

Precipice and Ridge Line Advisory Committee

Final Report To

The Board of Trustees, Tuxedo Park

February 27, 2009

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1. Executive Summary

Many communities in New York State and across the country have adopted laws to regulate construction on ridges, precipices, and steep slopes. These regulations ensure public safety, protect the environment, and safeguard visual aesthetics that define the character of the community and underpin its value to the residents. In this context, Tuxedo Park lags behind in legislation that protects other communities across the nation.

According to the Village Engineer, there are special public-safety and environmental considerations relating to construction on ridges and near precipices, including but not limited to stability of terrain; danger of falling boulders, rocks and debris; erosion control; and drainage management. These issues not only affect the precipice and ridge properties, but also can impact neighbors and public roads at lower elevations.

Further, the Committee found that existing powers, procedures, and standards of the Planning Board, Board of Architectural Review, and Board of Zoning Appeals cannot sufficiently mitigate the public-safety, environmental, and visual impact of precipice and ridge construction. For example, the majority of developments within the Village are single-family residences that are not subject to SEQRA review. Moreover, unregulated construction in visually prominent precipice and ridge areas, with landscape and terrain disturbance, would impair irreplaceable geologic features and negatively impact the Village's valuable scenic resources. Unregulated development would also undermine the Village's listing on the National Register of Historic Places (awarded in 1980.) The listing is based upon historic architecture situated in a wooded natural setting.

Using an iterative process of research, field trips, draft mapping, and in-person discussions, the Committee, (assisted by Bonnie Franson, Planning Director of Tim Miller Associates and the firm's technical team, and using the Government Information Service 2-foot topographical map,) established reasonable criteria to:

- Identify precipice and ridge areas;
- Develop a Precipice and Ridge Area Map;
- Compile a list of Precipice and Ridge Properties.

The Committee also tabulated the number of properties involved. The Map and the property information were reviewed for accuracy by the Village Engineer and Building Inspector.

The Committee made the following unanimous recommendations to the Board of Trustees:

- a. Construction in the Precipice and Ridge Areas to be permitted, subject to conditions. In contrast, the current Code prohibits construction;

- b. Construction within all Precipice and Ridge Areas to be regulated by additional Design Standards and Data Requirements. These Standards and Requirements work in conjunction with the existing Code and are commonly used in communities which have adopted ridge and steep slope laws;
- c. Construction outside the Precipice and Ridge Areas to remain subject to normal Planning Board and Board of Architectural Review standards and procedures;
- d. Existing properties within the Precipice and Ridge Areas not to be required to change their appearance or character;
- e. Repairs and Maintenance within the same Area to be exempt from the additional Design Standards and Data Requirements;
- f. After review by the Village's Administrative Boards and a Public Hearing, and if approved by vote of the Board of Trustees, the Precipice and Ridge Area Map, the List of Precipice and Ridge Properties, and the Design Standards and Data Requirements, to be filed with Albany and replace *Section 100-13A* of the existing Code.

2. Background and Objectives

In November 2008 the Tuxedo Park Board of Trustees passed Local Law #5 that instituted a moratorium for a period of nine months to suspend, temporarily, the ability to obtain final approvals and other authorizations regarding construction on a ridge line or at the edge of a precipice. The purpose of the law was to enable the Board of Trustees to consider a comprehensive approach to this land use issue. To this end, the Precipice and Ridge Line Advisory Committee was established to conduct research and provide advice to the Board of Trustees.

The Committee was convened in November 2008 and comprised five members: Chiu-Yin Hempel (Chair), Susan Boyle, Serene Swirbul, William Russell, and Ann Zgonena. The members represented a mix of gender, age, years lived in the Park (ranging from two to more than thirty years,) and owners of different types of properties: Small and large lots, historic and contemporary houses, as well as precipice and ridge properties. Three Committee members served on the Planning Board, Board of Architectural Review, and Board of Zoning Appeal, providing an understanding of the Village's Code and processes.

The Committee worked under the advice of Bonnie Franson, Planning Director at Tim Miller Associates; Carl Stone of Weston & Sampson, Village Engineer; Susan Harder, lighting expert; Rick Golden, Village Attorney; and John Ledwith, Building Inspector. Tim Miller Associates' technical team provided topographic mapping assistance. Jim Hays, Deputy Mayor, was the Committee's liaison with the Board of Trustees.

The Committee set out the following objectives:

- a. Analyze the public-safety, environmental, and public-views impact of construction in precipice and ridge areas;
- b. Determine whether precipice and ridge development negatively impacts the public safety, environment, and visual aesthetics of Tuxedo Park;
- c. Investigate how other communities have established procedures and standards to mitigate the negative impact;
- d. Recommend to the Board of Trustees whether – and how – the existing Code *Section 100-13* should be amended.

3. Methodology

Objective research was the cornerstone of the Committee's work.

The Committee's findings and recommendations were the result of an iterative process involving:

- a. Research on ridge and slope legislation adopted by communities in New York State and across the country (using printed and on-line sources;)
- b. Consultation with the Village Engineer to understand the engineering, erosion control, and storm water and construction management issues of development on ridges and near precipices, and their potential impact on public safety and the environment;
- c. Consultation with Tim Miller Associates regarding land-use planning issues, including regulations and measures that other communities have found effective;
- d. Consultation with lighting expert Susan Harder to understand why and how other communities regulate lighting, and standards Tuxedo Park should adopt given its rural geography and existing lighting conditions;
- e. Use of the Orange County Government Information Service 2-foot topographical map, overlaying it with property lines and existing building footprints to develop reasonable criteria to identify and map precipice and ridge areas;
- f. Field visits to properties with ridges, precipices, and steep slopes to verify mapping results. Also, field trips to roads circumscribing the 3 Tuxedo Lakes to gauge the visual impact of precipice and ridge properties;
- g. Review of Tuxedo Park Code and past BZA decisions on precipice and ridge developments to understand their rationale;
- h. In-person meetings to discuss research findings.

The Committee conducted its work between November 2008 and February 2009. It reported on the formation of the Committee to the Board of Trustees on November 12, 2008. It presented interim findings to – and took questions and suggestions from – the Board on December 12, 2008; January 21, 2009; and February 18, 2009. The documents listed under Appendices in the Table of Contents were submitted with the interim reports. The final report was delivered on February 27, 2009.

4. Findings

a. *Tuxedo Park is behind the curve in adopting laws to regulate construction in ridge and steep slope areas.*

Communities across the United States have for some time enacted precipice, ridge, and steep slope laws to regulate construction in these environmentally sensitive areas. For example: Chester, Cornwall, Warwick, and Woodbury in New York State; and counties and municipalities in California, Colorado, Georgia, New Hampshire, Nevada, North Carolina, Massachusetts, South Carolina, Tennessee, Utah, and Vermont. (See *Appendix A: A Representative Selection of Research on Communities with Precipice, Ridge, and Slope Legislation.*)

In Tuxedo Park, around 2005/6 the Transition Committee under Mayor David McFadden included in its initial discussions on design guidelines some suggestions regarding ridge construction. However, the guidelines did not develop into law.

b. *Communities adopt ridge and steep slope protection laws in order to ensure public safety, protect the environment, and safeguard visual aesthetics that define the character of the community and underpin its value to the residents.*

In the words of the communities themselves, for example:

“... the mountains of Georgia are characterized by steep slopes, thin soils, and, because of the natural stresses placed on such environments, they require special protection. Land-disturbing activity on the high-elevation, steep-slope mountains of Georgia potentially threatens the public health, safety, welfare, and economic progress of the state. Such land-disturbing activity: may endanger the quality of surface water by increasing erosion and stream sedimentation; has the potential to induce landslides; has the potential to adversely affect ground water due to the difficulty in providing proper sewerage disposal in areas of steep slope and high elevation; may damage the habit of some species of wildlife (both plants and animals); and may detract from the mountains’ scenic and natural beauty which is vital to the recreation and tourism industry of North Georgia.” *White Country, Georgia.*

“The purpose of the Ridgeline Protection Section is to preserve and maintain the County’s scenic aesthetic resources as viewed from certain roadway corridors that are important to the character and economy of Eagle County.” *Eagle County, Colorado.*

“Topography in the Town includes dramatic ridgeline elevations... afford sweeping views of the surrounding countryside... forming the scenic backdrop that is an important element in the Town... Therefore, the Town has enacted the following regulations in order to protect these important visual and aesthetic resources...” *Chester, New York.*

“The Purpose of the Ridgeline and Hillside District... to preserve and protect the natural scenic beauty... to regulate new construction, the removal of natural vegetation, especially large trees, and the excavation and alteration of land, in order to minimize any danger of erosion, sedimentation, flooding, water pollution, and other adverse impacts of development... to ensure that development within the District does not reduce property values in said District or adjacent thereto by unnecessarily detracting from the natural visual setting or obstructing significant views.” *Wilbraham, Massachusetts*.

- c. ***In Tuxedo Park, as in other mountainous communities, construction on ridges and at the edge of precipices, if not reasonably regulated, could potentially have a negative impact on public safety, the environment, and visual resources of the community.***

According to the Village Engineer, there are special public-safety and environmental considerations relating to construction in precipice and ridge areas, including but not limited to stability of terrain; danger of falling boulders, rocks, and debris; erosion control; and drainage management. These issues not only affect the precipice and ridge properties but also potentially impact neighbors and public roads at lower elevations.

Furthermore, the Committee ascertained that existing Planning Board, Board of Architectural Review, and Board of Zoning Appeals powers, processes, and standards cannot sufficiently mitigate the potential impact of precipice and ridge construction: Nearly all developments in the Village involve single-family residences that are not subject to environmental review under SEQRA. Moreover, the Boards do not have tools (such as soil stability analysis, visual impact analysis, material and height restrictions, etc.) that are explicitly available to communities with ridge and steep slope laws.

The Committee found that Tuxedo Park is defined by its unique landscape and historic architecture. Unregulated construction in visually prominent precipice and ridge areas, with the resulting landscape and terrain disturbance, would have a negative impact on the Village’s scenic resources. Unregulated development would also be detrimental to the Village’s listing on the National Register of Historic Places (awarded in 1980) that valued architecture in the context of a wooded natural landscape.

- d. ***Using an iterative process of research into other communities’ ridge and steep slope protection laws; draft topographical mapping undertaken by Tim Miller Associate; field visits to verify on-site conditions; in-person discussions; and map revisions, the Committee established the following criteria to identify precipice and ridge areas.***

A ridge area is the area within a perimeter extending 150 feet in all directions from the ridge line. (See Appendix B: Cross-section of a Ridge Area.)

A ridge line is the horizontal line on plan view marking a ridge top or following a series of ridge tops. The minimum length of a ridge line is deemed to be 150 feet on plan view and may include a maximum of 400 feet on plan view of a flank.

A ridge top is the crest of a hill or a mountain on plan view.

A flank is the shoulder of a ridge top.

A precipice area is the area within 150 feet of the edge of a precipice as measured horizontally on plan view and running the full length of that precipice. (See Appendix C: Cross-section of a Precipice Area.)

A precipice is created by a slope of 20 feet or more in height measuring 45 percent or greater in slope above which there is a reduction in slope percentage to less than 45 percent. The reduction could be man-made or natural. Where the slope decreases is the "edge of the precipice." (See Appendix D: Example of a 45-60% Slope.)

A slope is the ratio of the elevation change to the horizontal distance (i.e., rise/run.)

Based on the above criteria, a **Precipice and Ridge Area Map** was developed by Tim Miller Associates, reviewed by the Village Engineer, and submitted to the Board of Trustees as part of the Committee's recommendations. (See *Appendix E: Precipice and Ridge Area Map.*)

Based on the Map the Committee compiled a **List of Precipice and Ridge Properties** (see *Appendix F.*) To ensure accuracy, the Building Inspector verified the property information against the Village's tax data.

- e. According to the Precipice and Ridge Area Map, there are 172 existing lots (37% of a total of 465 properties in Tuxedo Park) that contain ridges and precipices.*

Of these 172 lots, 50 are vacant. 11 of these vacant parcels can be further subdivided and additionally produce 76 4-acre lots. Moreover, there are 16 "estate" properties (8 plus acres each) with an existing dwelling that could potentially be further subdivided into 54 4-acre parcels.

As a result, there could be a maximum of 153 new home developments in precipice and ridge areas.

89 lots containing ridges and precipices are visible from the perimeter roads of the three lakes. Of these, 26 are vacant, including 4 lots that could be subdivided to produce 25 additional 4-acre lots. Moreover, there are 12 properties with an existing dwelling that could further be subdivided into 38 4-acre parcels.

5. Recommendations

The Committee unanimously made the following recommendations to the Board of Trustees:

- a. All precipice and ridge areas throughout Tuxedo Park to be regulated to protect public safety, the environment, and the visual resources of the community.

The Committee discussed with the Board the alternative of regulating only those precipice and ridge properties that are visible from the perimeter roads of the 3 Tuxedo Lakes. However, such an approach would not treat all precipice and ridge properties equally. It also ignores that all precipice and ridge developments share the same public-safety and environmental challenges. The Committee did not recommend this approach.

- b. Construction to be permitted in precipice and ridge areas, subject to conditions. In contrast, the current law prohibits construction in these areas.
- c. On a lot listed as a "Precipice and Ridge Property" (i.e., the parcel contains a precipice or a ridge:)
 - Construction outside of the identified Precipice and Ridge Area to be subject to normal Planning Board and Board of Architectural Review procedures and standards.
 - Construction within the Precipice and Ridge Area to be subject to additional Design Standards and Data Requirements. These Standards and Requirement ensure public safety, minimal physical degradation of precipice and ridge areas, and minimal visual impact upon completion of the project.

The Committee expected that the Design Standards and Data Requirements would help promote design creativity for construction within the regulated Precipice and Ridge Areas, and may encourage construction away from such areas.

- d. Design Standards to be adopted to regulate construction within the Precipice and Ridge Areas. These Standards add to existing Code provisions. They are intended to work in concert and are commonly used by communities with ridge and steep slope protection laws. (See *Appendix A: A Representative Selection of Research on Communities with Precipice, Ridge, and Slope Legislation*.)

The Committee further recommended that if any part of a construction is within the regulated area, the entire structure or improvement to be subject to the additional Design Standards.

The proposed Design Standards are:

- (i) ***Tailoring to Natural Terrain.*** Design structures and associated driveways, gardens, terraces, walls, ponds, patios, and utilities to minimize blasting, chipping, cutting, filling, and mechanical re-contouring of the natural terrain; and to take advantage of the screening potential of natural vegetation and land features.
- (ii) ***Design of Structures.*** To the maximum extent practicable, structures shall be sited at the lowest feasible elevation in order to be as visually inconspicuous as possible when seen from any public roadway.

The maximum height of a structure shall be limited to 50 feet in total, but in no event more than 20 feet above the highest elevation of the natural precipice or ridge area on which sits the foundation. (See *Appendix G: Maximum Height Envelope of a Structure.*)

The structure shall step with or follow the natural terrain to minimize re-grading. Further, no part of the structure and its associated garden shall pierce the skyline as seen from any public roadway.

- (iii) ***Use of landscaping, building materials, and colors.*** Existing and additional landscaping, (including but not limited to vegetation and retaining walls using natural stones,) shall be used with earth-tone and non-reflective building materials (including but not limited to glazing) as part of the structure, to ensure that the structure blends with surrounding land features and vegetation.

Existing vegetation shall be preserved and maintained to the maximum extent practicable.

Clear-cutting of trees in a single contiguous area shall be prohibited, unless expressly permitted by the Approving Agency as part of an approval for a site plan or subdivision application.

Where a new structure would not be adequately screened by natural vegetation, appropriate species of native vegetation shall be planted and maintained so that there is no obvious disruption of vegetative cover or piercing of skyline.

As determined necessary by the Approving Agency, this requirement to preserve and maintain vegetation coverage may be enforced by deed restriction.

Within a Precipice and Ridge Area, no property owner or agent shall be permitted to remove, top, or kill any live tree with 5 or more inches diameter, measured 48 inches above the ground, without approval from the Board of Architectural Review and a permit from the Board of Trustees, unless the tree removal has been authorized in conjunction with an approved site plan or subdivision plan, or in the event of an emergency (in which case an application shall be made within 10 working days after removal.)

For every tree so removed, the Approving Agency may require replanting a number of native trees and/or shrubs to achieve compensatory coverage.

Outside the Precipice and Ridge Areas, tree removal shall be conducted in accordance with the provision of Code *Section 100-14 [Trees.]*

(See Appendix H: Examples of Communities Requiring Tree Removal Permit and Replanting; Appendix I: Town of Bedford, NJ Tree Preservation Ordinance for a summary of the environment reasons for tree protection; and Appendix J: Some Tree Facts – United Nations Environmental Program, and Tree Benefits.)

- (iv) **Preservation of Scenic Features.** Natural and historic features that provide scenic importance to the Precipice and Ridge Areas shall be preserved to the extent practicable. These features shall include, but are not limited to, historic structures; stone walls, steps and paths; boulders; natural rock outcroppings; streams; unpaved pathways; and native trees and shrubs.
- (v) **Lighting.** According to Susan Harder, lighting expert, Tuxedo Park belongs to LZ1 Lighting Zone, defined by the International Commission on Illumination as “low density residential” and “rural.” Harder recommended that exterior lighting within the Precipice and Ridge Areas, (including lights mounted on a structure; garden path lights; decorative lights; and driveway entrance lights) comply with a set of Exterior Lighting Standards. These standards are designed to work in concert to promote public safety, sound environment and ecology, human health, and neighborly conduct in an LZ1 environment. *(See Appendix K: Exterior Lighting Report and Standards.)*

The Lighting Standards also clarify existing Code *Section 100-7 [Offensive Uses]* which provides against “bright light” but does not offer a definition of “brightness” or any solutions to mitigate brightness.

The Standards should be adopted in a format (either as a set of design standards or as an integral part of the Code) which facilitates amendments to incorporate new lighting technology.

- e. Additional Data to be required by the Approving Agency to determine the public-safety, environmental, and public-views impact of construction within the Precipice and Ridge Areas. These Data Requirements add to existing Code provisions. They are commonly used by communities with ridge and steep slope protection laws.
 - (i) **Soil Stability Analysis** to demonstrate that the construction will not compromise the stability of the terrain (including any man-made structure on site,) and certified to that effect by a licensed geotechnical engineer.

- (ii) **Visual Impact Analysis**, which may include additional drawings or photo-simulations of a proposed structure overlaid on photographs of the site from distances and vantage points as determined appropriate by the Approving Agency. This visual analysis shall consider the visibility of a structure during on- and off-leaf conditions.
- (iii) **Tree Survey** showing on the site plan the location, type, and diameter of every tree of 5 or more inches in diameter, measured 48 inches above the ground. The Approving Agency may require a photographic record of the vegetative coverage taken from vantage points determined appropriate by the Agency. In addition, the Approving Agency may require an inventory of shrubs and plants for purposes of identifying native species and determining appropriate compensatory coverage.

f. These additional Design Standards and Data Requirements to be applicable within the Precipice and Ridge Areas to subdivision; new construction of a principal building; complete tear-down and rebuild to a new design; new construction of an accessory building; exterior renovation, extension, addition, and less than 50% tear-down; and landscaping project of a ¼ acre or more that alters the visual characteristics.

However, the Board of Architectural Review may permit the construction to follow the style, material, and color of a pre-existing main dwelling.

- g. Normal repairs and maintenance within the Precipice and Ridge Areas to be exempt from the additional Design Standards and Data Requirements.
- h. There shall be no requirement to alter or obscure the view of – or from – an existing structure or to alter the character or appearance of an existing property within the Precipice and Ridge Areas.
- i. The Precipice and Ridge Area Map, together with the List of Precipice and Ridge Properties, and the additional Design Standards and Data Requirements to be filed with Albany, if approved by vote of the Board of Trustees after comments from the Planning Board, Board of Architectural Review, and Board of Zoning Appeals; and a Public Hearing.

This new law to replace *Section 100-13A*.

- j. *Section 85-35 [Unsuitable Lots]* to be amended to reflect the new Precipice and Ridge law.
- k. The following definition of “Tailoring to Natural Terrain” to be added to the *Definitions Section* of the Zoning Code so that it may be referenced throughout the Code:

“Design structures and associated driveways, gardens, terraces, walls, ponds, patios, and utilities to minimize blasting, chipping, cutting, filling, and mechanical re-contouring of

the natural terrain, and to take advantage of the screening potential of natural vegetation and land features.”

1. *Section 100-13B* (No new dwelling permitted at or higher than 800 feet above sea level east of the 3 lakes or 900 feet above the sea level west of the 3 lakes.) In accordance with the Village Attorney’s opinion, this section is not related to precipice and ridge construction. Therefore, it is outside the scope of the Committee’s deliberation.

However, in light of available new technologies, the Committee recommended that this section be updated by the Board of Trustees under advice from the Village Engineer and Village Attorney.

6. Conclusion

The Board of Trustees should approve new legislation to regulate construction in precipice and ridge areas for the benefit of Tuxedo Park's current and future-generation residents for the following reasons:

- a. Communities across the country agree that construction on ridges and near precipices needs to be regulated to ensure public safety, protect the environment, and safeguard valuable visual resources;
- b. Tuxedo Park's Village Engineer Weston & Sampson, Planner Tim Miller Associates, lighting consultant Susan Harder, and members of the Precipice and Ridge Line Advisory Committee concur that there are, indeed, special public-safety, environmental, and aesthetic considerations relating to construction in precipice and ridge areas;
- c. Tuxedo Park currently lags behind in legislation that offers this protection. The Planning Board, Board of Architectural Review, and Board of Zoning Appeals do not have sufficient powers, processes, and standards to mitigate the potential impact of precipice and ridge construction.

7. Additional Observations

In the course of its work, the Committee encountered several sections of the Code that would benefit from review/amendment by other committees established by the Board of Trustees:

- a. **Section 100-12 [Slope Restrictions.]** (No building on a lot where 75% of the lot area has a slope of 20% or greater.) Prohibition would lead the owner to appeal to the Board of Zoning Appeals. Instead, a slope law that regulates the public-safety, environmental, and visual impact of construction on slopes measuring 20-45% may be more effective.
- b. **Landscaping.** Current Code permits cutting or topping of 4 trees per year measuring 5 inches in diameter 48 inches above ground. The absence of any requirement for appropriate replanting would lead to the deforestation of Tuxedo Park in 10-20 years. Aside from the negative visual impact, the resultant damage to the environment includes increased risks to erosion control and storm water management. This would also call into question the Village's designation on the National Register of Historic Places that valued historic architecture in the context of a wooded natural setting.
- c. **Height of buildings.** Current Code permits a maximum height of 70 feet or 3 and ½ story for a principal building. The height could be reduced but still provide for up to a 3 and ½ story structure that is in visual harmony with Tuxedo Park's geography and environment. The maximum height of an accessory building could be proportionately adjusted.