

RECOMMENDATIONS FOR GREEN INFRASTRUCTURE, LOW IMPACT DEVELOPMENT, AND IMPROVED WATER QUALITY IN BIG FLATS

EXECUTIVE SUMMARY

Communities are recognizing the benefits of using newer ways to manage water quality impacts from development that are both cost effective and beneficial to the greater community. In the past, water runoff management has relied on systems that discharge stormwater runoff directly from a site into a sewer system or waterway, leading to large municipal infrastructure costs and increased water pollution. **Green infrastructure** and **Low Impact Development** techniques are now frequently being used to manage more stormwater on-site and reduce some of the problems associated with runoff and water pollution. Municipal regulations determine how easy, time-consuming, or affordable using these techniques will be the Town of Big Flats.

Good regulations can remove barriers to green infrastructure and promote it as a preferred type of development, leading to increased community benefits such as improved water quality. Current regulations in many communities can make it difficult or expensive to use these techniques, restricting development to the use of water management systems that are frequently *more* costly and *less* beneficial to the entire community.

By changing regulations to allow or require certain green infrastructure and low impact development techniques, it will be easier for developers and residents to make improvements to their properties that provide substantial benefits to water quality and protect economic investments in the Town of Big Flats. Revising town code to make it easier for these techniques to occur is also a recommended practice for the Stormwater Management Program implemented for the Town's **Municipal Separate Storm Sewer Systems (MS4) Permit**:

“Covered entities...are encouraged to review, and revise where appropriate, local codes and laws that include provisions that preclude green infrastructure or construction techniques that minimize or reduce pollutant loadings.”¹

In order for the Town of Big Flats to become green infrastructure/low impact design friendly, it is first necessary to determine how the current standards compare to the recommended standards. This report uses the Better Site Design: A Handbook for Changing Development Rules in your Community² developed by the *Center for Watershed Protection*, to evaluate specific areas of code in the Town of Big Flats for consistency with recommended best practices and model development principles.

Using the Better Site Design Handbook evaluation system, the Town of Big Flats scored 69 out of 100 possible points. This means that while Big Flats has over two-thirds of the recommended language in its code, there is still significant room for improvement.

Recommended changes to the municipal code, along with relevant example pictures and code language are provided in this document along with indicated levels of priority. Additional resources and model language are provided in the resources section.

¹ SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s), Permit No. GP-0-15-003. Page 41. New York State Department of Environmental Conservation. April 2015.

² www.cwp.org

SUMMARY OF HIGH PRIORITY RECOMMENDATIONS

- Recommendation 1. Consider including a subdivision requirement that all new streets be laid out in the shortest and most efficient manner (with respect to topography, future developments, and connectivity) while still maintaining the desired number of dwelling units and safety considerations. The planning board should encourage connecting to existing streets and reduce the instances of dead-end streets whenever possible.
- Recommendation 4. Remove minimum parking requirements, giving the planning board the discretion to address parking needs with the developer during the site plan review process.
- Recommendation 5. Institute a lower threshold for maximum parking requirements. If additional parking is desired, allow the developer to apply for an area variance.
- Recommendation 6. Promote the use of shared parking agreements. Add language that specifically promotes shared parking as the preferred strategy whenever feasible or provides development incentives even when shared parking is not specifically mandated by the planning board. Discuss opportunities for shared parking during the initial plan review process.
- Recommendation 8. Specify the reductions in parking ratios that are allowed if shared parking arrangements are in place to provide clear guidance, incentives, and expectations for developers.
- Recommendation 10. Remove the language requiring 'raised islands' in parking lots.
Instead encourage 'at-grade' or 'below-grade' infiltration and bioretention practices in landscaped islands when possible and appropriate.
- Recommendation 18. Allow the use of pervious materials in single family home driveways to reduce the amount of runoff.
Include a list of acceptable pervious construction materials that are appropriate for drainage and for the support of emergency vehicles.
- Recommendation 27. Develop a stream setback requirement that defines a minimum buffer width along streams and rivers that should be kept free from development. The recommended buffer width is at least 75 feet from each bank.
Consider a three tiered buffer system within those 75 feet that allows three levels of protection and three levels of potential uses. The highest level of protection would be closer to the stream and would only allow low intensity uses. Areas farther from the stream require fewer restrictions.
- Recommendation 28. Require that a certain percentage of the stream buffer be maintained with native or natural vegetation.
- Recommendation 37. Consider revising steep slope requirements to restrict development on hillsides with a 10% slope or greater. Also, consider a two-tier system for steep slopes:
Tier 1-slopes of 10%-15% might be limited to certain low density residential, recreation, forestry, agriculture, storage, and accessory uses at the discretion of the planning board.
Tier 2-slopes over 15% might allow only open space, certain recreation, and other low impact activities that likely would not include structures.

GREEN INFRASTRUCTURE & LOW IMPACT DEVELOPMENT

“Land development directly affects watershed functions. When development occurs in previously undeveloped areas, the resulting alterations to the land can dramatically change the transportation and storage of water. Residential and commercial development creates impervious surfaces and compacted soils that filter less water, which increases surface runoff and decreases groundwater infiltration. These changes can increase the volume and velocity of runoff, the frequency and severity of flooding, and peak storm flows.”—US EPA ³

WHAT IS GREEN INFRASTRUCTURE AND LOW IMPACT DEVELOPMENT?

Municipalities can promote improved management of development impacts on water quality through the review of specific construction sites as well as larger neighborhood, city, or regional level plans and regulations. In the past, runoff management has relied on systems that discharge water directly from a site into a sewer, stream, or river. Green infrastructure and low impact development techniques are now used to manage more stormwater on-site and reduce some of the problems associated with runoff and water pollution.

Green infrastructure is a comprehensive strategy for water quality management that allows the land and environment to perform their natural functions of soaking in and cleaning water from rain or flood events.

Low impact development is a sustainable approach to site development that attempts to minimize the impact of development and protect the land and water resources surrounding it.

There are many benefits to using green infrastructure designs and low impact development techniques, including improved water quality, lower infrastructure maintenance costs, increased property values, additional open space, reduced car speed on residential streets, flexibility for developers, reduced development costs, preserved wildlife habitat, reduced erosion, and flood control. There are three ways that green infrastructure and low impact development protect water quality:

Preservation of natural features through conservation design	Preserving contiguous forests and wetlands can protect water quality by filtering and infiltrating polluted water from uphill runoff before it enters the waterway or from overbank flow before it reaches developed areas. It also has added benefits for habitat protection and the potential for recreational use.
Reduction of impervious surface land coverage	Reducing impervious coverage in developments such as buildings, roads, driveways, and parking lots, reduces the speeds and volumes of runoff as well as the amount of pollutants that are collected on site and washed into water bodies.
Installation of green infrastructure techniques that manage stormwater by restoring natural functions	Using practices such as bioswales, rain gardens, rain barrels, green roofs, and vegetation can help manage runoff by allowing it to be collected, distributed, and filtered on-site instead of being washed into waterways.

³ Water Quality Scorecard. EPA. http://www.epa.gov/dced/pdf/2009_1208_wq_scorecard.pdf

THE LINK BETWEEN REGULATIONS AND WATER QUALITY

Municipal regulations determine how easy, time-consuming, affordable, or expensive new development will be in the town. The municipal code can encourage and promote preferred types of development as well as require standards that provide maximum benefits for the greater community.

By updating regulations that allow for or require certain green infrastructure and low impact development techniques, it will be easier for developers and residents to provide substantial benefits to water quality in Big Flats. Revising the Town code to make it easier for these techniques is also a recommended practice for the Stormwater Management Program implemented for the Town's **Municipal Separate Storm Sewer Systems (MS4) Permit**:

“Covered entities...are encouraged to review, and revise where appropriate, local codes and laws that include provisions that preclude green infrastructure or construction techniques that minimize or reduce pollutant loadings.”⁴

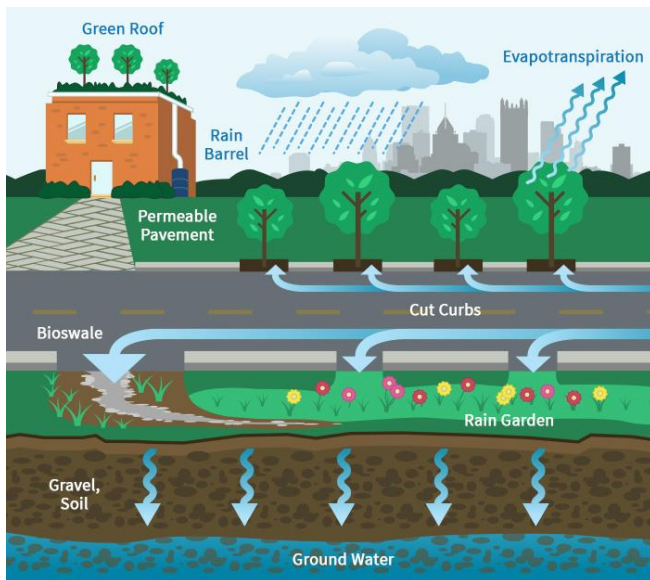


Figure 1. Green Infrastructure distributes water into the ground through infiltration - Project 15206

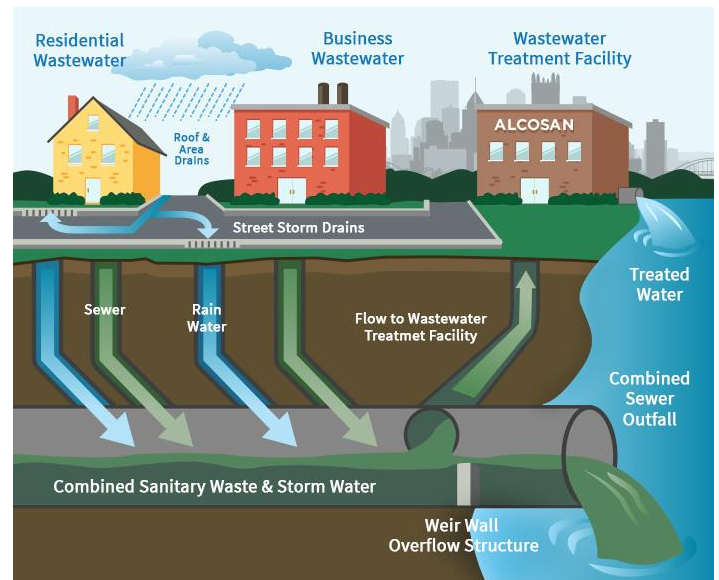


Figure 2. Gray Infrastructure distributes water to costly treatment facilities and streams and rivers - Project 15206

TOWN HISTORY OF FLOODING

The Town of Big Flats has a history of flooding that causes private and public property damage. The Town has made substantial efforts to prevent flood damage through measures such as acquisition of wetland areas and stream corridors, installation of drainage systems, requiring developers and timber harvesters to address stormwater management and erosion, and regulating the runoff from development onto neighboring properties.

Despite these efforts, the town has experienced severe flood damage as recently as the April/May 2011 storms (which caused over \$180,000 in damage) and the August 2013 storms (which flooded more than a half dozen houses).

⁴ SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s), <http://www.dec.ny.gov/chemical/43150.html#Permit>

In order for the Town of Big Flats to increase its green infrastructure friendliness, it is first necessary to determine how the current standards allow, encourage, or prohibit Green Infrastructure and Low Impact Development.

This report uses the Better Site Design: A Handbook for Changing Development Rules in your Community created by the *Center for Watershed Protection*, to evaluate specific areas of code in the Town of Big Flats for consistency with recommended best practices and standards. A Code and Ordinance Worksheet enables systematic comparison of local development rules with model development principles. Points are assigned based on how well the Town's codes agree with benchmarks derived from 22 model principles.

Out of 100 possible points on the Code and Ordinance Worksheet, the Town of Big Flats scored 69 points.

This means that while Big Flats has over two-thirds of the recommended language in its code, there is still significant room for improvement. In particular, STC recommends that the Town develop regulations for improving protection of stream buffer areas, steep slopes, and floodplain areas. Additionally, there are opportunities to enhance the overall regulations to further reduce impervious cover for all land uses.

The model development principles used in the evaluation worksheet support the following green infrastructure strategies for managing runoff:



Avoid stormwater impacts by preserving natural features



Reduce stormwater impacts by reducing impervious cover



Mitigate impacts by using runoff reduction practices to manage stormwater

This report includes a comprehensive comparison of the current Big Flats code to the recommended standards at the intersection of water quality, zoning, and development. It begins with a list of the recommendations for code changes, followed by resources of additional information and sample code language that could potentially be used to update the Southport code. Included at the end is a complete list of code comparisons, including standards that the town currently fulfills.

RECOMMENDED ZONING AND SUBDIVISION CHANGES

STREETS

GOALS:



Preserve Natural Features

- Street Length and Layout
- Right of Way



Reduce Impervious Cover

- Street Length and Layout
- Right of Way



Mitigate Impacts with GI

- Stormwater Treatment

STREET LENGTH AND LAYOUT

Street width, length, and design of cul-de-sacs substantially affect the amount of impervious surface coverage and the management of runoff. In residential neighborhoods, 40-50% of the impervious coverage comes from streets.

The street **width** standard for residential streets in Big Flats is in line with recommendations for reducing impervious surfaces. Additionally, the Town of Big Flats does not allow traditional **cul-de-sac** development, providing significant benefits to both water quality and community design. Instead, the Town's use of 'hammer head' or 'T' turn-arounds considerably promotes good subdivision design.

By also addressing efficient street **length**, impervious surfaces in new developments could be substantially reduced.

Total street length is determined by a combination of factors including: lot frontage, lot setbacks, driveway entrances, unique site conditions, and access to future development. The current language requires that: *Where a subdivision adjoins undeveloped land its roads shall be laid out so as to provide suitable future road connections with the adjoining land when the latter shall be developed.* Although it is important to maintain appropriate access to adjoining parcels, Big Flats can develop a more efficient street system by taking into account the level of access that is warranted and not extending roads unnecessarily, particularly when the adjoining land is not suited for development.

RECOMMENDATION 1.	<p>Consider including a subdivision requirement that all new streets be laid out in the shortest and most efficient manner (with respect to topography, future developments, and connectivity) while still maintaining the desired number of dwelling units and safety considerations. The planning board should encourage connecting to existing streets and reduce the instances of dead-end streets whenever possible.</p> <p>Give discretion to the planning board in the site plan review process to determine if requiring roads extensions or right of ways to accommodate future development is appropriate for each development. For instance, providing access to potentially land locked parcels or to lands that are largely undevelopable or otherwise not suitable for development should not require unnecessary road building or right of way access.</p> <p>RELATED: Allowing smaller lots sizes and smaller setback requirements also help to reduce road length by reducing the road needed to meet the same demand for housing.</p>
PRIORITY HIGH	

RIGHT-OF-WAY

The **Right-of-Way** is designed to accommodate pedestrian and vehicular travel, sidewalks, utilities, and open channels.

While a wide ROW does not directly contribute to additional impervious surfaces, it can work against efficient site design and green infrastructure techniques by requiring use of more land than is necessary, by unnecessarily clearing beneficial vegetation, and by making it more difficult to build compact communities and sites⁵.

A smaller ROW is most likely to be feasible on smaller, residential streets. Reducing the required ROW would reduce the amount of land needed for new streets and developments by allowing a more compact building pattern.

RECOMMENDATION 2.	Consider reducing the minimum ROW on local, residential streets from the current 50' to somewhere between 35'-45'.
PRIORITY LOW	RELATED: *Reducing the ROW should be considered in combination with Recommendation #4. Stormwater swales require more space than regular vegetated groundcover, and would constitute a good reason for a wider Right-of-Way.*

STORMWATER TREATMENT- GREEN INFRASTRUCTURE DESIGN



Roadside Bioswale⁷

In general, **streets** are the highest contributors to pollutants and poor water quality in developed areas⁶.

Although curb and gutter systems are frequently used to manage this water because they are perceived to be easier to maintain, the overall maintenance requirements are quite similar for green infrastructure practices. Further, curb and gutter systems only provide for water distribution and discharge, while green infrastructure also improves water quality.

While curbs and gutters are not specifically required in the Big Flats' zoning code, it would be beneficial to explicitly encourage and provide design criteria for green infrastructure along roadways as a *preferred practice or best practice* to promote better stormwater management in residential or commercial areas.

RECOMMENDATION 3.	Formally integrate language into the subdivision law [section 16.12.030 road design guidelines] that encourages use of green infrastructure (such as dry swales, bio filters, and grass swales) alongside streets in new developments and street repairs or reconstructions where appropriate.
PRIORITY MEDIUM	The NYS Stormwater Management Design Manual could be referenced in this section of the subdivision law and provided on the town website as a resource for developers and residents.

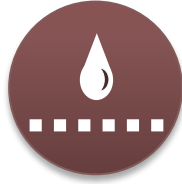
⁵ Better Site Design Handbook.

⁶ Better Site Design Handbook.

⁷ <http://water.epa.gov/polwaste/green/upload/bbfs4aesthetics.pdf>

PARKING

GOALS:



Reduce Impervious Cover

- Minimum and Maximum Parking Requirements
- Shared Parking
- Land Banked Parking
- Additional Considerations



Mitigate Impacts with GI

- Landscaped Islands

OPTION A: MINIMUM AND MAXIMUM REQUIREMENTS

Requiring a minimum number of parking spaces frequently leads to the overbuilding of parking areas, and thus increases the impervious surfaces of a development. While parking ratios and shared parking standards in Big Flats are generally in line with the current practices, removing the minimum requirements would do much more to reduce unnecessary impervious area.

Instead of requiring a minimum number of parking spaces based on uses, having the planning board and the developer work together to negotiate the parking they think is appropriate for each site can ensure that parking lots are sized more efficiently.

Further, instituting maximum parking space requirements would provide the most benefit by only allowing developers to build up to a certain amount of parking, requiring an area variance to build excessive parking. Big Flats already does specify a maximum number of parking spaces. However, the threshold is high enough that it will likely not provide any parking reduction benefits.

RECOMMENDATION 4.	Remove minimum parking requirements, giving the planning board the discretion to address parking needs with the developer during the site plan review process.
PRIORITY HIGH	
RECOMMENDATION 5.	Institute a lower threshold for maximum parking requirements. If additional parking is desired, allow the developer to apply for an area variance.
PRIORITY HIGH	

If minimum parking requirements are left in place as they currently stand, consider Option B, below, to support better minimum parking requirements.

OPTION B1: SHARED PARKING

Standards that require too much parking for specific uses will unnecessarily increase the amount of impervious surface in a development. **Shared parking** provisions are most useful in a combination of uses where either: (a) the uses have different peak hours of attendance, such as a grocery store and a movie theatre or (b) when the uses share patrons who will likely park once when visiting both locations, such as a sandwich shop and a pharmacy.

Parking ratios in Big Flats are generally in line with the current recommendations, including allowances for shared parking and in some cases, even mandating shared parking. Incentivizing shared parking, even when it is not mandated, would provide even greater benefits.

Shared parking incentives can give developers clear direction and motivation to pursue shared parking. Providing design flexibility in meeting town standards can maximize parking lot efficiency and reduce stormwater impacts on local water resources. For example, flexible regulations on lot coverage, setbacks, or building height could be provided for developers who create shared parking even when they are not required to do so.

EXAMPLE:

1. Up to 30% of the parking spaces required for the predominant use on a site may be shared with other uses operating during the same time of day and days of the week. The predominant use is considered to be that which requires the most parking of those sharing the parking facilities.	2. Up to 75% of the parking spaces required for uses such as theaters, public auditoriums, bowling alleys, nightclubs, movie theaters, and similar predominantly evening uses may be shared with uses such as banks, offices, and similar predominantly daytime uses.	3. Up to 75% of the parking spaces required for uses such as churches and other uses exclusively in operation during the weekend may be shared with uses such as medical offices, banks, and other similar uses predominantly in operation on weekdays . ⁸
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RECOMMENDATION 6.	Promote the use of shared parking agreements. Add language that specifically promotes shared parking as the preferred strategy whenever feasible or provides development incentives even when shared parking is not specifically mandated by the planning board. Discuss opportunities for shared parking during the initial plan review process.
PRIORITY HIGH.	
RECOMMENDATION 7.	Provide model parking agreements in the code and on the town website.
PRIORITY LOW	While this provides only a low, indirect impact, providing examples of such agreements further promotes and clarifies the intent and provisions of shared parking.
RECOMMENDATION 8.	Specify the reductions in parking ratios that are allowed if shared parking arrangements are in place to provide clear guidance, incentives, and expectations for developers.
PRIORITY HIGH	

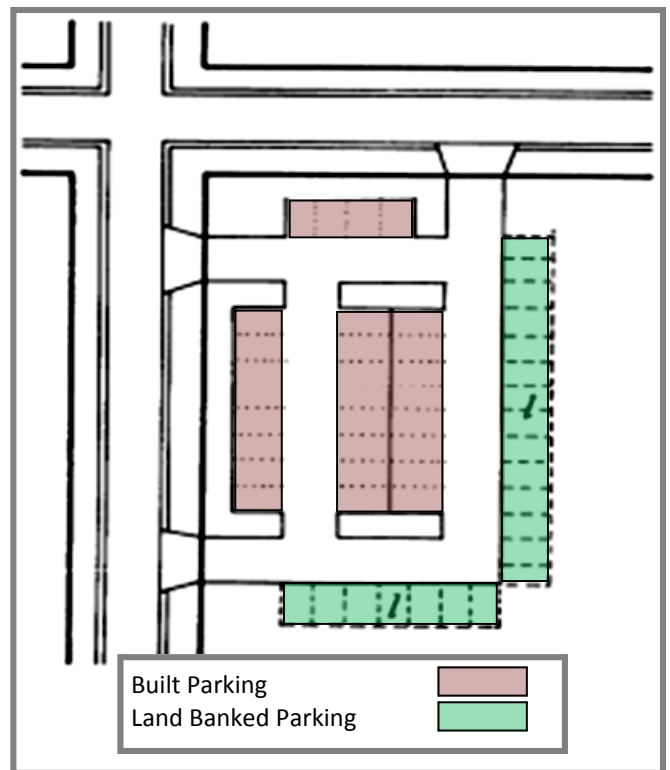
OPTION B2: LAND BANKED PARKING

Land banking allows a developer to look at the entire area that would be used for parking, and only build some of it up front, while providing landscaping on the remaining land. Only if the need for additional parking arises in the future, is the developer required to build the additional parking.

For example: a residential development serving the elderly may not need the number of parking spaces required by single or multi family home requirements. However, if the overall demographics of the area change, the development will be designed to accommodate additional parking and can respond to future needs.

Land banking can help prevent the over-building of parking areas, reduce impervious surfaces, enhance landscaping aesthetics, preserve natural lands, and provide additional stormwater management capacity. The current Town language reads: “Additional parking spaces **above the minimum** may be permitted as banked parking with planning board approval and land shall be identified for the future construction of these spaces if necessary.”

By only allowing land banked spaces above the minimum requirements, these valuable benefits are only realized if a developer tries to build more than the minimum standard.



⁸ <http://www.nwctplanning.org/ParkingStudyPhase2.pdf>
 Picture: <http://www.woodstockil.gov/>

Allowing land banking for a portion of the required minimum number of spaces gives developers and the planning board more flexibility to maximize the potential water quality benefits of each site, while retaining the additional parking capacity for future use.

Land banked spaces can be useful in phased developments that need more parking over time or for developers who do not want to overbuild parking areas they believe they do not need. However, because many developers will want all of their development approvals upfront in each project, the Town may want to approve the building of ‘banked’ spaces in the original site plan review, with stipulations or thresholds determining when the extra parking can be built.

Example language: “Up to 20% of required off-street parking spaces may be land banked until the developer or planning board determines that additional capacity is required. Approval of the building of “banked” spaces should be contingent on inclusion of those spaces’ ‘built out’ impacts in the project’s stormwater management plan.” |

[CR1]

RECOMMENDATION 9.	Consider allowing land banked parking spaces for a number less than the minimum number of spaces.
PRIORITY LOW	

LANDSCAPED ISLANDS

The current language requires 15% landscaping in parking lots with over 25 spaces and that landscaped islands accommodate stormwater management practices were appropriate.

However, it requires **raised** landscaped island plantings. Raised islands cannot take in water. At-grade or below-grade islands can be used to collect and filter water, reducing the impact of stormwater.



Raised Landscapes Island⁹



At-Grade Landscaped Island¹⁰

RECOMMENDATION 10.	Remove the language requiring ‘raised islands’ in parking lots.
PRIORITY HIGH	Instead encourage ‘at-grade’ or ‘below-grade’ infiltration and bioretention practices in landscaped islands when possible and appropriate.

ADDITIONAL CONSIDERATIONS FOR PARKING LOT SIZE REDUCTION

The following recommendations are typically most useful in an urban setting where mass transit, parking garages, and compact cars are more common. While it is unlikely that these regulations will be beneficial in the very short term, certain future developments in Big Flats may benefit from such regulations as they do have the potential to reduce impervious coverage through smaller parking lot footprints.

RECOMMENDATION 11.	
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⁹ <http://garthruffner.com/irrigation.html>

¹⁰ <http://www.rhynelandscape.com/2012/10/22/9-landscape-sustainability-stormwater/>

PRIORITY LOW	Consider providing a framework for reducing parking ratios if mass transit is located nearby. This could be useful along the 'shopper shuttle' route that circulates through the consumer square /Arnot mall commercial areas.
RECOMMENDATION 12.	Consider requiring or allowing large parking lots to provide a certain percentage of spaces at smaller dimensions for compact cars.
PRIORITY LOW	Further analysis should be done before this is implemented in order to determine the demand for smaller spaces
RECOMMENDATION 13.	Consider providing incentives or scenarios when you would consider incentives for parking garages instead of surface parking in appropriate areas.
PRIORITY LOW	This could be most feasible in a dense retail shopping area such as consumer square and the Arnot Mall.

SETBACKS

GOALS:



Reduce Impervious Cover

-Front and Side Yard Setbacks

Setbacks serve a number of functions including safety, creating community character, visual appeal, privacy, and noise reduction. Excessive setbacks can produce unnecessary impervious surfaces by extending driveways (in the case of front yard setback) and street lengths (in the case of side yard setbacks). Reducing these setbacks can reduce the amount of impervious surface required for development while also contributing to attractive neighborhood design.

In Big Flats, several zones allow for compact development patterns. For instance, half (0.5) acre lots are allowed in Cluster Subdivisions, R2 (Residential High Density), TC (Town Center), TC2 (Town Center 2), and TCR (Town Center Residential) districts. Slightly bigger, but similarly sized lots (0.6 - 0.7 acre) are allowed in R1 (Residential Medium Density).

The current Town language reflects different setbacks for differing levels of municipal water and sewer services. Front setbacks are currently consistent with the recommended 20-foot minimum in TC, TC2, TCR districts and those parts of R2 with public water. Side yard setbacks only comply with the recommendation of 8 feet or less in TC, TC2, and TCR where there is both public water and sewer.

Reducing minimum setback requirements in zones with smaller lots would fit and enhance the character of compact neighborhoods while requiring less development of impervious surfaces.

RECOMMENDATION 14.	Reduce minimum front yard setbacks in Cluster Developments, R1 and R2 districts to 20'.
PRIORITY MEDIUM	
RECOMMENDATION 15.	Reduce minimum side yard setbacks in Cluster Developments, R1, R2, TC, TC2, and TCR districts to 8'.
PRIORITY MEDIUM	

DRIVEWAYS, SIDEWALKS, AND DRAINAGE

GOALS:



Reduce Impervious Cover

- Definitions of Impervious and Pervious
- Driveways
- Sidewalks



Mitigate Impacts with GI

- Driveways
- Drainage and Grading

IMPERVIOUS DEFINITION

More inclusive, thorough definitions of Impervious and Pervious Surfaces are needed to clarify the concept and acceptable materials.

RECOMMENDATION 16.	Include the following definitions in the Zoning and Subdivision laws:
PRIORITY LOW	<p>Impervious Surface-- Impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, sheds, and areas with highly compacted soil.</p> <p>Pervious Surface— Ground cover through which water can penetrate at a rate comparable to that of water through undisturbed soils. Examples of pervious materials include: porous concrete, permeable pavers, grass pavers, plastic grids, and interlocking concrete pavers.</p>

DRIVEWAYS

Off-street parking and residential driveways significantly contribute to the impervious areas on a residential lot, constituting up to 20% of all impervious surfaces in residential subdivisions¹¹. Decreasing required driveway dimensions, using pervious materials, and using better driveway design can minimize the amount of stormwater runoff from a site or neighborhood.

Driveway design and materials are currently not addressed in the Big Flats municipal code. Placing a maximum width on driveway developments would reduce excessive impervious surfaces. Allowing alternative driveway designs and the sharing of residential driveways can further reduce the impact of new driveways.



Two Track Design¹²



Permeable Brick Pavers¹³



Shared Driveway¹⁴

¹¹ Better Site Design Handbook

¹² <http://www.soilretention.com/drivable-grass/do-it-yourself/gallery/>

¹³ <http://naturalpathlandscaping.com/permeable.html>

¹⁴ <http://realestate.lohublogs.com/2013/08/25/shared-driveway-a-fork-in-the-road-for-rockland-buyers/>

RECOMMENDATION 17.	Consider defining a maximum driveway width that minimizes the impact of driveways while allowing for emergency vehicles.
PRIORITY MEDIUM	The NYS Fire code requires an unobstructed width of 12'. Consult with the Town fire department to determine the smallest acceptable width for emergency vehicles.
RECOMMENDATION 18.	Allow the use of pervious materials in single family home driveways to reduce the amount of runoff.
PRIORITY HIGH	Include a list of acceptable pervious construction materials that are appropriate for drainage and for the support of emergency vehicles.
RECOMMENDATION 19.	Allow 'two-track' design in single family home driveways to reduce impervious coverage. This is recommended for short, straight driveways only.
PRIORITY LOW	Include an explanatory diagram for residents and developers as well as a list of acceptable construction materials.
RECOMMENDATION 20.	Allow shared driveways in residential developments. Provide an example of an enforceable maintenance agreement for landowners. An example maintenance agreement is located on the resources page.
PRIORITY LOW	

SIDEWALKS

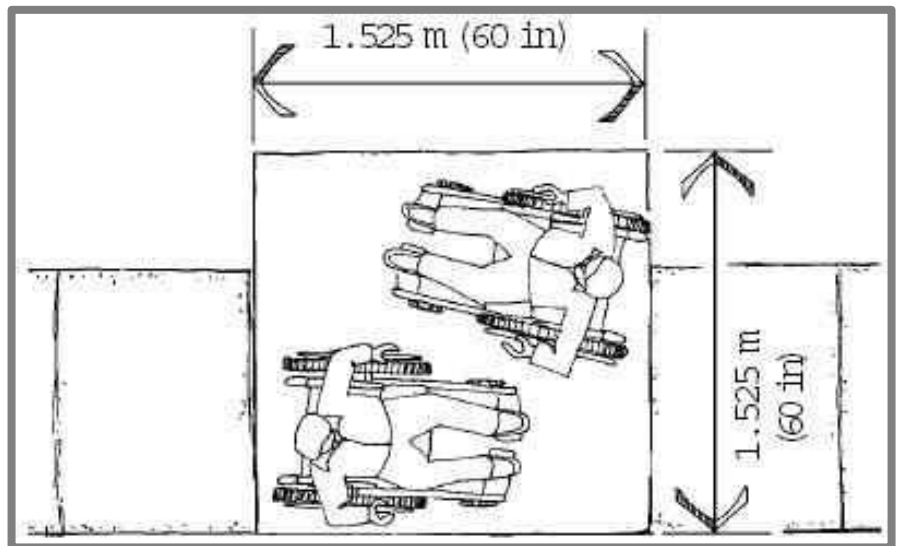
Reducing *sidewalk* widths, building more permeable walkways, and allowing drainage from sidewalks into green infrastructure systems protects water quality, reduces flooding, and recharges groundwater. While sidewalks are not a high priority concern in Big Flats, a few strategies could reduce the impact of future sidewalks.

The [2010 ADA Standards for Accessible Design Manual](#) specifies that "accessible routes be at least 60 inches (5 ft) in width" or that "An accessible route with a clear width less than 60 inches (1525 mm) shall provide passing spaces at intervals of 200 feet (61 m) maximum. Passing spaces shall be either: a space 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum; or, an intersection of two walking surfaces providing a T-shaped space complying with 304.3.2 where the base and arms of the T-shaped space extend 48 inches (1220 mm) minimum beyond the intersection."

Current regulations require 60 inch, or 5 foot, sidewalks in the TC and TC2 districts. Depending on the future development in this area, sidewalks could end up producing a significant amount of impervious surfaces.

Depending on the length of new sidewalks in these districts, a 5' sidewalk may not be the best option for minimizing impervious surfaces. The Town could allow the planning board to determine the layout of new sidewalks that is most appropriate based on projected pedestrian traffic.

Further, allowing and encouraging that sidewalks be built with permeable surfaces would reduce the impact of new developments.



RECOMMENDATION 21.	Require that sidewalk developments in the TC and TC2 districts, be built with consideration of using the least amount of impervious surfaces with either
PRIORITY LOW	

	Option A) 4' with ADA required passing and turning stalls provided at regular intervals; or Option B) 5' sidewalks
RECOMMENDATION 22.	Allow and encourage the use of permeable surfaces for sidewalk construction.
PRIORITY LOW	

DRAINAGE AND GRADING

Some municipalities prohibit discharging runoff directly into yards in order to protect foundations and prevent wet yards. However, with proper design and maintenance, runoff can be successfully stored and absorbed on-site rather than using municipal stormwater infrastructure and does promote better water quality.

The Big Flats municipal code does not prohibit drainage into yard areas, but does not explicitly allow or promote it either.

Sidewalks, driveways, and rooftops should all be allow to drain into yard areas *as long as the site is equipped with appropriate storage or infiltration areas such as yards or wooded areas, swales, rain gardens, or bio filters.*

RECOMMENDATION 23.	Add language to the grading and drainage requirements in order to explicitly allow the ponding of stormwater runoff in yards and encourage use of green infrastructure practices.
PRIORITY LOW	
RECOMMENDATION 24.	Add language encouraging sidewalks to slope toward the front yard of a property rather than toward the street as long as the site has appropriate storage or infiltration areas.
PRIORITY LOW	
RECOMMENDATION 25.	Add language encouraging driveways that drain into front yards rather than the roadside drainage system as long as the site has appropriate storage or infiltration areas.
PRIORITY LOW	
RECOMMENDATION 26.	When practical and applicable, allow rooftop runoff to be discharged into yard areas instead of direct connections to the municipal stormwater conveyance system as long as the site has appropriate storage or infiltration areas.
PRIORITY LOW	



Rain Garden¹⁵



Rain Barrels¹⁶

¹⁵ <http://www.stcplanning.org/index.asp?pagelD=127>

¹⁶ <http://www.chemungcounty.com/index.asp?pagelD=443>

GOALS:



Preserve Natural Features

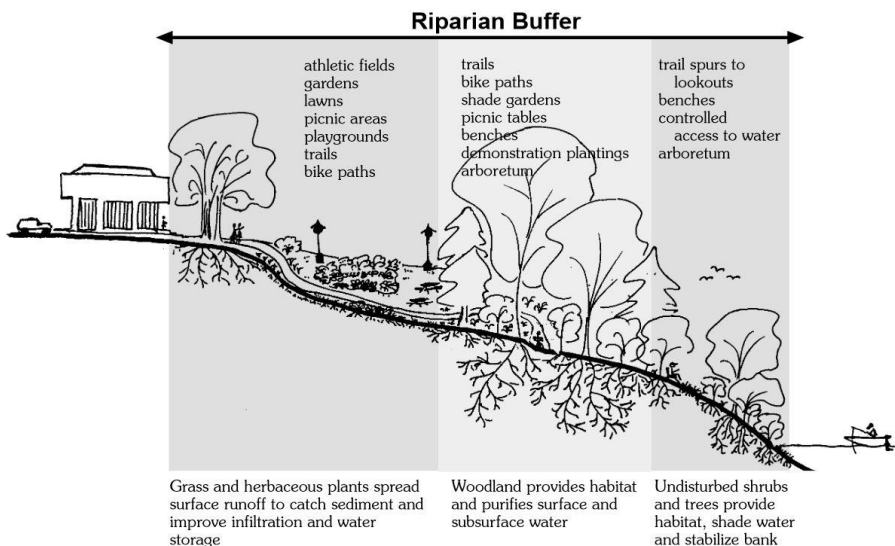
- Stream Buffers
- Floodplains

STREAM BUFFERS

Where it is possible, the natural and existing topographical patterns that make up the unique character, scenery, and environment in Big Flats should be preserved. This is the intent of the Ridgeline Overlay district already in place in the town that protects slopes and uphill vegetation. The planning board should be trained on the importance of all sensitive and natural features in the Town, and the procedures needed to protect all sensitive areas to the maximum extent practicable.



Additional regulations, and in particular stream setbacks, or “*stream buffers*”, would benefit the Town by protecting both the economic value of human development and the natural value of the water quality and environment. Using buffer zones along streams reduces water pollutants and reduces hydrologic changes to bodies of water. This helps to protect drinking water from contamination, reduces the cost of water treatment, and reduces the risk of economic losses due to flooding. The recommended minimum buffer width for preserving water quality is at least 75 feet on each side of the stream.



However, using this strategy does not have to mean losing all functionality along the stream itself. While more intense development such as housing or utilities may not be suitable directly next to streams and waterways, lower intensity uses can exist there without compromising the natural functions of the area. For instance, an unpaved walking trail close to a stream would not negatively affect water quality.

A system that allows low intensity uses near the stream, while restricting high intensity uses until a certain distance (75 feet) can provide the maximum use and benefit from this land. Additionally, requiring that a certain percentage of the buffer areas be maintained with natural vegetation can further protect these areas by preserving their natural functions and capacities to the maximum extent.

Tiered Riparian Forest Buffers¹⁷

¹⁷ <http://www.crjc.org/buffers/Urban%20Buffers.pdf>

In order to enforce the protection of buffer areas, it would be beneficial to specify the location of all constrained lands including sensitive areas and proposed buffers on all Town development applications. Currently, this is only required for cluster subdivision but its applicability to all land development makes it relevant to include with all subdivisions and developments. Including streams, wetlands, flood zones, and steep slopes, as well as the proposed buffer zones for all areas would help planning and zoning boards to determine where sensitive lands are and how they can be protected.

RECOMMENDATION 27.	Develop a stream setback requirement that defines a minimum buffer width along streams and rivers that should be kept free from development.
PRIORITY HIGH	The recommended buffer width is at least 75 feet from each bank. Consider a three tiered buffer system within those 75 feet that allows three levels of protection and three levels of potential uses. The highest level of protection would be closer to the stream and would only allow low intensity uses. Areas farther from the stream require fewer restrictions.
RECOMMENDATION 28.	Require that a certain percentage of the stream buffer be maintained with native or natural vegetation.
PRIORITY HIGH	
RECOMMENDATION 29.	Specify allowable uses inside the buffer area such as: low-impact recreation, agriculture, open space, conservation, etc.
PRIORITY MEDIUM	
RECOMMENDATION 30.	Include 'stream buffers' in the definition of constrained land**
PRIORITY MEDIUM	
RECOMMENDATION 31.	In order to prevent encroachment into buffers and other sensitive areas and to prevent disturbance of these areas during construction:
PRIORITY MEDIUM	<p>A) Require that all 'constrained lands'*** be shown on all plans and applications including but not limited to: site plan applications, building permit, subdivision applications, special use permit applications, cluster residential development, zoning permit application, and clearing and grading plans</p> <p>B) Require that buffer setback flags be used on site to mark all of the protected areas throughout the construction process</p> <p>**constrained lands currently include wetlands (including a one hundred (100) ft. buffer around such wetland), watercourses, floodways, 100-year floodplains, lands within the ridgeline overlay districts, and slopes over twenty-five (25) percent, which are two thousand (2,000) sq. ft. or more of contiguous sloped area.</p>
RECOMMENDATION 32.	Educational funding could be included in the town budget to provide an annual mailing to new residents about the importance of forested buffers and steep slopes to the town's biological, aesthetic, and water resources. In addition, ensure that town staff and boards are trained on the importance of forested buffers and how to successfully implement new laws to protect them.
PRIORITY LOW	



FLOODPLAINS

In addition to reducing economic losses caused by **flooding**, restricting the intensity of development in the floodplains can protect water quality by reducing runoff near waterways and allowing floodplains to filter water during storm events. Undeveloped floodplains can also provide areas where excess water is stored and slowed down during high flow events, reducing downstream damage from floodwaters and erosion.

Big Flats has recently revised the intent and requirements for the Conservation (C) zone, which includes high priority floodplain areas along the Chemung River. This zone now supports low intensity recreational and agricultural uses; and buildings are generally prohibited (except for restrooms and other small structures that support the recreational and agricultural uses).

Additional floodplain protection can be achieved by incorporating higher standards into floodplain development requirements that protect natural floodplain functions, as well as development.

RECOMMENDATION 33.	Consider incorporating additional standards into the Town’s Flood Damage Prevention Local Law to increase protection of natural floodplain functions and reduce the vulnerability of development. This could include restrictions on fill and hazardous materials, as well as other provisions that reduce flood risk.
PRIORITY MEDIUM	

LAND CONSERVATION

GOALS:



Preserve Natural Features

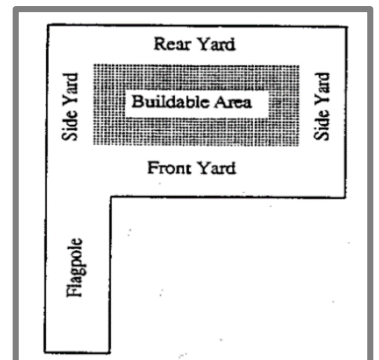
- Conservation Design and Incentives
- Steep Slopes

CONSERVATION DESIGN AND INCENTIVES

The current **open space and cluster development** regulations in the Town are in line with recommendations for water quality protection. The town also allows an increase in lot numbers in Cluster Residential Developments if the developer grants permanent public access to open spaces.

The amount of quality land that is conserved in new subdivisions could be increased by providing additional incentives for conserving land that is not regulated by the federal and state governments. This could also make it easier for all developers to achieve conservation goals by providing additional flexibility and creativity in site design.

- In addition to cluster development, **Incentive Zoning** could give benefits such as higher density, higher lot coverage, or smaller setbacks for developers who conserve above and beyond the requirements for land conservation, open space/recreation, or other natural amenities.
- NYSDEC requires preparation of a full stormwater pollution prevention plan (SWPPP) under SPDES General Permit GP-0-15-002 for different development projects based on their size. However, NYSDEC has also developed a **“Stormwater Credits”** guidance document. The “Stormwater Credits” document provides suggested guidance to developers and engineers, and state and local agencies to allow for reduced stormwater sizing requirements when certain techniques are used such as:



Natural Area Conservation	Stream and Wetland Buffers	Overland Flow Filtration to Groundwater Recharge Zones
Vegetated Open Channels	Environmentally Sensitive Rural Development	Riparian Reforestation

- Allowing **irregular lot shapes**, such as flag lots, can provide flexibility in fully utilizing land that is preferable for development. 'Flag lot width' is listed as an official definition but it is not addressed further in the subdivision law. Such lots can help provide more buildable land in areas zoned for growth, and they help protect more sensitive areas by reducing development pressure in the town.

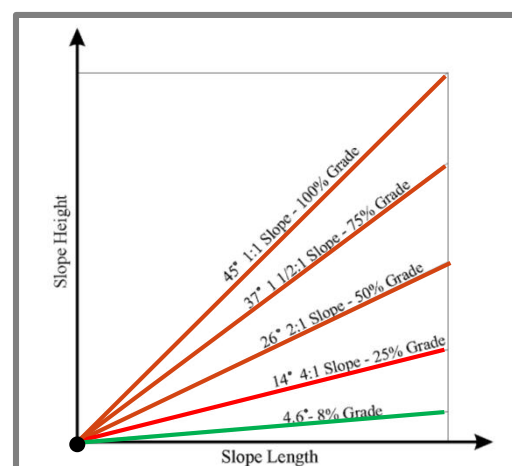
RECOMMENDATION 34.	Explicitly allow and provide regulations for irregular lots such as flag lots.
PRIORITY LOW	
RECOMMENDATION 35.	Consider additional incentives for preserving non-regulated lands beyond the cluster residential development zoning regulations such as: stormwater credits, property tax reduction, and incentive zoning.
PRIORITY MEDIUM	
RECOMMENDATION 36.	Consider additional flexible requirements for developers to meet the current regulatory or conservation restrictions (such as buffer averaging, transferable development rights, off-site mitigation).
PRIORITY LOW	

STEEP SLOPES

Big flat's code allows for development on steep slopes up to 25% grade.

Certain types of development should be restricted on slopes above 10% grade, and most development is not appropriate at 25%.

Overdevelopment of these slopes could lead to unstable and degraded hillsides that result in higher amounts of erosion, runoff, landslides, and road wash outs. In addition, building on steep slopes can reduce the scenic and economic values of the town by removing the scenic quality that people who live here enjoy. Over the long run, building on steep slopes will mean higher infrastructure building costs, higher maintenance costs, and reduced water quality in the town.



Percent Slope¹⁹

RECOMMENDATION 37.	Consider revising steep slope requirements to restrict development on hillsides with a 10% slope or greater.
PRIORITY HIGH	<p>Also, consider a two-tier system for steep slopes:</p> <p>Tier 1-slopes of 10%-15% might be limited to certain low density residential, recreation, forestry, agriculture, storage, and accessory uses at the discretion of the planning board.</p> <p>Tier 2-slopes over 15% might allow only open space, certain recreation, and other low impact activities that likely would not include structures.</p>

¹⁸ <http://www.romulustown.com/forms/Subdivision%20Regulations.pdf>

¹⁹ http://www.stcplanning.org/usr/Program_Areas/Flood_Mitigation/SCAP_steepslopes%202010_02_21_CR.pdf

RESOURCES:

HANDBOOKS AND MANUALS USED FOR THIS REPORT

Better Site Design: A Handbook for Changing Development Rules in your Community (Tool 4, Codes & Ordinance Worksheet)

http://www.cwp.org/online-watershed-library/cat_view/65-tools/129-post-construction-guidance-manual-8-tools

EPA Water Quality Scorecard

http://www.epa.gov/dced/pdf/2009_1208_wq_scorecard.pdf

New York State Stormwater Design Manual

<http://www.dec.ny.gov/chemical/29072.html>

STREETS

New York State Stormwater Management Design Manual (Chapters 3, Stormwater Management Planning, and 5, Green Infrastructure Practices)

<http://www.dec.ny.gov/chemical/29072.html>

PARKING

Land Banking

City of Woodstock, IL.

<http://www.woodstockil.gov/vertical/sites/%7B7B45EC48-D164-43E3-ACA3-4CC6ED948AFB%7D/uploads/%7B8C5F28D5-BF25-4EFD-9A40-03E4A870567A%7D.PDF>

Town of Greece, NY.

<http://ecode360.com/10841167>

Reductions for Mass Transit

Northwestern Connecticut Council of Governments

<http://www.nwctplanning.org/ParkingStudyPhase2.pdf>

Model shared parking agreement

Town of Wappinger, NY - Recommended Model Development Principles for Conservation (Appendix 1)

http://www.dec.ny.gov/docs/remediation_hudson_pdf/hrewbs_dwap.pdf

Green Parking Lot Design

US Environmental Protection Agency

[http://www.streamteamok.net/Doc_link/Green%20Parking%20Lot%20Guide%20\(final\).PDF](http://www.streamteamok.net/Doc_link/Green%20Parking%20Lot%20Guide%20(final).PDF)

SETBACKS

Front and Side Yard Setbacks

Town of Ulysses, NY (Sections 13.6 & 14.5, hamlet districts)

http://www.ulysses.ny.us/pdf/Zoning_Law_Revision_FINAL-ADOPTED_8-12-14.pdf

DRIVEWAYS, SIDEWALKS, AND DRAINAGE

Two-Track/Ribbon & Shared Driveways

Greenville County, SC

http://www.greenvillecounty.org/land_development/pdf/designmanual/LID-06_LID_Driveways_Spec_Jan_2013.pdf

Burlington, VT

http://www.burlingtonvt.gov/sites/default/files/DPW/Stormwater/Driveways/05_Ribbon_driveways_20140102.pdf

Pervious Driveways

Village of Elmsford, NY

http://www.elmsfordny.org/Pages/ElmsfordNY_Bcomm/Stormwater/Permeable_Pavement.pdf

Rural Driveway Guidelines

Southern Tier Central Regional Planning and Development Board

http://www.stcplanning.org/usr/Program_Areas/Water_Resources/Stormwater/Rural_driveway_October_22_2009.pdf

ADA Sidewalk Regulations

Federal Highway Administration

http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalks/chap4a.cfm

NYS Fire Code on Driveways- 5.11.2

http://publicecodes.cyberregs.com/st/ny/st/b300v10/st_ny_st_b300v10_5_sec011.htm

WATER RESOURCES

Special Report: Flooding in Big Flats

Southern Tier Central Regional Planning

http://www.stcplanning.org/usr/Program_Areas/Environmental%20Planning/Special_Report_Big_%20Flats_Conservation_Zones.pdf

Stream Buffer Ordinances

Additional Information about Buffers

http://aswm.org/pdf_lib/model_ordinance_1209.pdf

<http://longislandsoundstudy.net/wp-content/uploads/2010/02/EightMileRiparianBuffer.pdf>

Model Stream Buffer Ordinances

http://www.tompkinscountyny.gov/files/planning/water-resources/Tompkins_Co_Model_Stream_Buffer_Ordinance04-09.pdf

http://longislandsoundstudy.net/wp-content/uploads/2010/02/Buffer_Model_Ordinance_Rhode_Island.pdf

Natural Vegetation in Stream Buffers

Town of Ulysses, NY – Section 20.6.2

http://www.ulysses.ny.us/pdf/Zoning_Law_Revision_FINAL-ADOPTED_8-12-14.pdf

LAND CONSERVATION

Conservation and Design Incentives

Flag Lots

Town of Dryden, NY—Section 602

http://dryden.ny.us/Planning-Department/ZoningLaw/Zoning_Ordinance_Amendments_adopted_7_19_2012.pdf

Town of Ulysses, NY—Section 20.12

http://www.ulysses.ny.us/pdf/Zoning_Law_Revision_FINAL-ADOPTED_8-12-14.pdf

Town of Romulus, NY—Section 276

<http://www.romulustown.com/forms/Subdivision%20Regulations.pdf>

Sustainability, Green Infrastructure, Design Incentives

Village of Nyack, NY

<http://www.ecode360.com/28904841>

Steep slopes

Southern Tier Central Regional Planning and Development Board

http://www.stcplanning.org/usr/Program_Areas/Flood_Mitigation/SCAP_steepslopes%202010_02_21_CR.pdf

Conservation Incentives in NY

Town of Wappinger, NY - Recommended Model Development Principles for Conservation (Appendix 3)

http://www.dec.ny.gov/docs/remediation_hudson_pdf/hrewbsdwap.pdf

EDUCATION AND ADDITIONAL INFORMATION

Trees, Forests, and Watersheds

Penn State Extension

http://www.envirothonpa.org/pdfs/3-6_Forests%20and%20Water.pdf

Stormwater Guide for Homeowners

<http://www.stormwaterguide.org/>

STREETS AND CUL-DE-SACS – MODEL PRINCIPLES		Big Flats’ Zoning Language	Code Reference	Priority	Recommendation Number
What is the minimum pavement width allowed for streets in low density residential developments that have less than 500 daily trips (ADT)?	between 18-22 feet	Minimum width of pavement: 20’ for local dead end roads. 22’ for local through roads	12.04.050 A5		None
At higher densities are parking lanes allowed to also serve as traffic lanes (i.e., queuing streets)?	Yes	[no mention]			None
Do street standards promote the most efficient street layouts that reduce overall street length?	Yes	[no mention]		High	#1
What is the minimum right of way (ROW) width for a residential street?	less than 45 feet	Minimum ROW for local dead-end & through streets: 50’	12.04.050 A5	Low	#2
Does the code allow utilities to be placed under the paved section of the ROW?	Yes	When the utilities are to be underground, the planning board shall, wherever possible, require that they be placed in the road right-of-way, but outside the roadbed limits, to simplify the location and repair of lines when they require attention.	12.04.050 A5		None
What is the minimum radius allowed for cul-de-sacs?	less than 35 feet	Circular cul-de-sacs are not permitted. Dead-end local roads shall have a T-type turning area at the pavement terminus.	12.04.050 D1		None
Can a landscaped island be created within the cul-de-sac?	Yes	Circular cul-de-sacs are not permitted. Dead-end local roads shall have a T-type turning area at the pavement terminus	12.04.050 A5		None
Are alternative turnarounds such as “hammerheads” allowed on short streets in low density residential developments?	Yes	Circular cul-de-sacs are not permitted. Dead-end local roads shall have a T-type turning area at the pavement terminus.	12.04.050 A5		None
Are curb and gutters required for most residential street sections?	No	[not mentioned]			None
Are there established design criteria for swales that can provide stormwater quality treatment (i.e., dry swales, biofilters, or grass swales)?	Yes	[not mentioned]		Med	#3
Parking Spaces and Lots – Model Principles		Big Flats’ Zoning Language	Code Reference	Priority	Recommendation Number

What is the minimum parking ratio for a professional office building (per 1000 ft of gross floor area)?	less than 3.0 spaces	Office, general business or professional: Two and one-half spaces for each one thousand (1,000) square feet of gross floor dedicated to the use.	17.48.010 B8		None
What is the minimum required parking ratio for shopping centers (per 1,000 ft ² gross floor area)?	4.5 spaces or less	Retail, including malls or plazas: three and one-half spaces for each one thousand (1,000) square feet of gross floor area.	17.48.010 B10		None
What is the minimum required parking ratio for single family homes (per home)?	≤ 2.0 spaces	One-unit dwelling: Two spaces for up to the first four bedrooms, plus one-half space for each additional bedroom.	17.48.010 B11		None
Are your parking requirements set as maximum or median (rather than minimum) requirements?	Yes	Required Off-Road Parking Spaces. The minimum number of parking spaces in a parking area for a use shall be as follows: Maximum Number of Parking Spaces. In the interest of protecting and preserving the groundwater quality and quantity, unless otherwise stated for a specific use, no use in the town shall be permitted to have more than five parking spaces per one thousand (1,000) square feet of gross floor area unless such development plans document the need for such additional parking and that, with quantifying analysis, such parking is determined to not adversely impact the aquifer or ground water.	17.48.010 B & D	High	#4-5
Is the use of shared parking arrangements promoted?	Yes	In the case of a combination of uses, the total requirement for off-road parking spaces shall be no greater than the sum of the minimum requirements for all uses, unless it can be proven by substantive documentation that staggered hours or other operational activities of such uses would permit modification. The planning board may optionally mandate that such shared parking arrangements be instituted if it would reduce the number of parking spaces while serving multiple uses.	17.48.010 E1	High	#6
Are model shared parking agreements provided?	Yes	[not included]		Low	#7
Are parking ratios reduced if shared parking arrangements are in place?	Yes	In the case of a combination of uses, the total requirement for off-road parking spaces shall be no greater than the sum of the minimum requirements for all uses, unless it can be proven by substantive documentation that staggered hours or other operational activities of such uses would permit modification. The planning board may optionally mandate that such shared parking arrangements be instituted if it would reduce the number of parking spaces while serving multiple uses.	17.48.010 E1	High	#8

If mass transit is provided nearby, is the parking ratio reduced?	Yes	[not mentioned]		Low	#11
What is the minimum stall width for a standard parking space?	9 feet or less	A parking space shall be a minimum dimension of nine (9) feet by eighteen (18) feet, exclusive of pedestrian access, drive, or internal drive, and have access from a drive or internal drive	17.48.010 A2		None
What is the minimum stall length for a standard parking space?	18 feet or less	A parking space shall be a minimum dimension of nine (9) feet by eighteen (18) feet, exclusive of pedestrian access, drive, or internal drive, and have access from a drive or internal drive	17.48.010 A2		None
Are at least 30% of the spaces at larger commercial parking lots required to have smaller dimensions for compact cars?	Yes	[not mentioned]		Low	#12
Can pervious materials be used for spillover parking areas	Yes	The planning board, at their discretion, can require that parking spaces above the minimum may be provided by pervious parking spaces in lieu of traditional asphalt.	17.48.010 G		None
Are there any incentives to developers to provide parking within garages rather than surface parking lots?	Yes	[not mentioned]		Low	#13
Is a minimum percentage of a parking lot required to be landscaped?	Yes	In all off-street parking facilities which contain twenty-five (25) or more parking spaces, at least fifteen (15) percent of the total parking facility within the parking perimeter shall consist of raised landscaped islands.	17.48.010 O1	High	#10
Is the use of bioretention islands and other stormwater practices within landscaped areas or setbacks allowed?	Yes	Such landscaped islands and the plantings within them shall be designed and arranged where appropriate, to accommodate stormwater management practices such as bioretention areas, swales, and sand filters.	17.48.010 O2		None
Driveways, Sidewalks, and Roofs – Model Principles		Big Flats’ Zoning Language	Code Reference	Priority	Recommendation Number
What is the minimum driveway width specified in the community?	9 feet (one lane)	[not mentioned]		Med	#17
Can pervious materials be used for single family home driveways (e.g., grass, gravel, porous pavers, etc)?	Yes	[not mentioned]		High	#18
Can a “two track” design be used at single family driveways?	Yes	[not mentioned]		Low	#19
Are shared driveways permitted in residential developments?	Yes	[not mentioned]		Low	#20
Can rooftop runoff be discharged to yard areas?	Yes	[not mentioned]		Low	#26

Do current grading or drainage requirements allow for temporary ponding of stormwater on front yards or rooftops?	Yes	Driveways that originate on the uphill side of a roadway shall be graded in such a manner as to provide a one-percent reverse grade for a minimum distance of twelve (12) feet. All storm-water drainage created as a result of constructing a driveway shall be directed in such a manner as to not drain directly on to the town road. This type of cut and subsequent drainage patterns shall be shown on the application map or plan.		Low	#23
What is the minimum sidewalk width allowed in the community?	4 feet or less	a. Sidewalks in the TCR District: Clear and well-lighted sidewalks, <i>three to five feet in width</i> , depending on projected pedestrian traffic, shall connect all dwelling entrances to the adjacent public sidewalk. b. Sidewalks in the TC and TC2 Districts: Clear and well-lighted walkways shall connect building entrances to the adjacent public sidewalk and to associated parking areas. Such walkways shall be a <i>minimum of five feet</i> in width and comply to all ADA standards.	17.36.340 N1a-N1b	Low	#21-22
Are sidewalks always required on both sides of residential streets?	No	[not mentioned]			None
Are sidewalks generally sloped so they drain to the front yard rather than the street?	Yes	[not mentioned]		Low	#24
Can alternate pedestrian networks be substituted for sidewalks (e.g., trails through common areas)?	Yes	[not mentioned]			None
Open Space – Model Principles		Big Flats’ Zoning Language	Code Reference	Priority	Recommendation Number
Are open-space or cluster development designs allowed in the community?	Yes	A cluster residential development (CRD) subdivision is intended to enable and encourage flexibility in the design and development of land in such a manner as to promote the most appropriate use of land, to facilitate adequate and economical provision of services, to preserve those areas in the town that are suitable for agricultural use, to protect and conserve open space use and environmentally sensitive features, and to preserve scenic qualities, while allowing development to take place on areas of a property best suited for a neighborhood.	17.28.010		None
Is land conservation or impervious cover reduction a major goal or objective of the open space design ordinance?	Yes	The use of cluster residential development principles can result in the preservation of contiguous open space and important scenic resources and environmental resources, while allowing compact development, more walkable and bikeable neighborhoods, and more design flexibility than conventional developments.	17.28.010		None
Are the submittal or review requirements for open space design greater than those for conventional development?	No	The approval procedure shall be the same as that for the approval of subdivisions as defined in Chapter 16 of the Town Code. In addition, the developer shall conduct a concept plat review with the director of planning prior to the submission of an application and at each level of approval provide the following information:	17.28.100		None

Is open space or cluster design a by-right form of development?	Yes	Cluster residential development (CRD) shall be considered applicable in the RU and R1 districts. – All one-unit, two-unit, and multi-unit dwelling and accessory uses as specified in Section 17.12.010, Use Requirements Table, for the applicable districts are permitted.	17.28.020 & 17.28.030		None																														
Are flexible site design criteria available for developers that utilize open space or cluster design options (e.g., setbacks, road widths, lot sizes)	Yes	<table border="1" data-bbox="789 280 1619 545"> <thead> <tr> <th></th> <th>Area</th> <th>Front</th> <th>Side</th> <th>Rear</th> <th>Coverage</th> </tr> </thead> <tbody> <tr> <td>CRD RU</td> <td>.5 Acre</td> <td>25'</td> <td>25'</td> <td>60'</td> <td>40%</td> </tr> <tr> <td>CRD R1</td> <td>Up to 70% less</td> <td>Up to 70% less</td> <td>Up to 70% less</td> <td>Up to 70% less</td> <td>Up to 70% less</td> </tr> <tr> <td>RU</td> <td>10 Acre</td> <td>50'</td> <td>50'</td> <td>60'</td> <td>10%</td> </tr> <tr> <td>R1</td> <td>.66 Acre</td> <td>45'</td> <td>20'</td> <td>60'</td> <td>40%</td> </tr> </tbody> </table>		Area	Front	Side	Rear	Coverage	CRD RU	.5 Acre	25'	25'	60'	40%	CRD R1	Up to 70% less	Up to 70% less	Up to 70% less	Up to 70% less	Up to 70% less	RU	10 Acre	50'	50'	60'	10%	R1	.66 Acre	45'	20'	60'	40%	17.16.020 & 17.28.040		None
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RU	10 Acre	50'	50'	60'	10%																														
R1	.66 Acre	45'	20'	60'	40%																														
Does the community have enforceable requirements to establish associations that can effectively manage open space?	Yes	Open space land shall under all circumstances be protected by a perpetual conservation easement, but may be owned in common by a homeowner's association (HOA), offered for dedication to town, county, or state governments, transferred to a non-profit organization acceptable to the planning board, held in private ownership, or held in such other form of ownership as the planning board finds appropriate to properly manage the open space land and to protect its conservation value.	17.28.090 D1		None																														
Are open space areas required to be consolidated into larger units?	Yes	<p>A proposed CRD shall have a minimum contiguous acreage of:</p> <table border="1" data-bbox="781 885 1610 1122"> <thead> <tr> <th>Zoning District</th> <th>Minimum Contiguous Acreage</th> </tr> </thead> <tbody> <tr> <td>R1 with water and sewer</td> <td>2.0</td> </tr> <tr> <td>R1 with water and no sewer</td> <td>6.0</td> </tr> <tr> <td>R1 with no water and no sewer</td> <td>10.0</td> </tr> <tr> <td>RU</td> <td>10.0</td> </tr> </tbody> </table>	Zoning District	Minimum Contiguous Acreage	R1 with water and sewer	2.0	R1 with water and no sewer	6.0	R1 with no water and no sewer	10.0	RU	10.0	17.28.080 A		None																				
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R1 with no water and no sewer	10.0																																		
RU	10.0																																		
Does a minimum percentage of open space have to be managed in a natural condition?	Yes	In order for such a reduction to occur, the planning board, at their discretion, shall conclude that the proposed cluster residential development is designed to preserve and protect the natural and scenic qualities of the permanent open space(s) to the greatest extent practicable and all necessary approvals from the Chemung County Department of Health shall be obtained prior to final approval of the CRD.	17.28.040 A		None																														
Are allowable and unallowable uses for open space in residential developments defined?	Yes	The conservation easement shall prohibit residential, industrial, or business use of open space land (except in connection with agriculture, forestry, and/or passive recreation), and shall not be amendable to permit any such use. At the discretion of the planning board, the conservation easement may permit public access, outdoor active recreation on the portion of	17.28.090B 2		None																														

		protected open space comprised of unconstrained land, or may be amendable to permit such use in the future,						
Can open space be managed by a third party using land trusts or conservation easements?	Yes	Open space land shall under all circumstances be protected by a perpetual conservation easement, but may be owned in common by a homeowner's association (HOA), offered for dedication to town, county, or state governments, transferred to a non-profit organization acceptable to the planning board, held in private ownership, or held in such other form of ownership as the planning board finds appropriate to properly manage the open space land and to protect its conservation value.	17.28.090 D1		None			
Setbacks – Model Principles		Big Flats' Zoning Language	Code Reference	Priority	Recommendation Number			
Are irregular lot shapes (e.g., pie-shaped, flag lots) allowed in the community?	Yes	[not mentioned]		Low	#34			
What is the minimum requirement for front setbacks for a one half (½) acre residential lot?	20 feet or less	Front Setbacks	One or two unit, no public sewer and no public water	One or two unit with public water no public sewer	One or two unit with public sewer and public water	17.16.020 & 17.28.040 A	Med	#14
		Cluster (RU)	25	25	25			
		R1	40	30	30			
		R2	25	20 (complies)	10(complies)			
		TC, TC2, TCR	20 maximum (complies)	20 maximum (complies)	20 maximum (complies)			
What is the minimum requirement for side setbacks for a one half (½) acre residential lot?	8 feet or less	Side Setbacks	One or two unit, no public sewer and no public water	One or two unit with public water no public sewer	One or two unit with public sewer and public water	17.16.020 & 17.28.040 A	Med	#15
		Cluster (RU)	25	25	25			
		R1	25	20	10			
		R2	15	15	10			
		TC, TC2, TCR	10	10	5 (complies)			

<p>What is the minimum frontage distance for a one half (½) acre residential lot?</p>	<p>less than 80 feet</p>	<table border="1"> <tr> <td>R2 Area</td> <td>17,500 Sq. ft.</td> <td>15,000 Sq. ft.</td> <td>10,000 Sq. ft.</td> <td>0.5 Acres</td> </tr> <tr> <td>Width (in feet)</td> <td>80</td> <td>60</td> <td>60</td> <td>50</td> </tr> </table> <table border="1"> <tr> <td>TC, TC2, TCR</td> <td>20,000 Sq. ft.</td> <td>15,000 Sq. ft.</td> <td>7,500 Sq. ft.</td> </tr> <tr> <td>Width (in feet)</td> <td>80</td> <td>70</td> <td>60</td> </tr> </table>	R2 Area	17,500 Sq. ft.	15,000 Sq. ft.	10,000 Sq. ft.	0.5 Acres	Width (in feet)	80	60	60	50	TC, TC2, TCR	20,000 Sq. ft.	15,000 Sq. ft.	7,500 Sq. ft.	Width (in feet)	80	70	60	<p>17.16.020 C,D,E</p>		<p>None</p>
R2 Area	17,500 Sq. ft.	15,000 Sq. ft.	10,000 Sq. ft.	0.5 Acres																			
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Width (in feet)	80	70	60																				
<p>Waterbodies and Stormwater – Model Principles</p>		<p>Big Flats’ Zoning Language</p>	<p>Code Reference</p>	<p>Priority</p>	<p>Recommendation Number</p>																		
<p>Is there a stream buffer ordinance in the community?</p>	<p>Yes</p>	<p>[not mentioned]</p>		<p>High</p>	<p>#27</p>																		
<p>If so, what is the minimum buffer width?</p>	<p>75 feet or more</p>	<p>[not mentioned]</p>		<p>High</p>	<p>#27</p>																		
<p>Is expansion of the buffer to include freshwater wetlands, steep slopes or the 100-year floodplain required?</p>	<p>Yes</p>	<p>[not addressed in relation to buffers]</p> <p>Steep Slope Requirements. The topography of the town includes many steep slopes that benefit the community by providing scenic views, aquifer recharge areas, wooded areas, and substantial protection against flooding and erosion. If these areas are not carefully protected, the benefits of these areas will be irreparably lost and extensive erosion and flooding is likely to occur.... A slope greater than twenty-five (25) percent (2.5 feet of vertical rise in a ten (10) feet horizontal distance) shall not be developed except as approved in a site plan.</p> <p>&</p> <p>Conservation (C) Intent. It is the intent of this district to minimize losses due to flooding, protect natural areas that accommodate floodwaters, minimize the need for rescue and relief efforts associated with flooding, preserve the quality and quantity of groundwater resources, protect significant viewsheds, preserve significant wildlife habitat, enhance opportunities for outdoor recreation, and protect agricultural resources. This zone supports low intensity recreational and agricultural uses that do not require the construction of new buildings (except for small structures that are a “necessary appurtenance” to the agricultural and recreational</p>	<p>17.36.080 & 17.08.040 H</p>	<p>High</p>	<p>#31</p>																		
<p>Does the stream buffer ordinance specify that at least part of the stream buffer be maintained with native vegetation?</p>	<p>Yes</p>	<p>[not mentioned]</p>		<p>High</p>	<p>#28</p>																		
<p>Does the stream buffer ordinance outline allowable uses?</p>	<p>Yes</p>	<p>[not mentioned]</p>		<p>Med</p>	<p>#29</p>																		

Does the ordinance specify enforcement and education mechanisms?	Yes	[not mentioned]		Med	#31-32
Is stormwater required to be treated for quality before it is discharged?	Yes	Stormwater Pollution Prevention Plan Requirement. No application for approval of a land development activity shall be reviewed until the planning board or the stormwater management officer, accordingly, has received a stormwater pollution prevention plan (SWPPP) prepared in accordance with the specifications in this chapter. [See A-E]	17.37.080 A-E		None
Are there effective design criteria for stormwater best management practices (BMPs)?	Yes	<p>All land development activities shall be subject to the following performance and design criteria:</p> <p>A. Technical Standards. For the purpose of this chapter, the following documents shall serve as the official guides and specifications for stormwater management. Stormwater management practices that are designed and constructed in accordance with these technical documents shall be presumed to meet the standards imposed by this section:</p> <p>1. The New York State Stormwater Management Design Manual (New York State Department of Environmental Conservation, most current version or its successor, hereafter referred to as the Design Manual).</p> <p>2. New York Standards and Specifications for Erosion and Sediment Control, (Empire State Chapter of the Soil and Water Conservation Society, 2004, most current version or its successor, hereafter referred to as the Erosion Control Manual).</p> <p>&</p> <p>Intent. It is the intent of this section to assure that all development provides for adequate protection against the impacts associated with stormwater and that development does not create added stormwater runoff from a development site. This intent is furthered by requiring that all development plans include provisions for stormwater management and that such plans comply with the standard for stormwater management in the town of Big Flats indicated in Chapter 17.37</p> <p>&</p> <p>C. In order to insure that the subdivision will be developed with a minimum amount of soil erosion, the planning board shall require the applicant to follow certain erosion control practices. These practices shall generally be as described in the Empire State Chapter Soil & Water Conservation Society, New York Guidelines for Urban Erosion and Sediment Control, March, 1988, or its most recent revisions and shall include the following general practices:</p>	17.37.090 A & 17.36.90 A-D & 16.12.040 C		None
Can stormwater be directly discharged into a jurisdictional wetland without pretreatment?	No	Stormwater Pollution Prevention Plan Requirement. No application for approval of a land development activity shall be reviewed until the planning	17.37.080 A-E		None

		board or the stormwater management officer, accordingly, has received a stormwater pollution prevention plan (SWPPP) prepared in accordance with the specifications in this chapter. [See A-E]			
Does a floodplain management ordinance that restricts or prohibits development within the 100-year floodplain exist?	Yes	<p>Area of special flood hazard means land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. This area may be designated as Zone A, AE, AH, AO, AI-A30 or A99. It is also commonly referred to as the base floodplain or one hundred (100) year floodplain.</p> <p>No structure in the area of a special flood hazard shall be constructed, located, extended, converted, or altered, and no land shall be excavated or filled without full compliance with the terms of this chapter and any other applicable local, state or federal code, rule or regulation.</p>	15.12.030 & 15.12.060		None
Land Conservation – Model Principles		Big Flats’ Zoning Language	Code Reference	Priority	Recommendation Number
Is there any ordinance that requires or encourages the preservation of natural vegetation at residential development sites?	Yes	<p>Existing vegetation within ridgeline areas shall be preserved to the maximum extent practicable. Every attempt shall be made to limit cutting necessary for either construction or the opening of views from the subject site so as to maintain native vegetation as a screen for structures, as seen from public roads or parks or other public views</p> <p>&</p> <p>Areas, on a lot proposed for a development that requires a subdivision approval or site plan in accordance with Section 17.12.010 that are determined to be of importance to the community based on their environmental setting, scenic view, historical, or archeological significance may be set aside and not be developed as a condition of subdivision or site plan approval. Such a determination shall depend upon the magnitude and character of the development and the potential that the environmental setting, scenic view, historical, or archeological site would be irreparably lost if not preserved.</p> <p>&</p> <p>Credit for Existing Vegetation. To the greatest extent possible, existing site vegetation shall be saved during construction and thereafter. Existing site vegetation may be used to meet some or all of the requirements of subsection E of this section provided that the existing site vegetation provides or exceeds the minimum level of protection afforded by the requirements of this section.</p>	17.24.030 H5 & 17.36.100 D 1 & 17.36.200 E2h		None

Do reserve septic field areas need to be cleared of trees at the time of development?	No	[not mentioned]			None
If forests or specimen trees are present at residential development sites, does some of the stand have to be preserved?	Yes	<p>Retention and protection of natural vegetation wherever possible;</p> <p>&</p> <p>Existing vegetation within ridgeline areas shall be preserved to the maximum extent practicable. Every attempt shall be made to limit cutting necessary for either construction or the opening of views from the subject site so as to maintain native vegetation as a screen for structures, as seen from public roads or parks or other public views.</p> <p>&</p> <p>Subdivision: In order to insure that the subdivision will be developed with a minimum amount of soil erosion, the planning board shall require the applicant to follow certain erosion control practices:</p> <p>5 Retention and protection of natural vegetation wherever possible</p> <p>&</p> <p>Zoning: Credit for Existing Vegetation. To the greatest extent possible, existing site vegetation shall be saved during construction and thereafter. Existing site vegetation may be used to meet some or all of the requirements of subsection E of this section provided that the existing site vegetation provides or exceeds the minimum level of protection afforded by the requirements of this section. If applicable, the planning board may consider credit for preservation of qualifying existing site vegetation on a one to one basis with the landscaping requirements of this section. New plantings where existing vegetation is used as part of the required landscaping shall be compatible with the existing landscape in character and type.</p> <p>&</p> <p>Road construction, building site development, and other construction activity proposed for these areas [steep slopes] require special design consideration to prevent erosion, minimize stormwater runoff, and preserve large trees, natural terrain and scenic views.</p>	<p>16.12.040</p> <p>&</p> <p>17.24.030 H5</p> <p>&</p> <p>16.12.040</p> <p>C5</p> <p>&</p> <p>17.36.200</p> <p>E2h</p> <p>&</p> <p>17.36.080</p>		None
Are the limits of disturbance shown on construction plans adequate for preventing clearing of natural vegetative cover during construction?	Yes	Existing vegetation within ridgeline areas shall be preserved to the maximum extent practicable. Every attempt shall be made to limit cutting necessary for either construction or the opening of views from the subject site so as to maintain native vegetation as a screen for structures, as seen from public roads or parks or other public views----- Credit for Existing Vegetation. To the greatest extent possible, existing site vegetation shall be saved during construction and thereafter. Existing	<p>17.24.030 H5</p> <p>&</p> <p>17.36.200 E2h</p>		None

		site vegetation may be used to meet some or all of the requirements of subsection E of this section provided that the existing site vegetation provides or exceeds the minimum level of protection afforded by the requirements of this section.			
Are there any incentives to developers or landowners to conserve non-regulated land (open space design, density bonuses, stormwater credits or lower property tax rates)?	Yes	[not mentioned]		Med	#35
Is flexibility to meet regulatory or conservation restrictions (density compensation, buffer averaging, transferable development rights, off-site mitigation) offered to developers?	Yes	Once the number of lots for a proposed CRD has been established, this number may be increased by up to fifteen (15) percent if permanent public access will be granted to the permanent open land and any associated improvements as delineated in this section. Also, a ten (10) percent increase may be granted if the applicant uses the minimum lot area as described in 17.28.040 as a maximum lot area in the proposed development.	17.28.070 A3	Low	#36

