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## 4.0 CPIP Alternatives

### A. ALTERNATIVES PLANNING AND DEVELOPMENT PROCESS

#### 1. Process Overview

Port improvement alternatives were developed through a formal planning process that focused on identifying portwide improvement strategies that could accommodate forecasted cargo demand and consequent capacity shortfalls (see Chapter 2.0 Project Purpose and Need). The planning horizon extended to the year 2060, consistent with the forecasts of future cargo demand.

The principal steps undertaken in the CPIP's alternatives development process comprised:

- Assignment of a proportion of the total forecasted throughput in the Port in 2060 to each of the seven port sites considered in the planning process, based on assessment of each port site's capacity;
- Development of port terminal and landside transportation improvement options that would address any shortfalls in capacity of the existing port, highway and rail infrastructure;
- Assemblage of the options into portwide scenarios, each of which could meet or exceed the demand for all cargo types;
- Comparative evaluation of the defined scenarios to identify those that would best satisfy the project purpose and need; and
- Public involvement activities to elicit comments and input on the development of alternative scenarios throughout the planning process.

As the CPIP planning process resulted in a finding that no near-term improvement projects are required to handle cargo demand in the next several decades, the port and associated transportation improvement alternatives are generalized strategies to guide future port development. The alternatives do not define specific future projects that would be required to implement a given development scenario, as future decisions about the scope and timing of individual port site improvements and/or expansions will be dictated both by capacity needs and market forces.

The alternatives planning and development process is further described below. The CPIP alternative scenarios are described in Section 4.B.

#### 2. Initial Planning Considerations

A critical factor considered early in the alternatives development process was the overall land acreage required to accommodate future cargo demand. Consequently, the initial focus was on determining the acreage required portwide for each cargo type; the number of berths and berth length need to serve the identified cargo-specific land areas; and building requirements at the port sites.

Land area requirements were calculated by dividing the forecast demand in 2060 by the assumed future land productivity value for each cargo type. Land productivity values were based on gross terminal areas (i.e., the area enclosed by a terminal's outer boundary), and included allowances for future cargo-inspection areas, given homeland-security concerns. The calculation of land area requirements assumed that sufficient berths and gates would be provided and that no other limiting

factors would be present. Estimation of future productivity values took current technologies into account, together with potential productivity improvements related to container yard operations and terminal gates; highway chassis provision and parking; and handling and storage for all cargo types. On this basis, portwide land area requirements in 2060 were estimated at 1,330 acres for containers; 580 acres for autos; 130 acres for general cargo; 90 acres for dry bulk; 20 acres for liquid bulk; 350 acres for road and rail facilities; 140 acres for terminal warehousing; and 140 acres for support space for amenities and services such as fueling stops. These requirements indicate a total of 2,780 acres (about 4.3 square miles) required for all cargo and transportation types.

The berth lengths needed to serve these areas were then calculated. For sites where the berth space beside each land area would be insufficient to reach the full potential capacity of the land area, rearrangements were proposed. The required water depths in the approach channels and berths – 50 feet for container ships, 37 feet for auto carriers, and 40 feet for general cargo ships and dry and liquid bulk ships – were determined by vessel type, as were the minimum channel widths in the berthing areas (where the same type of ships are moored on both sides) and the required berth “pocket” lengths and widths. It was assumed that increasing the vertical clearance of the Bayonne Bridge over the Kill van Kull would be carried out when required, in order to avoid restrictions on future container ships due to inadequate clearance.

For existing port sites with existing buildings, additional acreage for building requirements was assumed only where the addition would exceed more than 20 percent of the existing area. New building needs considered in the assessment of required acreage for different cargo types included administration buildings, encompassing customs and inspection functions, for container terminals; gate systems; workshops; warehouse facilities for load lightening of overweight containers, only for new port sites; auto processing sheds; and additional tanks for liquid bulk.

### **3. Site-Specific Improvement Options**

Following calculation of land acreage required per cargo type by 2060, site-specific attributes of the port sites were examined to determine their relative suitability to accommodate portions of the required acreage. Site attributes that were considered included:

- Currently available acreage and acreage that could be available in the future;
- Current ownership and use;
- Current leases, and potential need to relocate existing operations of well-established tenants with long-term leases;
- Road, rail and seaward access to the site;
- Character of the local community, including proximity of residential, recreational, and retail uses to the port site;
- The natural environment in the port site’s vicinity, including environmentally sensitive areas; and
- Ground conditions.

The land allocation among port sites was achieved largely through proposed site expansions, through acquisition of additional acreage or through filling; changes in use at a site; or by rearrangement of on-site activities and infrastructure. Land allocation decisions among port sites were guided by the following considerations:

- Ensure that the areas of land allocated for handling each type of cargo would be sufficient to meet the 2060 forecast demand for the given cargo type;

- Allow for sufficient areas of land in suitable locations to accommodate support services to the cargo-handling terminals (e.g., road and rail access corridors and common-user amenities and repair shops, shipping agency offices, etc.);
- Minimize or eliminate improvement scenarios requiring fill, particularly in environmentally sensitive areas, to the extent possible;
- Minimize or eliminate improvement scenarios requiring significant additional deepening programs or removal of aircraft restrictions<sup>1</sup> to provide for shipping access, to the extent possible;
- Minimize improvement scenarios that would require major additional road and rail infrastructure investment, to the extent possible, particularly in locations that are already densely developed;
- Minimize locating high-volume cargo terminals close to residential, recreational, retail, and amenity areas, to the extent possible;
- Minimize relocation of existing cargo-handling operations, particularly those that are well established with long-term leases, to the extent possible;
- Maximize utilization of existing marine facilities and associated infrastructure and installations, to the extent possible; and
- Address CPIP stakeholder priority objectives elicited during the planning process.

Based on the port site attributes and guided by the considerations listed above, 36 site-specific improvement options were defined. Each option assumed a different quantity of land that could be allocated to different cargo types, together with the associated berth space. Table 4-1 indicates the port site, proposed use, acreage allocated to each use, and the number of berths for each option.

**TABLE 4-1 SITE-SPECIFIC IMPROVEMENT OPTIONS**

Location	Use	Option	Area (Acres)	# Berths
Port Newark North	Auto	A1	210	2
		A2	245	3
	Dry Bulk	D1	87	5
		D2	40	3
	Liquid Bulk	L1	18	2
		L2	30	2
Port Newark South	Container	C1	180	3
		C2	260	3
	Auto	A4	270	3
		A13	190	2
		A14	180	2
		A15	335	3
	General Cargo	G4	130	12
	Liquid Bulk	L4	20	1
		L3	20	2

<sup>1</sup> Aircraft is the height of a ship from the waterline to the top of the uppermost point of the ship's structure. For ships destined for the various facilities in the Port of New York and New Jersey, the most notable aircraft restriction is posed by the Bayonne Bridge across the Kill Van Kull for ships en route to port facilities in Newark Bay. The height between the surface of the water at mean high water and the underside of the bridge is 151 feet in the middle of the channel, reducing to 138 feet and 144 feet either side at the channel edges. As the general pattern of ocean-borne container traffic in the Port is that most vessels discharge more cargo than they load, large vessels are generally higher out of the water as they leave the Port than when they arrive, exacerbating the impact of the aircraft restriction.

**TABLE 4-1 SITE-SPECIFIC IMPROVEMENT OPTIONS (CONTINUED)**

Location	Use	Option	Area (Acres)	# Berths
Port Elizabeth	Container	C12	350	4
		C13	475	5
		C3	480	5
		C4	510	5.2
Port Jersey	Container	C5	101	2
		C6	90	2
		C7	191	3
	Auto	A8	131	2
Bayonne Peninsula	Container	C8	100	2
		C9	150	2
	Auto	A9	150	2
		A10	50	1
Howland Hook	Container	C11	147	2
		C10	213	3
North Brooklyn	General Cargo	G1	100	10
		G2	130	12
South Brooklyn	Container	C14	260	4
	Auto	A11	50	1
		A12	80	2
	General Cargo	G3	30	4
Dry Bulk	D4	50	3	

#### 4. Port-wide Improvement Scenarios

Site-specific options were combined into five portwide scenarios, designated for ease of reference as Orange, Red, Green, Yellow, and Blue. Each scenario represents a combination of provisions for different types of cargo at the seven port sites that would meet or exceed the overall portwide demand for each cargo type in 2060. Table 4-2 indicates the land allocations, by acreage, and the future cargo-specific capacities achieved with each portwide scenario.

**TABLE 4-2 LAND ALLOCATIONS AND CAPACITIES PROVIDED IN 2060 WITH PORTWIDE SCENARIOS**

Scenario	Containers		Autos		General Cargo		Dry Bulk		Liquid Bulk	
	acres	mTEUs	acres	mUnits	acres	mTons	acres	mTons	acres	mTons
Existing	1,265	8.6	489	0.93	183	3.6	68	4.8	20	5.7
Orange	1,567	13.3	680	1.29	130	2.61	87	6.22	38	1,0.83
Red	1,597	13.6	585	1.11	130	2.61	90	6.44	30	8.55
Green	1,377	11.7	895	1.70	130	2.61	90	6.44	30	8.55
Yellow	1,577	13.4	600	1.14	130	2.61	87	6.22	38	10.83
Blue	1,502	12.8	665	1.26	130	2.61	87	6.22	38	6.93

Existing acreage derived from Tables 5.11–5.25 of *Volume 1: The Plan* (September 2005)

Existing capacity derived from Table ES2 of *Volume 1: The Plan* (September 2005)

m = million

Distribution of uses among the Port's terminals was next determined. In recognition of existing concentrations of terminal uses (e.g., containers at Port Elizabeth and Howland Hook) and seeking to maximize future efficiencies, certain elements were common to all scenarios; land for dry bulk cargo was eliminated at Port Newark South, for auto cargo at Port Elizabeth, general cargo at Howland

Hook, and containerized cargo at North Brooklyn. All scenarios would increase land allocations for the existing uses at Port Newark North.

Two scenarios, Orange and Red, would eliminate auto cargo use at Port Jersey. At the Bayonne Peninsula, the Orange Scenario would introduce auto cargo use, while the Red Scenario would introduce container cargo use instead. At South Brooklyn, both the Orange and Red scenarios would introduce general cargo use; in addition, the Orange scenario would introduce auto cargo use, while the Red scenario would add dry bulk cargo.

The Green scenario would introduce a new container terminal at a new location, additional to the existing Port facilities, and eliminate container cargo use at Port Newark South.

The Yellow scenario would introduce both container and auto cargo uses to the Bayonne Peninsula, but only auto cargo use at South Brooklyn.

The Blue scenario would introduce auto cargo use at the Bayonne Peninsula, and container cargo use at South Brooklyn. It would also eliminate general cargo use at North Brooklyn.

During development of the CPIP scenarios, efforts were made to avoid or minimize impacts to wetlands and aquatic habitat, while still meeting CPIP goals and objectives. The scenarios were also refined in response to agency and public review comments on draft versions of the scenarios. For example, the original design for Port Newark North included a new berth at the outer end of the terminal; to avoid impacts associated with dredging a new berth in shallow water habitat, this berth was eliminated from all of the scenarios' proposals for Port Newark North. At Howland Hook, an initial expansion into Port Ivory was slightly shortened to reduce potential impacts to aquatic habitat and to avoid the 50-foot channel. The proposed rail terminal at Port Jersey was shifted northward in all four scenarios, resulting in additional area for terminal buildings and avoiding demolition of the existing administration building at the Global terminal. Proposed acquisition of land at the Allied Signal and IKEA sites at Port Elizabeth were excluded from Scenario Yellow, as it has sufficient additional capacity for containers in 2060 without the additional acreage. These and similar adjustments were made to the four scenarios while maintaining the planning principle of allocating land per the forecast demand for all types of cargo in 2060.

In addition to the port-related aspects of the CPIP alternatives, the planning process addressed the potential need for highway and rail improvements to the transportation infrastructure serving the Port. It was assumed that highway improvements would be required to reduce any delays from increased port-related traffic congestion. Also, based on the analyses conducted during the planning process, it was determined that traffic growth related to the proposed port improvements may require some improvements to port terminal connector roadways, varying by scenario and by assumptions regarding potential future shifts in mode-split from truck- to rail-transport of cargo at any given port site. Forecasts of future port-related truck traffic by 2060 as a percentage of overall traffic near each of the port sites shows the highest future port-related truck percentages at Port Newark/Port Elizabeth, Howland Hook, and South Brooklyn (for the latter, only in the Blue Scenario). At the other port sites – Port Jersey, Bayonne Peninsula, and Red Hook – port-related truck traffic is forecast to remain as a small component of overall traffic, even by 2060.<sup>2</sup> Based on the analyses, it is forecast that future port-area connector-roadway improvements will be warranted at most of the port sites, due to combinations of port-related truck volumes and growth in background traffic and non-Port-related development projects, with this mix varying by port site.<sup>3</sup>

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<sup>2</sup> CPIP, Volume 1: The Plan, September 2005, CPIP Consortium, Port of New York & New Jersey, Comprehensive Port Improvement Plan, Chapter 9.

<sup>3</sup> *Ibid.*

The transportation analyses concluded that local rail infrastructure improvements would be required to address capacity constraints of the existing rail network, even assuming capacity enhancements that are underway or programmed and committed for implementation. Future rail improvements suggested in the CPIP Plan include:

- On-dock rail terminal projects, including improvements at ExpressRail at Port Elizabeth and new rail terminals at Port Jersey and South Brooklyn;
- Improvements to Conrail Shared Assets Area infrastructure, including construction of a second track at CP Croxton, National Docks Secondary; an additional track at PN-Rahway, Chemical Coast; and third tracks at Newark-Aldene, Lehigh Line and Rahway-CP PD, Chemical Coast; and
- Wider system improvements, including construction of second or third tracks on the Canadian-Pacific at Allentown-Montreal, on CSX at River Line and at Selkirk-Boston, and on the Norfolk Southern on its Pennsylvania Route.

## B. CPIP ALTERNATIVES

In any future environmental review of proposed port improvement and associated transportation improvement projects to implement the CPIP, analysis must also be conducted of the No-Action alternative. The No-Action alternative will define future conditions at the time that Port capacity is reached<sup>4</sup> but absent implementation of any projects or actions to address the capacity shortfall. The effects of undertaking a project or action associated with any of the CPIP alternatives, which are each detailed in the sections below, will be compared to future conditions under the No-Action alternative to identify any significant impacts related to a proposed project or action.

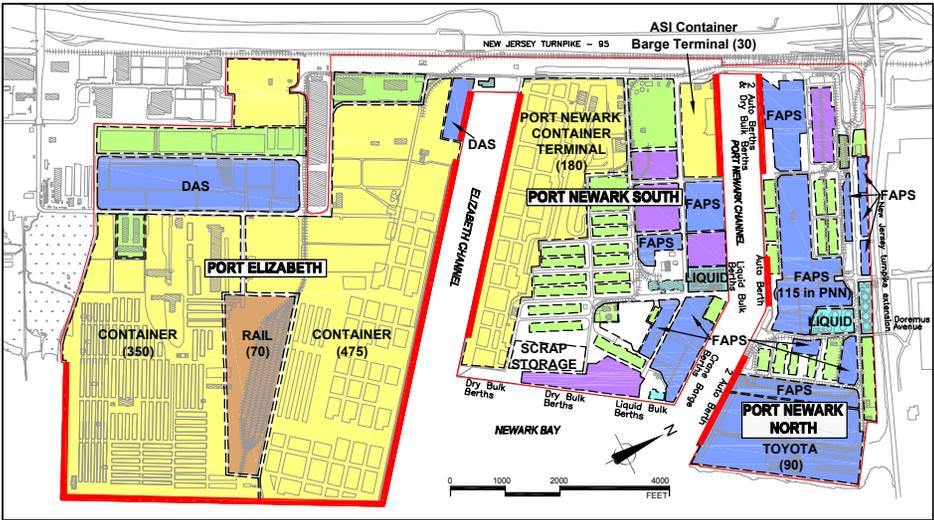
Regarding the alternative port-improvement scenarios, a qualitative evaluation was conducted following definition of the scenarios to identify whether any scenario is markedly better or worse than others, as judged against a set of criteria defined to address port planning, financial and economic, environmental, and transportation issues<sup>5</sup>. The results of the qualitative evaluation indicated that none of the scenarios would provide any significant advantages over the others.

The Green scenario was eliminated during the alternatives development and qualitative evaluation process. It was determined that the scenario includes too many new container terminals, such that it would result in overcapacity in the Port and, consequently, would result in closing of an existing container terminal. Given this, the Green scenario included conversion of the Port Newark Container Terminal to an auto terminal to balance the opening of new container-terminal capacity elsewhere. However, as the Green scenario had no particular merit, relative to the other scenarios, it was deemed undesirable to waste the investment that has already taken place in creating the existing container terminal at Port Newark. While the Green scenario and, notably its proposed conversion of Port Newark Container Terminal to an auto terminal, was eliminated from further consideration, some of the positive aspects of the scenario were subsequently incorporated in the other scenarios.

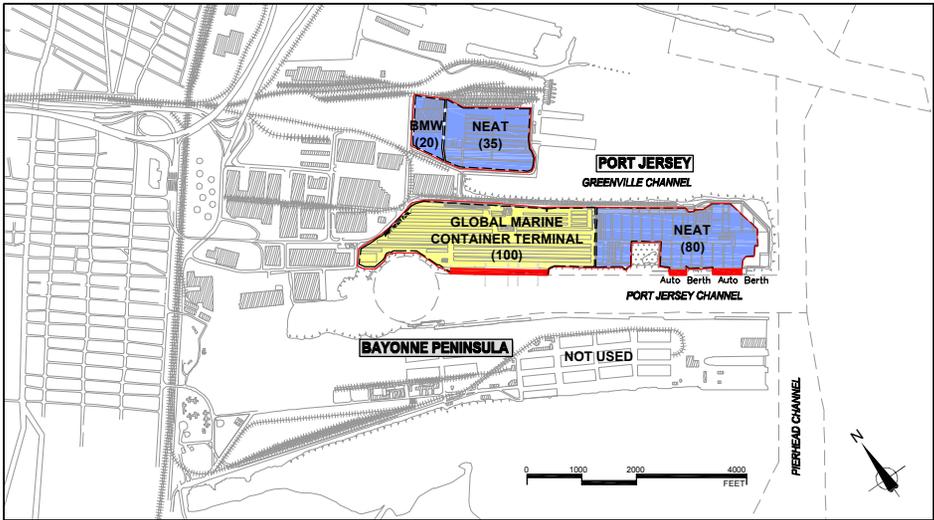
The four alternative scenarios for 2060 that emerged from the CPIP planning process, and are defined in the CPIP (*CIPIP, Volume 1: The Plan and Volume 2: Toolkit, Rev #2, September 2005*) are summarized below. Figure 4-1 depicts existing uses at the Port sites, as a point of reference for reviewing the alternative scenarios, which are depicted on Figures 4-2 through 4-5.

<sup>4</sup> See Chapter 2.0 Purpose and Need for the Project for discussion of Port capacity and forecasts of when cargo-specific shortfalls are anticipated to occur.

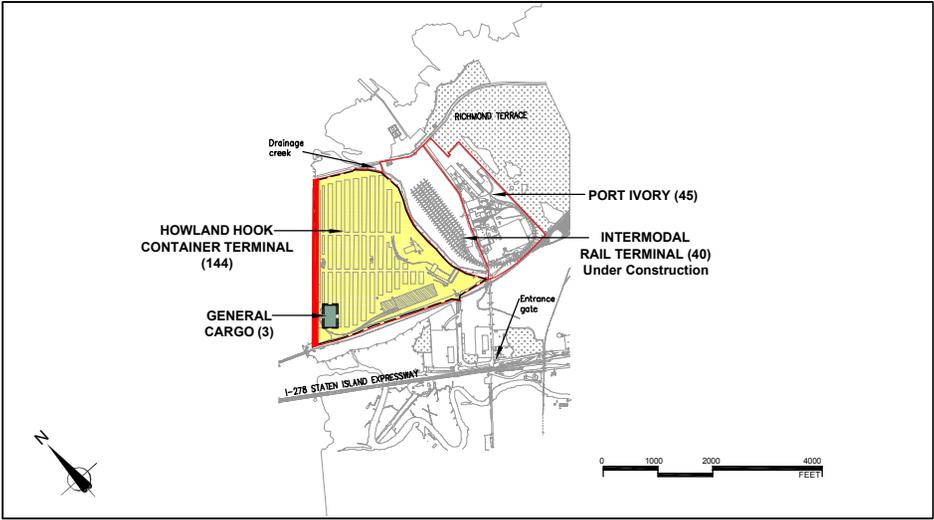
<sup>5</sup> CPIP: Volume 1: The Plan, Evaluations, Ch. 15 (September 2005).



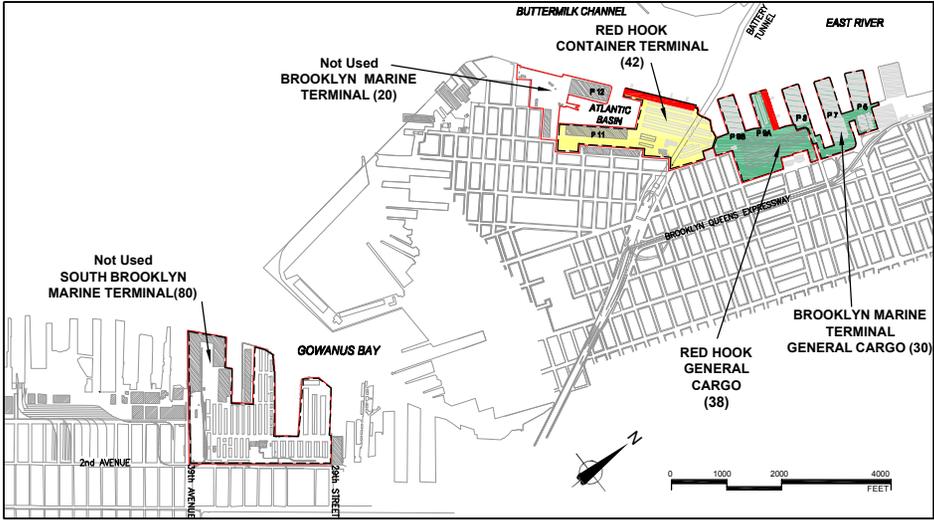
PORT NEWARK/ ELIZABETH



PORT JERSEY & BAYONNE PENINSULA



HOWLAND HOOK



NORTH & SOUTH BROOKLYN

Notes/ Legend:  
 1.Areas shown in parentheses are in acres & approximate.  
 2.For further details see Figs. 7.1 to 7.8.

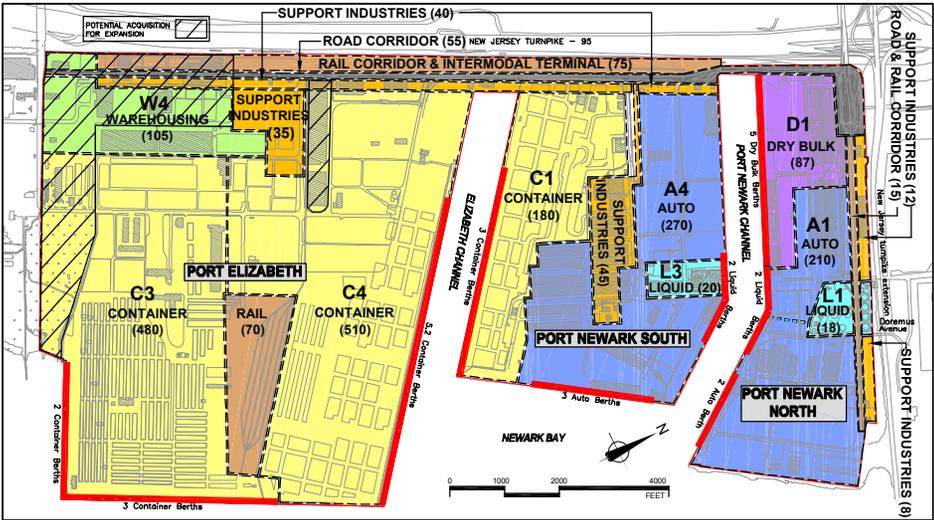
- Container Terminal
- Auto Terminal
- Dry Bulk
- Liquid Bulk
- Off Terminal Warehousing & Support



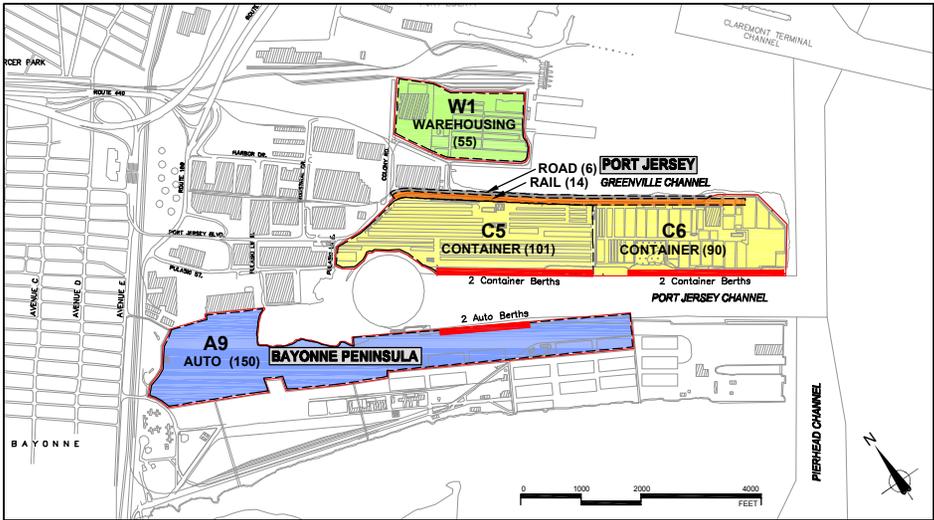
EXISTING FACILITIES

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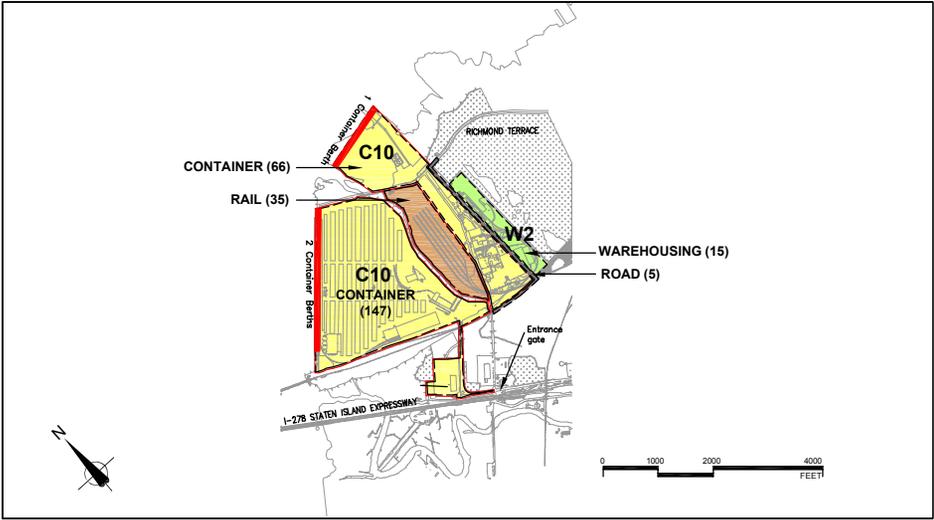
PONYNJ COMPREHENSIVE PORT IMPROVEMENT PLAN



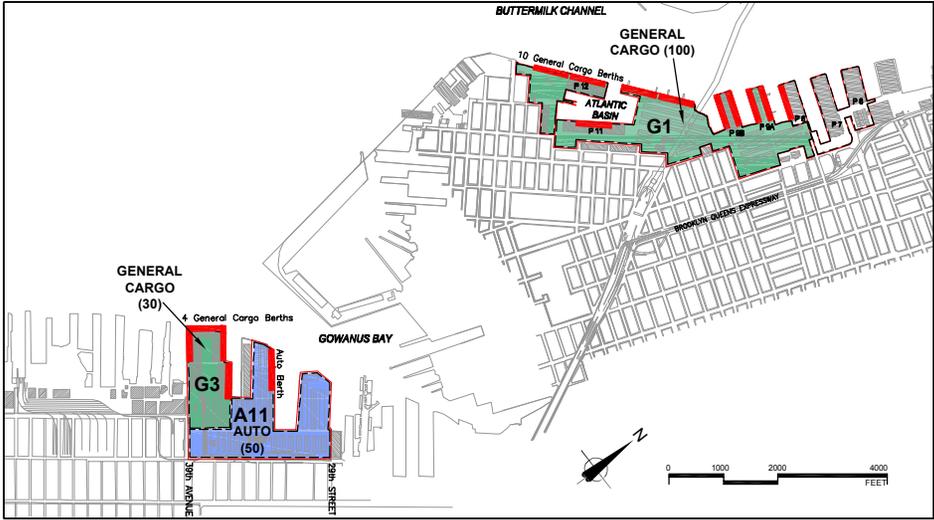
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PORT JERSEY & BAYONNE PENINSULA



HOWLAND HOOK



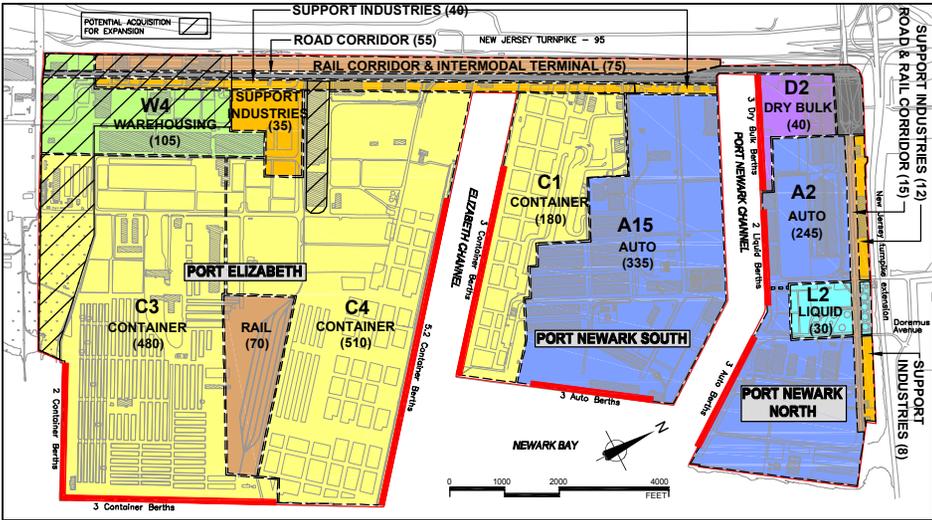
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Notes/ Legend:  
Areas shown in parentheses are in acres & approximate

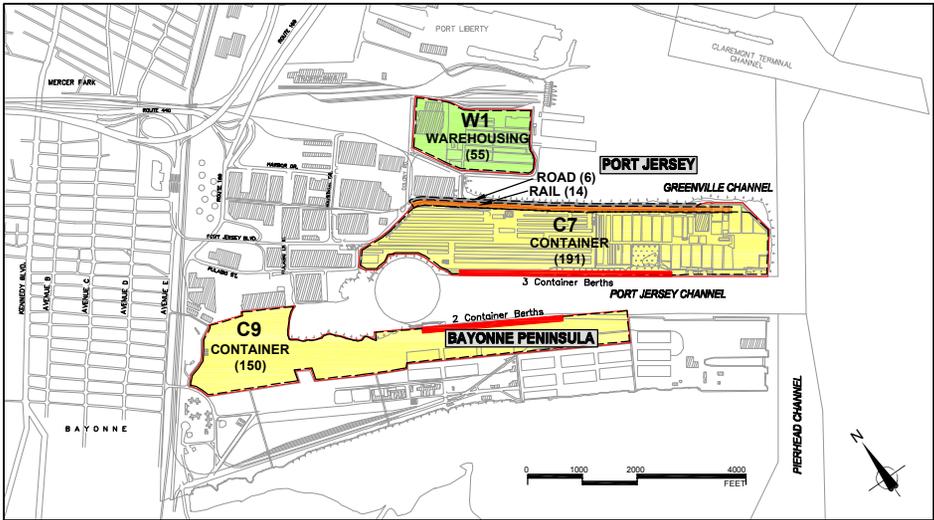


ALTERNATIVE SCENARIO ORANGE, 2060

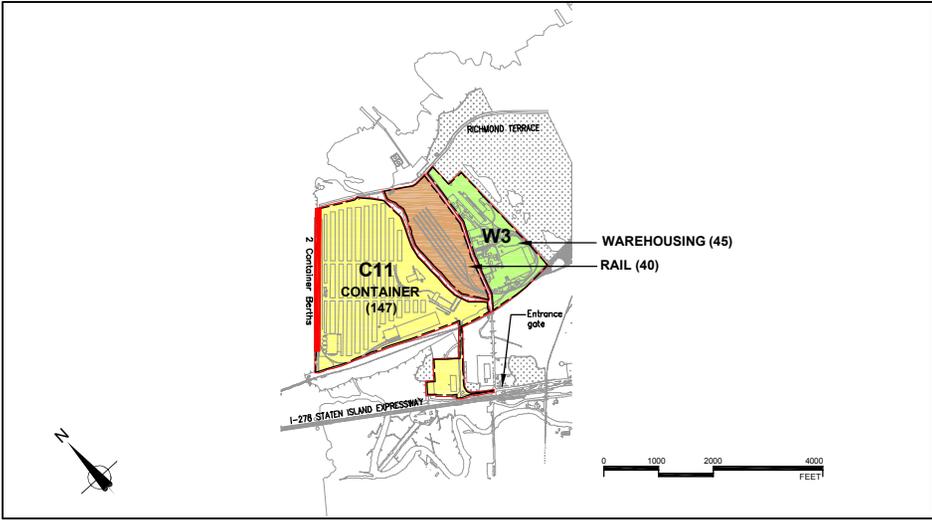
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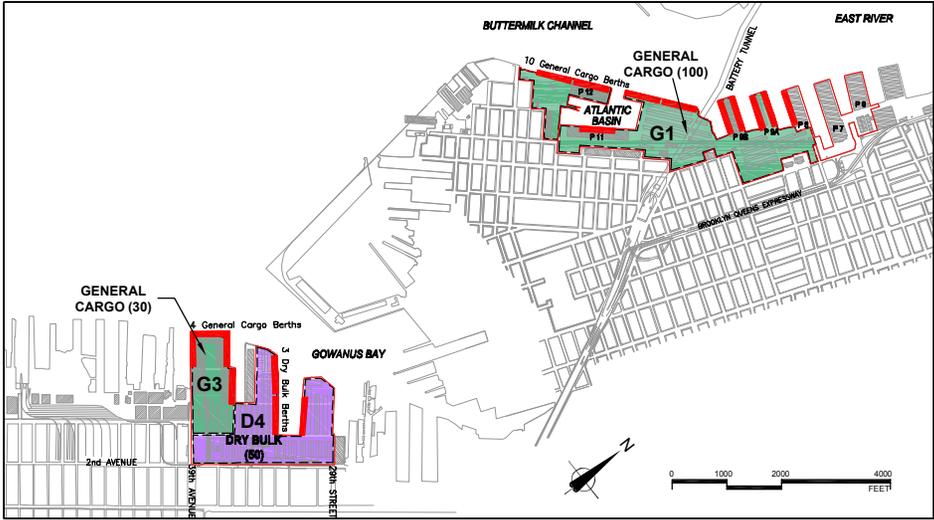
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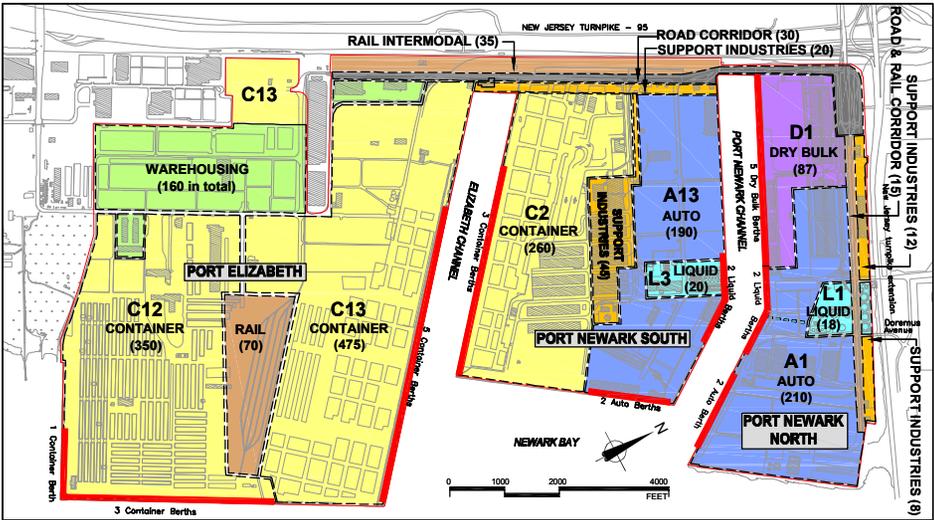


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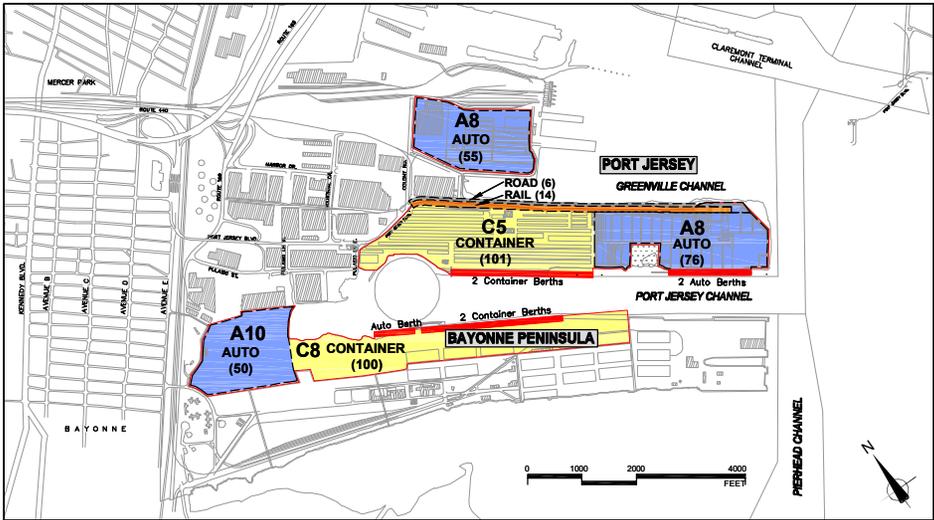
Notes/ Legend:  
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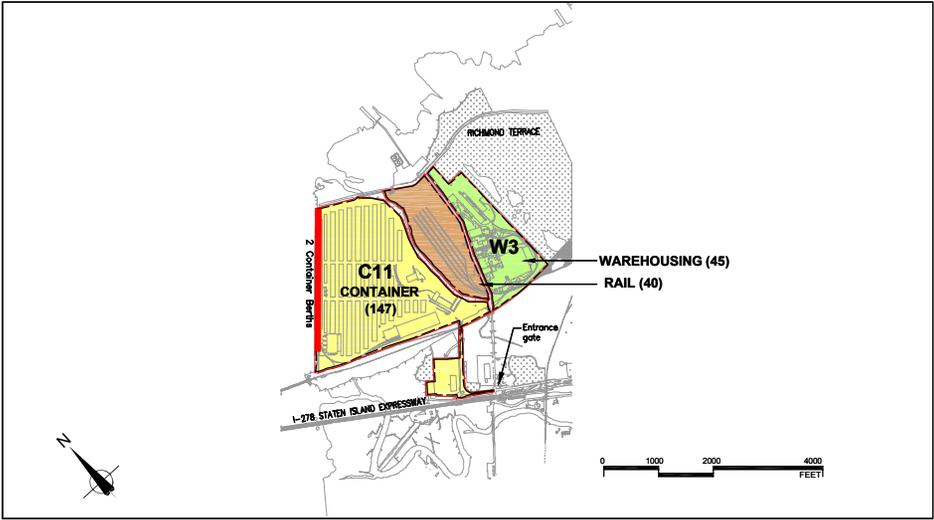
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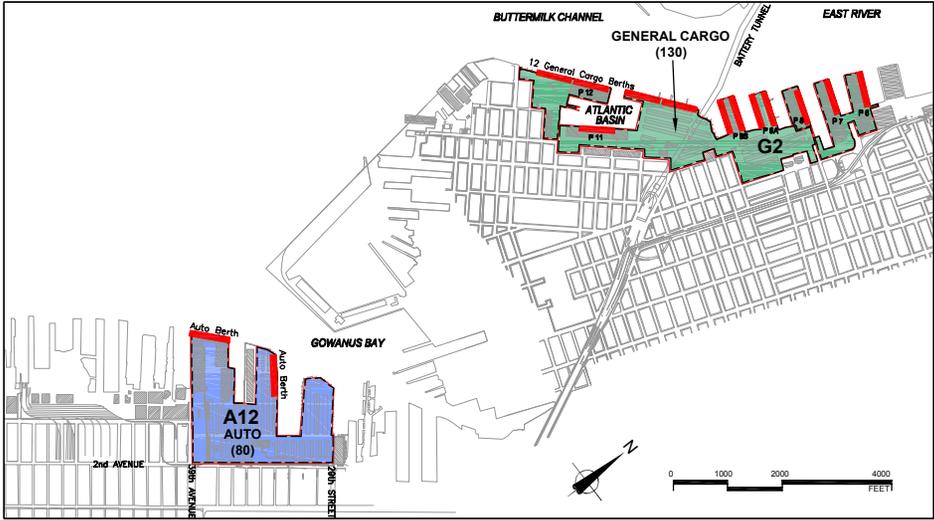
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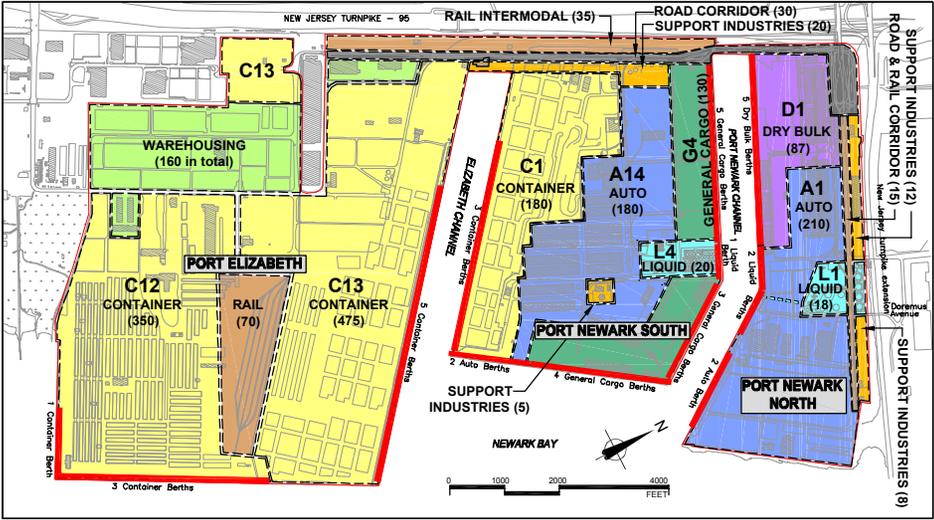
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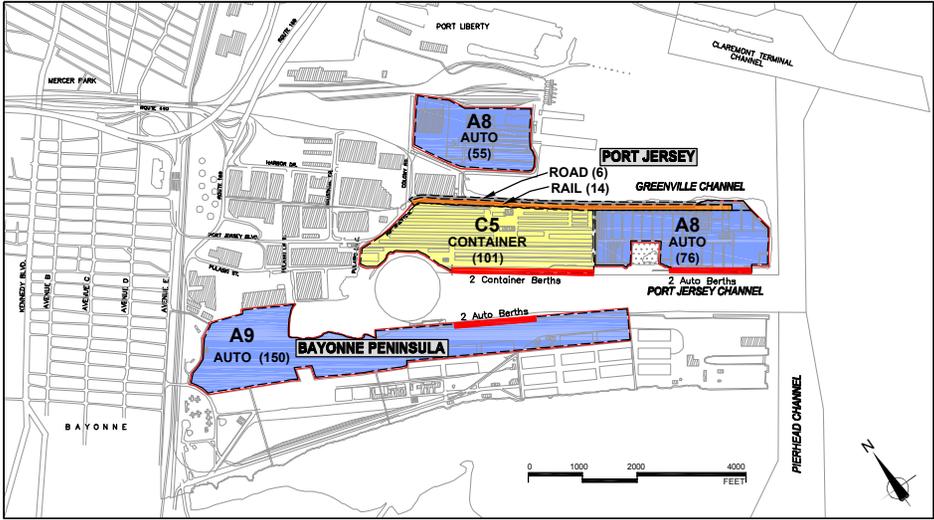
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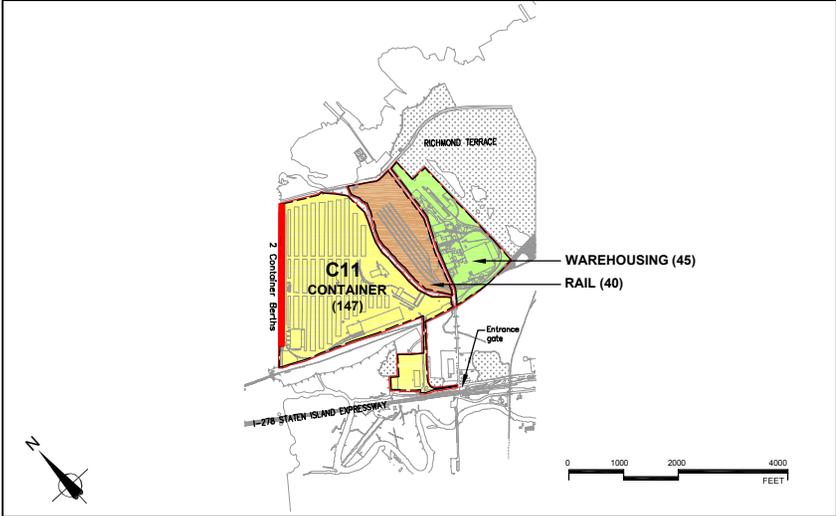




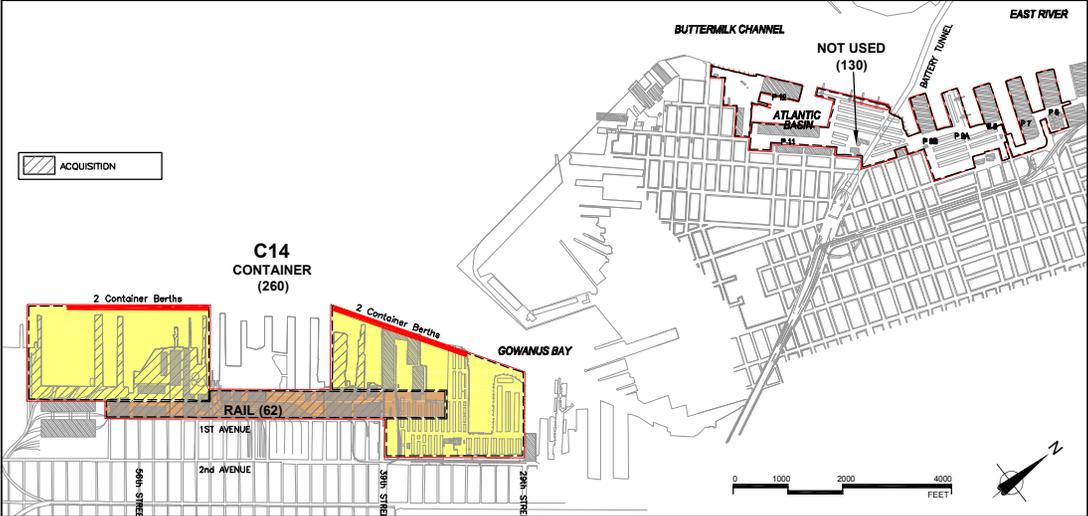
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Notes/ Legend:  
Areas shown in parentheses are in acres & approximate



## 1. Alternative Scenario Orange, 2060

Alternative Scenario Orange is depicted in Figure 4-2. It proposes elimination of dry bulk cargo use at Port Newark South, auto use at Port Elizabeth and Port Jersey, general cargo use at Howland Hook, and container use at North Brooklyn (Red Hook). It would introduce auto use at the Bayonne Peninsula, and auto and general cargo uses at South Brooklyn.

Scenario Orange would require acquisition of 230 acres of land at Port Elizabeth, 118 acres at Howland Hook,<sup>6</sup> and 20 acres at North Brooklyn (Red Hook). It would also anticipate 20 acres of fill at Port Jersey and 3 acres of fill at Howland Hook. Site-specific improvements would be as follows:

- **Port Newark North – Orange**
  - Most existing roads and rail tracks would be removed, and a road corridor, rail corridor, and terminal support industries zone would be developed along the northern side of the site.
  - The majority of covered storage sheds, warehouses, and other large buildings would be removed.
  - The existing liquid bulk facilities would increase in size, but be left substantially unchanged.
  - The dry bulk cargo storage area would be consolidated at the western end of the site.
  - The auto terminals would be consolidated into a large area that could be subdivided into leaseholdings as required.
- **Port Newark South – Orange**
  - Most existing roads and rail tracks would be removed, and a centralized road access corridor and terminal support industries zone would be developed.
  - The existing small container terminal, covered storage sheds, warehouses, cool stores, and other buildings would be removed, and the land progressively allocated for expansion of the existing container terminal and for consolidated auto terminal parking lots.
  - The larger of the two existing liquid bulk terminals would be left in place.
  - The existing dry bulk terminals would be converted to auto terminals.
- **Port Elizabeth – Orange**
  - Auto terminal use would be eliminated.
  - Both existing container terminals would be extended by removing the existing auto terminal and warehouses.<sup>7</sup>
  - The land to the southwest of the site would be acquired and designated for warehousing.
  - Land to the west of the site would be acquired and designated for support industries.
  - Additional area at the south of the site near South Elizabeth Channel would be acquired for container yard.
- **Port Jersey – Orange**
  - The existing container terminal would be retained.
  - The existing auto terminals would be removed, and their land re-allocated for a new container terminal and warehousing.
  - A greater part of the waterfront would be developed into berths.
  - Filling would be anticipated at the waterfront and in the nature reserve area.
  - An intermodal rail facility would be developed along the northern edge of the peninsula to serve both container terminals.

<sup>6</sup> The former 85-acre Procter and Gamble property, referred to as Port Ivory, was acquired by the Port Authority in December 2000, and would form part of the 118-acre expansion.

<sup>7</sup> Site-specific changes from the existing condition that are included in only two Scenarios, or that are unique to one Scenario, have been italicized for emphasis.

- **Bayonne Peninsula – Orange**
  - The entire area designated for port use would be cleared of unwanted buildings and other infrastructure, and developed into an automobile terminal.
- **Howland Hook – Orange**
  - A new container terminal would be developed on the recently acquired parcels of land at Port Ivory, east of the existing terminal and intermodal rail facility.
  - A limited amount of filling would be anticipated in the intertidal and submerged waterfront zones.
  - Western Avenue would be relocated.
  - A parcel of land on the eastern side of Western Avenue would be developed for warehousing.
- **North Brooklyn – Orange**
  - The existing container operation would be converted to general cargo handling operations.
  - Piers 9 to 12 would be progressively refurbished/ rebuilt and redeveloped.
  - Berth space only would be provided at Pier 8.
  - Piers 6 and 7 would not be used.
- **South Brooklyn – Orange**
  - The berth arrangement would be reconfigured, and piers would be refurbished/ rebuilt.
  - 30 acres would be developed for general cargo handling.
  - 50 acres would be developed as an auto terminal.

## 2. Alternative Scenario Red, 2060

Alternative Scenario Red is depicted in Figure 4-3. This scenario would eliminate dry bulk use at Port Newark South, auto use at Port Elizabeth and Port Jersey, general cargo at Howland Hook, and container use at North Brooklyn (Red Hook). It would introduce container use at Bayonne Peninsula, and general cargo and dry bulk uses at South Brooklyn.

Scenario Red would require acquisition of 230 acres of land at Port Elizabeth, 85 acres at Howland Hook, and 20 acres at North Brooklyn (Red Hook). It would also anticipate 20 acres of fill at Port Jersey. Site-specific improvements would be as follows:

- **Port Newark North – Red**
  - Most existing roads and rail tracks would be removed, and a road corridor, rail corridor, and terminal support industries zone would be developed along the northern side of the site.
  - The majority of covered storage sheds, warehouses, and other large buildings would be removed.
  - The land area allocated to liquid bulk facilities would triple in size over the existing condition.
  - The dry bulk cargo storage area would be consolidated at the western end of the site.
  - The auto terminals would be consolidated into a large area that could be subdivided into leaseholdings as required.
- **Port Newark South – Red**
  - Most existing roads and rail tracks would be removed, and a centralized road access corridor and terminal support industries zone would be developed.

- The existing small container terminal, covered storage sheds, warehouses, cool stores, and other buildings would be removed, and the land progressively allocated for expansion of the existing container terminal and for consolidated auto terminal parking lots.
- A large area (335 acres) would be allocated to auto terminal use.
- The liquid bulk terminals would be converted to auto terminal use.
- The existing dry bulk terminals would be converted to auto terminals.
- **Port Elizabeth – Red**
  - Auto terminal use would be eliminated.
  - Both existing container terminals would be extended by removing the existing auto terminal and warehouses.
  - The land to the southwest of the site would be acquired and designated for warehousing.
  - Land to the west of the site would be acquired and designated for support industries.
  - Additional area at the south of the site near South Elizabeth Channel would be acquired for container yard.
- **Port Jersey – Red**
  - The existing container terminal would be expanded to occupy the entire peninsula as a single entity.
  - The existing auto terminals would be removed, and their land re-allocated for a new container terminal and warehousing.
  - A greater part of the waterfront would be developed into berths.
  - Filling would be anticipated at the waterfront and in the nature reserve area.
  - An intermodal rail facility would be developed along the northern edge of the peninsula to serve both container terminals.
- **Bayonne Peninsula – Red**
  - The entire area designated for port use would be cleared of unwanted buildings and other infrastructure, and developed into a container terminal.
- **Howland Hook – Red**
  - The existing container terminal and intermodal rail facility would be retained.
  - A recently acquired parcel of land to the east of Western Avenue would be cleared and developed for warehousing.
- **North Brooklyn – Red**
  - The existing container operation would be converted to general cargo handling operations.
  - Piers 9 to 12 would be progressively refurbished/ rebuilt and redeveloped.
  - Berth space only would be provided at Pier 8.
  - Piers 6 and 7 would not be used.
- **South Brooklyn – Red**
  - The berth arrangement would be reconfigured, and piers would be refurbished/ rebuilt.
  - 30 acres would be developed for general cargo handling.
  - 50 acres would be developed as a dry bulk terminal, and two berths would be added.

### 3. Alternative Scenario Yellow, 2060

Alternative Scenario Yellow is depicted in Figure 4-4. It would eliminate dry bulk use at Port Newark South, auto use at Port Elizabeth, general cargo use at Howland Hook, and container use at North Brooklyn (Red Hook). It would introduce land uses for containers and autos at Bayonne Peninsula and for autos at South Brooklyn.

Scenario Yellow would require the acquisition of 85 acres of land at Howland Hook and 50 acres at North Brooklyn (Red Hook). It would also anticipate 6 acres of fill at Port Jersey. Site-specific improvements would be as follows:

- **Port Newark North – Yellow**
  - Most existing roads and rail tracks would be removed, and a road corridor, rail corridor, and terminal support industries zone would be developed along the northern side of the site.
  - The majority of covered storage sheds, warehouses, and other large buildings would be removed.
  - The existing liquid bulk facilities would increase in size, but be left substantially unchanged.
  - The dry bulk cargo storage area would be consolidated at the western end of the site.
  - The auto terminals would be consolidated into a large area that could be subdivided into leaseholdings as required.
- **Port Newark South – Yellow**
  - Most existing roads and rail tracks would be removed, and a centralized road access corridor and terminal support industries zone would be developed.
  - The existing small container terminal, covered storage sheds, warehouses, cool stores, and other buildings would be removed, and the land progressively allocated for expansion of the existing container terminal and for consolidated auto terminal parking lots.
  - A large area (260 acres) would be allocated to container terminal use.
  - The larger of the two existing liquid bulk terminals would be left in place.
  - The existing dry bulk terminals would be converted to auto terminals.
- **Port Elizabeth – Yellow**
  - Auto terminal use would be eliminated.
  - The existing arrangement of container terminals, with no additional land, would be retained.
- **Port Jersey – Yellow**
  - The existing container terminal would be retained.
  - An intermodal rail facility would be developed along the northern edge of the peninsula to serve both container terminals.
- **Bayonne Peninsula – Yellow**
  - Most of the area designated for port use would be cleared of unwanted buildings and other infrastructure, and developed into a container terminal.
  - The remainder of the area designated for port use, at the western end, would be developed into an automobile terminal.
- **Howland Hook – Yellow**
  - The existing container terminal and intermodal rail facility would be retained.
  - A recently acquired parcel of land to the east of Western Avenue would be cleared and developed for warehousing.

- **North Brooklyn – Yellow**
  - The existing container operation would be converted to general cargo handling operations.
  - Piers 9 to 12 would be progressively refurbished/ rebuilt and redeveloped.
  - Piers 6 to 8 would be developed for general cargo.
- **South Brooklyn – Yellow**
  - The berth arrangement would be reconfigured, and piers would be refurbished/ rebuilt.
  - 80 acres would be developed as an auto terminal.

#### 4. Alternative Scenario Blue, 2060

Alternative Scenario Blue is depicted in Figure 4-5. This scenario would eliminate dry bulk use at Port Newark South, auto use at Port Elizabeth, general cargo use at Howland Hook, and container and general cargo uses at North Brooklyn (Red Hook). It would introduce general cargo use at Port Newark South, auto use at Bayonne Peninsula, non-Port-related uses at North Brooklyn (Red Hook)<sup>8</sup>, and container cargo use at South Brooklyn.

Scenario Blue would require the acquisition of 85 acres of land at Howland Hook and 112 acres at South Brooklyn. It would also anticipate 6 acres of fill at Port Jersey and 130 acres of fill at South Brooklyn. [It is not known at the present time whether the North Brooklyn (Red Hook) uses would require land acquisition or filling.] Site-specific improvements would be as follows:

- **Port Newark North – Blue**
  - Most existing roads and rail tracks would be removed, and a road corridor, rail corridor, and terminal support industries zone would be developed along the northern side of the site.
  - The majority of covered storage sheds, warehouses, and other large buildings would be removed.
  - The existing liquid bulk facilities would increase in size, but be left substantially unchanged.
  - The dry bulk cargo storage area would be consolidated at the western end of the site.
  - The auto terminals would be consolidated into a large area that could be subdivided into leaseholdings as required.
- **Port Newark South – Blue**
  - Most existing roads and rail tracks would be removed, and a centralized road access corridor and terminal support industries zone would be developed.
  - The existing small container terminal, covered storage sheds, warehouses, cool stores, and other buildings would be removed, and the land progressively allocated for expansion of the existing container terminal and for consolidated auto terminal parking lots.
  - Most of the central area would be converted to auto terminal use.
  - Land adjacent to the northern and eastern berths would be allocated to general cargo use.
  - The larger of the two existing liquid bulk terminals would be left in place.
  - The two existing liquid bulk berths would be reduced to one.
  - The existing dry bulk terminals would be converted to auto terminals.
- **Port Elizabeth – Blue**
  - Auto terminal use would be eliminated.
  - The existing arrangement of container terminals, with no additional land, would be retained.

<sup>8</sup> Concepts for significant re-use of Red Hook currently under evaluation include cruise-ship passenger terminal and mixed-use residential developments. Plans for a recreation park at the northern end (Piers 1-5) are under development.

- **Port Jersey – Blue**
  - The existing container terminal would be retained.
  - An intermodal rail facility would be developed along the northern edge of the peninsula to serve both container terminals.
- **Bayonne Peninsula – Blue**
  - The entire area designated for port use would be cleared of unwanted buildings and other infrastructure, and developed into an automobile terminal.
- **Howland Hook – Blue**
  - The existing container terminal and intermodal rail facility would be retained.
  - A recently acquired parcel of land to the east of Western Avenue would be cleared and developed for warehousing.
- **North Brooklyn – Blue**
  - The existing container operation would be converted to non-Port-related uses.
- **South Brooklyn – Blue**
  - The berth arrangement would be reconfigured, and piers would be refurbished/ rebuilt.
  - 112 acres would be acquired.
  - Fill of 130 acres of waterfront would be anticipated.
  - Two container terminals would be developed.
  - A rail terminal serving both container terminals would be developed.
  - A public waterfront area would be provided at Sunset Park.

### C. ADDENDUM TO CPIP

The New York City Economic Development Corporation (NYCEDC) has proposed three projects as part of the City's economic development initiative for the Brooklyn waterfront. The principal purpose of these projects is to maximize Brooklyn's capture of new maritime development opportunities; meeting near-term needs for cruise terminal capacity; meeting a New York City Department of Sanitation requirement to stabilize the costs of its metal, glass, and plastic recycling program; and balancing these economic development considerations with environmental sustainability. These three projects were developed independently of the CPIP process and issued as an Addendum to the CPIP. The projects were not assumed as part of the CPIP planning baseline, as they were neither programmed for construction nor funded at the time of the CPIP planning process.

The three Brooklyn Waterfront Projects are:

- Development of a cruise ship terminal and maritime industrial zone at North Brooklyn on Piers 11 and 12, comprising part of a larger Cruise Zone, which would include Pier 10 and land to the north that is currently part of the Red Hook Container Terminal; the Cruise Zone would also include a maritime industrial zone over Piers 7, 8, 9A, and 9B, which are currently general cargo terminals;
- Construction of a recycling plant at South Brooklyn, to be located at the north end of the South Brooklyn marine terminal site, approximately 10 acres in size; and
- Development of an auto and breakbulk cargo terminal at South Brooklyn, to be located over the majority of the existing South Brooklyn marine terminal site, with approximately 60 and 10 acres for auto and breakbulk cargo, respectively.

The combined available acreage at the North and South Brooklyn terminals in the four CPIP scenarios ranges from 180 acres in the Orange and Red Scenarios to 210 and 260 in the Yellow and

Blue Scenarios, respectively. The total terminal acreage required for the three Brooklyn Waterfront Projects is 128 acres. Therefore, the proposed projects would result in fewer acres being available to CPIP development at these two port sites.

However, each of the CPIP scenarios, described above, would have spare capacity or acreage on a portwide basis since the total land allocation would be in excess of the forecast cargo demand for 2060 (see Table 4-3). As reported in the Addendum to the CPIP, the cargo handling terminals in the Brooklyn Waterfront Projects would not result in an increase in the total portwide cargo demand. The Addendum also concludes that port-related truck volumes on connector roads around the terminals would be within the estimates developed for the four CPIP scenarios.

**TABLE 4-3 SPARE ACREAGE IN EACH SCENARIO**

Scenario	Total Acreage Allocated to CPIP Terminals (container allocation) <sup>1</sup>	Total Acreage Required to Meet 2060 Forecast Demand (container requirement)	Spare Total Terminal Acreage (spare container area)
Orange	2,509 (1,574)	2,138 (1,329)	371 (245)
Red	2,488 (1,658)	2,138 (1,329)	350 (329)
Yellow	2,349 (1,433)	2,138 (1,329)	211 (104)
Blue	2,439 (1,513)	2,138 (1,329)	301 (184)

<sup>1</sup> Areas exclude road, rail and warehousing and terminal support industries area.

Each of the scenarios has sufficient spare capacity that could be used to accommodate the reduction in terminal area in Brooklyn if the three Brooklyn Waterfront Projects are implemented. The bulk of the spare capacity in the Orange, Yellow, and Blue Scenarios is at container and auto terminals; in the Red Scenario, most of the spare capacity is in the container terminals. As port improvement projects are implemented in accordance with the CPIP, adjustments to accommodate the NYCEDC projects should be made with the following considerations:

- The spare capacity of each cargo in the Scenario;
- The site attributes of each port site; and
- The berth requirements at each port site in relation to available wharf space.

The Red Scenario was adjusted during CPIP planning to create an Addendum Scenario to illustrate one possible set of adjustments that could be made to accommodate the three Brooklyn Waterfront Projects. However, no detailed analyses were conducted of this latter scenario. For the Addendum Scenario, the Red Scenario would be adjusted in the following manner:

- Dry bulk facilities were shifted to Port Newark North, reducing the auto terminal area there;
- Additional general cargo terminal acreage would be provided at Port Newark South, reducing area for auto there; and
- The auto terminal capacity reductions above would be compensated through conversion of the container terminal at Bayonne into an auto facility.

On this basis, the CPIP concluded that the three Brooklyn Waterfront Projects could be developed within CPIP parameters.