Chapter 6: Shadows

A. INTRODUCTION

This chapter examines the reasonable worst-case development scenario (RWCDS) as described in Chapter 1, "Project Description," and the potential for shadows impacts on sun-sensitive historic resources and open spaces under the proposed project. The project site covers approximately 2,163 acres of the Fresh Kills landfill. Surrounding uses are primarily parks, residential, and commercial. According to the *New York City Environmental Quality Review* (*CEQR) Technical Manual*, a shadow analysis is generally not necessary for buildings or structures less than 50 feet in height, and the longest shadow a structure will cast is 4.3 times a building or structures height. Projected and potential developments under the RWCDS would consist primarily of low rise commercial and cultural facilities, and although some may approach or exceed 50 feet in height, they would not be much taller than 50 feet and would be few in number.

The guidelines of the *CEQR Technical Manual* require the preparation of a shadows assessment if a proposed action includes new structures tall enough to cast shadows on a publicly accessible open space or historic resource with sun-sensitive features. A preliminary assessment of the RWCDS and a review of the historic resources in the area (see Chapter 7, "Historic Resources") have disclosed that no sun-sensitive historic resources would be impacted by the proposed project.

Under *CEQR Technical Manual* guidelines, the uses and vegetation in an open space determine its sensitivity to shadows. Uses that rely on sunlight include passive uses, such as sitting or sunbathing, and activities such as gardening or wading in fountains or pools. Vegetation requiring sunlight includes the tree canopy and flowering plants. In open spaces where lawns are actively used, the grass also requires extensive sunlight. Four to six hours a day of sunlight is generally a minimum requirement, particularly in the growing season. Sun-sensitive features of historic resources may include large windows admitting light into interior spaces, stained glass windows in churches, deeply sculpted façade ornamentation, and historic landscapes.

B. CONCLUSIONS

With respect to sun-sensitive publicly accessible open space, there is currently no such open space on the project site and none of the surrounding open spaces would be adversely impacted by shadows from the proposed project.

Structures under the proposed project would cast limited shadows, and the project design would seek to avoid any of the impacts on proposed sun-sensitive resources, including open spaces and landscaping. Therefore, a detailed shadow modeling analysis is not necessary for the proposed project.

The proposed project may include up to six wind turbines that would be installed within North, South and East Parks. It is expected that any future operation of wind turbines at the project site would be a concession within the park. For the purposes of this GEIS, it has been assumed that there are conceptual locations for the siting of the proposed wind turbines and it is assumed that

they would be sited on the higher elevations of the three landfill sections in the parks, with the exception of Landfill Section 1/9 and West Park. As described in Chapter 1, "Project Description," typical wind turbines are about 15 feet in diameter and rise to a height of about 230–300 feet with blades about 230-320 feet in diameter.

Shadows from a structure of this dimension could reach anywhere from 200 feet in the summer months up to 1,400 feet in the winter months (maximum winter shadows are up to 4.3 times the height). However, the shadows from a structure of this configuration would be very slender. For this reason, although the shadows would extend a great distance, they would not be expected to impact open space users and activities that are proposed on top of the landfill sections, nor would they be expected to impact in any way the planting program that is proposed in these areas. In addition, project-generated shadows cast upon project-created open spaces are not considered a significant adverse impact. Additional impact analysis relative to the wind turbines are presented in Chapter 8, "Urban Design and Visual Resources," Chapter 10, "Natural Resources," Chapter 18, "Energy," and Chapter 19, "Noise." Finally, if the proposed park is approved, it is assumed that the wind turbines would be a separate concession that would require permits and approvals and therefore would be subject to a separate environmental review. ✷