

15. Wetlands

15.1. Chapter Overview

15.1.1. Introduction

Pursuant to Presidential Executive Order 11990 entitled “Protection of Wetlands,” the United States Department of Transportation (USDOT) developed a policy (USDOT Order 5660.1A, Preservation of the Nation’s Wetlands, dated August 24, 1978), which requires all federally-funded highway and railroad projects to protect wetlands to the fullest extent possible. In accordance with this policy, the Northern Branch project was evaluated for wetlands that may be potentially affected by the proposed project. This assessment documents the extent of wetlands within the project corridor, potential impacts of the Build Alternatives, and efforts to avoid, minimize, or mitigate those impacts to the greatest extent practicable.

15.1.2. Summary of Findings

Figure 15-1 illustrates the locations of wetlands along the Northern Branch corridor. Table 15-1 summarizes the total impacts to study area wetlands as a result of construction activity associated with the Northern Branch project. Wetland impacts tallied refer to permanent impacts only; temporary impacts are not counted, as temporary impacts return the wetland to pre-construction conditions when the construction activity is complete. Permanent impacts permanently change the character of the wetland, usually through the filling of the wetland resource.

Table 15-1: Summary of Total Permanent Wetland Impacts by Build Alternative

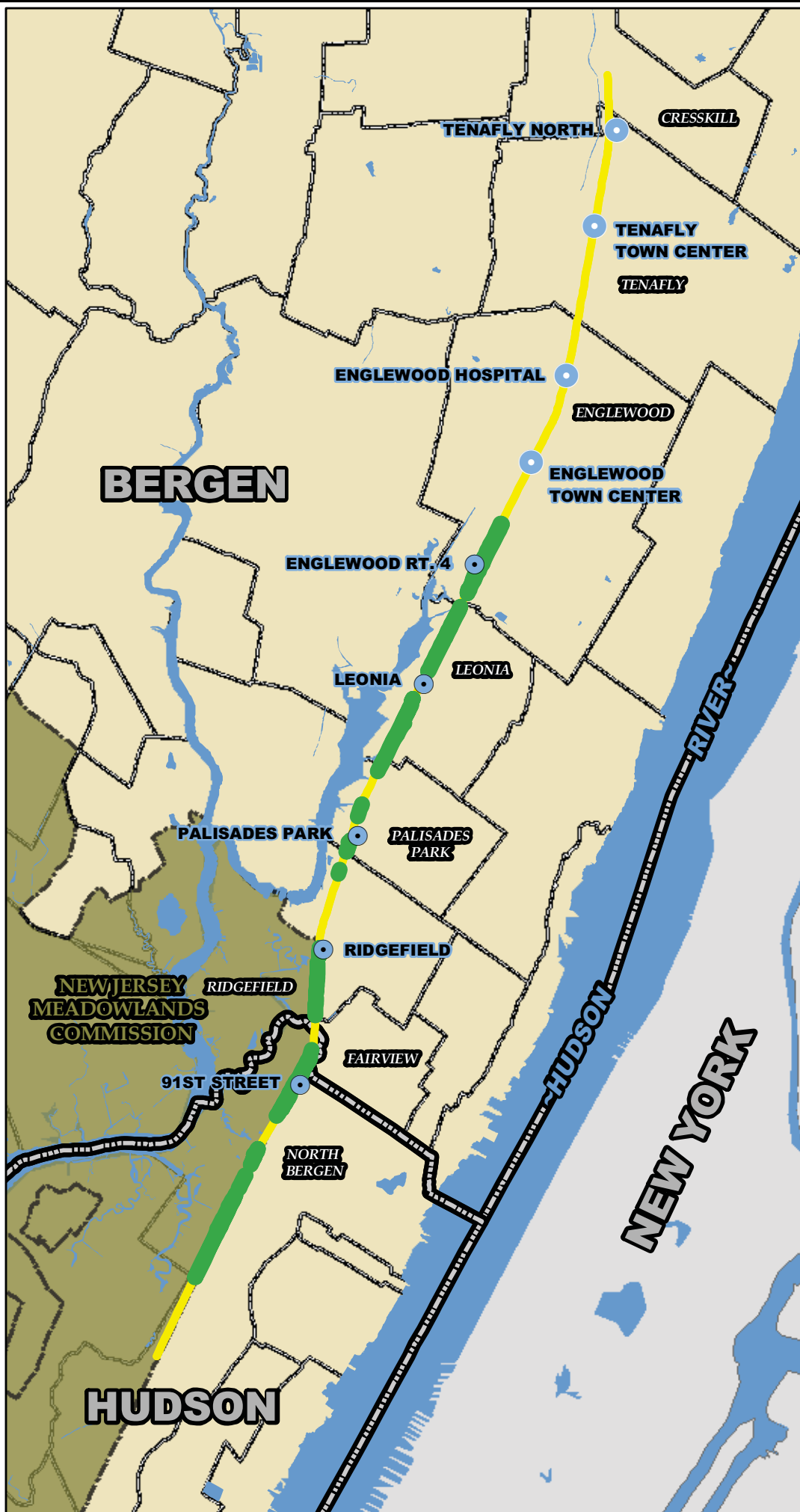
Alternative	Acreage of Wetlands Permanent Impacted by Project Features					Total Acres
	Right-of-Way	Structures	Stations	North Bergen VBF	Englewood VBF Option	
Light Rail to Tenafly (Preferred Alternative) with North Bergen VBF	3.90	0.54	0.27	0.0	NA	4.71
Light Rail to Tenafly (Preferred Alternative) with Englewood VBF Option	3.90	0.54	0.27	NA	0.02	4.73
Light Rail to Englewood Route 4 with North Bergen VBF	3.90	0.13	0.27	0.0	NA	4.30
Light Rail to Englewood Route 4 with Englewood VBF Option	3.90	0.13	0.27	NA	0.02	4.32

- Wetlands within the study area are either under the jurisdiction of the NJ Department of Environmental Protection (NJDEP) or the US Army Corps of Engineers (USACE).
- Wetlands identified and delineated within and in close proximity to the existing right-of-way generally function as drainage swales of ordinary resource value collecting adjacent run-off from surrounding impervious surfaces. These complexes are mostly dominated by *Phragmites australis* (common reed) which is an invasive species.
- The greatest concentration of wetlands are present in the southern end of the Northern Branch rail corridor, west of the existing rail line within the area designated as the Hackensack Meadowlands District (under the jurisdiction of the USACE).

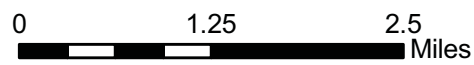
WETLANDS STUDY AREA

Northern Branch Corridor

Figure 15-1



- Stations - All Alternatives
- Stations Light Rail To Tenafly (Preferred Alternative Only)
- Northern Branch Alignment
- Delineated Wetland Areas
- ▭ Municipal Boundary
- ▭ County/State Boundary



Source: Field Delineation

- Total wetlands impacts for each Build Alternative depend on the linear distance of the Build Alternative and the vehicle base facility (VBF) selected.
 - Light Rail to Tenafly (Preferred Alternative) travels over a greater distance than Light Rail to Englewood Route 4 and would impact wetland areas along with rail right-of-way north of Englewood Route 4 Station.
 - North Bergen VBF does not impact any wetland acreage.
 - Englewood VBF option adds 0.02 acres of impact to both Build Alternatives.
- Mitigation for construction impacts are similar to those used to maintain water quality and focus on preventing siltation of existing wetland resources.
- Mitigation for permanent impacts, regardless of the associated project element or location of the impacted wetland within the Northern Branch study area, will require agreement between NJDEP, USACE, and NJ TRANSIT, and is proposed to consist of the purchase of wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization.

15.2. Methodology

15.2.1. Regulatory Framework

15.2.1.1. Federal and State Jurisdiction

Pursuant to Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) was given the responsibility to regulate waterways and freshwater wetlands associated with those waterways. As the result of a 1993 Memorandum of Agreement (MOA), the U.S. Environmental Protection Agency (USEPA) delegated that authority to the New Jersey Department of Environmental Protection (NJDEP) pursuant to the New Jersey Freshwater Wetlands Protection Act (N.J.S.A. 13:9B). The MOA allows NJDEP to assume authority to regulate freshwater wetlands and streams in most of New Jersey, while allowing USACE jurisdiction over some waterways that more clearly affected interstate commerce. Areas under the jurisdiction of the USACE continue to include the Hackensack Meadowlands District (HMD), and tidal wetlands, navigable waters and wetlands located within 1,000 feet inland of navigable waterways. Separate portions of this project fall within the jurisdiction of the USACE and the NJDEP and the respective regulations apply.

15.2.1.2. Wetland Areas and Specific Regulation

Hackensack Meadowlands District

The HMD boundary follows the proposed Northern Branch right-of-way from Hendricks Causeway in Ridgefield Borough, south along the existing right-of-way continuing past the proposed North Bergen VBF in North Bergen Township. As described above, this resource area is under the jurisdiction of the USACE. While the USACE recognizes gradation in values of wetlands, they do not apply transition area buffers to regulated wetland areas under their jurisdiction.

NJDEP Wetlands

Within the Northern Branch study area, freshwater wetlands and waterways outside of the HMD are regulated by the NJDEP. Transition areas associated with wetlands, based on the resource value of the associated wetlands, are also regulated by NJDEP. The regulated transition area is intended to act as an ecological transition between upland and wetland landscapes; it plays a crucial role in wetland ecology by providing temporary refuge for fauna during periods of high water, and acts as a buffer to reduce impacts from surrounding development.

The three classifications assigned to wetlands regulated by NJDEP in New Jersey are as follows:

- Exceptional resource value - naturally formed wetlands supporting documented occurrences of threatened or endangered species, which are protected by a 150-foot transition area;
- Intermediate resource value - naturally formed wetlands without documented occurrences of threatened or endangered species, which are protected by a 50-foot transition area; and,
- Ordinary resource value - manmade ditches, swales, and certain isolated wetlands, not protected with a transition area.

15.2.2. Types of Impacts and Calculation of Affected Acreage

There are two types of impacts that may occur to wetlands in the project area. “Temporary disturbances” are construction-related impacts that occur as a result of regulated activities within the wetlands. These disturbances must be permanently discontinued within six months of initiation, and since they are associated with regulated activities, are reversible. An example of a temporary disturbance would be the placement of machinery in a wetland for the purposes of constructing a retaining wall. When construction is complete, the machinery is removed and the wetland is restored to pre-construction conditions, which may involve grading and vegetative restoration. “Permanent impacts” are not reversible and represent definitive changes to wetland acreage. In the example above, the retaining wall itself, which is constructed on land that was a wetland constitutes a permanent impact. Since only permanent impacts represent a lasting change to wetland resources, only permanent impacts are provided in the summary tables, although both permanent and temporary impacts are discussed in the narrative below.

In reviewing the following wetland impact estimates, it is important to note that the acreage provided is based on preliminary engineering design. Wetland impacts, represented by the total acreage disturbed, may increase or decrease once Final Design and Engineering has been completed.

Rail Bed and Right-of-Way

To estimate the disturbance, it was assumed that any existing wetland resources within 25 feet of the centerline of the alignment would be impacted during construction activities. These wetland areas were then calculated to determine the approximate area of impact due to the proposed project. Impacted areas along the right-of-way are assumed to be filled as a result of construction activities. This would represent the loss of the identified acreage. Right-of-way improvements include improvements to the rail bed.

Retaining walls are planned along portions of the right-of-way to support railroad embankment where it exists at a higher elevation. In certain areas, construction of the retaining wall will require work in adjacent drainage swales/stream areas. These areas will be temporarily disturbed during construction activities. Drainage swales/streams disturbed during the necessary work will be restored to their original condition upon construction completion. Retaining wall construction is currently planned for areas in North Bergen, Palisades Park, Leonia, and Englewood.

Structures

It is assumed that wetlands/State open waters and wetland transition areas will be disturbed to repair, widen, or replace existing structures along the project corridor. The footprint of the existing bridges and culverts was used to estimate the potential impacts. Bridge and culvert construction issues vary with the specific structure and are discussed in each municipal section below.

15.2.3. Mitigation

15.2.3.1. General Mitigation Strategies

Mitigation for freshwater wetland disturbance can be provided through wetland creation, restoration, enhancement, land or dollar contributions or wetland banking.

Wetlands creation refers to actions performed to establish new wetlands in upland areas. The NJDEP requires wetland replacement at a ratio of between 2:1 and 4:1, requiring the creation of at least two acres of wetlands for every one acre impacted depending on the function, value and resource value classification of the impacted wetland. If necessary, creation may be approved at less than the required ratio, if full replacement of lost ecological value can be guaranteed at a lesser ratio.

Wetland restoration refers to actions performed on the site of a regulated activity, within six months of the regulated activity, to reverse or remedy the effects of the activity on the wetland and to restore the wetland to its pre-activity condition.

Wetland enhancement would attempt to increase the value of the impacted wetland by manipulating its function and value. An example would be to increase water flow and water duration levels of a particular on site wetland complex.

Land or dollar contributions refer to the donation of land or money, or both, to an established mitigation bank or other public or private non-profit conservation organization as approved by the Mitigation Council and the NJDEP in consultation with the USEPA.

If it is necessary to replace wetlands and an appropriate wetland replacement site cannot be identified within the corridor, it will be necessary to obtain approval from the NJDEP for a donation to the State Wetland Mitigation Fund for the construction of a large-scale artificial wetland at another location.

15.2.3.2. Mitigation for Anticipated Northern Branch Wetlands Impacts

Construction activities could result in temporary deterioration of wetlands through runoff and sedimentation. Mitigation measures may include the stabilization of slopes, channels, swales and embankments after construction activities are completed and the installation of turbidity barriers around the area of construction to confine turbidity to a limited area. In addition, a project-limiting fence will be installed near adjacent wetlands for the duration of construction to prevent construction crews from disturbing adjoining wetlands.

At this time, should NJDEP and USACE agree, NJ TRANSIT's preferred means of mitigation of permanent impacts would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County. The Kane Tract is a 587-acre property located in the Borough of Carlstadt and Township of South Hackensack, Bergen County. This wetlands mitigation bank is located approximately 1.25 miles west of the project alignment in the HMD and is within the same Hackensack Pascack Watershed Management Area 5 as the project corridor and the potentially impacted areas. This method is typically preferred by the USACE due to its ability to create high-quality wetland areas of sufficient size to provide habitat for wetland fauna. This mitigation method would address all wetlands impacts, regardless of location or associated project element.

Additional wetland mitigation options may include the monetary contributions or land donations to the NJDEP Wetlands Mitigation Council or the development of an independent wetland mitigation site. Once a conceptual review of the proposed mitigation has been approved by NJDEP and USACE, mitigation plans will be prepared for the restoration, enhancement, or creation of wetland resources.

Once the project moves into the final design phase, pre-application meetings will be initiated with NJDEP and USACE, who have jurisdiction over the potentially-affected resources. During the pre-application meetings, final determination regarding the required permits (individual or general/nationwide) and mitigation ratios will be established. The purchase of credits, or the implementation of other mitigation options, would occur concurrent with the proposed construction activities in the Northern Branch study area.

15.3. Environmental Review

15.3.1. North Bergen

15.3.1.1. Existing Conditions

Rail Right-of-Way

Drainage swales were identified adjacent to the project right-of-way (Refer to Appendix G: Wetland Delineation). Drainage swales collect water from the right-of-way and surrounding impervious surfaces. Also identified was Wolf Creek, a State open water. These identified complexes were dominated by *Phragmites australis* (common reed). The project corridor in this area mostly consists of existing railroad infrastructure.

North Bergen Vehicle Base Facility

Although wetlands were identified adjacent to the right-of-way, no wetlands were identified on this site.

91st Street Station

Linear wetland/State open water complexes were identified parallel to the railroad right-of-way on both the north and south sides of 91st Street (Refer to Figure 15-2).

15.3.1.2. Potential Impacts and Mitigation

No Build Alternative

Continued rail operations within the CSX right-of-way would not result in adverse impacts to wetlands located within the corridor. It is likely that wetlands will change in size and quality in the absence of the proposed action due to the overall growth and natural ecological processes within the study area. Some wetland areas may grow as runoff from impervious uses continues to drain to low-lying areas; however, the increase in size of wetlands due to increased runoff will likely result in diminished wetland quality.

Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4

Both Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4 are identical in their potential impacts and mitigation through North Bergen. Consequently, the discussion below applies to both alternatives. Table 15-2 summarizes the total potential permanent impacts to wetlands associated with the Northern Branch project improvements proposed for North Bergen. The narrative that follows describes these impacts.

Rail Right-of-Way

Impacts – In North Bergen, the majority of the wetlands that would be impacted are on the west side of the right-of-way, within the HMD. Approximately 1.74 acres of swales adjacent to the rail right-of-way will be filled in the course of right-of-way rehabilitation, which includes replacement of ballast and installation of new rails and ties.

91st STREET STATION FRESHWATER WETLANDS

Northern Branch Corridor
Figure 15-2

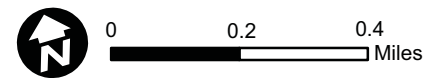
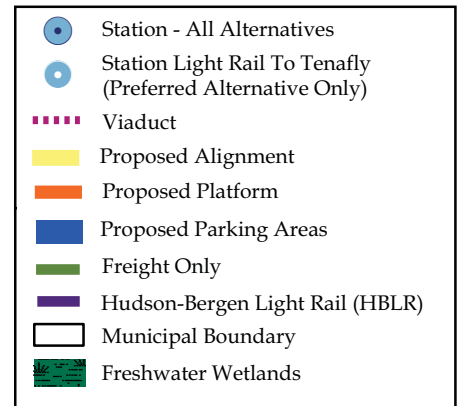
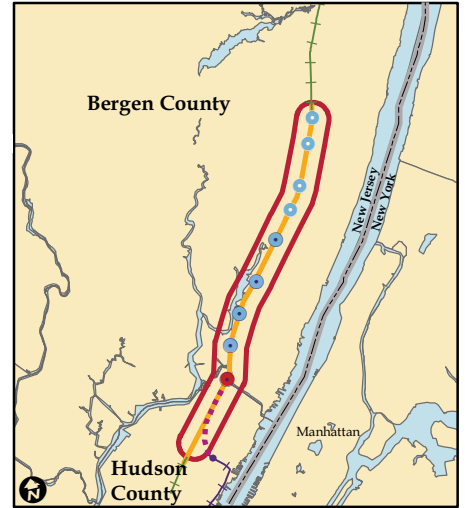


Table 15-2: Permanent Wetland Acreage Impacts in North Bergen

Project Element	Location	Approx. Acres of Impact	Type of Wetland	Regulatory Jurisdiction
Right-of-Way	North Bergen	1.74	Herbaceous wetland swales/ HMD State Open Water	USACE
Structures over Waterways	Overhead Railroad Bridge	None	N/A	N/A
	Bellmans Creek Culvert	0.03	Navigable Water	USACE
	Bellmans Creek (border of North Bergen and Fairview)	0.02	Navigable Water	USACE
Station/VBF	North Bergen VBF	None	N/A	N/A
	91 st Street Station	0.04	Wetland swale	NJDEP
TOTAL		1.83		

The existing NYS&W overhead railroad bridge (Sta 1184+50) will be raised to improve vertical clearance. The assumed construction procedure is to expose the existing abutment footings, extend the toes for the increased earth load, raise the superstructure and abutment, then reconstruct the NYS&W track on a support structure. Temporary disturbance is anticipated to be 6,100 square feet. No permanent disturbance is planned.

The existing Bellmans Creek culvert headwalls will be removed and replaced. The assumed construction procedure is to build cofferdams for new abutments, remove the existing structure and construct the new bridge. This will require a temporary disturbance of wetlands/State open water of approximately 2,250 square feet. Permanent disturbance is estimated to be 1,350 square feet (0.03 acres).

The existing bridge over Bellmans Creek located at the border of North Bergen and Fairview will be widened to the east to accommodate a second track. Construction activities will consist of the removal of the existing wing-walls, building coffer dams for the new substructure and construction of the new bridge. Temporary disturbance of wetlands/State open waters will be approximately 2,650 square feet. Permanent disturbance will be approximately 1,000 square feet (0.02 acres).

Total permanent impacts to wetlands in North Bergen associated with rail right-of-way improvements and structures are estimated to be approximately 1.79 acres. Impacted wetlands on the west side of the right-of-way and associated with navigable waters are under the jurisdiction of the USACE, impacted wetlands on the east side are under the jurisdiction of the NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT’s preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

North Bergen Vehicle Base Facility

Impacts – No wetlands will be impacted.

Mitigation – None required.

91st Street Station

Impacts – Approximately 0.04 acres of freshwater wetland will be permanently impacted to accommodate the new station platform. Impacted wetlands on the west side of the right-of-way and associated with navigable waters are under the jurisdiction of the USACE, impacted wetlands on the east side are under the jurisdiction of the NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT’s preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

15.3.2. Fairview

15.3.2.1. Existing Conditions

Rail Right-of-Way

No wetlands were identified adjacent to the rail right-of-way in areas proposed for improvement in Fairview. The crossing of Bellmans Creek, on the border of Fairview and North Bergen, represents a crossing of a navigable water of the United States, under the jurisdiction of the USACE.

15.3.2.2. Potential Impacts and Mitigation

No Build Alternative

Continued rail operations within the CSX right-of-way would not result in adverse impacts to wetlands located within the corridor. It is likely that wetlands will change in size and quality in the absence of the proposed action due to the overall growth and natural ecological processes within the study area. Some wetland areas may grow as runoff from impervious uses continues to drain to low-lying areas; however, the increase in size of wetlands due to increased runoff will likely result in diminished wetland quality.

Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4

Both Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4 are identical in their potential impacts and mitigation through Fairview. Consequently, the discussion below applies to both alternatives. Table 15-3 summarizes the total potential permanent impacts to wetlands associated with the Northern Branch improvements proposed for Fairview. The narrative that follows describes these impacts:

Table 15-3: Permanent Wetland Acreage Impacts in Fairview

Project Element	Location	Approx. Acres of Impact	Type of Wetland	Regulatory Jurisdiction
Right-of-Way	Fairview	None	N/A	N/A
Structures over Waterways	Bellmans Creek (border of North Bergen and Fairview)	0.02	Navigable Water	USACE
	Wolf Creek (border of Fairview and Ridgefield)	None	N/A	N/A
TOTAL		0.02		

Rail Right-of-Way

Impacts – The existing bridge over Bellmans Creek located at the border of North Bergen and Fairview will be widened to the east to accommodate a second track. Construction activities will consist of the removal of the existing wing-walls, building coffer dams for the new substructure and construction of the new bridge. Temporary disturbance of wetlands/State open waters on the Fairview side will be approximately 2,650 square feet. Permanent disturbance will be approximately 1,000 square feet (0.02 acres). The disturbance is related to the footings of the crossing within the boundary of Fairview, which is additional to the disturbance associated with this improvement in North Bergen.

Tie replacement and minor structural rehabilitation is planned for the Wolf Creek Bridge located on the border of Fairview and Ridgefield. Temporary disturbance is anticipated to be 3,600 square feet on the Fairview side. No permanent disturbance is planned.

Total permanent impacts to wetlands in Fairview associated with rail right-of-way improvements and structures is estimated to be approximately 0.02 acres and under the jurisdiction of the USACE since the impacts are associated with a navigable waterway.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT’s preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

15.3.3. Ridgefield

15.3.3.1. Existing Conditions

Rail Right-of-Way

Drainage swales were identified parallel to and within the existing right-of-way. The drainage swales collect water from the railroad right-of-way and surrounding impervious surfaces including adjacent roadways and surface parking areas. The wetlands were dominated by *Phragmites australis* (common reed). Ridgefield wetlands are under the jurisdiction of the USACE and NJDEP.

Ridgefield Station

Linear wetland/State open water complexes were identified parallel to the railroad right-of-way, immediately south of the station area (Refer to Figure 15-3).

15.3.3.2. Potential Impacts and Mitigation

No Build Alternative

Continued rail operations within the CSX right-of-way would not result in adverse impacts to wetlands located within the corridor. It is likely that wetlands will change in size and quality in the absence of the proposed action due to the overall growth and natural ecological processes within the study area. Some wetland areas may grow as runoff from impervious uses continues to drain to low-lying areas; however, the increase in size of wetlands due to increased runoff will likely result in diminished wetland quality.

Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4

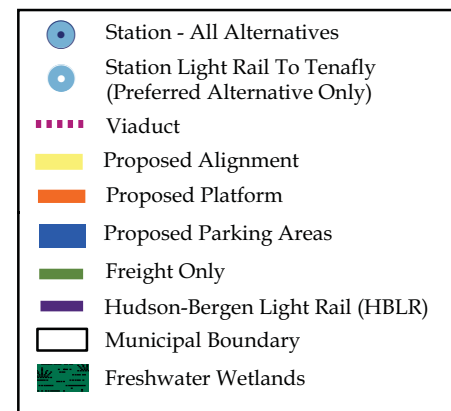
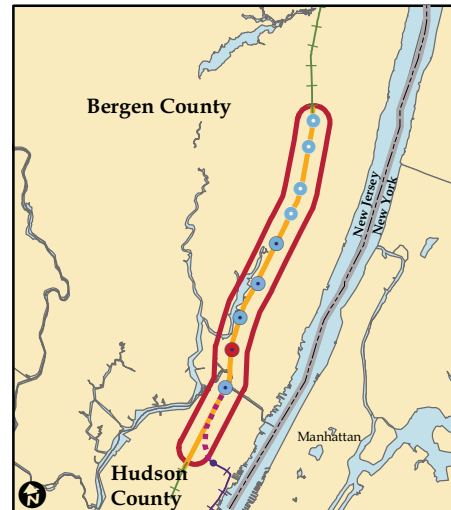
Both Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4 are identical in their potential impacts and mitigation through Ridgefield. Consequently, the discussion below applies to both alternatives. Table 15-4 summarizes the total potential permanent impacts to wetlands associated with the Northern Branch improvements proposed for Ridgefield. The narrative that follows describes these impacts.

Table 15-4: Permanent Wetland Acreage Impacts in Ridgefield

Project Element	Location	Approx. Acres of Impact	Type of Wetland	Regulatory Jurisdiction
Right-of-Way	Ridgefield, west of ROW	0.25	Herbaceous wetland swales/ HMD State Open Water	USACE
	Ridgefield, east of ROW	0.01	Herbaceous wetland swales/ State Open Water	NJDEP
Structures over Waterways	Wolf Creek (border of Fairview and Ridgefield)	None	N/A	N/A
Station	Ridgefield Station	None	N/A	N/A
TOTAL		0.26		

RIDGEFIELD STATION FRESHWATER WETLANDS

Northern Branch Corridor
Figure 15-3



Rail Right-of-Way

Impacts – In Ridgefield, the majority of the wetlands that would be impacted are on the west side of the right-of-way, within the HMD. Approximately 0.26 acres of swales adjacent to the rail right-of-way will be filled in the course of right-of-way rehabilitation, which includes replacement of ballast and installation of new rails and ties.

Tie replacement and minor structural rehabilitation is planned for the Wolf Creek Bridge located on the border of Fairview and Ridgefield. Temporary disturbance is anticipated to be 3,600 square feet on the Ridgefield side. No permanent disturbance is planned.

Total permanent impacts to wetlands in Ridgefield associated with rail right-of-way improvements, structures, and station is estimated to be approximately 0.26 acres. Impacted wetlands on the west side of the right-of-way are under the jurisdiction of the USACE, and on the east side are under the jurisdiction of the NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT's preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

Ridgefield Station

Impacts – While a wetland swale is located near the station, the platforms would be located to the north of the swale to avoid impact at this location.

Mitigation – None required.

15.3.4. Palisades Park

15.3.4.1. Existing Conditions

Rail Right-of-Way

Drainage swales/State open waters were identified parallel to and within the existing right-of-way. The drainage swales/State open waters collect water from the railroad right-of-way and surrounding impervious surfaces. Two State open water areas were also identified as tributaries to Overpeck Creek.

Palisades Park Station

A linear wetland area exists approximately 350 feet south of the potential station location adjacent to the right-of-way (Refer to Figure 15-4).

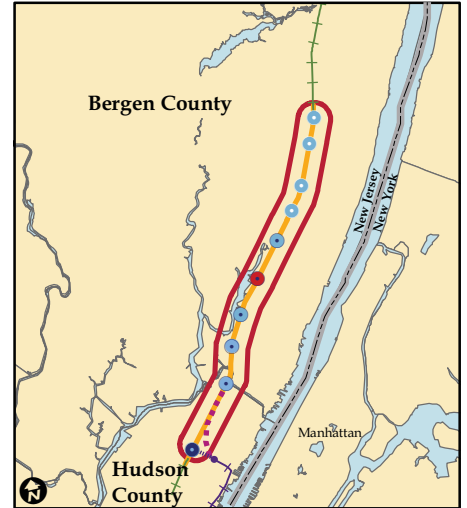
15.3.4.2. Potential Impacts and Mitigation











No Build Alternative

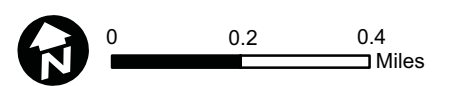
Continued rail operations within the CSX right-of-way would not result in adverse impacts to wetlands located within the corridor. It is likely that wetlands will change in size and quality in the absence of the proposed action due to the overall growth and natural ecological processes within the study area. Some wetland areas may grow as runoff from impervious uses continues to drain to low-lying areas; however, the increase in size of wetlands due to increased runoff will likely result in diminished wetland quality.

PALISADES PARK STATION FRESHWATER WETLANDS

Northern Branch Corridor
Figure 15-4



-  Station - All Alternatives
-  Station Light Rail To Tenafly (Preferred Alternative Only)
-  Viaduct
-  Proposed Alignment
-  Proposed Platform
-  Proposed Parking Areas
-  Freight Only
-  Hudson-Bergen Light Rail (HBLR)
-  Municipal Boundary
-  Freshwater Wetlands



Source: Field Inspection

Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4

Both Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4 are identical in their potential impacts and mitigation through Palisades Park. Consequently, the discussion below applies to both alternatives. Table 15-5 summarizes the total potential permanent impacts to wetlands associated with the Northern Branch improvements proposed for Palisades Park. The narrative that follows describes these impacts.

Table 15-5: Permanent Wetland Acreage Impacts in Palisades Park

Project Element	Location	Approx. Acres of Impact	Type of Wetland	Regulatory Jurisdiction
Right-of-Way	Palisades Park	0.22	Herbaceous wetland swales/ State Open Water	NJDEP
Structures over Waterways	Tributary to Overpeck Creek Culvert	0.01	State Open Water	NJDEP
	Tributary to Overpeck Creek (border of Palisades Park and Leonia)	0.01	State Open Water	NJDEP
Station	Palisades Park Station	None	N/A	N/A
TOTAL		0.24		

Rail Right-of-Way

Impacts – Approximately 0.22 acres of swales adjacent to the rail right-of-way will be filled in the course of right-of-way rehabilitation, which includes replacement of ballast and installation of new rails and ties.

The existing culvert carrying a tributary to Overpeck Creek will require the culvert to be extended on the west side. The assumed construction procedure is to install sheeting to support the railroad and keep water from the excavation. The process will entail excavation and construction of new footings and new superstructure. This will require work in the adjacent drainage swale/stream bed. Temporary disturbance is approximately 900 square feet. Permanent disturbance is approximately 300 square feet (0.01 acres).

At the border of Palisades Park and Leonia, the existing bridge will be widened to the west to accommodate a new track over this tributary to Overpeck Creek. The assumed construction procedure is to remove the existing wing-walls, build cofferdams for the new substructure and construct the new bridge. This will require work in the stream bed. Temporary disturbance is 1,100 square feet. Permanent disturbance on the Palisades Park side is 500 square feet (0.01 acres).

Total permanent impacts to wetlands in Palisades Park associated with rail right-of-way improvements and structures are estimated to be approximately 0.24 acres. All impacted wetlands are under the jurisdiction of the NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT's preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

Palisades Park Station

Impacts – No wetlands will be affected by the development of Palisades Park Station.

Mitigation – None required.

15.3.5. Leonia

15.3.5.1. Existing Conditions

Rail Right-of-Way

Drainage swales/State open waters were identified parallel to and within the existing right-of-way. The drainage swales/State open waters collect water from the railroad right-of-way and surrounding impervious surfaces. A State open water area was identified as a tributary to Overpeck Creek, running parallel to the project right-of-way. The wetlands were dominated by *Phragmites australis* (common reed).

Leonia Station

Several freshwater wetlands were identified on both the south and north sides of Fort Lee Road within Overpeck Park (Refer to Figure 15-5).

15.3.5.2. Potential Impacts and Mitigation

No Build Alternative

Continued rail operations within the CSX right-of-way would not result in adverse impacts to wetlands located within the corridor. It is likely that wetlands will change in size and quality in the absence of the proposed action due to the overall growth and natural ecological processes within the study area. Some wetland areas may grow as runoff from impervious uses continues to drain to low-lying areas; however, the increase in size of wetlands due to increased runoff will likely result in diminished wetland quality.

Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4

Both Light Rail to Tenafly (Preferred Alternative) and Light Rail to Englewood Route 4 are identical in their potential impacts and mitigation through Leonia. Consequently, the discussion below applies to both alternatives. Table 15-6 summarizes the total potential permanent impacts to wetlands associated with the Northern Branch improvements proposed for Leonia. The narrative that follows describes these impacts.

Table 15-6: Permanent Wetland Acreage Impacts in Leonia

Project Element	Location	Approx. Acres of Impact	Type of Wetland	Regulatory Jurisdiction
Right-of-Way	Leonia	1.02	Herbaceous wetland swales/ State Open Water	NJDEP
Structures over Waterways	Trib. to Overpeck Creek (border of Palisades Park and Leonia)	0.01	State Open Water	NJDEP
Station	Leonia Station	None	N/A	N/A
TOTAL		1.03		

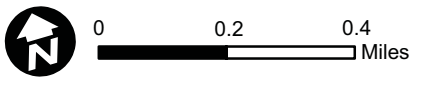
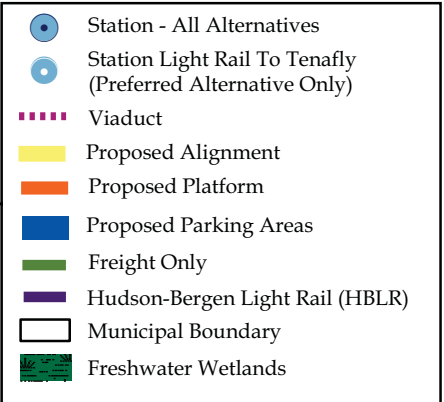
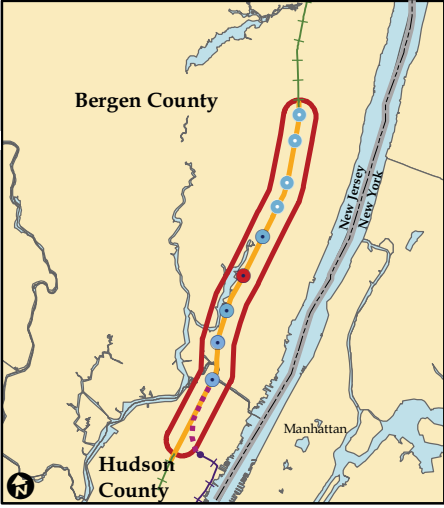
Rail Right-of-Way

Impacts – Approximately 1.02 acres of swales adjacent to the rail right-of-way will be filled in the course of right-of-way rehabilitation, which includes replacement of ballast and installation of new rails and ties.

At the border of Palisades Park and Leonia, the existing bridge will be widened to the west to accommodate a new track over this tributary to Overpeck Creek. The assumed construction procedure is to remove the existing wing-walls, build cofferdams for the new substructure and construct the new bridge. This will require work in the stream bed. Temporary disturbance is 1,100 square feet. Permanent disturbance is 500 square feet (0.01 acres).

LEONIA STATION FRESHWATER WETLANDS

Northern Branch Corridor
Figure 15-5



Source: Field Inspection

Total permanent impacts to wetlands in Leonia associated with rail right-of-way improvements and structures are estimated to be approximately 1.03 acres. All impacted wetlands are under the jurisdiction of the NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT’s preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

Leonia Station

Impacts – No wetlands will be affected by the development of Leonia Station.

Mitigation – None required.

15.3.6. Englewood

15.3.6.1. Existing Conditions

Rail Right-of-Way

Drainage swales were identified parallel to and within the existing right-of-way. Drainage swales collect water from the railroad right-of-way and surrounding impervious surfaces including adjacent roadways and surface parking areas. These swales were dominated by *Phragmites australis* (common reed).

Englewood VBF Option

Freshwater linear wetland drainage swales were identified parallel to the existing right-of-way (Refer to Figure 15-6).

Englewood Route 4 Station

Freshwater linear wetland drainage swales were identified parallel to the existing right-of-way (Refer to Figure 15-6).

Englewood Town Center Station

No wetlands were identified on this site.

Englewood Hospital Station

No wetlands were identified on this site.

15.3.6.2. Potential Impacts and Mitigation

No Build Alternative

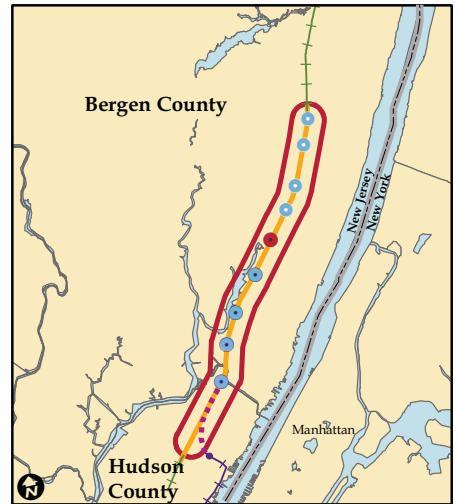
Continued rail operations within the CSX right-of-way would not result in adverse impacts to wetlands located within the corridor. It is likely that wetlands will change in size and quality in the absence of the proposed action due to the overall growth and natural ecological processes within the study area. Some wetland areas may grow as runoff from impervious uses continues to drain to low-lying areas; however, the increase in size of wetlands due to increased runoff will likely result in diminished wetland quality.











Light Rail to Tenafly (Preferred Alternative)

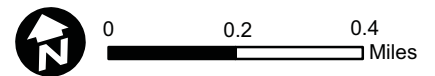
Table 15-7 summarizes the total potential permanent impacts to wetlands associated with the Northern Branch improvements proposed for Englewood, associated with the Light Rail to Tenafly (Preferred Alternative). The narrative that follows describes these impacts.

ENGLEWOOD RT. 4 STATION FRESHWATER WETLANDS

Northern Branch Corridor
Figure 15-6



-  Station - All Alternatives
-  Station Light Rail To Tenafly (Preferred Alternative Only)
-  Viaduct
-  Proposed Alignment
-  Proposed Platform
-  Proposed Parking Areas
-  Freight Only
-  Hudson-Bergen Light Rail (HBLR)
-  Municipal Boundary
-  Freshwater Wetlands



**Table 15-7: Permanent Wetland Acreage Impacts in Englewood
(Light Rail to Tenafly (Preferred Alternative))**

Project Element	Location	Approx. Acres of Impact	Type of Wetland	Regulatory Jurisdiction
Right-of-Way	Englewood	0.66	Herbaceous wetland swales/ State Open Water	NJDEP
Structures over Waterways	Flat Rock Brook (Concrete Channel)	0.02	State Open Water	NJDEP
	Tributary to Overpeck Creek Culvert	0.01	State Open Water	NJDEP
	Box culvert over drainage swale	0.39	Wetlands Swale	NJDEP
	Tributary to Overpeck Creek	0.02	State Open Water	NJDEP
Stations/VBF	Englewood Route 4 Station	0.23	Herbaceous wetland swale	NJDEP
	Englewood LRT VBF (Optional)	0.02	Herbaceous wetland swale	NJDEP
	Englewood Town Center Station	None	N/A	N/A
	Englewood Hospital Station	None	N/A	N/A
TOTAL		1.33 (without Eng.VBF) to 1.35 (with Eng.VBF)		

Rail Right-of-Way

Impacts – Approximately 0.66 acres of swales adjacent to the rail right-of-way will be filled in the course of right-of-way rehabilitation, which includes replacement of ballast and installation of new rails and ties.

The existing bridge over Flat Rock Brook will be widened to the east to accommodate a new track. The assumed construction procedure is to remove the existing wing-walls, build cofferdams for the new substructure and construct the new bridge. This will require work in the stream bed. Approximate temporary disturbance is 1,500 square feet. Permanent disturbance is approximately 800 square feet (0.02 acres).

The existing culvert carrying a tributary to Overpeck Creek will require the existing culvert to be extended on the east side. The assumed construction procedure is to first install sheeting to support the railroad and keep water from the excavation, excavate and construct new footings and construct the new superstructure. This will require a temporary disturbance of the stream/State open waters of approximately 1,000 square feet. Permanent disturbance is anticipated to be 500 square feet (0.01 acres).

At a drainage swale between West Forest Avenue and Englewood Avenue, a new box culvert is required. The assumed construction procedure is to install sheeting in the middle of the stream, divert the stream and construct one side of the culvert. Then divert the stream to the other side of the sheeting and construct the remainder of the culvert. Work will be required in the adjacent drainage swale/stream bed. Temporary disturbance to the area is approximately 34,000 square feet. Permanent disturbance is approximately 17,000 square feet (0.39 acres).

The existing bridge over the tributary to Overpeck Creek will be widened to the east to accommodate a new track. The assumed construction procedure is to remove the existing wing-walls, build cofferdams for the new substructure and construct the new bridge. This will require work in the existing stream bed. Temporary disturbance would be 3,000 square feet. Permanent disturbance would be 800 square feet (0.02 acres).

Total permanent impacts to wetlands in Englewood associated with rail right-of-way improvements and structures are estimated to be approximately 1.10 acres. All impacted wetlands are under the jurisdiction of the NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT’s preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

Englewood VBF Option

Impacts – The optional location for the VBF would be located west of the wetlands to minimize impact to the wetlands that run between the alignment and the VBF site; however, connections would be needed at the north and south areas of the site to connect the VBF to the rail alignment. This would impact approximately 0.02 acres of wetlands. These wetlands are under the jurisdiction of NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT’s preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

Englewood Route 4 Station

Impacts – Approximately 0.23 acres of freshwater wetlands will be permanently impacted to accommodate the new station platform. These wetlands are under the jurisdiction of NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT’s preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

Englewood Town Center Station

Impacts – No wetlands will be affected by the development of Englewood Town Center Station.

Mitigation – None required.

Englewood Hospital Station

Impacts – No wetlands will be affected by the development of Englewood Hospital Station.

Mitigation – None required.

Light Rail to Englewood Route 4

Table 15-8 summarizes the total potential permanent impacts to wetlands associated with the Northern Branch improvements proposed for Englewood, associated with Light Rail to Englewood Route 4. The narrative that follows describes these impacts:

Table 15-8: Permanent Wetland Acreage Impacts in Englewood (Light Rail to Englewood Route 4)

Project Element	Location	Approx. Acres of Impact	Type of Wetland	Regulatory Jurisdiction
Right-of-Way	Englewood	0.66	Herbaceous wetland swales/ State Open Water	NJDEP
Structures over Waterways	Flat Rock Brook (Concrete Channel)	0.02	State Open Water	NJDEP
	Tributary to Overpeck Creek Culvert	0.01	State Open Water	NJDEP
Stations/VBF	Englewood Route 4 Station	0.23	Herbaceous wetland swale	NJDEP
	Englewood LRT VBF (Optional)	0.02	Herbaceous wetland swale	NJDEP
TOTAL		0.92 (without Eng.VBF) to 0.94 (with Eng.VBF)		

Impacts – Approximately 0.66 acres of swales adjacent to the rail right-of-way will be filled in the course of right-of-way rehabilitation, which includes replacement of ballast and installation of new rails and ties.

The existing bridge over Flat Rock Brook will be widened to the east to accommodate a new track. The assumed construction procedure is to remove the existing wing-walls, build cofferdams for the new substructure and construct the new bridge. This will require work in the stream bed. Approximate temporary disturbance is 1,500 square feet. Permanent disturbance is approximately 800 square feet (0.02 acres).

The existing culvert carrying a tributary to Overpeck Creek will require the existing culvert to be extended on the east side. The assumed construction procedure is to first install sheeting to support the railroad and keep water from the excavation, excavate and construct new footings and construct the new superstructure. This will require a temporary disturbance of the stream/State open waters of approximately 1,000 square feet. Permanent disturbance is anticipated to be 500 square feet (0.01 acres).

Total permanent impacts to wetlands in Englewood associated with rail right-of-way improvements and structures are estimated to be approximately 0.69 acres. All impacted wetlands are under the jurisdiction of the NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT's preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

Englewood VBF Option

Impacts –The optional location for the VBF would be located west of the wetlands to minimize impact to the wetlands that run between the alignment and the VBF site; however, connections would be needed at the north and south areas of the site to connect the VBF to the rail alignment. This would impact approximately 0.02 acres of wetlands. These wetlands are under the jurisdiction of NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT's preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

Englewood Route 4 Station

Impacts – Approximately 0.23 acres of freshwater wetlands will be permanently impacted to accommodate the new station platform. These wetlands are under the jurisdiction of NJDEP.

Mitigation – As discussed in Section 15.2.3, NJ TRANSIT's preferred means of mitigation would be to acquire wetland mitigation credits within the Kane Tract from the Meadowlands Conservation Trust Organization located in Bergen County.

Englewood Town Center and Englewood Hospital Station

Impacts – Light Rail to Englewood Route 4 terminates at the proposed Englewood Route 4 Station. No improvements are proposed north of the proposed Englewood Route 4 Station; consequently, no impacts are anticipated.

Mitigation – None required.

15.3.7. Tenafly

15.3.7.1. Existing Conditions

Rail Right-of-Way

No wetlands were identified.

Tenafly Town Center Station

No wetlands were identified on this site.

Tenafly North Station

No wetlands were identified on this site.

15.3.7.2. Potential Impacts and Mitigation

No Build Alternative

Continued rail operations within the CSX right-of-way would not result in adverse impacts to wetlands located within the corridor. It is likely that wetlands will change in size and quality in the absence of the proposed action due to the overall growth and natural ecological processes within the study area. Some wetland areas may grow as runoff from impervious uses continues to drain to low-lying areas; however, the increase in size of wetlands due to increased runoff will likely result in diminished wetland quality.

Light Rail to Tenafly (Preferred Alternative)

Table 15-9 summarizes the total potential permanent impacts to wetlands associated with the Northern Branch improvements proposed for Tenafly, associated with the Light Rail to Tenafly (Preferred Alternative). The narrative that follows describes these impacts:

**Table 15-9: Permanent Wetland Acreage Impacts in Tenafly
(Light Rail to Tenafly (Preferred Alternative))**

Project Element	Location	Approx. Acres of Impact	Type of Wetland	Regulatory Jurisdiction
Right-of-Way	Tenafly	None	N/A	N/A
Structures over Waterways	Trib. to Tenakill Brook, Tenafly	None	N/A	N/A
Station	Tenafly Town Center Station	None	N/A	N/A
	Tenafly North Station	None	N/A	N/A
TOTAL		None		

Rail Right-of-Way

Impacts – No wetland impacts are associated with right-of-way development in Tenafly. The crossing of Tenakill Brook in Tenafly will not require improvements.

Mitigation – None required.

Tenafly Town Center Station

Impacts – No wetlands will be affected by the development of Tenafly Town Center Station.

Mitigation – None required.

Tenaflly North Station

Impacts – No wetlands will be affected by the development of Tenaflly North Station.

Mitigation – None required.

Light Rail to Englewood Route 4

Impacts – Light Rail to Englewood Route 4 terminates at the proposed Englewood Route 4 Station. No improvements are proposed north of the proposed Englewood Route 4 Station; consequently, no impacts are anticipated.

Mitigation – None required.

15.4. Summary of Potential Environmental Effects

Table 15-10 summarizes potential wetland impacts by municipality and Build Alternative, with wetland impacts ranging between 4.30 and 4.73 acres. The greatest potential impact to wetland resources occurs in North Bergen, which borders the HMD. There is no difference in potential impact between the two Build Alternatives in North Bergen. Mitigation is anticipated to occur in the form of the purchase of mitigation credits from the Kane Tract.

The difference between the two Build Alternatives is associated with the distance traveled by the Build Alternative. Light Rail to Tenaflly continues north of the proposed Englewood Route 4 Station to Tenaflly. An additional bridge and box culvert are required north of Englewood Route 4 Station. As a result, Light Rail to Tenaflly affects more acreage than Light Rail to Englewood Route 4.

The total impacted acreage also depends on the VBF selected. The North Bergen VBF does not result in wetlands impacts. The optional Englewood VBF results in 0.02 acres of impact. The impact affects both Build Alternatives equally.

Table 15-10: Summary of Potential Impacts by Municipality and Build Alternative

Municipality and Project Element	Light Rail to Tenafly (Preferred Alternative)	Light Rail to Englewood Route 4
<i>NORTH BERGEN</i>		
Rail ROW (including structures)	1.79 acres	1.79 acres
North Bergen VBF	None	None
91 st Street Station	0.04	0.04
<i>FAIRVIEW</i>		
Rail ROW (including structures)	0.02 acres	0.02 acres
<i>RIDGEFIELD</i>		
Rail ROW (including structures)	0.26 acres	0.26 acres
Ridgefield Station	None	None
<i>PALISADES PARK</i>		
Rail ROW (including structures)	0.24 acres	0.24 acres
Palisades Park Station	None	None
<i>LEONIA</i>		
Rail ROW (including structures)	1.03 acres	1.03 acres
Leonia Station	None	None
<i>ENGLEWOOD</i>		
Rail ROW south of Englewood Route 4 Station (including structures)	0.69	0.69
Englewood Rt. 4 Station	0.23 acres	0.23 acres
Englewood VBF	0.02 acres	0.02 acres
Rail ROW north of Englewood Route 4 Station (including structures)	0.41	No impact. Light Rail to Englewood Route 4 terminates at Englewood Route 4 Station. No project improvements proposed north of Englewood Route 4 Station with the exception of the installation of four-quadrant gates at grade crossings, which would not impact wetlands.
Englewood Town Center Station	None	
Englewood Hospital Station	None	
<i>TENAFLY</i>		
Rail ROW (including structures)	None	
Tenafly Town Center Station	None	
Tenafly North Station	None	
TOTAL with North Bergen VBF	4.71 acres	4.30 acres
TOTAL with Optional Englewood VBF	4.73 acres	4.32 acres