

industrially-zoned parcel located at the intersection of Route 138 and York Street in Stoughton (Exh. BECO-1, at 4-28, Fig. 4-15). From the switching station, the primary route proceeds north for approximately 4.5 miles on Route 138 into Canton (Exh. EFSB-G-1, at 2-4). The primary route then crosses Route 128 using the existing bridge, and continues on Route 138 through the western portion of the Blue Hills Reservation and through Milton (Exhs. BECO-1, at 1-2; EFSB-G-1, at 2-5). The primary route then crosses the Neponset River Bridge to Mattapan Square in Boston, and then travels west from Mattapan Square along Cummins Highway to its intersection with American Legion Highway (Exh. BECO-1, at E-1). From this point, a single circuit runs south for approximately 0.65 miles on American Legion Highway to terminate at the Hyde Park Substation, while the remaining two circuits continue northeasterly along American Legion Highway for approximately 2.11 miles to its intersection with Blue Hill Avenue (*id.*). The primary route then continues north on Blue Hill Avenue to Old Road and the intersection with Columbia Road; it then follows Columbia Road northeast through Everett Square to Kosciuszko Circle (*id.* at E-11). From Kosciuszko Circle, the primary route travels along Day Boulevard, I Street, East 3rd Street, and K Street to the K Street Substation (Exhs. EFSB-G-1, at 4-60; BECO-1, at E-2).

The Company identified a number of variations to the primary route. First, as discussed in Section III.A, above, the Company originally proposed to travel north through Mattapan Square to Columbia Road on Blue Hill Avenue, rather than on Cummins Highway and American Legion Highway (Exh. BECO-1, at 1-2).³² In addition, north of American Legion Highway, the Company proposed a workaround that would use Glenway Street and Old Road to avoid the intersection of Blue Hill Avenue and Columbia Road (*id.* at 4-30 and Fig. 4-22). Near the Hyde Park Substation, the Company proposed a workaround that would avoid a hairpin intersection of Cummins Highway and American Legion Highway either by crossing an existing NSTAR distribution facility or by taking a short easement through a shopping center parcel (*id.* at 4-30

³² To avoid traffic and business impacts associated with the original routing through the Mattapan Square area, the Company also noticed “workarounds” using Cummins Highway and Woodhaven Road, and using River Street and Fremont Street (Exh. BECO-1, at 4-30 and Fig. 4-21).

and Fig. 4-23).

In South Boston, the Company initially proposed to travel from Everett Square to I Street along Boston Street and Dorchester Avenue, rather than along Columbia Road and Day Boulevard (Exh. BECO-1, at 1-2). In addition, the Company noticed segments of East Cottage Street, Crescent Avenue, Columbia Road, Dorchester Avenue, Day Boulevard, and Columbia Road as possible paths from Everett Square to the K Street Substation (id. at 4-26).

2. Alternative Route

The alternative route begins at a new switching station to be constructed on 6.25 acres of a former municipal landfill owned by the SRA, located off Route 24 and Technology Park Drive in Stoughton (Exh. BECO-1, at 4-28, Fig. 4-16). From the switching station, the alternative route travels north along Technology Center Drive and Kay Way in Stoughton, then along West Street and Lafayette Street to High Street in Randolph (id. at 1-3). The alternative route then proceeds north on High Street, east on Scanlon Drive, and north on Route 28 (id.). The alternative route passes immediately under the Route 128 bridges, then continues north on Route 28 through the Blue Hills Reservation in Quincy, and into Milton (id. at 1-3, 4-12). The alternative route continues on Route 28/Randolph Avenue and along Reedsdale Road until its intersection with Central Avenue and Brook Road (id. at 1-3). The length of the alternative route from the SRA switching station site to this intersection is 8.7 miles (id. at 1-10).

At the intersection of Reedsdale Road, Brook Road and Central Avenue, the alternative route splits into a single-circuit line and a double-circuit line. The single-circuit line travels northwest for approximately 3.2 miles along Brook Road, Blue Hill Parkway, Blue Hill Avenue, Cummins Highway, and American Legion Highway, to terminate at the Hyde Park Substation (Exh. BECO-1, at 1-3). The double-circuit line proceeds north on Central Avenue, crossing the Neponset River into Boston on the Central Avenue Bridge (id.) It turns east onto a short stretch of River Street, then proceeds generally north on Washington Street, Bowdoin Street, Hancock Street, Pleasant Street, and East Cottage Street to Everett Square (id.). From Everett Square, it follows the same path as the primary route to the K Street Substation (id.). The length of the

alternative route between the Reedsdale Road/Brook Road/Central Avenue intersection and the K Street Substation is approximately 7.2 miles (id. at 1-10).

3. Hybrid Route

At the request of Siting Board staff, the Company analyzed a hybrid route that combines the southern elements of the alternative route with the northern elements of the primary route (“hybrid route”). Specifically, the hybrid route would begin at the SRA Substation site and follow the path of the alternative route through Stoughton, Randolph and Milton to the Reedsdale Road/Brook Road/Central Avenue intersection. At this point, all three circuits would continue along Brook Road and Blue Hill Parkway, joining the primary route on Blue Hill Avenue just south of the Neponset River crossing. The hybrid route would then follow the path of the primary route within Boston.³³

C. Comparison of the Primary, Alternative and Hybrid Routes

1. Standard of Review

In implementing its statutory mandate to ensure a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, the Siting Board requires a petitioner to show that its proposed facility is sited at a location that minimizes costs and environmental impacts while ensuring a reliable energy supply. To determine whether such a showing is made, the Siting Board requires a petitioner to demonstrate that the proposed site for the facility is superior to the noticed alternatives on the basis of balancing cost, environmental impact, and reliability of supply. CELCO Decision, 12 DOMSB 305, at 334; MMWEC Decision, 12 DOMSB 1, at 127; 1997 BECO Decision,

³³ The Company also identified two other paths that could be used to connect the alternative route to the primary route south of Everett Square, to allow consideration of hybrid routing options: (1) from Central Avenue in Milton, following Standish Road to Hinkley Road to Brook Street to Blue Hill Avenue; and (2) from Washington Street in Boston, continuing north along that street to Columbia Road (Exh. BECO-1, at 4-30, Figs. 4-24, 4-25). While each of these paths could be used as a basis for a different hybrid route, the Siting Board considers in this decision only the hybrid route as described above.

6 DOMSB 208, at 287.

An assessment of all impacts of a proposed facility is necessary to determine whether an appropriate balance is achieved both among conflicting environmental concerns as well as among environmental impacts, cost, and reliability. A facility which achieves that appropriate balance thereby meets the Siting Board's statutory requirement to minimize environmental impacts at the lowest possible cost. CELCo Decision, 12 DOMSB 305, at 335; MMWEC Decision, 12 DOMSB 1, at 128; 1997 BECo Decision, 6 DOMSB 208, at 287.

The Siting Board recognizes that an evaluation of the environmental, cost and reliability trade-offs associated with a particular proposal must be clearly described and consistently applied from one case to the next. Therefore, in order to determine if a petitioner has achieved the proper balance among various environmental impacts and among environmental impacts, cost and reliability, the Siting Board must first determine if the petitioner has provided sufficient information regarding environmental impacts and potential mitigation measures to enable the Siting Board to make such a determination. The Siting Board then can determine whether environmental impacts would be minimized. Similarly, the Siting Board must find that the petitioner has provided sufficient cost and reliability information in order to determine if the appropriate balance among environmental impacts, cost, and reliability would be achieved. CELCo Decision, 12 DOMSB 305, at 336; MMWEC Decision, 12 DOMSB 1, at 128; Commonwealth Electric Company, 5 DOMSB 273, at 337 (1997) ("ComElec Decision").

Accordingly, in the sections below, the Siting Board examines the environmental impacts, reliability, and cost of the proposed facilities along NSTAR's primary, alternative and hybrid routes to determine: (1) whether environmental impacts would be minimized; and (2) whether an appropriate balance would be achieved among conflicting environmental impacts as well as among environmental impacts, cost and reliability. In this examination, the Siting Board compares the primary and alternative routes to determine which is superior with respect to providing a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost.

2. Construction Impacts

In this section, the Siting Board reviews the temporary environmental impacts associated with the construction of the proposed transmission line, switching station and substations, including land use and water resource impacts, traffic impacts, noise impacts, and impacts associated with hazardous materials.

In addition to these four categories of construction impacts, the Company noted that transmission line construction could result in temporary ambient air quality impacts arising from fugitive dust and emissions from generators and heavy-duty vehicles (Exh. EFSB-G-1, at 5-8). NSTAR stated that it would employ the following measures to control fugitive dust and its impacts: (1) loading excavated materials directly into trucks, rather than stockpiling it; (2) using covered trucks; (3) providing daily street cleaning during active excavation; (4) monitoring construction practices to minimize unnecessary transfer and mechanical disturbance of loose materials; and (5) conducting periodic street and sidewalk cleaning to minimize dust accumulation (*id.*). NSTAR also stated that it would participate in the Massachusetts Diesel Retrofit Program (“MDRP”) developed by MDEP, by requiring that backhoes and cranes be retrofitted (*id.*). The program consists of retrofitting diesel construction equipment with particulate filters and an oxidation catalyst (*id.*). In addition, contractors would be required to use low-sulfur diesel fuel in their off-road construction equipment and in the generators used during cable splicing (*id.* at 5-8 to 5-9).

NSTAR stated that it would use the same techniques to mitigate fugitive dust and equipment emissions at switching station and substation construction sites, except that soils would be stockpiled on-site, and the fugitive dust would be minimized through watering and temporary seeding of the stockpiled soils (Exhs. RR-EFSB-61; RR-EFSB-61(S)). In addition, street sweeping would be confined to the vicinity of the construction site entrance (Exhs. RR-EFSB-61; RR-EFSB-61(S)).

a. Land Use and Water Resources

In this section, the Siting Board considers the land use and water resource impacts associated with the construction of the proposed transmission project.

i. Primary Route

NSTAR stated that with, few exceptions, the proposed alignments for the primary route and the associated variations are within public highways, roads and streets (Exh. EFSB-L-8).³⁴ NSTAR asserted that since the transmission line would be located underground, and the disturbed areas along the route would be returned to pre-existing conditions, construction of the transmission line would not negatively affect or change the character or appearance of the land uses along the route (id.).

Traveling from the switching station, the primary route proceeds north on Route 138 into Canton, through approximately 2.5 miles of commercial and industrial development, followed by approximately 2 miles of light density residential areas and open space (Exh. EFSB-G-1, at 2-4). The primary route then crosses Route 128 and continues along Route 138, traveling through the western portion of the Blue Hills Reservation, and passing into Milton; at this point, the area surrounding Route 138 becomes residential, with the density of residential development increasing as the route travels north (id. at 2-5). The primary route crosses the Neponset River into Boston and then at Mattapan Square turns onto Cummins Highway; the first 0.3 miles of Cummins Highway is heavily developed with commercial and residential uses, but is less dense than the originally-proposed route along Blue Hill Avenue (Exh. EFSB-G-1, at 2-5 and 2-6, 4-59).³⁵ The primary route then splits at the approach to American Legion Highway, with a single

³⁴ The Company indicated that it would be required to obtain easements for the following areas: (1) the crossing of a corner of the Boston Police VFW parking lot off American Legion Highway at Morton Street; and (2) the crossing of the corner of a shopping center parking lot at the intersection of Cummins Highway and American Legion Highway (Exh. EFSB-L-8). Further, the Company may require construction permits for: (1) a Department of Conservation and Recreation (“DCR”) controlled parking lot along the west side of American Legion Highway south of the Morton Street bridge; and (2) a DCR-controlled grassed area north of Day Boulevard and Columbia Road, between Moakley Park and I Street (id.).

³⁵ The Company originally proposed that the primary route continue along Blue Hill Avenue (Exh. BECO-1, at 1-9). The Mattapan Square portion of Blue Hill Avenue is densely developed with commercial and residential properties, consisting of areas of street level store fronts with upper level residences, as well as areas that are either
(continued...)

circuit running south to the Hyde Park Substation, and the remaining two circuits traveling north on American Legion Highway (id.). American Legion Highway begins with a mix of residential and commercial development; however, most of the road passes through a mix of open space and municipal uses, finally approaching a small area of densely developed residential uses before rejoining Blue Hill Avenue (id. at 4-59). The primary route travels briefly along Blue Hill Avenue, passing Franklin Park, the Franklin Park Zoo, and an area of urban residential development, then passes through the predominantly commercial Columbia Road area, and arrives at Everett Square (id.).

From Everett Square, the primary route travels along Columbia Road to Kosciuszko Circle, along Day Boulevard, then north on I Street through a densely residential area of South Boston to the K Street Substation (Exhs. EFSB-G-1, at 4-60; BECO-1, at E-2). The Company stated that it preferred this routing alternative to the original routing along Boston Street/Dorchester Street (Exh. EFSB-G-1, at 4-60; Company Brief at 79).³⁶ NSTAR explained that the advantage of using the Day Boulevard Alternative is that the route would pass under the Southeast Expressway, thereby avoiding a bridge crossing over the Southeast Expressway (Tr. 5, at 676). Boston asserted that, in addition to avoiding the bridge crossing, this route meets the concerns of the residents of South Boston (Boston Brief at 4).

There are 63 homes along the route from the Route 138 switching station site to

³⁵ (...continued)
exclusively commercial or residential (Exh. EFSB-G-1, at 4-60). The Company explained that it undertook an examination of the American Legion Highway variation based on discussions with City of Boston officials, who noted that transmission line construction would have a severe impact on the Mattapan Square area's businesses (Tr. 5, at 674). The Company explained that the use of American Legion Highway would avoid work along 2.2 miles of Blue Hill Avenue between Mattapan Square and the intersection of American Legion Highway and Blue Hill Avenue (Exh. EFSB-G-1, at 2-1).

³⁶ The original routing along Boston Street/Dorchester Street travels from Everett Square to Boston Street, which is a densely developed residential area to Andrew Square, a predominantly commercial area, and then to Dorchester Avenue, a mix of commercial and residential uses (Exh. EFSB-G-1, at 4-60). The route then turns north onto I Street through to densely developed South Boston residential streets to the K Street Substation (id.).

Route 128, and 150 homes from Route 128 to Mattapan Square (Exh. RR-EFSB-33).

The Company indicated that it did not anticipate that tree clearing would be necessary during construction along the primary route (Exh. EFSB-L-1). In the event that tree branches are located in the work area, tree trimming will be conducted by an arborist, or if practical, the branches will be tied back or avoided in the course of construction (*id.*). The Company noted that while the transmission line may cross the median of American Legion Highway, the crossing will be situated to avoid any existing trees located in the median (Exh. EFSB-L-20).

The primary route is proximate to a number of designated habitat and critical environmental areas, including the Fowl Meadow and Ponkapoag Bog ACECs in Canton, Massachusetts Natural Heritage Priority Habitat in the Blue Hills Reservation, and Massachusetts Natural Heritage Priority and Estimated Habitat between mileposts 1 and 2 in Canton (Exhs. BECO-1, at Fig. 5-7; EFSB-G-1, at 4-16). NSTAR stated that it would restrict all construction activities through the Fowl Meadow and Ponkapoag Bog ACECs to the paved area of Route 138 (Exh. EFSB-G-1, at 9-13). According to the Massachusetts National Heritage Endangered Species Program (“NHESP”), only one state-protected species, the spotted turtle, is located within or in the vicinity of the primary route (Exhs. EFSB-L-12-d; RR-EFSB-29). According to the US Fish and Wildlife Service, there are no federally-listed or proposed, threatened or endangered species or critical habitat in the project area (Exh. EFSB-L-12-c). The Company stated that there would be no removal of any rare species or disturbance to its habitat since the proposed transmission line route is located entirely within paved road surfaces (Exh. EFSB-L-12). NSTAR noted that it would review construction plans with Mass Audubon, the manager of the Blue Hills Trailside Museum, since the primary route passes the museum’s parking areas (Exhs. EFSB-G-1, at 9-13).

NSTAR stated that construction of the proposed transmission lines would not result in any direct impacts to stream channels, as all stream channel crossings would go over or under existing culverts (Exh. EFSB-L-17). NSTAR noted that it has developed a detailed erosion and sedimentation control plan to confine sediments to the construction site, thereby preventing construction sediment from entering the streams (*id.*; Exh. BECO-1, at 5-41)

The primary route will cross the Neponset River via a narrow trench in the sidewalk of

the Neponset River Bridge (Exh. EFSB-G-1, at 8-15). The Neponset River Bridge is a National Register-listed stone faced concrete arch bridge constructed in 1901 and widened in 1946 (id.; Exh. EFSB-L-24). The Company indicated that construction of the proposed transmission line should not affect the structural integrity of the bridge, as the work would be done in the sidewalk and not in the concrete arch (Exh. EFSB-G-1, at 8-15). The Company stated that the Neponset River will be protected from the impacts of construction by appropriate construction and sedimentation controls, and that excavation in the vicinity of the river will be halted on windy days when fugitive dust cannot be controlled (id. at 9-33). In addition, NSTAR pointed out that the Neponset River Bridge has a four foot granite wall along the sidewalk, which will prevent soil from falling directly into the river during excavation (id.).

The Company asserted that impacts to historic resources would be limited to temporary alteration and restoration of the roadways and bridges (Exh. EFSB-L-24). Based on Geographic Information System mapping, the primary route passes by seven Massachusetts Historic Commission (“MHC”) listed historic sites, of which three are on the Everett Square to K Street portion, but does not pass any MHC historic districts (Exh. BECO-1, at 5-50). With regard to National Register listed properties and districts, the Company explained that in a few locations, the boundaries of historic districts include the roadway ROW, but the majority of the locations of the listed properties and districts abut the roadway or are set back from the road (Exh. EFSB-L-24).³⁷

The Company stated that it will submit filings under the Massachusetts Wetlands Protection Act to conservation commissions in the municipalities along the route (Exhs. EFSB-L-13; EFSB-G-1, at 1-8). The Company noted that the five small drainage ponds on the switching station site are associated with the present active gravel pit, and as such are not considered ponds under the Wetlands Protection Act (Exh. BECO-1, at 5-25).

The Company noted that a portion of the transmission line route along Day Boulevard and the K Street Substation site are in formerly filled tidelands; however, the Company indicated

³⁷ The National Register-listed properties that fall within the primary route ROW are the Blue Hills Reservation Multiple Resource Area and the Blue Hills Reservation District, and the Neponset River Bridge (Exh. EFSB-L-24).

the proposed project would cause no impact to flowed tidelands and no change in the existing non-water dependent use of the tidelands (Exh. EFSB-G-1, at 4-12). NSTAR will be required to obtain a Chapter 91 permit from MDEP with regard to the alterations to filled tidelands (id.; Tr. 13, at 1817). NSTAR submitted a draft Environmental Construction Management Plan (“ECMP”) which details the provisions of the sediment and control activities to be followed throughout the construction of the transmission project (Exh. EFSB-L-17). The Company indicated that all construction work will be subject to the NSTAR ECMP and to any further requirements set forth in MDEP or conservation commission permits (Exh. EFSB-G-1, at 5-25).

ii. Alternative and Hybrid Routes

The Company asserted that the primary, alternative, and hybrid routes are similar in land use character and traverse commercial, residential, and densely developed urban areas to a similar extent (Exh. EFSB-G-11). NSTAR stated that with few exceptions, the proposed alignments for all of the routes and their associated variations are within public highways, roads and streets (Exh. EFSB-L-8). NSTAR asserted that since the transmission lines would be located underground, and the disturbed areas along the route would be returned to pre-existing conditions, none of the routes would negatively affect or change the character or appearance of the land use (id.). The Company indicated that it did not anticipate that tree clearing would be necessary during construction along the alternative or hybrid route (Exh. EFSB-L-1).

The alternative route begins at the SRA switching station site and travels north into Milton (Exh. BECO-1, at 1-10). The first mile of the route travels along Technology Drive, passing a mixture of commercial, retail, warehouse, and office uses (id. at 5-20). The alternative route then travels for three miles in Randolph through predominantly residential areas; it then passes to the east of the southern portion of the Blue Hills Reservation, and passes through commercial uses on Route 28 (id.). The alternative route crosses Route 128, travels for approximately one mile through the Blue Hills Reservation, and then passes into Milton; at this point, the area surrounding Route 28 becomes single-family residential, with the density of residential development increasing as the alternative route travels north to the intersection of Route 28 and Reedsdale Road (id. at 5-21). Along Reedsdale Road, the alternative route passes

Milton Hospital and the Milton Center Historic District; the three-circuit segment of the alternative route ends at the residential area of Reedsdale Road, Brook Road and Central Avenue (id. at 5-21; Fig. 5-5).

From this intersection, the two-circuit segment of the alternative route travels north on Central Avenue, through a primarily single-family residential area, and crosses the Neponset River into Boston, where the uses are transportation and commercial (Exh. BECO-1, at 5-21). Continuing along Central Avenue, the alternative route traverses a densely developed commercial district; the alternative route then turns onto River Street, which has a combination of single-family and multi-family residential and commercial uses (id.). The alternative route then follows Washington Street through a densely developed mix of commercial and residential uses, and passes through Codman Square, which is entirely commercial (id.). The remaining portion of the route to Everett Square is densely developed, with residential uses along Bowdoin Street and Hancock Street, commercial uses at Bowdoin and Hancock Streets, and residential uses along Pleasant and East Cottage Streets (id. at Fig. 5-4).

The single-circuit segment of the alternative route continues west on Brook Road, a residential area of Milton, crosses the Blue Hill Parkway, and joins Route 138, crossing the Neponset River into Boston (Exh. BECO-1, at 5-21). The single-circuit segment of the alternative route passes Milton High School (id. at Fig. 5-5).

There are 157 homes along the route between the SRA site and Route 128 (Exh. RR-EFSB-33).

The hybrid route starts at the SRA switching station site and travels along the alternative route until it joins the primary route in Mattapan Square. Under the hybrid route, the three circuits extend northward to Reedsdale Road at Central Avenue in Milton, then proceed in common with the one-circuit segment of the alternative route to Route 138 where they join the primary route (Exh. EFSB-G-11). Specifically, from Reedsdale Road, the hybrid route would travel northwesterly for 1.1 miles on Brook Road/Route 28 and Blue Hill Parkway to join Route 138 south of Mattapan Square (Exhs. EFSB-G-11; RR-EFSB-20).

The alternative and hybrid routes are proximate to a number of designated habitat and critical environmental areas, including Massachusetts Natural Heritage Priority Habitat in the

Blue Hills Reservation, and Massachusetts Natural Heritage Priority and Estimated Habitat approximately 1/4 mile north of the SRA site to milepost 1 (Exhs. BECO-1, at Fig 5-7; EFSB-G-1, at 4-16). According to NHESP, a number of state-protected species, including the spotted turtle, the marbled salamander and the eastern box turtle, are located within or in the vicinity of the alternative and hybrid routes (Exhs. EFSB-L-12-d; EFSB-RR-29). NHESP noted that the alternative and hybrid routes have far greater ecological significance than the primary route, since they pass more recorded rare species observations along the alternative route, more areas of state-listed sightings on both sides of the road, and sensitive habitat found on the portion of the route that runs through the Blue Hills (Exhs. EFSB-L-29; EFSB-RR-29). However, the Company stated that there would be no removal of any rare species or disturbance to their habitat, since the transmission lines would be located entirely within paved road surfaces (Exhs. EFSB-L-12; EFSB-L-29).

The two-circuit segment of the alternative route crosses the Neponset River via the Central Avenue Bridge, where construction of the proposed transmission lines would involve hanging the pipe from the bridge and around the concrete abutments for the bridge (Exh. EFSB-L-18). The Company explained that installation would be accomplished by using barges in the Neponset River, and that NSTAR would submit detailed construction procedures to the Army Corps of Engineers (“ACOE”) for approval prior to construction (id.). NSTAR asserted that construction on the Central Avenue Bridge would have no direct effect on anadromous fish populations in the Neponset River (id.).

With regard to historic resources along the alternative and hybrid routes, the Company asserted that impacts would be limited to temporary alteration and restoration of the roadways and bridges (Exh. EFSB-L-24). Based on Geographic Information System mapping, the three- and two-circuit segments of the alternative route, south of Everett Square, pass by or through four MHC historic districts, but no specific historic sites; the single-circuit segment passes by no historic districts or sites (Exh. BECO-1, at 5-50, Fig. 5-5). The hybrid route includes the same four MHC historic districts prior to Everett Square as the alternative route (Exh. EFSB-G-11, at 8). Like the primary route, the alternative and hybrid routes pass through three MHC historic sites on the Everett Square to K Street portion (id. at 5-51). The Company asserted that, based on

the currently available information, there would be no difference in the level of impact on historic resources among the primary, alternative and hybrid routes (id. at 5-50).

With respect to switching station construction impacts, the Company noted that there is a possible wetland resource, consisting of a small, isolated depression, on the east side of the SRA site near one of the existing transmission towers; however, there is little evidence of standing water in the depression (Exh. BECO-1, at 5-29). NSTAR stated that the proposed facilities and all construction would be limited to the buffer zone of this potential resource (id.; Exh. RR-EFSB-50).

iii. Analysis

The record indicates that the primary route would run through suburban and densely populated urban areas, and would pass through the Blue Hills Reservation and other open spaces, such as the Fowl Meadow and Ponkapoag Bog ACEC. Since the proposed transmission lines would be located under streets, there would be no permanent impacts on the use of recreational areas and other open space, species or their habitats, wetlands, or historic resources. In addition, at all stream channel crossings, the transmission lines would pass over or under the existing culverts. Further, the transmission lines would cross the Neponset River in an existing sidewalk, and construction and sedimentation controls would be implemented to avoid impacts to the river and culverted streams. Roadway construction may have temporary impacts to historic resources, although most of the historic sites abut the road or are set back from the road.

In Boston, the proposed use of the American Legion Highway variation in lieu of the originally proposed routing along Blue Hill Avenue would avoid construction impacts to most of the commercial area of Mattapan Square. The City of Boston has identified the Mattapan Square area as a commercial area that would be especially susceptible to the effect of construction on its ability to support successful small businesses. Further, the commercial and residential land uses along the American Legion Highway variation are less dense than those along the 2.2-mile stretch of Blue Hill Avenue contained in the primary route as originally proposed. Similarly, the Day Boulevard variation would bypass the originally proposed routing through the Andrew Square commercial area and dense residential development on Boston Street and Dorchester

Avenue, while also eliminating the need for a bridge crossing over the Southeast Expressway. However, with or without the use of the Day Boulevard variation, the primary route extends along narrow residential streets in South Boston that lead directly to the K Street Substation. Expansion of the K Street Substation, which is the terminus of all three routes, will be subject to further review under Chapter 91 because it would occur in historically filled tidelands.

The land use and water resource impacts associated with the proposed transmission lines, excluding the switching stations and substations, would be limited to temporary and minor impacts associated with construction activities. The record indicates that NSTAR will take appropriate measures to mitigate any temporary impacts. Accordingly, the Siting Board finds that the land use and water resource impacts associated with construction of the proposed transmission project along the primary route would be minimized.

As with the primary route, the record indicates that the alternative and hybrid routes would run through suburban and densely populated urban areas, and would pass through Blue Hills Reservation; however, it would not pass through any ACECs. Since the proposed transmission lines would be located under streets, there would be no permanent impacts on the use of recreational areas and other open space, species or their habitats, wetlands, or historic resources. In addition, at all stream channel crossings, the transmission lines will pass over or under the existing culverts. The crossing of the Neponset River would entail barge work in the Neponset River, subject to review by the ACOE. Construction and sedimentation controls would be used to avoid impacts to the river and to culverted streams. As with the primary route, although most of the historic sites abut the road or are near the road, any impacts to historic resources due to construction in the roadway would be temporary.

Accordingly, the Siting Board finds that the primary route would be comparable to the alternative and hybrid routes with respect to land use and water resource impacts associated with construction.

b. Traffic

i. Overview

NSTAR stated that installation of the proposed transmission lines would involve

constructing manholes, opening a trench, installing steel pipe, filling the trench back in with low-strength concrete and then repaving the street (Exh. BECO-1, at 5-4 to 5-7). Construction crews will pull the transmission cables through the buried steel pipes using the manholes, which are spaced 3,000 feet apart (*id.*).³⁸ The Company explained that roadway trenches typically would be confined to either a travel lane or a parking lane (Exh. EFSB-T-1). The Company noted that it expects to place trenches within a foot or two of the curb, except where existing utilities occupy that location (Exh. EFSB-T-5). NSTAR stated that it would do curb-to-curb repaving of all roads along the route, except on roads where there is a median strip; on these roads, repaving would be confined to the side of the road where construction has occurred (Tr. 10, at 1315).

NSTAR stated that the typical width of its construction corridor, including traffic barriers, would be 18 to 20 feet (Exh. EFSB-G-1, at 4-24). However, the Company stated that in constrained areas the construction corridor could be reduced to 16 feet (Tr. 7, at 980). The Company stated that the length of the work zone for pipe installation would vary from 500 feet to 750 feet, and that work within the zone would progress at an average rate of 100 feet per day (Exh. BECO-1, at 5-7; Tr. 6, at 901). However, the rate of progress at each location would depend on the density of underground utilities, number of circuits in the trench, and the work restrictions needed to maintain traffic flow (Exh. BECO-1, at 5-7).³⁹ NSTAR noted that construction crews would work simultaneously in different areas along the route, but be spaced apart in order to minimize construction impacts and maintain traffic flow (*id.* at 5-9, 5-52). NSTAR stated that to maintain traffic flow through a work area, the ideal width of a high speed traffic lane is 12 feet, whereas 10 feet is sufficient for slow-moving traffic (Tr. 7, at 974, 984).⁴⁰

³⁸ The Company stated that the primary route would have approximately 31 manholes (Exh. EFSB-G-1, at Fig. 2.5-1).

³⁹ The Company's rate of 100 feet per day is an average based on the standard eight-hour day; the Company noted that construction could progress as much as 150 feet per day in some sections, while in congested areas progress might average 75 feet per day (Tr. 10, at 1341).

⁴⁰ The Company stated that, in order to maintain through traffic, the MHD typically requires an 11-foot minimum width lane and Boston typically requires a 10-foot minimum width
(continued...)

NSTAR stated that parking prohibitions in work areas would be limited to the actual hours of construction in order to minimize disruption to residential and business parking (Exh. EFSB-T-6). This would be accomplished by covering the trench with steel plates and removing the construction equipment at the end of the construction shift (*id.*). The Company noted that, where necessary, alternative parking arrangements for residents could include paid reimbursement for the use of parking garages or parking lots (Exh. RR-EFSB-37; Tr. 14, at 1835-36).

NSTAR stated that construction would be scheduled to minimize disruptions to the extent possible; therefore, construction in residential areas would generally occur during the day (Exh. EFSB-T-14). The Company stated that nighttime construction would be proposed for all areas that are entirely commercial, so daytime businesses would not be affected (Exh. EFSB-T-6). The Company indicated that it would seek approval for a 12-hour workday from Boston and other affected municipalities; however, it acknowledged that such approval was uncertain, given municipal preferences to avoid construction during peak traffic hours (Tr. 10, at 1342). The Company stated that the minimum productive work day would be six hours, noting that it takes approximately an hour to set up a work area, and another hour to break down the work area and plate it (*id.* at 1346). NSTAR also acknowledged that if the work window at night were reduced to fewer hours than a municipality's standard daytime window,⁴¹ it would likely work the daytime hours (*id.* at 1433). In addition, NSTAR noted that the City of Boston has a moratorium on road construction in the winter; the Company stated that it would avoid the moratorium period to the extent possible, but acknowledged that it would seek a waiver allowing it to perform some winter construction (Exh. EFSB-NO-8; Tr. 10, at 1342, 1380).⁴²

NSTAR stated that it would develop a Traffic Management Plan ("TMP") as part of its

⁴⁰ (...continued)
lane (Exh. EFSB-G-1, at 5-6).

⁴¹ The Company noted that the standard City of Boston hours for work in streets are 9:00 a.m. to 4:00 p.m. (Tr. 10, at 1435).

⁴² The Company indicated that the moratorium was developed due to the potential for snowplows to hit and dislodge the metal plates in the streets (Tr. 10, at 1380).

request for the municipal street opening permits needed to construct the proposed transmission project (Exhs. ST-66; EFSB-G-1, at 5-1). NSTAR stated that it will prepare a draft TMP once it has selected a contractor, the construction corridor width has been identified, and a final set of drawings has been prepared detailing the location of the traffic lanes in which the corridor would be located (Exh. ST-66; Tr. 10, at 1378). The Company stated that the TMP is intended to ensure the safety of the public and construction workers in the vicinity of the work zone, and would detail how traffic would be handled during the course of construction (Tr. 10, at 1387). The TMP would be updated during construction whenever a need for changes in construction location, timing, or method was identified; any revision would be subject to approval by the appropriate authorities (Exh. EFSB-G-1, at 5-4). The Company identified 27 provisions that would be the governing principles of the TMP, including provisions for notification, access, allowable construction methods, traffic detours, mitigation, and restoration (id. at 5-4 to 5-7).⁴³

NSTAR indicated it is preparing a community relations plan that should be completed at the end of 2004, that would be shared with affected communities (Tr. 17, at 2322). The Company stated that it would provide a construction liaison who would notify all residents, businesses, and other special groups of the construction project schedule and when it would be located in a specific area (Exh. EFSB-T-3). The liaison would be the general public contact throughout the project (id.; Exh. EFSB-G-1, at 26). NSTAR stated that it would also have a dedicated phone line that would be staffed 24 hours a day; all residents and businesses would have direct contact with NSTAR through this line, and questions or complaints would be directed to the NSTAR staff responsible for investigating the matter (Exh. EFSB-G-1, at 26; Tr. 7, at 1024-1025).

⁴³ The 27 provisions are: authority and signature; field adjustments; compliance with standards; traffic detours; length of open trench; days and hours of construction; removal of striping; traffic control devices; pedestrian circulation; suspension of activities; notification to MBTA; notification to MA Commission for the Blind; notification to area businesses; minimum width of lanes; street closures; restoration of serviceable conditions; work, site clean-up; driveway access; interim lighting; restoration of sidewalks, trees, and vegetation, lighting and public conveniences; restoration of wire induction loops; worker and passer-by safety; jersey barriers; plating; transition between work crews; ombudsman; and prohibition on permanent barriers (Exh. EFSB-G-1, at 5-7).

ii. Primary Route

As discussed in Section II.B, above, the primary route begins at the proposed Route 138 switching station site, runs for approximately 9.1 miles along Route 138 to the Boston municipal boundary at the Neponset River in Mattapan Square, and continues for approximately 7.7 miles in Boston streets to the K Street Substation (single circuit is an additional .65 mile) (Exhs. BECO-1, at 1-9, Fig. 1-5; EFSB-G-1, at Figs. 2.2-2 and 2.2-4). Route 138 between Stoughton and the Neponset Bridge is a straight, two-lane roadway consisting of a paved travel surface, generally 35 to 44 feet wide, with no parking lanes, located within a ROW approximately 50 to 60 feet wide (Exh. EFSB-G-1, at 4-24, Fig. 4.6-1).⁴⁴ The route through Boston is generally wider, including Cummins Highway, which has a paved area and a ROW of 60 feet close to Mattapan Square, but which expands in a short distance to 60 to 70 feet of paved surface within an 80 foot ROW; American Legion Highway, which has four paved travel lanes with full parking lanes on each side separated from the travel lanes by a grassed median; and Columbia Road from Franklin Park north to Everett Square,⁴⁵ which has four paved travel lanes with full parking lanes on each side, a paved street width of over 80 feet, and a ROW width of over 100 feet (Exhs. EFSB-BECO-1, at 1-10; EFSB-G-1, at 4-24 and 4-26; BECO-1, at E-4).

After consulting with MHD and the City of Boston, NSTAR determined that full traffic flow must be maintained along Route 138 from Stoughton into Boston during the morning and evening peak traffic hours (approximately 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) (Exh. EFSB-G-1, at 5-3). After the close of hearings, the Company provided updated construction mitigation plans indicating that: (1) construction along Route 138 may continue during peak-hour periods if construction is occurring opposite the predominant flow of traffic

⁴⁴ The Company explained that the road ROW is the entire width of the road, and includes sidewalks, planting strips, medians, parking lanes and travel lanes; the paved width is the portion of the road that has been designated for vehicular traffic, including the travel and parking lanes and any paved shoulder (Tr. 7, at 965). The ROW of Route 138 is the land owned in fee by MHD, including the grassed or un-sidewalked area and unpaved areas, as well as the paved roadway (*id.* at 966).

⁴⁵ Columbia Road from Everett Square to Kosciusko Circle ranges from four to six travel lanes (Exh. BECO-1, App. E, Fig. S-8).

and adequate traffic flow can be maintained; and (2) construction in Boston may continue during evening peak hour traffic periods along much of the primary route (Exh. RR-EFSB-61S(2)).

The Company characterized existing traffic volumes from Stoughton to Everett Square in Boston as heavy, especially during morning and afternoon peak hours (Exh. EFSB-G-1, at 4-26). NSTAR collected hourly traffic count data at one location in Stoughton, three locations each in Canton and Milton, and thirteen locations in Boston (*id.*; Exh. EFSB-T-2).⁴⁶ NSTAR reported that the data generally show a morning and afternoon peak at most locations during the weekdays, and a single, prolonged peak on the weekends (Exh. EFSB-G-1, at 4-26).

Based on these data, NSTAR developed a level of service (“LOS”) analysis which characterized traffic flow as good (LOS of A, B, or C), intermediate (LOS of D) or poor (LOS of E or F) (Exh. EFSB-G-1, at 4-27). The analysis indicates that Route 138 currently experiences poor traffic conditions in both directions from York Street to Royal Street during the 2:00 p.m. to 4:00 p.m. period, and from York Street to Brush Hill Road during the 4:00 p.m. to 7:00 p.m. period (*id.*, Table 4.6-5). The analysis indicated that: (1) for the 6:00 a.m. to 9:00 a.m. period, poor conditions exist from York Street to Dan Road, and from Randolph Street to Brush Hill Road; and (2) three of the five route segments along Route 138 between York Street and Brush Hill Road experience poor traffic conditions from 6:00 a.m. to 7:00 p.m.; and (3) along the remainder of the primary route, the only area with poor existing traffic conditions is along Blue Hill Avenue directly south of Columbia Road (*id.*; EFSB-RR-38).

The Company stated that it generally would seek to work when traffic conditions are good to intermediate (Exh. EFSB-G-1, at 27; Tr. 10, at 1318, 1320). The Company indicated that, if it were necessary to construct in the time periods where the LOS was poor, it would ensure that the impacts to the travel lanes were kept to a minimum, in terms of the width of the

⁴⁶ The Company indicated that it collected traffic counts along Route 138 in the following order, traveling north: north of York Street (Stoughton); north of Dan Road (Canton); north of Randolph Street (Canton); south of Royal Street (Canton); south of Brush Hill Road (Milton); south of Brook Street (Milton); and south of Mattapan Square (Milton) (Exh. EFSB-G-1, at 4-27). The Company reported the average weekday traffic counts including: Route 138 in Canton, 37,900; Blue Hill Avenue, 24,000; American Legion Highway 8,000 to 12,000; and Columbia Road, 20,000 to 24,000 (Exh. EFSB-SS-18A).

roadway affected and the duration of work (Tr. 10, at 1317). The Company indicated that it would work with the MHD, the City of Boston, and the Towns of Stoughton, Canton, and Milton to ascertain the preferred time of day for construction (id. at 1336).⁴⁷ The Company noted that these communities, through the issuance of street opening and access permits, have significant control over when construction would occur (id. at 1336). The Company also stated that it would work with local officials to ensure that appropriate traffic management measures, including warning signs, turn restrictions, speed restrictions, and police details, are arranged within the construction zone along Route 138 to ensure that existing congested travel conditions are not worsened during construction (Exh. EFSB-T-23).

NSTAR asserted that it could maintain two lanes of traffic on all portions of Route 138 during construction (Tr. 7, at 986). The Company indicated that, where the roadway ROW is 60 feet wide, 15 to 25 feet of unpaved land exists on one or both sides of the paved road (id. at 966). The Company noted that, in some areas, the unpaved land is not useable, due to the presence of wetlands, trees, drainage ditches, or side slopes (id. at 970). The Company stated that where the paved roadway is 35 feet wide and use of the unpaved area is constrained, it would narrow the construction corridor and use stovepipe⁴⁸ construction if necessary, which could slow down the construction process (id. at 972, 978-979).⁴⁹

In order to mitigate construction traffic impacts along Route 138, NSTAR proposed to use nighttime construction for the first 5.7 miles of the primary route (from the Route 138 switching station site to a point slightly north of the Blue Hills Trailside Museum in Milton), and stated that it was giving serious consideration to using nighttime construction for an additional 1.8 miles (from milepost 5.7 to 7.5, in the vicinity of Delphi Academy) (Exhs. EFSB-NO-10;

⁴⁷ NSTAR noted that the Town of Canton has expressed a preference for a longer work day in order to minimize the number of days of construction work in Canton (Tr. 10, at 1346-1347).

⁴⁸ The Company explained that stovepipe construction would involve opening a limited length of trench, and welding and laying one piece of pipe at a time into the open trench (Tr. 7, at 967).

⁴⁹ The Company noted that the areas along Route 138 that would be the most constrained fall between milepost 1.5 and milepost 3.0 (Tr. 7, at 974).

EFSB-T-14). The Company stated that, within these lengths of Route 138, there is an area of light-density residential development in Canton from approximately mileposts 2.6 to 4, and another one in Milton between mileposts 5.7 and 7.5 (Exh. RR-EFSB-40). The Canton area has approximately 58 residences within 100 feet of Route 138, and the Milton area has 24 residences within 100 feet (*id.*). After the close of hearings, the Company provided updated construction mitigation plans indicating that nighttime construction would end by 9:00 p.m. in these residential areas (Exh. RR-EFSB-61S(2)).

NSTAR also proposed limited use of nighttime construction within Boston, initially identifying the following as expected locations: Mattapan Square, Uphams Corner, Everett Square, and Columbia Road from the Route 93 ramp to Kosciusko Circle (Exh. EFSB-NO-8).⁵⁰ After the close of hearings, the Company provided updated construction mitigation plans indicating: (1) it would work a 12-hour day, from 9:00 a.m. to 9:00 p.m., for much of the primary route, including from Mattapan Square to the crossing of Route 93 on Columbia Road, except for Uphams Corner, and from the intersection of I Street and East Third Street in South Boston to the terminus at K Street Substation;⁵¹ and (2) it would work a 20 or 21 hour day, excluding morning peak traffic hours, along commercial portions of Cummins Highway and American Legion Highway, and along Day Boulevard (Exh. RR-EFSB-61S(2)). The Company also indicated that, along narrow roads in South Boston north of Day Boulevard, it may close the roads to traffic on a block-by-block basis and detour traffic (Tr. 7, at 981). The Company also indicated that it may use tight construction practices in South Boston, and for a small area on Cummins Highway approaching Mattapan Square (*id.* at 980-982).

NSTAR provided information showing there are 15 schools along the primary route, including public schools, Curry College and the Blue Hill School of Technology (Exh. EFSB-

⁵⁰ The Company indicated that land use in Mattapan Square, Uphams Corner and Everett Square is primarily commercial, with some second or third floor residential uses (Tr. 10, at 1430-1432). The Company did not identify any residences along Columbia Road between Route 93 and Kosciusko Circle (*id.* at 1432-1433).

⁵¹ On weekends, the Company would work this 12-hour day through Uphams Corner and from Route 93 to the intersection of Columbia Road and Day Boulevard, as well (Exh. RR-EFSB-61S(2)).

NO-28).⁵² NSTAR stated that, in order to minimize impacts on school activities and school bus schedules, it would prefer to complete all construction near each school either during the summer, or outside of the start and end of the school day (Exh. EFSB-T-8). The Company noted that, in the event that construction occurs when schools are in session, work at any one location would be in place for only one week (id.; Exh. EFSB-T-19). NSTAR stated that it would work with school administrations to establish work protocols (Exh. EFSB-T-19).

The Company stated that it would notify the MBTA on a weekly basis of the location of the construction crews for the following week (Tr. 10, at 1373). When construction approaches bus stops, the bus stops would be temporarily relocated outside of the 100 foot construction zone (id. at 1374). NSTAR noted that the primary route passes by the Mattapan MBTA station, but asserted that construction would not affect pedestrian or bus access, as the station is located to the east of the proposed construction (id. at 1371).

NSTAR noted that the Boston Public Works Department's "Rules and Specifications for Street Openings" protects newly paved streets for five years, and that the MHD has a policy which discourages excavation in any road that has been reconstructed in the last seven years (Exhs. EFSB-T-21; T-13). However, the Company noted that exceptions are made routinely for unplanned repairs and for construction of unplanned but necessary underground utility upgrades (Exh. EFSB-T-21; Tr. 10, at 1329-1330). The Company noted that there has been no recent road repair or construction along Route 138 in Stoughton or Milton, and that recent road work in Canton has been limited to the repaving of 2,000 feet of Route 138 just south of the Route 128 cloverleaf (Exh. EFSB-T-21). In Boston, Hyde Park Avenue has been completely reconstructed and portions of I Street, East 3rd Street, and K Street have been repaved within the last five years (Exhs. EFSB-T-13; EFSB-T-21).

The Company indicated that construction of the proposed transmission lines along the

⁵² The Company stated that the 15 schools include one school along the American Legion Highway variation segment and three schools along the Day Boulevard variation segment (Exh. EFSB-NO-28). By comparison, the Blue Hill Avenue variation has one school, and the Boston Street/Dorchester Street variation has six schools (id.). The Company indicated that the setbacks of the schools, as measured from the roadway centerline, range from 25 feet to 200 feet (id.).

primary route would be coordinated with the MHD, Canton, Milton, Stoughton, and the Boston Metropolitan Planning Organization (“MPO”) with regard to the Route 138 Corridor Planning Study (Exhs. EFSB-T-12; EFSB-T-25; Tr. 10 at 1324-1325).⁵³ In particular, the Company noted that the Town of Canton has plans for three projects along Route 138 – the reconstruction of the intersections of Route 138 with Randolph Road and Washington Street, and the reconstruction of Route 138 from Route 128 south to Dan Road, a distance of approximately 2.8 miles (Exh. EFSB-T-18; Tr. 10, at 1325). NSTAR explained that the Town of Canton would prefer that the construction and road improvement projects be addressed at the same time, so that Route 138 is under construction only once (Tr. 10, at 1369). The Company indicated that it has agreed to coordinate construction with the Town of Canton and its traffic consultants (*id.*).

The Company indicated that materials used for the construction of the Route 138 switching station would be delivered to the site via Route 138, and would not travel on York Street, Charles Avenue, or Ewing Drive (Exh. RR-EFSB-61). NSTAR indicated that it could place temporary signage on Route 138 notifying drivers that construction vehicles are entering the road, and place other visible markers and a police detail during periods of frequent deliveries or when large equipment is delivered (Exh. EFSB-T-23; Tr. 10, at 1370-1371). The Company stated that it would work with the Stoughton Police to ensure that construction traffic safely enters and exits the site (Tr. 10, at 1371).

iii. Alternative and Hybrid Routes

Beginning at the proposed SRA switching station site, the alternative and hybrid routes follow two narrow roadways: Kay Way, which is located approximately one mile into the route, and is a two-lane road 25 feet across with no marked shoulders or sidewalks; and West Street, a two-lane road approximately 22 feet across, including a narrow shoulder of one foot or less, and sidewalks (Exh. RR-EFSB-25). Kay Way and West Street account for approximately one-half

⁵³ The Route 138 Corridor Planning Study (July 2001) was prepared by the MPO’s Central Transportation Planning Staff, directed by the Boston Metropolitan Planning Organization for the MHD (Exh. EFSB-T-12, Bulk Att.). It identifies flaws in current road design and the traffic capacity of Route 138 (Exhs. EFSB-T-12, Bulk Att.; EFSB-T-25).

mile of the routes (Exh. RR-EFSB-25, Fig.(a)). The route continues for approximately $\frac{3}{4}$ of a mile along Lafayette Street, a two-lane road with a narrow shoulder, before heading north onto High Street, a two-lane road with a full shoulder, for a distance of approximately 2 miles (Exh. BECO-1, at 1-11, Fig. 1-7, Fig. 5-4). The alternative and hybrid routes then travel for approximately 3 miles on Route 28, which varies from a two-lane road with a wide shoulder to a four-lane road with a narrow shoulder (id. at 1-11, Fig. 5-4; Tr. 7, at 991-992). The route then turns onto Reedsdale Road, a four-lane road, and heads north onto Central Avenue, a two-lane road with a full shoulder (Exh. BECO-1, at Fig. 5-4). The Company asserted that the roads which make up the first 8 miles of the alternative and hybrid routes are slightly narrower than those which make up the primary route, and accordingly, that options for traffic mitigation may be limited by the narrower roads, and that fewer unoccupied spaces may be available for utilities (id. at 5-18).

From the intersection of Central Avenue and Reedsdale Road, the two-circuit segment of the alternative route proceeds north into Boston and travel 7.2 miles to the K Street Substation, while the single-circuit segment of the alternative route, and the hybrid route, proceed west to and then along the primary route to reach the Hyde Park Substation (Exh. BECO-1, at 1-10). The Company stated that the Washington Street to Pleasant Street portion of the two-circuit segment of the alternative route is much more congested than the corresponding portions of the primary route (Tr. 10, at 1360). The Company explained that the congestion is due to the winding streets and complicated intersections with more than two intersecting streets (id. at 1362). For example, the NSTAR noted that the intersections of Bowdoin Street and Hancock Street and Hancock Street and Pleasant Street would require the proposed transmission line to make relatively sharp turns (Exh. BECO-1, at 5-18). In addition, NSTAR noted that Codman Square has more upper-story residential development than portions of the primary route through Mattapan Square and Uphams Corner, which would make it difficult to mitigate traffic impacts by using nighttime construction work through the Codman Square intersection (Tr. 10, at 1437-1438). Overall, NSTAR asserted that along the northern portion of the routes, traffic impacts would be worse along the alternative route than along the primary route, even though the traffic counts might be lower (id. at 1362).

For the single-circuit segment of the alternative route, and the hybrid route, the Company stated that Brook Road between Reedsdale Road and Blue Hill Parkway is a four-lane, two-way road with no marked shoulders, and Blue Hill Parkway between Brook Road and Blue Hill Avenue is a six-lane divided highway (Exh. RR-EFSB-25).

NSTAR did not collect full traffic count data or conduct an LOS analysis for the alternative route (Tr. 10, at 1352). However, the Company indicated that counts taken on Route 28 north of the Milton/Quincy line found traffic levels of 15,000 to 17,000 vehicles per day, and counts taken at Randolph Avenue in Milton found approximately 7000 vehicles per day (Exh. EFSB-SS-18A; Tr. 10, at 1353-1354).⁵⁴ NSTAR expected that the traffic counts on High Street in Randolph would be less than 7000 vehicles per day (Tr. 10, at 1356).

NSTAR proposed to mitigate traffic impacts along the alternative and hybrid routes by using nighttime construction in two areas: (1) for the first 1.25 miles of the route along Technology Drive, continuing the short distance on Kay Way; and (2) for approximately 1.5 miles along Route 28, beginning south of the Route 128 interchange (milepost 4.5) and ending approximately at the Quincy/Milton border (milepost 6) (Exhs. EFSB-NO-10; EFSB-NO-3). The Company indicated that a large portion of the alternative and hybrid routes through Randolph is located in residential areas along High Street and Lafayette Street; consequently, the Company stated it did not expect that the Town of Randolph would allow nighttime construction along these streets (Tr. 10, at 1349, 1353).

NSTAR noted that a lengthy portion of the alternative and hybrid routes in Milton is presently being repaved, including approximately 1.8 miles of Route 28 from the Milton/Quincy line north to its intersection with Reedsdale Road, and an additional portion of Reedsdale Road to its intersection with Central Street, as well as some sections of Brook Street (Tr. 10, at 1331). In addition, the Company stated a portion of High Street in Randolph was rebuilt in 2002, and another portion in 2001 (Exh.EFSB-T-13).

The Company stated that the public transportation resources along the alternative and hybrid routes are similar to those along the primary route, as both routes pass near the Mattapan

⁵⁴ The distinction between the two traffic-count locations in Milton is unclear, as Randolph Avenue is Route 28 in Milton (Exh. EFSB-BECO, Fig. 1-8).

Square MBTA station and numerous bus routes; the alternative route includes one additional MBTA subway station, located on Central Avenue in Milton on the south side of the Neponset River (Exh. EFSB-T-16). NSTAR indicated that 12 schools are located along the alternative route (Exh. EFSB-NO-28).

iv. Analysis

The record demonstrates that construction of the proposed transmission lines would have temporary impacts on traffic traveling on the roads that make up the primary route. The degree of impact is related to three factors: (1) the existing level of traffic flow; (2) the number and width of travel lanes available during construction; and (3) the time of day that construction would occur.

The primary route first follows Route 138 from Stoughton to Mattapan Square, a predominantly two-lane roadway 35 to 40 feet wide with a paved shoulder, occupying a ROW 50 to 60 feet wide. The record shows that where possible, the Company would limit its work area to leave space for two 12-foot wide travel lanes on one side of the paved roadway. As its preferred work area in the ROW, the Company would use a 20-foot construction corridor made up of the remaining paved roadway, together with adjacent unpaved ROW. The Company's use of this corridor may be constrained in some areas by the location of utilities, or the presence of wetlands, slopes, ditches or other impediments in the adjoining unpaved ROW. In these locations, NSTAR would as feasible use stovepipe construction, or cross to the other side of the ROW and use the other shoulder. Due to the high volume of traffic on Route 138, LOS ratings in some areas are poor throughout the daytime periods, and in other areas are poor primarily during the morning and evening peaks. Thus, daytime construction work on portions of Route 138 has the potential to further degrade already poor traffic conditions, and may be unacceptable to local officials and the MHD.

In Boston, the primary route from Mattapan Square to Everett Square follows wider streets with more travel lanes and generally lower traffic volumes than Route 138. In South Boston the route is predominantly narrow, and the Company proposes to close portions of I Street, East 3rd Street, and K Street in segments and implement detours. Although existing traffic

conditions along the route in Boston do not show poor LOS ratings, the areas are heavily developed with both residential and commercial uses. In addition, public buses use the roads along the primary route, and there are numerous schools in close proximity to the route. Given the urban land use, the presence of a construction zone may pose safety issues for pedestrians and motorists.

To alleviate potential traffic impacts, the Company has proposed up to 7.5 miles of nighttime construction along Route 138, through Stoughton, Canton, and a portion of Milton. However, along residential portions of Route 138, including a 1.5-mile segment in Canton and a 2-mile segment in Milton, the Company's updated construction mitigation plans provide that any nighttime work would end by 9:00 p.m. The Company previously indicated that, in conducting nighttime construction, it expected it would need a continuous work period of at least six hours. Thus, to allow a six-hour shift, work hours on residential portions of Route 138 would need to overlap at least some daytime periods in which LOS ratings are poor. Further, while not precluding construction during the 4:00 to 6:00 p.m. peak traffic period, the Company's updated construction mitigation plans allow peak hour construction only if work is being conducted on the opposite side from the predominant traffic flow, and adequate traffic flow can be maintained.

In Boston, the Company's updated construction mitigation plans indicate that 12-hour or longer work days, overlapping evening peak hour traffic periods, will be used along much of the route, but that construction generally will not be conducted during morning peak hour traffic periods. Nighttime work would end by 9:00 p.m. along most of the route, generally including all areas with residential land use.

The record indicates that the Company would develop a TMP addressing issues such as the location of trenching and width of travel lanes, scheduled times and duration of work, arrangements for pedestrian traffic, mass transit operations, parking, and procedures for notifying residents and businesses of construction plans. The Siting Board notes that it is crucial that NSTAR, in consultation with the City of Boston and the Towns of Stoughton, Canton, and Milton, to develop a workable TMP in a time frame that allows for adequate notification to residents and businesses. Consequently, to ensure that all outstanding issues can be resolved in a timely fashion to the satisfaction of each community, the Siting Board directs NSTAR to submit

the draft TMP to appropriate officials in the City of Boston, and the Towns of Stoughton, Canton, and Milton, to school administrators in each of these communities, and to the MHD and the MBTA, at least two months prior to the commencement of construction affecting these entities.

The Siting Board notes that the Company has indicated that, as part of its TMP, it would address community outreach and notification to residents and business. Because the proposed transmission project requires approximately 18 miles of in-street construction through four communities, the TMP likely will be an extensive document. Community outreach and notification will be crucial to the success of this project. Consequently, the Siting Board directs NSTAR, in consultation with the City of Boston and the Towns of Stoughton, Canton, and Milton, to develop a comprehensive outreach plan for the proposed project. The outreach plan should lay out the procedures to be used to notify the public about: the scheduled start, duration, and hours of construction in particular areas; the methods of construction that will be used in particular areas (including any use of nighttime construction); and anticipated street closures and detours. The outreach plan also should include information on complaint and response procedures, contact information, the availability of web-based project information, and protocols for notifying the MBTA and schools of upcoming construction.

The Siting Board finds that, with the implementation of the above conditions, the traffic impacts associated with construction of the proposed transmission project along the primary route would be minimized.

The record indicates that the construction traffic impacts along the primary, alternative and hybrid routes would be temporary. Nonetheless, due to the configuration of the roadways used for each route, the traffic impacts would differ.

At the beginning of the alternative and hybrid routes, West Street and Lafayette Street are narrow roadways. While it appears that only one lane of traffic could remain open on each of these streets during construction, West Street is commercial and thus could accommodate nighttime construction. Further north, the alternative and hybrid routes follow Route 28 and Brook Road, which have four lanes each, rather than the two lanes with shoulders present on Route 138 along the primary route. In addition, the traffic counts along Route 28 are lower than

those of Route 138. However, there is less opportunity to mitigate traffic impacts through nighttime construction along Route 28 and Brook Road due to its more extensive residential development.

The hybrid route diverges from the alternative route just south of Boston, and joins the primary route. Within Boston, the alternative route is winding, with numerous turns, and a denser mix of residential development in commercial areas than along the primary route.

In summary, to the south of Boston, the primary route along Route 138 is shorter than the alternative and hybrid routes, and offers more opportunity to mitigate traffic impacts by using nighttime construction along Route 138. In Boston, the primary and hybrid routes follow wider streets than the alternative route, and provide the better opportunity for nighttime construction; therefore, they would better minimize traffic impacts. The Siting Board notes that, should the extent of nighttime construction along Route 138, or along the primary and hybrid routes in Boston, be significantly less than proposed as a result of possible additional reductions in its use, the route advantages identified above could be reduced or eliminated.

The routes also differ in terms of the degree to which construction is likely to be coordinated with other construction projects in the areas traversed. The record shows that the Route 138 segment of the primary route offers the possibility of coordinating construction with local improvement projects in the Town of Canton. In contrast, the record shows that several repaving and utility installation projects are ongoing or have been recently completed along the alternative route, including portions of Route 28 and Reedsdale Road in Milton.

Overall, the Siting Board finds that the primary route would be preferable to the alternative route and the hybrid route with respect to traffic impacts associated with construction.

c. Noise

i. Primary Route

(a) Transmission Lines

NSTAR explained that transmission line construction would take place in four distinct phases that would generate different levels of noise: manhole installation, trench

excavation/steel pipe installation, cable installation and cable splicing (Exh. EFSB-G-1, at 5-9).⁵⁵ The Company stated that the manhole installation and trench excavation/steel pipe installation phases would be the noisiest, while cable installation would be substantially quieter (Exhs. EFSB-G-1, at 5-13; EFSB-NO-4). NSTAR indicated that typical L_{10} sound levels from manhole installation, trenching, and pipe installation would range from 69 to 89 dBA at urban setbacks of 25 to 50 feet, and from 63 to 77 dBA at suburban setbacks of 100 feet; the Company noted that welding produces lower range sound levels and pavement sawing produces higher range sound levels (Exh. EFSB-G-1, at 5-13 to 5-14). NSTAR asserted that these estimates are conservative, based on the maximum, worst case scenarios (Tr. 10, at 1419).⁵⁶ The Company asserted that, due to the progressive nature of the construction project, no one activity would remain at any one location for very long (Exh. EFSB-G-1, at 5-12).

The Company indicated that certain construction activities would be conducted at night, including cable splicing and, perhaps, cable pulling in areas with manhole access constraints (Exhs. EFSB-G-1, at 5-12 to 5-13). The Company explained that, at any one manhole location, cable splicing would take 7 to 8 days, 24 hours a day (id. at 5-13). The noise associated with cable splicing would include contributions from the splicing van, air conditioner unit, and the generator (Exh. EFSB-NO-1). NSTAR estimated that the L_{10} sound levels from cable splicing would be 61 dBA at 50 feet, and 67 dBA at 25 feet (id.). The Company stated that it did not expect any residences to be closer than 25 feet to the source of the cable splicing noise (id.).

The Company conducted nighttime ambient short term sound level measurements during the spring at seven representative locations along the primary route, including two locations in Canton, one in Milton, and four in Boston (Exh. EFSB-G-1, at 4-41, 4-43 to 4-44). The Company conducted daytime ambient short term sound level measurements during the winter at

⁵⁵ The typical equipment to be used during the four phases of construction includes: pavement saws, backhoes or excavators, flatbed trucks, dump trucks, cranes, concrete delivery trucks, asphalt pavement delivery trucks, welders, cable reels, cable pullers/winders, splicing vans, generators, and air conditioning units (Exh. EFSB-G-1, at 5-9 to 5-10).

⁵⁶ NSTAR explained that it used construction noise estimates developed for the Big Dig, which were the maximum sound levels expected to never be exceeded (Tr. 10, at 1447).

four representative locations along the primary route, including one location in Canton, one in Milton, and two in Boston (id. at 4-41 to 4-42). The nighttime measurements show L_{10} levels ranging from 51 to 71 dBA, L_{eq} levels ranging from 50 to 68 dBA, and L_{90} levels ranging from 38 to 55 dBA (Exh. EFSB-NO-11). The Company's daytime measurements showed L_{10} levels ranging from 69 to 74 dBA, L_{eq} levels ranging from 65 to 71 dBA, and L_{90} levels ranging from 51 to 67 dBA (Exh. EFSB-NO-12).

The Company provided maps depicting the location of residences within a 100-foot setback of each side of Route 138 in Canton and Milton (Exh. RR-EFSB-40, Figs. 1 and 2). In Canton, the Company identified 31 such residences on the west side of the roadway and 27 residences on the east side of the roadway, and added that the residences to the east are concentrated in two areas – in the vicinity of the intersection with Randolph Road, and in an area north of the entrance to Ponkapoag Golf Course opposite the intersection with Washington Street (Exh. RR-EFSB-40).⁵⁷ In Milton, the Company identified 6 residences on the west side and 18 residences on the east side of the roadway (id.).

Both Boston and Canton regulate construction noise, while Milton does not have any noise regulations or restrictions (Exh. EFSB-G-1, at 5-14 to 5-15; EFSB-NO-4). With respect to construction noise, the Company indicated that Boston regulates L_{10} sound levels as measured from the lot lines of the affected property, based on the zoning of the property (Exhs. EFSB-NO-4; EFSB-NO-27). The Boston bylaws limits construction noise impacts to: an L_{10} of 75 dBA and a maximum noise of 86 dBA at residential or institutional properties; an L_{10} of 80 dBA at business or recreational properties; and an L_{10} of 85 dBA at industrial properties (Exhs. EFSB-G-1, at 5-14; EFSB-NO-4; EFSB-NO-27; Tr. 10, at 1417). The Company asserted that it does not expect the construction sound levels to exceed the residential L_{10} limit beyond a radius of approximately 100 feet, or to exceed the industrial zone limit at any time (Exh. EFSB-G-1, at

⁵⁷ The Company's map indicates that in these two areas, many of the residences on both sides of the roadway are located at less than the suburban setback of 100 feet (Exh. RR-EFSB-40, Fig. 1). The map indicates that, in the remainder of the Canton residential area, from northwest of the golf course to MP 4, and opposite the golf course south of Washington Street, residences are predominantly confined to the west side of the roadway and located at the full suburban setback of 100 feet (id.).

5-15). Canton prohibits the use of loud tools and machinery between the hours 10:00 p.m. to 7:00 a.m., except with written consent from the town (Exhs. EFSB-NO-4; EFSB-NO-27).⁵⁸ However, NSTAR indicated that if the Town of Canton agrees that the best solution to traffic impacts is to allow nighttime construction, it would seek such written consent (Tr. 10, at 1439).

The Company stated that it would mitigate construction noise impacts by ensuring that: (1) the diesel powered equipment has quality mufflers installed; (2) the equipment is well maintained; (3) properly sized equipment is used; (4) only the necessary equipment is operated at the job site; and (5) the idling time for construction vehicles is limited (Exh. EFSB-G-1, at 5-21). In addition, the Company asserted that diesel powered equipment would not be operated before 7:00 a.m. (Exh. RR-EFSB-61). Further, the welding of splice sleeves would be limited to daytime work hours in residential locations (Exh. EFSB-G-1, at 5-21). In areas where nighttime work is required, the Company suggested that it would try to concentrate the noisier work, such as pavement sawing and concrete pouring, toward the beginning of the shift, closer to the 7:00 p.m. or 8:00 p.m. time period, and lasting until no later than 11:00 p.m. (Tr. 10, at 1428). The Company also indicated that construction work in residential areas of Canton and Milton would end by 9:00 p.m. (Exh. EFSB-RR-61).

NSTAR asserted that the use of a sound attenuated generator that uses a well-built enclosure and muffler would minimize noise from the cable splicing operation (Exhs. EFSB-NO-1; EFSB-NO-2). The Company noted that it expects to use the quietest commercial portable generator available; the Company did not propose the use of noise barriers to mitigate noise from cable splicing, stating that it had conducted cable splicing in residential areas using the same quiet generator without creating noise problems (Exhs. EFSB-NO-2; RR-EFSB-39). NSTAR stated that portable noise barriers around the equipment could provide 5 to 10 dBA of sound level reduction when placed around all four sides of the noise generating equipment, with less

⁵⁸ “During the hours from 10:00 p.m. to 7:00 a.m., the Permit Holder or Contractor shall not use, unless otherwise specifically permitted, in writing, by the Awarding Authority or Awarding Authority Representative, any tool, appliance or equipment producing noise of sufficient volume to disturb the sleep or repose of occupants of the neighboring property” (Town of Canton General Bylaws, Section 12, Subsection 10) (Exhs. EFSB-G-1, at 5-15; EFSB-NO-27).

reduction for an upper story residence than for a ground or second floor residence (Exhs. EFSB-NO-2; RR-EFSB-39). The Company explained that the typical noise barrier is a maximum of 14 feet high (Exh. RR-EFSB-39). The Company stated that the use of the portable noise barrier could add up to six to eight feet to the width of the roadway construction zone, but noted that if the barriers could be placed on the sidewalk, no added impacts would result, although pedestrian access might be limited (id.).

NSTAR stated it would seek to avoid construction immediately adjacent to schools when the schools are in session; however, if construction work was necessary while a school was in session, the Company would work with the school administration to establish work protocols to minimize noise impacts (Exh. EFSB-NO-28). For example, the Company stated that construction activities that create the most noise, such as pavement sawing, pipe welding and concrete backfilling, would be shifted to the late afternoon and early evening periods to avoid school hours (id.).

(b) Route 138 Switching Station

The Company provided a project schedule that indicated construction of the Route 138 Switching Station would begin in January 2005 and be completed in June 2006 (Exh. RR-ST-5). Site preparation work and the foundation work would occur over the first six months of the schedule (id.). The Company stated that construction work at the site would involve the use of heavy diesel-powered equipment for grading, excavation, and placement of foundations (Exh. EFSB-G-1, at 5-18). NSTAR asserted that the noise from the grading and excavation phases would be similar to current daytime noise from the existing sand and gravel operation (id.). The Company noted that the foundation placement, which involves the use of concrete mixers, would likely generate noticeable noise levels for the brief period it takes to empty the loads (id.).

NSTAR stated that construction would generally take place during a daytime shift, within specific hours set by town bylaws (Exh. RR-EFSB-61). However, the Company stated that if additional shifts are necessary to maintain the overall project schedule, the standard day shift may be extended, or Saturday daytime shifts may be used (id.). NSTAR has entered into a Host Community Agreement with the Town of Stoughton to resolve issues concerning the design,

mitigation and siting of the Route 138 switching station (Exh. RR-EFSB-62). The Company indicated that its Host Community Agreement permits NSTAR to schedule daily shifts of up to twelve hours, five days a week, at the switching station site, subject only to a requirement that construction-related activities which generate noise cannot be undertaken after 7:00 p.m. (Exh. RR-EFSB-62). NSTAR noted that the Host Community Agreement also permits limited weekend and holiday construction subject to prior notice to, and coordination with, the town (id.).

With regard to mitigation concerning equipment noise at the switching station site, the Company stated that it would ensure that: (1) the diesel powered equipment has quality mufflers installed; (2) the equipment is well maintained; (3) properly sized equipment is used; (4) only the necessary equipment is operated at the job site; and (5) the idling time for construction vehicles is limited (Exh. EFSB-G-1, at 5-21; Tr. 17, at 2323). In addition, diesel powered equipment would not be started before 7:00 a.m. (Exh. RR-EFSB-61).

NSTAR noted that, prior to the circuits being placed in service, the cables and voltage compensators must be filled with dielectric fluid (Exhs. EFSB-G-1, at 2-30; RR-EFSB-61). The Company stated that it would use quiet generators to power the fluid pumps, which it would stage at the proposed switching station and at the Hyde Park and K Street Substations (Exhs. EFSB-G-1, at 2-30; RR-EFSB-61). The Company stated that to fill each cable is a one-time, continuous operation that would take at least 15 hours (Exh. EFSB-G-1, at 2-30). The Company explained that although this operation may continue into nighttime hours, the sound levels associated with the activity would not be significant (Exhs. EFSB-NO-15; RR-EFSB-61). NSTAR indicated that at the Stoughton and K Street locations, the pumps would not be near residential areas, and that at Hyde Park, it would not pump fluid late at night (Exh. EFSB-NO-15).

ii. Alternative and Hybrid Routes

(a) Transmission Lines

NSTAR asserted that the noise associated with the construction of the transmission line would be the same for the primary and alternative routes (Company Brief at 130).

(b) SRA Switching Station

NSTAR stated that construction of the SRA switching station would generally take place during a daytime shift, with specific hours set by town bylaws (Exh. RR-EFSB-61(S)). However, the Company stated that if additional shifts are necessary to maintain the overall project schedule, the standard day shift might be extended and/or Saturday daytime shifts might be used (id.). The Company stated that the mitigation proposed would be the same at either switching station site (Exh. RR-EFSB-61; RR-EFSB-61(S); Tr. 17, at 2323). NSTAR also stated that cable filling is the same at either switching station site (Exhs. RR-EFSB-61; RR-EFSB-61(S); EFSB-G-1, at 5-21).

(c) Substations

NSTAR stated that at the Hyde Park, K Street, and Baker Street Substations construction generally would take place between 7:00 a.m. and 7:00 p.m., Monday through Friday, with limited construction work as needed on Saturdays (Exh. RR-EFSB-61-S(2)). The Company also stated that diesel powered equipment would not be started before 7:00 a.m. (Exh. RR-EFSB-61).

NSTAR stated that the only night construction work that would occur at the K Street Substation would be the filling of the two voltage compensators and the transformers with insulating fluid, which would take place over a 48-hour period for each voltage compensator and transformer (Exhs. EFSB-G-1, at 5-21; EFSB-NO-14). The Company stated that noise levels are not considered significant since the pumps are housed in a trailer, and the only appreciable noise may come from a portable generator used to power the pumps, if use of a generator is required (Exh. EFSB-NO-14). The work location for filling the cables at the K Street Substation would not be near residential areas (Exh. EFSB-NO-15). NSTAR stated that it would not conduct late night filling of the cables at the Hyde Park Substation, as there are residences in close proximity to that work location (Exh. EFSB-NO-15).

iii. Analysis

NSTAR provided estimates of the maximum noise levels that would be generated by

construction of the proposed transmission line. These estimates ranged from 60 to 89 dBA in urban setback areas and from 63 to 77 dBA in suburban setback locations. The Company maintained that its noise impact estimates, which are based on a different type of project (excavation associated with the Big Dig), are conservative. The Company also emphasized that, due to the linear nature of the construction process, construction noise should affect any one location for only a short period of time. The Siting Board notes that, based on the expected rate of progress of 100 feet a day, any one home or business could be affected by several days of construction noise.

NSTAR stated that it would mitigate construction noise by: (1) using proper muffling on equipment; (2) ensuring equipment is well maintained; (3) using only properly sized and necessary equipment; (4) imposing idling limitations; and (5) prohibiting the use of diesel equipment before 7:00 a.m. The Company also indicated that it would limit the welding of splice sleeves to daytime hours. The Siting Board notes that these noise mitigation measures are consistent with approaches to mitigation relating to equipment that the Siting Board has accepted in the past.

Generally, construction noise impacts also would be minimized by confining work to daytime hours. However, two components of the transmission line construction process involve the potential for nighttime construction – cable splicing, and construction in areas of traffic congestion.

NSTAR has indicated that the cable splicing process would require around-the-clock work for seven to eight days at each of 31 manholes to be spaced 3,000 feet apart along the primary route. The Company's construction noise estimates indicate that cable splicing would generate L_{10} sound levels of 61 dBA at 50 feet, and 67 dBA at 25 feet. Existing nighttime L_{10} levels range from 51 to 71 dBA along the primary route, with the lowest levels being recorded late at night. A comparison of existing noise levels with noise levels likely to be generated by the cable splicing operation suggests that nighttime cable splicing could be disruptive in those residential areas where operations are in particularly close proximity to homes. The Siting Board therefore directs NSTAR to use portable noise barriers in nighttime periods to mitigate the noise impact of cable splicing wherever cable splicing operations are staged within 50 feet of a

residential structure.

NSTAR also is proposing nighttime construction for locations where daytime construction could result in traffic congestion, including much of Route 138 along the primary route and at discrete residential and commercial areas in Boston along all of the routes. Some of the nighttime construction would occur in commercial areas; however, the Company also has proposed evening (until 9:00 p.m.) construction in some areas of mixed or predominantly residential land use, including an approximately 1.5 mile route segment along Route 138 in Canton and an approximately 2.0 mile route segment along Route 138 in Milton. The estimated L_{10} sound levels resulting from construction activities – between 69 to 89 dBA at urban setbacks and 63 to 77 dBA at suburban setbacks – are slightly above evening and above late-night ambient late-night L_{10} levels measured along the primary route. The record also shows that setbacks of less than 100 feet are prevalent in some of the residential area along Route 138, including near the intersection with Randolph Road and the intersection with Washington Street, both in Canton. The record also shows that, while significant numbers of residences are located on both sides of Route 138 overall, residences are limited to the west side of the roadway along some segments of the route. The Company also intends to construct at night along portions of Cummins Highway, American Legion Highway, and Day Boulevard in Boston, and until 9:00 p.m. in a number of other commercial and residential areas within Boston.

NSTAR proposes to mitigate the noise impacts of nighttime construction by using low-noise equipment, by conducting noisier activities at the beginning of the night shift, and quieter activities later at night, and by ending construction by 9:00 p.m. in residential areas. The Company is not proposing to use physical mitigation, such as portable sound barriers, to reduce impacts of nighttime construction in residential areas.

The Siting Board recognizes that options for mitigating construction noise from a linear project such as a transmission line may be limited. However, the record shows that construction noise levels are likely to be significant at both urban and suburban setbacks. The record also shows that the Company may seek to install transmission lines using shifts extending into the evening along 3.5 miles of residential roadways – an effort that would involve approximately 180 standard work crew shifts. Further, the relationship of construction to residential receptors

would vary along the route, in that areas of residential development are located in different directions from the roadway, and at different setbacks. As a result of variation in the relationship of construction to residential development, the applicability of different mitigation approaches also could vary.

In Section III.C.2.b, above, the Siting Board directed NSTAR to develop an outreach program regarding traffic and property access for the entire route. Similarly, to address evening construction noise, the Company should develop noise mitigation plans in consultation with appropriate municipal officials and with the affected neighborhoods. Appropriate mitigation is likely to differ from neighborhood to neighborhood, based on residential density and setbacks and the level of background noise. However, if the Company's plans change, and late-night construction is scheduled in residential areas where other mitigation is infeasible or of limited effectiveness, possible measures could include:

- * Using portable noise barriers along the ROW edge in areas where residences are confined to one side of the roadway and construction is along the same side, or
- * Using portable noise barriers on both sides of the work area in locations where residences are on both sides of the roadway, and where less-than-suburban setbacks are prevalent (i.e., near the intersections of Route 138 with Randolph Road and Washington Street), if possible without undue interference with traffic; in the alternative, daytime construction could be used in these limited areas.
- * Offering temporary accommodations for residents interested in relocation during construction.

Accordingly, the Siting Board directs NSTAR to develop a noise mitigation plan covering each residential area where nighttime construction would take place. In developing the plans, NSTAR should work with appropriate officials to develop an initial noise mitigation plan, conduct public outreach in that area, and then, based on public input, develop a final noise mitigation plan in consultation with appropriate officials. The plan also should include a description of the Company's outreach plan. NSTAR shall provide copies of the final noise mitigation plans to the Siting Board for its information.

The Siting Board notes that the Company's construction noise estimates may be

conservative, as they are based on construction noise estimates for the Big Dig. Further, in assessing existing ambient noise along the route, the Company measured noise only during the evening hours along the southern portion of the route, and only during late-night hours along the northern portion of the route. To develop an accurate basis for determining final evening noise mitigation plans, we recommend that the Company monitor the actual noise impacts of nighttime construction work undertaken early in the construction period in non-residential areas along the route. The Company should evaluate noise impacts for several representative setbacks – perhaps 25, 50, 75, 100, and 150 feet – for construction that involves use of the noisiest equipment and operations as well as construction that involves only quieter equipment and operations. The Company should share this information with the local officials with whom the Company is developing its noise mitigation plans.

The record indicates that, as a threshold matter, the Company plans to minimize the noise impacts of switching station and substation construction work by confining such work to daytime hours. However, the Host Community Agreement appears to allow the Company to schedule daily shifts of up to twelve hours, five days a week, at the Route 138 switching station site, subject only to a requirement that construction-related activities that generate noise cannot be undertaken after 7:00 p.m. Similarly, the most recent information from NSTAR suggests that it intends to undertake construction work from 7:00 a.m. to 7:00 p.m., Monday through Friday, at all substation sites. The Siting Board notes that regular, lengthy construction shifts that extend into the early evening hours may be disruptive to the surrounding neighborhoods, especially in seasons when outdoor activities extend to the evening. The Siting Board therefore directs NSTAR to develop construction outreach plans tailored to the neighborhoods surrounding the Hyde Park, Baker Street and K Street Substations, and the Route 138 switching station site, that provide the neighborhoods with regular updates on the timing and progress of work at these locations, provide advance notice when noisier activities are to be undertaken, and provide the neighborhoods with an opportunity to request changes in the scheduling of evening work activities if certain activities prove unduly burdensome.

The Siting Board finds that with the implementation of the above conditions, the noise impacts associated with construction of the proposed transmission project along the primary

route would be minimized.

The record indicates that the Company would use essentially the same equipment and construction techniques along either the primary or the alternative route, resulting in essentially the same sound levels along either route. The record also indicates that the Company would employ the same mitigation measures (e.g. proper muffling, limited idling, proper sizing and equipment maintenance) for both routes. However, the routes differ in terms of the extent and distribution of residences and other sensitive land uses. In addition, as a result of differences in traffic volumes and congestion along the respective routes, the practicality and ease of construction during the day, the likely need for evening and nighttime construction, also differ.

Along its southern portion, up to the Boston line, the primary route passes fewer residences than either the alternative or the hybrid route - - an advantage for minimum construction noise impact. Over nearly 4 miles of this segment, the primary route passes no residences, compared to approximately 2.5 miles with no residences along the alternative and hybrid routes. However, because high traffic volumes and congestion are prevalent along much of Route 138, evening and possibly late-night construction may be undertaken along 5.7 miles in Canton and Milton and perhaps an additional 1.8 miles in Milton. Of this distance, 1.5 miles in Canton and 2 miles in Milton traverse primarily residential areas.

NSTAR also has proposed evening and nighttime construction in Boston affecting much of the in-common segments of the primary and hybrid routes. However, significant portions of the alternative route in Dorchester also are congested and traverse mixed use areas. Although not as long as the Boston portion of the primary and hybrid routes, the alternative route in Boston is disadvantageous for construction noise based on the prevalence of narrow streets and commercial segments, with the potential for conducting nighttime construction to minimize disruption to congested or commercial areas during the day.

As noted above, construction mitigation measures would be the same for both the SRA and Route 138 switching station sites. Construction at either switching station site is scheduled for approximately 18 months, although certain noisier phases of construction such as grading and foundation work would occur during the first six months. Because the SRA site is substantially smaller than the Route 138 site, construction noise levels at the site boundary would be higher for

the SRA site. However, the alternative switching station site is located in a commercial/industrial area, at a considerable distance from residences and sensitive receptors. Therefore, construction noise at the SRA site would affect fewer residents proximate to the site.

Overall, the primary route passes through fewer residential areas than either the alternative or the hybrid route, thus better minimizing noise impacts in residential areas. However, because of the existing traffic congestion along portions of Route 138, use of the primary route is likely to require evening construction in residential areas. In addition, construction of the new switching station at the Route 138 site is likely to be more disruptive than it would be at the SRA site. On balance, the Siting Board finds that the alternative and hybrid routes would be preferable to the primary route with respect to noise impacts associated with construction.

d. Hazardous Materials

i. Primary Route

(a) Transmission Lines

NSTAR noted that the transmission line would traverse areas in which natural soils are still present, but that much of the route would travel through areas where the soil consists primarily of urban fill and may contain oil or hazardous material (Exh. EFSB-G-1 at 4-3). The Company stated that it expects to remove all soil excavated from the cable trench from the site, most likely for use as landfill cover (Tr. 7, at 1043). The Company noted that a Licensed Site Professional (“LSP”) will oversee construction, including soil handling and disposal (Exh. EFSB-G-1, App. G at 10; Tr. 7, at 1044). The Company indicated that if the construction superintendents notice signs of possible soil or groundwater contamination during construction, the LSP could arrange for additional testing and removal of the material as appropriate (Tr. 7, at 1045-1053). The Company noted that the types of soil contamination it would expect to find along the route would be associated with oil or gasoline spills, and that the soil would be suitable for use as landfill cover after treatment (*id.* at 1061). The Company stated that it would not stockpile any soil along the route, regardless of its characterization (*id.* at 1043).

NSTAR explained that under the Massachusetts Contingency Plan (“MCP”), it is required

to conduct pre-construction soil sampling and submit to MDEP a Utility Related Abatement Measures Plan (“URAM”) for its proposed construction activities (Exh. EFSB-G-1, at 6-5 and App. G page 10). The Company indicated that the plan would include a review of existing conditions along the route, written plans for the handling and disposal of contaminated soil and/or groundwater, measures to limit the migration of any contamination, and provisions for the protection of construction workers and the public (*id.* at 6-5). The Company also noted that it has prepared a Construction Generated Soil Management Plan that details soil management procedures (Exh. EFSB-G-1, App. G, Att. G.3).

The Company stated that it reviewed MDEP records of “Tier Classified” oil or hazardous material sites⁵⁹ along the route and initially found 29 sites, including 3 from Everett Square to the K Street Substation (Exh. BECO-1, at 5-47, E-9). Upon more detailed investigation, however, the Company stated that within 100 feet of the proposed route, it found only 11 active hazardous waste sites north of the Neponset River, and none south of the river (Tr. 7, at 1040).⁶⁰ NSTAR explained that the remaining sites had either been closed or had been reclassified as Response Action Outcome, indicating that the sources of contamination had been abated and that a condition of no significant risk had been achieved (Exh. EFSB-G-1, at 4-7). Between Everett Square and the K Street Substation, the Company found three Tier-Classified sites (Exh. BECO-1, at 5-48).

The Company explained that it was further investigating the presence of contamination by collecting soil samples every 500 feet along the route in the approximate location where the trench will be built (Tr. 7, at 1040). NSTAR stated that the samples are being tested to determine whether the soil will meet standards for use as landfill cover material in Massachusetts (*id.* at 1040-1041).

(b) Route 138 Switching Station

The Company indicated that one Tier Classified site is located on the Route 138

⁵⁹ “Tier Classified” refers to categories of sites contaminated with oil or hazardous materials as defined under the Massachusetts Contingency Plan. 310 CMR § 40.00.

⁶⁰ The Company stated that the American Legion Highway portion of the route contains five known contaminated sites (Exh. EFSB-1-G-S, Bulk Att. at 4-7).

switching station site (Exh. EFSB-HM-5). NSTAR stated that this designation resulted from a diesel fuel spill but that the current MCP status of the spill site indicates that it should not affect construction or the use of the Route 138 site as a switching station (id.; Tr. 7, at 1070). Through an environmental site assessment of the property, the Company's consultant identified a number of potential "environmental conditions" that indicated "an existing release, a past release, or a material threat of release" of hazardous substances or petroleum products; in each case, the consultant designated the impacts of these conditions as either unknown or unlikely to be significant (Exh. ST-29, at 7-1 to 7-2). The Company noted that some of the site preparation work, such as the removal of two underground storage tanks, would be overseen by an LSP (Tr. 7, at 1064, 1067-1068). The Company stated that soils on the site have been sampled, that some additional sampling would occur, and that the Company would accomplish any necessary remediation (id. at 1068).

ii Alternative and Hybrid Routes

(a) Transmission Lines

In its initial review of MDEP records of Tier Classified sites along the alternative route, the Company identified 16 sites, including three identified between Everett Square and K Street (Exh. BECO-1, at 5-47 to 5-48). Based on the information provided for the primary and alternative routes, the hybrid route passes 27-Tier Classified sites, including three between Everett Square and K Street (id. at 5-47, 5-48, E-9). However, NSTAR did not present any information regarding how many sites along the alternative or hybrid routes remained active, as it did for the primary route.

(b) SRA Switching Station

NSTAR stated that approximately 80,000 cubic yards of municipal solid waste would have to be moved from a portion of the SRA's former landfill site to accommodate the proposed switching station (Tr. 5, at 601; Tr. 13, at 1734). The Company indicated that it did not know whether any of the waste included hazardous materials, but expected that it would find some hazardous materials since the landfill had been in operation prior to the mid-1970s (Exh. EFSB-

HM-6 Att. at 4; Tr. 5, at 601). However, the Company noted that Conroy Development Corporation (“Conroy”), which is constructing a new recycling facility on another portion of the SRA property, has not found anything but municipal solid waste while removing landfill material from one portion of the site and repositioning it at the north end of the property (Exh. EFSB-HM-6; Tr. 7, at 997).

According to the Company, NSTAR and Conroy had been negotiating an agreement in which Conroy would bear all the costs of removing the landfill waste from 6.25 acres of the site, preparing a footprint for NSTAR’s proposed switching station, and completing the associated permitting (Exh. ST-13; Tr. 7, at 1002). The Company stated that the permitting necessary to excavate and move additional waste to accommodate the switching station would include the submission of a Notice of Project Change to MEPA and the modification of a permit from MDEP (Tr. 7, at 1005).⁶¹ The Company estimated that these activities, including the removal of the waste, could take about seven or eight months (Tr. 7, at 998).⁶²

iii. Analysis

The record is unclear regarding the precise number of contaminated soil locations the primary, alternative, or hybrid routes would traverse. However, the Company has detailed the

⁶¹ The Company stated that permits required from MDEP to prepare a portion of the site for the recycling facility included approval of a Corrective Action Design, an Authorization to Construct, and an Authorization to Operate (Exh. EFSB-HM-6 Att. at 5). In its comments on the Single Environmental Impact Report for the 345 kV transmission line project, MDEP stated that the landfill site “may not be used for non-landfill purposes (i.e., electrical substation) without the prior written approval of MDEP” (Exh. EFSB-G-1-S Bulk Att. at 9-8).

⁶² The Company indicated that NSTAR and Conroy made little progress on their negotiations between late April and late July, 2004, but that as of August 19, 2004, negotiations were scheduled to resume (Tr. 13, at 1731-1732). The Company expressed concern that if an agreement has not been reached before the Siting Board directs NSTAR to use the SRA site, NSTAR would have to initiate eminent domain proceedings to acquire the portion of the site needed for the switching station (Exh. ST-13). The Company suggested that this could introduce site preparation and permitting difficulties, additional truck traffic for removal of the waste, and schedule delays (Tr. 7, at 1001, 1008, 1013-1014, 1087-1088; Tr. 13, at 1733).

measures it would take to identify contaminated sites before and during construction, and the procedures it would follow in those locations to minimize the migration of any hazardous materials encountered. The Company has indicated that such procedures would be performed under the supervision of an LSP. In addition, the record indicates that the project must be constructed in conformance with a URAM plan submitted to MDEP. These factors provide assurance that contaminated soils or groundwater encountered along the route would be handled appropriately, regardless of the number of instances of contamination. Thus, while there may be a cost differential associated with the number of contaminated sites encountered along each route, there does not appear to be a significant difference from an environmental standpoint.

Both potential switching station sites present possibilities that contamination will be encountered during site preparation. In neither case, however, does it appear that an appropriate level of remediation could not be achieved. As with the transmission lines, any differences in remediation necessary are more likely to translate into a cost differential, rather than environmental impacts associated with residual levels of contamination.

The Siting Board finds that the hazardous materials impacts associated with construction of the proposed transmission project along the primary route would be minimized. In addition, the Siting Board finds that the primary, alternative and hybrid routes are comparable with respect to hazardous materials impacts associated with construction.

e. Conclusions on Construction Impacts

The Siting Board has found that, with the implementation of certain conditions and mitigation, the land use, water resource, traffic, noise, and hazardous materials impacts arising from the construction of the proposed transmission project would be minimized. In comparing construction impacts along the three routes, the Siting Board has found that the primary route is preferable to the hybrid and alternative routes with respect to traffic impacts, that the hybrid and alternative routes are preferable to the primary route with respect to noise impacts, and that the three routes are comparable with respect to impacts to land use, water resources, and hazardous materials.

In comparing the three routes overall, the Siting Board notes that the noise impacts of construction along the primary route are amenable to mitigation, as evidenced by the conditions placed on this project in Section III.C.2.c, above. In contrast, the use of either the hybrid or the alternative route would require reopening significant stretches of Route 28 that have recently been rebuilt, while construction along the primary route could be coordinated with other planned road reconstruction projects along Route 138. The benefits of coordinated construction would be foregone if either the hybrid or the alternative route is chosen. Accordingly, the Siting Board finds that the primary route is preferable to the hybrid and alternative routes with respect to construction impacts.

3. Permanent Environmental Impacts

In this section, the Siting Board reviews the permanent environmental impacts associated with the proposed transmission lines, switching station and substations, including land use and water resource impacts, noise impacts, visual impacts, EMF impacts and impacts associated with hazardous materials.

a. Land Use and Water Resources

In this section, the Siting Board considers the permanent land use and water resource impacts of the proposed transmission project. Because the land use and water resource impacts of the transmission lines are limited to temporary construction impacts (see Section III.C.2.a, above), this analysis addresses only impacts at the proposed switching stations and substation sites associated with the project.

i. Primary Route - Route 138 Switching Station

As part of the proposed transmission project, NSTAR intends to construct a new switching station at a site along Route 138 in Stoughton that currently is occupied by a working sand and gravel operation, a mulching operation, and a retail nursery supply operation (Exh. BECO-1, at 5-18; Tr. 5, at 722). NSTAR stated that the switching station would occupy approximately four acres of the 14-acre parcel (Exh. BECO-1, at 1-12). The Route 138 site is

adjacent to and north of an existing 345 kV overhead line ROW (id.) A Town of Stoughton sewage pump station is located at the northeast portion of the site, at York Street (id. at 5-18).

The Company stated that the Route 138 site is zoned “Industrial”, and that the proposed switching station is an allowed use at this site (Exh. BECO-3, at 9). The Company provided a map showing that the land to the west, northwest and southwest of the site is zoned “General Business”, land to the south of the site is zoned “Residential Urban”, and land to the southeast and northeast is zoned “Residential Suburban” (Exh. EFSB-G-8). A small wooded area to the east of the site (conservation land owned by the Town of Stoughton) is zoned “Industrial”, and the area beyond the conservation land is Residential Suburban zoning (id.; Tr. 13, at 1706-1707).

NSTAR indicated that the nearest residence to the proposed facility, as measured from the southeast voltage compensator, is located 250 feet to the south of the voltage compensator, on Charles Avenue (Exh. EFSB-N-17).⁶³ The Company reported that there are approximately 175 to 180 residences within 1,700 feet of the fence line of the proposed facility, and noted that the majority are located south of the existing 345 kV transmission line ROW (Exh. ST-11). The Company identified as other sensitive receptors the New England Sinai Rehabilitation Hospital, located 790 feet from the closest substation equipment, and the Dawes Elementary School, located 2,230 feet away from the closest substation equipment (Exh. EFSB-L-32).

NSTAR described the Route 138 site as highly disturbed (Exh. BECO-1, at 5-18). The Company noted that the site currently is in industrial use, and that the Company’s use also would qualify as industrial (Tr. 13, at 1745). The Company asserted that the switching station would have fewer impacts than the existing businesses at the site, which generate noise and fugitive dust from industrial and commercial traffic, and provide views of sand, gravel and mulching facilities (Tr. 5, at 713, 722-723).

NSTAR stated that the Route 138 site currently contains five centrally located drainage ponds, which are used as catch basins to wash gravel and move groundwater from the upland slope on the south side of the site to runoff basins on the north side (Exh. G-1, at 4-11). The

⁶³ The southeast voltage compensator is located in the southeast corner of the facility footprint, approximately 50 feet from the southern fence (Exh. EFSB-BECO-1, Fig. 1-10).

Company stated that it will develop and implement a drainage plan to control drainage and sedimentation on the site, and would install erosion controls to improve groundwater and sediment runoff (RR-EFSB-62).⁶⁴ The Company also indicated that it would construct a retaining wall south of the proposed facilities (Exh. EFSB-G-1, at 5-25). The Company noted that in addition to the drainage ponds, a small intermittent stream is located at the east end of the site (id. at 4-11). NSTAR stated that it would construct a new settling pond to slow the rate of flow from the stream and allow silt to settle before the stream exits the site (id. at 5-26).

The Route 138 site is located in the southeast corner of a Massachusetts Natural Heritage Priority Habitat area and Estimated Habitat area (Exh. BECO-1, at 5-34). NSTAR stated that, because the site and surrounding areas already are highly disturbed, the construction and operation of the switchyard would be unlikely to negatively affect the availability of any important species habitat (id.).

NSTAR stated that it will grant to the Town of Stoughton a conservation easement on a 1.9 acre parcel located on the eastern end of the site that would prohibit further development (Exh. RR-EFSB-62). The Company also agreed to convey to the Town of Stoughton a minimum of 10,000 square feet of property adjacent to the pump station (id.). NSTAR has agreed not to develop either an electric generating facility or a distribution substation on the site without prior Town approval (id.). However, NSTAR may expand the switching station facilities if a new transmission line is added to the site (id.).

ii Alternative and Hybrid Routes - SRA Switching Station

If the alternative or hybrid route for the transmission lines were used, NSTAR would construct a new switching station at the SRA site at the end of Technology Drive in Stoughton (Exh. BECO-1, at 5-20). NSTAR stated that the SRA site is adjacent to an existing 345 kV overhead line ROW off Technology Drive and near Route 24 (id. at 1-12). The SRA site was

⁶⁴ The Stormwater Pollution Prevention Plan (“SWPPP”) will govern all work that is undertaken at the site (Exh. EFSB-G-1, at 5-24). The Company indicated that the purpose of a SWPP is to demonstrate compliance with the requirements of the National Pollution Discharge Elimination System in consideration for the issuance of a Storm Water Construction General Permit (id. at App. G, att. G-1).

formerly operated as a municipal landfill and is being developed for other uses (Exhs. EFSB-L-23; BECO-1, at 5-20). The Company stated that the site is under a 99-year lease to Conroy (Exh. BECO-1, at 1-10, 1-12). The Company stated that construction is currently underway for a construction-debris recycling center on the parcel adjacent to the potential switching station site (Tr. 7, at 997)

The Company provided information showing that the SRA site is zoned Highway Business, and that the proposed switching station is an allowed use on the site (Exh. BECO-3, at 14). The area immediately surrounding the site also is zoned Highway Business, and that an extensive area of industrial zoning lies to the north and west (id. at App. A (att.)). NSTAR stated that the SRA site is surrounded by commercial and industrial land uses and that the site is in close proximity to commercial and retail uses, including a BJ's Wholesale Club and a Reebok Outlet (Exhs. BECO-1, at 5-23; EFSB-N-6; Tr. 5, at 616). Route 24, which is a heavily traveled divided highway, is approximately 450 feet west of the site, and the commercial and industrial development continues to the west of Route 24 (Exh. EFSB-N-6). NSTAR stated that the nearest residence is 1,700 feet away, located to the southeast on Paige Street in the Town of Avon (id.).

The Company stated that there are no ACEC's, estimated or priority habitat areas, or surface water bodies in the immediate vicinity of the SRA site (Exh. BECO-1, at 5-37; 5-42).

iii. Substations

(a) Hyde Park Substation

To accommodate the addition of the single-circuit 345 kV transmission line, NSTAR intends to add facilities to its existing Hyde Park Substation, and expand the substation site to the north using land currently owned by the MWRA as part of a pumping-station (Exh. BECO-1, at 1-15). The expansion of the Hyde Park Substation would increase the existing $\frac{2}{3}$ acre substation development to 1 acre; the Company asserted that the new substation facilities would be generally consistent with existing facilities (Exh. EFSB-L-3). The Company indicated that the Hyde Park Substation site is industrially zoned; the surrounding zoning is industrial to the north and south, residential to the east along the opposite side of Hyde Park Avenue, and residential to

the west on the far side of an MBTA ROW (Exh. BECO-3, at 26, Att. C).⁶⁵ Along the southern boundary of the existing substation is a service center dedicated to NSTAR use (“NSTAR Service Center”), which is used for lay-down and storage of materials, but does not consist of any structures (Tr. 8, at 1205). The Service Center is located immediately to the south of the existing substation and is approximately 200 x 50 feet (Exhs. EFSB-G-1, Fig. 5.7-3; EFSB-L-14).

NSTAR stated that land uses around the Hyde Park Substation include the MWRA pump station to the north; transportation (MBTA tracks) along the western edge; residences along Hyde Park Avenue to the south, on the opposite side of Hyde Park Avenue to the east, and beyond the MBTA tracks to the west; and commercial uses to the north (Exh. EFSB-G-1, at 4-61) (see Section III.C.3.c, below for a further discussion of specific surrounding uses). The nearest residences are located directly across Hyde Park Avenue, and approximately 75 feet from the south property line, where there is a row of four triple-decker homes (id. at Fig. 5.7-3).

The Company stated that the Hyde Park Substation and the adjacent MWRA site both are highly disturbed sites surrounded by densely developed residential and commercial properties with essentially no wildlife habitat except for typical urban birds, and no wetlands (Exh. EFSB-G-1, at 4-20).

The Company stated that the MWRA pump station is listed in the Massachusetts Inventory of Historic and Archeological Assets of the Commonwealth, but not the National Register (Exh. EFSB-G-1, at 4-63). However, there is no transmission project-related work proposed for the pump station (id.). NSTAR indicated that construction lay down will be provided either offsite or at the NSTAR Service Center parking area located to the south of the Service Center, behind the triple decker residences (id. at 5-25).

(b) K Street Substation

To accommodate the addition of the two-circuit 345 kV transmission line, NSTAR stated it intends to add new substation facilities on four vacant acres of its existing K Street Substation

⁶⁵ The site is located in an M-1 District, Restricted Manufacturing (Exh. BECO-3, at 26). The zoning district to the east and west is S-5, Single Family Residential (id., App. A (att.)).

site (Exh. BECO-1, at 1-16). NSTAR stated that the K Street Substation is bordered by K Street to the east, East First Street to the south, a Federal Express facility to the northeast, an environmental services facility to the northwest, a truck storage facility to the south, and the Reserved Channel to the west and north (Exh. EFSB-G-1, at 4-56, 4-61). The Company asserted that the proposed expansion would not be inconsistent with the industrial character of the site and the surrounding area (*id.* at 5-43). The site is located in a Waterfront Industrial zoning district, and the surrounding zoning is the same to east and west; to the south is Restricted Manufacturing (Exh. BECO-3, at 29 and App. A(att.)). The Company stated the site also is located within the South Boston Waterfront Interim Planning Overlay District (“IPOD”) (*id.* at 29).

NSTAR described the K Street Substation site as highly disturbed, and surrounded by densely developed residential and commercial properties with essentially no terrestrial wildlife habitat (Exh. EFSB-G-1, at 4-20). A portion of the site is formerly filled tidelands; however, the Company indicated the proposed project would not have an impact on flowed tidelands, and would not change the existing non-water dependent use of the tidelands (*id.* at 4-12). NSTAR indicated that it would be required to obtain a Chapter 91 permit from MDEP for the proposed alterations to filled tidelands on the site (*id.*; Tr. 13, at 1817). Further, the Company indicated that all construction work would be subject to the NSTAR EMCP and to any requirements contained in the Order of Conditions to be issued by the Boston Conservation Commission (Exh. EFSB-G-1, at 5-25).

(c) Baker Street Substation

To increase the capacity of the 115 kV pipe-type cables operating between the Baker Street Substation and the Hyde Park Substation, NSTAR stated that it intends to add a new heat exchanger at its existing Baker Street Substation (Exh. BECO-1, at 1-15). NSTAR stated that the Baker Street Substation is located in an urban area of Boston, across the street from a park and playing fields (Exh. EFSB-G-1, at 4-2). NSTAR stated that the new heat exchanger would be located approximately 275 feet from residences to the northeast (Exh. BECO-1, at Fig. 4-19). NSTAR further indicated that the site is located in a Community Commercial subdistrict, and the surrounding zoning is the same to south of the site, with zoning that is Local Industrial to the

west, Open Space Recreation to the east across Baker Street, and residential to the north and northeast (Exh. BECO-3, at 25, App. C).⁶⁶

NSTAR indicated that the Baker Street Substation is a pre-existing non-conforming use and that the addition of the heat exchanger on this site would be an expansion of the pre-existing use (Tr. 13, at 1804). The Company indicated that, absent a zoning exemption from the Department, it would be required to come before the City of Boston Zoning Board to obtain a conditional use permit to install the new heat exchanger (Exh. BECO-3, at 25).

The Company noted that the Baker Street Substation is a highly disturbed and developed site with essentially no wildlife habitat or wetlands (Exh. EFSB-G-1, at 4-20).

iv. Analysis

As discussed in Section III.C.2.a, above, the land use and water resource impacts associated with the transmission lines are limited to temporary construction impacts. Consequently, the permanent land use and water resource impacts of the proposed project are limited to those resulting from the construction of the switching station or expansion of the station and substations.

The Route 138 site is zoned Industrial and the proposed switching station is an allowed use at that site under the Town of Stoughton Zoning Bylaws. The record indicates that the areas surrounding the Route 138 site are a mix of commercial and residential land uses, with commercial uses to the west, southwest and northwest, and residential uses to the northeast, east, southeast and south. Similarly, the surrounding zoning is a mix of commercial, industrial and residential. The Company has noted that the proposed switching station would have fewer impacts on nearby residences and businesses than the sand and gravel, mulching, and retail nursery supply businesses currently located on the site. However, the proposed switching station, while compatible with the existing transmission towers, would be of a different use and scale

⁶⁶ The site is located in an Community Commercial district (CC) (Exh. BECO-3, at 26). The zoning district to the west is Local Industrial (LI); to the east is Open Space Recreation (OS-RC); and to the northeast is 1F-6000, One Family Residential, 6000 square foot lot minimum (id., App. C).

from the residential and open space uses in the vicinity of the site that would remain when the sand and gravel business closes. With regard to water resources, the record indicates that the five existing drainage ponds, as well as the new settling pond, would be incorporated into a drainage plan that would control drainage and sedimentation on the entire site.

The record indicates that the Hyde Park and K Street Substations are located in industrial zoning districts, while the Baker Street Substation is located in a commercial district. The land uses across from the Hyde Park and Baker Street Substations are residential and recreational, while the K Street Substation is located along an intensively developed waterfront industrial area of Boston with nearby residential uses. The K Street Substation expansion will be subject to review under Chapter 91 because it crosses historically filled tidelands; however, the expansion would have no impact on flowed tidelands and would cause no change to the existing non-water dependent use of the tidelands.

Accordingly, the Siting Board finds that the permanent land use and water resource impacts of the proposed transmission project along the primary route would be minimized.

The SRA switching station site is located in an industrial/commercial area and zoning district; the surrounding land uses are industrial and large scale commercial. The nearest development would be a recycling facility on SRA property that also is being developed by Conroy. There are no residential developments within $\frac{1}{3}$ of a mile of the site. The site is a former landfill that to date has not been found to contain hazardous materials. The site is not located in an ACEC, and there are no Estimated or Priority habitat areas on the site; however, there is a small potential wetland resource on the eastern edge of the site.

In comparing the land use impacts of the two switching station sites, the Siting Board notes that both sites are industrially zoned and are currently used for industrial purposes, and that the proposed switching station would be an allowed use at either site. However, the SRA site is surrounded by other commercial and industrial uses, while there are low density residential areas to the northeast, east, southeast and south of the Route 138 site. In addition, there is an Estimated and Priority habitat area on the Route 138 site, while there is no similar area on the SRA site. In comparing the water resource impacts on the two switching station sites, the Siting Board notes that the Company intends to remediate existing drainage problems at the Route 138

site. There is a small potential wetland on the SRA site, but it likely would be unaffected by construction. Overall, the Siting Board finds that land use and water resource impacts would be slightly greater at the Route 138 site than at the SRA site; consequently, the Siting Board finds that the alternative and hybrid routes would be slightly preferable to the primary route with respect to permanent land use and water resource impacts.

b. Noise

In this section, the Siting Board considers the noise impacts associated with the operation of the proposed transmission project. Because the transmission lines, once in place, do not emit noise, this analysis focuses on the noise impacts at the switching stations and substations associated with the project.

i. Route 138 Switching Station

To estimate the noise impacts of the proposed Route 138 Switching Station, NSTAR analyzed noise levels in the vicinity of the proposed site and the expected changes in noise levels resulting from operation of the switching station equipment (Exhs. EFSB-G-1, at 4-45, 5-17; EFSB-NO-17). The Company stated that the only noise source at the new switching station would be the voltage compensator, which would contribute 66 dBA at 1 meter (Exh. EFSB-NO-17; Tr. 8, at 1118).

The Company measured background noise levels at four noise monitoring locations (“NML”), and calculated the lowest ambient sound levels based on the quietest hour from 96 hours of continuous measurements (Exhs. EFSB-NO-17; EFSB-G-1, at Fig. 4.8-3). The Company determined that existing nighttime L_{90} levels near the Route 138 site range from 33 to 35 dBA (Exh. EFSB-NO-17). At the nearest residence, located on Charles Avenue 250 feet south of the nearest voltage compensator, the quietest nighttime L_{90} level was 33 dBA (*id.*; Exh. EFSB-G-1, at Fig. 4.8-3). The Company also provided day-night sound levels (“ L_{dn} ”)⁶⁷ at four

⁶⁷ The L_{dn} noise is the 24-hour A-weighted equivalent sound level, with a 10 dBA penalty added to measured sound levels during the hours between 10:00 p.m. and 7:00 a.m. (Tr. (continued...))

property line (“PL”) locations: (1) 49.8 dBA at the southeast property line closest to Charles Street; (2) 50.4 dBA at the east property line at the Town of Stoughton-owned land; (3) 53.7 dBA at the northeast property line closest to York Street; and (4) 65.6 dBA at the southwest property line closest to Route 138 (Exhs. RR-EFSB-45; EFSB-G-1, at Fig. 4.8-3).

NSTAR then modeled future noise levels at four residential receptors and four PL receptors (Exh. EFSB-NO-17). The Company estimated that, in the absence of additional mitigation, nighttime L_{90} noise increases at residential receptors would range from 1 to 6 dBA, including: (1) an increase of 6 dBA to a level of 39 dBA to the south at the Charles Avenue residential receptor; (2) an increase of 1 dBA to a level of 36 dBA to the southwest at the Ewing Drive residential receptor; (3) an increase of 5 dBA to a level of 38 dBA to the north at the York Street residential receptor; and (4) an increase of 1 dBA to a level of 36 dBA to the east at the Darling Avenue residential receptor (id.). The Company indicated that nighttime L_{90} noise increases at the PL locations would range from 1 to 8 dBA, including: (1) an increase of 6 dBA to a level of 40 dBA at the southwest site boundary; (2) an increase of 8 dBA to a level of 41 dBA at the southern site boundary; (3) an increase of 1 dBA to a level of 36 dBA at the eastern site boundary; and (4) an increase of 7 dBA to a level of 40 dBA at the northern site boundary (id.).⁶⁸

NSTAR agreed to construct a three-sided sound attenuation wall around the voltage compensator located closest to the residences to the south of the proposed facility (Exhs. RR-

⁶⁷ (...continued)
11, at 1186). The Company stated that the U.S. Environmental Protection Agency (“EPA”) recommends an outdoor L_{dn} level of 55 dBA or less for residential areas (id.).

⁶⁸ NSTAR stated that these estimates are conservative because its modeling assumed the operation of all four voltage compensators at full load, and no terrain shielding (Exh. EFSB-G-1, at 5-17). NSTAR noted that, while the four voltage compensators are likely to operate simultaneously, the amount of noise generated varies with load; thus, the voltage compensators would be quieter than modeled whenever they operate at less than full load (Tr. 11, at 1515). The Company also noted that the York Street residences are at a lower elevation than the switchyard; therefore the noise impacts for that area are likely overstated (id. at 1516).

EFSB-28(S); RR-EFSB-62).⁶⁹ The sound wall would be approximately 20 feet tall and 150 to 175 feet long, and would cost approximately \$100,000 to \$120,000 (Tr. 14, at 1902). The Company asserted that the sound attenuation wall would reduce the modeled noise at the closest residential receptors to 3 dBA or less above ambient noise levels (Exhs. RR-EFSB-28(S); RR-EFSB-62; Tr. 14, at 1901). NSTAR noted that, if after additional modeling, it appears that the Charles Avenue area would not achieve a noise increase of 3 dBA or less, it may be necessary to add a one- or two-sided sound wall to the next nearest voltage compensator to the south (Tr. 14, at 1904).

The Company stated that the estimated increases in L_{90} noise with operation of the switching station would be within the 10 dBA limit allowed by MDEP (Exh. EFSB-G-1, at 5-17).⁷⁰ NSTAR stated that the Town of Stoughton noise ordinance sets forth project noise limits by octave, equivalent to an A-weighted level of 45 dBA, and concluded that the voltage compensators would meet the Town of Stoughton noise requirements both at the nearest property line and at the nearest residence (Tr. 11, at 1521, 1524).

ii. SRA Switching Station

NSTAR stated that the only noise source at the SRA switching station would be the voltage compensators, which contribute 66 dBA at 1 meter (Exh. EFSB-NO-17; Tr. 8, at 1118). NSTAR stated it collected continuous sound level data for two locations near the SRA site: on the northern boundary near BJ's Wholesale Club and the Reebok Outlet, and at the southwestern corner of the site (Exh. RR-EFSB-46). The Company reported that the lowest measured L_{90} levels at these locations ranged from 43 to 45 dBA at night and from the low to mid 50 dBAs

⁶⁹ The easternmost voltage compensator, roughly equidistant between the end of Charles Avenue and the two homes on the south side of York Street, is the compensator closest to these residences (Tr. 14, at 1901).

⁷⁰ MDEP administers 310 CMR § 7.10, to limit the sound impact of certain new stationary sources and to respond to complaints of certain excessive sound. The Company stated that MDEP regulates community noise according to MDEP Policy 90-001, which provides that a noise source should not increase L_{90} noise by more than 10 dBA over ambient levels, either at the source property line or at inhabited residences.

during the day (*id.*). NSTAR asserted that project-only noise levels would be higher at the SRA property lines than at the Route 138 site property lines because the SRA site was smaller (Tr. 11, at 1546).

NSTAR noted that the nearest residence to the SRA switching station site is 1,700 feet from the site (Exhs. EFSB-NO-6; ST-11). The Company therefore concluded that the noise increase from the proposed facility would be very close to zero at the nearest residence (Tr. 11, at 1544).

iii. Substations

(a) Hyde Park Substation

To estimate noise impacts of new equipment at the Hyde Park Substation, NSTAR analyzed existing noise levels in the vicinity of the proposed site and the expected changes in noise levels resulting from operation of the new equipment, including a transformer, which generates noise levels of 68 dBA at 1 meter, and a heat exchanger, which generates noise levels of 51 dBA at 50 feet (Exh. EFSB-NO-18).

The Company stated that it measured background noise levels at four NMLs, and calculated the lowest ambient sound levels based on the quietest hour from 96 hours of continuous measurements (Exh. EFSB-NO-18). The Company reported that existing nighttime L_{90} levels near the Hyde Park Substation ranged from 38 to 50 dBA (*id.*). At the nearest residence, located on Hyde Park Avenue 150 feet east of the new transformer, the quietest nighttime L_{90} level was 40 dBA (Exhs. EFSB-NO-18; EFSB-G-1, at Fig. 4.8-2). The Company also provided L_{dn} levels at four PL locations: (1) 73.5 dBA at the east property line on Hyde Park Avenue; (2) 67.2 dBA at the north property line at the MWRA property; (3) 73.6 dBA at the west property line at the MBTA ROW; and (4) 67.8 dBA at the south property line at the NSTAR Service Center (Exhs. RR-EFSB-43; EFSB-G-1, at Fig. 4.8-4).

NSTAR then modeled future noise levels at three residential receptors and four PL receptors (Exh. EFSB-NO-18). The Company estimated that, in the absence of further mitigation, nighttime L_{90} noise increases at residential receptors would range from 1 to 7 dBA, including: (1) an increase of 2 dBA to a level of 46 dBA to the south, at a residential receptor on

Hyde Park Avenue; (2) an increase of 6 dBA to a level of 46 dBA to the east, at a residential receptor across Hyde Park Avenue; and (3) an increase of 7 dBA to a level of 46 dBA to the west, at a residential receptor beyond the MBTA ROW (Exh. EFSB-NO-18). The Company indicated that nighttime L_{90} noise increases at the PL locations would range from 1 to 23 dBA, including: (1) an increase of 13 dBA to 53 dBA at the eastern site boundary; (2) an increase of 16 dBA to 54 dBA at the northern site boundary; (3) an increase of 23 dBA to 62 dBA at the western site boundary; and (4) an increase of 1 dBA to 51 dBA at the southern site boundary (Exh. EFSB-NO-18; Tr. 11, at 1480).

NSTAR noted that the modeled noise increases are worst-case scenarios that assume maximum noise output from the heat exchanger and transformer (Exh. EFSB-G-1, at 5-18; Tr. 11, 1496; Tr. 14, at 1851). The Company noted that the heat exchanger and transformer likely would be operated at well below their full power rating at night, since demand on the grid is lower at night than during the day (Tr. 11, at 1496-1497). NSTAR also indicated that the maximum noise from the heat exchanger occurs when the two fans included as part of the equipment are both operating (Tr. 14, at 1852). The Company stated that this would occur only during a sustained period of high-load operation, which typically would occur only in a contingency situation (id. at 1859). NSTAR also noted that a second heat exchanger is to be installed at the other end of the connected circuit at the Baker Street Substation, and indicated that it could rely more heavily on that heat exchanger to reduce noise impacts at the Hyde Park Substation (id. at 1851).

The Company asserted that the projected noise levels met MDEP noise guidelines and City of Boston requirements (Exh. EFSB-NO-21(S))⁷¹. However, the Company noted that, for approximately \$80,000, it could install a sound wall on the Hyde Park Avenue side of the

⁷¹ The City of Boston noise regulations set maximum allowable nighttime noise levels of 50 dBA in residential districts and 55 dBA in residential/industrial districts (Exhs. EFSB-NO-27; EFSB-G-1, at 5-18; 5-19). The Company asserted that the 50 dBA limit would apply at the residences on the east side of Hyde Park Avenue, and the 55 dBA limit would apply at the west side of the railroad ROW, and to the residences to the south (Tr. 11, at 1498). NSTAR asserted that since noise from the substation would not exceed 45 dBA at any residence, the substation would be in compliance with the 50 dBA limit (id.; Exh. EFSB-NO-18).

transformer, which could hold noise increases to 3 dBA or less at the closest residence to the east of the site (Exh. EFSB-NO-21(S)). Based on its initial design analysis, the Company expected that the sound wall would be approximately 100 feet long and 20 feet above grade and that to provide adequate clearance it would be placed 30 feet from the transformer building (*id.*; Tr. 14, at 1868-1869). The Company noted that the clearance requirement for the sound wall may leave insufficient space, along its length, for a segment of the landscaping the Company has proposed bordering Hyde Park Avenue (Tr. 14, at 1867-70).⁷² NSTAR stated that there is not enough space to install a sound wall at the western edge of the site because the heat exchanger and other equipment abut the west property line (*id.*; Tr. 11, at 1489-1490).

(b) K Street Substation

NSTAR stated that it proposes to install two voltage compensators and two transformers at the K Street Substation, and that this equipment will be located at least 600 feet from the nearest residences at the intersection of K Street and East First Street (Exh. EFSB-G-1, at 5-20).

To determine the noise impacts of the new equipment at the K Street Substation, NSTAR analyzed noise levels in the vicinity of the substation and the expected changes in noise levels resulting from operation of the new equipment (Exh. EFSB-NO-20). NSTAR explained that it determined the lowest ambient sound level based on the quietest hour from 96 hours of continuous measurements (*id.*). The Company stated that the future noise levels at the substation reflect the use of quiet voltage compensators, which generate noise levels of 66 dBA at 1 meter, and transformers, which generate noise levels of 68 dBA at 1 meter (Tr. 11, at 1504). The Company measured background noise levels at two NMLs, and modeled future noise levels at one residential receptor and one PL receptor (Exh. EFSB-NO-20). The Company indicated that: (1) L_{90} noise levels at the nearest residential receptor, located to the southeast of the substation, would increase by 2 dBA to a level of 46 dBA; and (2) L_{90} noise levels at the nearest property

⁷² The Company cited its proposed layout, which shows that a portion of the transformer building would be set back 30 feet from Hyde Park Avenue, although the building setback varies, increasing by over 5 feet from the nearest corner to the opposite front corner (Exh. EFSB-G-1, at figs. 2.6-2, 4,8-4; Tr. 14, at 1856-1870).

line, located to the west of the substation, would increase by 5 dBA to a level of 54 dBA (id.).

(c) Baker Street Substation

NSTAR stated that it proposes to install a new heat exchanger at the Baker Street Substation, which would generate noise levels of 51 dBA at 50 feet, and that this equipment would be located at least 275 feet from the nearest residences (Exhs. BECO-1, at 1-15, Fig. 4-19; EFSB-NO-19).

To determine the noise impacts of the new heat exchanger at the Baker Street Substation, NSTAR analyzed noise levels in the vicinity of the proposed site and the expected changes in noise levels resulting from operation of the proposed facility (Exh. EFSB-NO-19). NSTAR stated that it determined the lowest ambient sound level based on the quietest hour from 24 hours of continuous measurements (id.). The Company measured background noise levels at one NML, and calculated future noise levels at two residential receptors and one PL receptor (id.). The Company's modeling indicated that L_{90} noise at the two residential receptors would not increase, and that L_{90} noise at the nearest property line would increase by 1 dBA to a level of 52 dBA (id.).

iv. Analysis

As discussed in Section III.C.2.c, above, the operation of the proposed transmission line will not cause noise impacts. Thus, any permanent noise impacts associated with the proposed transmission project would be limited to the associated above-ground facilities, including the Route 138 Switching Station, the Hyde Park Substation, the K Street Substation, and the Baker Street Substation.

In previous cases, the Siting Board has reviewed the noise impacts of proposed facilities for general consistency with various applicable governmental limits or guidelines, including MDEP's noise policy, EPA day-night noise (" L_{dn} ") guideline, and local noise regulations. Nickel Hill Energy, LLC, 11 DOMSB 83, at 180-190 (2000); Mirant Kendall, 11 DOMSB 255, at 337-345 (2000); Sithe West Medway Development, LLC, 10 DOMSB 1, at 322 (2000); Altresco Pittsfield, Inc., 17 DOMSB 351, at 401 (1988). In previous transmission line reviews that

included substations, the Siting Board has reviewed results of noise analyses presented by the applicant to assess whether the proposed substation would produce sound levels audible in surrounding community areas, or noise impacts that are inconsistent with relevant regulatory limits or guidelines for community noise. Boston Edison Company, 6 DOMSB at 297-299, 313-315 (1997) (“1997 BECo Decision”); Norwood Municipal Light Department, 5 DOMSB 109, at 166-167, 181 (1997) (“Norwood Decision”); New England Power Company, 5 DOMSB 1, at 68 (1996) (“1996 NEPCo Decision”). Noise analyses in reviews addressing substation noise have focused on nighttime noise impacts, based in most cases on the L_{90} measure of residual noise used in MDEP’s noise policy. 1997 BECo Decision, 6 DOMSB at 297-299, 313-315; Norwood Decision, 5 DOMSB at 166-167, 181.

The record demonstrates that NSTAR has committed to installing noise mitigation at the Route 138 Switching Station that would limit the maximum increase in L_{90} noise at residential receptors to no more than 3 dBA – a change that would not be perceptible.⁷³ The noise mitigation would consist of a three-sided sound wall surrounding the voltage compensator closest to Charles Street. NSTAR also has stated it would add one or two sound walls to the next closest voltage compensator if necessary to reduce modeled noise impacts to 3 dBA or less. The Siting Board concludes that noise impacts at the Route 138 switching station would be minimized.

With regard to the Hyde Park Substation, the record demonstrates that noise increases at the property line would be 13 dBA to the east, fronting on Hyde Park Avenue, and 23 dBA to the west, bordering the MBTA railroad ROW. The expected property line noise increases, including those along the Hyde Park Avenue frontage, are clearly in excess of 10 dBA. The Siting Board notes, however, that the 23 dBA property line increase to the west would affect a railroad ROW, and not an area of residential use or direct access by the public.

At the nearest residential receptors, located further from facility noise sources, noise increases would be 6 dBA to the east across Hyde Park Avenue, and 7 dBA to the west beyond

⁷³ In prior cases, the Siting Board has reviewed projected ambient increases in the L_{90} sound level; in such cases, witnesses have testified that increases in ambient sound of less than 3 dBA would not be perceptible as an increase in noise. See ANP Blackstone, 8 DOMSB 1, at 159; Nickel Hill Energy LLC, 11 DOMSB 83, at 181 (2000); MMWEC Decision, 11 DOMSB at 181.

the MBTA ROW. The maximum noise increases at residences, although less than MDEP's 10 dBA limit, would exceed the minimum level to be perceptible and would affect an area where ambient noise already is high. The record also demonstrates that existing L_{dn} levels in this area are well above the 55 dBA guideline identified by EPA as the level requisite to protect public health and welfare with an adequate margin of safety. Given that outdoor ambient noise levels already are high, and that a perceptible increase in noise is expected with operation of the new equipment, there is reason for the Company to implement cost-effective measures to limit noise increases at residential receptors closest to the Hyde Park Substation site.

NSTAR has indicated that, at an estimated cost of \$80,000, it could install a 20-foot high, 100-foot long sound wall to the east of the substation, inside the fenceline along Hyde Park Avenue. The sound wall could reduce the noise increase at the nearest residential receptor to the east from 6 dBA to 3 dBA or less – a level at which the increase would not be perceptible. The expected increase of 13 dBA at the property line also would be reduced. Given the existing high noise levels at the Hyde Park Substation, the Siting Board concludes that installation of the sound wall may be warranted to minimize noise impacts consistent with minimizing cost.

However, the record also shows that the sound wall, if installed, would be placed in a limited space in proximity to new landscaping, including decorative fencing and arborvitae plantings, which the Company proposes to install along Hyde Park Avenue (see Section III.C. 3.c, above). Thus, while finding merit in the option of additional noise mitigation in the form of a sound wall, the Siting Board recognizes that the design of any noise mitigation should be coordinated with the design of project landscaping, particularly to the extent that such landscaping is intended as mitigation for the visual impacts associated with the proposed project. Further, given NSTAR's request for exemption from site plan review for the substation expansion, the Siting Board concludes that the City of Boston should be consulted about any plan for physical noise mitigation measures.

Estimated residential noise impacts to the west of the Hyde Park Substation site are similar to those estimated to the east, absent the additional sound wall mitigation discussed above. However, at least two other factors affect the appropriateness of providing additional noise mitigation to the west of the site. First, project noise to the west is dominated by the new