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July 12, 2012

Sabrina Charney-Hull
Planning Director
Town of New Castle
200 South Greeley Avenue
Chappaqua, NY 10514

RE: Specifications for a Visual Resource Assessment

Dear Ms. Charney-Hull:

This letter is a response to your request for detailed specifications for Visual Resource Assessment (VRA) regarding a proposed project in the Town of New Castle. These specifications draw on New York State's Department of Environmental Conservation's (NYSDEC) guidelines in *Assessing and Mitigating Visual Impacts*¹ for the process, and current "best practices" in the use of photography and computer simulation technology.

George M. Janes & Associates (GMJ&A) is a specialty planning firm that focuses on producing and reviewing VRAs for applicants, lead agencies and interested third parties. More on GMJ&A and its qualifications can be found at www.georgejanes.com.

Overview

The process for a VRA can be summarized into the following parts:

- Visibility analysis & viewpoint selection
- Photography
- Photosimulation
- Analysis / mitigation program
- Alternatives (if appropriate)

Visibility analysis & viewpoint selection

After a project (hereafter referred to as an action) has been proposed and the specifics of the site and action's height and footprint have been determined, the applicant should produce a visibility analysis (also known as viewshed mapping) that shows within a three mile radius² of the proposed action areas that have theoretical visibility to the proposed action. The applicant should both list and map on the viewshed map an inventory of listed visual resources within the three-

¹ The DEC guidelines can be found here: <http://www.georgejanes.com/PDF/visual2000.pdf>.

² The NYSDEC recommends a 5 mile radius, but considering the scale of this project, a smaller Area of Potential Effect is appropriate.

mile radius and if these visual resources have theoretical visibility to the proposed action. Listed visual resources include:

- Properties on or eligible for the National or State Register of Historic Places;
- State parks;
- Urban cultural parks;
- State forest preserves, Catskill parks;
- National wildlife areas, State game refuges, State wildlife management areas;
- National natural landmarks;
- The National Park System, Recreation Areas, Seashores, and Forests;
- Rivers designed as National or State Wild, Scenic or Recreational;
- A site, area, lake, or highway designated or eligible as “Scenic”;
- Scenic Areas of Statewide Significance (SASS);
- State or federally designated trail;
- State nature and historic preserve areas;
- Bond Act Properties purchased under “Scenic Beauty” or “Open Space” categories.

Viewpoints selected for analysis should not be limited to only listed visual resources, but can include publicly accessible areas with views that add to the community character of the area and can include views from roads, local parks, public buildings, and so on. These may be considered “resources of local importance” and can be defined by the Town as it sees fit. Private property that is not open to the general public, however, is usually not considered for visual analysis unless there is a specific public purpose for the analysis, or if the action requires a zoning variance.

Actual visibility will vary from theoretical visibility, however, and visual resources shown to have potential visibility should be visited and the consequence of that visibility assessed. It is *possible* that this assessment would require a balloon test. In short, a balloon test is an exercise where the applicant would set up a balloon at the project site that would rise to the height of the proposed action to assess actual visibility. In addition to helping assess visibility, a balloon test allows the community to see from where the action will be visible and can be of value communicating visibility in highly controversial actions.

But to be clear, a balloon test is not always required and its use depends on the ability to assess the potential impact of the proposed action without the balloon. Generally, undeveloped areas without references are more likely to need a balloon test, while developed areas with many known references are unlikely to need a balloon. This is determined on a case-by-case basis depending on the specifics of the proposed project.

Viewpoints selected for photosimulation should be selected in consultation with the Board within the Town that is reviewing the project. While New York State provides listed visual resources, local resources, possibly even a view from a prominent street, may be more important than listed resources to the local community.

Photography

Best practices dictate that the existing conditions photographs should depict worst case visibility conditions. For most circumstances this is interpreted as leaf-off, no snow conditions when atmospheric conditions are clear. Additional photographs taken at other times of year may add to the understanding of visual impacts and can be added at the applicant's option. Generally, photographs should be taken near mid-day, when shadows are short though the applicant is free to choose another time of day if a viewpoint suffers from glare or unusual reflection at this time of day. If nighttime simulations³ are required, photographs used for the nighttime simulation should be taken from the same viewpoints used for daytime simulations.

Camera & Lenses

Photographs are typically taken with a 50mm, or normal lens. A 50mm lens replicates the distance relationships of the human eye and in most cases is the ideal lens for a photograph. There are times, however, when a photograph can and should use a different lens. For instance, on viewpoints that are very close to the action, a wide angle lens may be used if a 50mm lens cannot capture the entire action within the frame of the photograph. On long distance views, a telephoto lens may be used to simulate the acuity of the human eye to focus in on objects far in the distance. If the lens used deviates from a 50mm perspective, the applicant should explain why and the reason should be apparent. There are very few reasons, for instance, to use a wide-angle lens on a long distance perspective.

The ideal camera for capturing photographs used in visual simulation is a full frame digital camera. Full frame digital cameras have a sensor that matches the size of 35mm film, which means the lens conventions between traditional film cameras and full frame cameras are transparent. Other high resolution digital cameras are acceptable, but care must be taken since their lens conventions vary by manufacturer and camera must be translated to a full frame/film equivalency to fully understand the image that is being captured. Photographs captured with 35mm film remain acceptable.

Panoramic lenses or panoramic stitching should only be used if there is no other way to capture the entire action in a view.

³ Nighttime simulations are not typical, but they may be required if the action uses highly contrasting night-lighting. Their production is not trivial and if they are required they should be discussed prior to their production.

Photosimulations

A best practices VRA includes photosimulations from viewpoints of the Town's choosing. There is no "right" number of photosimulations and not all visual resources that have visibility to the action need to be simulated, but, at minimum, the simulations should inform the visual concerns of the Town. This could be as few as one or two views, or it could be as many as a dozen or more. The number should be determined by the visual sensitivity of the area, the potential impact of the projects, and the concerns of the Town.

To meet standards regarding accuracy and verifiability, photosimulations must be performed as "verifiable digital photomontages." Verifiable digital photomontage is a technique that merges an existing conditions photograph with an elevated, 3D computer model of the proposed action. It is "verifiable" since the computer model of the action can be measured and its placement in the terrain checked for accuracy. A key part of making a photosimulation verifiable is the use of references that exist in both the existing conditions photograph and in the 3D model. References ensure that the computer "camera" used with the 3D computer model matches the camera used to take the photograph, adjusting to proper location, pitch, roll, and yaw.

In urban areas, references are usually existing buildings that can be seen in the photographs of existing conditions, and which are then included in the 3D computer model of the action. In rural areas, these elements can be added to the scene before photographs are taken. Cranes, balloons or more portable elements of a known size, shape and location are placed into the scene and the photograph is taken with these elements in the scene. These same elements are built into the 3D model and the photo and the model are matched to these known points. Common rural elements such as tree lines or ridges are not typically considered to be acceptable references and should never be the only points used to match the photograph to the 3D model. The actual references to be used for simulation are left to the discretion of the professional who produces the simulations and may vary according to viewpoint.

Representation of the action

The action is not only the structure(s), but also vegetation removal/addition and physical changes to the land including parking lots, grading and retaining walls and all components of the action should be depicted in simulation. The action should be shown as it would appear in operation. For instance, if a building has a parking lot, it should be shown with cars. If a building emits visible steam or smoke while in operation, it should be shown as it would appear during operation.

The action should be represented using photorealistic textures that accurately portray the color and materials used in the proposed action. The lighting in the simulations should be set to the time of day and year of when the photographs were taken. If the materials used in the action are specular (i.e. they reflect light) they should be represented as such. Landscaping should be actual landscaping

proposed depicted at time of planting. If aging the landscaping adds to the project understanding the applicant may provide additional simulations showing aged landscaping.

Presentation

Existing conditions photographs and accompanying photosimulations should be printed in color at native resolution, one photo per letter-sized page and should include information on the location, lens & time the photo was taken. Existing condition photographs which are not simulated may be printed two per page. Applicants should make sure that printing does not degrade the quality of the photographs. Viewpoints simulated should be accompanied by a key map showing all viewpoints and a discussion of how the photosimulations have been performed. I encourage applicants to make the simulations available digitally as some reviewers find them easier to evaluate on-line.

Analysis & mitigation program

While in many ways the photosimulations speak for themselves, they should still be accompanied by a narrative which describes not only of the methods used to produce the simulations, but which also discusses the existing landscape character and visual setting to establish the baseline visual conditions from which change is evaluated. The action's impact on visual resources should be analyzed using generally accepted criteria used to evaluate impacts on visual resources (e.g. displacement, form, line, color, texture, scale, spatial dominance.) If visual impacts are shown, a mitigation program should be discussed.

Alternatives

If alternatives are being considered, simulations of the alternatives should use the same viewpoints and be performed at the same level of detail as the proposed action so that an apples-to-apples comparison can be made.

Close

Clearly, there is some level of customization of a visual resource assessment that relies upon the specifics of the project being analyzed and the existing visual character of the area. Should you or your applicant have any questions about this document or would like to discuss their judgments on any of the items that relate to the specifics of their project please feel free to contact me.

Sincerely,



George M. Janes, AICP
Principal