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ALTERNATIVES

INTRODUCTION

This section describes alternatives for the transportation studies at the four study areas within the Jamaica Bay unit of Gateway. This chapter is divided into four sections, one for each study area. Each section includes a No-Action Alternative, three action alternatives, and an Environmentally Preferred Alternative analysis. Table 1 is located at the end of the chapter and briefly describes the impacts related to each of these alternatives.

The NPS has adopted the concept of sustainable design as one of the guiding principles of planning and development. The objectives of sustainability are to design structures to minimize adverse impacts on natural and cultural values; to reflect their environmental setting; to maintain and encourage biodiversity; to construct and retrofit facilities using energy efficient materials and building techniques; to operate and maintain facilities to promote their sustainability; and to illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use. Essentially, sustainability is living within the environment with the least impact on the environment. The action alternatives below subscribe to and support the practice of sustainable planning and design by improving the efficiency of current circulation systems and designing new systems that would provide efficient conditions well into the future. By recognizing the surrounding resources and planning issues, the project aims to develop alternatives that meet the purpose and need of the project while maintaining sustainable design principles. These principles were incorporated into the alternatives development process of this study.

ALTERNATIVES DEVELOPMENT

Alternatives for this project were designed to support site access, visitor use and experience, and park infrastructure in a manner that meets the purpose of the studies. They were also guided by the planning issues described in Chapter 1 of this document. The overall alternative development and screening process consisted of the following steps.

Identification of initial improvement alternatives: The initial concepts developed for study by members of the project team were based upon the full range of transportation improvements that could address existing and projected park issues. Information on these issues was obtained through research, consultation with NPS and EFLHD representatives, and through public input. As part of the conceptual alternative analysis, options that met the study's purpose and need were refined and presented to EFLHD

and the NPS for further consideration. Alternatives that did not meet the purpose and need, or were deemed to have potential safety impacts, were eliminated from further consideration.

Screening of conceptual alternatives: This transportation study is intended to objectively identify deficiencies, develop potential solutions to address needs, and define the preferred improvement alternatives in accordance with the provisions of NEPA. To evaluate initial alternatives, screen out improvements that did not meet project purpose and need, and refine concepts for further assessment, the screening of initial improvement alternatives was undertaken to determine any “fatal flaws” in the various alternatives. To ascertain these fatal flaws, a set of design criteria were established to assess the usefulness and benefit of a particular alternative. These criteria vary in scope and genre and were chosen to encompass the benefits/impacts to all users of the park, park staff, the surrounding communities, and the environmental and cultural landscape. Alternatives that were eliminated from further analysis were removed in accordance with NPS guidelines defined in DO#12 “Conservation Planning, Environmental Impact Analysis, and Decision-making.”

Selection of alternatives for analysis: On May 5-6, 2005, representatives from EFLHD met with their consultants, Vanasse Hangen Brustlin, Inc. (VHB) and Jacobs Civil, Inc (Jacobs), to review the initial conceptual alternatives and develop screening criteria through which to evaluate the designs. Following this meeting, the team traveled to Gateway for an alternatives development workshop with the NPS. During the workshop, representatives from Gateway, the NPS Northeast Regional Office, EFLHD, and their consultants worked on further analysis and refinement of the alternatives that would be advanced through the study. After the workshop, VHB continued to make refinements to the Floyd Bennett Field alternatives, and the team held a conference call on June 30th to review these modifications. Following a final NPS review, the candidate alternatives were selected and further traffic and environmental analysis was completed for this document.

With the advanced analysis complete, the NPS held a Choosing By Advantages session to systematically select the preferred alternative for each site. The session was held at Gateway on Monday, October 17, 2005 in the Education Center Library in Building 210 on Fort Wadsworth, Staten Island. During this session, representatives from the NPS reviewed the candidate alternatives and selected the NPS Preferred Alternative for each site. The selection was based on how each alternative met the purpose and need of the study.

FLOYD BENNETT FIELD

Alternative A (No-Action)

The No-Action Alternative would maintain current access and circulation patterns at Floyd Bennett Field. Floyd Bennett Drive would continue to serve as the only motor vehicle access point to the site. This entrance would also service the NYPD, NYCDOS, and USMC site users. Additional access for pedestrians, bicyclists, and those using public transportation along Flatbush Avenue would continue to be maintained near the Ryan Visitor Center. A gate at the northern section of the site could sporadically be used for egress during special events (Figure 8).

Once on site, drivers would either remain on Floyd Bennett Drive or turn onto Runway 15-33 to reach their destinations. Floyd Bennett Drive extends to Ranger Road and Enterprise Road to deliver visitors to the Ecology Village, the Environmental Studies Center, and NPS administrative buildings. The roadway would also continue to provide access to the USMC and NYPD property. Runway 15-33 would take visitors to the Ryan Visitor Center, the community gardens, the grassland management areas, and the North Forty Natural Area. It would also connect with Runway 6-24 to provide access to the eastern edge of the field. The NYCDOS would use this route to reach their respective sites. Ample parking would continue to be provided across the site, allowing visitors to park near their destination.

All of the traffic associated with the new sports complex would use the existing entrance and travel along Runway 15-33 to reach their destination. Other than some minor upgrades to the signage along Floyd Bennett Drive and Runway 15-33 to include the new sports complex, there would be no physical changes outside of the sports complex concession lease boundaries.

Alternative B (North Entrance)

Under Alternative B, a dedicated entrance for the new sports complex would be constructed 1,750 feet south of the Belt Parkway ramps, to provide direct access to the facility. To create this North Entrance, a new curb cut and median opening along Flatbush Avenue would be constructed as a signalized entrance, by providing an appropriately sized left-turn lane in the southbound Flatbush Avenue direction, and a new traffic signal to control the new traffic pattern. The increase in impervious area would be less than 0.1 acre (about 1,500 square feet (sf)). The reconstruction work would occur within the NYCDOT Flatbush Avenue right of way (Figure 9).



The existing Flatbush Avenue median

Work on the NPS lands would involve minor realignment of the bikeway (so that it crosses the driveway at the proper location and angle needed to maximize the visibility of bikeway users to motor vehicle drivers) but would not change the amount of impervious area at the site. The primary signage for the new entrance would be on the sports complex site, indicating the new entrance was for sports complex access only. Some additional small directional signs would be installed near the new intersection. For southbound traffic there would be a new NPS sign reinforcing that the main park entrance is further along Flatbush Avenue.

The new entrance would be limited to sports complex traffic only. Visitors entering from the north would not be able to access the rest of Floyd Bennett Field. However, during large special events, a controlled exit could be opened to provide access and egress to the rest of the site. No changes to parking supply are required as part of this alternative, however, some change in the location and allocation of spaces may be necessary to accommodate the new sports complex users.

Under this alternative, the internal circulation within the site would be modified as well. Runway 1-19 and Runway 12-30 would be closed to vehicles and used to support existing or future visitor activities; such as bicycling and land sailing. The closure would be indicated with new signage and potentially some temporary roadblock structures. In addition to these modifications, the internal NYPD access route and entrance would be relocated to the north side of the NYPD area, near the access for the NYCDOS area.

Instead of traveling along the length of Floyd Bennett Drive, past the educational facilities and recreational fields in the southern part of the site, the NYPD traffic would travel along Runway 15-33 and Old Runway 6-24 with the NYCDOS to reach their site. On site circulation signs will be enhanced to provide a more comprehensive navigational plan for park users.

The relocation of the NYPD entrance allows more of the park to remain open during security events. If necessary, the access to Runway 15-33 could be closed to the public. There would be no public access to the runways or the north east section of the park, but the south section would remain accessible via Floyd Bennett Drive, and the area near the Ryan Visitor Center could be accessed via the new North Entrance, through the new sports concession area.



**Pedestrian and bicycle access
outside Floyd Bennett Field**

Overall, Alternative B would result in less than 0.1 acre (1,500 sf) of impervious surface (due to the widening of the Flatbush Avenue median opening) and cost approximately \$625,000 in fiscal year (FY) 2006 dollars. Because much of the physical development would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency and other interested parties to obtain funding for this alternative.

Alternative C (Visitor Center Entrance)

Under Alternative C, a new entrance would be installed outside the Ryan Visitor Center, in the core of the site's historic airport features. To create a safe access/egress point, the new Visitor Center Entrance would be signalized. The signal would control a new median opening, with 200-foot left turn lanes, within the Flatbush Avenue right of way. To accommodate this new signalized turn, the existing U-turn median opening located north of the new entrance would be closed (Figure 10). This work would occur within the NYCDOT right of way.

In order to complete this work, some development would need to occur on external NPS property as well. This would include closing the existing marina driveway and creating a new access point to the concession that was aligned with the new signalized intersection. In addition, a 300-foot segment of the bikeway on the eastern side of the road would be realigned with the crosswalk at the new Visitor's Center Entrance driveway. All of the existing NPS signage along Flatbush Avenue would be relocated or replaced to correspond with the new access routes. As with the previous alternative, the parking supply would not be altered, but may be relocated as necessary.



**Ryan Center Driveway (currently
closed)**

INSERT FIGURE 8

INSERT FIGURE 9

The new entrance would be aligned with Old Runway 6-24, to create a grand, park-like entrance adjacent to the gated, historic entrance loop in front of the Ryan Visitor Center. The Visitor Center Entrance would provide access to the primary historic and recreational areas of the park, as well as the sports complex. The current entrance would still provide access to the entire site, via Runway 15-33, but the intent would be for it to be used by those visitors destined for specific programs and activities held in the southern section of the site. The new entrance would require a new roadway across the old tarmac area outside of Hangar 3 and 4. This area is currently partially paved and partially maintained as grass. Approximately 400 feet of two-lane 26-foot wide roadway would be constructed, extending from Flatbush Avenue to the existing internal roadway that connects the southern Ryan Visitor Center parking lot and the Runway 15-33 / Old Runway 6-24 intersection. This alternative would maintain the entrance loop as an access/egress point for pedestrians and bicyclists.

The alternative also includes several modifications to the internal site circulation. Like Alternative B, this alternative would close Runway 12-30 and Runway 1-19 to vehicles. In addition, Runway 15-33 would be closed north of Old Runway 6-24, and Runway 6-24 would be closed up to Taxiway T-10. Access to sports complex and other areas north of the visitor center would be provided via Aviation Road and access to the radio-controlled model airfield would be rerouted from Runway 6-24 to a taxiway section between Runway 6-24 and Runway 1-19. Egress from the sports complex parking lot directly to Flatbush Avenue would be allowed only during special events through an existing gate. The signage plan along Flatbush Avenue and within the site would be improved as part of this alternative to direct users to the proper entrance (Figure 10).

As with Alternative B, the NYPD access route would be relocated. However, instead of entering and exiting the site via the south entrance, the NYPD vehicles would use the new Visitor's Center Entrance and drive due east to reach their new entrance. The NYCDOS would also use this new entrance. During security events the NYPD area could be secured while maintaining most park operations. The west end of Old Runway 6-24 would be gated, but all of the south section of the park and all of the area bordering Flatbush Avenue would continue to be accessible to park users.



Aviation Road

Overall, Alternative C would create 0.5 acre (22,000 sf) of impervious surface (due to the widening of the Flatbush Avenue median opening) and result in the loss of 16 immature trees within the Flatbush Avenue median. The proposal would cost approximately \$1,451,000 in FY2006 dollars. Because much of the physical development would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency and other interested parties to obtain funding for this alternative.

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

Alternative D is the NPS Preferred Alternative, as it best resolves user conflicts through multiple access points. The multiple access points also provide direct access to the sports complex and improve the park-like approach to the site. This alternative would retain the existing entrance at Floyd Bennett Field Drive and create two new signalized entrances – at the Visitor Center and near the new sports concession (Figure 11). The Visitor Center Entrance would be the same as the one described in Alternative C and the North Entrance would be the same as the one described in Alternative B. Both of these entrances would include physical development within the NYCDOT right of way. The new North Entrance would be signed for the sports complex, although it would

provide secondary access and egress for the northern section of the site without requiring travel through the sport concession land assignment. However, the primary entrance to the Field would be provided by the new Visitor Center Entrance, while the current entrance would maintain access to and from the southern section of the site.

The internal circulation for Alternative D is similar to Alternative C. Under Alternative D, however, all of Runway 15-33 would remain open to provide full access to and from the North Entrance. Overall, Alternative D would create 0.5 acre (23,500 sf) of impervious surface and result in the loss of 16 immature trees within the Flatbush Avenue median. The proposal would cost approximately \$2,850,000 in FY2006 dollars. Because much of the physical development would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency and other interested parties to obtain funding for this alternative.

Alternatives Considered but Dismissed

Full Access North Entrance

This alternative would provide full access and circulation at both the existing (south) entrance to Floyd Bennett Field and at a new entrance along the northern perimeter of the site. The new North Entrance would be similar to that of Alternative B, except that the driveway would be aligned with the perimeter of the sport concession area rather than directly into the sport concession area from Flatbush Avenue. This would still provide a new entrance point into the park and alter the view into Floyd Bennett Field from Flatbush Avenue. Further, the historic entrance the Floyd Bennett Field would not be reopened under this alternative further altering the historic view of the area.

The NYPD entrance would be relocated, as in Alternative 2, and the NYPD and DOS would use the new North Entrance to access their facilities. However, both would be allowed to use the existing entrance at the south side of the field to travel to Runway 15-33 as well.

Visitors to the park would be directed to use the North Entrance to access the various uses, including the hockey facilities. The USMC personnel and staff/visitors destined to the Ecology Village area would continue to use the existing south entrance.

Findings: This alternative was dismissed because it duplicates other alternatives with less environmentally damaging alternatives and its inability to fully meet the project's purpose and need.

North and Visitor Center Entrances

This alternative would close the existing entrance at Floyd Bennett Drive and create new entrances at the Visitor Center and the sports complex. Traffic to the north end of the site, including the NYPD and the NYCDOS could use either entrance. The primary access for the southern end of the site, including the Ecology Village area and the USMC site, would be from the Visitor Center Entrance.

This alternative would also close a section of Runway 15-33 and replace the connection between the Visitor Center and Floyd Bennett Drive by rerouting traffic to the Airport Road corridor. The most notable other circulation change would be the designation of Runway 12-30 as a principal access roadway to the NYPD, NYCDOS and other locations on the east side of Floyd Bennett Field.

Findings: This alternative was dismissed because it duplicates other alternatives with less environmentally damaging alternatives and its inability to fully meet the project's purpose and need.

Multi-Access Tenant Corridor

Similar to Alternative D, this alternative retains the existing entrance and creates two new signalized entrances – at the Visitor Center and near the new sports complex. The North Entrance would be signed for the new sports complex and the Visitor Center Entrance would be identified as the main entrance into Floyd Bennett Field. The existing south entrance at Floyd Bennett Drive would remain in use, particularly for accessing the south side of the site.

The southern entrance would serve as the primary tenant entrance. It would also be used by the USMC, the NYPD, and some NYCDOS vehicles. The larger NYCDOS vehicles would be directed through the NYPD site. NYCDOS trainees would continue to park along Runway 15-33 near the community gardens and all other DOS traffic would continue to use old Runway 6-24.

The internal circulation changes include the closure of the remaining sections of Runway 1-19 and Runway 12-30 to vehicles, and closure of most of Runway 6-24. To provide access to as much of the site as possible during security events, Taxiway T-4 would be used to connect to Ranger Road and the Ecology Village area.



The community gardens at Floyd Bennett Field

Findings: This alternative was dismissed because it does not fully meet the project's purpose and need and conflicts with park plans.

Environmentally Preferred Alternative Analysis

The Environmentally Preferred Alternative is defined by the CEQ as “the alternative that would promote the national environmental policy as expressed in NEPA [Section 101 (b)].” Section 101 (b) states that the Environmentally Preferred Alternative should meet the six criteria listed below. Generally, these criteria define the Environmentally Preferred Alternative as the alternative that causes the least amount of damage to the biological and physical environment and that best protects, preserves, and enhances historic, cultural, and natural resources, while attaining the widest range of beneficial uses of the environment. Each criterion is presented below, followed by a discussion of how well the proposed alternatives for Floyd Bennett Field meet each one. The Environmentally Preferred Alternative for this study area is identified at the end of this section.

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.

The NPS constantly works to maintain and improve its role as a trustee of the environment for succeeding generations. At Gateway, stewardship of the land is a challenging and complicated

component of maintaining and improving the NPS's ability to meet and exceed this criterion. Under **Alternative A**, the NPS would not take any action to improve access or circulation at the Field. Increased visitation would lead to a more intense use of the site's roads, which in many cases are also historic runways that contribute to the overall significance of the site. The increased driving across the site would also lead to an increase in noise and air pollution, which would impact the site's natural, cultural, and recreational values.

Alternative B would seek to avoid these future increases in degradation by creating a new sports complex entrance. This entrance would allow for an immediate increase in visitation without introducing additional traffic the remainder of the Field. By maintaining current traffic levels across the Field, the NPS could minimize future degradation of the site. This alternative would also provide for the fewest number of runway closures, which could reduce the impact vehicular traffic has on the surrounding resources and better preserve the runways for the enjoyment of future generations.

Alternative C would seek to improve stewardship of the Field by addressing access to the entire site. The Visitor Center Entrance would reduce the amount of on site travel for the majority of the Field's visitors. This alternative would also close more of the runways on the Field than Alternative B, directly reducing the impact of vehicular travel on the resources.

Alternative D would provide the benefits of both Alternative B and C. It would provide direct access to the new sports complex to address the immediate growth in visitation, while also creating the new Visitor Center Entrance to reduce the impact of the overall visitor population on the site. This alternative would also provide the runway closures included in Alternative C.

2. *Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.*

Under **Alternative A**, the NPS would maintain current conditions at Floyd Bennett Field. NPS visitors would continue to share the site's circulation system with NYPD and NYCDOS vehicles. This would continue to create numerous safety hazards for people walking, jogging, bicycling, or land sailing along the runways. The existing circulation system would also require NPS visitors and the site's partner and tenant users to travel across much of the site to reach their destination. The existing entrance is in close proximity to the USMC site and a few NPS administrative areas, but the remainder of the site's attractions are some distance from this entrance. Alternative A would also leave all of the runways and maintained taxiways open to vehicular traffic. This would create reoccurring visual intrusions to the Field's natural and historic setting. These intrusions on the historic setting would also detract from the overall cultural landscape that exists at the site.

NSERT FIGURE 10

INSERT FIGURE 11

Alternative B would seek to reduce user conflicts by providing a direct entry for the sports complex. While this would not address existing user conflicts, it would avoid adding additional traffic to the existing situation. The runway closures would also reduce conflicts between visitors arriving by vehicle and those already on foot within the site. Alternative B would also reroute the NYPD and NYCDOS users, thus reducing their time on the runways that are used by pedestrians, bicyclists, and other recreational users. The new entrance to the site and the rerouting of its partner and tenant users would provide more direct access for some of the Field's attractions. It would also remove fast moving, NYPD vehicular traffic from sensitive pedestrian areas, like the Ecology Village and Environmental Study Center. The runway closures would also create direct routes to many of the Field's other attractions, reducing the amount of traffic on the site. The more direct routes and runway closures would reduce the amount of visual intrusions that would be presented on site. The reduction in visual intrusions would allow the natural and historic landscapes to be better understood and enjoyed. This would also allow the site's cultural landscape to be better preserved and presented.

Alternative C would provide similar benefits as Alternative B. However, this alternative would reduce user conflicts by bringing more visitors to the core of the site. This would allow more of the site's recreational users to directly access the site and their desired destination within the Field. This would reduce the amount of on site travel and interaction with pedestrians and other recreational activities (including the Ecology Village and Environmental Study Center), further improving the visitor's experience and enjoyment of the site.

Alternative D would provide the benefits of both Alternatives B and C. It would reduce user conflicts by providing direct access to the sports complex, as well as the core of the site. It would also reduce these conflicts through runway closures. The multiple entrances installed under this alternative would provide the most direct access to the various attractions across the Field.

3. ***Attain the widest ranges of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.***

Floyd Bennett Field supports a wide range of uses for three primary groups: the partner and tenant users, recreational users, and those that come to the site for educational purposes. Under **Alternative A**, the partner and tenant users would continue to enter the site with the recreational and educational users and drive through the site with these other visitors until they enter their respective land assignments. Travel across the site would involve going through areas that are heavily used by pedestrians participating in recreational and educational activities. The NYCDOS would continue to encounter pedestrians as it maintained its driver training activities across the site. The training involves the use of large, loud vehicles on runways that are shared with other vehicles, pedestrians, bicyclists, and other users and creates numerous safety hazards while detracting from the park-like atmosphere. The recreational users would also enter the site from the single existing entrance, as they would travel alongside partner and tenant and educational users to reach their destination. Once at their destination, recreational activities would be obstructed by vehicular travel passing through the site. The continuous traffic would also detract from the natural conditions that support some recreational activities, like bird watching. Similarly, educational activities would be hampered by vehicular traffic. The Ecology Village and the Environmental Study Center are both located along a heavily trafficked corridor that supports NPS administrative uses and connects the NYPD site to Flatbush Avenue. This creates a number

of safety issues, as school buses drop off students who must then cross these roads to reach their destinations. The heavy vehicular traffic also detracts from the learning experience, as noise distracts students and also affects the natural environment that many have come to enjoy.

Under **Alternative B**, the Field would continue to support a wide range of uses. This alternative would, however, redirect the partner and tenant users across the site. Specifically, this would involve rerouting the NYPD traffic away from the small roads in the southern end of the site onto larger runways that provide more unobstructed travel. Recreational users would also benefit from this alternative, as it would create a direct access point to the new sports complex and include runway closures. The direct access would not only benefit the recreational users traveling to the complex but also avoid an immediate increase in traffic across the site. This would allow the other recreational users to maintain their current practices on the Field. The runway closures would further remove vehicular hazards from recreational areas and also reduce noise impacts across the site. The educational users would also greatly benefit from this alternative. The rerouting of the NYPD traffic would remove heavy vehicular traffic from the Ecology Village and Environmental Study Center, making it safer and easier to carry out educational programs. Furthermore, the closure of runways to vehicular traffic would create more opportunities for undisturbed educational programs.

Alternative C would continue to provide a wide range of beneficial uses across the site while improving benefits to the site's partner and tenant users. The new Visitor Center Entrance would be aligned with the runway servicing the NYPD and NYCDOS sites. This would allow these two user groups to quickly clear the area utilized by the recreational and educational user groups and reach their own destinations. The recreational users would also benefit from the quick partner and tenant access, as there would be less vehicular traffic across the site. Recreational users would also benefit from having an access point at the core of the site. This would bring them closer to many of their destinations thus reducing vehicular traffic on the site. It would not, however, provide direct access for the sports complex users, who would have to drive a small distance across the Field before reaching their destination. This would result in an increase in traffic within this area, possibly detracting from recreational uses in that immediate area. The educational users would also benefit from the new entrance. While many of the environmental educational programs take place in the southern end of the site, and are easily accessible from the existing entrance, many of the historic learning opportunities are contained in the core of the site, far from the current entrance to the Field. The new Visitor Center Entrance would provide direct access to this location. This alternative would also provide similar benefits as Alternative B with runway closures.

Alternative D would provide all the benefits of the other two action alternatives. It would provide direct access for the partner and tenant users, reducing their interactions with other users. It would provide multiple points of access for recreational users, reducing the amount of travel across the site and opening up runway areas for additional recreational activities.

4. *Preserve important historical, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.*

Under **Alternative A**, the NPS would continue to preserve the historical and natural resources of Floyd Bennett Field. Access for all users would be maintained at the existing entrance. However, once on site,

partner and tenant, recreational, and educational users would be able to take any route across the Field to reach their destination. The traffic on the historic runways would continue to degrade these important resources.

Alternative B would confine nearly all of the necessary physical development in a previously developed area that does not directly contribute to the historic nature of the Field. The direct access to the new sports complex would improve the choices offered to recreational users, allowing them to directly access the new facility or maintain their current access route to other locations. Because this new entry point would be limited to the sports complex, the educational users of the Field would not be offered any new choices. On site, both user groups would have their travel options reduced through the runway closures; however, the closures would improve the preservation of cultural and natural resources across the site.

Alternative C would also confine most physical development to already disturbed areas. The new Visitor Center Entrance would also highlight the historic portion of the site, improving the preservation of the Field's history. It would also provide improved access to many of the site's recreational and educational opportunities. This would enhance the choices provided to both the recreational and educational visitors. While the runway closures would limit on site travel options, the direct access to the core of the site would reduce the need for much of this travel. The closures would also improve the preservation of cultural and natural resources across the site.

Alternative D would combine the elements of Alternatives B and C. Under this alternative, the entrance to the sports complex would be enhanced to serve the entire site. With three access points, this alternative provides the greatest variety of choice to the site users. The runway closures would reduce travel options on the Field, but the choice provided through the multiple entrances would reduce the need for extensive on site travel. However, the physical changes and alteration to circulation routes would result in an adverse effect to cultural resources. As such, Alternative D does not meet this specific criterion as well as Alternative B or C. Despite its inability to meet this criterion, Alternative D still does the best at meeting the project's purpose and need and the remainder of the environmentally preferred criteria.

5. ***Achieve a balance between population and resource use that will permit high standards of living and wide sharing of life's amenities.***

Under **Alternative A**, the NPS would maintain its current efforts to balance population and resource use at Floyd Bennett Field. However, as visitation increased as a result of the new sports complex, and in general, the growing amounts of vehicular, bicycle, and pedestrian traffic would adversely impact the natural and historic resources on the site, while also impeding on recreational and educational opportunities.

Alternative B would seek to maintain the status quo at the site by creating a separate entrance for the sports complex. This would allow for an immediate increase in population without adversely impacting the site. Furthermore, the closure of runways would allow for greater protection of some of the site's natural and historic resources, while still providing access to the entire site.

Alternative C would seek to address the increase in overall visitor population, rather than just the sports complex users. The Visitor Center Entrance would create a second access point to service the entire site, allowing many to reach their destination with very little travel. However, without the separate sports complex entrance, the entire site would feel the weight of the immediate increase in visitation at the

sports complex. The alternative would also provide additional runway closures that would improve the results of the closures in Alternative B.

Alternative D would provide the most balance by creating multiple entrances. The North Entrance would provide direct access to the sports complex, as well as the northern end of the Field. The Visitor Center Entrance would allow many to reach the core of the site with little travel, and the existing entrance would serve the remainder of the site's users. By dispersing the population over these multiple access points, this alternative would provide the best balance between the growing population and the site's resources. This balance would be further enhanced through the runway closures which are most similar to Alternative C.

6. ***Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.***

There are no known depletable resources at Floyd Bennett Field that would be impacted by the proposed actions. The renewable resources of concern are those that exist within the Grassland Management Areas and the North Forty. Under **Alternative A**, the NPS would maintain its current practices and procedures for protecting these resources. As visitation increased across the site, the quality of these resources would be diminished through increased noise, pollution, and visual intrusions.

Alternatives B, C, and D would all seek to enhance the quality of these resources through runway closures. Alternative B would have the least number of closures but would still reduce the amount of vehicular traffic within the grassland areas. Alternative C would provide similar protection to the grassland areas but also eliminate all vehicular traffic on the runways immediately surrounding the North Forty. Alternative D would also reduce traffic on the runways but not to the full extent that Alternative C provides. Therefore, while Alternatives B, C, and D all provide an opportunity to enhance the quality of renewable resources at the Field, Alternative C provides the most opportunity and best meets this criterion.

Summary. The combination of these factors must be considered in the context of which alternative causes the least damage to the biological and physical environment and that best protects, preserves, and enhances cultural and natural resources. Alternative A directs the NPS to maintain its current efforts. While this would allow for the protection of natural, cultural, and historic resources in the present, it could not ensure their protection in the future as visitation and vehicular traffic and user group conflicts are expected to increase. Alternatives B, C, and D focus on varying means to enhance this protection both now and in the future. Alternative B is the simplest to construct and would result in the least disturbance to the surrounding resources. However, the location of the alternative provides direct benefits for only a small portion of the site's recreational visitors. This alternative would also not address the future growth of the entire site or existing user group conflicts. Alternative C seeks to address conditions of the entire site through the Visitor Center Entrance at the heart of the site. While this would not directly address the new recreational user group at the sports complex, it would go further in addressing the site's overall growth and existing user group conflicts. Alternative D addresses both the immediate user group conflicts and overall projected growth. In doing so, it maintains a better balance between the site and the growing population. It also allows the NPS to more effectively protect and preserve the surrounding resources. **As a result, Alternative D is the Environmentally Preferred Alternative at Floyd Bennett Field.**

JACOB RIIS PARK

Alternative A (No-Action)

Under the No-Action Alternative, no changes would be made to the current access and circulation patterns in and around Jacob Riis Park. There would be no direct westbound access to Jacob Riis Park from Beach Channel Drive. Visitors arriving from the east would travel through the Rockaway neighborhoods and along Rockaway Beach Boulevard and connect with visitors traveling from the north to enter the site (Figure 12).

Once visitors have entered the park road system, they would be delivered directly to the front of the bathhouse or the toll booths outside of the parking lot. The parking lot has ample room to support all potential levels of visitation. From this point, visitors may access the site on foot. However, there would continue to be pedestrian and bicycle safety concerns in and around the existing traffic circle. These safety issues are based on a lack of a bicycle circulation through the roadway, as well as vehicle speeds and merging issues, through the site. Under this alternative, the NPS, EFLHD, and their partners would address these issues as funding and staff became available.

Element Common to the Action Alternatives

Alternatives B, C, and D would all include the reconstruction of the existing traffic circle (Figures 13-15). The work consists of replacing the traffic circle with a modern-design roundabout. The existing traffic circle has a diameter of 500 feet and a roadway width of 45 feet. The new roundabout would have a diameter of 200 feet and a roadway width of 35 feet. The smaller, modern roundabout would result in a reduction in travel speeds through the intersection, and require all vehicles to yield and merge into the roundabout. This would allow for better control of motorists and provide safer traffic operations.

The realigned roadways would also increase the visibility of any pedestrians crossing from the parking lot, and would enable a bicycle connection to be built between the park entrance and Rockaway Beach Boulevard. The bicycle connection would consist of a multi-use pathway along the northern side of the realigned Rockaway Beach Boulevard approach to the roundabout, a crossing of the realigned road, a multi-use pathway connection to the existing sidewalk along the south side of the traffic circle, and a dedicated bike path segment along side that sidewalk.



The existing traffic circle at Jacob Riis Park

The realignments of the roundabout and roads would allow for 1.2 acres (55,000 sf) of previously impervious space to be replanted with grasses and shrubs. The installation would cost an estimated \$5,775,000, in FY2006 dollars and would occur within the NYCDOT right of way. Because this work would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency and other interested parties to obtain funding for this improvement.

Alternative B (Left Turn)

Alternative B provides direct access to the Jacob Riis Park parking lot for westbound drivers on Beach Channel Drive. Under this alternative, a signalized left turn would be established for westbound traffic on Beach Channel Drive. Drivers would then enter the Jacob Riis Park parking lot through an existing entrance along the north perimeter of the lot.

The turn would align with what is presently an informal median break. The opening would also include widening the existing median break to safely accommodate traffic, constructing a 400-foot turn left-turn lane within the existing median, and installing traffic signals to control the new traffic. The signal would stop eastbound traffic to allow westbound drivers to make the turn without creating conflicts with on-coming traffic. Westbound through traffic on Beach Channel Drive would be unaffected. Using raised islands, the median break and turn-lane would be constructed to prohibit eastbound traffic from attempting a u-turn. Park signage would be added along the median at the intersection and downstream of the intersection. All of this work would occur within the NYCDOT right of way (Figure 13).

The left turn would allow vehicles to enter the parking lot through one of the parking lot's historic exits that have been gated in recent years. Upon entry into the parking lot, vehicles would travel through a barricaded lane along the edge of the parking lot until reaching a new, temporary tollbooth to be installed alongside the existing toll plaza.

Alternative B also includes reconstruction of the traffic circle. This alternative would install approximately 0.1 acre (6,000 sf) of impervious cover, but would be mitigated by the estimated 1.2 acres (55,000 sf) of green space that would be created through the realignment of the existing roundabout. The development would cost an estimated \$650,000 with an additional \$5,775,000, in FY2006 dollars, for the roundabout improvements. Overall, full implementation of Alternative B would create 1.1 acres (49,000 sf) of pervious, green space and cost \$6,425,000 in FY2006 dollars. Because much of the physical development would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency and other interested parties to obtain funding for this alternative.

Alternative C (Intersection)

Under Alternative C, the Beach Channel Drive roadways along the east side of the Jacob Riis Park parking lot would be reconstructed to provide direct access to the site for westbound traffic. Along the east side of the parking lot, the northern section the existing bridge structures would be removed and the roadways reconstructed as a signalized "T" intersection. Both Beach Channel Drive and the access road along the east side of the parking lot would be realigned and constructed at grade. Separate left and right turn lanes would be provided in the northbound direction. An exclusive left-turn lane would be provided along the westbound Beach Channel Drive approach, allowing a direct connection from Beach Channel Drive to Jacob Riis Park. The installation of the intersection and much of the road realignment would occur within NYCDOT right of way.

The new signalized intersection would only affect northbound and eastbound traffic. Westbound through traffic on Beach Channel Drive would not be controlled by the traffic signal and northbound traffic would merge with the westbound Beach Channel Drive traffic west of the intersection (Figure 14). This would allow the existing free flow of traffic to be maintained in these directions.

Alternative C also includes reconstruction of the traffic circle. This alternative would install approximately 0.8 acre (37,000 sf) of impervious cover, but would be mitigated by the estimated 1.2 acres (55,000 sf) of green space that would be created through the realignment of the existing roundabout. None of the work would take place on park property, but rather within the NYCDOT right of way. The development would cost an estimated \$9,800,000 with an additional \$5,775,000, in FY2006 dollars, for the roundabout improvements. Overall, full implementation of Alternative C would create 0.4 acres (18,000 sf) of pervious, green space and cost \$15,575,000 in FY2006 dollars. Because much of the physical development would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency and other interested parties to obtain funding for this alternative.

Alternative D (Bridges) (NPS Preferred Alternative)

Alternative D is the NPS Preferred Alternative. This alternative provides the best means for the NPS to create westbound access to the site while improving external and internal congestion and circulation issues. While this is the NPS Preferred Alternative, it would be developed in two phases. The NPS and EFLHD recognize that this alternative best meets the purpose of the study as well as the site needs. They also recognize that the implementation of this alternative would require a great deal of coordination with the NYCDOT and other local representatives. Once the coordination is complete, and funds are acquired, this alternative would be fully implemented. Therefore this alternative would be carried out in two phases. The first phase would implement the proposed action described under Alternative B. This would allow the study to address the needs of the site in a timely fashion.

The second phase would retain the existing free-flow conditions along Beach Channel Drive while providing direct access to Jacob Riis Park from westbound Beach Channel Drive. Under this alternative, the alignment of the eastbound through lanes on Beach Channel Drive would be straightened and two new bridge structures constructed over these lanes. One bridge (approximately 200 feet long) would carry westbound traffic from the traffic circle over the eastbound lanes connecting to westbound Beach Channel Drive. The other (approximately 100 feet long) would carry a new westbound ramp towards the traffic circle, providing a direct connection between Beach Channel Drive and Jacob Riis Park. The existing bridge structure would be raised to enable the new westbound ramp to go under it and merge with the roadway leading towards the traffic circle (Figure 15). The installation of the new bridges and much of the road realignment would occur within NYCDOT right of way.

Alternative D also includes reconstruction of the traffic circle. This alternative would install approximately 1.0 acre (44,000 sf) of impervious cover, but would be mitigated by an estimated 1.2 acres (55,000 sf) of green space that would be created through the realignment of the existing roundabout. None of the work would take place on park property. The development would cost an estimated \$13,500,000 with an additional \$6,425,000 in FY 2006 dollars to implement the first phase and another \$5,775,000, in FY2006 dollars, for the roundabout improvements. Overall, full implementation of Alternative D would create 0.2 acres (11,000 sf) of pervious, green space and cost \$25,700,000 in FY2006 dollars. Because much of the physical development would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency and other interested parties to obtain funding for this alternative.

Insert figure 12

Alternatives Considered but Dismissed

Signalized U-Turn

Under this alternative, a signalized U-turn would be established for westbound traffic on Beach Channel Drive. The U-turn would be at the location of what is presently an informal median break, on the north side of the Jacob Riis Park parking lot. The U-turn design would include a deceleration lane and a traffic signal. Upon making the turn, travelers could enter existing roads and ramps located on the eastern side of the parking lot to obtain direct access to the site. The traffic signal would control eastbound traffic to allow westbound drivers to make the U-turn without creating conflicts with on-coming traffic. Westbound through traffic on Beach Channel Drive would be unaffected.

Findings: This alternative was dismissed because duplicates other alternatives with less environmentally damaging alternatives and its inability to fully meet the project's purpose and need..

Free flow U-Turn

Under this alternative, a U-turn would be constructed to allow westbound traffic to transfer to eastbound along Beach Channel Drive. This is similar to the previous alternative, except that the U-turn would not be signalized. In addition to creating a westbound deceleration lane, the eastbound lanes of Beach Channel Drive would require some realignment.

Findings: This alternative was dismissed because duplicates other alternatives with less environmentally damaging alternatives and its inability to fully meet the project's purpose and need..

Eastbound/Westbound Signal on Beach Channel Drive

Under this alternative, 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. The signalized intersection would allow for left turns from Beach Channel Drive towards the traffic circle.

Findings: This alternative was dismissed because duplicates other alternatives with less environmentally damaging alternatives and its inability to fully meet the project's purpose and need..

Beach Channel Drive Westbound Signal (Option 1)

Under this alternative, eastbound traffic would still progress as usual. Westbound traffic, however, would have the option of exiting Beach Channel Drive, prior to reaching the parking lot, and taking a connector road that would link directly into the east bound circulation that delivers visitors to the parking lot entrance. Two signals would be used to control traffic interactions with other ramps.

Findings: This alternative was dismissed because duplicates other alternatives with less environmentally damaging alternatives.

Beach Channel Drive Westbound Signal (Option 2)

This alternative is similar in nature to Option 1. The main difference between the two alternatives is the free-flow traffic to and from the west. Under this alternative, traffic heading from Beach Channel Drive eastbound to the traffic circle would remain unstopped. However, traffic heading from the signal westbound on Beach Channel Drive would stop at a new traffic signal before reaching the existing U-turn to access westbound Beach Channel Drive.

Findings: This alternative was dismissed because it duplicates other alternatives with less environmentally damaging alternatives.

Beach Channel Drive Westbound Signal (Option 3)

This alternative presents another version of the previous two alternatives. In this case, all movements to and from the traffic circle at Beach Channel Drive would be stopped at a new traffic signal.

Findings: This alternative was dismissed duplicates other alternatives with less environmentally damaging alternatives and its inability to fully meet the project's purpose and need..

Eastbound Roundabout on Beach Channel Drive

Like Alternative D, this alternative is intended to retain the existing free-flow conditions along Beach Channel Drive while providing access to Jacob Riis Park for westbound travelers. Under this alternative, all of the Beach Channel Drive ramps located north of the parking lot would be removed and replaced by a signalized roundabout connecting Beach Channel Drive to the existing traffic circle and Rockaway Beach Boulevard. Westbound Beach Channel Drive would not be included within the roundabout alignment in order to minimize traffic volumes through the roundabout. Eastbound Beach Channel Drive through traffic would travel through the roundabout. This heavy traffic flow would be expected to yield.

Findings: This alternative was dismissed because duplicates other alternatives with less environmentally damaging alternatives and its inability to fully meet the project's purpose and need..

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INSERT FIGURE 13

INSERT FIGURE 14

INSERT FIGURE 15

Environmentally Preferred Alternative Analysis

The criteria used to determine the Environmentally Preferred Alternative are presented below, followed by a discussion of how well the proposed alternatives for Jacob Riis Park meet each one. The Environmentally Preferred Alternative for this study area is identified at the end of this section.

1. *Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.*

Under **Alternative A**, there would be no physical development that would require the NPS to alter its current level of stewardship over the resources at Jacob Riis Park. No changes would be made to impervious surfaces related to access and circulation. Therefore, all resources could continue to be managed and preserved for future generations. This management would include containing invasive, exotic, or diseased vegetation and replacing it with native species when possible.

Alternative B would result in a small increase in impervious surface beyond the NPS border. The redesigned traffic circle would reduce impervious surface within the park. The reduction would allow the NPS to plant native vegetation in the undeveloped space, an uncommon site in New York City now and in the future.

Alternatives C and D would require more substantial physical development. However, when combined with the redesigned traffic circle, these alternatives would result in a net gain of pervious space. The gain would allow the NPS to plant native vegetation in the undeveloped space, an uncommon site in New York City now and in the future.

2. *Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.*

Health and safety issues associated with Jacob Riis Park are focused around the existing traffic circle and the merging of westbound traffic at the base of the Marine Parkway (Gil Hodges Memorial) Bridge. Under **Alternative A**, these safety issues would remain and could increase as traffic and visitation increased in the future. These increases in safety concerns would result in a decrease in productivity within and surrounding the site. However, by maintaining the current infrastructure, this alternative would maintain the aesthetics and cultural landscape of the site. **Alternative B** would seek to address the existing safety concerns by improving the roundabout and providing direct access for westbound travelers into the site. While the direct access would improve the productivity for park visitors, it would decrease the productivity of those passing through the area, specifically those traveling eastbound on Beach Channel Drive. This alternative would require some type of traffic barrier to be installed along the inside of the parking lot to direct the new traffic pattern. While the cultural landscape would be improved through the opening of one of the site's historic gates, the aesthetics would be adversely impacted through the installation of these traffic barriers.

Alternative C would also improve safety through enhancing the roundabout and installing a new intersection to provide direct access for westbound traffic. As was the case in Alternative B,

while this would improve the productivity of park visitors, it would decrease the productivity of those traveling eastbound on Beach Channel Drive. The aesthetics and cultural landscape of the park would also be adversely altered by a change in the design and flow of the surrounding transportation network.

Alternative D would also improve safety concerns at Jacob Riis Park. However, it would do so in a manner that would continue to maintain the free flowing nature of traffic throughout the area. This would not only improve visitor productivity but also maintain the productivity of travelers in the area. By using a design that is consistent with the historic design of the area, this alternative would protect the aesthetics and cultural landscape of the area.

3. *Attain the widest ranges of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.*

Under **Alternative A**, no changes would be made to the access or circulation network at Jacob Riis Park. The options for opening the historic gates around the parking lot or remodeling existing infrastructure to improve access would not be taken. This would allow the NPS to avoid impacting the small pieces of remaining undeveloped land that border the eastern side of the site. On the other hand, the lack of action would lead to an escalation in safety issues surrounding the roundabout and at the base of the Marine Parkway (Gil Hodges Memorial) Bridge.

Alternative B would make use of the existing gates around the parking lot to provide direct access for westbound travelers into the site. This development would be coupled with a redesigned traffic circle that would improve safety conditions around the site. The combination of these two elements would result in a decrease in impervious surface across the site. However, the development would result in the interruption of eastbound traffic along Beach Channel Drive and would also create some visual impacts within the parking lot, as traffic barriers would be installed.

Alternative C would not make use of the existing gates, thus avoiding visual impacts within the parking lot. Instead, this alternative would seek to remodel the existing road network east of the site to provide direct access for westbound travelers. This development, in combination with the redesigned traffic circle, would result in a net gain of pervious space. Therefore, the impacts to undisturbed space would be mitigated with new vegetation. This development would, however, result in disruptions to local traffic patterns and diminish the historic design of the surrounding road network.

Like the previous alternative, **Alternative D** would resolve safety and access issues by redesigning the existing road network. It would also result in a net loss of impervious surface across the site. However, this alternative would avoid disrupting existing traffic patterns by maintaining the historic design elements of the surrounding road network.

4. *Preserve important historical, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.*

Under **Alternative A**, the NPS would continue to preserve and protect the historic nature of Jacob Riis Park. In some cases, this includes the species of vegetation that exist at the park. However,

there would be no changes made to the existing access or circulation network. As a result, visitors traveling to the site from the east would have no option to directly access the site. These visitors would be forced to merge with traffic coming from the west, or from over the Marine Parkway (Gil Hodges Memorial) Bridge, before entering the site.

Alternative B would improve the preservation of the historic nature of the site by opening one of the parking lot gates. This would provide some perspective as to how the site was used in the past without adversely impacting the resource. This alternative would also provide westbound visitors direct access to the site. However, this new access point would carry these visitors directly into the parking lot, without providing them an opportunity to simply drive by the site or drop passengers off in front of the bathhouse, thus limiting individual choice.

Alternative C would alter the existing road network with new infrastructure on the eastern side of the parking lot. While this development would lead to a reduction in impervious surface, it would detract from the historic nature of the surrounding transportation network. Despite the loss of historic circulation patterns, the new access point would allow westbound visitors to drive by the site, drop off passengers, or enter the parking lot.

Alternative D would provide all of the same benefits as Alternative C but would not detract from the historic circulation network. The new developments would mimic the historic design while improving the overall condition of the site.

5. ***Achieve a balance between population and resource use that will permit high standards of living and wide sharing of life's amenities.***

Under **Alternative A**, Jacob Riis Park would continue to see an increase in visitation from the east without providing direct access to the site for these visitors. This alternative would seek to solely protect and maintain the existing access and circulation network at the expense of the increasing population.

Alternative B would seek to address the increasing population without noticeably altering the park resources. The opening of one of the gates along the parking lot would provide some historic perspective to the site. Furthermore, the development of the new turning lane would result in a minimal amount of impervious surface that would be completely mitigated by the redesigned traffic circle.

Alternative C would take a more progressive step toward addressing the increasing population by developing a new intersection to provide direct access for westbound traffic. The new development would result in a net loss in impervious surface. However, it would dismantle some of the existing transportation infrastructure, replacing it with elements that do not match the historic design of the area.

Alternative D would also take a progressive step towards addressing the increasing population by creating direct access to the site for westbound travelers. While this alternative would result in a net loss of impervious surface, it would also mimic the original road designs, avoiding the loss of the historic setting.

6. *Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.*

There are no known depletable resources at Jacob Riis Park that would be impacted by the proposed actions. The renewable resources of concern are the rare pieces of undeveloped land that border the parking lot. Under **Alternative A**, these areas would remain undeveloped, capable of supporting limited amounts of vegetation.

Alternative B would result in the loss of some low quality vegetation along the northern edge of the parking lot; however, the alternative would reduce the overall amount of impervious surface in the park. The areas where impervious surfaces were removed could be replanted with high quality vegetation.

Alternatives C and D would both result in the disruption of the undeveloped areas east of the parking lot. However, upon construction completion, there would be an overall loss of impervious surface in the park. The areas where impervious surfaces were removed could be replanted with high quality vegetation.

Summary. The combination of these factors must be considered in the context of which alternative causes the least damage to the biological and physical environment and that best protects, preserves, and enhances cultural and natural resources. Alternative A directs the NPS to maintain its current efforts. While this would allow for the current protection of natural, cultural, and historic resources, it could not ensure their protection in the future, given the proposed increases in visitation and the surrounding population. Alternatives B, C, and D focus on varying means of seeking to enhance this protection both now and in the future. The primary difference between these three alternatives is the level of necessary construction. Although none of the vegetation in question represents a high quality renewable resource, Alternative B removes the least amount of existing vegetation and allows for the most replanting. However, the simple construction does not allow for extended protection into the future. Though more complex, Alternatives C and D offer greater protection for the park's resources in the future. However, Alternative C deviates from the historic design and circulation patterns. Alternative D provides the same benefit of Alternative C but maintains the historic design of the area. Therefore, Alternative D would cause the least amount of damage to the biological and physical environment and best protect, preserve, and enhance the cultural and natural resources. **Taking all of this into consideration, Alternative D is the Environmentally Preferred Alternative at Jacob Riis Park.**

RIIS LANDING

Alternative A (No-Action)

Under the No-Action Alternative, the use of the Riis Landing parking lot would remain unchanged. The 89-space parking lot would be used by employees and visitors of the existing facilities (Figure 16). The parking would also be used for occasional boat charters, primarily on weekend evenings during the summer. During those evening events, overflow parking would be accommodated at other locations within Fort Tilden, like the T-4 lot. Any increase in the current ferry use would overwhelm the existing parking capacity, as the existing parking capacity is too small to accommodate more than one boatload of passengers. There would be no changes made to current access, circulation, and parking operations throughout Fort Tilden as part of this study. The NPS and EFLHD would address potential issues at the site as they arose, and staff and funding were available.

Elements Common to the Action Alternatives

Under Alternatives B, C, and D there are two common elements. The first would improve the pedestrian crossing of Rockaway Point Boulevard. The pedestrian crossing improvements would consist of re-striping the crosswalks and upgrading the traffic signal to provide a pedestrian phase. This work would be conducted within the NYCDOT right of way. Therefore, the NPS would need to coordinate with this agency and other interested parties to obtain funding for this alternative.



Riis Landing entrance

The second element would be to relocate the USPP driveway. The existing driveway is restricted to right-in/right-out vehicle movements. Under all of the proposals, the USPP driveway would be relocated from Rockaway Point Boulevard to inside of the Riis Landing gate. Relocating the driveway would allow full access vehicle movements through the signalized intersection. The relocated driveway would require paving approximately 500 square feet of currently impervious surface. This minor amount could be mitigated elsewhere within the park so as to have no net loss in pervious area. This work would occur on NPS property. The approximate cost associated with common improvements is \$200,000 in FY2006 dollars. These costs are included in each of the alternatives described below.

Alternative B (New Fort Tilden Parking) (NPS Preferred Alternative)

Alternative B is the NPS Preferred Alternative. This alternative presents the best means for providing enhanced parking capacity to Riis Landing without detracting from the existing and/or future visitor experience. Under Alternative B, the existing parking lot at Riis Landing would be reserved for employees, visitors with special needs, boat basin users (USPP, Coast Guard, etc.), and future concessionaires. Parking for ferry use and other visitor activities would be moved offsite to a new Fort Tilden parking lot. The parking lot would be located just north of the baseball fields, adjacent to Rockaway Point Boulevard. It would extend from Hero Road to the buildings near the intersection of

Barrette Road and Athletic Road (Figure 17). Vehicle access would be possible via all three roads. This new parking lot would provide additional parking for sports field users, as well as ferry boat passengers. The new parking lot would have a capacity of 265 cars with a footprint of approximately 210 feet by 780 feet (3.7 acres (163,000 sf)). To support this new parking lot, a sidewalk would be constructed to provide pedestrian access to and from Riis Landing. The 6-foot wide sidewalk would run along the perimeter of the parking lot and extend an additional 200 feet to Heinzelman Road. New signage would identify the walking path for commuters.

In addition to these developments, the historic west entrance gate at Riis Landing would be re-opened to accommodate bicycle and pedestrian access and egress from the site. The gate would be accessed via the existing sidewalk along Rockaway Point Boulevard. As noted above, Alternative B also includes relocation of the USPP driveway and an upgraded traffic signal at the entrance. Other than the upgraded traffic signal, all of the proposed development would occur on NPS property. Overall, Alternative B would create 3.7 acres (165,000 sf) of impervious surface and cost approximately \$2,650,000 in FY2006 dollars.

Alternative C (Parking at T-4)

Alternative C utilizes the existing T-4 lot within Fort Tilden as the primary parking for Riis Landing (Figure 18). As with Alternative B, the parking at the Landing would be reserved for employees, visitors with special needs, boat basin users like the USPP and the Coast Guard, and future concessionaires.

The T-4 parking lot has 265 spaces. The parking lot currently supports parking for seasonal activities, and is sometimes filled on busy weeknights and weekends during the spring, summer and fall. Ferry-related commuter parking in the T-4 lot could fill its parking capacity during weekdays. This would not normally displace many existing users during weekday daytime or on weekends, but would displace many existing parkers during some weekday evenings. Overflow parking at the grassed areas along Hero Road and other areas could be used to accommodate the displaced recreational parkers.

Riis Landing would be connected to the T-4 parking lot via the existing sidewalk between T-4 and Heinzelman Road and then on a new sidewalk along the west side of Heinzelman Road to the Rockaway Point Boulevard entrance. New signage would be provided along the path to direct visitors towards the site. The walkway would be 5 to 6 feet wide and would extend approximately 600 feet. In addition to the elements common to the action alternatives, this alternative also includes re-striping the T-4 parking lot and reopening the historic west entrance gate to accommodate bicycle and pedestrian access and egress from the site. The gate would be accessed via the existing sidewalk along Rockaway Point Boulevard. Other than the upgraded traffic signal, all of the proposed development would occur on NPS property. The alternative would create less than 0.1 acre (3,500 sf) of impervious surface and cost less than \$300,000 in FY2006 dollars.

Alternative D (Parking at Jacob Riis Park)

Alternative D utilizes the Jacob Riis Park parking lot as the primary parking for Riis Landing. As with Alternative B and C, the existing parking lot at the Landing would be reserved for employees, visitors with special needs, and other site users.

The Jacob Riis Park parking lot reaches its 9,000 car capacity only during large special events, which occur primarily on holidays and weekends. During the week there is always excess parking available, and the northwest corner of the parking lot could be designated for Riis Landing parking. This location is away from the parking locations routinely used by Jacob Riis Park visitors and could be easily connected to the landing by a shuttle bus operated by a future concessionaire.

The shuttle would use the service road along the west edge of the Jacob Riis Park parking lot to access the commuter parking area (Figure 19). There is a widening in the roadway at that location that was once part of a merge from a secondary parking lot exit, and the extra pavement area could accommodate bus loading and unloading. There is also a pedestrian gate through the parking lot perimeter guardrail at that location and the only improvements necessary would be some small signs and, if desired by the concessionaire, a passenger shelter.



Existing bus pull off adjacent to Jacob Riis Park parking lot

At the landing, the historic west entrance gate would be re-opened to accommodate shuttles entering the site, as well as pedestrians and bicyclists. The existing signalized entrance is relatively narrow and would not accommodate a shuttle entering and exiting simultaneously. Alternative D would also include the elements common to all alternatives. The driveway relocation would be the only increase in impervious surface area, approximately 500 square feet. Other than the upgraded traffic signal, all of the proposed development would occur on NPS property. Overall, the alternative would cost less than \$250,000 in FY2006 dollars, exclusive of the cost to purchase and operate the shuttle.

Alternative Considered but Dismissed

Many of the alternatives considered by this study for the Riis Landing site were stand alone improvements, like those described under “Elements Common to the Action Alternatives.” During the alternative development phase of this study, many of these elements were modified and combined to form the three action alternatives presented above. Other elements, such as providing a shuttle or valet parking to the T4 lot, were dismissed. An additional alternative that was dismissed is described below.

Parking Along Rockaway Point Boulevard

Under this alternative, increased parking capacity would be provided through parallel parking along Rockaway Point Boulevard. The grassed area along the south side of Rockaway Point Boulevard would be paved to provide on-street parking and a sidewalk. Under this alternative, additional overflow parking could be provided in Fort Tilden’s T-4 lot and current parking within the Riis Landing parking lot could be maintained for visitors with special needs, employees, and boat basin users (Coast Guard, etc).

Findings: This alternative was dismissed because duplicates other alternatives with less environmentally damaging alternatives, fully meet the project’s purpose and need, and conflicts with other park plans.

Environmentally Preferred Alternative Analysis

The criteria used to determine the Environmentally Preferred Alternative are presented below, followed by a discussion of how well the proposed alternatives for Riis Landing meet each one. The Environmentally Preferred Alternative for this study area is identified at the end of this section.

1. *Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.*

Under **Alternative A**, the NPS would maintain its current levels of stewardship at Riis Landing and the rest of Fort Tilden. Increasing levels of visitation may result in an increased amount of parking in overflow areas or other designated lawns. These areas are maintained to support occasional parking; however, long-term, regular use could result in a loss of grass and soil. These losses could easily be replaced through routine landscaping.

Alternative B would result in the loss of some low quality vegetation along Rockaway Point Boulevard. This loss would be mitigated with the removal of impervious surface and the planting of higher quality, native vegetation elsewhere in the park. The development under this alternative would also provide enough parking capacity to avoid the long-term losses that could occur under Alternative A.

Alternative C would require a small amount of physical development to install a sidewalk in Fort Tilden. This may also result in the overuse of parking in overflow areas or other designated lawns. These areas are maintained to support occasional parking; however, long-term, regular use could result in a loss of grass and soil. These losses could easily be replaced through routine landscaping.

Finally, **Alternative D** would not require any physical development and would fully meet the capacity requirements of future growth at Riis Landing. Alternative D allows the NPS to maintain its current, diligent efforts to protect the region for future generations.

2. *Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.*

Under **Alternative A**, safety concerns would continue to exist along Rockaway Point Boulevard. The lack of a pedestrian traffic signal or visible crosswalk makes the pedestrian connection between Riis Landing and Fort Tilden dangerous. Under Alternative A, the limited parking at Riis Landing would be the only location designated to support the activities at the site. Once this lot became full, visitors would have to drive through Fort Tilden searching for available parking. The parking lots in Fort Tilden already support other activities and could easily be filled to capacity. Visitors would then either have to find overflow parking options or park at Jacob Riis Park and walk. The walk between the two sites has numerous points where pedestrians must interact with vehicles. Either way, the lack of parking would detract from the productivity of all visitors. Also, the overuse of overflow parking throughout Fort Tilden would create visual intrusions and detract from its historic setting.

Under **Alternative B**, improvements would be made to make the pedestrian crossing at Rockaway Point Boulevard safe. The crossing would lead to a new parking lot that would be able

INSERT FIGURE 16

INSERT FIGURE 17

INSERT FIGURE 18

INSERT FIGURE 19

to meet all the demands of increased usage at Fort Tilden. The short walk between the parking lot and Riis Landing would allow for a productive visit to the site. The development of the parking lot would result in the loss of some vegetation that currently screens the road from the park. However, the new parking lot would include plantings to provide some screening and would also enhance the park-like environment around the baseball fields. This would improve the aesthetics of what is currently a mixture of low quality vegetation. The location of this parking lot along the north side of the baseball fields would avoid impacting the historical setting of Fort Tilden.

Alternative C would include the pedestrian improvements provided in Alternative B, making the site safer for all visitors. However, Alternative C would rely on the existing T-4 parking lot to support future growth at Riis Landing. The T- 4 lot already supports a number of seasonal and year-round activities and is filled to capacity during busy periods. The increased use of the lot by Riis Landing visitors would regularly push it over capacity. This would result in new and traditional users being forced to look elsewhere for parking. This parking would most often be found on the grassed, overflow lots around the baseball fields. The time spent searching for parking and walking to and from the sites would reduce productivity. The regular use of these sites would also intrude on the visual resources and historic setting of Fort Tilden.

Alternative D would also include pedestrian crossing improvements at Rockaway Point Boulevard. This alternative would use the Jacob Riis Park parking lot to support increased visitation at Riis Landing. To reach this lot, visitors would have to drive away from their intended destination, go through the access route and toll booths at Jacob Riis Park, and then wait for a shuttle to transport them to the Landing. Not only is this unproductive, but it prevents visitors from easily accessing their vehicles to visit other parts of the park. This alternative does avoid any intrusions on the visual or cultural landscape of Fort Tilden.

3 *Attain the widest ranges of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.*

Under **Alternative A**, the NPS would maintain its current uses of the land and resources at Fort Tilden. While this would initially preserve the environmental resources the site contains, it would not account for the anticipated growth in activities or visitation at Riis Landing. Therefore, the existing parking lots would be required to support the future growth at the site. These lots are already often filled to capacity, and by using them to support Riis Landing, this alternative would take away from the other activities that these parking lots support. Once the existing parking lots were filled to capacity, the park's overflow parking locations would be regularly utilized by Riis Landing visitors and traditional visitors that were displaced from their usual parking locations. The regular use of these overflow lots could result in degradation of the vegetation and soils that line the sites. These conditions would require regular landscaping to maintain.

Alternative B would convert an area of low quality vegetation into a parking lot. The parking lot would be able to fully support increases in Riis Landing visitation and could also provide formalized parking for the adjacent athletic fields. The loss of vegetation could be mitigated by the removal of impervious surface and the planting of higher quality, native vegetation elsewhere in the park.

Alternative C would avoid impacting any existing vegetation or land use by using the T-4 parking lot to support Riis Landing. This would result in the same conditions described under Alternative A.

Alternative D would direct all Riis Landing visitors to the Jacob Riis Park parking lot. This parking lot could fully support the anticipated increase in visitation without any development or intrusion on existing resources. However, the parking lot is some distance from the Landing and would require visitors to drive away from their intended destination. This out of the way route, coupled with the time spent entering the parking lot and waiting for the shuttle would detract from the visit. It may also lead some to search for parking elsewhere in Fort Tilden, resulting in the same conditions described under Alternatives A and C.

4 *Preserve important historical, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.*

Under **Alternative A**, the NPS would continue to maintain the historic and natural resources of Riis Landing and Fort Tilden. As Riis Landing became a more attractive location for visitors, parking for the site would become scarce. On site parking would be limited, and many visitors would be forced to choose among Fort Tilden's other parking lots. These lots are already often filled to capacity. Drivers would then have to turn away from the site, or park on one of the lawns that may be used to support overflow parking. The constant use of these lawns would result in the loss of topsoil and grasses.

Alternative B would provide direct parking for the Riis Landing site. This would improve the parking choices offered to visitors, thus enhancing the diversity of the site. It would, however, result in the loss of some vegetation. This vegetation is of low quality, and would be mitigated with new, high-quality plantings in other areas of the park. This alternative would also open the historic driveway at Riis Landing for pedestrian/bicycle access, thus improving the historic preservation of the site.

Alternative C would rely on the T-4 parking lot to support Riis Landing. This would result in conditions described under Alternative A. It would also open the historic driveway, like Alternative B.

Alternative D would use the Jacob Riis Park parking lot for Riis Landing parking. This would force visitors to commit to leaving their vehicles and relying on a shuttle service to travel between the parking lot and Riis Landing. The only other option available to these visitors would be to walk from Riis Landing into the rest of Fort Tilden before returning to their vehicle. At this point they could then visit another portion of the park. This alternative would also include the reopening of the historic Riis Landing driveway for pedestrian/bicycle use, as well as for shuttles. It would also avoid direct and indirect impacts to the site's vegetation.

5 *Achieve a balance between population and resource use that will permit high standards of living and wide sharing of life's amenities.*

Under **Alternative A**, there would be no action taken to address the anticipated growth in visitor population at Riis Landing and the remainder of Fort Tilden. As both of these populations increased, the site's parking lots would be quickly filled to capacity. At this point, visitors would either be turned away from the site or directed to park on overflow lots that could not support long-term, regular use.

Alternative B would create a new parking lot that could fully meet the anticipated growth at Riis Landing. It could also support parking at the baseball fields when Riis Landing was not in prime use. This would allow new visitors to easily access their destination without detracting from the existing visitor use of the site.

Alternative C would rely on the T-4 lot to support Riis Landing parking. This lot is already regularly used, and sometimes filled to capacity during seasonal events. The Riis Landing visitation would regularly push this lot to capacity, resulting in the same conditions described in Alternative A.

Alternative D would use the Jacob Riis Park parking lot for Riis Landing parking. This lot has ample room and could easily support all of Riis Landing's needs. However, it would be connected to the Landing by shuttle, preventing visitors from seeing the rest of the two sites.

6 *Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.*

There are no known depletable resources at Riis Landing or Fort Tilden that would be impacted by the proposed actions. The renewable resources of concern are the lawns and small shrubs that add to the park-like environment at Fort Tilden. Under **Alternative A**, no new physical developments would be made. As visitation increased and parking capacities were reached, lawns and other informal parking areas may be repeatedly used for parking, thus reducing the quality of the existing vegetation.

Under **Alternative B**, the new parking lot would remove an area of low quality vegetation. This loss would be mitigated by the removal of impervious surface and new plantings elsewhere in the park. The new plantings could be of a higher quality than the lost vegetation.

Alternative C would not add parking capacity to meet the increase in visitation. This would result in the same conditions as those described under Alternative A.

Finally, **Alternative D** would use the ample space in the Jacob Riis Park parking lot to support Riis Landing. This would not result in any loss of renewable resources but would also do nothing to enhance their quality.

Summary. The combination of these factors must be considered in the context of which alternative causes the least damage to the biological and physical environment and that best protects, preserves, and enhances cultural and natural resources. Alternative A directs the NPS to maintain its current efforts.

While this would allow for the protection of natural, cultural, and historic resources, it could not ensure their protection in the future. Alternatives B, C, and D focus on varying means to enhance this protection both now and in the future. The primary difference between these three alternatives is their location and capacity to meet the needs of the growing region. Alternative B is the only one that would require new construction but is located in an area that would inflict minimal impacts to the environment and fully meet the needs of the growing site. Alternative C avoids new construction in an effort to maintain current resource protection objectives. However, in doing so, it does not supply the parking capacity the growing area would require in the near future. This could result in detrimental consequences to the surrounding environment. Finally, Alternative D is able to supply the necessary capacity, but in a manner that does properly support the visiting population or the appreciation of the resources at Fort Tilden. Alternative B best meets the needs of the growing population and its desire to have access to Fort Tilden's resources. The loss of natural resources incurred by this alternative is minimal and could be mitigated in a beneficial manner. **Therefore, Alternative B is the Environmentally Preferred Alternative at Riis Landing.**

NEW NPS SITES AT PENNSYLVANIA AND FOUNTAIN AVENUES

Alternative A (No-Action)

The No-Action Alternative for the New NPS Sites would preclude vehicular access to the two sites but would allow some form of bicycle and pedestrian entrance. Vehicular access would be prohibited because it could not be provided safely via the existing roads, ramps, and gates. Furthermore, without formalized internal circulation and parking, vehicles would be able to drive further into either site, threatening the landfill cap. Because both of these conditions are unacceptable to the NPS, access would be limited to bicycle and pedestrians (Figure 20).

At the Pennsylvania Avenue site, bicycle and pedestrian access could be provided via the Shore Parkway Bikeway and from the bridge over the Belt Parkway. These visitors could enter through the existing construction gate and directly access the unfinished administrative area. There would be no means of containing bicycles within this area and the NPS would need to develop a means to do so in order to protect the landfill cap.

Along with bicycle access, pedestrian access could also be accommodated in this manner. However, there would be no crosswalk or pedestrian signal to allow visitors to safely cross the eastbound off ramp and enter the site. The NPS would seek to improve this situation as funding became available. Once on site, visitors would either need to walk through the unfinished administrative area or on the landscaped terrain to reach the completed trail system.

The Fountain Avenue site would be able to support pedestrian and bicycle access through an existing gate at the Belt Parkway bridge. Existing crosswalks and bicycle/pedestrian signals would provide safe passage across the eastbound Belt Parkway ramps to the site. From this point, visitors could connect directly to the site's trail system avoiding the unfinished administrative area. There would be no means of containing bicycles within this area and the NPS would need to develop a means to do so in order to protect the landfill cap. As there would be no physical development within the administrative areas, there would be no stormwater management facilities included at either site.

Elements Common to the Action Alternatives

Under Alternatives B, C, and D, stormwater best management practices (BMPs) would be included in the development of the Pennsylvania and Fountain Avenue sites. The BMPs would be designed to capture stormwater runoff from the new parking lots and access roads while meeting the New York State Department of Environmental Conservation (NYSDEC) Stormwater Management Design Manual (Center for Watershed Protection, 2003) requirements. To meet these requirements, it is likely that the BMPs would use a combination of elements from the manual's practice list, including stormwater wetlands, infiltration practices, and filtering practices. The final design of the BMPs will be included in the final design documents for both sites.

At the Pennsylvania Avenue site, stormwater could be initially collected within the proposed parking lot islands and driveway median. The paved surfaces would be graded to direct runoff towards these locations. The islands

and median could capture the water and allow some of it to be absorbed into the soil. The majority of the water, however, could be transported through the islands and median, either in an open channel or underground piping, to a larger underground system. The underground system could consist of a narrow pipe carrying the captured water into a larger pipe underneath the new parking lot. This oversized pipe would have the capacity to capture runoff from the largest storm events. The captured water would then be slowly released into a small constructed wetland, just north of the proposed Metropolitan Transportation Authority (MTA) bus stop. The slow velocity would keep the wetland from being washed out, allowing it to naturally filter the water. The wetland could include appropriate soils, organic matter, and/or other acceptable treatment media that would allow for the required mitigation measures before water was filtered into the ground or nearby streams.

The Fountain Avenue BMP could operate in a similar manner. The parking lot could be graded to direct stormwater runoff into the small islands within the site. These islands could absorb water into collection pipes which could then deliver the collected volumes into a larger pipe underneath the parking lot. From here the collected stormwater could be released slowly into a constructed wetland between the parking lot and Old Mill Creek. The constructed wetland could serve as a learning tool for the environmental educational field station. It could also supplement naturally occurring or constructed wetlands that may also be included within the field station's curriculum. The cost of these BMPs would be less than \$400,000 in FY2006 dollars and is included within the overall cost for each alternative.

Alternative B (Roundabout)

Under Alternative B, access to the Pennsylvania Avenue site would be formalized with a roundabout entrance that would extend from Exit 14 on the Belt Parkway through the existing construction entrance. A roadway, approximately 180 feet long and 24 feet wide, would extend from the construction entrance into the site. At this point it would connect with the new roundabout (Figure 21). The roundabout would have a diameter of approximately 180 feet, with the 120 foot diameter center open to vegetation. The roundabout would be large enough to allow buses and emergency vehicles to make the turns necessary to enter or exit the site. Although the Belt Parkway bridge structure would be largely unaffected by the alternative, the ramp embankments would need to be reconstructed to accommodate the footprint of the roundabout. The ramp embankments, and other pieces of the Belt Parkway, fall within the NYCDOT right of way.

The parking lot would be approximately 1.0 acre (46,800 sf), capable of providing 100 parking spaces. The parking lot design would accommodate large vehicles as well, including a stop for MTA buses, if desired. (Two MTA bus routes currently begin approximately one block north of the site, on Seaview Avenue). Unlike the existing administrative area, the driveway and parking lot would be curbed to direct vehicles and bicycles away from the landfill cap and to control stormwater drainage.

Along the existing bikeway, a gated entrance would be established at the site for pedestrian and bicycle access. To facilitate this access, a signalized pedestrian crosswalk would be constructed at the top of the eastbound off-ramp to connect the Pennsylvania Avenue sidewalks to the Shore Parkway Bikeway running along side the site. A comfort station would be located at this location of the bikeway. New signage would be installed to help visitors navigate to various uses on the site. The bikeway would then be realigned so that it would be incorporated into the roundabout. Approximately 600 feet of the Shore Parkway Bikeway, and the site's perimeter fence line, would be included in this realignment. The pedestrian entrance and the parking lot would be connected to the site's trail system by sidewalks installed during the capping process.

Insert figure 20

Under this alternative, the Fountain Avenue site would make use of the existing haul road (Figure 23). This segment of Fountain Avenue between Seaview Avenue and the park site has not been well maintained and would likely have to be repaved with improved lighting. This road would be accessed via Fountain and Seaview Avenues. Regional access to the site would be provided by the Belt Parkway. Visitors would use Exit 14 onto Erskine Avenue. They would then turn right onto Seaview Avenue and another right onto Fountain Avenue. The intersection of Seaview Avenue and Fountain Avenue would remain un-signalized, with all-way stop control (stop signs on each approach to the intersection). This route would pass through land owned by the NYCDPR, as well as the NYCDOT. The NPS would need to work with these agencies, as well as other interested parties, to obtain funding for improvements to the roadways leading to the Fountain Avenue site

The Fountain Avenue site would provide bicycle and pedestrian access at Erskine Street. The Erskine Street pedestrian/bicycle access would connect with the existing Shore Parkway Bikeway and the signalized crosswalks across the Exit 15 ramps. Bicycle and pedestrian access would be provided through an existing, unused gate in the site's perimeter fencing and connect directly to the landfill pathways. The pathways are being constructed through the capping process and would lead to a new parking area and Environmental Educational Field Station constructed on the landfill administrative area.

On site, Fountain Avenue would connect with the new parking lot. The new, paved lot would have an estimated foot print of 1.7 acres (76,800 sf) and accommodate 165 cars. Additional overflow parking would be provided for approximately 100 cars on a reinforced grass lot west of the paved lot. The northern portion of this development falls within the NYCDOT right of way. The intent of the reinforced grass is to limit the amount of impervious surface introduced to the site. However, if desired or needed, this area could be paved in the future. An MTA bus stop would be included within the paved lot to accommodate potential layover for the municipal bus route that currently travels down Fountain Avenue and terminates on Seaview Avenue near Erskine Street. Also, a drop-off and loading area for school buses would be included near the Environmental Educational Field Station. During busy days, when the parking lot was filled, school buses would park off-site, along the wide median-divided section of Fountain Avenue north of Seaview Avenue. On less crowded days, school buses could park within the new lot. As with the other alternatives a signage plan would be implemented to identify the various uses on the site. Overall, Alternative B would install approximately 2.1 acres (93,000 sf) of impervious surface at the Pennsylvania Avenue site and approximately 2.4 acres (106,000 sf) at the Fountain Avenue site for a total estimated acreage of 4.6 (199,000 sf) of impervious surface. This installation would cost an estimated \$4,950,000 in FY2006 dollars. Because some of the physical development would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency, the NYCDPR, and other interested parties to obtain funding for this alternative.

Alternative C (Intersection) (NPS Preferred Alternative)

Alternative C is the NPS Preferred Alternative. This alternative provides the best means of providing secure access and parking to both of the new sites. Alternative C would be similar to Alternative B, except that a simple intersection would be used instead of a roundabout at the Pennsylvania Avenue site. To support this development, the construction entrance at the Pennsylvania Avenue/Exit 14 Ramps intersection would be reconstructed to form a permanent four-way signalized intersection. The ramp intersection falls within the NYCDOT right of way. The 24 foot wide road would then extend 120 feet before making the turn towards the parking area. From the intersection, a driveway, approximately 30 feet

wide, would extend an estimated 120 feet to the east before connecting to a new parking lot. The parking lot would be the same as described in Alternative B (Figure 22).

The remaining elements at Pennsylvania Avenue and at Fountain Avenue would be the same as those described under Alternative B. Overall; Alternative C would install approximately 1.9 acres (81,000 sf) of impervious surface at the Pennsylvania Avenue site and approximately 2.4 acres (106,000 sf) at the Fountain Avenue site for a total estimated acreage of 4.3 (187,000 sf) of impervious surface. This installation would cost an estimated \$4,100,000 in FY2006 dollars. Because some of the physical development would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency, NYCDPR, and other interested parties to obtain funding for this alternative.

Alternative D (Oversized Parking)

Alternative D is similar to Alternative C (Figure 22), except that all of the on site parking at the Fountain Avenue site would be paved (Figure 24). The on site circulation at the Fountain Avenue site is also similar except that the paved parking area would be expanded to the south and the capacity of the parking lot would be increased to 275 cars. This alternative includes the same accommodation for MTA buses as does Alternative B and C. However, the school bus drop-off and loading area could accommodate two more school buses, but would still have parking for school buses on busy days off site. The alignment of this parking lot would keep more of the development out of the NYCDOT right of way than the previous Fountain Avenue alternative. Overall, Alternative D would install approximately 1.9 acres (81,000 sf) of impervious surface at the Pennsylvania Avenue site and approximately 3.5 acres (152,000 sf) at the Fountain Avenue site for a total estimated acreage of 5.3 (233,000 sf) of impervious surface. This installation would cost an estimated \$5,000,000 in FY2006 dollars. Because some of the physical development would take place within the NYCDOT right of way, the NPS would need to coordinate with this agency, the NYCDPR, and other interested parties to obtain funding for this alternative.

Alternatives Considered but Dismissed

During the alternatives development process, a number of different approaches were considered for the two sites. Some of these included providing vehicular access to the Fountain Avenue site from the Erskine Street/Belt Parkway intersection. Others included different placements of the parking lot within the Pennsylvania Avenue site. However, these alternatives were dismissed as they were not compatible with the capping and landscaping process. The remaining alternatives were modified and combined to form the options presented above.

INSERT FIGURE 21

INISERT FIGURE 22

INSERT FIGURE 23

INSERT FIGURE 24

Environmentally Preferred Alternative Analysis

The criteria used to determine the Environmentally Preferred Alternative are presented below, followed by a discussion of how well the proposed alternatives for the New NPS Sites at Pennsylvania and Fountain Avenues meet each one. The Environmentally Preferred Alternative for this study area is identified at the end of this section.

1. *Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.*

By working with the city and state to convert the former landfills to green space, the NPS is already acting to preserve the environment for future generations. Under **Alternative A**, this preservation would avoid adding any impervious space to the site. This would leave both sites as large, undeveloped pieces of land in an area that is highly developed. However, by not developing formal access and parking, this alternative would leave the site open to repeated foot and bike traffic across the site. This would eventually wear away the grasses and soils, an action that could eventually lead to the exposure of the landfill cap and the closure of the sites.

Alternatives B and C would both introduce enough development to provide formal access and circulation to both sites. These alternatives include enough parking for a reasonable amount of visitation but do not overestimate. Grassed, overflow parking is included at the Fountain Avenue site to accommodate extremely busy days. In the future, if visitation remained high, these overflow areas could be paved.

Alternative D proposes paving as much space as possible for parking. This level of visitation may be reached in the future but is not required at this early time.

2. *Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.*

Under **Alternative A**, there would be no formal access developed to the site. This would require pedestrians or bicyclists to enter at the gates along the Shore Parkway Bikeway. The bikeway is not safely accessed from the surrounding community in all locations nor does it provide pull offs for vehicles to drop off passengers. Along with these safety concerns, the limited access reduces the productivity of a visit to the site. Once on site, the area would provide open expanses of green space that are not found in many other locations within the city. However, without formal access or parking, the site would lack the park-like look Gateway strives to maintain at all its sites.

Alternative B would create formal site access and parking at both sites, along with improvements for pedestrian and bicycle access to the site from the surrounding communities. This would include a roundabout at the Pennsylvania Avenue site and overflow parking at Fountain Avenue. This would provide a safe and productive visit to the site, while also creating a park-like atmosphere without taking away from the open green space.

Alternative C would provide the same benefits as Alternative B but would do so with a simple intersection at the Pennsylvania Avenue site. The intersection is more familiar to local drivers and would provide a safer and more efficient option than Alternative B.

Alternative D would provide the same benefits as Alternative C at the Pennsylvania Avenue site but would create a much larger, formalized parking lot at the Fountain Avenue site. This larger parking lot may be more than is initially necessary and could detract from the park-like feeling the other alternatives create at the site.

3. *Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.*

By not developing formalized access or parking, **Alternative A** would not make use of the area that was set aside for these developments. Without these developments, access to the site would be less inviting and less safe.

Alternative B would make use of the allotted space to develop formalized access and parking at both sites. The construction would support the anticipated visitation without overdeveloping the site. The use of the roundabout at the Pennsylvania Avenue site, however, may create some safety or visitor comfort issues, as it is not common outside of the park.

Alternative C would provide the same benefits of Alternative B but would not use an uncommon roundabout.

Alternative D would also use a simple entrance to the Pennsylvania Avenue site. However, at Fountain Avenue, this alternative would create a much larger parking lot than those provided under the previous two alternatives. While this would make full use of the space allotted for development, it may not be necessary in the short-term.

4. *Preserve important historical, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.*

Under **Alternative A**, there would be little choice available to potential visitors. Vehicular access would be impossible as would the potential for dropping visitors off outside the gates. Therefore, the only option would be to access the site on foot or by bicycle from the surrounding community, using whatever limited pedestrian crossings exist.

Alternatives B, C, and D would all provide a high level of choice and diversity. These alternatives would provide safe and efficient pedestrian, bicycle, and vehicular access (private or public) to reach the sites. The parking lots would be of a capacity capable of supporting even the highest visitation, allowing visitors to come and go on their own schedule.

5. *Achieve a balance between population and resource use that will permit high standards of living and wide sharing of life's amenities.*

Under **Alternative A**, the two sites would not be developed to provide formalized access, circulation, or parking. By leaving the sites undeveloped, the alternative would put more emphasis on the resource than the population. In doing so, this alternative would not allow the

sites to be fully shared with the regional population that could not walk or ride a bicycle to their location.

Alternatives B and C would both develop the sites to provide formalized access, circulation, and parking. The amount of parking provided under these alternatives would meet the needs of the anticipated, initial visitation levels. If visitation increased, overflow parking areas would support these additional visitors.

Alternative D would fully pave all of the allotted space within the Fountain Avenue site. This would place the emphasis on the population, rather than the resource.

6. *Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.*

There are no known depletable resources at the NPS sites at Pennsylvania and Fountain Avenue landfills that would be impacted by the proposed actions. The renewable resource of concern is the vegetation planted around the site as part of the capping process. However, because the capping process includes plans for developing formalized access, circulation, and parking; the administrative areas would initially be left unplanted to allow for these developments.

Alternative A would not develop these areas, which could then be used to support additional plantings. However, without formalized access, this alternative could not prevent pedestrians or bicycles from traveling over the grass. This would lead to the degradation of these new, renewable resources.

Alternatives B, C, and D would all develop formalized access, circulation, and parking within the allotted area. Alternatives B and C would not fully develop this area, allowing some of it to be planted with additional vegetation. Alternative D would fully develop this area, preventing any additional planting.

Summary. The combination of these factors must be considered in the context of which alternative causes the least damage to the biological and physical environment and that best protects, preserves, and enhances cultural and natural resources. While Alternative A would still allow the NPS to open the new sites, it would do nothing to protect the resources or make them fully available to the surrounding population. Alternatives B and C are very similar. Both would develop appropriate access and circulation necessary to protect the resources from overuse while still making it available to the greater public. Alternative C provides some additional safety at the site through the use of an intersection instead of the roundabout used in Alternative B. Alternative D also provides this safety, but it paves more space at Fountain Avenue than is initially needed. Therefore, based on its ability to best meet the needs of the population while protecting the resource, **Alternative C is the Environmentally Preferred Alternative at the New NPS Sites.**

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 1 provides a checklist of environmental consequences related to each alternative. A more detailed explanation of the impacts is presented in Appendix E and in Chapter 4 “Environmental Consequences” of this document.

Table 1: Summary of Environmental Consequences											
Site	Resource	Alternative	No Impact	Adverse				Beneficial			
				Negligible	Minor	Moderate	Major	Negligible	Minor	Moderate	Major
Floyd Bennett Field	Soils and Topography	Alternative A		√							
		Alternative B		√							
		Alternative C		√							
		Alternative D		√							
	Vegetation	Alternative A		√							
		Alternative B		√							
		Alternative C			√						
		Alternative D			√						
	Wildlife and Wildlife Habitat	Alternative A		√							
		Alternative B							√		
		Alternative C								√	
		Alternative D								√	
	Water Resources	Alternative A		√							
		Alternative B		√							
		Alternative C		√							
		Alternative D		√							
	Floodplains	Alternative A	√								
		Alternative B	√								
		Alternative C	√								
		Alternative D	√								
	Air Quality	Alternative A						√			
		Alternative B						√			

Table 1: Summary of Environmental Consequences

Site	Resource	Alternative	No Impact	Adverse				Beneficial			
				Negligible	Minor	Moderate	Major	Negligible	Minor	Moderate	Major
Floyd Bennett Field		Alternative C						√			
		Alternative D						√			
	Noise	Alternative A			√						
		Alternative B			√						
		Alternative C			√						
		Alternative D			√						
	Archeology	Alternative A	√								
		Alternative B	√								
		Alternative C	√								
		Alternative D	√								
	Historic Structures	Alternative A			√						
		Alternative B						√			
		Alternative C						√			
		Alternative D						√			
	Cultural Landscapes	Alternative A				√					
		Alternative B			√						
		Alternative C			√						
		Alternative D				√					
	Visual Resources	Alternative A				√					
		Alternative B								√	
		Alternative C								√	
		Alternative D								√	
	Transport	Alternative A				√					
		Alternative B								√	
		Alternative C								√	
		Alternative D								√	
	Visitor Use and Experience	Alternative A				√					
		Alternative B							√		
		Alternative C								√	

Table 1: Summary of Environmental Consequences											
Site	Resource	Alternative	No Impact	Adverse				Beneficial			
				Negligible	Minor	Moderate	Major	Negligible	Minor	Moderate	Major
Floyd Bennett Field	Operations	Alternative D								√	
		Alternative A		√							
		Alternative B							√		
		Alternative C								√	
		Alternative D								√	
	Cost (FY2006)	Alternative A	No direct cost \$625,000 \$1,451,000 \$2,850,000								
		Alternative B									
		Alternative C									
		Alternative D									
Jacob Riis Park	Soils and Topography	Alternative A		√							
		Alternative B								√	
		Alternative C							√		
		Alternative D							√		
	Vegetation	Alternative A		√							
		Alternative B								√	
		Alternative C							√		
		Alternative D							√		
	Wildlife and Wildlife Habitat	Alternative A		√							
		Alternative B								√	
		Alternative C								√	
		Alternative D								√	
	Water Resources	Alternative A		√							
		Alternative B							√		
		Alternative C						√			
		Alternative D						√			
	Floodplains	Alternative A		√							
		Alternative B						√			
		Alternative C						√			
		Alternative D						√			

Table 1: Summary of Environmental Consequences											
Site	Resource	Alternative	No Impact	Adverse				Beneficial			
				Negligible	Minor	Moderate	Major	Negligible	Minor	Moderate	Major
Jacob Riis Park	Air Quality	Alternative A						√			
		Alternative B							√		
		Alternative C							√		
		Alternative D						√			
	Noise	Alternative A			√						
		Alternative B			√						
		Alternative C			√						
		Alternative D			√						
	Archeology	Alternative A	√								
		Alternative B	√								
		Alternative C	√								
		Alternative D	√								
	Historic Structures	Alternative A	√								
		Alternative B	√								
		Alternative C	√								
		Alternative D	√								
	Cultural Landscapes	Alternative A	√								
		Alternative B			√						
		Alternative C			√						
		Alternative D			√						
	Visual Resources	Alternative A			√						
		Alternative B			√						
		Alternative C			√						
		Alternative D			√						
	Transport	Alternative A						√			
		Alternative B								√	
		Alternative C								√	
		Alternative D								√	
	Visitor Use	Alternative A			√						

Table 1: Summary of Environmental Consequences											
Site	Resource	Alternative	No Impact	Adverse				Beneficial			
				Negligible	Minor	Moderate	Major	Negligible	Minor	Moderate	Major
Jacob Riis Park	Resource and Experience	Alternative B							√		
		Alternative C								√	
		Alternative D								√	
	Operations	Alternative A		√							
		Alternative B							√		
		Alternative C							√		
		Alternative D							√		
	Cost (FY2006)	Alternative A	No direct cost								
		Alternative B									
		Alternative C									
		Alternative D									
Riis Landing	Soils and Topography	Alternative A		√							
		Alternative B			√						
		Alternative C		√							
		Alternative D		√							
	Vegetation	Alternative A		√							
		Alternative B			√						
		Alternative C		√							
		Alternative D		√							
	Wildlife and Wildlife Habitat	Alternative A		√							
		Alternative B			√						
		Alternative C		√							
		Alternative D		√							
	Water Resources	Alternative A		√							
		Alternative B			√						
		Alternative C		√							
		Alternative D		√							
	Floodplains	Alternative A	√								
		Alternative B		√							

Table 1: Summary of Environmental Consequences											
Site	Resource	Alternative	No Impact	Adverse				Beneficial			
				Negligible	Minor	Moderate	Major	Negligible	Minor	Moderate	Major
Riis Landing		Alternative C	√								
		Alternative D	√								
	Air Quality	Alternative A						√			
		Alternative B							√		
		Alternative C							√		
		Alternative D							√		
	Noise	Alternative A			√						
		Alternative B			√						
		Alternative C			√						
		Alternative D			√						
	Archeology	Alternative A	√								
		Alternative B	√								
		Alternative C	√								
		Alternative D	√								
	Historic Structures	Alternative A	√								
		Alternative B	√								
		Alternative C	√								
		Alternative D	√								
	Cultural Landscapes	Alternative A	√								
		Alternative B		√							
		Alternative C							√		
		Alternative D							√		
	Visual Resources	Alternative A				√					
		Alternative B			√						
		Alternative C			√						
		Alternative D							√		
	Transport	Alternative A		√							
		Alternative B								√	
		Alternative C								√	

Table 1: Summary of Environmental Consequences											
Site	Resource	Alternative	No Impact	Adverse				Beneficial			
				Negligible	Minor	Moderate	Major	Negligible	Minor	Moderate	Major
Riis Landing	Visitor Use and Experience	Alternative D							√		
		Alternative A				√					
		Alternative B								√	
		Alternative C				√					
	Operations	Alternative D			√						
		Alternative A			√						
		Alternative B						√			
		Alternative C			√						
	Cost	Alternative D				√					
		Alternative A	No direct cost \$2,650,000 \$300,000 \$250,000								
		Alternative B									
		Alternative C									
		Alternative D									
New NPS Sites	Soils and Topography	Alternative A			√						
		Alternative B			√						
		Alternative C			√						
		Alternative D			√						
	Vegetation	Alternative A				√					
		Alternative B							√		
		Alternative C							√		
		Alternative D							√		
	Wildlife and Wildlife Habitat	Alternative A		√							
		Alternative B		√							
		Alternative C		√							
		Alternative D		√							
	Water Resources	Alternative A			√						
		Alternative B								√	
		Alternative C								√	

Table 1: Summary of Environmental Consequences											
Site	Resource	Alternative	No Impact	Adverse				Beneficial			
				Negligible	Minor	Moderate	Major	Negligible	Minor	Moderate	Major
New NPS Sites	Floodplains	Alternative D								√	
		Alternative A		√							
		Alternative B		√							
		Alternative C		√							
		Alternative D		√							
	Air Quality	Alternative A						√			
		Alternative B						√			
		Alternative C						√			
		Alternative D						√			
	Noise	Alternative A			√						
		Alternative B			√						
		Alternative C			√						
		Alternative D			√						
	Archeology	Alternative A	√								
		Alternative B	√								
		Alternative C	√								
		Alternative D	√								
	Historic Structures	Alternative A	√								
		Alternative B	√								
		Alternative C	√								
		Alternative D	√								
	Cultural Landscapes	Alternative A	√								
		Alternative B	√								
		Alternative C	√								
		Alternative D	√								
	Visual Resources	Alternative A				√					
		Alternative B								√	
		Alternative C								√	
		Alternative D								√	

Table 1: Summary of Environmental Consequences											
Site	Resource	Alternative	No Impact	Adverse				Beneficial			
				Negligible	Minor	Moderate	Major	Negligible	Minor	Moderate	Major
New NPS Sites	Transport	Alternative A				√					
		Alternative B				√					
		Alternative C							√		
		Alternative D							√		
	Visitor Use and Experience	Alternative A				√					
		Alternative B								√	
		Alternative C								√	
		Alternative D								√	
	Operations	Alternative A			√						
		Alternative B		√							
		Alternative C		√							
		Alternative D		√							
	Cost	Alternative A	No direct cost \$4,950,000 \$4,100,000 \$5,000,000								
		Alternative B									
		Alternative C									
		Alternative D									