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ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter describes the environmental consequences associated with the alternatives presented in “Chapter 2: Alternatives” for the Jamaica Bay Transportation Studies. (See “Chapter 1: Purpose and Need” and “Chapter 3: Affected Environment” for a detailed description of the study areas.) It is divided into four sections, one for each study area, and each section is organized by impact topic. The methodology for assessing and defining impacts is uniform for all four study areas and is presented at the beginning of the chapter. NEPA requires consideration of context, intensity, and duration of adverse and beneficial impacts (direct, indirect, and cumulative) and measures to mitigate those impacts. NPS policy also requires that impairment of resources be evaluated in all environmental documents; therefore, this discussion is also included for each impact topic. Cumulative impact assessments are included for all resources and study areas at the end of this chapter.

This document is also being used to comply with the requirements of Section 106 of the NHPA, as well as the Coastal Zone Management Act. The CEQ regulations that implement NEPA require assessment of impacts to the human environment, which include natural and cultural resources. The impact analyses presented in this document are intended, however, to comply with the requirements of both NEPA and the NHPA; therefore, a Section 106 summary is included at the end of each cultural resource analysis.

METHODOLOGY FOR ASSESSING IMPACTS

As required by NEPA, potential impacts are described in terms of type (beneficial or adverse), context (site-specific, local, or regional), duration (short-term or long-term), and level of intensity (negligible, minor, moderate, or major). Overall, these impact analyses and conclusions were based on the review of existing literature and Gateway studies, information provided by on site experts and other state and federal agencies, professional judgments and park staff insight, consultations with the New York State Historic Preservation Officer (SHPO), and public input.

Type

- Beneficial:** A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
- Adverse:** A change that moves the resource away from a desired condition or detracts from its appearance or condition.
- Direct:** An impact that is caused by an action and occurs at the same time and place.
- Indirect:** An impact that is caused by an action but is later in time or farther removed in distance, but still reasonably foreseeable.

Context

Context is the setting within which an impact is analyzed.

- Site-specific:** The impact would affect the study area.
- Local:** The impact would affect Gateway.
- Regional:** The impact would affect localities, cities, or towns surrounding Gateway

Duration

For all resources and values, the duration of impacts in this document is defined as follows:

- Short-term:** Impacts that occur only during construction or last less than one year.
- Long-term:** Impacts that last longer than one year.

Level of Intensity

Level of intensity is measured by severity and magnitude of impact, i.e. negligible, minor, moderate, or major. Intensity definitions were developed for each resource considered for analysis in this study, and are described below. These definitions were developed through review of current and previous NPS projects, discussions with NPS and EFLHD representatives and other regional experts, as well as professional judgments made by the NPS.

Natural and Physical Resources

Soils and Topography

Available information on soils and topography potentially impacted in various areas of the Jamaica Bay unit was compiled and evaluated for this document. Predictions about short- and long-term impacts were based on previous projects with similar soils and topographic conditions, as well as recent studies. The thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** The impacts to soils and topography would be below levels of detection.
- Minor:** The impacts to soils and/or topography would be detectable but small. Disruption and/or displacement of existing soils would be relatively slight. Changes in the amounts and locations of impervious surfaces would be measurable but would not be at a great enough scale to noticeably alter existing natural conditions. Similarly, topographic changes may be noticeable but would not constitute a change in the local terrain. Mitigation may be needed to offset adverse impacts and would be relatively simple to implement and likely be successful.
- Moderate:** The impacts to soils and/or topography would be readily apparent, as disruption and/or displacement would be noticeable and changes in the amounts and locations of impervious surfaces could alter existing conditions. Topographic changes would be noticeable and could alter the terrain within a confined area. Mitigation measures would be necessary to offset adverse impacts and likely be successful.
- Major:** The impacts to soils and/or topography would be readily apparent and would result in substantial changes to existing soils and impervious cover. Changes to topography would also be readily apparent and could alter the terrain on a regional scale. Mitigation measures to offset adverse impacts would be needed, extensive, and their success could not be guaranteed.

Vegetation

Available information on vegetation in the Jamaica Bay unit potentially impacted by the alternatives was compiled for this document. Predictions about short- and long-term impacts are based on professional judgments and previous projects with similar vegetation. The thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** The action would introduce minimal increases in manmade infrastructures and development. The change would be so small or localized that it would have no measurable or perceptible consequences on the nature and quantity of vegetation and/or green space.
- Minor:** The action would introduce manmade additions and ensuing reductions in vegetation and/or green space. These additions would include infrastructures that affect a relatively small portion of green space and have barely perceptible consequences on the nature and quantity of native vegetation. Impacts would be confined to landscaped green space. Mitigation may be needed to offset adverse impacts and would be relatively simple to implement and likely be successful.
- Moderate:** The action would introduce considerable manmade additions and ensuing reductions in vegetation and/or green space. These actions would include facilities and other manmade structures that would affect a relatively sizeable portion of green space and could impact unique and/or mature vegetation in the area. Mitigation measures would be necessary to offset adverse impacts and likely be successful.

Major: The action would introduce extensive manmade additions and impacts that affect the nature of the Jamaica Bay unit's green space, including multiple facilities and/or structures. This would result in changes to the nature of the vegetation. Mitigation measures to offset adverse impacts would be needed, extensive, and their success could not be guaranteed.

Wildlife and Wildlife Habitat

Information on Jamaica Bay wildlife was taken from park documents and records. The Gateway natural resource management staff, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the NYSDEC also provided wildlife information. The thresholds of impact are as follows:

Negligible: There would be no observable or measurable impacts to local species, their habitats, or the natural processes sustaining them. Impacts would be of short duration and well within natural fluctuations.

Minor: Impacts would be detectable but would not be expected to be outside the existing range of variability experienced in the New York City urban environment. Over the long-term, these impacts would not be expected to alter local species, their habitats, or the natural processes sustaining them. Mitigation measures, if needed to offset adverse impacts, would be simple and successful.

Moderate: Impacts on local species, their habitats, or the natural processes sustaining them would be detectable and could be outside the natural range of variability for short periods of time. Mortality or interference with activities necessary for survival can be expected on an occasional basis but is not expected to threaten the continued existence of the species in Jamaica Bay. Mitigation measures, if needed to offset adverse impacts, would be extensive and likely successful.

Major: Impacts on local species, their habitats, or the natural processes sustaining them would be detectable and would be expected to be outside the natural range of variability for long periods of time, or permanently. Loss of habitat might affect the viability of at least some local species. Extensive mitigation measures would be needed to offset any adverse impacts, and their success would not be guaranteed.

Water Resources

The *NPS Management Policies 2001* states that the NPS will "take all necessary actions to maintain or restore the quality of surface waters and ground waters within the parks consistent with the Clean Water Act and all other applicable federal, state, and local laws and regulations" (sec. 4.6.3) (NPS 2000).

A water quality standard defines the water quality goals by designating uses to be made of the water, setting minimum criteria to protect the uses, and by preventing degradation of water quality through antidegradation provisions. The antidegradation policy is only one portion of a water quality standard. Part of this policy (40 CFR 131.12 (a) (2)) strives to maintain water quality at existing levels if it is already better than the minimum criteria. Antidegradation should not be interpreted to mean that "no

degradation” can or will occur, as even in the most pristine waters, degradation may be allowed for certain pollutants as long as it is temporary and short-term.

Other considerations in assessing the magnitude of water quality impacts are the impacts on those resources dependent on a certain quality or condition of water. Sensitive aquatic organisms, submerged aquatic vegetation, riparian areas, and wetlands are affected by changes in water quality from direct and indirect sources.

Given the above water quality issues, methodology, and assumptions, the following impact thresholds were established in order to describe the relative changes in water quality under the various alternatives.

- Negligible:** Chemical, physical, or biological impacts would not be detectable and would allow current or desired conditions to be maintained.
- Minor:** Chemical, physical, or biological impacts would be detectable but would be within current or desired conditions.
- Moderate:** Chemical, physical, or biological impacts would be detectable and would alter current or desired conditions. Water quality standards or criteria would be slightly and singularly exceeded on a short-term basis.
- Major:** Chemical, physical, or biological impacts would be readily detectable and would result in a departure from current or desired conditions.

Floodplains

Floodplains are defined by DO #77-2, “Floodplain Management” as “the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, and including, at a minimum, that area subject to temporary inundation by a regulatory flood.” The NPS has adopted the policy of preserving floodplain values and minimizing potentially hazardous conditions associated with flooding (NPS 2003a). The planning team based the impact analysis and the conclusions for possible impacts to 100- and 500-year floodplains in this document on the review of existing literature and studies, and information provided by experts in the NPS and other agencies. Where possible, FEMA map locations of 100- and 500-year floodplains were compared with locations of proposed developments and modifications of existing facilities. Predictions about short- and long-term impacts were based on previous studies of impacts to 100- and 500-year floodplains from similar projects and recent scientific data. The thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** There would be no change in the ability of a floodplain to convey floodwaters or its values and functions. The proposed action would not contribute to enhancing flood events.
- Minor:** Changes in the ability of a floodplain to convey floodwaters or its values and functions would be measurable and localized within specific portions of the study area. The proposed action would not contribute to the flood, and no mitigation would be needed.

Moderate: Changes in the ability of a floodplain to convey floodwaters or its values and functions would be measurable and confined within the study area. The proposed action could contribute to the flood, and the impact could be mitigated by modification of proposed facilities in floodplains.

Major: Changes in the ability of a floodplain to convey floodwaters or its values and functions would be measurable and widespread. The proposed action would contribute to the flood, and the impact may not be able to be mitigated by modification of proposed facilities in floodplains.

According to *NPS Procedural Manual 77-2: Floodplain Management*, a Statement of Findings (SOF) is required when an action is to occur within a floodplain. The SOF is generally attached to the EA associated with the project and provides specifics as to why the proposed action was selected over one with fewer impacts to floodplains (NPS 2003a). Actions within a floodplain are categorized in three classes depending on their location and nature of development. A Class I action is defined as one that consists of administrative, residential, warehouse, and maintenance buildings. Class I actions require an SOF only when they fall within the 100-year floodplain (NPS 2003). Because the actions proposed in this document either do not fall within the 100-year floodplain, or are allowed by DO 77-2, an SOF is not required.

Air Quality

The air quality study evaluated the changes in air quality due to project-related motor vehicle traffic associated with the implementation of the proposed action. The air quality study included a microscale analysis to evaluate the local CO concentrations at sensitive receptor locations and a mesoscale analysis to evaluate the regional ozone precursor emissions of VOCs NO_x.

For this section, the intensity of air quality impacts is defined as follows:

Negligible: An action that would result in no increase or reductions in pollution levels when compared to the No-Action Alternative. Pollution levels would remain below the NAAQS. The results of such actions would have no noticeable impact on air quality.

Minor: Minor impacts would result from actions with relatively small increases in pollution levels when compared to the No-Action Alternative. Pollution levels would remain below the NAAQS. The results of such actions would have no noticeable impact on air quality.

Moderate: An action that would increase pollution levels by 10% or greater when compared to the No-Action Alternative. However, the total pollution levels would remain below the NAAQS. The results of such actions would have no noticeable impact on air quality.

Major: An action that would increase pollution levels above NAAQS. The results of such actions would have a substantial impact on air quality.

Noise

The noise analysis conducted under this study was prepared by the NPS and EFLHD, and followed the New York State Department of Transportation (NYSDOT) and FHWA noise evaluation and abatement procedures. Methodology used for assessing noise impacts is included in Appendix D.

For this section, the intensity of noise impacts is defined as follows:

- Negligible:** An action that would result in no increase or reductions in sound levels when compared to existing sound levels. Predicted sound levels would remain below the Noise Abatement Criteria (NAC). The results of such actions would have no noticeable impact on ambient sound levels.
- Minor:** Minor impacts would result from actions with relatively small increases (1 to 2 A-weighted decibels (dBA)) in sound levels when compared to existing sound levels. Predicted sound levels would remain below the NAC. The results of such actions would have no noticeable impact on ambient sound levels.
- Moderate:** An action that would increase sound levels by a moderate amount (2 to 8 dBA) when compared to existing sound levels. Predicted sound levels would remain below or equal to the NAC. The results of such actions would have slightly noticeable impacts on ambient sound levels.
- Major:** An action that would increase noise pollution levels by a substantial amount (9 dBA or greater) when compared to existing sound levels. Predicted sound levels would be equal to or exceed the NAC. The results of such actions would have slightly noticeable impacts on ambient sound levels and could require mitigation.

Cultural Resources

The CEQ regulations that implement NEPA require assessment of impacts to cultural as well as natural resources. In this DCP/EA/AOE, impacts to cultural resources are described in terms of type, context, duration, and intensity, as described above, which is consistent with CEQ regulations. These impact analyses are also intended, however, to comply with the requirements of both NEPA and Section 106 of the NHPA. In accordance with the Advisory Council on Historic Preservation (ACHP) regulations implementing Section 106 of the NHPA (36 CFR Part 800, *Protection of Historic Properties*), impacts to cultural resources were also identified and evaluated by (1) determining the area of potential effect; (2) identifying cultural resources present in the area of potential effect that were either listed on or eligible for listing on the National Register; (3) applying the criteria of adverse effect to affected cultural resources either listed on or eligible for listing on the National Register; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under the ACHP's regulations, a determination of either *adverse effect* or *no adverse effect* must also be made for affected, National Register listed or eligible cultural resources. An *adverse effect* occurs whenever an impact alters, directly or indirectly, a characteristic of a cultural resource that qualifies it for inclusion in the National Register, e.g. diminishing the integrity (or the extent to which a resource retains its historic appearance) of the resource's location, setting, design, feeling, association, workmanship, or

materials. Adverse effects also include reasonably foreseeable effects caused by the alternatives that would occur later in time, be farther removed in the distance, or be cumulative (36 CFR Part 800.5 *Assessment of Adverse Effects*). A determination of *no adverse effect* means that there is an effect, but the effect would not diminish the characteristics of the cultural resource that qualify it for inclusion in the National Register.

CEQ regulations and NPS DO #12, “Conservation Planning, Environmental Impact Analysis, and Decision-making” also call for a discussion of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g. reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect as defined by Section 106 is similarly reduced. Cultural resources are non-renewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resources that can never be recovered. Therefore, although actions determined to have an adverse effect under Section 106 may be mitigated, the effect remains adverse.

A Section 106 summary is included in the impact analysis sections for cultural resources under the action alternatives. The Section 106 summary is intended to meet the requirements of Section 106 and is an assessment of effect of the undertaking (implementation of the alternative) on cultural resources, based upon the criterion of effect and criteria of adverse effect found in the ACHP regulations.

Archeological Resources

Certain important research questions about human history can only be answered by the actual physical material of cultural resources. Archeological resources have the potential to answer, in whole or in part, such research questions. An archeological site(s) can be eligible for listing on the National Register if the site(s) has yielded, or may be likely to yield, information important in prehistory or history in one of three historic contexts or levels of significance: local, state, or national (see National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation*). For purposes of analyzing impacts to archeological resources, thresholds of change for the intensity of an impact are based upon the potential of the site(s) to yield information important in prehistory or history, as well as the probable historic context of the affected site(s):

Negligible: Impact is at the lowest level of detection with neither adverse nor beneficial consequences. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Minor: Adverse impact: disturbance of a site(s) results in little, if any, loss of integrity. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial impact: maintenance and preservation of a site(s). For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Moderate: Adverse impact: disturbance of a site(s) results in loss of integrity. For the purposes of Section 106, the determination of effect would be *adverse effect*. A Memorandum of Agreement (MOA) is executed among the NPS and applicable state and/or tribal historic preservation officer, and if necessary the ACHP in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from moderate to minor.

Beneficial impact: stabilization of a site(s). For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Major: Adverse impact: disturbance of a site(s) results in loss of integrity. For the purposes of Section 106, the determination of effect would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the NPS and applicable state and/or tribal historic preservation officer and/or the ACHP are unable to negotiate and execute a MOA in accordance with 36 CFR 800.6(b).

Beneficial impact: active intervention to preserve a site(s). For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Historic Structures

In order for a structure or building to be listed on the National Register, it must be associated with an important historic context, i.e. possess significance – the meaning or value ascribed to the structure or building, and have integrity of those features necessary to convey its significance, i.e. location, design, setting, workmanship, materials, feeling, and association (see National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation*). For purposes of analyzing potential impacts to historic structures/buildings, the thresholds of change for the intensity of an impact are defined as follows:

Negligible: Impact is at the lowest level of detection with neither adverse nor beneficial consequences. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Minor: Adverse impact: alteration of a feature(s) would not diminish the overall integrity of the resource. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial impact: stabilization/preservation of features in accordance with the *Secretary of the Interior Standards for the Treatment of Historic Properties*. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Moderate: Adverse impact: alteration of a feature(s) would diminish the overall integrity of the resource. For the purposes of Section 106, the determination of effect would be *adverse effect*. A MOA is executed among the NPS and applicable state and/or tribal historic preservation offices and, if necessary, the ACHP in accordance with 36 CFR 800.6 (b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from moderate to minor.

Beneficial impact: rehabilitation of a structure in accordance with the *Secretary of the Interior Standards for the Treatment of Historic Properties*. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Major: Adverse impact: alteration of a feature(s) would diminish the overall integrity of the resource. For the purposes of Section 106, the determination of effect would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the NPS and applicable state and/or tribal preservation officer and/or ACHP are unable to negotiate and execute an MOA in accordance with 36 CFR 800.6 (b).

Beneficial impact: restoration of a structure in accordance with the *Secretary of the Interior Standards for the Treatment of Historic Properties*. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Cultural Landscapes

Cultural landscapes are the result of the long interaction between people and the land; the influence of human beliefs and actions over time upon the natural landscape. Shaped through time by historical land-use and management practices, as well as politics and property laws, levels of technology, and economic conditions, cultural landscapes provide a living record of an area's past. The dynamic nature of modern human life, however, contributes to the continual reshaping of cultural landscapes; making them a good source of information about specific times and places, but at the same time rendering their long-term preservation a challenge.

In order for a cultural landscape to be listed on the National Register, it must possess significance (the meaning or value ascribed to the landscape) and have integrity of those features necessary to convey its significance. The character-defining features of a cultural landscape include spatial organization and land patterns; topography; vegetation; circulation patterns; water features; and structures/buildings, site furnishings, and objects (see *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* 1996). For purposes of analyzing potential impacts to cultural landscapes, the thresholds of change for the intensity of an impact are defined as follows:

Negligible: Impact(s) is at the lowest level of detection with neither adverse nor beneficial consequences. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Minor: Adverse impact: alteration of a pattern(s) or feature(s) of the landscape would not diminish the overall integrity of the landscape. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial impact: preservation of landscape patterns and features in accordance with the *Secretary of the Interior Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Moderate: Adverse impact: alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. For the purposes of Section 106, the determination of effect would be *adverse effect*. An MOA is executed among the NPS and applicable state and/or tribal historic preservation officer and, if necessary the ACHP in accordance with 36 CFR 800.6 (b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from moderate to minor.

Beneficial impact: rehabilitation of a landscape or its patterns and features in accordance with the *Secretary of the Interior Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Major: Adverse impact: alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. For the purposes of Section 106, the determination of effect would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the NPS and applicable state and/or tribal historic preservation officers and/or the ACHP are unable to negotiate and execute a MOA in accordance with 36 CFR 800.6 (b).

Beneficial impact: restoration of a landscape or its patterns and features in accordance with the *Secretary of the Interior Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Visual Resources

The existing visual environment is defined as what is seen by the visitor during the approach to the study areas within the Jamaica Bay unit, as well as what is seen by the visitor within the area itself. The visual environment impacts both the anticipation and experience at these sites. The quality of the visual environment is a vital resource in relating the park-like experience of these sites and delineating them from the rest of the urban environment.

For this section, the intensity of visual resource impacts is defined as follows:

Negligible: The visual quality of the park-like landscape and surrounding viewsheds would not be affected or the impacts would not be noticeable. Changes would not be of any measurable or perceptible consequence to a visitor's experience of the viewshed.

Minor: Impacts to the visual quality of the park-like landscape would be detectable and may result in some changes to the existing viewsheds. However, these changes would not impact any park-like or otherwise important views and would not noticeably alter the park atmosphere. Mitigation measures, if needed to offset adverse impacts, would be simple and likely successful.

Moderate: Impacts to the visual quality of the park-like landscape would be detectable and would result in some changes to the existing viewsheds. These changes could impact park-like or otherwise important views and result in changes to the park atmosphere. Mitigation measures, if needed to offset adverse impacts, would be extensive and likely successful.

Major: Impacts to the visual quality of the park-like landscape would be obvious, long-term, and would have substantial consequences to historical or otherwise important views in the region. Extensive mitigation measures would be needed to offset any adverse impacts and their success would not be guaranteed.

Transportation, Site Access, and Circulation

Local roads, as well as park roads, provide access to the study areas and contribute to the quality of the visitor experience. They provide a safe and efficient means of access while also protecting resources. The alternatives were evaluated to assess their potential to improve access, parking, and safety within the sites in a manner that would improve the visitor experience while minimizing adverse impacts on the roadways and the park environment. The intensity of the transportation, site access, and circulation impacts are defined as follows:

Negligible: Traffic would not be impacted, or the impacts would be at the lower levels of detection and would not have an appreciable impact on traffic flow. There would be no changes in the level of service.

Minor: The impact would be detectable but would be of a magnitude that would not have an appreciable impact on traffic flow. There would be no noticeable changes in the traffic congestion or level of service. If adverse, mitigation would be simple and likely successful.

Moderate: The impacts would be readily apparent and would result in a substantial change in traffic flow patterns, congestion, and/or level of service, in a manner noticeable to the public. If adverse, mitigation would be necessary and would likely be successful.

Major: The impacts would be readily apparent and would result in a substantial change in traffic flow in a manner noticeable to the public and be markedly different from the present traffic flow patterns and levels of service. If adverse, mitigation measures would be extensive and their success would not be guaranteed.

Visitor Use and Experience

NPS Management Policies 2001 (NPS 2000) states that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks, and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. One of the greatest challenges to maintaining a high-quality park environment at Jamaica Bay is making the park visible and easily accessible in the growing urban environment. To accomplish this, the NPS must ensure that its sites within the city are easily recognizable and accessible. As the city continues to grow, the visitor experience may consequently be diminished. The following intensity levels measure the impact the growing urban environment and/or the proposed action would have on the visitor experience at Jamaica Bay.

- Negligible:** The visitor use or experience within the study area would not be affected or changes would not be noticeable to visitors. Any impacts would be short-term and the visitor would not likely be aware of the impacts associated with the alternative.
- Minor:** The impacts to visitor use and experience would be detectable. Although the visitor would be aware of changes, they would not find it necessary to alter current practices.
- Moderate:** The impacts to visitor use and experience would be readily apparent and likely long-term. The visitor would be aware of changes and could find it necessary to alter current practices.
- Major:** The impacts to visitor use and experience would be readily apparent and would have important long-term consequences. The visitor would be aware of the impacts associated with the alternative and would find it necessary to alter current practices.

Operations

Operations, for the purpose of this analysis, refers to the effectiveness and efficiency of park staff's ability to carry out all tasks necessary to operate and maintain access, circulation, and parking within the study areas at the Jamaica Bay unit. This includes operating toll booths, traffic control, concession management, landscaping, garbage collection, and infrastructure maintenance. Staff members who were knowledgeable of these issues were included in the planning team that evaluated the impacts of each alternative.

- Negligible:** Changes would be at a level of importance that would not require noticeable alterations in current park operations.
- Minor:** Changes would be at a level of importance that would require some alteration in current operations. These changes would be simple to make and could be easily incorporated into current operation procedures.
- Moderate:** Changes would be at a level of importance that would require a noticeable alteration in current park operations. These alterations would necessitate changes in current staffing and/or operating procedures to ensure the park was appropriately maintained.
- Major:** Changes would be at a level of importance that would require a noticeable change in current park operations. These alterations would necessitate changes in FTEs or funding dedicated to the site.

IMPAIRMENT

In addition to determining the environmental consequences of the preferred and other alternatives, NPS Management Policies 2001 (NPS 2000) and Director's Order 12: *Conservation Planning, Environmental Impact Analysis and Decision-Making*, require analysis of potential impacts to determine whether or not actions would impair park resources.

A fundamental purpose of the NPS, as provided for in its Organic Act (1916) and reaffirmed by the General Authorities Act (1970), as amended in 1978, begins with a mandate to conserve park resources and values. Although Congress has given the NPS management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that would otherwise be present for the enjoyment of those resources and values. An impact would be likely to constitute impairment to the extent it affects a resource or value whose conservation is:

- 1) Necessary to fulfill specific purposes identified in establishing legislation or proclamation of the park;
- 2) Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- 3) Identified as a goal in the park's general management plan or other relevant planning documents.

Impairment may result not only from activities in managing the park, but also visitor activities or activities undertaken by concessionaires, contractors, and others operating in the park. An impairment determination is provided for each impact topic, where appropriate, within the conclusion section of each alternative.

FLOYD BENNETT FIELD

Impacts to Natural and Physical Resources

Impacts to Soils and Topography

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no changes would be made to the existing soil or topographic conditions at Floyd Bennett Field. The majority of the Field would remain covered with impervious surface. This coverage would compact soils, prevent water absorption, and prevent development of vegetation. Thus, these areas would not be able to support natural soil conditions. The Grassland Management Areas, North Forty, and remaining undeveloped areas would continue to support natural soil conditions. These areas would receive additional stormwater runoff from the surrounding impervious surfaces which could increase the rate of erosion. Therefore, the overall impact to soils and topography under the No-Action Alternative would be long-term, negligible, and adverse.

Impacts of Alternative B (North Entrance)

Under Alternative B, less than 0.1 acre (approximately 1,500 sf) of new impervious surface would be installed to support the new North Entrance. This new development would fall almost entirely within the median of Flatbush Avenue and include some grading and the installation of a new traffic signal prior to paving.

This relatively small gain in impervious surface would not constitute a noticeable change to soils. The increase in impervious surface would be carried out with proper erosion and sediment control measures and would not considerably change stormwater runoff patterns and nor increase erosion but would be at an immeasurable rate. Similarly, grading would create unnoticeable changes in the local topography. The result would be a **long-term, negligible, adverse impact** to soils and topography.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, approximately 0.5 acre (22,000 sf) of new impervious surface would be installed. Most of this development would occur within the median of Flatbush Avenue and consist of some grading and the installation of a new traffic signal prior to paving. The marina concession driveway would also be realigned to meet with the new intersection. This realignment would involve the removal of some impervious surface, grading, and the installation of new surfaces equal in area to the old driveway. The exposed soils from the old driveway could be covered with new vegetation to provide groundcover protection and stability.

This location is already composed primarily of impervious surface, and this relatively small gain in coverage would not constitute a noticeable change in soils. Additional runoff would have similar impacts as those described under Alternative B. Similarly, grading would create unnoticeable changes in the local topography. The result would be a **long-term, negligible, adverse impact** to soils and topography.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

Under Alternative D, approximately 0.5 acre (22,500 sf) of impervious surface would be installed. This development would be a combination of what is proposed under Alternatives B and C. Although the location of the development in Alternative B would be slightly north of what is proposed in Alternative D, it would have the same impact on soils and topography. The result would be a **long-term, negligible, adverse** impact to soils and topography.

Impacts to Vegetation

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the limited vegetation that exists in and around Flatbush Avenue would remain. Vegetation throughout the site would continue to be impacted by stormwater runoff, vehicular exhaust, and the occasional off-road activity. Disease would continue to disrupt the mix of invasive/exotic and native species that cover the limited amounts of undeveloped space. Impacts to vegetation under Alternative A would be **long-term, negligible, and adverse**.

Impacts of Alternative B (North Entrance)

Under Alternative B, the new North Entrance would introduce less than 0.1 acre (approximately 1,500 sf) of new impervious surface. This development would result in the loss of some maintained lawn within the median of Flatbush Avenue. Because the maintained lawn is a common habitat throughout the region and is isolated from surrounding habitats by the road network, the loss would not represent a critical impact to vegetation. Furthermore, this area is already regularly impacted by the surrounding road network and is composed of non-native species that are often plagued with disease. Although much of the area is already impervious, the development could increase runoff rates that could impact grasses that were previously buffered by the lost vegetation.

While this development would adversely impact the low quality vegetation along Flatbush Avenue, the vegetation within the Grassland Management Areas would receive a reduction in the potential for off-road driving loads through the closure of the northern ends of Runways 1-19 and 12-30. Although this represents a relatively small level of impact, it would be beneficial to the existing populations. Overall, this alternative would have a **long-term, negligible, adverse** impact.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, the installation of a Visitor Center Entrance would introduce approximately 0.5 acre (21,000 sf) of impervious surface that would require the removal of a corresponding area of maintained lawn within the Flatbush Avenue median and alongside the Ryan Visitor Center. In addition to this loss, the development would also require the removal of an estimated 16 trees that exist within the median. These trees are still relatively immature, and by aligning the entrance with the visitor center, this alternative avoids impacting larger, more mature trees that are located in the southern end of the median. Because the maintained lawn is a common habitat throughout the region and is isolated from surrounding habitats by the road network, the loss would not be critical to the region's vegetation. Although much of the area is already impervious, the increase could increase runoff rates that could impact grasses that were previously buffered by the lost vegetation.

While this development would adversely impact the low quality vegetation along Flatbush Avenue, the vegetation within the Grassland Management Areas and North Forty would receive a reduction in the potential for off road driving. By closing the northern ends of Runways 1-19, 12-30, 15-33, and much of Runway 6-24, this alternative would take greater steps in reducing the impacts being delivered to this vegetation. Although this represents a small level of pollution, it would be beneficial to the existing populations. Overall, this alternative would have a **long-term, minor, adverse** impact.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

The impacts to vegetation associated with Alternative D would be similar to those described for both Alternatives B and C. However, the runway closures would not include the north end of Runway 15-33. This would still represent a reduction in the potential for off road driving. The overall impact would be **long-term, minor, and adverse**.

Impacts to Wildlife and Wildlife Habitat

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no additional impacts would be introduced to wildlife or wildlife habitat in the area. Visitors and partner and tenant users would all continue to follow existing circulation patterns within the site. These patterns create some noise impacts to the wildlife that inhabits the Grassland Management Areas and North Forty. However, the species that live in or pass through the Field, have grown accustomed to these urban noises, and have most likely selected nesting, feeding, and lifestyle patterns that are compatible with these disturbances. Overall, there would be a **long-term, negligible, adverse** impact to wildlife and wildlife habitat.

Impacts of Alternative B (North Entrance)

Under Alternative B, the construction of the new North Entrance would result in the loss of 0.1 acre (1,500 sq.ft.) of grassy habitat. This habitat is less than ideal, as it is isolated along Flatbush Avenue. The new entrance would also bring more vehicular traffic into the north end of the Field. The noise associated with this new traffic would be comparable to the existing noise levels that already exist along Flatbush Avenue. Because this alternative would confine the traffic associated with this new entrance to the sports complex land assignment, the increase in noise would be confined to this already impacted area.

The closure of the northern ends of runways 12-30 and 1-19, however, would have a beneficial impact on wildlife. By closing these runways, this alternative creates a space in which threats of noise and interactions with motor vehicles would be reduced. Although pedestrians and bicycles would still be able to use these runways, they would not produce the sound or physical threat to wildlife in the area. This would allow existing species to travel more freely through the area, and may be inviting to new species that do not currently inhabit or visit the site. The overall impact from these actions would be **long-term, minor, and beneficial**.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, the construction of the new Visitor Center Entrance would result in the loss of 0.5 acre (22,000 sq.ft.) of grassy habitat and up to 16 immature trees. This habitat is less than ideal, as it is isolated along Flatbush Avenue. The new entrance would also bring more vehicular traffic to the center of

the Field. This area is highly developed and does not support habitat for local wildlife; therefore the increased noise would not be as adverse as in Alternative B. However, the realignment of the partner and tenant users' access points would bring the regular traffic to and from the NYPD site directly through the Grassland Management Areas, instead of along the Field's southern border. While this would be an increase in noise and physical threats to the wildlife associated with these areas, the runway already experiences regular traffic from NPS visitors and NYCDOS employees, so the increase would not be of great consequence.

While there would be more traffic through the center of the Grassland Management Areas, Alternative C would provide the greatest amount of runway closures across the site. The closure of the western halves of runways 1-19, 12-30, 15-33, and most of 6-24 would allow the western half of the airfield to become more connected with the North Forty Natural Area, extending the corridor of relatively undisturbed area for permanent and transient wildlife species. Although pedestrians and bicycles would still be able to use these runways, they would not produce the sound or the threat to wildlife in the area that vehicular traffic does. Therefore, Alternative C would result in a **long-term, moderate, beneficial impact** to wildlife and wildlife habitat.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

Alternative D would include the impacts associated with both new entrances proposed in Alternatives B and C. The 0.5 acres (23,500 sq.ft.) of grassy habitat and 16 trees that would be eliminated is less than ideal habitat, as it is isolated along Flatbush Avenue. However, under this alternative, the new sports complex entrance would be located further north along Flatbush Avenue and would provide access to the entire site. Despite the increase in vehicular traffic on the north end of the Field, the impact would not penetrate into the core of the natural areas (see the "Impacts to Noise" section of this chapter).

This alternative would also include runway closures that would isolate vehicular circulation. The closure of the western halves of runways 1-19, 12-30, and most of 6-24 would allow the western half of the airfield to become more connected with the North Forty Natural Area, opening up approximately 300 acres (1,300,000 sq.ft.) for permanent and transient wildlife species. Although pedestrians and bicycles would still be able to use these runways, they would not produce the sound or the threat to wildlife in the area. Because this alternative would not include the same runway closures as Alternative C, there would be a **long-term, moderate, beneficial impact**.

Impacts to Water Resources

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no changes would be made to the site that would alter the level of impervious surface. Increased visitation to the site would continue and could lead to an increase in the amount of pollutants deposited on the Field that could be washed across impervious surfaces into surrounding water bodies during storm events. Storm sewers would continue to capture the majority of this runoff before it reaches surrounding water bodies. The vegetation in the Grassland Management Areas and along some of the roads would provide some buffering against stormwater runoff and allow water to be absorbed into groundwater tables. Regardless of the increase of pollutants across the Field's impervious surfaces, it would still be imperceptible when compared to the overall pollutant load of the surrounding region. The NPS and NYCDOT would continue to respond to stormwater management

issues in and around the site as staff and funding became available. The overall impact to water resources would be **long-term, negligible, and adverse**.

Impacts of Alternative B (North Entrance)

Under Alternative B, less than 0.1 acre (approximately 1,500 sf) of impervious surface would be installed. This increase would be immeasurable in comparison to the high levels of impervious surface that currently surround the site. Although the increase could change current stormwater runoff patterns along the road, the road already experiences a high level of stormwater runoff and is serviced by a storm sewer system which removes stormwater from the area.

On-site changes in runway use could lead to a redistribution of automobile-related pollutants. However, any changes in traffic patterns related to this alternative would not change pollutant loading in a manner that could impact water quality levels. The overall impact would be **long-term, negligible, and adverse**.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, approximately 0.5 acre (21,000 sf) of impervious surface would be installed. Despite the greater amount of impervious surface, this impact would be similar to those defined in Alternative B. The overall impact would be **long-term, negligible, and adverse**.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

The impacts to water quality associated with Alternative D would be the same as those described for Alternatives B and C. The overall impact would be **long-term, negligible, and adverse**.

Impacts to Floodplains

All of the proposed actions at Floyd Bennett Field fall outside of the floodplain. Therefore, there would be **no impact** to floodplains under Alternative A, B, C, or D at Floyd Bennett Field.

Impacts to Air Quality

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, air quality would be influenced by the growing regional population. While no changes would be made to current circulation patterns, the increasing visitation and regional population would add more vehicular traffic to the area. Despite these growing conditions, pollutant levels would remain below the NAAQS in the future because the EPA's mobile source emission factors will continue to be reduced as a result of state and federal emission control programs.

As shown in Table 8 and 9, the Floyd Bennett Field 1-hour CO concentrations under the 2005 existing condition ranged from 6.1 to 6.3 ppm. The 2005 existing condition 8-hour CO concentrations ranged from 4.3 to 4.4 ppm. Under the 2025 No-Action Alternative condition, the 1-hour CO concentrations would range from 5.8 to 6.0 ppm and the 8-hour CO concentrations ranged from 4.1 to 4.2 ppm. This would result in a **long-term, negligible, and beneficial** impact.

Impacts of Alternative B (North Entrance)

Under Alternative B, overall air quality would continue to be improved, as was the case in the No-Action Alternative. For Alternative B, the 2025 1-hour CO concentrations would range from 5.8 to 6.3 ppm, and the 8-hour CO concentrations would range from 4.1 to 4.4 ppm. These reductions would be related to the reduction in necessary travel to reach the Field. The impacts associated with Alternative B would be **long-term, negligible to minor, and beneficial**.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, overall air quality would continue to be improved, as was the case in the previous alternatives. Under this alternative, the 1-hour CO concentrations would range from 5.7 to 6.5 ppm, and the 8-hour CO concentrations would range from 4.0 to 4.6 ppm. As with Alternative B, these reductions would be related to greater reduction in necessary travel to reach the Field. The impacts associated with Alternative C would be **long-term, negligible to minor, and beneficial**.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

Under Alternative D, the overall air quality would continue to be improved, as was the case in the previous alternatives. Under this alternative, the 1-hour CO concentrations would range from 5.7 to 6.4 ppm, and the 8-hour CO concentrations would range from 4.0 to 4.5 ppm. These reductions would be related to the greater reduction in necessary travel to reach the Field. The impacts associated with Alternative D would be **long-term, negligible to minor, and beneficial**.

For each of the alternatives, the 1-hour and 8-hour concentrations would be below the CO NAAQS of 35 and 9 ppm, respectively. The predicted 1- and 8-hour concentrations for the Floyd Bennett Field study area alternatives are presented in Tables 8 and 9.

Table 8: Predicted Maximum 1 Hour CO Concentrations*

Intersection/ Receptor Site	Existing (2005)	Alternative A (2025)	Alternative B (2025)	Alternative C (2025)	Alternative D (2025)
Floyd Bennett Field at Flatbush Avenue					
R1 South Quadrant	6.1	5.9	5.8	5.7	5.7
R2 Northeast Quadrant	6.2	5.9	5.9	5.7	5.7
R3 Northwest Quadrant	6.3	5.8	5.8	5.7	5.7
Flatbush Avenue at South Site Drive					
R4 Southeast Quadrant	6.3	5.9	5.8	6.3	6.3
R5 Northeast Quadrant	6.3	5.9	5.8	6.1	6.1
R6 Northwest Quadrant	6.3	5.9	5.8	6.5	6.4
R7 Southwest Quadrant	6.3	5.9	5.9	6.3	6.1
Flatbush Avenue at North Site Drive					
R8 Southeast Quadrant	6.3	6.0	6.3	5.9	6.2
R9 Northeast Quadrant	6.3	5.9	6.1	5.9	6.0
R10 Northwest Quadrant	6.2	5.9	6.3	5.9	6.3
R11 Southwest Quadrant	6.2	5.8	6.1	5.9	6.0

Note:* The values include background (5.0 ppm for 1 hour) and are expressed in parts per million (ppm).
The 1-hour CO NAAQS is 35 ppm. All the 1-hour concentrations are below the CO NAAQS of 35.

Source: Vanasse Hangen Brustlin, Inc.

Table 9: Predicted Maximum 8 Hour CO Concentrations*

Intersection/ Receptor Site	Existing (2005)	Alternative A (2025)	Alternative B (2025)	Alternative C (2025)	Alternative D (2025)
Floyd Bennett Field at Flatbush Avenue					
R1 South Quadrant	4.3	4.1	4.1	4.0	4.0
R2 Northeast Quadrant	4.3	4.1	4.1	4.0	4.0
R3 Northwest Quadrant	4.4	4.1	4.1	4.0	4.0
Flatbush Avenue at South Site Drive					
R4 Southeast Quadrant	4.4	4.1	4.1	4.4	4.4
R5 Northeast Quadrant	4.4	4.1	4.1	4.3	4.3
R6 Northwest Quadrant	4.4	4.1	4.1	4.6	4.5
R7 Southwest Quadrant	4.4	4.1	4.1	4.4	4.3
Flatbush Avenue at North Site Drive					
R8 Southeast Quadrant	4.4	4.2	4.4	4.1	4.3
R9 Northeast Quadrant	4.4	4.1	4.3	4.1	4.2
R10 Northwest Quadrant	4.3	4.1	4.4	4.1	4.4
R11 Southwest Quadrant	4.3	4.1	4.3	4.1	4.2

Note:* The values include background (3.5 ppm for 8-hour) and are expressed in parts per million (ppm).
The 8-hour CO NAAQS is 9 ppm. All the 8-hour concentrations are below the CO NAAQS of 9 ppm.

Source: Vanasse Hangen Brustlin, Inc.

Impacts to Noise

Impacts of Alternative A (No-Action)

Under the No-Action Alternative (2025 design year) sound levels at 50 feet would be approximately 67 dBA, a 1 dBA increase from existing conditions. This would result in the distances to impact (66 dBA) increasing to 60 feet from the Flatbush Avenue centerline (a 10 foot increase from existing conditions). Alternative would result in a **long-term, minor, and adverse impact** to noise.

Impacts Common to the Action Alternatives

Under Alternatives B, C, and D, sound levels at 50 feet from the Flatbush Avenue centerline would be approximately 67 dBA, a 1 dBA increase from existing conditions. This increase is the same as that experienced under the No-Action Alternative. However, based on the changes to internal traffic, along with the increase in general traffic along Flatbush Avenue, Alternatives B, C, and D would increase the distance to impact (66 dBA) to 65 feet from the centerline. Therefore, Alternatives B, C, and D would result in a **long-term, minor, and adverse impact** to noise.

Impacts to Cultural Resources

Impacts to Archeological Resources

At Floyd Bennett Field, it is possible that archeological resources associated with early human occupation of the site and the Barren Island community are present. Floyd Bennett Field currently rests on approximately 9 feet of fill material. Because the ground-disturbing activities proposed by this study would include minimal surface grading/cutting to level out the ground for roads, archeological resources are not expected to be impacted. However, if during construction previously undiscovered archeological resources were uncovered, Gateway cultural resources staff would be informed immediately and all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and an appropriate mitigation strategy developed in consultation with the New York SHPO. As a result, there would **no impact** to known archeological resources from Alternative A, B, C, or D. *For the purposes of Section 106, the proposed action would result in **no historic properties affected**.*

Impacts to Historic Structures

Impacts of Alternative A (No-Action)

Under Alternative A, no project-related construction would take place that would impact historic structures. The NPS would continue efforts to maintain and preserve the historic structures as funding became available. However, the runways would continue to receive wear and tear due to vehicle use. As a result, the overall impact of Alternative A to historic structures would be **long-term, minor, and adverse**.

Impacts of Alternative B (North Entrance)

Under Alternative B, many of the proposed actions encompass changes in traffic patterns and vehicle circulation both at the entrance to Floyd Bennett Field and on the runways within the Field. The changes

to the entrance entail adding a dedicated entrance for the new sports complex and altering existing curb cuts and medians. The developments would not impact any of the buildings that surround the entrance.

Internal changes to traffic patterns would consist of closing the northern sections of Runways 1-19 and 12-30 to vehicles. These runways are considered historic structures as described in the National Register nomination of Floyd Bennett Field (NPS 1976). The historic runway pattern is an integral part of the entire runway system at Floyd Bennett Field. As such, the runways contribute to Floyd Bennett Field's important role in aviation history. Closing portions of these runways to vehicular traffic would reduce damage from vehicle use. Because these runways were not meant to be driven on for long periods by vehicles, they were not constructed to sustain vehicle use. As a result, the paving has been damaged and continues to be weakened through wear and tear due to long-term vehicle use. This damage would be greatly reduced through the closing of portions of the runways thus improving the physical structure of the runways. Because of these changes, the overall impact of Alternative B to historic structures would be **long-term, negligible, and beneficial**.



Historic runway at Floyd Bennett Field; serving as an access road

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative B would have a ***no adverse effect*** on historic structures at Floyd Bennett Field. Alternative B would result in impacts that were at the lower level of detection.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, many of the proposed actions encompass changes in traffic patterns and vehicle circulation both at the entrance to Floyd Bennett Field and on the runways within the Field. The changes to the entrances include altering the existing access point in front of the Ryan Visitor Center to provide a new access point to the site. This would create a grand park-like entrance to the site and facilitate access for the field's other users. A new entrance would also be constructed for the NYPD and NYCDOS to directly access their sites. The developments would not impact any of the buildings that surround the entrance.

However, internal changes to traffic patterns would impact historic structures. These consist of closing access to Runway 12-30 from the Runway 1-19 intersection. In addition, the remaining sections of Runway 1-19 and 12-30 would be completely closed to vehicle traffic, as would the north end of Runway 15-33 and virtually all of Runway 6-24. These runways are considered historic structures as described in the National Register nomination of Floyd Bennett Field (NPS 1976). The historic runway pattern is an integral part of the entire runway system at Floyd Bennett Field. As such, the runways contribute to Floyd Bennett Field's important role in aviation history. As described in Alternative B, closing portions of these runways to vehicular traffic would reduce damage from vehicle use. Because of these changes, the overall impact of Alternative C to historic structures would be **long-term, negligible, and beneficial**.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative C would have a ***no adverse effect*** on historic

structures at Floyd Bennett Field. Alternative C would result in impacts that were at the lower level of detection.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

As in Alternatives B and C, under Alternative D, many of the proposed actions encompass changes in traffic patterns and vehicle circulation both at the entrance to Floyd Bennett Field and on the runways within the Field. The changes to the entrance include creating two new signalized entrances at the Visitor Center and near the new sports complex. The developments would not impact any of the buildings that surround the entrance.

However, internal changes to traffic patterns would impact historic structures. These consist of closing the remaining sections of Runways 1-19 and 12-30 to vehicular traffic, as well as most of Runway 6-24. These runways are considered historic structures as described in the National Register nomination of Floyd Bennett Field (NPS 1976). The historic runway pattern is an integral part of the entire runway system at the Field, and the runways contribute to Floyd Bennett Field's important role in aviation history. As described in Alternative B, closing portions of these runways to vehicular traffic would reduce damage from vehicle use. Because of these changes, the overall impact of Alternative D to historic structures would be **long-term, negligible, and beneficial**.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative D would have a **no adverse effect** on historic structures at Floyd Bennett Field. Alternative D would result in impacts that were at the lower level of detection.

Impacts to Cultural Landscapes

Impacts of Alternative A (No-Action)

Under Alternative A, existing cultural landscapes would be preserved in their current configuration. Floyd Bennett Field retains the layout and surface appearance of a 1931-41 airport. However, the runways and taxiways are currently used to provide vehicle access to most of the site. This makes it difficult for visitors to interpret the site as a historic airfield. In particular, the lines on the runways to denote lanes and other traffic control measures make it difficult to distinguish runways from regular roadways. Because the airfield would continue to be used, as is, this confusion and lack of interpretation of a historic airfield would continue. This would result in **long-term, moderate, and adverse** impact to cultural landscapes.

Impacts of Alternative B (North Entrance)

Under Alternative B, a new entrance dedicated to the sports complex would be constructed. As part of this construction, existing curb cuts and median openings along Flatbush Avenue would be reconstructed to allow for a traffic signal at this entrance. This new entrance would not be consistent with the historic use of the site and would detract from the cultural landscape along Flatbush Avenue. The view for visitors driving along Flatbush Avenue would no longer be focused on the main entrance of the park, which provides a grand entrance into the site using a semi-circle. This would have been the primary entrance to Floyd Bennett Field historically and would have served as the focal point for the entire area. Rather, the

view would be centered on the new traffic signal and the new entrance into the site for the sports complex, thus altering the cultural landscape.

Once inside the park, the cultural landscape tells the story of the early years of aviation through the existing runway and taxiway configurations. This cultural landscape would be improved through the partial closing of Runways 1-19 and 12-30 to vehicles. By closing these portions of the historic runway system, visitors would have a better understanding of the relationship between the runways and the airfield landscape. Current traffic markings and traffic control devices would be removed on these portions allowing the visitor to see these portions as part of a runway system rather than simply another access road for the park. However, visitors would still travel on those portions of the runways and taxiways not closed to vehicular traffic, and the traffic control devices would not be removed from these areas. As a result, only a portion of the cultural landscape would be restored. Taken together, these changes would result in a **long-term, minor, and adverse** impact to cultural landscapes from Alternative B.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative B would have a ***no adverse effect*** on cultural landscapes at Floyd Bennett Field. While Alternative B would alter the features of the landscape, it would not diminish the overall integrity of the landscape.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, the original entrance to the airfield would be utilized to create a grand park-like entrance to the site and facilitate access to the field for other users. This would return this portion of the park to its original entrance configuration. However, a new entrance would also be constructed to provide the NYPD and the NYCDOS with direct access to their respective facilities via old Runway 6-24. Even with the new entrance for the NYPD and the NYCDOS, the view for visitors driving along Flatbush Avenue, as well as those entering the Field, would once again focus on the main entrance of the park.

Within the Field, the remaining sections of Runways 1-19 and 12-30 would be completely closed to vehicular traffic, as would the north end of Runway 15-33 and virtually all of Runway 6-24. By closing these portions of the historic runway system, visitors would have a better understanding of the relationship between the runways and the airfield landscape. Current traffic markings and traffic control devices would be removed on these portions allowing the visitor to see these portions as part of a runway system rather than simply another access road for the Field. As in Alternative B however, visitors would still travel on those portions of the runways and taxiways not closed to vehicular traffic, and the traffic control devices would not be removed from these areas. As a result, only a portion of the cultural landscape would be restored. The overall impact of Alternative C to cultural landscapes would be **long-term, minor, and adverse**.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative C would have a ***no adverse effect*** on cultural landscapes at Floyd Bennett Field. While Alternative C would alter the features of the landscape, it would not diminish the overall integrity of the landscape. The historical entrance would be restored under this alternative, restoring a portion of the historic view of Floyd Bennett Field.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

Under Alternative D, two new signalized entrances would be constructed: one at the Visitor Center and one near the new sports complex. One entrance would be signed for the new sports complex specifically, while the other entrance would be identified as the main entrance into Floyd Bennett Field. The existing southern entrance would remain open and serve as a primary tenant entrance rather than a main entrance as it is currently used. The multiple access points and traffic signals would not be consistent with the historic use of the site. Further, the introduction of multiple entrances and traffic signals would detract from the cultural landscape at Floyd Bennett Field. The view for visitors driving along Flatbush Avenue would now focus on several entrances and new traffic signals, rather than a single entrance or a historic view.

In addition, internal circulation changes would include closing the remaining sections of Runways 1-19 and 12-30 to vehicular traffic and closure of most of Runway 6-24. By closing these portions of the historic runway system, visitors would have a better understanding of the relationship between the runways and the airfield landscape. Current traffic markings and traffic control devices would be removed on these portions allowing the visitor to see these portions as part of a runway rather than simply another access road for the Field. As in Alternatives B and C however, visitors would still travel on those portions of the runways and taxiways not closed to vehicular traffic, and the traffic control devices would not be removed from these areas. As a result, only a portion of the cultural landscape would be restored. The overall impact of Alternative D to cultural landscapes would be **long-term, moderate, and adverse**.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative D would have an **adverse effect** on cultural landscapes at Floyd Bennett Field. When taken together, the new entrances and traffic signals proposed under Alternative D would alter the view and cultural landscape of Floyd Bennett Field Avenue to the point that the overall integrity of the cultural landscape was diminished. This would be particularly evident for visitors entering the park and those passing the park along Flatbush Avenue. The historic view of Floyd Bennett Field would be segmented with no one entrance standing out above the others.

Impacts to Visual Resources

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no changes would be made in or around the Field that would impact visual resources. Visitors traveling to the site from the north would pass the hangars, Ryan Visitor Center, and other visible structures with little indication as to what they are. Limited NPS signage along the road would prevent these visitors from identifying the site as a park, and the large steel fence that lines the road would create an uninviting presence. Only after southbound visitors have passed these visible structures would they encounter NPS signage and an entrance to the site. The lack of visual connection between the site's structures and its entrance would lead many to believe that they are unrelated.

Similarly, those visitors coming from the south would pass the visible NPS signage and entrance before seeing any visible structures. The lack of additional signage and the presence of the fence would lead many to believe this is an inaccessible site, unrelated to the NPS entrance they just passed.

Once on site, there would continue to be a visual disconnect between the entrance and the attractions within the site. Floyd Bennett Drive would not present park-like views but rather would appear to be a small side road. While there would be some small signs directing visitors to attractions, there would be similar signs for the USMC, NYPD, and NYCDOS sites. This would only enhance the lack of a park-like atmosphere. Once visitors turned on to Runway 15-33, many of the site's attractions would be visible to them across the expanse of paved surface. The distance to many of these sites, along with the guardrails and road markings, would prevent many visitors from recognizing they are driving on historic runways. The lack of visual connection between the access routes and the historic elements of Floyd Bennett Field would create a viewshed in which the attractions within the site were isolated pockets, rather than locations within an airfield. The viewshed would be further impacted by the constant vehicular traffic across the site. With no areas off limits to vehicles, the site would appear to be a series of individual attractions rather than a large, single park. The overall impact of Alternative A to visual resources would be **long-term, moderate, and adverse**.

Impacts of Alternative B (North Entrance)

Under Alternative B, the opening of the North Entrance would provide much needed site recognition along Flatbush Avenue. New signage would indicate that the entrance was intended only for the sports complex but would also provide direction to enter the rest of the site. Though this would not serve all of the site's users, it would allow passersby to recognize the site as a part of Gateway. Adversely, by isolating the sports complex from the rest of the site, this alternative does not allow the new facility to be viewed as part of the Field but as an independent attraction.

On site, there would be no improvements to the visual resources surrounding the site entrance. The site would not seem park-like, and there would be no immediate visual connection to its historic nature. However, the closure of the northern ends of Runways 12-30 and 1-19 would provide some visual connection to the historic airport. The absence of vehicles on the runways would promote both historical and natural views, as the runways could be viewed in their historic setting rather than as park roads. The result of Alternative B would be **long-term, moderate, and beneficial**.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, the new Visitor Center Entrance would provide much needed site recognition along Flatbush Avenue. The location of this entrance, in the core of the Field's historic structures, would provide better visual recognition than Alternative B. With the use of appropriate signage leading to the new entrance, visitors would recognize that the structures they were seeing were part of a historic airfield now operated by the NPS.

Upon accessing this entrance, visitors would be surrounded by the Field's historic structures. This would allow for visual connections to the site's historic resources and an appreciation of the Field's use as an airport. The entry into the core of the Field would create a grand, park-like view, reinforcing the NPS presence throughout the site and not just at select locations within the Field.

Alternative C would also include more runway closures than Alternative B. By closing the northern ends of Runways 15-33, 12-30, and 1-19, as well as much of Runway 6-24, this alternative would remove motor vehicles from a sizeable portion of the Field's viewshed. The absence of these vehicles would promote both historical and natural views, as the runways could be viewed in their historic setting rather

than as park roads. Similarly, the closing of the runways would allow the North Forty and Grassland Management Areas to be seen as true natural resources and not as buffers lining a road.

The existing entrance would remain open for partner and tenant users and park visitors, but it would not detract from the visual setting, as the grand entrance would be available to properly introduce the Field. The result would be **long-term, moderate, and beneficial**.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

Under Alternative D, both the North and Visitor Center Entrances would be opened. This would provide greater site recognition along Flatbush Avenue than Alternative B or C offers. The two entrances would both be signed to indicate the site was an NPS unit. Also, under this alternative, the North Entrance would be connected to the entire site, removing the visual division between the sports complex and the remainder of the Field.

Also under this alternative, the visual perception of the site would be varied depending on which entrance was used. The North Entrance would bring visitors on to the historic hangar row, though slightly outside of the core area. It would also be bordered by the North Forty and Grassland Management Areas, providing a more natural, undisturbed viewshed than many of the other entrances. This view would be enhanced by the closure of portions of Runways 1-19, 12-30, and 6-24. These closures would remove vehicles from this portion of the site, allowing the natural and historical setting to dominate the viewshed. Entering from the Visitor Center Entrance would provide more historic views, as described above in Alternative C. And finally, the existing entrance would maintain views that were not consistent with an NPS site but are familiar to regular visitors. The overall impact to visual resources would be **long-term, moderate, and beneficial**.

Impacts to Transportation, Site Access, and Circulation

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no changes to site access. The only entrance to the Field would be Floyd Bennett Drive, with the runways providing connections to most areas of the Field. All of the traffic associated with the new sports complex would use Floyd Bennett Drive and Runway 15-33. The 75-80% of sports complex traffic that would arrive from the north would be required to travel along Flatbush Avenue past the sports complex to Floyd Bennett Drive, and then take Runway 15-33 back up to the sports complex. These drivers would travel some 1.5 miles out of their way while arriving and departing. Most of this extra travel would occur within the Field.

Under the No-Action Alternative, the signalized intersection of Flatbush Avenue at Floyd Bennett Field would operate at LOS A during the weekday afternoon peak hour and the Saturday midday peak hour. During the morning peak hour, minor signal timing changes would be required to maintain the existing conditions of LOS A. Otherwise the southbound approach would be reduced to LOS E during the

morning rush and the entire intersection would be LOS C. The NPS and NYCDOT would pursue other means of improving this situation as staff and funding became available.

Other deficiencies would exist at the marina concession access points. Drivers heading northbound from the marina, including those with boat trailers, would either make a u-turn on Flatbush Avenue (if using the primary driveway) or cross to a median break through oncoming traffic (if using the secondary exit driveway).

Within the Field, all runways would remain open to vehicular traffic. Traffic volumes would increase due to the sports complex and the unsignalized intersection of Floyd Bennett Drive. Runway 15-33 would be reduced to LOS B (rather than its current LOS A). This would not only reduce traffic efficiency but also increase safety concerns as motor vehicles, bicycles, and pedestrians faced more regular conflicts. During large events, these conflicts could be reduced by opening the overflow access/egress gate at the north end of the Field. Overall, the No-Action Alternative would result in a **long-term, moderate and adverse impact** to transportation, site access, and circulation.

Impacts of Alternative B (North Entrance)

Alternative B would provide direct access to the new sports complex by creating a signalized intersection on Flatbush Avenue. This development would require some modifications to the existing bikeway, but would not change bicycle or pedestrian travel through the area. Under Alternative B, this new signalized intersection would operate at LOS B under all three peak hours (the morning peak hour, weekday afternoon peak hour, and the Saturday midday peak hour).

The new traffic signal would not create queuing problems on the Belt Parkway ramps. The distance between the proposed North Entrance and the ramps is approximately 1,750 feet. The longest queue from the southbound approach to the intersection would be approximately 400 feet and would occur during the evening peak hour.

The direct access to the sports complex from the new intersection would reduce traffic volumes at the intersection of Flatbush Avenue and Floyd Bennett Drive, and within the Field. Vehicles to/from the north would no longer have to travel out of their way, and Runway 15-33 would not be used for regional access to the sports complex. Vehicle travel along Runway 15-33 would be reduced, and the other runway closures would improve safety by reducing travel speeds and eliminating unanticipated vehicle and pedestrian conflicts.

Under Alternative B, the signalization of the Flatbush Avenue and Floyd Bennett Drive intersection would be improved to LOS A. Consequently, the level of service rating for the unsignalized intersection of Floyd Bennett Drive at Runway 15-33 would also improve from LOS B to LOS A. Overall; Alternative B would have a **long-term, moderate, beneficial** impact on transportation, site access, and circulation.

Impacts of Alternative C (Visitor Center Entrance)

Alternative C would create a second access point at the Ryan Visitor Center. A signalized intersection would be constructed to allow the new entrance to provide full access to the entire Field. The intersection would be developed by opening the median, adding left-turn lanes, and relocating the secondary exit driveway from the marina concession to the new intersection. These improvements would require some

modifications to the existing bikeway, but would not alter the means by which bicyclists or pedestrians travel through the area. This development would also improve safety entering and exiting the marina.

The new intersection would also reduce unnecessary travel along Flatbush Avenue and within the Field. The Visitor Center Entrance would provide direct access to the northern section of the Field, and drivers arriving from the north would no longer have to travel down Flatbush Avenue to Floyd Bennett Drive and back up Runway 15-33. Compared to the No-Action Alternative, this would reduce travel distance for each of those drivers, including those using the new sports complex, by more than 0.75 miles each way. Vehicle travel along Runway 15-33 would be reduced, and the other runway closures would improve safety by reducing travel speeds and eliminating unanticipated vehicle and pedestrian conflicts. As with Alternative B, the reduced traffic using the Floyd Bennett Drive entrance would result in both the signalized intersection at Flatbush Avenue and the unsignalized intersection at Runway 15-33 operating at LOS A during all three peak-hour conditions. The new Visitor's Center intersection would operate at LOS C under all three peak hours. Queuing along Flatbush Avenue would not impact the existing driveway to Floyd Bennett Field or the ramps at the Belt Parkway. The analysis shows the longest queue would be from the southbound approach to the intersection, approximately 410 feet during the evening peak hour. Overall, Alternative C would have a **long-term, moderate, and beneficial** to transportation at Floyd Bennett Field.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

Alternative D would create three access points to Floyd Bennett Field: the existing entrance at Floyd Bennett Drive would be retained and new entrances would be constructed at the Visitor Center and near the new sports complex. The new Visitor Center Entrance is the same as for Alternative C. The new entrance near the sports complex is similar to that for Alternative B but is located along the northern edge of the sports concession boundary rather than along the concession's Flatbush Avenue frontage.

The proposed northern entrance would be located outside of the concession boundary to allow the entrance to be used for access to the entire Field. However, the intent would be for the Visitor Center Entrance to be the primary entrance to the Field, therefore the northern entrance would be signed only for the sports complex. The design of the new intersection at the sports complex would be similar to that for Alternative B – a signalized three-legged intersection with left-turn lanes in the median.

The impacts to the Floyd Bennett Drive intersection would be the same as for Alternative C. The impact at the Visitor Center intersection, however, would be improved compared to Alternative C because much of the sports complex traffic would be using the northern entrance. As with Alternative C, the Visitor Center Entrance would reduce local traffic impacts because Field users could access the northerly sections of the Field directly rather than relying on Runway 15-33. Alternative D would also eliminate sports complex traffic from around the Ryan Visitor Center.

The intersections at both of the new entrances would operate at LOS C. Even with the intersection near the sports complex slightly north of where it would be under Alternative B, queuing along Flatbush Avenue would not impact the ramps at the Belt Parkway. The distance between the proposed North Entrance and the ramps is over 1,500 feet. The longest queue would be a maximum of 350 feet during the busiest peak hour from the southbound approach to the intersection. Overall, Alternative D would have a

long-term, moderate, and beneficial impact to transportation at Floyd Bennett Field.

Energy Consumption

The energy study evaluated the changes in regional energy consumption due to project-related motor vehicle traffic associated with the implementation of the different alternatives. Traffic data for the study area were evaluated to determine the existing, No-Action (Alternative A), and action alternative (Alternatives B, C, and D) energy consumption. The annual fuel consumption was calculated for the entire study area.

The energy analysis estimated the study area's fuel usage from average daily traffic volume and vehicle mileage characteristics. Energy consumption was estimated by dividing the VMT by an average fuel efficiency figure for vehicles. The yearly VMT was calculated for existing conditions based on existing traffic volumes and length of roadway segments within the study area. The No-Action Alternative yearly VMT was calculated by applying a traffic growth rate to existing traffic volumes and multiplying by the length of roadway segments within the study area. The action alternatives yearly VMT was calculated by adding project-generated traffic volumes to the No-Action traffic volumes and multiplying by the length of roadway segments within the study area.

Under the No-Action Alternative, annual VMT along Flatbush Avenue would increase by three million and the annual fuel consumption would increase from 308 to 376 million gallons. Alternatives B, C, and D would also result in an increase in annual VMT of three million. However, the annual fuel consumption would increase to 391 million gallons.

Impacts to Visitor Use and Experience

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no changes would be made to existing site recognition, access, or circulation options available to visitors. Visitors coming from the north would continue to pass by the site with little to no recognition of what the site was. Access to the Field would continue to be provided at the southern entrance, visibly separated from the Field's noticeable structures, leading many potential visitors to believe they had already passed the site, or that it was not an accessible area. Visitors traveling from the south would face similar conditions, as they would pass the southern entrance without seeing the visible features on the site. Upon passing the hangars and other structures, visitors may realize they need to turn around and head south again towards the entrance. However, they may not have connected the small NPS entrance to the site and abandon their attempt to reach the site or come to a conclusion that the site is not accessible.

Upon reaching the southern entrance to the site, visitors there would still have little visual recognition of the structures seen from the road, other than a few small signs directing drivers towards different locations within the site. To add to this confusion, additional signs for NYPD, NYCDOS, and USMC user groups would lead many NPS visitors to believe they had yet to reach the NPS unit. This experience

would be enforced by the use of historic runways as main access roads to the site. By using the runways to reach their destination, the visitor would not recognize their importance to the Field's history, or the overall layout of Floyd Bennett Field. Rather, the use of all of the Field's runways would serve as large, paved roads used for quick access across the large site to reach individual locations. . The use of all runways and taxiways as access roads for NPS visitors and the Field's other partner and tenant users would divide the site into individual locations, hindering any appreciation of the Field's history or the appreciation of it as one large NPS unit with numerous opportunities and resources.

The unlimited use of the Field's runways and roads would also add to user conflicts between vehicles and pedestrians. Visitors attempting to walk or bicycle through all portions of the site would have to contend with various motor vehicles. This would especially be a concern at the Environmental Study Center and Ecology Village, where school children must cross numerous roads on foot, while NYPD vehicles and other NPS visitors drive through the area.

The opening of the sports complex would only magnify these conditions, as sports complex users would travel the length of the site to reach their destination. For the most part, these visitors would be at the site only to use the sport facilities and would be coming nearly around the clock, creating a steady flow of traffic to the site. Not only would these visitors have no understanding of the site, but they would enforce the disjointed nature of the site by focusing on one attraction rather than the entire site. The overall impact of Alternative A on visitor use and experience would be **long-term, moderate, and adverse**.

Impacts of Alternative B (North Entrance)

Under Alternative B, new signage and the opening of the North Entrance would provide immediate site recognition along Flatbush Avenue. However, because the entrance would not service the entire site, its benefit would be limited to visual recognition. Visitors traveling from the north would be made aware of the site as they passed the new entrance but would still need to continue south to the existing entrance and face many of the same conditions described under Alternative A. Similarly, those visitors traveling from the south would not benefit from the improved recognition until they had passed most of the site. At this point, they would also be faced with the same conditions described for Alternative A. Nonetheless, the new entrance would promote the identity of the NPS at the site.

Other changes, external to the site that may be noticeable to visitors would be the new traffic signal, changes in the median, and realignment of the bikeway. The new traffic signal and median changes would allow the North Entrance to be accessed safely. Similarly, the realignment of the bikeway would be carried out to support the use of the new entrance and traffic signal. After some initial adjustment, these changes would become part of a visitor's regular routine.

On site, the limited runway closures prescribed by this alternative would improve the visitor experience of the Field. These closures would reduce vehicular traffic in a select portion of the site, thus improving the appreciation of the site's history and natural resources, as well as allowing for greater recreational opportunities, without the threat of vehicular interference. The rerouting of NYPD access would also eliminate heavy vehicular traffic from the Ecology Village and Environmental Study Center. The removal of this traffic would not only improve safety conditions, but allow for a more positive learning environment. The rerouting would direct the NYPD and NYCDOS traffic into corridors that already experience more consistent vehicular traffic and less pedestrian activities. Despite the runway closures and rerouting of traffic, as other routes would remain open to connect all corners of the Field.

Finally, although the new entrance would be limited to sports complex traffic, it would benefit all of the Field's users. By providing direct access to the concession, this alternative would accommodate the new users without introducing new levels of traffic to the site. This would keep the new users from recognizing the NPS presence at the site, but would also avoid adding to current user conflicts or onsite traffic. The overall impact of Alternative B to visitor use and experience would be **long-term, minor, and beneficial**.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, the new entrance would provide greatly enhanced site recognition and bolster the NPS presence at Floyd Bennett Field. The Visitor Center Entrance would also provide direct access to many of the key attractions within the core of the site. The entrance would also allow the NYPD and NYCDOS drivers to directly access their site. The direct access would remove this traffic from the NPS areas quickly and efficiently, thus reducing user conflicts and pedestrian/vehicular interactions.

This alternative would not provide direct access to the sports complex. However, it would provide better site recognition than Alternative B. The improved site recognition would enhance sports complex visitors' ability to find their destination. This entrance would also make these visitors readily aware that they were on NPS property, and not simply at an ice rink.

Other changes external to the site that may be noticeable to visitors would include the new traffic signal, changes in the median, and realignment of the bikeway and marina concession driveway. The new traffic signal and median changes would allow the Visitor Center Entrance to be accessed safely. Similarly, the realignment of the bikeway and marina concession entrance would be carried out to support the use of the new entrance and traffic signal. After some initial adjustment, these changes would become part of a visitor's regular routine.

Alternative C would offer more runway closures than Alternative B. These closures would not prohibit access to any portion of the site, as other routes would remain open. These closures would reduce the interactions between vehicular traffic and pedestrians (including the Ecology Village and Environmental Study Center), eliminate visual intrusions on the historic and natural landscape, and provide new opportunities for recreational and educational activities without vehicular interference. The overall impact of Alternative C to visitor use and experience at Floyd Bennett Field would be **long-term, moderate, and beneficial**.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

Under Alternative D, the North Entrance, Visitor Center Entrance, and existing entrance would not only provide a combination of site recognition improvements offered under Alternatives B and C, but equally improve site access. Visitors traveling from any direction would be readily aware that they were approaching or passing an NPS site and how to reach it. The multiple access points would also allow visitors to enter the Field in close proximity to their destination, reducing driving time and conflicts on the runways and other internal roads.

Other changes external to the site that may be noticeable to visitors would include the new traffic signal, changes in the median, and realignment of the bikeway and marina concession driveway. The new traffic

signal and median changes would allow the North and Visitor Center Entrances to be accessed safely. Similarly, the realignment of the bikeway and concession entrances would be carried out to support the use of the new entrance and traffic signal. After some initial adjustment, these changes would become part of a visitor's regular routine.

Although the North Entrance in Alternative D would not be directly connected to the new sports complex, it would still provide this new user group with a straight access route to their destination. By keeping this entrance open to other NPS visitors, it would provide the sports complex users with a sense of the NPS presence and significance of their destination.

Runway closures, under Alternative D, would not be as comprehensive as those in Alternative C. However, by providing three entrances, this alternative does more to reduce internal vehicular traffic. Therefore, both opened and closed runways would be more suitable to present historic and natural views and for increased recreational and educational programs. This alternative would not remove NYPD traffic from the Ecology Village/Environmental Study Center area. Safety concerns associated with pedestrian/vehicular conflicts would remain. By maintaining current NYPD access, however, this alternative would allow the new Visitor Center Entrance to be used and focused on NPS visitors and not partner and tenant users. The overall impact of Alternative D on visitor use and experience at Floyd Bennett Field would be **long-term, moderate, and beneficial**.

Impacts to Operations

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the NPS and other site users would maintain their current operating procedures. The opening of the sports complex would bring a large number of new visitors to the Field on a regular basis. Because these visitors would have to travel the length of the Field, and would often come in large numbers, NPS staff would be required to support these activities through traffic control and direction. During large events, the special events exit could be opened. This would require additional staff to direct vehicular and pedestrian traffic.

The lack of site recognition would also require NPS staff at Floyd Bennett Field and other parts of Gateway to focus on promoting the site. These activities would be centered on making current and potential visitors more aware of the site's history and what it has to offer. This would prevent staff from starting new programs, as they must focus on making current programs more accessible.

Under this alternative, the NYPD and NYCDOS would continue to travel through heavily used recreational and educational areas to reach their sites. This would include the Ecology Village and Environmental Study Center. Similarly, the NPS would continue to maintain all runways as a means of reaching its attractions on the Field. This would prevent the development of more educational and recreational programs within the site. The overall impact of Alternative A on operations would be **long-term, negligible, and adverse**.

Impacts of Alternative B (North Entrance)

The development of the new North Entrance would require some focused coordination with NYCDOT representatives. Upon completion, however, this entrance would allow NPS staff to maintain their current operation without being distracted by the new sports complex. Under Alternative B, the opening of the North Entrance would create another point of entry that would need to be maintained by the NPS. While the median improvements and traffic signal would be NYCDOT property, the onsite elements would still require NPS attention. Despite the potential for additional maintenance, the new entrance would eliminate the need for NPS to focus on accommodating the new user group at the sports complex. During any event, these users would have direct access/egress to their destination.

Under this alternative, the NYPD would be required to change their access and circulation pattern, but not in a manner that would impact their current operation. This change would, however, reduce interactions between pedestrians and vehicles at the Ecology Village/ Environmental Study Center. Control over the site would be furthered by the use of control points which could prevent vehicles from entering select portion of the Field. This would allow staff to focus on educational programs and not traffic control or pedestrian safety. Limited runway closures would also allow the NPS staff to focus on new programs on the runways and within the Grassland Management Areas. The overall impact of Alternative B on operations would be **long-term, minor, and beneficial**.

Impacts of Alternative C (Visitor Center Entrance)

Under Alternative C, the opening of the Visitor Center Entrance would result in a change to NPS and other site users' operations. The new entrance would require additional effort to maintain, especially since this point would provide a grand, park-like entrance that would need to represent the NPS. However, after some initial coordination efforts with the NYCDOT, this new entrance would allow staff to increase interpretive and educational opportunities around the core of the Field's historic district.

The NYPD and NYCDOS would both be required to alter their current access and circulation patterns. The new access route would provide a direct path to their respective locations, reducing time spent traveling across the Field. This would also remove these vehicles from the Ecology Village/Environmental Study Center area, reducing the need for traffic control and increasing the efficiency of educational programs. Control over the site would be furthered by the use of control points which could prevent vehicles from entering select portion of the Field. The ample runway closures under this alternative would also allow staff to shift their focus to historic and natural resource preservation and education.

Despite these improvements, this alternative would not provide direct access to the sports complex. This would require NPS staff to provide traffic control and direction during large events, and potentially operate the special events exit. The overall impact of Alternative C on operations would be **long-term, moderate, and beneficial**.

Impacts of Alternative D (Multi-Access) (NPS Preferred)

After initial coordination with the NYCDOT, the opening of two new entrances under this alternative would result in changes in current operations at Floyd Bennett Field. The two new entrances would require additional maintenance, especially at the Visitor Center Entrance, where the NPS presence would

be on display to the surrounding community. Despite these new efforts, the multiple entrances would provide immediate access/egress to all portions of the Field. The immediate access/egress provided by this alternative would also allow the Field to easily accommodate the new user group at the sports complex without additional operating activity. This would reduce the need for traffic control during large events. Control over the site would be furthered by the use of control points which could prevent vehicles from entering select portions of the Field.

The consolidation of the NYPD and NYCDOS access/egress patterns would require NPS staff to continue to focus on pedestrian safety between the Ecology Village and the Environmental Study Center. Despite this effort, the removal of these partner and tenant users from the new Visitor Center Entrance would allow NPS staff to expand on opportunities and interpretation offered in and around the core of the site.

The ample runway closures under this alternative would also reduce the need for road maintenance and allow staff to shift their focus to historic and natural resource preservation and education. The overall impact of Alternative D on operations would be **long-term, moderate, and beneficial**.

JACOB RIIS PARK

Impacts to Natural and Physical Resources

Impacts to Soils and Topography

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no physical developments made within Jacob Riis Park that could impact soils or topography. The amount of impervious cover would remain constant. This would leave much of the soil in the area compacted and unable to absorb water or support vegetation. Vehicles driving along Beach Channel Drive may continue to make illegal U-turns over the median, causing some disruption and erosion to soils. This impact would be barely measurable and easily mitigated as resources became available to the NPS or NYCDOT. There would be no changes to existing topographic conditions. The overall impact of Alternative A on soils and topography would be **long-term, negligible, and adverse**.



U-turns along Beach Channel Drive

Impacts of Alternative B (Left Turn)

Under Alternative B, approximately 0.1 acre (6,000 sf) of impervious surface would be installed to accommodate the new left turn. The new surfaces would be isolated within the median of Beach Channel Drive and could require some grading or fill prior to paving. The change in impervious surface should not alter runoff patterns, however any additional runoff would be captured by the remaining median and/or existing drainage structures along Beach Channel Drive. Although the additional development would impact a minute amount of natural soils, it would reduce the off road driving that occurs within several spots along the median, eliminating the ruts and rills that erode these soils during storm events.

In addition to the turn lane, the modification and reduction in size of the existing roundabout would allow an estimated 1.2 acres (55,000 sf) of currently impervious surface to be removed and returned to green space. Some grading may be as part of the changes to the roundabout. Overall there would be a net gain of 1.1 acres (49,000 sf) of green space which could be returned to green space. Any changes in topography would be limited to minimal grading confined to the two developments. This gain is a relatively noticeable achievement in the urban environment. Overall there would be a **long-term, moderate, and beneficial** impact to soils and topography by Alternative B.

Impacts of Alternative C (Intersection)

Under Alternative C, approximately 0.8 acre (37,000 sf) of new impervious pavement would be installed to accommodate the new intersection. During the construction process, grading and fill activities may be required that shift and compact soils. However, these activities would be minimal and confined to narrow swaths along existing impervious surfaces. To offset the increase in impervious surface, existing roads

that do not fit into the new intersection would be removed and replanted with native vegetation. This would result in a no net gain of impervious cover in the area.

In addition, the modification and reduction in size of the existing roundabout would allow an estimated 1.2 acres (55,000 sf) of existing impervious surface to be returned to green space. Minimal grading would be required. Any changes to topography would be limited to these actions. Overall there would be a net gain of 0.4 acre (18,000 sf) of green space. Although not as great as Alternative B, the no net loss of green space is a noticeable achievement in the urban environment. Overall there would be a **long-term, minor, and beneficial** impact to soils and topography by Alternative C.

Impacts of Alternative D (Bridges) (NPS Preferred)

The first phase of Alternative D would implement the actions prescribed under Alternative B. The impacts to soils and topography associated with these actions are described above. Once the second phase of Alternative D was implemented, the first phase developments would no longer be needed. The NPS would coordinate with NYCDOT to determine if the left-turn infrastructure along Beach Channel Drive should remain in place or be removed. If the turn lane was to be removed, the footprint within the median would be demolished and replanted with native vegetation, eliminating any remnant of impervious space.

Under Alternative D, approximately 1.0 acre (44,000 sf) of existing green space would be covered by impervious surface through the installation of the new bridge system. Some small areas of change would occur where the old bridge supports were removed. In many cases, these posts would no longer support the new bridges and could be replanted with native vegetation. In other areas, native vegetation would be removed to allow for the placement of new posts. Any changes to topography would be limited to grading, cut, or fill activities around these posts.

In addition to this development, the modification and reduction in size of the existing roundabout would allow an estimated 1.2 acres (55,000 sf) of existing impervious surface to be returned to green space. Minimal grading would be required. Any changes to topography would be limited to these actions. Overall there would be a net gain of 0.2 acre (11,000 sf) of green space. Although not as great as Alternative B, the no net loss of green space is a noticeable achievement in the urban environment. Overall Alternative D would result in a **long-term, minor, and beneficial** impact to soils and topography.

Impacts to Vegetation

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no changes would be made within Jacob Riis Park that would impact existing vegetation. Stormwater runoff could adversely impact vegetation immediately surrounding the roads, as could any “off road” driving in the median. The NPS, NYCDOT, and other groups would continue to monitor vegetation as staff and funding became available. Special attention would be given to invasive and/or exotic species control. Under the No-Action Alternative, there would be a **long-term, negligible, adverse** impact to vegetation at Jacob Riis Park.

Impacts of Alternative B (Left Turn)

Under Alternative B, approximately 0.1 acre (6,000 sf) of vegetation would be lost to impervious surface. This loss would be confined to low quality grasses that inhabit the median and edge of Beach Channel Drive. This vegetation is reflective of past disturbances including road installation and maintenance, off-road vehicle trampling. Native vegetation is quite limited and these disturbances have allowed exotic and/or invasive species to establish. The removal of these species would not represent an important loss, as the species are common throughout the site and region and would continue to exist in other areas.

Despite this loss, approximately 1.2 acres (55,000 sf) would be returned to green space through the improvements made at the roundabout. These new conditions could support high quality native vegetation and be monitored to ensure that no invasive and/or exotic species were able to dominate the area. The net result would be an increase in an estimated 1.1 acres (49,000 sf) of native vegetation. This gain is a relatively noticeable achievement in the urban environment. The impact of Alternative B to vegetation at Jacob Riis Park would be **long-term, moderate, and beneficial**.

Impacts of Alternative C (Intersection)

Under Alternative C, approximately 0.8 acres (37,000 sf) of green space would be converted to impervious surface through the installation of the new intersection. The affected areas include fescue dominated lawn mixed with weedy herbaceous plants, such as wild onion, chickweed, and henbit. During the construction process, larger shrubs and trees may be excavated and replanted in a different location to avoid permanently losing them. Some remaining vegetation may be indirectly impacted by the loss of the ramps. The ramps create shading patterns that deprive vegetation of sunlight during periods of the day, resulting in changes in development and/or the type of species present at the site. Therefore, under this alternative, untouched vegetation in and around the new roads would no longer be affected by shading. After a period of adjustment, the existing vegetation would adapt to these changes and would not be impacted in the long-term.

Despite this loss of existing vegetation, approximately 1.2 acres (55,000 sf) of existing impervious surface would be replanted with native vegetation through the reduction in size of the existing roundabout. These new conditions could support high quality native vegetation and be monitored to ensure that no invasive and/or exotic species were able to dominate the area. The net result would be an increase in an estimated 0.4 acre (18,000 sf) of pervious space with native vegetation. Although not as great as Alternative B, the no net loss of green space is a noticeable achievement in the urban environment. Overall, Alternative C would result would in a **long-term, minor, and beneficial** impact to vegetation.

Impacts of Alternative D (Bridges) (NPS Preferred)

The first phase of Alternative D would implement the actions and impacts prescribed under Alternative B. Once the second phase of Alternative D is implemented, the first phase developments would no longer be needed. The NPS would coordinate with NYCDOT to determine if the left-turn infrastructure along Beach Channel Drive should remain or be removed. If it was to be removed, the median would be replanted with native vegetation. This would remove any remnant of impervious surface.

Under Alternative D, approximately 1.0 acre (44,000 sf) of existing vegetation would be lost to the installation of new bridge structures. In some areas, this loss would come through the installation of new

bridge posts. This installation would be coupled with the removal of old posts that do not support the new structures. The removal of the old posts would include planting native vegetation in their place. Additional indirect impacts could occur as the new bridge structures changed existing shading patterns. The ramps create shading patterns that deprive vegetation of sunlight during periods of the day, resulting in changes in development and/or the type of species present at the site. New shading patterns could cause a change in populations within select areas, a change that would take place relatively quickly and not alter the overall vegetative environment.

Despite this loss of existing vegetation, approximately 1.2 acres (55,000 sf) of existing impervious surface would be replanted with native vegetation through the reduction in size of the existing roundabout. These new conditions could support high quality native vegetation and be monitored to ensure that no invasive and/or exotic species were able to dominate the area. The net result would be a net gain of an estimated 0.2 acre (11,000 sf) of natural vegetation. Although not as great as Alternative B, the no net loss of green space is a noticeable achievement in the urban environment. The result would be **long-term, minor, and beneficial**.

Impacts to Wildlife and Wildlife Habitat

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no new developments that would impact wildlife or wildlife habitat. The high level of development in the area would limit the quantity and quality of habitat. This development would limit the opportunities for species to pass through the area without coming in conflict with vehicles. Vehicular noises and human activities would continue to impact wildlife, precluding some species from certain areas within the study area. The overall impact of Alternative A on wildlife and wildlife habitat would be **long-term, negligible, and adverse**.

Impacts of Alternative B (Left Turn)

Under Alternative B, the installation of the new turning lane would result in the loss of approximately 0.1 acre (6,000 sf) of existing grassy habitat. This habitat is located along the edges and median of Beach Channel Drive, a less than ideal environment for most species to successfully survive. Despite this loss, the surrounding area would still be capable of maintaining the lost habitat type and the species that would be displaced.

In addition to this development, the realignment and reduction in size of the existing roundabout would result in an increase of an estimated 1.2 acres (55,000 sf) of green space. This gain is a relatively noticeable achievement in the urban environment. This area could be replanted to support native vegetation that would provide habitat for local species. The location of this improvement, near some of the site's larger fields and less developed areas, would expand the corridor of undeveloped land that could support safe feeding and travel for different species throughout the region. While this area would create new habitat, it would still be subject to the same noise and human intrusions that other portions of the site experience. Alternative B would have a **long-term, moderate, beneficial** impact on wildlife and wildlife habitat at Jacob Riis Park.

Impacts of Alternative C (Intersection)

Alternative C would remove an estimated 0.8 acre (37,000 sf) of green space in the study area. Existing species and habitat would be displaced through the installation of the new intersection. Some of this loss could be counterbalanced through the removal of existing roads that no longer fit in with the new road layout. These roads could be removed and replaced with native vegetation, providing some space for displaced species.

In addition to this development, the realignment and reduction in size of the existing roundabout would result in an increase of an estimated 1.2 acres (55,000 sf) of green space. This gain is a relatively noticeable achievement in the urban environment. This area could be replanted to support native vegetation that would provide habitat for local species. The location of this improvement, near some of the site's larger fields and less developed areas, would expand the corridor of undeveloped land that could support safe feeding and travel for different species throughout the region. While this area would create new habitat, it would still be subject to the same noise and human intrusions that other portions of the site experience. Overall, Alternative C would have a **long-term, moderate, beneficial** impact on wildlife and wildlife habitat at Jacob Riis Park.

Impacts of Alternative D (Bridges) (NPS Preferred)

The first phase of Alternative D would implement the actions and impacts prescribed under Alternative B. Once the second phase of Alternative D was implemented, the first phase developments would no longer be needed. The NPS would coordinate with NYCDOT to determine if the left-turn infrastructure along Beach Channel Drive should remain or be removed. If it was to be removed, the median would be replanted with native vegetation, removing any trace of impervious surface and allowing the median to continue to support limited wildlife activities.

Under Alternative D, approximately 1.0 acre (44,000 sf) of habitat would be lost to development of the new bridge system. The habitat, while important to the site and its inhabitants, is maintained in the surrounding area and could continue to support the species that would be displaced by the construction process. Some areas that previously supported ramp infrastructure could be planted with native vegetation, as they would not be a part of the new bridges.

Changes in habitat would also occur as new shading patterns were introduced to the site. These new patterns would leave previously shaded areas fully exposed to the sun and temporarily shade areas that were previously exposed to the sun. These changes could alter the habitat and species that inhabit these small areas. After a short period of time, the species within these select areas would adjust to the changes and there would be no lasting impact.

As was the case in Alternative B and C, the realignment and reduction in size of the existing roundabout would result in an increase of an estimated 1.2 acres (55,000 sf) of green space. This gain is a relatively noticeable achievement in the urban environment. This area could be replanted to support native vegetation that would provide habitat for local species. The location of this improvement, near some of the site's larger fields and less developed areas, would expand the corridor of undeveloped land that could support safe feeding and travel for different species throughout the region. While this area would create new habitat, it would still be subject to the same noise and human intrusions that other portions of the site

experience. Alternative D would have a **long-term, moderate, beneficial** impact on wildlife and wildlife habitat at Jacob Riis Park.

Impacts to Water Resources

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no changes would be made that would alter pollutant loads or the impervious surfaces. Current pollutant loads would be captured by existing storm water drainages, or escape into the surrounding water bodies. Continued off road driving in the Beach Channel Drive median would increase erosion rates, adding sediments to stormwater runoff. The NPS and NYCDOT would continue to respond to stormwater management issues in and around the site as staff and funding became available. The overall impact of Alternative A on water resources would be **long-term, negligible, and adverse**.

Impacts of Alternative B (Left Turn)

Under Alternative B, there would be a net gain of 1.1 acres (49,000 sf) of green space. The development of the new left turn lane would require the installation of 0.1 acre (6,000 sf) of impervious surface along Beach Channel Drive. The change in impervious surface should not alter runoff patterns, however any additional runoff would be captured by the remaining median and/or existing drainage structures along Beach Channel Drive.

This gain in impervious surface would be fully compensated for by the reductions in size of the existing roundabout. This work would result in approximately 1.2 acres (55,000 sf) of new green space. The additional green space could serve as a natural stormwater buffer, absorbing runoff and pollutants. This gain is a relatively noticeable achievement in the urban environment. The overall impact of Alternative B on water resources would be **long-term, minor, and beneficial**.

Impacts of Alternative C (Intersection)

Under Alternative C, there would be a net gain of 0.4 acres (18,000 sf) of green space. The development of the new intersection would require the installation of 0.8 acre (37,000 sf) of impervious surface near the ramps that connect Beach Channel Drive with the northeastern corner of Jacob Riis Park. In conjunction with the installation, some existing roads that no longer met the new intersection would be removed and planted with native vegetation. This vegetation could add to the existing natural buffer that surrounds the impervious road system. The change in impervious surface should not alter runoff patterns, however any additional runoff would be captured by the remaining median and/or existing drainage structures along Beach Channel Drive or by the natural buffer that surrounds the parking lot.

To compensate for this loss of green space, the work to improve the roundabout and reduce its size would result in a gain of 1.2 acres (55,000 sf) of green space. The reduction would allow the area to be replanted with grasses and other vegetation, which could serve as a natural stormwater buffer, absorbing runoff and pollutants. Although not as great as Alternative B, the no net loss of green space is a noticeable achievement in the urban environment. The overall impact of Alternative C on water resources would be **long-term, negligible, and beneficial**.

Impacts of Alternative D (Bridges) (NPS Preferred)

The first phase of Alternative D would implement the actions and impacts prescribed under Alternative B. Once the second phase of Alternative D is implemented, the first phase developments would no longer be needed. The NPS would coordinate with NYCDOT to determine if the left-turn infrastructure along Beach Channel Drive should remain or be demolished. If it was to be demolished, the median would be replanted with native vegetation. This would remove the impervious surface from between the roads and allow the median to natural absorb stormwater pollutants.

Under Alternative D, there would be a net gain of 0.2 acres (11,000 sf) of green space. The development of the new bridges would require the installation of approximately 1.0 acre (44,000 sf) of impervious surface near the existing ramps that connect Beach Channel Drive with the northeastern corner of Jacob Riis Park. Some of the old ramp infrastructure could be removed and replaced with native vegetation, adding to the natural buffer that would surround the new bridges. The new bridges should not alter runoff patterns; however any additional runoff would be captured by the surrounding natural buffer.

The work to improve the roundabout and reduce its size would result in a gain of 1.2 acres (55,000 sf) of green space. The gain would allow the area to be planted native vegetation, which could serve as a natural stormwater buffer, absorbing runoff and pollutants. Although not as great as Alternative B, the no net loss of green space is a noticeable achievement in the urban environment. The overall impact of Alternative D on water resources would be **long-term, negligible, and beneficial**.

Impacts to Floodplains

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no physical changes in the transportation network that would impact the floodplain or its ability to convey flood waters. The high level of impervious surface that currently exists at the site would allow flood velocities to increase as it traveled across the site. The remaining structures in the area would not impede the passage of flood waters. Based on the relatively small size of the study area, compared to the regional floodplain, the overall impact of Alternative A on floodplains would be **long-term, negligible, and adverse**.

Impacts of Alternative B (Left Turn)

Under Alternative B, approximately 1.2 acres (55,000 sf) of green space would be added to the study area. The development of the new left turn lane would install approximately 0.1 acre (6,000 sf) of impervious surface within the 100-year floodplain. Based on the small size of this development and its location within a highly impervious area, the related increase in flood water velocity would be immeasurable. However, the addition of approximately 1.2 acres (55,000 sf) of green space through the reduction of the roundabout would reduce the velocity of flood waters passing through the site. Though not readily noticeable, this gain in green space would allow the floodplain to reduce floodwater velocities. Based on the relatively small size of the study area, compared to the regional floodplain, the overall impact of Alternative B would be **long-term, negligible, and beneficial**.

Impacts of Alternative C (Intersection)

Under Alternative C, an estimated 0.4 acre (18,000 sf) of green space would be added to the floodplain. This would involve the installation of approximately 0.8 acre (37,000 sf) of impervious surface for the new Beach Channel Drive intersection. The development along Beach Channel Drive would allow for the increase of flood water velocities. Although the increase in impervious surface would be relatively small, it would still allow floodwaters to accelerate through the area. Also, the existing ramps would no longer be in place to obstruct the flow of floodwaters along Beach Channel Drive.

To counterbalance this increase, the realignment and reduction in size of the existing traffic circle would add approximately 1.2 acres (55,000 sf) of green space to the area. Though not readily noticeable, this gain in green space would allow the floodplain to reduce floodwater velocities. Based on the relatively small size of the study area, compared to the regional floodplain, the overall impact of Alternative C on floodplains would be **long-term, negligible, and beneficial**.

Impacts of Alternative D (Bridges) (NPS Preferred)

The first phase of Alternative D would implement the actions and impacts prescribed under Alternative B. Once the second phase of Alternative D is implemented, the first phase developments would no longer be needed. The NPS would coordinate with NYCDOT to determine if the left-turn infrastructure along Beach Channel Drive should remain or be demolished. If it was to be demolished, the median would be planted with native vegetation. This would eliminate any increases in floodwater velocities that had occurred over the temporary impervious surfaces.

Under Alternative D, approximately 0.2 acre (11,000 sf) of green space would be added to the floodplain. Prior to this gain, the development of the new bridges would add approximately 1.0 acre (44,000 sf) of impervious surface to the area. The new bridges would continue to slow and obstruct floodwaters, as the current ramps do.

The gain in green space within the floodplain would come through the reduction in size of the existing roundabout. Approximately 1.2 acres (55,000 sf) of native vegetation could be planted in the area surrounding the roundabout. Though not readily noticeable, this gain in green space would allow the floodplain to reduce floodwater velocities. Based on the relatively small size of the study area, compared to the regional floodplain, the overall impact of Alternative D would be **long-term, negligible, and beneficial**.

Impacts to Air Quality

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, air quality would be influenced by the growing regional population. While no changes would be made to current circulation patterns, the increasing visitation and regional population would add more vehicular traffic to the area. Despite these growing conditions, pollutant levels would remain below the NAAQS in the future because the EPA's mobile source emission factors will continue to be reduced as a result of state and federal emission control programs.

As shown in Table 10 and 11, the Jacob Riis Park 1-hour CO concentrations under the 2005 existing condition ranged from 5.7 to 6.3 ppm. The 2005 existing condition 8-hour CO concentrations ranged from 4.0 to 4.4 ppm. Under the 2025 No-Action Alternative condition, the 1-hour CO concentrations would range from 5.4 to 5.8 ppm and the 8-hour CO concentrations would range from 3.8 to 4.1 ppm. Therefore, Alternative A (2025) would result in a **long-term, negligible, and beneficial** impact to air quality when compared to the existing condition.

Impacts of Alternative B (Left Turn)

Under Alternative B, overall air quality would continue to be improved, as was the case in the No-Action Alternative. Under this alternative, the 2025 1-hour CO concentrations would range from 5.5 to 5.9 ppm and the 8-hour CO concentrations would range from 3.9 to 4.1 ppm. These reductions would be related to the reduction in necessary travel to reach the park. The impact to air quality associated with Alternative B (2025) would be **long-term, minor, and beneficial** when compared to the No-Action Alternative (2025).

Impacts of Alternative C (Intersection)

Under Alternative C, overall air quality would continue to be improved, as was the case in the previous alternatives. Under this alternative, the 1-hour CO concentrations would range from 5.7 to 6.0 ppm and the 8-hour CO concentrations would range from 4.0 to 4.2 ppm. These reductions would be related to greater reduction in necessary travel to reach the park. The impact to air quality associated with Alternative C would be **long-term, minor, and beneficial** when compared to the No-Action Alternative.

Impacts of Alternative D (Bridges) (NPS Preferred)

Under Alternative D, the overall air quality would continue to be improved, as was the case in the previous alternatives. Under this alternative, the 1-hour CO concentrations would range from 5.6 to 5.8 ppm and the 8-hour CO concentrations would range from 3.9 to 4.1 ppm. These reductions would be related to the greater reduction in necessary travel to reach the park. The impact to air quality associated with Alternative D would be **long-term, negligible to minor, and beneficial** when compared to the No-Action Alternative.

All the 1-hour and 8-hour concentrations are below the CO NAAQS of 35 and 9 ppm, respectively. The 1- and 8- hour concentrations for Jacob Riis Park area are presented in Tables 10 and 11.

Table 10: Predicted Maximum 1 Hour CO Concentrations*

Intersection/Receptor Site	Existing (2005)	Alternative A (2025)	Alternative B (2025)	Alternative C (2025)	Alternative D (2025)
Beach Channel Drive at Rockaway Beach Blvd					
R1 Southeast Quadrant	5.7	5.4	5.5	6.0	5.6
R2 North Quadrant	5.8	5.5	5.6	5.8	5.6
R3 Southwest Quadrant	5.8	5.5	5.6	5.9	5.6
Beach Channel Drive at Parking Lot Driveway					
R4 Southeast Quadrant	5.9	5.6	5.8	5.7	5.6
R5 Northeast Quadrant	6.3	5.8	5.9	5.9	5.8
R6 Northwest Quadrant	5.9	5.6	5.7	5.7	5.6

Note: The values include background (5.0 ppm for 1 hour) and are expressed in parts per million (ppm).
The 1-hour CO NAAQS is 35 ppm. All the 1-hour concentrations are below the CO NAAQS.

Source: Vanasse Hangen Brustlin, Inc.

Table 11: Predicted Maximum 8 Hour CO Concentrations*

Intersection/Receptor Site	Existing (2005)	Alternative A (2025)	Alternative B (2025)	Alternative C (2025)	Alternative D (2025)
Beach Channel Drive at Rockaway Beach Blvd					
R1 Southeast Quadrant	4.0	3.8	3.9	4.2	3.9
R2 North Quadrant	4.1	3.9	3.9	4.1	3.9
R3 Southwest Quadrant	4.1	3.9	3.9	4.1	3.9
Beach Channel Drive at Parking Lot Driveway					
R4 Southeast Quadrant	4.1	3.9	4.1	4.0	3.9
R5 Northeast Quadrant	4.4	4.1	4.1	4.1	4.1
R6 Northwest Quadrant	4.1	3.9	4.0	4.0	3.9

Note:* The values include background (3.5 ppm for 8-hour) and are expressed in parts per million (ppm).
The 8-hour CO NAAQS is 9 ppm. All the 8-hour concentrations are below the CO NAAQS.

Source: Vanasse Hangen Brustlin, Inc.

Impacts to Noise

Impacts of Alternative A (No-Action)

As detailed in Table 12, under the No-Action Alternative, sound levels at 50 feet would range from 60 to 67 dBA, a 1 dBA increase from existing conditions. This would result in the distances to impact (66 dBA) increasing to 60 feet from the roadway centerline (a 10 foot increase from existing conditions). Therefore, Alternative A would result in a **long-term, minor, adverse** impact to noise.

Impacts Common to the Action Alternatives

As detailed in Table 12, under Alternatives B, C, and D, sound levels at 50 feet from the roadway centerlines would range from 60 to 67 dBA, the same as it would be for the No-Action Alternative. However, based on the changes to internal traffic, along with the increase in general traffic along Beach Channel Drive, Alternatives B, C, and D would increase the distance to impact (66 dBA) to 70 feet from the centerline. Therefore, Alternatives B, C, and D would result in a **long-term, minor, adverse** impact to noise.

Table 12: Existing and Future Sound Levels at 50 Feet

Site/Segment	Existing (2005) Sound Levels (dBA)	No Build (2025) Sound Levels (dBA)	Build (2025) Sound Levels (dBA)
Jacob Riis Park			
Rockaway Beach Boulevard	59	60	60
Connector - (West of Jacob Riis Beach Parking Lot)	61	61	62
Beach Channel Drive (Rockaway)	64	65	65
Beach Channel Drive (north of Riis Beach)	66	67	67

Table 13: Distances from Edge of Highway to Sound Level Impacts

Site/Segment	Existing (2005) Distance (feet)	No Build (2025) Distance (feet)	Build (2025) Distance (feet)
Jacob Riis Park			
Rockaway Beach Boulevard	Less than 30	Less than 30	Less than 30
Connector - (West of Jacob Riis Beach Parking Lot)	Less than 30	Less than 30	Less than 30
Beach Channel Drive (Rockaway)	35	40	45
Beach Channel Drive (north of Riis Beach)	50	60	70

Impacts to Cultural Resources

Impacts to Archeological Resources

To date, there are no known archeological resources at Jacob Riis Park. Based on the history of development in the area, it is anticipated that little to no archeological resources remain. The proposed alternatives would occur on previously disturbed soil; therefore archeological resources are not expected to be impacted. However, if during construction previously undiscovered archeological resources were uncovered, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and an appropriate mitigation strategy developed in consultation with the New York SHPO. As a result, there would be **no impact** to archeological resources. *For the purposes of Section 106, the proposed action would result in no historic properties affected.*

Impacts to Historic Structures

All of the alternatives presented in this document encompass construction in conjunction with traffic patterns at Jacob Riis Park. The roads that make up the original Jacob Riis Park transportation design are not considered historic structures. These elements are however considered part of the cultural landscape. As described in the *Cultural Landscape Report for Jacob Riis Volume II: Landscape Treatment Plan* (NPS 2002), the integrated network of the promenade, walkways, and pedestrian and vehicular circulation, including the parking lot, are intact and represent the central organizing element of the design landscape at Jacob Riis Park. Thus, these features are discussed under the “Impacts to Cultural Landscapes” section of this chapter. While historic structures are present at Jacob Riis Park, they would not be impacted by the proposed action as it entails traffic pattern changes only. As a result, there would be **no impact** to historic structures at Jacob Riis Park. *For the purposes of Section 106, the proposed action would result in no historic properties affected.*

Impacts to Cultural Landscapes

Impacts of Alternative A (No-Action)

Under Alternative A, existing cultural landscapes would be preserved in their current configuration. The overall plan, circulation patterns, and relationship of buildings to the landscape within the Jacob Riis Park would remain intact. The area surrounding the Park boundary has been highly developed over the years and has lost much of its integrity, as neighborhoods were built and new roads constructed. However, Jacob Riis Park itself has continued to retain its overall layout. This would not change under the No-Action Alternative, as no changes would be made to the current landscape. As a result, there would be **no impact** to cultural landscapes under this alternative.

Impacts of Alternative B (Left Turn)

Under Alternative B, a new left turn would be established into the Park that would utilize an existing, gated entrance into the parking lot, which has been closed in recent years. A new traffic signal would also minimally change the look of the landscape as people looked from the Park to the distant Manhattan skyline. However, these changes would not alter the overall layout of Jacob Riis Park. This parking lot is one of the largest design elements in Jacob Riis Park and a contributing resource to the cultural landscape. While this would restore a portion of the cultural landscape by opening an entrance, it would alter the historic circulation within the parking lot. Once vehicles entered the parking lot, circulation would move along the edge of the parking lot. In addition, jersey barriers would be used as a means to direct cars through the new circulation pattern. While these could be removed in the future, they would detract from the parking lot as visitors focused more on the modern barriers and the new circulation path rather than on the overall design of the parking lot.

In addition to the parking lot changes, the existing traffic circle would also be reconfigured. This would result in another change to the original vehicular circulation design in the park. Although the proposed changes would be in keeping with the spirit of the original design by maintaining the curvilinear lines and the basic traffic flow, it would nonetheless alter the existing transportation system. The significance of the cultural landscape at Jacob Riis Park is strongly related to its regional linkage to the parkway system that enabled public and private transportation linkages to the beach. Changes to that linkage would alter the cultural landscape of the Park. However, these changes would not alter the overall layout of the Park,

which interweaves active and passive recreational areas, as well as a large-scale unity of the layout relating the natural resources, manmade linkages, and diverse recreational areas. The relationship of buildings within the Park, another dominant feature of the cultural landscape, would remain intact. Because of these changes, the overall impact of Alternative B to cultural landscapes would be **long-term, minor, and adverse**.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative B would have a **no adverse effect** on cultural landscapes. Alternative B would alter the cultural landscape, but would not diminish the overall integrity of the landscape.

Impacts of Alternative C (Intersection)

Under Alternative C, all of the Beach Channel Drive ramps located north of the parking lot would be removed and replaced by a signalized three-way intersection connecting Rockaway Beach Boulevard and the traffic circle to Beach Channel Drive. This change would not drastically alter the overall design concept of 1936-37 that used symmetrical design layouts to define the order of spaces and activities at Jacob Riis Park. However, the loss of the Beach Channel Drive ramps would alter the existing vehicle circulation path leading into the Park. It would also redefine the linkage of Jacob Riis Park to the parkway system. As described under Alternative B, the significance of the cultural landscape of Jacob Riis Park is strongly related to its regional linkage to the parkway system that enabled public and private transportation linkages to the beach.

Alternative C would also include changes to the traffic circle and views of the Manhattan Skyline, as described in Alternative B. Because of these changes, the overall impact of Alternative C to cultural landscapes would be **long-term, minor, and adverse**.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative C would have a **no adverse effect** on cultural landscapes. Alternative C would alter the cultural landscape, but would not diminish the overall integrity of the landscape.

Impacts of Alternative D (Bridges) (NPS Preferred)

Initially under Alternative D, the proposed actions under Alternative B would be constructed, and the impacts described under Alternative B would occur. However, these changes would be temporary, lasting only until the park can implement the additional changes described in Alternative D. The final development of Alternative D, however, would not alter the overall design concept of 1936-37 that used symmetrical design layouts to define the order of spaces and activities at Jacob Riis Park. They would however alter the existing vehicular circulation path leading into the Park. It would also redefine the linkage of the Park to the parkway system. As described in Alternatives B and C, the significance of the cultural landscape of Jacob Riis Park is strongly related to its regional linkage to the parkway system that enabled public and private transportation linkages to the beach. The addition of two new bridges would also alter the look of the landscape as people looked from Jacob Riis Park to the distant Manhattan skyline. The new bridges would now minimally obstruct the traditional view of the Manhattan skyline.

Alternative D would also include changes to the traffic circle and views of the Manhattan Skyline, as described in Alternative B. Because of these changes, the overall impact of Alternative D to cultural landscapes would be **long-term, minor, and adverse**.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative D would have a **no adverse effect** on cultural landscapes. Alternative D would alter the cultural landscape, but would not diminish the overall integrity of the landscape.

Impacts to Visual Resources

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no changes would be made to the current visual resources at the site. Important views across the site and towards the Manhattan skyline would remain unobstructed. Visitors coming from the north and west would be directed into the historic access network, allowing the Park landscape to expand in front of them, displaying its natural and historic resources and open spaces.

However, those visitors coming from the east would be provided with very little site recognition upon their approach to Jacob Riis Park. The Park would be at some distance, with its large parking lot separating it from the potential visitors. These views would not present the site in the same park-like image that is provided to visitors coming from the north or west. The overall impact of Alternative A on visual resources would be **long-term, minor, and adverse**.

Impacts of Alternative B (Left Turn)

Alternative B would result in changes to viewsheds within Jacob Riis Park. These changes would come in the form of a new traffic signal, a turning lane, temporary infrastructure within the parking lot, and new traffic patterns. These changes would not, however, impede views of the Manhattan skyline, nor would these changes alter the initial visual landscape presented to visitors coming from the north or west.

The changes would alter the views provided to visitors coming from the east. The turn would not only provide direct access for these visitors, but also allow them to make an accurate visual connection to the site. The new turn would utilize a historic entrance to the parking lot that has been gated in recent years. The opening of this entrance would provide some historic, visual perspective of the parking lot. However, this alternative would also require the installation of traffic barriers and a temporary toll booth along the outer edge of the parking lot to control the new access point. This would interfere with the historic views of the structure, as well as introducing new traffic patterns into the viewshed. These new patterns would not match historic views of the parking lot and would also obstruct some views from the parking lot into the surrounding areas.

This alternative would also involve changes to the traffic circle at Jacob Riis Park. While the traffic circle would be noticeably modified, its replacement would still maintain a similar visual context on the landscape, while allowing more space to be reclaimed for native vegetation. Overall, Alternative B would have a **long-term, minor to moderate, adverse** impact on visual resources at Jacob Riis Park.

Impacts of Alternative C (Intersection)

Alternative C would confine the development of the new Beach Channel Boulevard intersection and modifications to the roundabout to the east of Jacob Riis Park. This would prevent visual intrusions on the historic parking lot. The installation of the new intersection would provide immediate visual recognition of the site for visitors coming from the east. The traffic signal would allow passersby and visitors to stop and recognize the site before proceeding. The intersection and new access routes would change views offered on the approach to the site, as the site would now be unveiled through abrupt right turns instead of gradual curvilinear expanses.

From within Jacob Riis Park, the eastern boundary would now display increased vehicular traffic, which would impede on the relatively undisturbed viewshed that makes up the site's eastern border. The intersection would also create a new visual presentation of the site that would not mimic the planned entrance from the west. The views presented to the visitors from this entrance would be more like those presented along other city roads, with the landscape being presented through sharp, immediate turns instead of the curvilinear approach that allows the landscape to expand before the visitor. This alternative would also involve changes to the traffic circle at Jacob Riis Park. While the traffic circle would be noticeably modified, its replacement would still maintain a similar visual context on the landscape, while allowing more space to be reclaimed for native vegetation. Overall, Alternative C would have a **long-term, minor to moderate, adverse** impact on visual resources.

Impacts of Alternative D (Bridges) (NPS Preferred)

The first phase of Alternative D would implement the actions and impacts prescribed under Alternative B. Once the second phase of Alternative D is implemented, the first phase developments would no longer be needed. The temporary toll booth and traffic barriers could be removed from the parking lot. The NPS would then need to close the north gate to the parking lot for safety and security purposes. Finally, the NPS would coordinate with NYCDOT to determine if the left-turn infrastructure along Beach Channel Drive should remain or be removed. If it was to be removed, the median would be planted with native vegetation to recreate the visual buffer between opposing lanes of traffic. This would result in no impact to visual resources from the first phase of the alternative.

Like the other action alternatives, Alternative D would also provide improved site recognition by providing direct westbound access to the site via a series of new bridges. Although the new bridge structures would not provide an opportunity to stop and visually assess the site, they would maintain the existing free-flowing traffic pattern along Beach Channel Drive, which prevents traffic congestion from regularly impeding on Jacob Riis Park's visual landscape. The new bridges would also change some views from the Park towards the Manhattan Skyline. Although there would be changes to these views, they would not be eliminated or obstructed.

On site, this alternative would create more visual intrusions on the eastern border of the Park. However, the new development would mimic historic designs, creating a gentler intrusion into the viewshed than that created by the other action alternatives. By mimicking the existing entrance's curvilinear design, this alternative could present Jacob Riis Park in a slowly expanding landscape, as the existing route does. This alternative would also involve changes to the traffic circle at Jacob Riis Park. While the traffic circle would be noticeably modified, its replacement would still maintain a similar visual context on the

landscape, while allowing more space to be reclaimed for native vegetation. Overall, Alternative D would have a **long-term, minor, adverse** impact on visual resources at Jacob Riis Park.

Impacts to Transportation, Site Access, and Circulation

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no physical changes would be made to the transportation network. The volume of traffic would increase due to normal growth in activity and general background growth in the region. Nonetheless, traffic operations would continue at good levels of service, with the signalized intersection of Rockaway Beach Boulevard at Beach 116th Street remaining at LOS B. Therefore, Alternative A would result in a **long-term, negligible, beneficial** impact to transportation, site access, and circulation.

Impacts of Alternative B (Left Turn)

Alternative B would introduce a new signalized intersection along Beach Channel Drive, at a new Jacob Riis Park parking lot entrance. The new intersection would allow vehicles traveling westbound on Beach Channel Drive to directly access the parking lot. The signalization would only control westbound traffic turning into the parking lot, allowing other westbound traffic to continue uninterrupted. East bound traffic would also be controlled to allow for a safe left turn into the parking lot. Up to 135 hourly trips would be accommodated by the left turn, but these trips would only have a minimal impact on the overall traffic volume. The intersection would operate at LOS A with unnoticeable delays under all three peak hours. Queuing would be less than 200 feet and would not create backups to the bridge ramps, some 1,000 feet away.

The left-turn lane would not have a noticeable impact on intersection operations in the surrounding neighborhoods. The most affected location, the signalized intersection of Rockaway Beach Boulevard at Beach 116th Street, would continue to operate at LOS B.

Alternative B also includes the reconstruction of the traffic circle to modern roundabout design guidelines. This would improve vehicle, pedestrian, and bicycle safety without adversely impacting the traffic operations. Improvements would include modifying yield-controls for drivers entering the traffic circle. The realignment of the approach roads and traffic circle would also force drivers to enter and travel through the circle at lower speeds. The smaller footprint would provide pedestrians and bicyclists with a route separated from the motor vehicles. The roundabout would be LOS A under all peak-hour conditions. Overall, Alternative B would have a **long-term, moderate, and beneficial** impact on transportation at Jacob Riis Park.

Impacts of Alternative C (Intersection)

Alternative C would reconstruct the roadway connection between Beach Channel Drive and Rockaway Beach Boulevard. The free-flowing ramp and bridge segments would be replaced by a signalized T-intersection. The T-intersection would provide westbound vehicles on Beach Channel Drive direct access to Jacob Riis Park via the traffic circle. The new T-intersection would operate at LOS B, and drivers

would experience average delays of less than 15 seconds during the weekday morning, weekday evening, and Saturday midday peak hours.

The diversion of traffic from neighborhood streets along the Rockaway Beach Boulevard, and the resulting traffic impacts, would be the same as Alternative B. Alternative C would also include the reconstruction of the traffic circle. Overall, Alternative B would only have a **long-term, moderate, beneficial** impact on transportation, site access, and circulation, as the alternative would have measurable disruptions for eastbound traffic on Beach Channel Drive.

Impacts of Alternative D (Bridges) (NPS Preferred)

The first phase of Alternative D would implement the actions prescribed under Alternative B. These impacts to transportation are described above. Once the second phase of Alternative D was implemented, the first phase developments would no longer be needed. The temporary toll booth and traffic barriers could be removed from the parking lot. The NPS would then need to close the north gate to the parking lot for safety and security purposes. Finally, the NPS would coordinate with NYCDOT to determine if the left-turn infrastructure along Beach Channel Drive would remain or be removed. If it was to be removed, the median would be returned to pervious surface and planted with native vegetation. This would lead to another change in traffic patterns, which would require some adjustment. Once an adjustment was made to the new pattern, any impact to transportation, site access, and circulation would be related to the implementation of the second phase of this alternative.

Unlike Alternative B or C, Alternative D maintains the historic free-flow roadway conditions along Beach Channel Drive and does not implement delays at signalized intersections. Alternative D would redesign the connection between Beach Channel Drive and Rockaway Beach Boulevard to provide direct westbound access to the traffic circle while maintaining free-flow travel along Beach Channel Drive. This would be accomplished through the development of a new, grade-separated roadway system with new bridges. By maintaining the free flowing conditions, there would be no changes to level of service. The diversion of traffic from neighborhood streets and the safety improvements associated with the roundabout would be the same as those described under Alternatives B and C. Overall, Alternative D would a **long-term, moderate, and beneficial** impact on transportation at Jacob Riis Park.

Energy Consumption

The energy study evaluated the changes in regional energy consumption due to project-related motor vehicle traffic associated with the implementation of the different alternatives. Traffic data for the study area were evaluated to determine the existing, No-Action (Alternative A), and action alternative (Alternatives B, C, and D) energy consumption. The annual fuel consumption was calculated for the entire study area.

The energy analysis estimated the study area's fuel usage from average daily traffic volume and vehicle mileage characteristics. Energy consumption was estimated by dividing the VMT by an average fuel efficiency figure for vehicles. The yearly VMT was calculated for existing conditions based on existing traffic volumes and length of roadway segments within the study area. The No-Action Alternative yearly

VMT was calculated by applying a traffic growth rate to existing traffic volumes and multiplying by the length of roadway segments within the study area. The action alternatives yearly VMT was calculated by adding project-generated traffic volumes to the No-Action traffic volumes and multiplying by the length of roadway segments within the study area.

Under the No-Action Alternative, annual VMT along Beach Channel Drive (at Jacob Riis Park) would increase by one million and the annual fuel consumption would increase from 119 to 145 million gallons. Alternatives B, C, and D would also result in an increase in annual VMT of two million. However, the annual fuel consumption would increase to 162 million gallons.

Impacts to Visitor Use and Experience

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the NPS would still move forward with plans to provide additional visitor services in and around the renovated Bathhouse. However, no transportation improvements would be made to prepare for these new activities or to make the site more accessible to the current visitor.

This is especially true for visitors coming from the east. Without appropriate site recognition or direct access, many passersby would not understand what the site was or how to reach it. This could deter potential visitors from coming to the site. It would also force those who intended to come to Jacob Riis Park to pass the site, merge with oncoming traffic from the north and west, and then enter the Park's access route. The merging process is not conducive to the park-like environment the NPS seeks to maintain at Jacob Riis Park, and any wrong turn would lead visitors across the Marine Parkway (Gil Hodges Memorial) Bridge before they could turn around and return to the site.

Once visitors aligned themselves on the approach to the Park, they would be introduced to the site through the means designed by Robert Moses, watching the landscape open up to them through a fluid series of curves. The approach would direct visitors directly to the Bathhouse and/or parking lot where they may either drop passengers off or park and access the site on their own. Beyond the Bathhouse, the traffic circle would continue to create safety hazards for vehicles, bicyclists, and pedestrians. The overall impact of Alternative A on visitor use and experience would be **long-term, minor, and adverse**.

Impacts of Alternative B (Left Turn)

Under Alternative B, the new left turn entrance would provide immediate site recognition and direct access for visitors traveling from the east. Visitors would no longer need to navigate the ramps and merging lanes at the base of the Marine Parkway (Gil Hodges Memorial) Bridge. The construction of this entrance would disrupt the free flow of traffic along Beach Channel Drive. Despite these changes, the new entrance would utilize a historic entrance to the parking lot. Entering at this point would provide the visitors with some understanding of how the site was historically used.

Once visitors entered the new entrance, they would immediately enter a queuing lane that would lead to the toll booths at the entrance of the parking lot. This lane would not represent the historic or intended use of the parking lot. It would also obstruct a number of views across the Jacob Riis Park landscape. Entry into the queuing lane would also prevent visitors from driving by the site or dropping passengers off at the Bathhouse. Although staff working the toll booths could develop a procedure to allow visitors to turn

around and exit the parking lot without paying a toll or parking, it would be an inconvenience to the visitors waiting in the queuing lane.

In addition to these access improvements, this alternative would also modify the traffic circle. These modifications would create safer merging into and out of the circle, while reducing vehicular speeds within the circle. The improvements would also allow for safe bicycle and pedestrian access. These safety improvements, along with the increase in green space around the new circle, would help enhance a park-like atmosphere at the site. Therefore, while this alternative would limit the visitor experience to those entering at the new entrance, it would improve overall site recognition and ease of access. The result would be **long-term, minor, and beneficial** to visitor use and experience from Alternative B.

Impacts of Alternative C (Intersection)

Alternative C would also provide improved site recognition and direct access to Jacob Riis Park for westbound traffic. This access route would disrupt current circulation patterns in the area but would allow potential visitors to stop at the new traffic signal, assess the site, and then make a turn and enter the site. The new route would not force visitors into the parking lot but would allow them to drive by the site, drop off passengers, and/or enter the parking lot.

Despite the direct access, the traffic signal and perpendicular turns associated with the new route would not fit with the existing visitor approach and experience. The new route would be focused on bringing visitors safely and efficiently into the site but without the Jacob Riis experience. To experience the historic entry, visitors would still need to travel along Beach Channel Drive to reach the existing entrance. This alternative would also include the improvements at the traffic circle, described under Alternative B. Overall this alternative would provide improved site recognition and direct access to all portions of Jacob Riis Park for westbound travelers. Overall, Alternative C would result in a **long-term, moderate, beneficial** impact to visitor use and experience.

Impacts of Alternative D (Bridges) (NPS Preferred)

The first phase of Alternative D would implement the actions and impacts prescribed under Alternative B. Once the second phase of Alternative D is implemented, the first phase developments would no longer be needed. The temporary toll booth and traffic barriers could be removed from the parking lot. The NPS would then need to close the north gate to the parking lot for safety and security purposes. Finally, the NPS would coordinate with NYCDOT to determine if the left-turn infrastructure along Beach Channel Drive should remain or be removed. If it was to be removed, the median would be planted with native vegetation. This would lead to another change in traffic patterns, which would require some adjustment. Once an adjustment was made to the new pattern, any impact to visitor use and experience would be related to the implementation of the second phase of this alternative.

Under Alternative D, the visitor experience would be improved by providing site recognition and direct access to Jacob Riis Park from the east. This access route would be similar to Alternative C, in that it would not force the visitors into the parking lot but instead provide full access to the site. This alternative would also be able to preserve the free-flowing traffic pattern on Beach Channel Drive.

Along with the direct access, this alternative would also utilize the curvilinear design that the existing access route uses. This would allow the visitor to enter Jacob Riis Park with the same expanding views of

the landscape. Along with providing the same entrance views, this alternative would not noticeably change views from within Jacob Riis Park by using infrastructure that is similar to the existing systems. Overall this alternative would provide improved site recognition and direct access to all portions of Jacob Riis Park for westbound travelers. This would result in a **long-term, moderate, beneficial** impact to visitor use and experience from Alternative D.

Impacts to Operations

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the NPS would maintain its current operations at Jacob Riis Park. Because there would be no physical development to address westbound access, the NPS would need to work to improve its public outreach and visitor education programs to promote Jacob Riis Park as a historic and recreational resource. Other operations would continue to focus on maintaining the existing access roads and parking lot, along with operating the toll booths in the spring and summer months. The overall impact of Alternative A on operations would be **long-term, negligible, and adverse**.

Impacts of Alternative B (Left Turn)

Under Alternative B, the installation of the new left-turn lane would occur in the median of Beach Channel Drive. Therefore there would be no direct impact on NPS operations. This area present is and would continue to be maintained by the NYCDOT. Installation of these facilities would require NPS staff to coordinate with NYCDOT during the construction process. Additional ongoing coordination with NYCDOT would be required to ensure the new turning lane was properly maintained.

On NPS land, changes in operations would be focused on the opening of the historic entrance and the toll booth area. At the new entrance, landscaping practices would need to be modified to keep vegetation from creating visual or physical obstructions that could create safety hazards at the new entrance. Pavement would also need to be maintained to provide safe entry into the parking lot. Within the parking lot, NPS staff would also have to maintain the traffic barrier that would direct visitors to the entrance of the parking lot. Regular checks would be required to ensure that the barriers were not displaced or obstructing efficient traffic flow. There would also be a temporary toll booth installed to serve this new entrance pattern. This would require an increase in seasonal staff to operate the booth. Because this alternative confines new access to the parking lot, park staff would need to develop procedures for allowing visitors that did not want to enter the parking lot to turn around and exit the site.

Improvements to the roundabout would occur on NYCDOT lands and would not noticeably alter NPS operating procedures. Although there would be new tasks at the parking lot, NPS staff would no longer need to be concerned with addressing deficiencies in westbound access and could focus on education and recreational activities, without being distracted by access and traffic problems. In the **short-term**, Alternative B would have a **moderate, adverse** impact to operations. However, once new staffing and procedures were in place, Alternative B would result in a **long-term, minor, beneficial impact** to operations.

Impacts of Alternative C (Intersection)

Under Alternative C, the new intersection and roundabout modifications would occur primarily on NYCDOT property and not require NPS maintenance. Installation of these facilities would require NPS staff to coordinate with NYCDOT during the construction process. Additional ongoing coordination would be required to ensure the new roads were properly maintained.

On NPS lands, operational changes would only be slightly modified to address the new roads and surrounding landscaping. These areas are already included in the Jacob Riis Park operation and would be easily incorporated into current practices. The new access route could be incorporated into the existing parking lot access and would not require additional staffing unlike Alternative B.

NPS staff would no longer need to be concerned with addressing deficiencies in westbound access and could focus education and outreach efforts on more in-depth issues, along with promoting future attractions at the site. Overall, Alternative C would result in a **long-term, minor, beneficial** impact to operations.

Impacts of Alternative D (Bridges) (NPS Preferred)

The first phase of Alternative D would implement the actions and impacts prescribed under Alternative B. Once the bridges were in place, as part of the second phase, the first phase developments would no longer be needed. The temporary toll booth and traffic barriers could be removed from the parking lot. The NPS would then need to close the north gate to the parking lot for safety and security purposes. Finally, the NPS would coordinate with NYCDOT to determine if the left-turn infrastructure along Beach Channel Drive should remain or be removed. Regardless, the infrastructure falls outside of the NPS boundaries and would not have an impact on operations. Maintenance activities and toll booth operations could be reassigned to other areas. Therefore, the first phase of this alternative would have no impact on operations.

The installation of the bridges under Alternative D would occur primarily on NYCDOT lands and not require NPS maintenance. Installation of these facilities would require NPS staff to coordinate with NYCDOT during the construction process. Additional ongoing coordination would be required to ensure the new structures were properly maintained.

On NPS lands, operational changes would only be slightly modified to address the new roads and surrounding landscaping. These areas are already included in the Jacob Riis Park operation and would be easily incorporated into current practices. The new access route could be incorporated into the existing parking lot access and would not require additional staffing unlike Alternative B.

NPS staff would no longer need to be concerned with addressing deficiencies in westbound access and could focus education and outreach efforts on more in-depth issues, along with promoting future attractions at the site. Overall, Alternative D would result in a **long-term, minor, beneficial** impact to operations.

RIIS LANDING

Impacts to Natural and Physical Resources

Impacts to Soils and Topography

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no changes made to the existing road network in or around the site. Without new parking infrastructure, increasing visitation would require more regular use of overflow parking areas. These areas are primarily lawns or graveled areas. The continued use of these sites could compress soils and/or lead to the loss of the upper layers of soil as the pressure exerted by vehicles pushed the soils out of place. Therefore, Alternative A would result in a **long-term, negligible, adverse** impact to soils and topography.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, a new parking lot and sidewalk would be constructed north of the baseball fields. This would result in the removal of approximately 3.7 acres (165,000 sf) of natural ground cover. Along with these developments, a new traffic signal would be installed. The installation would require some temporary trenching and removal of soils. However, these soils could be stockpiled on site and returned to their location upon completion of the installation. When complete, the new signal would only permanently displace a few cubic feet of soil. The change in impervious surface should not alter runoff patterns, however any additional runoff would be captured by the remaining median and/or existing drainage structures along Beach Channel Drive. The loss of natural groundcover and increase in impervious surface could be mitigated through the removal of an equal area of developed land in another portion of the park. This select area could then be planted with native vegetation. Changes to topography would be limited to minor grading, cut, or fill activities to prepare the land for paving. Overall, Alternative B would result in a **long-term, minor, adverse** impact to soils and topography.

Impacts of Alternative C (Parking at T-4)

Under Alternative C, physical development would be limited to the traffic signal described under Alternative B and a sidewalk to help create pedestrian access from the T-4 parking lot to Riis Landing. Along with these developments, a new traffic signal would be installed. The installation would require some temporary trenching and removal of soils. However, these soils could be stockpiled on site and returned to their location upon completion of the installation. When complete, the new signal would only permanently displace a few cubic feet of soil.

The sidewalk would cover less than 0.1 acre (3,500 sf) with impervious surface. The soil beneath would be compacted to accommodate the sidewalk, leaving very little to be removed from the site. Additional impacts may occur as overflow parking areas continued to be utilized. The continued use of these sites could compress soils and/or lead to the loss of the upper layers of soil as the pressure exerted by vehicles

pushed the soils out of place. Overall, Alternative C would result in a **long-term, negligible, adverse** impact to soils and topography.

Impacts of Alternative D (Parking at Jacob Riis Park)

Under Alternative D, physical development would be limited to the traffic signal. The remainder of the proposed action would rely solely on existing infrastructure. Along with these developments, a new traffic signal would be installed. The installation would require some temporary trenching and removal of soils. However, these soils could be stockpiled on site and returned to their location upon completion of the installation. When complete, the new signal would only permanently displace a few cubic feet of soil. Therefore, Alternative D would result in a **long-term, negligible, adverse** impact to soils and topography.

Impacts to Vegetation

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the lack of parking would lead to an increase in the use of overflow parking areas. Many of these areas are grassed lawns. The repeated use of these lawns for parking would eventually lead to the loss of the grasses that support the park-like setting at Fort Tilden. These losses could be corrected through landscaping and new plantings but would need to be repeated on a regular basis as over-use continued. Overall, the No-Action Alternative would have a **long-term, negligible, adverse** impact on vegetation.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, the new parking lot and sidewalk would result in the loss an estimated 3.7 acres (165,000 sf) of green space. Currently, much of this area is vegetated by a mixture of low quality scrub and herbaceous vegetation. The removal of these species would not represent an important loss, as the species are common throughout the site and region and would continue to exist in these other areas. To avoid any noticeable losses, prior to the construction process, larger shrubs and trees could be excavated and replanted in a different location. Additional gains would be made when an equal amount of existing impervious surface was removed from elsewhere in the park and planted with native vegetation. Also, previously impervious area within the park would be returned to natural conditions, capable of supporting the lost vegetation.

Other than the increase in impervious surface, the only other alteration to existing vegetation would be from the development of the proposed pedestrian traffic signal, which could potentially impact some low quality grasses surrounding the site. Upon completion of the installation process, the trenches could be refilled and the surface replanted with native vegetation. During and after the construction process, The overall impact of Alternative B on vegetation would be **long-term, minor, and adverse**.

Impacts of Alternative C (Parking at T-4)

Alternative C would rely on existing infrastructure, thus avoiding impacts to vegetation. The only impact would come from the installation of a sidewalk and traffic signal that would cover less than 0.1 acre (3,500 sf) with impervious surface. The location proposed for the sidewalk is currently occupied by a maintained lawn that covers much of the surrounding area. The loss of this small portion would be imperceptible when compared to its surroundings.

Additional impacts may occur as overflow parking areas continued to be utilized. The repeated use of these lawns for parking would eventually lead to the loss of the grasses that support the park-like setting at Fort Tilden. These losses could be corrected through landscaping and new plantings but would need to be repeated on a regular basis as over-use continued. The installation of the proposed traffic signal could potentially impact some low quality grasses surrounding the site. Upon completion of the installation process, the trenches could be refilled and the surface replanted with native vegetation. The overall impact of Alternative C on vegetation would be **long-term, negligible, and adverse**.

Impacts of Alternative D (Parking at Jacob Riis Park)

Alternative D would rely entirely on existing infrastructure. The only direct impact to vegetation would come through the proposed traffic signal. The installation of the traffic signal could potentially impact some low quality grasses surrounding the site. Upon completion of the installation process, the trenches could be refilled and the surface replanted with native vegetation. Although the parking capacity of the Jacob Riis Park parking lot would prevent the need for overflow parking in Fort Tilden, visitors may still attempt to find parking in Fort Tilden. This could lead to the use of grassed overflow parking areas. The repeated use of these lawns for parking would eventually lead to the loss of the grasses that support the park-like setting at Fort Tilden. These losses could be corrected through landscaping and new plantings but would need to be repeated on a regular basis as over-use continued. Overall, there would be a **long-term, negligible, adverse** impact to vegetation.

Impacts to Wildlife and Wildlife Habitat

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no changes to current wildlife populations or habitat. The use of grass overflow lots may temporarily increase noise impacts around the given area or create unstable environments within the small grass and soil habitats that would be affected. These impacts are common in the urban environment, and wildlife that inhabits the area has already proven capable of adapting to these fluctuations. The overall impact of Alternative A on wildlife and wildlife habitat would be **long-term, negligible, and adverse**.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, the new parking lot would eliminate approximately 3.7 acres (165,000 sf) of existing habitat. Although the development could result in the loss or displacement of a few individual species, the surrounding area could successfully absorb and support these species. Furthermore, because the site currently sits as a relatively isolated habitat pocket, its development would not hinder the movement of wildlife through the area. The changes in vehicular and pedestrian circulation that may occur as a result of this alternative are well within the normal fluctuations of the urban environment and would not create any new impacts to wildlife or wildlife habitat. Despite these conditions, the NPS would still offset this loss by removing impervious surface elsewhere in the park and plant native vegetation that could provide similar habitat to the displaced species.

In addition to this development, this alternative would include the installation of a traffic signal along Rockaway Point Boulevard. The installation process may temporarily displace some small species, but the displaced soil and species could be replaced upon completion of the installation. All other existing

human disturbances would remain in their current state, fitting the patterns that the surrounding species have grown accustomed to. Overall, Alternative B would result in a **long-term, minor, adverse** impact to wildlife and wildlife habitat.

Impacts of Alternative C (Parking at T-4)

Under Alternative C, the only physical development would be a small piece of sidewalk (less than 0.1 acre (3,500 sf)). The development would eliminate an imperceptible portion of maintained lawn habitat. The changes in vehicular and pedestrian circulation that may occur as a result of this alternative are well within the normal fluctuations of the urban environment and would not create any new impacts to wildlife or wildlife habitat. This alternative could also require the use of overflow parking which may temporarily increase noise impacts around the given area or create unstable environments within the small grass and soil habitats that would be affected. These impacts are common in the urban environment, and wildlife that inhabits the area has already proven capable of adapting to these fluctuations. The overall impact of Alternative C on wildlife and wildlife habitat would be **long-term, negligible, and adverse**.

Impacts of Alternative D (Parking at Jacob Riis Park)

Under Alternative D, the only physical development would be the proposed traffic signal. The installation process could temporarily displace some small species, but the displaced soil and species could be replaced upon completion of the installation. All other existing human disturbances would remain in their current state, fitting the patterns that the surrounding species have grown accustomed to. The changes in vehicular and pedestrian circulation that may occur as a result of this alternative are well within the normal fluctuations of the urban environment and would not create any new impacts to wildlife or wildlife habitat. Although the parking capacity of the Jacob Riis Park parking lot would prevent the need for overflow parking in Fort Tilden, visitors may still attempt to find parking in Fort Tilden. This could lead to the use of grassed overflow parking areas. The repeated use of these lawns for parking would eventually lead to the loss of the grasses that support the park-like setting at Fort Tilden. These losses could be corrected through landscaping and new plantings but would need to be repeated on a regular basis as over-use continued. The overall impact of Alternative D on wildlife and wildlife habitat would be **long-term, negligible, and adverse**.

Impacts to Water Resources

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no long-term changes that would impact water quality. The overuse of overflow parking areas could lead to temporary increases in erosion, which could lead to increased sediment loads in stormwater runoff. The NPS and NYCDOT would continue to respond to stormwater management issues in and around the site. The overall impact of Alternative A on water resources would be **long-term, negligible, and adverse**.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, the development of the new parking lot would remove approximately 3.7 acres (165,000 sf) of green space from the site. Although this loss would be mitigated with the removal of an equal amount of impervious surfaces elsewhere, it would still result in an increase of impervious surface around the new parking lot. The increase in impervious surface could also increase pollutant loads being

absorbed in stormwater runoff. The change in impervious surface should not, however, alter runoff patterns, however any additional runoff would be captured by the remaining median and/or existing drainage structures along Rockaway Point Boulevard or by the natural buffer that borders portions of the parking lot.

Also, work to install a new traffic signal would require trenching and exposure of soils which could be washed away during the construction process. However, by following appropriate construction techniques outlined in the state's erosion and sediment control plan, any impacts to water quality would be minimized. Without any other physical developments, current water quality levels would not be altered. The overall impact of Alternative C on water resources would be **long-term, minor, and adverse**.

Impacts of Alternative C (Parking at T-4)

Alternative C would require minimal physical development to implement. The construction of a new sidewalk would constitute such an imperceptible increase in impervious surface. The change in impervious surface should not, however, alter runoff patterns, however any additional runoff would be captured by the remaining median and/or existing drainage structures within the surrounding road network or by the natural buffer that surrounds the proposed location.

Also, work to install a new traffic signal would require trenching and exposure of soils which could be washed away during the construction process. However, by following appropriate construction techniques outlined in the state's erosion and sediment control plan, any impacts to water quality would be minimized. Without any other physical developments, current water quality levels would not be altered. Furthermore, the NPS and NYCDOT would continue to respond to stormwater management issues in and around the site. The overall impact of Alternative C on water resources would be **long-term, negligible, and adverse**.

Impacts of Alternative D (Parking at Jacob Riis Park)

Under Alternative D, physical development would be limited to the new traffic signal. Work to install the new signal would require trenching and exposure of soils which could be washed away during the construction process. However, by following appropriate construction techniques outlined in the state's erosion and sediment control plan, any impacts to water quality would be minimized. Without any other physical developments, current water quality levels would not be altered. The overall impact of Alternative D on water resources would be **long-term, negligible, and adverse**.

Impacts to Floodplains

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no new development within the floodplain. Existing structures would continue to impede flood waters, while the high level of impervious surface that covers much of the peninsula would allow flood waters to increase in velocity. The existing vegetation would provide little in the way of natural floodplain conditions. There would be **no impact** to floodplains under Alternative A.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, the NPS would develop a new parking lot in Fort Tilden. The parking lot would remove an estimated 3.7 acres (165,000 sf) of green space from the floodplain. This loss would be offset by the removal of an equal amount of impervious surface elsewhere in the park. Despite this balance, there would still be an increase in impervious surfaces around the proposed area of development. The new impervious surface would allow the area immediately surrounding the study area to convey flood waters with a greater velocity. It would not, however, increase the level of impervious surface in the area to an extent great enough to impact the entire peninsula. The overall impact of Alternative B on floodplains would be **long-term, negligible, and adverse**.

Impacts of Alternative C (Parking at T-4)

Under Alternative C, the only other development would be a small segment of sidewalk. This development would have an immeasurable impact on the floodplain. Overall, Alternative C would have **no impact** to floodplains.

Impacts of Alternative D (Parking at Jacob Riis Park)

Under Alternative D, there would be no development within the floodplain that could impact floodplain values or ability to convey flood waters. Therefore, Alternative D would have **no impact** to floodplains.

Impacts to Air Quality

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, air quality would be influenced by the growing regional population. While no changes would be made to current circulation patterns, the increasing visitation and regional population would add more vehicular traffic to the area. Despite these growing conditions, pollutant levels would remain below the NAAQS in the future because the EPA's mobile source emission factors will continue to be reduced as a result of state and federal emission control programs.

As shown in Table 14 and 15, the Riis Landing 1-hour CO concentrations under the 2005 existing condition ranged from 5.8 to 6.2 ppm. The 2005 existing condition 8-hour CO concentrations ranged from 4.1 to 4.3 ppm. Under the 2025 No-Action Alternative condition, the 1-hour CO concentrations would range from 5.6 to 5.7 ppm and the 8-hour CO concentrations would range from 3.9 to 4.0 ppm. Therefore, Alternative A (2025) would result in a **long-term, negligible, and beneficial** impact to air quality when compared to the existing condition.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, overall air quality would continue to be improved, as was the case in the No-Action Alternative. For Alternative B, the 2025 1-hour CO concentrations would range from 5.8 to 5.9 ppm, and the 8-hour CO concentrations would be 4.1 ppm. These reductions would be related to the reduction in necessary travel to reach the landing. The overall impact to air quality associated with Alternative B would be **long-term, minor, and beneficial** when compared to the No-Action Alternative.

Impacts of Alternative C (Parking at T-4)

Under Alternative C, overall air quality would continue to be improved, as was the case in the No-Action Alternative. Under this alternative, the 2025 1-hour CO concentrations would range from 5.8 to 5.9 ppm, and the 8-hour CO concentrations would be 4.1 ppm. These reductions would be related to the reduction in necessary travel to reach the landing. Overall, Alternative C would result in a **long-term, minor, and beneficial** impact to air quality when compared to the No-Action Alternative.

Impacts of Alternative D (Parking at Jacob Riis Park)

Under Alternative D, overall air quality would continue to be improved, as was the case in the No-Action Alternative. Under this alternative, the 2025 1-hour CO concentrations would range from 5.7 to 5.8 ppm, and the 8-hour CO concentrations would range from 4.0 to 4.1 ppm. These reductions would be related to the changes in driving patterns, as the Jacob Riis Park was utilized through a shuttle. The overall impact of Alternative D on air quality would be **long-term, minor, and beneficial** when compared to the No-Action Alternative.

All the 1-hour and 8-hour concentrations are below the CO NAAQS of 35 and 9 ppm, respectively. The 1- and 8-hour concentrations for Riis Landing area are presented in Tables 14 and 15.

Table 14: Predicted Maximum 1 Hour CO Concentrations*

Intersection/Receptor Site	Existing (2005)	Alternative A (2025)	Alternative B (2025)	Alternative C (2025)	Alternative D (2025)
Rockaway Point Boulevard at Fort Tilden Driveway					
R1 Northeast Quadrant	6.0	5.6	6.1	6.1	6.0
R2 Northwest Quadrant	6.1	5.7	6.1	6.1	6.1
R3 Southwest Quadrant	5.8	5.6	6.3	6.3	6.2
R4 Southeast Quadrant	6.2	5.7	6.2	6.2	6.1

Note:* The values include background (5.0 ppm for 1 hour) and are expressed in parts per million (ppm).
The 1-hour CO NAAQS is 35 ppm.

Source: Vanasse Hangen Brustlin, Inc.

Table 15: Predicted Maximum 8 Hour CO Concentrations*

Intersection/Receptor Site	Existing (2005)	Alternative A (2025)	Alternative B (2025)	Alternative C (2025)	Alternative D (2025)
Rockaway Point Boulevard at Fort Tilden Driveway					
R1 Northeast Quadrant	4.2	3.9	4.3	4.3	4.2
R2 Northwest Quadrant	4.3	4.0	4.3	4.3	4.3
R3 Southwest Quadrant	4.1	3.9	4.4	4.4	4.3
R4 Southeast Quadrant	4.3	4.0	4.3	4.3	4.3

Note:* The values include background (3.5 ppm for 8-hour) and are expressed in parts per million (ppm).
The 8-hour CO NAAQS is 9 ppm.

Source: Vanasse Hangen Brustlin, Inc.

Impacts to Noise

Impacts of Alternative A (No-Action)

As detailed in Table 16, under the No-Action Alternative, sound levels at 50 feet range from 61 dBA to 67 dBA, a 1 dBA increase from existing conditions. This would result in the distances to impact (66 dBA) increasing to 60 feet from the roadway centerline (a 10-foot increase from existing conditions). Alternative A (2025) would result in a **long-term, minor, and adverse** impact to noise.

Impacts Common to the Action Alternatives

As detailed in Table 16, under Alternatives B, C, and D, sound levels at 50 feet from the roadway centerlines would range from 62 dBA to 67 dBA, similar to the No-Action Alternative (2025). However, based on the changes to internal traffic, along with the increase in general traffic along Beach Channel Drive, Alternatives B, C, and D would increase the distance to impact (66 dBA) to 70 feet from the centerline. Therefore, Alternatives B, C, and D would result in a **long-term, minor, and adverse** impact to noise.

Table 16 and 17 provides a comparison between the noise levels at Riis Landing under the different alternatives.

Table 16: Existing and Future Sound Levels at 50 Feet

Site/Segment	Existing (2005) Sound Levels (dBA)	No Build (2025) Sound Levels (dBA)	Build (2025) Sound Levels (dBA)
Riis Landing			
Rockaway Point Boulevard (State Road)	60	61	62
Beach Channel Drive (north of Riis Beach)	66	67	67

Table 17: Distances from Edge of Highway to Sound Level Impacts

Site/Segment	Existing (2005) Distance (feet)	No Build (2025) Distance (feet)	Build (2025) Distance (feet)
Riis Landing			
Rockaway Point Boulevard (State Road)	Less than 30	Less than 30	Less than 30
Beach Channel Drive (north of Riis Beach)	50	60	70

Impacts to Cultural Resources

Impacts to Archeological Resources

A park-wide archeological survey was completed for the entire Gateway area in 1977 (JMA 1978), however, this survey did not include specific information on Fort Tilden. The DCP done for Jacob Riis Park/Fort Tilden in March 1988 suggested that the possibility of prehistoric archeological resources is remote on Breezy Point (Riis Landing area) because the peninsula did not exist before the mid 1800s (NPS 1986). Prior to that time, there may have been a low island or bar in the area of Riis Landing. In addition, a Phase Ia archeological report was completed for Fort Tilden in 2006 (Northern Ecological Associates, Inc., 2006). However, because no recent studies have been done at Riis Landing specifically for archeology, ground-disturbance related to the proposed action alternatives would have the potential to impact archeological resources. Prior to construction, the NPS would investigate areas not previously surveyed. Information for the survey would inform the final design of elements such as parking lots, allowing the alternative chosen to avoid or reduce impacts to archeological resources.

Section 106 Summary

At this time, because no previous archeological surveys have been completed for the site of the proposed action alternatives, ***no determination of effect can be made***. However, the NPS would survey the site of any new construction in the action alternatives and consult with the New York SHPO to determine the National Register eligibility of any archeological resources discovered prior to any construction activities taking place.

Impacts to Historic Structures

The roads that make up Riis Landing and Fort Tilden are not considered historic structures at this time. The NPS is currently in the process of evaluating the roads at Jacob Riis Park as part of an effort to update the park's List of Classified Structures. They are however, considered part of the cultural landscape. The *95% Draft Fort Tilden Cultural Landscape Report* (NPS 2005) explains that the circulation patterns within the site contribute to the historical significance of Fort Tilden as a characteristic of the World War II era (1937-45) landscape. Most of this, however, is situated in the western two-thirds of Fort Tilden, away from the proposed developments. In addition, two pillars leading into what is today known as Riis Landing are also part of the cultural landscape. Thus, these elements are discussed under the "Impacts to Cultural Landscapes" section below. While historic structures are present at Fort Tilden and Riis Landing, they would not be impacted by the proposed action as it entails traffic pattern changes only. As a result, there would be **no impact** to historic structures at Riis Landing. *For the purposes of Section 106, there would be no historic properties affected.*

Impacts to Cultural Landscapes

Impacts of Alternative A (No-Action)

Under Alternative A, existing cultural landscapes would be preserved in their current configuration. The three landscape character areas that reflect the historic use and development of the landscape, as well as current park operations, would be maintained. In addition, the draft cultural landscape report would be finalized for the area, which would provide further guidance on landscape treatment and preservation. As a result, Alternative A would have **no impact** to cultural landscapes.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, no construction would take place within Riis Landing. As part of this alternative, a new parking lot would be constructed within Fort Tilden. This construction would occur outside of the primary Fortification area. However, the alternative would enhance the connection between the Fortification area and the wharf area, a change in the historic landscape. The enhanced traffic signals would also result in a change from historic conditions. The remaining railway, however, would remain as is, exposed in some areas and paved over in others.

In addition, the historic entrance to the Coast Guard facility at Riis Landing would be opened to allow bicycle and pedestrian access to Riis Landing. Historically, this entrance was open and is a part of the cultural landscape of Riis Landing. Opening this entrance and restoring access to Riis Landing would enhance the cultural landscape by providing historical access to the area. The pillars that introduce this access would remain in place. Taking these changes into account, the overall impact to cultural landscapes under Alternative B would be **long-term, negligible, and adverse**.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative B would have a **no adverse effect** on cultural landscapes at Riis Landing. Alternative B would have impacts at the lowest level of detection.

Impacts of Alternative C (Parking at T-4)

Under Alternative C, the existing T-4 parking lot at Fort Tilden would be used to provide parking for Riis Landing users. A new sidewalk would be constructed between the T-4 lot and Heinzelman Road to the Rockaway Point Boulevard entrance. This sidewalk would conform to recommendations in the *95% Draft Fort Tilden Cultural Landscape Report* (NPS 2005). As in Alternative B, this alternative would also enhance the connection between the Fortification area and the wharf area by installing pedestrian signals at the intersection between Fort Tilden and Riis Landing, as well as establishing parking for Riis Landing within Fort Tilden. The remaining railway would remain as is, exposed in some areas and paved over in others.

Also, as in Alternative B, the historic entrance to the Coast Guard facility would be opened for bicycle and pedestrian use, and the existing pillars would remain in place. As a result, these changes would result in a **long-term, minor, and beneficial** impact to cultural landscapes under Alternative C.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative C would have a **no adverse effect** on cultural landscapes at Riis Landing. Alternative C would preserve the landscape.

Impacts of Alternative D (Parking at Jacob Riis Park)

Under Alternative D, parking for Riis Landing would occur in the existing Jacob Riis Park parking lot. As in Alternatives B and C, this alternative would also enhance the connection between the Fortification area and the wharf area by installing pedestrian signals at the intersection between Fort Tilden and Riis Landing. However, it would not establish parking for Riis Landing within Fort Tilden. Therefore, no changes to the cultural landscape at Fort Tilden and Riis Landing would be required.

In addition, as with Alternatives B and C, the historic entrance to the Coast Guard facility would be opened for bicycle and pedestrian use, and the existing pillars would remain in place. These changes would result in a **long-term, minor, and beneficial** impact to cultural landscapes under Alternative D.

Section 106 Summary

After applying the ACHP's criteria of adverse effects (36 CFR 800.5 *Assessment of Adverse Effects*), the NPS concludes that the implementation of Alternative D would have a **no adverse effect** on cultural landscapes. Alternative D would preserve the landscape.

Impacts to Visual Resources

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no changes would be made to the visual resources within Riis Landing or Fort Tilden. As visitor opportunities increased at Riis Landing, increased visitation would bring more vehicles to the Fort Tilden area. This alternative would not provide increased parking to accommodate these new visitors. As a result, the site's viewshed would be filled with traffic congestion and vehicles parking on lawns or other informal parking areas. This would detract from the park-like setting that the NPS strives to maintain at the site. It would also make it difficult to visually interpret the historic setting. Therefore, Alternative A would result in a **long-term, moderate, and adverse** impact to visual resources.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, a new parking lot would be installed to handle increases in visitation related to Riis Landing. The new parking lot would cause the loss of a mixture of low quality scrub and herbaceous vegetation, that is tall enough to buffer the site from Rockaway Point Boulevard. This could detract from the park-like setting that dominates much of Fort Tilden. However, by locating the parking lot in its proposed location, this alternative would keep vehicular visual intrusions isolated along Rockaway Point Boulevard. This viewshed is already heavily impacted by vehicular use, and the location of the parking lot would isolate increased circulation within already busy



**Vegetative buffer along
Rockaway Point Boulevard**

areas. Additional plantings within the new parking lot would allow it to promote the park like setting that the NPS strives to maintain.

Within Riis Landing, the opening of the gated entrance for pedestrian and bicycle access would provide perspective into the site's historic use. The overall impact of Alternative B on visual resources would be **long-term, minor, and adverse**.

Impacts of Alternative C (Parking at T-4)

Alternative C would avoid installing any visually intrusive structures. As visitor opportunities increased at Riis Landing, increased visitation would bring more vehicles to the Fort Tilden area. This alternative would not provide increased parking to accommodate these new visitors. As a result, the site's viewshed would be filled with traffic congestion and vehicles parking on lawns or other informal parking areas. This would detract from the park-like setting that the NPS strives to maintain at the site. It would also make it difficult to visually interpret the historic setting. Despite the opening of the historic entrance at Riis Landing, the overall impact of Alternative C on visual resources would be **long-term, minor, and adverse**.

Impacts of Alternative D (Parking at Jacob Riis Park)

Like Alternative C, Alternative D would also avoid installing any visually intrusive structures. This alternative would, however, provide ample parking to support increased usage of Riis Landing. This would reduce vehicular traffic in and around the Landing, allowing the viewshed to remain relatively free of vehicular disturbances. Along with not adding any obstructions to the site's visual resources, this alternative would also open the historic entrance at Riis Landing, providing a visual perspective to the site's history. The impact of Alternative D on visual resources would be **long-term, minor, and beneficial**.

Impacts to Transportation, Site Access, and Circulation

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no improvements made to the transportation infrastructure at Riis Landing and Fort Tilden. The NPS would still work to improve visitor services at Riis Landing, including the potential for a regular ferry service. However, without transportation improvements there would not be enough parking to support more than a single ferry trip each day. Initially, the surrounding roads and intersections would continue to operate at their current level of service. However, as visitation increased in response to new activities at Riis Landing, the level of service would diminish proportionally. Depending on the level of development of future development at Riis Landing, Alternative A would result in a **long-term, negligible to moderate, adverse** impact to transportation, site access, and circulation.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, the NPS would move forward with plans to improve visitor activities at Riis Landing. This alternative would also include new parking to support these activities. The existing parking lot at the Landing would accommodate drop-off/pick-up activity associated with the ferry service and

other activities. The on-site parking stalls would be used for visitors, employees, and other concessionaire activities. Other on-site improvements would include the relocation of the USPP driveway and pedestrian signal changes at the intersection of Rockaway Point Boulevard at Heinzelman Road.

Pedestrians traveling between Fort Tilden and Riis Landing would have a protected pedestrian signal phase crossing Rockaway Point Boulevard and safe access to the site through the opening of the historic gated entrance. Safety would also be improved through the closure of the USPP driveway. The closure would focus all access and egress from the site in one location, thus reducing interactions between vehicles and pedestrians. These enhancements would improve pedestrian and vehicular safety with immeasurable impacts on existing traffic operations. The intersection of Rockaway Point Boulevard would continue to operate at LOS A during peak hours. (Note: the NPS and NYCDOT could seek to make these improvements under a different project, if the No-Action Alternative was selected.)

Off site, the new parking lot would support Riis Landing visitors, including ferry riders. The parking lot would also be able to support activities at the baseball fields, when Riis Landing visitation was not at its peak. With some simple changes to traffic-signal timing, traffic operations within Fort Tilden would remain good. The intersection of Rockaway Point Boulevard at Heinzelman Road currently operates at a LOS A due to the lack of any major activity at the Riis Landing or Fort Tilden driveways. Under Alternative B, level of service would be LOS B, an excellent operational condition for an urban environment. Overall, Alternative B would result in a **long-term, moderate, beneficial impact** to transportation, site access, and circulation.

Impacts of Alternative C (Parking at T-4)

Under Alternative C, the existing T-4 parking lot in Fort Tilden would be utilized to support increased activities at Riis Landing. The existing parking at Riis Landing would still be reserved for visitors with special needs, employees, and other concessionaire activities. It would also include the pedestrian safety elements described under Alternative B.

Despite the lack of new parking, the existing transportation infrastructure within Fort Tilden would continue to operate at high levels. The critical intersection of Rockaway Point Boulevard at Heinzelman Road would experience the same traffic and pedestrian volumes as with Alternative B. Overall, Alternative C would result in a **long-term, moderate, beneficial impact** to transportation, site access, and circulation.

Impacts of Alternative D (Parking at Jacob Riis Park)

Alternative D would have many of the same transportation elements as Alternatives B and C. Alternative D would include the safety enhancements of the relocation of the USPP driveway and the pedestrian signal changes at the intersection of Rockaway Point Boulevard at Heinzelman Road. Also, under Alternative D the existing parking at the Landing would accommodate drop-off/pick-up activity associated with the ferry service, visitors with special needs, employees, and other concessionaire activities.

However, under Alternative D, parking for the ferry operations and other visitor activities would be designated at the Jacob Riis Park parking lot. A shuttle bus would be used to transport visitors between the parking lot and the Landing. Despite this difference, the traffic impacts are inconsequential. Under

Alternative D, the level of service at the intersection of Rockaway Beach Boulevard at Heinzelman Road would be LOS B under all peak-hour conditions. Average delays during the weekday would be slightly improved, but only by a few seconds, compared to the other two action alternatives. There would be virtually no difference in peak Saturday midday traffic operations since there would be no commuter parking at the Jacob Riis Park parking lot on Saturdays. Overall, Alternative D would have a **long-term, minor, beneficial impact** on transportation, site access, and circulation.

Energy Consumption

The energy study evaluated the changes in regional energy consumption due to project-related motor vehicle traffic associated with the implementation of the different alternatives. Traffic data for the study area were evaluated to determine the existing, No-Action (Alternative A), and action alternative (Alternatives B, C, and D) energy consumption. The annual fuel consumption was calculated for the entire study area.

The energy analysis estimated the study area's fuel usage from average daily traffic volume and vehicle mileage characteristics. Energy consumption was estimated by dividing the VMT by an average fuel efficiency figure for vehicles. The yearly VMT was calculated for existing conditions based on existing traffic volumes and length of roadway segments within the study area. The No-Action Alternative yearly VMT was calculated by applying a traffic growth rate to existing traffic volumes and multiplying by the length of roadway segments within the study area. The action alternatives yearly VMT was calculated by adding project-generated traffic volumes to the No-Action traffic volumes and multiplying by the length of roadway segments within the study area.

Under the No-Action Alternative, annual VMT along Rockaway Point Boulevard would remain constant and the annual fuel consumption would increase from 56 to 68 million gallons. Alternatives B, C, and D would also result in an increase in annual VMT of one million. The action alternatives would result in an increase in annual fuel consumption to 81 million gallons.

Impacts to Visitor Use and Experience

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the NPS and its partners would continue to work to prepare for regular ferry service and/or other visitor uses at Riis Landing. However, under this alternative, no improvements would be made to the existing parking infrastructure in and around Riis Landing to prepare for this increase in visitors.

Riis Landing's current parking capacity would not be able to support this anticipated visitor increase. Therefore visitors may be turned away from the Landing and forced to find parking in other parts of Fort Tilden or at Jacob Riis Park. Under the No-Action Alternative, substitute parking locations would not be identified. Visitors would have to drive through the park until they found a parking lot with enough capacity. In many cases, these parking areas would be informal, grass lots. From this point, visitors would then need to walk from their parking site to the Landing. In many cases, this walk may not include appropriate sidewalks or traffic signals to provide a safe trip.

In addition to creating parking concerns for visitors accessing the Landing site, the No-Action Alternative could also create problems for visitors hoping to access other points of interest in Fort Tilden. During the summer months and special events, parking at Fort Tilden is already heavily used. The introduction of a large number of additional visitors would quickly fill many of the parking lots to capacity. This would displace the site's regular users, forcing them to spend portions of their visit searching for another parking location. In some cases, this would lead to parking in grass lots and other informal parking areas, reducing the visitor experience for all of the park's visitors. The overall impact of Alternative A on visitor use and experience would be **long-term, moderate, and adverse**.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Alternative B would seek to avoid impacts to the visitor experience through the development of a new parking lot, as well as through safety improvements around the entrance of Riis Landing. By diverting many of the site's visitors to offsite parking, the NPS could ensure that it would have enough space to develop its planned future uses at the site without adversely impacting the experience of its other visitors.

The new parking lot would be developed in a space that currently does not support any active visitor uses. The parking lot would be easily accessible via the site's current roads and would provide direct access to and from the Landing. When it was not being used to its full capacity, the new parking lot could also serve other Fort Tilden users, such as those visitors involved in baseball or softball games at the adjacent fields. Therefore, the development of this alternative would not only serve the anticipated visitors at Riis Landing, but many other visitors throughout the Fort Tilden area who desire to leave their vehicles close to the activity they are participating in.

Although this development would improve parking and access to the site, some visitors may be disappointed by the loss of undeveloped area surrounding the site. As described in the "Impacts to Visual Resources" section, the loss would remove some of the buffer between Rockaway Point Boulevard and the fields. This could lead some to feel a loss of the secluded park-like atmosphere that envelops much of Fort Tilden, and the rest of the Jamaica Bay unit. This loss would be offset through the parking lot design that would incorporate plantings, as well as future plantings the NPS may choose to undertake. The new plantings could reestablish the visual screen and/or create a more managed, park-like environment. Alternative B would have a **short-term, minor, adverse** impact and a **long-term, moderate, beneficial** impact on visitor use and experience.

Impacts of Alternative C (Parking at T-4)

Under Alternative C, offsite parking for the Landing would be designated in the existing T-4 parking lot. The T-4 lot is an existing structure that is familiar to many of the Fort Tilden's regular users. This familiarity would reduce much of the potential visitor confusion as the alternative was implemented. While some visitors may object to being directed away from the site, the T-4 parking lot represents the closest site with appropriate capacity to support new activities at Riis Landing. Once the alternative was implemented and visitors were aware of the parking setup, there would be very little confusion to detract from the visit.

However, parking at Fort Tilden is already well used. The T-4 parking lot, in particular, supports a number of regular visitor activities, including youth soccer tournaments, softball and baseball games, and educational programs held in nearby buildings. By directing Riis Landing users to this location,

Alternative C would regularly fill this parking lot's capacity, forcing visitors to spend portions of their visit searching for another parking location. In some cases, this would lead to parking in grass lots and other informal parking areas, reducing the visitor experience for all of the park's visitors. Alternative C would have a **long-term, moderate, adverse** impact on visitor use and experience.

Impacts of Alternative D (Parking at Jacob Riis Park)

Under Alternative D, offsite parking for the Landing would be designated in the existing Jacob Riis Park parking lot. This lot is an existing structure that is familiar to many of the Fort Tilden's regular users. This familiarity would reduce much of the potential visitor confusion as the alternative was implemented. While some visitors may object to being directed away from the site, the Jacob Riis Park lot represents the only site with appropriate capacity to support new activities at Riis Landing without detracting from other users' ability to park and access the sites. Once the alternative was implemented and visitors were aware of the parking setup, there would be very little confusion to detract from the visit.

Despite the lack of confusion over the parking location, there could be some misunderstanding about the need to park so far from the desired location. Visitors would be required to drive away from Riis Landing and park in the large Jacob Riis Park parking lot. From here they could either wait for a shuttle or walk to the Landing. This distance between the parking lot and Riis Landing is a great enough distance to make walking an undesirable option. Along with the distance, the roads connecting the two sites do not fully support pedestrian movement. Either way, once at the Landing, visitors could access other attractions within Fort Tilden on foot but would have to return to Jacob Riis Park via shuttle or on foot.

Because the designated parking would be so far out of the way, and because there would be no means of enforcing the use of this location, many visitors may opt to enter Fort Tilden and find other parking, leading visitors to spend portions of their visit searching for another parking location. In some cases, this would lead to parking in grass lots and other informal parking areas, reducing the visitor experience for all of the park's visitors. The overall impact of Alternative D on visitor use and experience would be **long-term, minor, and adverse**.

Impacts to Operations

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the NPS would still seek to improve visitor services at Riis Landing. Because this alternative would not include appropriate parking, on busy days staff would need to dedicate their time to control traffic and manage parking areas. This would take away from efforts to further enhance the services provided at the Landing.

The lack of parking would also require the use of informal parking areas scattered throughout Fort Tilden. The overuse of these areas would lead to the loss of vegetation and soils, which would require routine landscaping and maintenance. These activities are within the scope of current operations, but may require more regular and detailed work than is currently being performed in the area. The overall impact of Alternative A on operations would be **long-term, minor to moderate, and adverse**.

Impacts of Alternative B (New Parking at Fort Tilden) (NPS Preferred)

Under Alternative B, the new parking lot would represent a change in operations within Fort Tilden. Currently, this site requires minimal maintenance, as the vegetation grows and dies back with the change of the seasons. The new impervious structure would require occasional maintenance and trash removal, as well as more detailed landscaping to support the new plantings within the structure. These tasks are common throughout the Fort Tilden area and would not represent a sizeable increase to the current workload.

Other changes in operations would focus around the maintenance of the new pedestrian/bicycle access at Riis Landing. This entrance would now serve as a gateway to the growing site and need to properly represent the NPS. This alternative would also avoid overloading informal parking locations, thus avoiding increased maintenance of the area. Based on the minimal increases in operating requirements, staff could focus on further improving the services offered at Riis Landing. The overall impact of Alternative B on operations would be **long-term, negligible, and beneficial**.

Impacts of Alternative C (Parking at T-4)

The use of the T-4 parking lot to support Riis Landing would result in regularly filling the structure to its capacity. This would require visitors to seek out other parking options. During busy days, staff would be required to dedicate their time to control traffic and manage parking areas. This would also result in the use of informal parking areas. The overuse of these areas would lead to the loss of vegetation and soils, which would require routine landscaping and maintenance. These activities are within the scope of current operations, but may require more regular and detailed work than is currently being performed in the area. Other changes in operations would focus around the maintenance of the new pedestrian/bicycle access at Riis Landing. This entrance would now serve as a gateway to the growing site and need to properly represent the NPS. The result would be **long-term, minor to moderate, adverse** impact to operations from Alternative C.

Impacts of Alternative D (Parking at Jacob Riis Park)

Alternative D would direct Riis Landing parking to the Jacob Riis Park parking lot. The use of this lot could require a change in toll booth operations, as visitors would not be expected to pay for entry into Jacob Riis Park, if their intention was to access the new ferry service at Riis Landing. While the ferry service would be managed by a concessionaire, the toll booths would continue to be operated by the NPS, requiring a change or increase in operations. Increased operations would also be required to manage the new concessionaire contract.

Because it would not be possible for staff to enforce the use of this parking lot, visitors may elect to bypass the designated parking and seek other options closer to the Landing within Fort Tilden. This would also result in the use of informal parking areas. The overuse of these areas would lead to the loss of vegetation and soils, which would require routine landscaping and maintenance. These activities are within the scope of current operations, but may require more regular and detailed work than is currently being performed in the area. Other changes in operations would focus around the maintenance of the new pedestrian/bicycle access at Riis Landing. This entrance would now serve as a gateway to the growing site and need to properly represent the NPS. Alternative D would result in a **long-term, moderate, and adverse** impact to operations.

NEW NPS SITES AT PENNSYLVANIA AND FOUNTAIN AVENUES

Impacts to Natural and Physical Resources

Impacts to Soils and Topography

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, there would be no physical development within the administrative areas of either site. This would leave the heavily compacted soils exposed to wind and rain. Based on their compact nature, these soils would be unable to absorb much water or support a variety of vegetation.

Without formalized access and parking, these soils would remain exposed. Though compact, these soils could still be susceptible to further compaction or erosion as pedestrians and bicyclists passed over them. Further compaction would create greater imperviousness. Increased erosion would lead to the exposure of subsoil, which could be adversely impacted by wind, water, and pollutants. This impact would make it difficult for the soils to support vegetation in the future.

The compact nature of the site would allow the topography to remain relatively flat. Erosive forces could slightly alter the existing topography; however the compacted nature of the site would prevent noticeable changes.

When staff and funding became available, the NPS could plant the area to match plantings across the site, thus protecting the soils. However, the compact soils would not easily support vegetation and would require tilling or other activities to prepare them for use. The overall impact of Alternative A on soils and topography would be **long-term, minor to moderate, and adverse**.

Impacts of Alternative B (Roundabout)

Under Alternative B, new access and parking would be established at the Pennsylvania Avenue site via a roundabout. Fountain Avenue would have permanent paved parking and a grass overflow parking lot accessed through existing roads. Overall, this would require the installation of an estimated 4.6 acres (199,000 sf) of impervious surface. Some minor grading may be required prior to paving, but overall the development of these two sites would not alter the existing topography.

Although the impervious surface would eliminate natural ground cover conditions, the existing soils are already heavily compacted and the new coverage would not constitute a great change in surface quality. Furthermore, by developing the administrative areas, this alternative would prevent additional compaction and erosion problems associated with the No-Action Alternative.

During the construction process, subsoils would be exposed to install portions of the BMPs. The subsoils could easily be stored on site and protected from wind and rain. Upon completion of the installation process, these soils could be replaced. Additional grading and displacement could occur as the overflow parking area was developed. Soils that were permanently displaced could be spread across the site. Overall, Alternative B would result in a **long-term, minor, adverse** impact to soils and topography.

Impacts of Alternative C (Intersection) (NPS Preferred)

Under Alternative C, new access and parking would be established at the Pennsylvania Avenue site via a simple intersection. Fountain Avenue would have permanent paved parking and a grass overflow parking lot accessed through existing roads. The development would consist of approximately 4.3 acres (187,000 sf) of impervious surface, which would be slightly less than Alternative B. The difference would be related to the use of an intersection instead of a roundabout at the Pennsylvania Avenue site. Some minor grading may be required prior to paving, but overall the development of these two sites would not alter the existing topography.

Although the impervious surface would eliminate natural ground cover conditions, the existing soils are already heavily compacted and the new coverage would not constitute a great change in surface quality. Furthermore, by developing the administrative areas, this alternative would prevent additional compaction and erosion problems associated with the No-Action Alternative.

During the construction process, subsoils would be exposed to install portions of the BMPs. The subsoils could easily be stored on site and protected from wind and rain. Upon completion of the installation process, these soils could be replaced. Additional grading and displacement could occur as the overflow parking area was developed. Soils that were permanently displaced could be spread across the site. Overall, Alternative C would result in a **long-term, minor, adverse** impact to soils and topography.

Impacts of Alternative D (Expanded Parking)

Under Alternative D, new access and parking would be established at the Pennsylvania Avenue site via a simple intersection. Fountain Avenue would have a permanent paved parking lot accessed through existing roads. The development would consist of approximately 5.3 acres (233,000 sf) of impervious surface. The increase in impervious surface, as compared to Alternatives B and C, would be attributed to the increased paving at the Fountain Avenue site. Some minor grading may be required prior to paving, but overall the development of these two sites would not alter the existing topography.

Although the impervious surface would eliminate natural ground cover conditions, the existing soils are already heavily compacted and the new coverage would not constitute a great change in surface quality. Furthermore, by developing the administrative areas, this alternative would prevent additional compaction and erosion problems associated with the No-Action Alternative.

During the construction process, subsoils would be exposed to install portions of the BMPs. The subsoils could easily be stored on site and protected from wind and rain. Upon completion of the installation process, these soils could be replaced. Additional grading and displacement could occur as the overflow parking area was developed. Soils that were permanently displaced could be spread across the site. Overall, Alternative D would result in a **long-term, minor, adverse** impact to soils and topography.

Impacts to Vegetation

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, no transportation infrastructure would be developed within the sites' administrative areas. While the remainder of the sites would be planted with various vegetation, these areas would remain barren. Based on experiences during the capping process, it can be assumed that certain invasive or exotic species of vegetation would be able to take root in the administrative areas, despite the compact soil conditions. The development of populations of these species could threaten the existence of the select vegetation planted elsewhere on the two sites. The NPS would conduct more extensive management to ensure that invasive or exotic species did not take root as staff and funding became available.

Additionally, the undeveloped nature of the two administrative areas would invite pedestrians and bicyclists to stray off the established paths onto the surrounding landscape. Repeated traffic over these areas could lead to trampling of vegetation and their eventual loss. The NPS would also respond to these conditions as staff and funding became available. The overall impact on vegetation of Alternative A would be **long-term, moderate, and adverse**.

Impacts of Alternative B (Roundabout)

Under Alternative B, approximately 4.6 acres (199,000 sf) of impervious surface would be installed to support formalized access and parking at both sites. This installation would be confined to the barren administrative areas, which are not included in the planting plans for the capping process. The minimal amount of vegetation that could exist within these sites has only recently taken root and does not represent any important species or populations. This vegetation is confined to portions of the administrative areas where soils are loose enough to allow for root growth.

Upon completion of the parking and access installation, top soil would be placed in the center of the roundabout, parking lot islands, and the remainder of the administrative areas not included in the development. The top soil would be loose enough to support select native vegetation. Additional plantings would occur as the aboveground portions of the BMPs and overflow parking were established. The vegetation selected for these areas would be compatible with the remainder of the site and capable of sustaining themselves in the future.

The development would also direct pedestrians and bicyclists to the appropriate trails, keeping them off the surrounding landscaping, avoiding loss of planted vegetation. The NPS would continue to monitor and manage exotic or invasive species, as necessary. The overall impact of Alternative B on vegetation would be **long-term, minor, and beneficial**.

Impacts of Alternative C (Intersection) (NPS Preferred)

Under Alternative C, an estimated 4.3 acres (187,000 sf) of impervious surface would be installed to support formalized access and parking. The primary difference between this development and Alternative B would be the use of an intersection instead of a roundabout. This installation would be confined to the barren administrative areas, which are not included in the planting plans for the capping process. The minimal amount of vegetation that could exist within these sites has only recently taken root and does not

represent any important species or populations. This vegetation is confined to portions of the administrative areas where soils are loose enough to allow for root growth.

Upon completion of the parking and access installation, top soil would be placed along the edges of the intersection, within the median and parking lot islands, and the remainder of the administrative areas not included in the development. The top soil would be loose enough to support select native vegetation. Additional plantings would occur as the aboveground portions of the BMPs and overflow parking were established. The vegetation selected for these areas would be compatible with the remainder of the site and capable of sustaining themselves in the future.

The development would also direct pedestrians and bicyclists to the appropriate trails, keeping them off the surrounding landscaping, avoiding loss of planted vegetation. The NPS would continue to monitor and manage exotic or invasive species, as necessary. The overall impact of Alternative C on vegetation would be **long-term, minor, and beneficial**.

Impacts of Alternative D (Expanded Parking)

Alternative D would install approximately 5.3 acres (233,000 sf) of impervious surface at the two sites to support formalized access and parking. The primary difference between this development and Alternative B and C would be the additional paving at the Fountain Avenue site. This installation would be confined to the barren administrative areas, which are not included in the planting plans for the capping process. The minimal amount of vegetation that could exist within these sites has only recently taken root and does not represent any important species or populations. This vegetation is confined to portions of the administrative areas where soils are loose enough to allow for root growth.

Upon completion of the parking and access installation, top soil would be placed along the edges of the intersection, within the median and parking lot islands, and the remainder of the administrative areas not included in the development. The top soil would be loose enough to support select native vegetation. Additional plantings would occur as the aboveground portions of the BMPs were established. The vegetation selected for these areas would be compatible with the remainder of the site and capable of sustaining themselves in the future.

The development would also direct pedestrians and bicyclists to the appropriate trails, keeping them off the surrounding landscaping, avoiding loss of planted vegetation. The NPS would continue to monitor and manage exotic or invasive species, as necessary. The overall impact of Alternative D on vegetation would be **long-term, negligible, and beneficial**.

Impacts to Wildlife and Wildlife Habitat

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the two sites would still be fully capped and planted. This would create a large new area with various habitats and species. The administrative areas, however, would not be included in these plantings, so there would be minimal wildlife or habitat within these areas. The compacted soil would not provide quality habitat for small species. Also, the spread of invasive or exotic species, described above under “Impacts to Vegetation,” could adversely impact existing species. The NPS would seek to plant these areas and monitor them for invasive or exotic species as funding and staff became available. The overall impact of Alternative A on wildlife and wildlife habitat would be **long-term, negligible, and adverse**.

Impacts of Alternative B (Roundabout)

Plantings at both sites are scheduled to begin prior to construction of the transportation enhancements. Therefore, some wildlife may already exist when the access and parking infrastructure would be installed. However, because the areas selected for these improvements would not be included in the planting plan, the only impacts to the new wildlife and wildlife habitat would be some construction noise, which would not be greater than the existing noise from the Belt Parkway and surrounding urban environment. Similarly, upon completion, the noise from vehicles entering and exiting the site would not noticeably add to the constant urban sounds that would permeate the site. The species that would inhabit the sites have most likely grown accustomed to the urban environment and would not be greatly disturbed by the noises. Overall, Alternative B would have a **long-term, negligible, adverse** impact on wildlife and wildlife habitat.

Impacts of Alternative C (Intersection) (NPS Preferred)

Plantings at both sites are scheduled to begin prior to construction of the transportation enhancements. Therefore, some wildlife may already exist when the access and parking infrastructure would be installed. However, because the areas selected for these improvements would not be included in the planting plan, the only impacts to the new wildlife and wildlife habitat would be some construction noise, which would not be greater than the existing noise from the Belt Parkway and surrounding urban environment. Similarly, upon completion, the noise from vehicles entering and exiting the site would not noticeably add to the constant urban sounds that would permeate the site. The species that would inhabit the sites have most likely grown accustomed to the urban environment and would not be greatly disturbed by the noises. Overall, Alternative C would result in a **long-term, negligible, adverse** impact to wildlife and wildlife habitat.

Impacts of Alternative D (Expanded Parking)

Plantings at both sites are scheduled to begin prior to construction of the transportation enhancements. Therefore, some wildlife may already exist when the access and parking infrastructure would be installed. However, because the areas selected for these improvements would not be included in the planting plan, the only impacts to the new wildlife and wildlife habitat would be some construction noise, which would not be greater than the existing noise from the Belt Parkway and surrounding urban environment. Similarly, upon completion, the noise from vehicles entering and exiting the site would not noticeably add to the constant urban sounds that would permeate the site. The species that would inhabit the sites have most likely grown accustomed to the urban environment and would not be greatly disturbed by the noises. Overall, Alternative D would result in a **long-term, negligible, adverse** impact to wildlife and wildlife habitat.

Impacts to Water Resources

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the capping, landscaping, and plantings would still be completed at the two New NPS Sites. The plantings would secure the fill that has been used to cap the sites, protecting it from erosion that would lead to sedimentation of the surrounding bodies of water. However, the administrative areas would remain undeveloped.

The soils that exist within the sites' administrative areas have been heavily compacted over the years and do not exhibit normal water absorption qualities. Therefore, as time passed, these areas would accumulate dust, dirt, and other urban pollutants from the air. During storm events, the compacted soil would be unable to absorb the rain water. This water would pass over the surface, accumulating pollutants, and depositing them in the surrounding water bodies. Continued pedestrian and bicycle traffic over these areas would not only increase pollutant loading, but also increase erosion which would add more soil to stormwater runoff. The impact of Alternative A on water resources would be **long-term, minor, and adverse**.

Impacts of Alternative B (Roundabout)

Under Alternative B, the capping, landscaping, and plantings would still be completed at the two New NPS Sites. The plantings would secure the fill that will be used to cap the sites, protecting it from erosion that would lead to sedimentation of the surrounding water bodies. As part of this alternative, approximately 4.6 acres (199,000 sf) of impervious surface would be installed for formalized access and parking at the two sites.

Under normal conditions, impervious surface collects pollutants and precludes soils from absorbing rain water. During storm events, stormwater washes over these surfaces and carries pollutants into surrounding water bodies. Gateway strives to maintain a policy of no net gain in impervious surface to prevent these conditions from escalating. To successfully open these new sites, it is not practical to maintain this policy. Therefore, to avoid the pollution implications associated with impervious surface, this alternative includes the development of BMPs. The construction of these BMPs is discussed in "Chapter 2: Alternatives." To comply with NYSDEC requirements, these BMPs would be sized to successfully capture all of the stormwater runoff from the new surfaces. The BMPs would then be able to successfully remove 80% of the total suspended solids⁶ and 40% of the total pollutants carried by the stormwater. Upon treatment in the BMPs, the remaining effluent would be passed into the ground or surrounding wetlands where additional pollutant removal could occur under natural processes without threatening the integrity of the surrounding resources. The combination of these pollution removal efforts would greatly reduce the site's input of pollutants to surrounding water bodies. The result would be **long-term, moderate, and beneficial** impact to water resources from Alternative B.

Impacts of Alternative C (Intersection) (NPS Preferred)

Under Alternative C, the capping, landscaping, and plantings would still be completed at the two New NPS Sites. The plantings would secure the fill that will be used to cap the sites, protecting it from erosion that would lead to sedimentation of the surrounding water bodies. As part of this alternative, approximately 4.3 acres (187,000 sf) of impervious surface would be installed for formalized access and parking at the two sites.

Under normal conditions, impervious surface collects pollutants and precludes soils from absorbing rain water. During storm events, stormwater washes over these surfaces and carries pollutants into surrounding water bodies. Gateway strives to maintain a policy of no net gain in impervious surface to prevent these conditions from escalating. To successfully open these new sites, it is not practical to maintain this policy. Therefore, to avoid the pollution implications associated with impervious surface,

⁶ The concentration of total suspended material carried by a stream, river, or other water body.

this alternative includes the development of BMPs. The construction of these BMPs is discussed in “Chapter 2: Alternatives.” To comply with NYSDEC requirements, these BMPs would be sized to successfully capture all of the stormwater runoff from the new surfaces. The BMPs would then be able to successfully remove 80% of the total suspended solids⁷ and 40% of the total pollutants carried by the stormwater. Upon treatment in the BMPs, the remaining effluent would be passed into the ground or surrounding wetlands where additional pollutant removal could occur under natural processes without threatening the integrity of the surrounding resources. The combination of these pollution removal efforts would greatly reduce the site’s input of pollutants to surrounding water bodies. Therefore, the impact of Alternative C on water resources would be **long-term, moderate, and beneficial**.

Impacts of Alternative D (Expanded Parking)

Under Alternative D, the capping, landscaping, and plantings would still be completed at the two New NPS Sites. The plantings would secure the fill that will be used to cap the sites, protecting it from erosion that would lead to sedimentation of the surrounding water bodies. As part of this alternative, approximately 5.3 acres (233,000 sf) of impervious surface would be installed for formalized access and parking at the two sites. The increase in coverage under this alternative is related to the increased paving at the Fountain Avenue site.

Under normal conditions, impervious surface collects pollutants and precludes soils from absorbing rain water. During storm events, stormwater washes over these surfaces and carries pollutants into surrounding water bodies. Gateway strives to maintain a policy of no net gain in impervious surface to prevent these conditions from escalating. To successfully open these new sites, it is not practical to maintain this policy. Therefore, to avoid the pollution implications associated with impervious surface, this alternative includes the development of BMPs. The construction of these BMPs is discussed in “Chapter 2: Alternatives.” To comply with NYSDEC requirements, these BMPs would be sized to successfully capture all of the stormwater runoff from the new surfaces. The increase in paving under this alternative would be accompanied by an increase in BMP capacity, ensuring that the systems still met the NYSDEC requirements. The BMPs would then be able to successfully remove 80% of the total suspended solids⁸ and 40% of the total pollutants carried by the stormwater. Upon treatment in the BMPs, the remaining effluent would be passed into the ground or surrounding wetlands where additional pollutant removal could occur under natural processes without threatening the integrity of the surrounding resources. The combination of these pollution removal efforts would greatly reduce the site’s input of pollutants to surrounding water bodies. Therefore, the impact of Alternative D on water resources would be **long-term, moderate, and beneficial**.

Impacts to Floodplains

Impacts of Alternative A (No-Action)

The proposals for the Pennsylvania Avenue site are completely removed from the floodplain, and none of the alternatives (Alternative A, B, C, or D) would have any impact on floodplain values at the site.

⁷ The concentration of total suspended material carried by a stream, river, or other water body.

⁸ The concentration of total suspended material carried by a stream, river, or other water body.

Under the No-Action Alternative, there would be no physical development within the floodplain at the Fountain Avenue site. Under this alternative, the administrative area would remain undeveloped. The highly compacted soils would be nearly impervious, allowing flood waters to increase in velocity as they passed over the confined area. Alternative A would result in a **long-term, negligible, adverse** impact to floodplains.

Impacts of Alternative B (Roundabout)

Under Alternative B, the only new development would be the installation of permanent parking and access at the two administrative areas. This would solidify the already impervious nature of the area, allowing flood waters to increase in velocity as they passed through the site. However, based on the relatively small amount of the administrative area that falls within the floodplain, the increase in velocity would not enhance a flood. Alternative B would result in a **long-term, negligible, adverse** impact to floodplains.

Impacts of Alternative C (Intersection) (NPS Preferred)

Under Alternative C, the only new development would be the installation of permanent parking and access at the two administrative areas. This would solidify the already impervious nature of the area, allowing flood waters to increase in velocity as they passed through the site. However, based on the relatively small amount of the administrative area that falls within the floodplain, the increase in velocity would not enhance a flood. Therefore, Alternative C would result in a **long-term, negligible, adverse** impact to floodplains.

Impacts of Alternative D (Expanded Parking)

Under Alternative D, the only new development would be the installation of permanent parking and access at the two administrative areas. This would solidify the already impervious nature of the area, allowing flood waters to increase in velocity as they passed through the site. However, based on the relatively small amount of the administrative area that falls within the floodplain, the increase in velocity would not enhance a flood. Therefore, impacts of Alternative D would be similar to those described for Alternatives B and C. Alternative D would result in a **long-term, negligible, adverse** impact to floodplains.

Impacts to Air Quality

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, air quality would be influenced by the growing regional population. While no changes would be made to current circulation patterns, the increasing visitation and regional population would add more vehicular traffic to the area. Despite these growing conditions, pollutant levels would remain below the NAAQS in the future because the EPA's mobile source emission factors will continue to be reduced as a result of state and federal emission control programs.

As shown in Table 18 and 19, the New NPS Sites at Pennsylvania and Fountain Avenues 1-hour CO concentrations under the 2005 existing condition ranged from 5.9 to 9.6 ppm. The 2005 existing condition 8-hour CO concentrations ranged from 4.1 to 6.7 ppm. Under the 2025 No-Action Alternative, the 1-hour CO concentrations ranged from 5.6 to 7.6 ppm. The 2025 No-Action Alternative 8-hour CO

concentrations ranged from 3.9 to 5.3 ppm. Therefore, Alternative A would result in a **long-term, negligible, beneficial** impact to air quality when compared to the existing condition.

Impacts of Alternative B (Roundabout)

Under Alternative B, overall air quality would continue to be improved, as was the case in the No-Action Alternative. Under this alternative, the 2025 1-hour CO concentrations ranged from 5.6 to 7.9 ppm and the 8-hour CO concentrations ranged from 3.9 to 5.5 ppm. These reductions would be related primarily to the improvements made under the No-Action Alternative. Alternative B would result in a **long-term, negligible, beneficial** impact to air quality when compared to the No-Action Alternative.

Impacts of Alternative C (Intersection) (NPS Preferred)

Under Alternative C, overall air quality would continue to be improved, as was the case in the No-Action Alternative. Under this alternative, the 2025 1-hour CO concentrations would range from 5.6 to 7.8 ppm and the 8-hour CO concentrations would range from 3.9 to 5.5 ppm. These reductions would be related primarily to the improvements made under the No-Action Alternative. The impact associated with Alternative C would be **long-term, negligible, and beneficial** when compared to the No-Action Alternative.

Impacts of Alternative D (Expanded Parking)

Under Alternative D, overall air quality would continue to be improved, as was the case in the No-Action Alternative. Under this alternative, the 2025 1-hour CO concentrations would range from 5.7 to 7.6 ppm and the 8-hour CO concentrations would range from 4.0 to 5.3 ppm. These reductions would be related primarily to the improvements made under the No-Action Alternative. The impact associated with Alternative D would be **long-term, negligible, and beneficial** when compared to the No-Action Alternative.

All the 1-hour and 8-hour concentrations are below the CO NAAQS of 35 and 9 ppm, respectively. The 1- and 8-hour concentrations for the New NPS Sites at Pennsylvania and Fountain Avenues are presented in Tables 18 and 19.

Table 18: Predicted Maximum 1 Hour CO Concentrations*

Intersection/Receptor Site	Existing (2005)	No-Action (2025)	Alternative B (2025)	Alternative C (2025)	Alternative D (2025)
Gateway Drive at Fountain Avenue					
R1 East Quadrant	5.9	5.7	5.7	5.7	5.8
R2 Southwest Quadrant	6.0	5.6	5.6	5.6	5.7
R3 Northwest Quadrant	6.3	5.6	5.6	5.6	5.7
Gateway Drive at Erskine Street					
R4 Northeast Quadrant	7.0	6.4	6.4	6.4	6.4
R5 Northwest Quadrant	7.3	6.6	6.6	6.6	6.5
R6 Southwest Quadrant	7.7	6.4	6.4	6.4	6.2
R7 Southeast Quadrant	6.6	6.1	6.1	6.1	6.3
Belt Parkway Eastbound Ramps at Pennsylvania Avenue					
R8 Southeast Quadrant	8.5	7.0	6.8	7.2	7.0
R9 Northeast Quadrant	9.0	7.2	7.9	7.6	7.2
R10 Northwest Quadrant	9.6	7.6	7.6	7.8	7.6
R11 Southwest Quadrant	8.9	7.3	7.1	7.6	7.3

Note:* The values include background (5.0 ppm for 1 hour) and are expressed in parts per million (ppm).
The 1-hour CO NAAQS is 35 ppm.

Source: Vanasse Hangen Brustlin, Inc.

Table 19: Predicted Maximum 8 Hour CO Concentrations*

Intersection/Receptor Site	Existing (2005)	No-Action (2025)	Alternative B (2025)	Alternative C (2025)	Alternative D (2025)
Gateway Drive at Fountain Avenue					
R1 East Quadrant	4.1	4.0	4.0	4.0	4.1
R2 Southwest Quadrant	4.2	3.9	3.9	3.9	4.0
R3 Northwest Quadrant	4.4	3.9	3.9	3.9	4.0
Gateway Drive at Erskine Street					
R4 Northeast Quadrant	4.9	4.5	4.5	4.5	4.5
R5 Northwest Quadrant	5.1	4.6	4.6	4.6	4.6
R6 Southwest Quadrant	5.4	4.5	4.5	4.5	4.3
R7 Southeast Quadrant	4.6	4.3	4.3	4.3	4.4
Belt Parkway Eastbound Ramps at Pennsylvania Avenue					
R8 Southeast Quadrant	6.0	4.9	4.8	5.0	4.9
R9 Northeast Quadrant	6.3	5.0	5.5	5.3	5.0
R10 Northwest Quadrant	6.7	5.3	5.3	5.5	5.3
R11 Southwest Quadrant	6.2	5.1	5.0	5.3	5.1

Note:* The values include background (3.5 ppm for 8-hour) and are expressed in parts per million (ppm).
The 8-hour CO NAAQS is 9 ppm.

Source: Vanasse Hangen Brustlin, Inc.

Impacts to Noise

Impacts of Alternative A (No-Action)

Under the No-Action Alternative (2025), sound levels at 50 feet are approximately 82 dBA, a 1 dBA increase from existing conditions. This would result in the distances to impact (66 dBA) increasing to 1,000 feet from the roadway centerline (a 100-foot increase from existing conditions). Therefore, Alternative A would result in a **long-term, minor, adverse** impact to noise.

Impacts Common to the Action Alternatives

Under Alternatives B, C, and D, sound levels at 50 feet from the roadway centerlines are 82 dBA, the same as it would be for the No-Action Alternative (2025). As a result, the distance to impact (66 dBA) would remain 1,000 feet from the centerline of the Belt Parkway for Alternatives B, C, and D. Therefore, Alternatives B, C, and D would result in a **long-term, minor, adverse** impact to noise.

Impacts to Cultural Resources

Based on the sites historic uses as landfills, and the recent capping and landscaping activities, it can be assumed that there are no cultural resources present. Therefore there would be no impact to these resources.

Impacts to Visual Resources

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the two new sites would still be fully capped and landscaped. The two structures, which have dominated the local viewshed for some time, would now add much needed green space and other natural views to the urban environment.

The lack of formalized vehicular access to the two sites would not allow passersby or potential visitors to recognize them as parts of Gateway. The large fences and visual disconnect between the sites and surrounding roads would make them appear to be inaccessible. Even with NPS signage, the lack of formalized access would not provide a means of visually assessing the sites, except for those walking or biking along the Shore Parkway Bikeway.

On site, the barren administrative areas would detract from the otherwise green landscape. The NPS would work to add plantings in these areas as staff and funding became available. The two sites would lack any park-like atmosphere and appear to be two undeveloped sites along the Bay. Alternative A would result in **long-term, moderate, adverse** impact to visual resources.

Impacts of Alternative B (Roundabout)

Under Alternative B, both sites would have fully developed access and parking. The fencing along the Belt Parkway and local roads would remain, but formalized access routes would visually connect the sites to the surrounding road network. Passersby would now be able to recognize the two sites as park units, especially at Pennsylvania Avenue where access would be provided directly from the Belt Parkway.

On site, although the development would introduce manmade structures into the natural setting, it would remove the barren administrative area and promote a park-like setting. The roundabout would be a unique site in the area. This structure, along with the remaining development, would be lined with grasses, trees, and other vegetation, promoting the NPS image in the region. The overall impact of Alternative B on visual resources would be **long-term, moderate, and beneficial**.

Impacts of Alternative C (Intersection) (NPS Preferred)

Under Alternative C, both sites would have fully developed access and parking. The fencing along the Belt Parkway and local roads would remain, but formalized access routes would visually connect the sites to the surrounding road network. Passersby would now be able to recognize the two sites as park units, especially at Pennsylvania Avenue where access would be provided directly from the Belt Parkway.

On site, although the development would introduce manmade structures into the natural setting, it would remove the barren administrative area and promote a park-like setting. The only difference would be that under this alternative the Pennsylvania Avenue site would be accessed via an intersection instead of a roundabout. Although the roundabout provides more of a park-like feel, the intersection is a more common site in the area and would still be accompanied by appropriate plantings to create the park-like environment. This structure, along with the remaining development, would be lined with grasses, trees, and other vegetation, promoting the NPS image in the region. Alternative C would result in a **long-term, moderate, beneficial** impact on visual resources.

Impacts of Alternative D (Expanded Parking)

Under Alternative D, both sites would have fully developed access and parking. The fencing along the Belt Parkway and local roads would remain, but formalized access routes would visually connect the sites to the surrounding road network. Passersby would now be able to recognize the two sites as park units, especially at Pennsylvania Avenue where access would be provided directly from the Belt Parkway.

On site, although the development would introduce manmade structures into the natural setting, it would remove the barren administrative area and promote a park-like setting. However, at the Fountain Avenue site, the parking area would be expanded. Initially, this could appear to be too much development. But once visitation levels rose, the parking lot would be full and appear to be an appropriate development within the undeveloped site. This structure, along with the remaining development, would be lined with grasses, trees, and other vegetation, promoting the NPS image in the region. Alternative D would result in a **long-term, moderate, beneficial** impact on visual resources.

Impacts to Transportation, Site Access, and Circulation

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the existing construction entrances at both sites would be closed, preventing vehicular access. Pedestrian access would be provided at the signalized Belt Parkway ramp intersections at the end of Pennsylvania Avenue and Erskine Street. Bicycle access from the Shore Parkway Bikeway would be provided at the same location.

Although there would be no parking within the two sites, parking could occur in other locations. At the Pennsylvania Avenue location, it can be assumed that no one would park on the highway ramps. But, many could park in the nearby neighborhood along Seaview Avenue. At the Fountain Avenue location, some visitors might park at the Gateway Shopping Plaza and walk to the site. More likely, there would be unregulated parking along the segment of Fountain Avenue near the old construction entrance.

Traffic operations in the study area intersections would be affected only by normal background growth. Near the Pennsylvania Avenue site, the Pennsylvania Avenue/Seaview Avenue and the Pennsylvania Avenue /Belt Parkway Eastbound Ramp intersections would both operate at LOS B during all three peak hours (weekday morning, weekday evening, and Saturday midday). Queuing on the Belt Parkway eastbound ramp (600 feet long) would be greatest during the morning peak hour, approximately 195 feet. Near the Fountain Avenue site, the intersection of Erskine Street at Gateway Drive would operate at LOS B during the weekday morning peak hour and LOS C during both weekday evening and Saturday midday peak hours. The unsignalized intersection of Gateway Drive and Fountain Avenue would operate at LOS A during all three peak hours.

The intersection of Erskine Street and the Belt Parkway Westbound Ramps would operate at LOS B during the weekday morning peak hour and LOS A during the weekday evening and Saturday midday peak hours. Queuing along the ramp (750 feet) would be minimal, less than two car lengths.

The intersection of Erskine Street and the Belt Parkway Eastbound Ramps would also operate at LOS B during the weekday evening and Saturday midday peak hours. The level of service would change from

LOS A to LOS B during the morning peak hour. Queuing on the ramp (750 feet long) would be greatest during the Saturday midday peak hour, at 135 feet. Overall, the No-Action Alternative would result in a **long-term, moderate, adverse** impact on transportation, site access, and circulation.

Impacts of Alternative B (Roundabout)

Under Alternative B, vehicular access would be provided at both sites. Pedestrian and bicycle access would be the same as for the No-Action Alternative. However, this alternative would also include vehicular access through improvements at the construction entrances. At the Pennsylvania Avenue site, the signalized ramp intersection at the terminus of Pennsylvania Avenue would be reconstructed as a roundabout to deliver vehicles into the site. The driveway and a 100-space parking lot would be constructed on part of the site's administrative area. At the Fountain Avenue site, the construction entrance would lead to a 160-car paved parking lot and a 125-car grassed overflow parking lot constructed on part of that site's old administrative area.

Pedestrian and bicycle access would be similar to that under the No-Action Alternative. The most significant difference in pedestrian accommodation would be at the Pennsylvania Avenue site where pedestrians walking from the nearby neighborhoods would cross the highway off-ramp. Currently there is a signalized crosswalk with a protected pedestrian phase. With the roundabout design, there would normally not be a signalized pedestrian crossing. If one were provided to ensure pedestrian safety, then the queuing on the ramp would sometimes be substantial and could extend back onto the highway.

Near the Pennsylvania Avenue site, the intersection of Pennsylvania Avenue and Seaview Avenue would not be directly affected by the redesign of the Belt Parkway intersection nor would the additional traffic volumes associated with the site have a significant impact on intersection operations. The level of service would remain at LOS B for all peak traffic periods.

Within the site, the roundabout would operate at a LOS B, with average delays ranging from 14 to 16 seconds during all three peak hours. This is comparable to conditions under the No-Action Alternative. Queuing on the ramp would be greatest during the morning peak hour and would be approximately 150 feet. It should be noted that any substantial use of the signalized pedestrian crossings would result in lower vehicular levels of service, increased vehicle delays, and substantially longer vehicle queues. At the Fountain Avenue site, drivers would access the site via the stop-controlled intersection of Fountain Avenue and Gateway Drive. Even with the new site traffic, the intersection would continue to operate at LOS A during weekday morning, weekday evening, and Saturday midday peak hours.

Traffic at the Fountain Avenue site would also impact intersections along Erskine Street. The intersections of Erskine Street at both Belt Parkway eastbound and westbound ramps would provide site access from the Belt Parkway. Both intersections would continue to operate at LOS B or better, the same as for the No-Action Alternative.

The level of service at Gateway Drive and Erskine Street would not change for the weekday morning and Saturday midday conditions, as compared to the No-Action Alternative. The only noticeable difference would be for the evening peak hour. Although the average intersection delay would remain at LOS C, the delay on the westbound approach would change from LOS D to LOS F. However, with minor changes to signal phasing and timing, the approach could remain at LOS D, with slightly less average delays than

under the No-Action Alternative. The NPS and NYCDOT would continue to coordinate on these improvements as visitation increased. Overall, Alternative B would result in a **long-term, moderate, adverse** impact to transportation, site access, and circulation.

Impacts of Alternative C (Intersection) (NPS Preferred)

Alternative C would provide vehicle access to the Pennsylvania Avenue site by incorporating a new access drive into the signalized intersection. The redesigned intersection would continue to operate at the same LOS B as for the No-Action Alternative. The ramp queuing (during the morning peak hour) would be 275 feet, still well within the 600-foot-length of the ramp. In addition, unlike with a roundabout, pedestrian crossings at the signalized crosswalks would not worsen delays or queuing of vehicles on the off-ramp since the crossings would occur when the off-ramp traffic stopped to allow traffic to move from Pennsylvania Avenue to the on ramp.

The parking and trip generation for the two sites would be the same for Alternative C as for Alternative B. Overall, Alternative C would result in a **long-term, minor, beneficial impact** to transportation, site access, and circulation.

Impacts of Alternative D (Expanded Parking)

Alternative D and Alternative C are similar except that all of the parking at the Fountain Avenue site is paved rather than some paved and some grassed. There are no differences in transportation impacts between Alternative C and Alternative D. Overall, Alternative D would result in a **long-term, minor, beneficial** impact to transportation, site access, and circulation.

Energy Consumption

The energy study evaluated the changes in regional energy consumption due to project-related motor vehicle traffic associated with the implementation of the different alternatives. Traffic data for the study area were evaluated to determine the existing, No-Action (Alternative A), and action alternative (Alternatives B, C, and D) energy consumption. The annual fuel consumption was calculated for the entire study area.

The energy analysis estimated the study area's fuel usage from average daily traffic volume and vehicle mileage characteristics. Energy consumption was estimated by dividing the VMT by an average fuel efficiency figure for vehicles. The yearly VMT was calculated for existing conditions based on existing traffic volumes and length of roadway segments within the study area. The No-Action Alternative yearly VMT was calculated by applying a traffic growth rate to existing traffic volumes and multiplying by the length of roadway segments within the study area. The action alternatives yearly VMT was calculated by adding project-generated traffic volumes to the No-Action traffic volumes and multiplying by the length of roadway segments within the study area.

Under the No-Action Alternative, annual VMT along the Belt Parkway would increase to 127 million. The annual fuel consumption would also increase, reaching 3,486 million gallons. Under Alternatives B, C, and D; the VMT would not increase over the No-Action level. Fuel consumption would, however, increase to 3,506 million gallons.

At Pennsylvania Avenue, the VMT would increase by two million under the No-Action Alternative. The annual fuel consumption would only increase by 51 million gallons. Under Alternative B, C, and D; annual VMT would increase by one million over the No-Action conditions. Annual fuel consumption would also increase, reaching 294 million gallons.

Impacts to Visitor Use and Experience

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, the New NPS Sites would be open to the public, providing, much needed space for passive recreation. However, access to these sites would be limited to pedestrians or bicycles coming from the Shore Parkway Bikeway. These visitors could enter through a small gate in the existing fence and access the landscaped trails that run throughout the site.

Vehicular access would be prohibited at both sites due to safety concerns associated with the existing construction entrances and the lack of infrastructure to protect the landfill cap from vehicular impacts. In addition to not providing vehicular access, the configuration of the surrounding roads would not allow for vehicles to exit the flow of traffic and drop off passengers. Therefore, visitors would either need to find an appropriate place to park their vehicle in the surrounding community, take public transportation to a nearby bus stop, or simply walk to the site. However, only the Fountain Avenue site would have a traffic signal and crosswalk to provide safe passage from the surrounding neighborhoods.

Without developed access, the administrative areas would remain barren. Based on these access limitations, visitors would be presented with a site that resembled an undeveloped plot of land, rather than a piece of an NPS unit. Alternative A would result in a **long-term, moderate, adverse** impact to visitor use and experience.

Impacts of Alternative B (Roundabout)

Alternative B would seek to expand on the capping and landscaping activities by providing formalized access and parking at the two locations. The landscaped entrances would create a park-like approach to the two sites, enhancing site recognition and the NPS presence in the area. Pedestrian crossing improvements would also improve safe access to the two sites. Once on site, visitors would find ample space to safely park their vehicles, or simply drop off passengers and exit the site. Future coordination may also lead to the sites becoming regular stops for local bus service, thus improving access options.

The parking within both sites would be supplemented with plantings, further promoting the park-like environment. During off-hours, the parking lot area would be gated off with the remainder of the site. However, the access roads would remain open, allowing potential visitors to safely assess the site and return to the main roads. The overall impact of Alternative B on visitor use and experience would be **long-term, moderate, and beneficial**.

Impacts of Alternative C (Intersection) (NPS Preferred)

Alternative C would seek to expand on the capping and landscaping activities by providing formalized access and parking at the two locations. The landscaped entrances would create a park-like approach to the two sites, enhancing site recognition and the NPS presence in the area. Pedestrian crossing

improvements would also improve safe access to the two sites. Once on site, visitors would find ample space to safely park their vehicles, or simply drop off passengers and exit the site. Future coordination may also lead to the sites becoming regular stops for local bus service, thus improving access options.

The primary difference would be the use of an intersection instead of a roundabout at the Pennsylvania Avenue site. While the roundabout provides a more unique experience, the intersection is a more regularly used road structure and would be comfortable to new visitors. The intersection would include plantings and signage that would create an equally impressive park-like entrance. During off-hours, the parking lot area would be gated off with the remainder of the site. However, the access roads would remain open, allowing potential visitors to safely assess the site and return to the main roads. The overall impact of Alternative C on visitor use and experience would be **long-term, moderate, and beneficial**.

Impacts of Alternative D (Expanded Parking)

Alternative D would seek to expand on the capping and landscaping activities by providing formalized access and parking at the two locations. The landscaped entrances would create a park-like approach to the two sites, enhancing site recognition and the NPS presence in the area. Once on site, visitors would find ample space to safely park their vehicles, or simply drop off passengers and exit the site. Future coordination may also lead to the sites becoming regular stops for local bus service, thus improving access options.

During off-hours, the parking lot area would be gated off with the remainder of the site. However, the access roads would remain open, allowing potential visitors to safely assess the site and return to the main roads. However, under this alternative, parking at Fountain Avenue would be fully paved, rather than including a grassed overflow parking area. The fully paved surface may be an overwhelming visual intrusion during low visitation days. However, on busy days, it may be more beneficial to visitors to have formalized parking rather than informal, overflow parking. Regardless of the change, the site would still be able to support the anticipated visitation in a true, park-like environment. Alternative D would result in a **long-term, moderate, beneficial** impact to visitor use and experience.

Impacts to Operations

Impacts of Alternative A (No-Action)

Under the No-Action Alternative, both sites would still be opened to the public. This would require new staffing and operating procedures. The sites would only be open when staff was available to be on site. The NPS has included the need to staff these sites in their future plans. Without formalized access and parking, on-site staff would be required to dedicate much of their time to directing visitors into the site and ensuring that bicycles or other vehicles did not go off the trails that could support them. As long as the administrative area remained undeveloped, it would also be necessary to keep visitors from these areas as they would not be safe for regular activity.

Off site, NPS staff would need to spend additional time improving public knowledge of the sites. This information would include site location, operating hours, and how to reach the two locations. The overall impact of Alternative A on operations would be **long-term, minor to moderate, and adverse**.

Impacts of Alternative B (Roundabout)

Under Alternative B, both sites would be equipped with formalized access, circulation, and parking. The new infrastructure would require occasional landscaping, maintenance, and cleaning. When the sites were closed to the public, the gated entrance could easily secure the site, allowing the sites to be easily incorporated into the current security operation. These activities could be easily incorporated into the operating procedures at the new sites. The impact of Alternative B on operations would be **long-term, negligible, and adverse**.

Impacts of Alternative C (Intersection) (NPS Preferred)

Under Alternative C, both sites would be equipped with formalized access, circulation, and parking. The new infrastructure would require occasional landscaping, maintenance, and cleaning. When the sites were closed to the public, the gated entrance could easily secure the site, allowing the sites to be easily incorporated into the current security operation. These activities could be easily incorporated into the operating procedures at the new sites. Alternative C would result in a **long-term, negligible, adverse** impact to operations.

Impacts of Alternative D (Expanded Parking)

Under Alternative D, both sites would be equipped with formalized access, circulation, and parking. The new infrastructure would require occasional landscaping, maintenance, and cleaning. When the sites were closed to the public, the gated entrance could easily secure the site, allowing the sites to be easily incorporated into the current security operation. This alternative would require more garbage clean up and pavement repair, but would not require the maintenance of an overflow parking lot at Fountain Avenue. These activities could be easily incorporated into the operating procedures at the new sites. The impact of Alternative D on operations would be **long-term, negligible, and adverse**.

CUMULATIVE IMPACTS

The CEQ regulations that implement NEPA require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as impacts which result when the impact of the proposed action is added to the impacts of other present and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7).

Methodology

To determine potential cumulative impacts, existing and anticipated future projects at Gateway and in the surrounding area were identified. These included lands administered by the NPS, the state of New York, New York City, and the boroughs of Brooklyn and Queens. Projects were determined by meetings, phone calls with county and town governments, and state land managers. Potential projects identified as cumulative actions included any planning or development activity that was currently being implemented or that was expected to be implemented in the reasonably foreseeable future.

These cumulative actions are evaluated in the cumulative impact analysis in conjunction with the impacts of particular natural resources, cultural resources, or visitor use. Because some of these cumulative

actions are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the project. Cumulative impacts are considered for all alternatives and are presented below. These impacts are categorized by impact topic and address the contribution of each study area. The projects identified for analysis include the Queens Borough Multimodal Improvement Project, the New York City Traffic Congestion and Air Quality Improvements, the Belt Parkway Bridge Replacements, the Sandy Hook Access and Circulation Improvement Projects, the Drainage and Pavement Improvement Projects at Jamaica Bay, the Miller Field Improvements, the Floyd Bennett Field sports complex, the Jacob Riis Park Bathhouse Enhancements, the Riis Landing Improvements, and the New NPS Sites at Pennsylvania and Fountain Avenues. In defining the contribution of each alternative to the overall cumulative impact, the following terminology was used:

Imperceptible: The contribution by the alternative to the cumulative impact is impossible or difficult to discern.

Noticeable: The contribution by the alternative to the cumulative impact is minimally evident and observable.

Appreciable: The contribution by the alternative to the cumulative impact is readily apparent and may result in a change over a wide area or long-term duration.

Queens Borough Multimodal Improvement Project

The New York City Department of Design and Construction is working to improve multimodal access and circulation throughout southern Queens Borough. These projects are to focus on the following locations:

- The median along the northern approach to 163rd Avenue on Cross Bay Boulevard;
- 73rd Avenue from Main Street to 141st Street;
- Jewel Avenue from 161st Street to 160th Street;
- Jewel Avenue from west of 164th Street to the median extension;
- Parsons Boulevard from Jewel Avenue to 65th Avenue;
- 104th Street and Russell Street from 102nd Street to 165th Avenue; and
- Beach Boulevard from 102nd Street to 104th Street.

Work at these locations is to include roadway and median reconstruction, sidewalk construction or reconstruction, tree planting and/or removal, installation of catch basins, and curb construction or reconstruction. Although pedestrian access through these sites would be maintained at all times, there may be some temporary restrictions on vehicular access through the area. The project has the potential to impact soils and topography; vegetation; wildlife and wildlife habitat; water resources; floodplains; air quality; noise; archeological resources; visual resources; transportation, site access, and circulation; and visitor use and experience.

New York City Traffic Congestion and Air Quality Improvements

In August 2005, New York City Mayor Michael Bloomberg and NYCDOT Commissioner Iris Weinshall announced plans to use \$71 million in Federal Congestion Mitigation and Air Quality (CMAQ) funding to improve air quality, traffic congestion, and safety throughout the city. One piece of the improvements will be through the Congested Corridors Mitigation Project which will focus on finding means of improving traffic flow and delays, thus reducing vehicle emissions. Within Brooklyn and Queens, this project will focus on Church and Nostrand Avenues and Woodhaven and Northern Boulevards, respectively. The CMAQ funding will also be used for the Downtown Brooklyn Mobility Management Study. The study will find ways to reduce traffic and promote mass transit in Brooklyn. These efforts will include alternative fuel shuttle buses and high occupancy vehicle (HOV) dedicated parking. Other improvements that will be made with the CMAQ funding throughout the city include electronic traffic management improvements, alternative fuel programs, as well as pedestrian and bicycle network development. These improvements have the potential to impact wildlife and wildlife habitat; air quality; noise; visual resources; transportation, site access, and circulation; and visitor use and experience.

Belt Parkway Bridge Replacements

The Belt Parkway Bridge over Fresh Creek Basin is located approximately 2,000 feet west of the proposed Pennsylvania Avenue entrance. While the bridge is not in any immediate danger of structural failure, its reconstruction is required in order to maintain mobility and public safety on this vital artery. Under current plans, the existing five-span, 265-foot Fresh Creek Bridge will be replaced with a new three-span, 309-foot bridge. Both the superstructures and the substructures of the existing bridge will be completely demolished and reconstructed in place. The bridge deck and the approaches will be widened from the existing 96 feet to 120 feet, to accommodate three 12-foot lanes, 12-foot-wide shoulders, and a 12-foot-wide bike path in both directions. The stopping sight distance for the bridge and approach roadways will also be improved. The reconstruction of the Fresh Creek Bridge is scheduled to start in early 2006 and will last for approximately 3 years. The bridge and the approach roadways will be constructed in four stages, while maintaining the current three traffic lanes in each direction and a bike path on the eastbound side during the entire construction period. The project has the potential to impact soils and topography; water quality; and transportation, site access, and circulation.

Sandy Hook Access and Circulation Improvement Projects

Along with the Jamaica Bay Transportation Studies, EFLHD and NPS are working together on several other projects at Gateway. The first is at the park's Sandy Hook unit. Work under this project consists of pavement overlays of roadways and parking lots, reconstruction of parking lots, obliteration of an abandoned parking lot, and intersection improvements. This project is designed to improve the safety and efficiency of access, circulation, and parking within the unit. The project has the potential to impact soils and topography; vegetation; wildlife and wildlife habitat; water resources; noise; archeological resources; visual resources; transportation, site access, and circulation; visitor use and experience; and operations.

Drainage and Pavement Improvement Projects at Jamaica Bay

Along with the transportation studies proposed in this document, EFLHD and the NPS are working on other improvement projects at the Jamaica Bay unit of Gateway. These projects consist of drainage and pavement improvements at Floyd Bennett Field, Jacob Riis Park, and Fort Tilden. At Floyd Bennett Field, drainage improvements will be focused on increasing the drain system on Runway A. Pavement improvements will consist of patching and overlaying of the Community Garden parking lot and repaving the Ryan Visitor Center parking area. Finally, at Fort Tilden, drainage problems at Barrett Road and at the post office parking lot will be addressed, while Heinzelman Road and Davis Road will be overlaid and reconstructed, respectively. These projects are designed to improve conditions at the site to better serve visitors, improve safety, and protect surrounding resources. These projects have the potential to impact soils and topography, vegetation, wildlife and wildlife habitat, water resources, archeological resources, visual resources, visitor use and experience, as well as operations.

Miller Field Improvements

One final project that EFLHD and the NPS are currently working on at Gateway is improvements at Miller Field at the park's Staten Island unit. The proposed project seeks to improve access and parking at the field by creating a northern access road and carrying out maintenance activities within the current parking area. The project has the potential to impact soils and topography; vegetation; wildlife and wildlife habitat; water resources; air quality; noise; archeological resources; visual resources; transportation, site access, and circulation; visitor use and experience; as well as operations.

Floyd Bennett Field Sports Complex

As described earlier in this document, Gateway is working to convert two existing hangars at Floyd Bennett Field into a sports complex. The complex will include ice rinks, athletic courts, and space for other active recreational activities. The ice rinks, in particular, are in high demand by the regional population and are expected to attract high numbers of new visitors to the site. The project has the potential to impact historic structures, visual resources, visitor use and experience, and operations.

Jacob Riis Park Bathhouse Enhancements

As described earlier in this document, the NPS is currently rehabilitating the Jacob Riis Park Bathhouse. Upon completion of this work, the facility will be ready to support more extensive and regular visitor activities. These include improved seasonal services, as well as year-round services such as a restaurant and concert series. The project has the potential to impact historic structures, visitor use and experience, and operations.

Riis Landing Improvements

As described earlier in the document, the NPS is making plans to improve services offered at Riis Landing. The site has never been fully developed by the NPS. However with potential for regular ferry service and/or property acquisition, the NPS is now considering improvements on the site. The park is in continuing discussions with the city about ferry service improvements, which could utilize Riis Landing as a regular stop. While the NPS would not operate the service, it would be in a position to supply the necessary infrastructure. In recent years, the dock and on-site parking has been improved to support these

activities. The Coast Guard has recently transferred the remaining buildings on site to NPS ownership. The boat basin will continue to be used by the park and other local agencies, and is also occasionally used as a passenger ferry terminal. The site will also continue to support the United States Park Police (USPP) Marine Unit. The remainder of the site could be converted to a bed and breakfast or other visitor services. This project has the potential to impact noise, visual resources, visitor use and experience, and operations.

New NPS Sites at Pennsylvania and Fountain Avenues

As described earlier in the document, the former landfills at Pennsylvania and Fountain Avenues are currently being capped and landscaped. Upon completion, these two structures will provide a large area capable of supporting passive recreational opportunities that are unheard of in most of the surrounding urban environment. The site will provide high quality wildlife habitat to a highly developed region. The project has the potential to impact soils and topography, vegetation, wildlife and wildlife habitat, water resources, visual resources, visitor use and experience, and operations.

Cumulative Impact Analysis

Natural and Physical Resources

Soils and Topography

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to soils and topography in and around the Jamaica Bay study area. These actions include:

- The Queens Borough Multimodal Improvement Project;
- The Belt Parkway Bridge Replacements;
- The Sandy Hook Access and Circulation Improvement Projects;
- The Drainage and Pavement Improvement Projects at Jamaica Bay;
- The Miller Field Improvements; and
- The New NPS Sites at Pennsylvania and Fountain Avenues.

These projects would all involve the removal or installation of impervious surfaces. New impervious surfaces would eliminate those areas of soils from absorbing and filtering stormwater runoff and would contribute to soil compaction. Water could be collected on these surfaces and runoff in higher velocities, causing increased erosion upon reaching natural soils. Impervious surfaces also prevent soils from supporting vegetation. The topography would also be modified when impervious cover is added to the landscape. Soils would be bulldozed, compacted, and leveled for the new development. On the other hand, when removing impervious surfaces and re-establishing original topography, soils are allowed to once absorb stormwater and support vegetation.

Of the projects listed above, the New NPS Sites at Pennsylvania and Fountain Avenues is unique. This project involves the introduction of fill soils to cover the landfill caps. These soils would introduce relatively natural soil conditions to an area that has heavily polluted its original soils. The new soils would be able to fully support all natural soil conditions. Based on the relatively small size and scattered

locations of these projects in comparison to the metropolitan area, the changes proposed at the Jamaica Bay Unit would have immeasurable impacts on regional soils and topography.

At **Floyd Bennett Field**, these projects, along with Alternative A, B, C, or D would have a long-term, minor, beneficial impact on soils and topography. Alternative A would not contribute to the cumulative impact. Alternatives B, C, or D would each contribute an imperceptible, adverse increment to the cumulative impact.

Based on the relatively small size of the changes at **Jacob Riis Park**, these projects, along with Alternative A, B, C, and D would have a long-term, minor, beneficial cumulative impact on soils and topography. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternatives B, C, or D would each contribute imperceptible, beneficial increments to the cumulative impact.

At **Riis Landing**, these projects, along with Alternative A, B, C, or D would have a long-term, minor, beneficial cumulative impact on soils and topography. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Similarly, Alternatives B, C, or D would each contribute imperceptible, adverse increments to the cumulative impact.

At the **New NPS Sites**, these projects, along with Alternative A, B, C, or D would have a long-term, minor, beneficial cumulative impact on soils and topography. Based on the relatively small size of the administrative areas at both sites, the No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Similarly, Alternatives B, C, or D would each contribute imperceptible, adverse increments to the cumulative impact.

Vegetation

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to vegetation in and around the Jamaica Bay study area. These actions include:

- The Queens Borough Multimodal Improvement Project;
- The Sandy Hook Access and Circulation Improvement Projects
- The Drainage and Pavement Improvement Projects at Jamaica Bay;
- The Miller Field Improvements; and
- The New NPS Sites at Pennsylvania and Fountain Avenues.

These projects contain varying impacts to vegetation. Physical development at Sandy Hook and Miller Field would create new impervious surface. This new surface would eliminate any vegetation that exists within the bounds of the new development. Also, stormwater runoff from the new impervious surface could adversely impact surrounding vegetation by overloading it with water and pollutants or enhancing erosive forces.

However, these projects may also result in the removal of impervious surfaces. , the select areas could be replanted with vegetation that is native to the area. This could improve the quality of vegetation in developed areas, which is often dominated by invasive or exotic species.

Infrastructure improvement projects throughout the Jamaica Bay Unit and the remainder of Queens may also have an impact to vegetation. As stated above, stormwater runoff from impervious surfaces may adversely impact surrounding vegetation. However, these conditions can be improved through upgrades to paving, grading, or drainage infrastructure. These improvements could change drainage patterns to allow water to be more equally dispersed or directed to an appropriate drainage. Improved drainages could capture water before it runs off into the surrounding vegetation.

Finally, impacts to vegetation may come through new plantings in previously barren areas. An example of such an action would be at the New NPS Sites. In these cases, new plantings could be selected among the region's native species. These species would enhance the quality and quantity of vegetation in the immediate area and in the overall region. Based on the relatively small size and scattered locations of these projects in comparison to the metropolitan area, as well as the highly developed nature of the urban environment, these projects would have immeasurable impacts on regional vegetation.

At **Floyd Bennett Field**, these projects, along with Alternative A, B, C, or D would have a long-term, negligible, beneficial cumulative impact on vegetation. Alternative A would contribute an imperceptible, adverse increment to the cumulative impact. Alternatives B, C, or D would also each contribute an imperceptible, adverse increment to the cumulative impact.

Impacts at **Jacob Riis Park** would also be relatively small in size and intensity when compared to the surrounding urban environment. The cumulative projects, along with Alternative A, B, C, or D would have a long-term, negligible, beneficial cumulative impact on vegetation. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternatives B, C, or D would each contribute imperceptible, beneficial increments to the cumulative impact.

Riis Landing is also relatively small compared to the surrounding region. The cumulative projects, along with Alternative A, B, C, or D would have a long-term, negligible, beneficial cumulative impact on vegetation. Alternatives A, B, C, or D would each contribute imperceptible, adverse increments to the cumulative impact.

Finally, although the capping of the **New NPS Sites** would have a measurable impact on vegetation, the development in the administrative areas would be minute in comparison to the surrounding region. The cumulative projects, along with Alternative A, B, C, or D would have a long-term, negligible, beneficial cumulative impact on vegetation. Alternatives A or D would each contribute imperceptible, adverse increments to the cumulative impact. Alternatives B or C would each contribute imperceptible, beneficial increments to the cumulative impact.

Wildlife and Wildlife Habitat

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to wildlife and wildlife habitat in and around the Jamaica Bay study area. These impacts include:

- The Queens Borough Multimodal Improvement Project;
- The New York City Traffic Congestion and Air Quality Improvements;
- The Sandy Hook Access and Circulation Improvements;
- The Drainage and Pavement Improvement Projects;

- The Miler Field Improvements; and
- The New NPS Sites.

These projects are all relatively small in comparison to the size of the metropolitan area. Also, based on the high levels of development in the region, existing wildlife has adapted, to some extent, to human intrusions. Projects like the borough and city improvement projects, as well as those proposed by the NPS and EFLHD, can bring increased physical and noise threats into pockets of undisturbed habitat. The physical development can eliminate habitat used by urban wildlife. Furthermore, upon completion, the usage of these new structures can interfere with existing wildlife patterns in the selected area. Circulation changes could have similar results. This interference is, however, relatively common throughout the urban environment.

Conversely, projects that remove transportation infrastructure, or direct traffic away from a given area, may allow for the development of more wildlife habitat or increased populations. These actions could include the removal of a parking lot or the rerouting of traffic through the Traffic Congestion and Air Quality Improvements or the Sandy Hook Access and Circulation Improvements.

Finally, as was the case under “Vegetation,” some projects could simply create new habitat. The New NPS Sites are an example of such a project. There are only a few small pockets of undisturbed habitat in the urban environment. These locations are not only home to many species, but provide transient species with opportunities to feed, breed, or rest. The installation of these areas has a long-term, moderate, beneficial impact in the urban environment.

At **Floyd Bennett Field**, the changes to wildlife and wildlife habitat would be measurable within the Field. However, on a regional scale these impacts would not be as profound. The cumulative impact projects, along with Alternative A, B, C, or D, would have a long-term, negligible, adverse cumulative impact on wildlife and wildlife habitat. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternative B would contribute imperceptible, beneficial increments to the cumulative impact. Alternative C or D, however, would each contribute noticeable, beneficial increments to the cumulative impact.

At **Jacob Riis Park**, the changes to wildlife and wildlife habitat would be miniscule in comparison to the overall region. The cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, negligible, adverse cumulative impact on wildlife and wildlife habitat. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternatives B, C, or D would each contribute imperceptible, beneficial increments to the cumulative impact.

Riis Landing's changes would also be small in comparison to regional environment. The cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, negligible, adverse cumulative impact on wildlife and wildlife habitat. Alternatives A, B, C, or D would each contribute imperceptible, adverse increments to the cumulative impact.

Despite the overall change in wildlife at the two sites, the study areas at the **New NPS Sites** are insignificant in comparison to the size of the city. The cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, negligible, adverse cumulative impact on wildlife and wildlife habitat.

The No-Action Alternative, along with Alternatives B, C, or D, would each contribute imperceptible, adverse increments to the cumulative impact.

Water Resources

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to water resources in and around the Jamaica Bay study area. These impacts include:

- The Queens Borough Multimodal Improvement Project;
- The Belt Parkway Bridge Replacements;
- The Sandy Hook Access and Circulation Improvement Projects;
- Drainage and Pavement Improvement Projects;
- Miller Field Improvements; and
- The New NPS Sites

These projects would have varying levels of impact on water resources. New, inland development projects, like the Sandy Hook or Miller Field Improvements, would add to or relocate the amount of impervious surface. Increases in impervious surface would lead to increases in stormwater pollution. These increases could be controlled through the installation of BMPs. The BMPs would negate much, if not all, of the increase in pollutant loading.

These same development projects could also result in a reduction of impervious surface. The reduction would not only reduce the space available to accumulate stormwater pollutants, but also allow for reintroduced vegetation to act as a natural buffer against the remaining pollutants. Improvements could also come through drainage enhancements which could either reduce the amount of time stormwater comes in contact with impervious surfaces or capture polluted water before it reaches surrounding water bodies.

Some development projects would exist within water bodies and have a short-term impact on water resources. The bridge replacements would consist of construction activities within open bodies of water. Disruptions along the riverbed could increase sediment loads within the water. Similarly, landward work could also lead to increased pollutant runoff into the surrounding water. All of these impacts could be avoided through appropriate construction planning and design.

Relative to Jamaica Bay and the Atlantic Ocean, these projects are all relatively small and scattered throughout the watershed. At **Floyd Bennett Field**, these projects, along with Alternatives A, B, C, or, D, would have a long-term, negligible to minor, adverse cumulative impact. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Similarly, Alternatives B, C, or D would each contribute imperceptible, adverse increments to the cumulative impact.

At **Jacob Riis Park**, the cumulative projects, along with Alternatives A, B, C, or, D, would have a long-term, negligible to minor, adverse cumulative impact. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternatives B, C, or D would each contribute imperceptible, beneficial increments to the cumulative impact.

At **Riis Landing**, the cumulative projects, along with Alternatives A, B, C, and, D, would have a long-term, negligible to minor, adverse cumulative impact. The No-Action Alternative would contribute

imperceptible, adverse increments to the cumulative impact. Similarly, Alternative B, C, and D would each contribute imperceptible, adverse increments to the cumulative impact.

At the **New NPS Sites**, the cumulative projects, along with Alternatives A, B, C, or, D, would have a long-term, negligible to minor, adverse cumulative impact. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. However, through the implementation of the stormwater BMPs, the action alternatives (Alternative B, C, or D) would each contribute imperceptible, beneficial increments to the cumulative impact.

Floodplains

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to floodplains in and around the Jamaica Bay study area. These impacts include:

- The Queens Borough Multimodal Improvement Project; and
- The Riis Landing Improvements.

Based on the proximity between the metropolitan area to surrounding water bodies, there has been a long history of development within floodplains. Large scale developments exist in many of the region's floodplains, obstructing floodwaters and detracting from natural floodplain values. The cumulative projects are all relatively small compared to these larger developments.

Any of these projects that result in physical development would alter existing floodplain values. The development of new impervious surfaces would allow floodwaters to accelerate through the floodplain. Conversely, any project that results in the removal of impervious surface and the return of natural conditions would allow the floodplain to regain some of its natural characteristics. Despite these developments, both of these projects are relatively small in comparison to the regional floodplain.

The **Floyd Bennett Field** study area is completely removed from the floodplain. Therefore, it would not contribute to the cumulative impact.

At **Jacob Riis Park**, the cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, negligible to minor, adverse cumulative impact. Alternatives A, B, or D would each contribute imperceptible, adverse increments to the cumulative impact. Alternative C, however, would contribute imperceptible, beneficial increments to the cumulative impact.

At **Riis Landing**, the cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, negligible to minor, adverse cumulative impact. Alternatives A, C, or D would not contribute to the cumulative impact. Alternative B, however, would contribute imperceptible, adverse increments to the cumulative impact.

At the **New NPS Sites**, the cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, negligible to minor, adverse cumulative impact. The Pennsylvania Avenue study area would be outside of the floodplain. The Fountain Avenue site, however, does fall within the floodplain. Alternatives A, B, C, or D would each contribute imperceptible, adverse increments to the cumulative impact.

Air Quality

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to air quality in and around the Jamaica Bay study area. These impacts include:

- The Queens Borough Multimodal Improvement Project; and
- The New York City Traffic Congestion and Air Quality Improvements.

Based on the highly developed and urbanized environment, air quality is already impaired. These projects result in changes to traffic patterns have the potential to alter air quality, as well. By introducing new, or additional traffic to an area, or by increasing congestion, changes can adversely impact air quality. Those projects that reduce congestion, however, may have a positive impact on air quality. By reducing congestion and/or maximizing multimodal transportation, projects could result in lower emissions.

At **Floyd Bennett Field**, these actions, along with Alternatives A, B, C, or D, would have a long-term, minor, beneficial cumulative impact. The No-Action Alternative would contribute imperceptible, beneficial increments to the cumulative impact. Based on the relatively small size of the study area, in comparison the surrounding region, Alternative B, C, or D would also each contribute imperceptible, beneficial increments to the cumulative impact.

At **Jacob Riis Park**, the cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, minor, beneficial cumulative impact. the size of the study area would prevent the improvements from having an impact on the regional air quality. The No-Action Alternative, along with Alternatives B, C, or D, would each contribute imperceptible, beneficial increments to the cumulative impact.

Like the previous two study areas, the improvements made at **Riis Landing** would be immeasurable on the regional scale. The cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, minor, beneficial cumulative impact. Alternative A, B, C, or D would each contribute imperceptible, beneficial increments to the cumulative impact.

Similarly, the improvements made at the **New NPS Sites** would be immeasurable on the regional scale. The cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, minor, beneficial cumulative impact. Alternatives A, B, C, or D would each contribute imperceptible, beneficial increments to the cumulative impact.

Noise

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to noise in and around the Jamaica Bay study area. These impacts include:

- The Queens Borough Multimodal Improvement Project;
- The New York City Traffic Congestion and Air Quality Improvements;
- The Sandy Hook Access and Circulation Improvement Projects;
- The Miller Field Improvements; and
- The Riis Landing Improvements.

The urban environment is constantly being impacted by different sounds throughout the day. Although most developments would result in an increase or decrease in noise, they would be immeasurable in this environment. Like air quality, any change to existing transportation patterns would alter noise levels. The development of a new road or parking lot would create increased sound levels. Changes in circulation patterns could also lead to an increase or decrease in vehicular sounds. The above projects all have the potential to lead to these changes.

Similarly, development of new attractions in an undeveloped area, like Riis Landing, would create new noises related to operations, vehicular traffic, and other manmade sounds. These sounds would only persist as long as the site was open to the public.

At **Floyd Bennett Field**, these actions, along with Alternatives A, B, C, or D, would have a long-term, negligible, adverse cumulative impact. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Similarly, the action alternatives (B, C, or D) would also each contribute imperceptible, adverse increments.

At **Jacob Riis Park**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, negligible, adverse cumulative impact. The size of the study area would prevent the improvements from having an impact on the regional soundscape. The No-Action Alternative, along with Alternatives B, C, or D, would each contribute imperceptible, adverse increments to the cumulative impact.

At **Riis Landing**, the size of the study area would prevent the improvements from having an impact on the regional soundscape. The cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, negligible, adverse cumulative impact. The No-Action Alternative, along with Alternatives B, C, or D, would each contribute imperceptible, adverse increments to the cumulative impact.

At the **New NPS Sites**, the size of the study area would prevent the improvements from having an impact on the regional soundscape. The cumulative projects, along with Alternatives A, B, C, or D, would have a long-term, negligible, adverse cumulative impact. The No-Action Alternative, along with Alternatives B, C, or D, would each contribute imperceptible, adverse increments to the cumulative impact.

Cultural Resources

Archeological Resources

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to archeological resources in and around the Jamaica Bay study area. These impacts include:

- The Sandy Hook Access and Circulation Improvement Projects;
- The Drainage and Pavement Improvement Projects at Jamaica Bay;
- The Miller Field Improvements; and
- The Floyd Bennett Field Sports complex.

Based on the history of development throughout the region, many of the potential archeological resources have been lost. In other areas, such as those areas owned by the NPS, resources may still exist but have not been investigated. For the properties owned and operated by the NPS, an archeological survey was

completed for the entire Gateway area in 1977 (JMA 1978); however, this survey did not specifically address the Sandy Hook area or the Miller Field area. It is assumed that prior to construction; the NPS would investigate any areas not previously surveyed. At Floyd Bennett Field, it is possible that archeological resources exist associated with early human occupation of the site. These projects would have a long-term, negligible, adverse cumulative impact on archeological resources.

At **Floyd Bennett Field**, because the No-Action Alternative and Alternatives B, C, or D would have no known impact to archeological resources, in conjunction with present and reasonably foreseeable future actions, there would be no contribution to the cumulative impact to archeological resources.

At **Jacob Riis Park**, because the No-Action Alternative and Alternatives B, C, or D would have no known impact to archeological resources, in conjunction with present and reasonable foreseeable future actions, there would be no contribution to the cumulative impact to archeological resources.

At **Riis Landing**, a determination of effect for archeological resources cannot be made at this time. Under the No-Action Alternative and Alternatives B, C, or D there would be no contribution to the cumulative impact to archeological resources.

Finally, the changes at the **New NPS Sites** were not considered under archeological resources as explained in “Chapter 1: Purpose and Need “of this document.

Historic Structures

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to historic structures in and around the Jamaica Bay study area. These impacts include:

- Floyd Bennett Field Sports Complex; and
- Jacob Riis Bathhouse Enhancements.

The Floyd Bennett Field Sports Complex would convert two existing hangars at Floyd Bennett Field into a sports complex. Original hangars dominate Hangar Row along Flatbush Avenue at Floyd Bennett Field. The hangars are considered contributing resources to the Floyd Bennett Field National Register historic district. This project would alter two of the hangars and adaptively reuse them for sports related activities. However, it would improve the condition of the building and repair any damage sustained in the last 50 years.

At Jacob Riis Park, the bathhouse is one of the core structures. Built in 1932, this structure, along with two mall buildings, continue to maintain their strong linkages to the over site and are essential as the 1937 park design integrated these buildings into a coordinated landscape. The enhancement project would rehabilitate this structure and allow it to support a more extensive visitor use. This would improve the condition of the building by repairing any damage incurred over the years as well as stabilizing the structure to allow it to sustain further use.

At **Floyd Bennett Field**, these actions, along with Alternatives A, B, C, or D, would have a long-term, minor, beneficial cumulative impact. Changes to historic structures at the Field are readily apparent based on the size and importance of the site. The No-Action Alternative would contribute imperceptible,

adverse increments to the cumulative impact. However, Alternative B, C, or D would each contribute imperceptible, beneficial increments to the cumulative impact.

At **Jacob Riis Park**, because the No-Action Alternative and Alternatives B, C, or D would have no impact to historic structures, in conjunction with present and reasonable foreseeable future actions, there would be no contribution to the cumulative impact to historic structures.

At **Riis Landing**, because the No-Action Alternative and Alternatives B, C, or D would have no impact to historic structures, in conjunction with present and reasonable foreseeable future actions, there would be no contribution to the cumulative impact to historic structures.

Finally, the changes at the **New NPS Sites** were not considered under historic structures as explained in “Chapter 1: Purpose and Need” of this document.

Cultural Landscapes

No cumulative impacts to cultural landscapes have been identified.

Visual Resources

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to visual resources in and around the Jamaica Bay study area. These impacts include:

- The Queens Borough Multimodal Improvement Project;
- The New York City Traffic Congestion and Air Quality Improvements;
- The Sandy Hook Access and Circulation Improvement Projects;
- The Miller Field Improvements;
- The Floyd Bennett Field Sports Complex;
- The Riis Landing Improvements; and
- The New NPS Sites.

Much of the urban environment is defined by the roads, parking lots, and other transportation infrastructure that connects the city. The local government projects, along with improvements at Miller Field and Sandy Hook would create or remove roads would not only change existing viewsheds, but also change the means by which people pass through them. The change in this pattern could change the entire perception of the landscape and other visual resources.

Similarly, the increase or decrease in vehicular traffic along a roadway can alter visual resources. This is especially true in the urban environment, where these views are prevalent in almost every viewshed. The removal of vehicles from a viewshed would provide a much more undisturbed and peaceful view. However, an increase in congestion in a previously open area would adversely impact the viewshed. The local government projects could reduce vehicular traffic. However, new attractions and circulation improvements within the NPS sites could bring new traffic to previously undisturbed viewsheds.

Finally, the development of new structures could change existing viewsheds. In some cases, new structures can adversely impact the landscape. However, in the case of Riis Landing or Floyd Bennett Field, the renovation and development of new structures would make the site more visually appealing.

Similarly, the capping and closure of the landfills would greatly enhance the regional viewshed. Because the NPS locations represent some of the few areas of undeveloped land within the urban environment, changes in visual resources within the NPS bounds are apparent throughout the region.

At **Floyd Bennett Field**, these actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. Changes to visual resources at the Field are readily apparent based on the size and importance of the site. The No-Action Alternative would contribute an imperceptible, adverse increment to the cumulative impact. However, Alternative B, C, or D would each contribute noticeable to appreciable, beneficial increments to the cumulative impact.

At **Jacob Riis Park**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. Like Floyd Bennett Field, changes to visual resources would also be readily apparent based on the site's history and location with the regional transportation network. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternatives B or C would also each contribute imperceptible to noticeable, adverse increments. However, Alternative D would contribute imperceptible to noticeable, beneficial increments to the cumulative impact.

Riis Landing is not as prominent as the previous two study areas, and changes to visual resources would not be as apparent. Also, the changes proposed here are common sights in the urban environment and would not stand out on the regional viewshed. The cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternatives B or C would each contribute imperceptible, adverse increments to the cumulative impact. Alternative D, however, would contribute imperceptible, beneficial increments.

Finally, the changes at the **New NPS Sites** would be primarily confined to the immediate area. The cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternatives B, C, or D would each contribute imperceptible, beneficial increments to the cumulative impact.

Transportation, Site Access, and Circulation

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to transportation in and around the Jamaica Bay study area. These impacts include:

- The Queens Borough Multimodal Improvement Project;
- The New York City Traffic Congestion and Air Quality Improvements;
- The Belt Parkway Bridge Replacements;
- The Sandy Hook Access and Circulation Improvement Projects; and
- The Miller Field Improvements.

The majority of these projects involve enhancing or adding to existing transportation infrastructure. The installation of new parking lots, highway ramps, or access/egress points has the potential to increase congestion and decrease transportation efficiency throughout the region. However, through proper

planning and design, these developments would avoid such adverse conditions. The installation and/or enhancement of new roads would increase transportation efficiency. These improvements could come in the form of increased carrying capacity on roads, diverting traffic from highly congested areas, or creating more direct connections between points of interest. Based on the enormity of the regional transportation network, these improvements would be confined to relatively small areas. The results of these improvements would be long-term, moderate, beneficial impacts.

At **Floyd Bennett Field**, these actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. The No-Action Alternative would contribute noticeable, adverse increments to the cumulative impact. Alternatives B, C, or D would each contribute noticeable, beneficial increments to the cumulative impact.

At **Jacob Riis Park**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. The No-Action Alternative would contribute imperceptible, beneficial increments to the cumulative impact. Alternatives B, C, or D would each contribute imperceptible to noticeable, beneficial increments.

At **Riis Landing**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternative B, C, or D would each contribute imperceptible, beneficial increments.

Finally, at the **New NPS Sites**, these actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. The No-Action Alternative and Alternative B would each contribute imperceptible, adverse increments to the cumulative impact. Alternative C or D would each contribute imperceptible, beneficial increments to the cumulative impact.

Visitor Use and Experience

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to visitor use and experience in and around the Jamaica Bay study area. These impacts include:

- The Queens Borough Multimodal Improvement Project;
- The New York City Traffic Congestion and Air Quality Improvements;
- The Sandy Hook Access and Circulation Improvement Projects;
- The Drainage and Pavement Improvement Projects at Jamaica Bay;
- The Miller Field Improvements;
- The Floyd Bennett Field Sports Complex;
- The Jacob Riis Park Bathhouse Enhancements;
- The Riis Landing Improvements; and
- The New NPS Sites.

Gateway is part of a series of federal, state, and local parks that exist in the city. All of these parks play a critical role in providing an escape from the urban environment. Even the slightest change in these locations can have an impact on the entire region.

By improving access through public transportation options or by making existing routes more efficiency, transportation enhancements can have a noticeable effect on the initial visitor experience. Transportation improvements can also improve the on site visitor experience. As the urban environment is cluttered with traffic and vehicular noise, reducing these elements in and around attractions would improve the visitors' appreciation of a given site.

Finally, by creating additional visitor attractions in or around existing sites, projects can enhance the quality of an individual visit. These projects may build on existing opportunities or offer an entirely new activity that would attract new visitors while providing existing visitors with more opportunities. These projects would result in a long-term, moderate, beneficial impact.

At **Floyd Bennett Field**, these actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. The No-Action Alternative would contribute appreciable, adverse increments to the cumulative impact. Alternative B would contribute noticeable, beneficial increments to the cumulative impact. And, Alternatives C or D would each contribute appreciable, beneficial increments to the cumulative impact.

At **Jacob Riis Park**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. The No-Action Alternative would contribute noticeable, adverse increments to the cumulative impact. Alternative B would contribute noticeable, beneficial increments. Alternatives C or D would each contribute appreciable, beneficial increments to the cumulative impact.

At **Riis Landing**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. Alternative A or C would each contribute appreciable, adverse increments to the cumulative impact. Alternative B would contribute noticeable to appreciable, beneficial increments, and Alternative D would contribute noticeable, adverse increments.

Finally, at the **New NPS Sites Riis Landing**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, moderate, beneficial cumulative impact. Alternative A would contribute appreciable, adverse increments to the cumulative impact. However, Alternatives B, C, or D would each contribute appreciable, beneficial increments to the cumulative impact.

Operations

Present and reasonably foreseeable future actions have and continue to contribute cumulative impacts to operations in and around the Jamaica Bay study area. These impacts include:

- Sandy Hook Access and Circulation Improvement Projects;
- Drainage and Pavement Improvement Projects at Jamaica Bay;
- Miller Field Improvements;
- Floyd Bennett Field Sports Complex;
- Jacob Riis Park Bathhouse Enhancements;
- Riis Landing Improvements; and
- New NPS Sites at Pennsylvania and Fountain Avenues.

Despite its large size, Gateway's staff and funding are spread thinly across the entire park. Therefore, any change made in operations could have an impact on the entire park. Because Gateway is comprised of numerous historic structures and aging infrastructure, much of the park operations is focused on regular maintenance of these elements. Projects aimed at improving roads, buildings, and other structures provides a permanent solution to these on-going problems. As a result, staff are able to pursue other tasks, like visitor education.

Other projects bring new structures or activities into the park. When these activities are operated by a concessionaire, the NPS staff commitment is minimal. A new concessionaire can be added to the existing concession management activities without greatly changing existing operations.

Finally, when a new activity or structure is under NPS operation, new staff is required. The new staff may be pulled from existing operations or may include new hires. Either way, the result is additional activities for NPS staff but a greater opportunity for the NPS to expand its mission at Gateway.

At **Floyd Bennett Field**, these actions, along with Alternatives A, B, C, or D, would have a long-term, minor, beneficial cumulative impact. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternative B would contribute noticeable, beneficial increments to the cumulative impact. And, Alternatives C or D would each contribute appreciable, beneficial increments to the cumulative impact.

At **Jacob Riis Park**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, minor, beneficial cumulative impact. The No-Action Alternative would contribute imperceptible, adverse increments to the cumulative impact. Alternatives B, C, or D would each contribute noticeable, beneficial increments to the cumulative impact.

At **Riis Landing**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, minor, beneficial cumulative impact. The No-Action Alternative and Alternative C would each contribute noticeable to appreciable, adverse increments. Alternative B would contribute imperceptible, beneficial increments to the cumulative impact. Alternative D would contribute appreciable, adverse increments to the cumulative impact.

Finally, at the **New NPS Sites**, the cumulative actions, along with Alternatives A, B, C, or D, would have a long-term, minor, beneficial cumulative impact. The No-Action Alternative would contribute noticeable to appreciable, adverse increments to the cumulative impact. Alternatives B, C, or D would each contribute imperceptible, adverse increments to the cumulative impact.

RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM IMPACTS

Study alternatives presented in this document are based on park goals and objectives, baseline daily and peak period traffic with the study areas, safety conditions, and future forecasted traffic activities. The relationship between short-term uses of the environment and long-term improvements of the Jamaica Bay study area is discussed in this section. Short-term impacts and uses of the environment are generally associated with the construction phase of the project. The impacts during the construction phase, discussed below, would not carry over beyond the initial development phase and would be offset by the benefits that improving the four study areas would provide once they are complete. Although localized

and temporary impacts would occur during construction, they would be consistent with the goals for improved long-term, productivity of the study areas and other, common developments in the urban environment.

Localized Delays and Detours. Construction activities within the study areas would result in temporary and localized detours, modifications to access, and increases in truck traffic. These short-term impacts would be offset by the increased long-term mobility and decreased travel times associated with improved transportation, site access, and circulation.

Air Quality. Emissions from reduced traffic speeds through construction zones, combined with fugitive dust produced during construction, would result in a temporary degradation of air quality. Practices to minimize construction impacts would be in accordance with NYCDOT standards. Once improvements were completed, emissions would decrease as traffic speeds would return to normal conditions and overall air quality would improve due to EPA regulations discussed earlier in the document.

Noise. Noise impacts would be expected adjacent to the road and parking lot improvements due to construction machinery operation and traffic diversions. The NPS would monitor noise generated during construction. Abatement measures may be implemented as needed during the process but would not be necessary upon completion.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The improvement of the Jamaica Bay study area would involve a commitment of land, construction materials, natural resources, capital resources, and labor that would be irreversible and ir retrievable.

The commitment of land to the improvement of the study area would render that land unusable for any other use. Although the existing land uses lost to these improvements could be relocated to an alternative location, this land would be dedicated to the proposed uses in perpetuity. (Note: this does not apply to the first phase of the NPS Preferred Alternative at Jacob Riis Park.) This commitment of land would include existing rights-of-way, undeveloped lands, as well as lands that are currently developed and used for other activities.

The materials and energy used to improve the Jamaica Bay study area would constitute an ir retrievable commitment of resources. The materials, including but not limited to asphalt, steel, aggregates, sand, gravel, and cement, would be dedicated to the proposed improvements and would not be available for other uses. Similarly, fuels and electricity used in the construction process would be dedicated to the improvements. All applicable energy conservation measures would be utilized and energy resource consumption would not be excessive in terms of regional usage. None of the natural resources associated with lands that would be committed to the improvements or used in preparation/fabrication of construction materials are in short supply nor would their use have an adverse effect on the continued availability of those resources.

Commitment of human and fiscal resources would also be required. During construction, members of the labor force, including construction crews, government staff, consultants, and engineers would be dedicated to the project. Fiscal resources used to purchase construction materials and pay the labor force would also constitute an ir retrievable commitment of resources.

The irreversible and irretrievable commitment of resources by the improvement of the Jamaica Bay study area would be offset by long-term improvements to Gateway and achievement of goals to improve transportation, site access, and circulation within the unit.

CONCLUSION

Floyd Bennett Field

Under **Alternative A, No-Action**, there would be no impact to archeological resources. There would be a long-term, negligible, adverse impact to soils and topography, vegetation, wildlife and wildlife habitat, water resources, and operations. The No-Action Alternative would have long-term, minor, adverse impacts on noise, and historic structures. This alternative would also have long-term, moderate, adverse impacts on cultural landscapes, visual resources, transportation, and visitor use and experience. The No-Action Alternative would have a long-term, negligible, beneficial impact to air quality. The No-Action Alternative would contribute imperceptible, adverse increments to cumulative impacts related to vegetation, wildlife and wildlife habitat, water resources, noise, historic structures, visual resources, and operations. It would also contribute imperceptible, beneficial increments to cumulative impacts related to air quality. The No-Action Alternative would also contribute noticeable, adverse increments to cumulative impacts related to transportation, and appreciable, adverse increments to cumulative impacts related to visitor use and experience. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Under **Alternative B, North Entrance**, there would be a long-term, negligible, adverse impact to soils and topography, vegetation, and water resources. Alternative B would also have a long-term, minor, adverse impact to noise, and cultural landscapes. This alternative would have a long-term, negligible, beneficial impact to air quality, and historic structures. There would also be a long-term, minor, beneficial impact to wildlife and wildlife habitat, air quality, visitor use and experience, and operations. It would also have a long-term, moderate, beneficial impact to visual resources, and transportation. There would be no impact to floodplains or archeological resources. Alternative B would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, vegetation, water resources, and noise. Alternative B would contribute imperceptible, beneficial increments to cumulative increments related to wildlife and wildlife habitat, air quality, and historic structures. It would also contribute noticeable, beneficial increments to cumulative impacts related to transportation, visitor use and experience, and operations. Finally, this alternative would contribute noticeable to appreciable, beneficial increments to cumulative impacts related to visual resources. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Alternative C, Visitor Center Entrance, would have no impact to floodplains or archeological resources. It would have long-term, negligible, adverse impacts to soils and topography, and water resources. It would have long-term, minor, adverse impacts to vegetation, noise, and cultural landscapes.

There would be long-term, negligible, beneficial impacts to historic structures and a long-term, negligible to minor, beneficial impacts to air quality. The alternative would also have long-term, moderate, beneficial impacts to wildlife and wildlife habitat, and operations. Alternative C would have long-term, moderate beneficial impacts to visual resources, transportation, and visitor use and experience. Alternative C would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, vegetation, water resources, and noise. It would also contribute imperceptible, beneficial increments to air quality and historic structures. This alternative would contribute noticeable, beneficial increments to wildlife and wildlife habitat and transportation. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Alternative D, Multi-Access, is the NPS Preferred Alternative. This alternative would have no impact to floodplains or archeological resources. It would have a long-term, negligible, adverse impact to soils and topography, and water resources. This alternative would also have long-term, minor, adverse impacts to vegetation, noise, and cultural landscapes. Alternative D would have long-term, negligible beneficial impacts to historic structures and long-term, negligible to minor, beneficial impacts air quality. It would also have long-term, moderate, beneficial impacts on wildlife and wildlife habitat, visual resources, transportation, and visitor use and experience, as well as operations. Alternative D would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, vegetation, water resources, and noise. This alternative would also contribute imperceptible, beneficial increments to cumulative impacts related to air quality and historic structures. This alternative would contribute noticeable, beneficial increments to cumulative impacts related to wildlife and wildlife habitat and transportation, as well as noticeable to appreciable, beneficial increments to visual resources. Alternative D would also contribute appreciable, beneficial increments to visitor use and experience and operations. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Jacob Riis Park

Under the **No-Action Alternative**, there would be no impact to archeological resources, historic structures, or cultural landscapes. There would be a long-term, negligible, adverse impact to soils and topography, vegetation, wildlife and wildlife habitat, water resources, floodplains, and operations. There would be long-term, minor, adverse impacts to noise, visual resources, and visitor use and experience. It would also have long-term, negligible, beneficial impacts to air quality and transportation. The No-Action Alternative would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, vegetation, wildlife and wildlife habitat, water resources, floodplains, noise, visual resources, and operations. This alternative would also contribute noticeable, adverse increments to cumulative impacts related to visitor use and experience. It would contribute imperceptible, beneficial increments to cumulative impacts related to air quality and transportation. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities

for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Under Alternative B, Left Turn, there would be long-term, minor, adverse impacts to noise and cultural landscapes. This alternative would also have long-term, minor to moderate, adverse impacts to visual resources. It would also have long-term, negligible, beneficial impacts to floodplains and long-term, minor, beneficial impacts to water resources, air quality, visitor use and experience, and operations. There would be long-term, moderate, beneficial impacts to soils and topography, vegetation, wildlife and wildlife habitat, and transportation. This alternative would contribute imperceptible, adverse increments to floodplains and noise. It would also contribute imperceptible to noticeable, adverse increments to cumulative impacts related to visual resources. Alternative B would contribute imperceptible to noticeable, beneficial increments to cumulative impacts related to transportation, as well as imperceptible, beneficial increments to cumulative impacts related to soils and topography, vegetation, wildlife and wildlife habitat, water resources, and air quality. This alternative would also contribute noticeable, beneficial increments to visitor use and experience and operations. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Alternative C, Intersection, would have long-term, minor, adverse impacts to noise and cultural landscapes. There would be also be long-term, minor to moderate, adverse impacts to visual resources. This alternative would have long-term, negligible, beneficial impacts to water resources and floodplains; as well as long-term, minor, beneficial impacts to soils and topography, vegetation, air quality, and visitor use and experience. Finally, there would be long-term, moderate, beneficial impacts to wildlife and wildlife habitat, transportation, visitor use and experience. This alternative would contribute imperceptible, adverse increments to cumulative impacts related to noise and imperceptible to noticeable, adverse increments to cumulative impacts related to visual resources. Alternative C would also contribute imperceptible, beneficial increments to cumulative impacts related to soils and topography, vegetation, wildlife and wildlife habitat, water resources, floodplains, and air quality. Alternative C would also contribute imperceptible to noticeable, beneficial increments to cumulative impacts related to transportation as well as noticeable, beneficial increments to operations. This alternative would also contribute appreciable, beneficial increments to cumulative impacts related to visitor use and experience. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Alternative D, Bridges, is the NPS Preferred Alternative. It would have long-term, minor, adverse impacts to noise, cultural landscapes, and visual resources. This alternative would have long-term, negligible, beneficial impacts to water resources and floodplains. There would be long-term, negligible to minor, beneficial impacts to air quality, and long-term, minor, beneficial impacts to soils and topography, vegetation, and operations. Alternative D would also have long-term, moderate, beneficial impacts to wildlife and wildlife habitat, transportation, and visitor use and experience. This alternative would

contribute imperceptible, adverse increments to cumulative impacts related to floodplains and noise. Alternative D would contribute imperceptible, beneficial increments to cumulative impacts related to soils and topography, vegetation, wildlife and wildlife habitat, water resources, and air quality. This alternative would also contribute imperceptible to noticeable, beneficial increments to cumulative impacts related to visual resources and transportation. Alternative D would contribute noticeable, beneficial increments to cumulative impacts related to operations. It would also contribute appreciable, beneficial increments to cumulative impacts related to visitor use and experience. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Riis Landing

Alternative A, No-Action, would have no impact to floodplains, archeological resources, historic structures, or cultural landscapes. There would be long-term, negligible, adverse impacts to soils and topography, vegetation, wildlife and wildlife habitat, and water resources. There would be long-term, minor, adverse impacts to noise and long-term, moderate, adverse impacts to visual resources. This alternative would also have long-term, negligible to moderate, adverse impacts to transportation. Alternative A would also have long-term, minor to moderate, adverse impacts to operations and long-term, moderate, adverse impacts to visitor use and experience. Finally, this alternative would have long-term, negligible, beneficial impacts to air quality. Under Alternative A, there would be imperceptible, adverse contributions to cumulative impacts related to soils and topography, vegetation, wildlife and wildlife habitat, water resources, noise, visual resources, and transportation. This alternative would contribute noticeable to appreciable, adverse increments to operations. There would also be appreciable, adverse increments contributed to cumulative impacts related to visitor use and experience. Also, this alternative would, however, contribute imperceptible, beneficial increments to cumulative impacts related to air quality. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Alternative B, New Parking at Fort Tilden, is the NPS Preferred Alternative. There would be a long-term, negligible, adverse impact to floodplains and cultural landscapes. There would be long-term, negligible to minor, adverse impacts to wildlife and wildlife habitat. The alternative would also have long-term, minor, adverse impacts to soils and topography, vegetation, water resources, noise, and visual resources. This alternative would, however, have long-term, negligible, beneficial impacts to operations. It would also have a long-term, minor, beneficial impact to air quality. Finally, there would be a long-term, moderate beneficial impact to transportation and visitor use and experience. Alternative B would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, vegetation, wildlife and wildlife habitat, water resources, floodplains, noise, and visual resources. It would also contribute imperceptible, beneficial increments to cumulative impacts related to air quality, transportation, and operations. This alternative would also contribute noticeable to appreciable, beneficial increments to cumulative impacts related to visitor use and experience. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes

identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Under **Alternative C, Parking at T-4**, there would be no impact to floodplains, archeological resources, or historic structures. There would be long-term, negligible, adverse impacts to soils and topography, vegetation, as well as wildlife and wildlife habitat, water resources. This alternative would also have long-term, minor, adverse impacts to noise, visual resources, and a long-term, minor to moderate, adverse impact to operations. Alternative C would have long-term, moderate, adverse impact to visitor use and experience. There would also be long-term, minor, beneficial impacts to air quality and cultural landscapes. Alternative C would also have long-term, moderate, beneficial impacts to transportation. Alternative C would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, vegetation, wildlife and wildlife habitat, water resources, noise, and visual resources. It would contribute noticeable to appreciable, adverse increments to cumulative impacts related to operations. Alternative C would also contribute appreciable, adverse increments to cumulative impacts related to visitor use and experience. There would also be imperceptible, beneficial increments contributed to cumulative impacts related to air quality and transportation. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Under **Alternative D, parking at Jacob Riis Park**, there would be no impact to floodplains, archeological resources, or historic structures. There would be long-term, negligible, adverse impacts to soils and topography, vegetation, wildlife and wildlife habitat, and water resources. This alternative would also have long-term, minor, adverse impacts to noise and visitor use and experience. There would be long-term, moderate, adverse impacts to operations. There would also be long-term, minor, beneficial impacts to air quality, cultural landscapes, visual resources, and transportation. Alternative D would contribute imperceptible, adverse increments to soils and topography, vegetation, wildlife and wildlife habitat, water resources, and noise. This alternative would also contribute noticeable, adverse increments to cumulative impacts related to visitor use and experience and appreciable adverse increments to cumulative impacts related to operations. Alternative D would also contribute imperceptible, beneficial increments to cumulative impacts related to air quality, visual resources, and transportation. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

New NPS Sites at Pennsylvania and Fountain Avenues

Under **Alternative A, No-Action**, there would be no impact to cultural resources. There would be long-term, negligible, adverse impacts to wildlife and wildlife habitat and floodplains. There would be long-term, minor, adverse impacts to water resources and noise, as well. In addition, there would be long-term,

minor to moderate, adverse impacts to soils and topography and operations. Alternative A would also have long-term, moderate, adverse impacts to vegetation, visual resources, transportation, as well as visitor use and experience. This alternative would also have long-term, negligible, beneficial impacts to air quality. Alternative A would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, vegetation, wildlife and wildlife habitat, water resources, floodplains, noise, visual resources, transportation, Alternative A would contribute noticeable to appreciable, adverse increments to cumulative impacts related to operations; as well as appreciable, adverse increments to cumulative impacts related to visitor use and experience. This alternative would also contribute imperceptible, beneficial increments to cumulative impacts related to air quality. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Under **Alternative B, Roundabout**, there would be no impact to cultural resources. There would be long-term, negligible, adverse impacts to wildlife and wildlife habitat, floodplains, and operations. This alternative would also have long-term, minor, adverse impacts to soils and noise. It would also have long-term, moderate, adverse impacts to transportation. However, this alternative would have long-term, negligible, beneficial impacts to air quality. It would also have long-term, minor, beneficial impacts to vegetation and long-term, moderate, beneficial impacts to water resources, visual resources, and visitor use and experience. Alternative B would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, wildlife and wildlife habitat, floodplains, noise, transportation, and operations. This alternative would also contribute imperceptible, beneficial increments to cumulative impacts related to vegetation, water resources, air quality, and visual resources. This alternative would also contribute appreciable, beneficial increments to cumulative impacts related to visitor use and experience. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Alternative C, Intersection, is the NPS Preferred Alternative. It would have no impact to cultural resources. The alternative would have long-term, negligible adverse impacts on wildlife and wildlife habitat, floodplains, and operations. It would also have long-term, minor, adverse impacts on soils and topography, as well as noise. This alternative would have long-term, negligible, beneficial impacts to air quality; and long-term, minor, beneficial impacts to vegetation and transportation. The alternative would also have long-term, moderate, beneficial impacts on water resources, visual resources, and visitor use and experience. Alternative C would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, wildlife and wildlife habitat, floodplains, noise, and operations. The alternative would also contribute imperceptible, beneficial increments to cumulative impacts related to vegetation, water resources, air quality, visual resources, and transportation. Alternative C would also contribute appreciable, beneficial increments to cumulative impacts related to visitor use and experience. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in

the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.

Alternative D, Expanded Parking, would have no impact to cultural resources. It would also have long-term, negligible, adverse impacts to wildlife and wildlife habitat, floodplains, and operations. This alternative would also have long-term, minor, adverse impacts to soils and topography, as well as noise. Alternative D would also have long-term, negligible, beneficial impacts to vegetation and air quality. It would also have long-term, minor, beneficial impacts to transportation. Finally, this alternative would have long-term, moderate, beneficial impacts to water resources, visual resources, visitor use and experience. Alternative D would contribute imperceptible, adverse increments to cumulative impacts related to soils and topography, vegetation, wildlife and wildlife habitat, floodplains, noise, and operations. This alternative would also contribute imperceptible, beneficial increments to cumulative impacts related to water resources, air quality, visual resources, and transportation. This alternative would also contribute appreciable, beneficial increments to cumulative impacts related to visitor use and experience. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values.