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COMMITTEE MEMORANDUM

TO: Sustainability and Resiliency Committee

FROM: Jimmy L. Morales, City Manager

DATE: April 23, 2019

SUBJECT: **DISCUSSION REGARDING THE USE OF PESTICIDES, HERBICIDES, AND FERTILIZERS ON BOTH PUBLIC AND PRIVATE PROPERTIES**

BACKGROUND

On February 27, 2019, the Sustainability and Resiliency Committee held a discussion, co-sponsored by Commissioner Mark Samuelian and Commissioner Joy Malakoff, regarding the future neighborhood improvement project in the Lakeview neighborhood. Among other subjects, the discussion initiated a conversation regarding the use of pesticides, herbicides, and fertilizers and their potential to degrade surface water quality.

When it rains, pesticides, herbicides, and fertilizers used to maintain greenspaces, such as yards, lawns and parks, can be washed into our waterways. The chemicals in these products impact water quality and can have detrimental effects on aquatic ecosystems by killing beneficial organisms, like fish, and fostering the uncontrolled growth of harmful organisms, like algae. For example, fertilizers, which are rich in nutrients (nitrogen and phosphorous), can be particularly detrimental to Biscayne Bay if they are applied improperly because the bay is historically a low-nutrient environment.

On January 28, 2019 Miami-Dade County published a report on their findings regarding the decline of seagrass and hardbottom habitat in Biscayne Bay. In their report, the County points to several studies that "acknowledge or directly attribute seagrass decline and/or catastrophic loss to ecosystems becoming eutrophic, or nutrient over-enriched." The report also quotes a study by Burkholder et al. 2007 from the Journal of Experimental Marine Biology and Ecology that specifically notes "…eutrophication or nutrient over-enrichment, especially of nitrogen and phosphorous, has degraded many coastal waters and has been invoked as a major cause of seagrass disappearance worldwide."

Public Properties

In order to reduce the impacts of pesticides, herbicides, and fertilizers on our waterways, the city uses a variety of landscape maintenance strategies that balance environmental protection with the high aesthetic standards expected by residents and visitors:

- **Integrated Pest Management.** Parks and Recreation Department and Greenspace Management Division employees and contractors currently follow the State of Florida's Green Industries Best Management Practices for pest control management, which uses Integrated Pest Management (IPM) as its foundation. IPM minimizes the use of chemicals by encouraging its practitioners to actively scout for and prevent pests, accurately identify the pests if any are found, determine what a tolerable population of the pests is before any action is taken, apply the four methods of pest control (cultural, physical, biological, and

chemical,) and finally, evaluate the whole process to determine which methods were the most effective, most economical, and least impactful to human health and the environment.

- **Florida Friendly Landscaping.** Parks and Recreation and Greenspace Management staff also follow Florida Friendly Landscaping principles which are landscaping practices that conserve water, protect the environment, are appropriate for local conditions, and are drought, wind and/or salt tolerant. These practices also includes planting the right plant in the right place, efficiently watering, appropriate fertilization, mulching, attraction of wildlife, responsible management of yard pests, recycling, yard waste, reduction of stormwater runoff, and waterfront protection. In 2017, the City Commission furthered these efforts by passing a resolution incorporating Best Management Practices for landscaping by including the use of the Florida-Friendly Landscaping Guide to Plant Selection and Landscape Design when redeveloping City parks and City-owned lands.

- **Glyphosate Ban.** On September 12, 2018, the City Commission passed a resolution directing the City Manager to take all actions necessary to ban the use of herbicides containing glyphosate by all City employees and contractors in the performance of landscape maintenance work on all city-owned properties. Glyphosate is the active ingredient in commercial herbicides like RoundUp and Ranger Pro. The resolution referenced the environmental and public health risks associated with exposure to the chemical.

In concert with these tools, Parks and Recreation Department and Greenspace Management staff are well-trained and use their knowledge to further reduce the potential impact of pesticides, herbicides, and fertilizers in landscape management citywide. Staff is licensed in pest control and limited urban fertilizer use, as well as holds several industry-recognized professional certifications associated with proper pesticide, herbicide, and fertilizer application, including in Green Industry Best Management Practices, Professional Landscape Maintenance, Horticulture, and Florida Master Naturalist. Furthermore, they regularly pursue continuing education in specializations such as landscape horticulture, soil and water science, and plant science.

Depending on the location, aesthetic standard, and type of the vegetation in question, staff uses their professional discretion to set the maintenance level of service, including the need for and application frequency of pesticides, herbicides, and fertilizers. For example, in areas with high pedestrian traffic or where IPM has proven insufficient in controlling pests, such as the recent caterpillar infestation on the Banyan tree in Belle Isle or the grasshopper infestation along the beachwalk near Allison Park, the use of chemical pesticides may be necessary. Conversely, less trafficked areas in the right-of-way like swales can be maintained with little to no chemical inputs.

In their evaluation, staff also considers the potential financial and environmental cost of not applying fertilizers, pesticides or herbicides. For example, Greenspace Management treats the royal palms surrounding The Fillmore once a year for royal palm bug, an insect that can kill the palms if they are left untreated. Beyond the ecological impact of losing the palms, it would cost the city approximately $500,000 to replace these palms with ones matching their current size. Therefore, Greenspace opts to treat the palms following the proper application procedures recommended by the manufacturer and Best Management Practices.

<u>Private Properties</u>
There are several opportunities on private property to build on the city's existing efforts on public property to reduce the impact of pesticides, herbicides, and fertilizers to our waterways:

- **Expand the #KeepMBClean campaign to include water quality.** In 2015, the city launched #KeepMBClean, an anti-litter campaign. This campaign could be expanded to educate residents and visitors with tips on how they can improve water quality, such as using Florida Friendly Landscaping to reduce maintenance needs and not applying pesticides, herbicides, and fertilizers on rainy days. Similar targeted outreach was part of the success in reducing nutrients to and restoring the Chesapeake Bay and Tampa Bay. Past city campaigns of a comparable size and scope have cost approximately $25,000 in design and marketing.

- **Require all licensed landscape maintenance professionals that operate in Miami Beach to attend an annual training.** Landscape maintenance professionals, like other businesses, are required to obtain an operating license. The city could require them to participate in annual training – either an existing training such as the Green Industry Best Management Practices certification training, or a new curriculum developed by city staff – before renewing their license.

- **Restrict the use of pesticides, herbicides, and fertilizers geographically or temporally.** Other municipalities have enacted restrictions in the use of these chemicals, such as prohibiting their sale or use during the rainy season or prohibiting their use within 50 feet of shorelines and stormwater inlets, as these are the conditions when they can have the greatest environmental impact.

- **Enact a ban.** Similar to the city's glyphosate ban on public property, the city could enact restrictions on certain types of pesticides, herbicides, and fertilizers citywide. The Miami Waterkeeper, a non-profit organization dedicated to defending, protecting, and preserving South Florida's watershed, has draft ordinances used by other municipalities in enacting legislation, such as the City of Miami's recent ban of herbicides containing glyphosate. Enforcement of these bans is a challenge, particularly on private property, because the violations must be observed first-hand by a Code Compliance Officer in order to be enforced. As such, most bans focus on restricting use on public property, where municipalities have greater control, or on restricting sales countywide for ease of enforcement.

CONCLUSION

The following is presented to the members of the Sustainability and Resiliency Committee for initial discussion of the issue and ways to address it. Staff recommends launching the expanded #KeepMBClean campaign to educate homeowners on proper use of pesticides, herbicides, and fertilizers, in conjunction with requiring licensed landscape maintenance professionals to go through mandatory training. Past experience, including in the restoration of the Chesapeake Bay and the Tampa Bay, has shown that education on proper fertilizer use was a primary factor in improving water quality within the watershed.

STM/ESW/MKW