

NB 10. DEVELOP A COMPREHENSIVE PLAN TO INTEGRATE UNDERGROUND
CISTERNS WITHIN THE WEST LOTS
Applicable Area:

MIAMI BEACH

COMMITTEE MEMORANDUM

TO: Finance and Economic Resiliency Committee Members

FROM: Eric Carpenter, City Manager

DATE: June 11, 2025

TITLE: DEVELOP A COMPREHENSIVE PLAN TO INTEGRATE UNDERGROUND CISTERNS WITHIN THE WEST LOTS

RECOMMENDATION

The Administration does not recommend the integration of underground cisterns within the West Lots unless it is a minor part of a more robust stormwater management program in the area. The Administration does recommend that the inclusion of stormwater mitigation measures be part of any future neighborhood project.

BACKGROUND/HISTORY

On March 19, 2025, at the request of Commissioner Tanya K. Bhatt, the Mayor and City Commission ("City Commission") approved a dual referral to the Finance and Economic Resiliency Committee ("FERC") and Land Use and Sustainability Committee ("LUSC"), Item C4 E ("Attachment A") to discuss the development of a comprehensive plan to integrate underground cisterns in the City within the West Lots (a group of unimproved lots on the west side of Collins Avenue, between the north side of 79th Street and the south side of 87th Street).

Commissioner Bhatt would like for the Administration to discuss a comprehensive plan that would ensure that any future development of the West Lots includes built-in cisterns or another/equivalently impactful resiliency component, along with any concerns and costs associated with such measures.

ANALYSIS

The Public Works Department has conducted an initial analysis on the proposed underground cisterns.

A cistern by definition is a reservoir water system featuring a large tank made from either concrete, steel, wood, or fiberglass. It can be installed underground where it collects rainwater primarily for irrigation use and, in some cases, consumption. Water cisterns range in capacity from 100 gallons to several thousand gallons.

Pros

- On a smaller scale, cisterns may reduce surface water pollution, related to reduced runoff volumes, and prevent contaminants from entering streams that would otherwise receive rainwater
- Currently, there is no City prohibition in the zoning code on underground cisterns. Anything located underground would not require Planning Department approval.

Cons

- Cistern water is typically considered non-potable.

- The price to install a cistern, maintain it, and keep it clean typically render them not economically feasible.
- Cisterns require regular cleaning and testing; experts recommend that cisterns undergo a bi-annual cleaning and disinfection to reduce the risk of contamination.
- While cisterns can store large quantities of water, there is a limit as to how big they can be built and much they can hold.
- Installing underground cisterns for irrigation use will require the design and construction of a treatment systems and the reuse irrigation distribution system.
- This type of practice is not recommended as part of our City's Stormwater Master Plan.

Whether the proposed cisterns are used to capture and store neighborhood/basin rainwater for irrigation purposes or irrigation/retention concerns, the installation of a cistern would require:

- Hiring a consultant to conduct an in-depth study to determine whether the West Lots are feasible for the installation of cisterns;
- Miami-Dade County Department of Environmental Resources Management ("DERM") approval;
- The design and construction of a stormwater collection system to convey the water to the underground storage as well as the treatment of stormwater, a pumping system, and a distribution system for irrigation; and,
- A connection to nearby collection systems with an outfall to be activate during extreme storm events to prevent flooding.

It is important to note that the installation of any cistern will require excavation, which can be costly due to the high water table conditions.

The attached map (Attachment A) depicts the parcels between Collins Avenue and Collins Court (West Lots).

FISCAL IMPACT STATEMENT

N/A

CONCLUSION

The Administration does not recommend the integration of underground cisterns within the West Lots unless it is a minor part of a more robust stormwater management program in the area. The Administration does recommend that stormwater mitigation measures be part of any future neighborhood project.

Applicable Area

Citywide

Is this a "Residents Right to Know" item, pursuant to City Code Section 2-17?

Yes

Is this item related to a G.O. Bond Project?

No

Department

Public Works

Sponsor(s)

Commissioner Tanya K. Bhatt

Condensed Title

DEVELOP A COMPREHENSIVE PLAN TO INTEGRATE UNDERGROUND CISTERNS
WITHIN THE WEST LOTS



- West Lots Boundary
- North Shore Historic District
- Altos Del Mar Historic District
- North Beach Oceanside Park



COMMISSION MEMORANDUM

TO: Honorable Mayor and Members of the City Commission

FROM: Commissioner Tanya K. Bhatt

DATE: March 19, 2025

TITLE: REFERRAL TO THE LAND USE AND SUSTAINABILITY COMMITTEE AND TO THE FINANCE AND ECONOMIC RESILIENCY COMMITTEE TO DEVELOP A COMPREHENSIVE PLAN TO INTEGRATE UNDERGROUND CISTERNS WITHIN THE WEST LOTS.

RECOMMENDATION

BACKGROUND/HISTORY

Please place on the March 19, 2025 City Commission agenda a dual referral to the Land Use and Sustainability Committee ("LUSC") and to the Finance and Economic Resiliency Committee ("FERC") to develop a comprehensive plan to integrate underground cisterns within the West Lots.

The City continues to face increasing challenges related to sea-level rise, recurrent flooding, and the need for enhanced stormwater management. These challenges can be effectively mitigated through the implementation of diverse drainage solutions citywide.

Notwithstanding the City Commission's ultimate determination for the West Lots' utilization, the integration of a resiliency component will prove to be invaluable. The potential for integrating underground resilience cisterns within the West Lots offers an innovative opportunity to capture and store stormwater, reduce flooding impacts, improve water quality, and potentially provide a source of non-potable water for irrigation and other municipal uses. The West Lots represent a significant land asset that could be strategically repurposed to contribute to the City's overall resilience strategy, irrespective of their ultimate designated use.

Accordingly, I would request that the City Administration be prepared at Committee to discuss a comprehensive plan that ensures any future development of the West Lots includes built-in this or another/equivalently impactful resiliency component, along with any concerns and costs associated with such measures.

ANALYSIS

FISCAL IMPACT STATEMENT

n/a

Does this Ordinance require a Business Impact Estimate?

(FOR ORDINANCES ONLY)

If applicable, the Business Impact Estimate (BIE) was published on:

See BIE at: <https://www.miamibeachfl.gov/city-hall/city-clerk/meeting-notices/>

FINANCIAL INFORMATION

CONCLUSION

Applicable Area

Citywide

**Is this a "Residents Right to Know" item,
pursuant to City Code Section 2-17?**

Yes

**Is this item related to a G.O. Bond
Project?**

No

**Was this Agenda Item initially requested by a lobbyist which, as defined in Code Sec. 2-481,
includes a principal engaged in lobbying?** No

If so, specify the name of lobbyist(s) and principal(s):

Department

Office of Commissioner Tanya K. Bhatt

Sponsor(s)

Commissioner Tanya K. Bhatt

Co-sponsor(s)

Condensed Title

Ref: LUSC/FERC - Resiliency Measures for West Lots. (Bhatt)

Previous Action (For City Clerk Use Only)