City of New York

Department of Sanitation

APPENDIX C - RAIL FREIGHT CAPACITY ANALYSIS FOR MOVEMENT OF NEW YORK CITY WASTE

SOUTHWEST BROOKLYN MARINE TRANSFER STATION

June 2018

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Appendices

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1. Goals

This report supplements the New York City Department of Sanitation's (DSNY's) December 2005 Rail Freight Capacity Analysis for Movement of New York City Waste (2005 Rail Capacity Report) and the 2014 supplement to the 2005 Rail Capacity Report that addressed additional MSW by rail movements associated with the coming on line of the Hamilton Avenue and Southwest Brooklyn Marine Transfer Stations (also known as the South Pair MTSs) located in Brooklyn. Given that Southwest Brooklyn MTS is now scheduled to begin operations in October 2018 and that the East 91st Street MTS is expected to begin operations in 2019, the goals of this report are to provide:

1) a general analysis of the capacity and capability of the freight rail infrastructure and operations in Staten Island and North Jersey;
2) a general analysis of the capacity and capability of the freight rail infrastructure and operations of the rail routes from North Jersey to the destinations specified by DSNY's transfer, transpport and disposal contractors;
3) a current assessment of the ability of the freight rail infrastructure components and operations to efficiently handle proposed rail-borne containerized Municipal Solid Waste (MSW) traffic generated by all four of DSNY's Marine Transfer Stations (MTSs); and
4) a current assessment of any constraints inherent in the proposed rail delivery plans.

2. The Marine Transfer Station Waste Movements

DSNY paired the MTSs for the purpose of contracting for long-term transfer, transport and disposal services for those facilities: 1) the North Pair includes North Shore MTS located on Flushing Bay in Queens and East 91st Street MTS located on the East River in Manhattan; and 2) the South Pair includes Hamilton Avenue MTS located on the Gowanus Canal in Brooklyn and the Southwest Brooklyn MTS located on Gravesend Bay in Brooklyn. Intermodal containers generated at each MTS are/will be placed onto deck barges and towed to intermodal facilities and trans-loaded onto rail cars for disposal. DSNY awarded the North Pair transfer, transport and disposal contract to Covanta Sustainable Solutions LLC (Covanta) in 2014 and the South Pair transfer, transport and disposal contract to Waste Management of New York LLC (Waste Management) in 2017.

The Covanta and Waste Management rail plans and projected throughputs for the MTSs were reviewed, and this report assesses the ability of the rail system to move MSW generated at the MTSs efficiently by rail.

Covanta is currently moving MSW from the Global Container Terminal New York Container Terminal (GCT New York Terminal) in Staten Island, NY, to two of its waste-to-energy plants - Niagara Resource Recovery Facility in Niagara Falls, NY, and Delaware Valley Resource Recovery Facility in Chester, PA. In both cases, Covanta provides a dray operation between the rail and resource recovery facility. The truck dray between the CSX yard in Niagara, NY and the Niagara Resource Recovery Facility is less than a mile. The truck dray between the CSX Transflo facility in Wilmington, DE and the Delaware Valley Resource Recovery Facility in Chester, PA is 16 miles one way, primarily over interstate highways.

Covanta now provides transfer, transport and disposal services for the containerized waste from North Shore MTS and is expected to provide these services for the containerized waste from the East 91st Street MTS in 2019.

Waste Management currently transports and disposes of containerized waste from the Hamilton Avenue MTS and will transport and dispose of containerized waste from the Southwest Brooklyn MTS pursuant to DSNY's South Pair MTS transport and disposal contract. Containerized waste from the Hamilton Avenue MTS has been moving by barge and rail since September 5, 2017, and containerized waste from the Southwest Brooklyn MTS is expected to begin moving by rail in October 2018. To provide transfer, transport and disposal services for the Hamilton Avenue MTS, Waste Management drays containers of MSW from a barge unloading facility on South Street in Elizabeth NJ known as Elizabeth Marine Terminal to the CSX Transportation, Inc. (CSX) Transflo facility at Elizabethport Yard in Elizabeth, NJ. On Figure 1, (the PANYNJ Rail and Terminal Map), Elizabethport Yard is identified as CSX Trumbull Yard, since Trumbull Street is one of the streets bordering the yard. At Elizabethport Yard, the containers are transloaded onto railcars for movement to one of two locations: High Acres Landfill in Fairport, NY or Atlantic Waste Disposal, a landfill in Waverly, VA.

The MTSs are being brought on line sequentially (one of the North Pair and one of the South Pair MTSs is in operation), and therefore Covanta and Waste Management each initially began moving the tonnage from a single MTS. Each will soon add the incremental volume from the second MTS for which they have contracted. Therefore, consistent with actions to date, the following assumptions are made:

- Both Covanta and Waste Management will rely on CSX as their rail haul operator, as well as Consolidated Rail Corporation (Conrail or CR) between Arlington Yard and Oak Island Yard.
- Covanta will add volumes from East 91st Street MTS in 2019.
- Covanta will split its tonnage, moving approximately half to Niagara, NY and half to Wilmington, DE.
- During Phase One, Covanta was obligated to move up to 740 containers per week as its Weekly Tonnage Acceptance Limit (WCAL).

- During Phase Two, Covanta will be obligated to move up to 1,028 containers per week from both MTSs.

- Waste Management is anticipated to add waste volumes from Southwest Brooklyn MTS in October 2018.

- Waste Management will split its tonnage, moving 48 containers of waste (or 12 cars) a day to Fairport, NY and the remainder to Waverly, VA.

- During Phase One, Waste Management is obligated to move up to 578 containers. Of these, 288 containers per week will go to Fairport, NY and the remainder to Waverly, VA.

- During Phase Two, Waste Management is obligated to move up to 920 containers per week. Of these, 288 containers per week will go to Fairport, NY and the remainder to Waverly, VA.

3. Further Detail on the Waste Plans

Covanta

Covanta loads containers filled with MSW onto barges at the North Shore MTS and will load containers filled with MSW onto barges at East 91st Street MTS. The barges transport the containers to Global Container Terminal New York (GCT) on Staten Island, where the containers are trans-loaded onto railcars. The railcars are moved from GCT to Arlington Yard by GCT, for movement between Arlington Yard and Oak Island Yard by Conrail. Then the railcars of MSW containers are moved by CSX to primary destinations in Niagara, NY and in Chester, PA. Covanta also has the contractual right to dispose of waste at a landfill in Bishopville, SC, if necessary.

Covanta divides its DSNY MSW rail traffic at Oak Island and moves approximately half of the traffic to the CSX Niagara Yard (for delivery to Niagara Resource Recovery Facility) and the remaining half to the CSX Transflo Facility in Wilmington, DE (for delivery to Delaware Valley Resource Recovery Facility).

Rail traffic destined for Niagara will travel over the CSX River Line and the Chicago Line to Buffalo NY, currently via Selkirk Yard, located in Selkirk, NY, about 8 miles south of Albany. Selkirk Yard is owned by CSX and is its major classification yard for the northeast United States. In early 2017, CSX announced plans to convert this facility from a hump yard to a flat switch yard*.

*A hump yard is a switching yard where railcars from inbound trains are pushed over a hill (hump), uncoupled, and allowed to flow down different tracks to join with other cars headed to the same outbound destination. Once the cars are classified (sorted by destination), they are pulled from the classification tracks, and assembled into an outbound train.

A flat switch yard is a switching yard where locomotives pull cars from inbound trains and connect them to other (outbound) trains. The cars can be either switched out individually, or if proper planning has gone into the make-up of the inbound train, blocks of cars can be switched from inbound trains to outbound trains. If blocks of cars are regularly switched from one train to another, the flat switch yard June also be referred to as a block-swap yard.

After initial service design changes were made to support the closure of Selkirk Yard, the plan was reversed and a determination was made to retain the facility as a hump yard. CSX has instituted a significant amount of "block-swapping" at Selkirk Yard, as well.

Historically, depending on the particular trip plan, the MSW traffic at Selkirk Yard would operate on either a Selkirk to Niagara train or a Selkirk to Buffalo train with movement between Buffalo and Niagara by local freight. The carloads of empty containers would move by reverse route to Oak Island, and then to Arlington Yard and GCT.

The rail traffic destined for Wilmington, DE, with ultimate delivery to the Delaware Valley Resource Recovery Facility, travels over the CR Lehigh Line to the CSX Trenton Line. All movements are, and will be, in merchandise trains. Previously, this traffic would be moved on the Philadelphia Subdivision between Philadelphia and Wilmington on a local train originating at East Side Yard. The current operating plan, however, has CSX manifest freights delivering and picking up cars directly at Wilmington. Carloads of empty containers will return on a reverse route to Oak Island and ultimately to Arlington Yard and GCT.

Waste Management

Waste Management loads containers filled with MSW onto barges at the Hamilton Avenue MTS and will load containers filled with MSW onto barges at the Southwest Brooklyn MTS. The barges transport the containers to Waste Management's Elizabeth Marine Terminal in Elizabeth, NJ, where they are trans-loaded onto trucks for a short dray to the CSX Transflo Facility at Elizabethport Yard in Elizabeth, NJ. At this railyard, the containers are loaded onto railcars which are then made up into outbound blocks by CSX. From Elizabethport Yard, the railcars are advanced to Oak Island by Conrail crews, and CSX crews move the railcars in CSX trains either through Selkirk Yard for delivery at Fairport, NY (High Acres Landfill), or southbound through Philadelphia and Washington D.C., for delivery to Atlantic Waste Disposal in Waverly, VA.

In the case of traffic moving to Fairport, NY, the Waste Management traffic destined for Fairport will travel in merchandise trains over the CSX River Line and the Chicago Line to Rochester NY, via Selkirk Yard.

At Rochester, the cars would be set out for handling by a local freight to and from Fairport. Cars loaded with empty containers would be returned to Rochester to be included in an eastbound block in a manifest train to Selkirk, NY, Oak Island Yard and on to the Elizabethport Yard.

Traffic moving to Waverly, VA, will move over the Conrail Lehigh Line to the CSX Trenton line, Philadelphia Subdivision, Capital Subdivision and RFP Subdivision. The disposal destination, Waverly, VA is served by Norfolk Southern (NS). Railcars are

interchanged between CSX and NS at Collier Yard in Petersburg, VA. Once reloaded with empty containers, the railcars are returned by reverse route to Petersburg, VA by NS, and from there by CSX to Oak Island Yard, and ultimately to the Elizabethport Yard.

Waste Management has identified two alternate disposal sites, the Amelia Landfill in Jetersville, VA and the Fairless Landfill in Morrisville, PA. The rail route for the Amelia Landfill disposal site is generally the same route as the route to Atlantic Waste Disposal, only differing in the final movement between Petersburg and Amelia. The rail route for the Fairless Landfill disposal site involves a portion of the route to Atlantic Waste Disposal, departing the route at either Morrisville, PA (immediately south of Trenton, NJ) or at Philadelphia, PA. If the cars are set off at Philadelphia, they will be moved between Philadelphia and Morrisville, PA, by local freight.

4. Rail Operations in Staten Island and North New Jersey

The description of the rail operations described in section 3.1 of the 2005 Rail Capacity Report continues to stand. Rail traffic is still divided into the segments discussed. In general, the rail traffic in North New Jersey continues to grow. Two key elements of that growth are the intermodal traffic related to the Port Authority of New York and New Jersey (PANYNJ) and trains carrying ethanol and crude oil. Since 1991, PANYNJ has developed a system of intermodal railroad facilities (ExpressRail) to facilitate efficient transport of export and import marine containers between ocean-going vessels and inland markets. This rail investment ranks among the highest in U.S. ports, and includes three newly built intermodal rail terminals with a designed capacity of one million containers, expected to reach 1.5 million containers per year.

The 2005 Rail Capacity Report cited several pending initiatives relative to the rail support system. These improvements are now in place. The general location of system components are shown in Figure 1. These include:

- Corbin Street Support Yard (designed to support intermodal activities at Port Newark & Elizabeth and relieve pressure on the Garden State Secondary (the Garden State Secondary was until recently called the Chemical Coast Secondary)) and Oak Island Yard;

- Arlington Yard (supporting intermodal and waste moves in Staten Island);

- The north-bound connector located in Bayway, NJ (connecting Staten Island to the Conrail Garden State Secondary); and

- Off-Port Rail Improvements (e.g., Lehigh Line double tracking, Liberty Corridor, etc., providing capacity and clearance improvements on line segments within the Conrail area).

Figure 1: PANYNJ Rail and Terminal Map

This report will now review each of the major elements of the rail network being used by Covanta and Waste Management for the movement of railcars of loaded and empty waste containers under the North and South Pair MTS contracts. The listing of rail facilities will be outbound from rail origins (at GCT in Staten Island and Elizabethport Yard (also known as CSX Transflo) in Elizabeth, NJ) to the various identified destination locations.

Covanta movement to Niagara, NY and Waste Management movement to Fairport, NY to a large extent, utilizes the same route from Oak Island, with the Waste Management cars stopping at Rochester, NY, and the Covanta cars proceeding west to Buffalo NY, where they branch off to Niagara. We will refer to these as Northbound (or Westbound) Moves from Oak Island.

Covanta movement to Wilmington, DE and Waste Management movement to Waverly, VA, to a large extent utilizes the same route from Oak Island, with the Covanta cars stopping at Wilmington, DE, and the Waste Management cars proceeding south to Collier Yard in Petersburg, VA, where they are interchanged to Norfolk Southern Corporation (NS) for delivery to Atlantic Waste Disposal. We will refer to these as Southbound Moves from Oak Island. (Movements to Covanta's alternate disposal location in Bishopville, SC and Waste Management's alternate disposal locations in Jetersville, VA and Morrisville, PA, will also involve Southbound Moves).

GCT New York Terminal (ExpressRail Staten Island)

The GCT New York Terminal (GCT) is an intermodal facility, formerly referred to as New York Container Terminal; the rail yard originally consisted of five tracks and has been expanded to a seven-track yard. There is ability to further expand the rail yard at GCT to eleven tracks if volume requires such an expansion. The rail yard at the container terminal is operated by GCT New York with rail operations being performed by GCT employees. As currently constituted, the operation involves GCT crews loading containers on railcars, and delivering blocks of loaded railcars to Arlington Yard for pick-up by Conrail train crews.

Arlington Yard

Located in Staten Island, Arlington Yard was rebuilt to primarily serve as a support facility to GCT and DSNY's Staten Island Transfer Station rail yard. The Arlington Yard was scaled to meet the current and projected traffic volumes to and from Staten Island. As noted above, Arlington Yard is the location where Conrail crews hand off and pick up traffic for GCT. The Conrail crew that currently delivers and picks up that traffic is based at Corbin Street Yard in Port Newark. The Conrail train crews deliver blocks of railcars to Arlington Yard with containers for barge transport through GCT, as well as other traffic. Current operations have Conrail making one delivery to and one pick-up from Arlington Yard daily. Conrail is physically restricted to a maximum train length of approximately 8,500 feet, or a train consisting of approximately 80-84 standard intermodal cars and sufficient locomotives to move that train.

Arthur Kill Lift Bridge

The operation of the Arthur Kill Lift Bridge (AKLB) is a significant element in considering operations to and from Staten Island. The operation of the bridge is regulated by the Code of Federal Regulations (CFR), and adherence to the CFR is managed by the Port Captain and the Coast Guard. That portion of the CFR (33 CFR 117.702) which regulates operation of the AKLB is provided in Appendix A.

In summary, the protocols in place to operate the AKLB are that advance notice must be given before a train is moved either to or from Staten Island, and trains are often required to wait to allow marine vessels to clear the bridge. The CFR specifies that the bridge shall close to marine traffic no more than twice a day, and those closures, during which trains can access or depart Staten Island, are limited to 15 minutes each.

Given the current traffic volumes at GCT New York Terminal, the constraint created by the CFR referenced above could be problematic, but is not a fatal flaw. The current service pattern (service by Conrail local, PN-08) is adequate to meet both current and currently identified growth in traffic levels. If additional closings were determined to be necessary, however, either the bridge owner or operator would have to petition to have the CFR revised. It is unclear how such a request would be received or how long it

would take to work through the revision process. Additionally, if multiple closings of the AKLB were contemplated, it is reasonable to assume that additional Conrail crew(s) would be required to perform the rail service to meet the additional operating windows. This assumption is made based on workload capacity, transit times and federally mandated Hours of Service Law requirements.

Garden State Secondary and Corbin Street Yard

Conrail Garden State Secondary (the new name for the former Chemical Coast Secondary) is a major rail connector between Oak Island Yard, and rail customers south of Newark (Elizabeth, Elizabethport, Bayway, Linden, Port Reading, Perth Amboy, etc.). In addition to the other traffic moving over the Garden State Secondary, the line handles all traffic to and from Staten Island via the AKLB.

Corbin Street Yard (also referred to as Port Newark Yard) is a key element in considering movement between GCT New York Terminal and Oak Island Yard. Corbin Street Yard is located adjacent to the Garden State Secondary. This facility was developed to support the intermodal operations in Port Newark and Elizabeth, and to reduce impact to the Garden State Secondary from these intermodal terminals. Conrail officials discussed the interrelationship between the Intermodal operation in this area with the movement of traffic to and from Staten Island. As long as the intermodal traffic arriving and departing the Port Newark/Elizabeth area does not impede traffic on the Garden State Secondary, Corbin Street Yard is a non-issue. If Corbin Street Yard is plugged and traffic overflow impacts the fluidity of the Garden State Secondary, then Conrail generally will make operational adjustments to protect all rail movements. As the Conrail officials noted, Conrail's parents (CSX and NS) are in effect obligated to authorize Conrail to secure sufficient resources to handle the traffic generated by both parents.

Elizabethport Yard

Elizabethport Yard in Elizabeth, NJ, is a CSX yard located along the Conrail Garden State Secondary. At this location is a CSX Transflo facility (Transflo is a CSX subsidiary providing all manner of rail trans-loading services, and in this case, the loading of containers is a Transflo-branded activity being performed by a subcontractor, Savage Industries). CSX will be upgrading track at Elizabethport Yard to handle multiple day's supply of cars at this location for Waste Management. The actual switching of railcars at Elizabethport Yard is performed by CSX crews. Service between Oak Island Yard and Elizabethport Yard is provided by Conrail local crews.

Oak Island Yard

Oak Island Yard is the largest switching yard in New Jersey, and is located at the nexus of the key rail routes north, south and west. Conrail's Lehigh Line, Passaic & Harsimus (P&H) Line and the National Docks Secondary all connect to Oak Island Yard. The yard

is the major classification yard for the region. That means that Conrail switches inbound road trains to make up outbound local trains and deliveries, and conversely, switches inbound local trains into blocks of cars to place in outbound road trains.

Oak Island is a hump yard. The hump yard operation at Oak Island is unique in that it switches inbound traffic for half the day (inbound traffic being that traffic destined to customers in or around North Jersey) and then switches outbound traffic for half the day (outbound traffic being traffic that originated on rail in the North Jersey area and is destined for locations elsewhere in North America).

Originating CSX trains and blocks of cars awaiting pick-up by passing CSX trains are assembled and dispatched by Conrail forces at Oak Island Yard.

CSX northbound (or westbound) trains to or from the River Line access various Oak Island complex yard tracks and can use either the Conrail National Docks Secondary, or the Conrail P&H line and the Conrail Northern Branch, to connect to the CSX River Line. At this point in time, the majority of this CSX traffic uses the National Docks Secondary and then connects to the CSX River Line.

Southbound CSX traffic accesses various tracks in the Oak Island complex and utilizes the Conrail Lehigh Line to access the CSX Trenton Line in order to route traffic to or from points south.

For purpose of the current analysis:

- Covanta traffic moving to and from Niagara, NY, utilizes the CSX Northbound (or Westbound) Moves from Oak Island, as designated below.

- Waste Management traffic moving to and from Fairport, NY, utilizes the CSX Northbound (or Westbound) Moves from Oak Island, as designated below.

- Covanta traffic moving to and from Wilmington, DE (and the secondary facility at Bishopville, SC), utilizes the CSX Southbound Moves from Oak Island, as designated below.

- Waste Management traffic moving to and from Waverly, VA (and the secondary facilities at Jetersville, VA and Morrisville PA), utilizes the CSX Southbound Moves from Oak Island, as designated below.

5. CSX Northbound (or Westbound) Moves from Oak Island

The Conrail National Docks Secondary

The National Docks connects Oak Island Yard with North Bergen, NJ, operating across the Upper Newark Bay drawbridge and through Jersey City, NJ. At North Bergen, the National Docks Secondary connects with the CSX River Line.

The CSX River Line

The CSX River Line is a major route for all forms of traffic and handles, on average, 30 trains per day. The line, which historically was a single-track line with occasional passing sidings, now has controlled sidings along a majority of its length.

CSX Selkirk Yard

Selkirk Yard is a large freight railroad classification yard located in Selkirk, NY, about 8 miles south of Albany. Selkirk Yard is owned by CSX and is its major classification yard for the northeast United States.

The CSX Chicago Line

CSX's Chicago Line is a key corridor for CSX, connecting Selkirk, NY and Chicago, IL. Major cities along this route are Utica, Syracuse, Rochester, Buffalo, Erie, Cleveland, etc. CSX shares the right of way with Amtrak inter-city trains. Therefore, traffic over this line must contend with shared corridor (both passenger and freight) issues.

6. CSX Southbound Moves from Oak Island

The CR Lehigh Line

The Conrail Lehigh line runs from Oak Island Yard, southwest to Port Reading Junction (Manville), NJ. The line is used by Conrail, NS, CSX and New Jersey Transit. Therefore, traffic over this line must contend with shared corridor (both passenger and freight) issues.

The CSX Trenton Line

The Trenton Line extends from Port Reading Junction (Manville), NJ to Park Junction (Philadelphia), PA. A portion of this line is also used by SEPTA, the rail commuter agency in Southeast Pennsylvania. Therefore, traffic over this line must also contend with shared corridor (both passenger and freight) issues.

The CSX Philadelphia Subdivision

The Philadelphia Subdivision extends from Park Junction (Philadelphia), PA to Bay View (Baltimore) MD.

The CSX Baltimore Terminal Subdivision

The Baltimore Terminal Subdivision extends from Bay View (Baltimore), MD to Halethorpe, MD (south of Baltimore). Within the city of Baltimore, this line runs through the Howard Street Tunnel.

The CSX Capitol Subdivision and Alexandria Extension

The Capitol Subdivision extends from Halethorpe, MD, a location south of Baltimore to Washington D.C. In the District of Columbia, the Alexandria Extension connects the Capital Subdivision to the Richmond Fredericksburg and Potomac (RF&P) Subdivision. There is significant passenger traffic, as well as freight, on the Alexandria Extension. Therefore, traffic over this line must contend with shared corridor (passenger and freight) issues.

The CSX RF&P Subdivision

The RF&P Subdivision extends from Washington D.C. to Richmond, VA. The RF&P is also the host to Virginia Rail Express, the commuter agency providing rail service from northern Virginia to Washington D.C., as well as Amtrak intercity train service. Therefore, traffic over this line must contend with shared corridor (passenger and freight) issues.

The CSX Richmond Terminal Subdivision

The Richmond Terminal Subdivision consists of the 4 miles of track surrounding CSX Acca Yard in Richmond, VA. Amtrak intercity service to and from the south utilizes this route. Therefore, traffic over this line must contend with shared corridor (passenger and freight) issues.

The CSX North End Subdivision

The North End Subdivision extends from Richmond, VA to Rocky Mount, NC. CSX Petersburg, VA yard is in this line segment. Amtrak intercity service to and from the south utilizes this route. Therefore, traffic over this line must contend with shared corridor (passenger and freight) issues.

The CSX South End Subdivision

The South End Subdivision extends from Rocky Mount, NC to Florence, SC. Amtrak intercity service to and from the south utilizes this route. Therefore, traffic over this line must contend with shared corridor (passenger and freight) issues. (Note: This portion of the route would only be used for Covanta's alternative disposal destination, Bishopville, SC. Cars would be interchanged at Florence to South Carolina Central Railroad (SCRF) for final delivery.)

Specific CSX trip plans as of 4/9/18 (Actual trip plans, or proposed trip plans in the case of traffic projected to begin later 2018 or early 2019)

Elizabeth to Fairport	**Fairport to Elizabeth**
CSX Local Y 390 at Elizabethport	CSX B 796 Fairport to Rochester
CR Local Y 116 Elizabethport to Oak Island	CSX Q 560 Rochester to Selkirk
CSX Q 434 Oak Island to Selkirk	CSX Q 433 Selkirk to Oak Island
CSX Q 363 Selkirk to Rochester	CR Local Y 116Oak Island to Elizabethport
B 796 Rochester to Fairport	CXT Local Y 390 at Elizabethport

Elizabeth to Waverly	**Waverly to Elizabeth**
CSX Local Y 390 at Elizabethport	NS Local Waverly to Collier
CR Local Y 116 Elizabethport to Oak Island	CSX Q 300 Collier to Oak Island
CSX Q 301 Oak Island to Collier	CR Local Y-116 Oak Island to Elizabethport
NS Local Collier to Waverly	CSX Local Y 390 at Elizabethport

Arlington to Wilmington	**Wilmington to Arlington**
CR Local PN-08 Arlington to Oak Island	CSX Y 291 at Wilmington
CSX Q 301 Oak Island to Wilmington	CSX Q 300 Wilmington to Oak Island
CSX Y 291 at Wilmington	CR Local PN-08 Oak Island to Arlington

Arlington to Niagara	**Niagara to Arlington**
CR Local PN-08 Arlington to Oak Island	CSX B 792 Niagara to Frontier
CSX Q 434 Oak Island to Selkirk	CSX Q 560 Rochester to Selkirk
CSX Q 363 Selkirk to Frontier	CSX Q 433 Selkirk to Oak Island
CSX B 792 Frontier to Niagara	CR Local PN-08 Oak Island to Arlington

7. General Discussion of Conrail Capacity and Capability

In discussion with Conrail managers, Conrail confirmed its ability to handle surges in traffic, and stressed that the parent companies (CSX and NS) regularly assess traffic patterns and projected traffic levels in order to plan for deployment of assets, as needed.

Infrastructure improvements made over the past 13 years (since the issuance of the 2005 Rail Capacity Report) have improved the ability of Conrail to efficiently handle traffic through this area. The proposed additional infrastructure improvements currently planned, once constructed, will further ensure the ability to handle increased volumes of traffic. (Note: The infrastructure improvements proposed focus on primarily intermodal traffic and facilities, since that is the single largest growing rail segment in the North Jersey area, but as such improve the general fluidity of the freight rail network in the region). Crew levels and staffing are more than adequate for current and projected volumes.

As noted above, the AKLB is one potential area of concern as it relates to Conrail because of the limit on the number of daily closures of the bridge that can now be scheduled under the Code of Federal Regulations (CFR). Given that bridges over navigable waterways are governed by federal regulations and fall under the direction of the Captain of the Port, closures of the bridge are closely regulated.

For purpose of this discussion, when the bridge is “open”, the lift span is in the raised position and marine traffic can traverse the Arthur Kill. When the bridge is “closed”, it is in the down position and available to move rail traffic across the bridge and marine traffic is halted. The CFR specifies both the number of closures per day (two) and the protocols to be followed prior to each closure. The restriction to two closures per day (each to be of fifteen minutes or less), creates a potential restriction to freight volumes moving to or from Staten Island.

This restriction impacts the MTS North Pair waste being considered in this report (Covanta movements) as well as the MSW from the Staten Island Transfer Station (Republic movements), and intermodal traffic to and from GCT. This is a regulatory restriction and not a physical restriction. It has the potential to impact Conrail’s operating plan for the rail movement between Oak Island Yard in New Jersey and Arlington Yard in Staten Island. In turn it has the potential to impact Conrail operations, but not the CSX portion of the operations, which begin and terminate at Oak Island Yard. CSX and Conrail are aware of the constraint.

Creative operating plans can be developed to address constraints created by bridge closures, and alternatively, an entity, such as the City (owner of the AKLB) or PANYNJ (or Conrail), could petition the Coast Guard to modify the relevant CFR. Given the current traffic volumes at GCT, the constraint created by the CFR referenced above is

not an issue. The current service pattern, service by Conrail local, PN-08, is adequate to meet current traffic levels. However, if traffic levels were to increase significantly, the current two 15-minute closings could become the ruling constraint on the system.

8. General Discussion of CSX Capacity and Capability

CSX Operating Practices

A recent CSX management change (February 2017) brought a focus on “Disciplined Scheduled Railroading”, a “brand” championed by E. Hunter Harrison who was appointed CEO of CSX in February 2017. This approach is designed to make the railroad more efficient and produce a more even and ratable service product. Two key ways that this will be accomplished will be to minimize handling of railcars and to maximize train lengths, to the extent possible. As to the movement of MSW by rail under DSNY’s transport and disposal by rail contracts, this management change impacts two particular elements of the rail operation: unit trains and hump yards.

Although Mr. Harrison passed away unexpectedly in December 2017, the senior management team at CSX had been entirely changed out between February and December 2017. The current management team, which includes several former senior managers from Canadian National, continue to advocate for, and execute the “Disciplined Scheduled Railroading” model initiated by Mr. Harrison.

While in the past CSX has been willing to move solid waste in unit trains (in some cases in trains of less than 60 cars), it is not willing to consider such moves at this time. In fact, all indications are that CSX will, to the extent possible, transition historic unit train customers into the general merchandise network. The logic behind the move is that this will even out the use of railroad resources and help to maximize train length/volume. Therefore, all plans to move MSW by rail via CSX should be made under the assumption that all moves will be in merchandise trains.

To minimize handling of railcars, CSX is also making a concerted effort to close hump yards and minimize handlings en route where they can do so. Between February and April of 2017, CSX closed 4 of the 12 hump yards on the CSX system. On June 15, 2017, CSX announced that it would be closing the hump operation at its facility located in Selkirk, NY. The yard is owned by CSX Transportation and is its major classification yard for the northeast United States. Plans had been announced by CSX to convert this facility from a gravity hump yard to a flat switch yard.

For a number of reasons, the plan to convert Selkirk from a hump yard to a flat switching yard was set aside. CSX continues to revise trip plans, train schedules and operating plans in an effort to develop an optimal balance of efficiency and service. It is impossible at this time to specifically quantify the impacts of these ongoing changes on the movement of MSW to various destinations. While the current traffic seems to have settled down to a regular service pattern, future adjustments June have the impact of upsetting that balance.

The key metric to watch for is the transit time for the movements, both in the short term, while operational changes are being made (and any labor unrest as result of the changes could be felt), and long term when all major changes have been implemented and become part of the new operating plan.

The hump operation at Oak Island is managed by Conrail, which is jointly owned by CSX and NS. As such, it would take a joint decision of both CSX and NS to approve a major change to the Oak Island hump yard.

CSX Infrastructure

In discussions with CSX on infrastructure issues along routes proposed for the movement of containers from the MTSs, CSX's major concerns were with redundancy and recoverability. CSX stated that current infrastructure will support the traffic levels proposed.

CSX noted that some tracks at the CSX Elizabethport Yard have been upgraded to support this activity and provide dedicated capacity to store cars for Waste Management and additional improvements are still contemplated.

CSX indicated that the River Line between North Bergen, NJ and Selkirk, NY has the capacity to handle the proposed traffic. CSX has continued to add controlled sidings and improve the fluidity of the line. The only long-term constraint that CSX anticipates on the River Line is the West Point Tunnel, where the CSX River Line travels directly under the United States Military Academy at West Point, NY. For a variety of reasons, there is no expectation that this constraint will be removed, but CSX has asserted that the tunnel does not offer a significant impedance to traffic flows.

CSX sees no capacity constraints between North New Jersey and the New York State locations.

CSX sees no capacity constraints between North New Jersey and Wilmington, DE or between North New Jersey and Morrisville PA, the Virginia locations and Florence, SC, where CSX interchanges traffic with SCRF, the short line railroad that moves traffic between Florence, SC and Bishopville, SC.

9. Conclusion

In general, the rail system over the routes used/proposed by Covanta and Waste Management is able to handle the influx of rail traffic generated by DSNY's Marine Transfer Stations.

There are three identified areas of concern that require monitoring: the operating restrictions on the AKLB, ongoing CSX operating plan revisions in support of Disciplined Scheduled Railroading (DSR), and the movement from unit train operations to merchandise train operations.

1. The AKLB is restricted to two closings in a 24-hour period. The bridge closes to allow rail traffic to operate over the bridge and remains open at other times to allow marine traffic to pass unimpeded. If there is more growth in rail traffic to or from Staten Island than is currently predicted, these federally mandated restrictions on bridge closings June cause operational and capacity constraints on MSW traffic moving to or from GCT New York Terminal (and the traffic to or from the Staten Island Transfer Station rail yard). This could result in a need to seek a change in the operating restrictions on the bridge.

2. CSX continues to make significant changes to the overall operating plan to support the DSR model. Until the entire operating plan, including trip plans for each train originating, terminating or passing through Selkirk or Oak Island, is completed and implemented, the ultimate impacts to the traffic from the MTSs will not be known.

3. CSX has already converted all MSW traffic from unit train operations to inclusion in regularly scheduled merchandise trains and is now in the process of converting other unit train business to the merchandise train network. While the goal of such moves is to even the flow of traffic and reduce the demands on resources, there is always the potential for unintended consequences or impacts to specific traffic flows.

While the occurrence of one or more of the concerns identified above would not constitute a fatal flaw, they each and severally should be monitored to ensure that they do not cause a degradation in rail service or ability of the transport and disposal contractors to meet the obligations specified in the applicable DSNY transport and disposal contracts.

Appendix A

Federal Regulation of the Arthur Kill Lift Bridge

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33 CFR 117.702 - Arthur Kill.

§ 117.702Arthur Kill.

(a) The draw of the Arthur Kill (AK) Railroad Bridge shall be maintained in the full open position for navigation at all times, except during periods when it is closed for the passage of rail traffic.

(b) The bridge owner/operator shall maintain a dedicated telephone hot line for vessel operators to call the bridge in advance to coordinate anticipated bridge closures. The telephone hot line number shall be posted on signs at the bridge clearly visible from both the up and downstream sides of the bridge.

(c) Tide constrained deep draft vessels shall notify the bridge operator, daily, of their expected times of vessel transits through the bridge, by calling the designated telephone hot line.

(d) The bridge shall not be closed for the passage of rail traffic during any predicted high tide period if a tide constrained deep draft vessel has provided the bridge operator with an advance notice of their intent to transit through the bridge. For the purposes of this regulation, the predicted high tide period shall be considered to be from two hours before each predicted high tide to a half-hour after each predicted high tide taken at the Battery, New York.

(e) The bridge operator shall issue a manual broadcast notice to mariners of the intent to close the bridge for a period of up to 30 minutes for the passage of rail traffic, on VHF-FM channels 13 and 16 (minimum range of 15 miles) 90 minutes before and again at 75 minutes before each bridge closure.

(f) Beginning at 60 minutes prior to each bridge closure, automated or manual broadcast notice to mariners must be repeated at 15 minute intervals and again at 10 and 5 minutes prior to each bridge closure and once again as the bridge begins to close, at which point the appropriate sound signal will be given.

(g) Two 15 minute bridge closures June be provided each day for the passage of multiple rail traffic movements across the bridge. Each 15 minute bridge closure shall be separated by at least a 30 minute period when the bridge is returned to and remains in the full open position. Notification of the two 15 minute closures shall follow the same procedures outlined in paragraphs (e) and (f) above.

(h) A vessel operator June request up to a 30 minute delay for any bridge closure in order to allow vessel traffic to meet tide or current requirements; however, the request to delay the bridge closure must be made within 30 minutes following the initial broadcast for the bridge closure. Requests received after the initial 30 minute broadcast will not be granted.

(i) In the event of a bridge operational failure, the bridge operator shall immediately notify the Coast Guard Captain of the Port New York. The bridge owner/operator must provide and dispatch a bridge repair crew to be on scene at the bridge no later than 45 minutes after the bridge fails to operate. A repair crew must remain on scene during the operational failure until the bridge has been fully restored to normal operations or until the bridge is raised and locked in the fully open position.

(j) When the bridge is not tended locally it must be operated from a remote location. A sufficient number of closed circuit TV cameras, approved by the Coast Guard, shall be operated and maintained at the bridge site to enable the remotely located bridge tender to have full view of both river traffic and the bridge.

(k) VHF-FM channels 13 and 16 shall be maintained and monitored to facilitate communication in both the remote and local control locations. The bridge shall also be equipped with directional microphones and horns to receive and deliver signals to vessels.

(l) Whenever the remote control system equipment is disabled or fails to operate for any reason, the bridge operator shall immediately notify the Captain of the Port New York. The bridge shall be physically tended and operated by local control as soon as possible, but no more than 45 minutes after malfunction or disability of the remote system.

(m) Mechanical bypass and override capability of the remote operation system shall be provided and maintained at all times.

[USCG-2010-1117, 76 FR 45692, Aug. 1, 2011]

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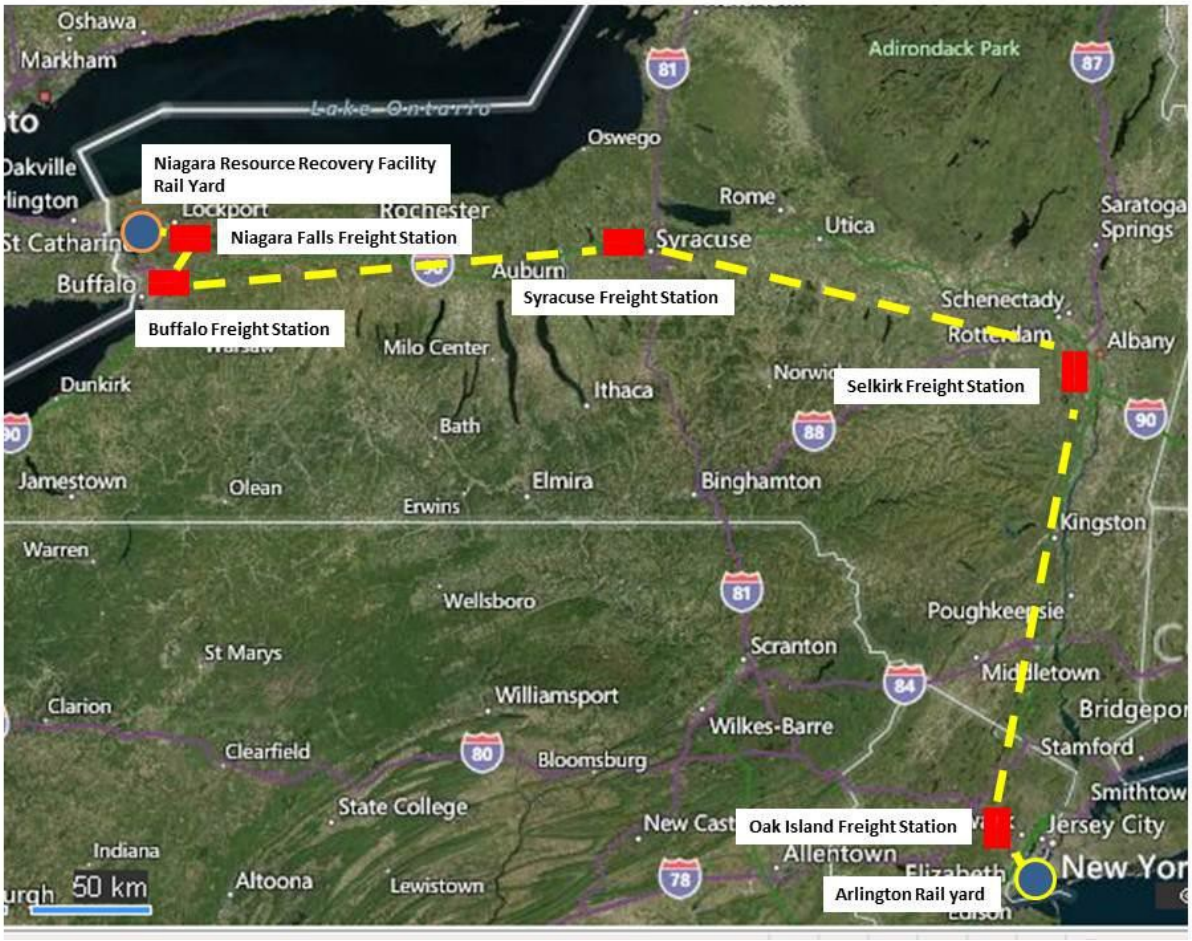
Appendix B

Covanta Rail Service Maps

RAIL SERVICE FROM ARLINGTON TO NIAGARA FALLS, NY



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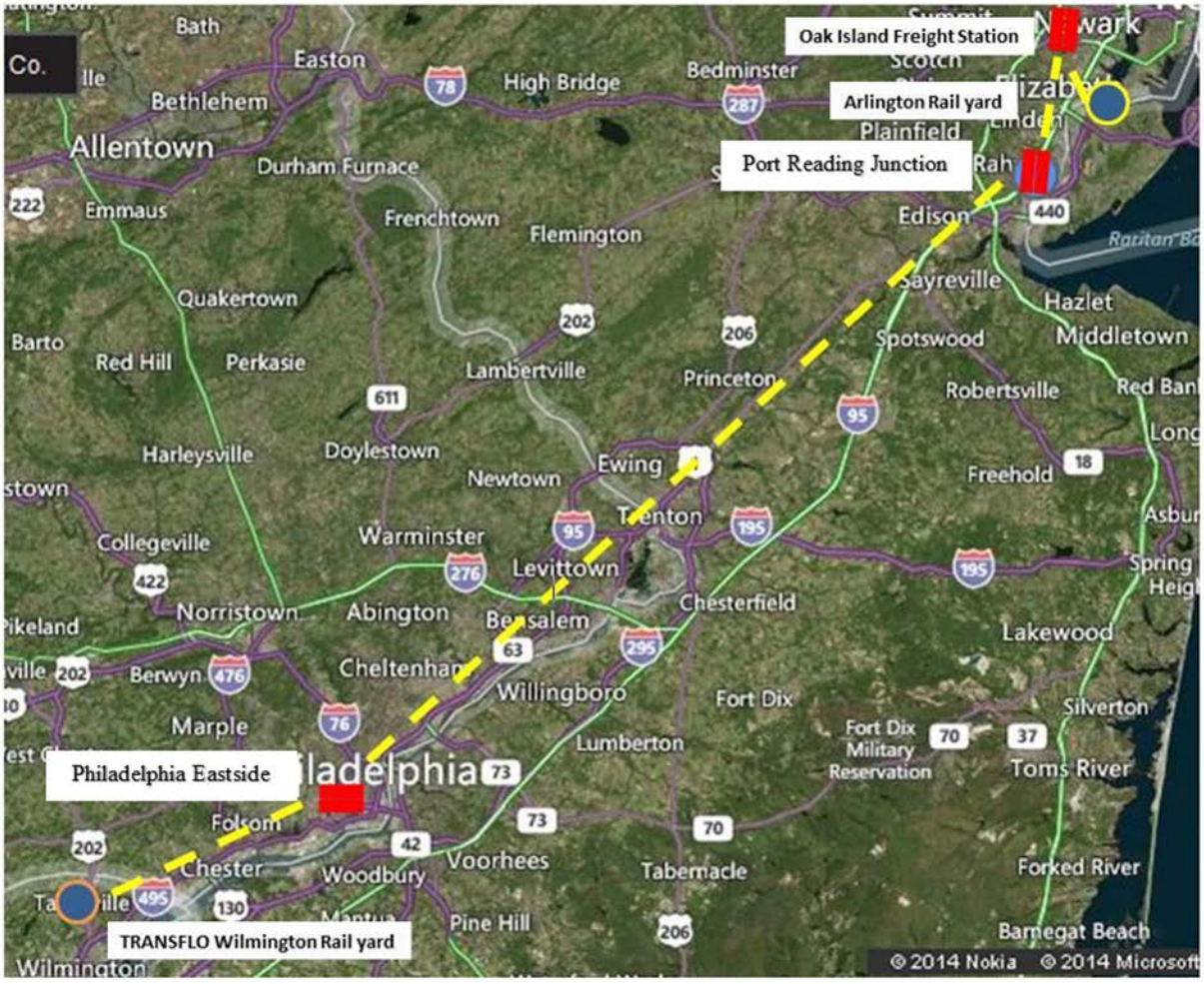
RAIL SERVICE FROM ARLINGTON, NY TO WILMINGTON DE



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Appendix C

Waste Management Rail Service Map

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DSNY – MTS Project

- Rail Transportation Routes

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Appendix D

Rail Study Team

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Thomas J. Egan

Thomas J. Egan is owner and principal of a transportation consulting company working with Rail Customers, Public Agencies, Railroads and Architectural and Engineering firms, providing management support and subject matter expertise in various areas including strategic planning, sales and marketing, forensic analyses, project analysis, industrial development, operations planning management practices and governmental relations.

Prior experience included working for CSX Transportation and predecessor railroads (Conrail, Penn Central and New Haven Railroad) from 1965 to 2004. During that timeframe, he served in the following roles:

- Director of Short Line and Regional Railroad Development – Responsibilities included serving as CSXT liaison with 86 short line and regional railroads in 12 states and two Canadian provinces. He dealt with all aspects of the relationship between CSXT and these other railroads, including commercial, operations and service design, joint facility, property, public advocacy and external communications and field operations. He provided commercial oversight and input for line sales/leases, and was responsible for a portion of CSXT's relationship with four commuter agencies
- Director of Commercial Operations – Northeast – Handled all interface between operations and commercial functions in the Northeast. Worked to identify bottlenecks and ameliorate, and provide platform for business growth. Heavy focus on CSXT's I-95 initiative, improving service and developing capacity on existing service between Maine and Florida.
- Director of Industrial Switching/Planning, Service Design – Developed CSXT Local Area Management (LAM) program, crafting mechanism for reducing costs and improving asset utilization (crews and cars). Provided tangible linkage in the field between commercial and operations sides of the business by providing shared P&L responsibility.
- Regional Account Manager/Local Area Management – Worked on Conrail Local Area Management project, focusing specifically on developing additional business on operations in New England and downstate New York. Made these units the premier operating units on Conrail.
- Manager of Community Affairs and Special Projects – Handled Conrail community relations in New England and downstate New York. Was state coordinator for Mass. Operation Lifesaver, and Conrail liaison to Massachusetts Railroad Association and Connecticut Railroad Association. Also worked on development of rail participation in movement of construction materials and waste.
- Manager of Boston Project – Served as lead in Conrail's initiative to become a key transportation supplier to major highway construction project ("The Big Dig"). Also led initiative to certify Conrail as a general contractor for purpose of bidding as prime contractor on Materials Processing Operation contract within that construction project. Initiative led to significant railroad participation in movement of structural steel, rebar, cement, stone and contaminated dirt, commodities normally handled into and out of construction projects by truck. Initiative also lead to larger understanding of forces at play in construction industry and mechanisms needed for rail participation.
- System Supervisor of Contract Administration – Crafted, negotiated and managed joint facility agreements (interchange, haulage, trackage rights, access, run-through, etc.) with other railroads. These agreements provide for the interplay between railroads, and allow traffic to efficiently move from one railroad to another.
- Terminal General Foreman for New England – Managed a workforce of 190 people, responsible for all maintenance, repair and problem resolution regarding locomotives and rolling stock. Responsible for safety of workforce, equipment quality and reliability as well as oversight of movement of dimensional shipments and emergency response to any on line incidents (accidents, tank-car leaks, derailments, personal injuries, etc.)

Molly McCarthy-Egan

Ms. McCarthy-Egan has worked in the transportation arena since 2004, first as an independent consultant and then, since 2009 as M-E Consulting Services. In this role she has worked for a variety of consulting firms, engineering firms, railroads and public agencies, either directly or a sub-consultant. M-E Consulting Group specializes in research, data gathering and analysis and rail assessments.

Some of her recent work includes:

- New York City Department of Sanitation – Providing transportation research and analysis as relates to rail transportation of Municipal Solid Waste (as a sub to HDR)
- Port Authority of New York and New Jersey – Research and assistance in rail analysis of the Port Authority Expressrail System (as a sub to HDR)
- New York and Atlantic Railway – Provided research, preparation of industrial development site analysis report and other support to the sales and marketing efforts of the NYA.
- Keolis North America – Provided analysis of rolling stock condition and repair record review on MBCR rolling stock, as part of Keolis preparation to bid on MBTA commuter rail operation, Boston,MA. (as a sub to GFWCS)
- Keolois Commuter Services – Supported Keolis successful bid to operate MBTA commuter service (as a sub to ECG)
- Santa Cruz County Regional Transportation Commission – Provided analysis and research in support of SCCRTC purchase of a rail line and securing a rail operator to operate and maintain the line (as a sub to ECG).

Shawn Worster

Mr. Worster is an Associate Vice President and Senior Professional Associate at Henningson, Durham & Richardson Architecture and Engineering, P.C. He has over 35 years of experience in project development, consulting and executive management in the integrated solid waste resource management sector. Prior to joining HDR, he served as the Executive Director of the North East Solid Waste Committee representing a regional consortium of 23 municipalities delivering their solid waste to a 1,500 tpd Wheelabrator owned energy from waste facility. Since joining HDR, he has helped public sector clients plan procure, negotiate and implement long-term public private partnerships providing environmentally and economically sound, sustainable waste resource processing, transfer and disposal contracts, including rail haul.

Some of his rail experience includes:

- New York City Department of Sanitation – As part of his overall assistance in implementing the City's long-term Solid Waste Management Plan, he has provided analytical and negotiation support to the Department of Sanitation's negotiating team in its ongoing implementation efforts regarding the rail and barge transport of over 10,000 tpd for disposal. Included in that effort is assisting DSNY in evaluating the terms and conditions of several rail haul subcontracts via various railroads to several disposal locations in the eastern continental United States. This effort has included an examination of the terms of service (unit train versus merchant), required rolling stock reflecting impact of routing and turn times and proposed pricing provisions (including fuel surcharges) using various analytical tools, including tailored excel spreadsheets and US Rail Desktop.
- Greater Bridgeport Regional Solid Waste Advisory Board – End of term support and worked with the Advisory Board team in reviewing the status of seven existing transfer stations and two landfills, examining the costs associated with alternative disposal programs including developing a new waste to energy facility and long haul rail-truck to distant disposal locations.

- Monmouth County, NJ – Led the HDR team that prepared a feasibility analysis related to the long-haul transport by rail on behalf of the County. Mr. Worster prepared cost estimates of the rail transportation component and disposal costs at rail served landfills as part of this effort.

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