DRAFT MEMORANDUM

To: Joe Speaks, CH2M

From: Darin Smith and Matt Loftis

Subject: 4th and King RAB Financing Opportunities; EPS #141018

Date: August 18, 2017

The Economics of Land Use

Economic & Planning Systems Inc. (EPS) is engaged in a work effort assisting CH2M Hill and the San Francisco Planning Department ("the City") in evaluating the economic implications and potential financing approaches related to alternate rail alignments as part of the RAB study. EPS has prepared this memorandum in order to show the general order of magnitude of potential financing and fiscal revenues resulting from each RAB alternative. Specifically this document analyzes and quantifies the following:

- Land value of potential liberated railyard sites.
- Growth in Assessed Value within ½ mile of each proposed transit station location. These calculations are the basis for any value capture financing mechanisms and apply to:
  - New development on liberated sites at 4th and King.
  - City identified "pipeline" projects.
  - City identified future "soft sites" development.
  - Assessed value increase of existing parcels that is attributable to the perceived benefit of HSR station proximity.
- General Fund fiscal revenue analysis at buildout of the 4th and King site.

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This analysis compares three different alternatives that vary based on the location of rail stations, and whether or not the existing 4th and King railyard will be "liberated" for future development. Each of these variations creates different amounts of new development opportunity and serves different amounts of existing and planned development. **Table 1** summarizes what each of the three alternatives assumes regarding these factors.

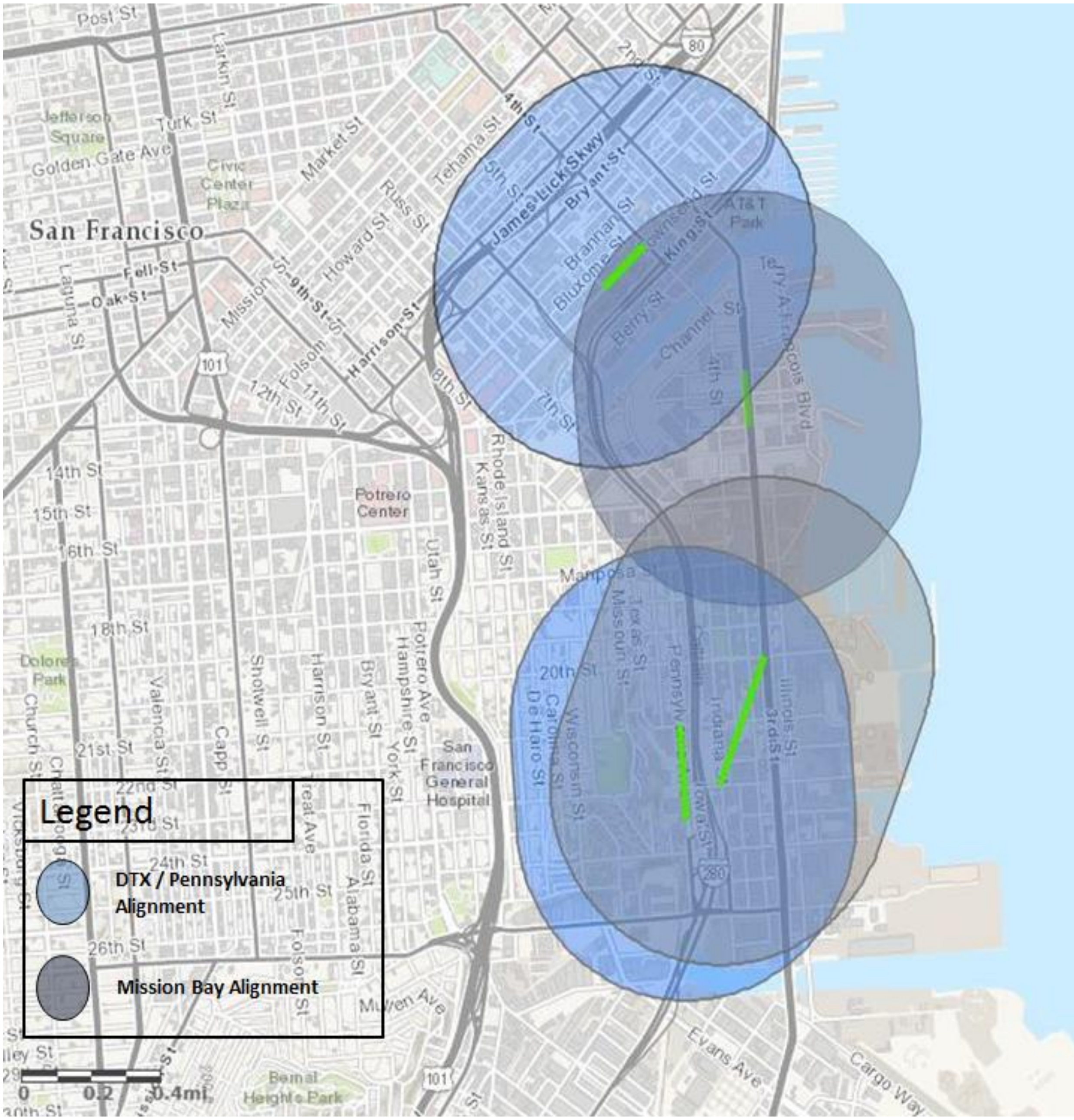
As shown, the current Downtown Extension (DTX) plan from TJPA assumes a new station at 4th and Townsend, with the full railyard at 4th and King to remain on the surface. The current DTX plan does not assume any new private development on the existing railyards site. In contrast, the RAB Study's Pennsylvania Avenue and Mission Bay alignments assume development of the 4th and King railyard which would be replaced with a new railyard farther south. The Pennsylvania Avenue alignment follows the same station location assumptions as the existing DTX plan with a station at 4th and Townsend, while the Mission Bay alignment assumes that the rail will be re-aligned eastward from its current alignment, and that a new station will be constructed at the intersection of 3rd and Mission Bay, as well as a subsurface replacement to the southerly 22nd Street Station within the same Dogpatch area.

In each case, EPS has explored the potential for new development on the "liberated sites" and reviewed with City staff the known pipeline for new development within ½-mile of each station as well as the potential development capacity on underutilized "soft sites" that are not yet proposed for new projects. **Figure 1** provides a visual representation of the station locations and the areas within a ½ mile of each station. The station areas illustrated with blue buffers would apply to both the DTX alternative as well as the Pennsylvania Avenue alternative, while the station areas illustrated with grey buffers apply to the Mission Bay alternative. The green lines represent the assumed station locations and likely access points.

Table 1 Summary of Land Use Area Assumptions for RAB Alternatives

Alignment	Southerly Station Area	Northerly Station Area	Railyard Redevelopment
Existing DTX Plan	22nd Street	4th / Townsend	Not Included
Pennsylvania Avenue Alignment	22nd Street	4th / Townsend	Included
Mission Bay Alignment	Dogpatch	3rd / Mission Bay	Included

Figure 1 Station Location Analysis Assumptions



The disposition (sale or lease) of land for development can provide a direct infusion of capital for major infrastructure projects. **Table 2** shows the estimated value of the "liberated sites" under each alternative, based on market data gathered by EPS and prospective development programs provided by the City. The existing DTX alternative will not yield any new land value as it will not result in the liberation of the existing railyard site. However, both RAB alternatives would allow for the disposition of the existing railyards site. EPS estimates the value of this land at approximately $350 million. This analysis does not suggest that the full value of these sites would be available to assist with financing improvements for the rail corridor, but rather compares the gross *potential* to capture some of the land value for such initiatives.

Table 2 Liberated Railyard Sites Land Value Estimates

Item	Commercial Sq. Ft.	Residential Sq. Ft.	Residential Units[1]	Commercial		Residential		Total Land Value
				Value per Sq. Ft.	Value	Value per Unit	Value	
K1	298,932			$162	$48,418,544			
K2	385,394			$162	$62,422,815			
K3	286,781			$162	$46,450,398			
K4	407,675			$162	$66,031,743			
T1	8,912	124,772	104	$127	$1,129,471	$77,500	$8,058,159	
T2	11,490	160,860	134	$127	$1,456,155	$77,500	$10,388,875	
T3	11,925	166,950	139	$127	$1,511,284	$77,500	$10,782,188	
T4	11,925	166,950	139	$127	$1,511,284	$77,500	$10,782,188	
T5	33,077	463,082	386	$127	$4,191,967	$77,500	$29,907,403	
4th/King Tower	6,250	742,141	618	$127	$792,077	$77,500	$47,929,915	
Total	**1,462,362**	**1,824,755**	**1,521**		**$233,915,738**		**$117,848,728**	**$351,764,466**

[1] This analysis assumes 1,200 gross square feet per unit
[2] Average price per buildable commercial sq.ft. in the category 1-5 FAR is $127 and for 5+ FAR is $162.

Tax increment generated by new development can provide a source of public financing for major infrastructure projects. As such, it is instructive to estimate the extent to which new development is anticipated in the rail station areas under each alternative. **Table 3** estimates the full assessed value (not just the land value) associated with the buildout of the liberated sites, while **Table 4** estimates the assessed value of new development currently in the City's pipeline within a ½ mile around each previously identified station location.

As shown, the development pipeline around 3rd and Mission Bay is expected to yield significantly greater gains in assessed value than is the pipeline around 4th and Townsend.[1] **Table 5** further estimates the potential for additional development beyond those projects currently in the City's pipeline by assigning a future increment of development to each of the significantly underutilized "soft site" properties identified by the City. This table illustrates that there is a great deal of currently unmet development potential in the study's northerly station locations, particularly within a half mile of the 4th and Townsend station.

Figures shown on **Tables 5** and **6** reflect the net change in each land use category under the assumption that "soft sites" redevelop for other uses. **Table 5** illustrates unmet development potential under the City's current ordinance and known near term zoning changes and is assumed to be realized by the year 2040. The City also provided soft sites data beyond the year 2040 for sites that would require rezoning. These sites are summarized on **Table 6** but EPS has not assumed that the development and associated value on these sites would be available to support the RAB construction due to their speculative nature and the fact that funding would be required prior to 2040.

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[1] Note that on **Table 4**, there are some land use categories that show negative development, indicating that those uses are assumed to be removed or converted to allow for the other uses to be developed. For example, in all study areas, there is assumed to be a net loss of PDR ("Production, Distribution and Repair") space even as other uses grow.

In addition to new development, existing development may also benefit from the introduction of HSR service and facilities and may represent a value capture opportunity. **Table 7** compares these opportunities by assuming that existing properties within 1/2 mile of each station location may realize assessed value increases of 10 percent when HSR service commences. EPS considers this figure to be conservative because research from around the world suggests major rail infrastructure tends to have demonstrably positive impacts on property values, and the assessed value of existing properties in San Francisco (and throughout California) are artificially low due to the limitations of Proposition 13. However, this study area is already served by significant transit, so the net impact may be somewhat muted compared to a situation where transit is newly introduced.

Table 3 4th & King Railyard Liberated Sites Development Program and Value Estimate

Item	Value per Unit / Sq. Ft.	Liberated Railyard Sites
Development Program		
Residential Units		1,521
Residential Market Rate		1,140
Residential - BMR[1]		380
MIPS		1,318,835
Retail		143,527
Assessed Value Estimate		
Residential Units	$850,000	$969,400,828
MIPS	$764	$1,007,590,227
Retail[2]	$626	$89,847,667
Total AV Estimate 2017$		**$2,066,838,722**

[1] Consistent with San Francisco's inclusionary housing requirement for 25+ unit residential projects, this analysis assumes 25% of units will be rented at a "below market rate" (BMR) price.

[2] Represents a blended value / sq. ft. figure that consists of both neighborhood and regional retail orientations.

Table 4 Pipeline Development and Summary

Location	Land Use							Total
	Residential[1]	Medical	MIPS	PDR	Retail	CIE[2]	Visitor	
Half mile radius of 4th / Townsend Station								
Total Development Program	3,415	-	960,687	(30,858)	168,874	281,600	535,625	
Unmet Assessed Value	$2,902,920,000	$0	$733,964,868	-$15,807,751	$105,715,124	$0	$390,470,625	**$4,117,262,866**
Half mile radius of 3rd & Mission Bay Station								
Total Development Program	4,056	2,606,902	3,807,008	(143,250)	272,850	1,528,995	486,125	
Unmet Assessed Value	$3,447,600,000	$1,991,673,128	$2,908,554,112	-$73,383,251	$170,804,100	$0	$354,385,125	**$8,799,633,215**
Half mile radius of 22nd Street								
Total Development Program	2,476	-	37,522	(389,122)	(1,029)	-	-	
Unmet Assessed Value	$2,104,600,000	$0	$28,666,808	-$199,337,083	-$644,154	$0	$0	**$1,933,285,571**
Half mile radius of Dogpatch Station								
Total Development Program	1,698	-	(8,989)	(369,997)	(16,350)	-	-	
Unmet Assessed Value	$1,443,640,000	$0	-$6,867,596	-$189,539,843	-$10,235,100	$0	$0	**$1,236,997,461**

[1] Development program is shown in # of units. Only market rate units are being shown, BMR units are tax exempt and therefore will not contribute to assessed value increases.
[2] EPS is assuming CIE space will carry no assessed value.

Source: City of San Francisco, Planning Department; Economic & Planning Systems, Inc.

Table 5 Short Term "Soft Sites" Development Capacity and Summary[2]

Location	Land Use							Total
	Residential[1]	Medical	MIPS	PDR	Retail	CIE[2]	Visitor	
Half mile radius of 4th / Townsend Station								
Total Short Term Development Capacity	13,065	84,322	8,991,291	218,844	2,532,729	424,192	63,133	
Unmet Short Term Assessed Value	$8,884,200,000	$64,422,008	$6,869,346,324	$112,108,091	$1,585,488,354	$0	$46,023,957	**$17,561,588,734**
Half mile radius of 3rd & Mission Bay Station								
Total Short Term Development Capacity	3,040	5,090	1,869,969	302,216	456,897	30,509	4,860	
Unmet Short Term Assessed Value	$2,067,200,000	$3,888,760	$1,428,656,316	$154,817,399	$286,017,522	$0	$3,542,940	**$3,944,122,937**
Half mile radius of 22nd Street								
Total Short Term Development Capacity	4,204	35,026	246,918	679,367	202,755	82,424	35,026	
Unmet Short Term Assessed Value	$2,858,720,000	$26,759,864	$188,645,352	$348,022,051	$126,924,630	$0	$25,533,954	**$3,574,605,851**
Half mile radius of Dogpatch Station								
Total Short Term Development Capacity	4,564	35,026	1,586,745	651,692	428,154	82,424	35,026	
Unmet Short Term Assessed Value	$3,103,520,000	$26,759,864	$1,212,273,180	$333,844,868	$268,024,404	$0	$25,533,954	**$4,969,956,270**

[1] Development program is shown in # of units. BMR units are tax exempt and therefore will not contribute to assessed value increases.
[2] EPS is assuming CIE space will carry no assessed value.
[3] Long term development potential is speculative and is based on the discrepancy between a parcel's existing development condition and a potentially allowable future rezoning.

Source: City of San Francisco, Planning Department; Economic & Planning Systems, Inc.

2 Short term soft sites are those that have additional unmet development potential under either the existing zoning, zoning changes that are now known to be likely. Discussions with City staff indicated that the timeframe for such development to meet its current zoning potential should be assumed to be on or before 2040.

Table 6 Long Term "Soft Sites" Development Capacity and Summary[3]

Location	Land Use							Total
	Residential[1]	Medical	MIPS	PDR	Retail	CIE[2]	Visitor	
Half mile radius of 4th / Townsend Station								
Total Long Term Development Capacity[3]	3,046	-	1,798,393	962,988	95,000	-	-	
Unmet Long Term Assessed Value	$2,071,280,000	$0	$1,373,972,252	$493,313,715	$59,470,000	$0	$0	**$3,998,035,967**
Percent Discounted	100%	100%	100%	100%	100%	100%	100%	**100%**
Total Long Term AV Capture	$0	$0	$0	$0	$0	$0	$0	**$0**
Half mile radius of 3rd & Mission Bay Station								
Total Long Term Development Capacity[3]	1,242	806,402	5,169,076	18,078	-	-	-	
Unmet Long Term Assessed Value	$844,560,000	$616,091,128	$3,949,174,064	$9,260,889				**$5,419,086,081**
Percent Discounted	100%	100%	100%	100%	100%	100%	100%	**100%**
Total Long Term AV Capture	$0	$0	$0	$0	$0	$0	$0	**$0**
Half mile radius of 22nd Street								
Total Long Term Development Capacity[3]	-	-	-	-	-	-	-	
Unmet Long Term Assessed Value	$0	$0	$0	$0	$0			**$0**
Percent Discounted	100%	100%	100%	100%	100%	100%	100%	**100%**
Total Long Term AV Capture	$0	$0	$0	$0	$0	$0	$0	**$0**
Half mile radius of Dogpatch Station								
Total Long Term Development Capacity[3]	1,564	-	800,000	103,636	220,000	-	-	
Unmet Long Term Assessed Value	$1,063,520,000	$0	$611,200,000	$53,090,028	$137,720,000	$0	$0	**$0**
Percent Discounted	100%	100%	100%	100%	100%	100%	100%	**100%**
Total Long Term AV Capture	$0	$0	$0	$0	$0	$0	$0	**$0**

[1] Development program is shown in # of units. BMR units are tax exempt and therefore will not contribute to assessed value increases.
[2] EPS is assuming CIE space will carry no assessed value.
[3] Long term development potential is speculative and is based on the discrepency between a parcel's existing development condition and a potentially allowable future rezoning.

Source: City of San Francisco, Planning Department; Economic & Planning Systems, Inc.

3 These sites are not currently considered "soft" but could be in the future if the City were to undergo a rezoning process. Conversations with City staff indicated that they timeframe for these sites meeting their future unmet development potential is 2065.

Table 7 Existing AV and Estimated Value Growth Attributable to HSR Investment

Item	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment
Existing Taxable Use Within 1/2 Mile of Station Areas[1]			
Residential Units	14,365	14,365	8,638
CIE Sq. Ft.	1,126,154	1,126,154	584,753
MED Sq. Ft.	415,922	415,922	248,325
MIPS Sq. Ft.	5,928,499	5,928,499	2,289,399
Retail Sq. Ft.	1,980,849	1,980,849	964,218
PDR Sq. Ft.	4,017,551	4,017,551	2,328,679
Visitor Sq. Ft.	38,067	38,067	5,219
Total Commercial Sq. Ft.[2]	*13,507,042*	*13,507,042*	*6,420,593*
Total Existing Assessed Value	$11,518,072,139	$11,518,072,139	$7,733,562,950
Value Growth due to HSR Proximity (10%)	**$1,151,807,214**	**$1,151,807,214**	**$773,356,295**

[1] Existing land use programs do not include tax exempt space as these properties will not yield tax gains.
[2] Commercial Square Feet is not inclusive of residential units.

Source: San Francisco Parcel Database, April 2016.

Table 8 on the following page combines the assessed value estimates associated with new development on the liberated sites, pipeline development, and soft sites attributable to each rail alternative. As shown, the 3rd and Mission Bay station alternative (as part of the Mission Bay alignment) has the lowest amount of potential assessed value gains, while the Pennsylvania Avenue alignment has the greatest such value gains. The difference between the existing DTX plan alternative and the Pennsylvania Avenue alternative is the value of potentially liberated railyards sites.

Table 8 Summary of Total New Development Values by RAB Alternative

Land Use	Value/ Unit or Sq. Ft.	Existing DTX Plan		Pennsylvania Ave. Alignment		Mission Bay Alignment	
		Dev. Program[1]	AV Estimate	Dev. Program[2]	AV Estimate	Dev. Program[3]	AV Estimate
Residential							
Market Rate	$850,000	19,706	$16,750,440,000	20,847	$17,719,840,828	12,978	$11,031,360,828
BMR[5]	$0	4,308	$0	4,688	$0	3,340	$0
Subtotal	-	*24,014*	*$16,750,440,000*	*25,535*	*$17,719,840,828*	*16,318*	*$11,031,360,828*
Commercial							
MED	$764	119,348	$91,181,872	119,348	$91,181,872	2,647,018	$2,022,321,752
MIPS	$764	10,236,418	$7,820,623,352	11,555,253	$8,828,213,579	8,573,568	$6,550,206,239
PDR	$512	478,231	$244,985,307	478,231	$244,985,307	440,661	$225,739,173
RETAIL	$626	2,903,329	$1,817,483,954	3,046,856	$1,907,331,621	1,285,078	$804,458,593
VISITOR	$729	633,784	$462,028,536	633,784	$462,028,536	526,011	$383,462,019
Subtotal	-	*14,371,110*	*$10,436,303,021*	*15,833,472*	*$11,533,740,915*	*13,472,336*	*$9,986,187,776*
Existing AV Growth (10%)[4]			*$1,151,807,214*		*$1,151,807,214*		*$773,356,295*
Total Future AV Estimate			**$28,338,550,235**		**$30,405,388,957**		**$21,790,904,899**

[1] Includes pipeline projects and short term soft sites within 1/2 mile of Existing 4th / Townsend Station and future Pennsylvania Ave. Station

[2] Includes development on liberated railyard sites and pipeline projects and short term soft sites within 1/2 mile of 4th / Townsend and Pennsylvania Ave. Station

[3] Includes development on liberated railyard sites and pipeline projects and short term soft sites within 1/2 mile of Mission Bay and Dogpatch Stations.

[4] Assuming Investment in HSR will increase existing AV by 10%.

In addition to the existing taxable space located within a half mile radius of our identified station areas, there are also significant existing developments located within these areas that are not on the City of San Francisco's property tax rolls. Specifically, the University of California San Francisco (UCSF) owns and occupies millions of square feet of development within the Mission Bay area. While this space is excluded from the existing assessed value calculations in **Table 8**, it is shown in **Table 9** below to illustrate additional existing development that will benefit from proximity to HSR. If the City and UCSF were to enter an agreement for Payment in Lieu of Taxes (PILOT), the terms of such agreements could substantially increase the funding potentially available for RAB projects. No such PILOT agreements have been assumed in this analysis.

Table 9 Existing UCSF Space within Mission Bay

Item	Existing Program
UCSF Existing Space within Mission Bay	
Residential Units	743
CIE Sq. Ft.	1,497,000
MED Sq. Ft.	-
MIPS Sq. Ft.	2,490,980
Retail Sq. Ft.	14,600
PDR Sq. Ft.	-
Visitor Sq. Ft.	-
Total Commercial Sq. Ft.[2]	*4,002,580*
Total Existing Assessed Value	**$0**

To gauge the amount of newly generated public revenue that might be available to assist in the financing of the HSR, EPS has prepared a fiscal revenue analysis of the proposed development on the liberated 4th and King Railyards sites. No fiscal revenues are being estimated for the existing DTX alternative, as this alternative does not involve the liberation of the 4th and King Railyards. While this fiscal analysis did use a case study approach to determine major revenue sources such as Property Tax, and Sales and Use Tax, many of the other tax revenues were calculated on an average revenue basis, either per worker or per resident equivalent. **Table 10** documents the existing population within the City of San Francisco as well as the projected population increase stemming from new development within each of the RAB Alternatives. Projected population increases are based on the future development program of the liberated Railyards site, and **Table 11** shows the population density assumptions for each use.

Table 10 Summary of Residential Equivalents by RAB Alternative

Item	Total	Resident Equivalent Weighting Factor	Resident Equivalents
Resident Equivalent Items			
San Francisco			
Residents	845,602	1.00	845,602
Jobs	704,000		
(less) Jobs held by Residents	(370,000)		
Non-Resident Employees	334,000	0.50	167,000
Daily Visitors	77,740	1.00	77,740
Total Daily Population	**1,257,342**		**1,090,342**
Existing DTX Plan			
Residents	0	1.00	0
Jobs	0		
Non-Resident Employees	0	0.50	0
Total	**0**		**0**
Pennsylvania Alternative			
Residents	3,528	1.00	3,528
Jobs	5,188		
Non-Resident Employees	2,462	0.50	1,231
Total	**5,989**		**4,759**
Mission Bay Alternative			
Residents	3,528	1.00	3,528
Jobs	5,188		
Non-Resident Employees	2,462	0.50	1,231
Total	**5,989**		**4,759**

Source: California Department of Finance; United States Census Bureau; EPS.

Table 11 Population Density Assumptions

Item	Population Density	
Residential[1]	2.32	Per Household
Commercial[2]		
MED	350	Sq. Ft. per Job
MIPS	276	Sq. Ft. per Job
PDR	567	Sq. Ft. per Job
RETAIL	350	Sq. Ft. per Job
VISITOR	700	Sq. Ft. per Job
CIE	350	Sq. Ft. per Job

[1] Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates

[2] Employment density estimates provided by City of San Francisco.

As shown on **Table 12**, the fiscal revenues associated with the liberated railyards development at buildout are approximately $18.8 million annually in year 2017 dollars. Please note that these calculations are for *fiscal revenues only*, and thus estimate the *gross* revenues associated with the new development under each alternative. Based on a City suggestion, EPS has estimated that 75 percent of these gross fiscal revenues could be available to fund rail-related infrastructure, while the other 25 percent would be needed to fund City services to the development (Police, Fire, etc.) At this rate, an estimated $14.1 million might be available annually once the railyards site is fully developed. **Table 13** translates these fiscal revenues into annualized figures and calculates the total bond potential in 2026 dollars over the 20-year time period from 2021 to 2040. EPS estimates that the fiscal revenues from new development on the railyards sites will support roughly $235 million in bonding capacity in year 2026 dollars.

Table 12 Fiscal Revenue Analysis by RAB Alternative at Buildout

Item	GF Revenue 2016-17		Allocation Method	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment
Business Taxes[1]	$669,450,000	$951	per employee	$0	$4,933,832	$4,933,832
Hotel Room Tax	$409,250,000		not estimated	$0	$0	$0
Other Local Taxes	$46,960,000		not estimated			
Stadium Admission Tax	$1,360,000		not estimated			
Parking Tax	$92,820,000	$85	per resident equivalent[3]	$0	$405,100	$405,100
Property Transfer Tax	$235,000,000		Case Study[4]	$0	$838,167	$838,167
Sales and Use Tax	$237,545,000		Case Study[5]	$0	$574,107	$574,107
Gas Electric Steam Users Tax	$45,550,000	$42	per resident equivalent[3]	$0	$198,797	$198,797
Telephone Users Tax	$44,440,000	$41	per resident equivalent[3]	$0	$193,952	$193,952
Water Users Tax	$4,320,000	$4	per resident equivalent[3]	$0	$18,854	$18,854
Property Tax	$1,412,000,000		See Table 8	$0	$11,509,295	$11,509,295
Charges for Service	$236,101,725		not estimated			
Expenditure Recovery	$421,085,839		not estimated			
Fines, Forfeitures & Penalties	$4,579,750	$4	per resident equivalent[3]	$0	$19,988	$19,988
Interest & Investment Income	$13,969,863		not estimated			
Intergovernmental Transfers	$959,099,074		not estimated			
General Fund Support	($640,803,508)		not estimated			
Other Transfers In*	$686,132,452		not estimated			
License, Permits, and Franchises	$28,876,499	$26	per resident equivalent[3]	$0	$126,027	$126,027
Other Financing Sources	$881,000		not estimated			
Other Revenues	$61,333,621		not estimated			
Rents and Concessions	$16,140,178		not estimated			
Transfer Adjustments	-$15,162,070		not estimated			
Unappropriated Fund Balance	$178,109,083		not estimated			
Transfer Adjustments Citywide	($1,234,113,727)		not estimated			
Total General Fund Revenues 2017$	**$3,914,924,779**			**$0**	**$18,818,118**	**$18,818,118**
Potentially Available for RAB Financing[6]	**75%**			**$0**	**$14,113,589**	**$14,113,589**

* Includes Intrafund transfers in as well as operating transfers in
[1] Includes Gross Receipts Tax, Payroll Tax, Administrative Office Tax, and Business Registration Tax
[2] Based on average room rate of $255/night and 30% vacancy
[3] Resident equivalent includes City of San Francisco residents, and considers employee and visitor impact to be half that of a full-time resident
[4] Based on a residential turnover rate of 7% and a commercial turnover rate of 4%
[5] Based on $400 of taxable sales per net new retail square footage.
[6] Assuming 75 percent of fiscal revenues will be available for RAB financing, and 25 percent will be set aside for the General Fund.

Source: City and County of San Francisco; Economic and Planning Systems, Inc.

Table 13 Annualized Railyard Site Development Fiscal Benefit Bonding Potential

Year	Annual Fiscal Revenues 2017$			Nominal Fiscal Revenues			Bonding Capacity in Nominal Dollars[1]			Total Bond Capacity in 2026$		
	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment
2021	-	$705,679	$705,679	-	$794,248	$794,248	-	$7,942,484	$7,942,484	-	$9,207,516	$9,207,516
2022	-	$1,411,359	$1,411,359	-	$1,636,152	$1,636,152	-	$8,419,033	$8,419,033	-	$9,475,696	$9,475,696
2023	-	$2,117,038	$2,117,038	-	$2,527,854	$2,527,854	-	$8,917,027	$8,917,027	-	$9,743,876	$9,743,876
2024	-	$2,822,718	$2,822,718	-	$3,471,587	$3,471,587	-	$9,437,323	$9,437,323	-	$10,012,056	$10,012,056
2025	-	$3,528,397	$3,528,397	-	$4,469,668	$4,469,668	-	$9,980,812	$9,980,812	-	$10,280,236	$10,280,236
2026	-	$4,234,077	$4,234,077	-	$5,524,510	$5,524,510	-	$10,548,417	$10,548,417	-	$10,548,417	$10,548,417
2027	-	$4,939,756	$4,939,756	-	$6,638,619	$6,638,619	-	$11,141,095	$11,141,095	-	$10,816,597	$10,816,597
2028	-	$5,645,436	$5,645,436	-	$7,814,603	$7,814,603	-	$11,759,840	$11,759,840	-	$11,084,777	$11,084,777
2029	-	$6,351,115	$6,351,115	-	$9,055,171	$9,055,171	-	$12,405,682	$12,405,682	-	$11,352,957	$11,352,957
2030	-	$7,056,794	$7,056,794	-	$10,363,141	$10,363,141	-	$13,079,692	$13,079,692	-	$11,621,137	$11,621,137
2031	-	$7,762,474	$7,762,474	-	$11,741,438	$11,741,438	-	$13,782,977	$13,782,977	-	$11,889,317	$11,889,317
2032	-	$8,468,153	$8,468,153	-	$13,193,107	$13,193,107	-	$14,516,687	$14,516,687	-	$12,157,497	$12,157,497
2033	-	$9,173,833	$9,173,833	-	$14,721,309	$14,721,309	-	$15,282,016	$15,282,016	-	$12,425,677	$12,425,677
2034	-	$9,879,512	$9,879,512	-	$16,329,328	$16,329,328	-	$16,080,199	$16,080,199	-	$12,693,857	$12,693,857
2035	-	$10,585,192	$10,585,192	-	$18,020,580	$18,020,580	-	$16,912,519	$16,912,519	-	$12,962,037	$12,962,037
2036	-	$11,290,871	$11,290,871	-	$19,798,611	$19,798,611	-	$17,780,306	$17,780,306	-	$13,230,217	$13,230,217
2037	-	$11,996,551	$11,996,551	-	$21,667,105	$21,667,105	-	$18,684,939	$18,684,939	-	$13,498,397	$13,498,397
2038	-	$12,702,230	$12,702,230	-	$23,629,889	$23,629,889	-	$19,627,848	$19,627,848	-	$13,766,578	$13,766,578
2039	-	$13,407,909	$13,407,909	-	$25,690,941	$25,690,941	-	$20,610,515	$20,610,515	-	$14,034,758	$14,034,758
2040	-	$14,113,589	$14,113,589	-	$27,854,389	$27,854,389	-	$21,634,477	$21,634,477	-	$14,302,938	$14,302,938
Total	**$0**	**$148,192,683**	**$148,192,683**	**$0**	**$244,942,250**	**$244,942,250**	**$0**	**$278,543,886**	**$278,543,886**	**$0**	**$235,104,538**	**$235,104,538**

[1] This accounts for the net new fiscal revenues in a given year and thus subtracts the fiscal revenues accrued in previous years. Bonding capacity is estimated at 10x the annual net fiscal impact in a given year.

Table 14 below provides an overview of the assessed value growth that may be seen under each alternative, as well as the tax revenues that would be generated for the City and County of San Francisco. This table takes into account new pipeline development, new development on liberated sites, new value from underdeveloped "soft sites", and potential value growth of parcels due to proximity of a HSR station area. The Pennsylvania Avenue alternative would produce the largest assessed value growth and thus the largest share of new annual tax increment to San Francisco.

Table 14 Tax Increment Estimates (Gross and Portion Attributed to Rail, 2017$)

Tax Increment Sources	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment
Liberated Railyards Development Value	N/A	$2,066,838,722	$2,066,838,722
Non-Railyards AV Increases			
New Value from Pipeline Development			
Base Value of Pipeline Projects[1]	$6,050,548,436	$6,050,548,436	$10,036,630,675
Value Premium Attributed to Rail (5%)*	$302,527,422	$302,527,422	$501,831,534
Subtotal	$6,353,075,858	$6,353,075,858	$10,538,462,209
Soft Sites Development Market Value			
Base Value of Soft sites Projects[1]	$21,136,194,585	$21,136,194,585	$8,914,079,207
Value Premium Attributed to Rail (5%)*	$1,056,809,729	$1,056,809,729	$445,703,960
Subtotal	$22,193,004,314	$22,193,004,314	$9,359,783,167
Existing AV Growth Attributed to Rail *	$1,151,807,214	$1,151,807,214	$773,356,295
Subtotal Non-Railyards AV Increase Attributed to Rail[2]	***$2,511,144,365***	***$2,511,144,365***	***$1,720,891,789***
Total AV Increase Attributed to Rail	**$2,511,144,365**	**$4,577,983,087**	**$3,787,730,511**

[1] It is assumed that the base value of pipeline and soft sites will be realized regardless of station area locations.
[2] Non-railyard AV growth attributed to rail is inclusive of all line items marked with an *

Source: City of San Francisco Planning Department; Economic & Planning Systems, Inc.

Table 15 annualizes the assessed value increase attributed to rail that is calculated in **Table 14** above. This additional annual tax increment is then used to estimate the total bonding capacity associated with new property tax proceeds. Using linear growth projections, EPS estimates that a bond of $251 million could be issued against future AV growth attributed to rail in either the DTX or Pennsylvania Alignment alternative. The Mission Bay Alignment alternative would be able to yield a bond of $146 million. These figures are shown in Year 2026 dollars to match the timeframe being used by CH2M Hill and the City to estimate RAB development costs.

Table 15 Annualized Property Tax Increment Bonding Potential (Exclusive of Liberated Railyard Sites)

Year	Unadjusted AV Growth 2017$[1]			Cumulative Nominal AV Growth[2]			Annual Tax Increment[3]			Bonding Capacity Nominal Dollars[4]		
	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment
2021	$125,557,218	$125,557,218	$86,044,589	$141,315,755	$141,315,755	$96,843,943	$786,924	$786,924	$539,281	$7,869,244	$7,869,244	$5,392,807
2022	$125,557,218	$125,557,218	$86,044,589	$289,697,298	$289,697,298	$198,530,084	$1,613,195	$1,613,195	$1,105,526	$8,262,706	$8,262,706	$5,662,448
2023	$125,557,218	$125,557,218	$86,044,589	$445,413,129	$445,413,129	$305,242,425	$2,480,307	$2,480,307	$1,699,759	$8,671,120	$8,671,120	$5,942,334
2024	$125,557,218	$125,557,218	$86,044,589	$608,740,933	$608,740,933	$417,171,266	$3,389,807	$3,389,807	$2,323,041	$9,094,997	$9,094,997	$6,232,818
2025	$125,557,218	$125,557,218	$86,044,589	$779,967,879	$779,967,879	$534,513,403	$4,343,293	$4,343,293	$2,976,467	$9,534,865	$9,534,865	$6,534,260
2026	$125,557,218	$125,557,218	$86,044,589	$959,390,928	$959,390,928	$657,472,344	$5,342,420	$5,342,420	$3,661,170	$9,991,270	$9,991,270	$6,847,035
2027	$125,557,218	$125,557,218	$86,044,589	$1,147,317,149	$1,147,317,149	$786,258,524	$6,388,898	$6,388,898	$4,378,323	$10,464,773	$10,464,773	$7,171,528
2028	$125,557,218	$125,557,218	$86,044,589	$1,344,064,046	$1,344,064,046	$921,089,529	$7,484,493	$7,484,493	$5,129,137	$10,955,957	$10,955,957	$7,508,137
2029	$125,557,218	$125,557,218	$86,044,589	$1,549,959,898	$1,549,959,898	$1,062,190,330	$8,631,036	$8,631,036	$5,914,864	$11,465,422	$11,465,422	$7,857,274
2030	$125,557,218	$125,557,218	$86,044,589	$1,765,344,104	$1,765,344,104	$1,209,793,517	$9,830,414	$9,830,414	$6,736,801	$11,993,786	$11,993,786	$8,219,363
2031	$125,557,218	$125,557,218	$86,044,589	$1,990,567,544	$1,990,567,544	$1,364,139,549	$11,084,583	$11,084,583	$7,596,285	$12,541,689	$12,541,689	$8,594,842
2032	$125,557,218	$125,557,218	$86,044,589	$2,225,992,950	$2,225,992,950	$1,525,477,007	$12,395,562	$12,395,562	$8,494,701	$13,109,791	$13,109,791	$8,984,164
2033	$125,557,218	$125,557,218	$86,044,589	$2,471,995,286	$2,471,995,286	$1,694,062,854	$13,765,439	$13,765,439	$9,433,481	$13,698,773	$13,698,773	$9,387,794
2034	$125,557,218	$125,557,218	$86,044,589	$2,728,962,142	$2,728,962,142	$1,870,162,707	$15,196,373	$15,196,373	$10,414,102	$14,309,338	$14,309,338	$9,806,216
2035	$125,557,218	$125,557,218	$86,044,589	$2,997,294,144	$2,997,294,144	$2,054,051,115	$16,690,595	$16,690,595	$11,438,095	$14,942,213	$14,942,213	$10,239,925
2036	$125,557,218	$125,557,218	$86,044,589	$3,277,405,370	$3,277,405,370	$2,246,011,846	$18,250,409	$18,250,409	$12,507,038	$15,598,145	$15,598,145	$10,689,437
2037	$125,557,218	$125,557,218	$86,044,589	$3,569,723,779	$3,569,723,779	$2,446,338,182	$19,878,200	$19,878,200	$13,622,567	$16,277,909	$16,277,909	$11,155,280
2038	$125,557,218	$125,557,218	$86,044,589	$3,874,691,667	$3,874,691,667	$2,655,333,229	$21,576,430	$21,576,430	$14,786,367	$16,982,302	$16,982,302	$11,638,002
2039	$125,557,218	$125,557,218	$86,044,589	$4,192,766,114	$4,192,766,114	$2,873,310,224	$23,347,645	$23,347,645	$16,000,183	$17,712,148	$17,712,148	$12,138,167
2040	$125,557,218	$125,557,218	$86,044,589	$4,524,419,468	$4,524,419,468	$3,100,592,870	$25,194,475	$25,194,475	$17,265,819	$18,468,296	$18,468,296	$12,656,357
Total	**$2,511,144,365**	**$2,511,144,365**	**$1,720,891,789**	**$4,524,419,468**	**$4,524,419,468**	**$3,100,592,870**	**$227,670,499**	**$227,670,499**	**$156,023,006**	**$251,944,746**	**$251,944,746**	**$172,658,191**
Total Bonding Capacity (2021-2040) in 2026$										**$214,226,338**	**$214,226,338**	**$146,809,698**

[1] These values include AV growth attributed to rail service among pipeline projects, near-term soft sites, and existing properties (see Table 13).
[2] Assumes that newly constructed development values increase by 3% annually but that once built, AV appreciation is capped at 2 percent, consistent with California Proposition 13.
[3] Assumes a 1% property tax rate and a General Fund share of 55.68% per City instruction.
[4] Bonding capacity is estimated at 10x the annual net fiscal impact in a given year.

A special tax district may be created within the geography of the liberated Railyard site in order to capture additional revenue to offset the costs associated with each RAB alternative. For illustrative purposes, EPS assumes that the total future assessed value of the liberated Railyards site may be subject to additional property tax equal to .1 percentage points. **Table 16** documents EPS's estimates of potential special tax proceeds.

Table 16 Railyard Sites Land Secured Financing

Year	Liberated Development Phasing Value			Annual Special Tax[2]	Incremental Special Tax Bonding Capacity
	Unadjusted 2017$	Nominal $	Cumulative Nominal Annual AV $[1]		
2017	$0	$0	$0	$0	$0
2018	$0	$0	$0	$0	$0
2019	$0	$0	$0	$0	$0
2020	$0	$0	$0	$0	$0
2021	$103,341,936	$116,312,260	$116,312,260	$116,312	$1,163,123
2022	$103,341,936	$119,801,627	$238,440,132	$238,440	$1,221,279
2023	$103,341,936	$123,395,676	$366,604,611	$366,605	$1,281,645
2024	$103,341,936	$127,097,546	$501,034,249	$501,034	$1,344,296
2025	$103,341,936	$130,910,473	$641,965,407	$641,965	$1,409,312
2026	$103,341,936	$134,837,787	$789,642,502	$789,643	$1,476,771
2027	$103,341,936	$138,882,921	$944,318,273	$944,318	$1,546,758
2028	$103,341,936	$143,049,408	$1,106,254,047	$1,106,254	$1,619,358
2029	$103,341,936	$147,340,890	$1,275,720,018	$1,275,720	$1,694,660
2030	$103,341,936	$151,761,117	$1,452,995,536	$1,452,996	$1,772,755
2031	$103,341,936	$156,313,951	$1,638,369,397	$1,638,369	$1,853,739
2032	$103,341,936	$161,003,369	$1,832,140,154	$1,832,140	$1,937,708
2033	$103,341,936	$165,833,470	$2,034,616,427	$2,034,616	$2,024,763
2034	$103,341,936	$170,808,474	$2,246,117,230	$2,246,117	$2,115,008
2035	$103,341,936	$175,932,729	$2,466,972,304	$2,466,972	$2,208,551
2036	$103,341,936	$181,210,710	$2,697,522,460	$2,697,522	$2,305,502
2037	$103,341,936	$186,647,032	$2,938,119,941	$2,938,120	$2,405,975
2038	$103,341,936	$192,246,443	$3,189,128,783	$3,189,129	$2,510,088
2039	$103,341,936	$198,013,836	$3,450,925,194	$3,450,925	$2,617,964
2040	$103,341,936	$203,954,251	$3,723,897,949	$3,723,898	$2,729,728
Total	**$2,066,838,722**	**$3,125,353,971**	**$3,723,897,949**	**$33,651,097**	**$37,238,979**
Total Bonding Capacity (2021-2040) in 2026$					**$31,663,967**

[1] Assumes that newly constructed development values increase by 3% annually but that once built, AV appreciation is capped at 2 percent, consistent with California Proposition 13.
[2] Based on a potential special tax of .1% of property value.

This analysis is designed to help better understand the potential financing capacity associated with each RAB alternative. As such, EPS has prepared the below summary table, **Table 17,** to compare the potential bonding capacity for each RAB alternative. As shown, the Existing DTX alternative would yield the smallest potential bond. EPS estimates the size of this bond to be $214 million in 2026 dollars. Alternatively, the Pennsylvania Alignment and Mission Bay Alignment could support bonds of $480 million and $413 million respectively. While not definitive, these considerations should be taken into account along with operational and construction issues to help determine which alternative is most appropriate.

Table 17 Comparison of Total Bonding Capacity by Alternative, 2026$

Item	Existing DTX Plan	Pennsylvania Alignment	Mission Bay Alignment
Railyard Development Tax Increment		$235,104,538	$235,104,538
Adjacent Property Increased Value	$214,226,338	$214,226,338	$146,809,698
Annual Land Secured Financing - CFD	$0	$31,663,967	$31,663,967
Potential Total Bonding Capacity	**$214,226,338**	**$480,994,844**	**$413,578,204**