

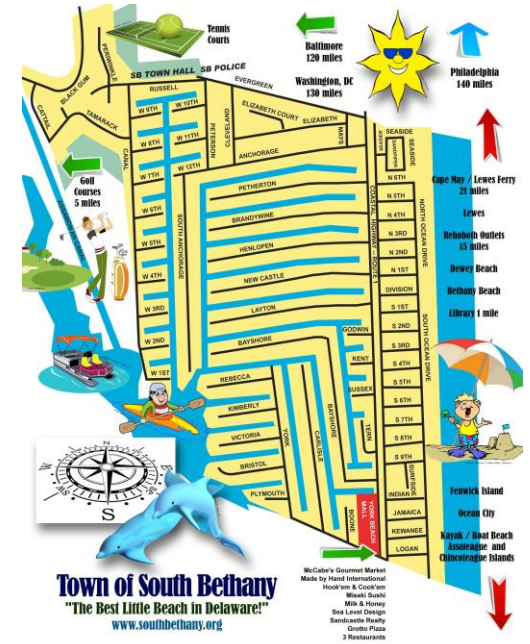
# South Bethany Canal Water Quality Committee (CWQC)

Chair - Chris Vanuga

Town Council Liaison - Bob Biciocchi

Fiscal Year 2025 Update

*August 9, 2024*



# Setting the Context

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- Our canals are a vital asset affecting property values and the Town's brand;
- Conclusive insights over several decades of qualitative measurement and oxygenation improvement projects are that the water quality is not improving and, in some respects, getting worse;
- Stormwater runoff and poor water circulation affect the integrity of our canal system requiring increased costs for maintenance and sediment dredging; and,
- Canals must be considered a critical component of the increased flooding and an integral part of any resiliency planning.



*“Observations over the last several decades have indicated a decline in water quality in South Bethany canals. The canal system and resulting infrastructure were developed prior to Federal Clean Water Act as well as water quality and storm water management regulations instituted by the State in the 1990’s. The area of impervious surfaces (roads, roofs) and direct runoff pathways into the canals, has contributed to the issue.”*

- FINAL South Bethany Canals Sediment Evaluation, August 15, 2019. Woods Hole Group.

# Revised Purpose & Scope

## Current

- To improve water quality within the South Bethany canal network.
- Scope:
  - Educate the community on canal water quality issues and provide them with strategies that can be used to help clean up the canals.
  - Work with the Town, State, and Federal Government to eliminate pollutants entering our canals.
  - Review current Town Ordinances and, if necessary, create new ones that would eliminate pollutants entering our canals.
  - Partner with other organizations working on clean water initiatives.

## Proposed

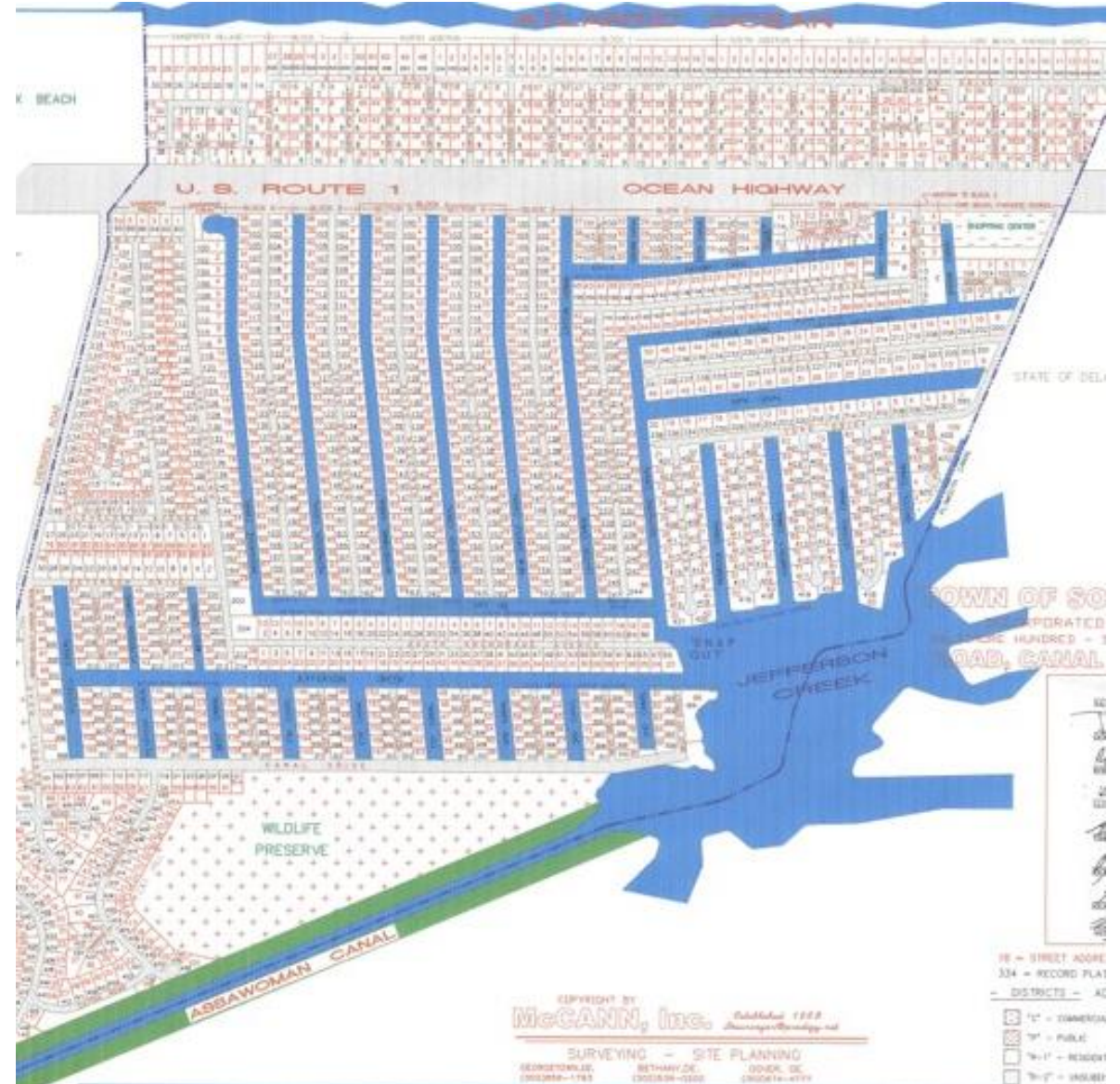
- Research and recommend strategies to improve water quality, circulation, navigability, and resiliency within the South Bethany Canal Network (“SBCN”).
- Scope:
  - Educate the community on canal water quality issues and the SBCN’s impact on and from the ecosystem of the inland bays.
  - As directed by the Council and/or Town staff, seek the input of appropriate governmental agencies and non-governmental organizations on potential strategies to reduce pollutants entering the canals and to improve circulation and water quality.
  - Propose revisions to Town ordinances that address reducing or eliminating pollutants, other contaminants, and undesirable materials from entering the canals.
  - Oversee the ongoing water quality monitoring program.



# CWQC Priorities & Goals

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1. **Awareness:** Raise Stakeholders' Understanding of Key Issues of the SBCN
2. **Dredging:** Establish a "Maintenance Dredging" Plan
3. **Data:** Enhance the Water Quality Monitoring, Data Compilation & Reporting Capabilities
4. **Preventive Maintenance:** Creation of a Comprehensive and Sustainable Canal PM Program
5. **Structural:** Reduce Contaminant Inflow and Lack of Tidal Circulation



# Accomplishments & Initiatives for FY 2025

*The focus is on impact and increasing momentum on priority issues*

- ✓ Algae harvesting by Solitude/DNREC
- ✓ Renew seasonal maintenance contract
- ✓ Ongoing widgeon grass seed harvesting by DNREC and Center for the Inland Bays
- ✓ Forebay clean-out
  - Recommend a dredging plan to include funding and approval process support
  - Active support of the Town Code modification and increased enforcement
  - Continue education & communications program
  - Continue and expand the water quality monitoring and reporting program
  - Propose a program on remediation actions targeting overgrown vegetation
  - Propose a program for the restoration & maintenance of highway “rain gardens”
  - Propose an updated feasibility study for improving the canal maintenance program
  - Propose a Master Improvement Plan for the Canals



Testing Locations

- ✓ Completed
- In-process
- To be done

# Improvement Plan - Near Term

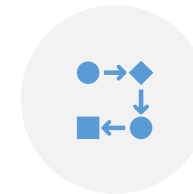
*The focus is on teaming, funding, and sustained improvements*



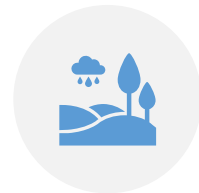
Complete dredging



Complete Canal Network Master Plan



Finalize the longer-term plan for SBCN maintenance program



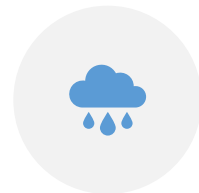
Coordinate Grant Funding for larger studies: Diversion of Stormwater, Tidal Pumps, Others



Work with CIB, DNREC, ACT, DeIDOT, and others on near and longer-term water quality remediation efforts across Inland Bays



Propose and complete an Update to the Tidal Flow Study



Propose a Stormwater Redirect Study



Propose the development of a SBCN simulation model to aid planning, grant pursuits, and operations

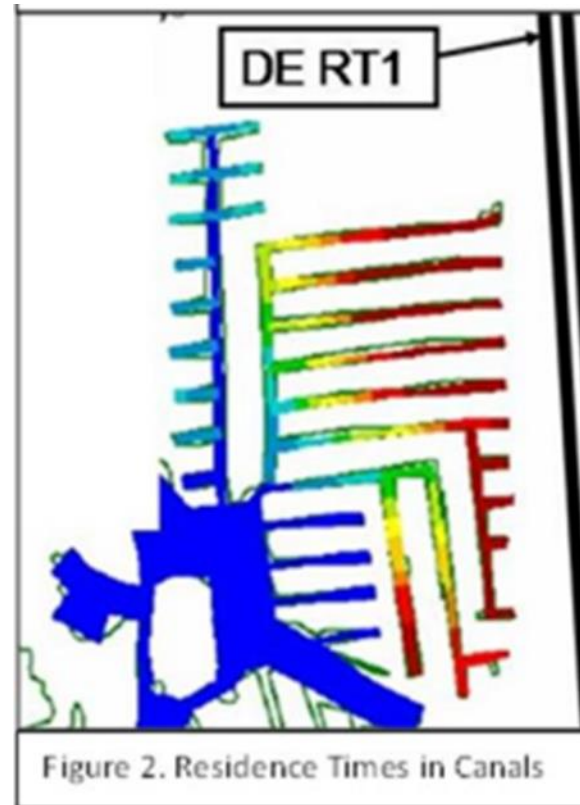


Explore the establishment of a Lagoon authority

# Improvement Plan - Longer Term

*The focus is on structural modifications*

- Finalize the stormwater redirect program
- Complete tidal pump or similar tidal flow remediation program(s)
- Impact study for other broader regional remediation actions across Inland Bays (e.g., new inlet)



*The South Bethany Canals Flushing Study – Entrix 2005*

- The South Bethany Canals Flushing Study, Entrix 2005, demonstrates that there is essentially no flushing at the ends of the canals (Figure 2, Residence Time in Canals)
- The resulting finding is that the **canals shown in red act as stormwater management ponds** since they have no significant exchange of water due to tidal action.

Blue – 1 day

Green – 1 month

Red – more than 3 months;

and likely much longer, if at all

# Initial Considerations on Near-term Funding

*Immediate focus on high-impact & engineering guidance*

## Uses

- **Dredging: Study, Plan & Estimates with Anchorage (\$151,000)**
- **Canal Network Master Improvement Plan (\$TBD)**
- Comprehensive Preventive Maintenance Program (\$TBD)
- Dredging: Permitting (\$36,000)
- Dredging: Process and Ongoing monitoring (\$TBD)

## Sources

- Operating Budget
- Capital Budget
- Reserves
- Grants
- Bonds
- Lagoon Authority



# Thank You.

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