Chapter 13: Preferred Alternatives

A. INTRODUCTION

This chapter identifies the Preferred Alternatives for the Cross Harbor Freight Program (CHFP) and explains why the Preferred Alternatives are being recommended for advancement to a more detailed design and environmental analysis within a Tier II National Environmental Policy Act (NEPA) review. It also discusses why the remaining Build Alternatives are not being recommended at this time. However, this would not preclude the development or further study of the alternatives that are not hereby recommended as part of a future, separate environmental review process.

As described in the Tier I Draft Environmental Impact Statement (DEIS), the alternatives selection process began with the development of a list of 27 Build Alternatives that included various modes and alignments/termini. Thirteen of those alternatives were eliminated in an initial screening/fatal flaw evaluation step. The remaining 14 alternatives were assessed for their ability to meet project goals and objectives based on preliminary freight demand forecasting, mode choice, and broad qualitative criteria, as described in Chapter 4, "Alternatives" (see Qualitative Screening Using Project Goals). Four of the alternatives considered were eliminated due to their inability to sufficiently address project goals and objectives. The remaining Build Alternatives were selected for further evaluation of potential regional and local effects; these included transportation demand, socioeconomic factors, and broad environmental effects.

The Tier II environmental review will more specifically evaluate the infrastructure needs and local effects of the Preferred Alternatives based upon further engineering design and operational data. After careful considerations of the benefits and potential adverse impacts identified in the DEIS, and public and agency comments received on the DEIS, the Enhanced Railcar Float Alternative and the Rail Tunnel Alternative were selected as the Preferred Alternatives. As described in more detail in the sections that follow, the Preferred Alternatives are recommended for advancement to a potential Tier II review, along with the No Action Alternative, which is considered in any environmental review.

B. METHODOLOGY

In addition to the No Action Alternative, the following 10 Build Alternatives, evaluated in the Tier I DEIS, were considered in the selection of the Preferred Alternatives.

WATERBORNE ALTERNATIVES:

- Enhanced Railcar Float Alternative
- Truck Float Alternative
- Truck Ferry Alternative
- LOLO (lift on-lift off) Container Barge Alternative
- RORO (roll on-roll off) Container Barge Alternative

RAIL TUNNEL ALTERNATIVES:

- Rail Tunnel Alternative
- Rail Tunnel with Shuttle Service Alternative
- Rail Tunnel with Chunnel Service Alternative
- Rail Tunnel with Automated Guided Vehicle (AGV) Technology Alternative
- Rail Tunnel with Truck Access Alternative

The following criteria were considered in the alternatives selection process. Each of the 10 Build Alternatives was evaluated based on these criteria.

- Ability to meet the project goals and objectives (see **Figure 13-1**), which include:
  - **Goal 1:** Reduce the contribution of Cross Harbor truck trips to congestion along the region's major freight corridors;
  - **Goal 2:** Provide Cross Harbor freight shippers, receivers, and carriers with additional, attractive modal options to existing interstate trucking services;
  - **Goal 3:** Expand facilities for Cross Harbor goods movement to enhance system resiliency, safety and security, and infrastructure protection; and
  - **Goal 4:** Support development of integrated freight transportation/land use strategies.
- Projected freight diversion (see **Table 13-1**) and regional benefits (e.g., reduction in vehicle miles traveled, economic benefits, greenhouse gas reduction benefits, air quality benefits), which contribute to the alternative's ability to meet **Goal 1 and Goal 2**.
- Implementation timeline and potential implementation challenges.
- Cooperating Agency input.
- Public comments.
- Potential adverse impacts and potential mitigation options (e.g., local air quality, noise and vibration, local traffic, safety, hazardous materials, and environmental justice).

C. PREFERRED ALTERNATIVES SELECTION

ABILITY TO MEET GOALS AND OBJECTIVES

The ability of the Build Alternatives to meet the project goals and objectives was assessed in the DEIS based on the information available at the time of the alternatives screening and development process. Based on the analyses performed as part of the DEIS, the 10 Build Alternatives were reassessed in the FEIS for the ability of each to meet the project goals and objectives. As shown in **Figure 13-1**, the results of the initial assessment were reaffirmed. Some of the Build Alternatives were more successful than others in meeting project goals and objectives, and this was an important factor (but not the sole factor) in selecting the Preferred Alternatives that are recommended for further evaluation (see the discussion under "Implementation Timeline and Potential Implementation Challenges"). As already noted, the No Action Alternative does not meet the goals and objectives of CHFP. The ability of the Waterborne Alternatives and Rail Tunnel Alternatives to meet the project goals and objectives is summarized below.

Goals		Objectives	Waterborne					Rail Tunnel				
			Enhanced Railcar Float	Truck Ferry	Truck Float	Roll on-Roll off Container Barge	Lift on-Lift off Container Barge	(Double-Stack, Double Track)	With Shuttle ("Open Technology") Service	With "Chunnel" Service	With AGV Technology	With Truck Access
Goal 1: Reduce the contribution of Cross Harbor trucks to congestion.	a	Reduce the VMT from Cross Harbor trucks	🟢	🔴	🔴	🟡	🟡	🟢	🟢	🟢	🟢	🟢
	c	Maximize use of existing infrastructure	🟢	🔴	🔴	🟡	🟡	🟢	🟢	🟢	🟢	🟢
	d	Maintain or improve regional freight network	🟢	🔴	🔴	🟡	🟡	🟢	🟢	🟢	🟢	🟢
Goal 2: Provide modal options to trucking services.	a	Increase modal options for Cross Harbor freight	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
	b	Provide modal options and choices that offer attractive and competitive performance	🟢	🟡	🟡	🟡	🟡	🟢	🟢	🟢	🟢	🟢
Goal 3: Expand facilities for Cross Harbor goods movement to enhance system resiliency, safety and security, and infrastructure protection.	a	Provide Cross Harbor freight facilities and services that improve system redundancy and resilience	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
	b	Support contingency planning for emergency Cross Harbor operations	🟢	🟢	🟢	🟡	🟡	🟢	🟢	🟢	🟢	🟢
	c	Reduce the number of freight vehicle-related accidents	🟡	🟡	🟡	🟡	🟡	🟢	🟢	🟢	🟢	🟢
	d	Develop effective alternative options for transporting overweight/non-standard cargo	🟡	🟡	🟡	🟡	🟡	🟡	🟡	🟡	🟡	🟡
Goal 4: Support development of integrated freight transportation/land use strategies.	a	Maximize use of underutilized freight infrastructure and land	🟢	🔴	🔴	🟡	🟡	🟢	🟢	🟢	🟢	🟢
	b	Support existing freight distribution centers	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢

🟢 *meets objective* 🟡 *contributes to meeting objective* 🔴 *does not meet objective*

Figure 13-1
Ability to Meet Goals and Objectives
CROSS HARBOR FREIGHT PROGRAM

GOAL 1: REDUCE THE CONTRIBUTION OF CROSS HARBOR TRUCK TRIPS TO CONGESTION ALONG THE REGION'S MAJOR FREIGHT CORRIDORS

The ability of a Build Alternative to meet Goal 1 was largely determined by its projected freight diversion: the amount of freight (million tons per year) diverted from current modes and routes. The performance of the Build Alternatives and the termini and operational options considered in the DEIS is discussed in terms of the amount of diverted freight, as shown in **Table 13-1** (reprinted from the DEIS). As shown, the Rail Tunnel Alternatives divert more freight than the Waterborne Alternatives. Of the Rail Tunnel Alternatives, the Rail Tunnel with Truck Access Alternative diverts the most freight. Of the Waterborne Alternatives, the Enhanced Railcar Float Alternative, with carload and intermodal service, and with termini in Greenville and in Brooklyn, diverts the most freight. It should be noted that the No Action Alternative also diverts freight, as it includes the operation of the New York New Jersey Rail (NYNJR) railcar float service, with the state-of-good-repair improvements that have already be approved. However, the railcar float system cannot fully meet the projected demand for freight movement via this mode without additional improvements, which are proposed as part of the Enhanced Railcar Float Alternative.

Table 13-1
Freight Diversion with Build Alternatives in Addition to No Action Alternative (million tons per year)

Alternative Class	Alternative		West of Hudson Crossing Terminals	East of Hudson Terminals	Rail Drayage	Container Drayage	Other Short-Haul Truck	Study Area Long-Haul Truck	Rail via Selkirk	Through Trip Long-Haul Truck	Total
Waterborne	Enhanced Railcar Float	Carload and Intermodal	Greenville	Brooklyn	0.7	0.6		1.2	0.3		2.8
			Greenville	Bronx	0.7			0.7	0.1		1.6
		Carload Only	Greenville	Brooklyn	<0.1			0.8	0.3		1.2
			Greenville	Bronx				0.4	0.1		0.5
	Truck Float/ Truck Ferry		New Jersey	Brooklyn			1.7*				1.7
			New Jersey	Queens			1.5*				1.5
			New Jersey	Bronx			1.2*				1.2
	LOLO/RORO Container Barge		New Jersey	Brooklyn		0.3					0.3
			New Jersey	New England		0.4					0.4
Rail Tunnel	Rail Tunnel	Limited	New Jersey	Brooklyn	0.8	0.6		3.3	0.5	2.0	7.2
		Base	New Jersey	Brooklyn	0.8	0.6		3.3	0.7	2.8	8.1
		Seamless	New Jersey	Brooklyn	0.8	0.6		3.3	0.8	4.0	9.6
	Rail Tunnel (Base) with Shuttle Service		New Jersey	Brooklyn	0.8	0.6	0.5	3.3	0.7	2.8	8.7
	Rail Tunnel (Base) with Chunnel Service		New Jersey	Brooklyn	0.8	0.6	2.4	3.3	0.7	2.8	10.5
	Rail Tunnel (Base) with AGV Technology		New Jersey	Brooklyn	0.8	0.6	0.8	3.3	0.7	2.8	8.9
	Rail Tunnel (Base) with Truck Access		New Jersey	Brooklyn	0.8	0.6	16.0*	3.3	0.7	2.8	24.1

Note: The values reflect incremental demand as compared with the No Action Alternative. The total diversion shown in the table may be slightly different than the sum of the diversion by market, due to rounding.
* Includes Truck Reroute market.

Waterborne Alternatives

Enhanced Railcar Float Alternative

The Enhanced Railcar Float Alternative with both carload and intermodal service between Greenville and Brooklyn would divert 2.8 million tons of freight per year (in addition to the No Action Alternative)—more than any other Waterborne Alternative or option. With the carload only option, less freight would be diverted—up to 1.2 million tons per year, in addition to the No Action Alternative, assuming service between Greenville and Brooklyn, and even less (0.5 million tons per year) with service between Greenville and the Bronx. Railcar float service between Greenville and the Bronx is not recommended at this time, based on the relative performance of the options considered as part of the Enhanced Railcar Float Alternative, as measured by their potential to divert freight. Based on the diversion potential, implementation of both carload and intermodal service is recommended. As discussed subsequently in this chapter, the implementation of intermodal service is associated with greater challenges than the carload only service and could therefore be implemented using a phased approach, so as not to impede or delay the implementation of improvements that would enable this alternative to capture a greater portion of the carload market and incrementally enhance the regional goods movement.

Truck Float/Truck Ferry Alternatives

The Truck Float Alternative and Truck Ferry Alternative would divert up to 1.7 million tons of freight per year, with service between New Jersey and Brooklyn. Service between New Jersey and Queens or Bronx would divert less freight. As shown in **Table 13-1**, the overall diversion potential of these alternatives is lower than the 2.8 million tons of freight per year that would be diverted with the most favorable option considered under the Enhanced Railcar Float Alternative.

LOLO/RORO Container Barge Alternatives

The LOLO Container Barge Alternative and the RORO Container Barge Alternative would divert 0.4 million tons of freight per year, in addition to the No Action Alternative, with the service between New Jersey and New England. With service between New Jersey and Brooklyn, the diversion would be somewhat lower—0.3 million tons per year. Of the Build Alternatives considered, these two would divert the least amount of freight.

Rail Tunnel Alternatives

Rail Tunnel Alternative

The Rail Tunnel Alternative would divert between 7.2 and 9.6 million tons of freight per year, depending on the different operating scenarios affecting the potential to capture through trip long-haul truck markets. The operating scenarios considered reflect different level of service penalties, including time and cost of fillet/toupee operations (whereby trains with double-stacked containers are configured to single-stack, and vice-versa), and time and cost of interchanges between different railroads, etc. Of the operating scenarios, the “seamless” scenario is the most efficient, and it is recommended that the multijurisdictional and challenging steps needed to achieve seamless operation be pursued. It is noted that over 30 percent more freight could be diverted with the seamless operating scenario, as compared with the limited operating scenario, while the infrastructure and construction needs would be largely the same.

The total amount of freight that could be diverted by this alternative is less than the amount that could be diverted by the other Rail Tunnel Alternatives considered. Unlike the other Rail Tunnel Alternatives, this alternative does not capture as much of the short-haul truck market. It is also noted that the diversion of the short-haul truck market does not provide as much of a regional

environmental benefit and modal choice as the diversion of the long-haul market (which affects modal options over a longer geographic range and reduces more truck vehicle miles travelled [VMT]).

Rail Tunnel with Shuttle Service Alternative

The Rail Tunnel with Shuttle Service Alternative would divert 8.7 million tons of freight per year, assuming the base operating scenario. While it performs better than the Rail Tunnel Alternative, under the same operating scenario, it would divert less freight than other Rail Tunnel Alternatives with additional service and technology, as shown in **Table 13-1** and discussed in the following sections.

Rail Tunnel with Chunnel Service Alternative

The Rail Tunnel with Chunnel Service Alternative would divert 10.5 million tons of freight per year. Of the Rail Tunnel Alternatives with additional service and technology, the Rail Tunnel with Chunnel Service Alternative would perform best, as measured by the amount of freight diverted.

Rail Tunnel with Automated Guided Vehicle (AGV) Technology Alternative

The Rail Tunnel with AGV Technology Alternative would divert 8.9 million tons of freight per year, which is more than the Rail Tunnel Alternative, assuming the same base operating scenario, but less than the Rail Tunnel with Shuttle Service Alternative and less than the Rail Tunnel with Chunnel Service Alternative.

Rail Tunnel with Truck Access Alternative

Of all the Build Alternatives, the Rail Tunnel with Truck Access Alternative would divert the most freight—24.1 million tons per year. As compared with the Rail Tunnel Alternative (without truck access), it would additionally divert 16.0 million tons via short-haul truck diversion from existing highway crossings, without affecting the entire freight route or causing a true modal diversion in the region.

GOAL 2: PROVIDE CROSS HARBOR FREIGHT SHIPPERS, RECEIVERS, AND CARRIERS WITH ADDITIONAL, ATTRACTIVE MODAL OPTIONS TO EXISTING INTERSTATE TRUCKING SERVICES

The ability of a Build Alternative to meet Goal 2 was largely determined by the estimated cost savings offered to shippers, receivers, and carriers of freight shipments, compared with the cost of transporting goods by truck on the region's highway network in 2035. Cost consists of end-to-end transportation costs, and are appreciably influenced by changes in travel time and travel time reliability. As described in Chapter 6.2, the Rail Tunnel Alternatives would yield the greatest shipper and receiver cost savings ($621 to $646 million through 2060) relative to the No Action Alternative. The Waterborne Alternatives would yield cost savings ranging from "not measurable" to $196 million through 2060.

Waterborne Alternatives

All of the Waterborne Alternatives would provide an additional modal option for shippers and receivers as compared with the No Action Alternative. However, the freight that would be moved by the Truck Float and Truck Ferry Alternatives would affect only the short-haul truck market, and would essentially reroute trucks from existing highway crossings onto these waterborne modes, without affecting the entire freight route or causing a true modal diversion in the region. Notably, the Enhanced Railcar Float Alternative would divert truck trips to rail over the entire trip distance. Therefore, the Enhanced Railcar Float Alternative would affect modal

choice at a longer geographic range, offer the greatest opportunity to reduce transportation costs, and would best support Goal 2.

Rail Tunnel Alternatives

The Rail Tunnel Alternatives offer shippers and receivers the option to use rail service as an alternative to long-distance trucking, and the Truck Access, AGV, and Chunnel service alternatives offer the option to attract some short-distance shipments as well. Compared with the No Action Alternative, the Rail Tunnel Alternatives offer the greatest travel time savings, travel time reliability, and cost savings to shippers, receivers, and carriers. As shown in Chapter 6.2, the cost savings for all of the Rail Tunnel Alternatives range from $621 million to $646 million through 2060. All of the Rail Tunnel Alternatives therefore support Goal 2.

GOAL 3: EXPAND FACILITIES FOR CROSS HARBOR GOODS MOVEMENT TO ENHANCE SYSTEM RESILIENCY, SAFETY AND SECURITY, AND INFRASTRUCTURE PROTECTION

Waterborne Alternatives

The Enhanced Railcar Float Alternative would improve and increase the capacity of Cross Harbor operations developed in the No Action Alternative and would thus provide a more robust alternate route and mode that would contribute to the freight system resiliency in the region. Because the Enhanced Railcar Float Alternative would result in the greatest reduction in truck vehicle-miles traveled among the Waterborne Alternatives, it would also yield the greatest reduction in truck-involved crashes and the greatest highway infrastructure maintenance savings throughout the region.

Rail Tunnel Alternatives

All of the Rail Tunnel Alternatives would support Goal 3. The Rail Tunnel Alternative would substantially contribute to the resiliency of the regional freight system by (1) providing a redundant and alternate mode to supplement the regional highway system when necessary; and (2) providing a high capacity alternate route to the congested Northern corridor (via Selkirk, New York) in the regional rail system. In addition to the resiliency contributions provided by the Rail Tunnel Alternative, the Rail Tunnel with Shuttle/Chunnel Service, AGV Technology, and Truck Access Alternatives would all provide an alternate route and mode with higher capacity and improve reliability of freight operations within sub-markets, such as short-haul trucking. The projected reduction in truck VMT, and the associated reduction in exposure to truck-involved crashes and highway infrastructure maintenance costs are similar for all of the Rail Tunnel Alternatives, with the exception of the Rail Tunnel with Truck Access Alternative, which is expected to yield fewer truck VMT savings than the other Rail Tunnel Alternatives.

GOAL 4: SUPPORT DEVELOPMENT OF INTEGRATED FREIGHT TRANSPORTATION/LAND USE STRATEGIES

The ability of a Build Alternative to meet Goal 4 was largely measured by its use of existing underutilized freight infrastructure. In particular, the Southern Corridor, which includes Bay Ridge Branch freight right-of-way and existing yards, was determined to be a valuable but underutilized asset. As described below, Build Alternatives that would utilize the Bay Ridge Branch as well as the existing and historical yards along the corridor are considered to meet Goal 4, and Build Alternatives that would utilize other existing facilities that are considered to be underutilized are considered to contribute to but not fully meet Goal 4.

Waterborne Alternatives

The Enhanced Railcar Float Alternative is the only Waterborne Alternative that would utilize the Bay Ridge Branch; therefore, it is the only Waterborne Alternative that fully meets Goal 4. As noted in the DEIS, the LOLO/RORO Container Barge Alternatives would not utilize the Bay Ridge Branch, but could potentially use the Red Hook Container Terminal, an underutilized facility. Therefore, the LOLO/RORO Container Barge Alternatives would contribute to Goal 4. Notably, the Truck Float/Truck Ferry Alternatives would not use facilities that are considered underutilized; therefore they do not meet Goal 4.

Rail Tunnel Alternatives

All of the Rail Tunnel Alternatives would utilize the Bay Ridge Branch; therefore, all Rail Tunnel Alternatives meet Goal 4.

SUMMARY

Waterborne Alternatives

Of the Waterborne Alternatives, the Enhanced Railcar Float Alternative best meets the project goals and objectives. In particular, this alternative outperforms the other Waterborne Alternatives in its ability to reduce the contribution of Cross Harbor trucks to congestion and to maximize the use of underutilized freight infrastructure. The Truck Float Alternative and the Truck Ferry Alternative do not fully meet any of the CHFP goals, as shown in **Figure 13-1**. These alternatives provide a mode other than truck only for the crossing, but overall do not reduce truck traffic through the region. These two alternatives would provide some benefit in enhancing the goods movement system resiliency, but overall do not sufficiently improve the movement of goods across the harbor to be recommended for advancement to a Tier II environmental review. The LOLO Container Barge Alternative and the RORO Container Barger Alternative partially meet all of the CHFP goals and objectives, but do not fully meet any CHFP goals, as shown in **Figure 13-1**.

Rail Tunnel Alternatives

The Rail Tunnel Alternatives better meet the goals and objectives of CHFP than the Waterborne Alternatives, as shown in **Figure 13-1**. Based on a qualitative assessment of the Build Alternatives' ability to meet the CHFP goals and objectives, all Rail Tunnel Alternatives perform equally, as shown in **Figure 13-1**. However, the Rail Tunnel Alternatives with Shuttle Service, Chunnel Service, AGV Technology and with Truck Access meet some of the project goals and objectives to a greater extent than the Rail Tunnel Alternative (although they also present greater challenges in terms of implementation and potential environmental effects). For example, the Rail Tunnel with Truck Access Alternative improves system redundancy and resilience to a greater extent than the Rail Tunnel Alternative, although both alternatives fully meet *Objective 3a*, as shown in **Figure 13-1**.

REGIONAL BENEFITS

In addition to the project goals and objectives described above, the Build Alternatives were assessed based on various regional benefits. These regional benefits, including reduction in VMT, economic benefits, greenhouse gas (GHG) reduction benefits, and air quality benefits, are related to the project goals and objectives, particularly Goals 1 and 2. However, the regional benefits better reflect the specific outcomes that can be achieved by the Build Alternatives. The greatest long-term and regional benefits would be achieved by the Rail Tunnel Alternatives, with

the Enhanced Railcar Float resulting in benefits that could be achieved in the short term, as discussed in more detail in the following sections.

WATERBORNE ALTERNATIVES

The Waterborne Alternatives would generate between 200 and 300 direct job-years, 478 to 720 total job-years (including indirect and induced jobs), $30 million to $45 million in wages, and $116 million to $175 million in total spending. There would be small travel time savings for commodity trucks associated with the Waterborne Alternatives—a 0.1 percent reduction in commodity truck vehicle-hours traveled (VHT). Compared with the No Action Alternative, the Waterborne Alternatives would result in a reduction of nearly 300 trucks per day from harbor and Hudson River crossings in the 23-county regional study area (including all crossings between the Verrazano-Narrows Bridge and the Bear Mountain Bridge) in the eastbound direction, a 0.8 percent reduction. In 2035, the Waterborne Alternatives would save highway users between $1 million and $13 million in non-discounted 2012 dollars.

Enhanced Railcar Float Alternative

The Enhanced Railcar Float Alternative would somewhat reduce regional VMT and would decrease energy consumption by 106 billion British Thermal Units (BTU) per year and would reduce GHG emissions by 7,700 metric ton per year. Of the Waterborne Alternatives, the Enhanced Railcar Float Alternative would yield the greatest energy efficiency and GHG emission reduction benefits, but would be far from achieving the level of benefits that would be possible and needed in the long term, through implementation of the Rail Tunnel Alternatives.

Truck Float/Truck Ferry Alternatives

The Truck Float Alternative and the Truck Ferry Alternative would have a negligible effect on regional VMT, energy consumption, and GHG emissions.

LOLO/RORO Container Barge Alternatives

The LOLO Container Barge Alternative and the RORO Container Barge Alternative would have a negligible effect on regional VMT, energy consumption, and GHG emissions.

RAIL TUNNEL ALTERNATIVES

The Rail Tunnel Alternatives would reduce truck VMT by 1.1 percent to 1.6 percent. The range accounts for the change in demand associated with each of the rail tunnel operating scenarios considered (Base, Limited, and Seamless), and the chunnel, shuttle, and AGV service alternatives. The greatest reductions in commodity truck VMT would occur in Hudson, Bronx, and Richmond Counties, each of which would see a 2.5 percent to 2.6 percent reduction in commodity truck VMT. The Rail Tunnel Alternatives would also result in a 1.0 percent to 1.4 percent savings in VHT for commodity trucks across the region, as compared with the No Action Alternative. Cumulative savings through 2060 resulting from the Rail Tunnel Alternative could range from $4.6 billion (Rail Tunnel Alternative under the Limited Operating Scenario) to $5.8 billion under the Rail Tunnel with AGV Technology Alternative. The Rail Tunnel Alternatives could reduce energy use by up to 1.6 trillion BTU per year, and could reduce GHG emissions by 110,000 metric tons per year.

Rail Tunnel Alternative

The Rail Tunnel Alternative would result in a reduction of 700 to 900 trucks per day, or 2 to 2.5 percent, across all bridges crossing the harbor and Hudson River in the 23-county analysis region in the eastbound direction. The Rail Tunnel Alternative under the Limited, Base, and

Seamless Operating Scenarios would save highway users between $130 and $135 million. The Rail Tunnel Alternative would generate approximately 12,500 to 18,000 direct job-years, 28,000 to 41,000 total job-years (including indirect and induced jobs), $1 billion to $1.5 billion in direct wages, $1.8 billion to $2.6 billion in total wages, and $7.2 to $10.4 billion in total spending.

Rail Tunnel with Shuttle Service, Rail Tunnel with Chunnel Service, and Rail Tunnel with AGV Technology Alternatives

The addition of the chunnel service, AGV technology, or shuttle service to the rail tunnel would reduce truck volumes on the crossings by 950 to 1,300 trucks per day, or 2.7 to 3.6 percent. The Rail tunnel with chunnel service, AGV technology, or shuttle service would save highway users $116 million and more. These alternatives could generate 176 to 1,743 direct job-years, 418 to 4,122 total job-years (including indirect and induced jobs), $14 million to $144 million in direct wages, $26 million to $256 million in total wages, and $104 million to $1.0 billion in total spending, in addition to what would be achieved by the Rail Tunnel Alternative.

Rail Tunnel with Truck Access Alternative

The Rail Tunnel with Truck Access Alternative would result in a reduction of nearly 3,000 trucks per day in the eastbound direction on all crossings, or 8 percent. This alternative could save highway users $162 million. Because the Rail Tunnel with Truck Access Alternative requires the greatest construction expenditure, it would generate the greatest economic impact during the construction phase.

IMPLEMENTATION TIMELINE AND POTENTIAL IMPLEMENTATION CHALLENGES

WATERBORNE ALTERNATIVES

As discussed in the DEIS, the Waterborne Alternatives could be implemented on a much shorter timeline than the Rail Tunnel Alternatives. The construction of the Waterborne Alternative would take approximately two years, following the completion of Tier II documentation.

Enhanced Railcar Float Alternative

The improvements needed to implement the Enhanced Railcar Float Alternative between Greenville and Brooklyn, with the carload only option, are relatively modest. The alternative with the carload only option would largely rely on existing infrastructure and could with a limited set of existing infrastructure improvements and environmental approvals, relatively quickly increase the diversion of freight by 1.2 million tons per year, thereby meeting the project's purpose and need. The implementation of improvements needed to accommodate intermodal service would more than double the efficiency of the Enhanced Railcar Float Alternative, with the diversion of an additional 1.6 million tons per year, for a total of 2.8 million tons per year in addition to the No Action Alternative, with both carload and intermodal service improvements also meeting the project's purpose and need. However, the improvements needed to enable intermodal freight transport would make implementation more challenging. Freight facility improvements, including potential land acquisition, would be needed for intermodal freight. Furthermore, to accommodate double stack containers, vertical clearances along the Bay Ridge Branch would have to be increased. The implementation of intermodal service could be studied separately at a later time. It is important to note that such a separate assessment and implementation would need to consider the current No Action Alternative to properly consider localized increases in rail and truck traffic, noise, vibration, and air pollutant emissions.

Truck Float/Ferry Alternatives and LOLO/RORO Container Barge Alternatives

The Truck Float, Truck Ferry, LOLO Container Barge, and RORO Container Barge could be implemented relatively easily. For the most part, improvements to existing freight facilities and limited expansion would be needed. For the alternatives that would need better truck access to the termini, ramps or other road improvements would be needed. For the LOLO Container Barge Alternative, lift-on lift-off equipment would be needed. Floats, ferries, or container barges would also need to be purchased. Overall, the greatest challenge with the implementation of these alternatives would likely be the road access improvements and the approvals needed to make such improvements. For the LOLO/RORO Container Barge Alternative with a terminus in New England, potential jurisdictional challenges would need to be overcome. Overall, the implementation of these alternatives would be fairly simple and would not prevent advancement of these alternatives to Tier II. However, as explained in other sections, these alternatives were not selected as the Preferred Alternatives for other reasons.

RAIL TUNNEL ALTERNATIVES

Anticipated completion of Tier II documentation, final design, and regulatory permits for the Rail Tunnel Alternatives would take approximately twice as long as the Waterborne Alternatives, which would range from three to five years from completion of the current environmental review. The construction of the Rail Tunnel Alternatives would take a minimum of eight years. It should be noted that the design/approval and construction schedules do not include the time needed to make the significant cooperative effort required to get to the construction stage, secure funding, and engage in significant marketing among several rail entities to make these alternatives viable. This would be a challenging task that may take a substantial amount of time. With the Rail Tunnel Alternatives, future passenger train services would need to be considered and coordination with LIRR would be needed in Tier II. Consultation with New York City Transit would also be needed around the East New York Tunnels. Challenges associated with the sewer that runs under the Lower Montauk's right-of-way would need to be addressed. These challenges will be addressed in Tier II and do not affect the selection of the Preferred Alternatives.

As compared with the Rail Tunnel Alternative, the Rail Tunnel Alternatives with additional service, technology, or truck access would present a much greater challenge. More land would be required to implement those alternatives. The cost of design and construction would be greater, the potential environmental impact would be greater in magnitude and extent, more challenging to mitigate, and would therefore be less likely to have public support. The timeline for implementation would also be greater. With the Rail Tunnel with Shuttle Service Alternative, an added challenge would be the need for a terminus outside of the Port District. The Chunnel Service Alternative and the Truck Access Alternative would present major challenges in terms of receiving roadway capacity, need for additional land, and likely unmitigatable environmental impacts, including adverse impacts in environmental justice communities. The Rail Tunnel with AGV Technology Alternative would involve the application of a proven technology in a new context, which may present additional design and permit/approval challenges. Considering the additional implementation challenges and costs associated with the alternatives that would add service, technology, or truck access to the rail tunnel, the advancement of those alternatives to Tier II was not recommended and the Rail Tunnel Alternative (without additional service, technology, or access) has been selected as one of the two Preferred Alternatives. One of the greatest challenges in implementing the Rail Tunnel Alternatives would be the design of the tunnel ventilation system. The challenge would be greater with a greater number of diesel trains

(i.e., it would be greater if service and technology were added to the rail tunnel). The design of the tunnel ventilation system would be the most challenging for the Rail Tunnel with Truck Access option, as the tunnel would need to be ventilated for both train and truck use, be safe for truck drivers, and sufficiently dissipate heat that would accumulate if not properly ventilated.

COOPERATING AGENCY INPUT

Cooperating agency input is essential to the alternatives selection process and was weighed heavily in selecting the Preferred Alternatives. Both Preferred Alternatives received strong agency support. The alternatives to which the agencies expressed strong concern or objection are not being recommended for advancement to Tier II. Agency comments are summarized in Chapter 12, "Response to Comments Received on the DEIS."

NO ACTION ALTERNATIVE

The U.S. Environmental Protection Agency (USEPA) noted that the No Action Alternative is the least appealing alternative from the environmental perspective and recognized that the Build Alternatives offer opportunities to reduce traffic congestion, reduce VMT, and reduce petroleum consumption. USEPA also highlighted reduction in emissions of criteria air pollutants and greenhouse gas (GHG) emissions as a major benefit of the Build Alternatives, noting the importance of air quality improvements to human health, given the regional nonattainment of the National Ambient Air Quality Standards (NAAQS) for ozone and only recent attainment of the NAAQS for particulate matter ($PM_{2.5}$).

WATERBORNE ALTERNATIVES

Enhanced Railcar Float Alternative

USEPA rated the Enhanced Railcar Float Alternative as LO—Lack of Objections and the New York City Metropolitan Transportation Authority (MTA) expressed support for the alternative, stating that it sufficiently meets all four project goals and recommending the advancement of this alternative for further study. The City of New York expressed support for the Enhanced Railcar Float Alternative, as a resilient and innovative mode choice, and as an interim solution that could be implemented in advance of the Rail Tunnel Alternative.

Truck Float/Truck Ferry Alternatives

USEPA rated the Truck Float and Truck Ferry Alternatives as LO—Lack of Objections. Other agencies did not provide input on these alternatives that would affect their selection for further study.

LOLO/RORO Container Barge Alternatives

USEPA rated the LOLO and RORO Container Barge Alternatives as LO—Lack of Objections. Other agencies did not provide input on these alternatives that would affect their selection for further study.

RAIL TUNNEL ALTERNATIVES

USEPA recognized that the Rail Alternatives offer the greatest opportunities to decrease regional VMT and thereby reduce regional air pollutant emissions. The Tier II studies, as discussed in the DEIS, will be undertaken to better determine the need for land acquisition, quantify the localized increases in emissions from locomotives and trucks, and develop the design of the tunnel ventilation systems. USEPA rated all Rail Alternatives as EC-2—a rating category that indicates that the agency has environmental concerns due to a lack of information.

These concerns are not interpreted as a lack of agency support for the Rail Tunnel Alternatives. Rather, any issues related to local communities, coastal resources, and habitat, and mitigation plans for any direct or cumulative impacts will be addressed from the outset of the Tier II planning process, as requested by the agency.

The New Jersey Department of Environmental Protection (NJDEP) raised concerns about potential impacts from any immersed tube tunnel construction to existing submerged infrastructure, including electrical transmission routes, the Passaic Valley Sewerage Commission (PVSC) main discharge line, and the Bayonne Energy Center's three electrical transmission lines. The National Marine Fisheries Service (NMFS) and NJDEP also expressed concerns about the effects on aquatic resources during construction of a possible immersed tube tunnel in the vicinity of areas to be dredged.

The U.S. Coast Guard (USCG) commented that any tunnel should be designed and buried to a sufficient depth so as not to be affected by the deployment of any existing vessel's anchor nor by the deployment of any larger vessel's anchor, for any larger vessel expected to transit the area after the tunnel has been constructed. Any tunnel will be designed so as to avoid potential impact by vessels that would anchor in the area. .

Rail Tunnel Alternative

The advancement of the Rail Tunnel Alternative for further study in Tier II was recommended by MTA. MTA stated that the alternative has the potential to sufficiently meet all four project goals, and noted that mitigation may be needed in the Maspeth Yard area, the 65th Street Yard, and 51st Street Yard areas, and in areas surrounding Long Island facilities. The City of New York also expressed strong support for the double track, double stack freight rail tunnel alternative as a long-term solution to moving freight to East of Hudson destinations.

Rail Tunnel with Shuttle Service Alternative and Rail Tunnel with Chunnel Service Alternative

No comments specific to these alternatives were received from the agencies.

Rail Tunnel with Automated Guided Vehicle (AGV) Technology Alternative

MTA expressed concern with the Rail Tunnel with AGV Technology Alternative and recommended that it not be advanced for further consideration in Tier II. The concerns were about commingling AGV platforms with regular freight train service on the Bay Ridge Branch and the lack of precedents where AGV platforms and freight trains currently share track space. In light of MTA's comment and other challenges associated with this alternative, it was not recommended for advancement to Tier II.

Rail Tunnel with Truck Access Alternative

MTA expressed concerns with the Rail Tunnel with Truck Access Alternative. These include in particular the significant new roadway demands that would be placed on the area surrounding the East New York terminal, and the sharing of the existing Bay Ridge Branch rail infrastructure right-of-way with a vehicle roadway. MTA requested that the Rail Tunnel with Truck Access Alternative be removed from further consideration.

NJDEP also expressed concerns with this alternative as they relate to congestion and air quality in communities near Linden Boulevard and the Newark Bay Extension of the NJ Turnpike. NJDEP noted that the Rail Tunnel with Truck Access Alternative would take trucks off the current crossings and associated feeder roadways and put them onto Linden Boulevard and the

Newark Bay Extension of the NJ Turnpike, resulting in an increase in truck traffic of up to 5,200 truck trips per day.

PUBLIC COMMENTS

Public comments on the DEIS were carefully considered and were essential in selecting the Preferred Alternatives. The public comments received are summarized in Chapter 12. Numerous comments were received in support of the Rail Tunnel Alternative, as well as in support of the Enhanced Railcar Float Alternative or Waterborne Alternatives in general, as a short-term solution, and the Rail Tunnel Alternative as a long-term solution. Comments that were not in support of the project raised concerns related to increased local truck traffic, resulting noise, vibration, air pollutant emissions, and potential effects on environmental justice areas. Communities also sought more information about the type of freight that would be transported.

The Rail Tunnel Alternatives with Shuttle Service, Chunnel Service, AGV Technology, and Truck Access were not selected as the Preferred Alternatives and are not recommended for further evaluation in Tier II, largely due to the likely extensive localized effects that were of concern to the local communities in Brooklyn, Queens, and Greenville neighborhoods. Some of the alternatives—Truck Float, Truck Ferry, LOLO Container Barge, LOLO Container Barge, Rail Tunnel with Shuttle Service, Rail Tunnel with Shuttle Service, Rail Tunnel with Chunnel Service, and Rail Tunnel with AGV Technology—are additionally not recommended due to low public and stakeholder interest, in addition to potential localized environmental and socioeconomic concerns.

POTENTIAL ADVERSE IMPACTS AND POTENTIAL MITIGATION OPTIONS

Potential adverse effects discussed in the DEIS and summarized in Table ES-6 were considered in light of public and agency comments and with consideration of likely feasibility of mitigation options.

WATERBORNE ALTERNATIVES

Enhanced Railcar Float Alternative

Potential localized adverse effects associated with the Enhanced Railcar Float Alternative between Brooklyn and Greenville Yard include increased localized truck traffic near freight facilities, as shown in Figure 5-9. With proper planning of truck routes and traffic safety measures, it is anticipated that feasible options to reduce or eliminate potential adverse impacts could be identified in Tier II, where needed. Other potential effects with this alternative are emissions from locomotives and noise and vibration levels. Newer locomotives emit a fraction of the emissions that many locomotives currently in use do, and various options exist to minimize noise and vibration. With the carload only option, construction activity and the need for land acquisition would be limited and would be unlikely to result in effects that would require mitigation. With the carload and intermodal option, more changes to infrastructure and more land would be required. In addition, the Enhanced Railcar Float Alternative would have the potential to affect archaeological resources and environmental justice communities. Further evaluation in Tier II would be needed to determine the magnitude and extent of any potential adverse effects and to develop mitigation strategies, where needed.

Truck Float/Truck Ferry Alternatives

As shown in Table ES-6, the Truck Float and Truck Ferry Alternatives would have a limited potential to result in adverse effects, although the effect on environmental justice communities

and potential archaeological resources would require further evaluation. The potential for adverse effects is not the reason why these alternatives were not selected as Preferred Alternatives.

LOLO/RORO Container Barge Alternatives

As shown in Table ES-6, the LOLO Container Barge Alternative and the RORO Container Barge Alternative would have a limited potential to result in adverse effects although the effect on environmental justice communities and potential archaeological resources would require further evaluation. The potential for adverse effects is not the reason why these alternatives were not selected as Preferred Alternatives.

RAIL TUNNEL ALTERNATIVES

Rail Tunnel Alternative

Of the Rail Tunnel Alternatives, the Rail Tunnel Alternative without shuttle or chunnel service, AGV technology, or truck access would result in the lowest potential for adverse effects. Less land would be needed for this alternative, and it would result in lower levels of local rail and truck traffic, with the associated air quality and noise and vibration consequences. In Tier II, the potential for adverse impacts would need to be further evaluated, and mitigation strategies would be developed, where needed. The main areas that would need further study are local truck traffic, air emissions from trucks and locomotives, noise and vibration, tunnel ventilation design and emissions, effect on water resources during tunnel construction (especially if an immersed tube is used), potential disproportionate effects on environmental justice communities, and potential effects on natural resources near freight facilities on Long Island, if proposed, depending on the location. Of the Rail Tunnel Alternatives that would benefit the region in the long term, the Rail Tunnel Alternative would have the lowest potential for adverse effects and it has therefore been selected as a Preferred Alternative, recommended for advancement to Tier II.

Rail Tunnel with Shuttle Service Alternative

This alternative would result in similar effects as the Rail Tunnel Alternative, but the effects would be greater in magnitude and extent as there would be more local truck and rail traffic, which would result in more local emissions, noise, and vibration. The need for land would be greater, as would the need for tunnel ventilation.

Rail Tunnel with Chunnel Service Alternative

Like the Rail Tunnel with Shuttle Service Alternative, this alternative would result in similar types of effects as the Rail Tunnel Alternative, but the effects would be greater in magnitude and extent, as there would be more local truck and rail traffic, which would result in more local emissions, noise (especially since more trains would run at night), and vibration. The need for land would be greater, as would the need for tunnel ventilation.

Rail Tunnel with Automated Guided Vehicle (AGV) Technology Alternative

This alternative would also result in similar types of effects as the Rail Tunnel Alternative, but the effects would be greater in magnitude and extent, as there would be more local truck and rail traffic, which would result in more local emissions, noise (especially since more trains would run at night) and vibration. The need for land would be greater, as would the need for tunnel ventilation.

Rail Tunnel with Truck Access Alternative

The Rail Tunnel with Truck Access Alternative would result in significant adverse environmental effects for which practicable mitigation strategies may not be available. More land than with the Rail Tunnel Alternative would be necessary to develop suitable truck terminals and truck access ramps. With this alternative, trains would run through the tunnel exclusively at night, likely resulting in significant noise impacts. With around-the-clock train and truck traffic, air pollutant emissions would be higher and would have the potential to exceed federal air quality standards. Moreover, unlike with the Rail Tunnel Alternative, the Rail Tunnel with Truck Access Alternative would result in a substantial truck traffic increase in environmental justice communities and would therefore have the potential to result in disproportionate adverse effects that would be challenging to mitigate. Due to the significant adverse impacts that would be likely with this alternative, it was not recommended as a Preferred Alternative for further evaluation in Tier II.

SUMMARY OF REASONS WHY ALTERNATIVES WERE NOT SELECTED AS PREFERRED

WATERBORNE ALTERNATIVES

Truck Float/Truck Ferry Alternatives

The Truck Float Alternative and the Truck Ferry Alternative were not recommended for advancement to Tier II for the following reasons:

- They do not fully meet any of the CHFP goals, as shown in **Figure 13-1** and do not sufficiently improve the movement of goods across the harbor.
- Based on the potential to divert freight, it is not the best waterborne or short-term option, as it would divert less freight than the Enhanced Railcar Float Alternative and would affect only the short-haul truck, without causing a true modal diversion in the region.
- The alternative provides limited air quality and GHG emissions reduction benefits.
- There is no strong support or interest in this alternative, based on the agency and public comments received on the DEIS.

LOLO/RORO Container Barge Alternatives

The LOLO Container Barge Alternative and the RORO Container Barge Alternative were not recommended for advancement to Tier II for the following reasons:

- They do not fully meet any of the CHFP goals, as shown in **Figure 13-1** and do not sufficiently improve the movement of goods across the harbor.
- Based on the potential to divert freight, this alternative is the least effective of the Build Alternatives considered.
- This alternative would provide negligible air quality, GHG emissions reduction, and socioeconomic benefits, and would only slightly reduce truck traffic on existing crossings.

As discussed in Chapter 4 of the DEIS, a LOLO Container Barge Alternative and a RORO Container Barge Alternative were considered. While the Container Barge Alternatives do meet the purpose and need for the CHFP, they address a relatively small market demand and were not recommended as Preferred Alternatives for advancement to Tier II. However, it should be noted that there are benefits to transporting freight by container barge and that proposals to develop

container barge terminals and service could be advanced by others or as part of separate initiatives and/or studies.

RAIL TUNNEL ALTERNATIVES

Rail Tunnel with Shuttle Service Alternative and the Rail Tunnel with Chunnel Service Alternative

The Rail Tunnel with Shuttle Service Alternative and the Rail Tunnel with Chunnel Service Alternative are not recommended for advancement to Tier II for the following reasons:

- They require more land than the Rail Tunnel Alternative.
- They would likely result in adverse environmental effects that would be more challenging to mitigate.
- There are implementation challenges that are much greater than with the Rail Tunnel Alternative.
- One of the Rail Tunnel with Shuttle Service Alternative termini would need to be constructed outside of the Port District, which would introduce additional jurisdictional challenges.
- The Chunnel Service Alternative would result in a high volume of additional truck traffic in residential areas, including in environmental justice communities.
- There is no substantial public or agency support or interest in these alternatives, based on the comments received on the DEIS.
- The community and agency concerns associated with increase in rail and truck noise, vibration, and local air pollutant emissions would be more difficult to address with these alternatives than with the Rail Tunnel Alternative.

Rail Tunnel with Automated Guided Vehicle (AGV) Technology Alternative

The Rail Tunnel with AGV Technology Alternative was not recommended for advancement to Tier II for the following reasons:

- There is a lack of precedent for the use of AGV technology on a freight rail corridor.
- MTA raised concerns about this alternative and requested that it not advance to Tier II.
- This alternative would require much more land and would result in a higher cost than that required for the Rail Tunnel Alternative.
- The implementation challenges with this alternative would be greater than those of the Rail Tunnel Alternatives.
- The potential noise, vibration, and adverse effects on local air quality with this alternative would be greater and more difficult to mitigate than those of the Rail Tunnel Alternative.

Rail Tunnel with Truck Access Alternative

The Rail Tunnel with Truck Access Alternative was not recommended for advancement to Tier II for the following reasons:

- MTA recommended the alternative not advance to Tier II.
- There were agency concerns associated with localized increases in truck traffic.
- There were public concerns with this alternative related to its localized increases in truck traffic.

- Substantial challenges would likely be encountered in designing the tunnel ventilation system required for such a combined rail/truck tunnel.
- The likely significant adverse noise, vibration, air quality, land use, and environmental justice impacts would be difficult to mitigate.
- The need to operate the trains at night (to accommodate trucks during the day) would result in greater and more persistent noise levels at night.
- This alternative would likely result in a lack of capacity for trucks on the existing roadways leading to and from the tunnel.

SUMMARY OF REASONS FOR SELECTING THE PREFERRED ALTERNATIVES

ENHANCED RAILCAR FLOAT ALTERNATIVE

The Enhanced Railcar Float Alternative is the Waterborne Alternative that would result in the greatest improvement to freight movement across the harbor and would make the best use of the existing underutilized infrastructure and the existing freight facilities. While it would not provide as much long-term benefit as the Rail Tunnel Alternative or be sufficient to address the future regional freight movement challenges, it could more easily be designed and implemented. Furthermore, most of the rail system improvements, including improvements to freight facilities, that would be implemented as part of the Enhanced Railcar Float Alternative would be beneficial and/or required for the operation of the Rail Tunnel Alternative. In summary, the Enhanced Railcar Float Alternative, with service between Greenville and Brooklyn, was selected as one of the two Preferred Alternatives for the following reasons:

- Of the Waterborne Alternatives, it best meets the project goals and objectives.
- Of the Waterborne Alternatives, it has the potential to divert the most freight and to best increase modal balance in the region.
- Of the Waterborne Alternatives, it would have the greatest beneficial effect on the region, by reducing truck VMT, reducing the truck volumes and delays on highway crossings, and reducing energy consumption and GHG emissions.
- The use of established waterfront terminals, specifically the selection of Brooklyn instead of the Bronx as the preferred eastern terminus for this alternative, is consistent with the NJDEP recommendation to minimize disturbance to benthic habitats across the proposed areas of development.

RAIL TUNNEL ALTERNATIVE

Each of the Rail Tunnel Alternatives would provide great regional benefits. The concerns with the Rail Tunnel Alternatives are: the potential localized impacts, high cost, design challenges, duration of construction, and the need for additional land to accommodate new infrastructure and new or expanded freight facilities. Of the Rail Tunnel Alternatives, the Rail Tunnel Alternative without additional services, technology, or truck access would have the least potential to result in localized impacts that could not be mitigated; it would also be the least costly, and would be simpler to design and construct. It would also require less land acquisition. Furthermore, of the Rail Tunnel Alternatives, the Rail Tunnel Alternative without additional service, technology, or truck access received the most support and the least opposition from the public, and also received the most support from the cooperating agencies. In summary, the Rail Tunnel Alternative was selected as one of the two Preferred Alternatives for the following reason:

- It would improve the regional goods movement across the harbor in the long term and provide numerous regional benefits, while limiting the potential for localized adverse effects to an extent and magnitude that could likely be reasonably addressed by mitigation.

RECOMMENDED IMPLEMENTATION STRATEGY

Based on all of the criteria discussed in this chapter and for all of the reasons described, the Enhanced Railcar Float Alternative, with service between Greenville and Brooklyn, and the Rail Tunnel Alternative were selected as the Preferred Alternatives that are recommended to advance to Tier II environmental review.

As discussed in the DEIS, the Build Alternatives are not mutually exclusive and could be implemented using a phased approach. The recommended implementation strategy would be to take the following steps, many of which could be taken concurrently:

1. Design and environmental review of enhanced carload service as the first stage of the Enhanced Railcar Float Alternative.
2. Construction of the enhancements needed for carload only service.
3. Design and environmental review of the enhancements to the rail corridor needed for intermodal service as the second stage of the Enhanced Railcar Float Alternative, or as a precursor to the Rail Tunnel Alternative.
4. Design and environmental review of the acquisition of land, if needed, and the development of intermodal facilities to support intermodal service with the Enhanced Railcar Float Alternative and/or the Rail Tunnel Alternative.
5. Development of a framework to achieve seamless operation of the Rail Tunnel Alternative when constructed.
6. Design and environmental review of the Rail Tunnel Alternative.
7. Market development for the Rail Tunnel Alternative.
8. Construction of the Rail Tunnel Alternative.

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