



# **PORT OF REDWOOD CITY 2020 VISION PLAN**

**January 8, 2020**

**FINAL**

# **Port of Redwood City 2020 Vision Plan**

## **FINAL FULL PLAN**

***January 8, 2020***

**Prepared for:**



**Prepared by**



## PORT OF REDWOOD CITY 2020 VISION PLAN

### Table of Contents of Full Plan

<b>REPORT SECTION</b>	<b>SECTION TITLE</b>	<b>PAGE NUMBER</b>
	Table of Contents	3
	Tables and Figures	4 – 6
	Abbreviations and Terms	7
I.	Abstract and Summary	9
II.	Introduction & Background	23
III.	Scope, Purpose, Approach and Methodology	26
IV.	San Francisco Bay Seaport Plan and Draft 2019 Plan Update	28
V.	Port Investment Decision-Making Process	33
VI.	Market Assessment and Cargo Forecast	36
VII.	Navigation and Dredging	48
VIII.	Dry Bulk Cargo Throughput and Capacity	50
IX	Omni-Terminal Non-Containerized Potential Market Opportunities	64
X	Market Grid Overlay System (MGOS) Process	73
XI	Vision Plan: Ferry Terminal	74
XII	Commercial Real Estate Analysis	78
APPENDIX 1	Working Analysis of Cursory Market Assessment Forecast	87 - 94
APPENDIX 2	Omni-Terminal Site Acreage	95

## PORT OF REDWOOD CITY 2020 VISION PLAN

### Tables and Figures Full Plan

Figures	Page
<b>Figure 1</b>	Port of Redwood City's Current Facilities
<b>Figure 2</b>	Port of Redwood City 2018 Actual vs. Seaport Plan 2020 Optimal Annual Throughput Forecast
<b>Figure 3</b>	Port of Redwood City Historic Cargo Throughput
<b>Figure 4</b>	Port Priority Use Areas and Commercial Real Estate Areas
<b>Figure 5</b>	Preliminary Port Operating Nodes
<b>Figure 6</b>	Vision Plan Proposed Port Operating Nodes
<b>Figure 7</b>	Port Priority Use Opportunities
<b>Figure 8</b>	Seaport Plan Update Metrics Estimates for Dry Bulk Terminals
<b>Figure 9</b>	Port of South Louisiana Bulk Facility
<b>Figure 10</b>	Issues Requiring Strategic and Tactical Actions Short, Medium, and Long-Term Issues
<b>Figure 11</b>	Berth Characteristics
<b>Figure 12</b>	Historic Cargo Tonnage Throughput (metric tons)
<b>Figure 13</b>	Vickerman & Associates Strategic Planning Process
<b>Figure 14</b>	Preliminary Port of Redwood City Operating Nodes
<b>Figure 15</b>	BCDC Seaport Plan Update Timeline
<b>Figure 16</b>	Redwood City Cargo Flow and Competitive Ports in SF Bay
<b>Figure 17</b>	2012 Seaport Plan Estimate for Bay Area Throughput Capabilities by Handling Mode and 2020 Baseline Forecast
<b>Figure 18</b>	2012 Seaport Plan MPC Estimate for the Port of Redwood City
<b>Figure 19</b>	Seaport Plan Capacity and Port of Redwood City Throughput for Dry Bulk Cargo (2008-2018)
<b>Figure 20</b>	Port Development "Pipeline Analogy"
<b>Figure 21</b>	Maritime and Commercial Real Estate Constraints
<b>Figure 22</b>	Maritime, Recreational Boating, and Commercial Real Estate Revenues as a percentage of Total Revenue
<b>Figure 23</b>	Revenue and Expenses: A) Maritime Operations B) Recreational Boating Operations C) Commercial Real Estate Operations
<b>Figure 24</b>	Alignment and Relationship Between US Trade and US Prosperity

<b>Figure 25</b>	Growth in GDP and World Trade (Oxnard Economic 2013)	38
<b>Figure 26</b>	Average GDP US Forecast Aligned with California	38
<b>Figure 27</b>	California 2040 Industrial Production Forecast Growth Rate	39
<b>Figure 28</b>	Residential Units and Non-Residential Square Footage (San Jose Forecast)	40
<b>Figure 29</b>	Seaport Plan Commodity Trends Post-Recession	41
<b>Figure 30</b>	Redwood City Commodity Mix (2000-2018)	41
<b>Figure 31</b>	Seaport Plan Forecast: Cementitious Materials	42
<b>Figure 32</b>	Vision Plan Forecast: Cementitious Materials Port of Redwood City Forecast (Low, Medium, and High)	43
<b>Figure 33</b>	Vision Plan Cementitious Materials: Redwood City v. Seaport Plan Forecast	43
<b>Figure 34</b>	Vision Plan Cementitious Materials: MPC and STC	44
<b>Figure 35</b>	Proposed Multi-User Dry Bulk Facility Area	44
<b>Figure 36</b>	Scrap Export Forecast: A) Scrap Exports Forecasts: Seaport Plan and Vision Plan B) Scrap Export Comparison: Seaport Plan CAGR v. Vision Plan CAGR.	45 – 46
<b>Figure 37</b>	Scrap Exports Terminal Forecast: MPC and STC	46
<b>Figure 38</b>	Seaport Plan Ro-Ro Forecast (Vehicles – Units)	47
<b>Figure 39</b>	USACOE Integrated Feasibility Report: Channel Status (2015)	48
<b>Figure 40</b>	Port of Redwood City Historic Vessel and Barge Calls	49
<b>Figure 41</b>	Cementitious Materials (FY 18 and FY 19)	51
<b>Figure 42</b>	CEMEX Parcels	52
<b>Figure 43</b>	CEMEX Sand and Aggregate Throughput	53
<b>Figure 44</b>	CEMEX Calendar Year Throughput	53
<b>Figure 45</b>	CEMEX Updated MPC (Wharves 1 and 2 Supplemental FEIR)	54
<b>Figure 46</b>	Lehigh-Hanson Parcel	55
<b>Figure 47</b>	PABCO Parcel	56
<b>Figure 48</b>	PABCO Gypsum Forecast	57
<b>Figure 49</b>	PABCO Historic Throughput and Forecast during the Short-Term Planning Term	57
<b>Figure 50</b>	IMI Parcel	58
<b>Figure 51</b>	IMI Throughput vs. Guarantee	59
<b>Figure 52</b>	SIMS Scrap Metal Throughput (Mo. To Mo. 2018 v. 2019)	61
<b>Figure 53</b>	A) Long Range High Forecast for SIMS at the Port B) Scrap Metal Forecast: Vision Plan vs. Seaport Plan	62

<b>Figure 54</b>	SIMS Parcel and Potential Expansion Area	63
<b>Figure 55</b>	2012 Seaport Plan Break-Bulk Forecast	64
<b>Figure 56</b>	Terminal / Storage Acreage Requirements based upon 2012 Seaport Plan	65
<b>Figure 57</b>	Proposed Long Term Planning Nodes for Port of Redwood City with the Proposed Omni-Terminal	66
<b>Figure 58</b>	Seaport Plan: Automobile Metrics	68
<b>Figure 59</b>	Refrigerated Vessel SEA-TRADE	70
<b>Figure 60</b>	Agricultural Exports (San Mateo County)	70
<b>Figure 61</b>	American Patriot Container Transport LLC	71
<b>Figure 62</b>	Ocean Going Barge Service (Domestic Services to Hawaii or Coastal Services to PNW)	72
<b>Figure 63</b>	Modular Grid Overlay System (MGOS)	73
<b>Figure 64</b>	WETA Strategic Plan: Ferry Landing Locations (South Bay)	74
<b>Figure 65</b>	Preferred Location for a Ferry Terminal and Landing at the Port of Redwood City	75
<b>Figure 66</b>	WETA Completion Timetable and Schedule	75
<b>Figure 67</b>	WETA Timeline for Port of Redwood City	76
<b>Figure 68</b>	Port of San Francisco Ferry Landings	77
<b>Figure 69</b>	Introduce Active Uses with Minimum Investment	77
<b>Figure 70</b>	Commercial Real Estate Areas	79
<b>Figure 71</b>	Examples of Signage Along the San Francisco Embarcadero	81
<b>Figure 72</b>	Example of a Historic Monument on SF Embarcadero	82
<b>Figure 73</b>	SR 84/HWY 101 Woodside Road Preliminary Concept	83
<b>Figure 74</b>	ABBOTT LAB PARCEL: Public-Private Partnership	84
<b>Figure 75</b>	CARGILL SALT PONDS: Public-Private Partnership	85



## ABBREVIATIONS AND TERMS

AAPA	American Association of Port Authorities
AMPORTS	Port of Benicia owner (private port) and Terminal Operator
BCDC	Bay Conservation and Development Commission
BOC	Beneficial Owner of Cargo (e.g. shipper or receiver)
break-bulk	Non-container palletized cargo and handling mode
CALTRANS	California State Transportation Agency
CAPA	California Association of Port Authorities
CEMEX	The Port's aggregate, sand, slag, and cement customer
IAPH	International Association of Ports and Harbors
IMI	The Port's bauxite and gypsum customer
lo/lo or Lo/Lo	Lift-on and lift-off handling (using ship's gear or shore crane)
MLLW	Mean-Low-Low-Water (Depth of Channel and Wharves)
MPC	Maximum Practical Capacity of a terminal (Optimal Capacity)
MTC	Metropolitan Transportation Commission
Multi-User Dry Bulk Terminal	Proposed dry bulk terminal for all dry bulk cementitious customers
neo-bulk	Specialized project cargo (e.g. rebar, construction equipment, etc.)
OMNI-Terminal (General Cargo)	Proposed mix-use terminal (break-bulk, neo-bulk, & ro/ro)
PABCO	The Port's gypsum customer
RIN	Regional Intermodal Network (cargo using other than trucks)
ro/ro or Ro/Ro	Roll-On and roll-off cargo (commodities driven on and off vessels)
SPAC	Seaport Planning Advisory Committee
SSA	Stevedore Services of America (stevedore / terminal operator)
STC	Sustained Terminal Capacity (Generally 70 to 75% of MPC)
tph	Tons per hour (bulk conveyor capacity)
USACOE	United States Army Corps of Engineers
V&A	Vickerman and Associates
WETA	SF Bay Area Water Emergency Transportation Authority

## *INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS (IAPH) PLANNING*

*“A Port cannot be planned or designed as an arbitrary arrangement of independent terminals. It cannot even be planned as an independent whole, because the arteries connecting the Port to the sea and to the hinterland are as important as the Port itself. A Port should always be studied and planned in its true node in a complex system.” (IAPH)*



## I. Abstract and Summary

The PORT OF REDWOOD CITY (“PORT”) commissioned Vickerman and Associates (“V&A”) to prepare a Maritime & Commercial Real Estate Vision Plan for the Port (hereafter referred to as “the Plan”, “the Vision Plan” or “the 2020 Vision Plan”). The Port Authority’s focus is to create jobs, make marine education a priority, and offer safe water related experiences for residents, workers, and visitors. The themes for this Vision Plan were first presented at a Board Workshop on December 12, 2018:

### THEMES

- **LAND USE PRIORITIZATION** – separate the Port Priority Use Area<sup>1</sup> from commercial / recreational uses, enhance public access along the waterfront, provide a public or private ferry service and related infrastructure, and create additional commercial / recreational shoreline uses.
- **MARKET PREPAREDNESS** – build maritime and commercial business diversity.
- **OPERATIONAL EFFICIENCIES** – establish cargo velocity standards for maritime users, consolidate similar cargo types (maximize throughput while minimizing storage footprint), and encourage commercial / recreational uses to create a Redwood City Waterfront Destination.
- **SUSTAINABILITY** – meet or exceed environmental regulations and initiatives, be a leader in sustainability initiatives, focus on being a good neighbor, maintain fiscal responsible practices, and be viewed as a socially responsible agency.

The Vision Plan process includes a market assessment to compliment the current efforts of BCDC and MTC to update the San Francisco Bay Area Seaport Plan, dated April 18, 1996, amended through September 2012, (hereafter referred to as the “Seaport Plan”). A draft of the 2019 – 2050 Bay Area Seaport Forecast was presented to the Seaport Planning Advisory Committee (SPAC) at a Thursday, June 27, 2019 meeting.

Figure 1 identifies the current Redwood City’s facilities located within the current Port Priority Use Area.

Figure 1. Port of Redwood City’s Current Facilities

	Wharves 1 & 2	Wharves 3 & 4	Wharf 5
Customer(s)	CEMEX	SIMS, PABCO & IMI	Vacant
Cargoes Handled	Aggregate, sand, and slag	Ferrous Metals (scrap), Gypsum and Bauxite	None
Length of berth (linear feet)	1,530 l.f.	1,525 l.f.	750 l.f.
Wharf Area (concrete deck only)	.54 acres (23,375 sq. ft)	.43 acres (18,825 sq. ft)	.69 acres (30,000 sq. ft)
Depth of Water	34 ft. MLLW	34 ft. MLLW	Unknown
Transit Shed Area	None	None	None
Ship Calls (CY 2018) barges, vessels, and ferries	92	23	4
Special Equipment tph (tons per hour).	Cement Unloader 300 tph	Scrap Unloader 400 tph Gypsum Unloader 800 tph	None

<sup>1</sup> Port Priority Use Area is established by the Bay Seaport Plan

Special Equipment Tons Per Hour	Aggregate conveyor 3,000 tph	Bauxite Unloader 150 – 200 tph	None
------------------------------------	---------------------------------	-----------------------------------	------

The 2012 Seaport Plan identified 2020 Total Optimal Annual Throughput Capability Forecasts for the terminals within the Bay Area. Figure 2 compares actual 2018 calendar year throughput with the Seaport Plan forecast for the Port of Redwood City.

**Figure 2. Port of Redwood City 2018 Actual vs Seaport Plan 2020 Optimal Annual Throughput Forecast**

Terminal / User	Active / Not Active	Cargo Type	Optimal Annual Throughput Capability (metric tons)	Actual CY 2018 Throughput (metric tons)
Wharves 1 & 2 / CEMEX	Active	Dry Bulk	1,293,000	1,870,361 <sup>2</sup>
Wharves 3 & 4 / SIMS, PABCO, and IMI	Active	Dry Bulk	517,200	621,249
		Neo-bulk	511,800	0
		Liquid Bulk	90,000	0
Wharf 5	Not Active	Liquid Bulk	54,000	0
		Break-Bulk	51,200	0
Other Future Facilities	Not Active	Dry Bulk	1,293,000	0
TOTAL		Dry Bulk	3,103,200	2,491,610
		Neo-bulk	511,800	0
		Liquid Bulk	144,000	0
		Break-bulk	51,200	0
		TOTAL	3,810,000	2,491,610

The 2012 updated Seaport Plan anticipated a new terminal with 1,293,000 metric tons cargo throughput at the former Ideal Cement property. Since this 2012 update, there have been no new terminals. A portion of the Ideal Cement property has been leased to CEMEX for storage and crushing of demolition concrete materials delivered to the site by truck (non-waterborne materials)<sup>3</sup>.

Additionally, the former Pilot Petroleum property has been cleaned up. This property handled liquid bulk cargo. The 2020 Vision Plan recommends it be used for a future general cargo *Omni-Terminal*.

There are no existing ro-ro, neo-bulk or break-bulk activities at the Port. Dry bulk cargo commodities accounts for all cargo throughput. They include imports and exports:

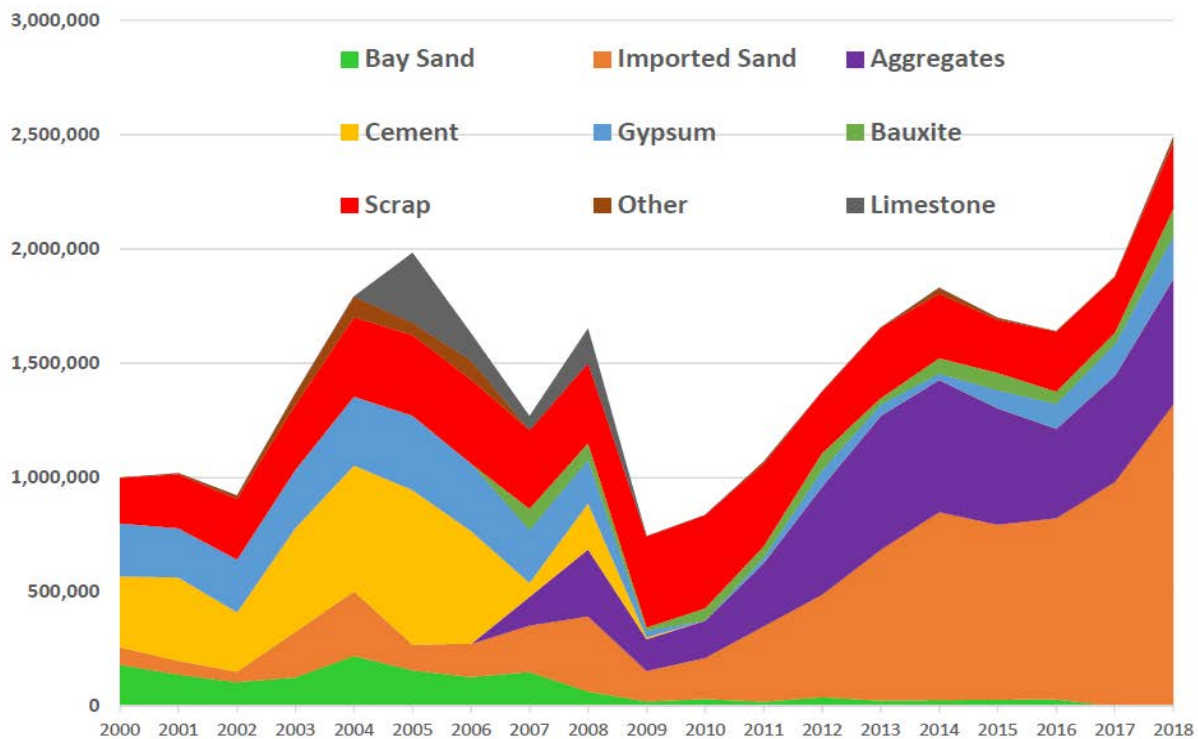
- **IMPORTS** are construction-related materials, including aggregates, bauxite, gypsum, and slag. These commodities rise and fall with regional construction activity. During the recent recession, construction materials dropped drastically and some commodities stopped altogether. To rely heavily on construction-related imports, the Port will experience drastic swings in throughput during economic slow-downs and recessions. It is nearly impossible to predict when these future slow-downs or recession will occur.

<sup>2</sup> Excludes domestic cement delivered to CEMEX via rail.

<sup>3</sup> Non-waterborne cement materials not included in the Port's commodity throughput

- **EXPORTS** are scrap ferrous metals. Within the Bay Area, there are two major industrial docks that handle scrap metals. Based upon historic throughput, scrap metals appear to be recession-proof, but they can be influenced by international trade issues on specific trade routes. Historical records show that scrap metals have behaved much differently than the imported construction-related materials (see the red portion below in Figure 3).

Figure 3. Port of Redwood City Historic Cargo Throughput



Within the port business and cargo planning sectors, a truism is future customers, cargo, and optimal throughput capabilities will change as the shipping industry changes. There is no planning process that can accurately predict or guarantee the future. When new opportunities present themselves, the Port must be ready to provide a vision that supports them. It is vital for a customer to see themselves within the Port's future. To obtain new business, the most important success factor is that cargo will flow to the lowest cost with the best service levels (e.g. time and cost). The 2020 Vision Plan and the Updated Seaport Plan flexible strategic directions that are intended to be *advisory and conceptual* within the project decisions process.

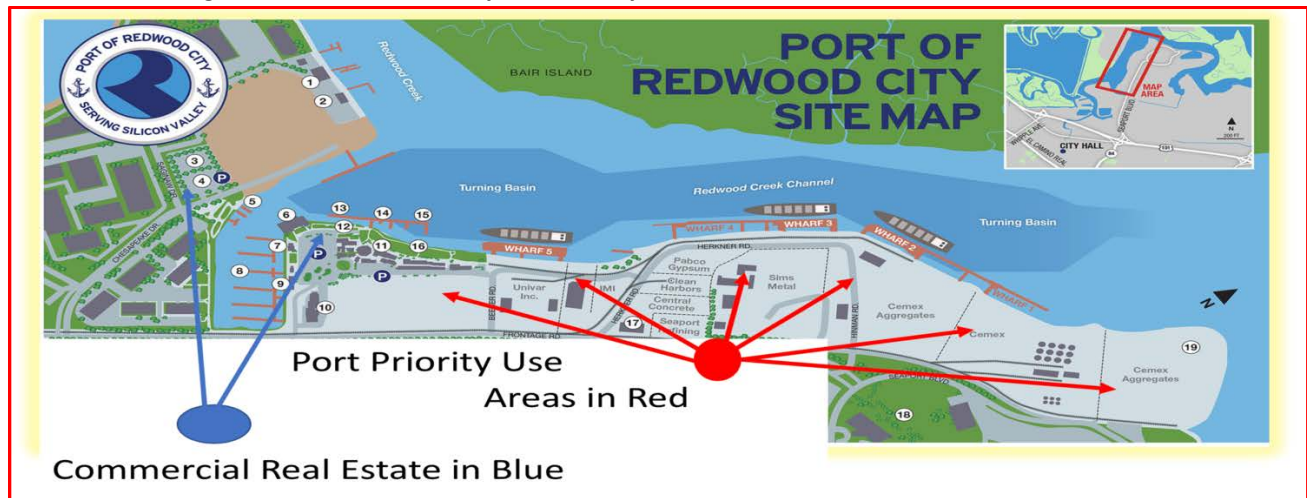
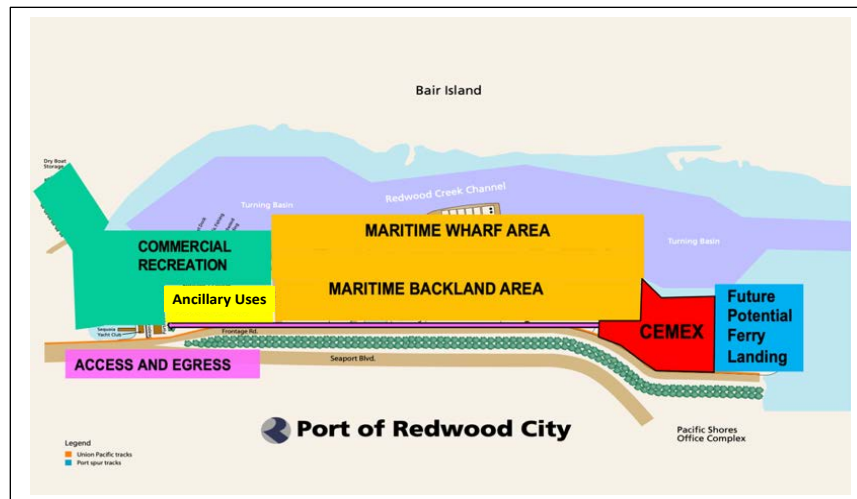
Figure 4. Port of Redwood City's Port Priority Use Area and Commercial Real Estate Area<sup>4</sup>

Figure 4 depicts the Port Priority Use Area<sup>5</sup> and the commercial real estate area. The Port's maritime uses depend heavily on a few specific users. The commercial real estate uses include small office uses, dry boat storage, a launch ramp (with parking), a former restaurant currently being used as a conference center, a sailing school, a recreational public marina, a membership yacht club, a guest dock, and public access assets (shoreline promenade and fishing pier). Portside I and Portside II leases will end during the medium-term planning horizon in 2033. The end of the Portside leases are important commercial real estate milestones. Other commercial / real estate leases are short-term or on a hold-over status. Two parcels (1) and (2) shown on Figure 4 are sites on property not owned by the Port.

Figure 5. Preliminary Port Operating Nodes



Preliminary operating nodes for the Port are shown on Figure 5 (Preliminary Port Operating Nodes). These preliminary nodes were presented at a Board public workshop.

The final operating nodes are shown on Figure 6 (2020 Vision Plan Proposed Final Operating Nodes). These final nodes include properties outside of the administrative and management control of the Port Authority

<sup>4</sup> Based upon the current amended Seaport Plan

<sup>5</sup> Port Priority Use Areas are areas reserved for regional maritime port use and includes maritime terminals and directly related ancillary activities. In certain port priority use, commercial recreational uses may be allowed as a source of revenue for the port until such time as the area is developed as a marine terminal. Some port priority use areas may offer locations for the development of ferry terminals.

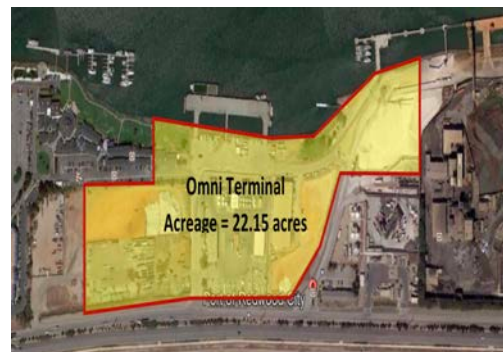


(Cargill and Abbott Lab Parcels). These parcels are included only for the Port's future long-term planning.

Figure 6. 2020 Vision Plan Proposed Final Operating Nodes



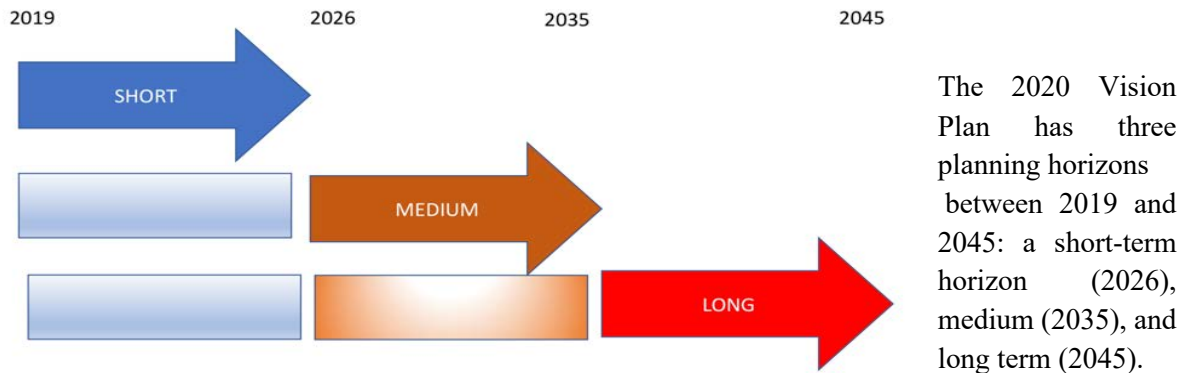
The Omni-Port Priority Uses have two options<sup>6</sup>



Two major on-going public projects that will impact the Port and require on-going Port involvement are:

- The San Mateo County, Redwood City, and San Francisco Bay Area Water Emergency Transportation (WETA) studies for the expansion of ferry services and more specifically the establishment of ferry service to Redwood City.
- The CALTRANS US 101 / SR 84 (Woodside Road) Interchange Improvement Project that is currently in the Preliminary Design phase of development.

<sup>6</sup> Appendix 2 shows larger aerial views of the two options



Findings and recommendations for land-use prioritization based upon the planning horizons include:

- Build diversity for both the maritime and commercial-recreational uses. The Plan is market driven and does not support a “*build it and they shall come*” process. For the maritime sector, dry bulk commodities will continue to be the primary cargo tonnage. **(Short, Medium, and Long Term)**
- Preserve the existing Port Priority Use Area for dry-bulk commodities (cementitious and scrap materials) and general cargo (break-bulk, neo-bulk, and ro/ro) opportunities. **(Short, Medium, and Long Term)**
- Negotiate a “*first right of refusal*” to purchase the private CEMEX parcel within the Port Priority Area. **(Long Term)**
- In the event development is proposed by Cargill on the Salt Ponds contiguous to Seaport Boulevard and the proposed Omni-Terminal, advocate for including the property as a Seaport Plan Port Priority Uses and for relocation of Seaport Boulevard.<sup>7</sup> **(Long Term)**
- Seek to initiate a public or private ferry service for commuters and visitors that link Redwood City to San Francisco and Oakland for sporting events, business centers, recreational events, and emergency transportation capabilities. **(Short and Medium Term)**
- Promote *Active-Uses* on available commercial-recreational areas. Active uses include retail, cafes, restaurants, and entertainment uses. **(Short, Medium and Long Term)**
- Participate in a public – private partnership on the Abbott Lab property with Abbott, the Marine Science Institute, the Redwood City Youth Maritime Group, the Stanford Rowing and Marine Center, and the City to develop the current Abbott property as a regional marine resources center for educational uses, public access, and enhancements to existing commercial / recreational use. **(Short Term)**

### VISION PLAN GROWTH

The 2020 Vision Plan’s cargo demand for waterborne dry-bulk commodities will grow from 3.8 million metric tons capacity to 4.5 million metric tons. For non-bulk business opportunities, the Plan maintains the current Seaport Plan of 500,000 metric tons. Since the historic view of the Port is associated with dry-bulk commodities, the marketing efforts must educate the maritime sector about the 2020 Vision Plan.

<sup>7</sup> On September 24, 2019, a Save the Bay law suit was filed to preserve the Salt Ponds as open water resources. The Vision Plan does not propose specific developments on the Cargill Salt Pond property. The Port Priority Use designation is intended to provide a Buffer from proposed Cargill developments. The preservation of this property as open water may provide sufficient Buffer.

Figure 7 (Port Priority8 Use Opportunities) are examples suggested by the 2020 Vision Plan for marketing efforts.

Figure 7. Port Priority Use Opportunities



Based upon planning horizons, the market preparedness findings include:

- Build industry recognition of the Port of Redwood City’s maritime future uses. (**Short, Medium, and Long Term**)
- Incorporate the *Omni-Terminal* as a potential future land use with a 560,000-metric ton general cargo non-bulk capacity in the 2020 San Francisco Bay Seaport Plan Update. (**Short Term**)
- Initiate a medium and long-term marketing effort with specialized carriers (e.g. ro/ro, barge services, and refrigerated niche carriers, beneficial owners of cargo from the South Bay region, and West Coast terminal operators to establish “*Build-to-Suit*” strategies. (**Short and Medium Term**)
- Take advantage of the Pacific Shores Development and other future commercial developments in the area to establish diversity of *Active Uses* within the Portside commercial / recreational use area. (**Short, Medium and Long Term**)
- Support a special Port and City Task Force to initiate and prepare a “**Specific Plan**” for the Portside use area and the Abbott property in association with the planning and design for the new SR 84 / 101 (Woodside) Interchange Project and future ferry operations. (**Short Term**)

Cargo velocity (reduced dwell time) is a key operational efficiency to any marine terminal. The Draft Seaport Plan Cargo Forecast 2019 to 2050 identifies specific cargo capacity metrics. Figure 8 (Seaport Plan Update Metrics Estimates for Dry Bulk Terminals) identifies metrics and benchmarks for dry bulk terminals. The Port should incorporate specific metrics and benchmarks into future maritime lease agreements.



Figure 8. Seaport Plan Update Metrics Estimates for Dry Bulk Terminals

Metric	Existing	Slow Growth	Old Seaport Benchmark	Update Moderate Growth	Strong Growth	Proposed Oakland (OBOT) Terminal
Acres per terminal	13.8	13.4	13.0	13.8	14.3	20.5
Metric tons per Acre	47,141	63,455	75,769	103,500	139,095	317,073
Metric tons per Berth	650,155	843,577	1,037,000	1,583,300	2,402,750	6,500,000

Operational efficiency findings include:

- Establish a throughput velocity metric for dry bulk to establish a sustainable terminal throughput that ensure greater throughput while ensuring productive use of the terminal. **(Short Term)**
- Continue advocacy for the expansion and improvement of the Redwood City Ship Channel to establish a 35- foot MLLW future capability. **(Short Term)**
- Encourage “Active-Uses” in the Portside area to promote retail and food sales, and use existing parking areas to generate new revenues without impacting existing users. **(Medium Term)**

In addition to the aforementioned findings, environmental sustainability is a critical issue to be included in the Port’s planning process. Since the 2020 Vision Plan intends only to provide a general direction, it is not a project under the California Environmental Quality Act (CEQA).

California ports, in association with CAPA, have led the nation in adopting and implementing **Green Port Initiatives and Policies**. The Port is already a leader in addressing ocean rise issues associated with climate change. Environmental findings include:

- Initiate a feasibility study with current customers for the development of a covered “Multi-User Dry Bulk System” to replace current outside open storage areas (see Figure 9). **(Short Term)**
- Initiate a feasibility study to connect the Redwood City Ferry Landing to other destinations including Redwood City downtown, regional office and industrial complexes, and other public transportation systems.
- Establish a “Port User Task Force” to understand and adopt the “Best Practices” of other similar sized ports in adopting **Green Port Policies**. **(Short Term)**
- Establish policies to control dust and fall-out from the dry-bulk operations. **(Short Term)**
- Emphasize the Port of Redwood City and Redwood Creek’s historical maritime heritage. Place historical kiosks, public art, and way-signage along the shoreline explaining the Port’s role within this heritage. **(Short and Medium Term)**
- Connect the Bay Trail from the intersection of Blomquist and Seaport to the Portside commercial real estate area. **(Medium and Long Term)**

Figure 9. Port of South Louisiana Bulk Facility



Figure 10. Issues Requiring Strategic and / or Tactical Actions

Issues	Short	Medium	Long
Project implementation must be market driven.	X	X	X
Preserve the <u>Port Priority Use Area</u> for general cargo including dry-bulk commodities and non-bulk general cargo opportunities.	X	X	X
Negotiate a <u>first right of refusal</u> to purchase CEMEX's private owned parcel.			X
Seek to establish a Port Priority Use designation on property adjacent to the Port, if and when, the Cargill Salt Ponds are proposed for development.			X
Seek to initiate a public or private ferry with operators for commuter services, special event opportunities, and emergency transportation capabilities.	X	X	
Promote <i>Active-Use</i> on available commercial-recreational area (retail, cafes, restaurants, and entertainment use) and encourage <i>Active-Uses</i> within the Portside area and future Ferry Landing Area.	X	X	X
Seek to establish commercial / recreational uses on the Abbott Laboratories property as part of their Social Impact projects, the Marine Science Institute, the Redwood City Youth Maritime Group, and the City; uses may include regional marine resources center for educational uses, public access, and enhancement of existing commercial / recreational uses. (Public – Private-Partnership)	X		
Promote recognition of the Port's vision for maritime uses.	X	X	X
Incorporate the <i>Omni-Terminal</i> as a potential future land use for non-bulk capability in the 2020 Seaport Plan Update.	X		
Initiate marketing efforts with specialized carriers (e.g. project cargo, barge services, and niche refrigerated carriers), beneficial	X	X	

owners of cargo from the South Bay region, and West Coast terminal operators to establish “ <i>Build-to-Suit</i> ” strategies			
Take advantage of the Pacific Shores Development and other commercial developments to establish diversity of <i>Active Uses</i> within the Portside commercial / recreational use area.	X	X	X
Seek to establish a special City of Redwood City Task Force to initiate and prepare a <u>Specific Plan</u> for the Portside use area and the Abbott Laboratories property during the planning and design of the new SR 84 / 101 (Woodside) Interchange Project and the WETA /City of Redwood City Ferry Feasibility Study.	X		
Establish throughput velocity metrics to establish a sustainable terminal throughput that ensure greater throughput while ensuring productive use of the terminal.	X		
Continue advocacy for expansion and improvement of the <u>Redwood City Ship Channel</u> to establish a minus 35- foot MLLW capability.	X	X	X
Initiate a feasibility study with current customers for the development of a covered <i>Multi-User Dry Bulk System</i> to replace current outside open storage areas.	X		
Study and promote connection between the proposed <u>Redwood City Ferry Landing</u> and other destinations (Redwood City downtown, office and industrial complexes, and other public transportation systems).	X	X	X
Establish a <u>Port User Task Force</u> to adopt best practices for operations at other similar sized ports and adopt <i>Green Port Policies</i> . (e.g. policy and practices to control dust and fall-out from the dry-bulk operations).	X		
The Port of Redwood City and Redwood Creek are part of the historical development of the Bay Area’s maritime heritage. Place historical kiosks, public art, and way-signage along the shoreline explaining the Port’s role within this heritage.	X	X	
Connect the Bay Trail from the intersection of Blomquist and Seaport to the Portside Commercial Real Estate Area.		X	X

There are forty-five (45) findings / recommendations associated for the Port to consider in implementing the 2020 Vision Plan:

1. The Port can improve its throughput capabilities by limiting long-term storage and maximizing maritime cargo throughput.
2. When considering an investment in a project, use available market-driven data to assist with the decision making. The 2020 Vision Plan’s theme is “*market forecast demand minus current terminal capacity equals justifiable terminal needs and requirements*”.
3. The Modular Operating Grid System (MOGS) is a tool the can be used for the planning, design and construction of specific improvements.
4. Maintain the Port’s record of sound financial performances with appropriate ROI (return-on-investment) evaluations.

5. Do not totally rely on dry-bulk cargo (cementitious materials); this type of cargo is highly volatile and can be impacted by economic conditions outside of the control of the Port Authority.
6. There is sufficient forecasted demand for dry-bulk cementitious materials to meet a 4.5 million metric tons capacity over the long-term planning horizon.<sup>8</sup>
7. Begin planning and development of a covered *Multi-User Dry Bulk Terminal* when the maximum practical capacity for dry-bulk cementitious cargo approaches 3,150,000 metric tons (3,472,281 short tons).
8. The Port has an established optimal capability<sup>9</sup> for breakbulk and neo-bulk cargo of 563,000 metric tons.
9. A dust free storage area is a marketing requirement for an automobile or truck customers.
10. The Port's long-term combined estimated capacity for dry bulk, break-bulk, neo-bulk, and ro/ro is 5,063,000 metric tons.
11. A *Central Gate* concept is the front door for both commercial real estate and maritime use areas and will benefit users.
12. A *Central Gate* concepts should provide tenant-in-common services, security functions, separate trucks and automobiles, connect Seaport Boulevard to a future ferry services, and support other public transit capabilities to Downtown Redwood City.
13. Implementation of *Central Gate* transportation improvements must be in cooperation with all stakeholders and other governmental agencies.
14. When the market demands, promote a *Regional Intermodal Network (RIN)* for cargo using water transportation and rail to reduce annual truck trips from Bay Area freeways.
15. To meet standard deep-water port criteria, a working depth at all wharves and berths of minus 35 feet MLLW is needed. Customers depend on a dependable maintenance dredging schedule to avoid materials building up at berth-side.
16. The San Francisco District of the Corps of Engineers needs to upgrade the 1945 Federal Redwood City Channel from minus 30-foot to minus 35-foot MLLW with the 2 foot keel clearance. The Port needs to continue an aggressive advocacy for this modification as well as a dependable maintenance dredging schedule to avoid materials building up. Recognizing that the USACOE cost benefit analysis does not support proposed changes to the approved Congressional approved depth, the Port should investigate ways to improve the cost benefit ratio (e.g. reduce the overall cost of dredging, diversify the cargo modes at the Port, etc.).
17. A recent increase in vessel traffic at the Port suggests that customers have adapted to lightering operations within the Bay. While lightering adds costs to the dry bulk products, there may be no better options for delivery of the dry bulk construction materials to their final destinations.
18. For outbound scrap metals, SIMS' vessels are loaded for departure based upon the depth and tides.
19. There may be an air-draft constraint at the San Mateo Bridge (135 feet above water) that may impact the automobile / project cargo trades. However, AMPORTS, owner of the Benicia Port and major automobile service company, is planning a 100-acre terminal in Antioch. The air-draft of the Richmond-Antioch bridge is 135 feet in height over water.
20. Marketing efforts are long-term. Successful port marketing is generally a process in association with a stevedoring / terminal operating company. Avoid having an exclusive house-stevedore

---

<sup>8</sup> Figures 31 and 32

<sup>9</sup> Based upon the 2019 Update definition of terms

which limits Port marketing efforts. Seek to encourage California stevedore / terminal companies (e.g. AMPORTS, SSA, Marine Terminals, et. al.) to understand the nature of the Vision Plan. In meeting with stevedore / terminal companies be prepared to adjust and make changes to match customer needs.

21. Short and medium-term marketing should focus on carriers and shippers that have the ability to work around the current navigational constraints. Additionally, the Port should focus on ancillary service providers (e.g. stevedores, freight forwarders, vessel agencies, intermodal service providers, and other maritime related businesses) that may support port demands. Seek new customers that may be impacted at their current port by the growth of containers.
22. The Port has excellent partnerships with CEMEX, IMI, and PABCO. Seek new or additional dry bulk cargo customers for short-term capabilities with limited investments and who are prepared to assist with the development of a covered *Multi-User Dry Bulk Terminal*.
23. Based upon the 2020 Vision Plan's two market assessments for dry bulk cargo, the throughput will not reach the calculated Maximum Practical Capacity (MPC) during the long-term planning horizon of 2045. However, using 70% of the MPC, defined as the Sustained Terminal Capacity (STC) or by the end of the CEMEX lease term (2026), the Port needs to be prepared to initiate the covered *Multi-User Dry Bulk Terminal* concept.
24. The covered *Multi-User Dry Bulk Terminal* should include portions of the CEMEX private terminal, the 8.2 acres parcel leased to CEMEX, the 0.5-acre parcel leased to Lehigh, and a portion of the current leased premises intended for the Ferry Landing.
25. The Port should research whether the Port Authority can assess tariff charges to products that are delivered to the Port Priority Use Area by other than water (e.g. Portland Cement delivered by rail and Demolition material delivered by truck).
26. Depending on the Main Channel Dredge depth, the *Multi-User Dry Bulk Terminal* may have a depth constraint at Wharves 1 - 2. As part of planning for this terminal, the design and planning may necessitate improvements to the wharves. The current Wharves 1 - 2 have 3,800,000 metric tons (4,188,783 short tons)<sup>10</sup> terminal capacity.
27. Prior to the development of the *Multi-User Dry Bulk Terminal*, a short-term lease can be offered to PABCO with a 300,000 metric ton annual guarantee with the understanding that PABCO agrees to work with the Port to relocate its future operations to the new Terminal.
28. There needs to be cargo velocity metrics and benchmarks for existing lease extension and/or future business opportunities to ensure efficiencies are incorporated into the lease agreement. The Port may wish to establish a per ton per acre throughput standard for dry-bulk cementitious products. Long-term storage within the Port's priority use area should be limited.
29. The SIMS proposal to augment the PG&E substation with a battery power source is a positive sustainable project.
30. SIMS proposal for a larger crusher to expand the recyclable materials capabilities will lead to increased export volumes from the facility
31. Marketing for an *Omni-Terminal (General Cargo)* needs to include the agricultural sector, energy sector, and automobile shippers. The Port can market to Silicon Valley importers and exporters to develop inducement calls.
32. In the short-term, the Port should establish a lay-down area by relocating the public access area

---

<sup>10</sup> Port of Redwood City Wharves 1 and 2 Redevelopment Project – Final Supplemental EIR



between Herkner Road and the shoreline to another location and establish a clear asphalt lay-down area. At the same time, the Port can initiate marketing for potential clients and customers through various meetings with stevedores, shippers, carriers (niche tramp services), and terminal operators. There may be a seasonal refrigerated import and export cargo opportunities.

33. The Port needs to advocate the use of open storage areas rather than covered transit-shed storage.
34. Use the MGOS process for planning, design, and implementation of a ferry landing and terminal (start with the minimum constructions of a berth and gangway with the capabilities to improve the ferry landing to a covered facility to support the passengers). Make the boarding and un-boarding of the ferry boat to be a pleasant experience in all weather conditions with a covered gangway and waiting area.
35. The Ferry Landing and Terminal should be planned and designed like a cruise ship terminal. Make the facility a great experience for the rider and make Redwood City a required port of call. Link the ferry service to other commercial / recreational activities. This can make the ferry landing more than just a public transit loading and un-loading area.
36. The establishment of the Ferry Services should be viewed as creating economic development opportunities.
37. The Ferry Terminal concept can be scaled off the Port of San Francisco's Ferry Building Plaza with similar types of land uses and amenities.
38. As a long-term initiative, prepare and complete a Specific Plan similar to the City's Downtown Retail Task Force Process. This Plan is intended to create a destination on the Bay and to connect the City to its water's edge. The Task Force can be a public-private Port initiative. A waterfront model for this planning process is the San Francisco's Northern Waterfront Planning effort and the Total Design Plan concept established by BCDC for the Ferry Building complex. This process should include the Abbott Lab property.
39. The current Marine Institute and Redwood City Youth Maritime concepts should be viewed as *Active-Uses* in a Public-Private-Partnership on the Abbott Lab property.
40. While there have been historical failures for *Active-Uses* in the Portside area, these types of uses may be successful now with the growth of the Redwood City downtown and the development of Pacific Shores. View the Sequoia Yacht Club as an *Active Use* within the Portside area
41. In the short and medium term, there may be an opportunity to combine small parcels currently on hold-over status.
42. Public art, similar to the San Francisco Waterfront Promenade (Agriculture Building to Pier 22) should be part of the waterfront design standards along the Port's shoreline.
43. The establishment of public open space at a proposed Redwood City Ferry Landing and Terminal site and along the Abbott Labs property are intended to replace any loss of open space.
44. In the event that Cargill proposes development on the Salt Ponds, the Port should propose to relocate Seaport Boulevard to provide a buffer zone from future development. This relocated roadway is intended to expand Redwood City's Port Priority Use area. The existing utility right-of-way on the current Seaport Blvd. need not be relocated. As an alternative, the Cargill Salt Ponds should remain undeveloped as existing open water habitat.
45. Signage at major corners and nodes should be standardized as part of the overall planning process.

## **Section II to Section XII**



## **II. INTRODUCTION AND BACKGROUND**

The PORT OF REDWOOD CITY (“PORT”) commissioned the Vickerman and Associates (“V&A”) team to prepare a Maritime & Commercial Real Estate Vision Plan for the Port (hereafter referred to as “the Plan”, “the Vision Plan”, or “the 2020 Vision Plan”).

The overall purpose of the 2020 Vision Plan is to be *advisory and conceptual*, but in such detail, as to provide the Port with a vision for the future. Visioning is a process that attempts to provide future directions for successes. The Plan is not a mission statement, it is akin to the *North Star* providing directions for a long adventure. It is not a strategic plan; a strategic plan is a detailed map to where you want to go and how you get there; a vision is simply a glimpse of the actual destination.

The Port is located 18 nautical miles south of San Francisco; it is the only seaport in the southern portion of the San Francisco Bay. The Port is strategically located to serve Silicon Valley with excellent inland surface transportation and access. Rail service is provided by the Union Pacific Railroad (UP). The Port’s overall tonnage exceeds 2.3 million metric tons. The primary outbound (export) cargo is scrap metal, and the primary inbound (imports) is dry bulk cargo construction materials. The main Federal channel is minus 30 feet MLLW, but the berth-side depths are minus 34 feet MLLW.

The 2020 Vision Plan is a glimpse of conceptual land uses and opportunities for maritime and commercial real estate; for the maritime uses particular attention is to maximize efficiencies and for commercial real estate tenants it is to make Redwood City’s outer waterfront a vital commercial recreational destination for residents, workers, and visitors. Development concepts are suggested based upon the Port diversifying both maritime and commercial tenants.

### ***Intent of the Vision Plan***

The 2020 Vision Plan tracks the Port’s actual cargo throughput for the past 20-years, uses a market forecast assessment consistent with the methodology of the Seaport Plan<sup>11</sup>, identifies potential future maritime concepts, and suggests potential marketing efforts.

The Bay Area Seaport Plan identifies 47 acres of terminal acres for five specific terminals within the Port’s overall 120-acre industrial and maritime complex. The Seaport Plan identifies dry bulk, neo-bulk, liquid bulk, and break-bulk cargo capabilities for the Port’s Wharves 1 and 2, Wharf 3, Wharf 4, Wharf 5, and a future dry bulk terminal. The Seaport Plan’s 2020 *optimal annual throughput capability* for the Port was calculated at 3,810,200 metric tons as follows:

- |               |                       |
|---------------|-----------------------|
| • Dry Bulk    | 3,103,200 metric tons |
| • Neo-Bulk    | 511,800 metric tons   |
| • Liquid Bulk | 144,000 metric tons   |
| • Break-bulk  | 51,200 metric tons    |

While the Seaport Plan uses the term “Optimal Annual Throughput Capability”, V&A uses an industry term “*Maximum Practical Capacity (MPC)*”.

---

<sup>11</sup> San Francisco Bay Area Seaport Plan, dated April 18, 1996, amended through September 2012, and currently in the process of being updated by BCDC.

The 2020 Vision Plan uses data provided by the Port and tenants as well as a recent Final Supplemental EIR<sup>12</sup> for improvements at Wharves 1 and 2. V&A did not calculate terminal capacity.

The Plan did prepare a cursory market forecast out to 2045<sup>13</sup>. While this cursory forecast is not an econometric market assessment, it does provide an overall flexible strategic market direction. It also establishes an overall business framework within which project decisions can be made. The methodology used is consistent with the Seaport Plan's Draft Forecast 2019 - 2050 currently being reviewed by the Seaport Advisory Committee.

The Vision Plan's long-term MPC for the Port of Redwood City includes the SIMS scrap metal terminal, the addition of a covered *Multi-Purpose Dry Bulk* terminal, and a future Omni-Terminal (combination of break-bulk, neo-bulk and roll on / roll off). The total MPC for these terminals is 5,063,000 metric tons. This is a 32.9% increase over the 2012 amended Seaport Plan.

<b>Dry Bulk Capability (Cementitious Materials and Scrap)</b>	<b>4,500,000 metric tons</b>
<b>Omni-Terminal (Combination break-bulk, neo-bulk, and ro/ro)</b>	<b>563,000 metric tons</b>

Based upon the cursory market forecast<sup>14</sup>, dry bulk cargo throughput will not reach the MPC during the long-term planning horizon of 2045. However, using 70% of the MPC as the Sustained Terminal Capacity (STC), the Port should begin feasibility planning for a covered *Multi-User Dry Bulk Facility* by 2025 or sooner if the throughput capacity exceeds 75% of MPC (page 44 Figure 34). Additionally, the Port should begin planning for a general cargo *Omni-Terminal*.

### ***Estimates: Order of Magnitude and Cost***

If costs are offered or presented, they are to be considered as an order of magnitude: "Opinion of Probable Cost". There are no engineered estimates prepared for the Plan.

### ***Navigation Channels in San Diego Bay***

The US Army Corp of Engineers mean lower low water (MLLW) datum (San Francisco Bay to Redwood City Federal Navigational Channel) remains unchanged by the Plan.

### ***California Environmental Quality Act***

The 2020 Vision Plan is not a project as defined by the California Environmental Quality Act. Environmental assessments will be made on a project to project basis.

### ***Port of Redwood City Berths***

The Port has three (3) operating berths totaling 3,405 linear feet on Wharves 1 and 2, Wharves 3 and 4, and Wharf 5. Wharves 1 and 2 have a concrete dock 425 ft. x 55 ft, with a 20 ft. extension on a section for the Cemex Aggregates (hopper/conveyor). Wharf 3 is a concrete dock 400 ft. x 45 ft. with a small extension

<sup>12</sup> Port of Redwood City Wharves 1 & 2 Redevelopment Project (Phase 2), Final Supplemental Environmental Report SCH # 2009042129, dated September 2016.

<sup>13</sup> The Seaport Plan long-term forecast is 2050.

<sup>14</sup> The market assessment uses two baselines: a 2018 actual throughput and an average of 2017 & 2018 actual throughput.

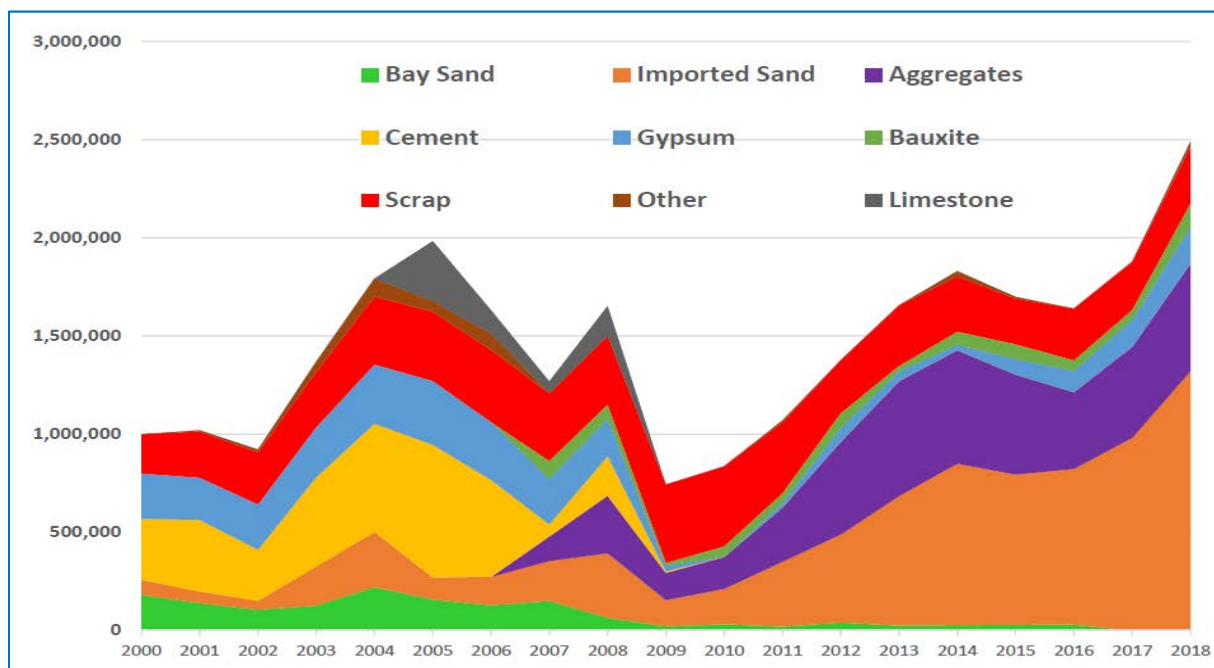
for the SIMS conveyor. Wharf 4 is a concrete dock 80 ft. x 50 ft. with one access ramp. Adjacent to Wharf 4 are dolphins and a walkway to extend the berthing capability. Wharf 5 is a concrete dock with two access ramps. Vessel access use the ramps connecting the concrete deck to the terminal storage areas.

Figure 11. Berth Characteristics

Berths	Length l.f. (linear feet)	Depth ( berth-side)	Primary Customer	Special Characteristics
Wharves 1 & 2	1,530 l.f.	34 ft MLLW	CEMEX	Cemex Ship Bulk Unloader Siwertel @ 300 tph <sup>15</sup> Aggregate hopper & conveyor 3,000 tph
Wharves 3 & 4	1,125 l.f.	34 ft MLLW	SIMS, IMI, PABCO	SIMS Bulk Unloader 400 tph PABCO Bulk Unloader 800 tph IMI hopper to truck 150-200 tph
Wharf 5	750 l.f.	Unknown	None	None

### Port of Redwood City Terminal Commodities

Figure 12. Historic Cargo Tonnage Throughput (metric tons)



Port users have historically handled imported and domestic dry bulk construction materials. Export cargo is scrap metals. The recent growth in cargo tonnage is a direct result of imported Canadian aggregate and sand. During the recession, Bay sand and waterborne cement declined to zero. Export scrap material (red area) has a steady growth rate of approximately 3% annually.

<sup>15</sup> Tons Per Hour = tph

### III. SCOPE, PURPOSE, APPROACH AND METHODOLOGY

V&A was issued a Notice to Proceed on November 14, 2018. A workshop was held at a public meeting with the Port Commissioners on December 12, 2018. A Mid-Term Report was present on April 10, 2019.

The December Workshop achieved the following objectives for V&A:

- Identified the boundaries of the Plan and potential areas for expansion
- Established short-term, medium-term, and long-term planning horizons
- Received guidance for a public vision for the Port (upgraded website)
- Confirmed the Port's current vision statements from the website
- Identified any possible projects and programs to be incorporated into the Plan

The **scope of work** for the Vision Plan is the initial tasks of a V&A strategic planning process shown below outlined in gold (Facility Assessment). The overall planning process has been successfully used at 67 of the 90 North American deep-water general cargo ports. This process has benefited both container and niche ports. The strategic planning phases include facility assessment of existing terminals, capacity modeling, alternatives analysis, and terminal needs assessment resulting in a terminal facilities initial building program solution.

Figure 13. Vickerman & Associates Strategic Planning Process

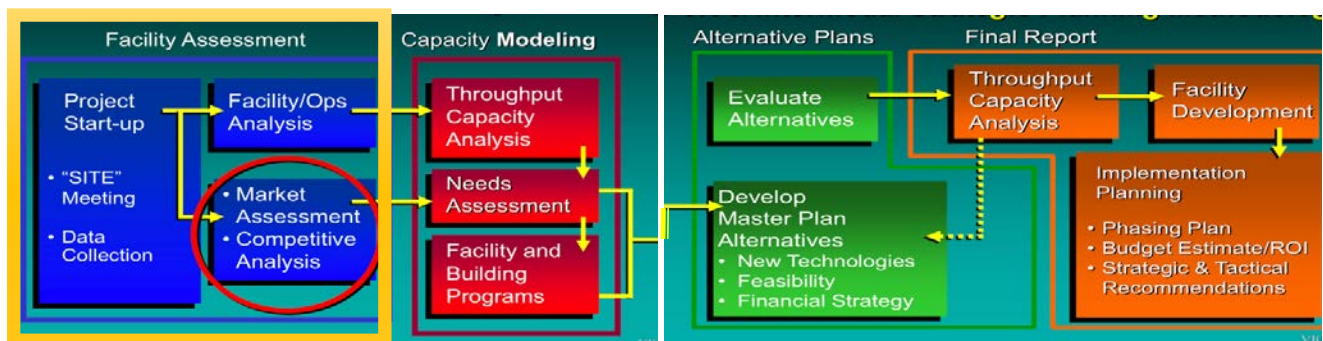
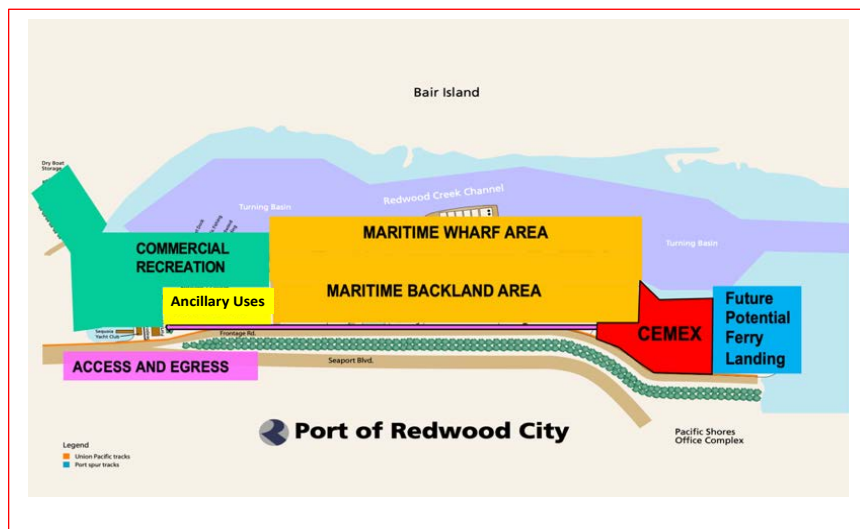


Figure 14. Preliminary Port of Redwood City Operating Nodes

The scope for this included a project start-up workshop, meetings with the staff and stakeholders, data collection, facility and operations analysis with existing terminal operators, a cursory market assessment, and a review of Draft Forecast prepared for the Seaport Plan Update.

At the project start-up workshop, preliminary operating nodes, shown in Figure 14, were presented. The Port Priority Use Area consisted of an ancillary use site (yellow), the maritime wharf and backland area sites (gold), the CEMEX areas (Red), and a future ferry terminal/landing (Blue).



The preliminary operating nodes propose the “Maritime Wharf and Backland Node” book-ended by a Commercial Recreation Node (Green) and a Ferry/Terminal Landing Node (Blue). Ferry uses are allowable in a Port Priority Land Use area. An approximate 9-acre parcel (yellow) is an ancillary use parcel, and a portion or all of this site may be incorporated into a future *Omni-Terminal*. One of three parcels assigned to CEMEX is privately owned. The Port should seek to obtain a “*first right of refusal*” from CEMEX for this parcel in order to maintain control over the Port Priority Use area and to avoid another operator from obtaining control of this essential terminal area.

The V&A business **approach** is summarized as:

***“Forecast Market Demand Less Current Terminal Capacity equals Justifiable Terminal Need”***

While marketing conditions will change, it is suggested to phase implementation based upon individual opportunities.

Required **tasks** for the preparation of the 2020 Vision Plan were:

- Port reconnaissance efforts
- Meetings with staff, tenants, and selected stakeholders
- Cursory market assessment for a cargo forecast update
- Market driven findings / recommendations and creation of operating node solutions
- Report and public presentation

A variety of background **sources** were used; they include the following:

1. Previous reports and forecasts prepared by the Port.
2. The BCDC/MTC San Francisco Bay Seaport Plan.
3. Past City of Redwood City development concepts (e.g. Abbott Labs, Cargill, and the City’s Inner Harbor Special Plan).
4. A market forecast using US, State and Regional GDP and other relative data.
5. The San Francisco Bay Seaport Plan Draft Forecast 2019 - 2050 update discussions and documents.
6. Facility needs assessments for CEMEX, PABCO, SIMS, and IML.
7. Discussion with Portside I and Portside II master tenants.
8. Customers’ cargo forecasts and market assessments.,

Some of the main planning documents and prior studies reviewed included:

1. Draft Integrated Feasibility Report and Environmental Impact Statement/Environmental Impact Report April 2015.
2. San Francisco Bay Seaport Plan, April 18, 1996, as amended through January 2012.
3. San Francisco Bay Seaport Draft Plan Update, June 2019 and Forecast 2019 – 2050.
4. Memorandum, September 9, 2011, from The Tioga Group RE: 2011 Bulk Cargo Forecast Update – Preliminary Results.
5. BCDC 2014 Bay Area Maritime Cargo Monitoring Report, October 23, 2015
6. Lease Agreements from selected Port Tenants
7. Port of Redwood City Ferry Terminal Locational Analysis, Environmental Assessment & Conceptual Design, September 2007



8. Final Report, Strategic Assessment of Maritime Business, prepared by Tran Systems, February 2008
9. Port of Redwood City, Basic Financial Statements and Independent Auditor's Reports (past five years)
10. Port of Redwood City Historical Cargo Throughput (20 years)
11. 2016 Strategic Plan, San Francisco Bay Area Water Emergency Transportation Authority
12. US 101 / SR 84 (Woodside Road) Interchange Improvement Project, Preliminary Project Area
13. City of Redwood Draft Inner Harbor Specific Plan materials.
14. Downtown Retail Task Force: Findings and Recommendations, April 15, 2019.
15. Downtown Precise Plan Amendment Active Ground Floor Uses in Downtown, September 12, 2016.

#### **IV. SAN FRANCISCO BAY SEAPORT PLAN AND DRAFT UPDATE**

The BCDC / MTC San Francisco Bay Seaport Plan is a critical policy document for the 2020 Vision Plan. The Seaport Plan is equivalent to a coastal Port Master Plan prepared pursuant to the California Public Resources Code (Division 20) and the California Coastal Act. The BCDC Seaport Plan's stated goals are:

- Ensure the continuation of the port system of the San Francisco Bay for the economic vitality of the Bay Area region.
- Maintain and improve the environmental quality of the Bay and its environs.
- Provide efficient use of the finite physical and fiscal resources in operating the Bay Area ports.
- Integrate and improve intermodal transportation facilities between the ports and other regional transportation systems.
- Reserve shoreline areas to accommodate future growth in maritime cargo thereby minimizing the new for new fill.

These goals are overarching policies of the Vision Plan. The BCDC Seaport Plan reserves for seaport priority uses (Port Priority Use areas). By reserving adequate shoreline areas for cargo handling, the Seaport Plan reduces future needs for large-scale Bay filling for maritime uses. The Port Priority Use areas preserve suitable port sites for foreseeable cargo needs which promotes a thriving Bay Area port economy. To preserve suitable sites, BCDC uses a methodology to establishes marine terminal capability for individual terminals to meet forecasted cargo demand. The Bay Area port governed by the Seaport Plan include: Port of San Francisco, Port of Redwood City, Port of Oakland, Port of Richmond, Port of Benicia, Selby, and the Concord Naval Weapon Station.

The original Seaport Plan developed in 1982 was updated in 1988 and 1995. The April 18, 1996, Seaport Plan was intended to meet the waterborne cargo demand through 2020. On January 17, 2019, BCDC initiated another process to create a 2020 Seaport Plan. Specific goals for this update are:

- Update waterborne cargo projections for Bay Area cargo.
- Assess and reflect improvements in cargo handling capacity at marine terminals for container, dry-bulk and ro/ro terminals.
- Evaluate the cargo handling capacity with the updated waterborne cargo forecast levels for imports, exports, and domestic waterborne cargo.

- Reflect effects of rising sea level.
- Include applicable environmental justice and social equity policies.

**Figure 15. BCDC Seaport Plan Update Timeline (Completed tasks in Red/future tasks in Blue)**



The private leased terminals in the Port's priority use area and their competition are shown in Figure 16.

**Figure 16. Port of Redwood City Cargo Flow and Competitive Ports in SF Bay**

Commodity	Port of Redwood City	Competitive Ports / Terminals
Export Scrap Metal	SIMS	Oakland (Schnitzer) and Richmond (Sims) Private Terminals
Import Gypsum	PABCO	Other Private Terminals
Import Sand and Aggregate	CEMEX	San Francisco and Other Private Terminals
Import Slag <sup>16</sup>	CEMEX	NONE
Import Bauxite	IMI	NONE

The five generic cargo and terminal types identified in the Seaport Plan<sup>17</sup> are:

- Containerized Cargo
- Roll-on/Roll-off (ro-ro) cargo (formerly classified as “neo-bulk”)
- Dry bulk cargo
- Break-bulk cargo (not currently handled)
- Non-petroleum liquid bulk cargo.

<sup>16</sup> Slag and Portland Cement are stored in silos o CEMEX owned property.

<sup>17</sup> DRAFT Executive Summary Version of 6/17/19



*“The composition of SF Bay Area cargo flows has changed over time, and will continue to shift in response to demand, trade conditions, and competitive alternatives”. (Executive Summary, Seaport Plan)*

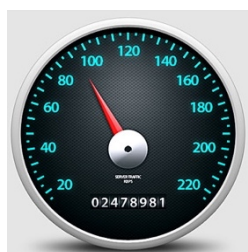
In 2012, the Seaport Plan estimated the needed future cargo capacity demands for the five generic cargo handling terminals (based upon throughputs, acres, berths, and forecast needs). Figure 17 shows the 2020 baseline cargo demand forecast at 40,908,117 metric tons and the estimated optimal annual cargo terminal capacity for all five handling modes at that time was 45,362,500 metric tons (2020 cargo demand was 90% of the terminal capacity).

### Maximum Practical Terminal Capacity (MPC) and Sustainable Terminal Capacity (STC)

While the Seaport Plan use the term “Optimal Annual Cargo Throughput” for a terminal’s capacity, V&A uses *Maximum Practical Terminal Capacity* and *Sustainable Terminal Capacity*.



**Maximum Practical Terminal Capacity (MPC)** is the capacity which is achieved under a practical operating scenario and with the best conditions in place and assumed. MPC is independent of most market forces. However, it is governed by terminal equipment, equipment conditions, operations and vessel/train/truck arrival and departure schedules. MPC can be achieved or even exceeded for short periods. However, a terminal operator will seldom tolerate this level of stress on the terminal system for very long.



**Sustainable Terminal Capacity (STC)** is that capacity which is most reasonable and profitable to the operator. STC is most accurately determined by a thorough economic analysis of a terminal’s operations. However, for purpose of the Vision Plan, STC is estimated to occur between 70% and 75% of the MPC. When the STC is exceeded for multiple years, the Port and/or terminal operator need to consider making improvements to upgrade the terminal’s throughput capabilities.

Figure 17. 2012 Seaport Plan Estimate for Bay Area Throughput Capabilities and 2020 Baseline Forecast<sup>18</sup>

	Acres	Berths	Throughput	2020 Baseline Forecast
Container	1,375	30.5	31,824,500	32,567,000
Break Bulk	29	4.4	363,000	448,198
Neo-Bulk	254	7.6	2,367,800	497,035
Dry Bulk	158	8.9	9,807,200	6,881,390
Liquid Bulk	106	8.6	1,000,000	514,494

The 2012 Seaport Plan estimated throughput needs for the Port of Redwood City in four of the five generic cargo handling nodes. Container cargo handling was limited only to the Port of Oakland. Figure 18 shows

<sup>18</sup> A 2015 Bay Area Maritime Cargo Monitoring Report revised the 2020 Baseline Forecast for Containers but all other modes were unchanged.

the percentage for each MPC cargo handling mode for the Port of Redwood City identified in the Seaport Plan. Figure 19 plots the actual throughput (2008 to 2018) based upon the V&A MPC and STC calculations.

Figure 18. 2012 Seaport Plan MPC Estimate for the Port of Redwood City

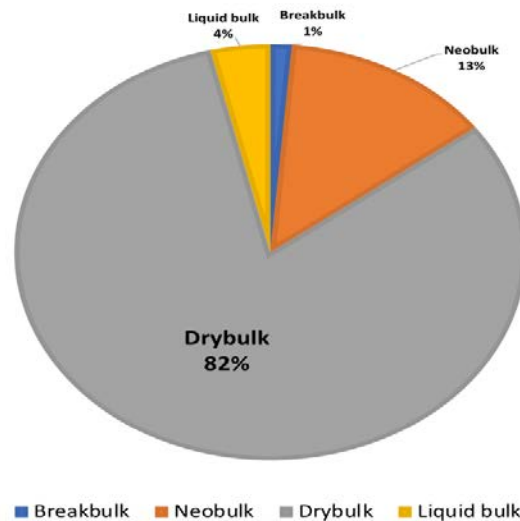
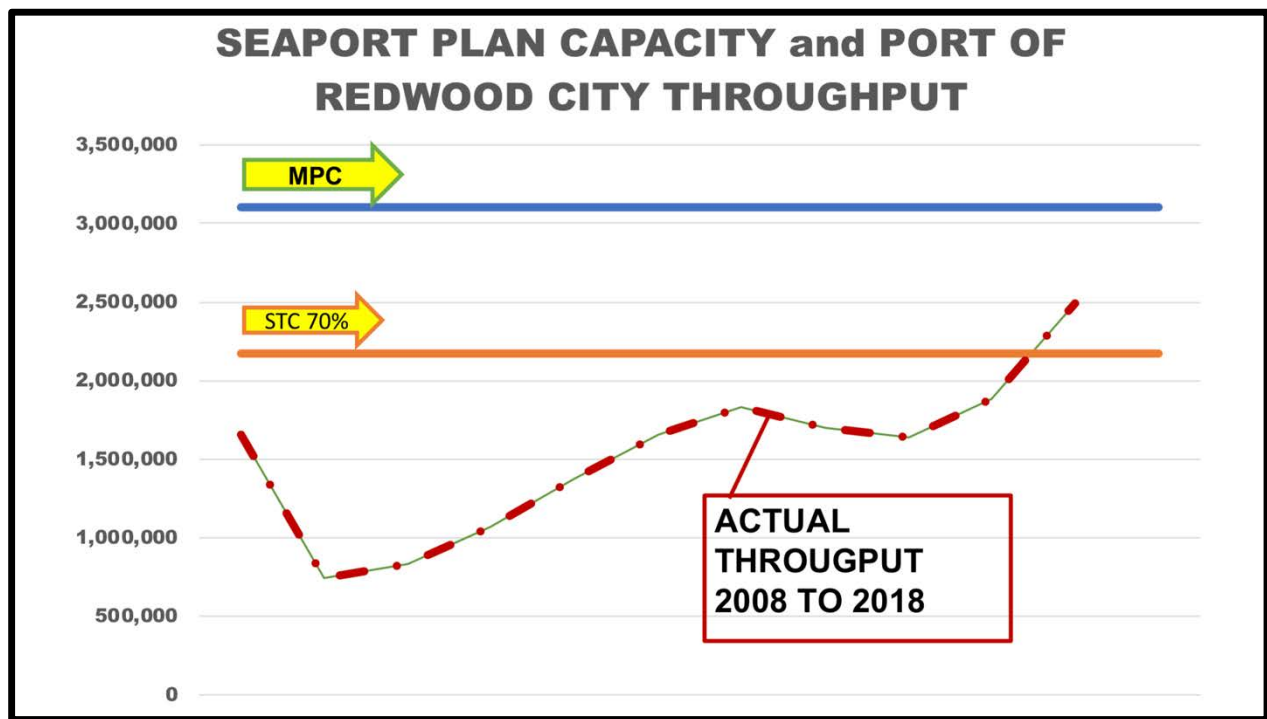


Figure 19. Seaport Plan Capacity and Port of Redwood City Throughput for Dry Bulk Cargo (2008 – 2018)



The 2012 Seaport Plan establishes a dry-bulk cargo baseline capacity for the Port of 3.1 million metric tons.<sup>19</sup> Therefore, the Port's baseline MPC<sup>20</sup> for 2020 is 3,103,200 metric tons.<sup>21</sup> The STC<sup>22</sup> is 2,172,240 metric tons. The Port's actual throughput between 2008 and 2018 shown on Figure 19 exceeds the calculated STC and supports the need to initiate a Strategic Planning process with this Vision Plan.

Figure 20. Port Development "Pipeline Analogy"

There are five factors used to identify capacity constraints.

The five capacity factors are:

- Vessel and Berth Activities
- Ship-to-Apron Transfer
- Apron-to-Storage Transfer
- Storage
- Intermodal Transfer

Figure 21 suggests maritime and commercial real estate constraints identified. These constraints are based upon studies and plans submitted by the Port as well as the past experiences by V&A in past strategic planning. The Port's actual constraints, may not be limited to Figure 21, but it is recommended that the Port focus on actions to overcome these identified constraints.

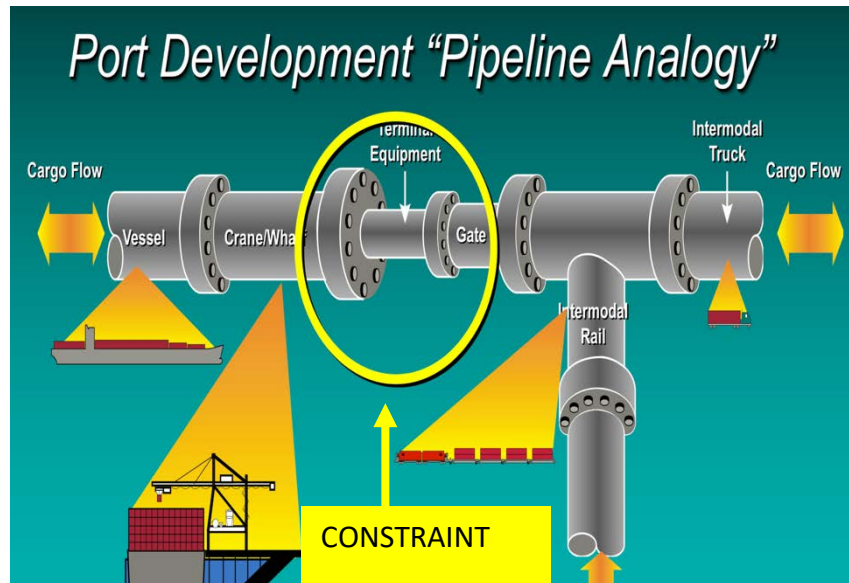


Figure 21. Maritime and Commercial Real Estate Constraints

FACTOR	MARITIME CONSTRAINT	REAL ESTATE CONSTRAINT
NAVIGATION	Federal Channel minus 30 ft. MLLW requires lightering and adjusting loads to meet channel depth.	Within Redwood Creek there are recreational boating congestion (rowers, recreational boaters and deep-draft vessels)
	Air Draft at the San Mateo Bridge (135 feet above water) may limit PCC Ro/Ro vessels.	There needs to be separation between small craft vessels and maritime wharf areas (e.g. Boy/Girl Scout vessels)
WHARVES / EQUIPMENT	Upgrades are required for Wharf 5 and future Omni-Terminal berths.	Maintenance dredging of marina impacted users.

<sup>19</sup> Seaport Plan defines aggregate, sand, gypsum, bauxite, slag and scrap metal as dry bulk

<sup>20</sup> MPC (Maximum Practical Capacity)

<sup>21</sup> There is no break-bulk nor neo-bulk cargo currently using the Port of Redwood City therefore their Seaport capacities were not included in the Port's Seaport Plan MPC. The Liquid Bulk capacity in the Seaport Plan was Pilot Petroleum and this use no longer exists.

<sup>22</sup> STC (Sustained Terminal Capacity) = 70% of MPC

<b>WHARVES / EQUIPMENT (Cont'd)</b>	Cost of maintenance dredging berth-side is expensive.	
	Maintenance dredging of the Federal Channel is dependent on federal budget capabilities (not dependable) and Water Resources legislation.	
<b>TERMINAL SPACE</b>	There is a lack of land for expansion. A potential <i>Omni-Terminal</i> customer may seek a minimum of 30-acres.	There are no commercial <i>Active Uses</i> . Office uses are the predominate commercial uses, and these are <i>Inactive Uses</i> .
	Open storage of bulk cargo (uncovered) results in dust during operations which will deter potential <i>Omni-Terminal</i> customers.	The marina and commercial / recreational areas lack identity (e.g. Fisherman's Wharf, Pier 39, Mission Bay, etc.)
	There is a lack of lay-down areas for <i>Omni-Terminal</i> customers (e.g. break-bulk, ro-ro and project cargo opportunities).	
	There are no buffer areas to avoid impacts between maritime and non-maritime uses. Future maritime developments require buffers from commercial uses.	
<b>ENTRANCE (GATE)</b>	There is no identifiable "front door" to the maritime use area ( <i>Central Gate</i> concept).	There is no identifiable "front door" to the commercial / recreational area.
<b>ACCESS / EGRESS</b>	There is poor directional signage. Mixed vehicular and truck traffic results in potential vehicular risks.	There is poor directional signage. There is a lack of connectivity to Downtown Redwood City and other public transit connectivity
	The SR 84 / HWY 101 (Woodside Rd) Interchange project planning should extend along Seaport Boulevard to the future Ferry Landing and Pacific Shores Center.	The commercial / recreational area lacks connectivity to the Bay Trail and Seaport Boulevard needs improved pedestrian and bicycle paths

## **V. PORT INVESTMENT DECISION-MAKING PROCESS**

***"A port cannot be planned or designed as an arbitrary arrangement of independent terminals. It cannot even be planned as an independent whole, because the arteries connecting the port to the sea and to the hinterland are as important as the port itself. A port should always be studied and planned in its true node in a complex system."***<sup>23</sup>

<sup>23</sup> Source: Guidelines for Port Planning published by the International Association of Ports and Harbors (IAPH).

Nowhere is this IAPH planning guideline more important than at the Port with its collection of maritime and commercial real estate lease agreements, hold-over leases, historical uses that encumber land and water holdings, the UP right-of-way, and the SR 84 / HWY 101 (Woodside Rd) Interchange project.

The 2020 Vision Plan is “*bifocal*” requiring the ability to commit to short term opportunities but anticipating future operational efficiencies. The Plan must be read and understood as a flexible document

When investments are needed, the Port can rely on an investment decision-making process prepared by the American Association of Port Authorities.<sup>24</sup> The initial step is to define a project and determine its consistency with a port’s longer-term vision. If the project is not consistent, then it may be necessary to re-evaluate or modify the project or the underlying vision of the port. Following this initial step, a port moves to a risk assessment evaluation. The risk assessment calculates a target return-on-investment and requires a clear understanding of the project, its functions, and potential for profitable operations. When assessing risk, there is always a greater risk when a port undertakes a project that is periphery to the port’s current core business.



For the Port of Redwood City, the primary sources of capital are Revenue Bonds secured by and payable from the revenues generated by Port operations. The June 30, 2018 long-term principal debt was \$ 13,624,098. The Port of Redwood City Revenue Bonds Series 2012 will be fully redeemed by 2032, and the Port of Redwood City Refunding Revenue Bonds Series 2015 will be fully redeemed by 2030. The annual debt service (principal and interest) over the next five years is approximately \$ 1.35 million.

Federal discretionary grants recently used for maritime infrastructure improvements are the Better Utilizing Investments to Leverage Development (BUILD)<sup>25</sup> program and the recent Port Infrastructure Development Program. On April 23, 2019, the Secretary of Transportation announced the availability of \$ 900 million in BUILD grant funds. The maximum, grant award is \$ 25 million, and no more than \$ 90 million can be awarded to a single State. While the application period for the current round of funding was July 2019, it is anticipated that another round of grant funds will be made available in April 2020. In addition to the BUILD grant funding a new Port Infrastructure Development Program has \$ 292.7 million available through the U.S. Department of Transportation.

### **Port of Redwood City Operations Revenues / Expenses FY 18 / FY 13**

The Port’s financials show that between Fiscal Year 2013 to 2018 the maritime revenues have been strong. This indicated that the Port was fully recovered from the recession. Growth in imports from Canada and continued exports from SIMS has produced an increase in overall revenues.

<sup>24</sup> Source: Port Capital Investment Decision-making: A Process (Port Management Series – AAPA)

<sup>25</sup> This is the former USDOT TIGER program.

**Figure 22. Maritime, Recreational boating, and Commercial Real Estate Revenues as a percentage of Total Revenues.**

	FY 18	FY 17	FY '16	FY 15	FY 14	FY 13
<b>Total Revenues</b>	\$ 8,627,231.00	\$ 7,127,814.00	\$ 6,779,863.00	\$ 6,721,955.00	\$ 6,824,474.00	\$ 6,262,660.00
<b>Maritime</b>	75%	72%	72%	73%	75%	73%
<b>Recreational Boating</b>	7%	8%	8%	8%	8%	8%
<b>Commercial Real Estate</b>	17%	18%	18%	17%	16%	17%

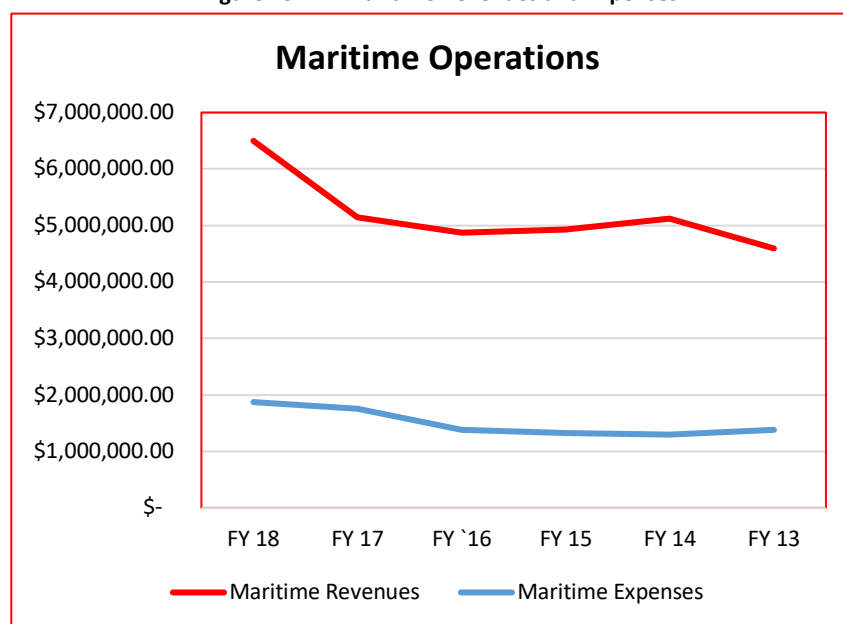
Maritime operations are between 72% and 75% of the total revenues for the past five years.

Commercial real estate revenues are 16% to 17% over the same period.

	FY 18	FY 17	FY '16	FY 15	FY 14	FY 13
<b>Total Direct Expenses</b>	\$ 2,678,123.00	\$ 2,553,128.00	\$ 2,150,204.00	\$ 2,049,047.00	\$ 2,055,407.00	\$ 2,138,603.00
<b>Maritime</b>	70%	69%	65%	65%	63%	65%
<b>Recreational Boating</b>	21%	22%	26%	26%	25%	24%
<b>Commercial Real Estate</b>	9%	9%	10%	9%	12%	12%

Recreational boating only represents 7% to 8% of the revenues but 21% to 26% of the direct expenses as identified in the Port's Financials.<sup>26</sup>

Figures 23 A, B, and C illustrates the trend lines for revenues and expenses for each of the three primary operations of the Port starting in fiscal year 2013 and ending in fiscal year 2018.

**Figure 23. A. Maritime Revenues and Expenses**

<sup>26</sup> Direct expenses do not include Administrative / Salaries and Maintenance Expenses.



Figure 23. B. Recreational Boating Revenues and Expense

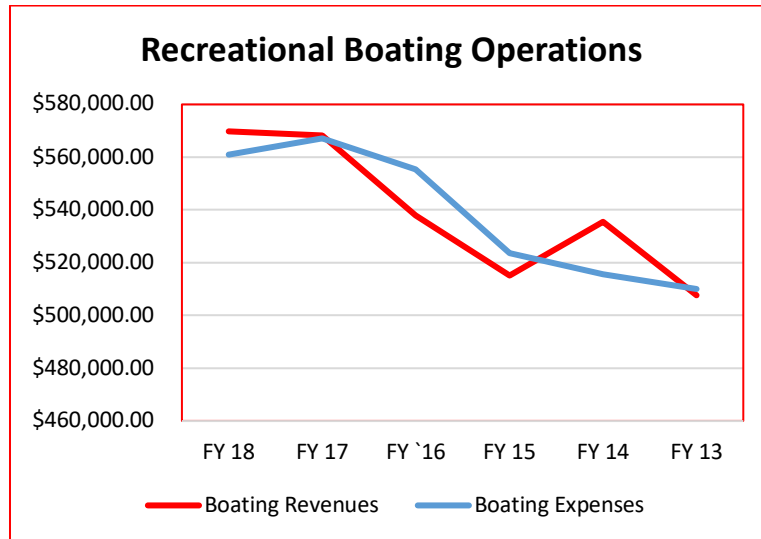
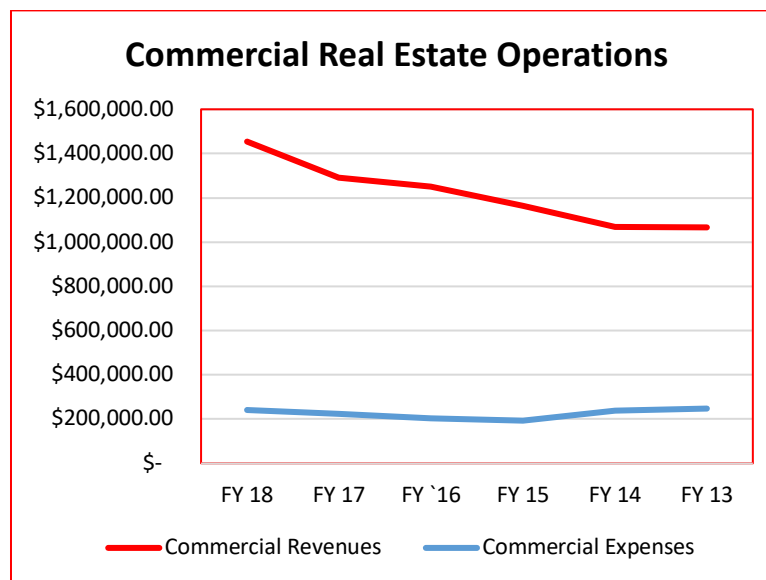


Figure 23. C. Commercial Real Estate Revenues and Expense



## **VI. MARKET ASSESSMENT AND CARGO FORECAST**

The 2020 Vision Plan uses a cursory market cargo assessment to integrate the forecast demand into a long-term *Vision*. Appendix A is a working draft of the data used in the market cargo assessment and forecast. This Plan's market cargo assessment along with the **Bay Area Seaport Draft Forecast 2019 – 2050**<sup>27</sup> provides the basis for setting the framework for future maritime needs for the Port. The Seaport Plan's and Vision Plan's methodology are similar and consistent. These Plan's use a collection of relevant regional data. Each forecast is based on publicly available Gross Domestic Product (GDP) data and existing

<sup>27</sup> A second draft of the Seaport Forecast issued October 10, 2019



national, state, regional and metropolitan trade and transportation data. The three specific forecasts used by the Vision Plan are:

- A long-range Moody's 2019 GDP forecast for the San Jose Metropolitan area (San Jose – Sunnyvale – Santa Clara, Metropolitan Statistical Areas).
- A long-range forecast based on multiple forecast indices published by the California Department of Transportation. The growth rate used is based on the combined average annual growth rate for five indices, which are oriented towards construction and expansion in the region, published in September 2018.
- A long-range Freight Analysis Framework (FAF) forecast published jointly by the National Bureau of Transportation Statistics and the Federal Highway Association. This FAF forecast integrates data from a variety of sources to create a comprehensive picture of freight movement among States and major Metropolitan Areas by all modes of transportation.

The Draft 2019-2050 Seaport Plan Forecast<sup>28</sup> used the following equivalent Bay Area, California and US data:

- Governor's Budget
- Comerica Bank State Economic Outlook
- UCLA Anderson Forecast
- Center for Business and Policy Research at the University of the Pacific Eberhardt School of Business, 2019-2022 California & Metro Forecast
- City of San Jose Economic Forecast
- Wells Fargo Western Economic Outlook
- Bank of the West California Economic Outlook
- Federal Reserve Federal Open Market Committee Forecast, March 2019

GDP is used because of the excellent alignment and relationship between trade and prosperity as shown in Figures 24 through 26.

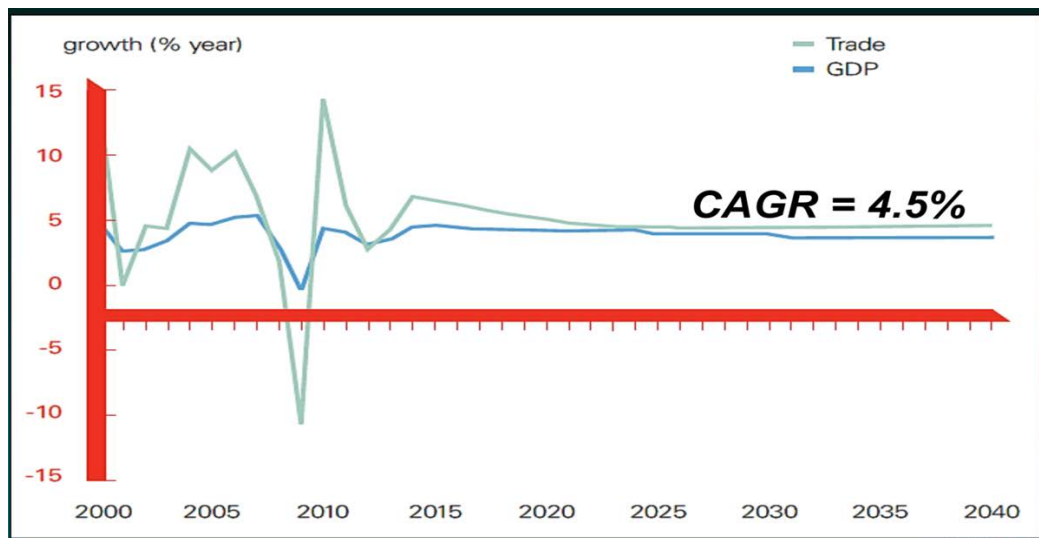
**Figure 24. Alignment and Relationship Between US Trade and US Prosperity - 1930 to 2005 (US Trade & Gross Domestic Product - \$ Billion)**



<sup>28</sup> Daniel Hackett, Hackett Associates, and Dan Smith, The Tioga Group, 2019-2050 Bay Area Seaport Forecast, June 2019

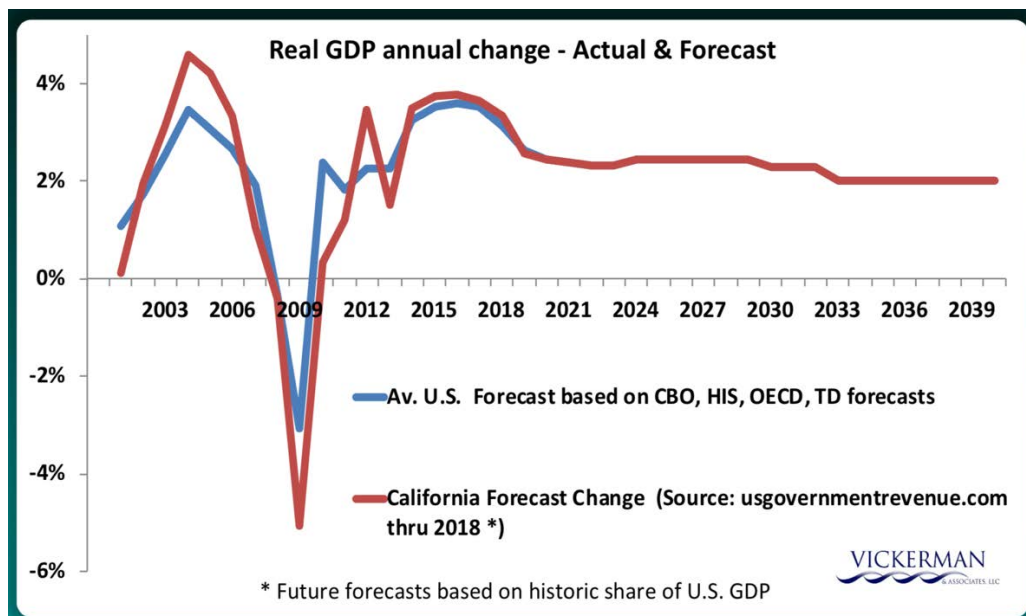
The Oxford Economics forecasts shows that world trade will grow 73% in the next 15 years. Merchandise trade volumes are projected to hit \$ 43.6 trillion by 2025.

Figure 25. Growth in GDP and World Trade (Oxford Economics 2013)



Growth in the US and California Statewide GDP is also closely aligned.

Figure 26. Average GDP U.S. Forecast Aligned with California



The Vision Plan also uses an industrial production forecast prepared by the California Department of Transportation, Office of State Planning to show a real industrial production forecast (Figure 27)

Figure 27. California 2040 Industrial Production Forecast Growth Rate

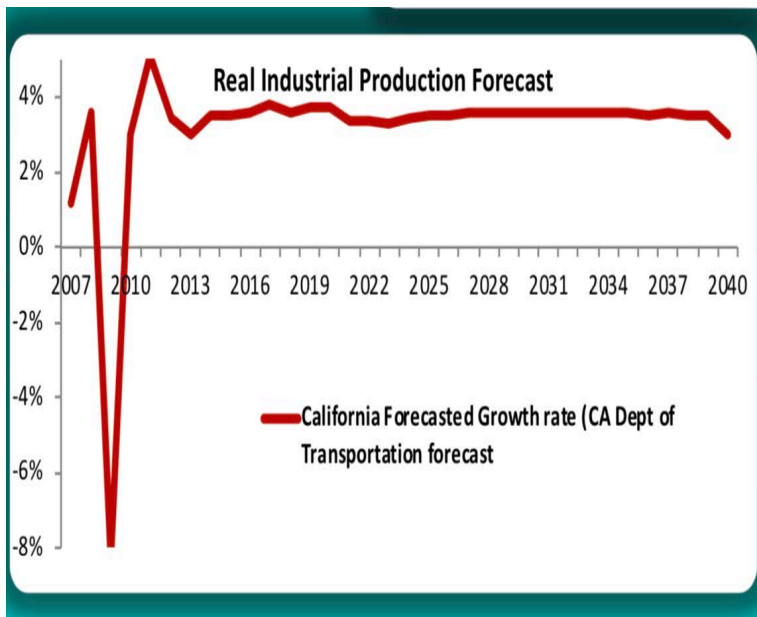


Figure 27 has a direct and positive impact on potential future construction materials at the Port of Redwood City. The Seaport Plan also used short term and long-term forecasts to similarly forecast the industrial growth and California job creation.

These multiple sources of data are the background of the Vision Plan's consolidated cargo forecast assessment. The scope of work did not permit a more detailed econometric market analysis; therefore, it is important to understand the cursory nature of the cargo forecast.

Based upon the Draft 2019-2050 Bay Area Seaport Forecast, the Plan's approach and methodology definitely fits into the current Seaport Plan's forecast.

Future volume through Bay Area seaports will be determined by economic activity in the Bay Area, and in some cases the broader Central and Northern California markets. Oakland's container trade, however, are impacted by economic activity outside of California. Exports moving through the Port of Oakland will occasionally go beyond the Bay Area markets to other Western States and to outlying Distribution Centers (DCs) based upon container movements to and from the Far East.

Relevant forecast outlooks<sup>29</sup> include:

- California's growth is projected to be steady, but at a *slower pace than the pre-recession years*.
- California's economy in 2020 will be slightly *weaker based upon changes in fiscal policy that affect the national outlook*. While the state's economy has been evolving as expected, the risk of a trade war with China remains a concern, as it could adversely affect the logistics industry, one of the fastest growing sectors in California this past year.<sup>30</sup>
- A trade slow down with China has impacted the export of scrap metals; however, *exporters appears to have adjusted by finding new markets and new recyclable products*. SIMS' potential growth rate remains steady (approximately 3% CAGR).
- According to University of Pacific outlook, overall, *real gross state product is forecast to grow at 2.9%, and drop below 2% growth by 2021 as recession risks grow*.
- Other California and Metro Forecasts show a tapering GDP growth rates in 2020-2022 with a gradual *increase in labor force, an increase in housing starts, and a steady new vehicle registration*
- Increasing housing starts may *positively impact and support cement component imports*.

<sup>29</sup> Seaport Plan Forecast shown in italics.

<sup>30</sup> Seaport Plan Update, UCLA Anderson Forecast.

- The growth in vehicle registration may result in more new car sales and thereby *increasing potential automobile market opportunities*.
- The City of San Jose forecast for residential and non-residential square foot growth (Figure 28) potentially will have a *positive impact imports* for the Port of Redwood City.

**Figure 28. Residential Units and Non-Residential Square Footage (San Jose Forecast)**

Residential Units and Non-Residential Square Footage: FY 12/13 to FY 22/23											
Fiscal Year	Actual					Projected					
	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
<b>Residential (Units)</b>											
Single-Family	284	341	254	152	201	275	275	275	275	275	275
Multi-Family	2,418	4,383	2,987	1,540	2,511	2,900	2,600	2,450	2,450	2,450	2,450
<b>Total</b>	<b>2,702</b>	<b>4,724</b>	<b>3,241</b>	<b>1,692</b>	<b>2,712</b>	<b>3,175</b>	<b>2,875</b>	<b>2,725</b>	<b>2,725</b>	<b>2,725</b>	<b>2,725</b>
<b>Non-Residential ('000s sqft)</b>											
Commercial	500	1,400	2,000	1,854	1,911	3,500	2,000	1,800	1,400	1,400	1,400
Industrial	790	1,200	1,000	2,068	1,452	2,400	1,000	1,000	1,000	1,000	1,000
<b>Total</b>	<b>1,290</b>	<b>2,600</b>	<b>3,000</b>	<b>3,922</b>	<b>3,363</b>	<b>5,900</b>	<b>3,000</b>	<b>2,800</b>	<b>2,400</b>	<b>2,400</b>	<b>2,400</b>

Note: Data on residential units based on the Building Division's Permit Fee Activity Report

Data on non-residential square footage estimated based on construction valuation in the Building Division's Permit Fee Activity Report

The **Moody's GDP Forecast**, the **California Department of Transportation industrial Forecast**, and the **Freight Analysis Framework (FAF)** were selected for their relevance to the type of material currently imported or exported through the port. For example, import commodities are primarily construction type material, and their end users are primarily less than 100 miles from the port. Exports are ferrous waste and scrap metals.

The five indices used by the **California Department of Transportation Forecast** have an orientation towards construction and expansion in the local area. This forecast includes the counties of San Mateo, Santa Clara and Alameda.

- Population growth
- New household growth
- New Homes permitted growth
- Real Industrial Production growth
- Taxable sale dollar growth

The long-range forecast **FAF** is published jointly by the National Bureau of Transportation Statistics and the Federal Highway Association. The assessments used for this forecast include:

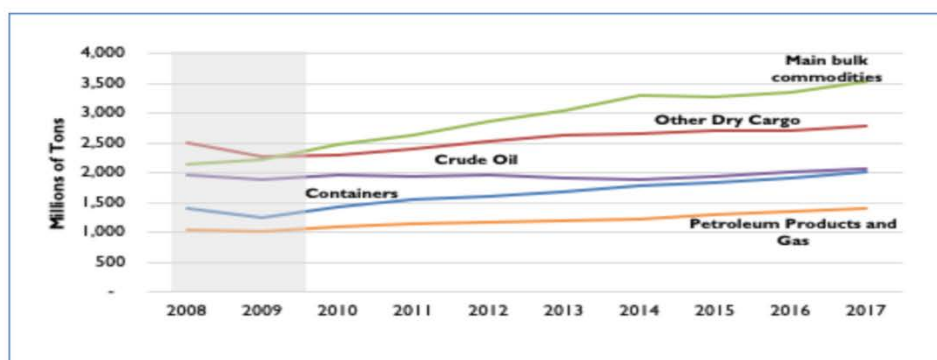
- The flow of imports by tonnage into the San Francisco zone.
- The San Francisco zone is all the entry ports in the Bay Area.
- Commodities with a final domestic destination in California.
- Commodities are based on specific and appropriate commodity types for the port.
- The geographic foreign origin for each commodity type is identified.
- Exports did not appear realistic and were not used.

The Vision Plan's anticipated **Compounded Annual Growth Rate (CAGR)** for imports / exports for the Port between 2019 and 2045 are:

Metro GDP Forecast (Moody's)	<b>HIGH</b>	<b>2.4%</b>
Forecast for Counties (San Mateo, Santa Clara, & Alameda)	<b>MEDIUM</b>	<b>1.3 %</b>
FAF Weighted Import Forecast	<b>LOW</b>	<b>0.7%</b>

Figure 29 below shows trend lines in trade post-recession through the Bay Area identified by the Seaport Plan; these trends show moderate but steady growth for containers, **moderate growth for cement product components**, a dramatic growth for coal, and slower growth for liquid bulk products.

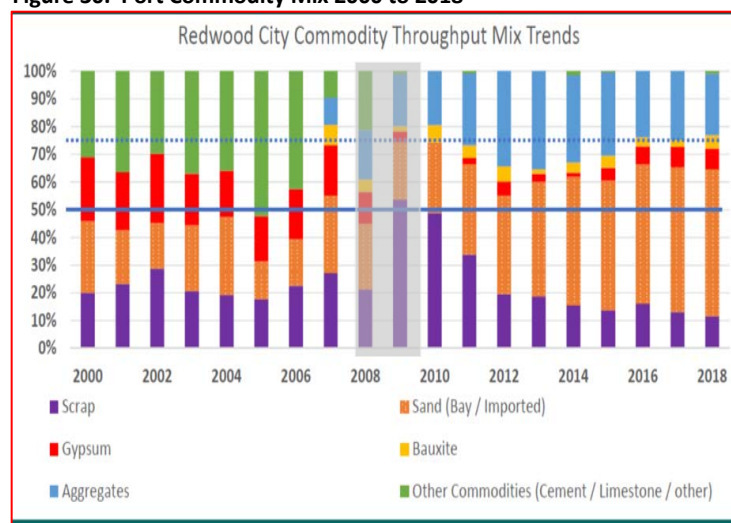
Figure 29. Seaport Plan Commodity Trends Post-Recession<sup>31</sup>.



NOTES: Main bulk commodities include iron ore, coal, and grain. Other dry cargo includes bauxite/alumina, phosphate, forestry and steel products, cement, etc. Shaded gray box indicates period of global recession, which the National Bureau of Economic Research details as starting in December 2007 and ending in June 2009 in the United States.

SOURCE: United Nations Conference on Trade and Development (UNCTAD), Review of Maritime Transport: 2018, available at <http://unctadstat.unctad.org/> as of October 2018.

Figure 30. Port Commodity Mix 2000 to 2018



The red line Other Dry Cargo illustrated in Figure 29 represents the Port's dry cargo commodities. The Vision Plan's consolidated cargo forecast compares and contrasts the Seaport Plan's approach for consistency.

Figure 30 shows the Port's commodity mix percentage since the recession (grey shaded area) of all commodities. The two bulk materials are imports of cementitious materials (sand, aggregate, gypsum, bauxite, and slag) and exports of scrap

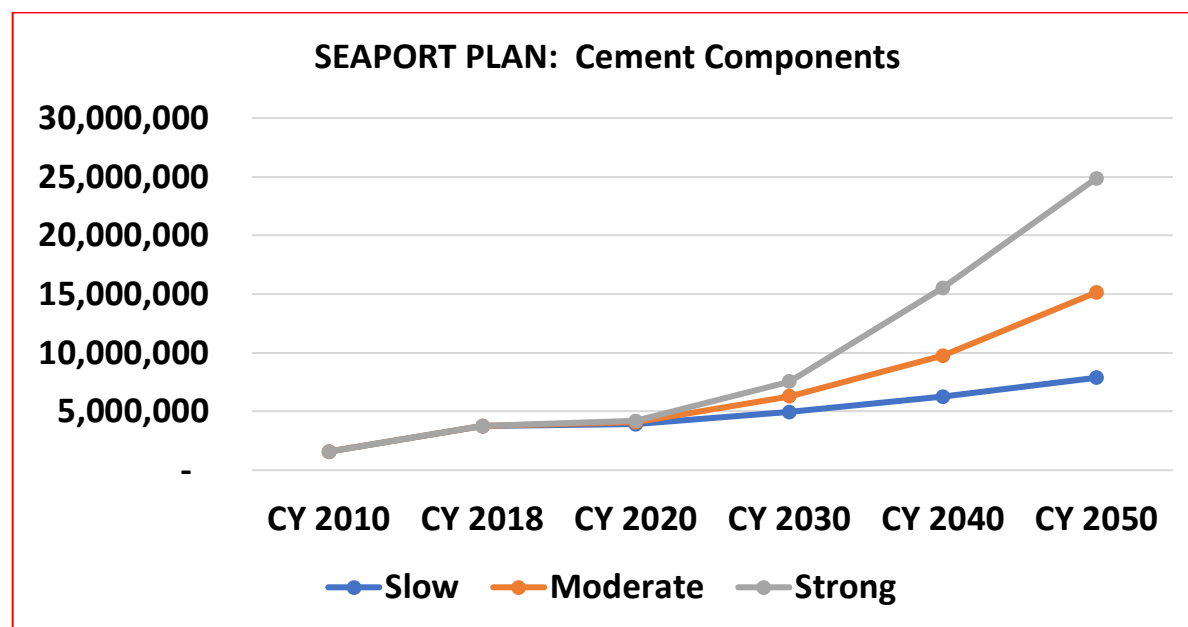
<sup>31</sup> Seaport Plan Forecast Update



metal. The Vision Plan uses low, moderate, and high growth for these commodities; the Seaport Plan's Draft Forecasts<sup>32</sup> uses slow, moderate and strong growth.

### Cementitious Materials Analysis

Figure 31. Seaport Plan Forecast Cementitious Materials (Metric Tons)



The Draft Seaport Plan growth for Cementitious Materials (Figure 31) forecasts a growth rate of 1.4% for slow growth, 3.1% for moderate growth, and 4.6% for strong growth. For the Bay Area, the forecast shows potential growth at all levels through 2050.

The longer the forecast in years the is less reliable it is; therefore, the Vision Plan's forecast is to 2040. Despite a strong growth projection, the Vision Plan uses the slow and moderate ranges for comparison. The Vision Plan's growth rates are a low of 0.7%<sup>33</sup>, a medium of 1.3%, and a high of 2.4%.

Figure 32 shows the Vision Plan low, medium and high forecast and Figure 33 compares the Vision Plan with the Seaport Plans slow and moderate growth.

<sup>32</sup> June 17, 2019 DRAFT Forecast

<sup>33</sup> No Growth Forecast

Figure 32. Vision Plan Cementitious Materials Port of Redwood City Forecast (Low, Medium and High)

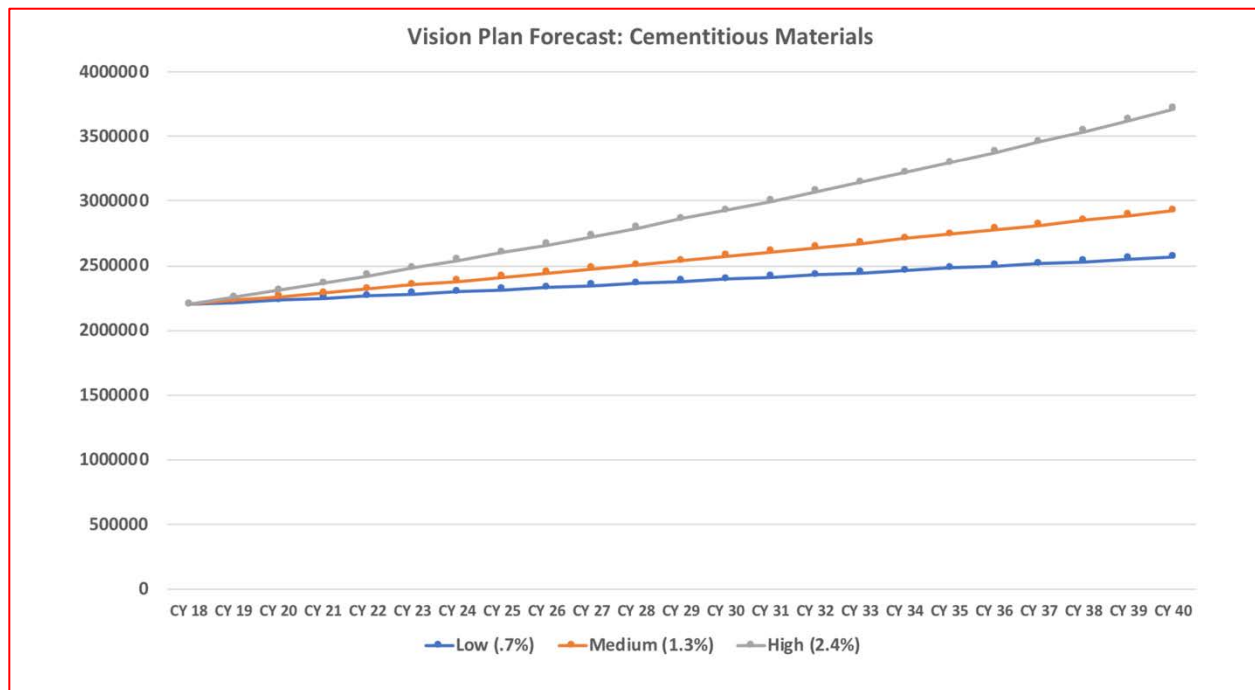
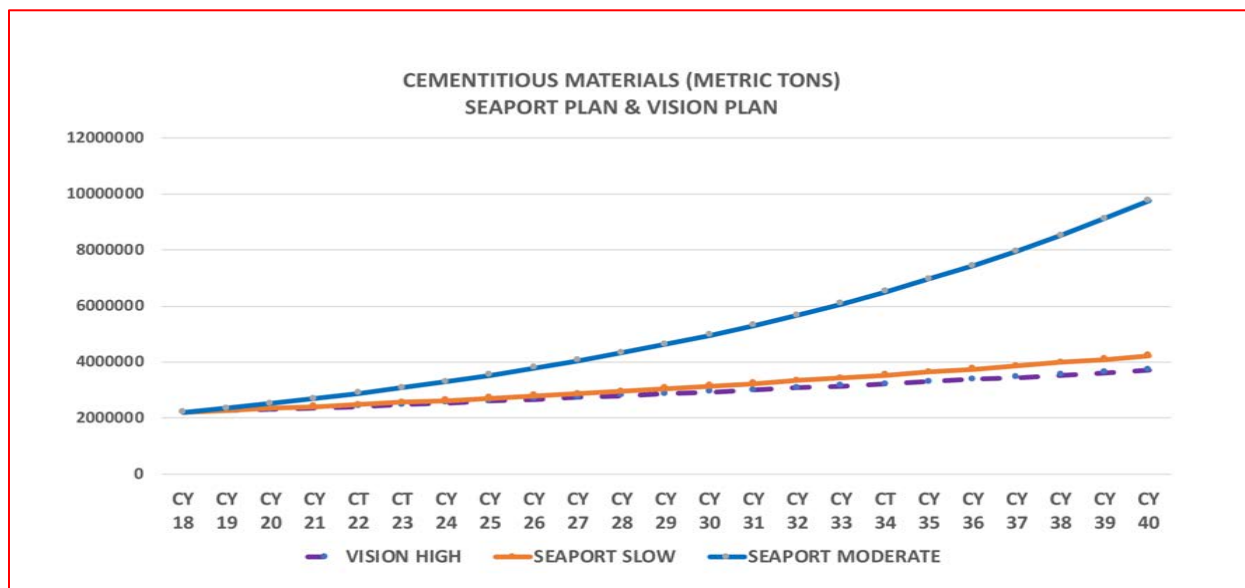


Figure 33. Vision Plan Cementitious Materials Port of Redwood City Comparison with Seaport Plan Forecast

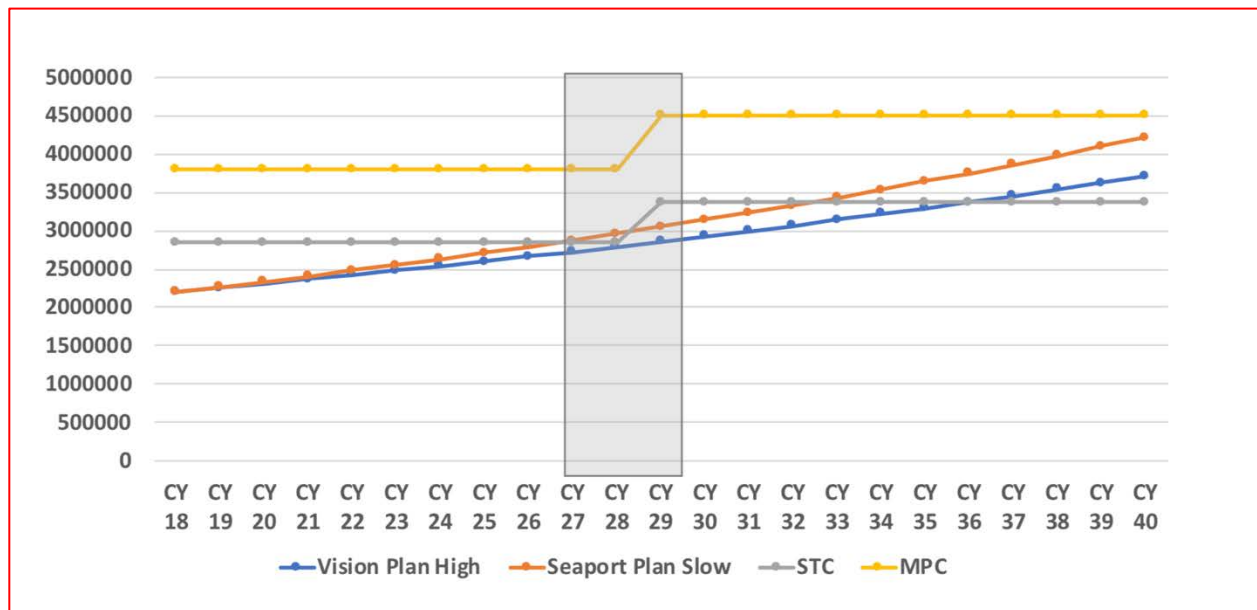


The Vision Plan's conservative forecast is based upon competitive factors. The Port of Oakland is in discussions for a 20-acre facility for Eagle Rock Aggregate. Another bulk facility being proposed is the Oakland Bulk and Oversized Terminal (OBOT) that will be on city property.

*It is reasonable to forecast that the Port's growth rate may actually be between the projected slow and moderate projections.*

Figure 34 uses MPC and STC for the Port's cementitious materials with an increase in the MPC throughput occurring in calendar year 2029 from the current 3.8 million metric tons to 4.5 million metric tons.

Figure 34. Vision Plan Cementitious Materials compared to MPC and STC



This forecasts aligns with the Seaport's slow forecast. The Port may need to be prepared to increase the existing Wharves 1 and 2 MPC for cementitious materials with a covered *Multi-User Bulk Terminal* between CY 2027 and CY 2029. This will depend upon competition and the growth in dry-bulk commodities. Figure 35 depicts the area for a potential covered *Multi-User Dry Bulk Terminal* having a 4.5 million ton MPC.

Figure 35. Proposed Area for Multi-User Dry Bulk Facility.



### Bulk Scrap Metal Analysis

Export dry-bulk commodities at the Port are handled by SIMS. SIMS is one of two companies within the Bay Area that handle scrap metal through industrial docks. In the 2012 Seaport Plan Update, scrap metal had a 5.5% CAGR growth rate to 2030. This growth rate was based upon the Asian Development Bank's long-term forecast and China's economic activities. Most recently, the China market has diminished, but other Southeast Asian markets have picked up the demand.

The Seaport Plan's draft forecast downgraded from a high 5% annual growth rate to 3.0%. This decline is due to the loss of the Chinese markets.

The Seaport Plan's forecast assumptions (Figure 36 A) assumes for the moderate growth there will be rapid recovery (i.e. selling to different foreign markets). The strong case assumes that a portion of the Chinese market or that the demand of a new market will be as strong as the past Chinese markets. The Port's Vision Plan recommends a 2.4% growth rate.

Figure 36 (A). Scrap Exports

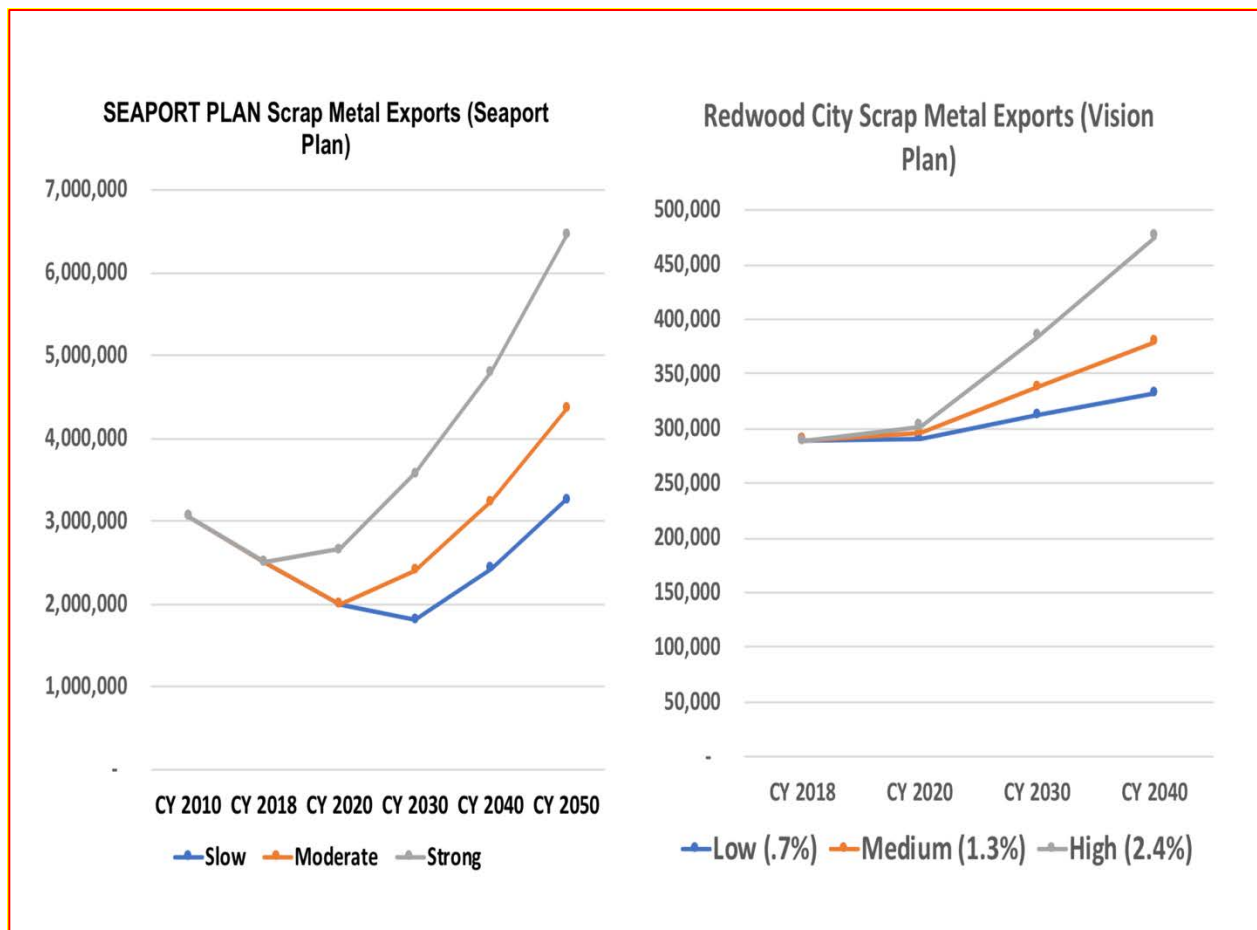


Figure 36 (B) compares the Draft Seaport Plan forecast with the Vision Plan's high forecast.

Figure 36 (B). Vision Plan and Seaport Plan Forecasts for Scrap

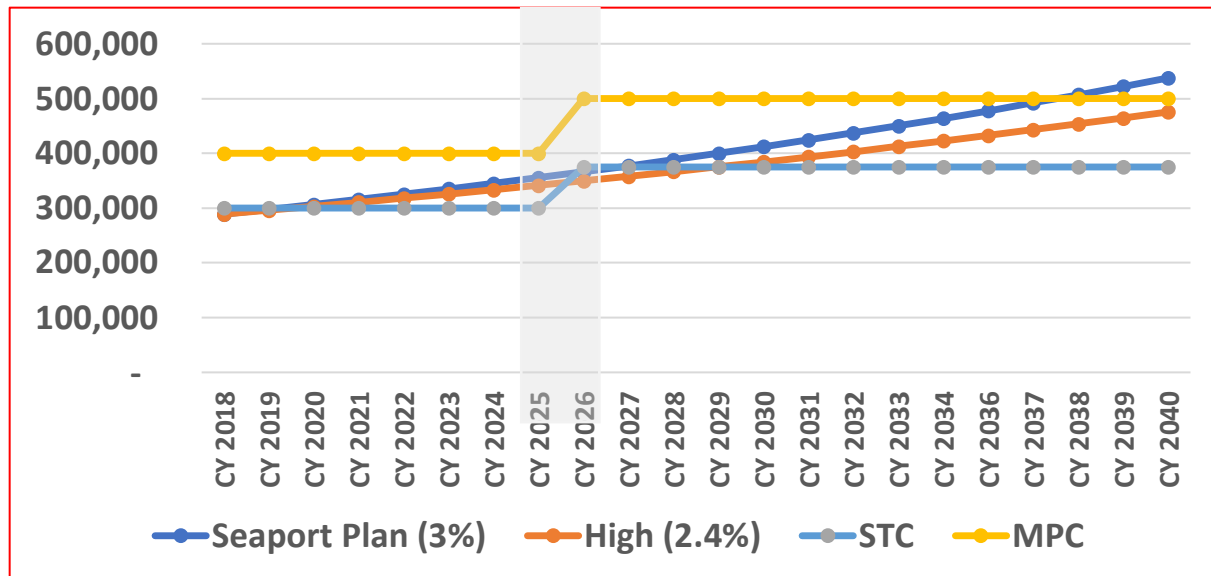
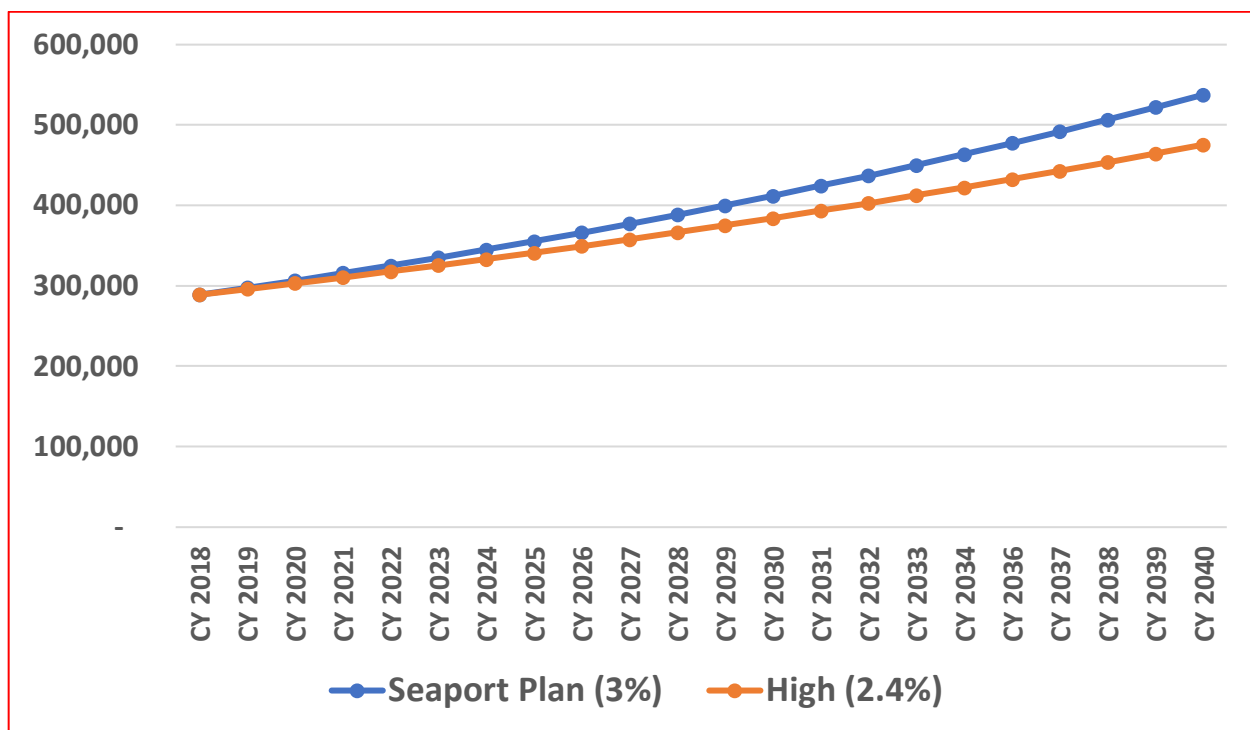


Figure 37. Vision Plan and Seaport Plan Forecasts with Terminal MPC and STC



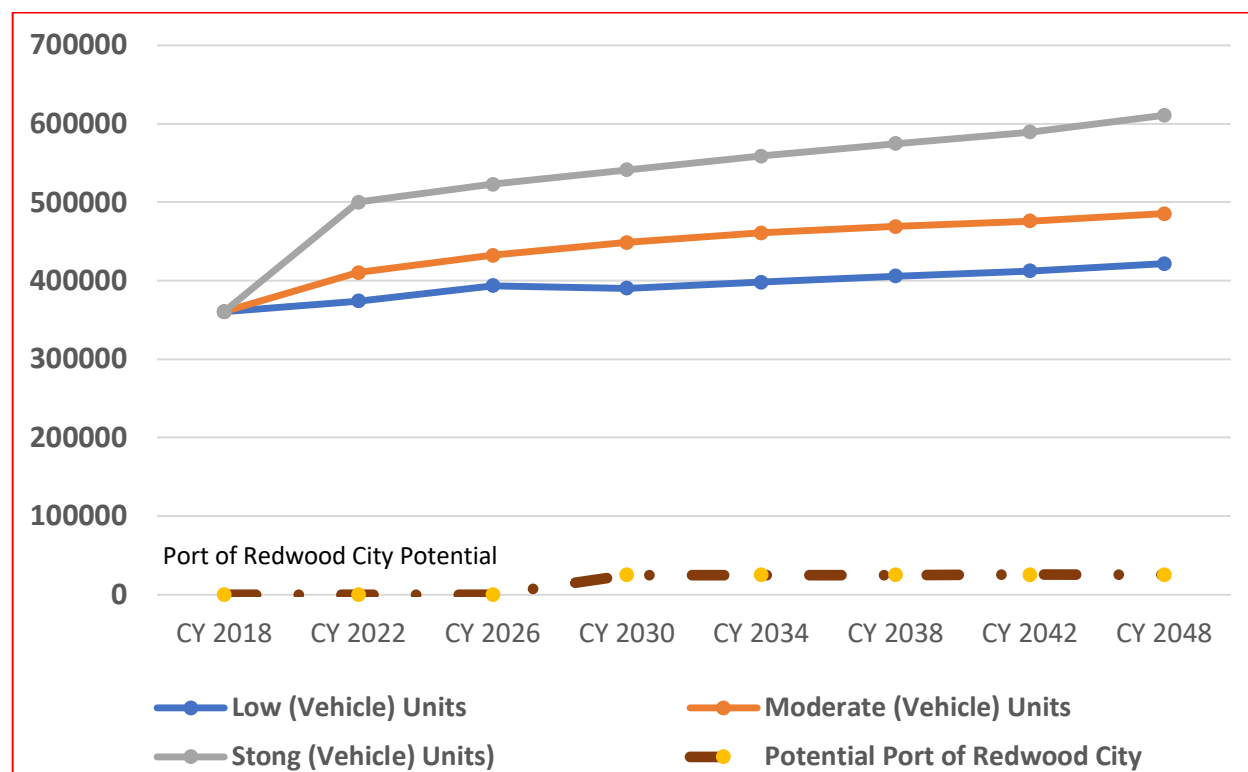
The 2020 Vision Plan' assumes that expansion of the SIMS Terminal will occur during CY 2026. This expansion will include additional land, a larger crusher, and new energy sustainability. Assuming the scrap meets the high forecast, SIMS exports will be at the STC range over the next five years. If the forecast is to be achieved, the MPC for the SIMS terminal will need to increase to approximately 500,000 metric tons.



### Ro/Ro Cargo Analysis

The Draft 2019-2050 Seaport Plan Forecasts was presented to the Seaport Advisory Committee in June; it did not include a break-bulk general cargo forecasts and changed the former neo-bulk forecast to roll-on / roll off (ro/ro) . The break-bulk mode was deleted since there are no terminals dedicated to handling this type of cargo, and the ro/ro forecast is based upon the automobile sector.

Figure 38. Seaport Plan Ro-Ro Forecast (Vehicles – Units)



To meet growth in the automobile sector, the draft Seaport Plan Update suggested that Benicia and Richmond (two major automobile terminals) are near capacity and San Francisco’s Pier 80 has inbound automobiles and Tesla’s exports. The two logical expansion terminals are: San Francisco’s Pier 96 and Oakland’s Howard Terminal.<sup>34</sup>

It is recommended that the final 2020 Seaport Plan Update include *the Port of Redwood City as a potential candidate for general cargo, including break-bulk, neo-bulk, and ro-ro cargo, including vehicles, with a potential capacity of 566,000 metric ton optimal throughput*. The previous forecast (Figure 38) shows the Port may have a potential market opportunity for a small “niche” automobile sector. The Vision Plan did not create a separate forecast for ro-ro imports or exports. The Port’s potential market share (25,000 units or 5% of Bay Area market) is limited by the size of the lay-down area identified at the *Omni-Terminal*. If the Port expands the size of the *Omni-Terminal*, the market share potential may increase. The 2020 Vision Plan assumes 15-acres for automobile storage capacity and uses the Seaport Plan metric for annual units per acre. The proposed throughput capacity would be between 20,565 units and 31,595 units.

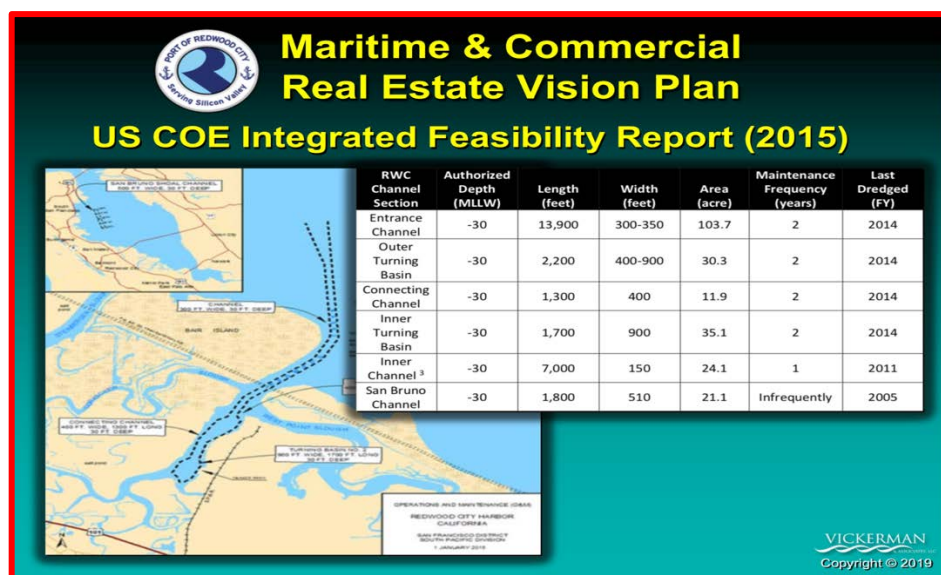
<sup>34</sup> June 2019, Bay Area Seaport Forecast present at the Seaport Advisory Committee

ACRES	LOW	MODERATE	HIGH
Fifteen (15)	1,371 per acre 20,565 units	1,700 per acre 25,500 units	2,173 per acre 32,595 units

## VII. NAVIGATION AND DREDGING

“The existing navigation project channels at Redwood City Harbor and San Bruno Shoal and the existing turning basin at Redwood City Harbor as currently authorized do not allow for the efficient operation of existing vessel fleets that call on the port.”<sup>35</sup>

Figure 39. USACOE Integrated Feasibility Report: Channel Status (2015)



The authorized navigational depth for the Redwood City Harbor (Main Federal Channel) is minus 30 feet MLLW. Deepwater vessels calling at the Port generally have a depth of minus 35 feet MLLW. Pilots require an additional two-foot under-keel clearance to allow ships to safely navigate. With a seven-foot tide in the south bay, vessels will have to wait for tide or lighter the vessel loads prior to departing or arriving at Redwood City. This results in delays and inefficient commodity movements. SIMS, as a port tenant, elects to limit the amount of cargo loaded for outbound cargo. Inbound port tenants lighter their loads prior to entering the Redwood City channel. Dredged in 2018, the berth-side depths are minus 34+ feet MLLW with the exception of Wharf 5.

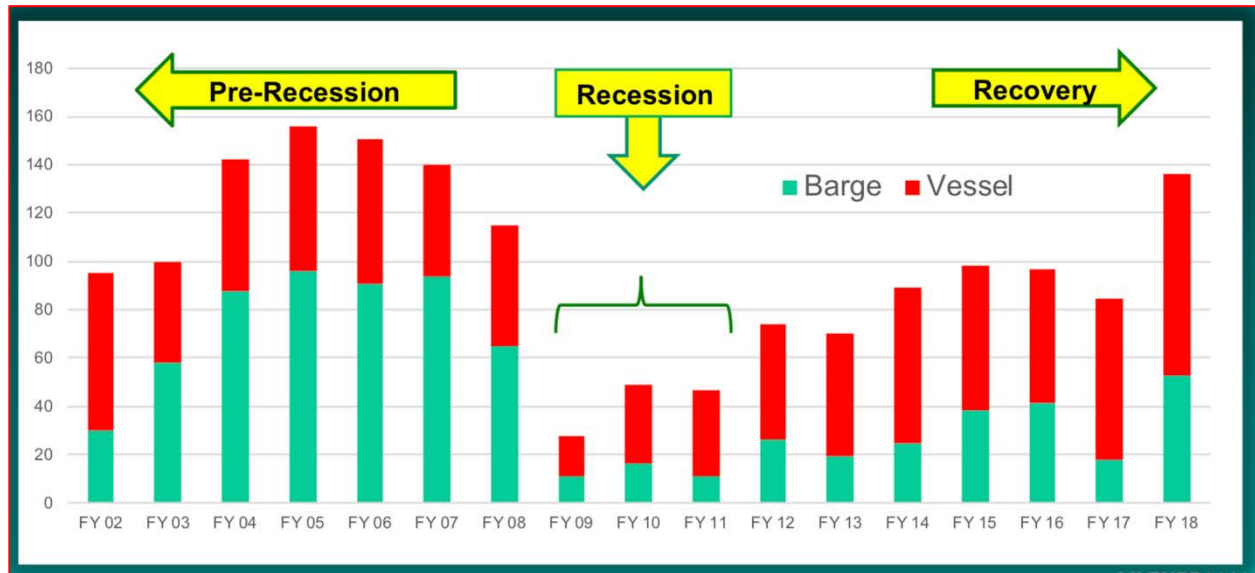
The Redwood City Navigation Improvement Feasibility Study and Integrated EIS/EIR was initiated with the intent of removing the current navigational constraints by deepening the Federal navigation channel. However, the Feasibility Study’s recommendation was dredging to a depth of minus 32 feet MLLW with only a slight realignment and narrowing of the Redwood City Channel near the Port facilities. Changes to

<sup>35</sup> Draft Integrated Feasibility Report and Environmental Impact Statement/Environmental Impact Report.

the channel have been stalled since 2015.

Due to a shift in commodities, recent vessel records show a shift from barge traffic to more vessel traffic following the recession years. In fiscal year 2007 bay sand, harvested and delivered to the Port by barge, ended. Inbound vessels (imports) greatly exceed the outbound vessels (exports).

Figure 40. Port of Redwood City Historic Vessel and Barge Calls



### Vessel and Navigation Analysis

The 2020 Vision Plan's findings are:

- Establish and maintain a dependable maintenance dredging schedule to avoid materials building up at berth-side and maintain a working depth of minus 35-feet MLLW (with 2-feet of clearance) at the entrance channel and at all wharves and berths.
- Modify the 1945 Redwood City Channel from minus 30-foot to 35-foot MLLW with a 2-foot clearance and make other navigational alignment requirements. The design vessel size for the Redwood City Channel is a Handy or Handymax type vessel.<sup>36</sup>
- Pursue and advocate for a dependable Federal maintenance dredging schedule for the Main Channel to avoid material build up.
- Seek ways to improve the US Army Corps of Engineers (USACOE) cost-benefit ratio. The most recent cost benefit analysis does not support changes to the approved Congressional approved depth. Ways to improve this ratio include reducing dredge disposal costs by establishing a site for

<sup>36</sup> **Handy and Handymax:** Traditionally the workhorses of the dry bulk market, the Handy and more recent Handymax types remain popular ships with less than 60,000 dwt. A handymax is typically 150-200 meters (492-656 feet) in length, though certain bulk terminal restrictions such as those in Japan mean that many handymax ships are just under 190 meters in overall length. Modern handymax designs are typically 52,000-58,000 DWT in size, have five cargo holds and four cranes of 30 metric ton lifting capacity.

the beneficial use of dredge materials in the South Bay region or by diversifying the cargo types from exclusively dry bulk cargo to higher value cargo handled at the Port (e.g. ro/ro type cargo).

- Seek customers that can adapt to the current navigation constraints. A recent increase in Redwood City's vessel traffic suggests that customers adapt by lightering cargo at other terminals. While lightering adds costs, there does not appear to be a better option for delivery of the dry bulk construction materials to South Bay destinations. The outbound scrap customer (SIMS) adjusts vessel loading and transiting based upon the depth and tides.
- Implement an aggressive long-term marketing effort. Typical port marketing is generally a process with a stevedoring and terminal operating company. The Port should avoid having a single "house stevedore". Marketing's focuses include carriers, beneficial owners of cargo, and service providers that have the ability to work around existing navigational constraints.
- Understand the difference of vessel operator costs from other competing ports.
- Dockage should not be a competitive factor.
- Port and potential users need to understand the long-term goals of the 2020 Vision Plan.
- Seek new customers from users that may be impacted by the growth of containers or gentrification issues.

### **VIII. DRY BULK CARGO THROUGHPUT AND CAPACITY**

This section discusses *Maximum Practical Capacity (MPC)* and *Sustained Terminal Capacity (STC)* for cementitious materials and evaluates cargo throughput. The use of these concepts, and their methodologies, are planning tools that should be used in making investment decisions and to undertake specific terminal improvements.

***Terminal improvements should not be undertaken until a terminal's capabilities (capacity) reaches 70% to 75% of the terminal's MPC.***

When making terminal improvements ensure that the five terminal capacity factors (Page 32) are able to increase equally. The cementitious materials discussed in the Vision Plan includes imported aggregate and sand, gypsum, and bauxite. Slag was imported by CEMEX as a spot business. Bay Sand has been replaced by the imported products from Canada.

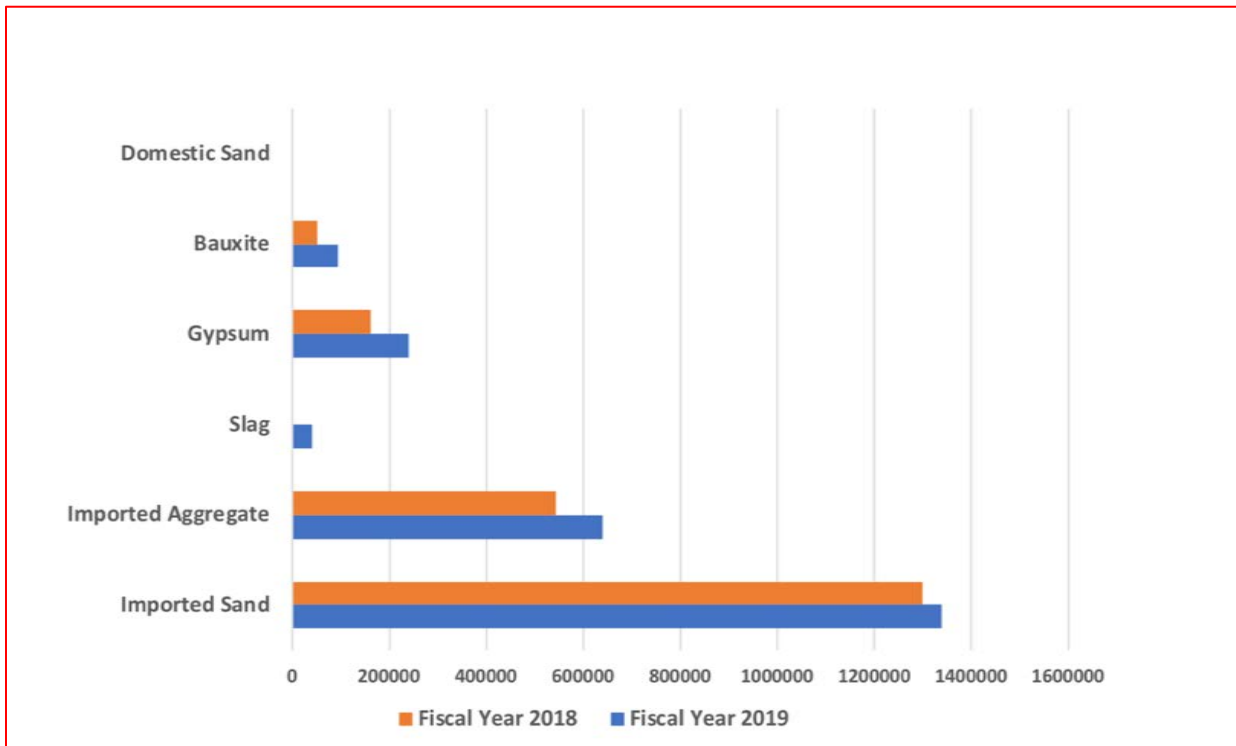
Dry Bulk cementitious materials has the largest Port MPC and represent the largest actual cargo throughput. Figure 41 shows the throughput by commodity type for fiscal year 2018 and 2019. Sand, aggregate, and slag are products handled by CEMEX. Gypsum is product handled by PABCO material. Bauxite is handled by IMI.

This section assesses aggregate, sand, slag, and cement imports in association with CEMEX. A Lehigh Hanson operation is included due to a recent proposal. Lehigh has no recent cargo activities at the Port, and their facilities were subleased. In addition, gypsum<sup>37</sup> and bauxite (an additive used in the cement industry) are discussed with the PABCO and IMI operations.

---

<sup>37</sup> In addition, as an additive to cement, Gypsum is used in the PABCO wallboard manufacturing process.

Figure 41. Cementitious Materials (FY 18 and FY 19)



### CEMEX Operations

CEMEX imports Canadian sand and aggregate, slag from China, and domestic Portland Cement<sup>38</sup> by rail from Victorville, CA. Cemex handles the largest volume of dry bulk construction materials at the Port. CEMEX also receives concrete material by truck at a disposal site where it is crushed on site into aggregate.

The CEMEX operations are generally shown on the three parcel aerial photos shown on Figure 42; parcels 1 and 3 are leased from the Port, and parcel 2 is owned by CEMEX. The size and dimensions of the aerial photo parcels are not precise to the actual size of the leasehold.

**Parcel 1** (Figure 42) is a month-to-month lease and is approximately 9.2-acres. It is used for demolition of concrete material brought to the site by truck. CEMEX may need as much as 2-years to vacate this parcel. ***It is proposed that the Port issue a notice to terminate this lease during 2020 to begin preparing the site by 2022.***

<sup>38</sup> The domestic Portland Cement is not forecasted or included in the Terminal's MPC and STC



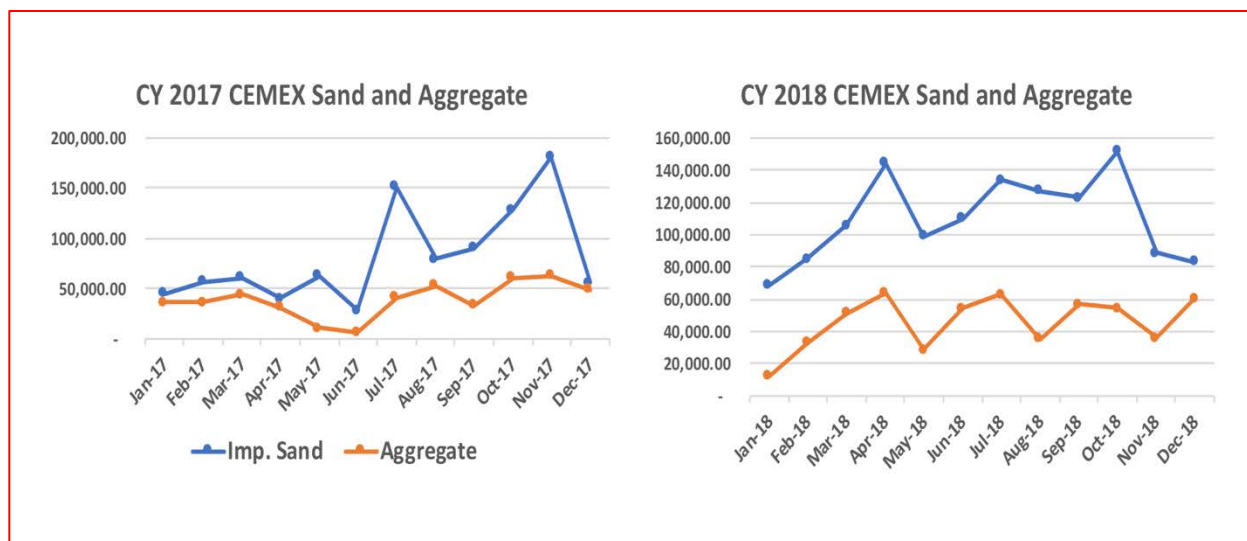
Figure 42. CEMEX Parcels (boundaries are not intended to be the lease lines)



**Parcel 2** is a privately-owned and includes office, silos, and rail unloading capabilities. Portland Cement is domestic product unloaded from rail cars; the Port does not assess tariff charges or include the domestic cement in its annual throughput. All the CEMEX-owned or leased premises are included in the Port Priority Use Area. CEMEX estimates the terminal capabilities for domestic cement at approximately 1,000,000 short tons (907,000 m/t's) per year. This cement is delivered Monday through Friday by UP Rail (25 to 50 rail cars per week). Each rail car holds 112 short tons of material. Therefore, the annual volume is between 145,600 short tons (132,000 metric tons) and 291,200 short tons (264,000 metric tons). The terminal operator estimates that 150,000 short tons of cement is handled. This product comes from Victorville, CA. There are no current or anticipated plans to import cement by vessels. Parcel 2 is connected by a ship unloader that was recently returned to operations after the great recession. Small amounts of slag from China were imported to the silos in 2019 (27,000 metric tons). The Wharves 1 & 2 Improvement FEIR estimates 2.5 million metric tons of aggregate and sand and 1.3 million metric tons of other commodities can be delivered by waterborne to the CEMEX terminal. *The Port of Redwood City should discuss and negotiate with CEMEX a “first right of refusal” for the future purchase of Parcel 2. Additionally, the Port should research how the Port Authority can assess tariff charges to products that are delivered to the site by other than water (e.g. cement delivered by rail and demolition materials delivered by truck).*

**Parcel 3** is leased from the Port (8.2 acres). This parcel is used for aggregate and sand storage. There is a bulk unloader from the wharves to this parcel. The lease term commenced on January 1, 2017. The uses are for operating a construction materials shipping, receiving, storage, and processing business. The commodities identified by the lease include imported aggregate, lime stone, crushed rock, stone, sand, cement clinker, bauxite, gypsum, and other. The primary term expires December 31, 2026. CEMEX has a ten-year option to 2036. *The lease has a maximum throughput of 2.5 million metric tons, and the MPC for this parcel for the aggregate and sand commodities equals this maximum throughput.*

Figure 43. CEMEX Sand and Aggregate Throughput



Over the past two calendar years, Canadian sand has become the primary imports followed by aggregate. Figure 44 shows the various CEMEX commodities handled since calendar year 2016. The calendar year 2019 is an estimate based upon six-month actuals and anticipated throughput

Figure 44. CEMEX Calendar Year Throughput

Calendar Year	2016	2017	2018	2019 (ESTIMATE)
Bay Sand	29,827	0	0	0
Canadian Sand	792,497	980,950	1,320,834	1,352,534
Aggregates	391,629	465,417	549,527	562,716
Cement	0	0	0	0
Slag	0	0	26,881	25,000
Limestone	0	0	0	0
<b>TOTAL</b>	<b>1,213,953</b>	<b>1,446,367</b>	<b>1,897,241</b>	<b>1,940,250<sup>39</sup></b>

In 2016, the Port completed the Wharves 1 & 2 Improvements FEIR covering improvements to be made by the Port and CEMEX. Imported sand and aggregate materials are unloaded and stored in the open; slag and domestic cement is stored in silos that are located on CEMEX's property. The objective of the 2016 capital improvement project was to reconstruct and modernize the wharves and adjacent upland areas to increase capacity and capabilities. The project expanded operations of the CEMEX facilities to 24-hours per day. While the existing conveyor/hopper system remained at its existing location, CEMEX was able to increase capacity by approximately 900,000 metric tons over the previously analyzed throughput.

<sup>39</sup> Total is 77.6% of the Wharves 1 and 2 MPC for waterborne imports and the maximum throughput set forth in the CEMEX agreement.

Table 45 shows the difference between the 2006 operational throughput and the completion of the 2016 capital project.<sup>40</sup> Since the Vision Plan did not calculate capacity, the 2016 capital project capabilities are used for the *Maximum Practical Capacity (MPC)*.

**Figure 45. CEMEX Updated Capacity based upon Wharves 1 and 2 Supplemental FEIR (2016)**

<b>Maximum Throughput CEMEX Facilities Metric Tons</b>  <b>Aggregate / Sand (Lease / FEIR) = 2,500,000</b>  <b>Cement (FEIR) = -1,309,000</b>  <b>Total Cementitious Materials (Sand, Aggregate, Cement, and Slag) = 3,800,00</b>		Aggregate	Cement	Total	Total Change	Percentage Change
	Year 2006 Operational Throughput (2010 EIR Baseline)	164,900	602,450	767,350		
	At Completion of Phase 1 (2010 EIR)	960,000	720,000	1,680,000	+912,650	+118%
	At Completion of Phase 2 (2010 EIR)	1,600,000	1,300,000	2,900,000	+1,220,000 <sup>1</sup>	+73% <sup>2</sup>
	At Completion of Phase 2 (2015 CEMEX Proposal)	2,500,000	1,300,000	3,800,000	+900,000 <sup>3</sup>	+31% <sup>4</sup>

The aggregate and sand operations use open storage capacity on Parcel 3 (leased) and on a portion of Parcel 2 (CEMEX owned). The fiscal year 2018 actual throughput was 1.8 million metric tons and the 2019 estimated throughput is in excess of 2.0 million metric tons; these throughputs are approaching the 2.5 million metric tons MPC and lease maximum established by Parcel 3 lease.

A summary of the findings and recommendations associated with the CEMEX cementitious materials operations are:

- Negotiate a “*first right of refusal*” to purchase Parcel 2 owned by CEMEX and located within the port-priority use area.
- Investigate the establishing tariff rates for non-waterborne commodities delivered (e.g. rail or truck) to the Port Priority Use Area.
- Investigate prior to 2026 (expiration of current parcel 3 lease term) the feasibility to construct a covered Multi-User Dry Bulk Facility on the CEMEX parcels.
- Issue a termination notice for Parcel 1 in 2020 / 2021 in order to begin the process of clearing the site and preparing for a public / private ferry landing facility.
- Establish a metric for cargo throughput (metric ton per acre) for the use of Port facilities with a guarantee but not a maximum. A contractual maximum limits the customer’s cargo velocity on a specific parcel.

<sup>40</sup> Source: Project Supplemental EIR

### Lehigh / Hanson Operations

Lehigh Southwest Cement Co. (formerly Hanson Permanente Cement) leases .523 acres from the Port shown in Figure 46. The original commencement date of this lease was July 1, 2010 and ended June 30, 2012. The property is currently inactive and on hold-over status.

**Figure 46. Lehigh-Hanson Lease Premises**



In addition to the lease premises (Figure 46) sublet by Lehigh / Hanson at the Port, Lehigh operates at the Port of San Francisco's Pier 94. The Port of San Francisco reported a 1.6 million metric tons throughput for dry bulk cargo in calendar year 2018.

Lehigh's other Northern California locations include the Permanente Cement operations in Cupertino, Stockton Cement Terminal, and a Union City site. The Permanente Quarry is a limestone and aggregate mining operation located in the unincorporated foothills of Santa Clara County. The Lehigh cement plant is operating under Use Permit issued May 8, 1939. The quarry is a vested mine operation, that was established legally within the regulations in place at that time, and is allowed to continue until the use ceases.

Recently, Lehigh Hanson presented to the Port's staff a concept proposal for a domestic cementitious materials facility. The bulk commodities, including slag, cement, and ash, will be transported from the Port of Stockton by barge. Lehigh forecasted that this new facility will have a capacity of 200,000 metric tons annually with two barge calls per month, and the terminal will reach capacity during the short-term planning horizon.

If the Port proceeds with this project, the proposed leased premises should not cross Hinman Road, should require covered conveyors and operations, and should specify that the uses are to be incorporated into a



future covered *Multi-User Dry Bulk Facility*. Lehigh and CEMEX combined, or independently, may be the private sector partner to establish a covered storage facility.

### PABCO Gypsum Operations

PABCO Gypsum, a division of PABCO Building Products, provides quality gypsum board products and services. It is one of the nation's leading privately held suppliers of building products to the construction industry. The company employs individuals in 11 states and 75 locations in the western U.S. and Canada.

Figure 47. PABCO Lease Premises



PABCO Gypsum began manufacturing and shipping gypsum wallboard at its Newark, California facility in 1972. Five years later, they expanded with the acquisition of a board plant and gypsum quarry north of Las Vegas, Nevada. In 1998, and again in 2005, the Las Vegas plant was expanded and modernized. In 2009 the Newark, California plant was also expanded and modernized. Today the two facilities supply over 1.65 billion annual square feet of gypsum board.

PABCO currently leases approximately two acres of outside storage with a total static-storage capacity of 54,430 metric tons (Figure 47). The original lease commenced July 1, 1993 and ended June 30, 2013. The lease is currently on a month-to-month holdover status.

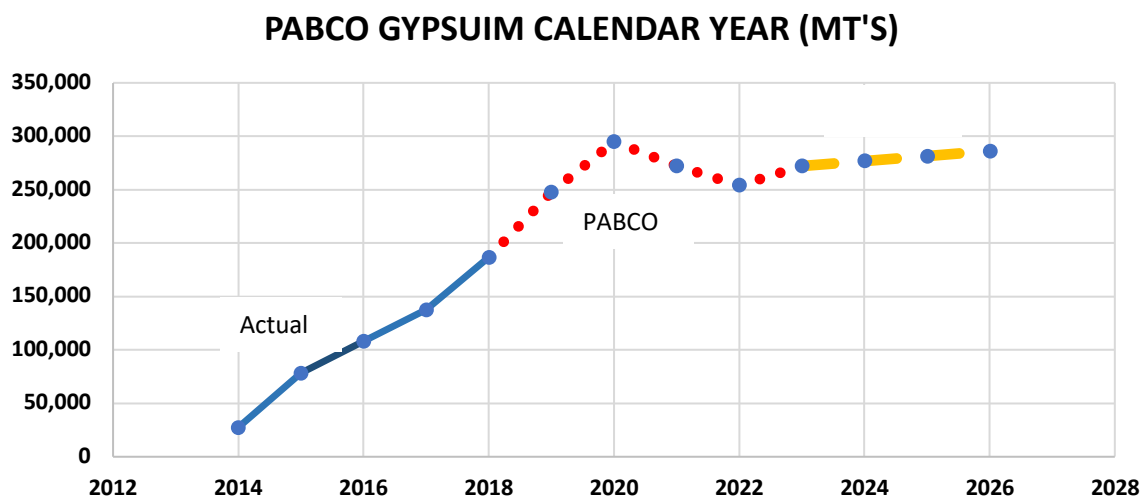
The Port's current forecast for gypsum for calendar year 2019 to 2023 is shown on Figure 48. Gypsum delivered to the PABCO facilities are for two specific receivers: PABCO for use in their wall board production and IMI as a cement additive for Lehigh Hanson. IMI receives 50,000 metric tons of Gypsum annually at the PABCO facility.



Figure 48. PABCO Gypsum Forecast<sup>41</sup>

Calendar Year	PABCO Wallboard (metric tons)	IMI Gypsum (metric tons)	Total Metric Tons
2019	197,845	50,000	247,845
2020	244,838	50,000	294,838
2021	222,158	50,000	272,158
2022	204,014	50,000	254,014
2023	222,158	50,000	272,158

Figure 49. PABCO Historic Throughput and Forecast during the Short-Term Planning Term



The PABCO gypsum in Figure 49 illustrates the recent historical throughput as a solid blue line; the PABCO forecast is the dotted red line, and the 2020 Vision Plan forecast is the gold dashed line. The findings, however, shows that while Gypsum imports will have a significant increase over the short-term planning horizon, the current hold-over lease's maximum of 300,000 metric tons will not be exceeded.

Recommendations and findings for Gypsum include:

- Initiate negotiations with PABCO for a short-term lease (5-years) with a 300,000 metric ton annual guarantee and a metric for cargo velocity of 150,000 m/t per acre.
- Implement Environmental (Dust Control) Best Practices for the vessel unloading and truck loading that reduces or prevents dust.
- Implement operating procedures to eliminate potential conflicts of the PABCO conveyor and road/rail operations.
- Seek PABCO's support to relocate into a covered Multi-User Dry Bulk Terminal facility.

<sup>41</sup> Provided by PABCO

## International Materials Inc. (IMI) Operations

Established in the United States in 1987, International Materials Inc. (IMI) is an international trading house with a focus on cement and construction commodities. IMI has two leases consisting of 9.34 acres of open and paved open storage spaces. One lease was entered into in October 2010 and expired in 2013, and the other commenced in 2012 and expired in 2016. Currently both leases are on a hold-over status.

**Figure 50. IMI Lease Premises**



IMI, along with its partners and affiliates, sells and ships over 18 million metric tons per year worldwide of natural gypsum, bauxite, iron ore and by-products, cement, clinker, coal, pet-coke, and slag. At the Port, IMI handles bauxite, but also receives gypsum from PABCO for the Lehigh Hanson. Some of this material is stored at the PABCO open storage area and other portions are stored on the IMI leased premises (Parcel 2) covered by tarps. The Parcel 2 materials have remained covered on a long-term storage use basis.

Bauxite is an aluminum ore and raw material used in aluminum production and an additive to cement products. Typically, bauxite is classified in terms of its intended application such as cement. IMI markets approximately 500,000 metric tons of bauxite annually specifically for cement applications in North and South America.

Figure 50 shows the 2010 Lease on a portion of the former USGS property. This site consists of 2.4 acres. Parcel 2 was added in 2012 (1.84 acres) and an additional parcel (2.7 acres) in 2016. Parcel 2 is within the Prologis potential project area. The total IMI property is 6.94 acres. Parcel 1's lease has a special termination provision requiring 120-day notice to relocate and 180-day to relocate.

The IMI lease agreements establishes specific throughput guarantees of 75,000 metric tons (2010) on Parcel 1 and 35,000 metric tons on Parcel 2 (a combined guarantee of 110,000 metric tons).

Findings and recommendations include:

- Implement Environmental Best Practices for vessel unloading and truck loading that reduce or prevent dust.
- Seek to expand IMI's imports and product mix.
- Improve efficiency by establishing a "*metric tons per acre*" metric for the leased parcels.

- Seek IMI's support for the covered *Multi-User Dry Bulk Terminal*.
- Eliminate long-term commodity storage that reduces the Port's cargo velocity.

### Dry Bulk Cargo Throughput Metrics

The Draft 2019 – 2050 Seaport Plan Forecast indicates that the Bay Area may need 24 to 73 additional acres of dry bulk space by 2050. The forecasts throughput is directly dependent upon the storage capacity and dwell time of the dry-bulk materials. For the Draft Seaport Plan Update<sup>42</sup>, existing dry-bulk materials are handled with approximately 47,000 metric tons per acre. The following are throughput metrics proposed in the Draft Seaport Plan for the slow, moderate, and strong growth rates:

- Slow Growth dry-bulk materials per acre 63,455 metric tons.
- Moderate Growth dry bulk materials per acre 103,500 metric tons.
- Strong Growth dry-bulk materials 317,073 metric tons.

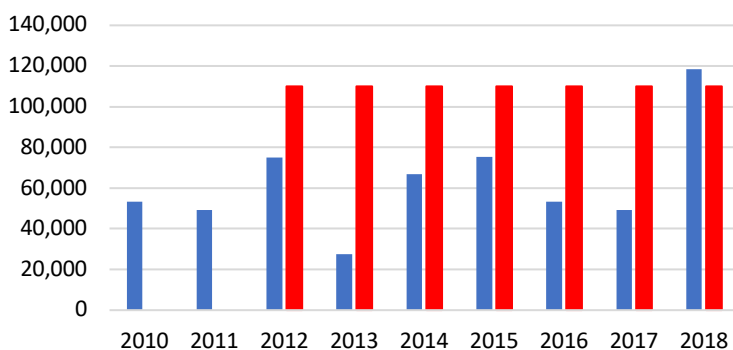
For comparison, a proposed Port of Oakland Berth 20-21 terminal is forecasted to have 100,000 metric tons per acre annually, and the Oakland Bay Overflow Terminal (OBOT) forecast is 325,000 metric tons per acre.

***The 2020 Vision Plan recommends for future Port dry bulk cementitious agreements a metric ton per acre between 100,000 to 105,000 metric tons per acre be used. This metric should be reviewed and updated every five-years.***

Consistent with the Seaport's moderate growth, PABCO's gypsum has a throughput of 300,000 metric tons on approximately 2-acres of terminal space (150,000 metric tons per acre); on the other hand, IMI has 6.94 acres of terminal space and handles approximately 16,000 metric tons per acre. This is well below an appropriate growth factor (Figure 51).

**Figure 51. IMI Throughput vs. Guarantee**

Blue is the actual IMI Throughput and the red is the guarantee



The following recommendations and findings for overall cementitious dry bulk cargo include:

- Establish a cargo throughput metric using the Seaport Plan's moderate growth rate. Limit long-term storage (dwell time) for dry-bulk materials on Port-Priority Use areas.
- Continue the partnerships with CEMEX, IMI, and PABCO
- Promote the development of a covered *Multi-User Dry Bulk Terminal* in association with the Port's current dry bulk cargo users to achieve the forecasted throughput and capability of handling

<sup>42</sup> June 2019 Bay Area Seaport Forecast 2019-2050

different product mixes (sand, aggregate, gypsum, and bauxite).

- Monitor on a continuous basis throughput and compare them with the MPC and STC set forth in the 2020 Vision Plan (4,200,000 metric tons / 4,650,000 short tons). Based upon the Plan's forecast, dry bulk cargo throughput will not reach the MPC during the long-term planning horizon of 2045. However, using 70% to 75% of MPC as the *Sustained Terminal Capacity* (STC), the Port may need to begin planning and development of a covered *Multi-User Dry Bulk Facility* in the short-term planning horizon with a throughput capacity of 4.2 million metric tons.<sup>43</sup>
- Monitor the construction-related activities outside of the control of the Port. The Port should remain committed to near-term dry-bulk maritime, but, at the same time, the Port needs to market to the medium and long-term terminal opportunities outside of dry-bulk to diversify the mix of cargo at its terminals.
- Implement a covered *Multi-User Dry Bulk Facility* that includes the CEMEX private land, the 8.2 acres leased to CEMEX, a portion of the Parcel 1 short-term lease area, the Lehigh parcel, and any other contiguous property that can be assembled.
- Incorporate improvements to the wharves and to the access/egress road and rail system during the planning and design for the *Multi-User Dry Bulk Facility*.
- Negotiate a *first right of refusal* to purchase the CEMEX privately-owned parcel.
- Monitor Oakland's proposed new competition for handling cementitious materials.
- Evaluate a short-term agreement with Lehigh to establish a new domestic service from the Port of Stockton for cementitious material. If the Port proceeds with this proposed project, the lease premises should not cross Hinman Road and the lease should specify that future uses will be incorporated into a covered *Multi-User Dry Bulk Facility*.
- Consider a new short-term lease with PABCO with a 300,000 metric ton annual guarantee and special conditions to control dust during unloading, storage, and loading of trucks and an agreement to work toward a future *Multi-User Dry Bulk Facility*.
- Investigate the establishment of Tariff Rates for non-waterborne dry bulk cargo delivered to the Port Priority Use Area.

### Dry Bulk Exports (Scrap and Ferrous Metals) Analysis

Dry-bulk export commodities are SIMS' scrap iron metal and ferrous metals. SIMS is a world-wide recycling company with facilities throughout the US. The cargo is proprietary products (owned and handled by them) permitting SIMS to operate an industrial dock under the PMA / ILWU contract.

Within the Bay Area, SIMS has additional facilities in Richmond, Hayward, and San Jose. Their business activities and goals are to maximize the amount of usable recycle material that can be extracted from the source material delivered to their sites. In recent years, SIMS has increased the amount of recycle materials. Where recyclables products have sufficient value, SIMS use container liner services otherwise their recyclable exports are handled by bulk carriers.

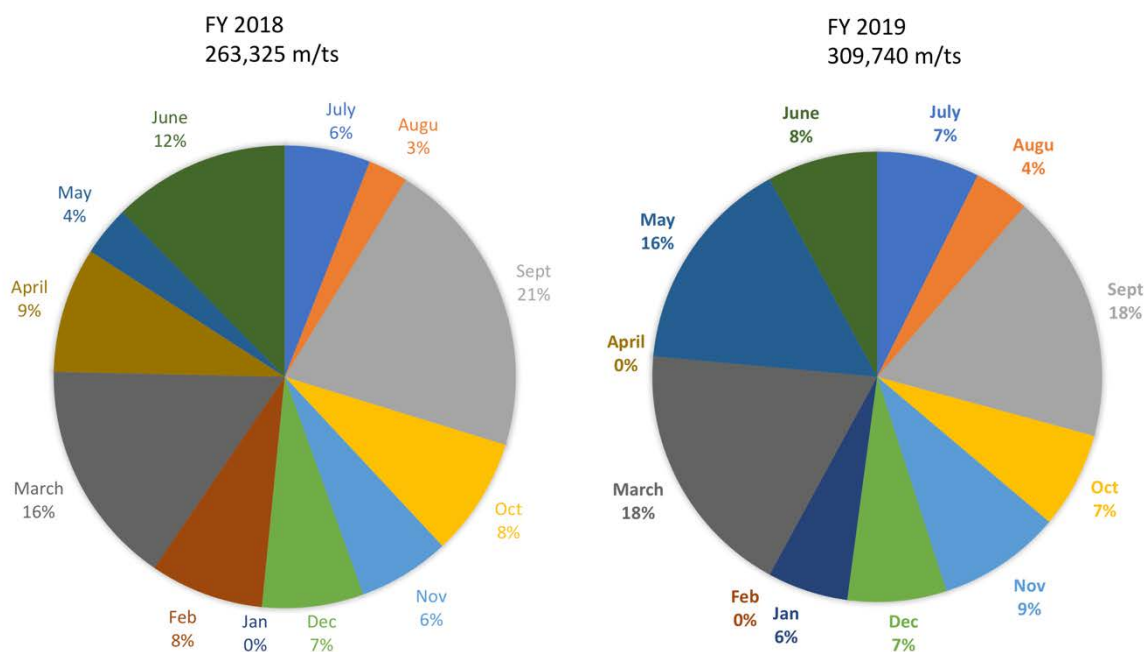
---

<sup>43</sup> The covered Multi-User Dry Bulk facility may be required sooner if the Port is successful in attracting a Ro-Ro customer to avoid dust fallout from the handling of dry bulk products.

***The Port and SIMS should evaluate a future regional water service (RIN) to move empty containers and transport full containers from and to the Port of Oakland.***

SIM's current shredder has a capacity between 7,000 and 8,000 metric tons per day. The static storage capacity on their facility is 40,000 metric tons. The scrap metal exports generally follow the same month to month activities. Figure 52 below shows the total exports handled through the Port for the past two fiscal year and the percentage of the annual total for each month.

**Figure 52. SIMS Scrap Metal Throughput (Month to Month Fiscal Year)**



In the 2012 Seaport Plan, scrap metal had a forecasted annual growth rate to 2030 of 5.5%. This was based upon the Asian Development Bank's long-term forecast. While the China market has diminished, other Southeast Asian markets continue the demand. The current outlook for export scrap metal remains uncertain; however, the recent Draft Seaport Plan Forecast suggests that the annual scrap metal growth may average 3.0% annually.

The three Bay Area terminals evaluated by the Seaport Plans were:

- SIMS at the Port of Redwood City
- Schnitzer terminals located in Oakland
- SIMS located in Richmond.

Figure 53 A shows the Vision Plan's long-term forecast of scrap metal exports for the Port using the high forecast of 2.4% growth rate. This is less than the Seaport Plan growth rate.

Figure 53 A. Long Range High Forecast for SIMS at the Port of Redwood City.

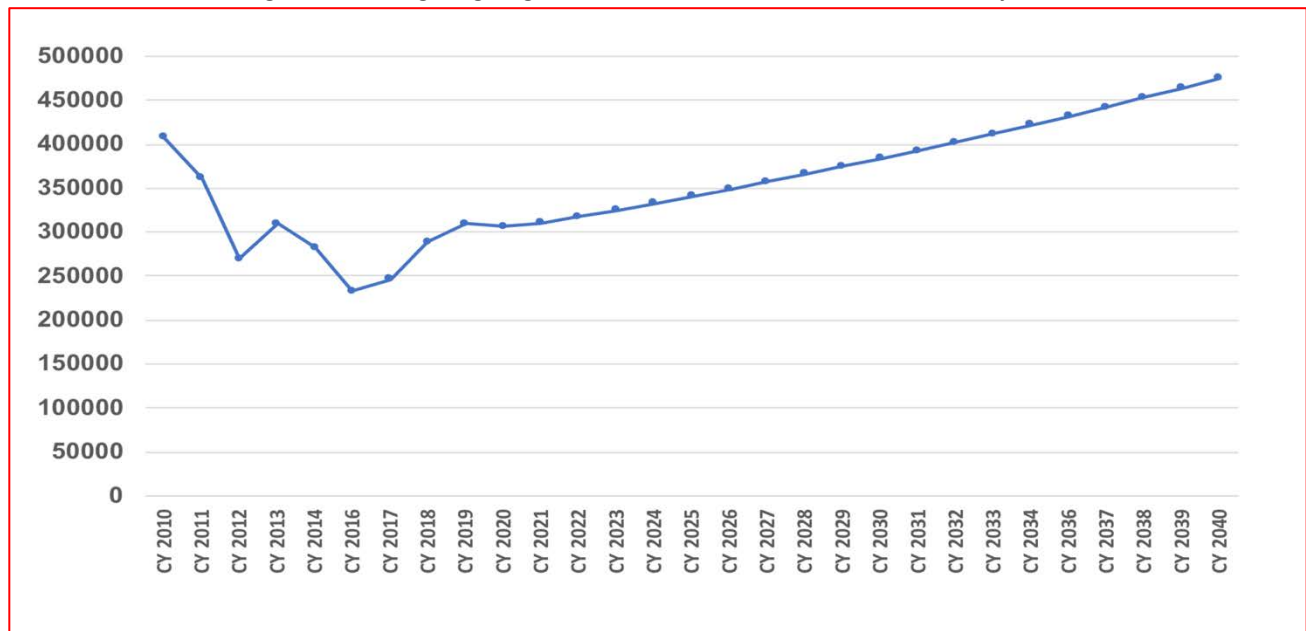
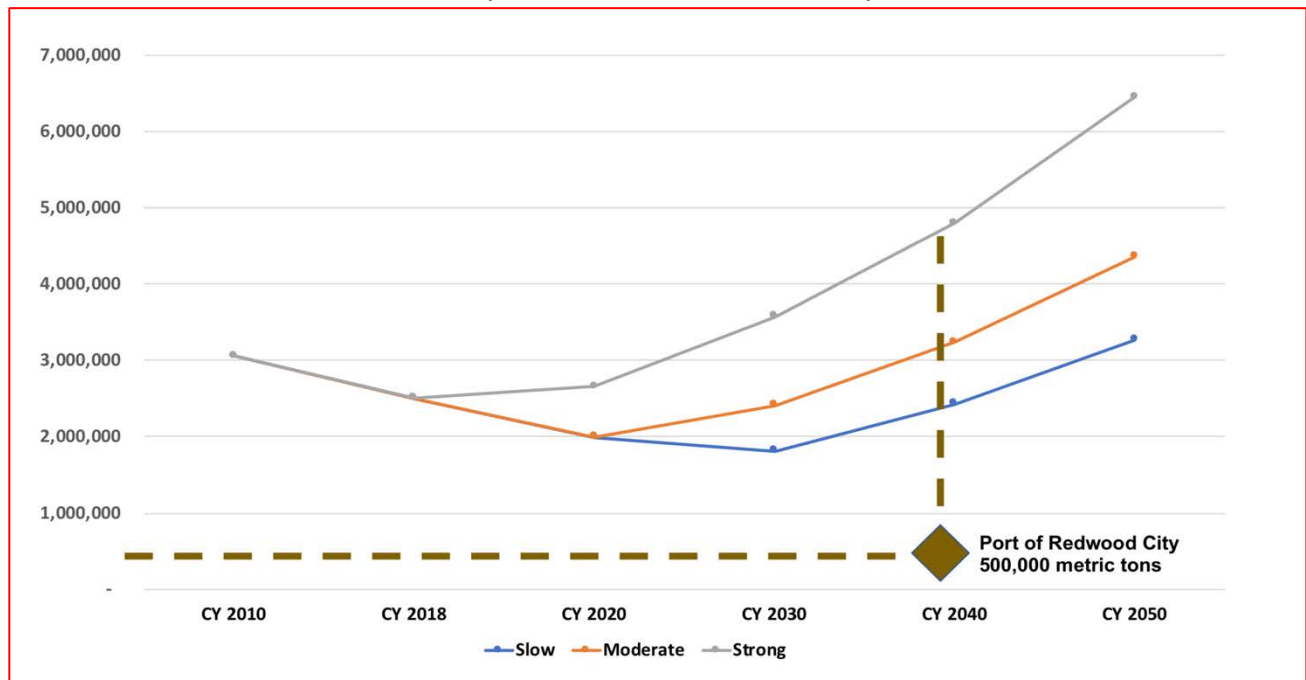


Figure 53 B shows that the Vision Plan's high forecast is well below the total Bay Area Seaport Plan's Draft Forecast.

FIGURE 53 B. Scrap Metals Forecast: Vision Plan vs. Seaport Plan



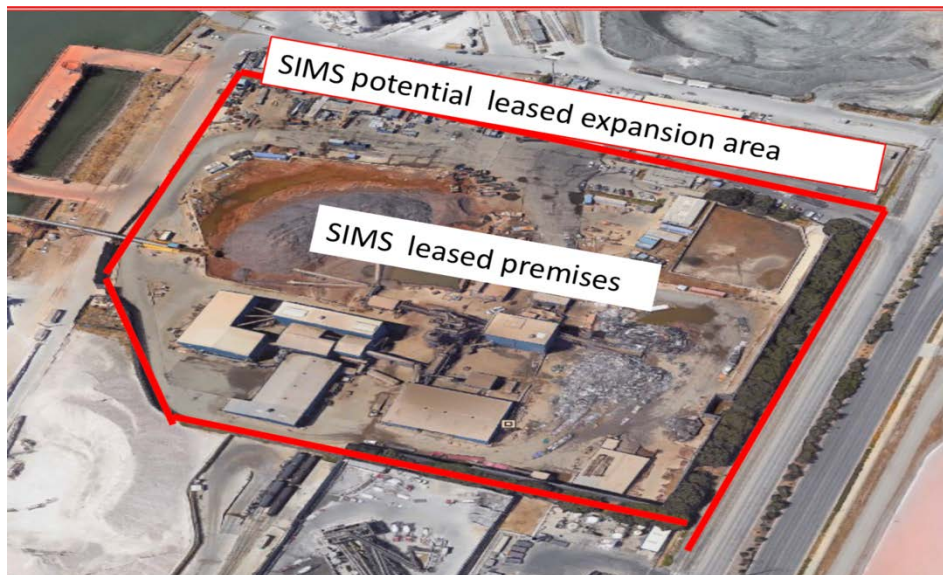
The Vision Plan estimates the SIMS Terminal with an estimated MPC of 300,000 metric ton based upon its existing capabilities. By applying a growth rate of 2.4%, SIMS, the future capability demand will be between 400,000 and 450,000 metric tons. The SIMS lease premises will require expansion to assist in meeting future demands.



SIMS manages and operates on one main parcel shown on Figure 54. Their lease is dated 28 June 2018, and consists of 14.669 acres (13.2765 acres main terminal, .247 acres conveyor easement, .346 acres PG&E substation, and .8 acres Track # 785). The current lease is for fifteen years, expiring at the end of 2033. SIMS has a five-year option term on this property to 2038. SIMS uses Wharf 3 on a “*first come first serve*” basis pursuant to the Port Terminal Tariff.

During fiscal year 2018, SIMS had 13 vessel calls. The average outbound cargo was 20,256 metric tons. The largest load departing Redwood City for SIMS was 32,951 metric tons. SIMS manages their outbound loads using the vessel draft, channel depth, and tides. They have the ability to top off their outbound vessels at a Port of Richmond private terminal.

**Figure 54. SIMS Leased Premises and Potential Long-Term Expansion Area**



SIMS has indicated a desire to make specific improvements to their lease premises. These include installing a new battery-type power capacity providing a new sustainability capability, increasing the size of the crusher, and expanding recyclable capabilities to produce new market commodities. Further, the installation of new battery-type power generation will augment the existing PG&E substation. This is a means to reduce PG&E electrical service dependency for the larger crusher to expand the recyclable materials produced and to increase export volumes.

The Vision Plan makes the following findings:

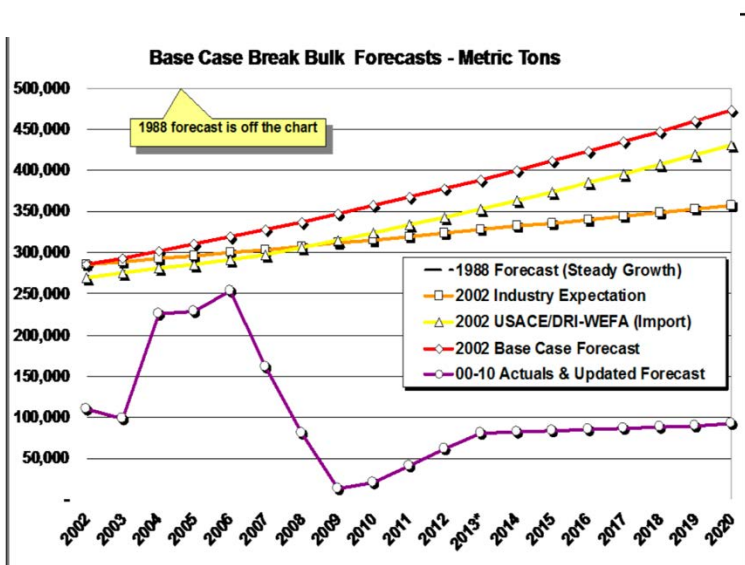
- Continue SIMS partnership to promote exports.
- Support the augmentation of the PG&E power and other sustainability efforts.
- Support SIMS installation for a larger crusher to assist them to expand the recyclable materials and increase exports.
- Achieve a 400,000 to 450,000 metric ton capacity and support efforts to make internal improvements for handling the larger capacity (operational efficiencies).
- Evaluate the feasibility of transporting high-value recyclable materials to the Port of Oakland by a regional water service.

## IX. OMNI-TERMINAL NON-CONTAINERIZED POTENTIAL MARKET OPPOTUNITIES

(See Appendix 2 for Omni-Terminal Conceptual Site Acreage)

The 2012 Seaport Plan defined bulk terminals as break-bulk, dry bulk, liquid bulk, and neo-bulk cargo berths. Figure 55 forecasts the

Figure 55. 2012 Seaport Plan Break-Bulk Forecast



proposed growth in break-bulk cargo to 2020 from the Seaport Plan. There are no active break-bulk terminals today, and the current Draft Seaport Update has deleted break-bulk terminals and redefined them as ro-ro terminals.

Shipping lines and terminal operators have continued to change to meet the challenges of increases to size of ships and cargo handling changes.

While containerization has led to the growth of imports and exports within the US and the Bay Area, it

also has resulted in the concentration of container terminals and cargo at the Port of Oakland. Non-containerized terminals historically built for break-bulk carriers find themselves competing among themselves for a smaller and smaller market share. This trend continues. Commodities formerly exclusively transported as break bulk can now be shipped in containers.

***“The Bay Area ports do not currently handle any break-bulk cargo, but have done so in the past and may be needed to do so in the future. Break-bulk trade, also called general cargo includes non-bulk, non-containerized commodities such as structural steel, lumber, and machinery. Project cargo is a key subcategory of break-bulk trade, and includes goods such as bridge components, refinery assemblies, subway car shells, and other goods requiring special handling to support a near-term local or regional project. Wind farm generator towers and blades are an important project cargo at many ports.”<sup>44</sup>***

In today’s market, the pure break bulk operators that once looked for a dedicated berth and transit shed have shifted to multi-purpose operations (lift-on and lift-off charter vessels using ship’s gear or roll-on and roll-off vessels using wheeled handling equipment).

The Port’s future marketing should be focused on charter vessel operators, agents, and stevedores for “*inducement calls*” rather than liner services<sup>45</sup>. While there are some break-bulk liner service operators, such as “Ocean – Gearbulk -International Shipping” that operate on a regular schedule, it is not

<sup>44</sup> Seaport Plan Update, June 2019

<sup>45</sup> Inducement calls refer to “tramp vessel calls” where the vessel is chartered for a specific cargo movement. Liner service calls are deployed on a regular schedule.

recommended that the Port market to this type of service. The tramp or charter markets are a better option.

The 2012 Seaport Plan estimated 563,000 metric tons of break-bulk and neo-bulk capability at the Port of Redwood City's Port Priority Use Area (91% neo-bulk and 9% break-bulk). Based upon the historical trends, the Seaport Plan's expectations were for slow and continued growth in break-bulk cargo (e.g. steel, lumber, newsprint, and project cargo flow).

The Draft 2019 – 2050 Seaport Forecast has no specific forecast for future break-bulk or neo-bulk tonnage (other than automobiles). The Vision Plan recommends that the 563,000 metric ton capability previously allocated to the Port should be retained for general cargo capabilities. Cargo opportunities may include transit-rail car shells, windmill parts, fabricated steel, lumber, “grey market” automobiles, and domestic cargo.

The primary competition for this type of cargo are Pier 80 in San Francisco, the Port of Stockton and West Sacramento. These ports handle project cargo at multi-purpose (Omni) terminals. The chief competitive factors are the transport cost to and from the terminal and the terminal operators cost. The outlook for this type of cargo at the Port will depend upon future infrastructure improvements cost (ROI), size of the terminal, terminal operator costs, and availability of labor.

***The Vision Plan recommends the Port establish a Multi-Purpose Omni Terminal for general cargo; this terminal should be designed and marketed to enter the break-bulk, neo-bulk, and ro-ro markets. The Omni-Terminal's capability should match the 2012 Seaport Plan's demand for break-bulk and neo-bulk capabilities. The total acres should be at least 15-acres (minimum). Once established the growth rate for the Omni Terminal should be an annual 1% to 2% growth rate.***

Figure 56. Terminal Storage Acreage Requirements based upon 2012 Seaport Plan

<i>Break Bulk</i>	<i>Neo-Bulk</i>	Neo-Bulk (Autos)	Dry Bulk	Liquid Bulk
<b>20 Acres</b>	<b>13 Acres</b>	175 Acres <sup>46</sup>	13 Acres	12 Acres

Figure 57 and Appendix 2 of the Vision Plan illustrates the proposed general cargo *Omni-Terminal*. The Port can establish this Terminal by consolidating existing dry bulk commodities, terminating uses that are not directly cargo related, and potentially clearing the terminal area in the vicinity of the current Port's Administrative Offices.

***During the short-term planning timeframe, the Port needs to aggressively seek potential “inducement calls” for “niche” cargo by responding to inquiries from carriers and stevedores. The Port will have to evaluate its pricing for these inquiries to evaluate the overall revenue potentials. Short-term marketing opportunities may be able to be handled on a smaller terminal. The success or failures of this marketing effort should help the Port staff to refine the Omni-Terminal concept.***

<sup>46</sup> The Port of Hueneme's initial automobile terminal was 12-acres due to the close proximity of private industrial property 1.5 miles from the terminal's “first point of rest”.



Figure 57. Proposed Long Term Planning Nodes for the Port of Redwood City with the Proposed Omni-Terminal



The Vision Plan makes the following findings and recommendations regarding the *Omni-Terminal* cargo:

- Establish an open lay-down area for potential ro-ro, break-bulk, and neo-bulk cargo opportunities. This lay-down area will also support FEMA during a Bay Area emergency.
- Market in the short-term for *inducement calls*. In the short term, assemble as much area as possible by cleaning-up existing property and relocating non-maritime related uses.
- A proposed *Omni-Terminal* design includes a berth length of 800 – 1,000 liner feet, 2-day average time for discharge using ships or stevedore gear, 10 to 20-acre storage capacity, and a 7 to 10-day dwell time.
- Initiate marketing for potential clients and customers through various meetings with stevedores, shippers, carriers (niche tramp services), and terminal operators. Attempt to match Silicon Valley importers and exporters with niche carriers.
- In the upcoming 2020 Seaport Plan, remove the Port's liquid bulk capabilities, add the Ferry Terminal area, preserve a general cargo ro/ro capability (break-bulk and neo-bulk), and establish the possibility for the expanding of the Port Priority Use area.
- Marketing this new terminal must be flexible and market driven. This will take time. It is not unusual for a new market opportunity to take nearly 5-years from identification to success. Therefore, it is suggested that during the short-term planning horizon, the Port prepare for what will be a middle-term success. However, marketing should be based upon a market strategy not a “*build it and they will come*” strategy.
- Capital investment should include support of the private maritime sector users (either in the form of capital investment or with a guarantee in a Terminal Agreement).

## Market Sector Opportunities (OMNI-TERMINAL)

### Automobiles

A previous Port market assessment prepared for the Port by Trans System and the current Draft 2019 -2050 Seaport Plan suggest that the future demand for additional non-container terminal acreage in the Bay Area will be dedicated to automobile imports or exports.

The Pure Car Carriers (PCC), used in this trade, generally have a depth requirement of less than 30 feet MLLW. A successful auto terminal, however, depends upon the synergism between staging of automobiles, new car sales, near-by rail connections, and potential automotive industrial uses.

A *niche* automobile terminal for the Port may be a good land use within the Port Priority Use Area. There are, however, constraints that must be recognized. While the PCC has an operating draft that meets the Port's navigational constraint, there may be an air-draft constraint for some vessels at the San Mateo Bridge. However, a recently proposed terminal in Antioch (CA.) has a similar constraint, but a private automobile terminal operator is moving forward with a 100+ acre terminal.

There is limited open industrial land in close proximity to the Port that can be used for vehicle distribution. Most industrial property is being developed as office complexes.

Once automobiles move from a dockside terminal (*first point of rest*) by truck, the proximity of a preparation facility and the terminal is meaningless. The further the preparation center is from the "*first point of rest*" the longer the dwell time there will be; longer dwell time requires more terminal storage area. For the Port of Hueneme and Port of Tacoma imports and exports are handled without trucking to the preparation center; for these ports, the "*first point of rest*" is within 1.5 miles to the preparation and distribution center.

West Coast ports handle a significant volume of import and export automobiles each year from Asia and Europe. In the San Francisco Bay Area, the three ports that handle automobiles are Benicia, the Port of San Francisco, and the Port of Richmond.

The **Benicia Port Terminal Company**, an AMPORTS company, with stevedoring provided by SSA, is an example of a small private terminal/port that supports ro/ro automobile and project cargo. The Port is located 16-miles from San Francisco. The Port is served by I-680 and I-80 interstate highways, and the Union Pacific (UP) provides on-terminal rail support. The UP has on-dock rail tracks capable of handling 170 rail cars simultaneously. The AMPORT facilities cover 640 acres with 140,000 square feet of processing building. The Port of Benicia can berth three vessels at the same time with an operating depth of 38 ft. MLLW. AMPORTS is a premier automotive services and port terminal operator with terminals in the US and Mexico.

The **Port of Richmond, CA**, is a public port that has a ro/ro terminal for automobiles and project cargo. It is a department of the City of Richmond. Terminal 7 is operated by Auto Warehousing Company (AWC) as the terminal operator. AWC is an experienced full-service automobile processing company. Terminal 7 has three berths and an operating depth of 35 ft. MLLW. The Port is served by the BNSF railroad.

The **Port of San Francisco's Pier 80** is operated by the PASHA Group. The terminal exports Tesla that are built in Fremont, California. Transporting these cars to the Pier 80 complex is approximately a 45-mile route (Highway 880, to San Mateo Bridge, north on Highway 101). During normal traffic this route can exceed 1-hour in transit time. *Tesla may be an opportunity for the Port of Redwood City.* They can

be offered their own terminal. This model was successful at the Port of Hueneme; BMW became the customer rather than the Port relying on a carrier or a stevedore. Additionally, the transit time from Fremont to Redwood City may be less than the 1-hour to Pier 80.

The Draft 2019 – 2050 Seaport Plan Forecast suggests that there are two potential new terminals for automobiles (San Francisco Pier 96 and Oakland Howard Street Terminal). These combine areas consists of 103-acres with potential capability to handle between 140,000 units and 223,000 units.

**Figure 58. Seaport Plan Automobile Metrics**

Terminal	Acres	Low Capacity (Units)	Moderate Capacity (Base Case Units)	High Capacity (Units)
<b>Annual Units per Acre</b>		1,371	1,700	2,173
<b>Existing Auto Terminals</b>	215	294,859	365,500	467,146
<b>Bernicia</b>	75	102,858	127,500	162,958
<b>Richmond Pt. Potrero</b>	80	109,715	136,000	173,822
<b>SF Pier 80</b>	60	82,286	102,000	130,366
<b>Potential</b>	103	141,258	175,100	223,795
<b>SF Pier 96</b>	53	72,686	90,100	115,157
<b>Oakland Howard Terminal</b>	50	68,572	85,000	108,639
<b>TOTAL</b>	318	436,117	540,600	690,941

If the Port of Redwood City seeks to enter the automotive sectors, the new Omni Terminal should be added to the potential list. Along with the channel constraints and the historic participation of the existing SF Bay competitors, the Port needs to be aware of the following automotive marketing issues:

- The dominant Port opportunities are not with the large volume automobile manufacturer (OEM)<sup>47</sup> but with automotive support services companies (e.g. logistic companies, automobile terminal operators, and service providers)
- Long-term the Port and surrounding industrial properties do not support the establishment of high-volume automobile import/export and processing.
- Smaller volume OEM companies, such as Tesla may be a good opportunity.
- Domestic automobile services, including staging of automobiles for container carriers, grey-market automobile operations (used cars), and domestic US trade (California to Hawaii) are opportunities that can be supported on a smaller terminals. For example, **West Coast Shipping**

<sup>47</sup> OEM – original equipment manufacturer refers to the automobile manufacturer



([www.WCShipping.com](http://www.WCShipping.com)), located in California and New Jersey specialize in the handling of various types of vehicles in containers. According to their website, “US containerized car exports surged 25% in 2017”. While West Coast Shipping has a Richmond, CA, location, there may be an opportunity for the South Bay markets to have a container stuffing and automobile staging area at the Port.

- Long-term changing technology within vessel size and operations may open future waterside opportunities but unless the Port has the opportunity to expand land-side operations it is doubtful that the larger automotive industry will be an opportunity for the Port.
- A possible *niche*, for the Port is to explore the Mexican automobile market. This market can be a combination of inbound products by rail and water. The Union Pacific Railroad automotive business sector can be a partner in this effort. Despite the recent trade tensions and uncertainty, there has been a continued growth of auto manufacturing in Mexico. Most of the 3.9 million vehicles built annually in Mexico are exported to the US and Canada. Traditionally more than 80% of finished vehicles built in Mexico were shipped north by rail; today nearly 40% move by water because of rail car shortages and a cheaper ocean shipping rate. Stevedore Services of America (SSA) operates a 100+ acre automobile terminal in Lazaro Cardenas in Mexico. This terminal handle finished automobiles and high and heavy project cargo. Lazaro serves Audi, Ford, General Motors, Honda, Hino, Mazda, Subaru, Suzuki, Toyota, Daimler, BMW, and Nissan. ***The Port should initiate discussions with SSA and should seek to establish a sister port relationship with Lazaro Cardenas, Mexico.***

### **Cold Storage, Refrigerated Cargo, and Niche Break-bulk Cargo**

Historically, West Coast South America / Central America, Australia, and New Zealand have offered break-bulk palletized fresh fruit opportunities to the US West Coast ports. These break-bulk opportunities have diminished as much of the commodities have been containerized. An example of the changing industry is the West Coast American Service provided by Hamburg-Sud. Hamburg-Sud’s vessel rotation is Ecuador, Panama, Guatemala, Port of Hueneme, Los Angeles, to Oakland. The return voyage from Oakland includes Manzanillo, Mexico.

**Port of Hueneme, CA**, provides an example of a *niche* port that specializes in the cold storage, refrigerated, and fresh fruit cargo markets. Historically, Hueneme handled Del Monte Fresh Fruit on a carton by carton basis. Del Monte’s operations evolved to a palletized service, and today it is a combination of containers and pallets. In an early Port of Hueneme Strategic Plan, the Port identified a small square in a plan as a 25,000 square foot refrigerated warehouse. Without building anything, Hueneme marketed a refrigerated warehouse as a future opportunity. The warehouse (depicted only in a plan) evolved into a 135,000 square foot refrigerated terminal that handled imported fresh fruit as well as exported California citrus. Today, the Port has evolved once again to a *niche container* terminal for imported fresh fruit operations.

**Port of San Diego, CA**, is another leading example of how a *niche terminal* (Tenth Avenue Marine Terminal) can support and handle the fresh fruit market (Dole Fresh Fruit). The attraction for the beneficial cargo owners of the fresh fruit is becoming a “*large fish*” in a “*small pond*” rather than being a “*small fish*” in a “*large pond*” such as Los Angeles, Oakland, and Long Beach.

Figure 59. Refrigerated Vessel SEA-TRADE

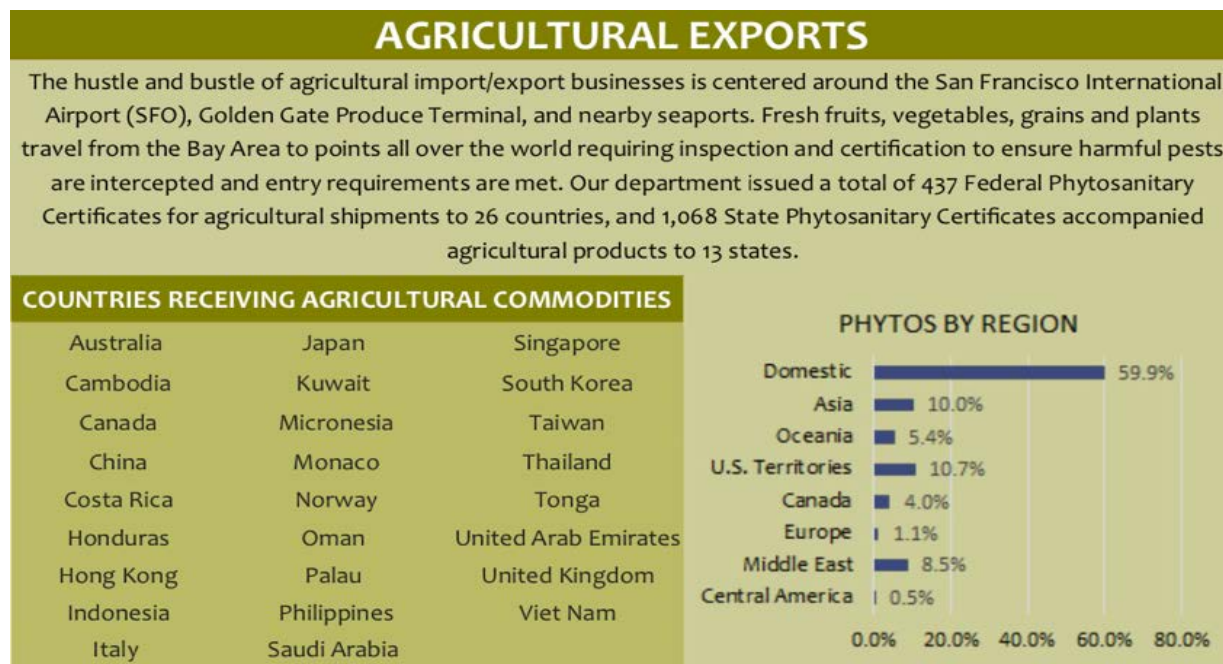


*Despite the challenges faced in palletized agricultural cargo, the Port's marketing effort should focus on the "niche carriers" and local importers / exporters.*

For example, since 2018, Sea Trade Services, a European tramp carrier, has upgraded their fleet with six brand new vessels. These ships are very advanced and will create a boost in refrigerated cargo logistics. Focused commodities for Sea Trade are frozen fish products,

fruit, poultry, meat, juice, and vegetables that are handled loose in cartons, palletized, or in some cases containerized.

Figure 60. Agricultural Exports (San Mateo County)



The "2017 San Mateo Crop Report", published by the Agricultural Commissioner's office, states that the 2017 agricultural production was \$ 142.7 million. San Mateo's agricultural commodity groups include indoor floral and nursery crops, vegetable crops, and fruit and nuts crops. These agricultural commodities are destined for 26 foreign countries. *The Port should initiate a Special Roundtable Event with major local growers and shippers to identify ways that the Port can assist this business sector.*

A nearby cold storage facility is the “Cool Port of Oakland”, this project has temperature controlled transload and distribution facility. This facility maximizes use of rail and shipping network to increase import and export of perishable food products.

*While an Oakland project consisting of 280,000 square foot refrigerated transload and distribution capability, a project at the Port could provide similar services on a smaller scale to meet specific and specialized needs of the San Mateo agricultural market.*

The Port’s facility can be developed in full compliance with the California Air Resources Board (CARB). It would provide electrical plug-ins for containers coming to the South Bay from the Port of Oakland for future trans-shipment by domestic truck carriers, use solar technology for power generation, and use natural refrigerants to reduce environmental damage to the ozone.

### Short-Sea Terminal Operations That Remove Trucks from Highway Traffic

The Vision Plan suggests two different type of shallow-draft short-sea operations that can be associated with the *Omni Terminal*. One is a shallow-draft vessel that would carry cargo within the San Francisco Bay and to the Stockton/Sacramento River System (**Regional Intermodal Network “RIN”**).<sup>48</sup> The other is an ocean-going barge service between Redwood City, the Pacific Northwest, or Hawaii. Either of these shipping modes can support automobiles, agricultural products, or project cargoes.

**Figure 61. American Patriot Container Transport, LLC**



While a previous RIN between Oakland to Stockton on barge was a failure. This former proposal handled typically about 300 containers.

A newly designed American Patriot Container Transport, LLC (APCT) vessel handles up to 3,000 containers.

APCT is currently discussing the establishment of a specialized container service between deep water ports on the US Gulf Coast deep-water ports and river ports. While still in the discussion stage, the possibility of container

handling and storage facility to inland locations, such as Memphis, has developed a lot of interest and study.

This type of service is dramatically different than the previous concept of a barge container service funded by a Ports of Oakland/Stockton/Sacramento TIGER grant. While container ocean freight current enters the SF Bay Area at the Port of Oakland, the containers are moved to inland locations by truck. A new water

<sup>48</sup> Any barge system within the Bay Area will have to address the recent failures of the TIGER funded Oakland, Stockton, and Sacramento Project.

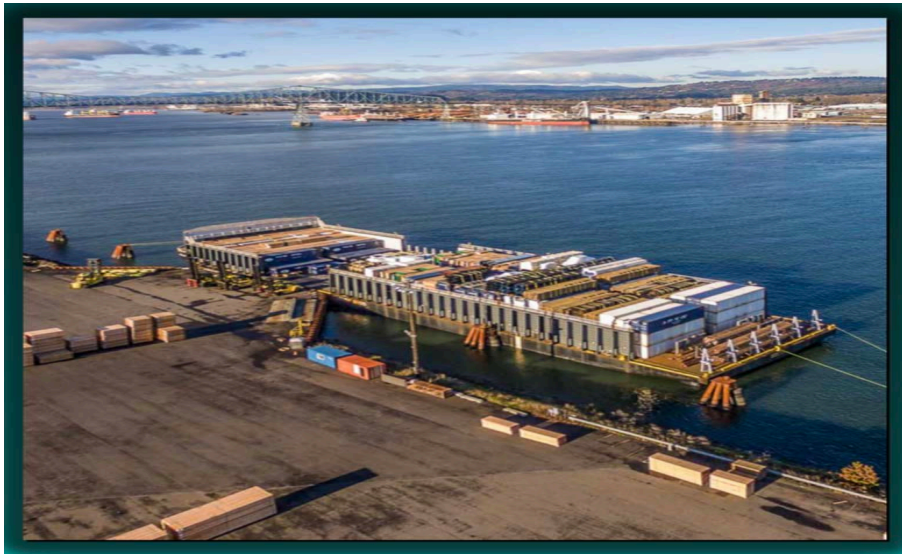


service proposes to disrupt the traditional container distribution pattern by using water freight transportation. A container-barge service is one of the services suggested by Prologis in association with Wharf 5.

***American Patriot Container Transport LLC has not envisioned a West Coast Bay Area service. The Port, however, may be able to encourage them to study and evaluate a long-term opportunity for a service that originates in Silicon Valley and serves the California Central Valley. This all water serves should consider providing services to both domestic trucking and international container customers through a series of domestic barge locations along the waterway system.***

An ocean-going barge service is the Sause Brothers Barge service from the Pacific Northwest to Hawaii. This service offers ocean transport from Oregon to Hawaii. Barge services include bulk, containers, flat racks and platforms (project cargo) and Ro/Ro (automobiles). Matson Navigation Company and Pasha Hawaii Transport Company serve Hawaii from the Bay Area. These services provide economic development opportunities by supplying freight for the residents of Hawaii, support the hotels and tourism industry, and provide a service to the Military by providing transport of property of the military personnel station in Hawaii or overseas. Matson and Pasha offer regular schedule services from Northern California.

**Figure 62. Ocean Going Barge Service  
(Domestic Services to Hawaii or Coastal Services to PNW)**



Ocean-going tug and barge services provide:

- fuel-saving technology
- enhance environmental protection
- relieves landside congestion at large container ports.

Today, there is an existing supply chain and water service to Hawaii from California and the Bay Area.

***The Vision Plan suggests marketing to Sause Brothers to create a facility to compete with existing services from the Bay Area to Hawaii.***

In addition to a proposed Hawaii service, a coastal service may also provide an opportunity to return lumber to the Port. The Weyerhaeuser Company operates a terminal for lumber and lumber products at Pier T Berth T122, Port of Long Beach. The terminal covers 18-acres. The Port of Long Beach is currently engaged in a Port Master Plan Update. As container activities continue to grow surrounding Pier T, the congestion may open an opportunity for the Port of Redwood City and UP Railroad to discuss the possibility of using the Bay Area with its intermodal services for this existing lumber trade.

## **X. MARKET GRID OVERLAY SYSTEM (MGOS) PROCESS**

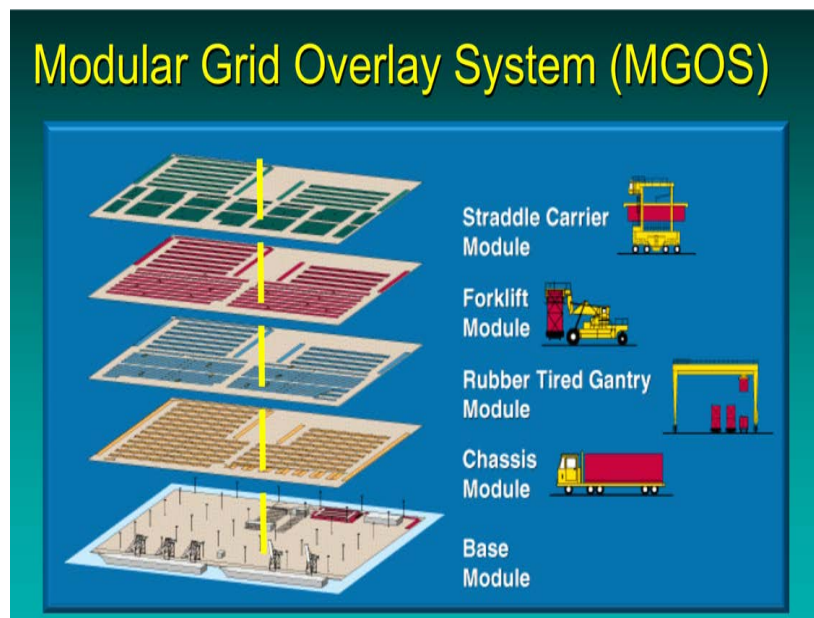
An important theme in the 2020 Vision Plan is to increase operational efficiency, capabilities, and capacity to handle anticipated demand for forecasted business growth.

An efficient process for construction and development of the *Multi-User Dry Bulk Cargo* facility, the *Ferry Landing / Terminal*, or the *Omni – Terminal* is the **Market Grid Overlay System (MGOS)**. Since these facilities are intended to meet cargo and passengers' capabilities over a long-term and since they will be developed in phases, MGOS provides a tool for phasing to avoid duplicate construction work and inefficiencies on these individual projects.

Developing a new terminal involves the preparation of operation capabilities, labor work rule analysis, terminal throughput capacity analysis, equipment evaluations and physical land use plans and constraints, integrating terminals, roadways, rail, terminal equipment and technologies and other infrastructure elements. In addition, a return-on investment (ROI) analysis to satisfy the public and/or private bonding requirements may be necessary.

MGOS employs a base module for a future terminal capability and then identifying various modules over the base module thereby ensuring that the Port's investments for the base module are consistent with future terminal services and operating codes. Figure 63 shows how the MGOS system is employed in a marine terminal environment.

**Figure 63. Modular Grid Overlay System (MGOS)**



The MGOS methodology determines the correct geometry for the base module; future terminal hard assets (buildings, light standards, fire hydrants, electrical substations, specialized operating requirements, gate structures, etc.) can be laid out as future modules. This permits future implementation of the various future scenarios to be deployed without having to modify or change any of the terminal infrastructure.

While Figure 63. shows this system using a container terminal, the same system will operate for the *Multi-User Dry Bulk*, *Ferry Terminal*, and *Omni Terminal*.

## **XI. VISION PLAN: FERRY TERMINAL**

The 2020 Vision Plan is not intended to substitute for detail work that will be accomplished in the **Redwood City Ferry Financial Feasibility Study and Cost-Benefit and Economic Impact Analysis**. There is a strong consensus among transportation providers and users that establishing a ferry service to Redwood City is essential and important. The location of Redwood City for a ferry service will help address congestion on the surrounding highways and will enhance the FEMA emergency response network for the San Francisco Bay Area.

Figure 64. WETA Strategic Plan Ferry Landing Locations (South Bay)



The **San Francisco Bay Area Water Emergency Transportation Authority's Strategic Plan** for expanded service (Figure 64 above) shows the strategic location of the Port to support the emerging South Bay region.

To avoid conflicts and maintain ferry headways, there appears to be a consensus on the location of a ferry service landing and infrastructure. The preferred location is generally shown on Figure 65. This location appears safe and will not interfere with existing or potential port-related uses.



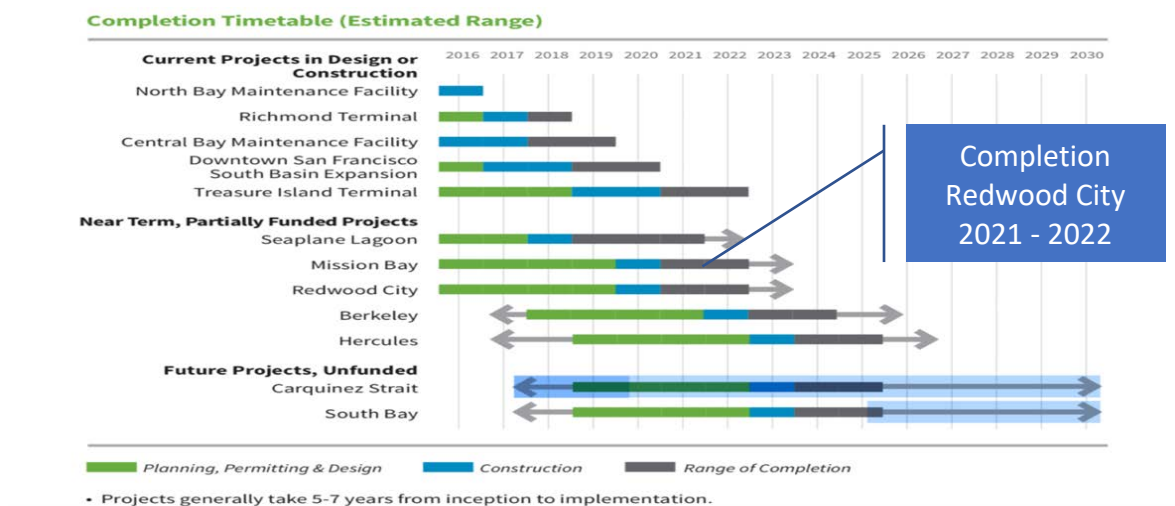
Figure 65. Preferred Location for a Ferry Terminal and Landing at the Port of Redwood City.



The Seaport Plan clearly states: “. . .some port priority use areas may offer locations considered appropriate for the development of ferry terminals”. The feasibility study currently underway will examine this location to ensure that the terminal and ancillary uses (parking, other transit stop facilities, and passenger service uses) meet appropriate planning and design standards.

Subject to available funds, WETA’s Strategic Plan schedule for the Redwood City ferry service is shown in Figure 66.

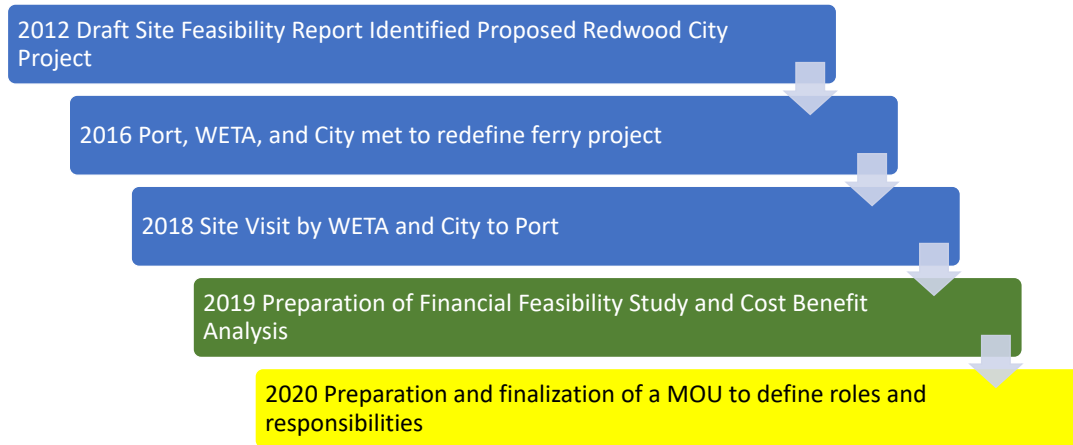
Figure 66. WETA Completion Timetable and Schedule



In 2016, the completion of a Redwood City ferry project was scheduled between 2021 – 2022. At a March 2019, WETA Board meeting the WETA staff provided an overview of the historic and current Redwood City Ferry Terminal. *An uncertain factor is the challenge of two lawsuits to the ballot measure that raise tolls for WETA’s capital projects.*

**Figure 67. WETA Timeline for Port of Redwood City**  
 (Blue items are complete; Green item is underway. Yellow item is Next Step)

## “WETA PROCESS”



In addition to the WETA operations, the Port should also focus on private ferry operations. The planning of a ferry terminal should include multiple ferry operators (public and private). The Port of San Francisco’s Red & White and Blue & Gold Bay cruises have contributed to the Port’s commercial and recreational success. In addition to these cruise lines, Pier 3 is the home for Hornblower Dinner Cruises. Hornblower provides visitors and residents with brunch, lunch, and dinner cruises.

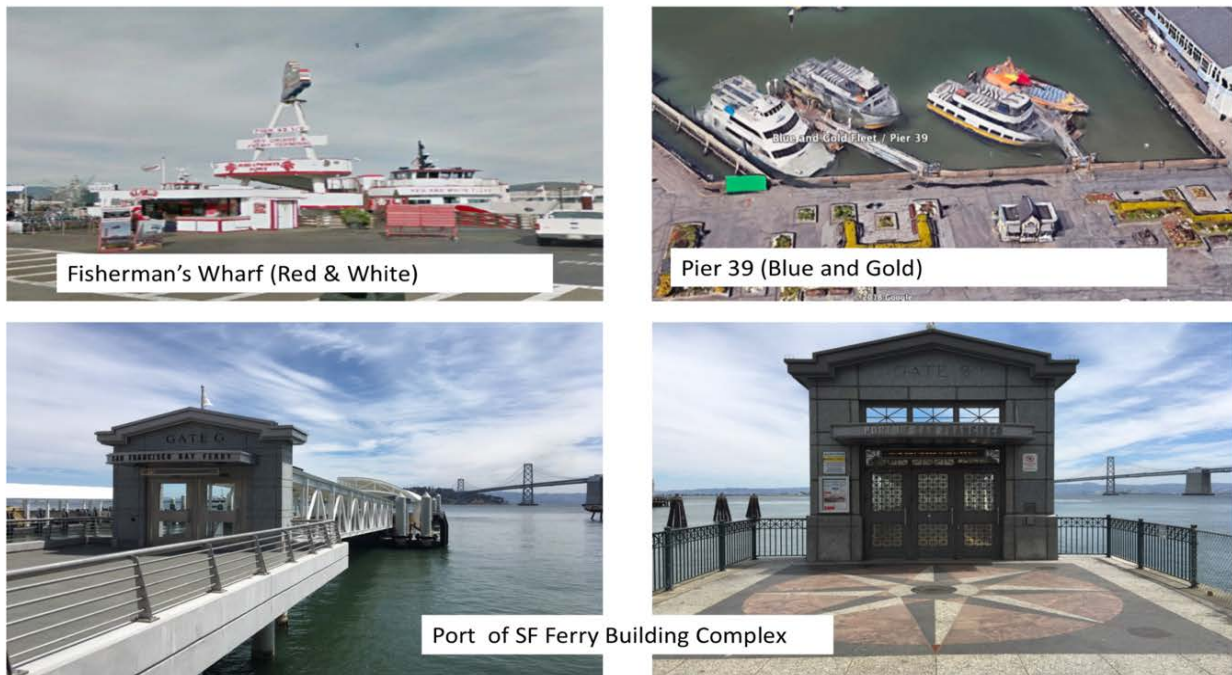
These aforementioned cruises let residents and tourist to enjoy views on the Bay. A private operator may be an appropriate short-term planning timeline ferry operations while the Port waits on WETA. In the short term a ferry system can link the South Bay with San Francisco / Oakland sport and recreational activities, and commuter services.

A WETA 2018 Ridership Survey identified that the top three reasons riders choose a ferry: ferries avoid use of private own vehicle (traffic / parking), improves quality of the transportation experience, and creates a relaxing experience. Therefore, in planning for the establishment of either a public or private ferry service some of the following planning issues should be:

- Make the boarding and un-boarding of the ferry a pleasant experience in all weather conditions. This may mean having a covered gangway and a covered waiting area (Figure 68).
- Link the ferry to other commercial / recreational activities in close proximity to the landing. This makes the ferry landing more than just a public transit loading and un-loading area.
- Develop the Ferry Landing Terminal in phases, much like the Port of San Francisco’s Ferry Plaza and Ferry Building. The initial development can focus on the boarding and un-boarding of

passengers with limited development. In the open area surrounding the passenger boarding area, as well as in the parking lots of the Portside Lease areas, the Port can introduce new commercial /retail uses using outdoor retail carts. This has been successful for the Farmers Market at the Ferry Building and two Rouse Developments (Boston and Miami). The goal is to introduce new *Active Uses* at the Port (Figure 69).

**Figure 68. Port of San Francisco Ferry Landings**



**Figure 69. Introduce Active Uses with Minimum Investment**





- Work with other public transit authorities to have seamless connectivity. This may mean having a shuttle system between the ferry landing and other Redwood City public transits.
- View the Ferry service as a way to build economic opportunities for downtown Redwood City and the Port's commercial recreational marina area (Portside I and Portside II).
- Incorporate shoreline waterfront promenade and shoreline access from the proposed Ferry Landing to the Pacific Shores complex as well as expansion of the Bay Trail.

## **XII. COMMERCIAL REAL ESTATE ANALYSIS**

The commercial real estate uses within the Portside I and II areas include:

- dry boat storage and parking
- conference center
- sailing schools
- public marina and yacht club
- small office uses
- guest dock use
- public access (fishing dock, public art, and promenade)

The short-term opportunities are limited by the long-term Portside I and Portside II lease agreement. Both of these leases are scheduled to end June 30, 2033. The strategy is to make the overall commercial and recreational area a “*Destination*” for visitors, workers, tenants, and residents; the Port can phase *Active Uses* into the parking lots and as replacements for short term uses until the Portside I and II leases end.

***It is recommended that the Port initiate a public Portside Commercial Real Estate Task Force to create a Specific Plan for the commercial and recreational areas; this Task Force planning process should include the adjacent Abbott Lab property owner and tenants, with. A model for this type of waterfront process is the Port of San Francisco's Northern Waterfront Advisory Committee process associated with the BCDC Special Area Plan for the Ferry Building.***

This planning process is also similar to the City of Redwood City's Downtown Retail Task Force that created a detail vision for this critical area.<sup>49</sup> This Task Force process should be established by the Port Commission and include the City, BCDC, and stakeholder representations; the goal of this Task Force is to recommend specific planning developments that can be implemented by the Port and City.

---

<sup>49</sup> April 15, 2019 Downtown Retail Task Force: Findings and Recommendations

Figure 70. Port of Redwood City Commercial Real Estate Areas.



- 1. Stanford Rowing and Sailing Center. (Tenant of Abbott Labs)
- 2. Marine Science Institute (Tenant of Abbott Labs)
- 3. Dry Boat Storage (Port of Redwood City Tenant)
- 4. Launch Ramp Parking
- 5. Public Boat Ramp
- 6. Port of Redwood City Marina
- 7. Seaport Conference Center
- 8. Spinnaker Sailing School
- 9. Sequoia Yacht Club
- 10. Redwood Landing
- 11. Guest Dock

Abbott Labs Property and Cargill Salt Ponds are not owned or administered by the Port of Redwood City.

The Portside I and II tenancies are small office uses taking advantage of the demand for small business offices. However, these uses are *Inactive Uses*<sup>50</sup>; to make the Portside I and II area a *City Destination* there needs to be *Active Uses*. The Port can establish periodic events (such as Harbor Days); but, to create *Active Uses* on a more regular basis, the Port needs to develop interest in this area by featuring retail carts

<sup>50</sup> September 12, 2016 Downtown Precise Plan Amendment Active Ground Floor Uses in Downtown



and mobile dining attractions (e.g. Food Trucks).

While the Cargill Buffer Zone and the Abbott Potential Expansion parcels are not currently owned by the Port, the Vision Plan incorporates these parcels into the 2020 Vision Plan. It is not the Plan's intent to infringe upon any development rights of the owners. The intent is to protect the Port's Priority Use Area and to enhance the *Destination* goal.

Since shoreline property is limited and demand for cargo requires additional space, rather than filling the Bay, the 2020 Vision Plan suggests placing property in close proximity to existing Port Priority Use Areas into the 2020 Seaport Update. To that extent, it is proposed that the Cargill Buffer Zone be incorporated into the Port Priority Use Area for the Port. In this case, it is suggested that Seaport Boulevard be relocated inland for access to the Pacific Development and the future Ferry Terminal site. The road relocation should be planned in association with the Woodside Interchange Improvement project but not implemented. The current utility right-of-way need not be relocated.

For the Abbott Laboratories property, it is recommended that this site be part of a City/Port initiative to enhance existing commercial and recreational uses as a public-private partnership. This effort can be associated with the Abbott Laboratories Social Impact program. The intent is to create a larger waterfront commercial and recreational use for residents, tenants, and visitors. Anchors on this site include the Stanford Rowing Club, the Marine Science Institute, and the Redwood City Youth Maritime programs.

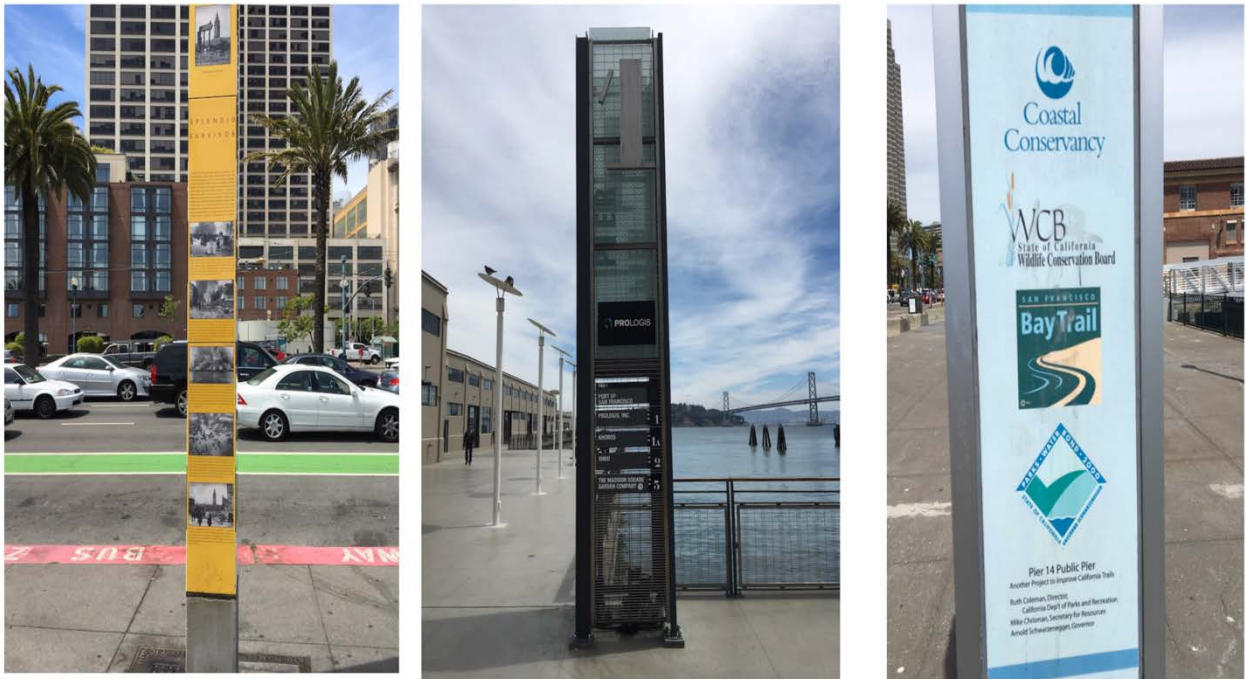
The water's edge should be a collection of shoreline access, public art, and promenades. The shoreline would connect the Port's recreational area to the Bay Trail by preserve existing open space, improving locations, and adding property to the water's edge. The Portside commercial development areas need to be connected to and compliment by a future Ferry Terminal. The two sites need to use the same design features. The future Ferry Terminal Building should include commercial and recreational uses, passenger loading and unloading, and an Emergency Operations area for communications. The establishment of public open space and art surrounding this terminal concept is also important.

An important planning issue for the Port of Redwood City is the front door or "*gateway*" to the Port. Three primary nodes along Seaport Boulevard are:

- At the corner of Seaport Blvd. and Chesapeake. This gateway is to the Seaport Center Office Park and the Port of Redwood City's Boat Ramp, Dry Storage, and Parking.
- At the corner of Seaport Blvd. and the Portside I and II development area. This gateway is to provide access to the Marina, Yacht Club, and the Port's Real Estate.
- At the end of Seaport Blvd., the Ferry Terminal Landing and Pacific Shores Corridor are located

Signage at these corners and nodes should be standardized as part of the overall planning process. Samples and the type of signage envisioned by the Vision Plan are shown on Figure 71.

Figure 71. Examples of Signage Along the San Francisco Embarcadero



The Vision Plan's findings and recommendations regarding commercial real estate include:

- Prepare and complete a **Specific Plan** similar to the City of Redwood City's Downtown Retail Task Force process. This Specific Plan is intended to create a destination on the Bay and to connect the City to its water's edge. The Task Force can be a public-private Port initiative.
- Include the Abbott Laboratories property and the Ferry Terminal property in the **Specific Plan** process.
- Promote "*Active Uses*". This includes retail, cafes, restaurants, public access, and entertainment uses. There have been failures of these uses in the past, but with the growth of the Redwood City Downtown and the development of Pacific Shores, it is appropriate to seek them at this time.
- Combine small parcels currently on hold-over lease status into a single short-term development opportunity but ensure that any short-term uses are consistent with long-term strategies.
- Continue the Port's public art program, similar to the San Francisco Waterfront Promenade (Agriculture Building to Pier 22) along the Port's shoreline.
- Emphasize the Port of Redwood City's and Redwood Creek's historical role within the Bay Area's maritime heritage. Place historical monuments as shown in Figure 72 along the Waterfront explaining the Port of Redwood City's role within the Bay's maritime heritage.

Figure 72. Example of a Historic Monument on SF Embarcadero

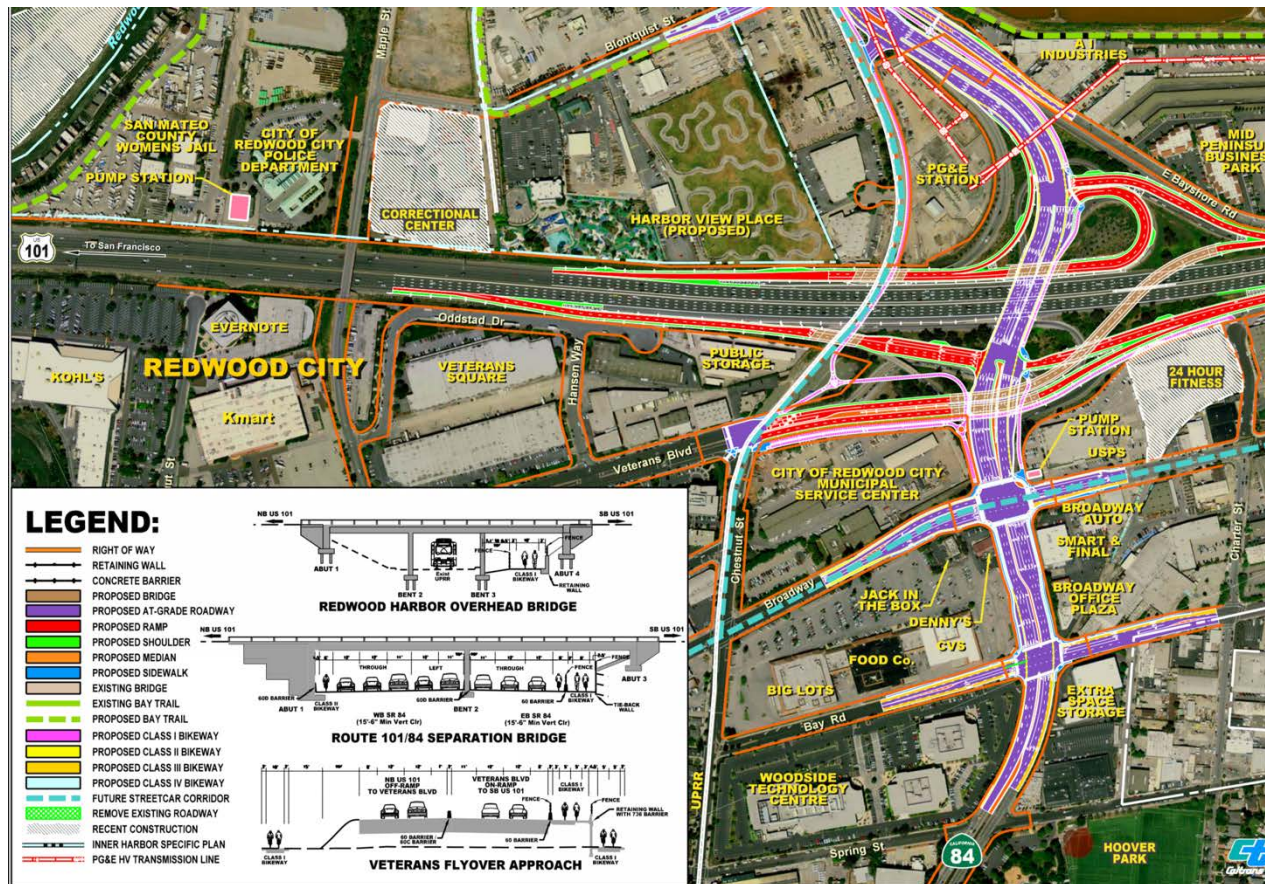


- Establish public open space at the proposed new Ferry Terminal landing area with connectivity to the Portside area.
- Connect the Bay Trail from the intersection of Blomquist and Seaport to the Portside Commercial Real Estate Area and future Ferry Terminal Landing.
- Use signage at key nodes to identify the Waterfront Destination as part of the overall design standards for the area.



A current public project will impact commercial development at the Port is the CALTRANS US 101 / SR 84 (Woodside Road) Interchange Improvement Project that is currently in the Preliminary Design phase of development.

FIGURE 73. SR 84 / HWY 101 Woodside Road Preliminary Concept



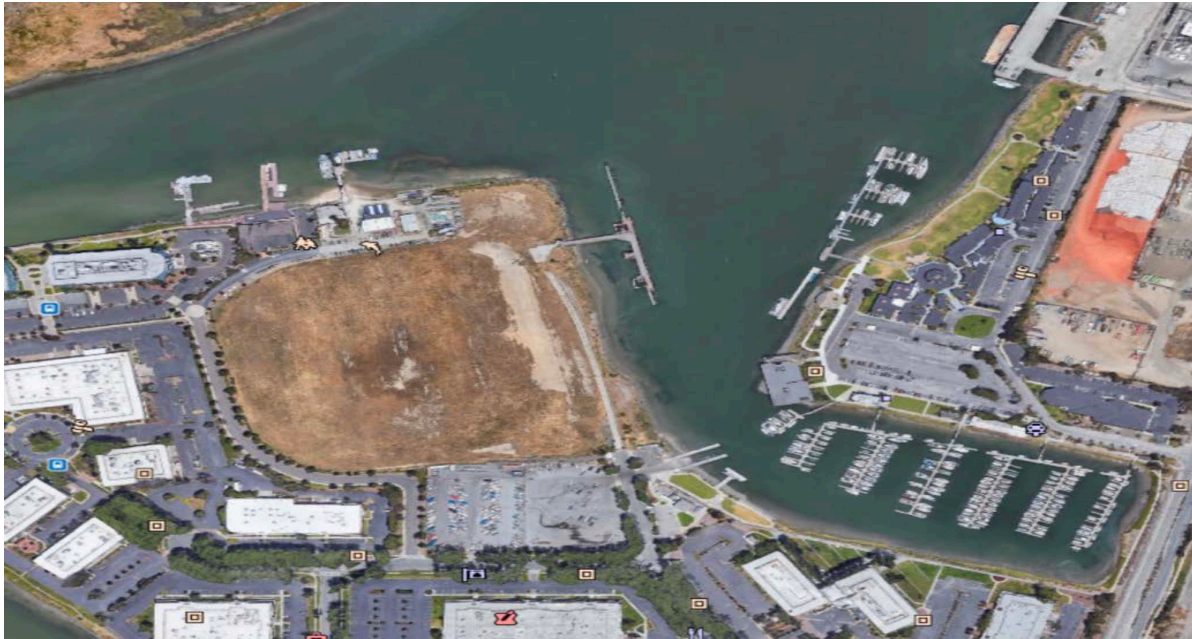
The Preliminary Concept for SR 84 / HWY 101 (Woodside Rd) Interchange project is intended to improve vehicle traffic. Figure 71 is a preliminary concept provided by the City's Project Manager. Along with the Woodside Interchange the Maple and Blomquist Street access roads will be a backdoor to the Seaport Blvd. This backdoor is intended to extend the Bay Trail to Seaport Blvd. The Bay Trail can then be connected from the intersection of Blomquist and Seaport to the Portside Commercial Real Estate Area of the Port. The Trail will eventually be extended along Seaport Blvd to connect the Ferry Terminal area and Pacific Shores.

A second connections proposed by the Interchange Preliminary Plan is the Chestnut Street location for a future streetcar connecting the waterfront to other forms of public transit and downtown. There needs to be an extension of this right-of-way along Seaport Blvd. for a future streetcar.

## EXPANSION CONCEPTS FOR LONG TERM PLANNING

### **ABBOTT LAB PARCEL (Establishment of a Marine Resources / Education Area)**

Figure 74. ABBOTT LABS Property



A potential expansion proposed for the Port is to extend a road from the Public Boat Ramp to connect to the existing street area in front of the Stanford Rowing and Sailing Center. On the waterside of this road right-of-way establish a coastal walkway and bike path to connect into RD 84 / HWY 101 (Woodside) Interchange project. Existing uses such as the Stanford Rowing and Sailing Center and the Marine Institute will remain. A new site for the Redwood City Youth Maritime facilities sponsoring Boy's and Girl Scout Boating will be established. This area would be an asset for the Port and Redwood City asset promoting entrepreneurial and educational uses. The themes would be associated with the San Francisco Bay and the Redwood Creek Bay environs. A portion of the site could also be dedicated to the Port's FEMA role. This could include a training area for the Redwood City Fire Department and a Port/FEMA Operations and Training Center. Open space areas for residents and visitors need to be preserved for recreational uses. As part of the proposed commercial expansion, it is suggested that the Port's Dry Boat Storage and Parking Area be relocated to the Abbott property site. This will make the existing sites, located on Port-owned land, available for a Portside III development.



## CARGILL SALT POND (Establishment of a Buffer Area)

Figure 75. CARGILL SALT PONDS



A portion of the Cargill Salt Ponds should be preserved as a future expansion for the Seaport Plans Port Priority Use Area for the Port of Redwood City. This area would act as a buffer to any future development that would occur on the Cargill Salt Pond property.

It is proposed that if the Port is able to develop this site, then the site can include a Right-Of-Way for a relocated Seaport Blvd. and for a transit system connecting the Ferry Terminal / Landing to Downtown Redwood City. The current utility right-of-way need not be relocated.

As an alternative to the Port Priority Use Buffer Area, the site can be maintained as open-water to act as a Buffer to the existing Port Priority Use Area.

## **APPENDIX. 1**

### **(Working Analysis of Cursory Market Assessment Forecast)**

## **DRAFT**

### **Port of Redwood City Long Range Cargo Forecast**

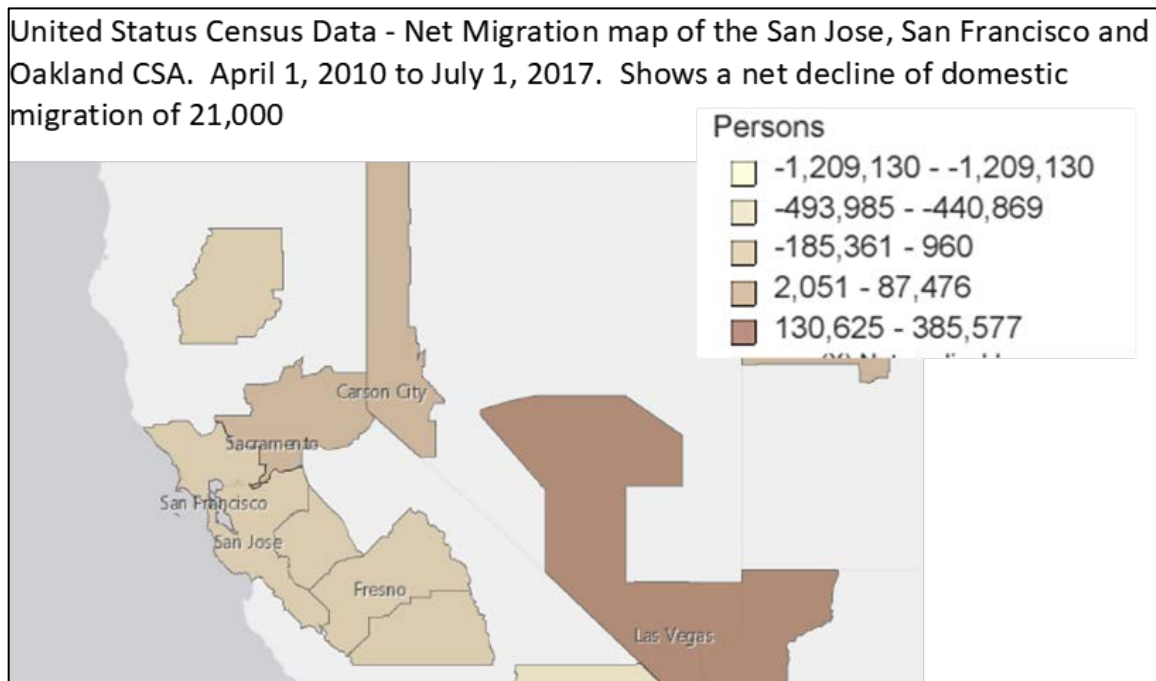
#### **Forecast Background**

CBO National economic outlook (as of August 2018)... GDP growth is slowing down

- 2018 to 2022 outlook:  
most of the growth of output in CBO's forecast over the next few years is driven by consumer spending and, to a lesser extent, business investment
- 2023 to 2028 outlook:  
most of the provisions affecting individual income taxes at the end of 2025 and the phaseout of bonus depreciation by the end of 2026—is projected to slow real GDP growth and to lower real GDP in relation to its potential in those years.

<b>CBO National Economic Outlook - August 2018</b>					
<b>Real GDP forecast - Year to Year Change</b>					
<b>Actual 2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021 – 2022</b>	<b>2023 - 2028</b>
2.3%	3.0%	2.8%	1.9%	1.6%	1.7%

Net historic migration for the San Jose CSA ... domestic migration in San Jose area is declining



A City of San Jose 5-year forecast (2019 to 2023) ... new construction growth is declining

- The dollar value of new construction as well as (construction) alternations will decline in the next 5 years.
- By 2023 the value of new construction will be 35% less than the peak year of 2017

<b>City of San Jose five-year forecast (2019 to 2023) published February 2018</b>												
<b>New Construction / Alternations actual and forecast (millions of dollars)</b>												
		2013	2014	2015	2016	2017	2018 F	2019 F	2020 F	2021 F	2022 F	2023 F
<b>New Construction: Residential &amp; Commercial &amp; Industrial</b>	Dollar valuation	592	1271	944	922	1012	1290	916	863	813	813	813
	Growth		115%	-26%	-2%	10%	27%	-29%	-6%	-6%	0%	0%
<b>New Alterations: Residential &amp; Commercial &amp; Industrial</b>	Dollar Valuation	451	576	459	683	915	600	500	430	425	425	425
	Growth		28%	-20%	49%	34%	-34%	-17%	-14%	-1%	0%	0%
<b>Total New Construction &amp; Alternations</b>	Dollar Valuation	1043	1847	1403	1605	1927	1890	1416	1293	1238	1238	1238
	Growth		77%	-24%	14%	20%	-2%	-25%	-9%	-4%	0%	0%

Published by the San Jose Department of Planning, Building and Code Enforcement

The California County Level Forecast for 2018 to 2045 ... at peak of building cycle

Forecast states that the construction sector building cycle will decelerate in the forecast period for the three South Bay Counties. For all three counties (San Mateo, Santa Clara and Alameda) the forecast states:

“we are near the peak of the current building cycle, and annual investment levels will decelerate during the forecast period.” “Because we are near the peak of the current building cycle, job losses may be observed in the construction sector.”

Comments from previous Port studies from the San Francisco area ... difficult to forecast Richmond Port

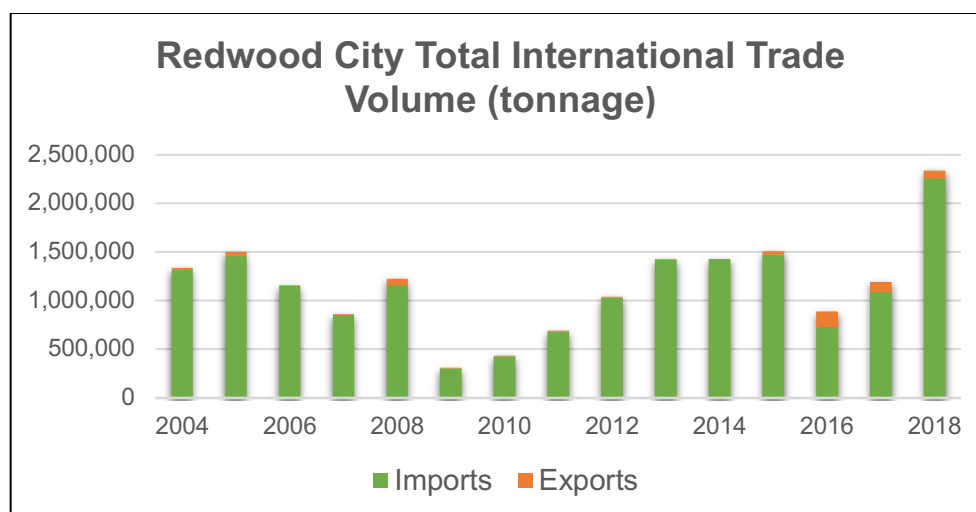
- Bulk cargo flows through the Bay Area ports are inherently difficult to predict with precision. (Tioga Group)
- While overall U.S. or West Coast demand for major bulk import commodities and foreign demand for major bulk exports can be econometrically predicted with reasonable confidence, commodity flows through a specific port region such as the Bay Area depend on the buying, selling, and logistics decisions of a relatively small number of importers and exports whose behavior cannot be statistically modeled. (Tioga Group)

- Dry bulk imports are predominantly construction-related, including aggregates, cement, sand, bauxite (an additive) and gypsum. These commodity flows rise and fall with construction activity. (Tioga Group)
- Bulk building materials to be distributed locally in San Francisco and Silicon Valley make up a significant portion of the Port of Redwood City's market share. The remaining 20 percent of Redwood City cargo includes scrap metal and other miscellaneous exports that are also most likely tied to the region. (a proprietary study) .
- Dry bulk exports including scrap metal behave much differently from imports. There is an indefinite supply of scrap metal in Northern California, but export volumes depend on world demand, shipping costs, and the value of the dollar. (Tioga Group)

### **Historic Trade Volume for the Port of Redwood City**

(source of data: USA Trade on line)<sup>51</sup>

- Historic trade volume trends are inconsistent
- Export volume, as a percentage of total volume has varied from almost 20% to 0%
- Exports are 100% oriented towards one commodity – scrap metal waste
- The growth in imports tonnage is primarily driven by the rapid growth of sand imports



Port of Redwood City - Trade Volume (Tons)							
	2012	2013	2014	2015	2016	2017	2018*
Total Import Tonnage	1,033,516	1,419,909	1,431,630	1,475,187	727,521	1,087,775	2,258,754
Annual Growth	51%	37%	1%	3%	-51%	50%	108%
Total Export Tonnage	235	1	-	36,062	160,856	105,387	75,882
Annual Growth	-31%	-99%	-100%		346%	-34%	-28%
Total Trade (Imports / Exports)	1,033,751	1,419,910	1,431,630	1,511,250	888,377	1,193,162	2,334,636

<sup>51</sup> The Port's throughput will be different from actuals due to the Source Data used.



Annual Growth	51%	37%	1%	6%	-41%	34%	96%
---------------	-----	-----	----	----	------	-----	-----

\* November YTD actual annualized

Port of Redwood City - Trade Volume (tons)							
Total Sum of Imported Commodities							
Commodity	2013	2014	2015	2016	2017	2018*	Growth '18 vs. '13
250590 Sands, Natural, Nesoi	729,443	718,936	701,431	160,761	374,152	1,284,232	76%
251710 Pebbles, Gravel Etc. For Concrete Aggregates Etc.	604,017	609,779	577,473	430,875	505,816	606,481	0%
252010 Gypsum; Anhydrite	53,506	30,327	126,100	39,695	156,423	258,404	383%
260600 Aluminum Ores and Concentrates	32,943	72,589	70,184	96,191	51,355	77,149	134%
261800 Granulated Slag Fr Iron or Steel Manufacture	0	0	0	0	0	32,468	-

\* 2018 November YTD actual annualized

Port of Redwood City - Trade Volume (Tons)						
Total Sum of Exported Commodities						
	2013	2014	2015	2016	2017	2018*
720449 Ferrous Waste & Scrap Nesoi	0	0	36,062	160,856	105,387	75,882
85 Electric Machinery Etc.; Sound Equip; Tv Equip; Pts	1	0	0	0	0	0

\*2018 November YTD actual annualized

### **Long Range Forecast for the Port of Redwood City**

Three forecast methods were used for forecasting the long-range import and export tonnage volume for the Port.

The forecast methods were selected based on their relevance to the type of material that is currently imported and exported through the port. For imports, the commodities are primarily construction type material, and their end users are primarily less than 100 miles from the port. For exports, only one commodity is currently exported through the port (Ferrous Waste & Scrap), and it is assumed that the source of this material is within a 100-mile radius of the Port.

The three forecast methods

- I. A long-Range GDP forecast for the San Jose Metropolitan area ( the San Jose-Sunnyvale-Santa Clara, CA Metropolitan Statistical Area). The forecast was prepared by Moody's in 2019.
- II. A long-range forecast based on multiple forecast indices published by the California Department of Transportation. The growth rate used is based on the combined average annual growth rate

for 5 indices published in September 2018. The 5 indices all have an orientation towards construction and expansion in the local area.

- a. Population growth
- b. New household growth,
- c. New Homes permitted growth,
- d. Real Industrial Production growth
- e. Taxable sale dollar growth

The long-range forecast combines the above forecasts for the counties of San Mateo, Santa Clara and Alameda.

- III. A long-range forecast (FAF) published jointly by the National Bureau of Transportation Statistics and the Federal Highway Association. The FAF forecast integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. The portion of the forecast used for this study includes the following data:

- a. The flow of imports (tonnage) into the (entry) San Francisco “zone”. The San Francisco zone includes all the entry ports in the San Francisco Bay area.
- b. Commodities with a final domestic destination in California.
- c. The forecast is based on specific commodity types described below.
- d. The geographic foreign origin for each commodity type is also identified where possible.

The FAF forecast for exports did not appear realistic and was not used.

<b>Details on the FAF forecast for the San Francisco Zone</b>		
<b>Imports</b>		
<b>FAF Commodity Category</b>	<b>Includes what specific commodity that relates to the Port of Richmond</b>	<b>Foreign Source of material used with FAF</b>
Natural Sands	Silica sands and quartz sands	Canada
Gravel and Crushed Stone	Gravel and crushed stone	Canada
Nonmetallic minerals (includes Gypsum)	Gypsum	Mexico
Metallic ores	Aluminum ores and concentrate	SE Asia & Oceania
Waste/scrap (includes metal slag)	Metal Slag	Eastern Asia

<b>FAF Forecasted Growth Rates by Commodity for the San Francisco Port Zone.</b>					
<b>Imported via a port in the San Francisco zone with a final destination in California</b>					
<b>Foreign source of Import</b>	<b>Canada</b>	<b>Canada</b>	<b>Mexico</b>	<b>SE Asia &amp; Oceania</b>	<b>Eastern Asia</b>
<b>Commodity Category</b>	<b>Natural sands</b>	<b>Gravel</b>	<b>Nonmetallic minerals (includes Gypsum)</b>	<b>Metallic ores</b>	<b>Waste and Scrap</b>

2020 vs 2015	Not Appropriate	Not Appropriate	Not Appropriate	Not Appropriate	Not Appropriate
2025 vs 2020	2%	4%	6%	0%	10%
2030 vs 2025	2%	2%	6%	14%	10%
2035 vs 2030	3%	5%	7%	0%	11%
2040 vs 2035	1%	4%	6%	13%	12%
2045 vs 2040	1%	4%	5%	0%	12%
<b>Total Growth 2045 vs 2019</b>	<b>11%</b>	<b>20%</b>	<b>34%</b>	<b>29%</b>	<b>68%</b>

Below is a summary of the average growth rates based on each of the above forecast methods.

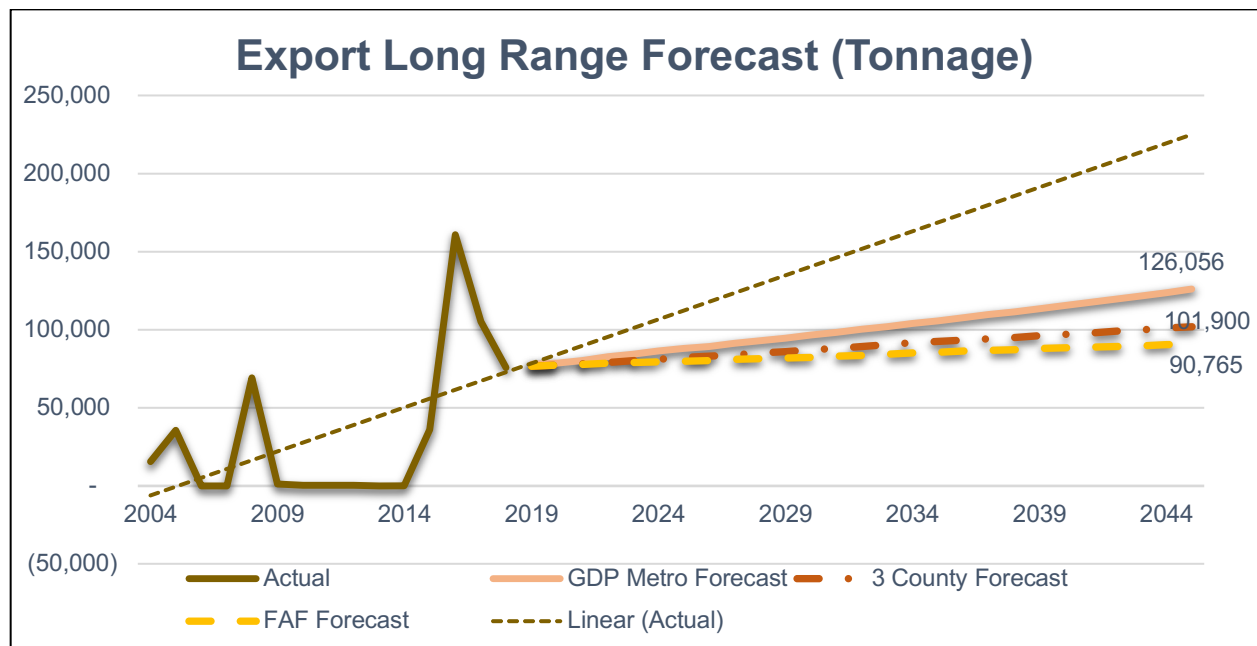
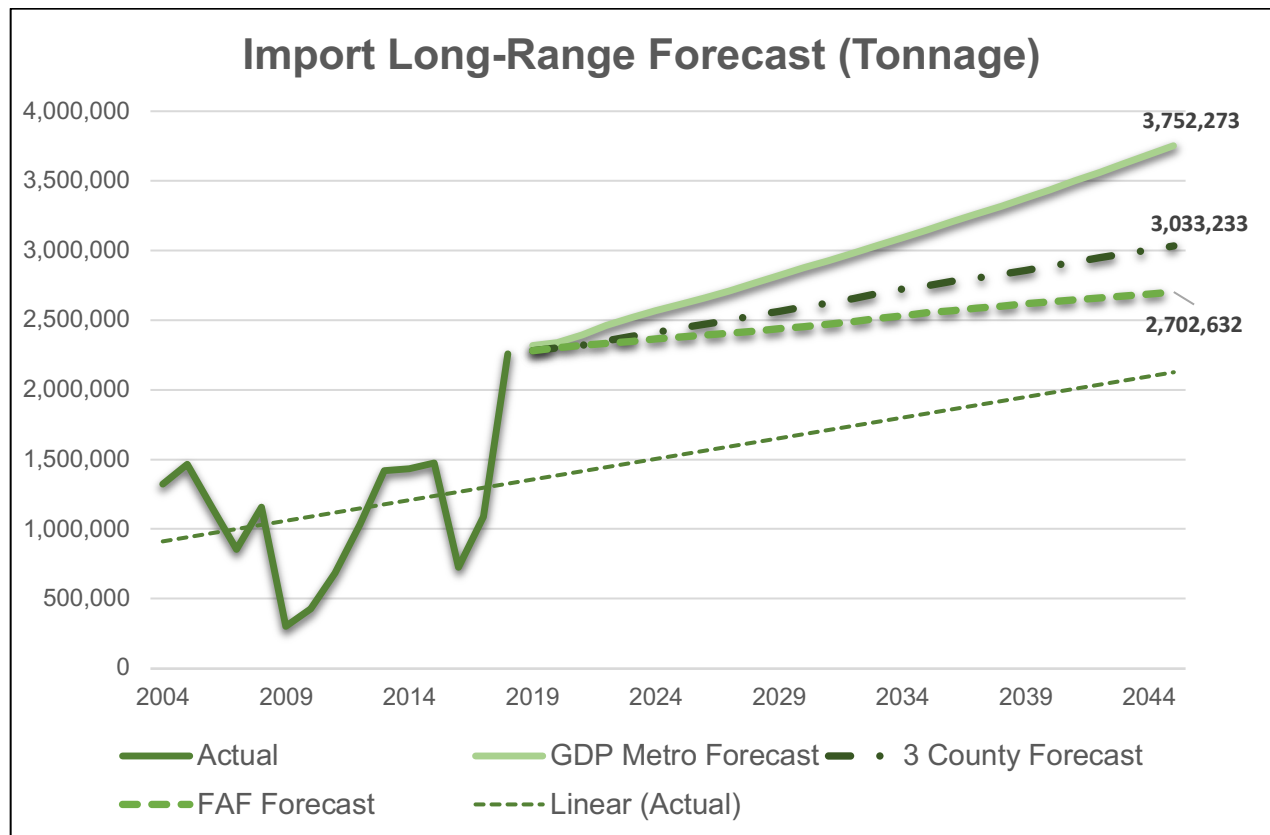
Years	GPD Forecast (Moody's)	Forecast for the Counties of San Mateo, Santa Clara and Alameda	FAF Weighted IMPORT forecast
2019 vs 2018	3%	1%	NA
2020 vs 2019	1%	1%	NA
2020 to 2025	12%	6%	3%
2025 to 2030	10%	6%	3%
2030 to 2035	10%	6%	4%
2035 to 2040	9%	5%	3%
2040 to 2045	9%	5%	3%

Below is a high-low long range forecast for the Redwood City Port. Since final year 2018 trade volume is not yet available, the data for the total year 2018 is based on annualizing the November YTD trade volume. The same forecast growth rates were used for both the export and import forecasts.

IMPORT Tonnage forecast based on 3 forecast options			
	GDP Forecast	3 Country forecast	FAF Forecast
<b>2018 Actual (YTD November annualized)</b>	2,258,754		
<b>2019</b>	2,317,738	2,281,341	
<b>2020</b>	2,338,461	2,304,155	

<b>2025</b>	2,616,131	2,444,244	2,380,276
<b>2030</b>	2,873,983	2,594,860	2,452,680
<b>2035</b>	3,149,333	2,749,737	2,552,461
<b>2040</b>	3,437,696	2,887,968	2,634,106
<b>2045</b>	3,752,273	3,033,233	2,702,632
<b>Growth rate over 27 years</b>	66%	34%	20%
<b>Average Annual Growth Rate</b>	2.4%	1.3%	0.7%

<b>EXPORT Tonnage forecast based on 3 forecast options</b>			
	<b>GDP Forecast</b>	<b>3 Country forecasts</b>	<b>FAF Forecast</b>
<b>2018 Actual (YTD November annualized)</b>	75,882		
<b>2019</b>	77,863	76,641	
<b>2020</b>	78,560	77,407	
<b>2025</b>	87,888	82,113	79,964
<b>2030</b>	96,550	87,173	82,308
<b>2035</b>	105,800	92,376	85,730
<b>2040</b>	115,488	97,020	88,401
<b>2045</b>	126,056	101,900	90,765
<b>Growth Rate over 27 years</b>	66%	34%	20%
<b>Average annual Growth Rate</b>	2.4%	1.3%	0.7%

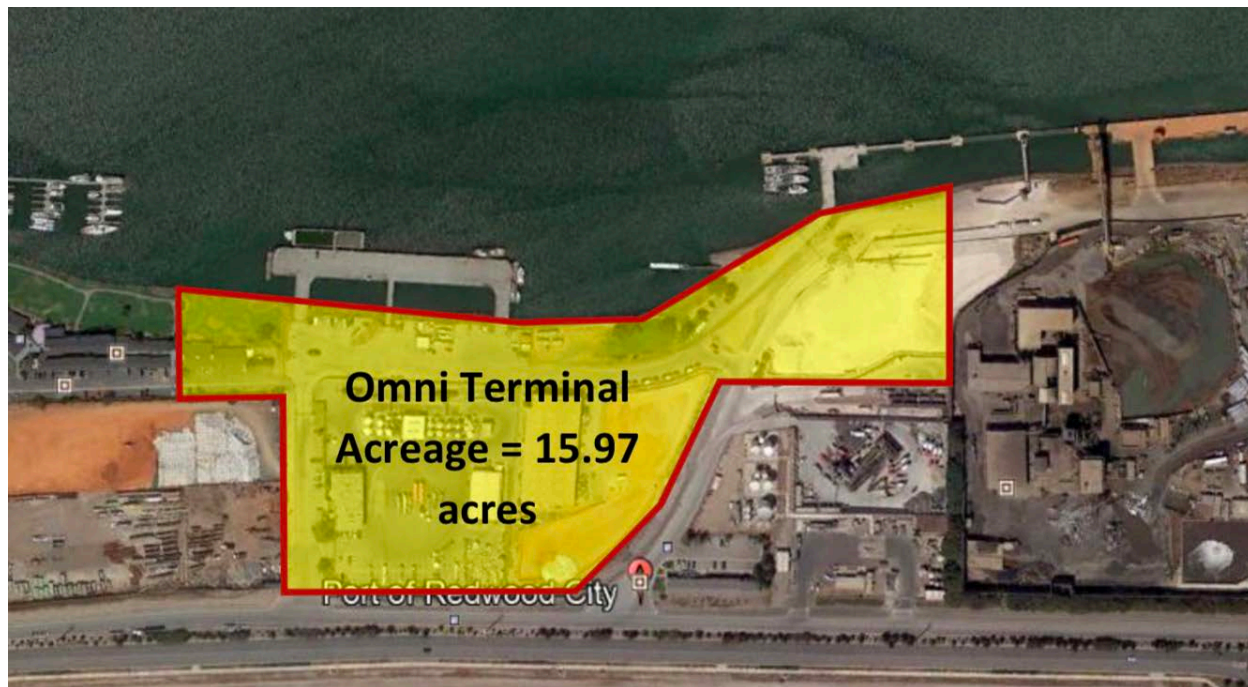




## APPENDIX. 2

### OMNI-TERMINAL CONCEPTS

#### OPTION # 1 = 15.97 ACRES



#### OPTION # 2 = 22.15 ACRES

