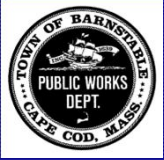


Barnstable Town Council

Water Resources Management Update

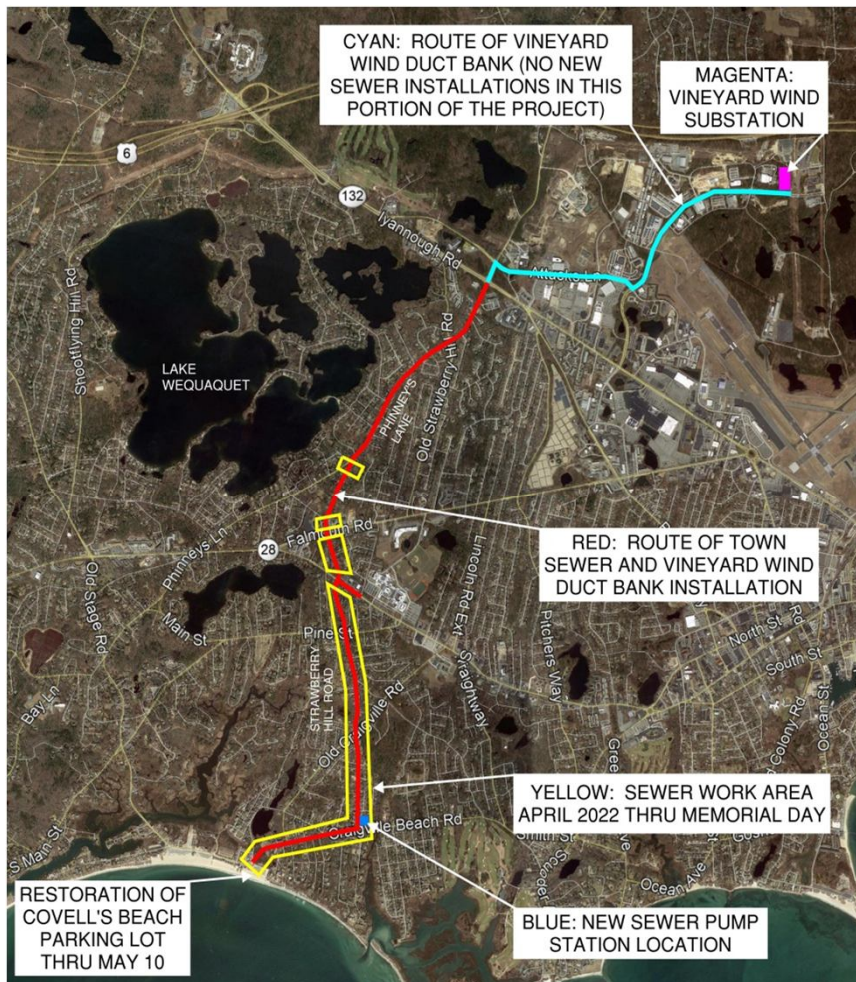
Department of Public Works
April 28, 2022



CWMP Project Updates



• Strawberry Hill Road Sewer Expansion Project



$\pm 9,900$ LF ($\pm 43\%$) of gravity sewer main installed to date

Three sewer crews

- Crew 1: Craigville Beach Road
- Crew 2: Force Main on SHR
- Crew 3: Wequaquet Lane

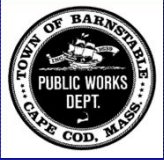
Sewer work on Craigville Beach Road anticipated to be completed by 5/13.

- VW duct bank installation on CBR completed before Memorial Day.

Vineyard Wind's crews at Covell's Beach Parking Lot, Craigville Beach Road, Wequaquet Lane and SHR.

- Covell's Beach Parking Lot Restoration scheduled to be completed by 5/10.

Work to extend past Memorial Day (next slide)
On schedule for completion in Spring, 2023.



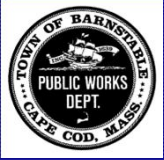
CWMP Project Updates



• *Post-Memorial Day Construction*



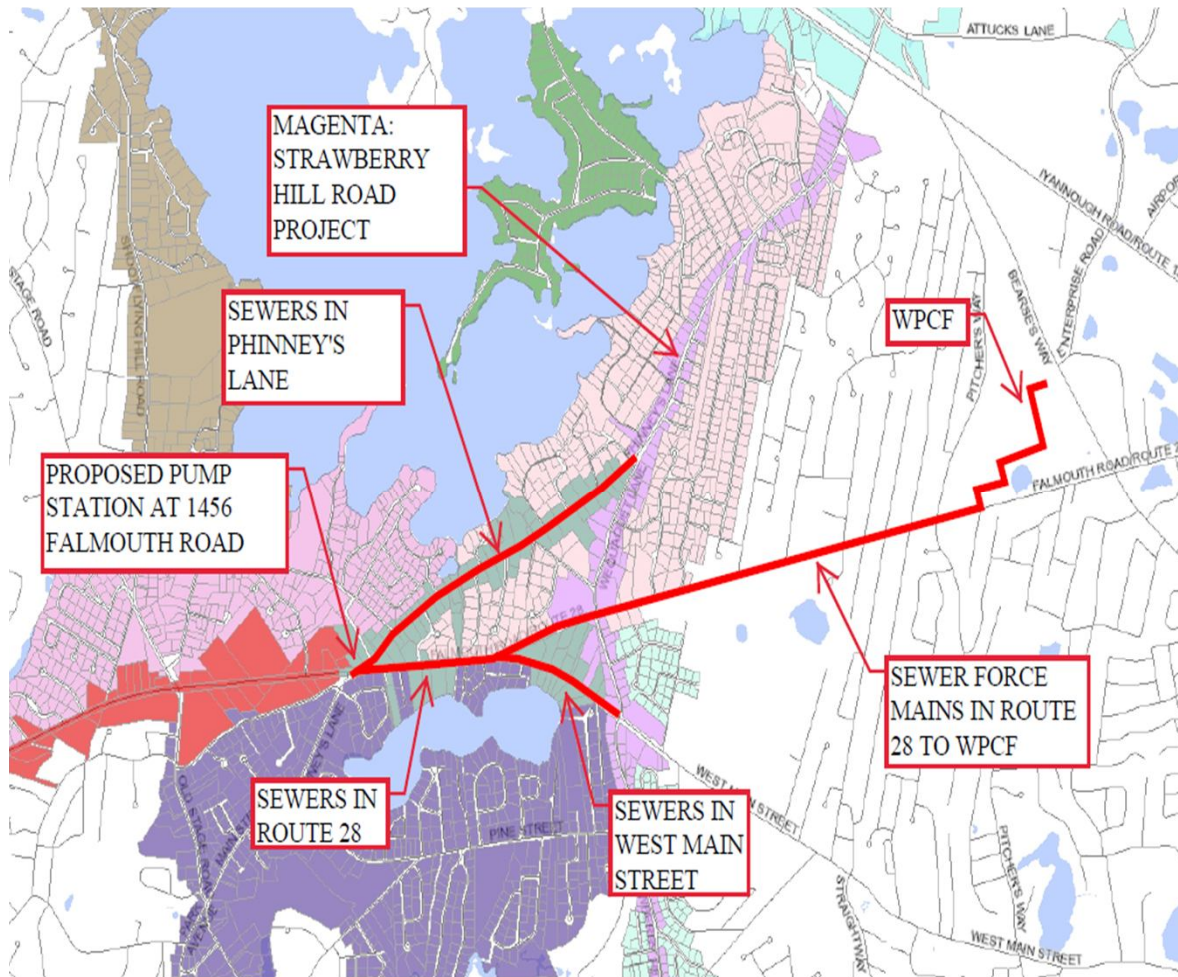
- *In order to maintain/expedite schedule and minimize construction coordination challenges in the fall, Post-Memorial Day construction is anticipated, including targeted work during July and August.*
- *Memorial Day to June 24:*
 - *Continued construction on Strawberry Hill Road (sewer and VW duct bank)*
 - *Sewer construction on Wequaquet Lane*
 - *Pump Station construction*
- *July 11 to Labor Day*
 - *Sewer construction on Wequaquet Lane*
 - *Pump Station construction*
 - *VW duct bank construction across Route 132 (at night only, pending MassDOT approval).*
- *After Labor Day*
 - *Construction on Phinney's Lane*



CWMP Project Updates



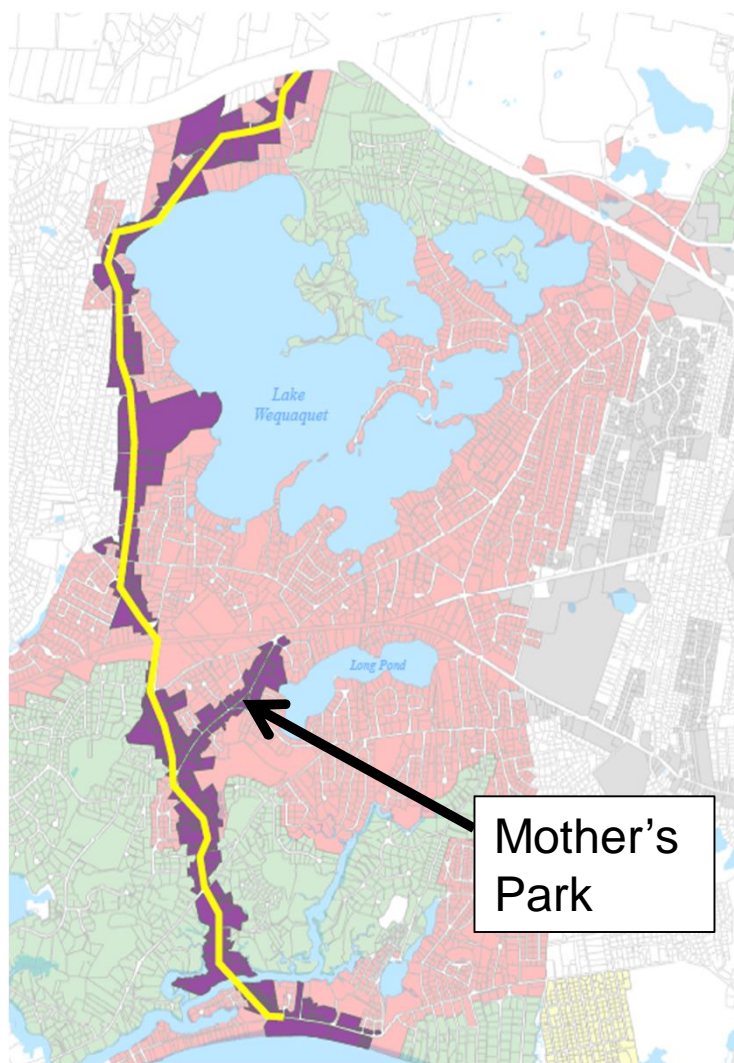
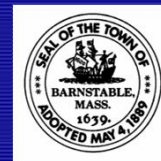
• *Route 28 East Sewer Expansion Project*



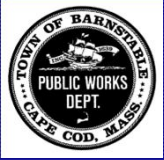
- *Project bids have been received and low bids are within project budget.*
- *Low bidder: Robert B. Our*
 - *Pump Station Bid = \$7,951,423.88*
 - *Sewer/Force Main Bid = \$9,105,662.10*
 - *Water Work = \$1,085,404.55*
- *Construction expected to commence summer/fall*
 - *Detailed schedule pending contract execution / receipt from contractor.*
- *Project completion anticipated Winter 2023.*



CWMP Project Updates



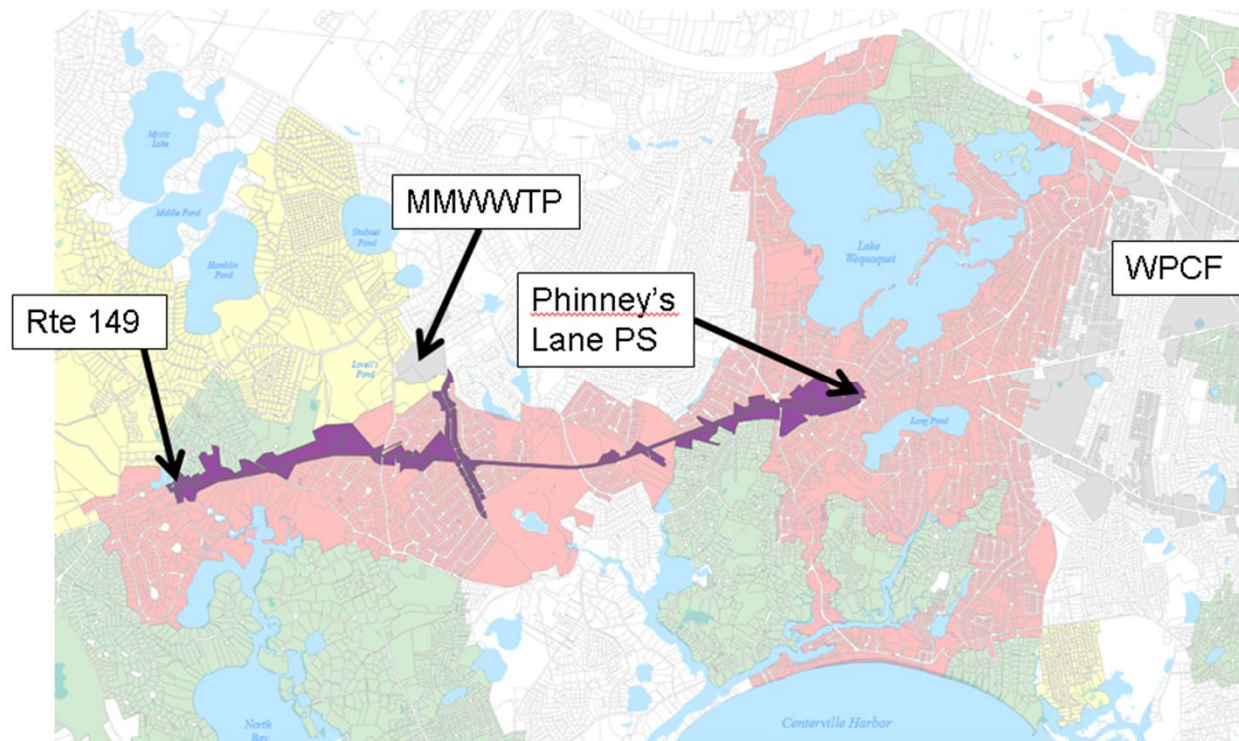
- *Park City Wind On-Shore Route*
 - *DPW proceeding w/ retaining a designer for the project.*
 - *DPW continues to meet w/ Park City Wind weekly to coordinate survey and design efforts.*
 - *DPW evaluating potential construction impacts along Main Street, Centerville and associated improvements.*
 - *Zoom Meeting May 3rd hosted by Councilor Atsalis*
 - *DPW coordinating w/ legal team re: Mother's Park.*
 - *Construction start anticipated Winter 2023.*



CWMP Project Updates

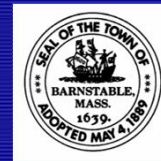


- *Route 28 “West” Sewer Expansion*
 - *Project extends sewers westerly within Route 28 from Phinney’s Lane into the Three Bay’s Watershed to Route 149. Infrastructure is the backbone for necessary sewer expansion in the westerly portion of Town, particularly the Three Bays Watershed.*
 - *DPW has prepared RFP for final design services which is anticipated to be issued in coming weeks.*
 - *DPW working to identify necessary pump station sites (at least 4 anticipated).*
 - *First project anticipated to involve work on a private road (Old East Osterville Road).*
 - *Project scheduled to commence in FY2025 and be completed by FY2027*





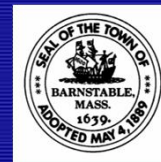
CWMP Project Updates



- *Route 28 / Yarmouth Road – MassDOT*
 - *Utility work underway.*
 - *KAM building demolition underway.*
 - *More significant work anticipated to commence in May. Detailed schedule has not been provided.*
 - *Schedule of sewer work has not been provided (anticipated to be fall).*
- *Planning on-going for other Sewer Projects*
 - *Phinney's Lane and Long Pond Sewer Projects*
 - *Surveys complete, preliminary design (in-house) on-going.*



CWMP Project Updates



- *WPCF Updates*
 - *Evaluation of Nitrogen Removal Improvements*
 - *Evaluation on-going and anticipated to be completed in the Spring of 2022.*
 - *Evaluation and improvements to the headworks facility expected to be expedited as a recommendation of this effort.*
 - *Effluent Disposal Evaluation*
 - *CDM Smith conducting refined modeling evaluation of identified options*
 - *Solids Processing Facility Upgrades*
 - *Construction on-going*
 - *WPCF Engineering Facility Study*
 - *Study on-going*



Phase 1 Schedule

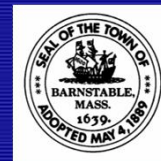


Sewer Expansion Collection System Projects - Phase 1															
				Phase 1										Phase 2	
Project	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	TOTAL
Merchants Way															\$0
Strawberry Hill Road		\$835,000	\$10,600,000												\$11,435,000
Route 28 East		\$800,000		\$22,000,000											\$22,800,000
Vineyard Wind 2 Route				\$2,500,000		\$28,000,000									\$30,500,000
Phinneys Lane	\$315,000	\$735,000				\$32,000,000									\$33,050,000
Route 28 West		\$612,000		\$3,500,000			\$35,000,000								\$39,112,000
Old Yarmouth Road					\$275,000	\$600,000		\$7,150,000							\$8,025,000
Old Craigville Road					\$600,000	\$1,400,000		\$17,000,000							\$19,000,000
Long Pond Area	\$402,000	\$938,000							\$35,000,000						\$36,340,000
Shootflying Hill Road					\$375,000		\$875,000		\$7,150,000						\$8,400,000
Long Beach						\$300,000	\$700,000		\$8,000,000						\$9,000,000
Great Marsh Road							\$500,000	\$1,200,000		\$15,500,000					\$17,200,000
Osterville Woods							\$550,000	\$1,250,000		\$17,000,000					\$18,800,000
South County Road								\$300,000	\$700,000		\$13,000,000				\$14,000,000
Prince Cove									\$400,000	\$1,000,000		\$15,500,000			\$16,900,000
Huckins Neck									\$300,000	\$700,000		\$9,000,000			\$10,000,000
Lumbert Mill										\$700,000	\$1,500,000		\$20,225,000		\$22,425,000
TOTAL COSTS	\$717,000	\$3,920,000	\$10,600,000	\$28,000,000	\$1,250,000	\$30,300,000	\$69,625,000	\$26,900,000	\$51,550,000	\$34,900,000	\$14,500,000	\$24,500,000	\$20,225,000	\$0	\$316,987,000
NEW PARCELS CONNECTED	0	7	0	0	238	91	0	351	278	1,032	441	1,352	349	418	4,557
COMBINED FLOW (GPD)	1,670,000	1,670,000	1,670,000	1,670,000	1,716,500	1,732,000	1,732,000	1,798,000	1,870,500	2,035,500	2,084,500	2,320,500	2,388,500	2,451,000	781,000

5-Year CIP (FY23-FY27)



Drinking Water New Source Study Update



- New source alternatives evaluation report prepared by Weston & Sampson in 2019 concluded Hyannis Water System has a deficit of 1.87 MGD in 2020 and 3.23 MGD in 2040, if largest source is lost.
- 11 sites were identified and ranked using the multiple criteria. 7 sites were selected for additional test well drilling, based on results of ranking.
- Sites were evaluated and ranked based on pump yield and water quality test results. Site C (Bridge St Conservation Area) was selected as the most advantageous site due a potential yield almost 10-times greater than other sites.
- In January of this year, DPW met with the West Barnstable Water Commissioners to present these findings.
- A public informational meeting was held on Wednesday, April 13, 2022 to discuss the potential development of a test well and further sampling at Site C.
- Site B is also anticipated to be further tested.

Table 4: Highest Ranked Sites by Yield

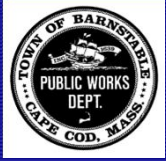
Site ID / Location	Well ID	Potential Yield (gpm)
Bridge St. Conservation Area (Site C)	TW-1C-20	5,087
Hathaway's Pond (Site E)	TW-1E-20	565
West Barnstable Conservation Area (Site D)	TW-2D-20	529
North of Rt. 6 (Site B)	TW-2B-20	519

Table 5: Water Quality Results Summary

Analyte	TW-2B-20 3/3/20	TW-1C-20 5/19/20	TW-2D-20 2/18/20	TW-1E-20 1/27/20	TW-1F-20 2/26/20 ⁷	TW-1G-20 3/12/20 ⁷	Max. Contaminant Level (MCL)
Total Fe (mg/L)	0.078	0.131	0.054	ND ¹	0.194	ND	0.3 mg/L
Total Mn (mg/L)	ND	ND	0.041	ND	0.028	ND	0.05 mg/L
pH	6	5.8	6.2	5.7	5.6	6	6.5 - 8.5
Total Pb (mg/L)	ND	ND	0.0078	ND	ND	ND	TT ² 0.015 mg/L
Perchlorate (mg/L)	0.000088	0.000082	0.000077	0.000054	0.000084	ND	0.002 mg/L
Chloroform (mg/L)	0.00053	0.00077	0.0016	0.001	0.0059	0.0022	0.07
PFAS 6 ³ (ng/L)	ND	11.23 ⁴	ND	ND	ND	ND	20 ppt
Other PFAS (NEIFOSAA ⁵) (ng/L)	1.86	ND	ND	ND	ND	ND	N/L ⁶

Notes:

- 1) ND = Not Detected
- 2) TT = Treatment Technique. If > 10% of tap water samples tested exceed the action level of 0.015 mg/L, additional steps must be taken for water treatment.
- 3) The sum concentration of the six PFAS compounds regulated by the current MassDEP MCL including PFOS, PFOA, PFHxS, PFNA, PFHpA, and PFDA.
- 4) Three of six PFAS compounds proposed by MassDEP for regulation were detected: PFHxS, PFOA, PFOS
- 5) NEIFOSAA = N-Methyl Perfluorooctanesulfonamidoacetic Acid
- 6) N/L = Not Listed
- 7) Sites sampled for completeness, however not favorable for development due to limited yield potential



Pilot Studies – Hyannisport & Straightway & Mary Dunn Water Treatment Facilities



- *In Fall 2020, the Town hired Kleinfelder to assist in completing pilot studies on the Town's existing Hyannisport & Straightway Water Treatment Facilities and the Mary Dunn Water Treatment Facility.*
- *Spring 2021, Kleinfelder conducted field testing at the Hyannisport, Straightway and Simmons Ponds wells.*
- *Fall 2021, Kleinfelder prepared a draft Pilot Study report providing recommendations for water treatment, based on completed field testing for the Hyannisport & Straightway Treatment Facilities. This report was finalized and submitted to DEP, and subsequently DEP approved the proposed treatment processes on February 22, 2022.*
- *Planning of the pilot study for the Mary Dunn Treatment facility is underway.*