QUARTERLY STORMWATER UPDATE – FLOOD CONTROL PROJECTS

TONI ALGER, P.E.
STORMWATER ENGINEERING CENTER ADMINISTRATOR
MARCH 26, 2019
Aragon-drainage Improvements, 7-400
Ashville Park Drainage Improvements Phase I, 7-047
Central Resort District Drainage Improvements, 7-041
Chubb Lake/ Lake Bradford, 7-053
Eastern Shore Drive Drainage Phase I, 7-151
Sherwood Lakes Drainage Improvements, 7-048
Southern Canal/Lead Ditch & Culvert Improvements, 7-024
Stormwater Master Planning, Analysis and Inventory, 7-027
Windsor Woods, Princess Anne Plaza, and The Lakes , 7-028, 7-050 & 7-051
LOCATION OF PROJECTS BY DISTRICT
ARAGONA DRAINAGE IMPROVEMENTS, 7-400

- Neighborhood developed in the mid 1950s
- Storm drain improvements to address severe roadway flooding
- Project limits revised to include Sullivan Boulevard to Aragona Boulevard, Overman Avenue to the Outfall at Betty’s Bottom, and Overman Avenue East of Sullivan Boulevard

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**Aragonà Drainage Improvements, 7-400**

**First Quarter 2019 Activities**

- January 24, 2019 – Citizen Information Meeting
- February 19, 2019 – City Council Authorization of Acquisition of Property & Easements
- March 7, 2019 – Environmental Permit Received
- July 2019 – Scheduled to advertise for construction
  - Construction is expected to take 15 months
ASHVILLE PARK DRAINAGE IMPROVEMENTS PHASE I, 7-047

- 3 new Stormwater Ponds
- Expand an Existing Pond
- Channels Connecting Ponds
- Regrade and Stabilize Existing Ditches
- Stormwater Pump Station
- Gated Control Structure at Flanagans Lane
- Ditch and Culvert Improvements at New Bridge/Sandbridge Road Intersection

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ASHVILLE PARK DRAINAGE IMPROVEMENTS, 7-047
FIRST QUARTER 2019 ACTIVITIES

• February 6, 2019 – 2nd Submittal from Developer for Ashville Park Drainage Improvements Phase I
• February 8, 2019 – 100% Plans for Permanent Pump Station, Sandbridge/New Bridge Intersection Improvements, Final Plans for Flanagans Lane/Sandbridge Road Outfall Ditch
• February 12, 2019 – Meeting with Owner of Princess Anne Farm Ditch property
• February 13, 2019 – 3rd Submittal from Developer for Grandview Village
ASHVILLE PARK DRAINAGE IMPROVEMENTS, 7-047
FIRST QUARTER 2019 ACTIVITIES

• March 1, 2019 – Submitted Environmental Permit
  o Sandbridge Road/New Bridge Road Intersection project
  o Pump Station project

• March 14, 2019 – Ashville Park Civic League Meeting Presentation

• March 19, 2019 – 5th Meeting with US Fish & Wildlife on 100% Plans

• March 20, 2019 – Resubmitted Environmental Permit for Sandbridge Road/New Bridge Road Intersection project
ASHVILLE PARK DRAINAGE IMPROVEMENTS, 7-407 FIRST QUARTER 2019 ACTIVITIES

Lake #14 Weir
- Weir wall structure is poured and forms stripped
- Intake Structures are set
- Crane has been demobilized
- Discharge piping complete
- Discharge channel grading and stabilization complete
- Roadside ditch regrading/aligning complete
- Box culvert installed

Remaining Items
- Electrical and SCADA items
CENTRAL RESORT DISTRICT DRAINAGE IMPROVEMENTS, 7-041

- Multi-phase project to address severe roadway flooding
- Ultimate improvements include additional storm drains, tide gate, pump station & ocean outfall
- Interim Projects:
  1. Replace existing 54” pipe located under 24th Street with box culvert or bridge; estimated cost ~ $6M
  2. Redirect approx. 15 ac. from 21st St and Baltic Ave. to 16th St. Pump Station; estimated cost ~ $15M

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Central Resort District Drainage Improvements
First Quarter 2019 Activities

Interim Project #1

• February 2019 – Stormwater Model Updated, Survey and Geotechnical Testing Completed

Upcoming Activities

• April 2019 – Design Alternatives Memo for 54-inch pipe replacement

• June 2019 – 30% Design Plan of Selected Alternative
CHUBB LAKE/BRADFORD LAKE, 7-053

- Multi-phase project
- Storm drain improvements to alleviate roadway flooding
- Additional stormwater culverts under roadways
- Tide control devices such as mechanized sluice gates
- Stormwater management pond improvements
- Channel and ditch clearing

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CHUBB LAKE/BRADFORD LAKE, 7-053
FIRST QUARTER 2019 ACTIVITIES

• Ongoing – Coordinate with Navy to open the weir gate when major rain events are forecasted

• February 4, 2019 – Received Survey Information for the JEB Little Creek Base

• Design Underway for Early Implementation Projects
  o Dredging
    • 780 feet of ditch from the north side of Shore Drive north to Lake Bradford
    • 1,150 feet of ditch from Pleasure House Road (north of Shore Drive) west to Lake Bradford
  o Pleasure House Lake Outfall Improvements
**EASTERN SHORE DRIVE DRAINAGE PHASE I, 7-151**

- Multi-phase project
- Phase I includes Sections I & II
- Flood control drainage improvements
- Improvements include stormwater collection systems, tide gates & pump stations

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**Eastern Shore Drive Drainage Phase I, 7-151 First Quarter 2019 Activities**

- Cape Henry Canal (CHC) Drainage Improvements design ongoing
  - Box culvert from Ebb Tide Road to West Great Neck Road
  - Side Street Outfall Improvements to Starfish Road, Ebb Tide Road & Red Tide Road
  - Advertise for construction – late April 2019
  - Estimated Project Cost – $3.5M

- January 24, 2019 – Meeting with Citrus to discuss project impacts and trail reconfiguration for safety
EASTERN SHORE DRIVE DRAINAGE PHASE I, 7-151
FIRST QUARTER 2019 ACTIVITIES

• January-March 2019
  o Coordination with Dominion Energy Transmission Unit in Richmond
  o Coordination with Verizon to relocate concrete duct banks
• February 18, 2019 – Meeting with businesses adjacent to Cape Henry Trail impacted by Trail Detour
• Coordination with Shore Drive Phase III Roadway Improvements project
SHERWOOD LAKES DRAINAGE IMPROVEMENTS, 7-048

- Project to address severe roadway and property flooding
- Improvements include a pump station with a pipe connection between 2 lakes

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SHERWOOD LAKES DRAINAGE IMPROVEMENTS, 7-048
FIRST QUARTER 2019 ACTIVITIES

• Ongoing – Lakes pumped down to elevation 3.0 in advance of forecasted significant rainfall

• Interconnect Pipe project
  o NTP for Construction – November 1, 2018
  o Expected Completion – July 2019

• North Sherwood Lake Permanent Pump Station project
  o NTP for Construction – January 1, 2019
  o Expected Completion – September 2019

• January 16, 2019 – Citizens Information Meeting
**SOUTHERN CANAL/LEAD DITCH & CULVERT IMPROVEMENTS, 7-024**

- Drainage improvements to canals, lead ditches and culverts in the southern rivers watershed
- Improvements may include:
  - Pipe/culvert replacement
  - Ditch cleaning/regrading
- Construction is timed to avoid inconvenience to the agricultural community and residents

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SOUTHERN CANAL/LEAD DITCH & CULVERT IMPROVEMENTS – SITE 5

- Dawley Road between Pleasant Ridge Road and Beggars Bridge Creek Culvert
  - Clean Culverts
  - Clear and Reshape/Regrade Roadside Ditches along Dawley Road
  - Clear Beggars Bridge Creek and Farm Ditches East and West of Dawley Road
- Ditch Clearing along Dawley Road begins in March 2019
- Environmental Permits for Beggars Bridge Creek sections are expected in July
SOUTHERN CANAL/LEAD DITCH & CULVERT IMPROVEMENTS – SITE 6

- Pleasant Ridge Road west of Dawley Road
  - Reshape/Regrade Ditches on both sides
  - Replace Culverts Under Pleasant Ridge Road

- Environmental Permits expected in April

- Ditch Clearing along Pleasant Ridge Road to start May 2019

- Design for Culverts Underway – 30% Complete
SOUTHERN CANAL/LEAD DITCH & CULVERT IMPROVEMENTS – SITE 7

- Intersection of Pleasant Ridge Road and Charity Neck Road
  - Replace Culverts Under Pleasant Ridge Road
  - Regrade the Roadway Pavement
  - Reshape/Regrade Ditches
  - Relocate Above Ground Utilities
- Design Underway – 30% Complete
SOUTHERN CANAL/LEAD DITCH & CULVERT IMPROVEMENTS – SITE 9

- Gum Bridge Road Between Charity Farm Court and Gum Bridge Court
  - Clean Existing Culvert/Regrade Ditches
  - Culvert Replacement
  - Widen Ditches
  - Overlay Pavement
  - Relocate Above Ground Utilities
- Design Underway – 30% Complete
**SOUTHERN CANAL/LEAD DITCH & CULVERT IMPROVEMENTS, 7-024**

**FIRST QUARTER 2019 ACTIVITIES**

- December 21, 2018 – Obtained Environmental Permits for Ditch Work for Site 5
- March 6, 2019 – Notice to Proceed for Ditch Work for Site 5
- March 7, 2019 – Citizens Information Meeting
- Environmental Permits are in process for Sites 6, 7 & 9
- Completed 30% Design for Sites 6, 7, & 9
**SWM MASTER PLANNING, ANALYSIS, AND MODELING, 7-027**

- Update the City’s 31 Stormwater Drainage Basin Models
- Models provide drainage design parameters such as downstream water surface levels to developers for projects
- Models identify deficiencies and gaps in the existing stormwater infrastructure
- Preliminary Drainage Analysis will identify future Capital Drainage Projects in conjunction with results of Sea Level Rise study

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### SWM Master Planning, Analysis, and Modeling Schedule

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<tr>
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<td>1 &amp; 31</td>
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<td>Atlantic</td>
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<tr>
<td>Elizabeth River</td>
<td>2 &amp; 17 thru 22</td>
<td>Awaiting Validation Locations (2), August 2019 (17-22)</td>
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<td>- Stumpy Lake</td>
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<tr>
<td>- Upper North Landing</td>
<td>13 thru 15</td>
<td>August 2019</td>
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Dates represent when there is a validated/calibrated model.

Please send flooding pictures to stormpics@vbgov.com
WINDSOR WOODS, PRINCESS ANNE PLAZA & THE LAKES, 7-028, 7-050, & 7-051

- Neighborhoods Developed in the 1960s and 1970s
- Projects combined for initial analysis
- Needed Improvements Identified
  - Tide Gates
  - Pump Stations
  - Additional Storage
  - Increase Capacity in Stormwater Conveyance

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PRELIMINARY CONCEPT PLAN

WINDSOR WOODS PUMP STATION AND TIDE GATE LOCATION

NEW STORM DRAINS WILL BE INSTALLED IN THE PROJECT AREA

POTENTIAL NORTH PUMP STATION AND TIDE GATE LOCATION

POTENTIAL SOUTH TIDE GATE & CHANNELS LOCATION

POTENTIAL STORMWATER RETENTION PONDS

Lake Windsor

Canal No. 2

Bow Creek Golf Course

Northgate Plaza

Ball Fields

London Bridge Creek

Lynnhaven Pky

Windsor Woods Canal

Holland Rd

S Rosemont Rd

S Independence Blvd

Lake Trashmore
WINDSOR WOODS, PRINCESS ANNE PLAZA & THE LAKES
FIRST QUARTER 2019 ACTIVITIES

• Attended Princess Anne Plaza Civic League
  o January 8th, February 12th and March 12th

• February 13, 2019 – Open House Public Meeting for Club House Road Drainage Project
  o Notified 84 property owners by letter and placed Public Notices in Beacon
  o Developed Club House Road Drainage Project Brochure

• Updated Q&A on project website to include Club House Road Project

• February 22, 2019 – Received Final Draft Preliminary Engineering Report for Windsor Woods

Web Page: www.vbgov.com/windsor-woods
Email Address: papww@vbgov.com
WINDSOR WOODS, PRINCESS ANNE PLAZA & THE LAKES FIRST QUARTER 2019 ACTIVITIES

Club House Road Drainage Project Brochure

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

The Club House Road Drainage Project is a significant endeavor designed to enhance the flow of water from surrounding areas. This project involves several key components:

- **River View Golf Course**
- **Oakmont Golf Course**
- **Brookside Drive**
- **Clayton Avenue**

The project aims to improve drainage by expanding and reinforcing existing stormwater basins, as well as constructing new ones. This will ensure that excess water is managed effectively, reducing the risk of flooding and property damage.

The project is scheduled for completion in the next several months, with ongoing updates to keep the community informed. For more information, contact the project manager at 389-6590.
- Finalizing Design
- Construction Start: No later than February 2020
- Estimated Construction Cost: $3.3M
FEMA Reimbursement Projects

- Survey Work Completed
- Design in Progress
- Construction Start
  - Project 1 – July 2021
  - Projects 2 & 3 – July 2022
WINDSOR WOODS TIDE GATE/FEMA GRANT PROJECT

Estimated Total Project Cost: $6.7M
Environmental Permit application being reviewed by USACE and the VA DEQ. Meeting held January 17th to discuss agency questions.
EXAMPLE OF INTERIM PUMPING FACILITIES
DREDGING PROJECTS
WINDSOR WOODS CANAL, CIP 7-028.002

- Dredge 4,100-ft canal to restore original drainage capacity
- Approximately 10,900 cubic yards of dredge material
- Notice to Proceed – June 2017
- Construction Substantially Complete
- Estimated Total Project Cost – $2M

Avg. Pre-depth: 3.1’
Avg. Post-depth: 5.2’
NORTHGATE DITCH, CIP 7-028.001

- Dredge 6,000-ft canal to restore original drainage capacity
- Approximately 3,000 cubic yards of dredge material
- Notice to Proceed – May 2017
- Construction Substantially Complete
- Estimated Total Project Cost – $2M

Avg. Pre-depth: 1.5’
Avg. Post-depth: 4.4’
WINDSOR OAKS WEST 3, CIP 7-415.039

- Dredge 2,100-ft canal to restore original drainage capacity
- Approximately 3,000 cubic yards of dredge material
- Construction is Pending Easements
- Construction Complete – 10 months from NTP
- Estimated Total Construction Project Cost – $800K

Avg. Pre-depth: 1.8’
Avg. Post-depth: 4.95’
DISCUSSION