

2007 TCIF Funding Nomination for
the Martinez Subdivision and Rail Improvements (Martinez)
submitted by Port of Oakland

A. Project description and background (including purpose and need).

The Martinez Subdivision (Martinez) consists of the Union Pacific Railroad (UP) Right-of-Way (ROW) from the railroad terminals at the Port of Oakland (Port) to the Suisun Bay railroad bridge spanning the Carquinez Strait (Railroad mile post (mp) 2.75 through mp 31.0). The actual proposed project runs along the Martinez Subdivision from the northern yard limits in Oakland (mp 2.75), through Stege in the city of Richmond (mp 9.35).

The purpose of the Martinez Subdivision Rail Improvements is to increase the capacity of the main line system between the Port of Oakland at Milepost 2.75, and Stege in Richmond at Milepost 9.35. This reach is key to the capacity of the entire Martinez Subdivision system which runs from Oakland to the Suisun Bay Bridge near Milepost 35. Through this short corridor the UP, Burlington Northern /Santa Fe (BNSF) and Amtrak run over 66 trains per day over two mainline tracks. The congestion and delays to all users can be severe. The Martinez Subdivision project will ensure that the railroads can continue to handle their current 30% share of the Port of Oakland container traffic and the anticipated growth to a 50% share, without bringing gridlock to the corridor. Local Port capacity improvements such as the Outer Harbor Intermodal Terminal, will have only a limited benefit if arrivals and departures on the Martinez Subdivision are constrained by the high level of traffic on the main lines.

The Port of Oakland's cargo volume makes it the fourth busiest container port in the United States, handling 99% of the waterborne goods moving through Northern California, the nation's sixth largest metropolitan market. The Port has been, and continues to be, the premier export seaport for California's agricultural goods from the Central Valley and the wine country. However, imports have grown by over 80% between 2001 and 2006, nearly 8 times faster than the growth in exports. The outsourcing of manufacturing to foreign countries with low labor costs, primarily in Asia, has increased trans-Pacific imports at the Port of Oakland and other ports of entry. The recent weakness in the dollar has led to faster growth in exports than imports in 2007, but the Port's continued strength in exports leaves it well positioned for the future with a healthy balance between exports and imports. The Port anticipates continuing to grow at four to five percent annually, reaching between five and six million TEUs around 2020- 2025. See Exhibit A.

Eight container terminals and two intermodal rail facilities currently serve the Port. The UP and BNSF railroad facilities are located adjacent to the heart of the marine terminal areas to provide a reliable and efficient movement of cargo between the marine terminals and the intermodal rail facilities. UP's existing intermodal rail facility at the Port is the "Railport Oakland" and BNSF's intermodal rail facility at the Port is the "Oakland International Gateway" (OIG). The rail facilities also serve regional or "transload" warehouse facilities. (Container goods are unloaded, sorted, consolidated and sometimes stored for short periods of time).

Current intermodal capacity at the Port is for 700,000 lifts (1 million TEUs) per year. The Port will need capacity to accommodate an additional 2 million TEUs per year to meet the projected rail volume of 3 million TEUs per year around 2020-2025. The Port seeks to respond with high priority rail development projects, coordinated with railroads and shipping lines. One element of the rail development is the Martinez Subdivision.

B. Project scope, function and anticipated benefits.

The Martinez Subdivision (Martinez) consists of the UP Right-of-Way (ROW) from the railroad terminals at the Port of Oakland (Port) the Suisun Bay railroad bridge spanning the Carquinez Strait (Railroad mile post (mp) 2.75 through mp 31.0). It currently serves the UP, BNSF and Amtrak. There are approximately 18 to 20 cargo trains per day on the system; however that number is expected to double by 2020. There are also currently 44 passengers' trains per day on the system.

The proposed project includes the addition of two additional mainline tracks from the Port of Oakland (milepost 2.75), to Stege in Richmond (milepost 9.35). The additional two mainline tracks will add the capacity to the system to allow the additional 22 freight trains per day anticipated by 2020. Further, the four tracks will open the possibility of dedicating one track to the passenger rail service, which will greatly enhance the movement of both passengers and cargo throughout the Martinez Subdivision. Doubling the current number of mainline tracks through the most congested portion of the corridor should close to double current capacity.

The project will also construct a numerous crossovers and additional signaling. Retaining walls would also need to be built to support the additional tracks. Further, in order to construct the Martinez Improvements, a number of utility corridors will need to be moved or strengthened and a portion of the Amtrak station in Emeryville will need to be relocated. Key to the capacity of the Martinez will be long and well designed tail tracks and switch leads (connections to the Oakland rail yards) to allow smooth transitions from the rail and storage yards, to the mainline Martinez system.

Currently, Amtrak runs as many as 44 trains per day while the remaining 22 trains are comprised of both the UP and BNSF trains. Although the Amtrak trains are relatively small, they move fast and need to keep to a specific schedule. The cargo trains are much longer and move slower. Having both types of trains on the same system makes it difficult to manage the needs of all the users. The nature of the longer slower trains and the smaller faster trains causes congestion. In the near future, it is anticipated that the container cargo traffic from Oakland will more than triple. The trains will get longer (from the current 5,000 ft to as much as 8,000 ft) and there will be more cargo trains (from 22, to 44 or more).

The Oakland to Stege is particularly problematic because all three railroads use this segment. Beyond Stege, the UP and Amtrak are the primary users. There are BNSF trains beyond Stege, but the majority of the BNSF traffic could enter and exit the system at Stege, which would reduce traffic on the Martinez (although running through Richmond is problematic), so traffic could generally be reduced beyond that point. The proposed Martinez improvements, between Stege and Oakland, are critical regardless of where the BNSF gets off the Martinez system.

Additional improvements beyond Stege may be necessary in the future depending if the BNSF and UP can agree on a better location for the BNSF to get off the Martinez system. See a map of the Martinez Subdivision in Exhibit B.

C. Project satisfies TCIF screening criteria

Eligibility: Included in appropriate adopted regional goods movement or transportation plan and has commitment of 1:1 funding match.

- Project is included in GMAP, Cal-MITSAC, trade infrastructure and goods movement plans adopted by regional transportation planning agencies, or an adopted regional transportation plan.

Project	GMAP	Cal-MITSAC	Adopted Regional Goods Movement Plan	RTP
Martinez Subdivision	X pp. V-4, V-23	X Jan 07, pg. 81		X proj # 22089

*****Check the box if Project is identified in the above plan.*****

Many of the regional transportation planning agencies in Northern California, led by the Metropolitan Transportation Commission, Sacramento Area Council of Governments (COG), San Joaquin COG, and Stanislaus COG have worked together to develop a Northern California Trade Corridors Strategy. This strategic vision, coupled with a specific program of projects, aims to address the growing needs of goods movement along the primary trade corridors in Northern California. The coalition is also supported by the six remaining Councils of Government in the Central Valley, including Kern County, the Ports of Oakland, Stockton and Sacramento, and business leaders from throughout Northern California. This coalition identified the Martinez Subdivision as a top tier priority for Northern California for the TCIF program.

- Specific description of entire cost

Project	Total project cost	TCIF request	Identified matching funds	State of matching funds*	Match source	Other funding	Source
Martinez Subdivision	\$215 million	\$107.5 million	\$107.5 million	Approved by Port	Railroads		

The commitment to match the TCIF funds will come from the railroads. The Port of Oakland is currently discussing the details of a match with the railroads and anticipates being able to provide further information within the prescribed time frame.

- Description of public benefit

The Port has been deepening its harbor to accommodate the newer, larger vessels. Along with the terminal enhancements the Port has made, this has positioned the Port to be able to bring in

first port-of-call vessels which enable more cargo to flow through the Port's facilities. However, to allow these improvements to deliver jobs, tax revenue and other benefits to the region and the state, the Port and the Railroads must also implement landside access improvements, such as the Martinez Subdivision. In addition, Martinez will enhance the following public benefits provided by the Port.

Job Growth. The Port of Oakland supports a significant economic base in the region. In addition to direct jobs at the waterfront, transportation workers, warehouses and retailers all are stimulated by the success of the commercial seaport. The growth of the Port is dependent on the ability to increase capacity, especially intermodal rail which is projected to grow significantly throughout the west coast over the next 10 to 15 years.

Lower Cost Goods. The people of the state of California benefit from additional freight rail capacity. Faster and more reliable movement of goods through Oakland will help reduce the cost of goods shipped to and from Oakland, helping to reduce the cost of products on store shelves, and the cost of exported products to foreign markets.

Regional Traffic Congestion. Keeping much of the Port traffic confined to the Port and the rail network that serves the Port keeps trucks off the road and allows vehicular traffic on the roads to move more efficiently. Adding more and more trucks only slows down our highways and everyone else who is on them. In addition, increasing capacity to the Martinez will greatly improve the service and dependability of the Amtrak passenger rail service along the corridor.

Air Quality Benefits. Rail transport produces less CO₂, less particulate matter and less nitrogen oxides than trucks on a ton-mile basis. The state will be able to breathe a little easier with more of our freight moving on the railroad instead of the highway.

Deliverability: See also Gant Chart in Exhibit C

The Martinez Subdivision project completed the preliminary engineering phase in May 2007, through joint discussions between BNSF, UP and the Port of Oakland. Based on the results of the preliminary engineering study, ROW surrounding the Martinez Subdivision, and the level of build-out of the adjacent properties through Oakland, Emeryville and Berkeley limited the ability to acquire additional land for track expansion. The design team determined that the OHIT project design would have to be further developed to address access to and from the main lines, considering the ROW restrictions. The OHIT-Martinez connection is expected to have an approved design in early 2008, with capacity modeling and cost-benefit analysis to follow immediately.

Multiple utilities, including fiber optic and fuel pipelines run through the railroad ROW. Prior to construction of the new track work, these utilities must be relocated or protected in place. Limited property acquisition will be required, specifically around Aquatic Park in Berkeley, and adjacent to the EBMUD wastewater treatment plant in Oakland. Construction is anticipated to approximately 3 years, and will commence in 2012.

D. Project addresses the TCIF evaluation criteria.

1. Freight System (Goods Movement)

- Throughput: Project provides for increased volume of freight traffic through capacity expansion or operational efficiency.

If the Port of Oakland continues to grow at its stable 4-5% cumulative annual growth rate, the intermodal rail carriers must be able to grow their intermodal rail service accordingly. The additional cargo can be handled by more trains, longer trains or a combination of the two. The railway is currently at or near capacity. The Port anticipates increasing the intermodal fraction of cargo from approximately 31% today to 50% by 2025, more than tripling the volume of cargo handled by rail to 3 million TEU. Even if the railroads were to increase their train carrying capacity by 50%, the Port will still experience more than twice as many intermodal trains through the Port complex and the UP main line.

If the Port cannot successfully secure the rail capacity, then more of this traffic will be routed by to other congested gateway Ports on the continent, or the cargo will be shipped by truck to regional intermodal terminals in the Stockton area, further impacting the regional highway network.

- Velocity: Project increases the speed of freight traffic moving through the distribution system.

The Martinez project will not increase velocity, rather, it will mitigate the potential decrease in velocity due to congestion on the corridor. While not yet quantified, the potential increase in delay would result in a reduction in the fraction of containers brought in and out of the Port complex by train, increasing the volume of containers brought in and out of the Port by truck.

Once the approximately 10 to 15 BNSF trains leave the Martinez Subdivision, congestion is greatly reduced. Over this section of track, speeds can exceed 35 miles per hour. However, the current heavy congestion prevents maximum speed and efficiency. Increasing the numbers of trains without commensurate increases in the mainline capacity will lead to even greater delays and perhaps complete shut downs greatly increasing impacts to the local community and environment.

- Reliability: Project reduces the variability and unpredictability of travel time.

In order to optimize cargo movement from Oakland, the railroads need to be able to move double-stacked cargo trains in the range of 8,000 feet in length. The current 2-mainline configuration of the Martinez Subdivision is not capable of moving the approximately 40 8,000 ft long cargo trains as well as an equal number of smaller, but faster passenger trains. Increasing the mainline capacity to the point that the BNSF moves off the Martinez system and onto their own transcontinental rail line at Richmond by running through (or eventually around) Richmond is necessary to avoid unexpected blockages and accompanying delays.

2. Transportation System (Priorities)

- Safety: Project increases the safety of the public, industry workers, and traffic.

As currently projected, there will be an additional 20 trains per day on the Martinez. The risk to the public from these additional trains will be mitigated in two ways. First, the project includes improved signaling which will provide an added layer of safety for the at-grade crossings. In addition, although not part of the overall project, the Port of Oakland is planning a program of funding through various sources, grade separation projects for key at-grade crossings along the Martinez. It is anticipated that as a requirement of providing at-grade crossings, the local municipality would need to remove an additional at grade crossing thereby eliminating two or more at-grade crossings for every grade separation project. In total, this program will greatly reduce the overall risk to the public.

The increase in the number of trains per day will be primarily due to containerized cargo from the Port of Oakland. Although there is some cargo that is considered hazardous, the majority of the cargo being moved will not constitute hazardous cargo. The small percentage of hazardous cargo will be in the form of computer equipment and other types of “low risk” materials. We do not anticipate an increase in the movement of tank cars or other bulk hazardous material moves.

- Congestion Reduction/Mitigation: Project reduces daily hours of delay on the system and improves access to freight facilities.

In 2006, approximately 31 percent of the Port’s total container traffic was transported by rail through its intermodal rail yards. As the Port grows, it anticipates that the percentage of intermodal cargo would increase to around 50 percent. Increasing intermodal transport will reduce the relative volume of Port containers transported by truck on regional roadways. The existing highway transportation system serving the Bay Area is constrained. Anticipated increases in cargo throughput in the next five to twenty years could induce a considerable amount of truck traffic onto the transportation system. Any cargo that is moved by train from the Port benefits the overall transportation system by reducing truck trips to or from the Port of Oakland.

Every train that is loaded at the Port can eliminate 750 truck trips considering westbound and eastbound cargo, bob-tail moves associated with one-way truck trips, and chassis repositioning required with off-dock transfers. This calculation makes the following assumptions, which are conservative to avoid overestimating truck reduction benefits: eastbound train carries 280 containers, westbound carries 240 containers, bob tail moves add 35% and chassis repositioning adds 10% to the total truck trips. The Port intermodal yards could eliminate over 10,000 truck trips for every 3,500 intermodal containers unloaded and 3,000 intermodal containers loaded at the wharf. In addition, the rail diversion due to OHIT, which will be optimized by improvements such as Martinez, is projected to remove approximately 1.5 million annual truck trips and over 120 million VMT from the regional street and highway network.

- **Key Transportation Bottleneck Relief:** Project relieves key freight system bottlenecks where forecasts of freight traffic growth rates indicate infrastructure or system needs are inadequate to meet demand.

The long-term Portwide rail capacity demand is in the range of 3.0 million TEUs. This demand can be addressed by throughput capabilities at the two existing rail facilities combined with the potential capability of the OHIT facility and accompanying downstream rail improvements, such as Martinez. The existing OIG and Railport facilities handle approximately 1.0 million TEUs. The proposed rail improvements are estimated to provide approximately 1.8 million TEUs of capacity at full build-out.

The limiting element to growth at the Port of Oakland is intermodal rail service. Shippers continue to demand high volume intermodal service corridors between the Pacific Coast and the middle and eastern United States. Intermodal capacity is much higher in Southern California, however, the intermodal facilities and rail connections are nearing their full capacity. Oakland has seen only limited intermodal capacity growth because of its relatively low capacity to handle intermodal cargo. Construction of the proposed Martinez Subdivision will provide significant capacity in Oakland to handle a larger share of the international container traffic handled by rail. Greater capacity in Oakland will incrementally reduce congestion in the Los Angeles / Long Beach ports as they have been absorbing the lion's share of intermodal traffic for the entire continent.

- **Multi-modal Strategy:** Project employs or supports multi-modal strategies to increase port and transportation system throughput while reducing truck vehicle miles/hour traveled (VMT/VHT).

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- **Interregional Benefits:** Project links regions/corridors to serve statewide or national trade corridor needs.

The Martinez Subdivision Project will improve the efficiency of Northern California's freight rail service, which is part of the transcontinental freight rail system. This will decrease the burden borne for such service by Southern California ports and communities, while increasing the West Coast's ability to accommodate increased transcontinental freight rail traffic.

Martinez will improve velocity of trains passing through the region to and from the Port, thereby creating a reduced impact (noise, congestion, air emissions from waiting vehicles at crossings) upon the communities located along the corridor.

Increased rail throughput allowed by this project will minimize the necessity of trains needing to wait at various locations along the UP mainline to Sacramento and Roseville for congestion to clear in the Oakland vicinity.

Freight trains moving inbound containers to logistics centers in the Central Valley and moving California's valuable agricultural exports to Oakland for shipment overseas will be able to transport goods to their destination more expeditiously.

Both freight and passengers, a number of whom commute daily between the Central Valley and the Bay Area will be able to move more quickly and reliably with the capacity and velocity improvements along the Martinez Subdivision.

3. Community impacts

- Air Quality Impact

With development of rail enhancements, the Port of Oakland will be prepared to efficiently handle intermodal cargo growth through the foreseeable planning horizon while minimizing environmental impacts. Although there will be as many as 20 additional trains per day, the amount of cargo being moved for the same impact will be greatly increased. The train length will grow from the current approximate 5,000 ft in length, to closer to 8,000 ft. This will add over 50% more cargo per train for the same air quality impact. We further anticipate that the train engines that will be used will over time be converted to newer and lower emission engines. The trucks themselves and the traffic caused by those additional trucks will cause air quality impacts far in excess of the more efficient rail program.

The Martinez is currently constrained and will be more constrained without additional track improvements. The route is forecasted to have 44 passenger and 22 freight train movements. The benefits of the proposed rail improvements are projected to improve the delays by 1 hour per train. To estimate the environmental air quality benefit of the proposed Martinez improvements, we focused our analysis on total delays as applied to the fleet emission rates at idle. The passenger trains were assumed to have one locomotive per train and freight locomotives were projected to have 3 locomotives per train though often more than 3 per train are used.

The total delay was applied to the fleet average emissions rates at idle calculated for the fleet averages in 2015, 2020, and 2030. Using these emission factors and 110 locomotives (44 passenger and 66 freight locomotives) per day using this corridor each with an hour delay (40,150 locomotive idling hours annually), the total emissions and emission benefits from the rail capacity improvement is shown in Exhibit D.

- Community Impact Mitigation

There are a variety of potential community impacts that could occur due to the project above and beyond the traffic safety impacts that were described above in the section addressing Safety and Air Quality.

Train operators are required by regulation to blow their horns at all at-grade crossings and near any limited visibility curve, especially in populated areas. An added benefit to the program of reducing at-grade crossings is that quiet zones can be established along the Martinez where it will no longer be necessary for trains to blow their horns. Depending on the number of at-grade crossings eliminated, long runs of as much as 5 city blocks can be converted to quiet zones.

Traffic will also be mitigated in two ways. First, the grade separation program will eliminate several at-grade crossings which will eliminate some traffic delay that exists today. Further, the Martinez upgrades will help increase train speed and therefore each train will move through the at-grade crossings faster, causing less delay.

Prior to construction of OHIT and the Martinez improvements, the Port will establish a 15 acre parcel within the development for local truck parking and trucking related services. The 15 acre parcel will be provided in combination with a similar sized parcel adjacent to the Port of Oakland within the City of Oakland's East Gateway portion of the former Oakland Army Base. The combined 30 acres of truck parking will help to minimize the number of truck related businesses in surrounding residential communities.

The Port also has implemented a Truck Management Plan, which includes grants to truckers for the purchase of cleaner burning diesel engines that meet today's emissions standards. This program helps to reduce smog from older, higher pollution truck engines with more efficient, less polluting new vehicles. This program reduces the pollutants produced at the Port from older trucks.

- Economic/Job Growth

Over the last few years, the Port of Oakland has been deepening its harbor to accommodate the latest generation of larger container shipping vessels. Along with recent Port-funded terminal enhancements, including redevelopment of former military facilities, the harbor deepening has positioned the Port to be able to bring in first port-of-call vessels that enable more cargo to flow through the Port's facilities. The Port's proposed Outer Harbor Intermodal Terminal (OHIT) rail yard in the Port area will help funnel cargo containers into the freight rail system to minimize the congestion and air quality impacts of trucking. Construction of the Martinez subdivision rail project will provide an essential link to expedite movement of cargo through the region by rail to deliver jobs, tax revenue and other benefits to the region and the state.

Construction of the Martinez subdivision rail project is anticipated to require hundreds of construction workers for a period of approximately three years. Local residents in the

communities surrounding the Port and the region will benefit the most from employment in the construction jobs needed to rebuild and expand the rail line. Rail operations on the Martinez line, which serves the Port of Oakland and Union Pacific rail yards, will support a wide range of maritime industry jobs, including railroad, ILWU longshore, trucking, tug companies, freight forwarders and shipping agents, warehousing, container repair and leasing, ship pilots and terminal employees. Furthermore, the Martinez subdivision rail project will benefit the Port and community by bringing continued trade growth and economic benefits to the region, including support for jobs in the region's and payments to local and state tax revenues.

To ensure that local residents benefit from growth in international trade, the Port's Employment Resources Development Program (ERDP) conducts extensive outreach to match Oakland residents with jobs provided by Port tenants. ERDP staff work closely with local job seekers to improve their skills and provide training opportunities. In addition to providing employment services, ERDP also helps educate local youth on Port development and career opportunities by coordinating with schools and training programs for internships within the Port. To promote career opportunities in logistics and transportation, ERDP works with the Chambers of Commerce, local government, education and community agencies to address specific issues related to workforce and economic development. See Exhibit E for more information regarding economic impacts of Martinez.

EXHIBIT A

Port of Oakland Container Thruput History (1985-2006)
and 2025 Forecast

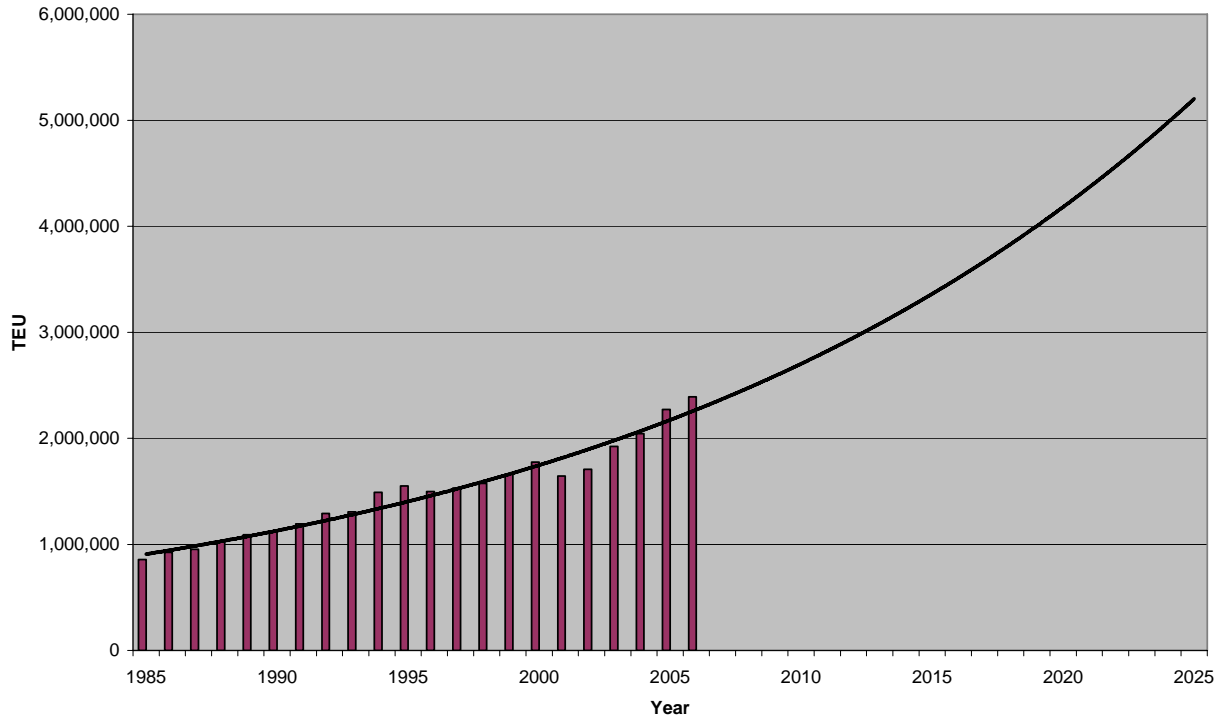
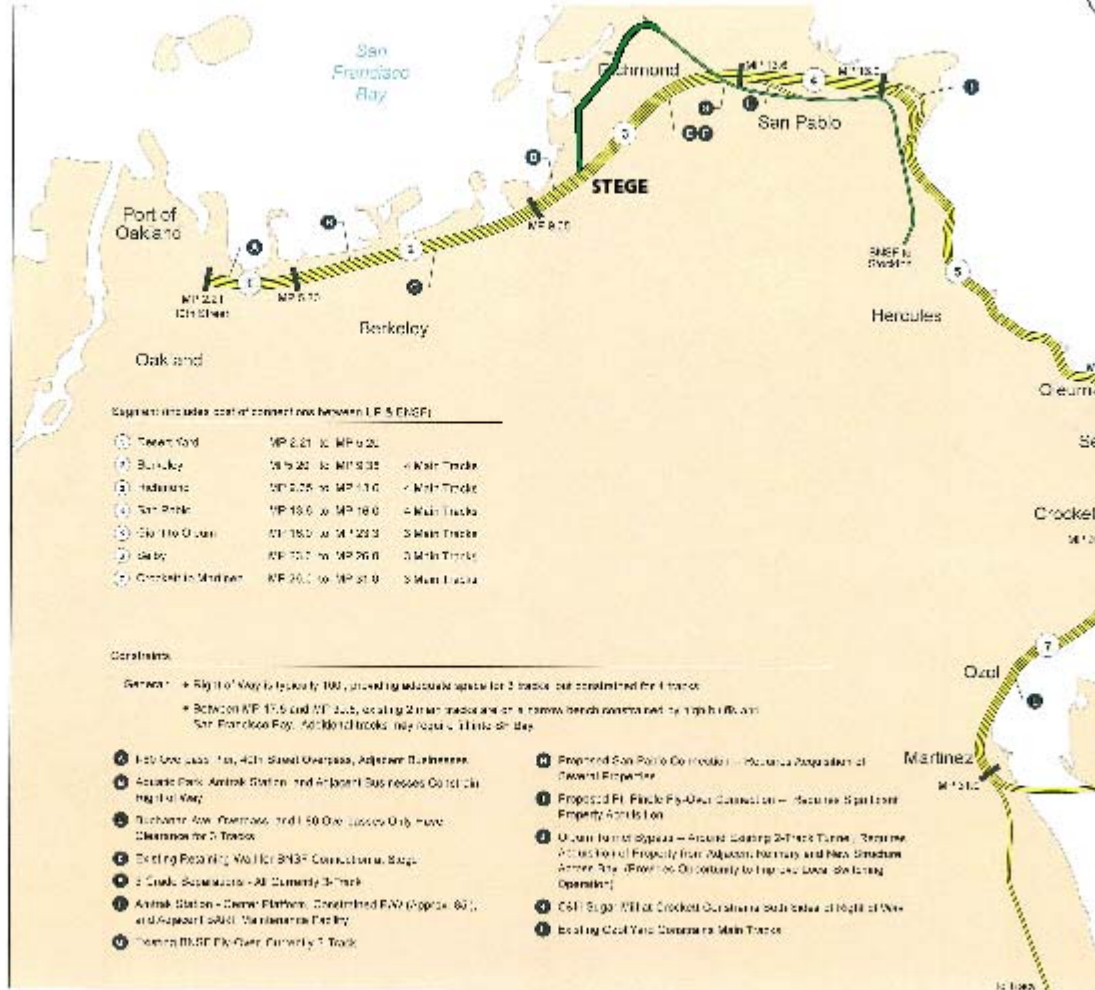


EXHIBIT B

PROJECT MAP

MARTINEZ SUBDIVISION RAIL IMPROVEMENTS



Segment includes total of proposed tracks between SF 5 and SF 5E

①	Taneyford	MP 2.21 to MP 0.20	4 Main Tracks
②	Buena Vista	MP 0.20 to MP 0.00	4 Main Tracks
③	Indians	MP 0.00 to MP 11.0	4 Main Tracks
④	San Pablo	MP 18.0 to MP 16.0	4 Main Tracks
⑤	San Francisco	MP 18.0 to MP 12.0	3 Main Tracks
⑥	Sally	MP 10.0 to MP 9.0	3 Main Tracks
⑦	Comstock Station	MP 9.0 to MP 8.0	3 Main Tracks

Legend

- ② Corridor boundary
- ① Segment boundary
- Segment boundary
- 4 Main Tracks
- 2 Main Tracks

Corollaries

- ① Right of Way to be approximately 100', providing adequate space for 2 tracks but constrained for 4 tracks
- ② Between MP 17.5 and MP 12.5, existing 2 main tracks are on a narrow bench connected to right of way on San Francisco Bay. All Main Tracks may require 1/2 mile shift.
- ③ 1.50 Overpass - 1st, 4th Street Overpass, Adjacent Businesses
- ④ Access Road, Amtrak Station, and Adjacent Businesses Corridor along Right of Way
- ⑤ Buckhorn Ave. Overpass, and 1.50 Overpass Only have Clearance for 2 Tracks
- ⑥ Existing Right of Way for BNSF Construction, Stage
- ⑦ 2 Cuts, Sacramento - All Currently 3 Track
- ⑧ Amtrak Station - Same Platform, Streamlined Fwy (Approx. 60') and Adjacent BNSF Warehouse Facility
- ⑨ Former BNSF Flyover, Currently 1 Track
- ⑩ Proposed San Pablo Corridor - Requires Relocation of Current Property
- ⑪ Proposed Ft. Point Flyover Construction - Requires Relocation Property Acquisition
- ⑫ Union Tunnel Upgrade - Around Existing 2-Track Tunnel - Requires Acquisition of Property from Adjacent Property and New Structure Above the Flyover. Opportunity to improve local delivery operations
- ⑬ CSF Signal Box at Crockett Overpass, subgrade at height of New
- ⑭ Existing Coal Yard Overpass, Main Tracks



EXHIBIT C

PROJECT SCHEDULE

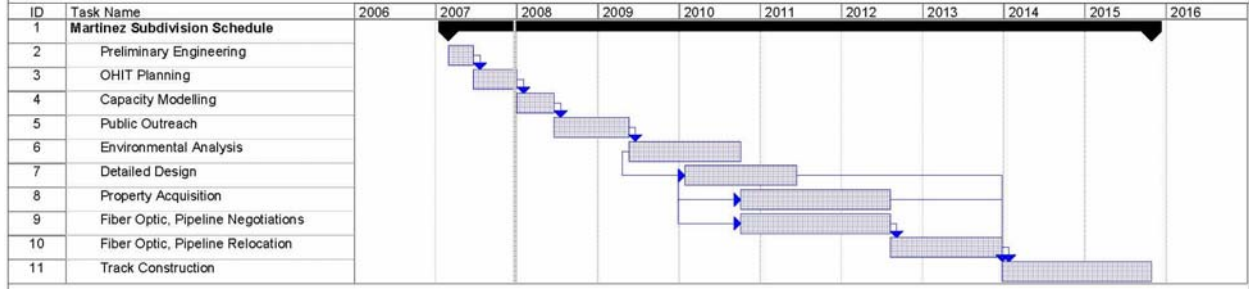


EXHIBIT D

AIR POLLUTION MITIGATION

Emissions and benefits of rail capacity improvements

Calendar Year	Idle Emissions (grams/hour) and Fuel consumption (lb/hr)				
	HC	CO	NOx	PM	Fuel
2015	48.7	80.7	601	13.3	23.1
2020	33.2	55.2	482	10.2	22.1
2030	14.0	35.7	221	4.2	20.1
Emission benefit (tons/year)					
Calendar Year	HC	CO	NOx	PM	CO2
2015	2.2	3.6	26.6	0.6	1,477
2020	1.5	2.4	21.3	0.5	1,413
2030	0.6	1.6	9.8	0.2	1,285
Cumulative Benefit 2015 – 2030	21 (ROG* = 26)	38	299	6.3	22,160

*ROG is 1.21 times HC

Therefore, referring to the last row of thi table, we can estimate that the proposed project would avoid the emission of 26 tons of ROG, 38 tons of CO, 299 tons of NOx, 6.3 tons of PM, and 22,160 tons of CO2.

EXHIBIT E

ECONOMIC BENEFITS OF THE MARTINEZ SUBDIVISION
(AS ENHANCEMENT TO OHIT)

Job Category	Number Generated
Direct jobs	3,773
Induced jobs	5,152
Indirect jobs	3,437
Total jobs	12,362

Income Category	Dollars (millions)
Direct personal earnings	\$169.1
Responding and consumption	\$456.9
Indirect income	\$141.8
Total income	\$767.8

Direct Local Economic Impact	Dollars (millions)
Business revenue	\$1,582.2
Local purchases	\$375.8
State & local taxes	\$79.1