

WASTEWATER MANAGEMENT IMPLEMENTATION PHASE 3

Progressions thru Program

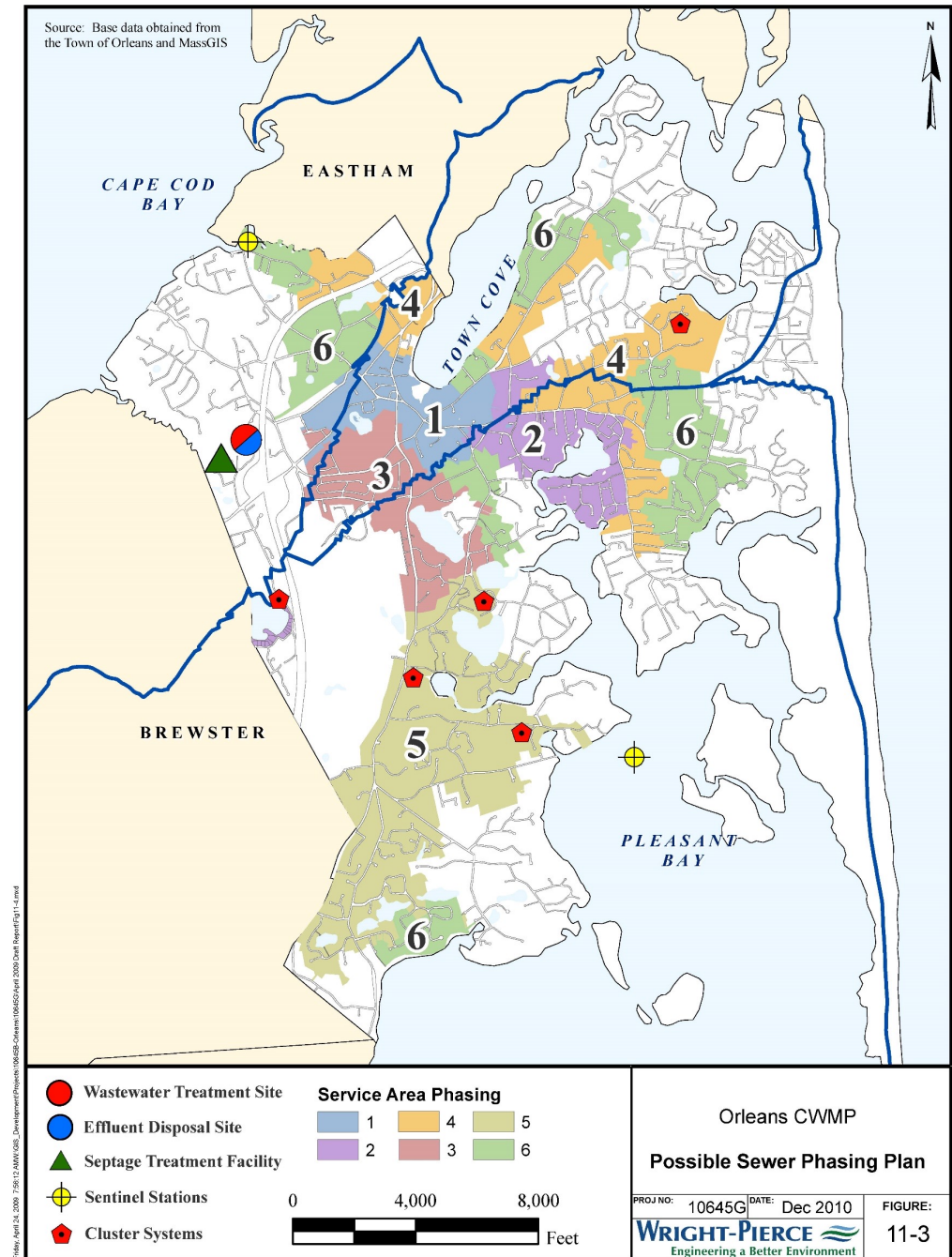
MAY 8, 2023, ANNUAL TOWN MEETING ARTICLES

ORLEANS CITIZENS FORUM PRESENTATION

By Kevin Galligan, Select Board Member &
Wastewater Mgt Advisory Committee, Chair

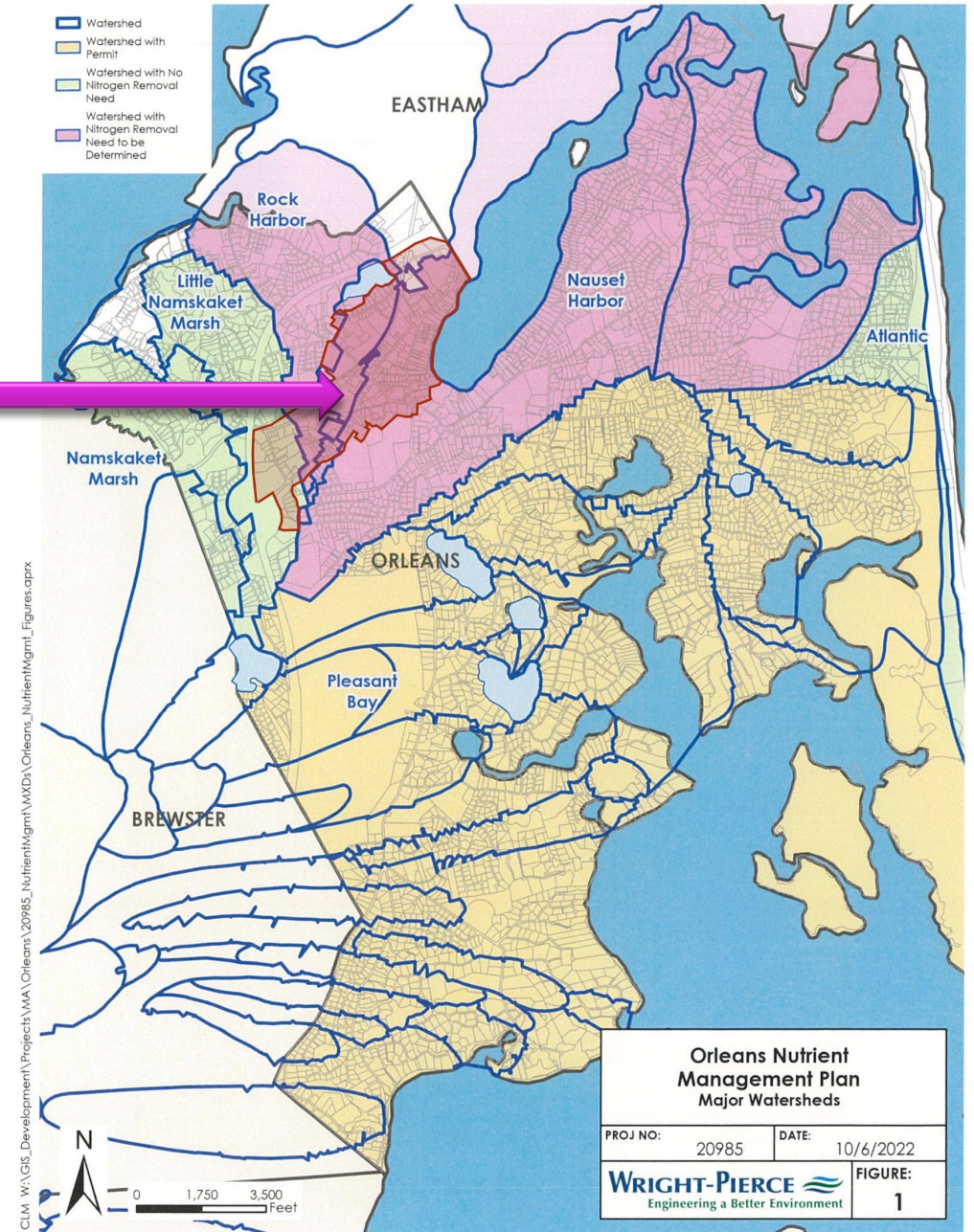
ORLEANS WASTEWATER MANAGEMENT PLAN

- CWMP – Approved 2011
 - 6-Phases
 - Sewered 60% of town
 - Achieve required Nitrogen reductions
 - Conventional Systems not adequate
- 2015 Consensus Agreement
 - 2 sewer areas
 - Evaluate non-traditional methods
 - Permeable Reactive Barriers
 - Aquaculture
 - Floating constructed wetlands



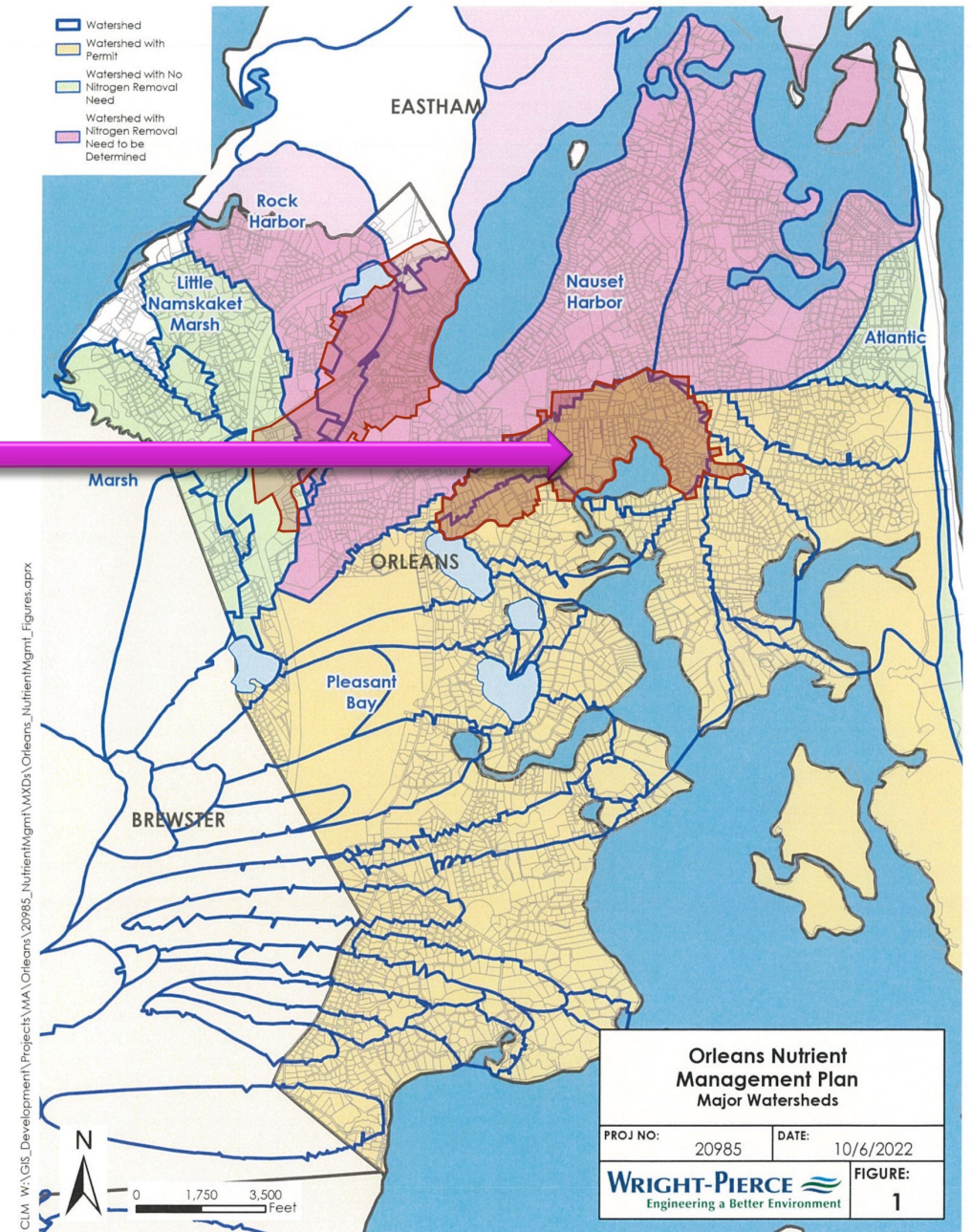
ORLEANS WASTEWATER MANAGEMENT PLAN

- Phase 1 – Downtown Area
 - Survey – 2018
 - Design – 2019
 - Funding - June 2020
 - Construction – Sep 2020 to Mar 2023
- 3 watersheds
 - Rock Harbor watershed
 - Nauset watershed
 - Little Nauskaket Marsh watershed



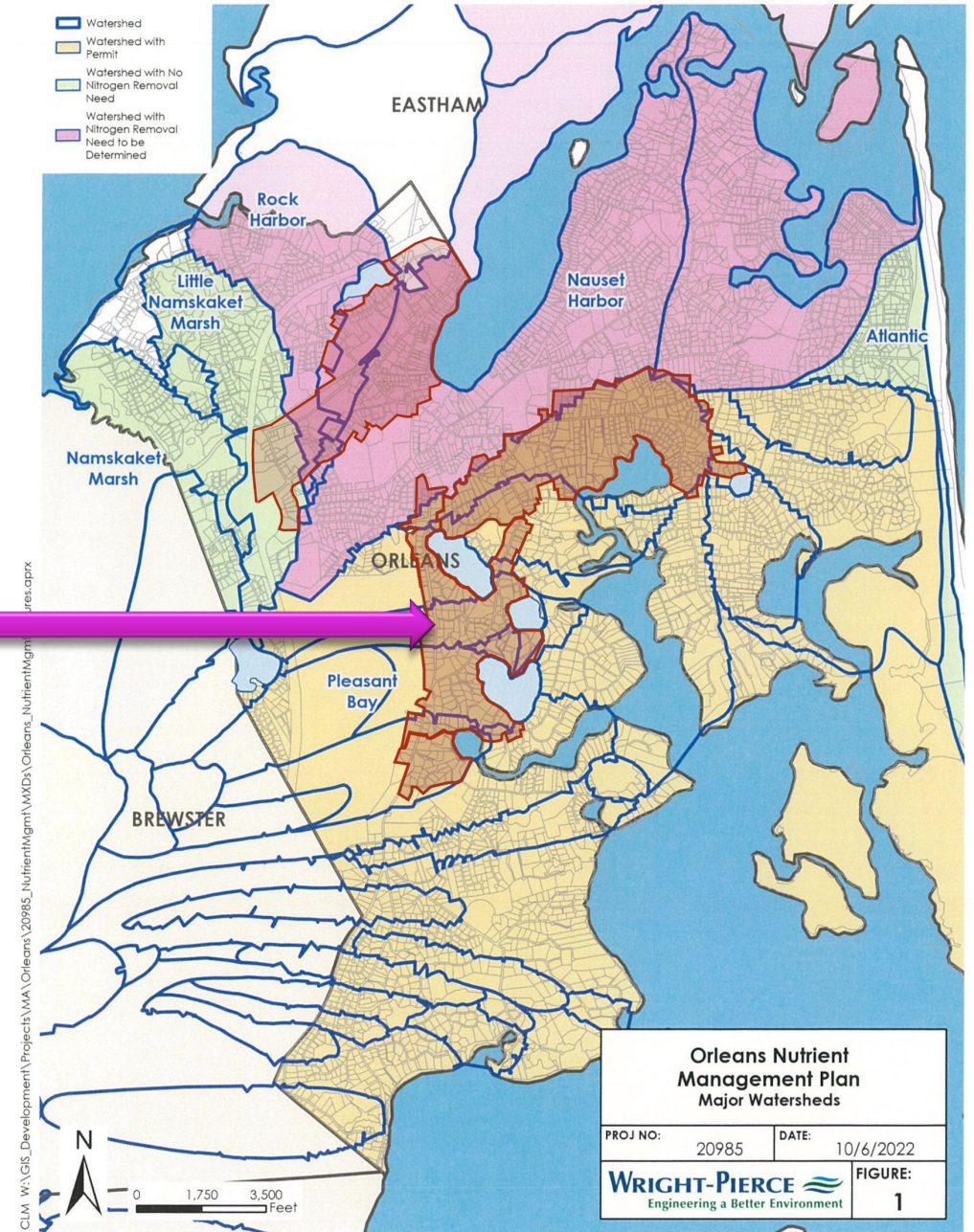
ORLEANS WASTEWATER MANAGEMENT PLAN

- Phase 2 – Meetinghouse Pond
 - Survey - 2020
 - Design - 2022
 - Funding – May 2023 (Art 18)
 - Construction – 2023 to 2025
- Removes Nitrogen From Pleasant Bay
 - 100% Septic removal required



ORLEANS WASTEWATER MANAGEMENT PLAN

- Proposed Phase 3 – Lonnie’s Pond, Crystal Lake and Pilgrim Lake (Article 16)
 - Removes additional Nitrogen from
 - Pleasant Bay watershed
 - Nauset Harbor watershed
 - Additional benefit of removal of phosphorus loading from upgradient properties to freshwater bodies
- Program
 - Survey/Prelim Design – May 2023 (Article 16)
 - \$2,486,900 and is on Ballot Quest. 3
 - Final Design – 2024
 - Construction Funding - 2025
 - Construction – 2026 to 2028



ORLEANS WASTEWATER MANAGEMENT PLAN

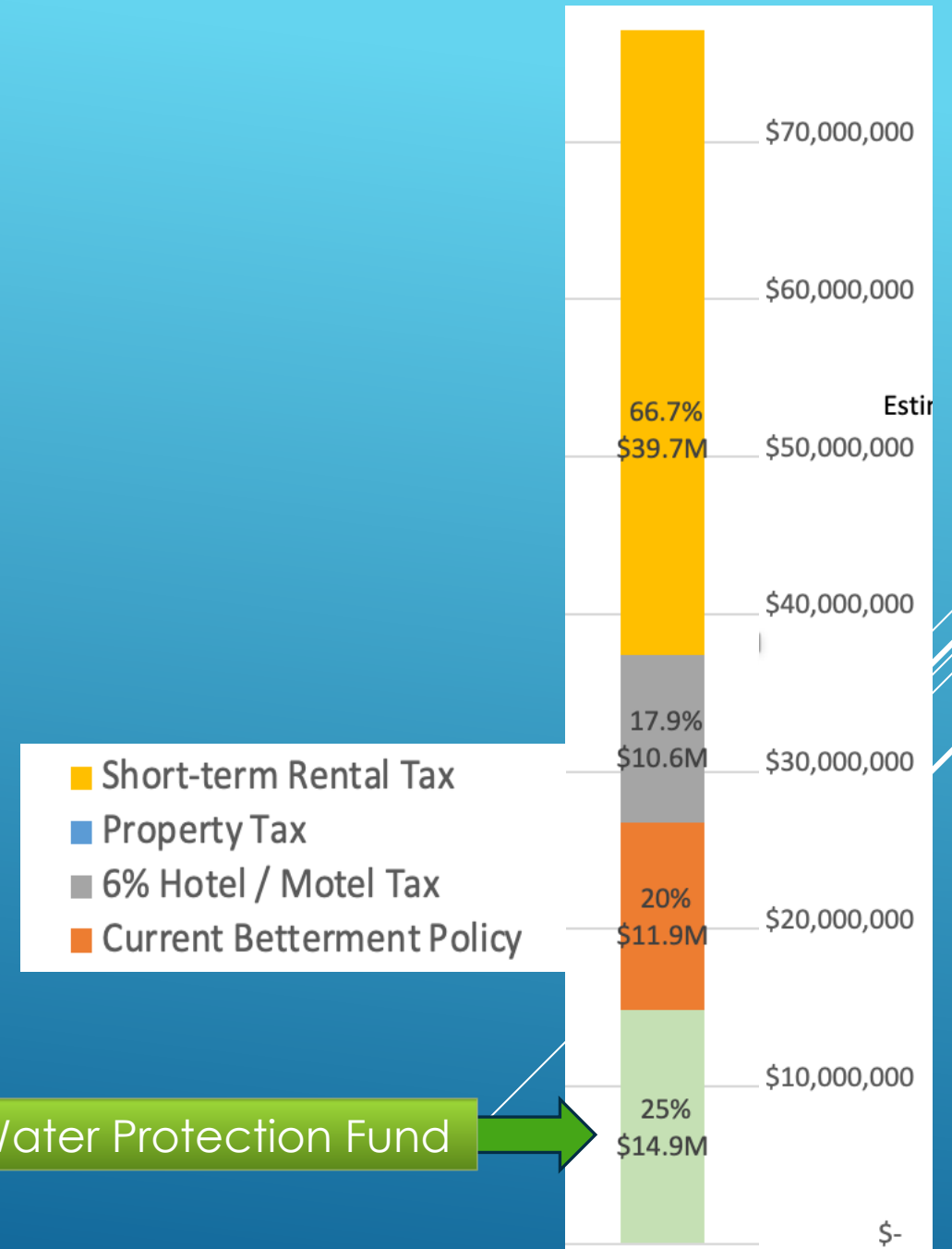
FINANCIAL TIMELINE

Activity	2018 ATM	2019 ATM	2020 ATM	2021 ATM	2022 ATM	2023 ATM	2024	2025	2026	2027	2028	2029
Downtown Main St./MassDOT (Art.1-STM Oct.2017)	\$3,680,000											
Survey/Design (Art.14)	\$4,223,600											
Impl/Constr (Art.16)		\$47,382,800										
Add'l Constr.Funding (Art.42)			\$12,218,000									
Add'l Constr.Funding (Art.17)						\$275,000						
Phase 1-Cummulative Est'd Cost							\$67,779,400					
Survey/Prelim.Design (Art.13)			\$1,700,500									
Final Design (Art.19)				\$658,300								
Constr.Funding (Art.19)					\$32,906,000							
Add'l Constr.Funding (Art.18)												
Phase 2-Cummulative Est'd Cost									\$35,264,800			
Survey/Prelim.Design (Art.16)						\$2,486,900						
Final Design (per CIP)							\$1,782,300					
Constr.Funding (per CIP)								\$31,716,100				
Phase 3-Cummulative Est'd Cost												\$35,985,300

Please note: This is illustrative and does not include all planning/design costs prior to 2018.

ORLEANS WASTEWATER MANAGEMENT PLAN *SHARED COSTS, SHARED BENEFITS*

- Infrastructure and Community Investment Stabilization Fund (Adopted May, 2019)
- It is expected that the stabilization fund would offset debt service costs to the taxpayers up to \$1.5 million per year, subject to town meeting voter approval



USE OF STABILIZATION FUND

FY 22 – 5/22/21 ATM:

Article 12: Sewer EF startup = \$726,513

Article 18: Fresh/Saltwater Adaptive Management = \$156,400

FY 22 – 10/25/21 STM:

Article 3: Sewer EF startup = \$100,000

Article 22: fund Wastewater Master Plan for Freshwater Ponds and Tonset Road and Rock Harbor Watershed Areas = \$250,000

FY 23 – 5/9/22 ATM:

Article 11: Sewer EF startup = \$1,980,336

FY 24 proposed – 5/8/23 ATM:

Article 11: Sewer EF startup = \$1,370,533

Article 13: Debt Service = \$508,581

ORLEANS WASTEWATER MANAGEMENT PLAN

ARTICLES 17 & 18

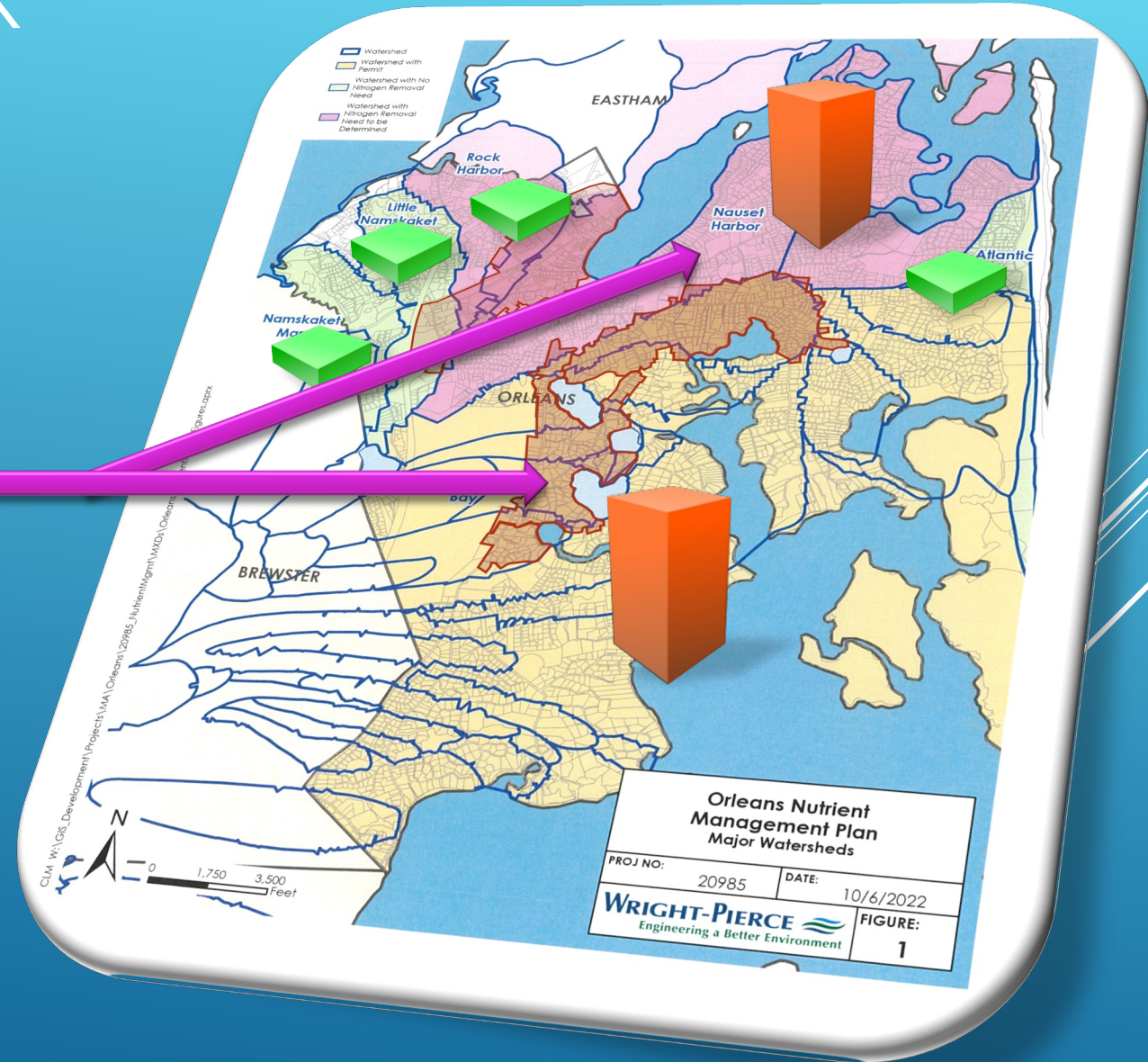
- Article 17: Fund Additional Costs for Phase 1 Downtown Area Sewer Collection System, Wastewater Treatment Plant & Effluent Disposal System
- Article 18: Fund Additional Costs (IF NEEDED) for Phase 2 Meetinghouse Pond Area Sewer Collection System



ORLEANS WASTEWATER MANAGEMENT PLAN

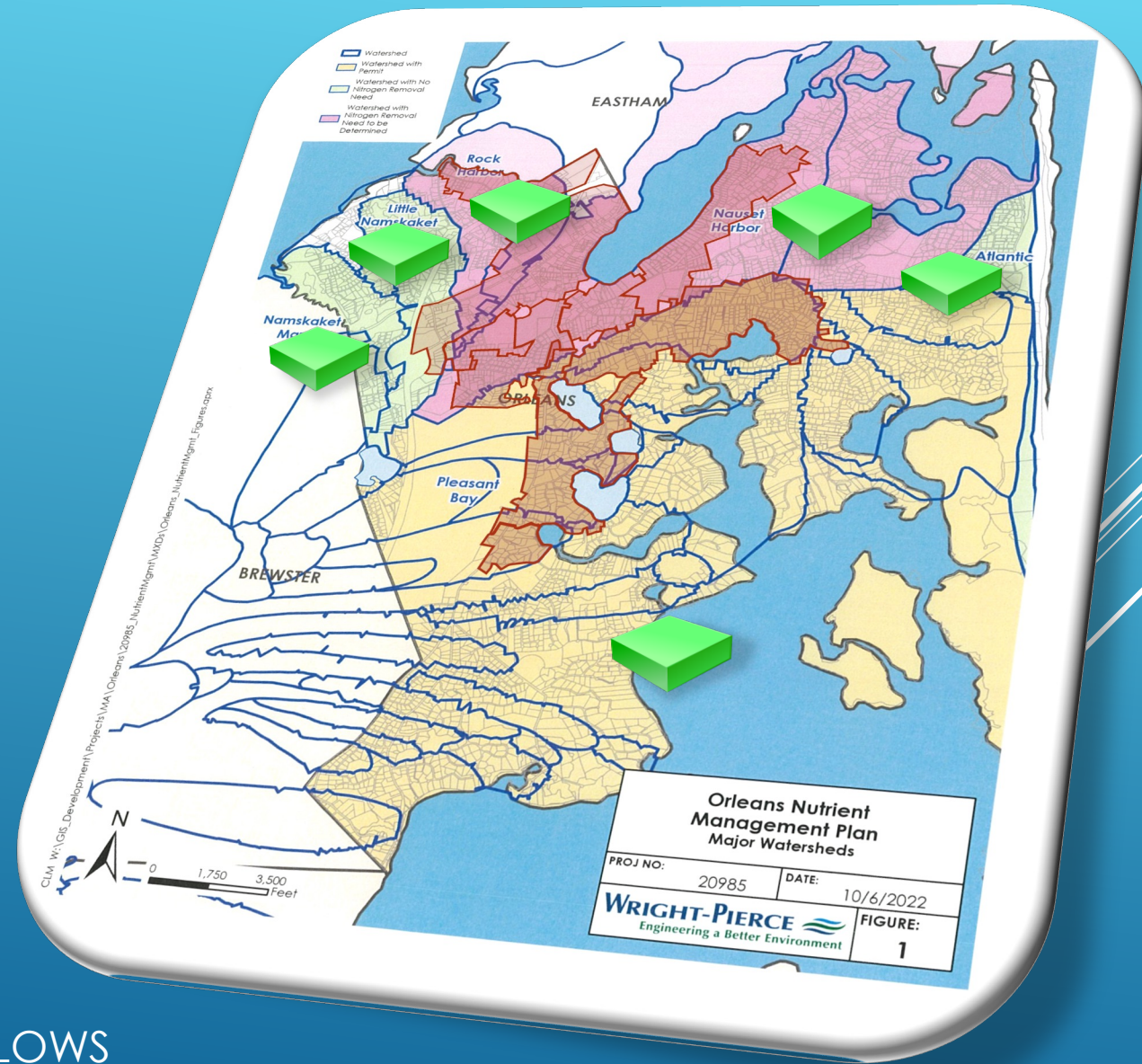
After Phases 1, 2, and 3 are completed:

- Further reductions of Nitrogen load in
 - Pleasant Bay watershed
 - Nitrogen reduced by 2,214 kg/y
 - Nauset Harbor watershed
 - Nitrogen reduced by 1,857 Kg/y



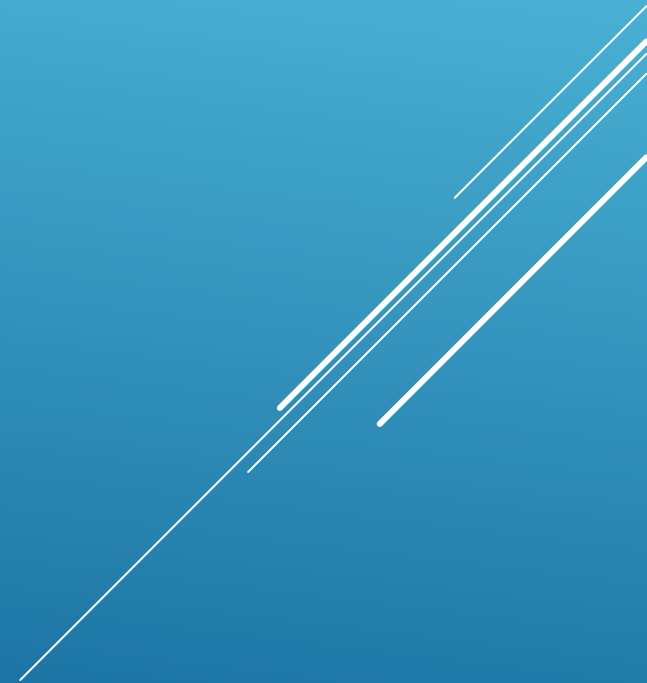
THANK YOU

Please Attend
Town Meeting
Monday, May 8, 2023



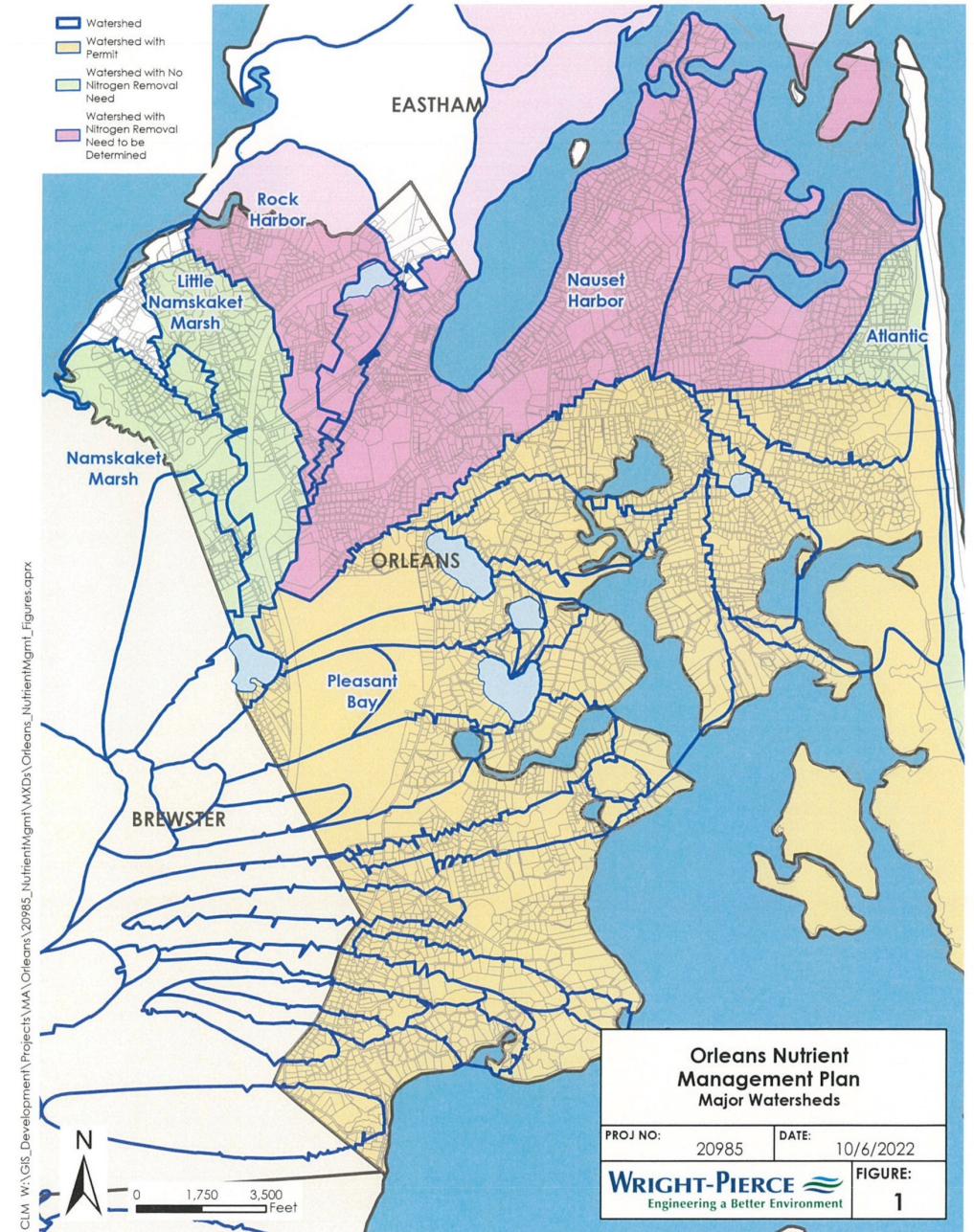
ADDITIONAL SUPPORTING INFORMATION FOLLOWS

BACK UP SLIDES



ORLEANS WATERSHEDS

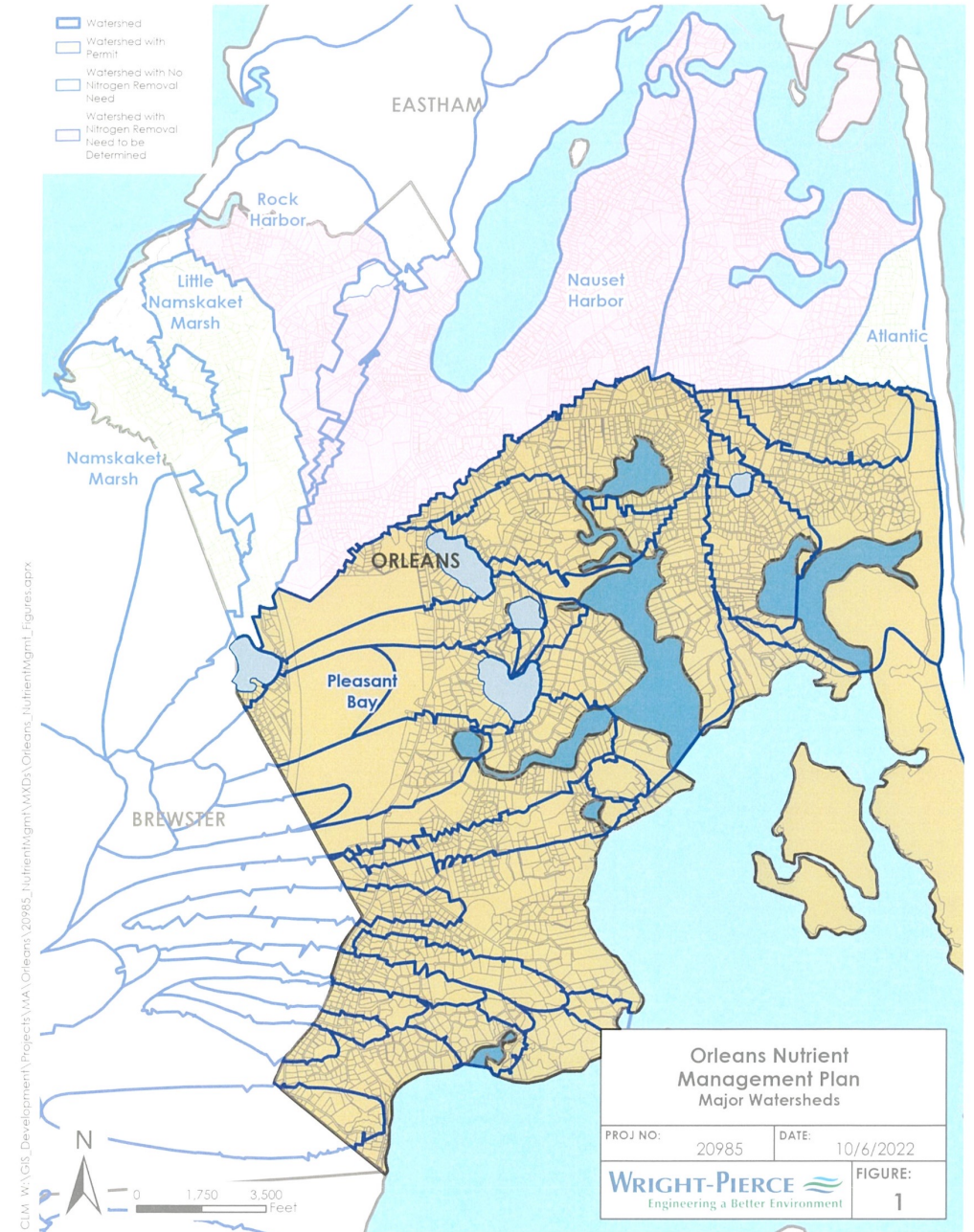
- Six Major Watersheds
 - Namskaket Marsh – nitrogen removal not req'd
 - Little Namskaket Marsh – nitrogen removal not req'd
 - Atlantic – nitrogen removal not req'd
 - Pleasant Bay – multiple towns , many subwatersheds
 - watershed mgt permit in place
 - Phase 2 Meetinghouse Pond Sewer project key
 - Nauset Harbor – shared with Eastham
 - Rock Harbor – shared with Eastham



PLEASANT BAY WATERSHED

(shown in Yellow)

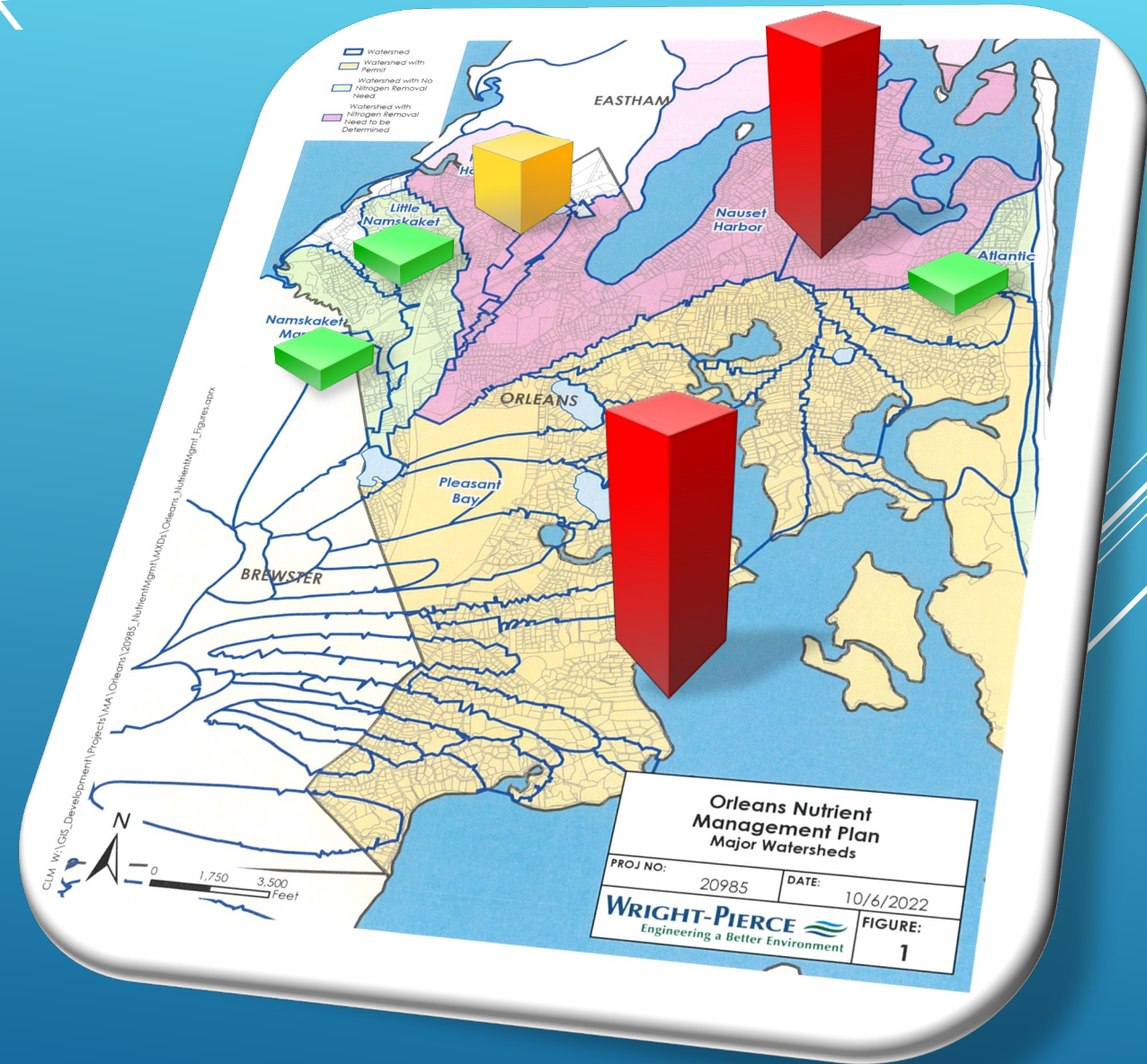
- TMDL
- Subject of the first Mass DEP watershed permit in 2018
- Four towns in the watershed developed nitrogen control strategies
- Orleans has begun addressing requirements



ORLEANS WASTEWATER MANAGEMENT PLAN

As things stand now:

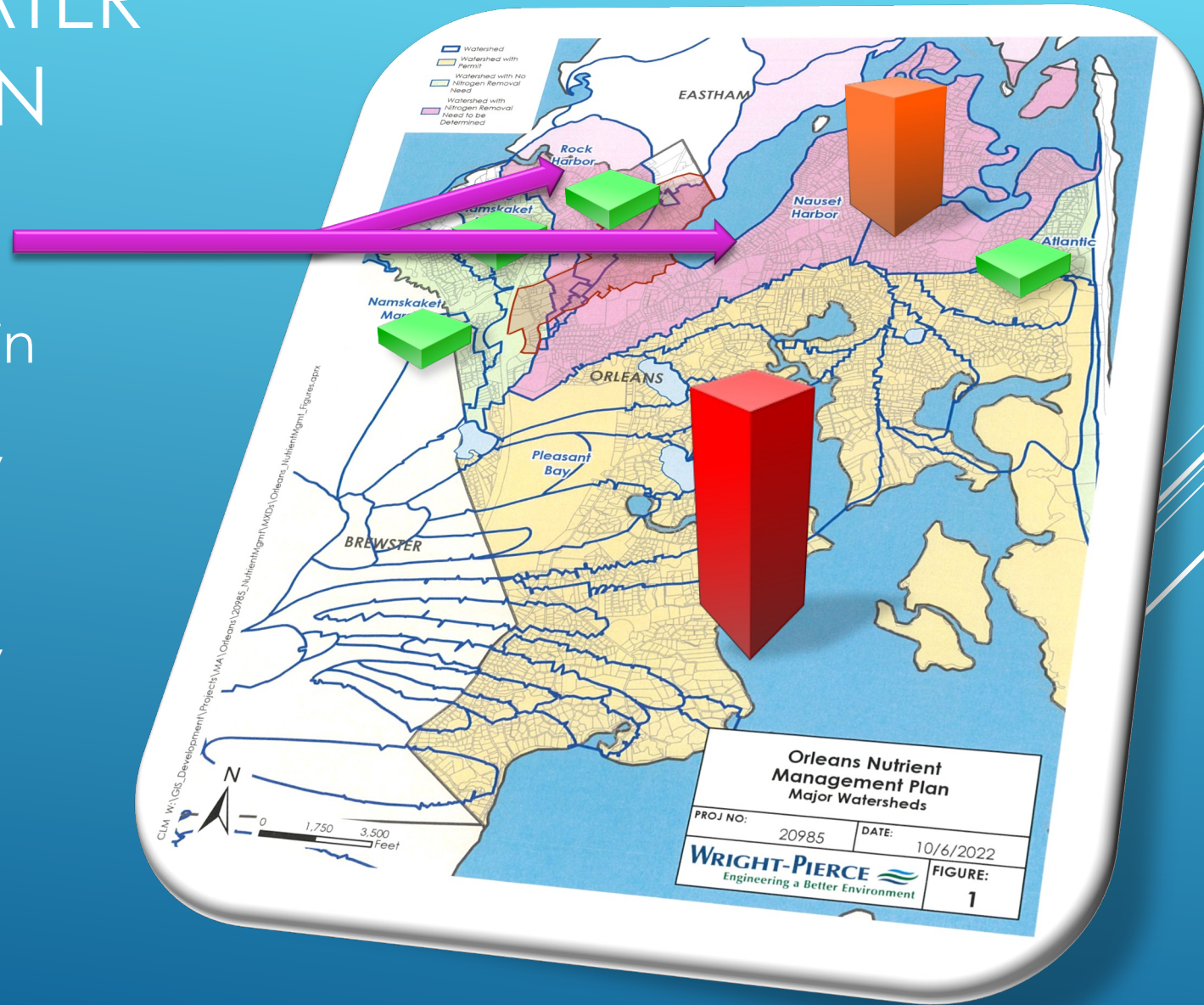
- High loads of Nitrogen in
 - Pleasant Bay watershed
 - Nauset Harbor watershed
- Slightly High loads of Nitrogen in
 - Rock Harbor watershed
- Acceptable Nitrogen loads in
 - Namskaket watershed
 - Little Namskaket watershed
 - Atlantic watershed



ORLEANS WASTEWATER MANAGEMENT PLAN

After Phase 1 is completed:

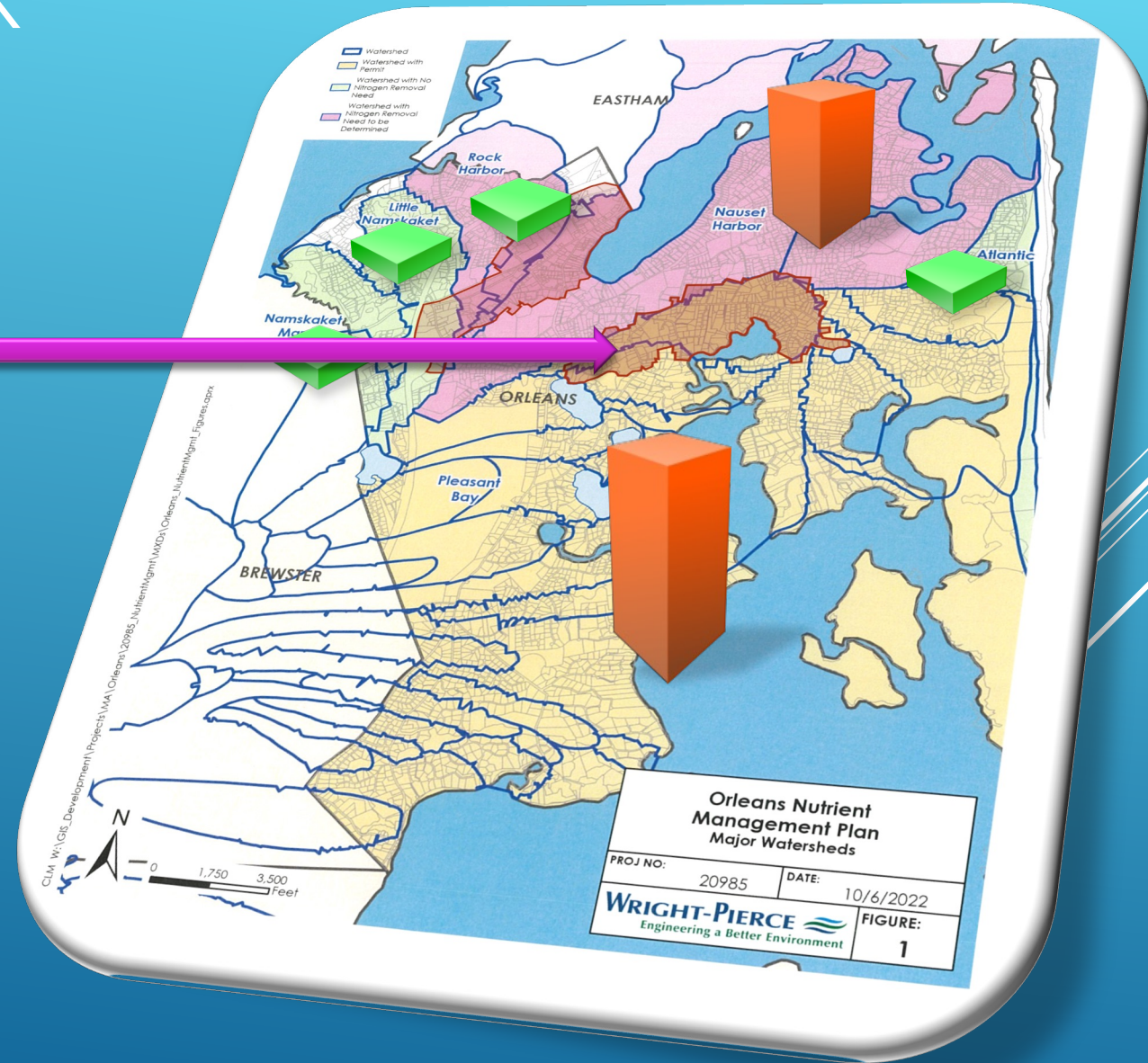
- Acceptable Nitrogen level in
 - Rock Harbor watershed
 - Nitrogen reduced by 1,501 Kg/y
- Reduced Nitrogen loads in
 - Nauset Harbor watershed
 - Nitrogen reduced by 1,656 Kg/y



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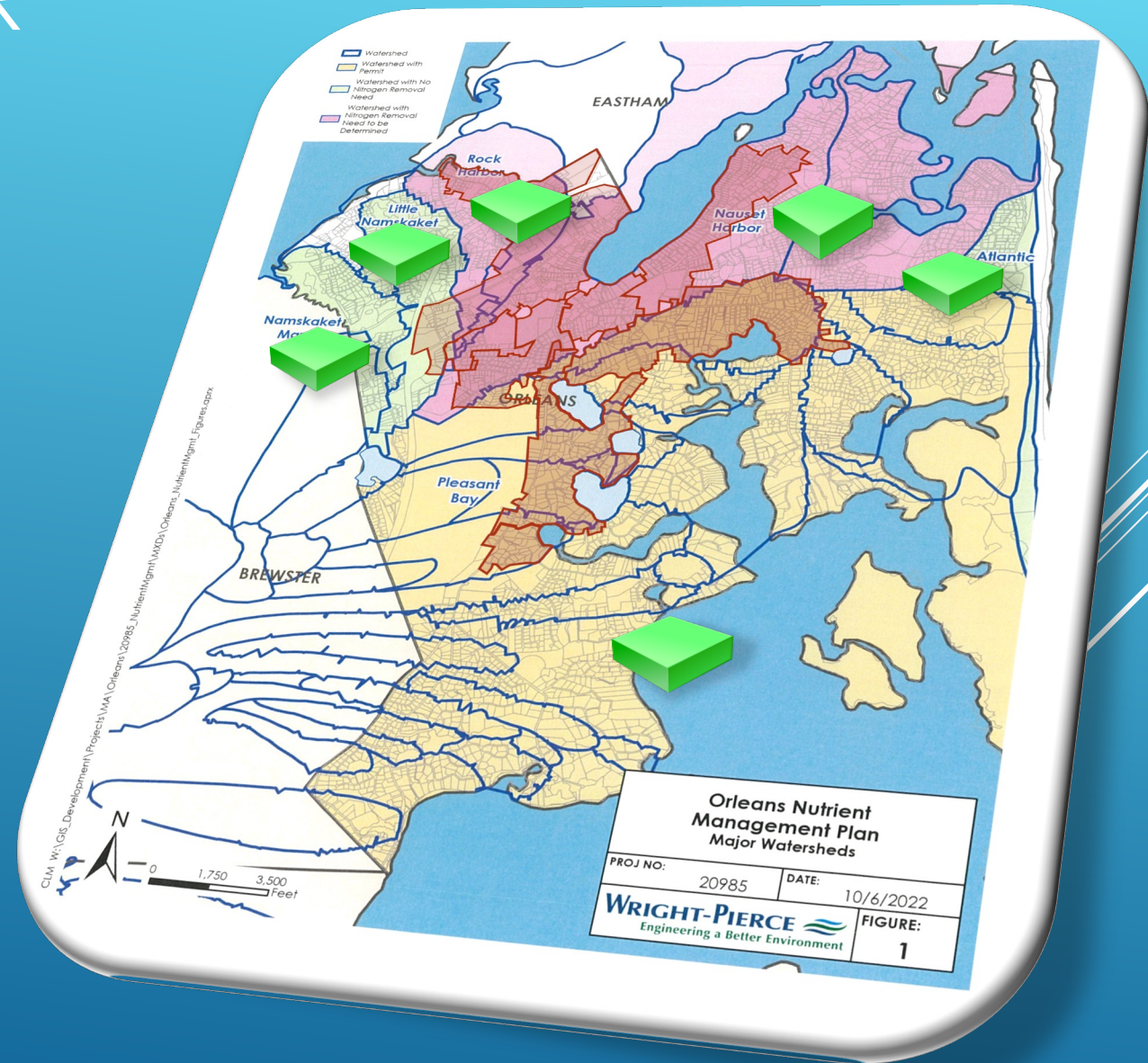
After Phases 1 and 2 are completed:

- Reduced Nitrogen loads in
 - Pleasant Bay watershed
 - Nitrogen reduced by 1,873 Kg/y



ORLEANS WASTEWATER MANAGEMENT PLAN

- Once All Phases completed
- Acceptable levels of Nitrogen in
 - Pleasant Bay watershed
 - Nauset Harbor watershed
 - Rock Harbor watershed
 - Namskaket watershed
 - Little Namskaket watershed
 - Atlantic watershed



For more information, please visit the
Wastewater Management Advisory Committee webpage

<https://www.town.orleans.ma.us/1104/Wastewater-Management-Advisory-Committee>



ORLEANS WASTEWATER MANAGEMENT PLAN

- Possible Future Phases
 - Eldredge Parkway 1 and 2, Tonset Road 1 and 2, Rock Harbor
 - Removes additional Nitrogen from
 - Nauset Harbor watershed
 - Rock Harbor watershed
 - Future Program Phases under discussion

