A. INTRODUCTION

The *City Environmental Quality Review Technical Manual* requires a shadow assessment if a proposed building is tall enough to cast new shadow on a publicly accessible open space.

B. METHODOLOGY

This analysis considers the effects of incremental shadow; that is, new shadow that would be cast by the project as an increment beyond the shadows cast by existing buildings. Following *CEQR Technical Manual* guidelines, this analysis considers shadows on four representative days of the year:

- December 21, the winter solstice, shortest day of the year, when shadows are longest;
- March 21, the vernal equinox (which is equivalent to September 21, the autumnal equinox);
- May 6, midpoint between the equinox and summer solstice (which is equivalent to August 6);
- June 21, the summer solstice, shortest longest day of the year, when shadows are shortest.

The *CEQR Technical Manual* methodology does not generally consider shadows and incremental increases in shadows within 1½ hours of sunrise or sunset.

The *CEQR Technical Manual* identifies the following situations when a proposed project may result in a significant shadow impact:

- Substantial reduction in sunlight where a sensitive use is already subject to substandard sunlight (i.e., less than the minimum time necessary for survival);
- Reduction in sunlight available to a sensitive use from more to less than the minimum time necessary for its survival;
- Substantial reduction in sunlight to a sun-sensitive use or feature; and
- Substantial reduction in the usability of the open space.

The determination of impact significance is based on an assessment of how a project's shadows specifically affect individual open space resources or historic resources with sunlight-dependent features; that is, the analysis focuses on the incremental shadow sweep on open space resources, and assesses the potential impact for each resource.

C. ASSESSMENT OF SHADOWS BY SEASON

The only publicly accessible open space which incremental shadow from the proposed building could reach is Central Park. At its closest point, the western edge of the park is approximately 208 feet east-southeast of the proposed building. Shadows are cast westward in the morning as the sun rises in the eastern sky, and then gradually move northward through midday, and finally are cast eastward near sunset (when the sun is in the eastern sky).

DECEMBER 21: 8:51 AM–2:53 PM EST

At the end of the analysis day, the shadow that would be cast by the proposed building would not fall westward enough to reach Central Park (see Figure 1). Therefore, the proposed building would not cast any incremental shadow on Central Park on December 21.

Figure 1

December 21 – 3:01 PM EST (8 minutes after the end of the analysis period)

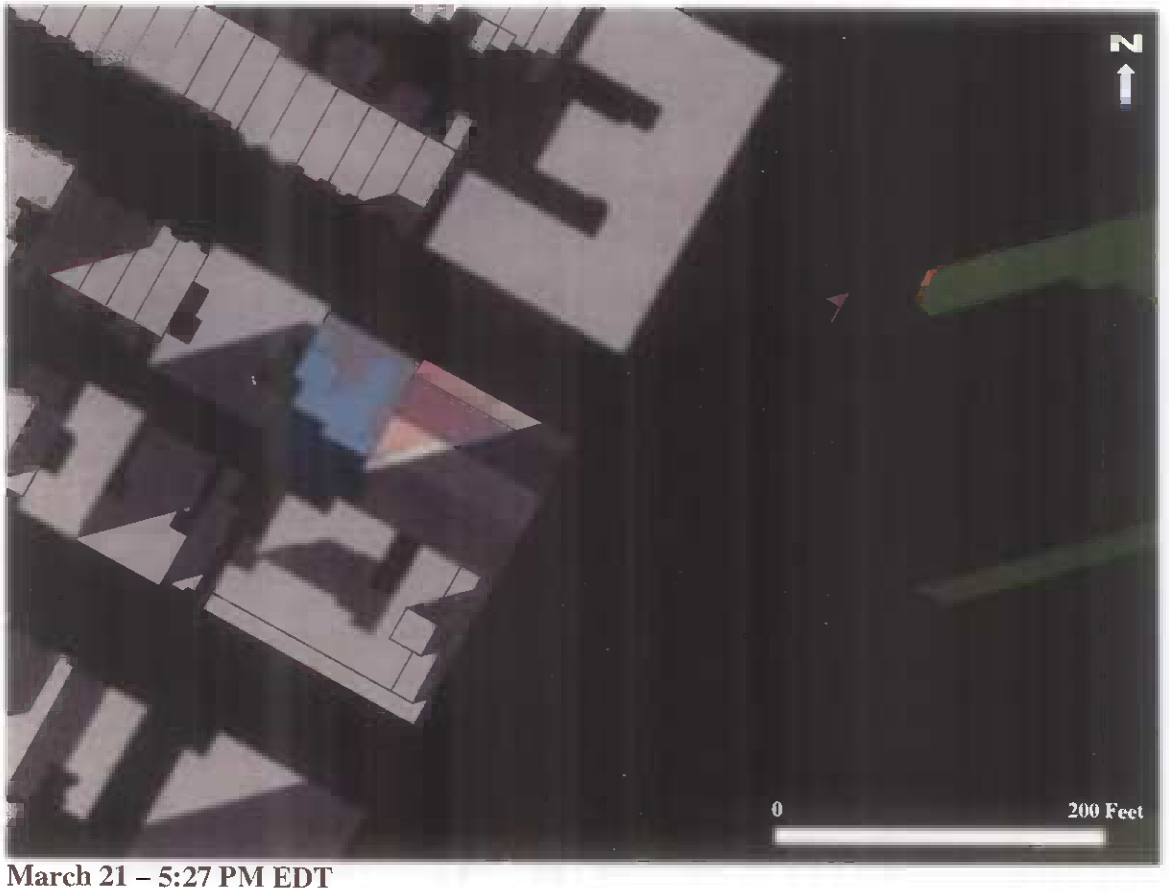
Key

Existing Street	Existing Sidewalk	Existing Building	Existing Park
Proposed Building	Existing Shadow	New Shadow	New Shadow Impact on Park

MARCH 21/SEPTEMBER 21: 8:36 AM - 5:29 PM EDT

On March 21, the incremental shadow cast by the proposed building would first fall on Central Park at 5:27 PM (see Figure 2), and would do so for two more minutes until the end of the analysis period at 5:29 PM. Before 5:27 PM, other buildings already cast shadows in the area that would otherwise be shaded by the new building. Therefore, the total duration of new shadow on the park on March 21 and September 21 would be two minutes, which would be insignificant.

Figure 2



March 21 – 5:27 PM EDT

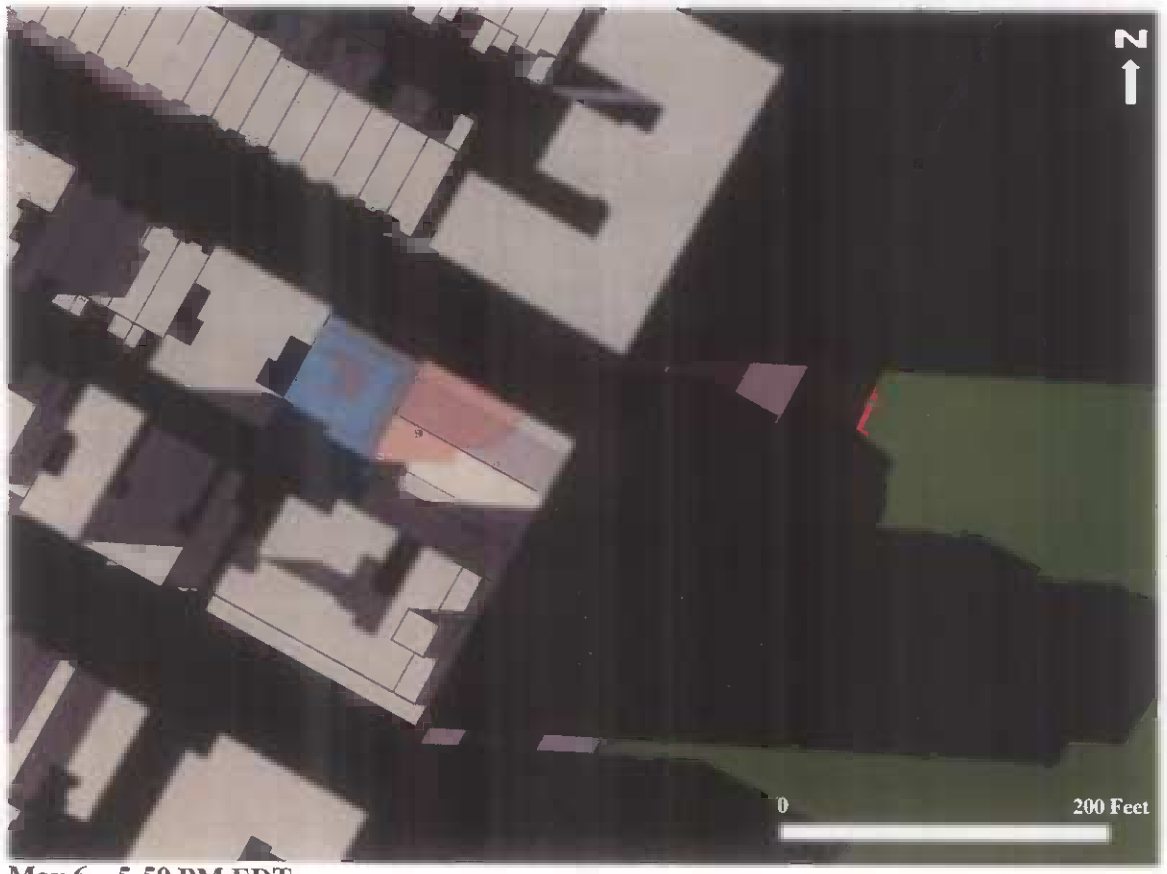
Key

Existing Street	Existing Sidewalk	Existing Building	Existing Park
Proposed Building	Existing Shadow	New Shadow	New Shadow Impact on Park

MAY 6/AUGUST 6: 7:27 AM - 6:18 PM EDT

The incremental shadow cast by the proposed building on May 6 and August 6 would first reach Central Park at 5:50 PM (see Figure 3). New shadow would be cast on the park for the remaining 28 minutes of the analysis period, until 6:18 PM. The new shadow would be small when it first reached the park (Figure 3) and would gradually extend eastward to cover a larger area. At 6:26 PM, eight minutes after the end of the analysis period, the proposed building would cast approximately 2,630 square feet of new shadow in the park (see Figure 4).

Figure 3

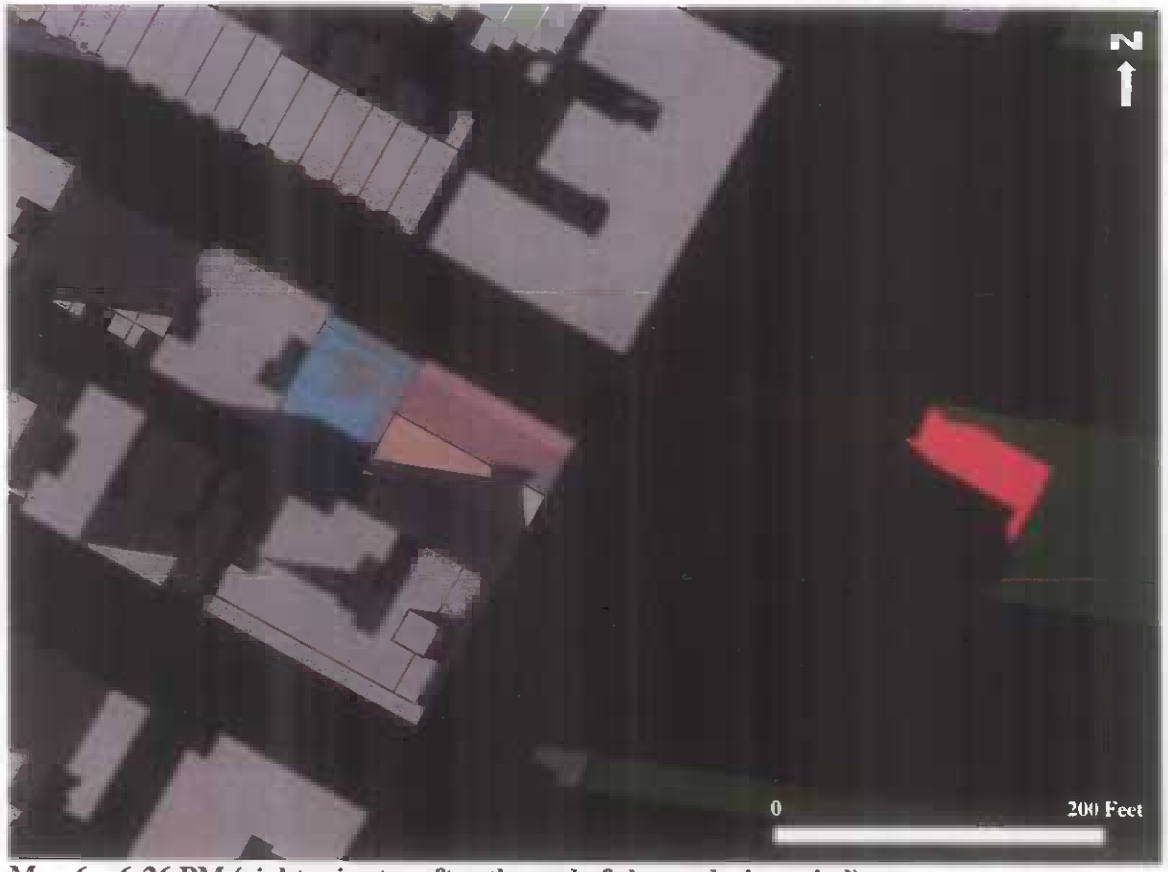


May 6 – 5:50 PM EDT

Key

Existing Street	Existing Sidewalk	Existing Building	Existing Park
Proposed Building	Existing Shadow	New Shadow	New Shadow Impact on Park

Figure 4



May 6 – 6:26 PM (eight minutes after the end of the analysis period)

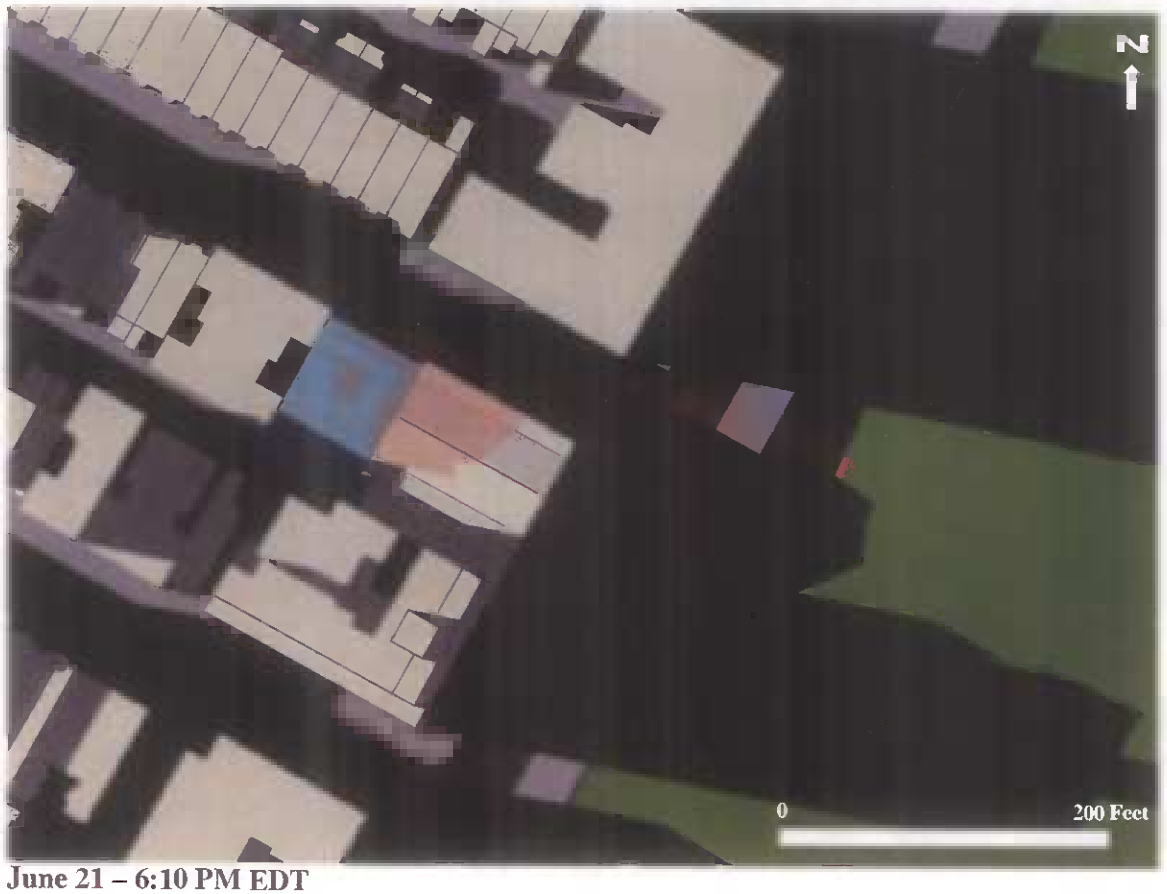
Key

Existing Street	Existing Sidewalk	Existing Building	Existing Park
Proposed Building	Existing Shadow	New Shadow	New Shadow Impact on Park

JUNE 21: 6:57 AM - 7:01 PM EDT

On June 21, the new shadow cast by the proposed building would first reach Central Park at 6:10 PM (see Figure 5). New shadow would be cast on Central Park for the rest of the analysis period, which ends at 7:01 PM. Similar to May 6, the area of incremental shadow would be small when it first reached the park and would gradually extend eastward to cover approximately 1,900 square feet by 7:01 PM (see Figure 6).

Figure 5

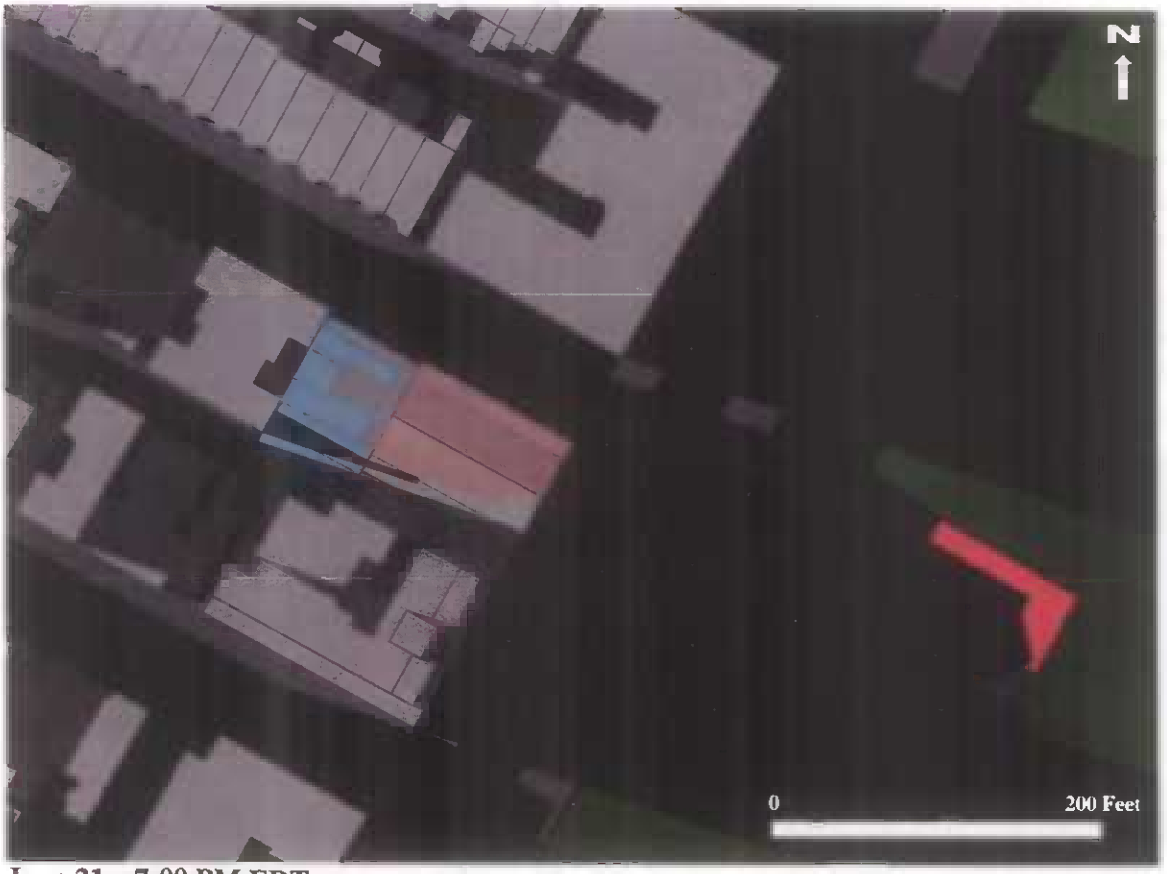


June 21 – 6:10 PM EDT

Key

Existing Street	Existing Sidewalk	Existing Building	Existing Park
Proposed Building	Existing Shadow	New Shadow	New Shadow Impact on Park

Figure 6



June 21 – 7:00 PM EDT

Key

Existing Street	Existing Sidewalk	Existing Building	Existing Park
Proposed Building	Existing Shadow	New Shadow	New Shadow Impact on Park

D. CONCLUSION

The proposed building would cast some new shadow on Central Park in the spring and summer. The new shadow would be cast at the end of the day and would slightly increase the long shadows already cast by other buildings on the park at this time.

The extent of incremental shadow would vary in size and location depending on the season but would never occur farther than 210 feet into the park (that is, never farther than 210 feet east of the western boundary of the park along Central Park West). In both spring and summer, the area affected would be limited to the area approximately between West 70th Street and West 71st Street, if those streets extended into the park. This affected area, 210 feet wide (west to east) and about one block

long (north to south), contains trees, grass and a pedestrian path (see Figures 7, 8, and 9). There are no passive recreation facilities (i.e. benches), no playgrounds, and no active recreation facilities. The areas of grass and trees are currently fenced off and not publicly accessible. To the northwest and west of the affected area, beyond the reach of any incremental shadow from the proposed building, there is a vehicular road (West Drive); on the other side of this road to the northwest lies Strawberry Fields, well beyond the reach of any incremental shadow.

The duration of the incremental shadow would always be quite short, and never exceed 50 minutes at any time of year. The very small duration of additional shadow would not be likely to affect the ability of the vegetation to survive. The size of the net new shadow cast by the proposed building would be insignificant, especially in comparison to the shadows cast by existing buildings in the neighborhood. The proposed building would therefore not have a significant adverse shadow impact on Central Park.

Figure 7

Area of Central Park Where New Shadow Would Fall (View Southwest)

Figure 8

Area of Central Park Where New Shadow Would Fall (View Northwest)

Figure 9

Area of Central Park Where New Shadow Would Fall (View North)

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