

DANBURY BRANCH IMPROVEMENT PROGRAM TASK 5

ENVIRONMENTAL TECHNICAL MEMORANDUM IMPACTS ANALYSIS

STATE PROJECT 302-008



SECTION 9/10: HISTORIC & ARCHAEOLOGICAL RESOURCES

OCTOBER 2011

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METHODOLOGY

Background

The following is an examination of potential impacts to historic and archaeological resources associated with each of the alternatives being considered for this project, conducted pursuant to the guidelines of 36 CFR 800 - Protection of Historic Properties and Section 106 of the National Historic Preservation Act. Historic resources include features such as buildings, structures, properties, objects, and districts. The historic resources examined in this section are those eligible or potentially eligible for listing on the National Register of Historic Places (National Register or NR), based on the standards established by the National Historic Preservation Act (NHPA) of 1966. The existing resources within the corridor were identified in *Section 9: Historic Resources* (May 2009) of the Environmental Technical Memorandum.

Archaeological resources as defined by the U.S. Department of Interior are material remains of human life or activities which are at least 100 years old and which may provide understandings of past human behavior and cultural adaptations and related topics. Archaeological resources are categorized as prehistoric (prior to European contact) and historic (post-European contact), and may also be listed on the National Register.

National Register properties are those which are significant in American history, architecture, archeology, engineering and culture. They include districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, and meet at least one of the following National Register eligibility criteria A-D:

- A. Are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. Are associated with the lives of persons significant in our past; or
- C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. Have yielded, or may be likely to yield, information important in prehistory or history.

Information about the archaeological resources in the study corridor came from two surveys:

- 1) *Historic and Architectural Cultural Resource Investigations, Metro-North Commuter Railroad, Danbury Branch Line, Centralized Traffic Control Project, On-Call Service Agreement No. 7.19-04(96)* by the Public Archaeological Laboratory (PAL) (Adams, V.H., M.A. Kierstad, and E.L. Paulus, 1998)

- 2) *Phase 1a Archaeological Assessment Survey of the Metro-North Commuter Railroad Electrification Project, Danbury to New Milford Extension* by Archaeological Consulting Services (ACS) (March 2009).

The PAL report identified the visible (above-ground) railroad and non-railroad related historic features inside and outside the railroad right-of-way (ROW) from South Norwalk to Danbury. This report included determinations of potential NR eligibility for numerous railroad bridges, other railroad elements, and some adjacent properties outside the ROW. It did not include sensitivity mapping for prehistoric or historic archaeological resources, based on expectations at the time that any subsurface improvements associated with the project would be limited to the previously disturbed context within the existing alignment.

The ACS survey identified NR listed and potentially eligible properties within the Danbury to New Milford project corridor and also predicted the likelihood of prehistoric archaeological resources based on a suite of statistical landscape sensitivity criteria. The report included maps showing low, medium, and high prehistoric archaeological sensitivity in the Danbury to New Milford study corridor. This survey is also known as *Section 10: Archeological Resources* (March 2009) of the Environmental Technical Memorandum.

Impact Analysis

The NHPA requires that the geographic area be identified within which a project may cause changes in the character or use of historic resources. This area is known as the Area of Potential Effect (APE). The APE is determined based on the geographic location of project activities and the nature of those activities in relation to surrounding features such as topography, vegetation, level of development, and land use.

The APE for the Danbury Branch Improvement Program alternatives – accounting for a possible increased frequency of rail service and track improvements – was determined to coincide with the limits of the study corridor, which extends 500 feet from the rail center line on both sides of the existing track. The APE for station sites where construction activity may occur – at existing station upgrade sites (Alternatives C and E) and two new station sites (Alternative D) – includes all areas from which such construction activities would be visible.

Historic Properties

Each historic property was mapped in relation to the potential improvements and the APE using GIS. Each study alternative was then assessed to determine whether its associated improvements could potentially cause visual, physical, or historic contextual impacts to historic properties. Visual impacts were considered possible in instances where an improvement's physical infrastructure or landform changes would be visible from historic resources and these changes were inconsistent with the historic character and/or setting of the historic resource. For example, an electrical substation (modern metal rectangular “box” on a concrete pad) constructed within view of a rural, undeveloped 19th century farmstead would likely be considered to have a visual impact. If constructed in view of a historic factory building in an urban area with a high

concentration of 20th century transportation structures, the same substation would likely not be considered to have a visual impact.

Physical impacts were considered possible when the construction of improvements would result in the removal, deterioration, or alteration of a historic resource. Contextual impacts (both positive and negative) were considered to be possible when an improvement being considered would enhance or detract from a historic property's connection with its historic context. For example, if train service at an existing historic train station would be increased with an alternative and no other negative contextual effects would occur, that alternative could be considered to have a positive impact on the station's historic context. In contrast, if train service were to be eliminated at a historic station, it would likely be considered a negative impact on the station's historic context. The historic stations potentially affected by the Danbury Branch Improvements, in terms of increased service and/or physical improvements, include Cannondale (Wilton), Branchville (Ridgefield), Bethel, and Danbury.

Archaeological Resources

From Norwalk to Danbury (Alternatives C and E), since no archaeological sensitivity mapping was available, the potential for project impacts on archaeological resources was assessed as such:

- Impacts on historic archaeological resources were considered possible where project activities are close to NR-listed or NR-eligible historic resources (as identified by the PAL report and the Historic Resources Technical Memorandum for the DEIS) and may involve earth-moving/excavation beyond areas disturbed by modern development
- Impacts on prehistoric archaeological resources were considered possible where project activities are close to water bodies, floodplains, or undeveloped lands and may involve earth-moving/excavation beyond areas disturbed by development.

From Danbury to New Milford (Alternative D), historic and prehistoric archaeological sensitivity maps were used to inform the impact analysis.

- Impacts on historic archaeological resources were considered possible where project activities are located in areas mapped as sensitive for historic resources and where project activities may involve earth-moving/excavation beyond areas disturbed by modern development
- Impacts on prehistoric archaeological resources were considered possible where project activities are located in areas mapped with moderate or high prehistoric sensitivity and where earth-moving and excavation may occur beyond areas disturbed by development.

IMPACTS

Alternative A - No Build

Alternative A does not include any improvements of track or adjacent properties or changes to rail service. Therefore, this alternative would result in no visual, physical, or contextual impacts to historic resources. No prehistoric or historic archeological resources would be affected. In

view of this, there are no potential historic Section 4(f) impacts subject to Section 4(f) of the U.S. Department of Transportation Act.

Alternative B - Transportation System Management (TSM)

Alternative B would add additional commuter peak period train service between South Norwalk and Wilton, increase service between South Norwalk and Danbury during off-peak hours, and provide additional bus transit options at existing stations.

Historically, passenger train service along the Danbury Branch corridor was considerably more intense than the current level of service. Increasing the train service at historic stations – Branchville, Cannondale, Bethel, and Danbury Stations – is consistent with the stations’ historic context and could potentially result in increased visibility and public awareness of these historic resources. No adverse effects on other historic resources are anticipated. As such, Alternative B would likely have a positive contextual impact and no visual or physical impacts on historic resources. No prehistoric or historic archeological resources would be affected. In view of this, there are no potential historic Section 4(f) impacts subject to Section 4(f) of the U.S. Department of Transportation Act.

Alternative C - South Norwalk to Danbury Improvements

Alternative C includes a number of enhancements along the existing rail line between South Norwalk and Danbury, including the following physical improvements:

- Electrification of the existing rail line from approximately MP 1.1 in Norwalk to MP 23.9 in Danbury, entailing a new traction power system (catenary and substations).
- Track (curve) reconfigurations for operational and speed enhancements.
- Upgrades at five existing stations, including parking and access improvements.
- 17 undergrade and one overhead bridge replacements.
- Construction of one new rail bridge (truss structure).
- Danbury yard improvements.

The analysis of potential impacts to historic and archaeological resources from Alternative C is summarized in Table 1 and described by improvement type below. The noted acquisitions of historic properties are also, by definition, potential Section 4(f) impacts pursuant to Section 4(f) of the U.S. Department of Transportation Act. Aside from these direct acquisitions, based on the current level of conceptual design no constructive use impacts under Section 4(f) were identified. Where properties with moderate or high archaeological sensitivity will be acquired and where project improvements may disrupt areas noted as having moderate or high archaeological sensitivity, further archaeological surveys may be necessary to identify the presence and significance of archaeological resources, to be determined in coordination with the Connecticut State Historic Preservation Office (SHPO).

Passenger Stations (Existing Station Upgrades)

Upgrades to five existing passenger stations are included as part of Alternative C. Improvements at three of these stations (Merritt 7, Redding, and Bethel) were evaluated to have no impact on historic resources either because there are no historic resources in the APE or because the improvements would not physically impact historic resources and are consistent with the character of the APE.

No impacts to prehistoric or historic archaeological resources are anticipated at the Merritt 7 and Bethel Station sites. The existing Merritt 7 station site and the proposed parking lot are within heavily urbanized lands adjacent to an engineered channelized section of the Norwalk River, and no historic resources are within physical or visual range of the improvements. The proposed parking lot expansion at Bethel would impact some previously disturbed undeveloped hydric soils along a very altered segment of a tributary to the Still River. The site is not within physical or visual range of historic resources. No impacts to prehistoric or historic archaeological resources are anticipated at either of these two sites.

The proposed parking lot expansion at Redding would impact undeveloped soils (some hydric) along a free-flowing tributary to the Saugatuck River and thus have potential to disrupt prehistoric archaeological resources. These undeveloped soils relatively close to the historic resources in Redding village indicate potential for historic archaeological resources as well. Work at this station is thus assessed to have potential impacts on prehistoric and historic archaeological resources.

Upgrades at the other two existing stations, Cannondale and Branchville, were evaluated to potentially result in impacts to historic and archaeological resources, as described below.

Cannondale Station: Alternative C would include an additional elongated surface parking lot to service the existing Cannondale Station. The station is a historic property in the center of the historic village of Cannondale. The planned location of the surface parking lot is wholly within the Cannondale National Register Historic District (NRHD), on land that is currently covered by deciduous trees. As much of the historic significance of the Cannondale NRHD lies in its semi-rural character and is focused on the train station, the paving of this open land could potentially have adverse visual and contextual effects on the historic resources in the village.

The proximity of the Station to the Norwalk River and the rich historic fabric of the village indicate sensitivity for both prehistoric and historic archaeological resources. Excavation work required for the parking lot could impact both categories of archaeological resources.

Branchville Station: Alternative C would include a number of changes at and near the existing Branchville Station, including: the relocation of historic Portland Avenue and a new bridge to carry the relocated road over the Norwalk River; the replacement of the Depot Road bridge over the Norwalk River; a new pedestrian bridge over the Norwalk River; and constructing over 200 new parking spaces on acquired property.

Portland Avenue dates from the early days of the Danbury and Norwalk Railroad and has a number of significant multi-family residential structures that relate to the development of the railroad. Historic maps suggest that the portion of Portland Avenue that would be moved is part of the road's original 19th century alignment. As such, the roadway itself could be considered to be historically significant. Therefore, the relocation of Portland Avenue and the loss of the historic road alignment could have a negative physical impact on the historic character of this area, as well as contextual impacts on existing historic resources.

The current bridge carrying Depot Road over the Norwalk River does not appear to be historically significant, and its replacement would have no impact on historic resources.

The historic Branchville Station is not located within a historic district but lies at the center of a dense node of historic structures in the 19th century railroad village of Branchville. The planned new surface parking would require acquisition of property at 30 Ethan Allen Highway and removal of a circa-1900 commercial building on that site. The new parking lot would be immediately opposite, and visible from, a number of properties that are on the National Register (NR) or are potentially NR-eligible. Although it is not designated by any historic inventory, the building at 30 Ethan Allen Highway contributes to the historic character of the Branchville area. Its removal and replacement by a large expanse of pavement could adversely affect the historic resources in the APE, visually and contextually.

The proximity of the Station to the Norwalk River and the rich historic fabric of the village indicate sensitivity for both prehistoric and historic archaeological resources. Although the vicinity has been highly disturbed, including the channelization of the river roughly parallel to the tracks, there may be deep excavations required for the bridge construction and the pedestrian overpass structure. Since the depth of prior disturbance throughout the site is unknown, the deeper excavations at this site have potential to impact prehistoric and historic archaeological resources.

Traction Power System - Electrification

Facilities associated with the construction of a Traction Power System (facilities for electrification) would extend from approximately MP 1.1 in Norwalk to MP 23.9 in Danbury. Facilities would include electrical substations, remote housing units (RTUs), and catenary and support structures.

Substations and remote housing units (RTUs): The construction of seven substations or RTUs are included as part of Alternative C. These structures are prefabricated metal enclosed structures with dimensions of 25' by 75' (substations) and 25' by 25' (RTUs). The structures have a modern, industrial appearance. At the proposed RTUs in Norwalk and Bethel and the proposed substations in Norwalk, Wilton, Ridgefield, and Danbury, improvements were evaluated to have no impact on historic resources because there are no historic resources in the vicinity or because the facilities would not physically impact historic resources and would blend with the character of the APE. In these locations, the APE is predominantly urban with dense

development patterns and prevalence of modern structures. The site of the substation at Danbury Station lies within the Main Street Historic District, but the density of development and the prevalence of modern transportation structures in this vicinity diminish any potential negative context or visual impacts resulting from the substation.

Relative to archaeological resources at these six sites, the proposed RTUs in Norwalk and Bethel and the proposed substations in Norwalk, Wilton, Ridgefield, and Danbury are located on previously disturbed sites within urban soils. Given the minimal amount of earth-moving or excavation required for their construction, impacts to prehistoric and historic archaeological resources are not anticipated.

One new substation, at Redding Station, could be visible to adjacent historic buildings at 6 Long Ridge Road, 10 Long Ridge Road, and 3 Sidecut Road, in the rural village of West Redding. Negative visual impacts to these properties could likely be prevented by properly designed landscaping placed as visual screening. This substation site is in the same undeveloped area as the parking lot expansion for the Redding passenger station (described above); its construction similarly has potential to impact prehistoric and historic archaeological resources.

Catenary and Support Structures: Electrification would require the construction of a catenary system, consisting of poles and overhead wires. The electrification would start near MP 1.1, approximately 0.5 miles north of I-95. The physical footprint of the catenary structures would be very small and located primarily within the previously disturbed rail right-of-way. They therefore present little risk of causing negative physical impacts to historic or archaeological resources along the corridor. However, pole and other electrification facilities should be compared against detailed railway system plans to ensure that NR eligible traction return impedance bonds, historic catenary, and the Norwalk Interlocking Tower, all noted by the PAL report as within the first mile of existing electrification in Norwalk, are not impacted. The few locations of new track alignment under Alternative C would require installation of catenary outside the existing rail ROW; those situations are described below under *Track Reconfigurations, Sidings and Connections*.

Visually, the catenary poles and wires have similar dimensions to electrical poles already present along the line. In most urban and dense suburban locations along the line, the catenary would blend in with other manmade vertical features. However, in rural areas where the rail line is surrounded by solid “walls” of trees or open views of fields or wetlands, the new, light-colored catenary structures could stand out and be visually disruptive to surrounding historic resources.

There are four rural locations with clusters of historic resources in the Alternative C study corridor. These locations were evaluated in greater detail for the Visual Resources impact assessment, and the results are noted below:

Wilton

- Cannondale village – There are existing tall modern powerpoles and wires throughout the village, and they are very visible modern elements contrasting

with its historic character. With the removal of existing poles, the installation of new poles would not add to the number of pole features. While the visual changes would be compatible with the existing modern poles, the conversion of older poles to modern materials would likely cause a further deterioration of the historic setting and thus represent an adverse effect.

- Mill Road - Adverse visual impacts are anticipated along Mill Road due to two factors: 1) the new modern catenary power poles and lines would be very different from the existing older wooden poles (to be removed); and 2) the historic homes along the road have very open frontal exposures to the rail line in this location.

Redding

- Old Redding Road - , the new catenary system would not substantially deteriorate the existing visual conditions in this vicinity. There are existing modern metal utility boxes, road crossing signs, and poles which already create a visual mix of modern vertical elements. With removal of existing poles, the installation of new poles would not add to the number of pole features. The visual changes would be slight and relatively compatible with the existing setting.
- Simpaug Turnpike – the new modern catenary power poles and lines would be very different from the existing older wooden poles (to be removed). They are primarily visible along the roadway; most of the historic homes are shielded from view of the rail line by dense deciduous trees. The immediate contexts of the historic properties are thus not expected to be affected.

Track Reconfigurations, Sidings, and Connections

There are many track reconfigurations included with Alternative C to improve rail operations and/or speed. There are approximately 23 curve reconfigurations plus a revised branch connection with the New Haven mainline in South Norwalk (designated CP241). There are no passing or storage sidings associated with Alternative C.

The revised branch connection with the mainline (CP241) is the one track reconfiguration in Alternative C which would result in impacts to historic resources. The connection calls for the addition of a parallel track and a new bridge over Washington and North Main Streets. The concept plans show that the parcel acquisitions (0.97 acres) required for the configuration include three Norwalk properties listed on the State Register, at the following addresses:

- 9 North Main Street
- 11 North Main Street
- 29 North Main Street

A retaining wall constructed between the new track alignment and these parcels would minimize encroachment on these potentially NR-eligible resources. However, demolition of at least two historic structures is likely, and a possible third. The new bridge would alter the setting of the existing bridge and block views of the bridge from the west, thus potentially causing physical

and visual impacts to historic properties. The partial or full property acquisitions, the loss of historic structures, and other changes brought by this improvement would result in adverse physical, contextual, and possibly visual effects on historic properties. In addition to triggering Section 106 consultation (NHPA), each historic property impact would constitute a potential Section 4(f) impact.

Given the historic setting of the parcels required for the construction of CP241 and the potentially deep excavations for bridge work and retaining walls, there are potential impacts to historical archaeological resources. Prehistoric archaeological sensitivity, and thus the potential to encounter prehistoric archaeological resources, is considered low for this site.

Other track curve realignments may impact historic archaeological resources, depending on the depth of excavation compared to the level of prior disturbance. These include:

- Curves 0E, 1A & 1B – passes through modern industrial-commercial development parcels adjacent to Chapel Street/Harbor Avenue within Norwalk’s historic residential and commercial core
- Curves 2B, 3A, 3B & 3C (includes new Bridge at MP 3.2) – this new alignment passes close to a dam and fieldstone foundation site identified in the PAL report
- Curve 4C – adjacent to another historic foundation site identified in the PAL report
- Curves 7E & 8 – close to two foundation sites
- Curve 9C in Wilton – undeveloped land within Cannondale Historic District (HD)
- Curve 10B & 11A in Wilton – close to NR listed houses and several foundation sites identified by the PAL report
- Curve 12A in Wilton – undeveloped land within Georgetown HD
- Curve 12B in Ridgefield – adjacent to historic resources in Branchville village
- Curve 14A in Redding – near back of historic property
- Curves 14B, 14C, 14D & 15A in Redding – along historic Simpaug Turnpike and adjacent to historic resources on Topledge Road
- Curves 15B & 15C in Redding – close to historic resource on Simpaug Turnpike
- Curves 16A & 16B in Redding – adjacent to historic house noted for further study by the PAL report
- Curve 19A – adjacent to former ice house archaeological site

Track curve realignments that may impact prehistoric archaeological resources, again depending on the depth of excavation required and the level of prior disturbance, include:

- Curves 2B, 3A, 3B & 3C (includes new Bridge at MP 3.2) – a portion of this new alignment passes through undeveloped forest land adjacent to floodplains of the Norwalk River which could be sensitive for prehistoric resources; excavation could impact these resources, if present.
- Curve 6B in Wilton (includes new Bridge at MP 6.24) – potential impacts if bridge replacement requires foundation work/excavation in previously undisturbed banks of the Norwalk River

- Curves 7E & 8 – Curve 7E may affect small portions of forest along Norwalk River; possibly previously disturbed
- Curve 9C in Wilton – undeveloped forest next to Norwalk River
- Curves 10B & 11A in Wilton – new alignment through undeveloped forest next to Norwalk River
- Curve 12A in Wilton – along floodplain soils
- Curve 12B in Wilton – along floodplain soils
- Curve 13B in Redding – although separated from the Norwalk River by the tracks, the impacted undeveloped forest area is very close to the river and hence potentially sensitive for prehistoric resources
- Curve 14A in Redding – along floodplain soils
- Curves 14B, 14C, 14D & 15A in Redding – Curve 14B is at the base of an undeveloped forested slope with a stream
- Curves 15B & 15C in Redding – along the banks and through the wetlands of Umpawaug Pond
- Curves 16A & 16B in Redding - at the base of undeveloped forested slopes with streams
- Curve 17A in Redding – undeveloped slope close to Bogus Mountain Brook and broad wetlands
- Curve 17B in Redding – undeveloped slope close to Bogus Mountain Brook and broad wetlands
- Curve 17C in Redding - undeveloped lands close to Bogus Mountain Brook

Structures and Bridges

Undergrade (UG) bridges (railroad goes over a road or stream): Replacement of 17 existing UG bridges with modern ballast deck type bridges and one new UG bridge are included in Alternative C.

Most of the existing UG bridges were originally constructed between 1893 and 1919, rendering them potentially NR-eligible. However, the cultural resource investigation by PAL (1998) determined that the only bridges listed on, or eligible for, the National Register within the rail corridor from South Norwalk to Danbury were the NR-listed South Norwalk Railroad Bridge (Washington Street Bridge), the Merritt Parkway Overpass in Norwalk, and the Simpaug Turnpike Bridge in Redding. The South Norwalk Railroad Bridge (Washington Street Bridge) and the Merritt Parkway Overpass are not proposed to be replaced or modified as part of the project. The Simpaug Turnpike Bridge, which is proposed to be replaced by Alternative C, was reconstructed and modernized in 1998. Other bridges noted as all-steel girder-type bridges of the 1890s, early twentieth century, and as late as 1956, were classified not eligible for the National Register due to the existence of dozens of other examples in Connecticut and their lack of engineering significance (Historic Resource Consultants 1991 as cited by PAL). Given the status of these bridges, none of the proposed bridge replacements would affect historic resources.

Several of the bridge replacement sites are assessed to potentially contain prehistoric and/or historic archaeological resources. At these sites, impacts may occur only if the bridge replacement work would require excavation to repair or replace foundations or abutments. This

has not been determined at this conceptual level of project planning. Even if excavations are required, resources (if they exist) may be too deep to be disturbed by the proposed work.

Based solely on the high correlation of historic archaeological resources with proximity to known historic remains or intact standing historic structures / districts, the following bridge replacement sites have been identified as potentially impacting historic archaeological resources, depending on the extent and depth of excavation required during construction:

- Norwalk MP 3.2 over Norwalk River – this new bridge on a new alignment is close to a dam and fieldstone foundation site identified in the PAL report
- Wilton MP 8.7 over Norwalk River – close to historic resources within the Cannondale HD
- Wilton MP 9.42 over Norwalk River – close to historic resources within the Georgetown HD
- Wilton MP 11.55 over Norwalk River – close to a mill foundation and dam site identified by the PAL report
- Wilton MP 12.17 over Factory Pond (Norwalk River) – within Georgetown HD
- Redding MP 14.16 over Old Redding Road – adjacent to NR listed house

Based solely on the high correlation of prehistoric archaeological resources with undeveloped lands close to relatively intact surface waters, the following bridge replacement sites have been identified as potentially impacting prehistoric archaeological resources depending on the extent and depth of excavation required during construction:

- Norwalk MP 5.12 over a small stream – very close to the Norwalk River into which it discharges
- Wilton MP 6.64 over Norwalk River
- Wilton MP 8.7 over Norwalk River
- Wilton MP 9.42 over Norwalk River
- Wilton MP 11.55 over Norwalk River
- Redding MP 16.4 over Umpawaug Pond Brook
- Redding MP 17.1 over Saugatuck River
- Bethel MP 21.4 over Sympaug Brook

The one completely new UG truss bridge proposed by Alternative C is immediately adjacent to the historic and visually prominent NR listed Washington Street Bridge in South Norwalk, which is located on the south edge of the South Main and Washington Street Historic District. The new bridge would alter the setting and block views of the existing NR bridge from the west, thus potentially causing physical and visual impacts to historic properties. This bridge is associated with the revised branch connection with the mainline (CP241) discussed under Track Reconfigurations, Sidings, and Connections. The likelihood of prehistoric archaeological resources is low at this site because of its intensive history of development. However, due to the proposed acquisition of historic properties in order to construct this bridge and the connecting track (CP241), there is potential for impacts to historic archaeological resources.

Overhead (OH) bridges (railroad goes under a road or in a tunnel): The replacement of one OH roadway (Route 7) bridge in Wilton would have no impact on historic resources, as the existing bridge is not historic and there are no historic resources nearby. However, the bridge is very close to the Norwalk River and floodplain, and a fieldstone foundation site identified by the PAL report is close to the bridge. Therefore, this site has been identified as potentially impacting prehistoric and historic archaeological resources, depending on the extent and depth of excavations required.

Improvements to Danbury Yard

Improvements for the Danbury Yard would be largely confined to areas within the current boundary of the existing Yard, which is dominated by extensive rail infrastructure amidst a densely urban area. As such, these improvements would not cause substantive contextual or visual changes within the APE. However, the improvements would require acquisition of some (unspecified) portion of the Danbury Rail Museum property at 120 White Street, a NR-listed property. If this taking required destruction or alteration of any portion of the historic Rail Museum, it would result in an adverse physical and possibly contextual impact on this historic resource. As plans for the Yard are developed, additional information regarding the intended purpose and substance of the taking will be evaluated, and coordination with the SHPO will be initiated to determine potential effects. If a taking is required, in addition to triggering Section 106 consultation (NHPA), it would constitute a potential Section 4(f) impact.

Relative to archaeological resources, the Danbury Yard is a highly developed urban-rail infrastructure complex. However, prehistoric archaeological sensitivity was mapped as High-Disturbed by ACS. Depending on the depth of proposed excavations in relation to past disturbance, there may be impacts to prehistoric archaeological resources if present. The site is also sensitive for historic resources, with several NR-eligible and listed properties on and adjacent to the site. However, if the proposed track work will be relatively superficial, no prehistoric or historic archaeological resource impacts would be likely at this site, unless the work were to encroach on the NR-eligible turntable within the Yard (not currently proposed).

Alternative D - Extension from Danbury to New Milford

Alternative D includes a number of enhancements along a 14-mile enhancement of the rail line to extend passenger service between Danbury and New Milford, including:

- Construction of two new passenger stations (Brookfield and New Milford), each with a siding.
- Curve reconfigurations of existing track and a new storage siding near the Danbury-Brookfield line.
- Replacement of six undergrade bridges with new ballast deck bridges.
- Installation of a new traction power system (catenary and substations) and seven roadway bridge raisings (there are two I-84 bridges – one westbound and one eastbound) to allow vertical clearance for catenary (for the electrification option only).
- Construction of a new rail storage and maintenance yard at New Milford.

The analysis of potential impacts to historic resources from Alternative D is summarized in Table 2 and described by improvement type below. The noted acquisitions of historic properties are also, by definition, potential Section 4(f) impacts pursuant to Section 4(f) of the U.S. Department of Transportation Act. Aside from these direct acquisitions, based on the current level of conceptual design no constructive use impacts under Section 4(f) were identified. Where properties with moderate or high archaeological sensitivity will be acquired and where project improvements may disrupt areas noted as having moderate or high archaeological sensitivity, further archaeological surveys may be necessary to identify the presence and significance of archaeological resources, to be determined in coordination with the SHPO.

Rail Reconstruction

Alternative D calls for reconstruction of the entire 14.7 miles of track from Danbury to New Milford. This work would provide a higher quality of rail on new ties in order to accommodate train speeds up to 60 miles per hour (MPH). This work would essentially replace the existing rail in place and would not result in other physical or visual changes. No effects on historic or archaeological resources would occur.

Passenger Stations (New)

Two new passenger stations are included in Alternative D, at Brookfield and New Milford. Both planned station sites have concentrations of historic resources in their vicinities and thus have potential to affect historic and archaeological resources.

Brookfield Station: The new Brookfield Station would be located on the site of the existing historic Brookfield railroad depot building and adjacent properties on Whisconier Road (Route 25). The conceptual station layout plan includes the following elements: a 300-foot long high level platform with a waiting shelter, access stairs, bicycle lockers, and ramp(s); parking lots totaling 100 spaces; bus stop; kiss-n-ride drop-off; and a pedestrian bridge over the Still River on the north side of the existing Route 25 bridge, with connecting sidewalks between the station and Federal Road (Route 202).

The existing Brookfield depot, built circa (ca.) 1914, lies within a dense node of six or seven historic structures on Whisconier and Tucks Roads. The use of the site as a rail station and the reinstatement of passenger service would have positive contextual impacts on this historic resource, because these structures developed around the railroad. However, the physical changes associated with modern requirements for parking and vehicle access would cause negative visual and contextual impacts to the quaint rural setting of the existing buildings in this small-scale historic cluster.

Based on the conceptual station layout plans, the entire property adjacent to the existing depot building, 1 Tucks Road, would need to be acquired. This property contains a historic building, the old Brookfield Hotel (ca. 1875). Adverse effects due to possible changes in historic use, historic context, and/or demolition of this building may result from the improvements. Other adjacent historic properties along Whisconier Road would undergo negative physical and contextual impacts as well. Depending on their scale and design, modern station elements such

as paved parking lots, high level platforms, and pedestrian bridges could pose adverse visual and contextual impacts on surrounding historic resources. In summary, while the return of rail service to the historic Brookfield Station would be a positive aspect of using this historic site, the encroachment of the new station footprint on existing historic resources and the associated visual/contextual changes are anticipated to cause adverse effects on historic resources.

In addition to triggering Section 106 consultation (NHPA), upgrades at this station would constitute a potential Section 4(f) impact.

Relative to archaeological sensitivity, the station site and passing siding location were assessed to be moderate for prehistoric archaeological resources and moderate to high for historic archaeological resources. Thus there are potential impacts to both categories of archaeological resources.

New Milford Station: The conceptual station layout plan for the New Milford Station would include the following elements: a 300-foot long high level platform with a waiting shelter, access stairs, bicycle lockers, and ramp(s); a parking lot totaling 110 spaces; bus stop; kiss-n-ride drop-off; and additional ADA parking.

The site of this new station is on Railroad Street north of the historic Housatonic Railroad Station in New Milford. All of the station elements are planned to be located wholly within the New Milford Center National Register Historic District (NRHD) in a densely populated downtown area. Property acquisitions would be required and include several historic resources on Railroad Street, with addresses of 56, 60, 64, 78, 88, 94, 112, 114, 116, 118, and 120 Railroad Street. The acquisition and destruction of a large number of historic resources at this site would have direct negative physical effects on historic resources. Depending on their scale and design, modern station elements such as parking lots, high level platforms, and pedestrian bridges, could pose adverse visual and contextual impacts on other historic resources in the NRHD. These other potentially affected resources include the Housatonic Rail Station, which is in direct line of sight to the south of the new station site, and 20 other historic resources surrounding the planned station site on Bennett, Boardman, and Railroad Streets.

In addition to triggering Section 106 consultation (NHPA), upgrades at this station would constitute a potential Section 4(f) impact.

Relative to archaeological sensitivity, the station site and passing siding location were assessed to be moderate for prehistoric archaeological resources and moderate to high for historic archaeological resources. Thus there are potential impacts to both categories of archaeological resources.

Traction Power System - Electrification

Substations and remote housing units (RTUs): The two substations required for the electrification option of Alternative D, at Brookfield and New Milford, would have no direct, context or visual impacts on historic resources, as neither site is adjacent to historic resources. Relative to archaeological resources, the Brookfield substation site was assessed to have

moderate to high historic sensitivity and the New Milford substation was assessed to have moderate to high prehistoric sensitivity. Depending on the depth of excavation required for construction, there are potential impacts to these respective categories of archaeological resources at these sites.

Catenary and support structures: The electrification option of Alternative D would require the construction of a catenary system, consisting of poles and overhead wires along the rail line. The physical footprint of these structures would be very small and located in the previously disturbed right-of-way. They thus present little risk of causing negative physical impacts to historic or archaeological resources along the corridor. Visually, the catenary poles and wires have similar dimensions to electrical poles already present along the line. Because the historic resources within the APE of the catenary structures are located in relatively dense villages and urban areas where numerous poles, wires, traffic signals, and other vertical elements are commonplace, the new catenary structures are not expected to be visually obtrusive. The one exception is at the Housatonic River Bridge in New Milford (MP 32.26), where the installation of poles could affect the visual integrity of this NR resource. Additional analysis of potential effects at this bridge will be necessary after design plans are further developed.

The installation of catenary poles along this portion of the line would require the raising of seven roadway bridges within Danbury, Brookfield, and New Milford. Photographic review of these bridges reveals no evidence that these bridges have historic significance. However, additional analysis of individual structures and construction dates would be needed to confirm this preliminary evaluation. If additional analysis confirms that these bridges are not historically significant, raising these bridges to accommodate the electrification version of Alternative D would have no impact on historic resources within the APE.

At bridge raisings, impacts to archaeological resources may occur only if the construction work would require excavation and/or ground disruption. Even if excavations are required, resources (if they exist) may be too deep to be disturbed by the proposed work. Due to low sensitivity, no potential archaeological resource impacts are anticipated for bridge raisings at White Street or I-84 in Danbury. At the other bridges, based on sensitivity assessments, construction could impact archaeological resources of the category noted (if not noted, sensitivity is low), depending on the extent of excavation:

- Silvermine Road - moderate to high historic sensitivity and moderate prehistoric sensitivity (east side of bridge only)
- Whisconier Road – moderate to high historic sensitivity and moderate prehistoric sensitivity
- Old Pumpkin Hill Road – moderate to high prehistoric sensitivity (west side only)
- Erickson Road - high prehistoric sensitivity

Track Reconfigurations, Sidings, and Connections

Five track curve reconfigurations and a new storage siding near the Danbury-Brookfield line are included in Alternative D. None of these changes would result in a physical, visual, or contextual impact on historic resources in the corridor.

Relative to archaeological sensitivity, while all five curve reconfiguration locations have at least a moderate prehistoric sensitivity rating, only Curves 1A and 6A are estimated to require work beyond the existing constructed ballast. Curve 1A is assessed High/Disturbed for prehistoric sensitivity with low historic sensitivity and 6A is rated moderate and high for prehistoric sensitivity and moderate to high for historic sensitivity. Depending on the extent of ground disturbance at these track reconfigurations, there could be impacts.

The storage siding in Danbury / Brookfield has low prehistoric and historic sensitivity in Danbury and most of its length in Brookfield; the northernmost segment has High/Disturbed prehistoric sensitivity. Thus, depending on the depth of excavations, there are potential impacts from the storage siding construction in this location.

Structures and Bridges

There are six undergrade bridge replacements included with Alternative D. All of the overhead bridge replacements would be required only with the electrification option and are reported under Bridge Raisings in the section on *Traction Power System – Electrification*.

Undergrade (UG) bridges (railroad goes over a road or stream): Photographic survey of the six UG bridges in Alternative D indicates they are modern, utilitarian structures that lack historic significance; therefore, none are considered eligible for NR listing. As such, their replacements would have no impact on historic resources within the APE.

Each of the six bridges is sensitive for either prehistoric or historic archaeological resources, or both categories. At these sites, impacts may occur only if the bridge replacement work would require excavation to repair or replace foundations or abutments. This has not been determined at this conceptual level of project planning. Even if excavations are required, resources (if they exist) may be too deep to be disturbed by the proposed work. Construction could potentially impact archaeological resources at all of the UG bridges, since sensitivity (moderate or high) was identified for either prehistoric or historic resources, or both, at all of the bridge sites. The sensitivity assessments at each site are noted below (if a category is not noted, sensitivity is low and impacts would not be anticipated):

- Danbury MP 26.6 over Still River – High/Disturbed for prehistoric resources
- Brookfield (Rt. 133) MP 29.47 over Junction Road - moderate on south side of bridge for prehistoric resources and moderate to high historic sensitivity
- Brookfield MP 29.9 over Farm Pass/Cattle Pass – moderate to high historic sensitivity
- Brookfield MP 33.07 over Old Middle Road - moderate and high for prehistoric resources and moderate to high for historic resources
- New Milford MP 35.1 over Still River - moderate for prehistoric resources and moderate to high historic sensitivity
- New Milford MP 38.62 over Housatonic Avenue – not included in ACS survey area but probably moderate to high for prehistoric resources and moderate for historic resources

New Milford Maintenance Yard

There are no historic resources in the vicinity of the planned New Milford Maintenance Yard. Therefore, no adverse effects to historic resources are anticipated from this improvement.

The Yard site is beyond the limit of the archaeological survey by ACS. Potential impacts were assessed based on the archaeological sensitivity criteria applied for the Alternative C project area, such as presence of surface water for prehistoric sensitivity and proximity to known/standing historic resources for historic sensitivity. Given the proximity of the Housatonic River and the pattern of historic settlement throughout the entire river valley, the Yard site is assessed to be at least of moderate sensitivity for both prehistoric and historic archaeological resources. Given the extent of construction, there are potential impacts to both categories of resources at this site.

Alternative E - Improvements from South Norwalk to Wilton (Merritt 7)

Alternative E would provide for partial electrification of the Danbury Branch from South Norwalk to Wilton, from approximately MP 1.1 to MP 7.5. Impacts from this alternative are therefore a subset of the impacts of Alternative C. The analysis of potential impacts to historic resources from Alternative E is summarized in Table 3, and condensed impact summaries from Alternative C are provided by improvement type below. Similar to the other alternatives, the noted acquisitions of historic properties are also, by definition, potential Section 4(f) impacts pursuant to Section 4(f) of the U.S. Department of Transportation Act. Aside from these direct acquisitions, based on the current level of conceptual design no constructive use impacts under Section 4(f) were identified. Where properties with moderate or high archaeological sensitivity will be acquired and where project improvements may disrupt areas noted as having moderate or high archaeological sensitivity, further archaeological surveys may be necessary to identify the presence and significance of archaeological resources, to be determined in coordination with the SHPO.

Passenger Stations (Existing Station Upgrades)

No impacts to historic resources are anticipated from the upgrades to Merritt 7 Station, the only improved station under this alternative. There are no historic resources in the vicinity. No impacts to prehistoric or historic archaeological resources are anticipated at this site.

Traction Power System - Electrification

For Alternative E, electrification facilities would extend from approximately MP 1.1 in Norwalk to MP 7.5 in Wilton. Facilities include one electrical substation, one RTU, and catenary and support structures.

The proposed Norwalk RTU and the Wilton substation would not impact historic or archaeological resources. The length of Alternative E is in the most densely developed segment of the project corridor. It also coincides with the presence of many electrical poles and powerlines already present along the line. Through the length of Alternative E, therefore, the

associated catenary is not expected to cause any visual or contextual impacts on any historic resources within the APE. Given the minimal amount of earth-moving or excavation required for construction of the electrification facilities, impacts to prehistoric and historic archaeological resources are not anticipated.

Electrification facilities start at approximately MP 1.1 in Norwalk and go northerly. However, pole and other electrification facilities should be compared against detailed railway system plans to ensure that NR eligible traction return impedance bonds, historic catenary, and the Norwalk Interlocking Tower, all noted by the PAL report as being located within the first mile of existing electrification in Norwalk, are not impacted. The few locations of new track alignment under Alternative C would require installation of catenary outside the existing rail ROW; those situations are described below under *Track Reconfigurations, Sidings and Connections*.

Track Reconfigurations, Sidings and Connections

For Alternative E, there would be approximately seven curve reconfigurations plus a reconfiguration to improve the branch connection with the New Haven mainline in South Norwalk (CP241). There are no passing or storage sidings included with Alternative E.

Impacts from the new branch connection with the mainline (CP241) would be identical to impacts from Alternative C, with physical, contextual, and possibly visual effects from the acquisition and possible demolition of structures on three Norwalk properties listed on the State Register, at 9, 11, and 29 North Main Street. The new bridge associated with this improvement (at Washington and South Main Streets, also noted under UG bridge replacements) would alter the setting of the existing historic bridge and block views of the bridge from the west, thus potentially causing physical and visual impacts to historic properties. In addition to triggering Section 106 consultation (NHPA), each historic property impact would constitute a potential Section 4(f) impact. Given the historic setting of the parcels required for the construction of CP241 and the potentially deep excavations for bridge work and retaining walls, there are potential impacts to historical archaeological resources. Prehistoric archaeological sensitivity is considered low for this site.

Other track curve realignments may impact historic archaeological resources, depending on the depth of excavation compared to the level of prior disturbance. These include:

- Curves 0E, 1A & 1B – passes through modern industrial-commercial development parcels adjacent to Chapel Street/Harbor Avenue within Norwalk’s historic residential and commercial core
- Curves 2B, 3A, 3B & 3C (includes new Bridge at MP 3.2) – this new alignment passes close to a dam and fieldstone foundation site identified in the PAL report
- Curve 4C – adjacent to another historic foundation site identified in the PAL report

Track curve realignments that may impact prehistoric archaeological resources, again depending on the depth of excavation required and the level of prior disturbance, include:

- Curves 2B, 3A, 3B & 3C (includes new Bridge at MP 3.2) – a portion of this new alignment passes through undeveloped forest land adjacent to floodplains of the Norwalk River which could be sensitive for prehistoric resources; excavation could impact these resources, if present.
- Curve 6B in Wilton (includes new Bridge at MP 6.24) – potential impacts if bridge replacement requires foundation work/excavation in previously undisturbed banks of the Norwalk River

Structures and Bridges

UG bridge replacements, no OH bridge replacements and one new bridge would occur with Alternative E. The UG bridge replacements are the six in Norwalk shown under Alternative C, as follow:

- Norwalk
 - 04134R, MP 0.11, SMP 0.1, Marshall Street, constructed 1895
 - 08200R, MP 0.19, SMP 0.2, Ann Street, constructed 1895
 - 08202R, MP 3.20, SMP 3.2, Norwalk River, constructed 1905, repaired 2008
 - 08203R, MP 5.12, SMP 5.12, Brook, constructed 1919
 - 08204R, MP 6.43, SMP 6.43, Stream, constructed 1904, rehabilitated 1956
 - 08205R, MP 6.64, SMP 6.64, Norwalk River, constructed 1919

As noted under Alternative C, most of the existing UG bridges were originally constructed between 1893 and 1919, rendering them potentially NR-eligible. However, the cultural resource investigation by PAL (1998) determined that the only bridges listed on, or eligible for, the National Register within the rail corridor from South Norwalk to Wilton (Alternative E segment) were the NR-listed South Norwalk Railroad Bridge (Washington Street Bridge) and the Merritt Parkway Overpass in Norwalk. The South Norwalk Railroad Bridge (Washington Street Bridge) and the Merritt Parkway Overpass are not proposed to be replaced or modified as part of the project. Other bridges noted as all-steel girder-type bridges of the 1890s, early twentieth century, and as late as 1956, were classified not eligible for the National Register due to the existence of dozens of other examples in Connecticut and their lack of engineering significance (Historic Resource Consultants 1991 as cited by PAL). Given the status of these bridges, none of the proposed bridge replacements would affect historic resources.

Like Alternative C, Alternative E includes the construction of a new rail truss bridge immediately adjacent to the historic and visually prominent Washington Street Bridge in South Norwalk. This new bridge is associated with the new branch connection with the mainline (CP241). The new bridge would alter the setting of the existing bridge and block views of the bridge from the west, thus potentially causing physical and visual impacts to historic properties.

Several of the bridge replacement sites within the Alternative E segment were assessed to potentially contain historic or prehistoric archaeological resources. At these sites, impacts may occur only if the bridge replacement work would require excavation to repair or replace foundations or abutments. This has not been determined at this conceptual level of project

planning. Even if excavations are required, resources (if they exist) may be too deep to be disturbed by the proposed work.

Based solely on the high correlation of historic archaeological resources with proximity to known historic remains or intact standing historic structures / districts, the following bridge replacement sites have been identified as potentially impacting historic archaeological resources, depending on the extent and depth of excavation required during construction:

- Norwalk MP 3.2 over Norwalk River – this new bridge on a new alignment is close to a dam and fieldstone foundation site identified in the PAL report

Based solely on the high correlation of prehistoric archaeological resources with undeveloped lands close to relatively intact surface waters, the following bridge replacement sites have been identified as potentially impacting prehistoric archaeological resources depending on the extent and depth of excavation required during construction:

- Norwalk MP 5.12 over a small stream – very close to the Norwalk River into which it discharges
- Wilton MP 6.64 over Norwalk River

MITIGATION

Section 106 of the NHPA requires numerous steps relative to coordination, documentation, and mitigation of potential adverse effects on historic resources from a project (undertaking). As an initial step, further coordination with the SHPO will be necessary to clarify and confirm the Danbury Branch Improvement Program's effects on historic and archaeological resources from a chosen alternative.

If adverse effects on historic properties are confirmed, additional review by agencies, consulting parties, and the public will be conducted. Potential impacts and the project's attempts to avoid them, as well as the historic importance of the affected resources, will be compiled into Section 106 documentation. Adversely affected historic and archaeological resources may also qualify as Section 4(f) resources, so Section 4(f) evaluations and documentation may be required. Both the Section 106 and Section 4(f) processes will lead to the development of mitigation measures.

Agency consultations will ensue to outline appropriate mitigation measures for the individual and cumulative loss of historic resources. The goal of consultations is a Memorandum of Agreement (MOA) to be formulated and agreed upon by FTA, CTDOT, SHPO, and other participating agencies (if any). The MOA documents the mitigation measures to be implemented by the recommended project to minimize the project's overall impacts on historic and archaeological resources. The types of mitigation measures that may be expected include the following:

- Historic documentation of the affected resources and/or historic themes represented by the resources.
- Publication of an article about a property and its surrounding historic resources.

- Compilation of archival images or documentation about the property.
- Consideration of historic context in the design of newly constructed elements.
- Salvage and/or relocation of historic buildings or elements that would be damaged or removed by the proposed action.
- Preservation of historic railroad equipment removed by the project, even if not NR eligible; e.g., offering equipment to local railroad museums.
- Archaeological investigation of impacted areas bearing prehistoric or historic sensitivity.

Table 1: Alternative C Impacts to Historic and Archaeological Resources

Improvement Type	Location	Study Milepost (MP)		Work Description	Affected Historic Resource	Potential Effects - Historic Resources	Potentially Sensitive for Prehistoric Archaeological Resources	Potentially Sensitive for Historic Archaeological Resources
		From	To					
Existing Stations (Upgrades)								
Merritt 7	Norwalk	3.6	3.6	New 200-space parking lot on new property w. of Glover Ave; pedestrian bridge over tracks from new parking to platform; replace low-level platform with high-level platform; new canopy, ramps, bike lockers.	None	No	No - highly disturbed urban-industrial area	No - no adjacent historic resources
Cannondale	Wilton	8.85	8.85	Extend high-level platform; expand parking lot by 50 spaces to a total of 190; provide bike lockers.	Cannondale Station	Visual & Context	Yes - undeveloped lands close to Norwalk River	Yes - on undeveloped land within Cannondale HD
Branchville	Ridgefield	12.65	12.65	Revise access to parking by relocating Portland Ave to south on new bridge over Norwalk River; reconstruct Depot Rd with new bridge over river (eliminates at-grade xing); expand parking to south and acquire property for addit parking across river along Rt 7. Pedestrian bridge over river from new parking to station. Provide bike lockers.	Portland Avenue in Branchville; 30 Ethan Allen Highway in Branchville: circa-1900 commercial bldg.	Physical, Visual & Context	Yes - within original bounds of Norwalk River, although portions highly disturbed	Yes - adjacent to historic resources in Branchville village
Redding	Redding	17.1	17.1	Concept plan shows expanded parking lot by 100 spaces for total 180 spaces; reconfigure drop-off area; provide bike lockers. If parking is scaled back by removing one row on south side, 75 added spaces are provided rather than 100 (adequate for demand) - Impacts are based on 75 added spaces. No platform work.	None	No	Yes - undeveloped soils (some hydric) along a tributary to the Saugatuck River	Yes - close to historic resources of Redding village
Bethel	Bethel	21	21	Expand parking lot by 160 for total 350 spaces; provide bike lockers. No platform work.	None	No	No - disturbed wetland next to highly altered tributary to Still River	No - no adjacent historic resources
Undergrade Bridges (Rail goes over Road or Water)								
Washington & South Main St.	Norwalk	0.0	0.0	New (additional) single track truss bridge 240' span on added parallel track alignment. Includes concrete retaining walls on spread footings. Form liners used to simulate stone blocks on face of concrete walls.	South Norwalk Railroad Bridge ay MP 0.0 (Washington St. Bridge)	Physical & Visual	No - heavily developed urban area	Yes - historic parcels acquired for construction site (associated with Track Connection CP241)
Marshall St.	Norwalk	0.1	0.1	Replace historic bridge with 120' span ballast deck structure on existing alignment and raise to provide clearance.	Marshall St. Bridge (04134R) at MP 0.11 in Norwalk	No	No - heavily developed urban area	No - heavily developed urban area
Ann St.	Norwalk	0.2	0.2	Replace with 57' long span ballast deck structure on existing alignment.	Ann St. Bridge (08200R) at MP 0.19 in Norwalk	No	No - heavily developed urban area	No - heavily developed urban area
Norwalk River	Norwalk	3.2	3.2	New 160' long ballast deck span bridge on totally new alignment of Curves 3A and 3B. Bridge ends skewed and alignment nearly parallel to the river to minimize impacts. No work in river channel.	Norwalk River bridge (08202R) at MP 3.2 in Norwalk	No	No - heavily developed urban area; on cliffs elevated above river	Yes - on curve and river terrace close to dam and fieldstone foundation of mill site
Small stream	Wilton	5.12	5.12	Replace 15' span ballast deck on existing alignment.	Bridge over brook (08203R) at MP 5.12 in Norwalk	No	Yes - crosses tributary very close to Norwalk River [no impact if no ground disturbance]	No - no adjacent historic resources
Small stream	Wilton	6.43	6.43	Replace 40' long span ballast deck on existing alignment.	Bridge over stream (08204R) at MP 6.43 in Norwalk	No	No - carries flow from created pond across wide disturbed ROW	No - no adjacent historic resources

Improvement Type	Location	Study Milepost (MP)		Work Description	Affected Historic Resource	Potential Effects - Historic	Potentially Sensitive for Prehistoric	Potentially Sensitive for Historic Archaeological
Norwalk River	Wilton	6.64	6.64	Replace with ballast deck type, 65' span structure on revised alignment of Curve 6B. North side of span on existing alignment; south side offset 3' easterly from existing alignment. Temporary impacts for 50'x100' construction staging/laydown to be located near bridge.	Norwalk River bridge (08205R) at MP 6.64 in Norwalk	No	Yes - bridge over Norwalk River	No - no adjacent historic resources
Norwalk River	Wilton	8.7	8.7	Replace with ballast deck type, 86' span structure on existing alignment.	Norwalk River bridge (08206R) at MP 8.7 in Wilton	No	Yes - bridge over Norwalk River	No - no adjacent historic resources
Norwalk River	Wilton	9.42	9.42	Replace with ballast deck type, 86' span structure on existing alignment.	Norwalk River bridge (08207R) at MP 9.42 in Wilton	No	Yes - bridge over Norwalk River	Yes - close to historic resources within Georgetown HD
Old Mill Rd.	Wilton	11.01	11.01	Replace with ballast deck type, 32' span structure on existing realignment.	Old Mill Rd. bridge (09209R) at MP 11.01 in Wilton	No	No - bridge on disturbed rail ROW over disturbed roadway ROW	No - bridge on disturbed rail ROW over disturbed roadway ROW
Norwalk River	Wilton	11.55	11.55	Replace with ballast deck type, 161' single-span structure on existing alignment. No new structures (no piers) in water but two existing piers at this crossing would be removed or cut below water line.	Norwalk River bridge (08210R) at MP 11.55 in Wilton	No	Yes - bridge over Norwalk River	No - no adjacent historic resources
Factory Pond	Wilton	12.17	12.17	Replace with ballast deck type, 49' span structure on existing alignment.	Factory Pond bridge (008211R) at MP 12.17 in Wilton	No	No - bridge over engineered spillway structure	No - disturbed banks and uplands along spillway structure
Old Redding Rd.	Redding	14.16	14.16	Replace with ballast deck type, 28' span structure on existing alignment.	Old Redding Rd. bridge (09213R) at MP 14.16 in Redding	No	No - bridge on disturbed rail ROW over disturbed roadway ROW	No - bridge on disturbed rail ROW over disturbed roadway ROW
Simpaug Tpke.	Redding	14.8	14.8	Replace with ballast deck type, 60' span structure on Curve 14B (realignment). Curve 14B located up to 14' west of existing centerline.	None	No	No - bridge on disturbed rail ROW over disturbed roadway ROW	No - bridge on disturbed rail ROW over disturbed roadway ROW
Umpawaug Pond Brook	Redding	16.4	16.4	Replace with ballast deck type, 49' span structure on existing alignment.	Umpawaug Pond Brook bridge (08215R) at MP 16.4 in Redding	No	Yes - bridge over brook	No - no adjacent historic resources
Saugatuck River	Redding	17.1	17.1	Replace with ballast deck type, 41' span structure on existing alignment.	Saugatuck River bridge (08216R) at MP 17.1 in Redding	No	Yes - bridge over Saugatuck River	No - no adjacent historic resources
Grassy Plains Rd. (Rt. 53)	Bethel	19.64	19.64	Replace with ballast deck type, 29' span structure on existing alignment.	None	No	No - bridge on disturbed rail ROW over disturbed roadway ROW	No - bridge on disturbed rail ROW over disturbed roadway ROW
Sympaug Brook	Bethel	21.4	21.4	Replace with ballast deck type, 22' span structure on existing alignment.	Sympaug Brook bridge (08216R) at MP 21.4 in Bethel	No	Yes - bridge over brook	No - no adjacent historic resources
Overhead Bridges (Rail goes under Road)								
Route 7	Wilton	7.87	7.87	Replace with longer span 50' structure to accommodate track realignment Curve 7E.	None	No	No - bridge on disturbed roadway ROW over disturbed rail ROW	No - bridge on disturbed roadway ROW over disturbed rail ROW
Traction Power System - Electrification								
Catenary and support structures	Norwalk to Danbury	1.1	23.9	New catenary poles located within 12 feet of track centerline; existing poles removed along corridor.	Cannondale village and Mill Rd. in Wilton; Old Redding Rd. and Simpaug Tnpk. in Redding	Visual	No (unless associated with off-alignment curve reconfigurations)	No (unless associated with off-alignment curve reconfigurations)
RTU (CP401)	Norwalk	0.63	0.63	New facility (metal enclosure on concrete walls or columns) surrounded by crushed stone.	None	No	No - previously disturbed site with urban soils	No - previously disturbed site with urban soils

Improvement Type	Location	Study Milepost (MP)		Work Description	Affected Historic Resource	Potential Effects - Historic	Potentially Sensitive for Prehistoric	Potentially Sensitive for Historic Archaeological
Substation (SUB-41D)	Norwalk	1.62	1.62	New facility (metal enclosure on concrete walls or columns) surrounded by crushed stone.	None	No	No - previously disturbed site with urban soils	No - previously disturbed site with urban soils
Substation (SUB-170D)	Wilton	7.25	7.25	New facility (metal enclosure on concrete walls or columns) surrounded by crushed stone.	None	No	No - previously disturbed site with urban soils	No - previously disturbed site with urban soils
Substation (SUB-305D)	Ridgefield	13	13	New facility (metal enclosure on concrete walls or columns) surrounded by crushed stone.	None	No	No - previously disturbed site with urban soils	No - previously disturbed site with urban soils
Substation (SUB-RED)	Redding	17.2	17.2	New facility (metal enclosure on concrete walls or columns) surrounded by crushed stone.	6 Long Ridge Rd., 10 Long Ridge Rd., & 3 Sidecut Rd. in the Village of West Redding	Visual	Yes - undeveloped soils (some hydric) along a tributary to the Saugatuck River	Yes - close to historic resources of Redding village
RTU (CP421)	Bethel	20.22	20.22	New facility (metal enclosure on concrete walls or columns) surrounded by crushed stone.	None	No	No - previously disturbed site with urban soils	No - previously disturbed site with urban soils
Substation (SUB-560D)	Danbury	23.3	23.3	New facility (metal enclosure on concrete walls or columns) surrounded by crushed stone.	None	No	No - previously disturbed site with urban soils	No - previously disturbed site with urban soils
Track Reconfigurations								
CP 241	Norwalk	0	0.3	New parallel 2nd track and extension of existing Norwalk passing siding in urban developed setting. Requires property acquisitions on North Main Street.	9 North Main St., 11 North Main St. & 29 North Main St. in Norwalk	Physical, Context & Possibly Visual	No - heavily developed urban area	Yes - historic parcels acquired for construction site
Curves 0E, 1A & 1B	Norwalk	1	1.7	Major realignment of track to west away from Norwalk River. Property acquisitions.	None	No	No - long history of disturbance by industrial development	Yes - adjacent to Chapel/Harbor Avenue historic core
Curves 2B, 3A, 3B & 3C (incl. Bridge MP 3.2)	Norwalk	2.7	4	Curve 2B is offset only 2'. 3A & 3B have large off-sets (new alignments assoc with Bridge 3.2).	None	No	Yes - undeveloped forest next to Norwalk River & floodplains	Yes - passes close to dam and fieldstone foundation of mill site
Curve 3D	Norwalk	3.82	3.96	Curve 3D is offset by 4' from existing centerline.	None	No	No - industrial development	No - no adjacent historic resources
Curve 4C	Wilton	4.8	4.97	Curve 4C is offset by 6' from existing centerline.	None	No	No - within disturbed powerline ROW to w of tracks	Yes - close to historic foundation site
Curve 5	Wilton	5.75	5.83	Curve shift is only 1' - no work outside disturbed ROW	None	No	No work outside disturbed ROW	No - no adjacent historic resources
Curve 6A	Wilton	6.07	6.24	Curve shift is only 2' - no work outside disturbed ROW	None	No	No work outside disturbed ROW	No - no adjacent historic resources
Curve 6B (incl. Bridge MP 6.64)	Wilton	6.53	6.68	Curve shift for Curve 6B is 3' - includes replacement Bridge 6.64 on this curve.	None	No	Yes - possibly disturbed lands but along forested bank (alluvial soils) of Norwalk River	No - no adjacent historic resources
Curves 7E & 8	Wilton	7.71	8.47	7E curve shift is 8' off centerline. Curve 8 is only 1' shift.	None	No	Yes - possibly disturbed lands but may include small portions of forest along Norwalk River	Yes - close to two foundation sites
Curve 9C	Wilton	9.53	9.84	Curve 9C has shift up to 42' west of existing track (ROW acquisition).	None	No	Yes - new alignment on undeveloped forest next to Norwalk River	Yes - on undeveloped land within Cannondale HD
Curves 10B & 11A	Wilton	11	11.47	Shifts up to 25' off existing - ROW required. Curve 11A includes retaining wall to minimize encroachment on forested floodplain of Norwalk River.	None	No	Yes - Curve 11A will be a new alignment on undeveloped forest next to Norwalk River	Yes - close to NR listed houses and several foundation sites
Curve 12A	Wilton	12.21	12.33	Curve 12 A shift is 12' to the east.	None	No	Yes - along floodplain soils	Yes - on undeveloped land within Georgetown HD

Improvement Type	Location	Study Milepost (MP)		Work Description	Affected Historic Resource	Potential Effects - Historic	Potentially Sensitive for Prehistoric	Potentially Sensitive for Historic Archaeological
Curve 12B	Wilton/Ridgefield	12.42	12.57	12B max curve shift is 8' off centerline to East.	None	No	Yes - along floodplain soils	Yes - adjacent to historic resources in Branchville village
Curve 13B	Redding	13.25	13.4	12B max curve shift is 12' off centerline to East. Includes retaining wall to minimize excavation of abutting slope and keep work within existing ROW.	None	No	Yes - although separated from Norwalk River by the rail ROW, it is very close in distance	No - no adjacent historic resources
Curve 13C	Redding	13.46	13.59	12B max curve shift is 8' off centerline to West.	None	No	No - in small strip between Route 7 & RR ROW (disturbed)	No - no adjacent historic resources
Curve 13D	Redding	13.63	13.7	Curve shift is only 1' - no work outside disturbed ROW	None	No	No - no work outside ballast	No - no adjacent historic resources
Curve 14A	Redding	13.97	14.1	Curve 14 A shift is 13' to the east. Includes retaining wall to minimize excavation of abutting slope and keep work within existing ROW.	None	No	Yes - along floodplain soils	Yes - near back of historic property
Curves 14B, 14C, 14D & 15A	Redding	14.24	15.14	14B shifts 13' to the west; 14C is 36' west and includes retaining wall to avoid parallel private drive and keep work within existing ROW. 14D is 14' east of tracks with new bridge over Simpauug Tpk. Curve 15A shift is 2'.	None	No	Yes - Curve 14B is at base of slope with stream	Yes - along historic Simpauug Turnpike and historic resources on Topledge Road
Curves 15B & 15C	Redding	15.26	15.77	15B shifts 14' to West; 15C shifts 23' to East.	None	No	Yes - along and through Umpawaug Pond	Yes - close to historic resource on Simpauug Turnpike
Curves 16A & 16B	Redding	16.58	16.89	16A shifts 22' to East. 16B is less than 1'.	None	No	Yes - 16A at base of undeveloped slopes with streams	Yes - adjacent to historic house recommended for further study (PAL)
Curve 17A	Redding	17.25	17.45	17A shifts 6' to West.	None	No	Yes - upslope and close to Bogus Mountain Brook and broad wetlands	No - no adjacent historic resources
Curve 17B	Redding	17.57	17.72	17B shifts 11' to East.	None	No	Yes - upslope and close to Bogus Mountain Brook and broad wetlands	No - no adjacent historic resources
Curve 17C	Redding	17.83	18.01	17C shifts 15' to West	None	No	Yes - close to wetland areas near Bogus Mountain Brook	No - no adjacent historic resources
Curve 19A	Bethel	19.07	19.18	19A shifts 4' to west	None	No	No - highly altered industrial lands (despite proximity of Sympauug Pond)	Yes - adjacent to ice house archaeological site
Rail Storage and Maintenance Yards								
Danbury Yard	Danbury	23	24	Realign existing and add tracks to provide 8 storage tracks with paved service aisles between every other track; 3,000 SF single-story building; 3,000 SF outdoor storage. Property acquisition required within existing urban setting.	120 White Street in Danbury	Further identification of property acquisitions needed	Yes - sensitivity is High-Disturbed. Impacts not likely if work is superficial.	Yes - historic resources on site. Impacts not likely unless work encroaches on historic turntable (not proposed)
TOTAL								

Table 2: Alternative D Impacts to Historic and Archaeological Resources

Improvement Type	Location	Study Milepost (MP)		Affected Historic Resource	Potential Effects	Sensitivity for Prehistoric Archaeological Resources	Sensitivity for Historic Archaeological Resources
		From	To				
Rail Reconstruction							
Reconstruct Track	Danbury to New Milford	23.9	39.16	None	No	Low - work conducted within fill/ballast	Low - work conducted within fill/ballast
Proposed Stations							
Brookfield Station	Brookfield	31.5	31.5	Brookfield Depot (6 or 7 historic structures); 1 Tucks Rd.	Visual & Context	Moderate	Moderate to High
Brookfield Passing Siding at Station	Brookfield	31.46	31.96	Brookfield Depot (6 or 7 historic structures); 1 Tucks Rd.	Visual & Context	Moderate	Moderate to High
New Milford Station	New Milford	38.35	38.35	56, 60, 64, 78,88, 94, 112, 114, 116, 118 & 120 Railroad St.; Housatonic Rail Station; 20 properties on Bennett, Boardman & Railroad Streets in New Milford	Physical & Visual	Moderate (for station and parking sites)	Moderate to High
New Milford Passing Siding at Station	New Milford	38.0	38.46	56, 60, 64, 78,88, 94, 112, 114, 116, 118 & 120 Railroad St.; Housatonic Rail Station; 20 properties on Bennett, Boardman & Railroad Streets in New Milford	Physical & Visual	Moderate	Moderate to High
Undergrade Bridges (Rail goes over Road or Water)							
Still River	Danbury	26.6	26.6	Still River bridge at MP 26.6 in Danbury	No	High / Disturbed	Low
Junction Rd. (Rt. 133)	Brookfield	29.47	29.47	Junction Rd. bridge at MP 29.47 in Brookfield	No	Moderate on south side of bridge; otherwise Low	Moderate to High
Farm Pass	Brookfield	29.9	29.9	Farm Pass bridge at MP 29.9 in Brookfield	No	Low	Moderate to High
Old Middle Rd.	Brookfield	33.07	33.07	Old Middle Rd. bridge at MP 33.07 in Brookfield	No	Moderate and High	Moderate to High
Still River	New Milford	35.1	35.1	Still River bridge at MP 35.1 in New Milford	No	Moderate	Moderate to High
Housatonic Ave.	New Milford	38.62	38.62	Housatonic Ave. bridge at MP 38.62 in New Milford	No	Not assessed; probably Moderate to High due to proximity of Housatonic and Aspetuck Rivers	Not assessed; probably Moderate due to proximity of New Milford core

Improvement Type	Location	Study Milepost (MP)		Affected Historic Resource	Potential Effects	Sensitivity for Prehistoric	Sensitivity for Historic
Traction Power System - Electrification							
Catenary and support structures	Danbury to New Milford	23.9	39.0 +/-	Housatonic River Bridge at MP 32.26 in New Milford	Visual	Low - work conducted essentially within previously disturbed ROW	Low - work conducted essentially within previously disturbed ROW
Raise Bridge - White St.	Danbury	24.33	24.33	White St. bridge at MP 24.33 in Danbury	Further investigation required	Low	Low
Raise Bridge - I-84	Danbury	26.2	26.2	I-84 bridge at MP 26.2 in Danbury	Further investigation required	Low	Low
Raise Bridge - I-84	Danbury	26.2	26.2	I-84 bridge at MP 26.2 in Danbury	Further investigation required	Low	Low
Substation (SUB-BRK)	Brookfield	29.5	29.5	None	No	Low	Moderate to High
Raise Bridge - Silvermine Rd.	Brookfield	30.2	30.2	Silvermine Rd. bridge at MP 30.2 in Brookfield	Further investigation required	Moderate on east side of bridge; otherwise Low	Moderate to High on west side of bridge
Raise Bridge - Whisconier Rd. (Rt. 25)	Brookfield	31.26	31.26	Whisconier Rd. bridge at MP 31.26 in Brookfield	Further investigation required	Moderate	Moderate to High
Raise Bridge - Old Pumpkin Hill Rd.	New Milford	33.9	33.9	Old Pumpkin Hill Rd. bridge at MP 33.9 in New Milford	Further investigation required	Moderate and High on west end of bridge	Low
Raise Bridge - Erickson Rd.	New Milford	34.74	34.74	Erickson Rd. bridge at MP 34.74 in New Milford	Further investigation required	High	Low
Substation	New Milford	39.0 +/-	39.0 +/-	None	No	Not assessed; probably Moderate to High due to proximity of Housatonic River	Not assessed; probably Low due to lack of surrounding historic resources
Track Reconfigurations							
Curve 1A	Brookfield	28.22	28.43	None	No	High / Disturbed	Low
Curve 1B	Brookfield	28.72	28.82	None	No	Moderate and Moderate/Disturbed	Low
Curve 6A	New Milford	33.2	33.35	None	No	Moderate and High	Moderate to High
Curve 8A	New Milford	33.53	35.6	None	No	Moderate; No Ground Disturbance Anticipated	Moderate to High; No Ground Disturbance Anticipated
Curve 9A	New Milford	35.96	36.12	None	No	Moderate	Low
Storage Sidings							
Storage Siding	Danbury/ Brookfield	27.24	27.58	None	No	Low in Danbury; Low and short section of High/Possibly Disturbed in Brookfield	Low
Rail Storage and Maintenance Yards							
New Milford Yard	New Milford	39.0 +/-	39.0 +/-	None	No	Not assessed; probably Moderate to High due to proximity of Housatonic River, with some disturbance	Not assessed; probably Moderate due to river terrace location near historic settlement

Table 3: Alternative E Impacts to Historic and Archaeological Resources

Improvement Type	Location	Study Milepost (MP)		Work Description	Affected Historic Resource	Potential Effects - Historic Resources	Potentially Sensitive for Prehistoric Archaeological Resources	Potentially Sensitive for Historic Archaeological Resources
		From	To					
Existing Stations (Upgrades)								
Merritt 7	Norwalk	3.6	3.6	New 200-space parking lot on new property w. of Glover Ave; pedestrian bridge over tracks from new parking to platform; replace low-level platform with high-level platform; new canopy, ramps, bike lockers.	None	No	No - highly disturbed urban-industrial area	No - no adjacent historic resources
Undergrade Bridges (Rail goes over Road or Water)								
Washington & South Main St.	Norwalk	0.0	0.0	New (additional) single track truss bridge 240' span on added parallel track alignment. Includes concrete retaining walls on spread footings. Form liners used to simulate stone blocks on face of concrete walls.	South Norwalk Railroad Bridge at MP 0.0 (Washington St. Bridge)	Physical & Visual	No - heavily developed urban area	Yes - historic parcels acquired for construction site (associated with Track Connection CP241)
Marshall St.	Norwalk	0.1	0.1	Replace historic bridge with 120' span ballast deck structure on existing alignment and raise to provide clearance.	Marshall St. Bridge (04134R) at MP 0.11 in Norwalk	No	No - heavily developed urban area	No - heavily developed urban area
Ann St.	Norwalk	0.2	0.2	Replace with 57' long span ballast deck structure on existing alignment.	Ann St. Bridge (08200R) at MP 0.19 in Norwalk	No	No - heavily developed urban area	No - heavily developed urban area
Norwalk River	Norwalk	3.2	3.2	New 160' long ballast deck span bridge on totally new alignment of Curves 3A and 3B. Bridge ends skewed and alignment nearly parallel to the river to minimize impacts. No work in river channel.	Norwalk River bridge (08202R) at MP 3.2 in Norwalk	No	No - heavily developed urban area; on cliffs elevated above river	Yes - on curve and river terrace close to dam and fieldstone foundation of mill site
Small stream	Wilton	5.12	5.12	Replace 15' span ballast deck on existing alignment.	Bridge over brook (08203R) at MP 5.12 in Norwalk	No	Yes - crosses tributary very close to Norwalk River [no impact if no ground disturbance]	No - no adjacent historic resources
Small stream	Wilton	6.43	6.43	Replace 40' long span ballast deck on existing alignment.	Bridge over stream (08204R) at MP 6.43 in Norwalk	No	No - carries flow from created pond across wide disturbed ROW	No - no adjacent historic resources
Norwalk River	Wilton	6.64	6.64	Replace with ballast deck type, 65' span structure on revised alignment of Curve 6B. North side of span on existing alignment; south side offset 3' easterly from existing alignment. Temporary impacts for 50'x100' construction staging/laydown to be located near bridge.	Norwalk River bridge (08205R) at MP 6.64 in Norwalk	No	Yes - bridge over Norwalk River	No - no adjacent historic resources
Traction Power System - Electrification								
Catenary and support structures	Norwalk to Danbury	1.1	7.5	New catenary poles located within 12 feet of track centerline existing poles removed along corridor.	None	No	No (unless associated with off-alignment curve reconfigurations)	No (unless associated with off-alignment curve reconfigurations)
RTU (CP401)	Norwalk	0.63	0.63	New facility (metal enclosure on concrete walls or columns) surrounded by crushed stone.	None	No	No - previously disturbed site with urban soils	No - previously disturbed site with urban soils; confirm no impact on NR eligible impedance bond equipment
Substation (SUB-170D)	Wilton	7.25	7.25	New facility (metal enclosure on concrete walls or columns) surrounded by crushed stone.	None	No	No - previously disturbed site with urban soils	No - previously disturbed site with urban soils

