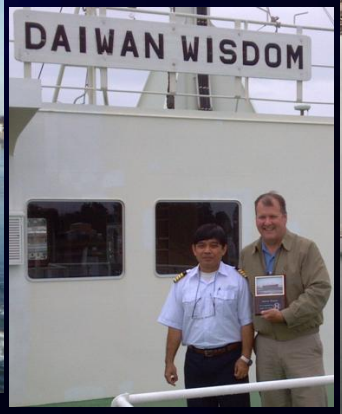
SHIPPING and COMMERCE



Cargo Tonnage: 200,000 – 1,200,000 MT/YR

Export: logs and wood chips

Import: gas/diesel; logs; wood chips

- 2008- +/- 200,000 MT/YR
- 2011- +/- 500,000 MT/YR
- 2014 - +/- 1,000,000 MT/YR

Sierra Pacific Industries

- 3 Approach Ramps
- 475 ft. in Length
- 15 Acres
- Barging Chips only
- Log export restriction

California Redwood Co.

- 1 Approach Ramp
- 1,346 ft. in Length
- 17+ Acres
- Chip Export only

Schneider Dock

- 1 Approach Ramp
- 400 ft. in Length
- 16+ Acres
- Log Export

Fairhaven Terminal

- 1 Approach Ramp
- 500 ft. in Length
- 32 Acres
- Log Export

•2 Approach Ramps
•1,064 ft. in Length
•20 Acres

Freshwater Tissue

•156 Upland Acres

Redwood Terminal Berth 1

Redwood Terminal Berth 2

•1 Approach Ramps
•1,300 ft. in Length
•0 Acres

Stand-alone Multipurpose Berth

Minimum Requirements

- Solid Multipurpose Cargo Dock
- 38’ Feet of Water alongside Pier to Channel
- 100 Acres upland Property for Cargo Staging
- Two Access Points Preferred
- Trained Labor Force/Crane Operators

Container on Barge

Cargo Dock

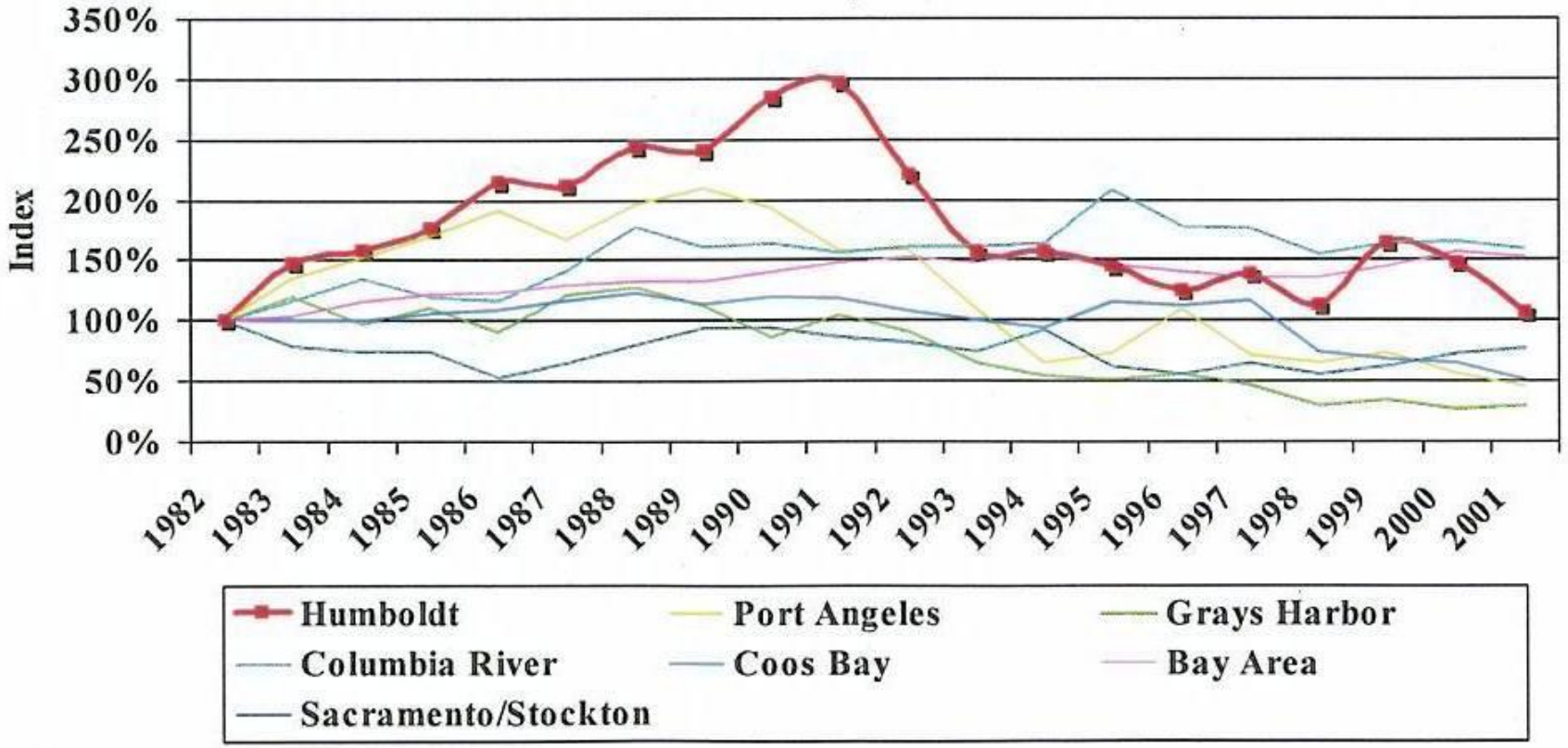
Local Bulk/Project Cargo

How competitive are we?

- Inefficient access-40% Higher labor cost
- Shortage of experienced Longshoremen
- Wood product cost higher-short harvest season
- Draft limits-can’t fully load vessels-2nd Port call
- Ship size limited due to Tug horse power
- Lack of Public Docking facility-Open access
- Road access limited and no Rail system

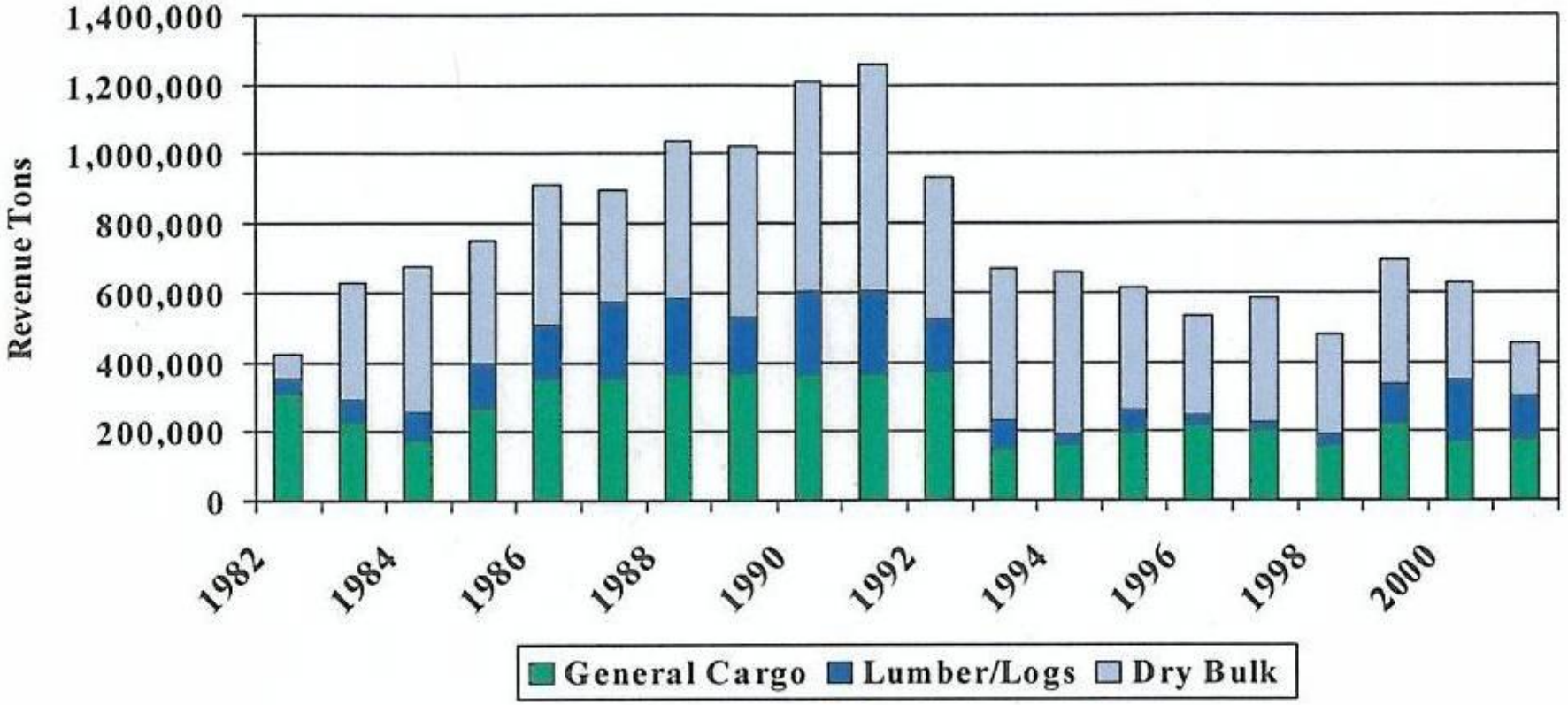
Comparative Cargo Trends Among Selected Ports

Source: BST Associates using PMA data



Humboldt Bay Cargo Trends

Source: BST Associates using PMA data



CALIFORNIA ASSOCIATION OF PORT AUTHORITIES
Metric Revenue Tons
TOTAL TONNAGE FOR 2011-12

Rank	Port	Tonnage	Change From: Last Year	Change From: Ten Years Ago	Market Share: This Year	Market Share: Last Year	Market Share: Ten Years Ago
1	Los Angeles	170,904,406	8.0%	15.8%	47.1%	45.0%	48.33%
2	Long Beach	148,609,793	-3.0%	18.3%	40.9%	43.5%	41.15%
3	Oakland	32,287,606	1.9%	45.1%	8.9%	9.0%	7.29%
4	San Diego	2,920,338	0.6%	14.9%	0.8%	0.8%	0.72%
5	Stockton	2,652,153	31.7%	46.5%	0.7%	0.6%	0.59%
6	Redwood City	1,609,237	84.6%	44.8%	0.4%	0.2%	0.36%
7	Hueneme	1,317,717	7.6%	15.0%	0.4%	0.3%	0.38%
8	San Francisco	1,088,272	42.5%	-47.1%	0.3%	0.2%	0.67%
9	West Sacramento	805,536	49.7%	4.7%	0.2%	0.2%	0.25%
10	Humboldt	491,863	59.5%	-41.4%	0.1%	0.1%	0.24%
11	Richmond	235,127	14.0%	182.4%	0.1%	0.1%	0.03%
	Total Tonnage	362,922,048	3.1%	18.9%	100%	100%	100%
	Region:						
	Southern California	323,752,254	2.6%	17.1%	89.2%	89.7%	90.6%
	Northern California	39,169,794	7.6%	36.0%	10.8%	10.3%	9.4%
	Size:						
	Large (LB, LA, Oak.)	351,801,805	2.5%	19.1%	96.9%	97.5%	96.8%
	Small (Others)	11,120,243	26.1%	12.4%	3.1%	2.5%	3.2%

Humboldt Bay Rail Concept Level Construction Cost and Revenue Analysis

DRAFT

PREPARED FOR

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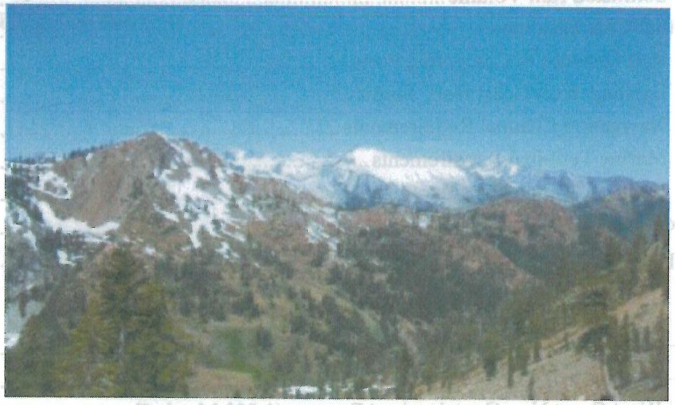
July 17, 2013



BST Associates
Market Research & Strategic Planning

Humboldt Bay Alternative Rail Line Conceptual Analysis

Humboldt Bay Harbor, Recreation and Conservation District

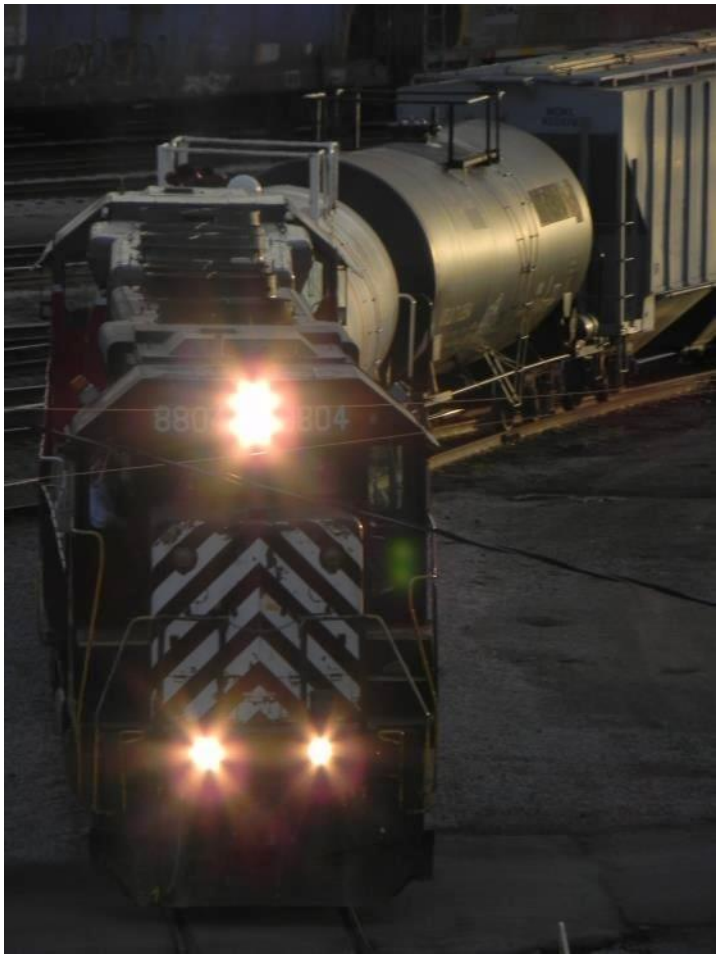
July 25, 2013

BST Associates
Market Research & Strategic Planning

Burgel Rail Group

Agenda

- Scope of analysis
- Draft results
- Conclusions



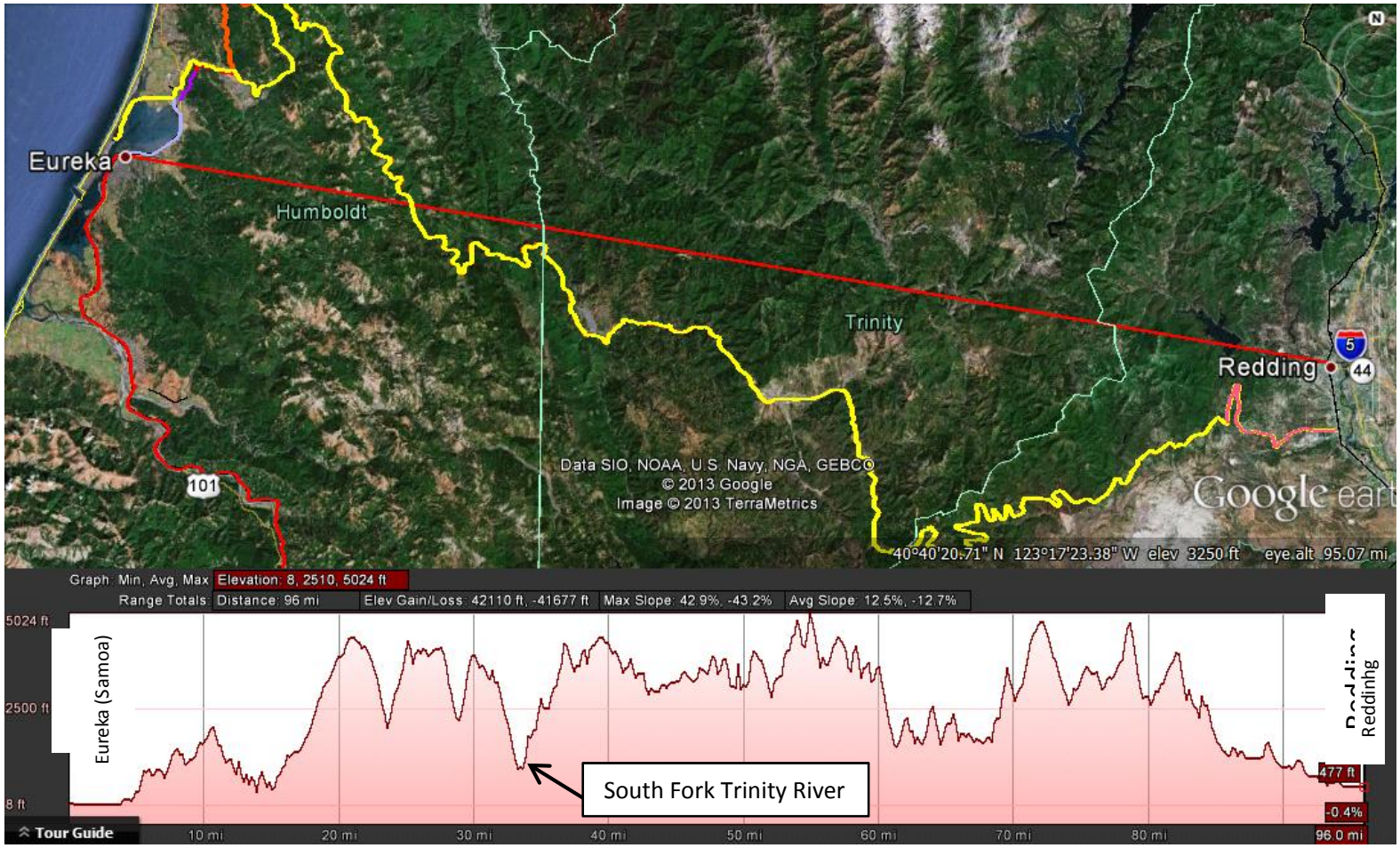
Scope of Analysis

- Develop cost estimates
  - East-West
    - Layout potential east-west rail alignments
  - North-South
    - Re-construct north-south line
- Cargo analysis
  - Assess theoretical cargos
    - Major rail-transported export commodities
    - Representative inland origins
  - Estimate net cargo revenue
  - Estimate needed cargo volumes

Cost Analysis

- East-west line parameters
  - 40 mph operating speed
  - Maximum 1.5% grade
  - Clearance for double-stack containers
  - Support 286K loading
- North-south line parameters (40 mph?)
  - Re-construct NWP line to Windsor
  - Clearance for double-stack containers
  - Support 286K loading

Topography of Potential East-West Rail Route

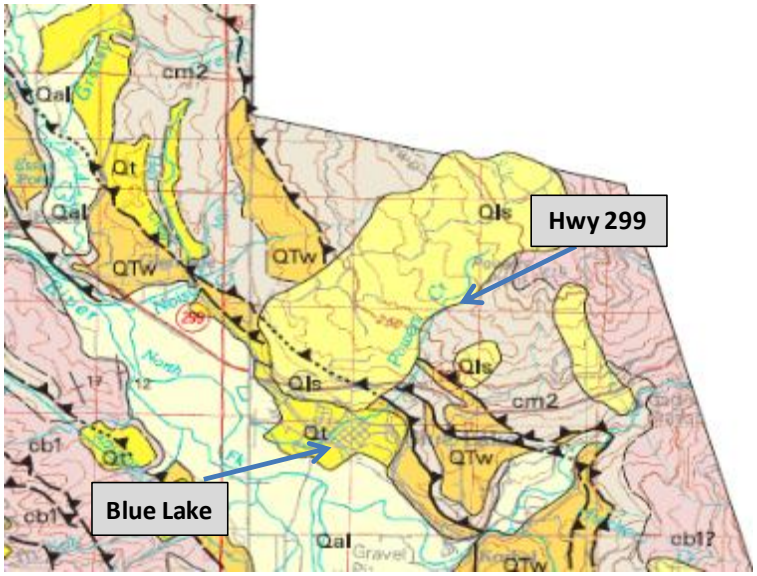


Rail Alignment Methodology

- Aerial inspection of potential routes
- Driving inspection of potential routes
- Google Earth
- USGS quadrangle maps & geology reports
- Existing reports
- Lentell alignment

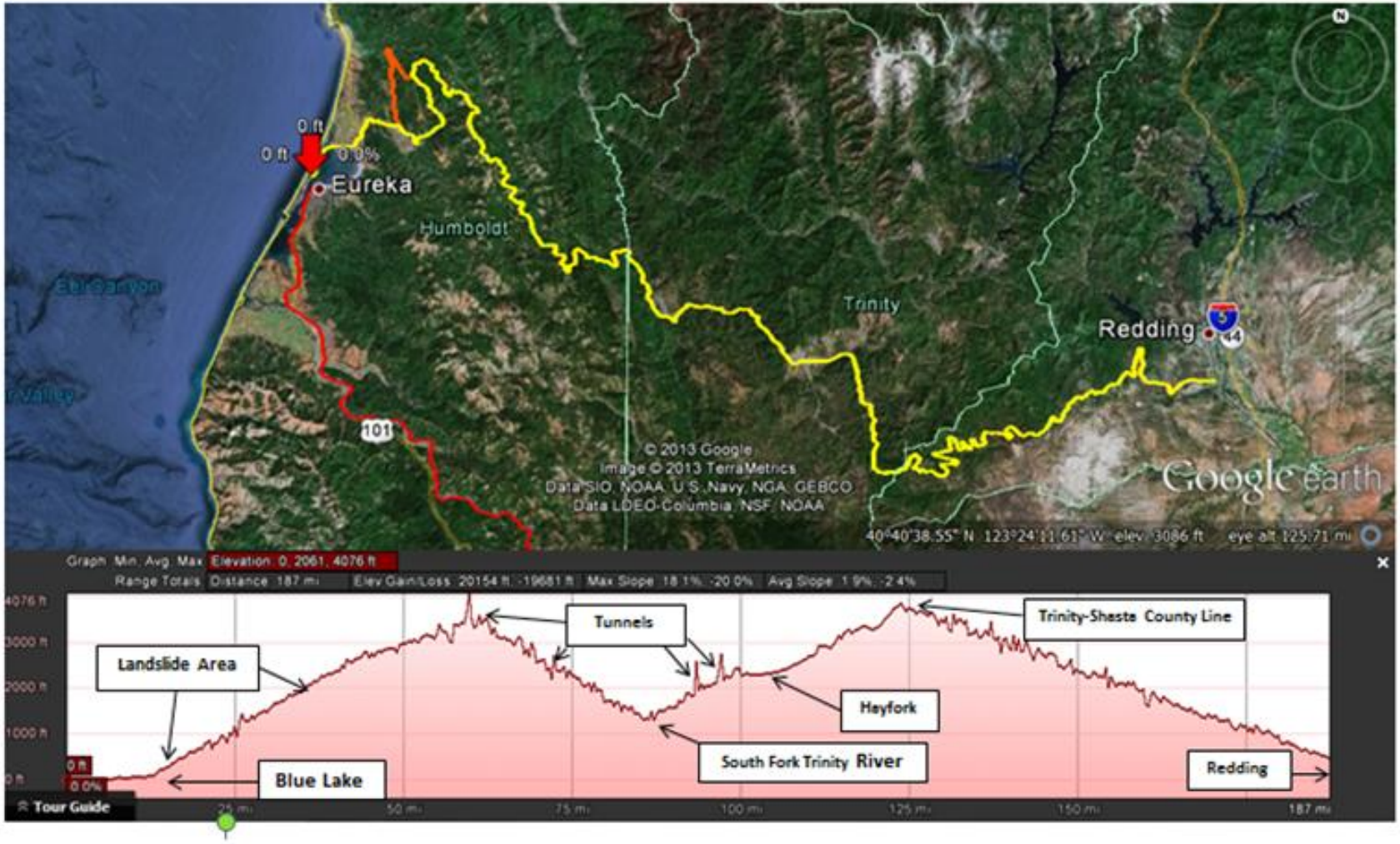
Major Issues Impacting Alignments

- Topography
  - Numerous peaks and valleys over short distances
  - Steep slopes
- Unstable geology
- Wild & Scenic Rivers



Portion of Geologic Map near Blue Lake

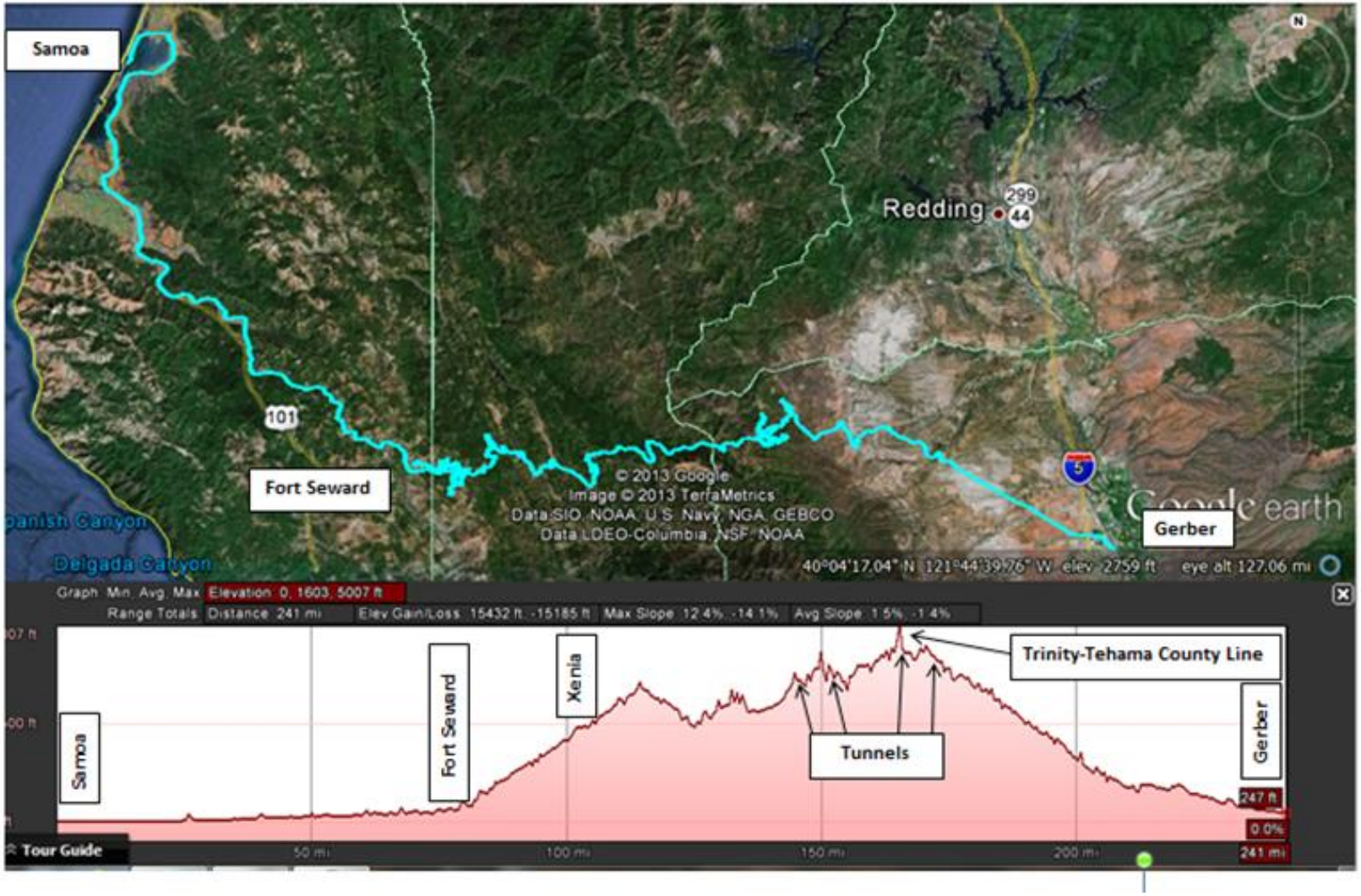
Rail Route 1


0 ft
0 ft
0.0%
Eureka
Humboldt
Trinity
Redding
101
© 2013 Google
Image © 2013 TerraMetrics
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data LDEO-Columbia, NSF, NOAA
Google earth
Graph: Min, Avg, Max Elevation: 0, 2061, 4076 ft
Range Totals: Distance 187 mi
Elev Gain/Loss: 20154 ft, -19681 ft
Max Slope: 18.1%, -20.0%
Avg Slope: 1.9%, -2.4%
Tunnels
Trinity-Shasta County Line
Landslide Area
Hayfork
South Fork Trinity River
Blue Lake
Redding
Tour Guide

Rail Route 2


Eureka
Humboldt
Trinity
Redding
199 mi
Image © 2013 TerraMetrics
© 2013 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Google earth
101
Graph Min Avg Max Elevation 0 1868 3946 ft
Range Totals Distance 199 mi Elev Gain/Loss 19054 ft -18580 ft Max Slope 23.8% -22.1% Avg Slope 1.7% -2.0%
Samoa
Alton
South Fork Mountain
Platina
Redding
Tour Guide
25 mi
50 mi
75 mi
100 mi
125 mi
150 mi
175 mi
199 mi

Rail Route 3


Samoa
Redding
299
44
101
Fort Seward
© 2013 Google
Image © 2013 TerraMetrics
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data LDEO-Columbia, NSF, NOAA
Google earth
Gerber
40°04'17.04" N 121°44'39.76" W elev 2759 ft eye alt 127.06 mi
Graph: Min, Avg, Max Elevation: 0, 1603, 5007 ft
Range Totals: Distance: 241 mi Elev Gain/Loss: 15432 ft, -15185 ft Max Slope: 12.4%, -14.1% Avg Slope: 1.5%, -1.4%
Samoa
Fort Seward
Xenia
Tunnels
Trinity-Tehama County Line
Gerber
247 ft
0.0%
241 mi
Tour Guide
50 mi
100 mi
150 mi
200 mi

NWP Alignment

Summary of Rail Route Alignments

Alignment	End	Mileage	Comments
Lentell #1	Redding	193.8	1.5% grade used east of Hayfork
Route #1	Redding	188.5	Avoids landslide area north of Blue Lake
Route #1	Red Bluff	200.5	
Route #1	Gerber	208.6	
Lentell #2	Redding	212.6	Generally follows Hwy 36, 1.5 mi long tunnel under South Fork Mountain
Lentell #2	Gerber	212.6	1.5 mi long tunnel under South Fork Mountain
Route #2	Redding	200.1	Generally follows Hwy 36 to Platina
Route #2	Red Bluff	211.6	Generally follows Hwy 36 to Red Bluff
Route #2	Gerber	220.6	1.4 mile long tunnel near Black Rock Mtn.
Route #3 Southern/ Eel Canyon	Gerber	257.9	Departs from NWP alignment at Fort Seward; 1.4 mile long tunnel near Black Rock Mtn.
North-South Route	Windsor	214.0	Connects with NCRA at Windsor.

Capital Cost Components

- Track: $1.0 million per mile
- Grading:
  - $1.5 million per mile – flat terrain
  - $3.0 million per mile – mountainous terrain
- Bridges: $10,000 per linear foot
- Tunnels: $13,000 per linear foot
- Landslide mitigation: $1.0 million per mile
- Property: $25,000 per acre, 100 feet wide
- Not included in cost estimate
  - Contingency, engineering and design, environmental mitigation, sidings, switching yard and port facilities, interchange in Sacramento Valley

Summary of Capital Costs by Route

Rail Route	From	To	Total Length (miles)	Total Cost ($ million)	Cost per mile ($ million)
Lentell #1	Samoa	Redding	194	$1,080	$5.60
Lentell #2	Samoa	Redding	213	$1,234	$5.80
	Samoa	Gerber	217	$1,166	$5.40
RR #1	Samoa	Redding	189	$1,067	$5.60
	Samoa	Red Bluff	201	$1,127	$5.60
	Samoa	Gerber	209	$1,239	$5.90
RR #2	Samoa	Redding	200	$1,066	$5.30
	Samoa	Red Bluff	212	$1,095	$5.20
	Samoa	Gerber	221	$1,197	$5.40
RR #3 Eel Canyon	Samoa	Gerber	241	$1,203	$5.00
Restore North-South	Samoa	Windsor	214	$0.609	$2.80

Financial Analysis

- Potential cargo types
- Estimate cargo revenue
- Compare revenue and costs
- Estimate needed cargo volumes

Potential Cargo

- Focus on rail-served exports
  - High volumes
  - Strong growth
  - Existing movements
- Sacramento Valley products

West Coast Non-Containerized Exports

(1,000 metric tons)

Rank	Description	2009	2010	2011	2012
1	Wheat	9,540	10,850	13,500	12,440
2	Soybeans	9,710	10,480	7,960	10,780
3	Petroleum Coke	7,370	7,240	7,670	8,120
4	Petroleum Oils	7,270	6,440	8,010	7,960
5	Corn	8,540	9,920	9,200	5,670
6	Waste Paper	4,810	4,830	6,040	5,640
7	Ferrous Waste	5,510	5,470	6,280	5,290
8	Logs	2,240	3,910	5,820	4,930
9	Carbonates	2,120	2,680	2,730	3,170
10	Hay, Feed	1,170	1,250	1,410	1,710
11	Potassic Fertilizer	1,030	2,500	2,590	1,670
12	Coal	140	620	1,230	1,620
13	Wood Chips	1,070	1,610	1,540	1,360
14	Iron Ore	-	200	1,520	1,270
15	Distilling Dregs	510	1,230	710	1,140

Source: U.S. Department of Commerce

U.S. Non-Containerized Exports to Asia

(1,000 metric tons)

Rank	Description	2009	2010	2011	2012
1	Coal	4,480	8,560	15,760	16,350
2	Corn	23,700	24,430	20,570	12,480
3	Wheat	7,530	8,500	10,020	10,060
4	Petroleum Oils	7,730	8,350	7,760	7,680
5	Petroleum Coke	5,600	4,950	5,300	7,490
6	Soybeans	5,690	5,620	4,200	5,200
7	Ferrous Waste	5,670	5,220	5,520	5,150
8	Logs	2,350	2,480	2,510	2,630
9	Coal Distillate	3,210	3,370	3,340	2,470
10	Carbonates	1,020	1,460	1,480	1,710
11	Mineral Fertilizers	3,880	2,960	2,470	1,460
12	Waste Paper	1,260	1,160	1,310	1,230
13	Distilling Dregs	770	1,100	940	1,160
14	Wood Chips	940	1,480	1,320	1,120
15	Oil Seed Meal	150	150	230	1,060

Source: U.S. Department of Commerce

Rail Cargo Terminating on Coasts

(1,000 metric tons)

Rank	Description	2011
1	Coal	123,468
2	Aggregates	35,648
3	Corn	20,432
4	Plastics	17,784
5	Wheat	17,624
6	Alcohols	13,983
7	Soybeans	10,121
8	Fiberboard & paperboard	6,046
9	Liquefied gases	5,497
10	Soybean cake	3,959
11	Lumber	3,722
12	Sodium compounds	3,690
13	Steel scrap	3,674
14	Vehicles	3,473
15	Potassium compounds	3,404

Source: Surface Transportation Board data

Rail Volume Requirements

- Rail operating & maintenance costs
- Rail revenue
- Net revenue
- Volume required for debt coverage

Rail Operating Costs

USRail.desktop

- USRail.desktop model
  - Based on STB Uniform Rail Costing model
  - Widely used in rate negotiations
- Model estimates variable cost of rail service
  - Fuel cost, labor, road locomotive, switching, equipment costs, and track & right of way maintenance

Inputs to Cost Model

- Selected major rail-transported exports
  - Grain (corn, wheat)
  - Minerals (coal, potash, soda ash, iron ore)
- Used key origin points (from STB data)
- Estimated total cost based on cost per ton-mile
  - For east-west alignments
    - USRail.desktop ton-mile cost to Gerber
    - Estimated from Gerber to Samoa based on additional mileage
  - For north-south alignments
    - USRail.desktop ton-mile cost to Windsor
    - Estimated from Windsor to Samoa based on additional mileage

Sacramento Valley Cargo

- Major source of agricultural exports
- Competition from existing ports
  - Sacramento
  - Stockton
  - Richmond
  - Oakland
- Relatively short move for rail
- Little or no rail distance advantage to Samoa

Miles to Port

Inland Location	Samoa	Richmond	Oakland	West Sacramento
Redding	189	178	192	161
Red Bluff	201	143	157	126
Gerber	209	133	147	116

Rail Revenue Estimate

- Based on Revenue to Variable Cost ("RVC") ratio
  - Calculated by STB
  - Updated annually
  - Differentiated by commodity type
- Rates greater than 180% RVC are subject to potential STB review for being unreasonably high

Estimated Railroad Cost and Revenue

Origin	Gerber to Samoa Cost/ ton-mile	Gerber to Samoa RVC	Gerber to Samoa Rail Cost per Ton	Gerber to Samoa Rail Rev. per Ton	Windsor to Samoa Cost/ ton-mile	Windsor to Samoa RVC	Windsor to Samoa Rail Cost per Ton	Windsor to Samoa Rail Rev. per Ton
Coal								
Antelope Mine, WY	0.0213	1.636	$4.12	$6.75	0.0232	1.636	$4.96	$8.11
Oak Creek, CO	0.0213	1.636	$4.12	$6.75	0.0232	1.636	$4.96	$8.11
Sharp, UT	0.0213	1.636	$4.12	$6.75	0.0232	1.636	$4.96	$8.11
Soda Ash								
Green River, WY	0.0207	1.727	$4.02	$6.94	0.0231	1.727	$4.94	$8.53
Wheat								
Great Falls, MT	0.0230	1.498	$4.47	$6.69	0.0239	1.498	$5.11	$7.66
Sioux Falls, SD	0.0230	1.498	$4.47	$6.69	0.0239	1.498	$5.11	$7.66
Topeka, KS	0.0230	1.498	$4.47	$6.69	0.0239	1.498	$5.11	$7.66
Corn								
Minneapolis, MN	0.0227	1.498	$4.39	$6.58	0.0240	1.498	$5.14	$7.70
Grand Island, NE	0.0227	1.498	$4.39	$6.58	0.0240	1.498	$5.14	$7.70
Des Moines, IA	0.0227	1.498	$4.39	$6.58	0.0240	1.498	$5.14	$7.70
Potash								
Ogden, UT	0.0269	1.727	$5.23	$7.40	0.0220	1.727	$4.71	$8.14
Iron Ore								
Cedar City, UT	0.0221	1.638	$4.29	$8.56	0.0300	1.638	$6.42	$10.53

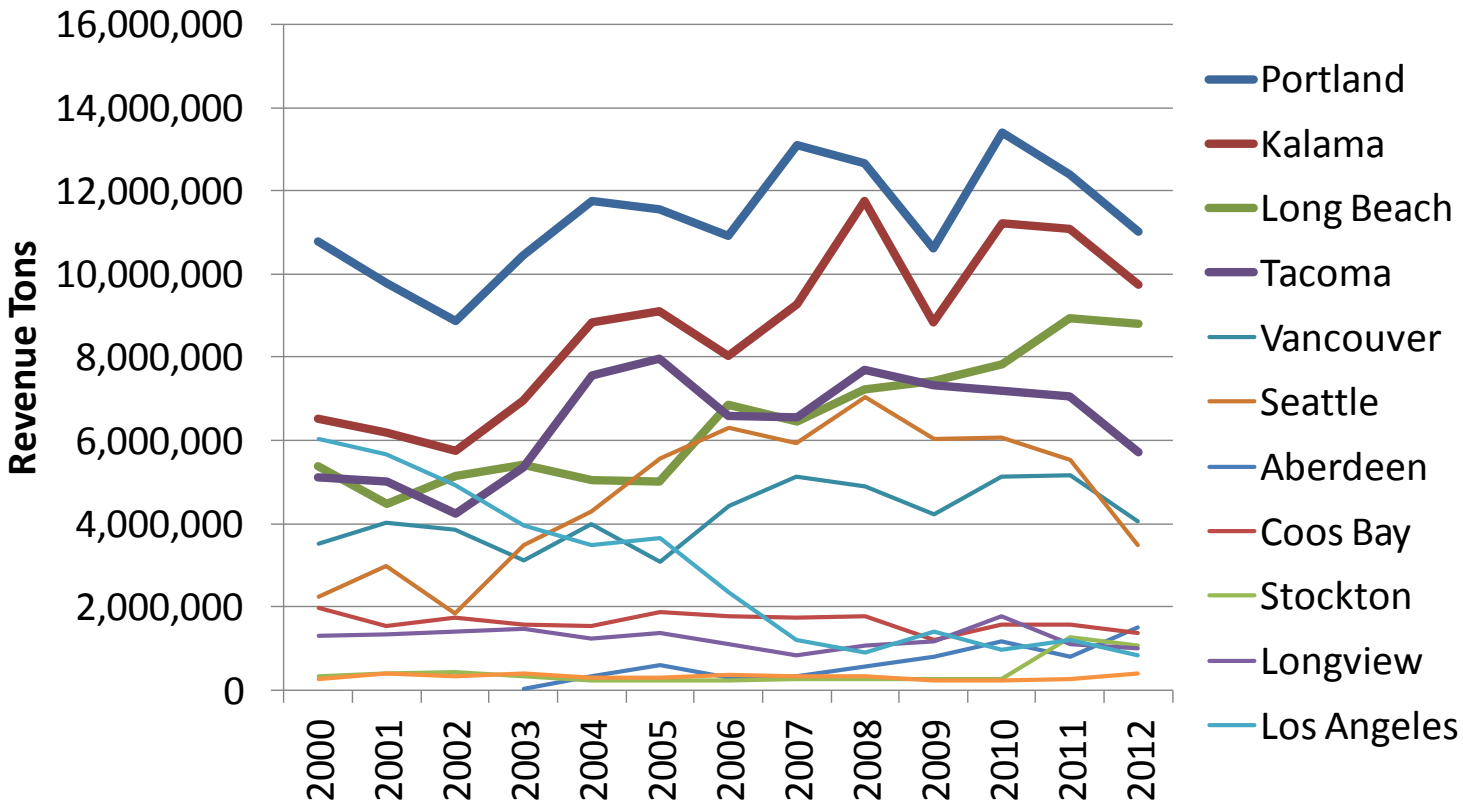
Rail Volume Required

- Key assumptions used in financial model
  - Construction period – 3 years
  - Ramp-up in rail volume – 5 years from end of construction
  - Discount rate – 3%, 7%, 15%
    - The discount rate is the rate used to calculate the current value of future cash flows; higher-risk investments tend to have higher discount rates.
  - Finance period – 50 years

Estimated of Required Rail Volumes

	East-West Routes		North-South Route
	Low	High	High
Construction Cost	$1.066 billion	$1.239 billion	$0.609 billion
Discount Rate	**Million Metric Tons per Year**		
3.0%	11.5 - 18.5	14.2 - 21.5	5.6 - 9.1
7.0%	24.0 - 36.7	27.9 - 42.6	11.2 - 18.1
15.0%	56.5 - 86.2	65.6 – 100.0	26.2 - 42.3
Discount Rate	**Trains per Day (Full + Empty)**		
3.0%	6 - 10	8 - 12	3 - 5
7.0%	13 - 20	15 - 23	6 - 10
15.0%	31 - 47	36 - 55	14 - 23

Bulk Exports at Competing Ports



Source: Pacific Maritime Association data

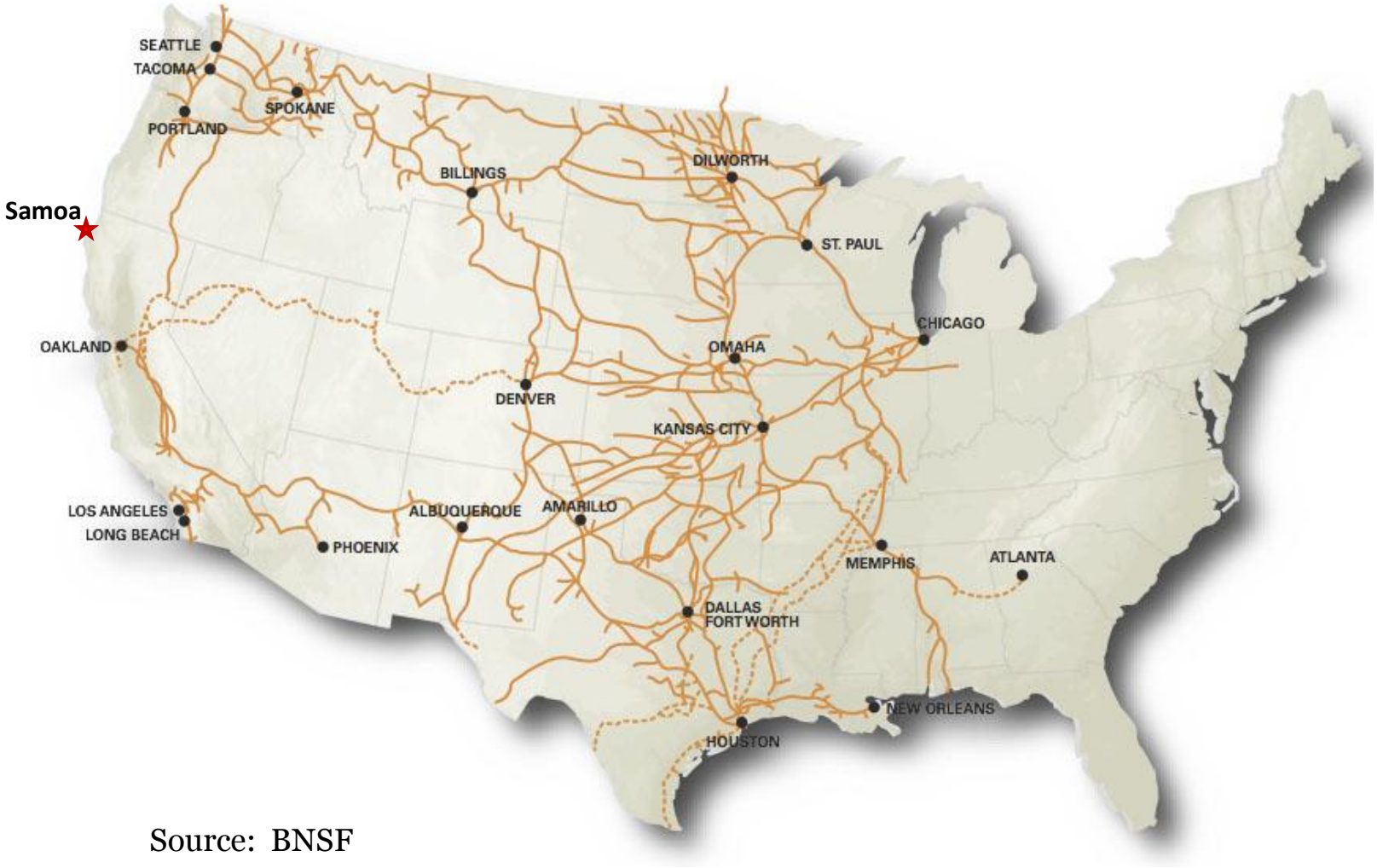
Other considerations

- Rail distance to competing ports
- Railroad market considerations
- Vessel characteristics/channel requirements
- Marine terminal requirements

Union Pacific System Map

Source: Union Pacific

BNSF System Map



Source: BNSF

California Rail Maps

Class I

Shortlines

Source: California State Rail Plan – Draft

Rail Distance to Competing Ports

Origin	Los Angeles, CA	Stockton, CA	Richmond, CA	Coos Bay, OR	Longview, WA	Aberdeen, WA	Seattle, WA	Cherry Point, WA	Roberts Bank, BC	Prince Rupert, BC	Humboldt
Coal											
Sharp, UT	705	865	968	1,229	1,025	1,124		1,289	1,314	2,258	1,102
Oak Creek, CO	1,189	1,253	1,356	1,617	1,413	1,512		1,677	1,702	2,646	1,490
Antelope Mine, WY	1,576	1,493	1,596	1,790	1,364	1,463		1,624	1,649	2,593	1,731
Soda Ash											
Green River, WY	997	914	1,017	1,211	1,007	1,106		1,272	1,296	2,240	1,151
Wheat											
Great Falls, MT	1,967	1,439	1,475	1,123	906	1,005	1,046				1,597
Sioux Falls, SD	1,960	1,878	1,981	2,091	1,874	1,973	2,014				2,115
Topeka, KS	1,728	1,770	1,873	2,067	1,863	1,962	2,003				2,007
Corn											
Minneapolis, MN	2,148	2,065	2,168	2,036	1,819	1,918	1,959				2,303
Grand Island, NE	1,661	1,579	1,682	1,876	1,672	1,771	1,812				1,816
Des Moines, IA	1,995	1,912	2,015	2,209	2,005	2,104	2,145				2,150
Potash											
Ogden, UT	823	736	840	1,098	897	996	1,036				974
Iron Ore											
Cedar, UT	859	923	1,026	1,284	1,083	1,182	1,223				1,161

Navigation Channel Depths

Port	Channel Depth
Los Angeles, CA	50+
Stockton, CA	35
Richmond, CA	38
Humboldt, CA	38
Coos Bay, OR	37
Longview, Kalama, and Vancouver, WA and Portland, OR	43
Grays Harbor, WA	36
Seattle, WA	50+
Cherry Point (WA)	78
Roberts Bank (BC)	68
Prince Rupert (BC)	48+

Marine Terminal Needs

- Holding tracks for multiple trains
- Loop tracks
- Cargo handling equipment
- Cargo storage facilities
- Appropriate dock

New EGT Facility in Longview, WA

Questions?

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(503) 789 4147

Short Sea Shipping Marine Highway

West Coast-Feeder Study

- Failed - Schedule too Tight
- Low Volume
- Concentrate on Humboldt Co.

West Coast Hub-Feeder Project

Longview

Coos Bay

Humboldt Bay

Stockton

Oakland

Los Angeles
Long Beach

- Saves 5.4 million gallons of diesel fuel a year compared to a long-haul truck-load scenario
- Eliminates 60,000 metric tons of CO_2 pollution a year
- Decreases combined greenhouse gas emissions by 68%
- Decreases dependence on foreign oil
- Insulates supply chains from fuel price volatility and increase
- Directly creates U.S. construction, maritime and port jobs
- Eliminates 34 million traveled-truck-miles per year

BLUE COAST INTERMODAL

HML *in association with*

bluecoasthighway.com

Project Details

- 23 Potential West Coast Port Calls per Month
- Serves 10 Major West Coast Freight Lanes
- Capacity for 5,700 Truckload Equivalents per Month
- 53' and 40' Container Service

The Ports of Stockton, Sacramento and Oakland have partnered together to start the M-580 Marine Highway

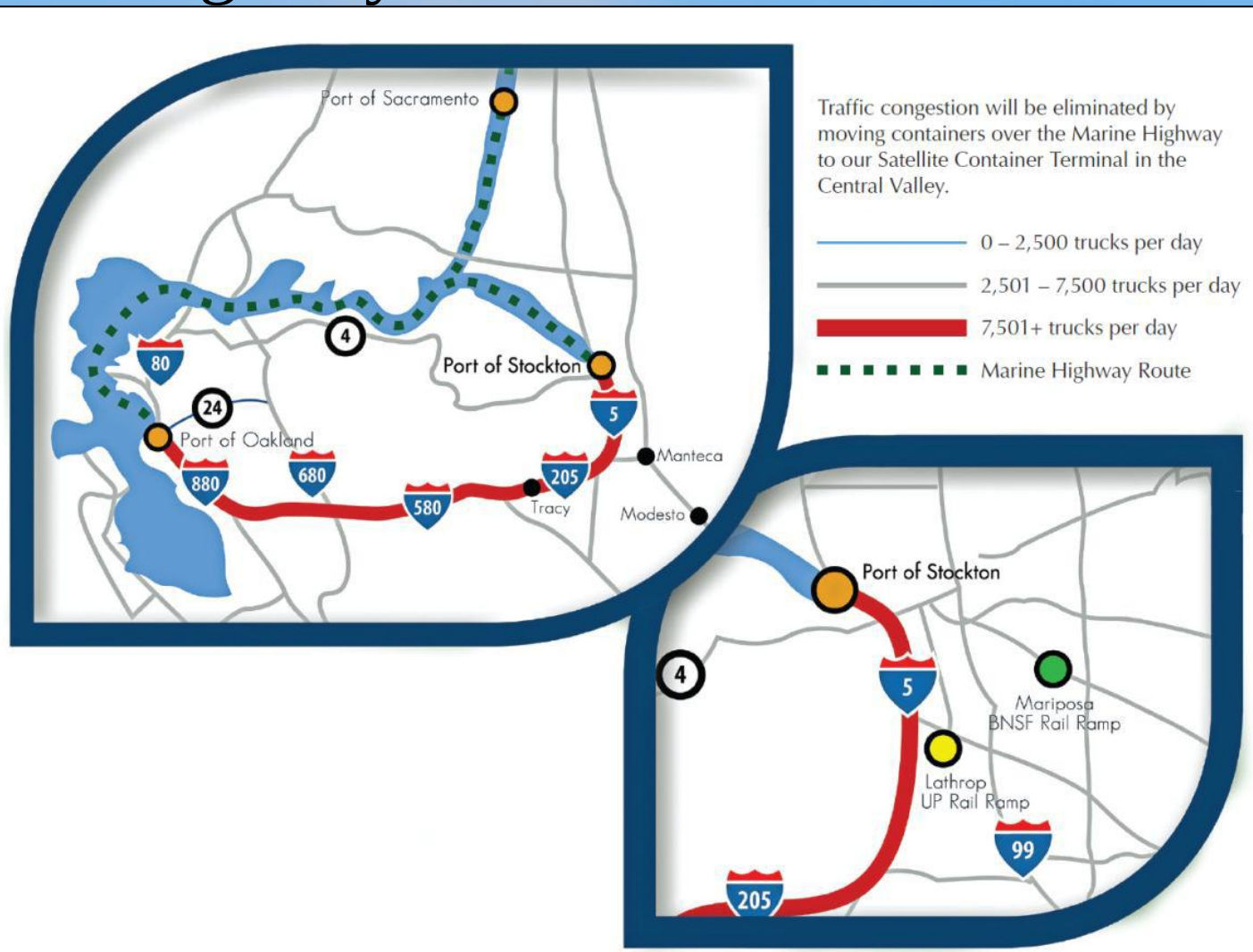
* The Program Should be underway at this time

M-580 Marine Highway

Project Scope

- Import containers arrive at the Port of Oakland and are trucked along the I-580/I-5 corridor to distribution centers in the Central Valley.
- "Import" Containers return to the Port of Oakland empty, causing inefficient logistics. MH project will assist in "interchange" of empty Imports to loaded Exports at Inland DC's.
- Current transportation inefficiencies create major issues with congestion, pollution and public safety.
- 1600 containers move via truck everyday between the Port of Oakland and the Central Valley.

SAVAGE



STOCKTON-OAKLAND M580

- Currently moving 70 truckloads per week via tug/barge projecting 200 by Fall
- Reducing truck emissions along #580
- M580 delivers one container = $335 versus truck = $450
- Stockton intermodal chassis/container yard optimizes equipment utilization & cost
- Stockton-Oakland = 75 miles
- Upgrades at Stockton include pier and 2 Liebherr mobile cranes

Current Assets

- Piers/Deep water
- 2,000 Trucks per day
- Tug Service
- Pilots

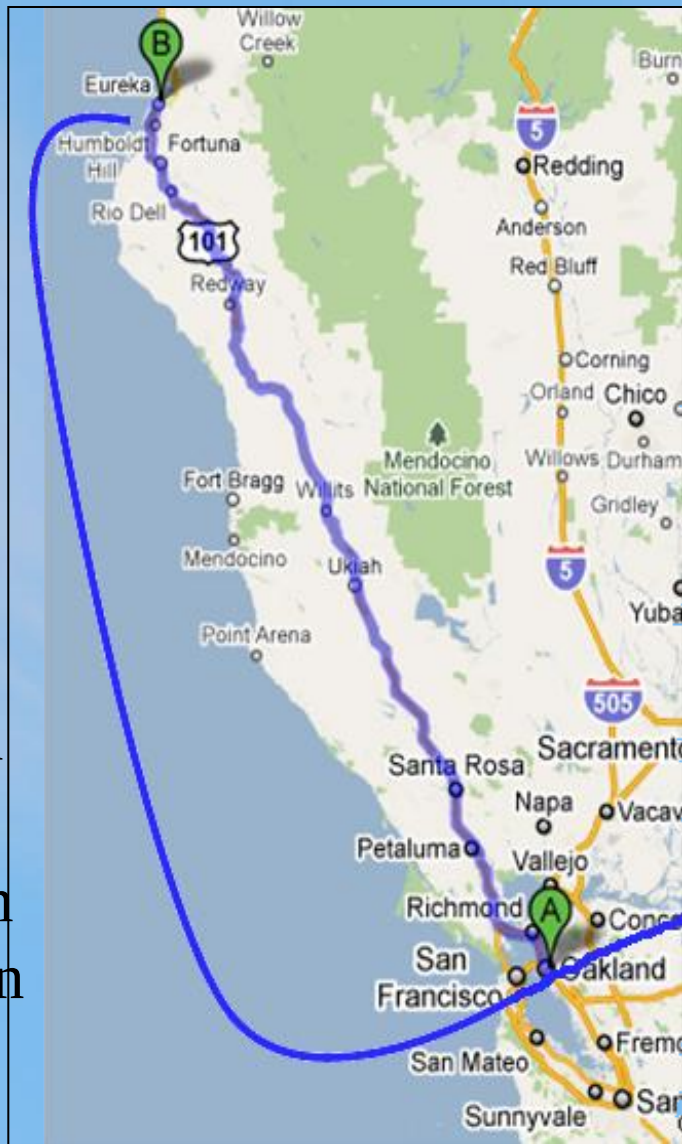
Opportunity

- Weekly Barge to Bay Area equals 200 loads
- Remove 1% Truck traffic to water
- Equates to 800 loads Monthly off State & County Roads=$7-10 Million in Annual road repairs
- Building Business will stimulate Infrastructure Improvements

HUMBOLDT- STOCKTON CONTAINER CARRIER WILL REDUCE FUEL COSTS, EMISSIONS AND SAVE SHIPPERS MONEY

- One small ship can carry 120 truckloads per voyage and cost $30M
- The small ship carrying 120 containers can reduce trucking costs by 10%
- Emissions and fuel consumption are reduced by 66% versus truck
- Reduce future freeway project spending such as the Willits ByPass & Richardson Grove on #101

*



Tug and Barge
West Coast Successful Model
Loads 2,000-6,000 Tons

TRUCK TRAFFIC EUREKA-STOCKTON*

FROM STOCKTON: 400 TRUCKS PER WEEK
FROM EUREKA : 200 TRUCKS PER WEEK
WEEKLY : 600 TRUCKS

*CONSULTANT ESTIMATES

HOW THE SHIP SAVES MONEY PER TRUCKLOAD EUREKA-STOCKTON*

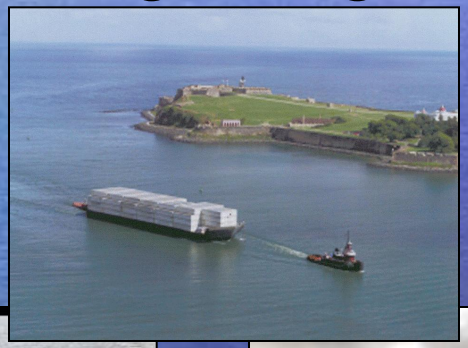
TRUCK= $1,500

SHIP = $1,100 (per container x 120)

*ESTIMATES BASED ON PROJECTED SHIP COST+HANDLING+TRUCKING+STOCKTON-EUREKA SAILING COSTS TRUCKING IS BASED ON ROUND-TRIP +FUEL SURCHARGE JULY 2013

Future Success will afford More Efficient Vessels

Tug & Barge



Lo/Lo SHIP DESIGNS

NEW SHIP DESIGNS

New ships will reduce fuel consumption & CO2 emissions by as much as 66%