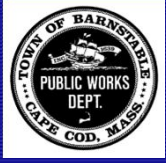


Barnstable Town Council

Update on Wastewater Efforts In Barnstable

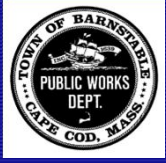
Department of Public Works
November 21, 2019



Update Since September



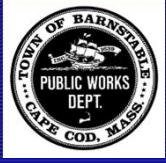
- *Submitted Draft CWMP to Town Council*
 - *Presentation of the Technical Plan – Oct 10, 2019*
 - *Presentation of the Financial Plan – Oct 3, 2019*
 - *Approved release of plan to regulators – Nov 7, 2019*
- *Modeling*
 - *UMASS-Dartmouth, School for Marine Science and Technology (“SMAST”)*
 - *Results were positive with model predicting the plan will achieve its goals*
- *Public outreach*
 - *4 Public Meetings*
 - *One filmed and broadcast on Channel 18 and on Town Website*
 - *Channel 18 continuing development of multi media presentation materials*



Update Since September



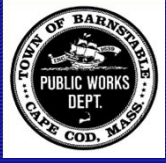
- *CWMP Review*
 - *Met with DEP staff, received feedback on preliminary review of the plan*
 - *Met with consultant on QA/QC of the plan*
- *Regulatory Meetings*
 - *Nov 26th, meeting with CCC Staff*
 - *Meeting expected mid December with MEPA Staff*



Update Since September



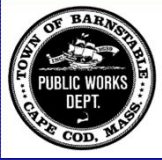
- *JBCC/Western Solutions*
 - *DEP Discussions*
- *Sampson's Island Dredging*
 - *Underway*
- *Mill Pond*
 - *Continuing discussions with Massachusetts Natural Heritage & Endangered Species Program (NHESP)*
- *Marstons Mills River System*
 - *Continue work with Barnstable Clean Water Coalition, EPA, and Nature Conservancy on alternatives*



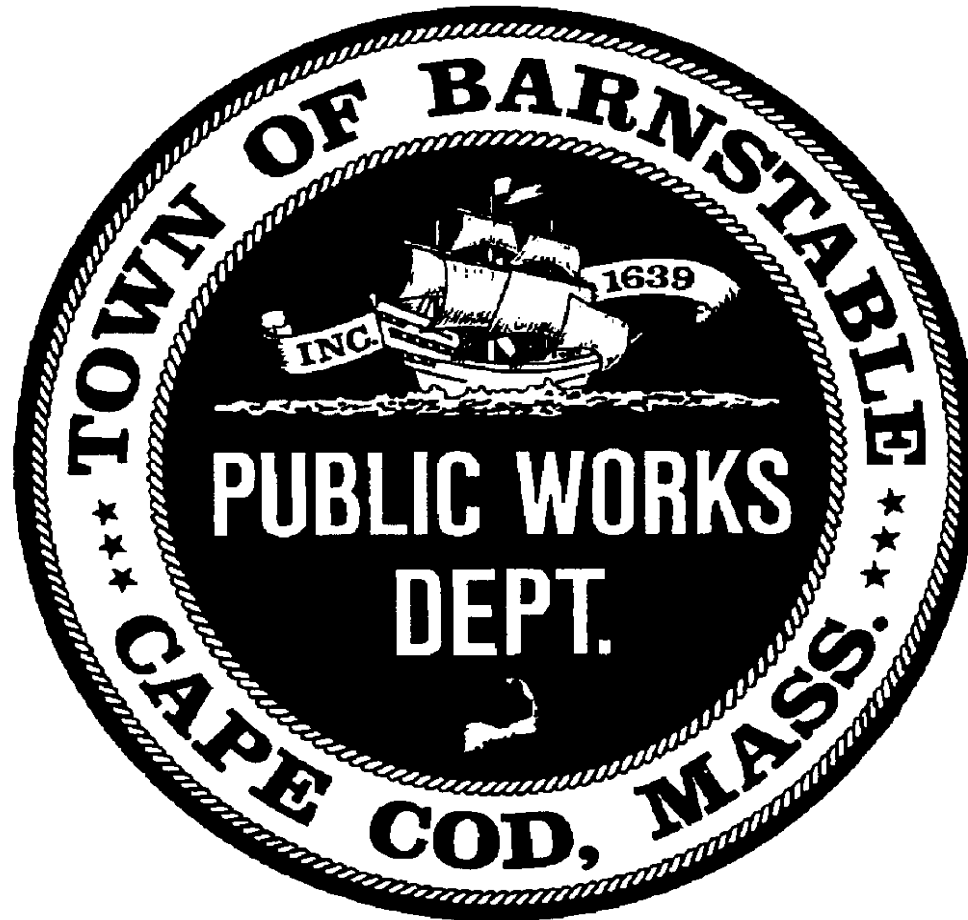
Next Steps

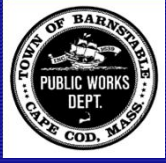


- *Ongoing public outreach as requested*
- *Update Draft CWMP based on comments received*
- *Submit to CCC and DEP and for MEPA review*
- *Continue pursuing alternatives*
 - *Permitting, funding, executing, monitoring*
- *Preliminary design of traditional projects underway*



Discussion?

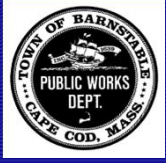




Financial Policy Decisions



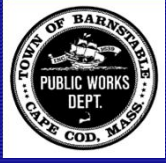
- *How will the town differentiate General Benefit Facility costs from Specific Benefit Facility costs?*
- *What assessment method will be used for allocating those costs?*
- *What limit, if any, will be set on the maximum amount for a sewer assessment?*
- *What interest rate will be charged on sewer assessments?*
- *What amortization period will be used sewer assessments?*
- *When will a property abutter be required to hookup?*



Financial Policy Decisions - Continued



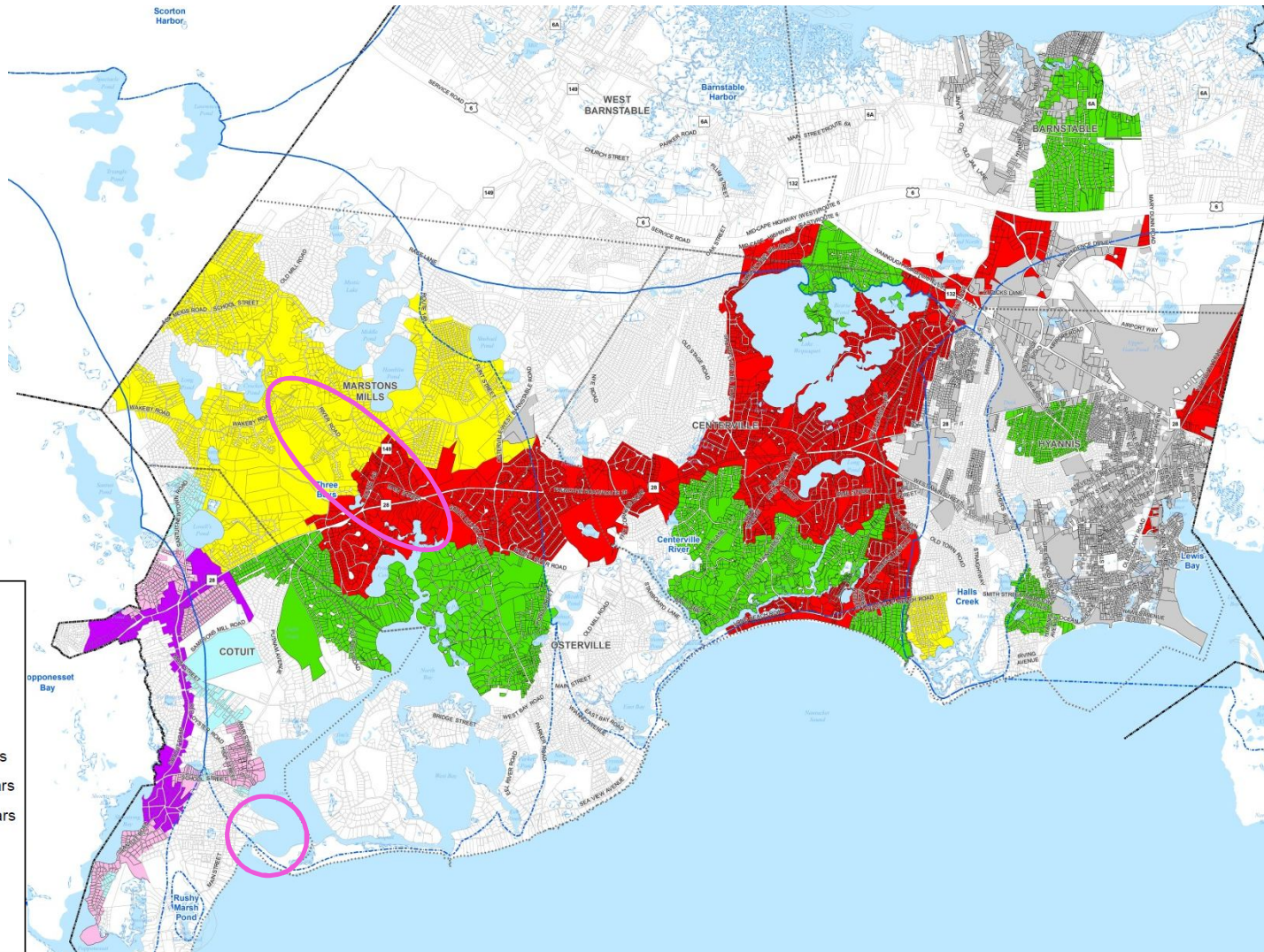
- *Will bond amortization be authorized beyond 20 years?*
- *Will the General Fund contribute to the program? If so;*
 - *How much?*
 - *What mechanism will be used?*
- *Will a Systems Development Charge be included?*
- *Should the town pursue special legislation to create a revolving loan program?*
 - *Amortization period and loan rate?*
- *Should the town administer a connection program?*



General Policy Issues



- *Effluent Disposal*
- *Handling of Private Roads*
 - *Easements needed for the pipes*
 - *With the planned improvements does the Town take them?*
- *Governance of the sewer system (Sewer Commissioners)?*
- *Approval of an updated Sewer Use Ordinance*
 - *Has a series of decisions associated with it*
- *Inter Municipal Agreements*
 - *Watershed Permits*
 - *Shared Technology*
 - *Conveyance of flows through adjoining Towns (JBCC)*

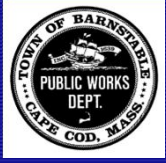


Legend

- District Villages
- Watersheds
- Parcels

Sewer Phasing

- Phase 1: 0-10 Years
- Phase 2: 11-20 Years
- Phase 3: 21-30 Years
- Stage 1
- Stage 2
- Stage 3
- Existing Sewer

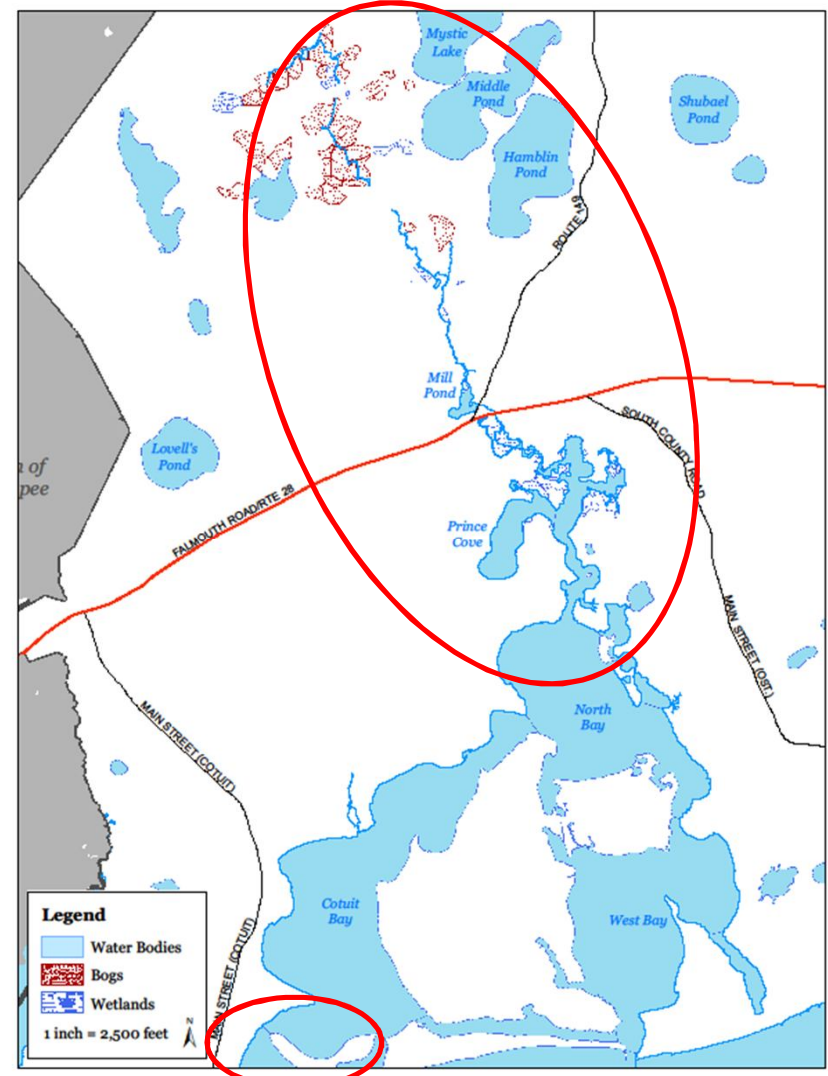


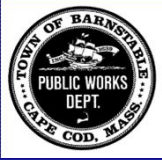
Non-traditional Focus Area – Three Bays



Non-traditional methods.

- Cotuit Bay Inlet Dredging
- Mill Pond dredging
- Abandoned cranberry bogs conversion
- Warren's Cove - aquaculture
- Alternative septic systems
- Permeable Reactive Barriers (PRBs)
- Stormwater treatment



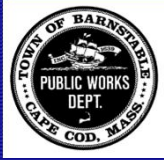


The Plan Summary



Watershed	Number of Parcels to be Connected to Sewer	Total Resulting Removal of Nitrogen (kg/day)	Total Resulting Removal of Nitrogen (kg/yr)	Notes
Lewis Bay	1,081	15.8	5,767	Includes Stewarts Creek Project
Halls Creek	351	4.8	1,752	
Centerville River	4,434	71.6	26,134	
Three Bays	3,714	74.9	27,339	
Rushy Marsh	0	0.0	0	
Popponeset Bay	524	8.4	3,066	
Barnstable Harbor	740	11.7	4,271	
Undefined	162	4.5	1,643	
Total:	11,006	192	69,971	

- *In addition, improvements at the WPCF will reduce existing nitrogen in Lewis Bay by an additional 18.9 kg/day or 6,898.5 kg/yr*
- *Does not include Non-traditional Improvements*



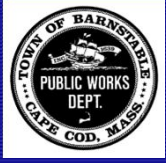
Results By Phase or Stage



	Phase 1 (0-10 Years)	Phase 2 (10-20 Years)	Phase 3 (20-30 Years)	Total
WW Captured (gpd)	782,000	653,000	335,000	1,770,000
Load N Removed (kg/day)	78	65	33	176
Number of Parcels Affected	4,610	3,130	2,100	9,870
Approximate Road Miles	90	60	40	190
% of N Removed by Plan	44%	37%	19%	

Does not include benefits from Non-traditional approaches

	Stage 1	Stage 2	Stage 3	Total
WW Captured (gpd)	37,200	84,500	22,800	144,500
Load N Removed (kg/day)	4	8	2	14
Number of Parcels Affected	250	480	160	890
Approximate Road Miles	6	9	3	18



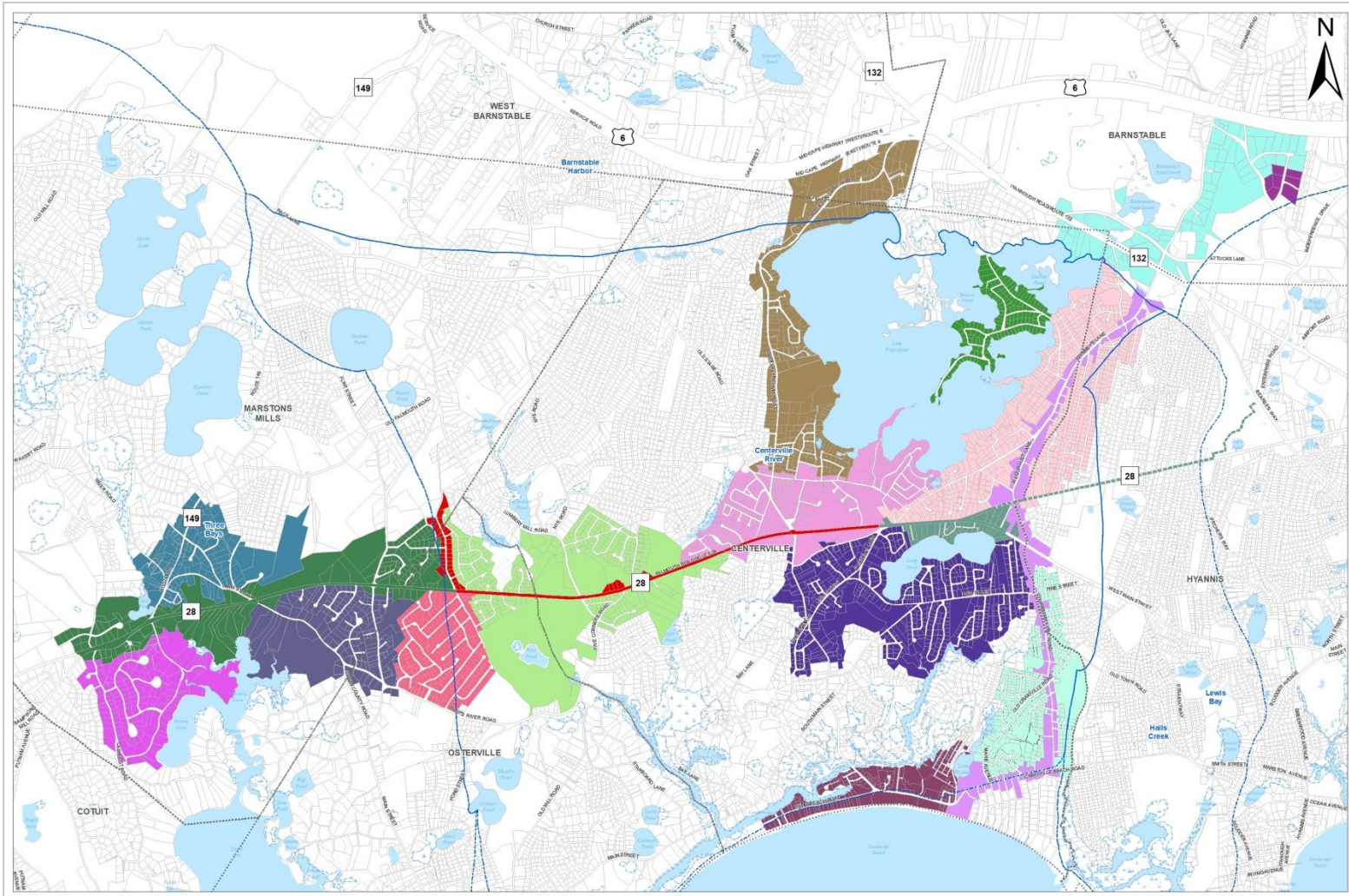
Summary of Funding for CWMP

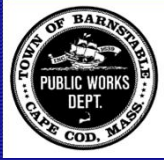


Funding Sources		
Estimated Principal Subsidies on Bond Issues	\$112,229,437	11%
Sewer Assessments	\$255,764,639	24%
Investment Earnings	\$11,397,346	1%
General Fund Contribution	\$70,500,000	7%
System Development Charges	\$19,624,000	2%
User Rate Revenue	\$128,524,045	12%
Rooms and Meals Taxes including STR	\$463,211,220	44%
Total funding sources	\$1,061,250,687	100%

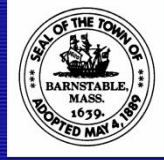


Phase I Projects





Phase I Implementation



Project	Number of Parcels Connected	Wastewater Captured (gpd)	Total N Removed (kg/day)	% of Total N Removed in Phase 1
Merchants Way	7	0	4.7	6.0%
Strawberry Hill Road	240	47,066	0.9	1.2%
Route 28 East	49	9,440	11.4	14.7%
Old Yarmouth Road	131	22,603	0.6	0.7%
Phinneys Lane	653	94,200	7.9	10.1%
Long Beach	203	37,647	3.6	4.7%
Route 28 Centerville	41	5,534	4.1	5.3%
Huckins Neck	148	21,506	3.3	4.2%
Long Pond Area	606	114,599	5.9	7.6%
Great Marsh Road	406	79,299	5.3	6.8%
Old Craigville Road	397	41,512	2.4	3.1%
Route 28 Marstons Mills	157	36,429	3.3	4.2%
Osterville Woods	328	59,571	5.2	6.7%
Shootflying Hill Road	348	52,306	1.7	2.2%
Lumbert Mill	357	53,221	9.4	12.0%
Osterville-West Barnstable Road & South County Road	153	32,787	3.7	4.8%
Marstons Mills Main Street	144	24,123	2.1	2.8%
Prince Cove	158	32,972	0.0	0.0%
Attucks Lane / Kidds Hill Area	87	16,893	2.2	2.9%
Total	4,613	781,708	77.7	100.0%¹

**Phase 1 is 44%
of the Overall
Plan.**