MEMORANDUM

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To: Local Planning Agency

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Subject: Low Impact Development (LID) – Proposed changes to incorporate the concept of LID into Planning Horizon 2025

What Low Impact Development (LID) Is

LID techniques attempt to mimic a site's predevelopment hydrologic regime, using distributed landscape features and engineered devices such as bioretention, grass swales, vegetated rooftops, rain barrels, and permeable pavements to reduce runoff, minimize pollutant discharges, decrease erosion, maintain recharge, and maintain base flows of receiving streams. LID focuses on capturing and infiltrating stormwater into the soil as close as possible to the point at which it hits the ground, thus reducing runoff. It differs from conventional stormwater management approaches, which typically aim to move water away from a site as quickly as possible via impervious surfaces (gutters, pipes, and ditches) to a central retention and treatment device such as a stormwater retention pond.

LID techniques can achieve flood protection, sediment retention, and pollutant removal goals at a lower initial cost than conventional systems, in part because they require less site work and less pipe and underground infrastructure. In cases where LID designs may have higher initial costs than traditional approaches, lower maintenance and operating costs and other savings generally result in lower costs than traditional approaches over the life of the facility (such an overall cost evaluation is called life-cycle cost analysis which is different from a purchase-price cost evaluation). LID techniques have additional benefits such as enhanced pollutant removal rates, increased open space, reduced downstream flooding, increased property values and redevelopment potential, public health protection, habitat preservation, erosion prevention, enhanced aesthetics, and improved quality of life for the community.

The following changes to the Future Land Use Element are recommended to incorporate LID concepts into the Comprehensive Plan.

Policy 4.1.7 Principles for Guiding Development within the GSACSC

The following shall apply to the GSACSC, in order to effectively and equitably conserve and protect its environmental and economic resources; provide a land and water management system to protect resources; and facilitate orderly and well planned growth:

Protection Objectives:

1. Minimize the adverse impacts of development on resources of the Floridian Aquifer, wetlands, and flood detention areas.
2. Protect the normal quantity, quality, and flow of groundwater and surface water, which are necessary for the protection of resources of State and regional concern.
3. Protect the water available for aquifer recharge.
4. Protect the functions of the Green Swamp Potentiometric High of the Floridian Aquifer.
5. Protect the normal supply of ground and surface waters.
6. Prevent further salt-water intrusion into the Floridian Aquifer.
7. Protect or improve existing ground and surface water quality.
8. Protect the water-retention, and biological filtering capabilities of wetlands.
9. Protect the natural flow regime of drainage basins.
10. Protect the design capacity of flood detention areas, and the water-management objectives of these areas through the maintenance of hydrologic characteristics of drainage basins.

Regulatory Guidelines:

1. Site Planning - The platting of land shall be permitted only when such platting commits development to a pattern which will not result in the alteration of the natural surface water flow regime, and which will not reduce the natural recharge rate of the platted site.
2. Site Alteration - Site Alteration shall be permitted only when such alteration will not adversely affect the natural surface water flow regime, or natural recharge capabilities of the site; and when it will not cause siltation of wetlands, or reduce the natural retention and filtering capabilities of wetlands. <u>Any site alteration shall adhere to Low Impact Development principles and practices and shall minimize site disturbance, clearing of natural vegetation, and soil compaction.</u>
3. All site alteration activities shall provide for water retention and settling facilities, maintain an overall site runoff equivalent to the natural flow regime prior to alteration, and maintain a runoff rate which does not cause erosion. No site work shall be initiated prior to the issuance of drainage/stormwater permits by concerned agencies. <u>Stormwater management systems designed according Low Impact Development principles and practices are preferred over conventional systems.</u>
4. Soils - All exposed soils as a result of site alteration or development activities shall be located and stabilized in a manner to prevent the alteration of the natural flow regime. All soil exposed as a result of site alteration or development activities shall be restored with suitable vegetation.

5. Groundwater - Ground water withdrawal shall not exceed the safe yield per acre as determined by the St. John's River Water Management District or the Southwest Florida Water Management District, or their successor agencies.
6. Stormwater – Pre-treated Stormwater runoff shall be released into the wetlands in a manner approximating the natural flow regime if consistent with the stormwater management ordinance.
7. Any industrial waste, sewage, or other human-induced wastes shall be effectively treated by the latest technological advances, and shall not be allowed to discharge into these waters unless in conformance with Florida Department of Environmental Protection rules and regulations.
8. Solid Waste - There shall be no solid waste facilities located in the GSACSC.
9. Structures - Structures shall be placed in a manner that will not adversely affect the natural flow regime and which will not reduce the recharge capabilities. Placement of structures shall be consistent with sound floodplain management practices such as compliance with the Flood Disaster Protection Act of 1973.

Ridge Future Land Use Category

The Ridge Future Land Use Category shall allow residential densities up to 4 units per acre provided central sewer service is provided. The following restrictions apply:

- All developments shall use water conservation devices;
- All developments must provide assurances that all of the services needed to support that development are in place concurrent with the impacts of the development, including fire, police, schools. Development orders shall be issued with a condition that specifies the regional wastewater service provider and that requires the development to connect to the regional provider when sewer services are available;
- Clustering of development on the least environmentally sensitive areas;
- Residential planned unit developments shall require 40 percent of the project site be retained as open space;
- Impervious surface ratio shall be limited to 45 percent of the site;
- All developments shall contain facilities for the retention of all stormwater on site or at regional facilities located in the same area of recharge; <u>such systems shall be designed using Low Impact Development principles and practices;</u>
- A residential density of one (1) unit per twenty (20) acres of wetlands is transferable to the uplands; and
- Mixed use PUDs in the Ridge area shall be limited to a maximum of 20 percent of the development site utilized as commercial.

NOTE: The balance of the policy was omitted for brevity.

Policy 4.2.5 Green Swamp Rural Future Use Land Category.

The Transitional Future Land Use Category shall allow development to occur at one unit per five acres. In addition, density may transfer to the upland portions of the site at a ratio of 1 unit per 20 acres of wetlands. The following restrictions apply:

- Water conserving devices are mandatory for all development;

- Impervious surface ratio is limited to 30 percent of the site;
- Sixty percent of the project site shall be retained as open space;
- A qualitative wetland study is required for all developments in excess of 100 acres. The purpose of said wetland study is to maintain the integrity of wetland systems;
- Development shall be clustered on uplands away from environmentally sensitive lands as identified in the Comprehensive Plan;
- All developments shall contain facilities for the retention of all stormwater on site or at regional facilities located in the same area of recharge; <u>such systems shall be designed using Low Impact Development principles and practices;</u>
- A study for threatened and endangered species and species of special concern is required for all proposed developments exceeding 50 acres. If it is determined that listed species are located on the site, a habitat management plan must be prepared using guidelines and protocols of the Florida Fish and Wildlife Conservation Commission (FFWCC). This plan must be reviewed by FFWCC prior to the issuance of a development order by the County; and
- No exotic or nuisance plant species shall be used in landscaping.

NOTE: The balance of the policy was omitted for brevity.

Policy 4.2.6 Rural/Conservation Future Land Use Category

The Rural/Conservation Future Land Use Category shall allow development to occur at one (1) dwelling unit per 10 acres of uplands. Density may be transferred to the upland portions of the site at a ratio of one (1) dwelling unit per 20 acres. The following restrictions also apply:

- Residential development shall be serviced by private wells;
- Septic tanks shall be regulated in accordance with the specific policies for the GSACSC set forth below;
- A qualitative wetland study for all developments in excess of 100 acres shall be required. The purpose of said wetland study is to maintain the integrity of wetland systems;
- Residential developments require 80 percent of the project site be retained as open space;
- Development shall be clustered on uplands away from environmentally sensitive lands as identified in this Comprehensive Plan;
- All developments shall contain facilities for the retention of all stormwater on site or at regional facilities located in the same area of recharge; <u>such systems shall be designed using Low Impact Development principles and practices;</u>
- A study for threatened and endangered species and species of special concern is required for all proposed developments exceeding 100 acres. If it is determined that listed species are located on the site, a habitat management plan must be prepared using guidelines and protocols of the Florida Fish and Wildlife Conservation Commission (FFWCC). The plan must be reviewed by FFWCC prior to the issuance of a development order by the County; and

- No exotic or nuisance plant species shall be used in landscaping.

NOTE: The balance of the policy was omitted for brevity.

Policy 4.4.2 Ensure the Safety of the Public by Controlling Surface Water Runoff and Flow

Lake County shall, in the GSACSC, conserve and protect the environmental resources consistent with the Principles for Guiding Development for the GSACSC as it relates to stormwater runoff. Lake County shall prepare and adopt a comprehensive stormwater management ordinance, which meets or exceeds the site alteration criteria for the GSACSC as found within the Florida Administrative Code. Wetland alteration shall be consistent with the policies of the Conservation Element. Stormwater shall be treated to the level for quality and quantity (Levels of Service) as established within the Stormwater Sub-element Goals, Objectives, and Policies and in conformance with this Comprehensive Plan.

The Stormwater Ordinance shall contain a minimum, definitions, permit requirements, exemptions, performance criteria, system design criteria, dedication of drainage easements and rights-of-way, application requirements, payment of fees, maintenance of systems, inspections, enforcement, emergency exemptions, variance provisions, provisions for appeals, and provide for penalties and violations. <u>The Stormwater Ordinance will incorporate the principles and practices of Low Impact Development and will promote the use of such systems over conventional stormwater systems.</u>

The County shall prohibit construction within wetland and floodplain areas inside the GSACSC, except where necessary to provide legal ingress or egress to a legal lot of record for which no other access exists.

Policy 4.4.4 Stormwater Management Considerations within the GSACSC

Lake County shall minimize the adverse impacts of development on flood detention areas, protect the natural flow regime of natural drainage basins, protect the design capacity of flood detention areas, and the water-management objectives of these areas through the maintenance of hydrologic characteristics of drainage basins. <u>Stormwater management systems shall be designed using Low Impact Development principles and practices to better maintain natural, pre-development hydrological conditions.</u>

Policy 6.3.8 Stormwater Standards.

Development within the Lake Apopka Basin Overlay District must comply with stormwater management requirements specified by the St. Johns River Water Management District. Stormwater swales shall be provided between development and the lake. Direct discharge to Lake Apopka or connected surface water is prohibited. <u>Stormwater management systems shall be designed using Low Impact Development principles and practices to better maintain natural, pre-development hydrological conditions and to improve treatment and removal of pollutants, nutrients, and sediments.</u>

Policy 7.12.5 Methods of Managing Stormwater

Consistent with the provision of services and facilities, the County shall:

- Regulate stormwater management consistent with Countywide regulations with the objective of minimizing site impacts and changes in hydrology, maximizing water quality treatment, maximizing aquifer recharge, minimizing flooding and protecting wetland systems; ~~and~~
- Incorporate and promote Low Impact Development (LID) principles and practices in stormwater management; and
- Utilize Municipal Service Benefit Units and other mechanisms to fund drainage improvements when appropriate.

The revisions to the Future Land Use Element as recommended above will serve to incorporate LID concepts into the Comprehensive Plan and allow staff to develop appropriate Land Development Regulations to implement LID for site development and stormwater management.

Staff is recommending **APPROVAL** of the proposed changes.