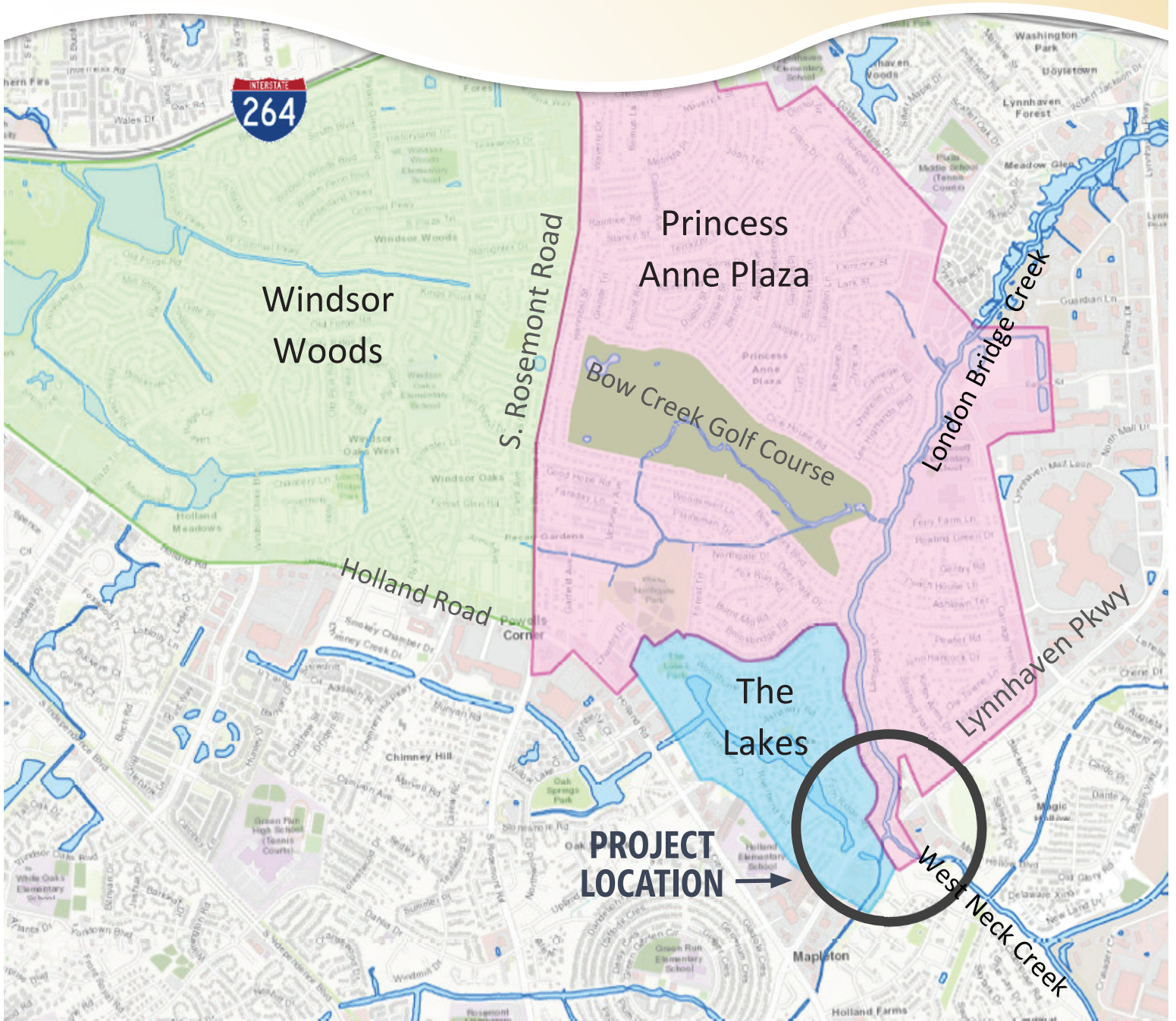


The Lakes, Princess Anne Plaza, and Windsor Woods Combined Drainage Improvements

South London Bridge Creek Channels and Tide Gate



SIGNIFICANT ISSUES

- The project area is located in what was once the undeveloped headwaters of the Lynnhaven River. Much of the area has low elevations and lies within FEMA's 100-year floodplain.
- The existing drainage system is old, undersized, and lacks the required storage.
- The area is also tidally influenced, which limits available storage capacity during storm events (i.e. there is nowhere for the water to go).
- These issues coupled with rising sea levels and increased frequency and severity of storms has resulted in severe flooding during extreme storm events throughout the project area.



OVERALL SOLUTIONS

- The City Public Works Department conducted an extensive engineering analysis to determine the improvements needed to mitigate the flooding issues. It has been determined that a combination of complimentary infrastructure improvements are required to achieve the maximum flood mitigation benefit.
- Infrastructure improvements include tide gates, pump stations, the creation of additional stormwater storage, and storm drain piping improvements.
- The proposed **South London Bridge Creek Channels and Tide Gate**, which is the focus of this brochure, is one of the major infrastructure projects planned as part of the overall **The Lakes, Princess Anne Plaza, and Windsor Woods Drainage Improvements**.
- For more information on other major improvements please see the *Overall Project Brochure* located at www.vbgov.com/windsor-woods.

South London Bridge Creek Channels and Tide Gate

- The proposed project is located along West Neck Creek just east of Lynnhaven Parkway where The Lakes and Green Run Canals converge with West Neck Creek. To the east is Canal No. 2, which was built by the US Army Corps back in the 1980's to provide drainage relief.
- Like the proposed Windsor Woods and North London Bridge Creek Tide Gates, the purpose of the **South London Bridge Tide Gate** is to block the incoming (rising) tide along West Neck Creek from entering the project area and filling up the available storage with the drainage system (pipes, canals, and lakes). The South Tide Gate is directly tied to the North London Bridge Creek Tide Gate and Pump Station projects due to their interconnectivity along London Bridge Creek.
- By eliminating the influence of the tide prior to a storm event, storage capacity is created within the drainage system. This additional storage capacity allows the stormwater to be more effectively managed, which results in flood mitigation.
- In addition to the tide gate, the proposed **South London Bridge Channels** allow the flows from The Lakes and Green Run Canals to be separated and managed, which further contributes to flood mitigation.

Rendering of the Proposed South London Bridge Creek Channels and Tide Gate



Channel & Gate Operation

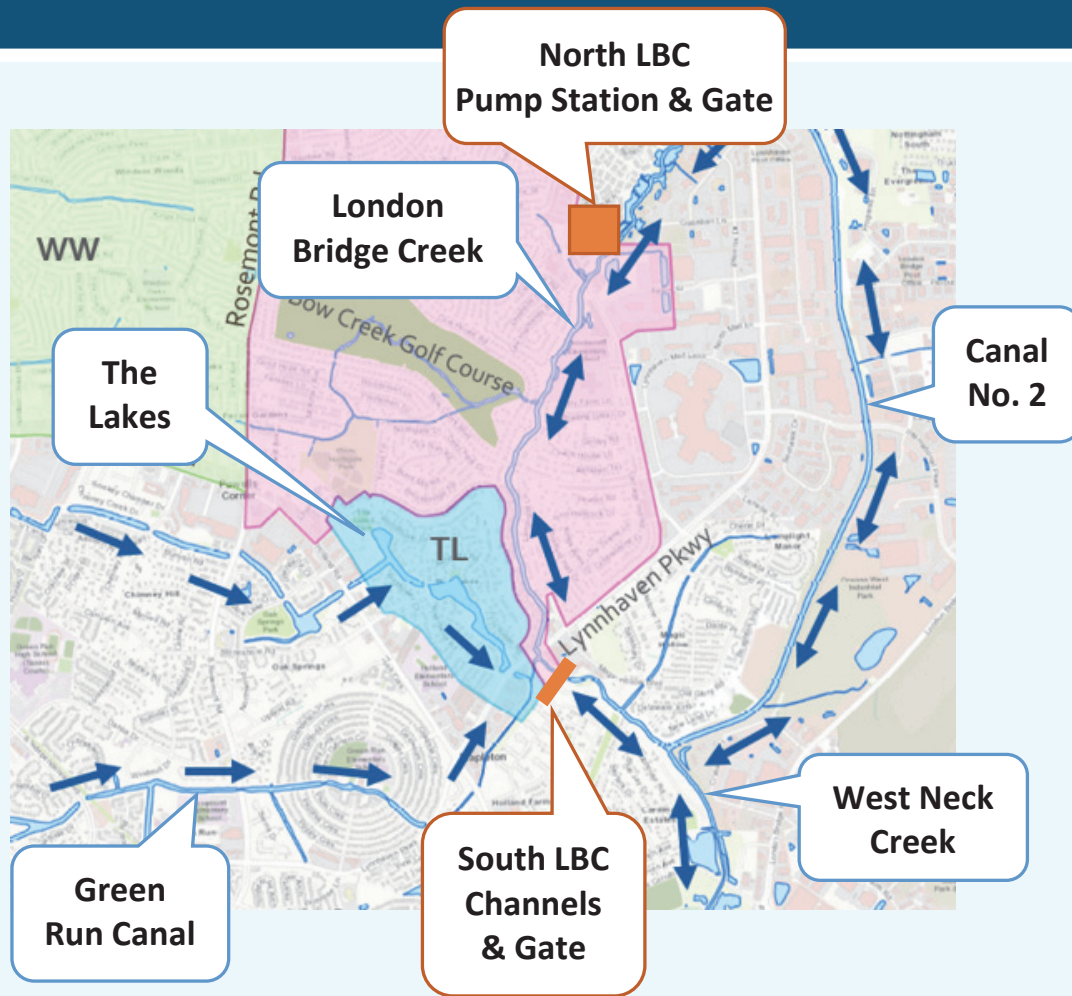
- The tide gate will normally be open so the natural ebb and flow (rise and fall) of the tide will occur.
- When significant storm events are anticipated such as a hurricane, Nor'easter, or extreme tidal event, the gate will be closed at low tide to capture as much storage as possible by utilizing low water levels.
- The operation of the South London Bridge Tide Gate will also be coordinated with the operation of the North London Bridge Creek Tide Gate and Pump Station. Both the North and South Tide Gates will be closed at the same time to block the rising tidal waters and retain storage within the system. Water levels will further be lowered (pumped down) prior to an impending storm event to create additional storage by operating the North London Bridge Creek Pump Station. Like the tide gates, the pumps will typically only be operated during extreme storm events (and in advance to prepare the system).
- Normally, the pumps will remain off and the gates open (other than routine maintenance testing).
- For more information on how the tide gates and pump stations work together to capture and increase storage capacity, please see the **North London Bridge Creek Tide Gate and Pump Station Brochure** at www.vbgov.com/windsor-woods.

WHY A PUMP STATION IS NOT NEEDED AT THIS LOCATION

The two other tide gates proposed as part of the Overall TL-PAP-WW Improvements (i.e., the Windsor Woods and North London Bridge Creek Tide Gates) both have a stormwater pump station directly adjacent to the gate to assist in managing water levels. However, a pump station is NOT required adjacent to the South London Bridge Tide Gate due to the interconnected flow patterns.

West Neck Creek and London Bridge Creek are interconnected with water flowing in both directions depending on such factors as tide cycles and wind patterns. As a result, a single pump station (the **North London Bridge Creek Pump Station**) can accommodate this area. Since the North London Bridge Creek Pump Station is sufficient to serve both Princess Anne Plaza and The Lakes areas, there is currently no need to construct an additional pump station with the southern tide gate.

The exhibit on the next page shows how the water bodies are interconnected.



DOWNSTREAM CONSIDERATIONS

The closing of the tide gate, installation of channels, or operation of the South London Bridge Creek pump station **WILL NOT** increase water levels downstream or cause adverse impacts (or additional flooding) along adjacent water bodies. The additional storage capacity created by the tide gate and pumps allows the stormwater to be detained and slowly released downstream. Extensive hydraulic modeling and analysis has been performed in regard to this matter that demonstrates water levels after proposed improvements are less than or equal to water levels before improvements.

Additionally, water levels will continually be monitored both downstream and upstream of the tide gate with water level sensors to ensure there are no adverse impacts. For more information please see the ***Downstream Considerations Brochure*** located at www.vbgov.com/windsor-woods.

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For more information, hover over the QR code with your smartphone camera.

