



Agenda MEMORANDUM

Streets & Stormwater Department

Natural Resources • Stormwater • Streets & Traffic

To: City Council
From: Gregg R. Strakaluse, Director
Date: March 17, 2021
Workshop Meeting Date: April 5, 2021

SUBJECT:

Presentation and discussion regarding swales within the public rights-of-way and landscaping impacts and recommendations.

BACKGROUND:

At the September 21, 2020 City Council meeting, it was the consensus of City Council to direct the City Manager to temporarily suspend Right-of-Way (ROW) permits for plantings (other than sod) within the public right-of-way until a formal discussion could take place to cover right-of-way standards and permitted uses. There has been growing concern about permitted and unpermitted uses of the public right-of-way, particularly relating to plantings. Over the years, the increase in the private use of the ROW has led to unintended consequences relating to vegetative overgrowth, sidewalk obstruction, reduced stormwater capacity in swales, street flooding, utility conflicts, and reduced space for public infrastructure. At the November 16, 2020 City Council Workshop, the Streets & Stormwater staff presented a more in-depth discussion to cover several important ROW topics. Please refer to **Attachment #1** for a summary of the November 16th presentation. The consideration to reinstate limited landscape along curbed streets and medians was discussed and staff was directed to formally bring the matter back at the next available City Council meeting. At the December 2, 2020 meeting, City Council approved limited landscape for streets with curb and gutters. Please see **Attachment #2** for the December 2nd item.

The discussion of landscape impacts on swale streets has been a continued concern and focus for the Department. The lack of a defined swale can impair stormwater conveyance and pollutant removal. With the increase in a wide variety of vegetative encroachments, and private landscape maintenance that has only focused on the condition of vegetation, not the swale itself, the effectiveness of the public's stormwater management system has been slowly compromised. Reclaiming swales can present challenges when private landscaping investments that are placed in swales are required to be removed to restore swale depth and function or to maintain utilities that are buried under the landscaped area of the ROW. There has also been a number of issues related to mulch erosion blocking or infiltrating the storm sewer system, contributing to slow drainage and nutrient loading in receiving water bodies. The Department has generally restricted plantings between the road edge and swale flowline in order to ensure proper drainage from the street into a swale; however some property owners have planted in this location without understanding the drainage needs of swales. In some instances where saturated swales are vulnerable to rutting by motor vehicles, the Department

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has allowed low lying ground cover to be placed 18-inches off the edge of the road as a deterrent to unauthorized vehicle parking and vehicles that park along the road.

The management of swales through the City has changed over time. Back in the late 1980's, the City had a Public Works Department with that had staff and heavy equipment that would do much of the road repairs along with swales restoration. With organizational restructuring, work was outsourced to private companies, with more focus on the City Code Section 22.35 (f), that places responsibility on property owners to maintain the greenspace of the ROW, including storm management facilities, which definition includes swales. Swales are reclaimed by the Department prior to road resurfacing or when a stormwater improvement project is performed. This year, the Department has prioritized \$263,000 of swale restoration within Basin IV on 8th Street South and 21st Avenue South. Citywide, streets are being evaluated and prioritized for swale restoration and a 5-year work program is being developed. The draft evaluation and prioritization is provided for in **Attachment #3: Draft Swale Evaluation & Prioritization**. Streets with swales versus those with curb and gutters are provided for in **Attachment #4: Citywide Swale Mapping**.

The Department has looked at ways to reclaim the swales within the City and understands the importance of the water quality and quantity benefits they provide. When looking at the impacts of undertaking swale projects there are a number of items that should be considered. Even though property owners understand that their improvements within the ROW are at risk, sod and irrigation systems within the ROW are typically repaired and restored by the City when there has been a need to repair or install new infrastructure or reclaim swales. This is a core value and City vision approach that tends to increase cost but provide a higher level of public satisfaction. Driveway modifications can also fall into this category when considering repairs and improvements to public infrastructure.

There are two schools of thought for swales. Some public works officials believe swales should be free and clear of plantings other than sod for erosion control. Others recognize that, in the right locations, swales can be designed with:

1. Soil amendments that are designed to remove pollutants with much higher efficiencies;
2. Exfiltration systems that are designed to carry a higher volume of stormwater, keep grasses from oversaturating, and filter pollutants from stormwater;
3. Specially selected vegetation designed to be water tolerant, improved stormwater quality, and add aesthetic beauty to the right-of-way and private property.

Considering the importance of stormwater quality and the Vision Goals of the City, vegetative swales along City roadways can be practical and valuable, provided that site selection and design criteria is established. Also, it must be accepted that work performed by public utilities and the City may, from time-to-time, require temporary or permanent removal of vegetation within the right-of-way, all in the public's best interest.

CRITERIA FOR VEGETATIVE SWALES

PERMITS REQUIRED: Right of Way Construction Standards Manual

The permitting standards and process for work within the ROW are provided within this document. Appendix A includes the recommended minimum practices for ROW landscaping and irrigation maintenance. The following items are intended to exceed the minimum practices and become part of the Department evaluation criteria for issuing permits for landscaping within the ROW:

Clear Zone

A four-foot clear zone shall be maintained from the street curb towards the ROW boundary where only sod is allowed to be planted. *This is the same criteria for curbed streets.* In order to protect portions of the greenspace that abut the roadway from vehicle rutting, geogrid or subsurface reinforcing systems may be installed by property owners. At intersecting streets or with small turning radii or sharp curves, large vehicles can have difficulty keeping all wheels on the pavement while negotiating the turn or curve. For these cases, the Department could consider other improvements, with property owner participation, such as enlarging the turning radii or curb installation.

Safe Lines of Sight

No plantings other than sod and vegetative ground cover, may be planted within the sight triangles at intersections established by the Florida Department of Transportation Design Index 546. *This is the same criteria for curbed streets.*

Protection of Utilities

The Department's review of a ROW application for planting may rely on utility provider input and shall first consider the protection of utility infrastructure by prohibiting plantings that grow with deep and significant root structure that may become entangled with underground infrastructure and plantings of significant weight placed over infrastructure that may compromise or damage that infrastructure.

Trees Within the ROW

The City's Parks & Parkways Division plants, or authorizes to be planted, trees within the ROW. In all cases on swaled streets, trees shall be located a maximum distance away from the swale flow line and towards the private property line. Trees planted on private property may grow into the public ROW and interfere with overhead powerlines and streetlights and then be subject to trimming by Florida Power & Light (FPL). One of the most important things homeowners and businesses can do is follow FPL's Right Tree/Right Place guidelines. By selecting the right tree and planting in the right place, property owners can help reduce power outages while also avoiding unsightly tree hacking.

Plant Types for Vegetative Swales Pallet

Plantings in swales may occur in all areas except the freeboard area on the street side. See Figure #1. Soil type and saturation levels must be considered for the plant-type selected since planting conditions vary from wet to relatively dry within the swale. The flow line or flat bottom of a swale will be inundated frequently and should be planted with species such as rushes, sedges, perennials, and ferns. The side slope moisture gradient varies from wet at the bottom to relatively dry near the top where inundation is infrequent. The moisture gradient can also vary depending upon the deigned water depth, swale depth, and side slope steepness. The

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transition zone from the bottom of the swale to the designed high-water line or top of freeboard should be planted with sedges, rushes, perennials, and ferns. The areas above the designed high-water line and immediately adjacent to the vegetative swale should be planted with self-sustaining, low maintenance grasses, perennials, and shrubs suitable for the local climate and site.

Native plants are encouraged, but non-invasive ornamentals that add aesthetic and functional value are acceptable. All vegetation should be densely and evenly planted to ensure proper hydrological function of the swale. For a complete list of allowable plants please refer to **Attachment #5: Vegetative Swale Plantings**. Other plants may be approved on a case-by-case basis. The Department is considering adding more plant species, with capabilities to improve stormwater quality, to this list.

Plantings between the swale flow line and the private property line in the ROW are not to exceed 24-inches above the edge of pavement, except for plantings along the property line that are limited to no greater than 36-inches.

Mulch is not allowed along the swaled portions of the ROW. Until such time a mulch alternative is identified in conjunction with the City's Parks & Parkways Division, mulch is allowed within roadway medians.

VEGETATIVE SWALE MAINTENANCE

As provided for in Section 22.35 (f) of the Naples Code of Ordinances, property owners are responsible for maintaining the stormwater management facilities in the right-of-way adjacent to the property free from any accumulation of filth, debris, obstruction, or other matter. This code section may be specifically incorporated into a permit granted to any property owners who installs a vegetative swale. It should also be noted that the growth of vegetation in swales accelerates within the rainy season and may require more frequent maintenance to ensure the criteria for vegetative swales is maintained.

Harvesting swale vegetation is labor intensive and may be require. Within the CleanWater Services "Low Impact Development Approaches Handbook", useful maintenance information is provided for keeping vegetative swales in good working order. Please see Attachment #6: Vegetative Swale Maintenance & Operations Plan. In fact, the entire handbook has been extremely useful in planning this agenda item.

RECOMMENDATION FOR ALLOWING VEGETATIVE SWALES & BIOSWALES

1. Reinstate administrative authority to issue permits for limited plantings when meeting the design criteria for vegetative swales and bioswales (memorandum).
 - A. Only Sod & Reinforced Turf in the Clear Zone
 - B. Only Sod and Vegetative Ground Covers in Sight Triangles
 - C. Restricted Plantings In, Around, and Over Utilities
 - D. Only City Street Trees between Property Line and Swale Flow Line

2. Incorporate vegetative swale and bioswale design and maintenance criteria into the Right of Way Construction Standards Manual.
3. ROW Permits Special Conditions control vegetative maintenance and corrective actions.
4. No mulch or other loose material is permitted within any swale. Continue to work with Parks & Parkways to seek out alternatives to mulch within medians.
5. Consider Stormwater Utility Fee Credit for Private Property Owners that Construct and Maintain Vegetative Swales and Bioswales.