM funds and represents a rent and partial operating subsidy for the Bicycle Station.
- 2 Amount of lost revenue assuming the parking spaces were used for marking-rate parking.

Table 3-2: TDM Strategies Funding

Funding Strategy	Applicable To	Price
Annual TDM Fee	All households within the Project site ²	\$135.19
	All employees within the Project site	\$58.02
Monthly TDM Fee ¹	All households within the Project site ²	\$11.27
	All employees within the Project site	\$4.84

Notes:

- 1 Assumes 50 percent of employees participate.
- 2 BMR unit households at or below 60% of AMI will not be assessed the TDM fee and will not be required to purchase EcoPass.

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APPENDIX A: TDM FIGURES DETAIL

Figures 16 and 17 of the Plan were meant to illustrate the various TDM strategies at CPHPS. They do not represent exact locations or counts of

the strategies. Please see the table below for detailed assumptions for mapping out these strategies.

Table A-1: Assumptions for TDM Figures

Strategy Detail (from Transportation Plan)	Notes for Figures
Showers and locker facilities will be provided within each new commercial building with greater than 20,000 square feet of uses	Placed a showers/lockers symbol at every block which had office/commercial/retail use (from BWP Transportation Study document)
Bike sharing program will be considered where bike kiosks are set up at intervals along major corridors and riders can pick up and drop off bicycle in seconds	Assumed there would be two kiosks serving the project site. One would be located at the transit center in HP near the bicycle station. This will allow for assistance from station employees to bike riders and would be the location for bike riders to buy or refill bike cards. Another kiosk would be located near the BRT stop in the commercial center of CP. This kiosk would be a self-service station.
Bicycle parking will be provided within each commercial parking facility, residential garage or within each residential building. Supplemental racks at major destinations	Placed a bike parking symbol on every block of project site that had commercial parking, or residential or was a major destination (from BWP Transportation Study document)
A designated signed area near the transit centers would be reserved for casual carpooling.	Assumed there would be one carpool point at CP (near the BRT stop in the commercial center) and one at HP near the transit center
Free designated spaces in parking facilities to vanpools; Free short-term parking spaces in commercial zones reserved for carshare parking; Preferential parking spaces reserved for carpoolers in commercial zone and near transit centers	Placed a symbol at every block with commercial/office parking facilities or on a commercial block.

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APPENDIX B: TDM STRATEGIES COSTS CALCULATIONS

Table B-1: TDM Strategies Cost Detail

Implementation Strategies	Annual Operating Costs	Operating Cost Assumptions	Assumption Sources
Bicycle Improvement Strategies			
Bicycle Station (attended parking, repair facilities)	\$240,000	Estimate of annual operating expenses (not including personnel) based on Downtown Berkeley BART bike station.	Downtown Berkeley BART Bikestation - Economic Analysis for Facility Expansion; September 2005; Strategic Economics. Costs updated to reflect 2017 value based on CPI.
Parking			
Preferential parking spaces reserved for carpoolers in commercial zone and near transit centers	n/a	Assume capital costs, such as signage, would be included in the garage cost; assume no enforcement costs if employed with attended parking; assume carpool spaces pay same parking rate	
Free designated spaces in parking facilities to vanpools; Free short-term parking spaces in commercial zones reserved for carshare parking	\$602,875	Lost parking revenue. 1% of parking dedicated to vanpool and carshare. Assume \$25/day, 5 days/week, 50 weeks/year.	Per transportation plan (proposed parking supply figure), 9,646 commercial structure parking.
Carshare vehicles hubs	\$384,344	Lost parking revenue. 1 carshare vehicle for every 200 dwelling units (61 total spaces). Assume \$25/day, 5 days/week, 50 weeks/year.	SF Planning code requires 1 carshare space for 201+ units, plus 1 for every 200 dwelling units over 200. (http://sf-planning.org/car-share-requirements-and-guidelines). 12,100 dwelling units proposed at build out (includes HPS Phase 1).

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APPENDIX B: TDM STRATEGIES COSTS CALCULATIONS CONTINUED

Table B-1: TDM Strategies Cost Detail

Implementation Strategies	Annual Operating Costs	Operating Cost Assumptions	Assumption Sources
Ongoing Implementation and Monitoring			
On-Site Transportation Coordinator (TC)			
Salary	\$510,000	3 staff with salary of \$85,000 (x2 for benefits)	Assuming one Transportation Liaison in charge of working with other entities; one Technical Coordinator managing website, car/vanpool database, rideshare; one Marketing Coordinator managing TDM marketing to residents and employers.
Rent	\$60,000	Conservative estimate of 4 staff for this calculation.	Rent estimate from typical craigslist office lease postings for a four person office (for SOMA/south beach area approximately \$5,000 a month).
Transportation Website	\$10,000	"Assume administrative costs included in TC's salary. Calculation includes start up costs and yearly maintenance."	
Ridesharing and Ridematching, Carpool and Vanpool Database	N/A	Assume administrative costs included in TC's salary. Calculation includes start up costs and yearly maintenance.	*Nelson\Nygaard. "RideNow! Evaluation Draft Report." Alameda County Congestion Management Agency. September 2006. Retrieved September 2008 from http://www.ridenow.org/4113_ACCMADynamicRidesharing.pdf

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APPENDIX B: TDM STRATEGIES COSTS CALCULATIONS CONTINUED

Table B-1: TDM Strategies Cost Detail

Implementation Strategies	Annual Operating Costs	Operating Cost Assumptions	Assumption Sources
Administrative costs, expenses, printing, materials, etc.	\$60,000	Costs include marketing expenses, flyers, brochures. Total population of 43,000 at project site. Flyers for all residents and employees at \$1/flyer. Additional costs for brochures and events.	Project estimates residential population of 28,193 and 16,155 employees at buildout (includes Hunters Point Shipyard Phase 1).
Tech consulting	\$15,000	Assume periodic tech support needed throughout the year	
Marketing of TDM programs	N/A	Assume admin included in TC's salary and administrative costs	
Monitoring of Transportation Demand	N/A	Assume admin included in TC's salary and administrative costs	
Monitoring Effectiveness of Congestion-Reducing/Traffic Calming	N/A	Assume admin included in TC's salary and administrative costs	

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