FREIGHT RAIL MODERNIZATION:
IMPROVING THE FREIGHT RAIL & TRANSFER FACILITY
AT THE HUNTS POINT TERMINAL PRODUCE MARKET IN
THE SOUTH BRONX, NY

Location: Hunts Point, Bronx, NY
7th District of New York – Urban

Funding requested: $23,000,000

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1. PROJECT DESCRIPTION

The New York City Economic Development Corporation (NYCEDC), in collaboration with the Hunts Point Terminal Produce Market (HPTPM), seeks to modernize the freight rail infrastructure at the HPTPM, in conjunction with a larger project to redevelop the existing warehouse facilities at the market. The HPTPM is New York City’s premiere intermodal produce transfer and distribution facility, unique in that it is one of the few terminal produce markets in North America that receives produce deliveries via rail. The proposed freight rail improvements project will substantially improve the intermodal flow of goods throughout the HPTPM and provide several additional benefits, such as:

1. Efficiency gains for rail operations at the HPTPM;
2. Facilities that enable the HPTPM to take advantage of new trends in rail-based produce deliveries, such as intermodal trailer-on-flatcar (TOFC) service and unit train operations;
3. A new rail alignment and safety enhancements that separate rail and truck operations, which minimize truck and rail conflicts at the facility;
4. An annual emissions reduction of 232 tons of nitrogen oxides, 117 tons of carbon monoxide and over 76,000 tons of carbon dioxide, as well as additional air quality, congestion and safety improvements realized through reductions of almost 58 million truck-related vehicle miles traveled (VMTs); and
5. A new rail alignment that accommodates a future waterfront connection to a new community greenway.

(a) Context

The HPTPM is located in New York City’s Hunts Point Peninsula (Peninsula), a thriving industrial area in the South Bronx with 670 businesses which collectively employ over 13,000 people (see Figure 1). The Peninsula is bound by the Bruckner (I-278) and Sheridan (I-895) Expressways to the north, the Bronx River to the east, the East River to the south, and the East River and 149th Street to the west; more than 150,000 vehicles use these highways every day. Although the Peninsula is served by an active freight rail connection operated by the CSX Railroad, the majority of economic activity in the area is supported through truck traffic; the Peninsula alone generates over 77,000 vehicles per day, including over 12,000 trucks. The New York State Department of Transportation (NYSDOT) projects that truck traffic volumes will increase to 17,000 trucks and 10,200 vans entering the Peninsula during a 24-hour period in 2030.1 Congestion erodes the ability to provide reliable and predictable freight service to and from Hunts Point and leads to vehicles (especially trucks) diverting onto local streets. All of this traffic results in high concentrations of truck activity and diesel engine emissions in the proximity of schools and residences in the South Bronx, which is an Economically Distressed Area.2

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2 See https://www.nysdot.gov/recovery/goals/distressed.
The City’s primary food distribution facility, the 329-acre Food Distribution Center (FDC), occupies almost one half of the Peninsula where over 115 wholesalers generate more than $3 billion in sales annually. The FDC with over 10,000 truck trips per day is one of the largest truck traffic generators in Hunts Point. Traffic flow is constant, occurring 24 hours per day, especially during the very early morning hours. The FDC is anchored by three main distribution facilities: the HPTPM, the Fulton Fish Market and the Hunts Point Meat Market.

(b) The Hunts Point Terminal Produce Market
Opened in 1967, the HPTPM occupies 105 acres within the FDC, and consists of four primary warehouse structures (Buildings A – D), two adjunct warehouses, and various administrative and maintenance structures, making it the largest produce market of its kind in the country. The HPTPM supplies over 60% of New York City’s fresh fruits and vegetables, and 22% of the region’s fruits and vegetables. The HPTPM is operated by the Hunts Point Terminal Produce Cooperative Association, Inc. (Cooperative), a corporation wholly owned by HPTPM tenants (Cooperators), under a master lease, which is administered by NYCEDC on behalf of the City. There are currently 47 Cooperators at the HPTPM, each in direct competition with one another to provide wholesale produce to the region’s grocery stores, bodegas, green carts and restaurants.

As the largest consolidated block of produce wholesalers in the United States, the HPTPM captures an estimated $2.3 billion in revenue per year. As an interim destination for agricultural products grown throughout the United States, the HPTPM moves 9.6 million pallets of produce per year representing 3% of total produce distribution in the United States, giving the HPTPM a volume approximately 75% greater than the Chicago International Produce Market and 162% greater than the Philadelphia Regional Produce Market.

Despite the significant volume of produce and economic activity generated by the HPTPM, however, its future growth is impaired by three major issues: (1) insufficient storage space; (2) the future inability to meet food safety standards, and (3) operating inefficiencies resulting from conflicts between rail and truck deliveries. The HPTPM is currently operating beyond capacity in sub-optimal facilities. Due to warehouse space constraints, roughly 50% of the market’s produce is stored in 600 to 1,000 refrigerated diesel trailers that idle 24 hours a day. This extensive use of flex storage results in higher operating costs, negative impacts on product quality and air quality, and conflicts with rail deliveries when they are parked at the rear docks.

Aging infrastructure and facilities are also making it increasingly difficult for the Cooperators to meet food safety standards. Poor drainage and un-refrigerated front docks, for example, impact product quality and shelf life. Addressing these in a new facility will be critical for maintaining food safety and enabling the HPTPM to attract new customers that require product to be refrigerated, with minimal exposure to ambient temperature, also known as cold chain compliance.
Figure 2. Hunts Point Terminal Produce Market Rail System

County: Bronx
Borough: The Bronx
Neighborhood: Hunts Point
Operating inefficiencies resulting from conflicts between rail and truck deliveries are due to the shared use of rear docks for both inbound truck and rail deliveries. When the railroad makes an inbound delivery of produce by rail to a business in Building A, for example, it must disrupt the rear dock activity of all other businesses in Building A. Regardless of whether those other businesses take rail deliveries themselves, they have to relocate any of their trailers that are parked on the rear docks and therefore blocking the railroad right-of-way. The proposed project to implement rail infrastructure improvements will resolve these types of conflicts by separating rail and truck activity, thereby improving the overall growth of the HPTPM as an intermodal produce transfer and distribution facility.

(c) Rail at the HPTPM
As the New York metropolitan area’s premiere intermodal produce transfer and distribution facility, the HPTPM’s supply chain is expansive, extending into the growing regions of the western, mid-western, and southern United States; Mexico; and South American growing regions. Smaller quantities of produce are also sourced locally from northern New York State and eastern Pennsylvania farms. Over-the-road trucking (OTR) is the mode of choice for almost all of the produce that comes to the HPTPM. For example, in 2004, the most recent year for comprehensive volume calculations, OTR trucking provided 97% of the volume of produce brought into the HPTPM that year. In that same year, the HPTPM also received 4,620 railcars of produce, primarily potatoes, onions and some citrus fruits that originated in the growing areas of California, Oregon, Washington, and Idaho. This annual total represents a volume of approximately 18 railcars a day, equivalent to approximately 49 OTR trucks.

Despite the small volume relative to OTR deliveries, rail plays a vital role in HPTPM operations, providing Cooperators access to an inexpensive transportation alternative for long-haul, cross-country produce shipments, particularly for produce that is extremely dense: potatoes and onions, for example, known in the produce industry as hardware. In the absence of an active rail connection, Cooperators would use OTR trucking to bring this produce to the HPTPM. Because rail transportation is significantly cheaper than OTR trucking, the mode shift to truck would represent a significant increase in costs to Cooperators. Therefore, there is both a business rationale from the Cooperators’ perspective and an environmental policy goal from the City’s viewpoint to maintain and grow rail service to the HPTPM.

In addition to the standard railcar deliveries that are brought directly to the HPTPM, several Cooperators take TOFC deliveries (trailer-on-flatcar), an intermodal service that places truck trailers on railcars (known as flatcars) for their journey across the country. The TOFC operation requires special intermodal facilities for lifting trailers on and off of flatcars. All of the TOFC facilities that serve the New York metropolitan area are concentrated in northern New Jersey.

Because the HPTPM lacks the ability to receive direct TOFC deliveries, trailers with produce destined for the HPTPM must be bought to or drayed to the market by truck from these facilities. This is an additional cost for the Cooperators. In 2004, for example, 5,090 TOFC trailers were drayed from northern New Jersey rail yards to the HPTPM, an average round trip of 26 miles.

A recent study by NYCEDC’s wholesale market consultant ACDS, LLC found that the HPTPM can expect to grow its market share by 20% with the redevelopment of a larger, cold-chain
compliant facility. This growth will lead to a commensurate increase in transportation services to the market. Both NYCEDC and the Cooperative are interested in channeling much of that transportation increase to rail. According to NYCEDC’s transportation consultant, Cambridge Systematics, the HPTPM has the potential to double the amount of standard railcar deliveries from 4,620 to 9,240 annual carloads and capture a significant amount of TOFC deliveries if several operational and state-of-good-repair issues associated with the HPTPM rail system are addressed.

(d) Rail Operations
Rail spurs run along the rear docks of Buildings A, B, C and D (see Figure 2). An area to the east of Building D, known as the Team Track Area, features several long tracks which are used to stage railcars for switching in and out of the spurs. A sub-tenant also utilizes a portion of the Team Track Area for a transload operation where bulk flour is transferred from railcars to trucks.

Rail service is provided by CSX Transportation five days a week via the Oak Point Rail Yard in the South Bronx, which is located approximately 1.6 rail miles from the HPTPM. As previously mentioned, approximately 18 new railcars arrive each day. A rail shift at the HPTPM consists of the rail crew switching out empty railcars with the new, loaded railcars. Railcars are placed on the rear docks of the appropriate Cooperate and subsequently emptied, their contents being incorporated into that Cooperate’s sales inventory. If a Cooperate purchases a quantity of railcars that exceeds their available rear dock space, those railcars are held in the Team Track Area until additional space is made (this usually occurs the following day after a series of railcars have been unloaded on the rear docks and can be moved out of the way to accommodate the new railcars).

(e) Challenges
According to Cambridge Systematics, growth projections for the HPTPM anticipate a doubling in railcar demand with the redevelopment of the market. This translates to 9,240 railcars a year or about 36 loaded railcars a day (assuming a five-day service week). Therefore, in order to accommodate both loaded and empty railcars, there must be a daily capacity at the HPTPM for over 70 railcars. The Market’s ability to serve both the existing and projected rail traffic volumes, however, is limited by several design and operational challenges. These are described below.

1. Rail- Truck Conflict
As mentioned, the rear docks of each building serve as both rail and truck docks. This “dual design,” adopted after the produce industry shifted the majority of its transportation operations from rail to trucking, creates an inherent conflict for market operations. The rail right-of-way is embedded in asphalt, allowing tractor trailers to back up to the rear dock on any of the main buildings. The trailers are often unhooked or “dropped” at the dock for the Cooperate to access. The side effect of the truck operation on the rear docks is that each rail spur is blocked by trailers parked perpendicularly over the tracks.

When CSX arrives to service the HPTPM, any trailers blocking the spur must be pulled away from the rear dock. Then, after the railroad serves a particular building, the same trailers must be pushed back to the dock. HPTPM operations staff estimates that at least 150 trailers must be
moved on any given rail day. This represents a significant disruption to operations at the
HPTPM. Cooperators cannot access any of the produce that remains in their trailers and the
railroad must spend a significantly longer amount of time servicing the facility. A private
drayage company with an exclusive contract at the HPTPM conducts the “pull away and push
back” trailer operation when the railroad comes to serve the facility, taking anywhere from 45
minutes to an hour and a half to clear one spur. The cost to move a trailer in the custody of a
Cooperator is borne by the Cooperator himself, regardless of whether they are using the rail
system or not. This cost is $50 per trailer.

2. Subsidence
The HPTPM sits on an area of fill that dates back to 1967. Subsidence—a slow settling of the
surface—throughout the facility is common, however it is more prevalent along each of the rail
spurs. The weight of railcars over the years has caused the subgrade to sink anywhere from 6 to
14 inches. This subsidence means that the floor of the railcar no longer aligns with the floor of
the rear dock, creating a significant obstacle for Cooperators when unloading pallets of produce
that each weighs thousands of pounds. Cooperators have conquered the differential through
makeshift solutions, but these solutions have a finite life. Conditions continue to worsen as the
subsidence continues and the solution that works today has no guarantee of working tomorrow.

The Cooperative spends approximately $90,000 annually for inspection and maintenance of the
rail system throughout the HPTPM. In the past several years, upgrades to ties, turnouts and
switching blocks have been made. Still, the subsidence issue is of such a magnitude that the
Cooperative cannot address it comprehensively. Estimates to repair the rail and road between
Buildings B and C, for example, have come in at approximately $8 million, a number that far
exceeds the Cooperative’s financial capacity.

(f) Trends in the Rail Industry
The HPTPM is not positioned to take advantage of new trends in rail-based produce
transportation, namely unit trains, which are dedicated “express” trains, and TOFC deliveries.
While the railroads have lost a significant share of the produce transportation market, over the
past several years they have made an effort to win some of that traffic back and have met with
some success. Union Pacific Railroad, a western railroad that reaches a large percentage of the
country’s major growing regions in California, Idaho, Oregon and Washington, is leading this
effort. The railroad has rehabilitated its existing refrigerated boxcar fleet and purchased almost
1,500 new, large-capacity refrigerated boxcars, the first major refrigerated boxcar purchase in the
industry in over 20 years.

Standard rail operations feature refrigerated boxcars operating in mixed trains to Chicago, IL
where they are handed off from the Union Pacific Railroad to CSX to continue the journey east.
While the two railroads continue to operate and pursue this type of loose carload traffic, the
emergence of a new third-party distributor/consolidator—Railex, LLC—has begun to
fundamentally change the manner in which rail-based produce deliveries are conducted. The
railroads have partnered with Railex to provide dedicated express trains between the East and
West Coasts that are guaranteed to make the journey in five days. These express trains—known
as unit trains—are a vast improvement over standard rail operations, which cannot offer travel
times of less than 10 days for the same trip. In exchange for the rail service, Railex offers to load
and unload the trains at centralized transfer facilities and provide customers truck transportation between their facilities and their origin and destination points.\(^3\)

In 2006 Railex opened an East Coast transfer facility in Rotterdam, NY near Albany. This facility is capable of unloading a 55-car unit train of produce in less than 24 hours and features interim storage space for produce while it awaits truck transportation to its final destination. Several Cooperators at the HPTPM take advantage of the service, trucking the produce on its final leg from Rotterdam to the Bronx.

Railex has expressed an interest in routing railcars directly to the HPTPM, yet the Produce Market lacks the ability to unload a large number of railcars quickly and efficiently. The rail spurs alongside each building feature adequate capacity for a long string of refrigerated boxcars, however, the rear docks at the HPTPM are privately controlled by the individual Cooperators. The docks generally lead directly into each Cooperator’s private warehousing space and are not adequately suited for the high-velocity intra-market transport needs of a Railex-type operation.

In addition to unit train operations, produce also continues to trend toward the TOFC service described in a previous section. Because the HPTPM lacks the appropriate intermodal facility to lift trailers on and off of flatcars, the flatcars must be routed to facilities in northern New Jersey and the trailers must be trucked to Hunts Point.

(g) Project
Following the completion of a market analysis in 2008, NYCEDC and the HPTPM Cooperative have analyzed several rail design options that preserve existing railcar volumes and address future growth in rail-based produce deliveries. The proposed project seeks to ameliorate the aforementioned challenges through four main design elements.

1. New common rail receiving facility;
2. TOFC intermodal transload facility;
3. Rail yard parallel to the Bronx River for staging; and
4. Rehabilitated rail spurs to Buildings A and B.

First, rail deliveries will be consolidated at a new common rail receiving facility that seeks to separate rail from truck operations. This common facility will be designed with rail tracks immediately adjacent to the facility, to accommodate the “loose carload” deliveries that are occurring today, as well as unit train deliveries should a third-party distributor/consolidator like Railex begin to service the HPTPM. The receiving facility will feature adequate dock space and interior refrigerated storage for unloading and temporarily storing the high freight volumes associated with railcar deliveries until the produce is transferred to buyer trucks.

In the current market, produce inventory turns every 24-36 hours. It is anticipated that refrigerated warehouse space in the new facility will continue to serve as temporary storage and facilitate the transfer of produce from inbound rail to outbound truck delivery. By relocating

\(^3\) *Market to Market*, a television program produced by Iowa Public Television, recently featured the Railex operation in a two-part series that can be viewed online: [http://www.iptv.org/video/detail.cfm/3850/mton_20090522_3438_2](http://www.iptv.org/video/detail.cfm/3850/mton_20090522_3438_2).
existing rail to a new common rail receiving area, it is anticipated that the truck-rail conflict at the HPTPM will be significantly reduced.

The second design element features a small TOFC intermodal transload facility comprised of two long tangent tracks surrounding a large asphalt pad for staging and lifting trailers on and off flatcars. This facility would allow the HPTPM to receive TOFC deliveries directly instead of draying those deliveries from northern New Jersey. The intermodal facility will also serve as storage capacity for inbound produce from rail and outbound produce from trucks, thereby providing for excess storage needs.

The third element includes a small yard constructed parallel to the Bronx River that will provide staging capacity for railroad operations. The yard features two long receiving/departure tracks, two through tracks for storage and an additional stub track on the east side of the facility for storage. Notably, the relocation of these rail tracks will allow for the future development of bicycle and pedestrian infrastructure, known as the “Lafayette Loop,” which is part of the larger South Bronx Greenway project in the area.

Fourth, the rail spurs to Buildings A and B will be rehabilitated to correct subsidence along these tracks. Although rail deliveries will be consolidated at the common rail receiving facility, NYCEDC and the HPTPM do not want to eliminate the rail access to Buildings A and B should the need for overflow capacity be necessary.

Altogether, the rail improvement project includes rail, ties, and switches needed to construct approximately 24,000 feet of new rail infrastructure and rehabilitate 8,500 feet of existing rail. The project will create a capacity for almost 275 refrigerated boxcars and intermodal TOFC flatcars throughout the facility, as described in Table 1.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Railcar Type</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Rail Receiving Facility</td>
<td>64’ Refrigerated Boxcar</td>
<td>48</td>
</tr>
<tr>
<td>Intermodal TOFC &amp; Storage Facility</td>
<td>89’ Intermodal Flatcar</td>
<td>40</td>
</tr>
<tr>
<td>Storage Yard</td>
<td>64’ Refrigerated Boxcar</td>
<td>98</td>
</tr>
<tr>
<td>Buildings A and B (Overflow)</td>
<td>64’ Refrigerated Boxcar</td>
<td>88</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>274</strong></td>
</tr>
</tbody>
</table>

By maximizing freight rail transportation at an improved transfer facility at the HPTPM, NYCEDC intends to decrease the effects of truck traffic on the environment and the surrounding community, and modernize current wholesale distribution and business operations. This translates to a better bottom line for Cooperators, as well as improved air quality and livability for the surrounding communities.

(h) Cost and Amount of TIGER Grant Request
The total proposed rail infrastructure work is estimated at $23,000,000 and is part of a larger multi-million dollar project to redevelop and create an intermodal produce transfer and distribution facility (see Table 2 on the following page for a detailed construction budget). NYCEDC is requesting the full $23 million in this TIGER grant request. It is anticipated that the freight rail infrastructure improvements will sustain existing jobs, and support the City’s
economic development strategy to improve freight rail at the HPTPM, which would anchor the FDC as the food hub for the greater metropolitan and northeast region. The proposed project is estimated to take about 24 to 30 months to design and construct.

Table 2. HPTPM Freight Rail Improvements Project Construction Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railroad Track (Tie Plates, Spikes, Track bolts)</td>
<td>$ 6,735,200</td>
</tr>
<tr>
<td>7&quot; Rail Ties (Pressure Treated)</td>
<td>$ 655,200</td>
</tr>
<tr>
<td>3/4&quot; Aggregate Ballast Stone (7&quot; Thick)</td>
<td>$ 294,140</td>
</tr>
<tr>
<td>Turnouts</td>
<td>$ 4,550,000</td>
</tr>
<tr>
<td>8&quot; dia. Half Round Perforated Pipe w/Steel Casing</td>
<td>$ 37,500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$12,272,040</strong></td>
</tr>
<tr>
<td>General Conditions, Insurance and Bonds, OH&amp;P (20% of CC)</td>
<td>$ 2,433,726</td>
</tr>
<tr>
<td><strong>Hard Cost Subtotal w/o Contingencies</strong></td>
<td><strong>$14,705,766</strong></td>
</tr>
<tr>
<td>Leed Premium (Silver 5%)</td>
<td>$ 735,288</td>
</tr>
<tr>
<td>Construction Contingency (10% of CC)</td>
<td>$ 1,544,105</td>
</tr>
<tr>
<td>% of CC assigned for Scope Contingency (A)</td>
<td>10%</td>
</tr>
<tr>
<td>Scope Contingency</td>
<td>$ 1,698,516</td>
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<tr>
<td><strong>Hard Cost Subtotal w/ Contingencies</strong></td>
<td><strong>$18,683,676</strong></td>
</tr>
<tr>
<td>Design Cost (5% of CC)</td>
<td>$ 934,184</td>
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<tr>
<td>CM/REI (3% of CC)</td>
<td>$ 588,536</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$20,206,395</strong></td>
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<tr>
<td>Escalation to Mid-point of Construction</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$23,035,291</strong></td>
</tr>
</tbody>
</table>

2. PROJECT PARTIES

The freight rail infrastructure improvements project is a collaboration between the New York City Economic Development Corporation (NYCEDC) and the Hunts Point Terminal Cooperative Association, Inc., which operates the HPTPM.

NYCEDC is New York City’s primary vehicle for promoting economic growth and development. NYCEDC is responsible for comprehensive economic and industrial real estate development services throughout the five boroughs. NYCEDC is a 501(c)3, not-for-profit, economic development corporation that works along side the New York City Department of Small Business Services (SBS) to stimulate investment in New York and broaden the City’s tax and employment base, while meeting the needs of businesses large and small. To realize these objectives, NYCEDC uses its real estate and financing tools to help companies that are expanding or relocating anywhere within the city while simultaneously designing and implementing capital projects that stimulate economic growth of the City’s economy.

Examples of recently completed NYCEDC capital projects include the $158 million construction of Manhattan’s Whitehall Ferry Terminal for the Staten Island Ferry, the $80 million
rehabilitation and reopening of freight rail operations on the Staten Island Railroad and the completion of the $86.2 million Section One of the High Line, an innovative new public park built on a 1930s-era elevated freight rail line. More information on NYCEDC projects can be found at www.nycedc.com.

NYCEDC promotes the improvement, maintenance, and development of the City’s primary food distribution facility at Hunts Point, also known as the Hunts Point Food Distribution Center (FDC) in the South Bronx. The HPTPM occupies 105 acres within the FDC, and is owned by New York City by way of NYCEDC, which will be the grant recipient. The HPTPM is operated by the Hunts Point Terminal Produce Cooperative Association, Inc. (Cooperative), a corporation wholly owned by HPTPM tenants (Cooperators), under a master lease, which is administered on behalf of the City by NYCEDC. There are currently 47 Cooperators at the HPTPM.

NYCEDC is applying for this TIGER grant on behalf of the Cooperative in support of the freight rail infrastructure improvements project. Under this proposal, NYCEDC would be responsible for the design and construction of the aforementioned freight rail assets. The Cooperative would be responsible for maintaining them. A letter of support from the Cooperative can be found in 0.

3. **SHOVEL READY CRITERIA**

(a) Project Schedule
NYCEDC is prepared to move the proposed freight rail improvements project toward construction as soon as funding is approved. A preliminary design schematic has been completed, therefore construction design may begin in the fourth quarter of 2009 (see Table 3 below). Final design approvals are anticipated by the third quarter of 2010, after which a Request for Proposals (RFP) for construction will be prepared and issued. The process to award a contract for construction will take place over the fourth quarter of 2010. Construction will commence in 2011 and will continue through the first quarter of 2012. The funds will be spent steadily and expeditiously once construction begins.

<table>
<thead>
<tr>
<th>Year/Quarters</th>
<th>Project Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009/Q4</td>
<td>Complete schematic project design plans</td>
</tr>
<tr>
<td>2010/Q1-Q3</td>
<td>Complete and obtain approval of final design plans</td>
</tr>
<tr>
<td>2010/Q4</td>
<td>Construction RFP preparation and selection process</td>
</tr>
<tr>
<td>2011/Q1-Q4</td>
<td>Construction</td>
</tr>
<tr>
<td>2012/Q1</td>
<td>Construction</td>
</tr>
</tbody>
</table>

The proposed project is expected to create a total of 276 jobs over the lifetime of the project. Direct, on-project construction jobs are estimated to be about 150, while indirect, ancillary jobs will be about 126 once the project is underway.

(b) Environmental Approvals
Because the freight rail infrastructure improvement project at the HPTPM will take place within the existing freight rail right-of-way and is entirely contained within one industrial parcel, it is considered a categorical exclusion, which does not require any NEPA documentation or FHWA
approvals as set forth in 23 CFR 771.117(c). Thus the proposed project is exempt from having to undergo any environmental approvals.

(c) Legislative Approvals
No legislative approvals are required for the proposed project to proceed to construction.

(d) State and Local Planning
The proposed project is in the process of being approved for inclusion on the Transportation Improvement Program (TIP) and State TIP (STIP).

(e) Technical Feasibility
Preliminary design work for the proposed project has already begun and is expected to be completed in the fourth quarter of 2009, with the final design approval process to be completed in the first quarter of 2010. Preliminary engineering work will commence at that time. There are no right-of-way (ROW) acquisition issues to contend with as the ROW is in the possession of the City of New York.

(f) Financial Feasibility
Upon receipt of a TIGER grant, the proposed project will be fully funded and may proceed to completion. A contingency reserve has been built into the overall project budget.

4. GRANT FUNDS

Table 4 highlights the grant funds requested under the proposed freight rail improvements at the HPTPM.

<table>
<thead>
<tr>
<th>Element</th>
<th>TIGER funds requested</th>
<th>State Funds (source)</th>
<th>Fed funds (source)</th>
<th>Local Funds (source)</th>
<th>TOTAL FUNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Approval/Env. Document</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Plans, Specs, and Estimates</td>
<td>$3,000,000</td>
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<td>$0</td>
<td>$0</td>
<td>$3,000,000</td>
</tr>
<tr>
<td>ROW (capital and support)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Construction (capital and support)</td>
<td>$20,000,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$20,000,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$23,000,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$23,000,000</td>
</tr>
</tbody>
</table>
5. PRIMARY SELECTION CRITERIA

(a) Long Term Outcomes

1. State of Good Repair
The proposed freight rail improvements project at the HPTPM ties in directly with the long-term goals of the City and the State, as evidenced by their respective long-term plans. *PlaNyc*, the City of New York’s 25-year sustainability plan announced by Mayor Michael R. Bloomberg in 2007, identifies reaching a state of good repair on the City’s roads, subways and rails as a primary transportation goal. Facilitating freight movements is also a key component of the transportation initiatives outlined in the plan. Rehabilitation of the rail infrastructure at the HPTPM will bring the system to a state of good repair, which is imperative to maintain and grow existing and future freight movements by rail. Additionally, because the project works to promote a safe operating environment through a state of good repair that preserves and expands a portion of the existing freight rail system in the service of intermodal transportation, the project is also consistent with five of the six overarching goals of the 2009 New York State Rail Plan. Having access to the freight rail system is imperative to many of the Cooperators. If, for example, they were forced to use trucks in the absence of rail, they would do so at an additional annual cost of over $16 million (see Table A-2, Appendix A). As previously mentioned, subsidence along key portions of the HPTPM’s rail system and an inability to accommodate new trends in rail-based produce deliveries represent a threat to present and future freight rail service, jeopardizing future economic growth at the facility.

Because the project will be carried out by NYCEDC and maintained by the HPTPM as a term of its lease with the City, sufficient and sustainable revenues will be available for long-term operations and maintenance of the freight rail improvements project. NYCEDC’s Asset Management group oversees the lease and monitors maintenance on the site. Furthermore, CSX operations over the HPTPM rail system are contingent upon a high maintenance standard.

Although most of the HPTPM’s 25,000 feet of existing rail infrastructure has been in place since the Market’s original opening in 1967, the rail assets have been well-maintained, subsidence issues notwithstanding. The Market devotes approximately $90,000 each year to rail inspections and maintenance. This includes tie replacement, rail resetting, switch stand upgrades and grade crossing repair. The freight rail improvements project will benefit from the years of expertise the HPTPM and its rail crews have in maintaining rail facilities to an extremely high standard.

2. Economic Competitiveness
The proposed freight rail improvements project is located in Hunts Point in Bronx County, which qualifies as an Economically Distressed Area (EDA). Hunts Point is located in the poorest

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6 See [https://www.nysdot.gov/recovery/goals/distressed](https://www.nysdot.gov/recovery/goals/distressed).
congressional district in the nation (NY-16), and as of May 2009, the unemployment rate was 10.8%, higher than both New York City (9%) and the national rate (9.4%)\(^7\). Furthermore, per capita income in Hunts Point was less than $30,892, which is 80% or less than the national average. It is critical to retain, and to the extent possible, increase high-wage jobs in this area.

The proposed freight rail improvements project is estimated to improve the long-term efficiency and cost-competitiveness goals in the movement of produce because it will preserve existing freight rail traffic volumes through rehabilitating the rail system and provide for future growth through a fully functional multimodal facility that can handle unit trains and TOFC deliveries of produce, a capability the HPTPM does not possess today. Furthermore, the project will separate and resolve existing rail-truck traffic conflicts that plague market operations.

Approximately 3% of the HPTPM’s goods, or 4,620 railcars of produce, are delivered by rail each year. This is equivalent to more than 12,600 over-the-road (OTR) tractor trailers. With the proposed project, NYCEDC seeks to expand rail capacity in a new facility to accommodate a doubling of annual railcar volumes to 9,240, reducing almost 58 million annual truck miles. In addition, a redeveloped HPTPM facility with expanded and more efficient freight rail service would reduce the need for truck drayage, and thereby, reduce costs to the Cooperators. For example, the HPTPM stands to save an estimated $1.9 million each year once the rail-truck conflict at the rear docks is eliminated (see Table A-1, Appendix A). Furthermore, Cooperators benefit through the pricing efficiencies of rail service. If, for example, the rail facility at the HPTPM could not grow to meet future demand, Cooperators would be forced to utilize OTR trucking to meet their transportation needs. The cost difference between OTR truck and freight rail is so significant, however, that, were the Cooperators forced to use trucks to bring the equivalent amount of produce those 4,620 railcars would bring, they would be paying an additional $16 million in annual transportation costs (see Table A-2, Appendix A). Thus, these improvements will increase the efficiency of wholesale distribution activities and facilitate expanded rail utilization at the market, while also creating environmental health benefits for Hunts Point residents.

The efficiencies of the project are not exclusively felt by the Cooperators. The railroads themselves also benefit from the proposed freight improvements project. CSX, for example, will be able to serve the facility in 2/3 the time it takes now, shaving approximately two hours off of each rail day. This allows the railroad to repurpose its crew and locomotives to do other work in the South Bronx. Over the course of a year, the operational savings add up to approximately $82,000 in labor, fuel and locomotive costs (see Table A-6, Appendix A).

Additionally, improvements in the rail infrastructure will result in faster average dwell time for refrigerated boxcars on the site. Today, a boxcar stays on the property for an average of four days. The common rail receiving facility, however, will require quick “turn times” for railcars. Thus, the new rail design will permit a railcar turn time (receive, unload and turn back to the railroad) of 24 hours or less. Additionally, a portion of the overall railcar business may be handled by Railex, which has expressed an initial interest in operating 20 railcars a week to the HPTPM.

\(^7\) New York State Department of Labor.
A faster turn time for all railcars and faster transit times for the volume handled by Railex translates into more revenue trips per railcar per year for Union Pacific, the railroad that owns the refrigerated boxcars. The railroad will not be required to deploy as many boxcars in service to the HPTPM and can therefore reposition the surplus railcars to other customers throughout its system. The proposed freight rail improvements project at the HPTPM could free up as many as 104 railcars which could be used elsewhere to bring in additional revenue to the railroad. A conservative estimate, based on industry averages, shows that the railroad could earn over $5 million in additional revenues with those 104 railcars (see Table A-4, Appendix A).

The proposed project will facilitate the redevelopment of a new market facility, thereby providing an opportunity for the HPTPM’s economic growth and expansion in Hunts Point. According to ACDS, LLC, the HPTPM’s market share is projected to increase by 20%, by capturing latent demand that is currently served by competitors; serving future increases in per capita consumption; and attracting new retailers that require higher food safety standards, particularly cold chain compliance. This increased market share is projected to be maintained over the life of the new facility, since the large number of small retailers and strong ethnic communities would have a continuing need for the wholesale services provided by the HPTPM. Also, per capita produce consumption is projected to increase by 50% in produce volume to the region by 2036. Maintaining increased market share would translate into a substantial increase in the physical volume of sales at the facility over the next 30 years.

The existing market employs about 3,000 workers in high-wage jobs for warehousemen, truckers, clerks, maintenance, and office workers. The average annual salary is approximately $77,000, according to the Bureau of Labor Statistics. The redevelopment project will seek to retain those existing jobs in Hunts Point, since greater operating efficiencies from a new market could minimize the potential for job creation.

3. Livability
The proposed freight rail improvements project seeks to improve community life in Hunts Point by reducing overall truck trips to and from the HPTPM and therefore reducing congestion on the existing Hunts Point road network and improving air quality in the community. It will also enhance quality of life for residents on the Peninsula by creating space for a community river walk along the waterfront facing the Bronx River. These benefits all fit within the context of the community-driven Hunts Point Vision Plan and the South Bronx Greenway Master Plan.

With 670 businesses and over 13,000 employees, the Hunts Point Food Distribution Center is a thriving industrial location in the South Bronx. At least 12,000 trucks rumble through or around the South Bronx each day, many of them driving to and from the HPTPM. Specifically, 2,359 tractor trailers and light trucks bring produce to the HPTPM per day (assuming a six-day work week) for an annual total of 736,000 truck trips. This truck traffic contributes to pollution in communities along New York State interstate highways, New York City streets, and especially, the Hunts Point residential community, which is an Economically Distressed Area.

If the HPTPM were to increase its use of freight rail, hundreds of trucks could be taken off the roads and replaced by rail deliveries. In 2004, for example, there were a total of 4,620 railcars traveling exclusively into the HPTPM. That annual railcar volume translates into roughly 18
railcars per day,\textsuperscript{8} which is equivalent to an estimated 49 truckloads per day. A doubling of freight rail volumes would therefore make a significant impact on the overall number of trucks coming into the Peninsula.

Reducing truck volume into the Peninsula would also help improve public health for South Bronx residents. The South Bronx also has among the highest incidences of asthma hospital admissions in New York City, and Hunts Point has one of the highest asthma rates in the country, more than 17\% higher than the national average. Childhood asthma rates are even higher at 33\% over the national average. According to state health data, Hunts Point has the highest rates of adult and child hospitalizations for asthma – approximately three times the statewide rate. The Bronx also has the highest rate of emergency department visits and deaths due to asthma.\textsuperscript{9} Indeed, a recent city survey of asthma in the Hunts Point school district found an asthma prevalence rate in elementary schools of 21 to 23\%. Furthermore, there is increasing evidence from both occupational and epidemiological studies that a significant correlation exists between diesel exhaust exposure and childhood asthma.\textsuperscript{10}

This public health crisis is of paramount concern to local residents and businesses in Hunts Point. Increasing rail deliveries to the HPTPM would move trucks off the roads, thereby decreasing diesel emissions, which in turn, would contribute to the improved health of the larger Hunts Point community. While diesel freight trains still emit diesel emissions, the rate is far below the rate of truck-related emissions.

In addition to the congestion and air quality benefits inherent in the freight rail improvements project, the project will also provide space to complete a portion of the South Bronx Greenway. In November 2006, Mayor Michael R. Bloomberg unveiled the South Bronx Greenway Master Plan, which aims to create a network of recreational trails that are compatible with the mixed residential/industrial environment in the Hunts Point peninsula, an area underserved by green spaces. The first phase of the Greenway will begin construction in 2010. When completed, the Greenway will provide 1.5 miles of new waterfront greenway, 8.5 miles of new green streets, and nearly 12 acres of new waterfront open space in the South Bronx neighborhoods of Hunts Point and Port Morris. Portions of the South Bronx Greenway will also connect to the evolving East Coast Greenway, which will stretch from Florida to Maine.

The proposed project will set-aside a 30-foot easement for the future implementation of a new pedestrian and bicycle pathway known as the “Lafayette Loop” along the waterfront of the HPTPM site. This Loop will help minimize vehicular and rail crossing conflicts while maximizing pedestrian and bicycle safety. The existing rail tracks at the HPTPM currently interrupt the waterfront edge condition, making it impossible to locate any pathway or public amenities. Thus, one component of the proposed freight rail improvements project will be to relocate the existing rail in order to facilitate the pathway, which will provide 2,200 linear feet of new public waterfront space alongside the relocated tracks. The resulting pathway will provide a direct east-west connection from the existing Hunts Point Riverside Park, which offers 1.4 acres

\textsuperscript{8} Assuming rail deliveries occur five days a week.  
\textsuperscript{9} See http://www.state.ny.us/governor/press/press_1125081.html.  
\textsuperscript{10} See http://www.eri.ersjournals.com/cgi/content/full/27/2/359 and http://toxsci.oxfordjournals.org/cgi/content/full/102/1/76.
of direct waterfront access and other recreational facilities, to the Greenway’s proposed North Market Loop, which will comprise a 1,930-foot long stretch of waterfront at the mouth of the Bronx River.

4. Sustainability
The proposed freight rail improvements project is expected to reduce both fuel dependence and greenhouse gas emissions. Because the impacted trips represent cross-country hauls across a number of states, the reduced fuel and greenhouse gas benefits will be felt at a national level. Still, modernized freight rail transportation to an improved HPTPM will reduce the localized effects of truck traffic on the environment and the surrounding community.

The freight rail improvements project will allow the HPTPM to double the number of annual carloads of produce to the Market, avoiding almost 58 million annual VMTs\(^{11}\) that would be generated by OTR trucks transporting the same amount of produce. Taking a look at the net benefit of substituting rail trips for truck trips, almost 8.9 million gallons of diesel fuel would be saved by the project\(^{12}\) (see Table A-3, Appendix A). Using 2009 average retail prices for a gallon of diesel ($2.35), those 8.8 million gallons represent an annual savings of over $20 million.

In addition to the fuel saved, the project also represents a reduction in greenhouse gas emissions (see Appendix B for details calculations). The 58 million avoided VMTs translate into an annual net reduction of over 76,000 tons of carbon dioxide, 232 tons of nitrogen oxides and 117 tons of carbon monoxide among other criteria pollutants\(^ {13}\) (see Table 5). While the air quality improvements associated with the project will be felt nationally, it is especially important to Hunts Point where at least 12,000 trucks rumble through or around the South Bronx each day.

<table>
<thead>
<tr>
<th>NOx</th>
<th>PM10</th>
<th>PM2.5</th>
<th>VOC</th>
<th>CO</th>
<th>CO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>232.80</td>
<td>5.82</td>
<td>5.39</td>
<td>8.88</td>
<td>117.00</td>
<td>76,736.05</td>
</tr>
</tbody>
</table>

As part of the Bruckner/Sheridan reconstruction project, the New York State Department of Transportation (NYSDOT) found that typically 12,900 trucks and 6,500 vans entered the Hunts Point peninsula from the surrounding road network during a 24-hour period in 2003.\(^ {14}\) Given the growth of industrial activity in Hunts Point, NYSDOT projects that truck traffic volumes will increase to 17,000 trucks and 10,200 vans entering the Hunts Point peninsula during a 24-hour period in 2030. All of this traffic results in high concentrations of truck activity and diesel engine emissions in the proximity of schools and residences in the South Bronx.

Currently, 2,359 tractor trailers and light trucks bring produce to the HPTPM per day (assuming a six-day work week) for an annual total of 736,000 truck trips. Approximately 47 tons of carbon monoxide, 4 tons of hydrocarbons, 8.8 tons of nitrogen oxides, and 281,000 grams of

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\(^{11}\) This is based on a hypothetical trip from Pocatello, ID—the largest city nearest Idaho’s potato growing region—and New York City, a total trip distance of 2,295 one-way miles (see text following Table B-7, Appendix B).

\(^{12}\) This is a net calculation which takes into account locomotive fuel consumption.

\(^{13}\) This is a net calculation which takes into account locomotive emissions.

particulate matter are generated by truck traffic and refrigerated truck storage at the HPTPM in a given 24-hour period, contributing significantly to air pollution in communities along the greater tri-state interstate highways, New York City streets, and the Hunts Point residential community.

Any reduction of greenhouse gas emissions within Hunts Point must be seen as a step in the right direction. By providing the capacity and infrastructure necessary to double the volume of railcar deliveries to the HPTPM, the freight rail improvements project delivers measurable air quality improvements to the community. The benefits, however, do not solely apply to the South Bronx however. Because the cross-country rail trips are replacing cross-country truck trips, the air quality benefits may be quantified from California to New York.

5. Safety
The proposed freight rail improvements project is expected to improve safety in two ways. First, the reduction in VMTs brought about by freight rail activity on the national interstate system will generate safety benefits for drivers. Second, the separation of rail and truck traffic in the design of the rail facility will lead to safer operating conditions inside the HPTPM.

Using a cost estimation model developed by the FHWA, the 58 million avoided VMTs translates into direct safety benefits for interstate drivers who would otherwise be impacted by the OTR truck trips to/from the U.S. growing regions in California, Idaho, Oregon and Washington to the HPTPM. The freight rail volume increases made possible through the freight rail improvements project would eliminate over $9 million in annual pavement damage, over $2.5 million in annual costs associated with congestion, over $525,000 in accident costs and over $300,000 in annual costs due to noise impacts (expressed in 2000 dollars; see Table A-10, Appendix A). More importantly, however, the project would deliver an annual benefit of over $7.7 million in avoided fatalities (see Appendix C).

Safety within the HPTPM itself will also improve as a result of the project. Because accidents are often a function of the amount and type of work being conducted, more efficient practices that require fewer operations and resources will translate into fewer incidents on the job. As a result, the elimination of the truck-rail conflict on the property will prevent the need to dray trailers away from the buildings, a potentially dangerous operation that requires significant maneuvering on the property.

(b) Benefit/Cost Analysis (BCA)
The analysis of benefits and costs of the freight rail modernization project can be categorized into three components: (1) traditional transportation benefits, such as reduced VMT and fuel savings; (2) social benefits, including improvements to safety and the reduction of pollutants; and (3) increased regional economic output and potential additional revenues to the railroad due to increased efficiencies at the HPTPM. For estimates of efficiency gains, see the annual cost reductions to the Cooperators and potential additional annual revenues to the railroad in Appendix A. For an explanation of VMT and emissions reductions, see Appendix B. For information on the methodology and inputs used in the analysis of costs and benefits over the 20 year period following project completion, see Appendix C.

Traditional transportation benefits include reduced VMTs and fuel savings. Over the 20 year period following the completion of the project, we estimate that the modernized rail infrastructure will result in over 1.1 billion fewer VMTs compared to the no-build scenario. This is equivalent to almost 58 million fewer large truck VMTs each year. This VMT reduction equates to almost 8.9 million gallons of fuel savings annually, or 177 million gallons for fuel savings over the 20-year period of analysis. The 20-year value of fuel savings is $513 million dollars. This value is net of the value of federal and state taxes on fuel, but includes the costs imposed by monopsony and oil supply disruption externalities, as estimated by the Federal Highway Administration’s analysis of Corporate Average Fuel Economy Standards.\(^5\)

Social benefits of the freight rail modernization project include avoided costs of wear and tear on highways, a reduction of costs caused by congestion, noise pollution, and crashes,\(^6\) and a reduced number of fatal accidents. By taking trucks off the roads, the project will reduce the cost of wear and tear on highways by an estimated $138 million (NPV) over the 20-year period of analysis. The net present value of reduced congestion, noise, and crashes over the same time period is $37 million, $5 million, and $8 million, respectively. The analysis also estimated the value of reduced fatalities based on the statistical frequency of fatal accidents per 100 million large truck vehicle miles traveled.\(^7\) Over the course of twenty years following the completion of the project, an estimated benefit of $97 million worth of fatalities avoided is realized.\(^8\)

The analysis also estimates the dollar value of reduced emissions of pollutants such as carbon dioxide (CO2), nitrogen oxides (NOx), particulate matter (PM 2.5 and PM10), and volatile organic compounds (VOC). The combined net present value benefit of reduced CO2, NOx, PM, and VOC is $77.4 million over the 20 year time period following completion of the project. The emissions benefits are net of additional emissions created by increased rail operations.

The freight rail modernization project at the HPTPM will stimulate the local economy by reducing production costs for wholesalers at the market and thereby increasing their efficiency. Cost savings to the produce wholesalers include the savings of utilizing rail delivery services rather than truck and the savings realized by avoiding the drayage costs incurred due to the truck-rail conflict at the market docks.\(^9\) Using Regional Economic Models, Inc. (REMI) software, we input the producer cost savings to understand how the lower costs will affect the New York City economy. Our estimate is that City output, defined as increased production in the regional economy, including all intermediate goods purchased as well as value-added to the economy

\(^{16}\) See a discussion of the externalities of fuel consumption in Chapter VIII of the Final Regulatory Impact Analysis of the National Highway Traffic Safety Administration’s rulemaking on Corporate Average Fuel Economics (CAFE) for Model Year 2011.

\(^{17}\) See Table A-7 and Table A-10 in Appendix A for information about how these parameters are measured.

\(^{18}\) Information on the methodology behind the avoided fatalities calculation can be found in Appendix C.

\(^{19}\) There may be some overlap between the benefits of reduced crashes, as calculated through the FHWA study, and avoided fatalities, as calculated through the U.S. DOT report. However, the cents per mile value of avoided crashes measures factors such as increased traffic without regard to the seriousness of the crash or the incidence of injury or fatality, while the value of avoided fatalities counts the value of human lives saved by removing large trucks from the roads.

\(^{20}\) A portion of the value of these production savings is a direct result of the fuel savings realized by using train deliveries rather than trucks. Therefore, there is certainly some overlap between the value of the economic output benefit and the fuel savings benefit described above.
(compensation and profit), will increase as a result of the freight rail modernization project by approximately $406 million over the period considered.

The analysis also estimates the savings to the railroad due to more efficient operations at the HPTPM facility to be approximately $1 million over 20 years. Additionally, it revealed the potential for more than $68 million in estimated additional revenue to the railroad over the same time period through redeploying refrigerated boxcars freed up by faster railcar turn times at the HPTPM.²¹

Whether one considers the traditional transportation-related benefits, the social benefits, the economic output benefits, or the potential for enhanced revenue to railroad operators created by the freight rail modernization project, it is clear that the multiple benefits of the project vastly outweigh its $23 million total cost. Although the calculated benefits cannot be summed because benefits, in some cases, may be double-counted (e.g. fuel savings), the value of each of the benefits offers a generous return on the initial investment, with the benefit of reduced fuel consumption alone paying back the cost of the project almost 20 times over.

(c) Job Creation & Economic Stimulus
The proposed project will inject $23 million into the American economy over the life of the project (see Appendix C, Section 8 for methodology). Approximately $12.3 million will be spent on the purchase of materials for the proposed project with the balance ($10.7 million) being spent on labor and contract costs for the project. The project will likely create at least 276 direct and indirect jobs related to the project, 150 of which will be direct, on-site construction jobs and 126 of which will be indirect, ancillary jobs.

The HPTPM currently employs approximately 3,000 workers, 65% of whom reside in Bronx County, an Economically Distressed Area. The proposed freight rail improvements project along with the larger redevelopment of the HPTPM will seek to retain existing jobs, thereby assuring job security for those that reside in the Bronx.

The project’s procurement plan will involve a competitive public bid process to award the contracts for design and construction. This process will create on-site jobs and economic stimulus for the construction industry and related project parties.

6. SECONDARY SELECTION CRITERIA

(a) Innovation
The proposed project incorporates innovations that demonstrate the value of a new approach to produce delivery in the form of an intermodal and TOFC rail transfer rail facility, which is relatively new to the South Bronx. This innovation is designed to pursue several of the long-term outcomes stated above, and will significantly enhance freight rail transportation in the Bronx, and the greater northeast region as a whole.

²¹ See Table A-4, Table A-5, and Table A-6 in Appendix A for the detailed methodology behind these estimates.
(b) Partnership

In 2006, the New York State Department of Transportation (NYSDOT) awarded NYCEDC $6 million under the Rebuild and Renew New York Transportation Bond Port & Rail Improvement and Revitalization Grant Program for the *Hunts Point Market Intermodal Capacity Improvements Project* (see Appendix E). The project scope addresses both freight rail and truck infrastructure improvements within the Food Distribution Center on the Hunts Point Peninsula. Half of the $6 million grant will be devoted to rail rehabilitation work on the 0.6 mile lead track, known as the Hunts Point Lead, which connects the HPTPM to the Amtrak/CSX mainline (see Figure 3). The remaining half will be programmed toward road infrastructure improvements on the main circulation road through the FDC, Food Center Drive.

The grant award illustrates NYSDOT’s support of transportation infrastructure improvements that improve the flow of inbound and outbound goods on the Hunts Point Peninsula. As the primary trip generator within the FDC, the HPTPM will become the main beneficiary of these investments. NYCEDC anticipates beginning the rail rehabilitation work in the spring of 2010.

Despite this State support, it is anticipated that TIGER funding will be necessary to undertake the freight rail improvements project at the HPTPM as outlined in this application. Due to a lack of existing funding opportunities, the project is unlikely to be readily and efficiently completed without Federal assistance.
7. EVALUATION OF PROJECT PERFORMANCE

NYCEDC will seek to evaluate the success of the proposed project by measuring short- and long-term performance of the rail on several metrics, including frequency of service and delivery times. These metrics will be measured against the HPTPM’s current usage of trucks.

8. CERTIFICATIONS

NYCEDC is in compliance with all certification requirements of the Recovery Act as outlined in the Federal Register Notice of Funding Availability for Supplemental Discretionary Grants for Capital Investments in Surface Transportation Infrastructure Under the American Recovery and Reinvestment Act.
APPENDIX A
Long-Term Outcomes Calculations

Detailed back-up for benefits calculations are described in the tables below.

Table A-1. Drayage Savings to HPTPM Cooperators

<table>
<thead>
<tr>
<th>Drayage Cost per Trailer</th>
<th>$ 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trailers Drayed per Rail Day</td>
<td>150</td>
</tr>
<tr>
<td>Rail Days per Year</td>
<td>260</td>
</tr>
</tbody>
</table>

Annual Savings $1,950,000

Table A-2. Transportation Savings to HPTPM Cooperators: Truck vs. Rail

<table>
<thead>
<tr>
<th>Mode</th>
<th>Unit</th>
<th>Avg. Cost/Unit*</th>
<th>Total Units**</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck</td>
<td>Trailer</td>
<td>$ 5,300</td>
<td>12,608</td>
<td>$ 66,824,483</td>
</tr>
<tr>
<td>Rail</td>
<td>Refrigerated Boxcar</td>
<td>$ 11,000</td>
<td>4,620</td>
<td>$ 50,820,000</td>
</tr>
</tbody>
</table>

Annual Transportation Savings $ 16,004,483

*Average truck rates range from $6,000 per unit in the summer to $4,600 per unit in the winter, yielding an average cost per unit of $5,300. Rail rates, however, are stable throughout the year. Source: HPTPM Cooperators.

**Truck unit number derived from Table B-7.

Table A-3. Annual Fuel Consumption by Mode

<table>
<thead>
<tr>
<th>Mode</th>
<th>Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMT*</td>
<td>57,872,524</td>
</tr>
<tr>
<td>Miles per Gallon**</td>
<td>5.1</td>
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<tr>
<td>Fuel Consumed (gal)</td>
<td>11,347,554</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Mode</th>
<th>Rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Ton Miles</td>
<td>1,871,747,277</td>
</tr>
<tr>
<td>Gallons per Thousand Gross Ton-Miles†</td>
<td>1,328</td>
</tr>
<tr>
<td>Fuel Consumed (gal)</td>
<td>2,485,680</td>
</tr>
</tbody>
</table>

Annual Fuel Savings (gal) 8,861,873

*VMT derived in text following Table B-7.


Table A-4. Potential Railroad Carload Revenues*

<table>
<thead>
<tr>
<th>Metric</th>
<th>Current Times</th>
<th>New Operation</th>
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<tbody>
<tr>
<td>Future Total HPTPM Carload Volume</td>
<td>9,240</td>
<td>8,200</td>
</tr>
<tr>
<td>Rail Days per Year</td>
<td>260</td>
<td>260</td>
</tr>
<tr>
<td>Average Railcars per Rail Day</td>
<td>36</td>
<td>32</td>
</tr>
<tr>
<td>Railcar Cycle Time (days)</td>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>Rail Days per Cycle</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Railcars Needed to Service HPTPM</td>
<td>720</td>
<td>576</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Excess Railcars</th>
<th>104</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Revenue per Carload (2006)‡</td>
<td>$3,700</td>
</tr>
<tr>
<td>Average Revenue Trips per Year (2006)‡</td>
<td>14</td>
</tr>
<tr>
<td>Total Annual Revenue</td>
<td>$5,387,200</td>
</tr>
</tbody>
</table>

*Assumes the benefit accrues to all 9,240 railcars, not only the incremental increase. Also assumes equal distribution of carload volume over one year, a closed loop system (e.g. railcars remain in dedicated service to HPTPM), and unmet market demand for excess railcars.

**Same travel time as current operations with a quicker HPTPM turn (24 vs. 96 hours).

†Improved travel time (5 days each way) with a quicker HPTPM turn (24 hrs); volume equals 20 railcars/week based on conversations with Railex.


Railroad Operational Savings

A redesigned rail system at the HPTPM will allow the railroad to conduct its operations in a shorter time period. This is a savings to the railroad in the form of reduced labor, fuel and locomotive costs. An hourly locomotive cost was derived from the 2008 lease rate22 for a GP38-2 locomotive, the model of locomotive which CSX uses to serve the HPTPM today. This was considered a good proxy for the model’s market value. The annual lease rate was $350,000, translating to an hourly rate of $39.95.

Total costs are described in Table A-5 and Table A-6.

Table A-5. Hourly Cost to Serve HPTPM by Rail

<table>
<thead>
<tr>
<th>Cost Center</th>
<th>Cost/Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor*</td>
<td>$86.38</td>
</tr>
<tr>
<td>Fuel**†</td>
<td>$31.80</td>
</tr>
<tr>
<td>Locomotive</td>
<td>$39.95</td>
</tr>
<tr>
<td>**Total **</td>
<td>$158.13</td>
</tr>
</tbody>
</table>


†Assumes 20 gallons consumed per hour of switching.

VMT Savings
A 1997 FHWA study identified marginal cost factors associated with the operation of specific vehicle classes over portions of rural and urban interstates. It is the only study of its kind that attempts to calculate national average costs per vehicle miles traveled.\(^{23}\) The following table identifies the costs associated with 80 kip 5-axle combination trucks, the type of OTR vehicle that would service the HPTPM.

<table>
<thead>
<tr>
<th>Vehicle/Highway Class</th>
<th>Pavement</th>
<th>Congestion</th>
<th>Crash</th>
<th>Air Pollution</th>
<th>Noise</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 kip 5-axle Comb/Rural Interstate</td>
<td>12.7</td>
<td>2.23</td>
<td>0.88</td>
<td>NA</td>
<td>0.19</td>
<td>16</td>
</tr>
<tr>
<td>80 kip 5-axle Comb/Urban Interstate</td>
<td>40.9</td>
<td>20.06</td>
<td>1.15</td>
<td>NA</td>
<td>3.04</td>
<td>65.15</td>
</tr>
</tbody>
</table>


In order to calculate the costs associated with the truck trips between Pocatello, ID and Bronx, NY, estimates were made with respect to the portions of the 2,301 mile trip that could be considered urban interstate. These assumptions are in the following table.

<table>
<thead>
<tr>
<th>Urban Area</th>
<th>Route</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pocatello, ID</td>
<td>I-15</td>
<td>10</td>
</tr>
<tr>
<td>Ogden, UT</td>
<td>I-15/I-84</td>
<td>16</td>
</tr>
<tr>
<td>Cheyenne, WY</td>
<td>I-80</td>
<td>15</td>
</tr>
<tr>
<td>Omaha, NE/Council Bluffs, IA</td>
<td>I-80</td>
<td>22</td>
</tr>
<tr>
<td>Des Moines, IA</td>
<td>I-80</td>
<td>20</td>
</tr>
<tr>
<td>Davenport, IA</td>
<td>I-80</td>
<td>21</td>
</tr>
<tr>
<td>Chicago, IL</td>
<td>I-80</td>
<td>100</td>
</tr>
<tr>
<td>Toledo, OH</td>
<td>I-80</td>
<td>18</td>
</tr>
<tr>
<td>New York, NY</td>
<td>I-80/I-95/I-87</td>
<td>55</td>
</tr>
</tbody>
</table>

% Breakdown
- Total Urban Mileage: 277 (12%)
- Total Rural Mileage: 2,024 (88%)
Applying these percentages to the overall VMT associated with truck trips—57,872,524—yields the following distribution of annual urban and rural VMTs.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Percentage</th>
<th>Mileage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>12%</td>
<td>6,966,836</td>
</tr>
<tr>
<td>Rural</td>
<td>88%</td>
<td>50,905,688</td>
</tr>
</tbody>
</table>

Multiplying the VMTs by their respective marginal costs yields the annual VMT costs for the truck operation that would be required to support HPTPM activity in the absence of rail. These numbers are described in Table A-10.

<table>
<thead>
<tr>
<th>Highway Class</th>
<th>Pavement</th>
<th>Congestion</th>
<th>Crash</th>
<th>Air Pollution</th>
<th>Noise</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Interstate</td>
<td>$6,465,022.40</td>
<td>$1,135,196.85</td>
<td>$447,970.06</td>
<td>NA</td>
<td>$96,720.81</td>
<td>$8,144,910.11</td>
</tr>
<tr>
<td>Urban Interstate</td>
<td>$2,849,435.84</td>
<td>$1,397,547.26</td>
<td>$80,118.61</td>
<td>NA</td>
<td>$211,791.81</td>
<td>$4,538,893.51</td>
</tr>
<tr>
<td>Totals</td>
<td>$9,314,458.24</td>
<td>$2,532,744.11</td>
<td>$528,088.67</td>
<td>$308,512.62</td>
<td>$12,683,803.62</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B
Emissions Methodology

In order to understand the emissions benefits that would be generated by the doubling of railcar deliveries to the Hunts Point Terminal Produce Market (HPTPM), a methodology was developed that would define the following:

1. **Locomotive emissions** related to the delivery of the new railcar volumes to HPTPM (4,620 carloads). It assumes a round trip between the growing area of Eastern Idaho (Pocatello, ID) where potatoes are sourced and the HPTPM (Bronx, NY), a rail distance of 2,480 miles. This calculation does not include benefits for existing railcar volumes.

2. **Over-the-road (OTR) truck emissions** related to the truck trips that would be necessary if the rail improvements project was not implemented. This calculates the number of trucks needed to transport the same volume of produce shipped in the 4,620 railcars for the same round trip (Pocatello, ID to Bronx, NY and return), a road distance of 2,295 miles.

3. **Overall net emissions** benefit created. This is simply the calculated locomotive emissions (Item 1) subtracted from the calculated OTR truck emissions (Item 2).

---

1. **Locomotive Emissions**

   Line-haul freight locomotive emissions are calculated by determining the number of gallons of fuel consumed as a result of a particular activity, in this case the delivery of 4,620 refrigerated boxcars from Eastern Idaho to HPTPM over the course of one year. Locomotive fuel consumption is a function of several factors, namely the weight of the train being pulled, the geography of the territory over which it is operated (mountainous, flat, etc.) and the trip distance.

   In order to calculate the annual fuel consumption required by the cross-country delivery of the 4,620 carloads of produce, several assumptions were made:

   - The operating territory associated with the 2,480 mile rail journey was much too diverse to accurately incorporate into the model, therefore geography was not considered.
   - HPTPM receives produce deliveries by rail five days a week. The model therefore assumes that five trains originate in Eastern Idaho each week in order to meet that demand. This equals 260 trains a year.
   - The annual volume of 4,620 railcars could be equally divided among the 260 annual trains, yielding an equal number of railcars (18) per train.
   - These 18 railcars would not operate as an exclusive train, but, rather, would be coupled to other railcars as part of a larger train. Emissions attributed to the HPTPM railcars would therefore be a portion of the overall locomotive emissions for any given train.
   - Railcars would travel eastbound to the HPTPM loaded with produce and return westbound to Eastern Idaho empty.

---

Railcar Weight
All of the refrigerated boxcars operating in service to HPTPM are owned by one railroad: Union Pacific. The railroad’s fleet of refrigerated boxcars is varied, however, featuring three models that have different carrying capacities. In order to determine the overall weight associated with the 4,620 railcars in question, the weight of an “average” boxcar operating in service to HPTPM had to be calculated. This was done by applying the distribution of the Union Pacific refrigerated boxcar fleet mix in Table B-1 to the 4,620 railcars. This yielded 3,126 70-ton refrigerated boxcars and 1,494 110-ton boxcars.

<table>
<thead>
<tr>
<th>Railcar Type</th>
<th>Carrying Capacity (lbs)</th>
<th>Tare Weight* (lbs)</th>
<th>Inventory</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARMN 70-ton</td>
<td>138,100</td>
<td>88,700</td>
<td>2,632</td>
<td>67.7%</td>
</tr>
<tr>
<td>ARMN 90-ton</td>
<td>165,200</td>
<td>88,700</td>
<td>835</td>
<td>0.0%</td>
</tr>
<tr>
<td>ARMN 110-ton</td>
<td>194,900</td>
<td>94,000</td>
<td>1,493</td>
<td>32.3%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>4,960</strong></td>
<td><strong>3,875</strong></td>
<td><strong>100.0%</strong></td>
<td></td>
</tr>
</tbody>
</table>

*The weight of an empty railcar.
†Adjustments are as follows: 10 railcars from ARMN 70-ton inventory: Union Pacific calculation error; 835 railcars from ARMN 90-ton inventory: none are in service to HPTPM; 240 railcars taken from ARMN 110-ton inventory: railcars are in dedicated service to the Railex company and do not serve HPTPM.

When a locomotive pulls a train it is pulling the weight of the railcars themselves in addition to the weight of the commodities each railcar is holding. The term used to describe this total weight is *gross rail load*. The overall gross rail load associated with the HPTPM railcars was calculated by assuming that each model of refrigerated boxcar held approximately 75% of its carrying capacity. This is an industry norm, as the volume-to-weight ratio for produce is not one-to-one; when loading a boxcar, shippers run out of space before they exceed railcar weight limits. Refrigerated boxcars therefore carry 65%-85% of their maximum carrying capacity by weight, leading to the 75% average.

Traveling eastbound, the loaded 70 ton and 110 ton boxcars have a gross rail load per railcar of 96 tons and 120 tons, respectively. Westbound, the empty boxcars weigh 44 and 47 tons, respectively. By annualizing these numbers and dividing them by the total number of HPTPM railcars, the calculation results in an average gross rail load of approximately 103 tons per loaded railcar and 45 tons per empty railcar.

**Gross Rail Load per Train**
As mentioned in our key assumptions, the railroads would not operate the 18 daily HPTPM railcars as a separate train. The volume is much too small to warrant such an expense. Instead, the 18 railcars would be combined with other railcars into a larger train each day.
It was necessary to understand the gross rail load of an “average” train as it related to the gross rail load of the 18 HPTPM railcars. A snapshot of the August 17, 2009 lineup of Union Pacific manifest trains (six trains in each direction) revealed the average train profiles for eastbound and westbound trips. These are described in Table B-2.

<table>
<thead>
<tr>
<th>Direction</th>
<th>Train Tonnage**</th>
<th>Locomotives</th>
<th>Railcars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EB</td>
<td>6,245</td>
<td>3</td>
<td>39</td>
</tr>
<tr>
<td>WB</td>
<td>7,506</td>
<td>3</td>
<td>56</td>
</tr>
</tbody>
</table>

EB = Eastbound, WB = Westbound

*Assumes rail activity from August 17, 2009 is representative of typical service throughout the year. Manifest trains only; does not include intermodal, coal or grain operations.

**Does not include locomotives.

The gross rail load associated with 18 eastbound HPTPM railcars is 1,846 tons. Westbound, the empty railcars weigh 803 tons. If these railcars were part of the average trains identified in Table B-2, they would represent approximately 30% of the total tonnage of the eastbound train and 11% of the total tonnage of the westbound train.

Gross Ton-Miles
As previously mentioned, locomotive fuel consumption is a function of weight and distance. These two components are captured in one unit of measurement known as a ton-mile. One ton-mile is the equivalent of moving one ton one mile. Moving 20 tons 100 miles is equal to 2,000 ton-miles.

In order to calculate overall annual gross ton-miles for the average trains highlighted in Table B-2, the weight of the locomotives is added to the total tonnage of each train. One locomotive weighs approximately 210 tons; therefore three locomotives weigh 630 tons. This overall weight per train, known as gross weight, is then multiplied by 260, the number of trains per year, as shown in Table B-3.

<table>
<thead>
<tr>
<th>Average Train</th>
<th>Eastbound</th>
<th>Westbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>GWT per Train</td>
<td>6,875</td>
<td>8,136</td>
</tr>
<tr>
<td>Trains per Year*</td>
<td>260</td>
<td>260</td>
</tr>
<tr>
<td>Annual GWT</td>
<td>1,787,543</td>
<td>2,115,447</td>
</tr>
</tbody>
</table>

Calculating the gross ton-miles associated with the HPTPM railcar activity is done by taking the HPTPM percentage of overall tonnage per train and multiplying it by the annual gross weight for full freight service for each direction. This number is then multiplied by 2,480, the number of rail miles per trip. Table B-4 on the following page highlights this calculation.

---

Table B-4. Annual Gross Ton-Miles for HPTPM

<table>
<thead>
<tr>
<th>Rail Activity</th>
<th>Eastbound</th>
<th>Westbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual GWT: Full Freight Service</td>
<td>1,787,543</td>
<td>2,115,447</td>
</tr>
<tr>
<td>HPTPM % of Annual GWT</td>
<td>29.56%</td>
<td>10.70%</td>
</tr>
<tr>
<td>Annual HPTPM GWT per Year</td>
<td>528,352</td>
<td>226,385</td>
</tr>
<tr>
<td>Rail Miles</td>
<td>2,480</td>
<td>2,480</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,310,311,956</td>
<td>561,435,321</td>
</tr>
</tbody>
</table>

Fuel Consumption

Fuel consumption numbers are based on a recent Port of Los Angeles study that identifies 1.328 gallons of fuel consumed per thousand gross ton-miles of line-haul rail activity. Multiplying this by 1,871,747 thousand gross ton-miles yields 2,485,680 gallons of annual diesel fuel consumed in transporting the 4,620 railcars from Eastern Idaho to HPTPM and returning them to their point of origin.

Emissions

Line-haul locomotive emission factors were culled from two sources, the U.S. EPA and an emissions study completed by the Port Authority of New York & New Jersey in 2008. The EPA report was used for volatile organic compounds (VOCs), carbon monoxide (CO), and nitrogen oxides (NOx) emissions factors. These factors were pulled from the document’s Fleet Average Emission Factors for All Locomotives table for 2009. The factors for particulate matter and carbon dioxide (PM10, PM2.5 and CO2) were sourced in the Port Authority report. The factors are in Table B-5 below.

Table B-5. Line-Haul Locomotive Emission Factors

<table>
<thead>
<tr>
<th>Unit</th>
<th>NOx</th>
<th>PM10</th>
<th>PM2.5</th>
<th>VOC</th>
<th>CO</th>
<th>CO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(grams/gal)</td>
<td>168.3</td>
<td>6.1</td>
<td>5.6</td>
<td>9.4</td>
<td>27.4</td>
<td>10,186</td>
</tr>
</tbody>
</table>

Multiplying the emissions factors by annual fuel consumption—2,485,680 gallons—yielded the total annual emissions attributable to the locomotive activity serving HPTPM. These results were converted from grams/year to tons/year and are described in Table B-6 below.

Table B-6. Annual HPTPM Locomotive Emissions Estimate

<table>
<thead>
<tr>
<th>Unit</th>
<th>NOx</th>
<th>PM10</th>
<th>PM2.5</th>
<th>VOC</th>
<th>CO</th>
<th>CO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(tons/year)</td>
<td>461.13</td>
<td>16.71</td>
<td>15.34</td>
<td>25.76</td>
<td>75.07</td>
<td>27,909.11</td>
</tr>
</tbody>
</table>

2. Truck Emissions

The methodology for calculating OTR truck emissions was much more straightforward than the locomotive emissions methodology. Unlike freight locomotives, OTR truck emissions are based upon the number of miles a truck travels. Without the freight rail improvements project, the HPTPM would not be able to use rail to serve the additional demand for produce. The Market would therefore be forced to use OTR trucks as an alternative.

Vehicle Miles Traveled (VMTs)

It was necessary to know, then, how many truck trips would be required to transport the same volume of produce that would have otherwise been carried in the 4,260 railcars. The calculation, as highlighted in Table B-7, assumed the same distribution of railcar types as described in the Locomotive Emissions section.

<table>
<thead>
<tr>
<th>Railcar Type</th>
<th>Tons of Produce per Railcar</th>
<th>Tons of Produce per Truck</th>
<th>Truckloads per Railcar</th>
<th>HPTPM Railcars</th>
<th>Truck Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARMN 70-ton</td>
<td>51.79</td>
<td>21.50</td>
<td>2.4</td>
<td>3,126</td>
<td>7,530</td>
</tr>
<tr>
<td>ARMN 110-ton</td>
<td>73.09</td>
<td>21.50</td>
<td>3.4</td>
<td>1,494</td>
<td>5,079</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Trips 12,608</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Round Trips 25,217</td>
</tr>
</tbody>
</table>

Thus 12,608 truck trips will carry the same volume as the 4,260 railcars. Doubling that for a round trip calculation and multiplying it by the total number of miles per trip—2,295—resulted in 57,872,524 annual vehicle miles traveled (VMTs).

Emissions

Emission factors for OTR trucks were pulled from the Port Authority report cited previously. They are outlined in the following table.

<table>
<thead>
<tr>
<th>Unit</th>
<th>NOx</th>
<th>PM10</th>
<th>PM2.5</th>
<th>VOC</th>
<th>CO</th>
<th>CO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(grams/mi)</td>
<td>10.878</td>
<td>0.3533</td>
<td>0.325</td>
<td>0.543</td>
<td>3.011</td>
<td>1,640.4</td>
</tr>
</tbody>
</table>

Multiplying the emissions factors by the annual VMTs yielded the total annual emissions attributable to the truck activity that would serve HPTPM in the absence of increased rail volumes.

<table>
<thead>
<tr>
<th>Unit</th>
<th>NOx</th>
<th>PM10</th>
<th>PM2.5</th>
<th>VOC</th>
<th>CO</th>
<th>CO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(tons/yr)</td>
<td>693.93</td>
<td>22.54</td>
<td>20.73</td>
<td>34.64</td>
<td>192.08</td>
<td>104,645.16</td>
</tr>
</tbody>
</table>
3. Overall Net Emissions Benefit of Rail Project
Subtracting locomotive emissions from truck emissions yielded the annual net emissions benefit associated with the freight rail improvements project.

<table>
<thead>
<tr>
<th>Mode</th>
<th>NOx</th>
<th>PM10</th>
<th>PM2.5</th>
<th>VOC</th>
<th>CO</th>
<th>CO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck</td>
<td>693.93</td>
<td>22.54</td>
<td>20.73</td>
<td>34.64</td>
<td>192.08</td>
<td>104,645.16</td>
</tr>
<tr>
<td>Locomotive</td>
<td>461.13</td>
<td>16.71</td>
<td>15.34</td>
<td>25.76</td>
<td>75.07</td>
<td>27,909.11</td>
</tr>
<tr>
<td>Avoided Emissions (tons/yr)</td>
<td>232.80</td>
<td>5.82</td>
<td>5.39</td>
<td>8.88</td>
<td>117.00</td>
<td>76,736.05</td>
</tr>
</tbody>
</table>
APPENDIX C
Benefit Cost Analysis Methodology

1. Period of Analysis
The period of analysis for all project benefits and costs is 20 years following completion of the project. The project is expected to be complete at the end of the first quarter of 2012, so the period of analysis is 2012-2031. 75% of the annual value of benefits and costs are realized in 2012, while all subsequent years are assigned the full annual value. The 20-year net present value (NPV) is discounted at a rate of 7%, except in the case of carbon dioxide (see Section 2 below), and reported in 2009 dollars.

2. Discount Rates
As recommended by the Federal Register Notice, a 7% discount rate is applied to the future value of benefits and costs in all cases, except in the case of carbon dioxide. The discount rate applied to future benefits of reduced carbon dioxide emissions is 3%, as recommended in the Highway Traffic Safety Administration’s rulemaking on Corporate Average Fuel Economics (CAFE).29

3. Inflation Rates
Annual inflation of most dollar values is tied to the Consumer Price Index, forecast to be 2.5% in the New York City area in the coming years.30 However, the annual increase in damage cost caused by carbon dioxide emissions is 2.4%, as recommended by the CAFE rulemaking analysis cited above. The analysis estimates that the value of a statistical life is inflated at the rate of 3.0% per year, the average of expected wage inflation (3.5%) and CPI inflation (2.5%).31

4. Regional Economic Output
The analysis of how the freight rail modernization project will affect efficiency and productivity was carried out using Regional Economic Models, Inc. (REMI) Policy Insight Plus software tailored for analysis of the New York City economy. REMI incorporates elements of input-out, general equilibrium, econometric, and geographic modeling. REMI therefore captures interactions between industries in a region, the long run balance of supply and demand, the

---

30 The 2.5% inflation rate is based on an average of the CPI estimates for New York City used in the NYC Office of Management and Budget FY09 Executive Budget for the following calendar years:

<table>
<thead>
<tr>
<th></th>
<th>CY08</th>
<th>CY09</th>
<th>CY10</th>
<th>CY11</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPI (NYC region, % change)</td>
<td>3.6</td>
<td>2.1</td>
<td>2.2</td>
<td>2.2</td>
</tr>
</tbody>
</table>

effects of changes in prices on regional competitiveness, the speed of economic responses, and
the effect of agglomeration economies.32

The inputs to the REMI analysis are the reduced transportation costs that wholesale producers
will realize as a result of the freight rail modernization project. The reduced costs include the
elimination of the need to pay for drayage services during rail deliveries and the lower cost of
shipping produce by rail rather than truck (see Table A-1 and Table A-2 in Appendix A). The
annual savings to wholesalers are entered into the REMI model as reduced production costs in
the wholesale industry in each year of the period of analysis, beginning with 75% of the annual
savings in 2012, and continuing with 100% of the annual savings in each subsequent year
through 2031, and inflated at CPI (2.5% annually).

The measure of total output on which the estimated benefits are based is the amount of increased
production in the New York City economy, including all intermediate goods purchased as well
as value-added (compensation and profit). The components of output are self-supply, or sales
within the City, and exports, or products that leave the City for the rest of the nation and the rest
of the world. For example, as transportation costs for wholesalers are reduced, demand for
wholesale produce increases both within the City and in the surrounding region (exports). This
then leads to an increase in market share. From an aggregate perspective, the benefits to the
New York City economy may be offset by a decrease in the relative competitiveness of other
locations in the Nation.

REMI reports Output in constant 2000 dollars. These values are inflated at 2.5% annually to
reflect CPI.

5. Value of Fatalities Avoided
The U.S. Department of Transportation estimates 2.24 fatalities involving large trucks per 100
million truck VMT.33 Using the estimate of 57,872,524 reduced large truck VMTs annually
described in the text following Table B-7 (Appendix B), the analysis estimates 1.3 fatalities
avoided each year. The number of avoided fatalities is then multiplied by the statistical value of
a life, $6 million in $2009, as outlined in the U.S. DOT’s Treatment of the Economic Value of a
Statistical Life in Departmental Analyses.34 As mentioned above, the value of a statistical life is
assumed to increase by 3% annually.

6. Fuel Savings
Fuel savings were calculated based on the methodology described in the Highway Traffic Safety
Administration’s rulemaking on Corporate Average Fuel Economics (CAFE).35 Gallons of fuel
savings are calculated in Table A-3 (Appendix A). The social benefit of each gallon of fuel
saved is the Energy Information Administration (EIA) projected retail price of diesel minus

32 More information on the REMI model can be found on the REMI website: http://www.remi.com/.
34 See Footnote 31.
35 See Footnote 29.
federal and state taxes,\textsuperscript{36} plus an externality factor of $0.381 per gallon.\textsuperscript{37} Diesel prices and taxes are forecast by EIA through 2030 and are assumed to remain at the 2030 level in 2031, the last year of our analysis.

7. Value of Avoided Emissions
The methodology of assigning a dollar benefit per ton of avoided emissions is also from the CAFE rulemaking analysis.\textsuperscript{38} The net annual emissions benefit of the freight rail modernization project is detailed in Table B-10 (Appendix B). A ton of avoided volatile organic compounds is assigned a value of $1,700; a ton of avoided nitrogen oxides is assigned a value of $4,000; and a ton of avoided particulate matter is assigned a value of $168,000. As recommended in the Federal Register Notice, this analysis uses a mean global value of $33 per metric ton\textsuperscript{39} as the benefit of an avoided metric ton of carbon dioxide. All dollar values in the CAFE rulemaking document are in 2007 dollars. As mentioned above, the annual increase in value for all emissions benefits except carbon dioxide is linked to CPI (2.5%). The annual increase in CO2 damage cost is 2.4%, as recommended by the CAFE rulemaking analysis.

8. Job Creation & Economic Stimulus
Construction jobs reported in the Job Creation & Economic Stimulus section of this analysis are estimated using the 2006 multipliers developed by the U.S. Bureau of Economic Analysis Regional Input-Output Modeling System (RIMS II) for New York State. The number of jobs reported represents the number of full-time equivalent job-years expected to be created by approximately $23 million worth of spending in the construction industry. The total number of jobs includes both direct, on-site construction jobs and indirect and induced jobs created throughout the State in other sectors due to spending in the construction industry. The construction budget is in 2009 dollars and it is discounted to 2006 dollars using the increase in construction costs from the Producer Price Index 2006-2008\textsuperscript{40} and 3% thereafter.

\textsuperscript{37} The externality cost is based on the costs to society of monopsony and oil supply disruptions. See Table VIII-4 and pages VIII-21 to VIII-26 of the CAFE rulemaking analysis cited above for a detailed discussion of this methodology and the analysis of fuel consumption externalities.
\textsuperscript{38} See Table VIII-5 on page VIII-60 of the CAFE rulemaking.
APPENDIX D
Letters of Support
September 11, 2009

Liza Kent
NYC Economic Development Corporation
110 Williams Street
NY, NY 10038

Re: Certification of Metropolitan Planning Organization Criteria for TIGER Applications

Dear Potential Tiger Grant Applicant:

This letter is in response to the June 17, 2009 Federal Register Notice of Funding Availability for TIGER grants, pages 28760-61, http://edocket.access.gpo.gov/2009/pdf/E9-14262.pdf, which indicates that awarded TIGER applications must be included in all relevant metropolitan planning documents. The New York Metropolitan Transportation Council (NYMTC) which is the Metropolitan Planning Organization (MPO) for New York City, Long Island and the lower Hudson Valley will take all of the steps necessary to incorporate Freight Rail Modernization: Improving Freight Rail and Transfer Facilities at the Hunts Point Terminal Produce Market in the South Bronx, NY in the metropolitan planning process if the United States Department of Transportation (USDOT) selects it to receive TIGER funding. Specifically, NYMTC will amend its Regional Transportation Plan, Transportation Improvement Program and review Freight Rail Modernization: Improving Freight Rail and Transfer Facilities at the Hunts Point Terminal Produce Market in the South Bronx, NY for compliance with the United States Environmental Protection Agency’s Transportation Conformity Rule as necessary, prior to the project award. To further facilitate the alignment of Freight Rail Modernization: Improving Freight Rail and Transfer Facilities at the Hunts Point Terminal Produce Market in the South Bronx, NY with the MPO process, NYMTC will as necessary, conduct public review and interagency consultations for all potential TIGER projects within our planning boundaries during the USDOT selection process to ensure inclusion of all selected projects in the relevant planning documents prior to award.

If you need additional information, please contact Angelina Foster of my staff at, afoster1@dot.state.ny.us.

Sincerely,

Joel P. Ettinger
Executive Director
NYMTC
September 9, 2009

Elizabeth Kim
New York City Economic Development Corporation
110 William Street, Third Floor
New York, New York 10038

Hunts Point
Terminal Produce
Cooperative
Association, Inc.

RE: Support for the 2009 USDOT TIGER
Discretionary Grant for Freight Rail
Infrastructure Improvements at the Hunts
Point Terminal Produce Cooperative Market

2A New York City
Terminal Market
Bronx, NY 10474

I am writing on behalf of the Hunts Point Terminal Produce Cooperative Association, Inc. to express our strong support for the New York City Economic Development Corporation’s (NYCECD) 2009 application for $23,000,000 under the USDOT's TIGER Discretionary Grant Program for freight rail infrastructure improvements at the Hunts Point Terminal Produce Cooperative Market (Produce Market) in the South Bronx, NY, an Economically Distressed Area (EDA).

NYCECD, in collaboration with the Produce Market, seeks to modernize the freight rail infrastructure at the Produce Market as part of a larger project to redevelop the existing warehouse facilities at the Market. The Produce Market is New York City's premiere intermodal produce consolidation and distribution facility, unique in that it is one of the few remaining terminal produce markets in North America that continues to receive produce deliveries via rail." Opened in 1967, the Produce Market consists of four primary warehouse structures and ancillary support structures. It is the largest produce market of its kind in the country, supplying over 60% of New York City's fresh fruits and vegetables, and over 20% of the region's fruits and vegetables.

According to industry consultants, business at the Produce Market is expected to expand to 20% over the next several years; however, our future growth is impaired by three major issues: (1) insufficient storage space; (2) inability to meet food safety standards, and (3) operating inefficiencies resulting from conflicts between rail and truck deliveries. The proposed rail improvements project successfully resolves the rail-truck conflict, creating a more efficient operating environment that will save time and help the Produce Market’s bottom line. Furthermore, the project would grant the Produce Market the opportunity to receive unit train and
intermodal rail deliveries, a capability we do not currently have. This is important to us as rail continues to play an important role in New York City's produce supply chain.

It is anticipated that these freight rail infrastructure improvements will sustain existing jobs, support the City's economic development strategy to improve freight rail at the Produce Market and contribute to future economic growth at the Produce Market. As a result, we fully support this important project.

Sincerely,

Matthew D'Arrigo
Co-President
Hunts Point Terminal Produce Cooperative Association, Inc.
APPENDIX E
NYSDOT Grant Award: Hunts Point Lead Track
Ms. Joan McDonald, Vice President  
New York City Economic Development  
Corporation  
110 Williams Street  
New York, New York 10038

Dear Ms. McDonald:

On November 8, 2005, voters approved the Rebuild and Renew New York Transportation Bond Act. The Transportation Bond Act of 2005 provides $135 million for a Rail and Port Capital Program to improve rail service in the State’s major trade and passenger travel corridors, and to improve access and cargo handling capabilities at upstate port facilities. Funding for this initiative under the Bond Act will be made available at a rate of $27 million annually through State Fiscal Year 2009-2010.

The 2005 Transportation Memorandum of Understanding (MOU) outlines the first two years ($54 million) of the rail and port program. The New York City Economic Development Corporation was included in the 2005 MOU as a recipient of funding under the Transportation Bond. Enclosed with this letter, you will find guidelines and a project information sheet for participation in Rail and Port Capital Program. The enclosed guidelines include the procedures that the Department of Transportation will follow in the review of projects funded under the Bond Act. Additional guidelines and information for future funding opportunities under the Bond Program will be provided at a later date.

NYSDOT looks forward to working with you in the implementation of your project. Should you have questions or need additional information, please contact Ron Lammerts, Grants and Administration Section at 518-457-4737, or rlammerts@dot.state.ny.us.

Sincerely,

Thomas J. Madison, Jr.  
Commissioner

Enclosure
NEW YORK STATE

REBUILD AND RENEW TRANSPORTATION BOND
PORT & RAIL IMPROVEMENT AND REVITALIZATION
GRANT PROGRAM

PROGRAM GUIDELINES

December 2005

New York State Department of Transportation
INTRODUCTION

These guidelines are issued pursuant to the Rebuild and Renew New York Transportation Bond Act of 2005 and Item 5, Section III. of the 2005 TRANSPORTATION MEMORANDUM OF UNDERSTANDING issued jointly by the Governor and Legislative leaders on July 13, 2005. The Bond Act will fund a program of investments for the purpose of improving transportation service in trade and passenger travel corridors in New York State.

Rebuild and Renew New York 2005 Bond, Rail and Port Facility Improvements:

As part of the Bond, $135 million will be made available for railroads and port facilities, with projects geared towards modernizing rail tracks and clearances, that will reduce diesel truck dependence, encourage the energy efficient movement of goods, and improve inter-city rail transportation. Currently, rail and port projects utilizing $54 million have been identified.

The following project has been included in years one and two of the Bond program:

**Hunts Point Market Intermodal Capacity Improvements**  $ 6.00 million

The Hunts Point Market generates about 2,500 truck trips per day. This Bond Act project would fund intermodal capacity and handling improvements within the market to make the movement of goods more efficient. Improvements will be made to the internal traffic circulation system, the parking facilities and the loading dock areas.

This document outlines the Rebuild and Renew Bond application process.

Questions or comments on these guidelines or on project applications may be directed to Mr. Ronald Lammerts, Assistance Program Delivery Bureau, New York State Department of Transportation, 50 Wolf Road, POD 5-4, Albany, NY 12232 (518) 457-7331 or (518) 457-4737, rlammerts@dot.state.ny.us.
August 13, 2007

Ms. Alice Cheng  
Vice President  
New York City Economic Development Corporation  
110 William Street  
New York, NY 10038

RE: PIN X501.82.301, NYCEDC, Hunts Point Market Intermodal Capacity Improvements  
Bronx County

Dear Ms Cheng:

I am writing in response to your letter of July 27, 2007 which requests a letter of acceptance from NYSDOT regarding the scope for the Hunts Point Market Project. We have reviewed the New York City Economic Development Corporation Capital Project Information Sheet and the concept for the project meets our approval.

Please consider this letter as our acceptance.

If you have any questions or concerns, please contact me at 518 457-4737.

Very truly yours,

Ronald Lammerts  
Rail Program Delivery Bureau

cc: R. Hessinger, RPDB, 5-4  
J. English, RPDB, 5-4  
C. Woodson, Rail Coordinator, Region 11
APPENDIX 1 – WORK SCHEDULE

The Project provides $6,000,000 in STATE funding and will consist of the items of work set forth in this Work Schedule, and as more fully described in plans and estimates prepared by or on behalf of the GRANTEE as may be required. Should contract plans, specifications, and estimates be required, they shall be prepared by or on behalf of the GRANTEE and subject to STATE approval and shall be deemed to be included herein as part of the Work Schedule.

The purpose of the project is to rehabilitate and upgrade Hunts Point Food Distribution Center lead track rail and reconstruct Food Center Drive in a sustainable fashion to allow its intermodal facilities to meet contemporary competitive economic needs.

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated Cost</th>
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<tr>
<td><strong>Component 1: Food Distribution Center Lead Track Rehabilitation—Produce Market to Bruckner Expressway</strong></td>
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<td>Construction and Equipment—Rail Replacement</td>
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<td>Design and Resident Engineering Services</td>
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<td><strong>Component 2: Food Center Drive Reconstruction</strong></td>
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<td>Reconstruction of Food Center Drive, with adjacent rail and Greenway Improvements</td>
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<td>Demolition</td>
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* Site work includes, but is not limited to, curb installation, pavement markings, rail line rehabilitation, traffic signal installation, and landscaping. Estimated costs for these items will be refined as design progresses.

Individual work elements may be adjusted within the total Agreement amount with prior written approval of NYSDOT. NYSDOT's financial participation is limited to six million dollars ($6,000,000) of the project costs. Any overage will be the responsibility of the GRANTEE.

All work identified in this Work Schedule shall be completed no later than December 31, 2010.