

Horst, Rachel

From: CEER@brevardfl.gov
Sent: Thursday, January 1, 2026 2:54 PM
To: Horst, Rachel
Subject: A new CEER Recommendation has been submitted as ID #2026004

Recommendation # 2026004

Dear CEER Administrator,

Speak Up Brevard Recommendation ID #2026004 has been submitted. Please login to the CEER Application to start the recommendation evaluation workflow.

Contact Information:

Group/Organization

Name Tom Kennelly
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Alternate Email

Recommendation Information:

Recommendation ID 2026004
Recommendation Title Installing backflow preventers on storm water drains along the Indian River Dr
Areas Affected
Department Affected Public Works Department
Current problem The Problem: Rising Lagoon Levels & Road Flooding – A Growing Threat The Indian River Lagoon is a vital ecosystem, but it's also increasingly vulnerable to sea level rise and storm surges. Brevard County's low-lying areas are experiencing more frequent and severe flooding events, driven by these lagoon inundations. When the lagoon rises, it simply flows over existing storm water drains, backing up onto roadways along Indian River Dr north of 528 causing: Traffic Disruptions: Road closures, significant delays, and economic losses due to stranded homeowners. Property Damage: Flooding into businesses, homes, and vehicles, leading to costly repairs and potential structural damage. Safety Hazards: Reduced visibility, increased risk of accidents, and potential contamination of roadways. Strain on Emergency Services: First responders diverted to flood response, potentially delaying other crucial services. Does this increase County liability?
Recommendation The Solution: Backflow Preventers – A Critical Layer of Protection Backflow preventers are simple, yet incredibly effective devices designed to reverse the flow of water. In this context, they are crucial to preventing lagoon water from backing up into

our drainage systems and onto roadways. Here's why they are a necessary investment:

1. Preventing Lagoon Water from Entering the Drain System: Core Functionality: Backflow preventers are designed to stop water from flowing backwards into the drain system. When the lagoon water level reaches a certain point, the preventer will shut off the flow, preventing it from surging back into the existing drainage infrastructure. Targeted Protection: They're placed at the outlets of storm drains, specifically where the lagoon water is most likely to enter – essentially acting as a gatekeeper.
2. Cost-Effectiveness & Long-Term Savings: Reduced Damage Costs: Preventing flooding saves taxpayers and property owners from costly repairs, vehicle damage from salt water, and business interruptions. Minimized Emergency Response Costs: Less flooding means fewer calls for road patching, freeing up resources for other priorities.
3. Modern Technology & Relatively Low Cost: Variety of Options: Backflow preventers come in various types (atmospheric, pressure-reducing, etc.) suitable for different drain configurations and budget levels. Affordable Investment: The cost of installing backflow preventers is relatively low compared to the potential damage they can prevent. It's a proactive, preventative measure, not a reactive one.
5. Alignment with Coastal Resilience Planning: Strategic Infrastructure: Installing backflow preventers is a key component of a broader coastal resilience strategy for Brevard County. It's a tangible step towards managing flood risk and protecting our communities. Supporting Sea Level Rise Adaptation: As sea levels continue to rise, these devices will become increasingly vital in mitigating the impacts of lagoon flooding. Recommendation: Brevard County should prioritize the installation of backflow preventers on storm water drains along the Indian River Lagoon, particularly in areas most vulnerable to backflow flooding. This investment will not only protect our infrastructure and property but also safeguard our environment and enhance the resilience of our coastal communities.

Attachments

NotRenderingCorrectlyInIE.docx
Screenshot 2026-01-01 145059.png
Screenshot 2026-01-01 145313.png
TEST.txt

Please do not reply to this e-mail, as it will go to an unmonitored mailbox.

Where These Systems are Used

Most backflow preventer installations are managed at the **city level**, though they often receive funding and coordination through **county-wide** resiliency plans or regional Water Management Districts.

City	Implementation Highlights
Miami Beach	One of the most aggressive users; they have installed dozens of check valves and paired them with massive pump stations to force water out even during high tides.
Fort Lauderdale	Actively installing tidal valves in neighborhoods like Las Olas and the Finger Islands, where King Tides frequently overtop storm drains.
St. Augustine	Uses "tide check valves" extensively in the Davis Shores neighborhood, which historically flooded monthly during high tides.
Hollywood	Utilizing "WayPro" and "WaStop" valves to reduce tidal backflow along the Intracoastal Waterway.
Pompano Beach	Engaged in a multi-year project to install tidal valves citywide to mitigate sea-level rise.
Delray Beach	Identified 58 public outfalls that require backflow prevention and has begun installing in-line check valves.


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Other notable locations include **Key Biscayne**, **New Smyrna Beach**, **Treasure Island**, and **St. Petersburg**.

⚠️ The Limitations

While these valves are effective at stopping the sea, they create a new problem known as "**Rain-on-Tide**" flooding.

If it rains heavily while the tide is high, the valve stays shut to keep the ocean out. Because the "door" is closed, the rainwater has nowhere to go and begins to "stack up" on the streets. To solve this, cities like **Miami Beach** and **Fort Lauderdale** are increasingly forced to install **pumping stations**. These pumps are strong enough to force the rainwater through the closed valve and out into the ocean against the pressure of the tide. 

Note on Terminology: If you are searching for local ordinances, be sure to distinguish between **Stormwater Backflow** (the street flooding issue) and **Potable Water Backflow** (plumbing devices designed to keep sewage/chemicals out of your drinking water). Most Florida counties have strict mandates for the latter, while the former is a specialized civil engineering response to climate change.



BOARD OF COUNTY COMMISSIONERS

TO: Jim Liesenfelt, County Manager
THRU: Tad Calkins, Assistant County Manager
FROM: Amanda Elmore, Deputy Director, Natural Resources Management Dept.
SUBJECT: Citizen Efficiency and Effectiveness Recommendation (CEER) #2026004

CEER #2026004, titled Installing backflow preventers on storm water drains along the Indian River Dr, was received by the County from Tom Kennelly.

Citizen Statement:

The Problem: Rising Lagoon Levels & Road Flooding – A Growing Threat

The Indian River Lagoon is a vital ecosystem, but it's also increasingly vulnerable to sea level rise and storm surges. Brevard County's low-lying areas are experiencing more frequent and severe flooding events, driven by these lagoon inundations. When the lagoon rises, it simply flows over existing storm water drains, backing up onto roadways along Indian River Dr north of 528 causing:

Traffic Disruptions: Road closures, significant delays, and economic losses due to stranded homeowners.

Property Damage: Flooding into businesses, homes, and vehicles, leading to costly repairs and potential structural damage.

Safety Hazards: Reduced visibility, increased risk of accidents, and potential contamination of roadways.

Strain on Emergency Services: First responders diverted to flood response, potentially delaying other crucial services. Does this increase County liability?

Citizen Recommendation:

The Solution: Backflow Preventers – A Critical Layer of Protection

Backflow preventers are simple, yet incredibly effective devices designed to reverse the flow of water. In this context, they are crucial to preventing lagoon water from backing up into our drainage systems and onto roadways. Here's why they are a necessary investment:

1. Preventing Lagoon Water from Entering the Drain System:

Core Functionality: Backflow preventers are designed to stop water from flowing backwards into the drain system. When the lagoon water level reaches a certain point, the preventer will shut off the flow, preventing it from surging back into the existing drainage infrastructure.

Targeted Protection: They're placed at the outlets of storm drains, specifically where the lagoon water is most likely to enter – essentially acting as a gatekeeper.

2. Cost-Effectiveness & Long-Term Savings:

Reduced Damage Costs: Preventing flooding saves taxpayers and property owners from costly repairs, vehicle damage from salt water, and business interruptions.

Minimized Emergency Response Costs: Less flooding means fewer calls for road patching, freeing up resources for other priorities.

3. Modern Technology & Relatively Low Cost:

Variety of Options: Backflow preventers come in various types (atmospheric, pressure-reducing, etc.) suitable for different drain configurations and budget levels.

Affordable Investment: The cost of installing backflow preventers is relatively low compared to the potential damage they can prevent. It's a proactive, preventative measure, not a reactive one.

5. Alignment with Coastal Resilience Planning:

Strategic Infrastructure: Installing backflow preventers is a key component of a broader coastal resilience strategy for Brevard County. It's a tangible step towards managing flood risk and protecting our communities.

Supporting Sea Level Rise Adaptation: As sea levels continue to rise, these devices will become increasingly vital in mitigating the impacts of lagoon flooding.

Recommendation:

Brevard County should prioritize the installation of backflow preventers on storm water drains along the Indian River Lagoon, particularly in areas most vulnerable to backflow flooding. This investment will not only protect our infrastructure and property but also safeguard our environment and enhance the resilience of our coastal communities.

Staff Analysis:

Backflow preventers can significantly reduce or eliminate backflow from the receiving water body upstream when water levels at the outfall point are higher than normal. They are particularly effective in tidally influenced systems. The Indian River Lagoon (IRL), however, is generally not tidally influenced except in areas immediately adjacent to

ocean inlets such as Sebastian Inlet. Backflow devices are also most effective where the outfall elevation is significantly higher than the receiving shoreline or river bottom, conditions that do not exist for most IRL outfalls.

Brevard County departments have installed flap gates, Tideflex valves, and similar devices at select locations. However, operational challenges have been encountered in the IRL environment. These devices require frequent maintenance, in excess of available resources, and can become clogged with biofouling organisms and debris, rendering them inoperable. Shoreline conditions in the IRL are dynamic, with sand, silt, and aquatic vegetation frequently accumulating along windward shorelines, particularly during strong southeast winds that often precede major storm events. In such conditions, debris buildup can prevent devices from opening properly, creating tailwater effects upstream and, in some cases, exacerbating flooding. Valves also require some upstream pressure to open, flat grades can therefore cause systems not to discharge. These issues have occurred during major storms, when access and staffing for maintenance is limited.

In addition, backflow preventers on pipes will not reduce flooding in a drainage basin if there are ditches and other open channel tributaries discharging into IRL within that basin. In those cases, elevated lagoon water levels can still back up through open channels, potentially offsetting or even worsening conditions if pipe outfalls are restricted.

Given these site-specific considerations, the County evaluates the feasibility and effectiveness of backflow prevention devices on a case-by-case basis.

Staff Recommended Action:

It is recommended that the Board of County Commissioners accept CEER #2026004 with revisions, as backflow preventers are already considered and employed on a case-by-case basis.