



TIER 1 FINAL ENVIRONMENTAL IMPACT STATEMENT
VOLUME 2

7.16 Section 4(f) and Section 6(f) Resources

7.16 SECTION 4(f) AND SECTION 6(f) RESOURCES

7.16.1 Section 4(f) Resources

7.16.1.1 Introduction

This chapter provides a preliminary assessment of potential resources protected under Section 4(f) of the Department of Transportation Act of 1966 (Section 4(f)) that could be affected by the Tier 1 Draft Environmental Impact Statement (Tier 1 Draft EIS) Action Alternatives. Once the Federal Railroad Administration (FRA) identifies a Preferred Alternative, the Tier 1 Final EIS will address whether additional Section 4(f) evaluation is appropriate at Tier 2. The inclusion of a Section 4(f) resource in this Tier 1 assessment does not necessarily mean that resource will be used.

This Tier 1 Draft EIS identifies the Section 4(f) resources that could be used under Section 4(f) based on an analysis utilizing Representative Routes and representative service information. As described in Section 7.16.1.8, the information contained in this analysis will be used as input during Tier 2 evaluations, including in the evaluation of possible avoidance alternatives. The FRA will not make a Section 4(f) determination as part of this Tier 1 EIS process. Such determinations will be made as part of the Tier 2 environmental compliance process, when more-detailed and specific information is available regarding the project location and design (i.e., location of alignments, duration and extent of construction, specific construction methods, and staging areas) and information regarding the location, boundaries, and significance of Section 4(f) resources are known.

Definition of Resource

Section 4(f) was enacted as a means of protecting the following resources from conversion to transportation uses: publicly owned parks, recreation areas, and wildlife/waterfowl refuges, as well as historic sites of local, state, or national significance (eligible or listed). Historic properties also include artifacts, records, and material remains that are related to and located within such properties, and properties of religious and cultural importance to an Indian Tribe or Native Hawaiian organization, and that meet the National Register criteria. Traditional cultural properties may also be protected under Section 4(f) if they are on or eligible for listing on the National Register of Historic Places. The FRA has included tribal resources identified as part of the National Park Service (NPS) 2010 database, the Housing and Urban Development (HUD) Tribal Directory

Key Resource: Section 4(f) Resources

- Section 4(f) of the U.S. DOT Act protects publicly owned parks, recreation areas, and wildlife/waterfowl refuges, and historic properties. Impacts on these resources are discouraged and require additional analysis to determine the type of impact and whether or not identified impacts can be avoided or minimized.
 - Use of these resources requires the evaluation of avoidance alternatives and a determination that there is no prudent and feasible alternative to avoid or minimize the impact or a finding that the impacts are de minimus.
 - Type of effects can include conversion of parkland resources to non-recreational uses, visual changes, noise and vibration, and access; and loss of or damage to cultural resources and historic properties.
 - Section 4(f) determinations will be made during Tier 2 studies.
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Assessment Tool (TDAT) database, and correspondence with identified tribes (see Chapter 7.9, Cultural Resources and Historic Properties, and Appendix G) in this assessment.

Under Section 4(f), a use occurs under the following conditions:

- ▶ When a U.S. DOT project permanently incorporates land from a Section 4(f) property into transportation use ("permanent use"). Permanent incorporation includes a permanent easement required for the purpose of project construction or that grants a future right-of-access onto a Section 4(f) property, such as for the purpose of routine maintenance by the transportation agency;
- ▶ When a project temporarily occupies land within a Section 4(f) property during construction activities that are adverse in terms of the statute's preservation purpose ("temporary use"). Examples of temporary occupancy of Section 4(f) land include right-of-entry, a temporary easement, or other short-term arrangement involving a Section 4(f) property; or
- ▶ When a project introduces proximity effects, such as noise or visual effects, which substantially impair the protected activities, features, or attributes of the Section 4(f) property that qualify the property for protection under Section 4(f) ("constructive use"). Substantial impairment occurs when the protected activities, features, or attributes of the Section 4(f) property are substantially diminished.

Effects-Assessment Methodology

The issue of compliance with Section 4(f) in a tiered National Environmental Policy Act (NEPA) process is not specifically addressed in the FRA's environmental procedures, but is addressed in the FHWA/FTA Section 4(f) Policy Paper (2012) and Section 4(f) regulations 23 CFR Part 774), where it states, "[w]hen the first-tier, broad-scale EIS is prepared, the detailed information necessary to complete the Section 4(f) approval may not be available at that stage in the development of the action. In such cases, the documentation should address the potential impacts on the Section 4(f) property and whether those impacts could have a bearing on the decision to be made. The Section 4(f) approval will be finalized in the second-tier study."¹

The FRA used the analyses conducted for parklands, recreational areas, and wildlife and waterfowl refuges, and historic resources as the basis for the Section 4(f) evaluation. Table 7.16-1 summarizes key factors associated with the effects-assessment methodologies for each category of Section 4(f) resources evaluated as part of this Tier 1 Draft EIS.

Appendix H, Preliminary Section 4(f) and Section 6(f) Evaluations, provides the methodology for evaluating Section 4(f) resources and includes the supporting data that the FRA used in its analysis. Appendix A, Mapping Atlas, provides the general locations of Section 4(f) Resources in relationship to each of the Action Alternatives.

¹ While the regulations found at 23 CFR Part 774 do not apply to the FRA, the FRA uses the regulations and the FHWA/FTA Policy Paper as guidance when completing its Section 4(f) analysis.

Table 7.16-1: Effects-Assessment Methodology Summary: Section 4(f) Resources

Resource	Affected Environment	Type of Assessment	Outcomes
Section 4(f) – Parklands	2,000-foot-wide swath centered along Representative Route for each Action Alternative	Quantitative: Acres	Identification of potential crossing of a resource that may result in a potential use of parklands by the Action Alternatives; qualitative assessment of constructive use introduced by proximity effects
Section 4(f) – Historic Resources*	1-mile-wide swath centered along Representative Route for each Action Alternative	Quantitative: Number of NRHP and NHL sites identified in NPS 2010 data base Tribal counties of interest identified through coordination with tribes and HUD TDAT data**	Identification of potential effects on historic resources (those listed on the National Register of Historic Places) by the Action Alternatives that may result in a use; qualitative assessment of constructive use introduced by proximity effects

Sources: NEC FUTURE Section 4(f) Effects-Assessment Methodologies, Appendix H, 2014.

* Historic resources eligible for (but not yet included in) National Register of Historic Places listing are not included in the Section 4(f) analysis.

** Tribal coordination and efforts to identify tribal resources are documented in Appendix G, Section 106 Documentation

7.16.1.2 Resource Overview

Implementation of the No Action or Action Alternatives could result in a use of Section 4(f) resources through modifications to existing rail infrastructure or construction of new rail infrastructure through Section 4(f) properties. For purposes of this Tier 1 Draft EIS, a use of a Section 4(f) property could result from a Representative Route crossing² the resource. Implementation of the No Action or Action Alternatives could also result in proximity effects to Section 4(f) properties, such as noise and vibration effects caused by new service on new routes or changes in service on existing routes.

This Section 4(f) analysis focuses on the environmental effects identified in Chapter 7.4, Parklands and Wild and Scenic Rivers, and Chapter 7.9, Cultural Resources and Historic Properties.

Section 4(f) Resources: Parks, Recreational Areas, and Wildlife and Waterfowl Refuges

Parklands, recreational areas, and wildlife and waterfowl refuges are scattered throughout the 2,000-foot-wide Affected Environment. Maryland, New York, Connecticut, Rhode Island, and Massachusetts have the largest parks in the Affected Environment, while higher acreages of parklands are located in areas where the Action Alternatives diverge from the existing NEC and create new segments or extend off-corridor, primarily in New York under Alternative 3, and Connecticut and Rhode Island under all the Action Alternatives. The most individual parks exist in Maryland, Pennsylvania, New York, Connecticut, and Rhode Island.

² A crossing of a parkland resource indicates an area where, if an Action Alternative is implemented, could result in a land conversion from a recreational use to a transportation use.

Key findings for the analysis of the Action Alternatives' effects on parklands that are Section 4(f) properties are listed below:

► **Benefits:**

- Implementation of the Action Alternatives can improve access to existing and future parklands. Examples of parklands near new station locations or areas that would experience increased service include the following:
 - o East Coast Greenway: Pennsylvania segment (all Action Alternatives)
 - o Rhode Island Greenway (Alternatives 2 and 3)
 - o Pelham Bay Park (all Action Alternatives)

► **Impacts:**

- Parkland conversions primarily would occur with new off-corridor segments.
 - o The majority of parkland conversions associated with Alternatives 1 and 2 would occur in Rhode Island.
 - o Under Alternative 3, the majority of parkland conversions would occur in Rhode Island and New York.
- All Action Alternatives cross a wild and scenic river—the White Clay Creek in New Castle, DE. Alternative 3 creates a new crossing south of the existing NEC, whereas Alternatives 1 and 2 expand the existing crossing.
- Alternative 3 would affect the most parks (between 116 and 130 parks).
- Alternative 3 would affect the most park acreages (up to 905 acres).
- The parks that would have the highest acreage potentially affected by the Action Alternatives are listed below. Note that the greatest acreages do not necessarily imply that an Action Alternative would result in the greatest overall impact to the resource. For example, Alternative 1 would affect approximately 180 acres of the Rhode Island Greenway in Washington County, RI, which is less than 1 percent of the total park area. As such, the effects to the park are likely to be minimal.
 - o The Rhode Island Greenway, which crosses Kent, Providence, and Washington Counties, RI, would be crossed by Alternative 1 (affecting approximately 180 acres in Washington County); by Alternative 2 (affecting approximately 95 acres in Providence County); and by Alternative 3 (affecting about 100 acres in Providence County).
 - o Pelham Bay Park in Bronx, NY, would have approximately 70 acres converted to a transportation use under Alternative 3.
 - o Patuxent Research Refuge in Anne Arundel, MD, would have approximately 60 acres converted to a transportation use by Alternative 3.
 - o The Great Swamp Management Area/Great Swamp in Washington, RI, would have approximately 50 acres converted to a transportation use by Alternative 1.

- Eisenhower County Park in Nassau, NY, and Gunpowder Falls State Park in Baltimore County, MD, would have approximately 40 acres converted to a transportation use under Alternative 3.
- Saxon Woods County Park in Westchester, NY, and Norfolk County Canoe River Wilderness in Norfolk, MA, would have approximately 30 acres converted to a transportation use by Alternative 3.
- Natchaug State Forest in Windham, CT, would have 25 acres converted to a transportation use under both Alternatives 2 and 3.

Depending on identification of the Preferred Alternative, subsequent project phases would further examine the relevant parks listed above to avoid or minimize impacts.

Section 4(f) Resources – Historic Resources

Implementation of the No Action and Action Alternatives could affect cultural resources and historic properties through physical disturbance or demolition of the resource, through proximity effects such as noise and vibration, or through proposed changes to the visual character or aesthetic qualities. The FRA identified numerous historic properties listed on the NRHP, some of which are designated as NHLs within the Study Area. NHLs are specifically called out in this analysis because of their national importance and because they require the most stringent consultation under Section 106 of the National Historic Preservation Act (NHPA) to resolve adverse effects. Potential effects on NHLs are an important consideration in identifying a Preferred Alternative.

Cultural resources and historic properties are dispersed throughout the Study Area with higher numbers of NRHP properties and especially NHLs found in urban areas that were heavily populated during the colonial era (i.e., Washington, D.C., Philadelphia, New York City, Providence, and Boston). Typically, greater numbers of historic buildings and districts are associated with areas where the Action Alternatives are close to the existing NEC, or divert into new urban areas.

In addition, the FRA identified federally recognized tribes known to have tribal lands or resources, or that claim ancestral lands or resources, in counties within the Study Area. The FRA further identified those federally recognized tribes that claim ancestral lands or resources in counties traversed by the No Action and Action Alternatives. Tribal and ancestral lands have been identified in Suffolk County, NY; New London County, CT; and Washington County, RI. Additional ancestral lands have been identified in all counties within the Study Area that are located in Pennsylvania, New Jersey, New York, Connecticut, Rhode Island, and Massachusetts.

Key findings of this analysis are:

- ▶ Cultural resources and historic properties have the potential to be affected under all Action Alternatives. Of particular note, elements of the existing NEC, including numerous stations, are considered historic and may be affected by all Action Alternatives.
- ▶ All Action Alternatives cross counties of interest to federally recognized tribes.

- ▶ The states with the greatest numbers of NRHP-listed resources within the Affected Environment are Pennsylvania and Connecticut.
- ▶ The states with the greatest numbers of NHLs within the Affected Environment are Pennsylvania and Connecticut.
- ▶ Alternative 3 has the highest number of NHLs and NRHP-listed resources affected.
- ▶ NHLs identified within the Representative Route for each Action Alternative represent the greatest potential impact; however, specific effects on these NHLs have not been determined. The FRA identified the following NHLs within the Representative Route for the Action Alternatives:
 - Fairmont Waterworks, Philadelphia, PA (Alternatives 1, 2, and 3)
 - John Bartram House, Philadelphia, PA (Alternative 2)
 - Andalusia, Bucks County, PA (Alternatives 1, 2 and 3)
 - The Woodlands (Alternatives 1, 2, and 3)
 - Washington Square West Historic District, Philadelphia, PA (Alternative 3)
 - Reading Terminal, Philadelphia, PA (Alternative 3)
 - College Hill Historic District (Alternatives 1, 2, and 3)
 - John B. Smith Building, Boston, MA (Alternative 3)

7.16.1.3 Affected Environment

Table 7.16-2 presents a summary of the parks, recreational areas, and wildlife and waterfowl refuges in the Affected Environment. For each of the Action Alternatives, Table 7.16-2 identifies the number of federal, state, and/or county parks, total park acreage, and percentage of the total park acreage within the Affected Environment. Table 7.16-3 presents a summary of the historic resources (i.e., both NHLs and NRHP sites) in the Affected Environment. (See Chapter 7.4, Parklands and Wild and Scenic Rivers, for a detailed description of the parks, recreational areas, and wildlife and waterfowl refuges. See Chapter 7.9, Cultural Resources and Historic Properties, for a description of the cultural resources.) Appendix E, Section E.16, provides all data for each state and county. Appendix A, Mapping Atlas, depicts resources by county.

7.16.1.4 Environmental Consequences

This section provides a broad overview of how the Action Alternatives would affect Section 4(f) resources and identifies areas where a potential use would occur.

For purposes of this analysis, an environmental effect was noted for those parks, recreational areas, wildlife and waterfowl refuges, and historic resources that lie within the Representative Route of each Action Alternative. Resources identified within the Representative Route have a higher likelihood of being directly affected by an Action Alternative, resulting in a Section 4(f) use.

See Chapter 7.4, Parklands and Wild and Scenic Rivers, and Chapter 7.8, Cultural Resources and Historic Properties, for more information.

Table 7.16-2: Affected Environment: Section 4(f) Resources – Parks, Recreational Areas, and Wildlife and Waterfowl Refuges

Geography	Total Acres of Resources*	Resources in the Affected Environment											
		Existing NEC			Alternative 1			Alternative 2			Alternative 3		
		# of Parks	Acres	% of Total Park Acres	# of Parks	Acres	% of Total Park Acres	# of Parks	Acres	% of Total Park Acres	# of Parks	Acres	% of Total Park Acres
D.C.	1,162	8	200	17%	8	200	17%	8	200	17%	8	210	18%
MD	108,124	78	1,020	1%	87	1,030	1%	89	1,090	1%	129	1,880	2%
DE	1,115	12	240	22%	12	240	22%	12	240	22%	12	245	22%
PA	10,628	50	560	5%	50	560	5%	47	780	7%	70	750	7%
NJ	4,792	14	210	4%	14	210	4%	14	225	5%	15	230	5%
NY	11,314	49	745	7%	49	750	7%	57	760	7%	66–91	1,265–1,855	11%–16%
CT	63,280	26	825	1%	28	865	1%	36	2,275	4%	7–32	1,470–2,555	1%–4%
RI	321,459	30	4,305	1%	31	4,910	2%	38	5,765	2%	27–38	4,025–5,765	1%–2%
MA	6,227	8	180	3%	8	180	3%	8	180	3%	8–20	180–330	3%–5%
TOTAL	528,101	275	8,285	2%	287	8,945	2%	309	11,515	2%	342–415	10,255–13,820	1%

Source: NEC FUTURE team, 2015

Note: There is one wild and scenic river, White Clay Creek, in the Affected Environment of all of the Action Alternatives. It is located in New Castle, DE. White Clay Creek qualifies for protection under Section 4(f) since the management plan for White Clay Creek addresses recreation and other Section 4(f) uses.

* Most of the resources are only partially located in the Affected Environment. The total number of acres represents the total acreage of the parklands, including acreages outside and inside the Affected Environment of the existing NEC or any alternative.

Table 7.16-3: Affected Environment: Section 4(f) Resources – Cultural Resources and Historic Properties

Geography	Resource Type	Existing NEC (# of sites)	Alternative 1 (# of sites)	Alternative 2 (# of sites)	Alternative 3* (# of sites)
D.C.	NHL	10	10	10	10
	NRHP-Listed	<u>21</u>	30	30	29
MD	NHL	3	3	3	15
	NRHP-Listed	<u>66</u>	96	96	230
DE	NHL	<u>3</u>	<u>3</u>	<u>3</u>	2
	NRHP-Listed	<u>64</u>	83	84	84
PA	NHL	12	10	10	27
	NRHP-Listed	<u>97</u>	138	135	305
NJ	NHL	4	4	4	4
	NRHP-Listed	<u>64</u>	86	86	89
NY	NHL	10	<u>11</u>	<u>11</u>	12–20
	NRHP-Listed	<u>80</u>	102	106	131–200
CT	NHL	<u>12</u>	<u>13</u>	<u>15</u>	<u>14-15</u>
	NRHP-Listed	<u>199</u>	218	312	322–373
RI	NHL	6	6	8	6–8
	NRHP-Listed	<u>135</u>	158	191	156–191
MA	NHL	<u>11</u>	<u>11</u>	<u>11</u>	<u>10-11</u>
	NRHP-Listed	<u>101</u>	125	125	129–405
TOTAL NHL		<u>71</u>	<u>71</u>	<u>75</u>	<u>100-112</u>
TOTAL NRHP-Listed		<u>829</u>	1,036	1,165	1,510–1,870

Source: NEC FUTURE team, 2015

Note: All Action Alternatives assume improvements to the existing NEC; therefore, the number of resources presented is inclusive of the existing NEC as well as any new option or off-corridor route associated with each Action Alternative. Counts of National Register of Historic Places-listed sites and National Historic Landmarks include both individual sites and districts. Only tribal resources identified as part of the National Park Service (NPS) 2010 database have been included in the table. Numbers have not been rounded since they are discrete occurrences identified by the NPS. Historic resources eligible for NRHP listing are not included in the Section 4(f) analysis.

*The ranges represent the different alternative route options considered as part of Alternative 3.

Section 4(f) Resources – Parklands, Recreational Areas, and Wildlife and Waterfowl Refuges

Table 7.16-4 summarizes the number of parks, recreational areas, and wildlife and waterfowl refuges that could potentially be affected under each Action Alternative. Table 7.16-5 provides the number of resources that could potentially be affected for each Alternative 3 route option. (See Chapter 7.4, Parklands and Wild and Scenic Rivers, for a detailed description of the parks, recreational areas, and wildlife and waterfowl refuges. Appendix H provides all data for each state and county. Appendix A, Mapping Atlas, depicts resources by county.)

While many parks within the Affected Environment are adjacent to the existing NEC and experience effects such as visual interference and noise, all or portions of parks that are within the footprint of areas where new infrastructure is proposed could be converted to a non-park use and, therefore, would experience greater effects.

In addition, parks adjacent to new infrastructure may also experience proximity effects, such as new noise and vibration impacts, from an increase in trains passing and visual impacts resulting from new construction and operation of the proposed service. Proximity effects have the potential to prevent a resource from being used in accordance with its intended purpose. For example, a park intended to be used for meditative purposes could no longer be useable if a proposed action introduces a proximity effect, such as new noise.

Proximity effects could also result in a constructive use. Constructive use may include impacts such as noise, access restrictions, vibration, ecological intrusions, and visual impacts. For example, a constructive use would occur if increased noise levels substantially interfere with the use of a noise sensitive feature such as a campground or outdoor amphitheater. It should be noted, though, that the determination of a constructive use of Section 4(f) land is rare.

More specifically, the following general effects on parklands could occur as a result of the various construction types and methods proposed:

- ▶ **At-grade:** Direct physical disturbance to existing parklands through the construction and introduction of new track bed and landscaping, and the installation of utilities and/or catenary poles and potential proximity effects (i.e., visual, noise, vibration) that could result in a constructive use
- ▶ **Trench:** Direct physical disturbance to existing parklands through the construction and introduction of new trenches and landscaping, and the installation of utilities and/or catenary poles and potential proximity effects (i.e., visual, noise, vibration) that could result in a constructive use
- ▶ **Embankment:** Direct physical disturbance to existing parklands through the introduction of new retaining walls and/or earthen berms and potential proximity effects (i.e., visual, noise, vibration) that could result in a constructive use

Table 7.16-4: Environmental Consequences: Parklands, Recreational Areas, and Wildlife and Waterfowl Refuges

Geography	Existing NEC		Alternative 1		Alternative 2		Alternative 3 ¹	
	# of Parks	Acres within the Alignment	# of Parks ²	Acres within the Rep. Rte. ²	# of Parks ²	Acres within the Rep. Rte. ²	# of Parks ²	Acres within the Rep. Rte. ²
D.C.	3	10	3	10	3	10	4	25
MD	15	10	15	10	17	25	24	190
DE	5	5	5	5	5	5	6	15
PA	17	20	17	20	18	45	19	50
NJ	5	2	5	2	6	10	6	15
NY	9	50	9	50	9	50	13–16	115–125
CT	17	50	18	55	23	105	21–23	60–90
RI	19	265	20	350	25	345	18–25	265–350
MA	5	25	5	25	5	25	5–7	25–45
TOTAL	95	435	97	525	111	620	116–130	760–905

Source: NEC FUTURE team, 2015

¹The range represents the Representative Route design options for Alternative 3.

²All Action Alternatives assume improvements to the existing NEC; therefore, the number of resources presented is inclusive of the existing NEC as well as any new option or off-corridor route associated with each Action Alternative.

Note: While the totals for each alternative include parks that are along the existing NEC, some parks would have additional effects under the alternative. For instance, West Park is located along the existing NEC, but it would have additional impacts under Alternative 1 because of the proposed bridge. There is one wild and scenic river—White Clay Creek in New Castle, Delaware—which is crossed by the existing NEC and all Action Alternatives. Alternative 3 creates a new crossing. White Clay Creek qualifies for protection under Section 4(f) since the management plan for White Clay Creek addresses recreation and other Section 4(f) uses.

Table 7.16-5: Environmental Consequences: Representative Route of Alternative 3 Route Options – Parklands, Recreational Areas, and Wildlife and Waterfowl Refuges

Geography	D.C. to NYC		New York City to Hartford				Hartford to Boston			
	# of Parks	Acres	via Central Connecticut		via Long Island		via Providence		via Worcester	
			# of Parks	Acres	# of Parks	Acres	# of Parks	Acres	# of Parks	Acres
D.C.	4	25	—	—	—	—	—	—	—	—
MD	24	190	—	—	—	—	—	—	—	—
DE	6	15	—	—	—	—	—	—	—	—
PA	19	50	—	—	—	—	—	—	—	—
NJ	6	15	—	—	—	—	—	—	—	—
NY	—	—	13	120	16	130	—	—	—	—
CT	—	—	20	55	18	50	3	40	3	15
RI	—	—	—	—	—	—	25	350	18	265
MA	—	—	—	—	—	—	5	40	7	30
TOTAL	59	300	33	175	34	180	33	430	28	310

Source: NEC FUTURE team, 2015

Note: All Action Alternatives assume improvements to the existing NEC; therefore, the number of resources presented is inclusive of the existing NEC as well as any new option or off-corridor route associated with each Action Alternative.

— = Not applicable within that alternative/route option.

- ▶ **Aerial Structure or Major Bridge:** Direct physical disturbance to existing parklands at the site of abutments and/or pilings on land and in waterways and disturbance to existing parklands through the introduction of new aerial structures and potential proximity effects (i.e., visual, noise, vibration) that could result in a constructive use
- ▶ **Tunnel:** Direct physical disturbance to existing parklands at tunnel boring machine (TBM) launch sites, ventilation shafts and egress points, and potential proximity effects through vibrations that could result in a constructive use

Temporary construction effects could occur where access roads are created and at staging and lay-down areas. Impacts could include temporary disturbance to existing parklands. Chapter 8, Construction Effects, presents a qualitative description and examples of potential construction-related effects for parklands.

Stations

Table 7.16-6 summarizes the potential Environmental Consequences of the proposed stations to Section 4(f) parklands, recreational areas, and wildlife and waterfowl refuges. The effects described in Table 7.16-6 would be the same for all alternatives. Permanent infrastructure and/or operations at these stations associated with the Action Alternatives have the potential to result in a permanent use to all resources listed.

Table 7.16-6: Environmental Consequences: Stations – Parklands, Recreational Areas, and Wildlife and Waterfowl Refuges

State	County	Station ID/Type	Station Name	Potential Effects for All Representative Routes
MD	Baltimore City	9/New	Upton	4 parks would be acquired ■ Douglas R. Morrison Park ■ Fitzgerald Park ■ Linden Ave Park ■ Park Avenue Median Park
		12/New	Broadway	2 parks would be acquired ■ Caroline & Hoffman Park ■ Ellsworth St Park
PA	Delaware	34/New	Baldwin	Potential partial acquisition of Bicycle Route/PA; potential noise and visual effects
NY	Bronx	81/New	Co-op City	Potential partial acquisition of Pelham Bay Park; potential noise and visual effects
RI	Providence	129/New	Providence Station H.S.	Potential partial acquisition of and visual and noise effects to: ■ Greenway ■ Roger Williams National Park

Source: NEC FUTURE team, 2015

Note: Quantities of potential impacts associated with stations are not shown. Acreage has been calculated only for new stations and is provided in Appendix E, Section E.16.

H.S. = high speed

Section 4(f) Resource – Historic Properties

Table 7.16-7 presents the historic resources identified within the Representative Route of each Action Alternative, all of which could result in a use. Table 7.16-8 provides the number of resources for each Alternative 3 route option. Appendix E, Section E.09, contains the number of historic resources by county, provides qualitative highlights of the historic resources by county, and qualitative highlights of the potential Environmental Consequences for each county. (See Chapter 7.9, Cultural Resources and Historic Properties, for a detailed discussion of the potential effects to historic resources.)

Table 7.16-7: Environmental Consequences: Representative Route – Cultural and Historic Properties

Geography	Resource Type	Existing NEC (# of sites)	Alternative 1 (# of sites)	Alternative 2 (# of sites)	Alternative 3* (# of sites)
D.C.	NHL	0	0	0	0
	NRHP-Listed	3	7	7	7
MD	NHL	0	0	0	0
	NRHP-Listed	<u>1</u>	13	13	15-17
DE	NHL	0	0	0	0
	NRHP-Listed	<u>2</u>	9	9	4-7
PA	NHL	<u>0</u>	<u>3</u>	<u>4</u>	<u>5</u>
	NRHP-Listed	2	5	5	8
NJ	NHL	0	0	0	0
	NRHP-Listed	<u>3</u>	12	13	12
NY	NHL	0	0	0	0
	NRHP-Listed	<u>1</u>	12	12	13-19
CT	NHL	0	0	0	0
	NRHP-Listed	<u>16</u>	47	65	45-51
RI	NHL	0	<u>1</u>	<u>1</u>	<u>1</u>
	NRHP-Listed	<u>1</u>	24	33	3-21
MA	NHL	0	0	0	0-1
	NRHP-Listed	3	13	14	16-17
TOTAL NHL		<u>0</u>	<u>4</u>	<u>5</u>	<u>5-7</u>
TOTAL NRHP-Listed		<u>32</u>	142	171	132-150

Source: NEC FUTURE team, 2014

Note: All Action Alternatives assume improvements to the existing NEC; therefore, the number of resources presented includes the Environmental Consequences inclusive of improvements to existing NEC and any new segment or off-corridor route associated with each Alternative. Counts of NRHP-listed sites and NHLs include both individual sites and districts with multiple structures that are counted as one individual site.

NHL: National Historic Landmark; NRHP: National Register of Historic Places

* The range represents the Representative Route design options for Alternative 3. See the Alternative 3 discussion below.

Table 7.16-8: Environmental Consequences: Representative Route of Alternative 3 Route Options – National Register of Historic Places-Listed Resources

Geography	Resource Type	Existing NEC	Alternative 3				
			D.C. to NYC (# of sites)	New York City to Hartford		Hartford to Boston	
				via Central Connecticut (# of sites)	via Long Island (# of sites)	via Providence (# of sites)	via Worcester (# of sites)
D.C.	NHL	0	0	—	—	—	—
	NRHP-Listed	3	7	—	—	—	—
MD	NHL	0	0	—	—	—	—
	NRHP-Listed	<u>1</u>	15–17	—	—	—	—
DE	NHL	0	0	—	—	—	—
	NRHP-Listed	<u>2</u>	4–7	—	—	—	—
PA	NHL	<u>0</u>	<u>5</u>	—	—	—	—
	NRHP-Listed	2	8	—	—	—	—
NJ	NHL	0	0	—	—	—	—
	NRHP-Listed	<u>3</u>	12	—	—	—	—
NY	NHL	0	—	0	0	—	—
	NRHP-Listed	<u>1</u>	—	13	19	—	—
CT	NHL	0	—	0	0	0	0
	NRHP-Listed	<u>16</u>	—	25	21	6	3
RI	NHL	0	—	—	—	<u>1</u>	<u>1</u>
	NRHP-Listed	<u>1</u>	—	—	—	21	30
MA	NHL	0	—	—	—	0	1
	NRHP-Listed	3	—	—	—	16	17
TOTAL NHL		<u>0</u>	<u>5</u>	0	0	<u>1</u>	<u>2</u>
TOTAL NRHP-Listed		<u>32</u>	46–51	36	40	43	50

Source: NEC FUTURE team, 2015

Note: All Action Alternatives assume improvements to the existing NEC; therefore, the number of resources presented includes the Environmental Consequences inclusive of improvements to the existing NEC and any new segment or off-corridor route associated with each Action Alternative. Totals for Alternative 3 do not equal the totals presented in Table 7.16-7. This is a result of the way Alternative 3 diverges in Hartford, CT, and data were assigned to a specific route option in a conservative manner (i.e., if a resource fell within the Representative Route of multiple Alternative 3 route options, it was counted as an effect under each Alternative 3 route option).

— = Not applicable within that alternative/route option.

A summary of the potential effects to Section 4(f) resources by construction type is provided below:

► **At-grade:**

- Direct physical and/or contextual disturbance to existing NHLs and NRHP-listed resources through the construction and introduction of new track bed and landscaping, and the installation of utilities and/or catenary poles and potential proximity effects (i.e., visual, noise, vibration) that could result in a constructive use
- Direct physical disturbance to below-grade NHLs and NRHP-listed resources through excavation and/or compaction for track bed, utilities, landscaping, and/or catenary poles

► **Trench**

- Direct physical and/or contextual disturbance to existing NHLs and NRHP-listed resources through the construction and introduction of new trenches and landscaping, and the installation of utilities and/or catenary poles and potential proximity effects (i.e., visual, noise, vibration) that could result in a constructive use
- Direct physical disturbance to below-grade NHLs and NRHP-listed resources through open pit excavation, earth moving, utility installation, landscaping, and/or compaction

► **Embankment**

- Direct physical and/or contextual disturbance to existing NHLs and NRHP-listed resources through the introduction of new retaining walls and/or earthen berms and potential proximity effects (i.e., visual, noise, vibration) that could result in a constructive use
- Direct physical disturbance to below-grade NHLs and NRHP-listed resources through excavation, earth moving, landscaping, and/or compaction

► **Aerial Structures or Major Bridges**

- Direct physical disturbance to existing NHLs and NRHP-listed resources at the site of abutments and/or pilings on land and in waterways and/or contextual disturbance to existing historic structures and/or districts through the introduction of new aerial structures and potential proximity effects (i.e., visual, noise, vibration) that could result in a constructive use
- Direct physical disturbance to below-grade NHLs and NRHP-listed resources through excavations for abutments and/or pilings on land and in waterways, and/or landscaping

► **Tunnel**

- Direct physical and/or contextual disturbance to existing NHLs and NRHP-listed resources at TBM launch sites, ventilation shafts and egress points, and potential proximity effects through vibrations that could result in a constructive use
- Direct physical disturbance to below-grade NHLs and NRHP-listed resources at TBM launch sites, ventilation shafts and egress points, and potential proximity effects through vibrations

Temporary construction effects could occur where temporary access roads are built, and at staging and lay-down areas. Impacts could include temporary contextual disturbance to existing NHLs and

NRHP-listed resources, and direct physical disturbance to below-grade NHLs and NRHP-listed resources through grading, earth moving, compaction, and/or landscaping.

Stations

The Action Alternatives include continued service to existing stations along the NEC, modifications to existing stations, which may require an increase in the station footprint, and new stations. Based on a review of resources included on the NRHP, many of the existing stations along the NEC are NRHP-listed; however, the eligibility of the existing stations was not considered in this analysis.

Adverse effects may occur at existing NRHP-listed or NHL stations where modifications are proposed, or to adjacent NRHP-listed or NHL sites, for example, if an increase in station footprint is proposed. Major effects may also occur at new stations that affect NRHP-listed or NHL sites. Table 7.16-9 identifies effects by alternative that could be caused by modified or new stations (each identified by station ID). (Appendix E, Section E.9, provides detailed support data for Table 7.16-9. Those resources that may be eligible for listing on the NRHP were not included in this assessment.)

Table 7.16-9: Environmental Consequences: Cultural Resources and Historic Properties Present in Station Locations

Geography	County	Station ID	Station Type	Station Name	Alt. 1	Alt. 2	Alt. 3
D.C.		1	Existing	Washington Union	X	X	X
MD	Prince George's	4	Existing	Bowie State	X	X	X
	Baltimore City	9	New	Upton	X	X	X
		10	Existing	Baltimore Penn Station	X	X	X
		11	New	Baltimore Downtown			X
		12		Broadway	X	X	X
	Cecil	23		Elkton	X	X	X
DE	New Castle	25	Existing	Churchman's Crossing	X	X	X
		26	New	Newport	X	X	X
		27	Existing	Wilmington Station	X	X	X
		28	New	Edgemoor	X	X	X
		29	Existing	Claymont	X	X	X
PA	Delaware	32	Existing	Chester	X	X	X
	Philadelphia	45		Philadelphia 30 th Street	X	X	X
		46		Philadelphia Market East			X
		47		North Philadelphia	X	X	X
	Bucks	53		Cornwells Heights	X	X	X
		57		Levittown	X	X	X
NJ	Middlesex	64	Existing	New Brunswick	X	X	X
	Union	71		Elizabeth	X	X	X
	Essex	74		Newark Penn Station	X	X	X
		75		Newark Penn Station H.S.			X
NY	New York	77	Existing	Penn Station New York	X	X	X
	New York	9993		Grand Central Terminal			X
	Westchester	82	Existing	New Rochelle	X	X	X
		88		Port Chester	X	X	X

Table 7.16-9: Environmental Consequences: Cultural Resources and Historic Properties Present in Station Locations (continued)

Geography	County	Station ID	Station Type	Station Name	Alt. 1	Alt. 2	Alt. 3
CT	Fairfield	89	Existing	Greenwich	X	X	X
		90		Cos Cob	X	X	X
		91		Riverside	X	X	X
		92		Old Greenwich	X	X	X
		93		Stamford	X	X	X
		94	New	Stamford H.S.	X		
		95	Existing	Noroton Heights	X	X	X
		96		Darien	X	X	X
		98		South Norwalk	X	X	X
		100		Westport	X	X	X
		102		Greens Farms	X	X	X
		103		Fairfield	X	X	X
		104		Fairfield Metro	X	X	X
		105		Bridgeport	X	X	X
		108		Stratford	X	X	X
	New Haven	109	Existing	Milford	X	X	X
		111		New Haven Station	X	X	X
		112	New	New Haven Station H.S.		X	X
		113	Existing	New Haven State Street	X	X	X
		114		Branford	X	X	X
RI	Washington	115	Existing	Guilford	X	X	X
		121		New London	X	X	X
		122	Existing	Mystic	X	X	X
		124		Mystic/New London H.S.	X		
	Hartford	161	New	Newington		X	
		164		Hartford (New)		X	X
		166		Tolland/Storrs			X
	Providence	123	Existing	Westerly	X	X	X
		125		Kingston	X	X	X
		126		Wickford Junction	X	X	X
MA	Bristol	128	Existing	Providence Station	X	X	X
		129	New	Providence Station H.S.		X	X
	Worcester	132	Existing	Attleboro	X	X	X
	Suffolk	172	Existing	Worcester			X
		139	Existing	Forest Hills	X	X	X
		140		Ruggles Street	X	X	X
		141		Back Bay	X	X	X
		142	New	Back Bay H.S.			X
		143	Existing	Boston South Station	X	X	X

Source: NEC FUTURE team, 2015

X = Presence of NRHP-listed sites and/or NHLs within station footprints. Effects and more-detailed identification of NHLs within station footprints subject to Tier 2 analysis.

Blank cell = No effects identified for subject resource for listed station for specified alternative.

H.S. = high speed

Environmental Consequences associated with stations in each of the Action Alternatives would occur primarily from modifications to existing stations. Many existing stations along the existing NEC are NRHP-listed or NRHP-eligible sites, meaning that changes to these structures in any of the Action Alternatives could result in an adverse effect. However, further design and consultation with

the applicable State Historic Preservation Office (SHPO) is necessary before finalizing an effects determination. That will occur at Tier 2 consistent with the Programmatic Agreement. Alternative 3 could have more impacts associated with stations than either Alternative 1 or 2, primarily in Baltimore City, MD; Philadelphia County, PA; Hartford County, CT; Worcester County, MA; and Suffolk County, MA, caused by the modification of existing stations and the potential construction of new stations near cultural resources and historic properties.

7.16.1.5 Context Area

Section 4(f) Resources – Parks, Recreational Areas, and Wildlife and Waterfowl Refuges

Alternative 1 contains over 1,900 parks in the Context Area, and Alternatives 2 and 3 contain over 2,000 parks in the Context Area. If the Representative Routes were to shift, it is likely that different parks in the Context Area would be encountered, especially the larger parks (those over 100 acres). A summary of the parks with large areas in the Context Area is provided below.

- ▶ Washington, D.C., parks with 100 or more acres include Anacostia Park, National Arboretum, National Mall, and East and West Potomac Park.
- ▶ Maryland parks that cross more than one county include: Patuxent River Park, Patuxent Research Refuge, Patapsco Valley State Park, and Gunpowder Falls State Park.
- ▶ Delaware parks with over 100 acres include White Clay Creek State Park, Middle Run Valley Natural Area, Iron Hill Park, Bellevue State Park, Alapocas Run State Park, White Clay Creek Wild and Scenic River, Banning Park, Brandywine Park, and Carousel Park.
- ▶ Pennsylvania parks located across more than one county include Bicycle PA Route E, Cobbs Creek Park, East Coast Greenway, Eastwick Regional Park, John Heinz National Wildlife Refuge at Tinicum, Schuylkill River Water Trail, and Tidal Delaware Water Trail.
- ▶ New York parks located in more than one county include Astoria Athletic Field, Bethpage State Park, Bridge Park (George Washington), Cross Island Parkway, East River State Park, Field of Dreams Park, Hempstead Playground, Highland Park, Jackie Robinson Park, Laurelton Parkway, Pelham Bay Park, and Roberto Clemente State Park.
- ▶ Connecticut parks located across more than one county: Cockaponset State Forest, Farmington Canal Line State Park Trail, Hammonasset Beach State Park, Hop River State Park Trail, and Hammonasset Natural Area Preserve, Lake Lillinonah Water Access, Mansfield Hollow Wildlife Area, Quinnipiac River Water Access, and Trimountain State Park Scenic Reserve.
- ▶ Rhode Island parks located across more than one county include Cranston Washington Secondary Bike Path, Greenway Trail, and Washington Secondary Bike Path.
- ▶ Massachusetts contains 28 parks with over 100 acres. Borderland State Park is located in two counties—Bristol and Norfolk Counties.

See Chapter 7.4, Parklands and Wild and Scenic Rivers, for a larger discussion of the parks, recreational areas, and wildlife and waterfowl refuges in the Context Area.

Section 4(f) – Historic Resources

There are numerous geographic areas in the Context Area where there are high densities of NRHP-listed properties and NHLs; these areas are mainly in urban locations. The number of resources in the 5-mile-wide Context Area outside of the Affected Environment is greater than the number of resources identified in the narrower Affected Environment because of the drastically larger size of the Context Area. Table 7.16-10 identifies the total number of resources within the Context Area, with support data presented in Appendix E, Section E.9.

Table 7.16-10: Context Area: National Register of Historic Places and National Historic Landmarks Identified

Study Area	Alternative 1 (# sites)	Alternative 2 (# sites)	Alternative 3 (# sites, range)
Context Area (excluding Affected Environment)	3,576	3,839	4,052–4,936

Source: NEC FUTURE team, 2015

Note: All Action Alternatives assume improvements to the existing NEC; therefore, the number of resources includes the Environmental Consequences inclusive of improvements to existing NEC and any new option associated with each alternative. Counts are National Register of Historic Places-listed and National Historic Landmarks combined. Only tribal resources identified as part of the National Park Service (NPS) 2010 database are included in the table. Numbers were not rounded since they are discrete occurrences identified by the NPS.

NHLs within the Context Area are of particular concern because they are designated by the NPS as nationally significant properties. As a result, they require the additional consultation under Section 106 of the NHPA to resolve adverse effects. Prominent NHLs in the Context Area for the various Action Alternatives include the following:

- ▶ Washington, D.C.
 - Corcoran Gallery of Art and the Smithsonian Institution Building
- ▶ Philadelphia, PA
 - Independence National Historical Park
- ▶ New York City, NY
 - African Burial Ground
- ▶ Hartford, CT
 - Connecticut Statehouse
- ▶ Providence, RI
 - John Brown House
- ▶ Worcester, MA
 - American Antiquarian Society
- ▶ Cambridge, MA
 - Old Harvard Yard
 - Longfellow National Historic Site
 - Several prominent buildings at Harvard University
- ▶ Brookline (Norfolk County), MA
 - Frederick Law Olmsted House
 - John Fitzgerald Kennedy National Historic Site
- ▶ Boston (Suffolk County), MA
 - Boston Public Library
 - Trinity Church
- ▶ Boston, MA
 - African Meetinghouse
 - Massachusetts Statehouse
 - Paul Revere House

7.16.1.6 Preliminary Avoidance Alternatives Review

As described above, there are a number of Section 4(f) resources within the Representative Route of the Action Alternatives. The FRA will use the findings from this analysis to inform the identification of a Preferred Alternative during the Tier 1 EIS process. Avoidance of use of these resources is possible in many cases through minor redesign or narrowing of the disturbance limits, noise walls, or visual screening. Resources may also be avoided or impacts minimized by tunneling, cut-and-cover, or other construction techniques to reduce surface disruption, and/or land acquisition needs at and near Sections 4(f) resources. In addition, a use of a resource could be avoided if one Action Alternative is chosen over another. For instance, Alternative 1 would result in the fewest impacts, or uses, to Section 4(f) resources than Alternative 3. The Section 4(f) resources most at risk for use that could not be avoided are those resources within the footprint of, or closest to the proposed improvements. In addition, there may be places where avoidance of use cannot be achieved because of the following:

- ▶ Shifting the centerline (and the whole facility) to avoid one or more resources could result in greater impacts on other resources. For example, the areas in Connecticut and Rhode Island include a number of very large Sections 4(f) resources. It may not be possible to fully avoid use of all of these resources because by shifting the alignment to avoid one, might result in the use of another.
- ▶ The Representative Route could not be shifted easily because of the large turning radii and other design considerations. A “minor” shift in one location along the Representative Route could result in a substantial shift further up or down the route, potentially resulting in use impacts on other Section 4(f) resources.
- ▶ Alternative construction methodologies (tunneling, cut-and-cover) may not always be possible due to other constraints such as topography, geology, utilities, and drainage.

In future project-level analyses, the prudence and feasibility of avoidance alternatives would be evaluated. A potential avoidance alternative may not be prudent if, for example, it does not meet the Purpose and Need, or results in severe social, economic, or environmental impacts.

7.16.1.7 Measures to Minimize Harm

This section describes the measures to minimize harm on Section 4(f) resources.

Section 4(f) Resources – Parks, Recreational Areas, and Wildlife and Waterfowl Refuges

Parkland, recreational areas, and wildlife and waterfowl refuges are unique in that they each provide different recreational opportunities and activities. Potential mitigation should be based on the specific resource affected and how the resource is affected. However, examples of potential mitigation strategies could include the following:

- ▶ Design or construction modifications to avoid encroaching on or bisecting a parkland resource.
- ▶ The use of context-sensitive design in future stages of project development.
- ▶ The incorporation of natural design features such as earthen berms and tree plantings.

- ▶ Allocation of replacement parkland or open space.

Measures to reduce harm for use impacts, such as noise walls, could result in adverse visual impacts on Sections 4(f) resources. The identification and implementation of measures to minimize harm at each resource need to be conducted in consultation with the owners of the resources to ensure that measures to minimize harm do not adversely affect the values of the resources.

Section 4(f) Resources – Cultural Resources and Historic Properties

Measures to minimize harm to cultural resources and historic properties will be developed during the Section 106 consultation process. Some examples of potential measures include the following:

- ▶ Modify construction methods to minimize impacts.
- ▶ Incorporate the use of context-sensitive design.
- ▶ Undertake other design modifications in order to blend proposed infrastructure into the existing setting.
- ▶ Shift the location of the Representative Route during the Tier 2 process where there are densities of resources that may be affected.
- ▶ Complete archaeological data recovery for sites that cannot be preserved in place.
- ▶ Develop Other measures in consultation with SHPOs, tribes, other consulting parties, and the public.

7.16.1.8 Subsequent Tier 2 Analysis

Section 4(f) applies to projects that receive funding from or require approval by the U.S. DOT. During environmental compliance efforts associated with Tier 2 projects, project-level Section 4(f) evaluations will be completed and permanent and temporary uses, as well as *de minimis* impacts, will be fully evaluated. A Section 4(f) evaluation will include the evaluation of possible avoidance alternatives and identification of measures to minimize harm. Continued consultation with the officials with jurisdiction for Section 4(f) properties (including tribes for tribal resources) will be undertaken as part of Tier 2 activities.

Section 4(f) evaluation and determinations would be completed during future Tier 2 NEPA analyses through the following process. The Tier 2 project proponent(s) would:

- ▶ Prepare detailed plans and profiles of the alternatives under review at Tier 2.
- ▶ Prepare cultural resource surveys and coordinate with State Historic Preservation Offices (SHPO), Tribal Historic Preservation Officers (THPO) or tribal representatives, and other consulting parties to determine resource eligibility for listing in the NRHP. These efforts would be used to determine whether and where a use of protected Section 4(f) property(s) would occur.
- ▶ Coordinate with officials with jurisdiction over other potentially affected Section 4(f) properties, such as parklands and recreation areas, to confirm property boundaries and to identify planned facilities.

- ▶ Complete an analysis to identify the type of potential use of each protected property (temporary, permanent, or constructive), if any, that would occur, as well as determine whether a permanent use can meet the criteria for a *de minimis* impact.
- ▶ Where there is a potential use of a 4(f) property, determine, through more-detailed design and coordination with officials with jurisdiction, if a Section 4(f) property can be avoided or the use minimized, including analysis of alignment refinements, or design techniques.
- ▶ Coordinate with the public to obtain their input on the potential uses.
- ▶ Conduct a least overall harm analysis if more than one alternative is developed as part of the Tier 2 NEPA document and no feasible and prudent alternative to using a Section 4(f) property exists. The least harm analysis would determine which alternative would cause the least overall harm in light of the Section 4(f) statute's preservation purposes and the alternative with the least harm to Section 4(f) resources would be selected in that case.
- ▶ Develop appropriate mitigation measures for any unavoidable potential uses of Section 4(f) properties, undertake and document all possible planning to minimize harm to each property where a Section 4(f) property cannot be avoided.

7.16.1.9 Coordination with Officials with Jurisdiction and Tier 2 Consultation

The Tier 2 project proponents would identify and consult with the officials with jurisdiction for potential Section 4(f) resources to determine the potential applicability of Section 4(f). Consultation would be performed with public officials, property owners/officials with jurisdiction, SHPOs, THPOs and tribal representatives, and other consulting parties regarding the use of Section 4(f) resources and potential impacts and measures to minimize harm. In addition, Section 4(f) requires the U.S. DOT to seek comments from the U.S. Department of the Interior (and in some cases, other agencies) before making any findings.

7.16.2 Section 6(f) Resources

7.16.2.1 Introduction

This section provides a preliminary assessment of Section 6(f) resources evaluated as part of this Tier 1 Draft EIS. Once an alternative is selected, the FRA will determine the need for additional Section 6(f) evaluation, as appropriate, as part of Tier 2 NEPA evaluations.

Definition of Resource

Section 6(f) is included in the Land and Water Conservation Fund Act (LWCF) of 1965, which provides funds and matching grants to federal, state, and local governments to acquire land and water for recreational purposes. Section 6(f) states that those properties acquired or developed with LWCF funds will not be converted to a use other than public outdoor recreation without the approval of the U.S. Secretary of the Department of the Interior, acting through the NPS and at the request of the state delegate/state liaison officer. Under the LWCF Act, if there is a conversion of a Section 6(f) resource (in whole, or in part), to a non-recreational use, replacement of the property is required.

Effects-Assessment Methodology

Table 7.16-11 summarizes key factors associated with the methodologies for each Section 6(f) resource evaluated.

Table 7.16-11: Effects-Assessment Methodology Summary: Section 6(f) Resources

Resource	Affected Environment	Type of Assessment	Outcome
Section 6(f) – Parklands	2,000-foot-wide swath centered along Representative Route for each Action Alternative	Quantitative: Acres	Identification of Section 6(f) resources by the Action Alternatives and where potential land conversion and potential conversion to a non-recreation use of a Section 6(f) resource may occur

Source: NEC FUTURE Section 6(f) Methodology, Appendix H, Section E. 16, 2014.

Appendix H provides the methodology for evaluating Section 6(f) resources and includes the supporting data that was used in the analyses. Appendix A, Mapping Atlas, provides the general locations of Section 6(f) Resources in relationship to each of the Action Alternatives.

7.16.2.2 Resource Overview

Implementation of the No Action or Action Alternatives could result in a conversion of Section 6(f) resources due to modification of existing rail infrastructure, such as expansion of rail rights-of-way, and/or construction of new rail infrastructure, such as railroad tracks or stations. Federal agencies are required to assess the effects of their actions on these resources.

Section 6(f) resources are scattered throughout the Affected Environment. The highest number of Section 6(f) resources is found in Maryland, Pennsylvania, Connecticut, and Rhode Island. Higher acreages of Section 6(f) parklands are located in areas where the Action Alternatives diverge from the existing NEC and create new segments or extend off-corridor, primarily in Connecticut and Rhode Island.

The following are the key findings of this analysis:

- ▶ Alternative 3 would convert the most Section 6(f) resources (up to 27), as well as the most acreage of Section 6(f) resources (up to 245 acres).
- ▶ Alternative 1 would affect one Section 6(f) resource and Alternative 2 would convert four Section 6(f) resources.

7.16.2.3 Affected Environment

For each of the Action Alternatives, Table 7.16-12 identifies the number of Section 6(f) resources, total Section 6(f) resource acres, and percentage of the total Section 6(f) resources acres within the Affected Environment. Table 7.16-13 identifies the number of Section 6(f) resources, total Section 6(f) resource acres, and percentage of the total Section 6(f) resources acres within the Affected Environment for Alternative 3. (See Appendix H for a complete list of all Section 6(f) resources identified.)

Table 7.16-12: Affected Environment: Section 6(f) Resources

Geography	Total Acres Resources*	Existing NEC			Alternative 1			Alternative 2			Alternative 3**		
		# of 6(f) Resources	Acres	% of Total Park Acres	# of 6(f) Resources	Acres	% of Total Park Acres	# of 6(f) Resources	Acres	% of Total Park Acres	# of 6(f) Resources	Acres	% of Total Park Acres
D.C.	1,040	4	165	16%	4	165	16%	4	165	16%	4	170	17%
MD	99,940	8	490	0%	10	500	1%	10	500	1%	14	990	1%
DE	90	1	90	100%	1	90	100%	1	90	100%	1	90	100%
PA	4,440	8	165	4%	8	165	4%	8	210	5%	9	280	6%
NJ	410	2	40	10%	2	40	10%	2	40	10%	2	40	10%
NY	4,020	1	1	0%	1	1	0%	1	1	0%	1-3	1-280	<0%-7%
CT	32,060	5	370	1%	5	370	1%	6	1,400	4%	1-5	40-1,030	0%-3%
RI	2,560	5	320	13%	6	370	14%	7	505	20%	5-7	320-505	13%-20%
MA	0	0	0	0%	0	0	0%	0	0	0%	0	0	0%
TOTAL	144,560	34	1,641	1%	37	1,701	1%	399	2,911	2%	37-45	1,931-3,391	1%-2%

Sources: National Rivers Inventory; LWCF; National Atlas of the United States; NPS; U.S. Department of Agriculture NRCS; USFWS; District of Columbia Data Catalogue; Washington D.C. DPR; MD Department of Natural Resources; DE Forest Service; DE Division of Parks and Recreation; PASDA; PA DCNR; CT Department of Energy and Environmental Protection; NJDEP; NY OCS; University of Connecticut; RI GIS; RI Division of Planning; RI Department of Environmental Management; MA Department of Conservation and Recreation

* Most of the resources are only partially located in the Affected Environment. The total number of acres represents the total acreage of the parklands, including acreages outside and inside the Affected Environment of the existing NEC or any alternative.

**The ranges represent the different alternative route options considered as part of Alternative 3.

Table 7.16-13: Affected Environment: Section 6(f) Resources – Alternative 3 Route Options

Geography	Existing NEC		Alternative 3									
			D.C. to NYC		New York City to Hartford				Hartford to Boston			
	# of 6(f) Resources	Acres within the Alignment	# of 6(f) Resources	Acres within the Rep. Rte.	Central Connecticut		Long Island		Providence		Worcester	
					# of 6(f) Resources	Acres within the Rep. Rte.	# of 6(f) Resources	Acres within the Rep. Rte.	# of 6(f) Resources	Acres within the Rep. Rte.	# of 6(f) Resources	Acres within the Rep. Rte.
D.C.	4	165	4	170	0	0	0	0	0	0	0	0
MD	8	490	14	990	0	0	0	0	0	0	0	0
DE	1	90	1	90	0	0	0	0	0	0	0	0
PA	8	165	9	280	0	0	0	0	0	0	0	0
NJ	2	40	2	40	0	0	0	0	0	0	0	0
NY	1	1	0	0	1	1	3	280	0	0	0	0
CT	5	370	0	0	5	370	5	370	2	1,030	1	40
RI	5	320	0	0	0	0	0	0	7	505	5	320
MA	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	34	1,641	30	1,570	6	371	8	650	9	1,535	6	360

Sources: National Rivers Inventory; LWCF; National Atlas of the United States; NPS; U.S. Department of Agriculture NRCS; USFWS; District of Columbia Data Catalogue; Washington, D.C., DPR; MD Department of Natural Resources; DE Forest Service; DE Division of Parks and Recreation; PASDA; PA DCNR; CT Department of Energy and Environmental Protection; NJDEP; NY OCS; University of Connecticut; RI GIS; RI Division of Planning; RI Department of Environmental Management; MA Department of Conservation and Recreation

7.16.2.4 Environmental Consequences

Table 7.16-14 presents the number and acres of Section 6(f) resources that would be affected by the Action Alternatives. Alternative 3 would affect the most Section 6(f) resources (up to 27), as well as the most acreage of Section 6(f) resources (up to 245 acres). Table 7.16-15 presents the number and acres of Section 6(f) resources that would be affected by the Alternative 3 route options.

Under the LWCF Act, if there is a conversion of a Section 6(f) resource to a non-recreational use, replacement of the property is required. Section 6(f) resources that could have a potential conversion by an Action Alternative are summarized below. The discussions focus only on those affected Section 6(f) resources outside of the existing NEC, since those areas would have the highest likelihood of being converted to a new use as a result of the Action Alternatives.

Alternative 1

Under Alternative 1, one Section 6(f) resource could be converted to a non-recreational use. Approximately 4 acres of the Burlingame Management Area/Phantom Bog located in Washington County, RI, is within the footprint of Alternative 1 where an embankment is proposed.

Alternative 2

Under Alternative 2, four Section 6(f) resources could be converted to non-recreational uses. They are as follows:

- ▶ About 4 acres of Bartram's Garden in Philadelphia, PA, is in the footprint for Alternative 2 where an embankment and aerial structure are proposed.
- ▶ A proposed major bridge would affect about 7 acres of West Park in Pennsylvania, PA.
- ▶ Approximately 25 acres of the Natchaug State Forest in Windham County, CT, would be bisected by Alternative 2 where an embankment and trench are proposed.
- ▶ Approximately 14 acres of the Snake Den State Park/Snake Den in Providence County, RI, would be bisected by Alternative 2 where an embankment is proposed.

Alternative 3

Table 7.16-15 presents the number and acres of Section 6(f) resources that would be affected by Alternative 3.

Table 7.16-14: Environmental Consequences: Section 6(f) Resources

Geography	Existing NEC		Alternative 1		Alternative 2		Alternative 3 ¹	
	# of 6(f) Resources	Acres	# of 6(f) Resources ²	Acres within the Representative Route ²	# of 6(f) Resources ²	Acres within the Representative Route ²	# of 6(f) Resources ²	Acres within the Representative Route ²
D.C.	2	5	2	5	2	5	2	20
MD	4	1	4	1	4	1	7	130
DE	1	1	1	1	1	1	1	10
PA	4	10	4	10	5	20	4	10
NJ	0	0	0	0	0	0	0	0
NY	0	0	0	0	0	0	0–2	30
CT	5	25	5	25	6	50	5–6	25
RI	4	10	5	20	5	20	4–5	10–20
MA	0	0	0	0	0	0	0	0
TOTAL	20	52	21	62	23	97	23–27	235–245

Source: NEC FUTURE team, 2015

*The ranges represent the different alternative route options considered as part of Alternative 3.

² All Action Alternatives assume improvements to the existing NEC; therefore, the number of resources presented is inclusive of the existing NEC as well as any new option or off-corridor route associated with each Action Alternative.

Note: While the totals for each alternative include parks that are along the existing NEC, some parks would have additional effects under the alternative. For instance, West Park is located along the existing NEC, but it would have additional impacts under Alternative 1 because of the proposed bridge.

Table 7.16-15: Environmental Consequences: Section 6(f) Resources – Alternative 3 Route Options

Geography	Existing NEC		Alternative 3									
			D.C. to NYC		New York City to Hartford				Hartford to Boston			
	# of 6(f) Resources	Acres	# of 6(f) Resources	Acres within the Rep. Rte.	Central Connecticut		Long Island		Providence		Worcester	
					# of 6(f) Resources	Acres within the Rep. Rte.	# of 6(f) Resources	Acres within the Rep. Rte.	# of 6(f) Resources	Acres within the Rep. Rte.	# of 6(f) Resources	Acres within the Rep. Rte.
D.C.	2	5	2	20	0	0	0	0	0	0	0	0
MD	4	1	7	130	0	0	0	0	0	0	0	0
DE	1	1	1	10	0	0	0	0	0	0	0	0
PA	4	10	4	10	0	0	0	0	0	0	0	0
NJ	0	0	0	0	0	0	0	0	0	0	0	0
NY	0	0	0	0	0	0	2	30	0	0	0	0
CT	5	25	0	0	5	25	5	25	1	25	0	0
RI	4	10	0	0	0	0	0	0	5	20	4	10
MA	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	20	52	14	170	5	25	7	55	6	45	4	10

Source: NEC FUTURE team, 2015

Washington, D.C., to New York City

In the Washington, D.C., to New York City portion of Alternative 3, six Section 6(f) resources could be converted to non-recreational uses. They are as follows:

- ▶ Approximately 16 acres of Anacostia Park, Section G in Washington, D.C., would be bisected by Alternative 3 where an embankment and major bridge are proposed.
- ▶ Patapsco Valley State Park in Anne Arundel County, MD, would have approximately 26 acres bisected by proposed at-grade construction, an embankment, and a major bridge.
- ▶ About 59 acres of Patuxent Research Refuge in Anne Arundel County, MD, would be bisected by proposed aerial construction, embankment, and major bridge.
- ▶ Approximately 39 acres of Gunpowder Falls State Park in Baltimore, MD, would be bisected by a proposed aerial structure.
- ▶ About 1 acre of the 4-acre Havre De Grace Activity Center in Harford County, MD, is within the footprint of Alternative 3 where at-grade construction and a trench are proposed.
- ▶ Approximately 3 acres of Pennypack Creek Park in Pennsylvania, PA, would be bisected by an embankment and aerial construction.

New York City to Hartford

Via Central Connecticut

In the New York City to Hartford via Central Connecticut portion of Alternative 3, no Section 6(f) resources are located outside of the existing NEC that would be converted to non-recreational uses.

Via Long Island

In the New York City to Hartford via Long Island portion of Alternative 3, two Section 6(f) resources could be converted to non-recreational uses. They are as follows:

- ▶ About 24 acres of Forest Park in Queens County, NY, is in the footprint where an aerial structure is proposed.
- ▶ Approximately 6 acres of Connetquot River State Park Preserve in Suffolk County, NY, is located in the footprint of Alternative 3 where a trench is proposed.

Hartford to Boston

Via Providence

In the Hartford to Boston via Providence portion of Alternative 3, two Section 6(f) resources could be converted to non-recreational uses. They are as follows:

- ▶ Approximately 25 acres of the Natchaug State Forest in Windham County, CT, would be bisected where an embankment and trench are proposed.
- ▶ Approximately 14 acres of the Snake Den State Park/Snake Den in Providence County, RI, would be bisected where an embankment is proposed.

Via Worcester

In the Hartford to Boston via Worcester portion of Alternative 3, no Section 6(f) resources would be located outside of the existing NEC that would be converted to non-recreational uses.

Stations

Secaucus Station in Hudson County, NJ, an existing and modified station under all Action Alternatives, would affect a Section 6(f) resource.

7.16.2.5 Context Area

There are about 180 Section 6(f) resources in the Context Area for Alternative 1, over 190 in the Context Area for Alternative 2, and about 200 in the Context Area for Alternative 3. If the Representative Routes were to shift, it is likely that a Section 6(f) resource in the Context Area would be encountered. As such, a summary of the Section 6(f) resources with large areas in the Context Area is provided below:

- ▶ Within the Context Area for all Action Alternatives in Washington, D.C., there are two Section 6(f) resources with 100 or more acres in the Context Area: Anacostia Park and the National Arboretum. All Action Alternatives and the existing NEC cross Anacostia Park and the National Arboretum; these parks extend south along the Anacostia River, away from the corridor.
- ▶ In Maryland, some of the larger Section 6(f) resources that cross more than one county include Patuxent River Park, Patuxent Research Refuge, Patapsco Valley State Park, and Gunpowder Falls State Park. Patuxent River Park is located less than 1 mile of all Representative Routes on the south side, while the Patuxent Research Reserve extends north and east away from the Representative Routes for approximately 8 miles. The Patapsco Valley State Park spans a roughly 20-mile distance, end to end, on both sides of the Northeast Corridor. At the closest point, this park is crossed by Alternative 3, while the existing NEC simply runs alongside it. All Representative Routes cross Patapsco Valley State Park. Like Patapsco Valley State Park, Gunpowder Falls State Park is approximately 15 miles from end to end, and all Representative Routes weave in between the parcels that make up the park.
- ▶ In Pennsylvania, there are five Section 6(f) resources with 100 or more acres in the Context Area: Cobbs Creek Park, East Park, West Park, Pennypack Creek Park, and Franklin D. Roosevelt Park. Cobbs Creek Park is located less than one mile north-northwest of the existing NEC and extends approximately 5 miles away from the existing NEC. The Existing NEC and Alternatives 1 and 2 run through the far southern ends of East Park and West Park, the primary holdings of Philadelphia's Fairmount Park, on existing rights-of-way. All Action Alternatives and the Existing NEC cross Pennypack Creek Park on an existing above-grade rail crossing, which is less than 0.1 mile wide. Alternative 3 is proposed to cross Franklin D. Roosevelt Park via a 0.5-mile tunnel.
- ▶ In New Jersey, there are four Section 6(f) resources with 100 or more acres in the Context Area: D&R Canal State Park, Branch Brook Park, Weequahic Park, and Laurel Hill Park. D&R Canal State Park is located both to the north and the south of all Representative Routes; at its closest point, the park is roughly 0.25 mile from the corridor. Branch Brook, Weequahic, and Laurel Hill parks are within 5 miles of one another and are located north of all Action Alternatives and the

Existing NEC in Essex and Hudson counties. Of the three, Branch Brook Park is farthest away and Laurel Hill Park is closest at a distance of just 0.1 mile.

- ▶ In New York, some of the larger Section 6(f) resources in the Context Area include the following: Connetquot River/State Park Preserve, Bethpage State Park, Central park, Alley Pond Park, Forest Park, Hempstead Lake State Park, and Belmont Lake State Park. Alternative 3 runs immediately next to Connetquot River / State Park Preserve, but does not encroach upon it. Bethpage is located to the north of Alternative 3 at a distance of 0.25 mile. Central Park lies to the north of all Representative Routes and to the west of Alternative 3. Alternative 3 crosses Forest Park for about 1 mile. Alley Pond Park is located over 1 mile north of Alternative 3, and Hempstead Park is located over 2 miles south of Alternative 3 in Nassau County. Similarly, Belmont Lake State Park lies one mile south of Alternative 3 in Suffolk County.
- ▶ In Connecticut, there are seven Section 6(f) resources that are over 500 acres, some of which cross more than one county: Cockaponset State Forest, Natchaug State Forest, Nehantic State Forest, James L. Goodwin State Forest, Bluff Point State Park, Hammonasset Beach State Park, and Hammonasset Natural Area Preserve. The existing NEC runs through parcels of the Cockaponset State Forest, but does not encroach on the park. The park parcels are about 1 mile from the Representative Route. Alternative 3 crosses the Natchaug State Forest three times for a distance of nearly 5 miles. This park straddles the Representative Route, with tracts of land both north and south of the Representative Routes. James L. Goodwin State Forest is contiguous with the Natchaug State Forest, but on the far southern end, roughly 1 mile from Alternative 3. The existing NEC skirts along the north edge of Bluff Point State Park for about 1.3 miles, but does not encroach on it. Hammonasset Beach State Park and Hammonasset Natural Area Preserve are clustered together less than 1 mile immediately south of the existing NEC.
- ▶ In Rhode Island, some of the larger Section 6(f) resources include the following: Burlingame Management Area, Snake Den State Park, Lincoln Woods State Park, Goddard Park, and Cocumcussoc. Burlingame Management Area is a large, multi-parcel recreational area that straddles the Existing NEC and Alternatives 1 and 2 for 3 miles. Snake Den State Park is bisected by Alternative 3 for a distance of 0.75 mile. Lincoln Woods State Park is farther from the Representative Routes at about 2 miles north and west of the existing NEC. At their closest points, Goddard Park and Cocumcussoc are less than 1 mile east of the existing NEC.
- ▶ In Massachusetts, there are two Section 6(f) resources: Tom Larson Recreational Complex / Dagget Field and Stony Brook Reservation. Tom Larson Recreational Complex, which actually straddles Bristol County, MA and Providence County, RI, is located perpendicular between the existing NEC and Alternative 3, less than 1 mile from either Representative Route. At its closest point, Stony Brook Reservation is located 0.3 mile away from all the Action Alternatives and extends north and westward away from them.

7.16.2.6 Potential Mitigation Strategies

Examples of potential mitigation strategies could include design or construction modifications to avoid the conversion of a Section 6(f) resource to a non-recreational use; the use of context-sensitive design in future stages of project development so as to not preclude recreational uses; the incorporation of natural design features such as earthen berms and tree plantings; and/or the allocation of replacement parkland or open space.

7.16.2.7 Subsequent Tier 2 Analysis

This Tier 1 analysis identifies areas where there is potential for effects on Section 6(f) resources. Analyses conducted as part of the Tier 2 planning processes would result in a conclusion regarding whether a conversion of a Section 6(f) land would occur, as well as include the development of mitigation measures and designs that would avoid or minimize effects on Section 6(f) lands. Under the LWCF Act, if there is a conversion of a 6(f) resource to a non-recreational use, replacement of the property is required and the following requirements must be met:

- ▶ A conversion request must be made by the state liaison to the appropriate regional office of the NPS.
- ▶ All practical measures to avoid the conversion have been evaluated.
- ▶ The fair market value of the property has been established.
- ▶ The property proposed for replacement must be “reasonably equivalent” in terms of usefulness and location of the resource being converted.
- ▶ The property being converted must be evaluated to identify which recreational needs are being fulfilled and opportunities available. Likewise, it also requires that the property being proposed for replacement must be evaluated to determine if it will meet the needs of the recreation opportunities being lost.
- ▶ All other relevant agency coordination has been completed, including Section 4(f) of the U.S. DOT Act.
- ▶ The proposed conversion and replacement is in accordance with each state’s Statewide Comprehensive Outdoor Recreation Plan.