STATEMENT OF FINDINGS:
NEW YORK CITY DEPARTMENT OF PARKS & RECREATION
FRESH KILLS PARK PROJECT

Issuance Date:	October 30, 2009
CEQR No.:	06DPR0024, 06DPR002R
ULURP Nos.	080321MMR, N080419ZRR, 080420ZMR
SEQR Classification:	Type I
Lead Agency:	New York City Department of Parks & Recreation The Arsenal 830 Fifth Avenue New York, NY 10065
Location:	Staten Island, New York
	Block 2520, p/o Lot 1; Block 2600, p/o Lot 100; Block 2649, Lot 1; Block 2650, Lot 1; Block 2651, Lot 1; Block 2652, Lot 1; Block 2665, Lot 20; Block 2685, Lot 1; Block 2725, Lot 1; Block 5804, Lot 1, Lot 325, Lot 340; Block 5900, p/o Lot 100, p/o Lot 500; Block 5965, Lot 500; Block 6169, p/o Lot 37, Lot 103, Lot 200
	(This property identification does not include those portions of Fresh Kills land that are currently part of the Fresh Kills landfill property, but are outside the project site [the proposed park] and would remain with the New York City Department of Sanitation [DSNY].)
	The project site is generally bounded by Richmond Avenue to the east, the Arthur Kill to the west, Arthur Kill Road to the south and William T. Davis Wildlife Refuge to the north.

A. INTRODUCTION

OVERVIEW

The New York City Department of Parks & Recreation (DPR) prepared a Generic Environmental Impact Statement (GEIS) for the entire Fresh Kills Park project that evaluated the build out of the approximately 2,200 acre park in its entirety. Subsequently, DPR prepared a Supplemental Environmental Impact Statement (SEIS) that analyzed the construction of park roads through East Park, examining the potential impacts in greater detail than previously examined in the GEIS and also examining park road phasing, impacts on Landfill Section 6/7 and the associated landfill infrastructure, and further examining road options and alternatives. This Statement of Findings documents that environmental review process and conclusions presented in both the GEIS and SEIS.

As a result of this environmental review, DPR identified potential significant adverse environmental impacts related to the proposed project. In accordance with requirements of the rules of procedure for the City Environmental Quality Review Act (CEQR) and Executive Order 91 of 1977 as amended and the State Environmental Quality Review Act (SEQRA), DPR therefore examined impact avoidance and mitigation measures for those impacts and also

considered a range of alternatives as presented in both the GEIS and SEIS and as described in the Notices of Completion for both the GEIS and SEIS.

This Statement of Findings has been prepared as the final step in this environmental review process and has been prepared in accordance with the environmental review requirements of Article 8 of the New York State Environmental Conservation Law, SEQRA, 6 NYCRR Part 617, and CEQR. This Statement of Findings has been prepared to demonstrate that in deciding to move forward with the Fresh Kills Park and East Park Roads project, DPR has:

- Considered the relevant environmental impacts, facts, and conclusions as disclosed in both the GEIS and SEIS;
- Balanced environmental impacts with social and economic considerations;
- Provided a rationale for the agency's decision;
- Certified that all requirements of CEQR and SEQR are met; and
- Concluded that, consistent with social economic and other essential considerations from among the reasonable alternatives, the proposed actions avoid or minimize adverse environmental impacts to the maximum extent practicable and that mitigation measures will be incorporated into the decision as a mechanism to avoid or minimize impacts.

ENVIRONMENTAL REVIEW PROCESS

In April 2006, DPR issued a Draft Scope of Work to prepare a DGEIS that was accompanied by an EAS and Positive Declaration. The proposed actions subject to this environmental review include multiple City, State, and Federal actions related to implementing the proposed Fresh Kills Park Master Plan. The Draft Scope set forth the analyses and methodologies proposed for the GEIS and was presented at a public scoping meeting on May 24, 2006 at P.S. 58, 77 Marsh Avenue, Staten Island, NY. The general public, government agencies, Staten Island community boards, and elected officials were invited to comment on the Draft Scope either in writing or at the public meeting. The comment period on the Draft Scope remained open until June 19, 2006. Comments received during the comment period and responses thereto were incorporated into the Final Scope, which was issued on August 31, 2006.

A DGEIS was subsequently prepared in accordance with this final scope of work and was certified as complete on May 16, 2008. The DGEIS was distributed and made available for public review. A public hearing was held on the DGEIS at P.S. 58 located at 77 Marsh Avenue, Staten Island, NY on September 4, 2008. Notices of the DGEIS availability as well as the date and location of the public hearing were advertised in the City Record, the Environmental Notice Bulletin, and the Staten Island Advance. Copies of the DGEIS and its appendices, including information on the public hearing and comment period, were forwarded to elected officials including Staten Island Borough President James P. Molinaro; Staten Island City Council members; Staten Island Community Boards 1, 2, and 3; eleven local branches of the New York Public Library; and it was made available on DPR's website. Written comments on the DGEIS were accepted by DPR through September 30, 2008, which was the close of the public comment period. Subsequent to the close of the comment period, DPR prepared an FGEIS, which addressed all substantive comments made on the DGEIS. In addition to responding to all comments, the DGEIS was amended as necessary to respond to the comments, and supplemental data was also provided as requested by the comments. The FGEIS was certified as complete and a Notice of Completion was issued on March 13, 2009.

On February 24, 2009, DPR issued a Scoping Document for the purposes of preparing an SEIS to specifically examine the potential impacts of the East Park Roads project. The SEIS scope of

work was similarly distributed, and a public hearing on the Draft Scope of Work was held on March 25, 2009. Modifications to the draft scope were made based on comments presented at the hearing as well as submitted written comments, and a Final Scope of Work to prepare the SEIS was released on June 1, 2009. On June 5, 2009, the Draft SEIS was certified as completed and similarly distributed as described above. A public hearing was held on the DSEIS on June 22, 2009 and the period for submitting written comments remained open until July 24, 2009. Subsequently, an FSEIS was prepared that responded to the comments on the DSEIS. The FSEIS was amended as appropriate in response to comments and also provided supplemental information and an analysis of additional alternatives in response to comments. That FSEIS was released on October 16, 2009.

After careful examination of the project impacts, the alternatives, impact avoidance measures, and available mitigation as presented in the GEIS and SEIS, both of which were made available for review for more than the minimum required period, DPR hereby adopts and releases this Statement of Findings. In doing so, DPR recognizes that a supplemental environmental review, possibly in the form of an additional SEIS, is likely to be necessary once a decision is made on the post-2016 East Park road alignment options of which four were evaluated in the SEIS. DPR is committed to performing that supplemental environmental review, should it be appropriate, as part of its decision making for that phase of the proposed East Park Roads project.

With respect to completion of the East Park Road system, exclusive of the 2016 Yukon Avenue Connections. DPR has not selected a preferred option and, as described in the FSEIS, is examining four road options for the post-2016 conditions and completion of the East Park Road system. Those options are:

- Four-lane Forest Hill Road, Richmond Hill Road, and Yukon Avenue Connections;
- Two-lane Forest Hill Road, Richmond Hill Road and Yukon Avenue Connections;
- A four-lane Yukon Avenue Connection only; and/or
- East Park Loop Road and Richmond Avenue Connections (also referred to as the SIBPO alternative) with connections at Richmond Hill and Forest Hill Roads, and Yukon Avenue.

DPR examined all of these options in the SEIS so that, in accordance with CEQR/SEQRA, the impacts of the 2011 project phase, construction of a road embankment across Landfill Section 6/7 in accordance with *Final Cover Design, Addendum 1* (October 2009) and the 2016 project (two-lane Yukon Avenue Connection) were comprehensively and fully evaluated with respect to their potential long-term impacts and in a manner consistent with the overall Fresh Kills Park plan objectives, as described in the March 2009 FGEIS. One of the key objectives of the Fresh Kills Park plan is to provide a completed park road system across Fresh Kills that will both benefit the local community through improved local circulation and connectivity and will provide vehicular access to the proposed park. Completion of the East Park roads project is necessary to fulfill that objective.

B. PROJECT OVERVIEW

The City of New York, with DPR as lead agency, is proposing the development of Fresh Kills Park. The site of the proposed park is an approximately 2,163-acre City-owned property, the majority of which is Fresh Kills Landfill, which is currently and almost entirely under the jurisdiction of DSNY. (This land area does not include the DSNY Waste Transfer Station or borough garage facilities.) The balance of the site is under the jurisdiction of DPR, with a small portion under the jurisdiction of the New York City Department of Environmental Protection (DEP). The project site is located in the southwest portion of Staten Island in Staten Island

Community Boards 2 and 3. The boundaries of the project site are defined by existing parkland and residential uses, waterways, City streets and a state highway. The project site is generally bounded by Richmond Avenue to the east, the Arthur Kill to the west, Arthur Kill Road to the south and William T. Davis Wildlife Refuge to the north. The West Shore Expressway (New York State Highway Route 440), which is under the jurisdiction of New York State Department of Transportation (NYSDOT), bisects the project site.

For many years, Fresh Kills Landfill operated as the City's principal municipal solid waste landfill, receiving household, commercial, and municipal solid waste and construction and demolition debris between 1948 and 2001. A state law passed in 1996 mandated that solid waste landfill operations cease at Fresh Kills by December 31, 2001; landfilling subsequently ended on March 22, 2001. The law was passed after many decades of local opposition to the landfill, which included lawsuits and other actions aimed at closing the landfill that were brought forth by local residents, community groups, and their representatives.

Large portions of the project site are defined by four solid waste landfill sections—commonly referred to as Landfill Sections 3/4, 2/8, 6/7, and 1/9. These four landfill sections are regulated as Solid Waste Management Unit (SWMU) areas by the New York State Department of Environmental Conservation (NYSDEC). Approximately 987 acres, or 43 percent of the project site, is within a SWMU. The balance of the Fresh Kills Landfill property is regulated as a buffer/environmental compliance area. This area includes landfill post-closure care monitoring and maintenance systems. Having ceased solid waste disposal operations at Fresh Kills Landfill, DSNY is completing final closure construction at Fresh Kills Landfill. DSNY completed closure construction at Landfill Section 3/4 in 1996 and 2/8 in 1997. Final closure design has been approved by NYSDEC and closure construction is underway at Landfill Section 6/7. At Landfill Section 1/9, final closure design has also been approved by NYSDEC and subbase grading has begun.

The project site also includes land that is essentially undeveloped and has no landfill-related facilities or monitoring equipment. These include, for example, natural areas such as the Isle of Meadows.

Total acreage of the proposed Fresh Kills Park is 2,163 acres. In addition to mapping new parkland, the proposed project would make publicly accessible the public parkland currently mapped at the site. Also proposed are approximately seven miles of new park roads, including possibly two miles of roads in East Park and up to three new public road connections to Richmond Avenue. Upon completion, Fresh Kills Park would be the City's second-largest park (after Pelham Bay Park in the Bronx), and would more than double the size of the Staten Island Greenbelt. In addition to its size, the challenge of implementing the proposed park is made more complex by the project site comprising what was once the City's largest operating municipal solid waste landfill. Moreover, this site will undergo at least 30 more years of post-closure care in the form of landfill management and monitoring to ensure that it does not negatively affect the environment, the surrounding neighborhoods or prospective park users and staff. It is expected that development of the proposed park will take many decades, and continue through the year 2036. Thus, the proposed project would be developed in multiple capital project phases with designs that are expected to evolve over time as individual park and associated road projects are proposed. The proposed park is comprised of five key planning areas: North Park, South Park, East Park, West Park, and the Confluence (which also includes the Point). Park implementation in North Park, South Park, and for the Yukon Avenue Connection to Richmond Avenue is in the earlier phases of the project (through 2016), along with proposed park roads to

provide access from the West Shore Expressway. Development in East Park and West Park, as well as the Confluence, and completion of the circulation plan would be conducted after 2016.

Fresh Kills Park would provide, for the first time, public access and waterfront recreation at Fresh Kills, along with a vast habitat restoration program. The proposed park includes recreational fields; landscaped areas and enhanced ecological habitats; new park roads, including a new connection with the West Shore Expressway and a signature bridge across the Fresh Kills waterway; water access for motorized and non-motorized craft; cultural, entertainment, and commercial facilities (e.g., amphitheater, restaurants, event and banquet space); the supporting park management and maintenance facilities; and parking. The proposed park roads would connect with Richmond Avenue on the east and the West Shore Expressway on the west, and internal vehicular access would be supported by the necessary service roads and transit facilities. Existing natural areas, such as the Isle of Meadows, would continue to be protected and new landscaped habitats would also be created.

Since the proposed project is a major capital project with a long-term, multi-phased implementation, the Fresh Kills Park FGEIS (March 2009) comprehensively analyzed project implementation through two phases of completion, with a 2016 interim analysis year and the full build out of the park assumed to be completed by 2036. The East Park Roads SEIS analyzed three phases. The first phase (2011) was the East Park road embankment construction (within the Forest Hill Road and Yukon Avenue Connection alignments across Landfill Section 6/7 as part of the landfill closure construction), and two phases of road operation, including operation of the Yukon Avenue Connection as a two-lane road (2016) and operation of the completed East Park Road network (2036).

If the proposed park is developed, it would dramatically transform the project site over the next 30 years from an inaccessible and underutilized City waterfront property that contains a closed municipal solid waste landfill into a major recreational facility for the City and region. It would also provide substantial natural landscape enhancement and create an entirely new environment at the site.

C. PURPOSE AND NEED

As described in the FGEIS, the purpose of the proposed Fresh Kills Park project is to create a substantial new public park providing public access and waterfront recreation facilities at the City's Fresh Kills property, along with extensive new landscapes and up to seven miles of park roads that would improve local vehicular circulation and connectivity both to and across the park. With its 50-plus years of solid waste landfilling operations at the site, this large waterfront City-owned parcel has been closed to the public since 1948. This has shut off the site for both public access as well as for public roads that instead must continue to extend around rather than across the property. As a result, local drivers have had to drive around the entire Fresh Kills property for decades. The cessation of municipal solid waste landfilling operations in 2001 opened the possibility of transforming this large City property into a unique and significant public open space for use by residents of the local neighborhoods and Staten Island, the City of New York, the region as a whole, and national and international visitors to New York City. It also presented the opportunity to meet local and regional needs for active recreational fields, enhanced landscapes, new park roads and connections to a regional highway, water recreation, and new cultural, entertainment, and commercial facilities.

As described in greater detail in the SEIS, the East Park Road system is essential to the project in that it will provide access to the park, will reduce the traffic impacts of the proposed park on local vehicular circulation, and will improve local vehicular connectivity. Without the proposed

East Park road connections, drivers destined for the West Shore Expressway from the neighboring communities of Richmondtown, Heartland, and local commercial traffic would have to continue to drive around the Fresh Kills property in order to access the Expressway, thereby experiencing increased travel times. This results in continued heavy traffic volumes on local streets/roadways along the Fresh Kills Park periphery, specifically, along Victory Boulevard and Arthur Kill Road. On average, Victory Boulevard and Arthur Kill Road could experience an additional 1,000 vehicles per hour during the weekday PM and weekend midday peak hours between the combined park-generated traffic and the traffic that would otherwise use the park roads the reach the highway, assuming that the proposed park roads are not constructed.

In addition, without the East Park road connections in place, the average travel time for vehicles accessing the West Shore Expressway (from points along Richmond Avenue at Forest Hill Road, Yukon Avenue, and Richmond Hill Road) would be by approximately 4 to 8 minutes longer as compared to the reductions in the travel time with the proposed East Park road connections.

In the absence of the proposed East Park road connections, the additional traffic volumes on streets around the Fresh Kills Park would also cause capacity constraints on many study area intersections. Overall, during this weekday midday peak hour in 2036 future conditions, an additional 10 intersection approaches and 14 lane groups would operate under congested conditions without the proposed East Park road connections in place as compared to future conditions with either the Yukon Avenue-only or the completed East Park road connections.

In summary, the proposed East Park road connections would have a beneficial effect on the study area traffic and transportation conditions. To reiterate, these connections would provide:

- Reduced traffic volumes on study area street/roadways and intersections in the future conditions by providing an alternative and more direct route to reach the West Shore Expressway from Richmond Avenue and vice-versa;
- Savings in travel time resulting from a more direct connection between the West Shore Expressway and Richmond Avenue; and
- Reduced congestion at study area intersections around Fresh Kills Park as fewer vehicles would travel through these intersections to access park destinations or the West Shore Expressway.

D. DESCRIPTION OF THE PROPOSED ACTIONS AND TIMEFRAME FOR APPROVALS

OVERVIEW

Under the proposed actions, Fresh Kills Landfill and the buffer areas and associated lands are proposed to be transformed into Fresh Kills Park. Total acreage of the proposed park is 2,163 acres. Within the park there would be approximately seven miles of roads (potentially up to two miles in East Park) that would provide access to park facilities, including access from Richmond Avenue, as well as providing access to the West Shore Expressway. The proposed project is an large and complex public project, one of the largest in the history of the City of New York. It is therefore expected that park development would be implemented in multiple phases over a number of decades with designs evolving over time and comprised of both near term and long term phases with specific projects that are identified below by EIS analysis year.

NEAR TERM PROJECTS (2011 AND 2016)

Development of North and South Parks is expected in the earlier phases of the project along with road improvements providing site access and improved local circulation to and across Fresh Kills. Specifically, the near-term projects include:

- The "digger" display project along the West Shore Expressway;[1]
- North Park Phase A, which would provide a linear open space and access to waterfront views along Main Creek;
- Arthur Kill Road parking lot, which would be the first phase of South Park;
- South Park, including access onto the landfill mound and active and passive recreational areas;
- Vehicular access from the West Shore Expressway via new service roads and on and off ramp connections with the Confluence Loop Park Road;
- A connection to the West Shore Expressway via the Yukon Avenue Connection and a new intersection at Richmond Avenue, as described in the SEIS, with:
    - proposed road embankments across Fresh Kills Landfill Section 6/7 that would be implemented as part of the final cover construction and in accordance with the final cover design as presented in the "*Final Cover Design Report, Addendum 1,*"(prepared by Geosyntec for DSNY October 21, 2009)--this project phase is analyzed in the 2011 analysis year;
    - completion of the Yukon Avenue Connection as a two-lane road (this is analyzed in the 2016 analysis year); and
- Wetland and habitat enhancement projects.

LONGER TERM PROJECTS (2016 TO 2036)

Development in East and West Parks as well as the Confluence and completion of the circulation plans are longer term initiatives. These long term projects include:

- Major active recreational facilities, along with the cultural amenities, event spaces, and supporting retail in the Point subarea of the Confluence, along with completion of the Confluence;
- East Park, including landscaping of landfill cover, restoration of the basins, and completion of the East Park Roads project;
- West Park, including landscaping of landfill cover and the September 11 Monument; and the
- Signature Bridge.

The proposed East Park Roads system (analyzed in the SEIS) includes connections to Richmond Avenue with potentially up to two miles of public roads across East Park that would connect Richmond Avenue on the east with the West Shore Expressway on the west. Three connections may be developed along Richmond Avenue, including new connections at Forest Hill and Richmond Hill Roads and Yukon Avenue. Completion of the East Park Road system in its entirety would be accomplished by one of four road options (four-lane roads, two-lane roads, a Yukon Avenue Connection four lanes wide and and/or an East Park Loop Road) all of which

[1] The "digger" is a Fresh Kills Park signage and display project using a former landfill machine.

would be completed after 2016 (and therefore analyzed in GEIS and SEIS as the 2036 analysis year).

E. DISCRETIONARY PERMITS AND APPROVALS

There are many City, State, and Federal land use and environmental approvals that are necessary to implement the proposed park. With respect to City approvals, the following direct undertakings and approvals are under consideration:

ACTIONS RELATED TO 2011 PARK PROJECTS

- Modify the final cover design for Landfill Section 6/7 to accommodate and construct the proposed four-lane road embankments.

ACTIONS RELATED TO 2016 PARK PROJECTS

- Amend the City map to establish as parkland those portions of this project site that are not currently mapped as parkland;
- Amend the City map to eliminate certain unbuilt paper streets;
- Amend the City map to map a public place that would serve as the right-of-way for the future vehicular road system, which entails demapping a small portion of the existing mapped parkland;
- Amend the City zoning map to assign a zoning district (M1-1) to the areas being de-mapped as park and simultaneously mapped as public place;
- Amend the City zoning map to vacate the NA-1 zoning where it currently exists on the site; and
- Amend the City zoning text amendment to remove "Fresh Kills Park" from Section 105-941 of the current zoning text.

At the State level, approvals necessary for the proposed project include modifications to the Fresh Kills Landfill Final Closure Plan; potential amendments to the Order on Consent between NYSDEC and the City governing closure of Fresh Kills Landfill and/or Part 360 landfill closure approvals for end use; permits for activities in tidal wetlands and adjacent areas; permits related to protection of waters; permits for access to a State highway (Route 440); and Coastal Zone Consistency Review in support of federal permits. Federal approvals are necessary to construct structures over or in navigable waterways or activities in wetlands that meet the U.S. Army Corps of Engineers (USACE) wetland definition. Construction of the proposed Signature Bridge over the Fresh Kills waterway would also require approval of the U.S. Coast Guard.

Because the proposed park roads would pass through existing mapped parkland (portions of the project site are already mapped parkland), a State legislative action was already obtained authorizing the alienation of parkland along these segments of proposed road corridors (Chapter 659 of the 2007 Laws of the State of New York).

F. POTENTIAL SIGNIFICANT ADVERSE IMPACTS, IMPACT AVOIDANCE MEASURES, AND MITIGATION

The Fresh Kills Park GEIS and SEIS disclosed the potential for significant adverse impacts to result from the proposed project. To address these potential impacts, and inasmuch as the proposed project is a multi-phased, multi-year project, DPR has developed impact avoidance measures that will become part of the project design. In addition, where significant impacts require the approval of other agencies, in accordance with the *CEQR Technical Manual*,

mitigation measures have been recommended. Technical areas in the GEIS that require neither impact avoidance measures nor mitigation because no potentially significant adverse impacts are anticipated include socioeconomic conditions, community facilities, open space, shadows, air quality, and noise.

LAND USE AND URBAN DESIGN

POTENTIAL IMPACTS OF THE PROPOSED PROJECT (LAND USE AND URBAN DESIGN)

The proposed park uses would, at certain locations, be sited adjacent to DSNY infrastructure and manufacturing zoning districts.

IMPACT AVOIDANCE AND MITIGATION MEASURES (LAND USE AND URBAN DESIGN)

The proposed project would ensure adequate and secure buffers between open space uses and DSNY facilities both on-site (flare stations, leachate treatment plant, and landfill gas plant) and off-site (District 2 and 3 garages and the Staten Island Transfer Station, Yard Waste Composting Facility and Rock Crushing/Screening Fill Material Transfer Station Facility). In addition to physical separations (adequate and secure buffers between open space uses and DSNY facilities) there would also be decorative and landscaped separations to avoid any visual impacts. With respect to the commercial wind turbine proposal, a site-specific review of a commercial wind turbine proposal would also be performed to avoid and minimize visual resources impacts of these proposed structures. That review would be performed as part of a formal design for any commercial wind energy project at Fresh Kills that would also be subject its own separate set of discretionary actions.

HISTORIC RESOURCES

POTENTIAL IMPACTS (HISTORIC RESOURCES)

Archaeological Resources

A Phase 1A archaeology study prepared for the GEIS concluded that portions of the project site are sensitive for precontact and historic period archaeological resources.

Architectural Resources

One architectural resource (the New York City Landmark [NYCL] Sleight Family Cemetery, a.k.a. Blazing Star Burial Ground) was identified on the project site with nine potential S/NR-eligible architectural resources identified in the study area. The proposed project is not expected to result in any direct or indirect adverse impacts to these architectural resources. However, there is the potential for limited construction activity to be performed within 90 feet of this resource.

IMPACT AVOIDANCE AND MITIGATION MEASURES (HISTORIC RESOURCES)

Archaeological Resources

As individual capital projects move forward, individual construction projects would be reviewed by a professional archaeologist to determine if that project could have an impact on any archaeologically sensitive areas at the site as identified in the Phase 1A archaeology study. If it is determined that archaeological impacts are possible, further investigation such as Phase 1B archaeological testing would be performed as mitigation to identify the presence or absence of archaeological resources and to determine if additional mitigation measures such as data recovery are necessary.

Architectural Resources

The proposed project is not expected to result in any direct or indirect adverse impacts to the Sleight Family Cemetery. No major construction is currently planned within close proximity to

this site. However, as project designs move forward and if it is determined that construction activity may be necessary within 90 feet of this resource, a Construction Protection Plan may need to be prepared to ensure that the resource would not be affected by construction impacts.

NATURAL RESOURCES

INTRODUCTION

The proposed park includes a number of beneficial impacts with respect to natural resources including creating and enhancing wetlands and new ecological habitats and vegetative habitat cover over the landfill sections. The proposed project also includes some elements with the potential to negatively impact wetlands and aquatic resources; terrestrial resources due to clearing; nocturnal wildlife due to nighttime lighting; clearing for and operation of roads; increased stormwater runoff and the need for stormwater management and water quality protection; new structures over the water; and increased human presence. Provided below is a summary of the measures proposed by the project that would be implemented to avoid, minimize and mitigate these impacts.

GEOLOGY SOILS AND GROUNDWATER

Potential Impacts to Geology, Soils, and Groundwater

The proposed park has been designed to avoid impacts to geology, soils, and groundwater. Much of the site is an engineered landscape and does not posses natural surface soils or topography. Most project elements would also be built at or above grade and therefore would not excavate site soils or affect local geology. In addition, to avoid public health impacts due to hazardous materials (see the discussion below), the proposed project includes a soil management plan where approximately 2 feet of new soil would be placed on top of the four landfill sections and all publicly accessible areas of the park. Therefore, the proposed project would largely be importing fill soils to the site, with only limited areas of excavation where it is necessary to achieve level site conditions (such as parking areas or athletic fields), or for the installation of subgrade utilities. Few structural elements of the proposed project are expected to reach groundwater. During construction of the proposed road embankment there would also be a period of leachate generation that would not significantly impact groundwater.

Impact Avoidance Measures for Geology, Soils, and Groundwater

As stated above, the proposed project would have limited impacts on geology, soils, and groundwater. In order to avoid impacts to groundwater during the construction of the proposed road embankment across Landfill Section 6/7, the proposed project would institute daily cover and protection measures for landfill infrastructure that are in place as part of the final cover construction with the embankment at Landfill Section 6/7. With these measures in place, the proposed project would avoid impacts to groundwater.

FLOODPLAINS

Potential Floodplain Impacts

Development of the proposed park requires activities in the floodplain such as vegetation clearing, placement of fill, constructing project elements that provide water access and roads and parking. To the extent possible these facilities would be placed outside of the 100-year floodplain. If it is necessary to have structures in the floodplain, impact avoidance and mitigation measures would be implemented.

Impact Avoidance Measures for Floodplains

To the extent that structures designed for occupancy are sited within the floodplain elevation, each structure would have its first-floor flood elevations at least one foot above the 100-year flood level, thereby avoiding impacts to habitable structures as a result of flooding. In addition, since the proposed project has a long-term buildout, incorporating any future amendments to the Federal Emergency Management Agency (FEMA) floodplain maps and use of those maps and current site topography would be used in developing future site designs and building plans. Project designs would also ensure that any filling activities within the floodplain would be limited and not significantly alter local hydrology or flooding conditions.

WETLANDS AND AQUATIC RESOURCES

Potential Wetland and Aquatic Resources Impacts

Summary of Impacts

The proposed recreational facilities and park roads are expected to impact wetlands. For example, the proposed project includes park facilities and road elements that would provide both physical and visual access to the waters of the Arthur Kill, Great and Little Fresh Kill, and Main and Richmond Creeks. Also proposed are facilities for on-water recreational opportunities. Depending on the size and width of these structures there is the potential for long-term impacts to fish and benthic community habitats due to shading of aquatic habitat. These proposed project elements include floating docks and piers, and certain park road elements such as the Confluence Loop Road under the West Shore Expressway, the Signature Bridge, viaducts over wetlands, and new pedestrian/bicycle bridges over Main and Richmond Creeks and East Park road connections to Richmond Avenue. Where these impacts occur they have been minimized to the extent possible and for impacts that cannot be avoided DPR will implement a comprehensive mitigation plan as described in the GEIS and SEIS and determined during the next phases of design and associated permitting based on the impacts of each capital project. A summary of these impacts is described below (see also Table1).

Confluence Loop Park Road (2016)

Construction of the Confluence Loop Park Road would result in the permanent loss of a limited acreage of tidal wetlands due to the placement of fill that is necessary to widen the existing DSNY roads under the West Shore Expressway to four-lane-wide public roads. Based on preliminary conceptual designs, the southern leg of the Confluence Loop Park Road under the West Shore Expressway would result in the permanent loss of about 0.4 acres of tidal wetlands and the northern segment would impact about 0.3 acres of tidal wetlands.

West Shore Expressway Service Roads (2016)

Construction of the proposed West Shore Expressway Service Roads would result in very limited impacts to freshwater wetlands as defined by USACE methodology. The total estimated impact is about 0.22 acres for freshwater wetlands. These impacts would occur at existing swales that currently handle highway runoff. Mitigation for this impact is presented below.

Main and Richmond Creek Pedestrian Bridges (2016)

The 2016 analysis year includes two new pedestrian/bicycle bridges, one over Main Creek and the other over Richmond Creek. Construction of these new bridges is required with the four-lane road (with the two-lane road both vehicular and pedestrian/bicycle crossings could fit within the existing Main and Richmond Creek Bridges). With these bridges, the installation of piles would result in the permanent loss of bottom habitat within the footprint of the piles as well as shading of habitat. This total impact is estimated at 0.7 acres of tidal wetland habitat with a four-lane road.

Table 1
Potential Long-Term Impacts to Wetlands and Aquatic Habitats: Project Roads, Bridges, and Habitat Enhancement Projects for the 2016 and 2036 Analysis Years[1]

Project Element	Area of Wetlands Filled Direct Impacts (Acres)		Area of Potential Indirect Impact (Wetlands or Aquatic Habitat Shaded Acres)		Proposed Wetlands Enhancement (Acres)[2]	
	Freshwater	Tidal	Freshwater	Tidal	Freshwater	Tidal
2016 Analysis Year						
Confluence Loop Park Road, North Segment		-0.3				
Confluence Loop Park Road, South Segment		--0.4				
Northbound West Shore Expressway Service Road—Confluence Loop Park Road to Wild Avenue	-0.02		-0.02			
Northbound West Shore Expressway Service Road—Arden Avenue to Confluence Loop Park Road	-0.20					
Main Creek Pedestrian/Bicycle Bridge				-0.3		
Richmond Creek Pedestrian/Bicycle Bridge				-0.4		
Marine Recreation	0.0	0.0	0.0	-0.2		
Subtotal (Acres)	-0.22	-0.7	-0.02	-0.9	+29.5	+45
2036 Analysis Year						
Forest Hill Road Connection	-2.54				*North Park*—9.5 acres	*North Park*—40 acres
Richmond Hill Road Connection	-3.09				*East Park*—24.5 acres	*East Park*—28 acres
Signature Bridge		-0.03		-1.7		
Marine Recreation	0.0	0.0	0.0	-0.5	*Confluence, The Point*—2 acres	*Confluence, The Point*—3 acres
Subtotal (Acres)	-5.63	-0.03		-2.2	+26.5	+31
TOTAL	-5.85	-0.73	-0.02	-3.1	+56	+76

Note:
[1] There are no wetland impacts in the 2011 analysis year. Potential wetland impacts shown above are for the "worst case scenario," i.e., most extensive area of impact associated with a four-lane park road.
[2] See Figure 23-1 in the SEIS Chapter 23, "Impact Avoidance Measures and Mitigation" for potential locations of restoration activities.

Maritime Park Recreational Facilities (2016)

The proposed project would have a limited impact due to maritime recreational facilities. By 2016 this is expected to include only limited water access facilities (e.g., kayak launches) in North and South Park that would impact about 0.2 acres of tidal wetland and adjacent area.

Forest Hill Road Connection (2036)

With respect to the direct impact of roads on wetlands, the Forest Hill Road Connection crosses over a portion of the wetlands east of Landfill Section 6/7. The proposed Forest Hill Road Connection has the potential to result in both temporary impacts to wetlands during construction and with long-term impacts due to the footprint of the viaduct/arched culvert structure. As currently contemplated, the viaduct would be approximately 280 feet long and about 60 feet wide under the four-lane road option. Although the Forest Hill Road Connection viaduct has been designed to avoid adverse impacts to the extent possible and to minimize the placement of fill within freshwater wetlands (with the exception of the support footings), it would impact approximately 2.54 acres of freshwater wetlands and aquatic resources and habitats beneath the structure.

Richmond Hill Road Connection (2036)

Development of the proposed Richmond Hill Road Connection would also result in adverse impacts to wetlands due to filling and installation of the proposed park road. This impact is expected to affect about 3.09 acres of wetland and aquatic resources habitats due to road embankments and culverts.

Yukon Avenue Connection (2036)

Development of the proposed Yukon Avenue Connection as a four-lane road could result in a minimal adverse impact on freshwater wetlands due to filling (about 0.01 acres). It is also expected that this impact could be avoided through more detailed design of this segment of the four-lane road.

East Park Loop Road (2036)

Development of the proposed East Park Loop Road (one of the proposed road options) would also result in adverse impacts to wetlands due to filling and installation of the proposed road. This impact is expected to affect about 1.92 acres of wetland and aquatic resources habitats due to road embankments and culverts along the Main Creek wetlands.

Signature Bridge (2036)

Construction of the Signature Bridge would require the placement of fill or structural piers and footings within tidal wetlands as well as cause shading impacts from the bridge crossing. In total, the estimated impact of the proposed bridge is 1.7 acres of habitat.

Pedestrian Overpasses (2036)

Two pedestrian/bicycle overpasses have been proposed for 2036, one at Muldoon Avenue over the West Shore Expressway and the other at Forest Hill Road over Richmond Avenue. Both bridges would require inconsequential clearing of vegetation within the 100-foot diameter footprint of each bridge base. The approach for the Muldoon Avenue Pedestrian Bridge in South Park has the potential to result in minimal adverse impacts to a small area of freshwater wetlands. As part of the final design of this overpass, DPR would strive to site this bridge away from the wetland; however, even if this cannot be achieved, the potential adverse impacts to wetlands due to the bridge would be limited.

Maritime Park Recreational Facilities (2036)

By 2036, it is anticipated that the proposed project would have a marina, a boat launch as well as public piers and other marine recreational amenities. These amenities are anticipated to impact about 0.5 acres of tidal wetland area due to the installation of structures or overwater shading.

Aquatic Resources

Both the proposed water access facilities and road projects require activities in and along the water. Therefore, the loss of bottom habitat is expected to result in limited direct impacts to aquatic resources habitats that require mitigation. The proposed project would also include water-related recreational facilities that would shade and cover the water habitats. These impacts would therefore need to be minimized. Implementation of post-construction stormwater management measures prepared for each capital project park would minimize the potential for significant adverse impacts to water quality and aquatic biota.

Impact Avoidance Measures for Wetland and Aquatic Resources

Design measures that would minimize the potential for overwater structures to adversely impact wetlands and aquatic resources could include:

- Locating overwater structures in sufficiently deep waters to avoid intertidal and shade impacts and minimize the need for dredging;

- Designing overwater structures to be multi-use facilities in order to reduce the overall number of such structures;
- Minimizing impacts of light transmission under piers and docks through the use of semi transparent surfaces and by minimizing dock length and width; and
- Siting overwater structures in areas previously disturbed and developed with maritime infrastructure.

The extent and design of mitigation strategies would be determined on a case-by-case basis as each capital project is proposed and designed with the appropriate impact avoidance measures.

Mitigation Measures for Wetland and Aquatic Resources Impacts

The proposed project includes activities in wetlands such as park roads, viaducts, and bridges that would impact wetlands as either direct impacts (e.g., filling a portion of the Fresh Kills to widen the roadway under the West Shore Expressway), or indirect impacts (e.g., shading of Main Creek beneath the proposed pedestrian bridges).

The Fresh Kills Park plan proposes to protect and enhance the condition and value of the wetland systems under both present and proposed future conditions, while mitigating adverse impacts to wetlands resulting from construction of park roads and bridges. Table 1, above, identifies the areas of wetland and aquatic habitats that are expected to be permanently and adversely impacted as a result of the construction of the proposed park roads and bridges for the 2016 and 2036 analysis years. Table 1 also provides the potential large areas of proposed wetland expansion, creation, restoration and enhancement that would be part of the proposed comprehensive mitigation plan for these wetland impacts.

As part of the Fresh Kills Park project, a number of wetland habitat restoration projects are proposed for the 2016 and 2036 analysis years. Therefore, under the proposed project there is a net wetland acreage gain along with significant benefits from the proposed habitat enhancements. Wetland restoration and mitigation would be of two types:

- Tidal—Tidal wetland restoration and enhancement would include expanded (new) and ecologically enhanced (existing) tidal wetlands. Methods to achieve this would include regrading, new plantings, removal of invasive species, and restoration of the native intertidal and high marsh plant communities. Tidal restoration activities would occur within mudflats low salt marsh, and high salt marsh communities.
- Freshwater—Freshwater wetland restoration and enhancement includes the possible creation of additional wetland habitats within existing low-lying areas and enhancement of the existing stormwater management basins to create ecological habitats.

NIGHTTIME LIGHTING

Potential Impacts Due to Nighttime Lighting

Much of the project site is currently not lighted or has a low light condition. Nighttime lighting can impact nocturnal wildlife activity associated with a variety of insects, birds, and mammals. Pertinent features of lighting design relative to this impact include luminance (brightness of a light's surface), illumination (lighting a feature near the source of a light), and the physical composition of and dispersions of light from the source. Light pollution, the condition of periodic or continual increased light intensity in an area, can impact wildlife orientation (i.e., birds or insects attracted to a light source), or foraging (for example).

Impact Avoidance Measures for Nighttime Lighting

Careful design and planning of lighting arrays can minimize many of the potential significant adverse impacts associated with the proposed project with respect to nighttime lighting and nocturnal wildlife activity. With the exception of areas of Fresh Kills Park where human activity would necessitate lighting to support public recreation and safety (e.g., park roads, parking areas, walkways and recreational facilities), most areas of the park would not require nighttime lighting. For areas proposed to be illuminated through the night, minimizing glare and light wash, and avoiding light fixtures that illuminate structures in silhouette is appropriate. In addition, the objectives of the International Dark Sky Association would be applied to the park design, where appropriate.

NATURAL RESOURCES HABITATS

Potential Impacts to Habitats

Park development requires limited clearing of some existing vegetation to construct structures and roads for habitat enhancement. Temporary adverse impacts due to clearing and grading is expected to impact individuals such as birds and other wildlife currently using the limited terrestrial habitats at the site. However, upland areas at the site are primarily of limited habitat value (e.g., closed landfill cover), providing some shelter, foraging and nesting substrate for passerines (e.g., sparrows and marsh-dwelling birds), and various native and non-native mammals. Loss of this habitat until the proposed habitat restoration becomes established would not be a long-term significant adverse impact to local wildlife species. In addition, the habitat projects would be staged over time, so that similar habitats would be available at the project site and in the secondary study area during the periods of clearing, grading, and planting for park development including the grow-in period for vegetation.

Impact Avoidance Measures for Habitats

Habitat Management Techniques

A goal of the Fresh Kills Park project is to develop self-sustaining ecosystems. To that end, habitats would be designed for minimal management efforts (e.g., mowing, replantings, etc.) to maintain the desired habitat communities over time, and to target complex wildlife-habitat relationships, such as the creation of breeding bird grassland habitat. The overall vegetation and wildlife management plans include:

- Managing invasive or introduced plant species through mechanical removal (e.g., mowing) and other methods (e.g., application of herbicides) to allow enhanced communities to recolonize areas and compete with existing monocultures of dominant vegetation (e.g., mugwort, *Phragmites*, etc.);
- Allowing existing desirable communities (e.g., maturing forests, tidal wetlands, etc.) to naturally evolve with minimal intrusion or manipulation other than invasive species management; and
- Employing Integrated Pest Management (IPM) practices in controlling invasive or introduced plant species, and controlling invasive species such as the Asian Longhorned beetle.

Upland habitat improvements at Fresh Kills Park would also preserve existing native vegetation where possible, planting and seeding native plant species, and encouraging natural succession of healthy habitats. Long-term monitoring of vegetation conditions and management and maintenance of native communities including control of invasive species, supplemental planting, and other maintenance activities would be performed as part of the habitat management plan.

Final landfill cover would also include new meadow and woodland habitats. Lastly, the proposed Master Plan seeks to reuse already disturbed areas for the purposes of developing park facilities (e.g., the recreational center in the Point). Individual capital project designs would also seek to minimize clearing impacts to native habitats. Although there are no significant clearing impacts with the proposed project, these measures would offset clearing that may be necessary in upland areas to construct roads and recreational facilities.

HABITAT FRAGMENTATION AND AVOIDANCE RESPONSE

Potential Habitat Fragmentation and Avoidance Response Impacts

Park Road Structures and Operations

Development of the park roads has the potential to result in direct impacts to natural resources through the loss of habitat that may be temporarily or permanently impacted. Public vehicular roads, in particular, can impede wildlife movement between or within habitats, thereby subdividing species groups into smaller subpopulations and disrupting wildlife transient patterns, foraging and nesting movements. The project elements with the greatest potential impact related to habitat fragmentation are:

- Forest Hill Road Connection as it crosses wetlands and the stormwater basin system east of Landfill Section 6/7; and
- Yukon Avenue/Richmond Hill Road Connections as the park roads extend between the stormwater management basins on the east side of Landfill Section 6/7.
- East and south segments of the Confluence Loop Park Road where the road runs adjacent to stormwater basins C1 and C2 (e.g., the Marsh and the Sunken Forest portions of the Confluence);
- South segment of the Confluence Loop Park Road where the road potentially separates proposed habitat restoration areas in the Terrace portion of the Confluence from the habitat restoration proposed for Landfill Section 2/8 within South Park;

These road corridors have the potential to result in long-term adverse impacts to wildlife due to:

- Habitat fragmentation—roads can impede wildlife movement between or within habitat areas;
- Degraded habitat quality and loss of habitat value due to wildlife avoidance—noise, reduced air quality, light pollution, increased human activity, and invasive exotic plant species along a road edge can lower the quality of the habitat adjacent to the road;
- Direct loss of wildlife individuals due to impact with vehicles—toad type, adjacent habitat and abundance of individuals have been found to influence wildlife/vehicle collisions along roadways (the frequency of wildlife/vehicle collisions is also affected by the length of road barrier and presence of median structure that limit or slow crossing); and
- Diminished access to habitat vital to the lifecycle of certain species—amphibians and reptiles may be cut off from aquatic or upland habitat necessary for breeding or foraging (Evink 2002).

Proposed Trails and Water Recreation

The proposed trails also have the potential to result in long-term adverse impacts to wildlife due to habitat fragmentation. Human activity at the proposed Fresh Kills Park is expected to include an extensive public trail system and on-water recreation. Given the current low levels of human activity at the project site (and, moreover, the limited activity in the post-closure period once closure construction is completed), more intensive human activity as a result of the proposed

park would be expected to have some adverse effect on wildlife populations currently using the site. The degree of impacts that may occur will be associated with the intensity of human activity and the public access provided into key wildlife habitats, as well as any reduction in the ability of wildlife to move unimpaired from one habitat area to another. Impacts to wildlife that could occur as a result of the proposed park may result from added noise, motion, and other direct effects on wildlife behavior due to pedestrian, bike, and vehicle activity, which could result in increased and mortality associated with wildlife collisions with non-motorized vehicles (for example).

At Fresh Kills Park, increased habitat segmentation associated with this increased human presence and vehicular activity as well as newly introduced structural barriers (e.g., roads) could impact wildlife populations and movement patterns in certain habitats. Impact avoidance measures for this impact are presented below.

Avoiding Impacts Due to Habitat Fragmentation and Avoidance Response

In order to avoid and minimize habitat fragmentation impacts, the proposed road and trail designs will include impact avoidance measures as part of the final design. These design proposals will incorporate many well-established guidelines that have been demonstrated to minimize the impacts of human activity on wildlife communities and will be applied based on project-specific factors, such as location, affected habitats and potentially affected wildlife species. As each capital project where this impact could occur is designed, it will be reviewed by DPR and other agencies (as appropriate) to ensure that these objectives are met. Among the measures that will be examined are:

- Maintaining hydrologic connection between existing wetlands using viaducts and natural bottom (substrate) culverts that are designed to allow movement of wildlife and to minimize impairment of hydrologic flow patterns (e.g., the Yukon Avenue, Forest Hill Road, and Richmond Hill Road Connections).
- Incorporating wildlife crossing warnings in roadway signage.
- Monitoring wildlife/vehicle collisions to identify the need for additional measures (e.g., speed reduction) that would minimize wildlife losses and adverse effects to motorist, bicyclist, and pedestrian safety due to collisions.
- Using vegetation that does not attract wildlife to roadside landscaping and maintaining cut vegetation adjacent to the road to provide wildlife with an unobstructed view of oncoming traffic.
- Establishing vegetation screens along roadways to reduce traffic noise in certain habitat restoration areas.
- Managing access to places such as the northern areas of Main Creek in the William T. Davis Wildlife Refuge and the Isle of Meadows for the purposes of minimizing impacts due to human activity.

In addition to minimizing the impacts from roads, one strategy presented in the GEIS to minimize avoidance response effects, while still allowing for public access, is the development and implementation of a trails management plan. Another would be to design trails where wildlife has access to nearby cover. Last is to minimize trails across sensitive habitats and managed water access to sensitive habitats. These and other measures would be incorporated into the future park landscape designs and management plans as well as the proposed road designs for the purposes of avoiding and minimizing any project-related impacts on habitat fragmentation.

STORMWATER RUNOFF AND WATER QUALITY

Potential Impacts Due to Stormwater Runoff on Water Quality

The principal potential impact resulting from stormwater runoff is generated by runoff from impervious surfaces, such as park roads and parking areas. Operation of the proposed park roads also has the potential to result in long-term adverse impacts to wetlands and aquatic resources, due to:

- Stormwater runoff containing oil and grease, and road salt; and
- Hydrologic changes associated with the introduction of impervious road surfaces.

A hydrologic analysis conducted for the proposed project found that all New York State stormwater quality and quantity requirements would be met with the project even before the implementation of Low Impact Development practices. For the portions of the park that would discharge to non-tidal waters, the proposed stormwater management plan would result in a decrease in the 10-year and 100-year, 24-hour storm event peak discharges. Therefore, it is concluded in the FGEIS that the proposed stormwater management plan would provide peak control and water quality benefits. Additionally, the results of the pollutant loading conducted for the proposed stormwater management plan indicate that the total annual loading of total suspended solids, total nitrogen, and total phosphorus would decrease in 2016 and 2036 with the proposed project. Therefore, the discharge of stormwater from the proposed project would not result in significant adverse impacts to water quality or aquatic biota of the Fresh Kills waterways or the Arthur Kill.

While runoff volumes may be controlled, stormwater from impervious surfaces can carry pollutants (i.e., suspended solids, nutrients, fecal coliform bacteria, petroleum hydrocarbons, metals, chlorides, insecticides, and herbicides) that can impact both water quality and aquatic biology of the receiving waterbody. Impact avoidance measures for the management and treatment of stormwater runoff in the proposed park is therefore presented below.

Avoiding Impacts Due to Stormwater Runoff and Water Quality Protections

Implementation of stormwater management and treatment measures proposed for the park roads would minimize the introduction of road runoff pollutants into stormwater runoff and the potential for significant adverse impacts from stormwater discharge. Low Impact Development design and constructed Best Management Practices (BMP) wetlands are proposed as an important component of the stormwater management practices that would be implemented throughout the park and along the proposed roads.

Construction and operation of Fresh Kills Park would initially be covered by the New York State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities and eventually by an Individual SDPES Permit for stormwater discharges. The proposed stormwater management system for the various phases of park development would complement and enhance the aesthetic and ecological purposes of the park. The overall proposed stormwater management objective for the park would improve upon the current hydrologic and water quality management provided by the infrastructure installed for the Fresh Kills Landfill. This approach for the proposed park would include a mix of traditional conveyance, storage and runoff treatment measures including BMPs and Low Impact Development design strategies within each subcatchment drainage area.

Design measures that would minimize the potential for water quality impacts due to runoff from park facilities (e.g., fields and parking areas) and the park roads would include the following:

- Implementation of stormwater management design measures that minimize the introduction of pollutants to stormwater runoff;
- Treatment of runoff using BMPs prior to discharge;
- Low impact road and stormwater management design development techniques (i.e., minimum width, limited runoff, natural drainage conveyance);
- Road-side maintenance using IPM strategies that minimize the potential for impacts to stormwater runoff quality; and
- Minimize the application of road chemicals on road surfaces with an emphasis on park roads that cross viaducts and culverts in order to minimize potential adverse impacts to wetland vegetation.

COMMERCIAL WIND TURBINES[1]

Potential Impacts Due to Wind Turbines

Under consideration as part of the overall park plan is the potential placement of five commercial wind turbines. As the project site is within a major migratory flyway, substantial migratory bird and bat species are likely to flyover and use the park each year. Several of these species are also known to breed in the project area. Any wind turbine project at Fresh Kills is expected to be implemented as a franchise, which is a discretionary action by the City and therefore subject to a separate environmental review, as appropriate. Approvals from NYSDEC may also be necessary for construction on a landfill. Such an environmental review would examine in detail the potential impacts of wind turbine operation on natural resources and would address the issues that would be raised by involved and interested agencies among them, possibly, the requirements of NYSDEC's draft *Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects.*

Avoiding Impacts Associated with Wind Turbines

Potential measures for minimizing avian impacts due to commercial wind turbines could include a site selection process at Fresh Kills that could that evaluate alternative locations for limiting avian collision risk, as well as height and operational restrictions, or fewer turbines. Other measures that may reduce impacts are lowering the elevation of turbines, reducing the overall height of turbine structures or rotor heights, or temporarily suspending operation at sensitive times or seasons when birds and bats may be subject to highest collision risks. It is expected that these measures and other appropriate impact minimization measures will be evaluated as part of a site specific environmental review related to wind turbines.

RARE, THREATENED, AND ENDANGERED SPECIES

Potential Impacts to Rare, Threatened, and Endangered Species

The proposed park would not be expected to result in significant adverse impacts to colonial waterbird nesting activity on the Isle of Meadows, or inhibit the re-establishment of such activity in the future. Overall, Fresh Kills Park is expected to provide habitat improvement for barn owls and northern harriers. This would include expanded foraging habitat for both species, which predominantly feed on small mammals in grassland habitats known to rapidly repopulate (e.g.,

[1] Alternative 1 in the BQ Energy feasibility study conducted for Fresh Kills included two wind turbines in West Park for a total of seven; it was the conclusion of DPR that wind turbines in West Park would be incompatible with City plans for the proposed 9-11/WTC Monument at this location. This five-turbine design is consistent with Alternative 2 in the BQ Energy study.

meadow voles). Therefore, no potential negative impacts to these avian species are expected. The state-threatened Northern diamondback terrapin was previously captured and observed along Main Creek in the vicinity of the William T. Davis Wildlife Refuge (once in 1995 and again in 2005). Low shoreline areas adjacent to open sand or other unvegetated soils could also potentially support nesting diamondback terrapins and foraging adults such that impact avoidance measures would be necessary.

Avoiding Impacts to Rare, Threatened, and Endangered Species

Given the potential presence of the Northern diamondback terrapin at the site, impact avoidance measures would be implemented during design to address this potential impact. In the long term, the proposed shoreline and wetland restoration projects (i.e., *Spartina* marsh restoration, *Phragmites* removal) could be designed to improve the suitability of the shoreline for both foraging and nesting sites for terrapins. Long term measures for avoidance would also be addressed in the public trail design to avoid these areas.

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITAT

Potential Impacts to Significant Coastal Fish and Wildlife Habitat

The Fresh Kills Park Master Plan has been designed to avoid direct impacts and conflicts with the Fresh Kills Significant Coastal Fish and Wildlife habitat. In fact, it would protect the tidal creek systems as well as expand, enhance and provide spawning and nursery habitat for anadromous, estuarine, and resident fish. Moreover, it would continue to be used by wading birds, waterfowl, shorebirds, raptors, and passerines.

Avoiding Impacts to Significant Coastal Fish and Wildlife Habitat

The proposed park would avoid indirect impacts to the Fresh Kills Significant Coastal Fish and Wildlife habitat (e.g., water quality and habitat impacts) through the measures described above.

HAZARDOUS MATERIALS

POTENTIAL IMPACTS OF THE PROPOSED PROJECT (HAZARDOUS MATERIALS)

Soil and groundwater conditions can be impacted by hazardous materials as a result of historical or current uses and activities on a project site or on adjacent areas (generally defined as within 400 feet of the project site boundary). If these contaminants are not properly identified and handled, these materials can potentially create a health risk to construction workers and local residents. In addition, demolition of older structures that have asbestos-containing materials is another concern since this also has the potential to release contaminants to the environment if not properly managed.

Based on an extensive review of published reports and literature as well as historical aerial photography and topographic maps, available site testing data and a field walkover of North Park, it is concluded that most of the project site soils are likely to have been affected by hazardous materials or pollutants from a variety of on- and off-site sources. These sources include, for example, the four solid waste landfill sections, the former Plant 1 and 2 areas, and areas where solid waste has been identified on the project site, but which are outside of the solid waste management unit area boundaries. There are also industrial uses in the areas around Fresh Kills that may have affected soils and groundwater at the project site. Based on the research performed for this analysis, the types of contaminants that are typically found in urbanized areas as well as in and around municipal solid waste landfills are expected at the project site.

IMPACT AVOIDANCE AND MITIGATION MEASURES (HAZARDOUS MATERIALS)

The proposed project would address these hazardous materials issues in two ways. The first would be to ensure that the previously closed landfill sections and the off-landfill sections that would be publicly accessible have a soil cover that meets the most closely suitable NYSDEC Subpart 375 criteria for public access that would apply to a variety of park uses and site conditions (both existing and proposed). This includes a soil cover that meets the criteria for providing a healthy environment at the publically accessible open spaces proposed within the park. The appropriate criteria for a particular park project would be determined on a case-by-base basis as each capital project moves forward and would be based on the current site conditions and proposed programming at the park. (Material to be used for the final cover of Landfill Section 6/7 would also be guided by the Final Cover Design Report, Addendum 1.) Such an approach is recommended by the New York City Department of Health and Mental Hygiene (NYCDOHMH). In making these soil decisions, NYSDEC will generally require the use of the lower of Part 375-6.8(b) residential and groundwater protection soil cleanup objectives, using the ecological soil cleanup objective when there are potential impacts to ecological resources. TAGM 4046 will also be considered, as Part 375 does not have a soil cleanup objective for a particular contaminant. Any deviations from these conditions would require the written approval of NYSDEC.

In addition to providing this soil cover, certain elements of the proposed project are expected to require excavation for the purposes of installing new utilities such as electricity, water and sewer connections as well as foundations for the proposed structures. These excavation areas, however, in the context of the overall project, are limited and the majority of the proposed park construction activities would occur at or above the existing grade (i.e., added soil cover). Therefore, recommendations for individual project-specific subsurface investigations and, if necessary, remediation, would be proposed and implemented as capital projects move forward. With these measures in place, any potential impacts due to hazardous materials would be avoided.

INFRASTRUCTURE

POTENTIAL IMPACTS OF THE PROPOSED PROJECT (INFRASTRUCTURE)

The Fresh Kills Park project is a multi-year, multi-phase project with the potential, in the absence of proper design and protection measures, for impacts to the extensive landfill infrastructure including the final cover, landfill gas and leachate control systems, stormwater management basins, and monitoring systems, thereby resulting in the potential for conflicts with the post closure care monitoring and maintenance program for Fresh Kills Landfill. Therefore, a principal goal of the park design and a principal obligation of DPR is to avoid and minimize impacts or conflicts with landfill infrastructure. This is an important objective of the proposed project and is described in greater detail in the Fresh Kill Park GEIS for the project as a whole and in the SEIS for the East Park Roads project. These measures are also summarized below.

IMPACT AVOIDANCE AND MITIGATION MEAURES (INFRASTRUCTURE)

DPR is committed to avoiding and minimizing impacts of the proposed project on landfill infrastructure and to that end has developed a conceptual impact avoidance measures. These measures would be implemented on a case by case basis as each capital project is designed and developed. Thus, these measures would be integrated to the park design to provide the necessary layer of protection for public health and the environment. With respect to the proposed 2011 road embankment phase, it is recognized that many of these proposed measures are associated with the public access that would be created in 2016 and 2036. Therefore, the measures

presented below would not apply to the 2011 analysis condition when only the modified final cover design and road embankment is implemented because no additional public access is provided. In addition, these measures would be subject to further refinement and design review by DSNY and approval by NYSDEC as part of a more detailed design for the proposed park.

DPR will therefore demonstrate with each capital project that any changes to the site meet established performance standards for the landfill infrastructure and that the requirements of the post-closure care monitoring and maintenance plan are not compromised by the proposed design. These measures would also apply to any commercial wind turbine project at the site.

For example, protective measures for the leachate system include developing park designs that respect the in-place systems; additional monitoring; installing locks, security fences, and manhole covers; and providing personnel to protect the system.

With respect to the landfill gas management system, measures include developing park designs that avoid conflicts with the landfill gas management system features; redesigning and retrofitting the system within securable subsurface vaults; posting appropriate signage; installing venting layers covered by park features, vapor barriers beneath park structures, and methane monitors; installing security fences and lockable manhole covers; and providing personnel to protect the system.

With respect to the final cover, measures would methods to accelerate settlement; monitoring of landfill cover; minimization of load on the landfill mounds; landscape features that cover sensitive system features; use of appropriate signage; and provision of personnel to protect the system. Among the landfill structures that would need to be physically separated from landfill systems are the leachate control plant; gas collection and treatment plant; flare stations; and above-ground transformers and pumping stations.

Lastly, all elements of the proposed project including the proposed park recreational facilities and landscapes, proposed final cover incorporating the road embankment at Landfill Section 6/7, and the completed park road system would require design review by DSNY and DEC approval.

TRAFFIC AND PARKING

POTENTIAL IMPACTS OF THE PROPOSED PROJECT (TRAFFIC AND PARKING)

Travel Demand

The proposed Fresh Kills Park project would generate a substantial number of vehicle trips in the 2016 and 2036 analysis years. By the year 2016, it is expected that a number of the first phases of Fresh Kills Park would be completed, providing a mix of passive and active recreational facilities in North and South Parks. These projects would generate approximately 161, 425, 318, 419, and 419 vehicles per hour during the weekday morning, afternoon, evening and weekend afternoon and evening peak hours, respectively. In addition, there would be the diverted traffic from the proposed park roads which would provide a new connection to the West Shore Expressway. By the year 2036, the entire park would be created, resulting in approximately 381, 1,408, 1,585, 2,005, and 1,991 vehicles per hour during the weekday morning, afternoon, evening and weekend afternoon and evening peak hours, respectively. In addition to the vehicle trips generated by the various park components, there would also be significant volumes of diverted traffic resulting from the construction of new park roads providing new connections between Richmond Avenue on the east and the West Shore Expressway on the west.

Traffic Impacts

Local Intersections

The GEIS analyzed 35 locations in its traffic impact assessment and the SEIS targeted the traffic impact analysis to six of those intersections. These analyses examined intersections along local public roads bordering the project site (e.g., Arthur Kill Road, Richmond Avenue) which would provide access to or from the site and would also be affected by project-generated and diverted traffic volumes. It should be noted that at the majority of locations in the study area, traffic congestion already exists in the future without the proposed project conditions—specifically by the year 2036.

The GEIS analysis results show that in the 2016 analysis year conditions, the weekday PM and weekend midday peak hours would have the highest number of impacted intersections with seventeen (17) and sixteen (16), respectively. The weekend PM and weekday midday would have fourteen (14) and thirteen (13) impacted intersections, respectively. The weekday AM peak hour would have the fewest number of impacted intersections with eleven (11). Each of these intersections would require traffic mitigation, which is summarized below.

The GEIS analysis results also show that in the 2036 analysis year conditions, the weekday PM peak hour would have the highest number of impacted intersections with twenty-five (25), followed by the weekend midday peak hour with twenty-four (24) impacted intersections. The weekend PM peak hour would have twenty-one (21) impacted intersections. The weekday AM and weekday midday peak hours would have the fewest number of impacted intersections with twenty (20). Each of these intersections would require traffic mitigation, as summarized below.

West Shore Expressway Corridor

In addition to an examination of local intersections, the GEIS traffic analysis included an examination of conditions along the West Shore Expressway Corridor using the CORSIM model. This modeling examined the potential impacts of the proposed project with respect to traffic flows along the West Shore Expressway. The analysis disclosed that certain segments of the West Shore Expressway could experience congestion in the years 2016 and 2036 with the introduction of the proposed project's ramps and traffic that would use the West Shore Expressway.

Parking

In total, the proposed Fresh Kills Park would provide approximately 3,400 parking spaces by the year 2036 (including 1,873 permanent spaces and up to 1,544 overflow parking spaces). The proposed parking would be sufficient to accommodate the project's parking demand in both the 2016 and 2036 analysis years. Since sufficient on-site parking capacity would be available to fully accommodate all project demand in all peak periods, and there is overflow parking for events and days with above average parking demand, no significant adverse parking impacts would result from the proposed project.

IMPACT AVOIDANCE AND MITIGATION MEASURES (TRAFFIC AND PARKING)

DPR would institute a number of traffic mitigation measures for the above described impacts. These measures are described in detail in the GEIS and the SEIS and are summarized below. They include additional turning lanes and striping, modifying signal phasing, and changes in signage and parking regulations at the affected intersections. In addition, to minimizing future impacts at traffic intersections and to ensure that adequate traffic mitigation is implemented and impacts on local traffic flows are minimized by the proposed project, DPR would continue to coordinate with NYCDOT through project implementation. This coordination includes implementing a traffic and parking monitoring program for Fresh Kills Park. In addition, in the

near-term (2016) conditions, this would also include coordinating site designs with NYCDOT for specific park capital projects, particularly with respect to park projects that have access from Arthur Kill Road. DPR would also actively participate in the Staten Island Transportation Task Force for the purposes of working with other local and state agencies to improve local traffic circulation in this area of Staten Island. By 2036, with the completion of the Confluence and the Point, there would also be event facilities, including an amphitheater. Since these are long-term components of the project, DPR would address transportation issues raised by these facilities at that time and would also develop a plan for events transportation management in conjunction with NYCDOT, NYSDOT and New York City Transit.

Traffic and Parking

2016

The GEIS traffic analysis results show that in the 2016 analysis year conditions, the weekday PM and weekend midday peak hour would have the highest number of impacted intersections with seventeen (17) and sixteen (16), respectively. The weekend PM and weekday midday would have fourteen (14) and thirteen (13) impacted intersections, respectively. The weekday AM peak hour would have the fewest number of impacted intersections under the 2016 analysis year conditions with eleven (11). For the 2016 analysis year, the proposed mitigation (as detailed in the GEIS and SEIS) would mitigate the majority of these traffic impacts. The remaining intersections would have lane groups that would not be mitigated. DPR would therefore continue its ongoing coordination with NYCDOT to identify additional measures for these intersections that would optimize traffic flows and minimizing project-related traffic impacts.

2036

The GEIS traffic analysis results also show that in the 2036 analysis year conditions, the weekday PM peak hour would have the highest number of impacted intersections with twenty-five (25), followed by the weekend midday peak hour with twenty-four (24) impacted intersections. The weekend PM peak hour would have twenty one (21) impacted intersections. The weekday AM and weekday midday peak hours would have the fewest number of impacted intersections under the 2036 analysis year conditions with twenty (20) each. For the 2036 analysis year, the proposed mitigation (as detailed in the GEIS and SEIS) would mitigate the majority of the traffic impacts that are expected with the proposed project. However, the remaining intersections would have lane groups that would not be mitigated. DPR also recognizes that ongoing coordination with NYCDOT will be necessary to ensure that all mitigation can be implemented at the time of construction and that the benefits of the proposed East Park roads are maximized while the project impacts are minimized. For these reasons, DPR would therefore continue its ongoing coordination with NYCDOT to identify additional measures for these intersections that would optimize traffic flows and minimize project-related traffic impacts.

West Shore Expressway Corridor

To avoid any impacts along the West Shore Expressway, DPR will continue to coordinate with NYSDOT to explore access designs that would maximize traffic operating conditions along the expressway with the proposed project in place while minimizing congestion.

Parking

Recognizing that the proposed project requires a large amount of parking and the park will also hold special events, DPR will perform monitoring of its parking needs and continue to coordinate with NYCDOT to ensure that the parking demands of the project are met on site.

TRANSIT AND PEDESTRIANS

POTENTIAL IMPACTS OF THE PROPOSED PROJECT (TRANSIT AND PEDESTRIANS)

The proposed project would create a major new destination that would generate a large number of vehicle trips as well as a demand for transit, walking, and biking trips. Currently, the proposed Fresh Kills Park site is not directly served by Metropolitan Transportation Authority/New York City Transit (MTA/NYCT) existing bus routes; however, there are several existing bus routes at its periphery, with weekday regional service provided via the West Shore Expressway and local "Park and Rides." It is therefore appropriate for the project to provide transit opportunities for the purposes of providing an alternative to vehicular trips and to also provide the necessary connections to the local streets and sidewalks.

IMPACT AVOIDANCE AND MITIGATION MEASURES (TRANSIT AND PEDESTRIANS)

In the future with the proposed park it is expected that MTA/NYCT could either expand bus service and routes to accommodate the park-generated transit demand (especially during the weekend summer months) or would amend the existing bus routes to include new stops within the park and along its exterior boundaries. NYCT could modify its existing bus routes to take advantage of the proposed Forest Hill Road Connection into the park, and could amend the existing bus service and expand bus routes to include new stops within the park boundaries and Arthur Kill Road and Richmond Avenue. It is anticipated by park planners that expanding the availability of bus transit in the future conditions could potentially reduce the number of project-generated auto trips by shifting the patrons to mass transit. This could, over time, reduce vehicle trips and improve transit use at the local (boroughwide), Citywide, and regional levels. Reduced traffic would also reduce demands on parking and enhance the overall park experience while potentially increasing park use through transit arrivals. Therefore, DPR would continue to coordinate with MTA/NYCT for the purposes of providing transit service to the park. DPR would also coordinate work with NYCDOT through the implementation of the capital projects to ensure that adequate sidewalk conditions are provided along the park perimeter, as well as to ensure that adequate street conditions exist along the roads that will provide park entries, particularly the major park entrances and those located along Arthur Kill Road.

CONSTRUCTION

PARK IMPLEMENTATION AND PHASING COORDINATION WITH DSNY

Overview

Implementation of the proposed park is a multiple phase and complex major capital construction project that must be coordinated with the obligations of the City (through DSNY) to complete final closure of Fresh Kills Landfill as well as the continued post-closure landfill monitoring and maintenance program. The proposed park phasing plan must therefore account for the phased implementation of the park project in some locations while final landfill closure construction is completed in other areas. To that end, construction phasing for the proposed park has been, and will continue to be, coordinated to minimize disruption to the DSNY closure construction activities at both Landfill Sections 6/7 and 1/9. The proposed project involves the construction of park facilities, ecological habitats, and significant new park roads, ramps, and service roads connecting with the West Shore Expressway, and new road connections and intersections along Richmond Avenue. It is not expected to be fully completed until 2036.

As Fresh Kills Park implementation moves forward through the completion of park construction, it is also expected that DPR and DSNY would coordinate construction activity for the purposes of ensuring that conflicts between landfill closure construction as well as post closure

monitoring and maintenance and park construction are avoided or minimized. Given that the proposed park would begin with North and South Park in areas where the landfill is already closed, and that much of the park development program would proceed after landfill closure construction is already completed at Landfill Sections 6/7 and 1/9, it is expected that there would be minimal overlap between landfill closure construction and park construction. For example, there would be no overlap between a landfill closure construction and park construction activities in either East or West Parks (the later Park phases) since neither has park elements in the 2016 program. However, construction would need to be coordinated with respect to protecting landfill infrastructure and avoiding impacts with the post closure care monitoring and maintenance program,

Minimizing the impacts of park construction on the landfill is one of the key construction period impact avoidance objectives of the proposed project. A detailed description of these measures is provided in the GEIS and the SEIS for the impact avoidance and mitigation measures that would apply to the overall Fresh Kills Park project and the measures specific to the East Park Roads project, respectively. These measures are also summarized below.

Construction Management Objectives

Since the proposed project could occur over some three decades, dedicated staging areas internal to the site would be important to reducing construction impacts on the surrounding community over the 30 years of construction. It expected that individual capital projects, such as North Park Phase A, for example, would have satellite construction staging areas depending on the type of construction activities proposed for any given capital project and the requirements of individual contractors. These smaller individual capital projects are not expected to have impacts on nearby communities, either. Some of the general construction principles that would apply to the proposed project are:

- Develop a staging plan that utilizes the internal built conditions at the project site, thereby minimizing impacts on local neighborhoods and roads at the periphery;
- Establish heavy support operations, such as soil making (if proposed) in an area central to the project site and away from local residential uses;
- Locate individual capital project staging areas in locations that have been previously disturbed or would be disturbed as part of project development thereby avoiding impacts to wetlands and natural features;
- Locate road construction staging areas in the proposed road corridor, clear of wetlands and landfill infrastructure;
- Although truck deliveries for imported soils are expected to be the principal mode in the short term, consider barging soil, if feasible;
- Use truck and access routes in use for closure construction since these allow for direct access to and from the regional highway while internalizing truck traffic and minimizing the use of neighborhood streets around the project site;
- Minimize closure of existing streets by performing nighttime work along major corridors (e.g., to implement modifications at the two intersections with Richmond Avenue, at Richmond Hill and Forest Hill Roads, and the connecting ramps to the West Shore Expressway);
- Control worker access to the site by stipulating entry and exit points within each contract;
- Provide for worker parking on-site; and
- Utilize the construction staging areas for worker parking.

LAND USE, NEIGHBORHOOD CHARACTER AND OPEN SPACE

Potential Construction Impacts On Land Use, Neighborhood Character and Open Space

The proposed project is a long term, multi-phased project. While it is a large site, some of the perimeter is adjacent to sensitive land uses such as residential communities and existing open spaces. Therefore, impact avoidance measures for the proposed project are appropriate.

Impact Avoidance Measures for Construction Impacts On Land Use, Neighborhood Character and Open Space

To avoid and minimize impacts on the local residential neighborhoods and open spaces in the vicinity of the project site, construction activities (e.g., staging, storage, operations) would be concentrated in the central portion of the site and away from sensitive residential, open space, and community facility uses. Thus, construction staging would not need any off-site locations and construction activities near these neighborhoods would therefore be limited to constructing the local parks and would be short in duration. These activities would have limited impacts, such as noise, that would be audible or potentially intrusive to local residents and parks users at places such as Schmul Park and local residences. Generally, however, the off-site impact should be limited in both intensity and duration and will decrease with distance from the construction site. These are neighborhood park-construction projects that would individually be of short duration (about 1 year each) and the intensity of construction would be limited to earth moving, grading, and landscaping to create parks and opens spaces and would therefore not be significant. With these avoidance measures in place, no potential significant adverse construction period impacts on land use, neighborhood character, or open space are expected with the proposed project.

HISTORIC RESOURCES

Potential Construction Impacts On Historic Resources

As stated above, construction excavation may potentially disturb subsurface archaeological resources in areas that have been identified in the Phase 1A study as potentially sensitive. In addition construction vibration has the potential to impact one architectural resource, the Sleight Family Cemetery.

Impact Avoidance Measures for Potential Construction Impacts On Historic Resources

If any project-related construction activities could result in potential vibration impacts to the Sleight Family Cemetery, a Construction Protection Plan would be prepared and implemented prior to construction as necessary to protect architectural resources.

Mitigation Measures for Potential Construction Impacts On Historic Resources

Mitigation for these potential impacts is described above. This would be accomplished by including the necessary measures into the construction bid documents, as long as the mitigation is performed prior to construction.

NATURAL RESOURCE HABITATS

Potential Construction Impacts On Natural Resources

The project site includes extensive natural resources, such as waterways, ponds, and tidal wetlands. It will therefore be important to avoid impacts to these natural systems, not only for the purposes of protecting natural resources and water quality, but also for the purposes of avoiding siltation impacts to the man-made constructs that provide stormwater detention at the site. In order to avoid these impacts, the proposed project includes a “Conceptual Site-Wide Erosion and Sediment Control Plan.” This plan establishes the guidelines by which each phase

of project construction, through implementation of the proposed techniques, would avoid impacts to natural features and in-place stormwater management systems. Implementation of these techniques would be ensured not only by DPR, but through the SPDES Permit requirements. The proposed project would also not result in any significant impacts with respect to additional leachate generation during the additional period of construction for the 2011 analysis year.

Activities associated with construction could temporarily impact terrestrial and aquatic resources through the discharge of stormwater to tidal and freshwater wetlands and local waterways; deposition of fugitive dust into terrestrial and aquatic habitats; clearing of vegetation; loss of habitat; and damage to existing landfill environmental control systems such as the final landfill cover and its associated landfill management systems (e.g., gas and leachate collections and controls). Impact avoidance measures are therefore appropriate to minimize these impacts.

Impact Avoidance Measures for Potential Construction Impacts On Natural Resources

Although it is expected that there may be short-term, unavoidable adverse temporary impacts on natural resources during park construction, these impacts would be avoided and minimized to the extent practicable. Ultimately, there are many long-term benefits to be provided with the proposed park that would more than offset these short term impacts. However, during construction impacts would be minimized through the implementation of construction protection and guidelines, including a natural resources protection plan that would be prepared for each major construction project. This plan would identify sensitive habitats, such as woodland stands and wetlands, and any other communities that have been identified for preservation and protection and would therefore be protected against construction impacts. Each site design would also establish the necessary protection buffers around these resources for the purposes of minimizing the potential for adverse direct or indirect impacts to these resources. Components of the existing landfill environmental management systems would be similarly protected from impacts during park construction. The proposed project would also implement a Stormwater Pollution Prevention Plan in accordance with SPDES requirements in order to avoid and minimize soil erosion and sedimentation and the resulting water quality impacts. The project would also have a Construction Monitoring Program that would minimize potential impacts during in-water construction, protect groundwater and surface water, and enforce protections for rare, threatened, and endangered species.

HAZARDOUS MATERIALS

Potential Construction Impacts Due To Hazardous Materials

Development of the proposed park would involve excavation and disturbance of the existing on-site soil that could potentially result in temporary increases in exposure to contaminants for construction workers and nearby residents. Preventative construction measures would be taken to protect the public health and safety of these workers and the nearby communities.

Impact Avoidance Measures for Potential Construction Impacts Due to Hazardous Materials

In order to avoid impacts due to hazardous materials during construction, prior to initiating a capital project, site investigations including sampling for hazardous materials would be performed (as necessary) and a site-specific Construction Health and Safety Plan would be prepared for each capital project. Subsequent to that testing, remediation measures may also be implemented, as necessary. In addition, existing fill remaining on-site would be either covered by certified clean fill or covered with concrete or asphalt pavement, or structures. With these proposed measures in place, the health and safety of construction workers and the visiting public

would be protected from hazardous materials impacts both during (and after) construction and impacts due to hazardous materials would be avoided.

SOLID WASTE MANAGEMENT AND SANITATION SERVICES

Although the proposed project is not expected to have construction period impacts on solid waste and sanitation services, the project would seek to minimize the generation of solid waste from construction. All demolition and construction waste from construction activities would be handled by private carters retained by the contractors who would separate materials in accordance with local law and haul the materials to transfer stations or processing facilities for disposal and recycling, as applicable. Disposal of all solid waste would be outside New York City and in accordance with the applicable regulatory requirements. Proposed is the recycling of cut trees and vegetation for use as park mulch. The City's program to reduce construction solid waste sites at City sponsored projects would also be met. The proposed project would not conflict with DSNY landfill closure construction, nor would the construction activities compromise DSNY's post-closure care monitoring and maintenance operations. The proposed construction activities would also not compromise the City's requirements under the Solid Waste Management Plan.

ENERGY

The proposed project is not expected to have construction period energy impacts. Energy to manufacture, deliver, and install the materials at the construction site would not result in any significant adverse energy impacts.

TRAFFIC, PEDESTRIANS, AND PARKING

Potential Construction Period Impacts on Traffic, Pedestrians and Parking

Traffic

Construction activities would generate a moderate amount of traffic during the standard peak hours. Construction workers generally arrive before the community's peak morning traffic hours and depart before the peak afternoon traffic hours, with limited weekend work, and therefore generally would not affect the local traffic network during the more heavily traveled peak hours. In addition to the worker traffic, there would also be trucking activity associated with the delivery and removal of soils (particularly the delivery), and there would also be the delivery and removal of materials during the demolition of buildings, construction of buildings, and construction of proposed roads, bridges, and viaducts. It is expected that delivery of all soils and materials expected to be necessary for the proposed project would reach the site via the West Shore Expressway (this construction access already exists) and once on site could use internal roads to access construction sites, thus minimizing impacts on the surrounding neighborhood. In addition, truck travel would be dispersed throughout each individual work day and would vary in intensity depending upon the construction phase. It is expected that at peak times 70 to 100 trucks per day, or about 10 per hour, would provide deliveries to the site during the more intense periods of construction, particularly with respect to the importation of soil.

Regarding the worker vehicles, conservatively assuming that all workers would travel to the site via automobile as single occupants, the maximum daily trip generation would be 50 to 100 vehicle trips during the more intensive periods of construction. With the proposed direct access to the West Shore Expressway, there would be limited use of local roads. In addition, most truck trips would not coincide with the traditional commuter peak travel hours.

Pedestrians

With generally low background pedestrian activities in the immediate area of the project site, the limited amount of pedestrian traffic generated by construction workers would not warrant a detailed study of operating conditions at the area's sidewalks, crosswalks, and corner reservoirs. It is also expected that the addition of project-related traffic would not significantly adversely impact pedestrian safety.

Parking

Parking for construction workers vehicles would be provided on the project site to avoid any impacts on local parking conditions.

Impact Avoidance Measures for Traffic, Pedestrians and Parking During Construction

With the proposed construction program, limited construction activities are expected on local roads or the West Shore Expressway that would impact local traffic flows or require a traffic maintenance plan. Access to the site would be gate-controlled and some streets may be temporarily closed at the periphery of the site for the construction of new intersections (e.g., construction of the intersection of Forest Hill Road and Richmond Avenue with the Forest Hill Road Connection), as well as the installation of utility connections (e.g., water, sewer, gas, electric) at the periphery of the site. The proposed project would also consider possible barging of soils for large soil cover for the 2016 and 2036 capital projects.

Major roads, such as Arthur Kill Road, would have at least one lane open to traffic at all times. The temporary closure of travel lanes on side streets is an unavoidable temporary impact on the local traffic network. The project would also use nighttime construction to avoid traffic impacts (e.g., in developing the proposed road connections at Richmond Avenue).

As stated above, parking for construction worker vehicles would be provided on the project site for the purposes of avoiding construction worker parking impacts on local neighborhoods.

INFRASTRUCTURE

Potential Construction Period Infrastructure Impacts

Much of the proposed project would be constructed on a landfill section or the surrounding buffer areas. Construction activities in these areas has the potential to impact landfill environmental protection and monitoring systems. Therefore impact avoidance measures during construction are appropriate.

Impact Avoidance Measures for Landfill Infrastructure During Construction

For construction of the proposed road embankment as part of the closure construction of Landfill Section 6/7 (East Park), the proposed project would institute protection measures for:

- Nuisance and vector control;
- Special construction measures during inclement weather (e.g., rain, snow);
- Litter and waste control;
- Dust control;
- Protections during mass grading and waste relocation;
- Odor control; and
- Noise control.

While these measures would be instituted for the construction of the embankment, they would similarly be part of the closure construction for Landfill Section 6/7. Thus, no additional protection measures are necessary to construct the proposed embankment.

In addition, the landfill leachate and gas that would be generated during the period of construction for this proposed road embankment would not result in any impacts on groundwater or air quality. For all of the park project phases, DPR will similarly coordinate all park constriction activities with DSNY and will implement all landfill infrastructure protection measures identified during the park design. All designs will also be subject to the review of DSNY and the review and approval of DEC. With these measures in place, the proposed project would avoid impacts to landfill infrastructure during construction.

AIR QUALITY

Potential Construction Period Air Quality Impacts

During project construction emissions from on-site construction equipment and on-road construction-related vehicles have the potential to impact local air quality. Construction activity in general and large-scale construction activity in particular, has the potential to adversely impact air quality as a result of diesel emissions. The main component of diesel exhaust that has been identified as having an adverse effect on human health is fine particulate matter. The GEIS and SEIS analyzed potential air quality impacts during construction included an analysis of both on-site and on-road sources of air emissions, and the overall combined impact of both sources where applicable. In most cases, the incremental impacts on local air quality from the proposed park would be limited in extent, duration, and severity. In general, localized elevated air pollutant concentrations may occur; however this would not be expected to exceed air quality standards. An analysis of landfill gas emissions during the period of construction for the proposed road embankment (2011) would also not result in any significant adverse impacts on air quality.

Impact Avoidance Measures for Air Quality During Construction

The proposed project would implement an emissions reduction program during construction. These measures are expected to include the use of Ultra-Low Sulfur Diesel fuel, electric engines, and new equipment; locating large emission sources away from sensitive uses, and implementing dust control and suppression measures for the purposes of avoiding air quality impacts during construction. The proposed project would also include measures to control air quality and odors during the construction of the proposed embankment. With these measures in place, and given that in accordance with local law, ultra-low-sulfur diesel and best available retrofit technology would be used for all diesel engines during construction, it is expected that emissions from construction would not result in a significant impact on air quality.

NOISE AND VIBRATION

Potential Construction Period Noise and Vibration Impacts

While the construction noise associated with the type of construction varies, depending on the numbers and type of equipment employed at any time, noise levels associated with construction may occasionally be noticeable to nearby residents, particularly during the times when jackhammers and/or other pavement-breaking equipment are used. Construction associated with the proposed project is also subject to the New York City Noise Code requirements for construction (as amended July 1, 2007). These requirements include preparation and implementation of a construction noise mitigation plan. In addition, construction of the proposed park roads, for example, would largely take place within the interior of the site and substantially buffered from

the surrounding community, which will diminish noise impacts at local sensitive receptors since noise levels decrease exponentially with distance. Although elevated noise levels are expected for certain construction phases, and may be audible and considered a temporary nuisance at times, the impacts from each of the many planned projects would be temporary and therefore are not considered a significant adverse impact. In addition, capital projects would be implemented in many phases and therefore would be temporary at any one location over the approximately 30 years of project construction.

Vibration activities with the proposed project are expected to be limited. The proposed project may require limited pile driving or drilling for some structures and road construction (e.g., the Forest Hill Road Connection in the segment off Landfill Section 6/7). These activities have the greatest potential for producing higher vibration levels. While vibration levels may be perceptible, due to the limited period of time that this operation would take place, and given that the nearest sensitive receptor (off-site) is more than 200 feet away, vibration impacts are not expected to result in significant adverse impacts on any nearby buildings.

Impact Avoidance Measures for Noise and Vibration During Construction

In order to avoid impacts from noise, the proposed project would prepare a construction noise mitigation plan in accordance with City law. As part of that plan all construction vehicles would have to adhere to federal and state standards for noise emission controls from construction vehicles. Construction staging areas would also be sited at locations away from sensitive receptors in order to avoid impacts. In addition, as part of the noise plan, DPR would shield noisy equipment from local neighborhoods, perform proper maintenance on construction equipment, and implement general adherence to the City Noise Control Code to avoid construction noise impacts.

Vibration impacts are also expected to be limited as many of the park elements would not require construction activities that generate strong vibration levels (such as pile driving). For the phases of construction where vibration levels may be more intensive, DPR will coordinate with DNSY and ensure that project construction activities do not adversely impact landfill infrastructure due to vibration from heavy construction. Protections and monitoring measures would also be used for DSNY infrastructure, as necessary.

PUBLIC HEALTH

As discussed above, construction air and noise pollutant emissions from equipment and vehicle operation may be temporarily elevated, but are not expected to impact public health with the impact avoidance measures in place. Diesel emissions from construction-related activities are of particular concern regarding potential public health impacts such as increased asthma rates. In response to those concerns, the City adopted Local Law 77 to significantly control and minimize air pollution from construction equipment throughout New York City (see the discussion above). For the 2011 construction period with the proposed embankment, there would also be the measures to protect against impacts to landfill infrastructure and secondary public health impacts (see also the discussion above, under “Infrastructure”). Potential impacts due to hazardous materials would also be avoided with implementation of the measures presented above. In addition, no groundwater or surface water impacts are expected with the impact avoidance measures cited above. It is also expected that construction contracts would include provisions for vector control. With all of these measures in place, no public health impacts are expected during construction.

PUBLIC HEALTH

POTENTIAL IMPACTS OF THE PROPOSED PROJECT (PUBLIC HEALTH)

A detailed evaluation of potential health impacts from the proposed project was performed as part of the GEIS and SEIS. The focus of these analyses was to examine any public health concerns specifically with respect to air quality, groundwater, surface water, sediments/soils, and the potential contaminant pathways and possible public health effects as public access is provided to this site. One of the more important public health protection measures with the proposed project is protection of the landfill's environmental control infrastructure. This includes the leachate management, landfill gas management, final cover and drainage systems. Various impact avoidance measures will be incorporated into project designs that will minimize potential impacts to these systems and as a result minimize exposure risk and potential impacts to public health. A summary of these measures (presented below) present an overview of those protections. The principal conclusions of the GEIS and SEIS public health analyses are:

- Air emissions: Based on available monitoring data and air quality modeling performed for the project, criteria pollutants from local stationary sources and mobile sources, including the landfill environmental control infrastructure would not be expected to result in any significant adverse air quality impacts on park users.
- Groundwater: While contaminated groundwater is known to exist within the boundaries of the project area, the GEIS analysis concluded that this does not pose a significant public health risk to park users. This conclusion is based on the fact that groundwater is not currently, nor is it envisioned in the future, to be utilized as a potable water supply nor will there be an exposure pathway for future park users to the groundwater. In the future with the proposed park, the leachate collection and treatment systems will continue to operate as will the groundwater monitoring program. In addition, contaminated groundwater from off-site sources could affect surface water and/or sediments quality within the park, but is not expected to pose a risk to park users due to the absence of an exposure pathway.
- Surface water: The proposed park would allow for surface water to be accessed by the public in several possible ways, including recreational fishing and boating. Surface waters in the vicinity of the proposed project are neither designated to be used for potable water nor are they expected to be used as potable water in the foreseeable future. In addition, Fresh Kills Park would not use surface water for irrigation. Moreover, the waters in Fresh Kills are not designated for swimming or the consumption of shellfish. Consumption of fish is also actively discouraged by public health advisories warning residents of the potential hazards associated with these exposures.
- Sediments: Sediments are a potential public health risk in that they can serve as sinks for many environmentally recalcitrant contaminants including polychlorinated biphenyls (PCBs), pesticides, toxic metals, and other anthropogenic pollutants. The sediments at Fresh Kills are regularly monitored by DSNY and the park proposes only limited disturbance of sediments for the installation of maritime infrastructure and bridge supports.
- Soil and Groundwater Testing: As stated above, analytical site testing for hazardous materials is recommended as each capital project moves forward. Individual capital projects would develop a testing program based on areas where soil/groundwater disturbance may be proposed. Based on these site-specific designs, individual testing protocols, and, if necessary, remediation would be undertaken to avoid this impact.
- Soil Management: Development of the proposed park is expected to require substantial volumes of soil. Therefore, to avoid impacts from the importation of soils to the site and to

provide a soil cover that is acceptable for public access and avoids public health impacts, the proposed project includes a soil management plan (see the discussion below).

- Vector management and control measures currently in place with DPR, and with the assistance of NYCDOHMH, the City would protect future park users and staff from rabies, West Nile Virus, and other public health concerns that may arise in the proposed park.

IMPACT AVOIDANCE AND MITIGATION MEASURES (PUBLIC HEALTH)

- Air emissions: Continued operation and monitoring of the landfill gas collection and treatment systems and prompt application of final cover during the road embankment construction phase at Landfill Section 6/7. In addition, appropriate sub-slab venting systems and/or vapor barriers would be used in the design of all buildings and structures within the park.
- Groundwater: Continued operation of the leachate collection and treatment system as well as the groundwater monitoring program and prompt application of final cover during the road embankment construction phase at Landfill Section 6/7.
- Surface water: The proposed park would include management efforts, signage and additional measures to protect against swimming and the consumption of fish. Additionally, DSNY's surface water sampling data would be shared with park managers and ecologists, and additional sampling in surface streams and ponds would be added as these locations are made publicly accessible, if appropriate.
- Sediments: Measures to avoid public health impacts from sediments include avoiding and minimizing dredging and continued implementation of the sediment testing program.
- Soil and Groundwater Testing for Capital Projects: Analytical testing for hazardous materials is recommended as capital projects move forward. Individual capital projects would develop a testing program based on areas where soil/groundwater disturbance may be proposed. Based on these site-specific designs and the results of these testing protocols, remediation would be undertaken to avoid this impact, as necessary (e.g., a Construction Health and Safety Plan).
- Soil Management: Development of the proposed project is expected to require substantial volumes of soil for the proposed recreational facilities landscaped habitats, and park roads. There are no regulatory standards in the State of New York that are directly applicable to soil cover for landfills when the end use proposed is parkland. New York State environmental regulations that apply to landfills include the 6 NYCRR Part 360, which governs Solid Waste Management Facilities. These regulations mandate the final closure and post-closure design, operation, maintenance, and monitoring of solid waste landfills in New York State and are implemented at Fresh Kills through Consent Order with DEC. However, Part 360 does not provide criteria for soils to serve as final cover for a public park. Therefore, guiding the conceptual soil strategy for Fresh Kills Park is 6 NYCRR Part 375, the Brownfield Remediation Program (hereinafter referred to as Part 375). Although not directly applicable to landfill reuse, or road construction, NYSDEC regulators can rely on the science behind the regulations to guide their decision-making regarding DPR's use of soils as the former landfill is converted to park use. Thus, decisions as to types of soils that may be used for the proposed East Park Roads would be made on a case-by-case design basis. Such a "project-by-project" approach is also recommended by NYCDOHMH. While soil decisions may be made on a case-by-case basis, it is expected that NYSDEC will generally require the use of the lower of Part 375 6.8(b) residential and groundwater protection soil cleanup objectives, using the ecological soil cleanup objective when there are potential impacts to ecological resources.

TAGM 4046 will be considered if Part 375 has no soil cleanup objective for a contaminant. All deviation from these conditions would require the written approval of NYSDEC.

- Other management measures currently in place at DPR and NYCDOHMH are expected to protect future park users against exposure to rabies and West Nile Virus due to mosquitoes, for example.

G. ALTERNATIVES EVALUATED

The FGEIS and the FSEIS evaluated numerous alternatives with respect to the proposed park and park roads. These include the:

- No Action Alternative for both the GEIS and SEIS;
- Two-Lane Park Road Alternative (GEIS and SEIS);
- Alternative Road Alignment A (West of Landfill Section 6/7) (GEIS and SEIS);
- Alternative Road Alignment B (Staten Island Borough President's Office Road Alignment)(GEIS only);
- Yukon Connection Alternative (GEIS);
- Lesser Impact Alternative (GEIS)
- East Park Loop Road Modified Proposal (GEIS);
- Alternative Phasing—Four-Lane Road (Reconstructed Final Cover Without 2011 Embankment Construction [SEIS]);
- Alternative Phasing—Four-Lane Road (Reconstruction Final Cover With Two-Lane 2011 Embankment Construction [SEIS]);
- Alternative Alignment: East Park Loop Road (modified proposal [SEIS]);
- East Park Loop Park Road—One-Lane Road (SEIS); and
- Limited Action Alternative (SEIS).

The GEIS alternatives analysis concluded that the Two-Lane Park Road Alternative would have environmental impacts that are smaller in magnitude than the four-lane alternative. For example, the Two-Lane Park Road Alternative has a marginally reduced impact on landfill infrastructure and wetlands, particularly for the East Park road system. However, this alternative may not be adequate in the long-term for meeting local traffic and circulation needs and for reducing traffic congestion. This alternative was also given a closer examination as a project option in the SEIS for the East Park roads system due to its potential for less impact.

Three alternative alignments were also examined in the GEIS for the proposed Richmond Hill Road Connection. These were examined under the Alternative Road Alignment A (West of Landfill Section 6/7) with the following conclusions:

- An on-landfill alignment pushes the park road well up the landfill, conflicting with views from North Park and William T. Davis Wildlife Refuge and also resulting in impacts on landfill infrastructure including the landfill cover and slope stability.
- An on-service road alignment potentially conflicts with critical landfill infrastructure and maintenance and operation requirements, but would reuse existing landfill service roads.
- And off-landfill alignment between the base of the landfill and Main Creek would potentially impact up to 14 acres of tidal wetlands and adjacent areas, of which about half is

assumed to be tidal wetlands of Main Creek and associated with William T. Davis Wildlife Refuge.

The on service road alignment was further evaluated in the FGEIS in response to public comments on the DGEIS. This alignment was presented as the Staten Island Borough President's Office Proposal in the Fresh Kills Park FGEIS. This alignment essentially calls for a two-lane, one-way road that loops around Landfill Section 6/7 and utilizes the existing DSNY landfill service roads. In addition to being a one-way road that would operate in a counterclockwise direction around the landfill, this alternative also proposes a new segment of a four-lane road across Landfill Section 6/7 that would connect directly to Richmond Avenue at Yukon Avenue (the Yukon Avenue Connection). Given the potential feasibility of this alternative alignment, it was also examined in greater detail in the East Park Roads SEIS.

The Yukon Connection was also evaluated as an added alternative in the FGEIS. For this alternative it was assumed that a four-lane road would be constructed across East Park with only one crossing of the landfill, the Yukon Connection, and only one connection to Richmond Avenue, with a new intersection at Richmond and Yukon Avenues. This proposal was put forth for the purposes of determining if such an alternative road proposal could meet DPR's goals and objectives while having less of an impact on the landfill infrastructure and wetlands. This alignment would have impacts similar to the proposed project in many respects. However, as a result of this GEIS analysis, this alternative was analyzed in greater detail as a project option in the SEIS.

The GEIS Lesser Impact Alternative examined the potential impacts of less intensive park programming (no recreational facilities) and no roads. Under this alternative, the park would not provide any recreational facilities, cultural/educational amenities, or supporting retail uses (e.g., banquet halls, restaurants). Rather, the park would consist largely of landscaping and trails. Similar to the proposed project, this Lesser Impact Alternative would not result in significant adverse impacts on land use, zoning, and public policy; socioeconomic conditions; community facilities; open space; shadows; historic resources; urban design and visual resources; neighborhood character; natural resources; waterfront revitalization program; infrastructure; solid waste and sanitation services; energy; transit and pedestrians; air quality; noise; construction; or public health. The Lesser Impact Alternative would also not have the short-term construction impacts of the proposed project and limited adverse impacts with respect to hazardous materials. It would not require wetland mitigation. However, this alternative would also not provide a significant increase in public open space, with active recreation, or the local traffic circulation benefits associated with the proposed project. It would also not provide the project goals of optimizing Fresh Kills Park for waterfront access for the public and redeveloping an underutilized City waterfront property as a significant recreational and cultural amenity for the community.

A number of park road alternatives and phases were evaluated in the SEIS for the East Park road system. For example, the Alternative Phasing Four-Lane Road (Reconstructed Final Cover Without 2011 Road Embankment) as analyzed in the SEIS examined the potential environmental impacts of an alternative phasing in which the currently approved closure design for Landfill Section 6/7 (Malcolm Pirnie, 2001) proceeds without the proposed road embankments any work required for future East Park road access and connections would need to follow completed closure of Landfill Section 6/7. The City has proposed a Landfill Section 6/7 Final Cover Design Report, Addendum 1 as an alternate closure design that would coordinate the current closure construction with the proposed road embankments across the landfill, allowing for the possibility of connections to the West Shore Expressway from Richmond Avenue. This proposed Addendum 1 cover plan includes: surcharge fill placement; waste relocation as necessary to establish base grades along n the embankment corridors; modification to the landfill gas collection wells and

header piping in the vicinity of the embankment corridors; modification to the stormwater management system; and construction of final cover.

Under the Alternative Phasing Four-Lane Road alternative, all completed final closure work associated with the proposed Yukon Avenue Connection and Forest Hill Road Connection alignments, including geosynthetic cap materials, cover soils, landfill gas piping, and stormwater management features, would need to be reconstructed at a later date in order to implement the proposed road modifications. Thus, with this alternative phasing, although there would be no delay in the current closure of Landfill Section 6/7, there would be an increase in the consumption of nonrenewable resources (petroleum and construction materials), and additional waste and air emissions associated with redundant construction activities at a later date as compared with constructing the proposed embankment in conjunction with the closure construction of Landfill Section 6/7. Based on the analysis in the SEIS, as compared to the proposed project, this alternative phasing would result in the generation of at least 900 tons of non-recyclable waste materials, add over 25,000 truck trips on local roads for delivery of equipment and materials, and result in the consumption of over 217,000 gallons of diesel fuel for transportation and construction. In addition, like the proposed project, under this alternative there would also be a need to avoid, minimize, or mitigate impacts from the proposed roads. As with the proposed project, it is expected these measures could eliminate project impacts, although for the landfill crossing segment these mitigative measures would be more costly since they would have to be retrofitted into the already installed cover system. This alternative would achieve the project's goals and objectives with respect to improving local traffic circulation, providing connectivity across Fresh Kills Landfill, and minimizing the impacts of the proposed Fresh Kills Park project on local streets; however, with this alternative there would be a greater delay for implementation given the additional design, construction activities, and cost.

Like the proposed project, with the appropriate protection measures, this alternative would not impact odors or landfill air emissions either during construction or operation, although the techniques to implement such measures during a retrofit are expected to be more complicated and costly since they would not be performed simultaneously with the current landfill closure construction. Likewise, with the appropriate construction period protection measures, there would not be any impacts on the production of leachate, nor would there be hazards for landfill slope stability. With the proposed project, as under this alternative, there would be no changes in hydrology due to road runoff and modifications to the Landfill Section 6/7 stormwater management basins; and under this alternative, like the proposed project, the stormwater management issues could be addressed without any adverse impacts to the landfill system hydrology or local water quality.

Similarly, the SEIS examined an Alternative Phasing Four-Lane Road (Reconstructed Final Cover With Two-Lane 2011 Road Embankment). This alternative assumes that the landfill cover is modified at this time to accommodate only a two-lane road embankment, but then would need to be widened for a four-lane road at a later date. This assumes, for example, that once the Yukon Avenue Connection is operating as a two-lane road, that demand exceeds capacity and a widening to four lanes is necessary.

The immediate differences between constructing the landfill embankment at this time to accommodate a four-lane park road as compared with an embankment that would accommodate a two-lane road are quite limited. For example, the estimated volume of cut necessary to provide a two lane road embankment along the Yukon Avenue Connection is only 39,645 cubic yards less than for a four-lane road embankment (for comparison, about 1,000,000 cubic yards of material is necessary for final cover construction at Landfill Section 6/7). The estimated volume of cut

necessary to provide the two-lane park road embankment for the Forest Hill Road Connection would be reduced by an estimated 17,000 cubic yards, even less of a significant reduction than along the Yukon Avenue Connection.

The number of impacted gas wells would only be reduced from four to three along the Forest Hill Road Connection if the two-lane road embankment were built, which is also not a significant change. Along the Forest Hill Road Connection, the impacted gas headers and lateral pipes, and stormwater management features, would not change. Along the Yukon Avenue Connection, the impacted gas wells, gas header line, and stormwater features, firewater line and overhead electric lines would also be the same.

Assuming that at a later date the two-lane road embankment would need to be widened for a four-lane road, this alternative phasing would have significant impacts similar to those discussed above for the Alternative Phasing four-lane road alternative. Under this alternative, material that would need to be moved at a later date would generate about 500 tons of non-recyclable waste materials, a 12,500 truck trips for delivery of equipment and materials, and the consumption of over 217,000 gallons of diesel fuel for transportation and construction. It would also result in major traffic disruptions on operating roads to the degree that such a retrofitting would be highly impractical at this later date. The alternative phasing option could also result in impacts to air quality and road congestion along with neighborhood character impacts for Staten Island residents. These are significant adverse impacts that can be avoided through the implementation of the four-lane road embankment as part of the Landfill Section 6/7 final cover construction.

Another alternative analyzed in the SEIS was a modified East Park Loop Road Alternative. This modified road design was developed to reduce the number of nonstandard features for the East Park Loop Road option assuming a 35 mile per hour design speed. This alternative also includes recommendations that minimize and/or mitigate impacts and conflicts with landfill features. For instance, this alternative includes a modified horizontal alignment that eliminates some of the nonstandard curve radii and horizontal stopping sight distances In addition, the modified road alignment does not conflict with any DSNY vaults. Nonetheless, a number of nonstandard and undesirable road elements would remain with this East Park Loop Road Alternative that would have to be addressed with a more advanced design.

This modified alternative also proposes a number of solutions to eliminate adverse and nonstandard drainage conditions. These stormwater management alternatives, however, would likely not have the capacity to drain the entire road, and would not direct all runoff away from the road surface. In addition, in the southern section of the East Park Loop Road, where the final landfill cover has not been installed, additional drainage options for the road would have to be considered. Otherwise, the impacts under this alternative with respect to minimizing, avoiding and mitigating environmental impacts, addressing the traffic demand; odors and air emissions; production of leachate; hazards for landfill slope stability; generation of runoff; adverse impacts on wetlands and wildlife; and habitat fragmentation would be similar to the East Park Loop Road option analyzed in the SEIS. Overall, however, this modified design would have less of a potential for impacts on landfill infrastructure.

The East Park Loop Road One-Lane Road proposal was another East Park roads alternative presented in the FSEIS. It was developed as a revised conceptual design that is identical in alignment to the East Park Loop Road option, but is narrower in width as a single-lane loop road rather than two-lanes. This alternative was analyzed to determine if there are fewer impacts to wetlands and DSNY infrastructure (e.g., leachate pump stations). It was concluded that this alternative alignment also possesses some of the nonstandard roadway features identified in the East Park Loop Road alignment, with respect to horizontal curvature, superelevation, sight

distances, and undesirable vertical profile. Stormwater runoff from Landfill Section 6/7 would also be directed across the road surface with no provisions for subsurface drainage. Impacts under this alternative with respect to landfill closure delays; minimizing, avoiding, and mitigating environmental impacts; addressing the traffic demand; odors and air emissions; production of leachate; hazards for landfill slope stability; generation of runoff; and adverse impacts on wildlife would be similar to the East Park Loop Road option. However, with the narrower roadway, it would have less of a potential for impacts on landfill infrastructure and wetlands. In addition, while the East Park Loop Road (two-lane) option would require the temporary closure of the right lane of the roadway during DSNY leachate pump station maintenance operations, this alternative (one-lane road) would allow maintenance and access through a widened right shoulder of the roadway. Installation of a traffic signalization system for the right-lane closure would not be required. For this alternative, differential settlement between the pavement of the existing service road and the widened portion outside of the service road may be less of a concern, since the joint between existing and new pavement would be located in the right shoulder of the roadway rather than in moving travel lanes. This alternative would also be expected to directly impact somewhat fewer acres of wetlands than the East Park Loop Road option and fewer wetland acres than the four-lane and two-lane road options. It is, however, noted that the wetlands impacted by this alternative might be considered higher-value resources than those impacted by some of the other options and alignments, since the East Park Loop Road runs adjacent to the tidal wetlands along Main Creek.

Lastly, the SEIS Limited Action Alternative examined the potential impacts of designing East Park for recreational purposes only, without the East Park Roads. In this alternative the proposed road embankment would therefore be used only for two informal trails across the landfill that would connect on the east and west with the proposed multi-purpose loop path around the base of the Landfill Section 6/7. There would also be parking proposed at the western trail heads, near the Confluence Loop Park Road. As compared with the proposed project, the Limited Action Alternative would require a similar delay in the closure of Landfill Section 6/7 since the landfill closure would need to be modified, although it would not provide the proposed roads. However, unlike the proposed project, there would be no need to avoid, minimize or mitigate impacts from construction of the roads off the landfill (e.g., wetland and aquatic resources impacts along the Forest Hill Road and Richmond Hill Road Connections). With the proposed project these impacts are minimized and mitigated. The Limited Action Alternative would also not achieve the project's goals and objectives with respect to improving local traffic circulation, providing connectivity across Fresh Kills Landfill, and minimizing the impacts of the proposed Fresh Kills Park project on local streets. Rather, it would only provide more trail connections across the park.

As with the proposed project, this Limited Action Alternative would not have any significant impacts on odors or air emissions either during construction or operation. Likewise, there would not be any impacts on the production of leachate, nor would there be hazards for landfill slope stability. Unlike the proposed project, there would not be any changes in runoff patterns at the site or the hydrology of the current DSNY systems. With the proposed project there are changes in landfill hydrology due to the proposed roads; however, it is expected that the proposed project could address these stormwater management issues without any adverse impacts to the landfill or upstream or downstream locations, and without any water quality impacts. Lastly, under this alternative, there would not be any impacts related to habitat fragmentation from the proposed roads and trails. With the proposed project these impacts could be avoided through project design.

H. UNAVOIDABLE SIGNIFICANT ADVERSE IMPACTS

The proposed project would result in significant adverse impacts at a number of study area intersections. As discussed above, traffic mitigation measures would be implemented at various intersections to mitigate significant traffic impacts. The proposed mitigation measures consist of standard traffic capacity improvements such as lane restriping, signal timing modifications and installation of new traffic signals at unsignalized intersections. However, even with these measures in place, some of the study area intersections would not be completely mitigated in the future conditions back to the No Build conditions. It must also be recognized that the proposed Fresh Kills Park roads would provide a number of important vehicular circulation benefits to the community as well.

I. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Under the proposed project, both natural and man-made resources would be expended in the construction and operation of the proposed park. These resources include the building materials used during construction; energy in the form of gas and electricity consumed during construction and operation of the park; and the human effort (time and labor) required to develop, construct, and operate various elements of the proposed park. These are considered irretrievably committed because their reuse for some purpose other than the proposed project would be highly unlikely. The land use changes associated with the development of the proposed project site may also be considered a resource loss. The proposed project constitutes an irreversible and irretrievable commitment of the site to open space, thereby rendering land use for other purposes infeasible. However, this reuse of the Fresh Kills Landfill is a positive impact of the project.

J. CERTIFICATION OF FINDINGS

Having considered the analyses of the GEIS and the SEIS as well as the public and involved and interested agencies comments on the DGEIS and DSEIS and responses thereto, and having considered the preceding written facts and conclusions, DPR certifies that:

(1) The requirements of SEQRA, and its implementing regulations, 6 NYCRR § 617, have been met and fully satisfied;

(2) Consistent with social, economic, and other essential considerations, from among the reasonable alternatives thereto, the actions to be approved are ones that would minimize or avoid adverse environmental impacts to the maximum extent practicable while meeting project objectives; and

(3) Consistent with social, economic, and other essential considerations, the adverse environmental impacts disclosed by the GEIS and the SEIS have been minimized or avoided to the maximum extent practicable while meeting the project goals and objectives by incorporating as conditions to the approval those impact avoidance and mitigative measures that were identified as feasible and practicable.

S/ _____

Joshua R. Laird
Assistant Commissioner for Planning & Natural Resources
New York City Department of Parks & Recreation

Date

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