



# ***Barnstable Town Council***

## ***Water Resources Management Update***

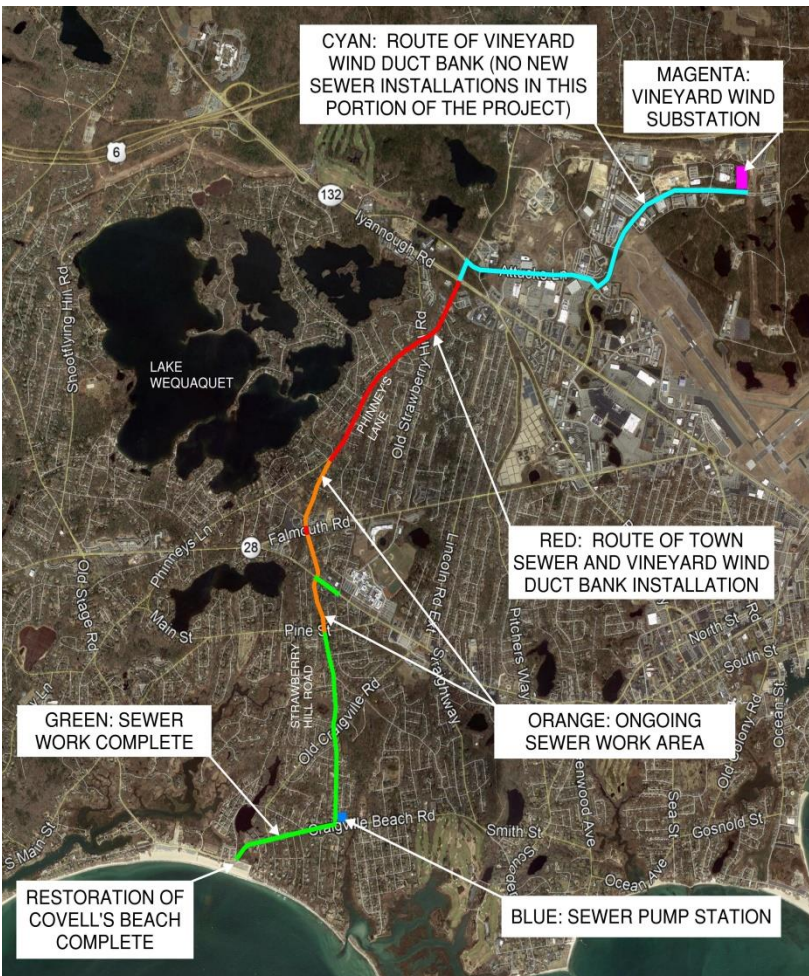
Department of Public Works  
June 16, 2022



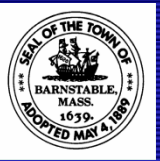
# CWMP Project Updates



## • Strawberry Hill Road Sewer Expansion Project



- $\pm 13,800$  LF ( $\pm 54\%$ ) of gravity sewer main installed to date
- Three sewer crews and one testing crew
  - Crew 1: Gravity main on SHR
  - Crew 2: Force Main on SHR
  - Crew 3: Services on SHR
  - Crew 4: Pipe Testing on SHR
- Sewer work on Craigville Beach Road completed.
  - VW has completed drainage system replacement on CBR.
- Restoration of Covell's Beach Parking Lot completed.
  - VW will be re-mobilizing after Labor Day.
- Targeted work to continue through the summer.
- On schedule for completion in Spring, 2023.



## Construction of the Vineyard Wind 1 and Strawberry Hill Road Sewer Project



*Town of Barnstable, Department of Public Works*

8



# Construction Photo

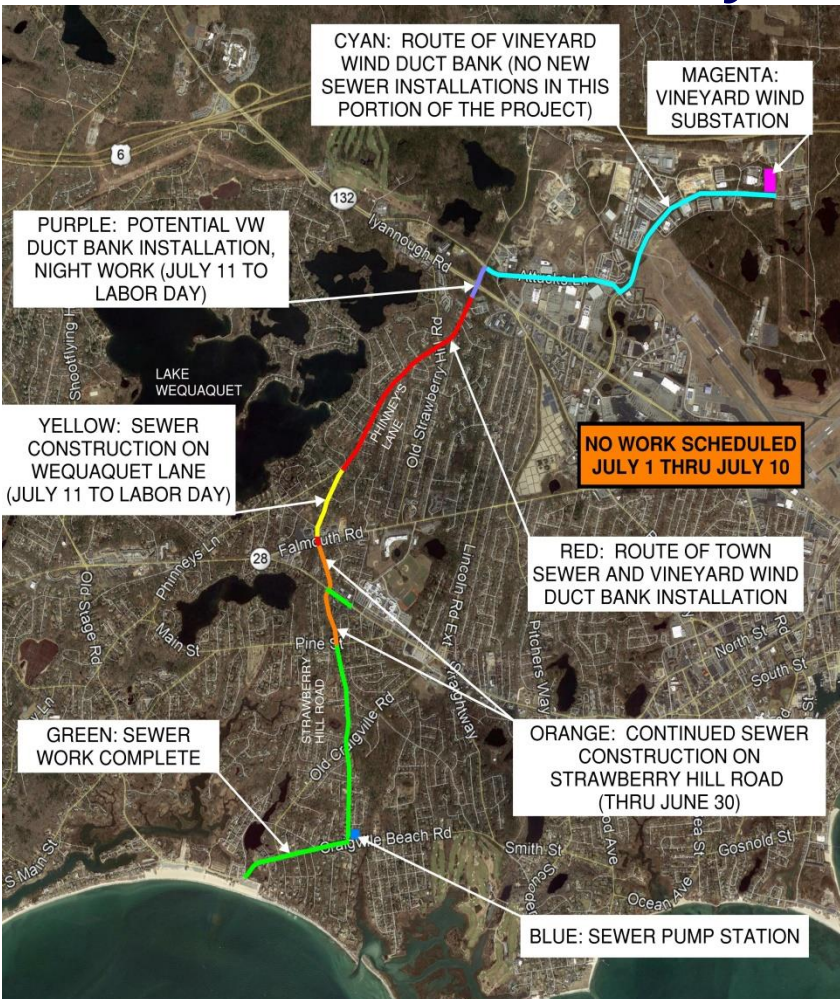




# CWMP Project Updates



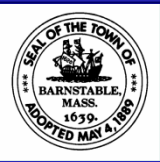
## • *Post-Memorial Day Construction*



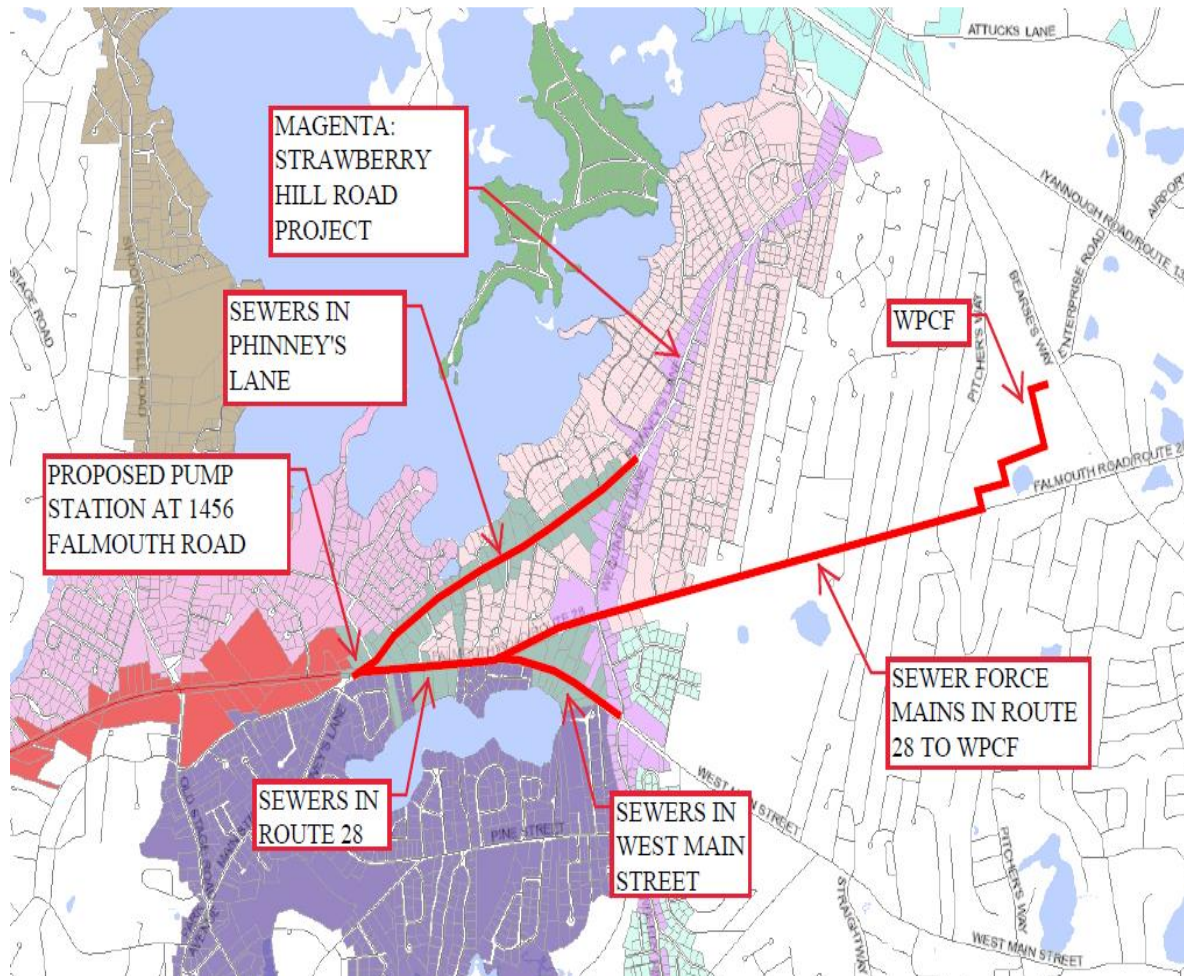
- *In order to maintain/expedite schedule and minimize construction coordination challenges in the fall, targeted construction will occur through the summer.*
- *Through June 30:*
  - *Complete sewer construction on Strawberry Hill Road*
  - *Continue sewer construction on Wequaquet Lane*
  - *Commence Pump Station construction*
- *July 11 to Labor Day*
  - *Sewer construction on Wequaquet Lane*
  - *Pump Station construction*
  - *Potential VW duct bank construction across Route 132 (at night only, pending MassDOT approval).*
- *After Labor Day*
  - *Construction on Phinney's Lane*



# CWMP Project Updates



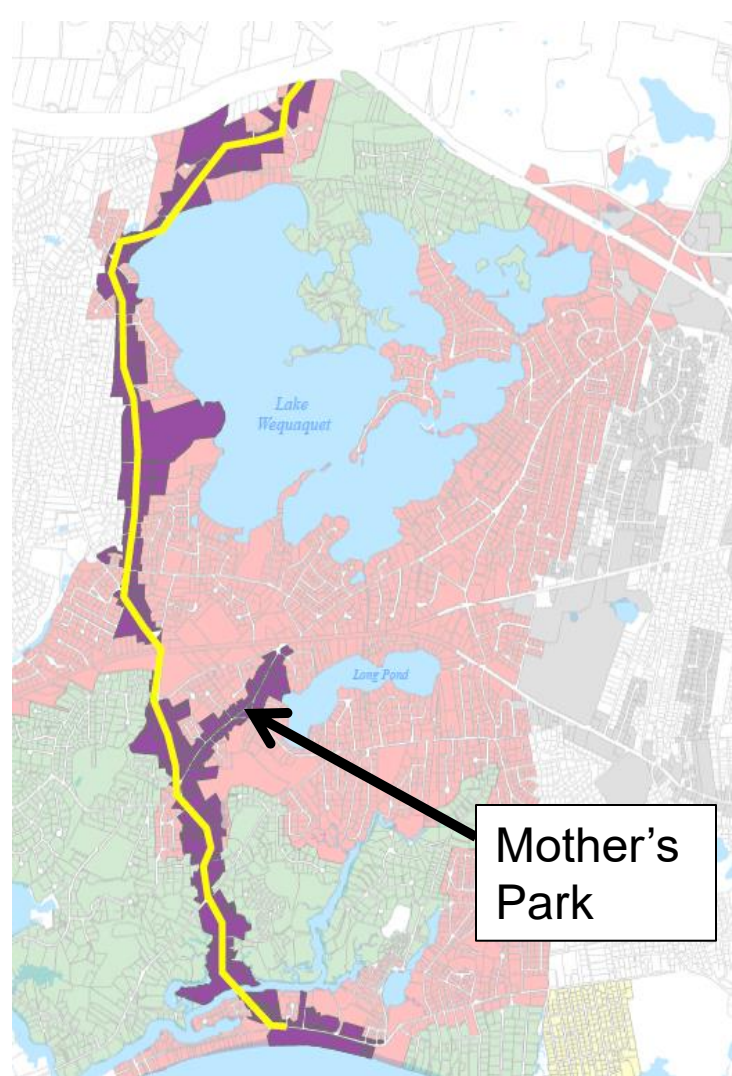
## • *Route 28 East Sewer Expansion Project*



- *Contracts executed w/ 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.*



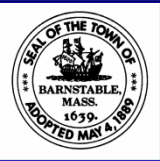
# CWMP Project Updates



- **Park City Wind Coordination**
  - DPW proceeding w/ retaining designer(s) for sewer construction along proposed PCW on-shore route.
  - DPW continues to meet w/ PCW staff weekly to coordinate design efforts.
    - Weekly discussions also include coordination on Commonwealth Wind Project
  - PCW continues route analysis.
    - Utility surveys on-going to map subsurface utilities “preferred” route and “alternate” route.
    - Evaluating potential construction impacts along route, specifically Main St, Centerville.
  - DPW continues to coordinate w/ legal team re: pump station at Mother’s Park Road and associated intersection improvements.
  - Sewer project anticipated to include 6 sewer pump stations (including Mother’s Park Road).
    - Land acquisition anticipated to be necessary for 1-3 sites.
  - Construction start anticipated Fall/Winter 2023.

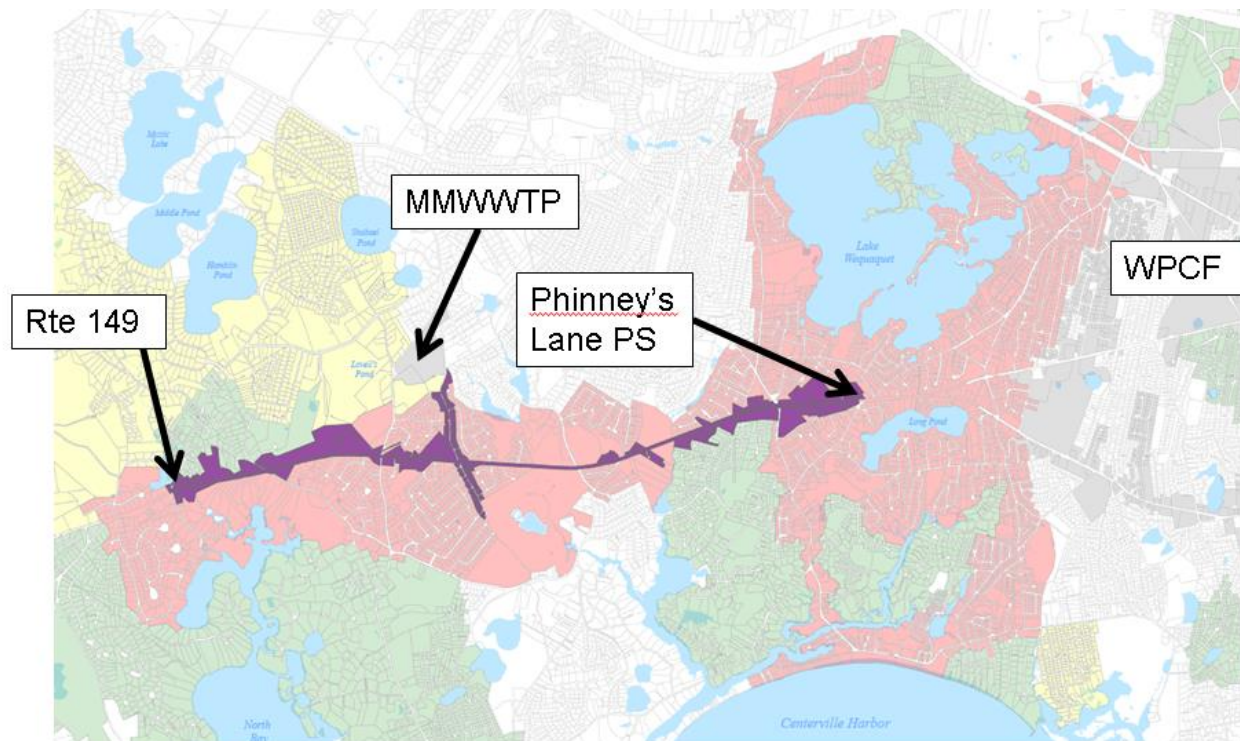


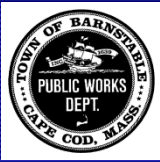
# CWMP Project Updates



- **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.
- RFP issued this week for final design services. Anticipate award of contract this summer.
- DPW working to identify necessary pump station sites (at least 4 anticipated).
- Portion of project involves 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*
  - *Sewer work likely to start in the fall*
- *Planning on-going for other Sewer Expansion Projects*
  - *Phinney's Lane and Long Pond Sewer Projects*
    - *Surveys complete, preliminary design (in-house) advancing for both*
    - *Phinney's Lane: Construction start FY25*
      - *Neighborhoods on east and west side of Phinney's Lane*
      - ***Large number of private roads***
    - *Long Pond: Construction start FY27*
      - *Neighborhoods around Long Pond, Centerville*
      - ***Large number of private roads***
  - *Old Craigville Road, Old Yarmouth Road and Shootflying Hill Road Projects*
    - *On 4/28/22 Town Council appropriated funds for survey and preliminary design for these three projects. RFPs to be issued for survey later this year.*



# ***CWMP Project Updates***



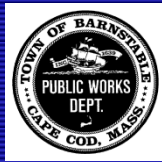
- ***WPCF Updates***
  - ***Evaluation of Nitrogen Removal Improvements***
    - *Evaluation on-going and draft report anticipated end of June.*
    - *On 4/28/22, Town Council appropriated funds for design, which will begin upon satisfactory completion of evaluation.*
  - ***Effluent Disposal Evaluation***
    - *CDM Smith conducting refined modeling evaluation of identified options*
  - ***Solids Processing Facility Upgrades***
    - *Construction on-going*
  - ***WPCF Engineering Facility Study***
    - *Study on-going*



# *Other On-Going Sewer Projects*



- *720 Main Street Pump Station Replacement*
  - *Project listed on 2022 CWSRF Intended Use Plan*
  - *Design on-going.*
  - *Public presentation anticipated in Fall.*
- *Pump Station Rehabilitation Program*
  - *FY21: Various Improvements at 5 Pump Stations*
    - *4 new generators to be installed as part of project.*
    - *Lead time on generators up to 15 months.*
      - *Project completion likely delayed to Spring 2023*
  - *FY22: Freezer Road PS Improvements*
    - *Contract executed with contractor (Robert B Our)*
  - *FY23: Old Colony PS Improvements*
    - *Evaluation on-going*



# Drinking Water New Source Study Update



- Hyannis Water System continues efforts to identify new sources of drinking water.
- 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 (Bridge St Conservation Area).
- Site B is also anticipated to be further tested.
- DPW in contracting phase for additional sampling efforts at Sites B and C.
  - Sampling likely in the fall.

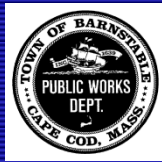
Table 4: Highest Ranked Sites by Yield

Site ID / Location	Well ID	Potential Yield (gpm)
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Table 5: Water Quality Results Summary

Analyte	TW-2B-20 3/3/20	TW-1C-20 5/19/20	TW-2D-20 2/19/20	TW-1E-20 1/27/20	TW-1F-20 2/26/20 <sup>7</sup>	TW-1G-20 3/12/20 <sup>7</sup>	Max. Contaminant Level (MCL)
Total Fe (mg/L)	0.078	0.131	0.054	ND <sup>1</sup>	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 <sup>2</sup> 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 <sup>3</sup> (ng/L)	ND	11.23 <sup>4</sup>	ND	ND	ND	ND	20 ppt
Other PFAS (NEIFOSAA <sup>5</sup> ) (ng/L)	1.86	ND	ND	ND	ND	ND	N/L <sup>6</sup>

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



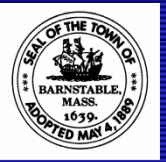
# ***Pilot Studies – Hyannisport & Straightway & Mary Dunn Water Treatment Facilities***



- 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 Straightway Treatment Facility. This report was finalized and submitted to DEP, and subsequently DEP approved the proposed treatment processes on February 22, 2022.*
- On April 28<sup>th</sup>, the Town Council appropriated funds for the design of the Straightway Treatment Facility.*
  - DPW is in the process of contracting for these efforts.*

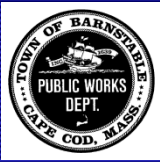


# ***Barnstable Fire District New Water Treatment Plant***

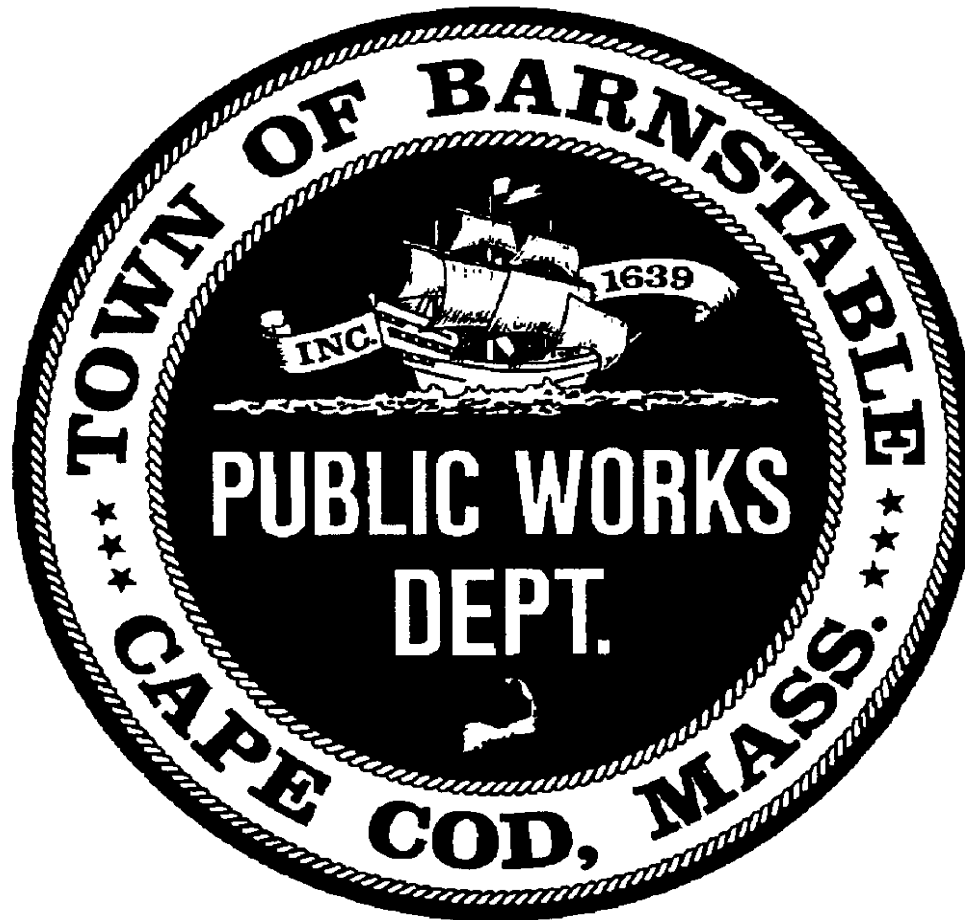


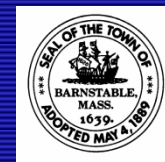
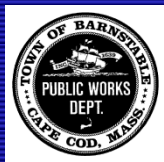
- Barnstable Fire District Water Department will be proceeding with construction of a new \$20M drinking water treatment plant to remove PFAS from contaminated drinking water wells.*





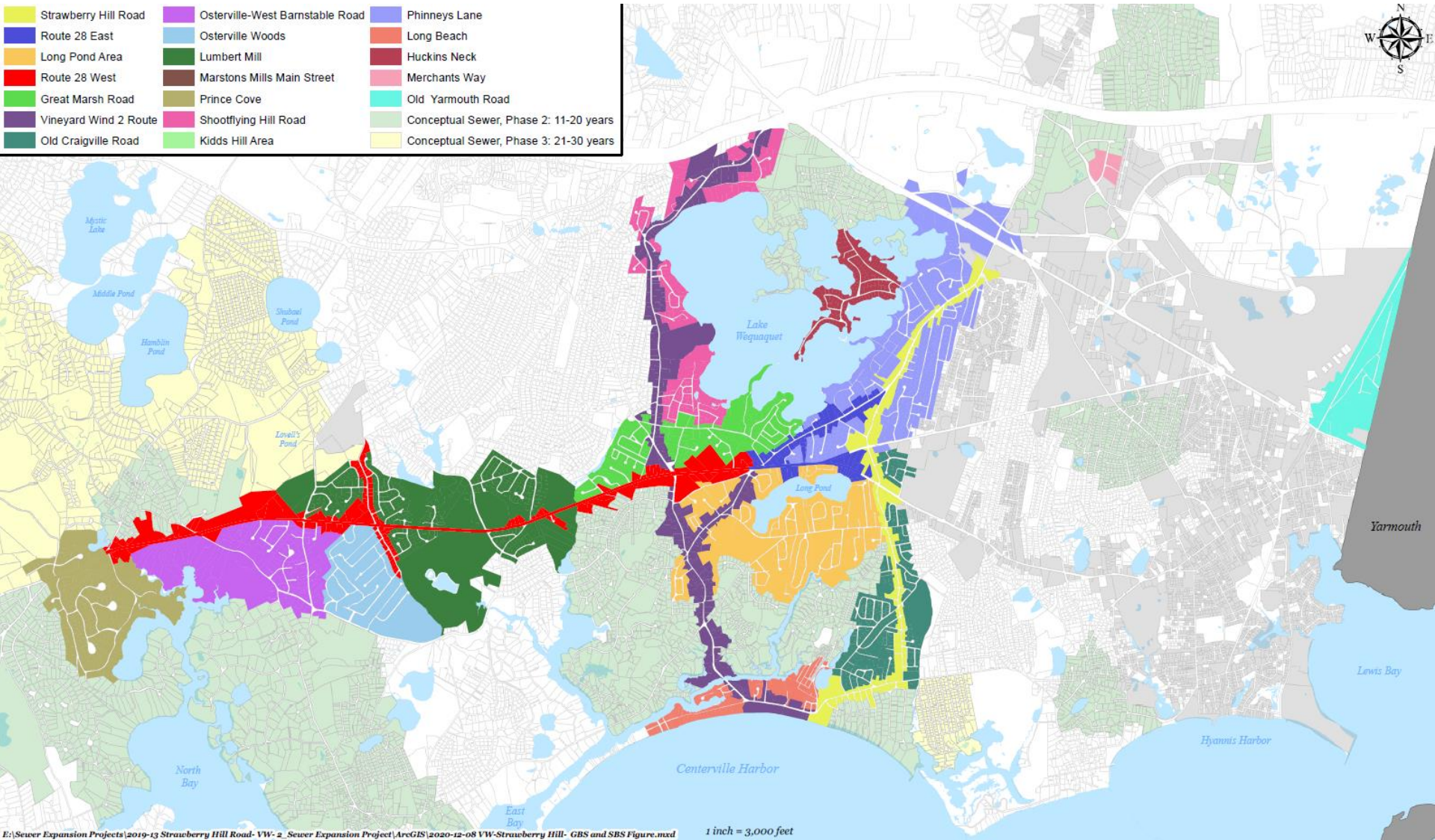
# *Discussion?*







# Phase 1 Implementation Plan





# Phase 1 Schedule

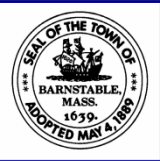


Sewer Expansion Collection System Projects - Phase 1														
Project	Phase 1										Phase 2			
	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	TOTAL
Merchants Way														\$0
Strawberry Hill Road		\$835,000	\$10,600,000											\$11,435,000
Route 28 East		\$800,000		\$22,000,000										\$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	\$316,987,000
NEW PARCELS CONNECTED	0	7	0	0	238	91	0	351	278	1,032	441	1,352	349	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	781,000

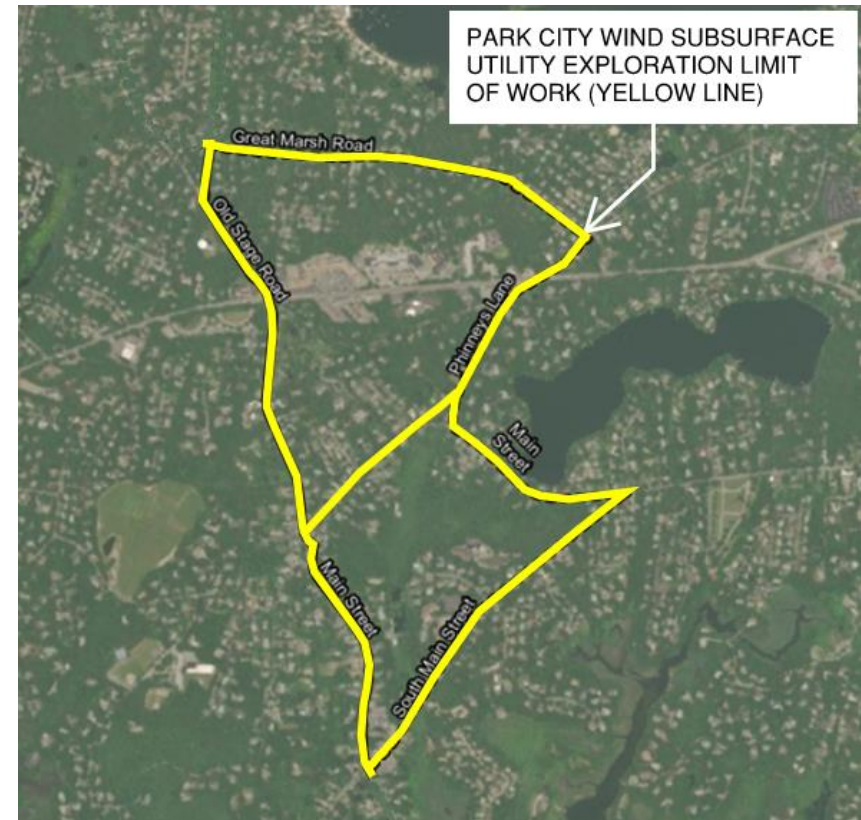
5-Year CIP (FY23-FY27)

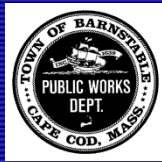


# CWMP Project Updates

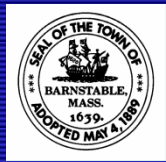


- *Park City Wind SUE Work*
  - *PCW undertaking non-destructive subsurface utility exploration (SUE) along the middle portion of the route between 5/18/22 and 6/17/22.*
  - *The SUE work will consist of the use of ground penetrating radar, utility tracing and field survey equipment within the roadways depicted in the figure.*
  - *Necessary for design of duct bank and sewers in area to determine horizontal and vertical locations of proposed infrastructure, potential need for utility relocations, potential other impacts (trees, sidewalks, etc), and minimize change orders during construction.*





# 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.

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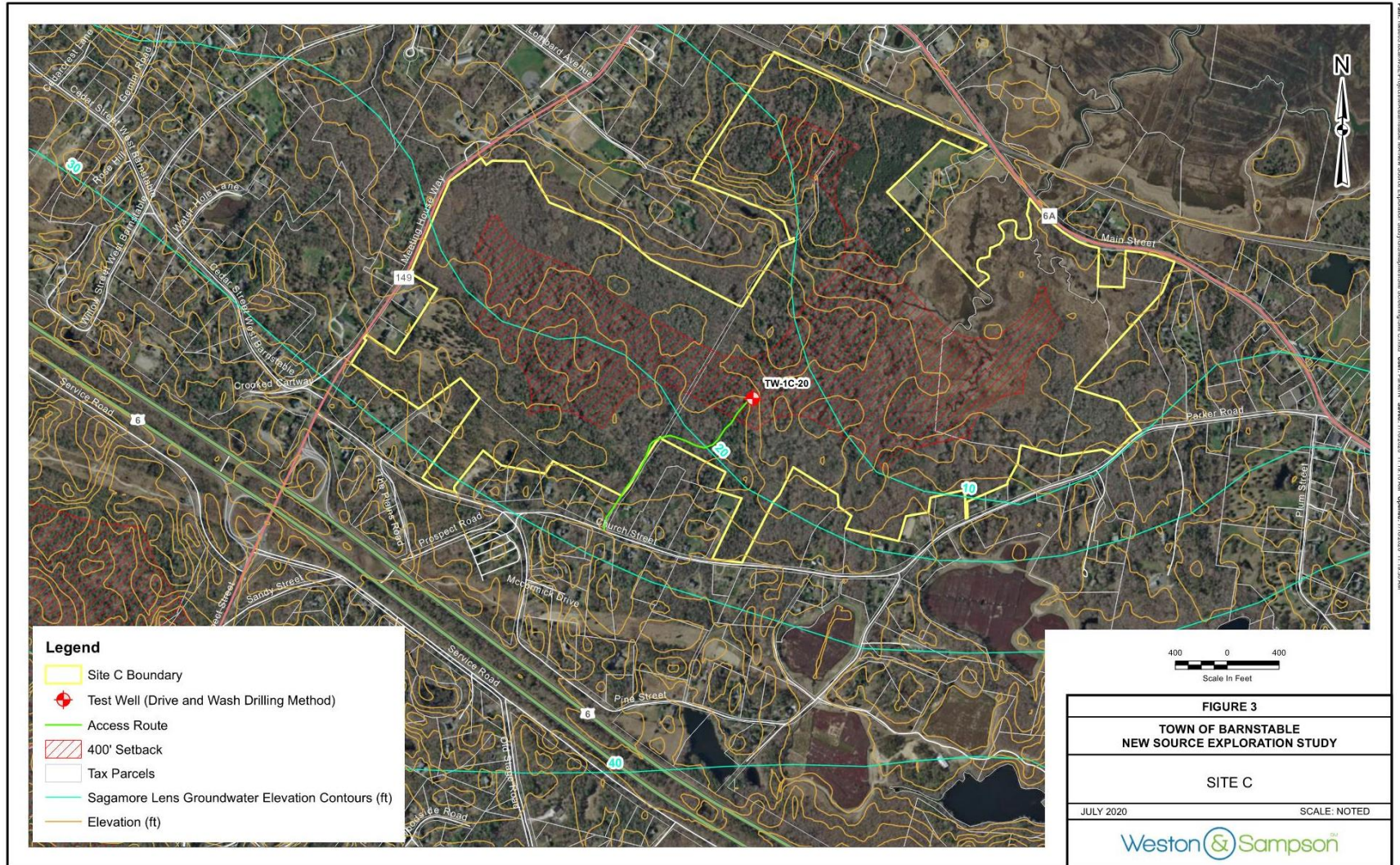
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# Site C – Bridge Street Conservation Area







# Pumping/Testing Data

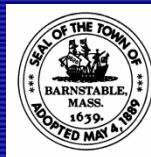


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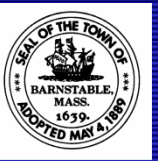
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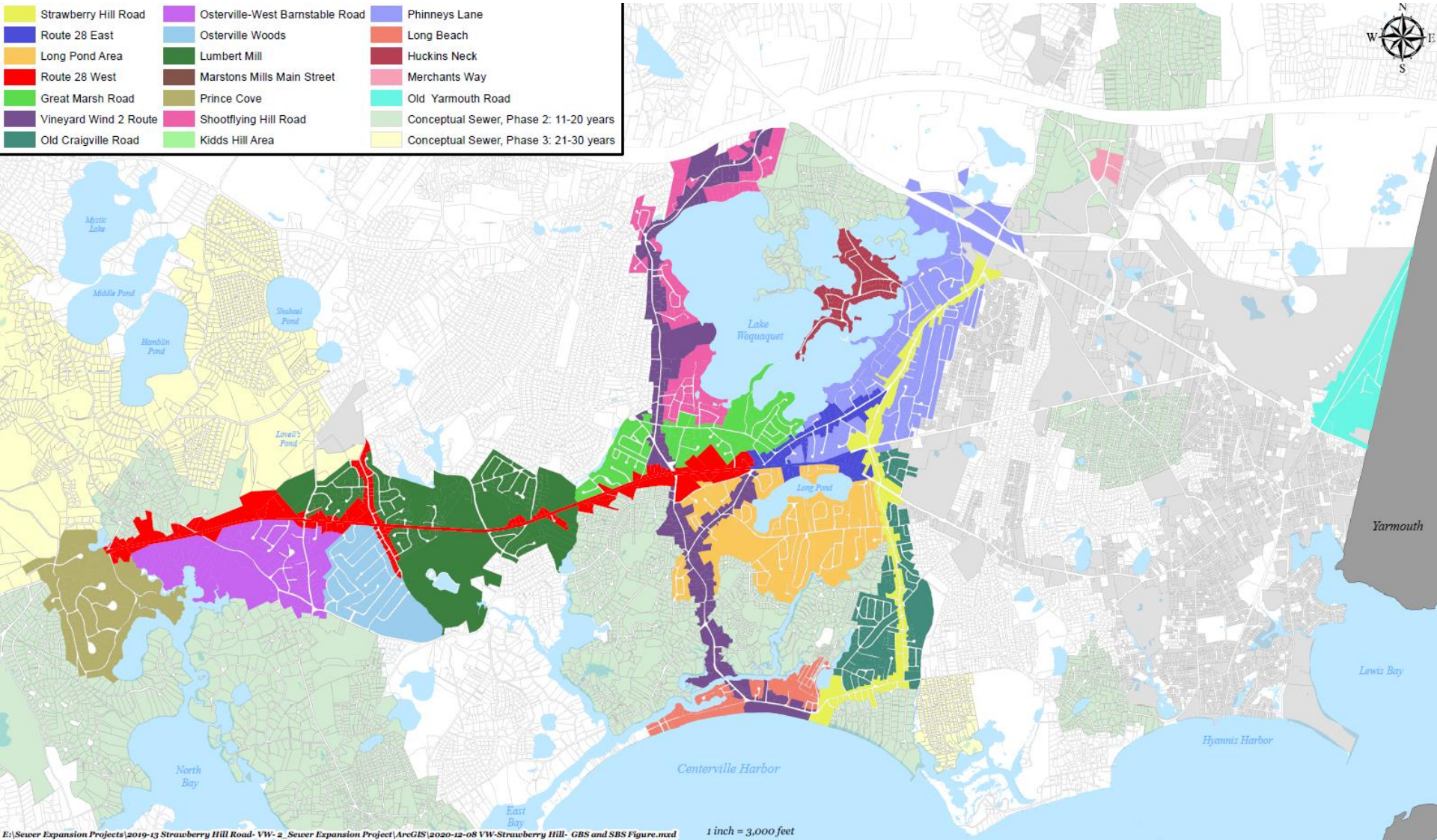
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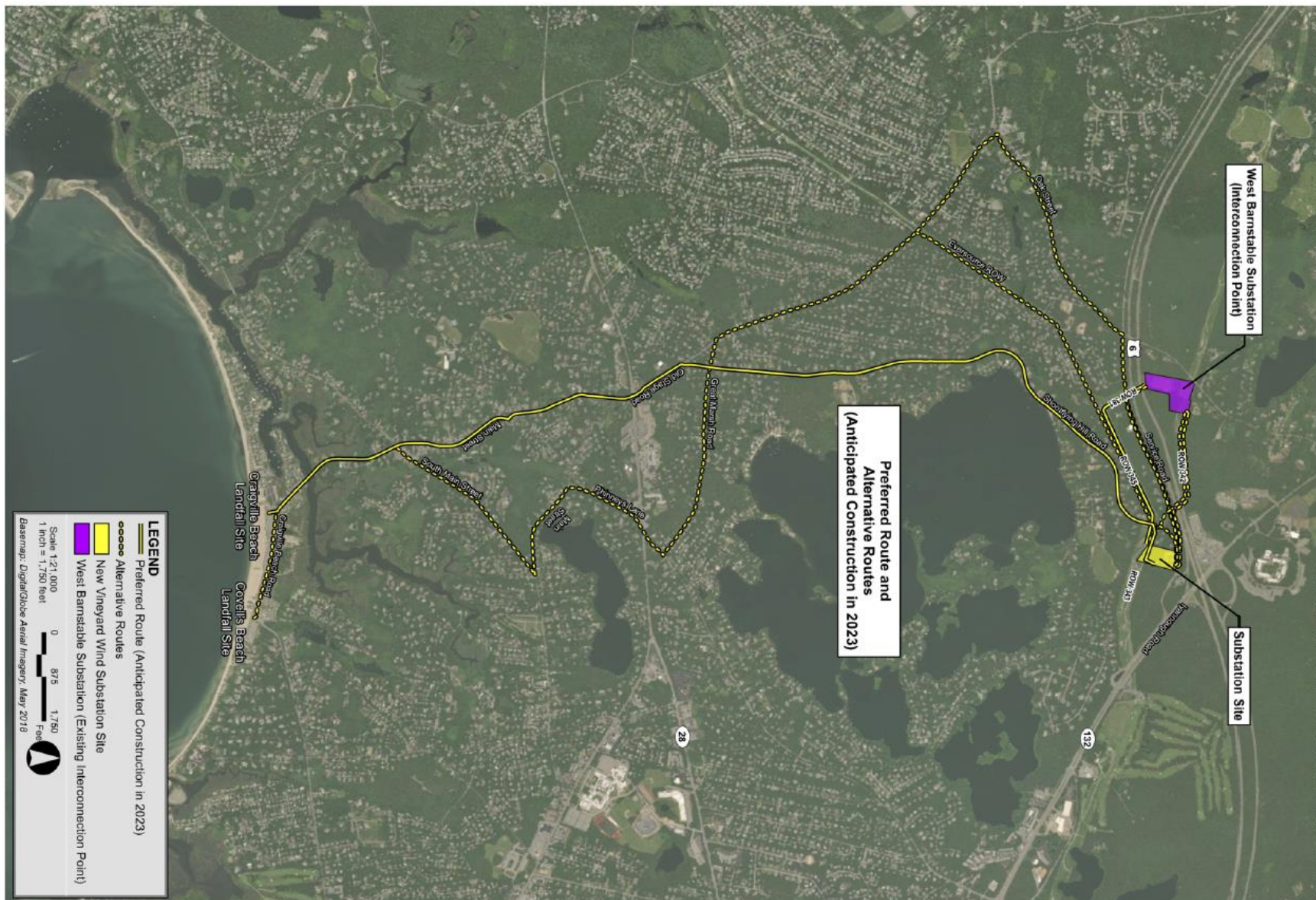


# Phase 1 Implementation Plan



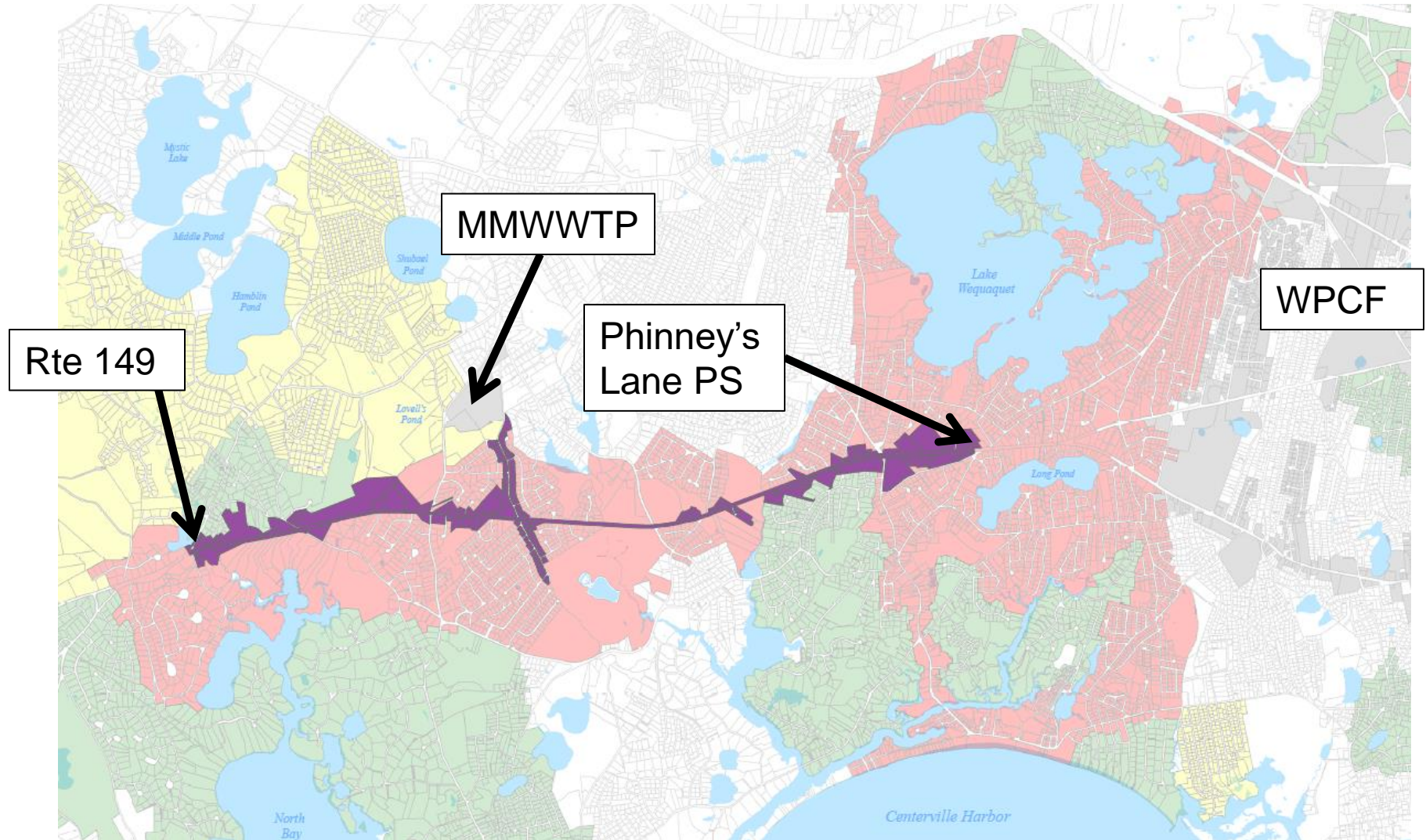
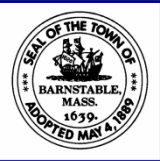
- |                       |                                 |  |
|-----------------------|---------------------------------|--|
| Strawberry Hill Road  | Osterville-West Barnstable Road | Phinneys Lane                          |
| Route 28 East         | Osterville Woods                | Long Beach                             |
| Long Pond Area        | Lumbert Mill                    | Huckins Neck                           |
| Route 28 West         | Marstons Mills Main Street      | Merchants Way                          |
| Great Marsh Road      | Prince Cove                     | Old Yarmouth Road                      |
| Vineyard Wind 2 Route | Shootflying Hill Road           | Conceptual Sewer, Phase 2: 11-20 years |
| Old Craigville Road   | Kidds Hill Area                 | Conceptual Sewer, Phase 3: 21-30 years |

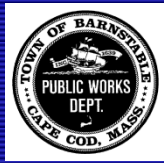






# CWMP Project Updates





# *Clean Water SRF Update (From February)*



- *SRF*
  - *2020 Projects*
    - *All loans have been secured and projects are underway (4 projects)*
    - *Mass Clean Water Trust announced total loan forgiveness for the 4 projects of \$876,534*
  - *2021 Projects*
    - *Route 28 East Sewer Expansion Project – Loan Application under review*
    - *Freezer Road Sewer Pump Station Rehabilitation – Currently out to bid*
  - *2022 Projects*
    - *Draft Intended Use Plan (IUP) released today*
    - *720 Main Street Pump Station Relocation listed*