

EMERGING RULE CONCEPTS FOR STREAM CORRIDOR PROTECTION



Lake George Park Commission Watershed
Protection Program Plan

Prepared for the January 18, 2007 Focus Group
Discussions

January 9, 2007



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Worksheet Packet for Focus Group Meeting 2

January 18, 2007

Worksheet Instructions

This packet contains worksheets outlining the alternative concepts likely to be found in the draft rules governing stream corridors. These sheets are intended to help familiarize participants with the potential parameters of any future stream corridor management rules. But foremost, it is intended to help you record any concerns relating to these matters that are of particular interest to you. You will be asked to share your thoughts, recommendations, and opinions during the second focus group meeting.

Your Role

Please use these sheets to become familiar with the concepts and issues relating to the management of stream corridors. The ideas contained here are taken from a survey of existing stream corridor rules and information learned from the first focus group meeting. However, in order to reflect the realities that are unique to the Lake George basin, both its natural features and its community standards, we request that you take the time to share stories with the focus group of your understanding and experiences regarding these issues. This includes success stories and horror stories. We believe that some issues are 'matter of fact' which require little or no discussion. Others issues may be subject to differing opinions and understandings. The focus groups will be actively facilitated to encourage constructive dialogue and to develop consensus. Please read the following sheets in advance of the focus group meeting, record your notes and concerns, and bring them with you.

Background to this worksheet

Generally, a land use law works well when it is informed by answers to key questions. These worksheets were developed to help draw out those answers. The following questions should be kept in mind throughout your review of these worksheets:

- What allowances or restrictions are appropriate? Any uses or activities allowed or restricted ought to be justified by both good science and community standards. In light of the potential impacts on water quality, what uses or activities should be 1.) restricted, 2.) permitted upon review, or 3.) allowed without review? Permanent and high impact uses will likely be restricted, whereas low impact uses like fences and paths may be exempt from review.

- ❑ When is it appropriate to adapt language and standards from existing rules? The philosophy here is to take the best and leave the rest. Many people are already familiar with existing rules from the LGPC, the APA, the NYSDEC, and municipalities. As such there may be practical benefits to borrowing familiar and successful concepts and language from existing rules.
- ❑ What standards should be used for regulating certain allowed activities or uses? Standards will be needed to govern the conduct of certain activities or uses, as well as to provide guidance for the review of project proposals. Standards need to be justified by good science, be in harmony with community standards, and be consistent with best management practices. Here, we are especially interested to hear individual experiences regarding enforcement or design or interpretation problems that should inform the development of standards.
- ❑ Where is it appropriate to include exceptions or qualifications to standards? Exceptions should be seen as a safety valve in order to provide some relief in the case of particular hardships through a variance process. Qualifications may also include emergency circumstances or circumstances where prohibited activities have a predictably low impact, thus warranting a relaxing of the standards.

We do not expect participants to provide comments on every matter in this packet. The most valuable comments are those based on experience, where it is possible to learn from mistakes made in other settings and how we might improve them. Also, while the list is comprehensive

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Intent and Purpose

1. To protect and improve water quality by reducing the introduction of waterborne contaminants.

Background

Pollutants of concern and impacts

- ❑ Sediment- turbidity, sedimentation, nutrient transport, alteration of fisheries habitat, aesthetics
- ❑ Nutrients- microbial and algae blooms, nutrient loading, depletion of dissolved oxygen, aesthetics
- ❑ Pathogens- disease vectors, public health, fisheries health
- ❑ Biocides- public health, fisheries health
- ❑ Litter/Debris- public health, fisheries health, aesthetics

The following natural processes within stream corridors remove pollutants from water and are the focus of protection: -

- ❑ Absorption- the removal of pollutants from water by incorporation into soil or plant matter
- ❑ Adsorption- the removal of pollutants from water by accumulation as a film on the surfaces of soils and plant matter
- ❑ Attenuation- slowing the flow rate of water and pollutants into waterways
- ❑ Biodegradation- the chemical breakdown of pollutants by plants and microbes
- ❑ Decomposition- the chemical breakdown of pollutants through non-biological reactions
- ❑ De-nitrification- the removal of nitrogen by plant uptake
- ❑ Deposition- the removal from water by deposition
- ❑ Filtration- removal from water by mechanical filtration by soil and plant matter
- ❑ Plant Uptake- removal of pollutants through plant roots

The intent and purpose part of the draft rule will identify the natural processes or characteristics of high- quality water sources that will be protected by regulating uses and activities. Foremost among these characteristics is the protection of stream water quality by limiting the amount of waterborne pollutants entering the stream system.

- ❑ *Are there pollutants of concern, impacts, and natural processes that should be included but are not?*

2. To protect and improve water quality by attenuating peak runoff volumes.

Background

Impervious surfaces results in larger amounts of water rushing into streams in a shorter amount of time. Impacts from this effect are:

- ❑ Flooding
- ❑ Turbidity
- ❑ Erosion
- ❑ Scouring of stream banks and channels
- ❑ Increased sedimentation
- ❑ Increased flow of non-point source water pollutants directly into waterways

The following substantially impervious surfaces are anticipated to be the focus of proposed rules:

- ❑ Roadways
- ❑ Rooftops
- ❑ Sidewalks
- ❑ Paved driveways and parking lots
- ❑ Compacted soil- gravel parking lots and driveways, dirt roads, lawns, and trails

Impervious surface is defined as “an area covered by pavement, rooftops, or other structures or materials that substantially prevents the infiltration of water into the soil covered by the impervious surface.” – LGPC stormwater rules

Another aspect of water quality is the amount of runoff that enters a stream at any one time. This is typically caused by rainwater running off impervious surfaces, rather than allowed to infiltrate into the soil. This excess water can overwhelm stream systems and cause harm to both the environment and property downstream.

3. To protect and improve water quality by maintaining base flow.

Background

“Base flow” is a natural process where water flows underground and near the surface, eventually reaching streams and waterways from below. This natural process has the following effects on waterways:

- ❑ Stabilizes stream water levels during dry weather
- ❑ Provides naturally cleansed water
- ❑ Regulates the temperature of stream water

The following impacts from development are the focus of the rules

- ❑ Increased impervious surfaces
- ❑ Decreased groundwater recharge rates
- ❑ Non-point source water pollution

Base flow is a concept little known outside of the ecological sciences, however this is changing. Base flow is one of two important sources of water for streams. Maintaining an even base flow throughout the year is very important to ensuring the quality and integrity of the streams. Since decreases in base flow are often caused by the same factors that increase runoff rates, base flow dovetails with the existing rules while requiring little or no extra restrictions. Many communities wishing to protect their water resources are now recognizing base flow as an important source of water for streams.

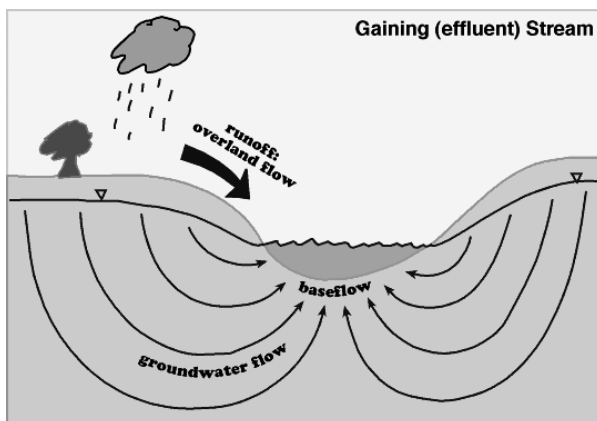


image from http://www.columbia.edu/~vjd1/streams_basic.htm

4. To protect and improve water quality by reducing unnatural temperature fluctuations

Back ground

The maintenance of stream water temperatures within normal ranges is important for fisheries health, especially during warm months. Increased temperature reduces beneficial oxygen and increases algae and bacteria growth. The following control stream water temperatures naturally:

- ❑ Shade from vegetation
- ❑ Sustained, even Base flow rates
- ❑ Normal runoff rates from forested areas

The following impacts from development are the focus of *rule*

- ❑ Vegetative cutting
- ❑ Impervious surfaces

Stream temperature is of particular importance to stream fisheries health. Higher temperatures impact water quality by reducing oxygen available for fish and by increasing growth rates for algae and bacteria. The same factors that impact stormwater runoff rates and base flow rates also impact temperature. This includes the creation of impervious cover and the removal of vegetation. Again, this function of stream corridors in their natural state can be protected while requiring little or not additional restrictions.

5. To promote the quality of the life in the Park through the enjoyment of the natural beauty and water based recreation.

“The preservation and enhancement of waterways promotes the protection and improvement of natural resources in the Park such as water quality and ecological diversity for the benefit of the public in terms of health, recreation, and enjoyment of natural beauty. “

The purpose of this section is to link the protection of water quality to the legislative intent of the Lake George Park Commission.

Proposed Streams to Regulate

Perennial, Intermittent, & Ephemeral Streams, Ponds and Wetlands

Stream Definitions

- ❑ Apply to only certain classifications - *NYSDEC surface waters classifications- N, AA, A, B, C, C(T), C(TS), D (6 NYCRR Part 701)*
- ❑ NYSDEC “Protection of Waters Permit”- “A watercourse or portion thereof, including the bed and banks thereof.
- ❑ NYSDEC “Protection of Waters Permit”- “Small ponds or lakes with a surface are of 10 acres or less and located in the course of a stream.”
- ❑ Stream shall signify water flowing in a “natural channel” referred to commonly as a brook, creek, run, branch, rivulet, rill, river, or tributary.

Perennial Streams

- ❑ Can observe water flowing continuously throughout a year of normal rainfall
- ❑ Exclusive of ice or freezing conditions
- ❑ USGS topographic maps, 1:24,000 scale, solid blue line
- ❑ US Soil Survey Maps,

Intermittent/Ephemeral streams

- ❑ Can observe water flowing on more than 30, 45, 60 days in a year of normal rainfall- *should be based on rainfall curves for the area*
- ❑ MA7CD10: minimum average low flow for seven consecutive days that occurs once in 10 yr. *New Jersey uses this standard.*
- ❑ USGS topographical maps, 1:24,000 scale, dashed blue line
- ❑ US Soil Survey Maps

Features we expect to convey stormwater water that are not considered a stream in the conventional sense:

- ❑ Roadside Ditches
- ❑ Roadside or landscaped Swales
- ❑ Permitted stormwater controls
- ❑ Others?

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- ❑ *Are there concerns about complexity of delineation, enforcement?*
 - ❑ *Are the some definitions too expansive or too limited?*
 - ❑ *Are there other features or items that should be denoted for inclusion/exclusion from the rules?*

The Buffer Width (From Where)

Potential Alternatives

- ❑ Centerline of the stream channel- *where center line means the lowest point of the stream bed*
- ❑ Edge of the stream channel- *where stream channel means the streambed and stream banks, formed by either human design or fluvial processes.*
- ❑ Mean high water mark- *where MHW is the average high water mark that distinguishes between predominantly aquatic and terrestrial habitats (NYSDEC Protection of Waters permit)*
- ❑ Edge of delineated floodways or flood zones- *where this is determined by a FEMA or state flood map.*

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- ❑ *Are there concerns about complexity of delineation, enforcement?*
 - ❑ *Is there a preferred criteria, that if not discernable in a particular instance, another criteria is used?*
 - ❑ *How might ponds and wetlands existing within a stream be integrated with these rules?*

The Buffer Width (To Where)

Potential Alternatives

Fixed Width

- Widths vary dependent on the pollutant or water quality condition in question. The following widths are identified in the scientific literature as ranges necessary for effective removal.
 - Pesticide retention- 50 – 328 ft
 - Stream Bank Stabilization- 50 – 100 ft
 - Nutrient retention 16 – 164 ft
 - Stream Temperature 33 – 230 ft
 - Terrestrial Wildlife 30 – 500+ ft
 - Slope- see below
 - Vegetation cover type
 - Based on stream order (*Baltimore County, MD; Lexana, KS*)

- Fixed Widths from other regulations
 - APA shoreline cutting restrictions – 35 ft
 - NYSDEC Protection of Waters Permit – 50 ft

- Fixed Width Zoned Buffers- *Widths are cumulative*
 - Zone 1: No development, no vegetative cutting
 - Zone 2 (outside of Zone 1): No development, some vegetative cutting
 - Zone 3 (outside of Zone 2): No development, vegetative cutting, landscaping

Variable Width

- A fixed width plus 2 feet per percent slope is a common rule
- A fixed width plus the width of slopes over 15% (or 25%) within the buffer
- A fixed width plus any wetlands within the buffer
- Variable width when slope criteria is exceeded- *A fixed width that extends to include all sloped lands over 100% up to a break in the crest (NYSDEC Protection of Waters permit)*
- Width variable by vegetation cover- tree, shrub, or grass
- Width variable by soil type- percolation rates

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- *Are there concerns about delineation, enforcement?*
 - *Which factors do you feel are most critical in establishing buffer widths, such as level of pollutant removal, conditions within the buffer, enforcement, or affordability of delineation?*

Uses and Activities: New Land Use and Development

- ❑ The enlargement within the stream buffer of the following improvements existing prior to the adoption of this rule:
 - Primary structures
 - Accessory structures
 - Parking lots, sidewalks
 - Roadways
 - Access roads, driveways
- ❑ Lower Impact uses not typically associated with impervious cover, but which may include the use of substances that impact water quality
 - Landscaping
 - Agricultural uses
- ❑ Construction or alteration of roads, highways, utilities, public facilities, and other similar improvements;
 - Public improvements
- ❑ The construction of new structures that by their nature cannot be located anywhere except within the stream buffer.
 - Docks
 - Boat launches
 - Public water supply intake structure
 - Facilities for natural water quality treatment and purification
 - Public wastewater treatment plant sewer lines and outfalls
 - Facilities for the remedial management of natural resources.
- ❑ The storage of, access to, and movement of equipment and supplies necessary for development, land disturbances or land clearing activities;
- ❑ In kind repairs involving not more than an established percentage of the structure or improvement.
- ❑ Routine care necessary for the safe operations and maintenance of structure;
 - Activities inclusive of ...
 - Activities exclusive of...

Definitions

- ❑ **Development** means any building, construction, expansion, alteration, modification, demolition or other activity, including land clearing, land disturbance, grading, roadway construction or expansion, mining or mineral extraction which materially change the use or appearance of land or a structure, or the intensity of the use of land, or the creation of a subdivision which may result in such activity, but not including interior renovations to a structure, a change in use of a structure which results in no land disturbance, or the construction or modification of a dock, wharf or mooring. (From LGPC rules on stormwater)

- ❑ **Land Disturbance** or Land Clearing means activities that expose soil or rock, including but not limited to grading, digging, cutting, scraping, excavating, removing of soil, placement of fill, paving or otherwise covering, construction, stump removal, and landscaping or re-vegetation that disturbs the soil or root mat. (From LGPC rules on Stormwater)
- ❑ **Land Use** means the type of use activity occurring on a parcel, a section thereof, or within a building situated thereon and that is permitted or permissible under the existing comprehensive plan or applicable land use regulations.

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- ❑ *Identify specific uses or activities that are not addressed here, but should be.*
 - ❑ *Which uses or activities should be prohibited, permitted upon review, or allowed without review in order to promote the purposes of this draft rule.*
 - ❑ *Recall or imagine instances where enforcement, compliance, design, or hardships warrant special attention in the draft rule.*
 - ❑ *If you can, be specific about circumstances, since activities conducted under a particular set of circumstances may have little impact, but would be greater if such activities were conducted under different circumstances.*

Uses and Activities: Vegetative Cutting

- ❑ Vegetative removal, cutting, or treatments as necessary for
 - Emergency fire suppression activities
 - Control of disease vectors
 - Insect infestations
 - Blights
 - Imminent threat to buildings/improvements
- ❑ Selective tree removal or cutting to enhance scenic view points from scenic turnouts located on public right-of-ways immediately adjacent to road or highway corridors.
- ❑ Habitat restoration or enhancement of forest health: Remedial management of natural resources as necessary to achieve environmental thresholds as administered or permitted by a local, state, or federal agency.
- ❑ Standards for landscaping existing as of adoption of this rule
- ❑ Firewood for personal use
- ❑ Removal for solar access
- ❑ Removal within public right-of-way
- ❑ Removal/Management of saplings

Definitions:

- ❑ **Tree** means all trees greater than 6” dbh (Diameter at breast height)(pulled from APA cutting restrictions).
- ❑ **Vegetation** means all living plants, except those defined herein as trees
- ❑ **Tree (or vegetative) Removal** means the cutting of a tree (or vegetation) whereby the plant is killed.
- ❑ **Tree (or vegetative) cutting** means the material alteration of a tree (or vegetation), typically by the following means- harvesting, cutting, culling, de-branching, clipping, pruning, cutting, trimming, shaping, thinning, and pulling.

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Uses and Activities: Hazardous Substances, Waste, Discharges

- The one-day discharge of less than an established amount of water from swimming pools and other artificial pools or tanks
 - Exclusive of stormwater control facilities
 - Discharges shall de-chlorinated and allowed to flow in a manner that prevents erosion and turbidity in the stream buffer.
- The receiving, storage, application, dispersion, or disposal of
 - Biocides
 - Hazardous substances
 - Garbage, Trash, Refuse
 - Septage, septic sludge,
 - Soil fill, clay, sand, gravel, coal, and salt;
- The disposal of snow and ice removed from roadways, parking lots, driveways, and similar impervious surfaces;

Hazardous or toxic refers to substances and materials that because of its quantity, concentration, physical, or chemical characteristics, posses a known potential hazard to human health or water quality.

The following materials are known to have or be hazardous materials and are commonly found in households and commercial operations: truck and auto bodies, automotive and engine fluids, engines, motors, batteries, fuels, oils, greases, solvents, varnishes, ordinances and explosives, thermostats, electric light bulbs, detergents, bleach, hazardous cleaning agents, fertilizers, biocides, sewage, and carcasses.

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Uses and Activities: Trails, Paths, Fences, Other Low-Impact Uses

- ❑ Trails and paths; Trails and paths shall be designed and constructed to meet the following standards:
 - Standard 1
 - Standard 2
- ❑ Campfires; campfires shall be located no closer than twenty five feet (25') to a stream channel and shall be conducted in a manner that prevents erosion and turbidity in the stream buffer.
- ❑ Boundary Fences; A boundary fence shall be designed and erected to meet the following standards:
 - The fence shall be designed to prevent the collecting and channeling of surface water runoff;
 - Trees and vegetation within an established distance of a proposed boundary fence may be removed as necessary to construct the fence.
- ❑ Camping facilities
- ❑ Picnic facilities and canopies
- ❑ Porta-johns

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Uses and Activities: Agricultural Activities

- ❑ Application of biocides and fertilizers
 - Field spreading of manure
- ❑ Agricultural crossings
 - Stream bank fencing shall be used to prohibit access to a stream buffer by livestock, where livestock are allowed to graze or traverse near a stream.

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Permitting Procedure, Review

Variations

Generally, establishing “unnecessary hardship” involves a four-point test involving economic use and the source of the hardship. The following sample language provides clear guidance for issuance of a use variance and may be adapted for these rules:

- ❑ Peculiar physical conditions unique to the parcel are such that compliance with this regulation allows no reasonable economic use of the land;
 - Likewise, the parcel cannot be adapted for other uses permissible under local land use regulations that would result in a reasonable economic use with less impact on the stream buffer;
- ❑ The alleged loss of reasonable economic use of the property is not the result of actions by the applicant or applicant’s predecessor in title after the effective date of this regulation;
- ❑ The encroachment does not pose an unreasonable threat to public health, safety, or welfare on or off the site;
- ❑ The encroachment is the minimum necessary to allow for the reasonable economic use of the lot;

A variance is a way to grant a measure of relief from one or more requirements in a regulation. In zoning and land use regulations there are two kinds of variances: area variances and use variances. An area variance gives relief from a dimensional element of the regulation, such as setbacks. The remedy in this case is typically a relaxation of the rules, like setbacks or minimum floor areas. A use variance, on the other hand, allows a change of use that is not otherwise permitted by the rules for that area. For example, an applicant seeks to open a professional office for a site zoned for residences.

In each case, the applicant requesting the variance has to demonstrate that they are laboring under a particular level of hardship that justifies a variance. The test for an area variance is tied to establishing that the shape or the natural features of a property prevents the normal construction of a permissible use on site. The test for a use variance is significantly higher, where the standard is “unnecessary hardship,” a legal phrase used to connote a specific set of criteria. In order to justify a use variance, the applicant must show that the shape or the natural features of a property denies any reasonable economic uses under current land use rules. Furthermore, the applicant’s proposed non-conforming use cannot alter the essential character of the neighborhood or district. For both types of variances, inconvenience, “mere” hardship, or self-created hardships are insufficient reasons for granting a variance.

While the final rule has yet to be identified, the stream buffer will likely be similar in function to an ‘overlay zone.’ The proposed stream buffer rules will likely allow low impact uses and activities that are consistent with the purpose of protecting water quality in the Park. In most cases, this overlay zone will apply to only a portion of the property near the stream, where the

other portion can be used in conformance with local zoning rules. It is conceivable that in a few instances, the odd configuration of a parcel overlain by a stream buffer may limit most reasonable uses, in which case a use variance (not an area variance) should be granted. In this case, the proposed use should still be consistent with the underlying land use rules and the variance should be the minimum necessary to allow a reasonable economic use of the land.