STAFF REPORT

PLEASE REFER TO DRCC # WHEN SUBMITTING ADDITIONAL DOCUMENTS

DELAWARE AND RARITAN CANAL COMMISSION

DRCC #: 19-4954A
DATE: November 14, 2019
PROJECT NAME: NJ Transit Delco Lead Storage & Inspection & County Yard Improvement Phase 2 -- Delco Lead Freight Track
Latest Submission Received: November 8, 2019

Applicant:
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Project Location:

Road	Municipality	County	Block(s)	Lot(s)
3.2 miles of rail line extending from County Yard in New Brunswick to North Brunswick	New Brunswick City	Middlesex	800, 598	1, 17, 3.03, 8.01, 9.01, 103
	North Brunswick Township		142.01, 143, 148, 90	1, 2, 5, 6.02, 6.05, 6.06, 7.01, 7.02, 7.03, 7.04, 9, 12, 11.01. 11.02, 13.01, 15, 16, 34, 34, 37, 38.05, 38.06, 39

Jurisdictional Determination:

Zone B	Major	Governmental

Subject to Review for:

Drainage	Visual	Subdivision	Stream Corridors
X			X

THIS STAFF REPORT IS ISSUED AS A GUIDE TO APPLICANTS IN COMPLYING WITH DRCC REGULATIONS. IT IS NOT AN APPROVAL. NO CONSTRUCTION SHALL BEGIN UNTIL A CERTIFICATE OF APPROVAL HAS BEEN ISSUED.

Documents Received: Stormwater Management Summary dated February 2018 and revised May 24, 2018; NJDEP Flood hazard Area Permit dated October 2018 and revised February 2018; Evaluation of Runoff Coefficients for Railroad Ballast dated February 2018; Stormwater Management Summary and Linear Development Waiver Report dated February 2018 and revised May 24, 2018; Delco Lead NJDEP Flood Hazard Area Individual Permit Plans (18 sheets) February 16, 2018; Delco Lead Grading and Drainage Plans (167 sheets) dated February 16, 2018 and revised May 22, 2019 prepared by Jacobs Engineering; Existing & Proposed Easements Plan (4 sheets) dated June 24, 2019 prepared by Amy S. Greene Environmental Consultants Inc.; Stormwater Management Report dated January 2018 and last revised May 8, 2019; NJDEP Flood Hazard Area Permit Stormwater Management Maintenance Report; Hydrologic & Hydraulic Analysis dated January 2018 and revised February 20, 2018; Stormwater Management Report Area #3 Downstream Point Analysis dated January 15, 2019; Stormwater Management Report Area #4 Downstream Point Analysis dated January 18, 2019; prepared by WSP.

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Staff comments continued below.

The application is complete and shall be presented to the Commission for their action with a staff recommendation of approval at the November 20, 2019 meeting, based upon the following analysis:

Existing Conditions: The Delco Lead Storage, Inspection and County Yard facility is located along the Northeast Corridor (NEC) rail line within the City of New Brunswick and Township of North Brunswick, Middlesex County, approximately 2.7 miles south of the Delaware and Raritan Canal and within Commission Review Zone B. Owned primarily by Conrail, the Delco Lead was planned to accommodate two tracks during its construction in the mid-twentieth century but currently consists of only one. The New Jersey Transit Corporation (NJ Transit) is in the process of purchasing the Delco Lead property from Conrail.

The property is a collection of parcels varying in width that extend from the existing NJ Transit Jersey Avenue Station westward to the former Johnson & Johnson property in North Brunswick, comprising a total land area of approximately 27.2 acres. The existing Delco Lead rail line, which is adjacent to the NEC rail line, extends approximately 3.2 miles and consists of a single freight track for the length of the property which in the past served various freight tenants along the right-of-way.

In 2017, the Commission issued a certificate of approval for the first phase of this project; namely the construction a flood resilient Service and Inspection (S&I) Facility and storage tracks for ten 12-car trains in the existing County Yard rail yard facility owned and operated by NJ Transit (DRCC #16-4954). As part of the 2017 Commission

approval, mitigation was provided by the applicant in the form of an easement and preservation of 4.3 acres of off-site stream corridor area and additional funding in the form of a donation to the New Jersey Water Supply Authority (NJWSA) for water quality improvements within the Watershed Management Area 9.

Proposed Project: NJ Transit proposes to undertake Phase 2 of the project, known as the Delco Lead Storage, Inspection and County Yard improvements, which consists of the reconstruction of the Delco Lead freight track. The project includes the removal of approximately 3.2 miles of existing freight track and construction of two new flood resilient storage tracks to provide emergency storage or a "safe haven" for up to 288 rail cars during severe weather events.

The proposed construction elements include: the removal of the existing freight siding; the addition of fill to accommodate two tracks in some areas and elevate all project elements to a height sufficient to meet NJ Transit Flood Elevation Design Criteria for inland facilities with construction of two new tracks, and associated catenary and signals; drainage, relocation of track side ditches, cross culverts and pipes, and stormwater management features; upgrading of track and signal connections to the County Yard; utility relocations as necessary to accommodate the project; and access roads for track maintenance and emergency egress for train crews.

The project is an element of NJ Transit's transit system resiliency program, which seeks to protect infrastructure against future storms. In implementing this program, NJ Transit has focused on projects that will help protect the transit system and primarily its rail network and vehicles against functional damage resulting from wind or flooding; and on projects that will facilitate rapid resumption of service after storms have passed. A key objective in this effort is the development of permanent safe haven storage for its fleet at NJ Transit locations to protect rail rolling stock.

These collective improvements have been identified by the Federal Transit Administration (FTA) as eligible for federal funding through FTA's Emergency Relief Program under the "Disaster Relief Appropriations Act of 2013" (7 U.S.C. §2036 et al.).

Based upon the submitted application, this proposed project would result in an area of land disturbance of about 36.2 acres.

Stream Corridor: The project is located within the Raritan River Watershed. There are three watercourses that will be impacted within the project area that are within the Commission review zone and include Mile Run Tributary, Six Mile Run, and an unnamed Tributary to Six Mile Run. The Commission stream corridors for Mile Run Tributary, Six Mile Run, and an unnamed Tributary to Six Mile Run include the 100-year floodplain associated with the water courses and all of the land within a 100-foot buffer adjacent to the 100-year flood line associated with the water courses. As disturbances are proposed within the stream corridors of these water courses, this project is subject to a stream corridor impact review pursuant to N.J.A.C. 7:45-9.1(a).

The 100-year floodplain for Six Mile Run was developed using detailed methods consisting of a HEC-RAS hydraulic model. For Mile Run Tributary the NJDEP State Adopted flood elevation was used to delineate the 100-year floodplain limits. For the unnamed Tributary to Six Mile Run a conservative approximation method was used to delineate the floodplain.

Mile Run Tributary is located at the northern end of the project near the Jersey Avenue train station and eventually runs under the canal approximately 1.5 miles to the north. The portions of the stream corridor that are not currently developed with existing rail lines and parking areas are forested. The total area of the Mile Run Tributary stream corridor impacted by the project will be 43,461 square-feet (1.0 acre). About 1.37 acres of Commission regulated stream corridor is located within the NEC line along the southeast boundary of the project site and will not be impacted by the proposed project.

The project proposes to encroach into 35,569 square-feet (0.89 acres) of the currently developed stream corridor for the construction of the new rail lines, access road and additional parking for the Jersey Avenue Station. An additional 4,892 square-feet (0.11 acres) of undeveloped stream corridor will be impacted for the construction of a stormwater basin and the grading for a new parking area, which is considered a prohibited use impact within the stream corridor. No conditional use impacts are proposed.

Six Mile Run is located west of the intersection of Jersey Avenue and Huron Road in North Brunswick Township. The stream corridor associated with Six Mile Run extends approximately 2,700-feet north along a railroad ditch and approximately 450 feet south along a railroad ditch. The majority of the regulated stream corridor is associated with railroad ditches because the floodplain of the Six Mile Run extends along these ditches. The majority of the stream corridor is significantly disturbed due to maintenance of the railroad right of way or due to the maintenance of the utility line that travels above the Six Mile Run. The existing Delco Lead passes over the Six Mile Run, via twin 40-inch diameter corrugated metal pipes. The project proposes to widen this crossing to accommodate the reconstructed Delco lead and add another track.

The total area of the Six Mile Run stream corridor impacted by the project will be 279,648 square feet (6.42 acres). About 6.76 acres of Commission regulated stream corridor is located within the NEC along the southeast boundary of the project site and will not be impacted by the proposed project. The project proposes to encroach into the stream corridor for the construction of the new rail lines, access roads a bridge over Six Mile Run and stormwater management improvements. These facilities will be constructed in the existing developed stream corridor as well as in some sparsely vegetated stream corridor. A few trees (less than 10) will be removed near the Six Mile Run. The remainder of the vegetation in the stream corridor that will be removed consists of 2-3 feet high red cedar trees and herbaceous vegetation. The proposed project impacts will include encroachment into 204,663 square feet (4.70 acres) of the currently developed stream corridor, 50,263 square feet (1.15 acres) of prohibited use impact within the stream corridor, and 24,722 square feet (0.57 acres) of conditional use impacts.

An unnamed Tributary to Six Mile Run is located near the Jersey Avenue exit ramp of State Highway Route 1. The stream corridor along the Tributary to Six Mile Run extends between the NEC and the existing Delco Lead rail line. The area is maintained annually to prevent vegetation from interfering with the operation of the rail lines. Similar to the stream corridor for Six Mile Run the regulated stream corridor for this tributary extends north and south along maintained railroad ditches.

The total area of the unnamed Tributary to Six Mile Run stream corridor impacted by the project will be 94,663 square feet (2.17 acres). About 2.52 acres of Commission-regulated stream corridor is located within the NEC line along the southeast boundary of the project site and will not be impacted by the proposed project. The project proposes to encroach into the stream corridor for the construction of the new rail lines and access roads. These facilities will be constructed in the existing developed stream corridor as well as in some sparsely vegetated stream corridor. Approximately 0.75 acres of vegetated stream corridor will be impacted in the southwest portion of the tributary's stream corridor. Some trees will be removed including both native and invasive species. The proposed project impacts will include encroachment into 62,362 square feet (1.43 acres) of the currently developed stream corridor, 24,853 square feet (0.57 acres) of prohibited use impact within the stream corridor, and 7,448 square feet (0.17 acres) of conditional use impacts.

The Delco Lead Storage and Inspection and County Yard Improvements project is proposing to add two additional rail lines along the entire length of the Delco Lead project site. As a result, a total of 2.58 acres within three stream corridor areas will be impacted with both "conditional uses" and "prohibited uses" pursuant to the Commission's regulations. In addition, parts of the stream corridor are currently developed with existing active rail lines roadways and other uses. A summary of the total stream corridor impacts for all three impact areas and the proposed uses is reflected in the table below.

Table 1: Commission Stream Corridor Impacts

	Area (ft^2)	Area (acres)
Total Stream Corridor Impacts	417,772	9.59
Impacts to existing Developed Areas	305,594	7.02
Prohibited Use Impacts	80,008	1.84
Conditional Use Impacts	32,170	0.74

The portions of the prohibited use stream corridor impact areas that will be located within the floodplain area are summarized by the following.

Mile Run Tributary -- 40 square-feet
Six Mile Run -- 15,263 square-feet
Unnamed Tributary to Six Mile Run -- 5,553 square-feet

The applicant states that three of the activities that are being proposed as part of the project are considered to be conditional uses within the stream corridor in accordance with N.J.A.C. 7:45-9.4(a). These include the construction of access roadways that directly cross the stream corridor, the construction of a bridge over Six Mile Run that will support the new rail lines, and a small pipe culvert extension at the unnamed tributary to Six Mile Run. Several 8-feet-wide access roadways will be constructed along the Delco alignment to allow access to the rail lines for construction and maintenance. The majority of these roadways will be constructed in existing developed areas. However, one access road will be located in a portion of the unnamed Tributary to the Six Mile Run stream corridor which is currently forested. No other location is possible for these roadways because their purpose it to allow access to the rail lines for maintenance once construction is completed.

The other conditional uses proposed are the construction of a bridge structure over Six Mile Run. Construction of the bridge is necessary to support the additional rail lines. As discussed above in the alternatives analysis no other suitable location exists for the project and therefore the crossing of Six Mile Run with the bridge is needed. Also included as a conditional use as noted above is a small pipe culvert extension at the unnamed tributary to Six Mile Run. Culverts, bridges and roadways that cross the stream as directly as practical may be approved as a conditional use. The water course does not directly enter the canal and staff finds that the use is not incompatible with the Master Plan, N.J.A.C. 7:45-9.4(a).

The total impact to the stream corridor resulting from these conditional use activities is 32,170 square feet (0.74 acres). These activities have been approved by the FTA. No other local approvals are required. The project has also been designed to use a bridge rather than a culvert to cross the Six Mile Run and therefore there will not be any concrete bottom under the bridge structure. Due to the nature of the project, being the expansion of an existing rail line to provide a safer and more flood resilient storage area for rail cars during flooding events, the applicant states that it is reasonable to consider these portions of the project as acceptable conditional uses.

Upon completion of the project, 1.84 acres of the stream corridor will be developed with prohibited uses within the stream corridor in accordance with N.J.A.C. 7:45-9.3(a). These include the construction of the retaining walls, placement of fill, regrading of the existing topography, removal of native vegetation, extension of the existing Jersey Avenue Station parking lot, construction of new rail lines and stormwater management facilities including a detention basin. For these impacts, the applicant is seeking a waiver based on compelling public need. The applicant must show by clear and convincing evidence that strict adherence would conflict with a compelling public need and the project will not impair the purpose of the Master Plan, N.J.A.C. 7:45-12.3(a).

The purpose of the Delco Lead improvements is to provide NJ Transit with a location to store rail cars at an inland location that is not susceptible to flooding or tree fall, at an elevation that minimizes flood hazard risk. This essential public safety project is necessary to protect the rail system from impacts from major storm events. The project

will also protect the commuting public from delays in the return of rail service after a major storm event as witnessed during hurricanes Irene and Sandy. Returning the rail system to service quickly after these major storm events will allow the region to more quickly return to normal commuting schedules. Without these improvements the commuting public in the region will not be able to safely return to work or to travel for extended periods of time as demonstrated in previous storm events.

The applicant states that the majority of New Jersey's cities and economic centers and commuter rail infrastructure that link to residential neighborhoods are located in low lying areas, in floodplains near rivers or wetlands following patterns of traditional Industrial-era development. Historically, flooding was not problematic. However, there was substantial damage to transportation infrastructure during Hurricane Irene in 2011 and Superstorm Sandy in 2012. Over 300 rails cars were damaged and the ability to restore rail service was severely impacted. These events required the identification of an alternative inland rail storage facility not susceptible to future flooding events or tree falls. The County Yard and S&I facility will permit the rapid return to service of train sets after a storm by allowing Federal Railroad Administration mandated inspections to occur in the same location as the emergency train storage. Returning the rail system to service quickly after these major storm events will allow the region to more quickly return to normal commuting schedules. Without these improvements, the commuting public in the region will not be able to safely return to work or to travel for extended periods of time as demonstrated in previous storm events.

The applicant developed criteria and evaluated alternatives to meet the NJ Transit Resiliency program. The goals and objectives included that the yard must be in the NEC and permit rapid and efficient movement of equipment to a safe haven location under emergency conditions. Using a yard elsewhere would cause operating inefficiencies and would not permit passenger service to continue as long as possible prior to a system-wide shut down and would delay getting the system up and running after a storm. The site selected must be inland and not prone to flooding or an area that typically floods during severe weather events.

In addition, the site must be able to meet NJ Transit's Flood Elevation Design Criteria for all new infrastructure elements. The site must also be large enough to accommodate railcar storage for equipment stored at the Meadowlands Maintenance Complex and at least some of the Morrisville Yard's capacity and provide room for a service and inspection facility to enable rapid return of trains to service after a storm. Use of a centrally located yard on the NEC, adjacent to the Jersey Avenue station, where some trains begin and end service to New York, with a co-located service and inspection facility will reduce the number of miles that trains must travel without passengers. Without the new S&I Facility and County Yard storage tracks, trains would continue to be serviced and inspected in Morrisville, Pennsylvania -- a 30-mile trip south. Therefore, the applicant notes the project will provide storm-resilient storage location and reduce energy usage.

Lastly, the applicant did analyze other sites and a no-build alternative in selecting this project site and determined that the County Yard and S&I facility site met the purpose, objectives and needs. Its location to the north of the NEC (westbound direction), allows service to continue for as long as possible prior to a storm, and expedites service restoration after a storm. The site permits the development of an adequate number of storage tracks and a co-located S&I Facility. Its central location adjacent to Jersey Avenue Station, where trains begin and end their revenue service, will permit an efficient operating plan under normal operating conditions. The overall project will also improve the Delco Lead rail line, which is adjacent to the NEC line between County Yard and North Brunswick Township.

The applicant has noted that there are no other suitable locations to construct the Delco Lead Storage and Inspection and County Yard Improvements project and no other configurations will allow for the proper use and function of the rail improvements. If the waiver is not granted, the public need of returning rail service to the region quickly and safely will not be met. Also discussed in the alternatives analysis is the ability to reconfigure the facilities onsite. The applicant notes that there is no other configuration that will allow the efficient functioning of the facility therefore the applicant is requesting the minimum area necessary to construct project.

Given the project's location at the extreme eastern limit of the Commission Review Zone B and that the proposed location along an existing rail line and immediately adjacent to the existing NEC to the south, the project will be consistent with the purposes, objectives or the general spirit and intent of the Master Plan and the Commission standards. Given the highly developed and disturbed nature of the adjacent land uses the project will not be materially detrimental or injurious to other property or improvements in the area or result in substantial impairment of the resources of the park. Public access to the rail lines will not be allowed. Therefore, the project will not endanger public safety. For these reasons and for the reasons discussed in the alternative's analysis, NJ Transit is requesting approval of this waiver.

The applicant is deemed to have established compelling public need, in part, if the project serves an essential safety need, safety requires the waiver and there is no alternative available. In determining the waiver, the Commission must also determine, in part, that the waiver will not result in impairment to the resources of the park, N.J.A.C. 7:45-12.3(c) and (d). It is staff's opinion that the applicant showed that the project will serve a compelling public need, other alternatives were examined and found deficient, and that the project must be placed near existing facilities.

Staff notes that the Commission requires compensatory measures to mitigate the project's potential harmful impact as a condition of a waiver approval, N.J.A.C. 7:45-12.2(d). The stream corridor regulations prohibit an applicant from intruding into a stream corridor. If there is an intrusion, the Commission requires an applicant to mitigate by providing additional land adjacent to the stream corridor equal to the square footage of the intrusion and to preserve the entire stream corridor in an easement. Where a stream corridor cannot be mitigated on the site, applicants provide mitigation off of the project site.

Upon completion of the project, 1.84 acres of the stream corridor will be developed with prohibited uses that will need to be mitigated. The applicant notes that on-site stream corridor preservation/mitigation is not feasible because the onsite stream corridor is developed with existing rail line including the NEC. Because the mitigation cannot be accomplished on-site, the applicant is proposing to mitigate at a 2:1 ratio by preserving 3.68 acres of off-site stream corridor.

The Delco Lead Improvements project is located in the Commission Review Zone B and in Watershed Management Areas (WMA) 9 and 10. The County Yard Improvements project, which was approved by the Commission on December 20, 2017, is located in WMA 9. As part of the County Yard project a site search was conducted for available stream corridor mitigation sites in WMA 9, which included contacting local officials and real-estate agents to see if any acceptable sites were available for stream corridor mitigation. No acceptable sites were identified in WMA 9, while two sites were identified in WMA 10. However, one of the sites was not been able to be secured. The second site identified in WMA 10 was located in a developed area and is partly old field dominated by red cedar. This stream corridor can be described as a late successional forest. This site meets the criteria for a stream corridor mitigation site but is not as pristine or as diverse as the proposed stream corridor mitigation site.

Two other sites were also identified in WMA 11 that meet the criteria of a suitable stream corridor. The proposed mitigation site is known as Block 22, Lot 15 in Raritan Township, Hunterdon County, and was used for mitigation on the previous County Yard project. Additional stream corridor is available for preservation on this same site and this site is proposed as mitigation for the current Delco Lead project impacts. The site contains a tributary to the Wickecheoke Creek and drains into the Delaware and Raritan Canal. Preservation of this site would prevent development of the site and thereby protect the water quality of the canal. The site is approximately 20 acres in size and contains 9.5 acres of Commission regulated stream corridor. The majority of the on-site stream corridor is a mature wetland/upland forest community. This mature forest appears to be excellent habitat for roosting bats. The western portion of the stream corridor located along Decker Road includes an old home site which has succeeded to an old field community and an early successional upland forest dominated by green ash and red maple. The old field area is approximately 0.25 acres in size. The eastern portion of the site, outside of the regulated stream corridor, is an old field area. This area is mapped by NJDEP Geo-web as a modified agricultural wetland area.

The applicant preserved a 4.24-acre portion of the stream corridor along the western side of the onsite tributary to the Wickecheoke Creek to mitigate for the impacts of the previous County Yard project. The applicant is now proposing to preserve an additional 3.68 acres of stream corridor to compensate for the 1.84 acres of stream corridor impacts resulting from the Delco Lead portion of the project. According to the NJDEP Landscape Project mapping (v3.3), this portion of the parcel is habitat for several species of special concern as well as a state listed threatened species. Preservation of an additional 3.68 acres of stream corridor will ensure that this portion of the stream corridor

is preserved into the future. Staff finds that the 3.68-acre portion of the noted property to be an acceptable mitigation area for proposed "prohibited uses" within the stream corridor of the currently proposed project.

Stormwater Runoff Quantity: The applicant has requested a waiver of strict compliance with the Commission's stormwater regulations for runoff quantity, based on compelling public need, N.J.A.C. 7:45-12.

The proposed project will result in an increase of impervious coverage and as a result, there shall be an associated increase in runoff volume and peak discharge rates. Therefore, the applicant has proposed to manage stormwater runoff through the construction of one new extended detention basin with outlet control structure and a series of railroad drainage ditches. The stormwater management measures were analyzed at six separate drainage area points of analysis: POA 1, POA 2, POA 3, POA 4, POA 5, and POA 6.

The stormwater management measures have been designed so that the post-construction peak runoff rates for the two, 10 and 100-year storm events will be no greater than 50%, 75% and 80%, respectively, of the pre-construction peak runoff rates. The submitted calculations utilized the Natural Resource Conservation Service (NRCS) Technical Release No. 20 (TR-20) hydrologic methodology, Standard unit hydrograph rainfall distribution and current New Jersey 24-hour rainfall frequency data for Mercer County to compute peak runoff flow rates and volumes. The Hydrologic Analysis was performed for pre-development versus post-development using a standard Runoff Curve Number (RCN) for the railroad ballast which would be similar to gravel RCN values. A second analysis was then performed using a lower RCN based on a White Paper Bulletin for ballast. Pre-Development peak runoff rates were separated by undisturbed and disturbed areas. The peak runoff rates were added together as a conservative method of computing Pre-Development runoff rates. This method assumes peaks occur simultaneously which would be the worst-case scenario for maximum peak flow rate.

Based upon a review of the results, the existing proposed stormwater management measures will not provide enough peak flow attenuation to meet the specific runoff quantity standards of N.J.A.C. 7:45-8.6(a)1. Specifically, the runoff quantity requirements will not be met at the following points-of-analysis: POA 1-2 (Mae Brook), POA 4 (Jersey Avenue to Six Mile Run) and POA 5 (Six Mile Run). The applicant notes that during design, various best management practice (BMP) alternatives were reviewed within each subarea to determine the best overall solution. The ability to add BMPs to reduce peak flows was evaluated against site constraints such as limited right of way, high groundwater table, regulated wetlands, regulated floodplains, and existing rail infrastructure. Each subarea was evaluated individually against each set of site constraints. However, the Commission runoff quantity requirements will not be met at the above-noted points-of-analysis.

Pursuant to the provisions of N.J.A.C. 7:45-12(c), an applicant shall be deemed to have established compelling public need if the applicant demonstrates, based on specific facts, that:

1. The proposed project will serve an essential public health or safety need;
   As discussed in the stream corridor section of this report, the project is being proposed to serve an essential public health and safety need which is to provide safe storage and quick return to service for the NJ Transit rail system.

2. The public health and safety require the requested waiver;
   The waiver is needed to enable the project to move forward. All alternatives to providing additional storage of stormwater onsite have been explored. Therefore, the public health and safety require that the waiver be granted.

3. The proposed use is required to serve existing public health or safety needs; and
   The existing public health and safety need is to provide safe storage of the NJ Transit train sets in times of extreme flooding. Therefore, the waiver is required to serve this existing public safety need.

4. There is no alternative available to meet the established public health or safety need.
   The applicant has considered other locations and project designs. Based on these designs and the constraints of the site there are no alternatives to provide additional flood storage onsite and NJ Transit is requesting approval of this waiver.

Downstream Impact Analysis: A downstream impact analysis was performed for each subarea where the rate reductions requirements could not be met. Rate reductions requirements were not met in POA-1-2 (Mae Brook), POA-4 (Jersey Ave to Six Mile Run) and POA-5 (Six Mile Run). Therefore, the downstream impact analyses focused on POA 1-2, POA-4, and POA-5. During design, various BMP alternatives were reviewed within each subarea to determine the best overall solution. The ability to add best management practices to reduce peak flows was evaluated against site constraints such as limited right of way, high groundwater table, regulated wetlands, regulated floodplains, and existing rail infrastructure. Each subarea was evaluated individually against each set of site constraints.

POA 1-2: Stormwater within area POA 1-2 is collected in trackside ditches and conveyed from Adams Lane southerly about 1 mile to the Northwest Railroad Ditch (per AKRF report) into an unnamed tributary to Mae Brook. The trackside ditches were reviewed for their ability to function as detention basins, however, we were unable to use the ditches as regulated basins for multiple reasons including High Groundwater Levels: The bottom of the ditch is set to allow conveyance of the offsite drainage areas including the runoff from the Adams lane system. Using these inverts places the bottom of the ditch too close to the water table, making it ineligible to be designed as a detention basin. We are unable to raise the bottom of the ditch as doing so would impact the current offsite flows being

conveyed through the ditch. The design also explored adding additional basins and BMP measures in the low areas of the corridor, but the wetland impacts, poor draining soils and high-water table became prohibitive to this approach.

POA-4: Stormwater within POA-4 is collected in trackside ditches from a point north of Route 1 to a point west of the Six Mile Run Bridge. It is collected and conveyed into an existing drainage ditch that leads into a closed conveyance stormwater sewer system within Jersey Avenue. Alternative concepts were evaluated for this subarea. For example, utilization of the entire forested wetlands area to create a detention basin was examined but this alternative was not pursued because:

(1) The groundwater elevations were too high and did not provide adequate separation to create a compliant stormwater basin; and
(2) The creation of this basin would significantly impact the amounts of wetlands to be filled. NJDEP indicated that preservation of the forested wetlands as much as feasible is preferred over creation of stormwater best management practices in this area.

POA-5: Stormwater in subarea POA-5 is collected via a series of trackside ditches and conveyed into a small basin north of the track near the Six Mile Run Bridge. This basin is an existing impoundment that collects stormwater from offsite properties. The impoundment is delineated wetlands. The design proposes to impact the existing wetlands to provide detention of peak flows for higher level storms. While the reductions do not meet Commission criteria for the 2-year storm, the criteria are nearly met for the 10-year storm and is met for the 100-year storm.

Although Commission staff does agree and understand that the proposed project is in the best interest of public safety, upon review of the information available to the Commission, the project will result in an increase in stormwater runoff from the project site. However, it is staff's opinion that the existing site conditions related to the project could qualify the project for a waiver of strict compliance with the Commission's stormwater regulations based on compelling public need at N.J.A.C. 7:45-12 to protect and enhance the public's safety.

Water Quality: The Commission requires that all proposed full depth pavement including newly and re-constructed parking and access drives that are being renewed, must meet water quality standards in accordance with Commission regulations (N.J.A.C. 7:45-8.7). This includes reduction of the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm by a rate of 80% of the anticipated load from the developed site.

Based upon the submitted application, new pavement areas are being proposed onsite. To provide water quality treatment for runoff leaving the site, the project has proposed the use of structural BMP measures, consisting of an extended detention basin system with a one (1) upstream manufactured treatment device (MTD) in series. The first BMP of the treatment train for this project is an MTD. The MTD will consist of one (1)

Nutrient Separating Baffle Box (NSBB) with Hydro-Variant Technology Stormwater. The NSBB MTD has been field tested and certified by the NJDEP as providing a TSS removal rate of 50%, designed for this project to meet specific conditions. Downstream of the MTD will be an extended detention basin. The extended detention basin has been designed per Section 9.4 of the New Jersey Stormwater BMP Manual. The basin releases the water quality storm runoff over a period of time that is greater than 24-hours resulting in a 60% TSS removal rate.

In series, the MTD unit and the extended detention basin will provide a TSS removal rate of 80%. As such, the stormwater quality measures have been designed in accordance with the requirements of N.J.A.C. 7:45-8.7.

Groundwater Recharge: The applicant has requested a waiver of strict compliance with the Commission's stormwater regulations for groundwater recharge, based on compelling public need, N.J.A.C. 7:45-12.

The Commission regulations require that stormwater management measures maintain 100 percent of the average annual preconstruction groundwater recharge volume for the site; or that any increase of stormwater runoff volume from pre-construction to post-construction for the 2-year storm is infiltrated. The applicant's report states that groundwater recharge for this project will not be required because the entire development site is in State Planning Area 1 (PA1- Metropolitan Planning Area). However, this exemption is not available to the Commission. The applicant has noted that potential locations for detention basins were investigated to evaluate the feasibility of providing infiltration. However, the limited right-of-way (ROW) and linear nature of the project restricted the potential locations. Six (6) locations were identified as feasible locations. Groundwater and percolation data was obtained. The results showed high groundwater, except for Basin 6, and insufficient percolation through the project limits. In addition, the potential Basin 2, 4, and 5 were located within existing wetlands which was deemed to be not acceptable by NJDEP. Groundwater recharge BMP measures are not being proposed and the project does not satisfy the groundwater recharge requirements of N.J.A.C. 7:45-8.5.

As per N.J.A.C. 7:45-12(c), an applicant shall be deemed to have established compelling public need if the applicant demonstrates facts based on specific criteria. These have been reviewed in detail in the stormwater quantity section of this engineering report.

Potential locations for detention basins were investigated to evaluate the feasibility of providing for groundwater recharge with basins including infiltration. The limited ROW and linear nature of the project restricted the potential locations. Six (6) locations were identified as feasible locations. Groundwater and percolation data were obtained. The results showed high groundwater, except for Basin 6, and insufficient percolation through the project limits. In addition, the potential Basin 2, 4, and 5 were located within existing wetlands.

Although Commission staff does agree and understand that the proposed project is in the best interest of public safety, upon review of the information available to the Commission, the project will result in a decrease in stormwater runoff from the project site. However, it is staff's opinion that the existing site conditions related to the project could qualify the project for a waiver of strict compliance with the Commission's stormwater regulations based on compelling public need at N.J.A.C. 7:45-12 to protect and enhance the public's safety.

Nonstructural Methods: The Commission requires that nonstructural stormwater management strategies be incorporated into the stormwater design of a development project. To assist in determining that sufficient nonstructural stormwater management strategies have been incorporated into the project site design "to the maximum extent practical", the NJDEP Nonstructural Strategies Point System (NSPS) spreadsheet has been completed for this project. The results indicate that the ratio of proposed to existing site points (97%) is greater than the required site points ratio (80%). Therefore, the project is designed in accordance with N.J.A.C. 7:45-8.4.

Stormwater Management Maintenance Plan: A stormwater management operation and maintenance plan document has been prepared and submitted for the BMP elements proposed for the project. The plan includes maintenance details for the proposed Nutrient Separating Baffle Box (NSBB) MTD, one Extended Detention Basin with Outlet Structure, Drainage Pipe with Conduit Outlet Protection (COP). The plan has been prepared in accordance with the requirements of N.J.A.C. 7:45-8.8.

Staff Recommendation: Staff recommends approval.

Sincerely,

John Hutchison
Executive Director

c. Middlesex County Planning Board
New Brunswick City Planning Board
North Brunswick Township Planning Board