



# South Portland VOC Air Quality Monitoring Project Update

November 26, 2019

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MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

*Protecting Maine's Air, Land and Water*

# Review of Key Takeaways from May 23 Initial Monitoring Planning Meeting

- City's stated monitoring objective:
  - **“Is the air safe to breathe?”**
- Initial monitoring focus to be on measuring VOCs
- “Not targeting an industry, we’re protecting a community”
  - There are a variety of VOC sources in the City
- Monitoring effort to consist of two phases:
  - An immediate “grab” sampling phase done by citizens
  - Fixed 24-hour sampling sites phase, operated by DEP staff
- One fixed 24-hour sampling site in each district  
(i.e. five sites, plus one “floater” sampling system)



# VOC Ambient Air Monitoring Project Goals

- To measure VOC air quality across the City generally to gain an in-depth understanding of them in South Portland, recognizing there are a variety of VOC sources present in the City.
- To report findings to the public and to work with the State Toxicologist to interpret those findings.
- To identify potential sources of VOC emissions that may require further controls or scrutiny.
- To correlate odor incidents as observed by the public with VOC data



# Timeline of Significant Events

since last update on August 20, 2019

- Aug. 21: Project webpages and canister data added to DEP website
- Aug. 28: Meeting with Portland city officials
- Sep. 12: Last grab sample taken
- Oct. 16-24: Website update with latest data
- Oct. 31: 1<sup>st</sup> meeting of DEP & Maine CDC staff
- Nov. 20: Meeting with S.P. city officials and 2<sup>nd</sup> meeting with Maine CDC staff
- Nov. 26: City Council public workshop



# Phase 1: Grab Sampling Completed

- Citizen training session on June 10
- 6 canisters made available each week for 12 weeks (June 10 – September 9)
  - 5 assigned to citizen volunteers
  - 1 assigned to S.P. Fire Department
  - 72 canisters in total
- 56 valid samples analyzed by DEP Air Lab
- 12 samples were invalid
- 4 canisters have not been returned
- Data has been shared with Maine CDC



ME09381  
ME09381      Sample Date: \_\_\_\_\_  
Sample Start Time: \_\_\_\_\_ AM / PM  
Sample End Time: \_\_\_\_\_ AM / PM  
Comments:  
  
Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_  
Received By: \_\_\_\_\_ Date: \_\_\_\_\_

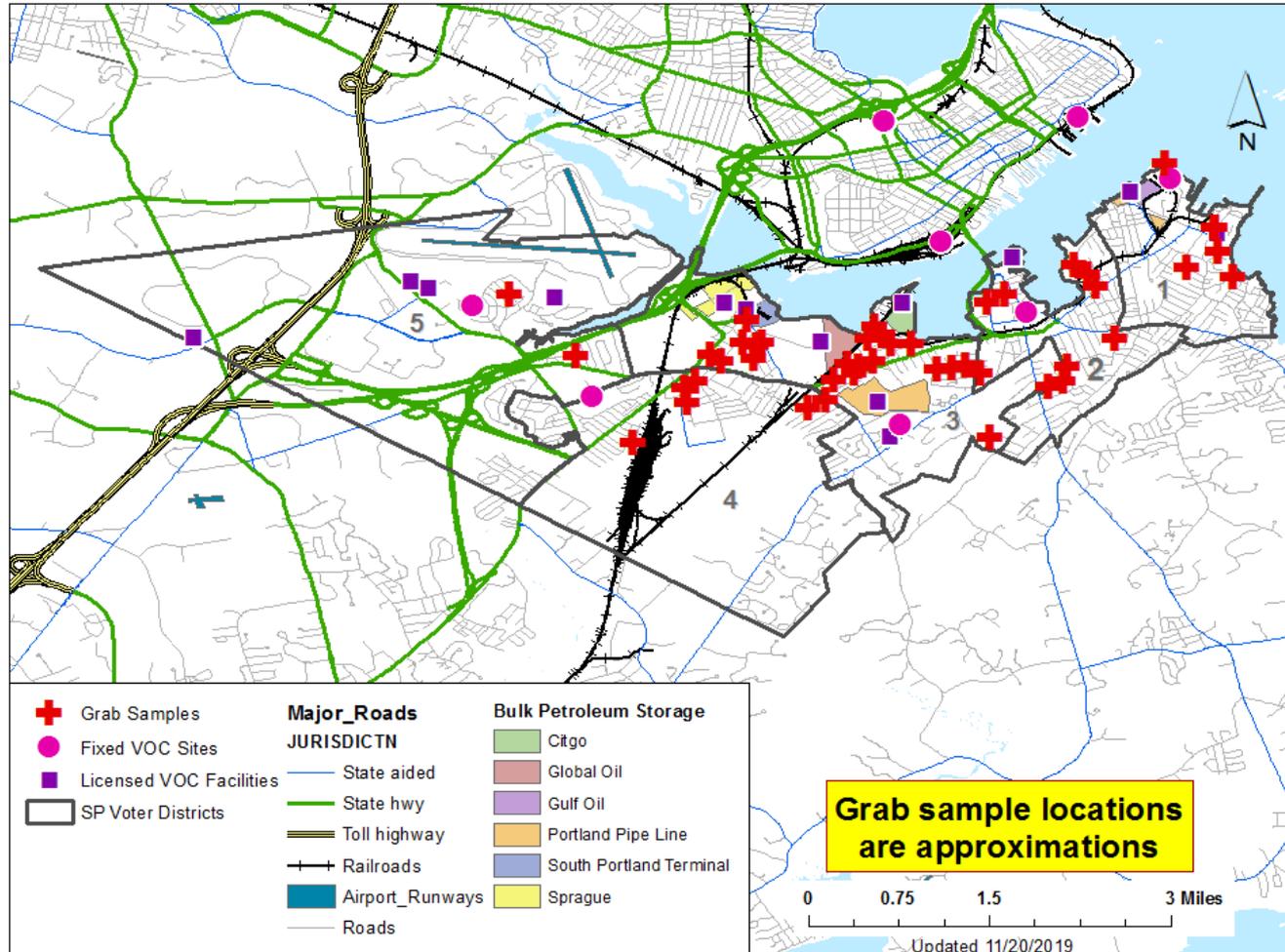


# Purposes of Grab Sampling Effort

- Opportunity for citizens to become involved
- A means of correlating odor incidents as observed by the public with VOC data
- Can help to inform the adequacy of the initial 24-hour site locations and potential “hot spots”
- NOTE: Grab sample data is not appropriate to use for comparisons to long-term average levels, guidelines or standards for health assessments. Maine CDC will go over this issue in their presentation.

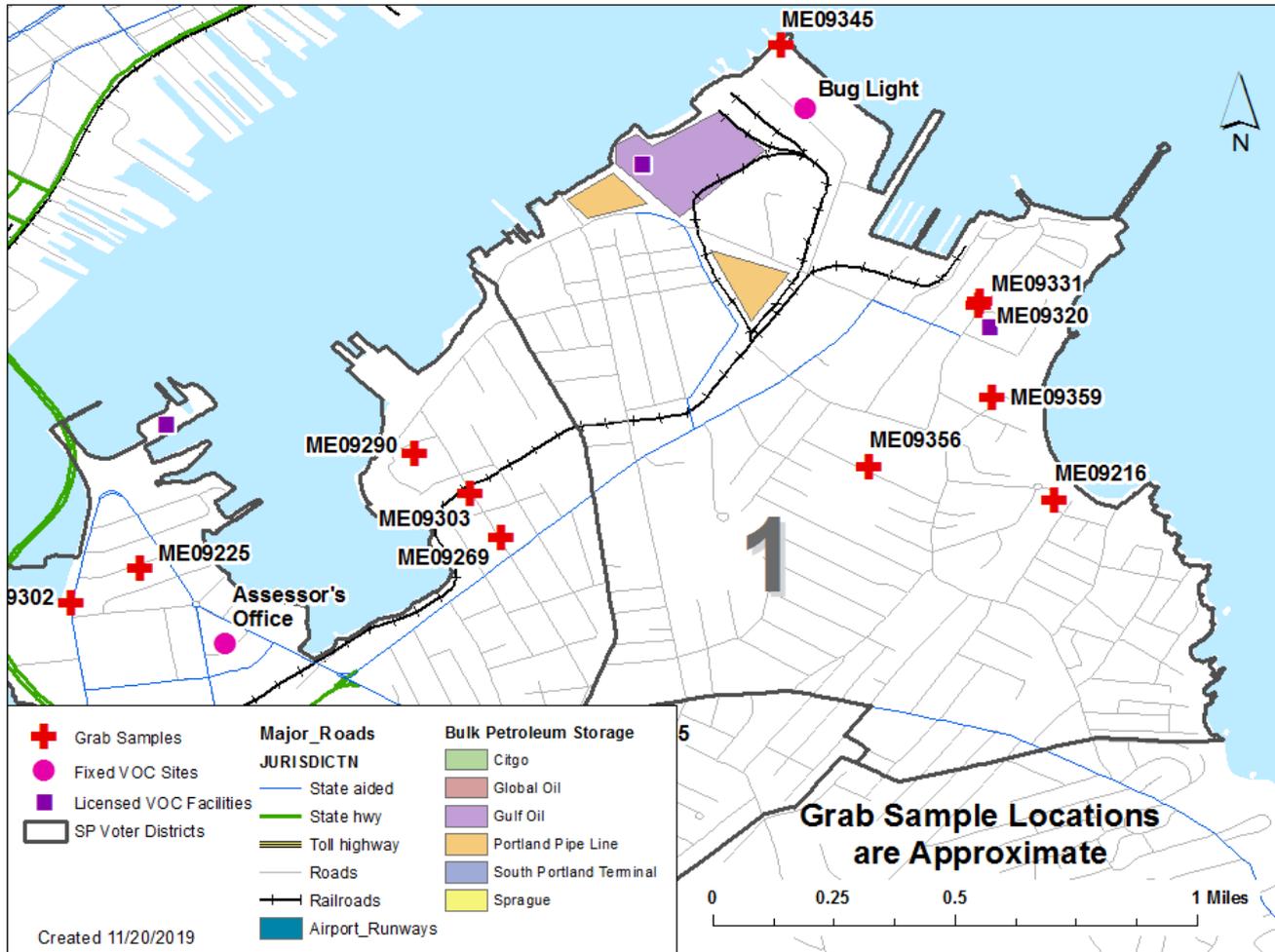


# Map of All Grab Sampling Locations

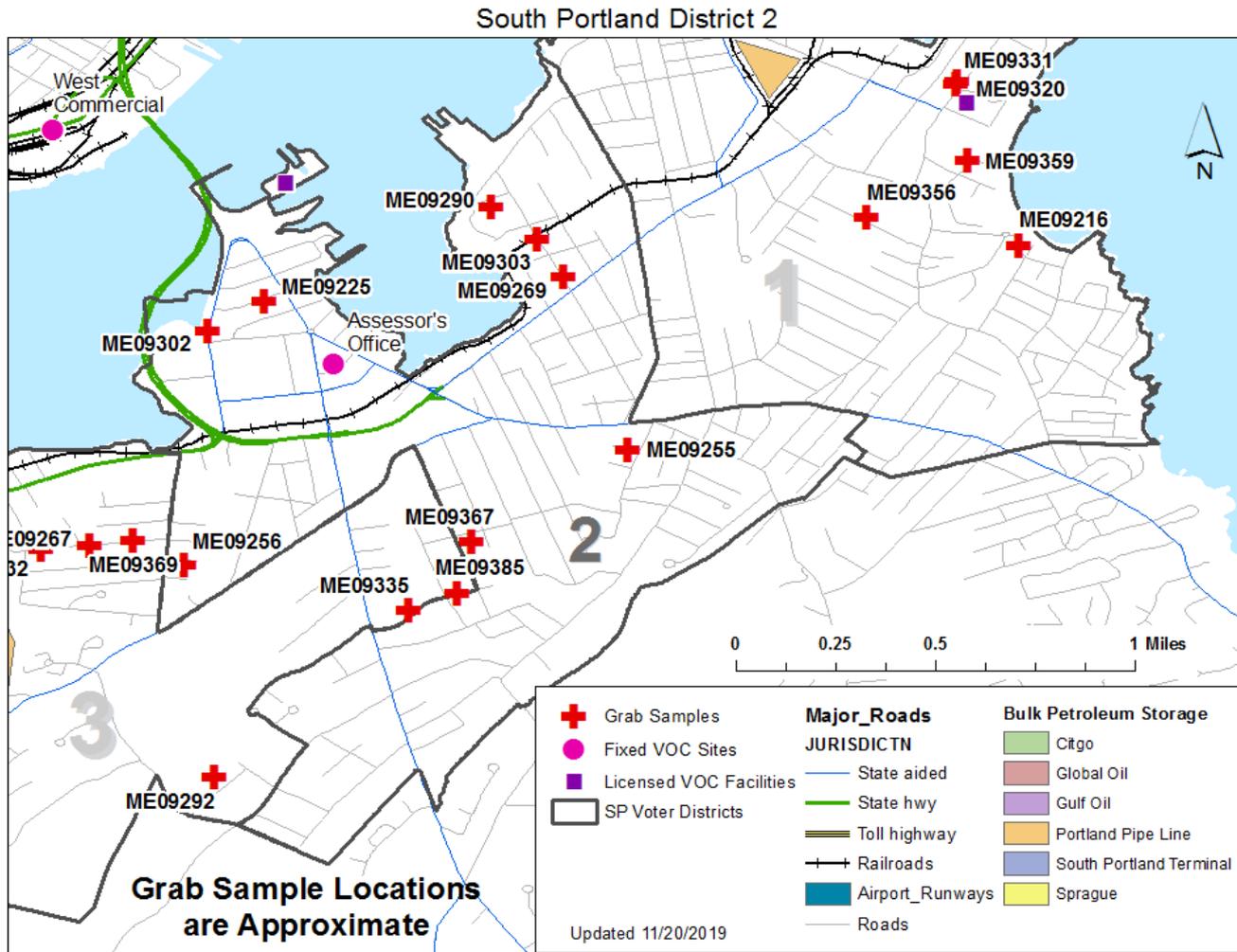


# Map of Grab Sampling Locations

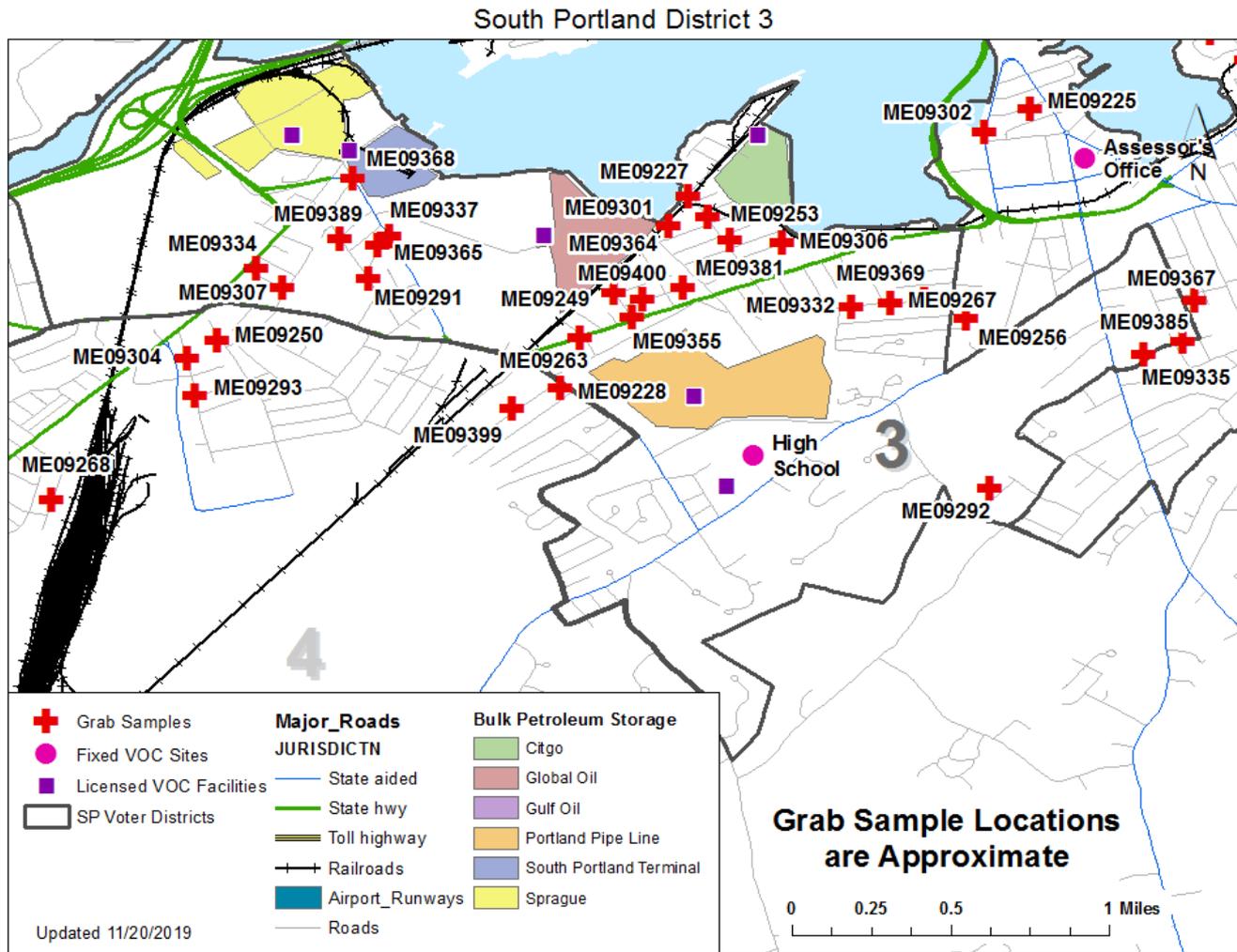
South Portland District 1



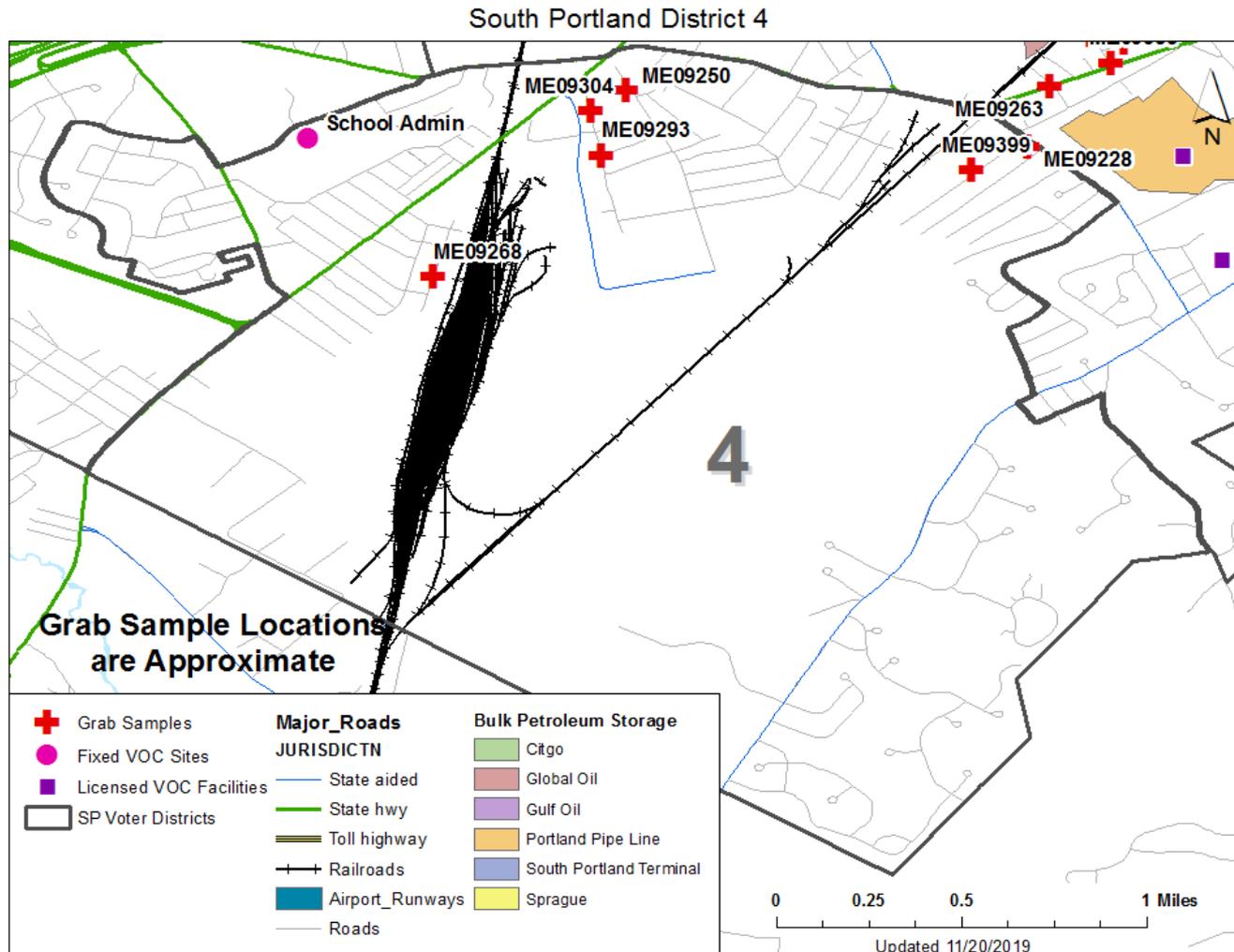
# Map of Grab Sampling Locations



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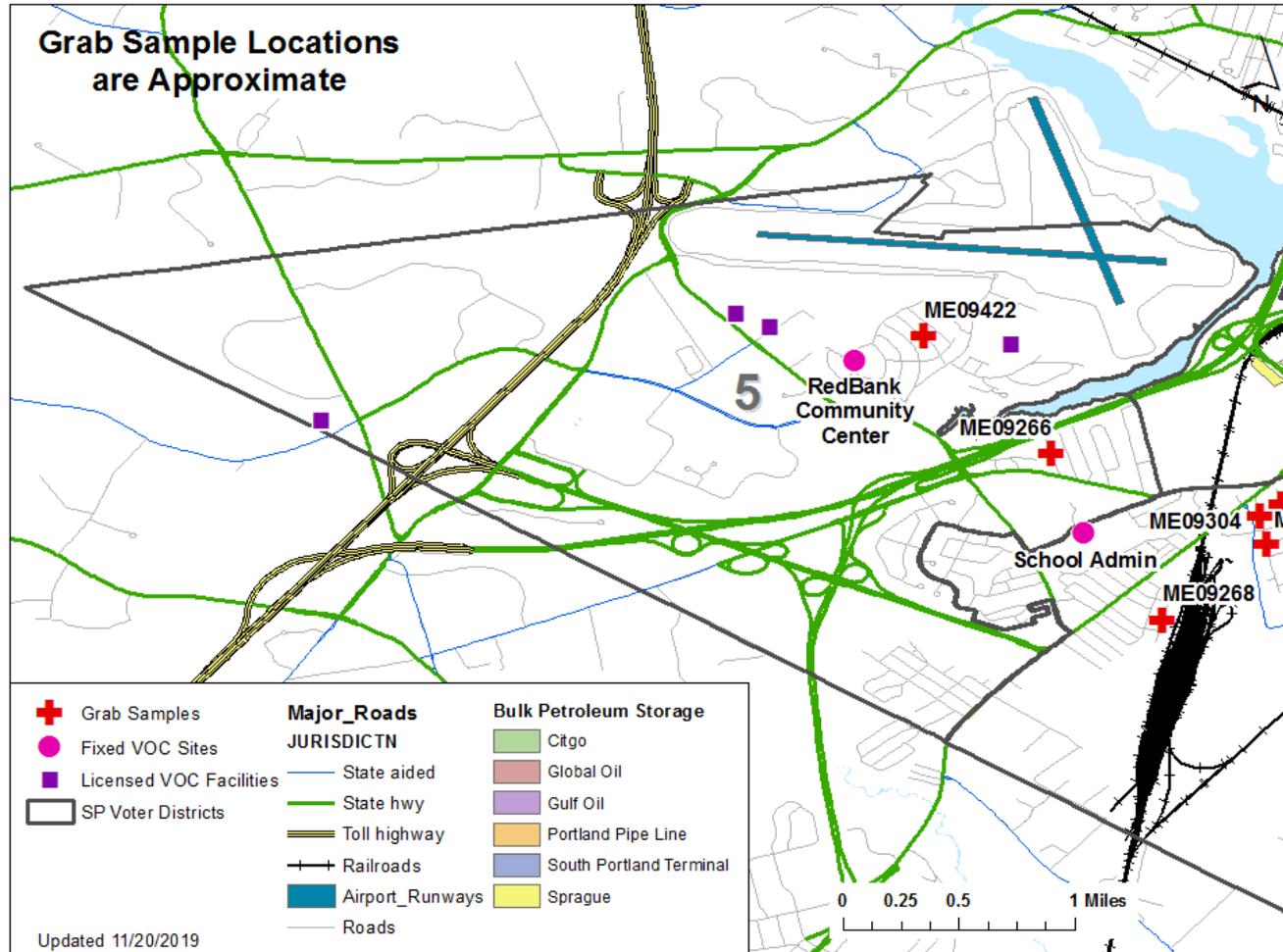


# Map of Grab Sampling Locations



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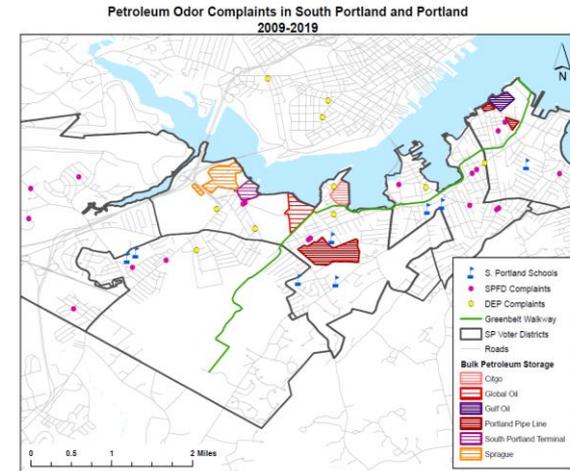
South Portland District 5



# Phase 2: Fixed 24-Hour Sampling Update

(as of November 26, 2019)

- 5 sites established and operating in South Portland (one per district)
- 2 sites established and operating in Portland (along with existing long-term Deering Oaks site)
- Sites are collecting samples every 6 days (SIP calendar schedule)
- DEP will operate this 8-site network for one full year (to November 2020)
- Samples analyzed by DEP Air Lab
- Data is being shared with Maine CDC on a monthly basis



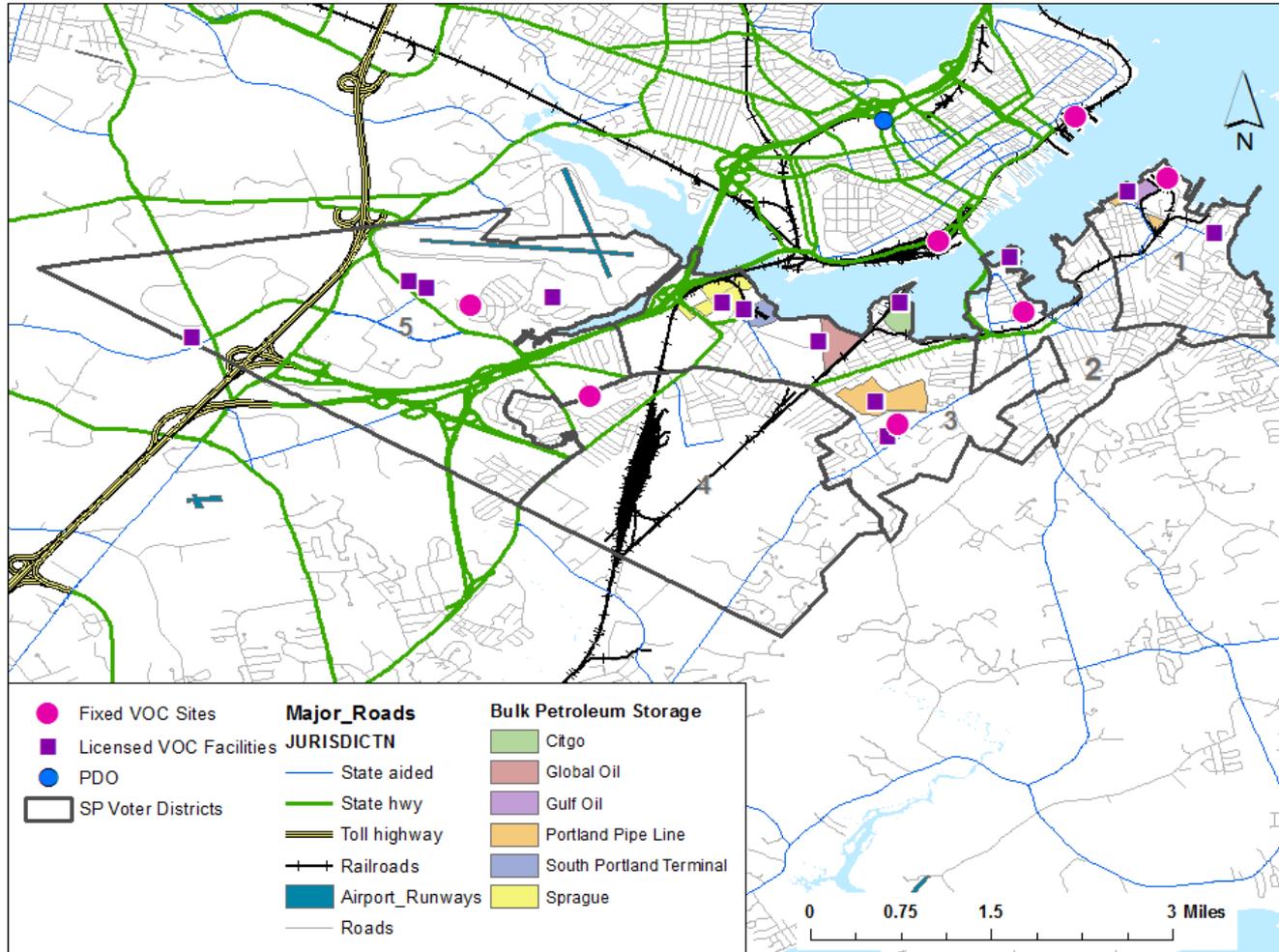
# South Portland VOC 24-Hour Canister Ambient Air Monitoring Network Status

(as of November 17, 2019)

South Portland:	Installation Date / Date of 1 <sup>st</sup> Sample						No. of scheduled samples	Data Completeness
Assessor's Office	JUN 25 JUN 26						25	23/25 92.0%
High School Concession Building		JUL 1 JUL 2		SEP 23 SEP 24			24	7/24 29.2%
Bug Light Park			AUG 9 AUG 13				17	16/17 94.1%
School Administration Central Receiving Building				SEP 27 SEP 30			9	7/9 70.0%
Redbank Community Center					OCT 3 OCT 6		8	8/8 100%
<b>Portland:</b>								
Ocean Gateway						OCT 31 NOV 5	3	2/3 66.7%
West Commercial Street						OCT 31 NOV 5	3	1/3 33.3%
Deering Oaks	(MAR 14 2009)						25	25/25 100%



# Map of 24-hour Sampling Site Locations



# Latest Status of Fixed 24-Hour Sites

## District 1: Bug Light Park



# Latest Status of Fixed 24-Hour Sites

## District 2: City Assessors Building



# Latest Status of Fixed 24-Hour Sites

## District 3: High School Concession Stand



# Latest Status of Fixed 24-Hour Sites

## District 4: School Administration Building



# Latest Status of Fixed 24-Hour Sites

## District 5: Redbank Community Center



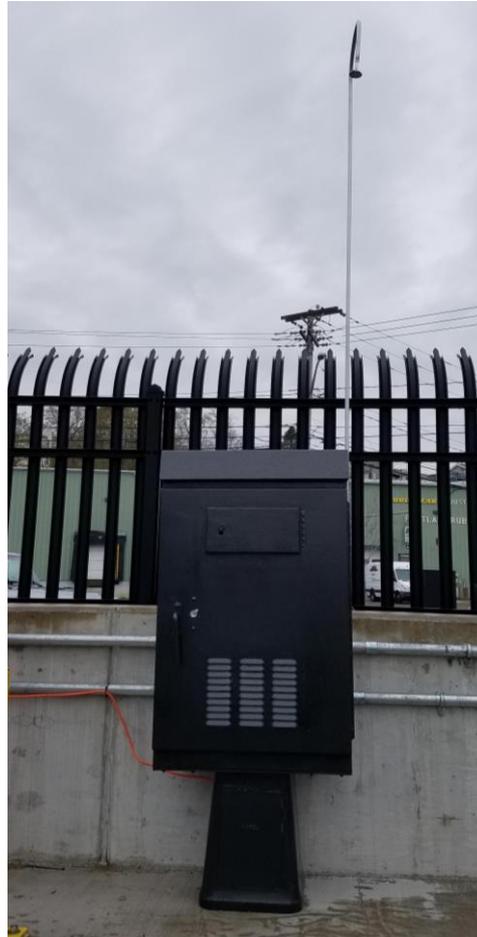
# Latest Status of Fixed 24-Hour Sites

Portland: Ocean Gateway



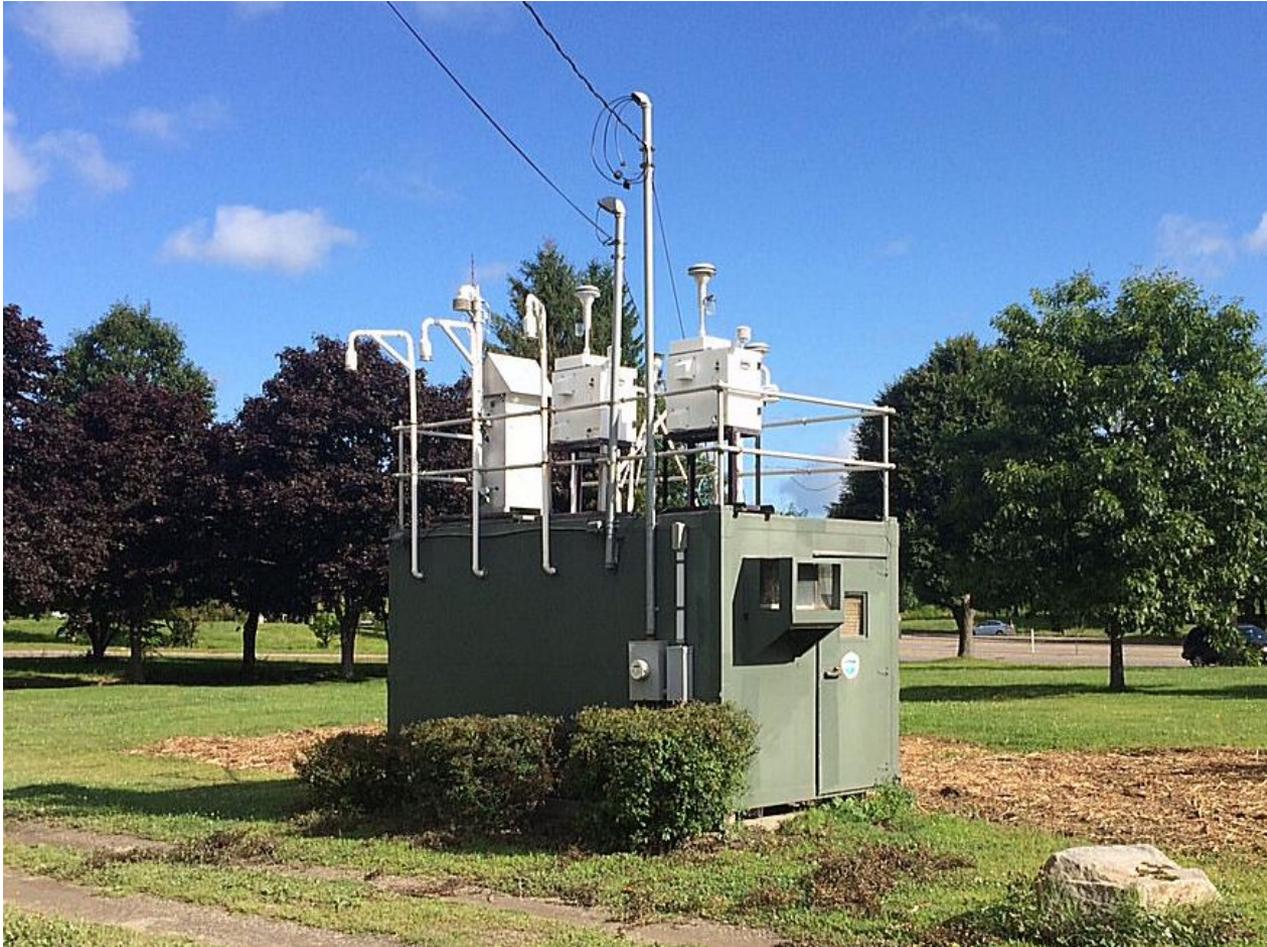
# Latest Status of Fixed 24-Hour Sites

Portland: West Commercial Street



# Latest Status of Fixed 24-Hour Sites

## Portland: Deering Oaks

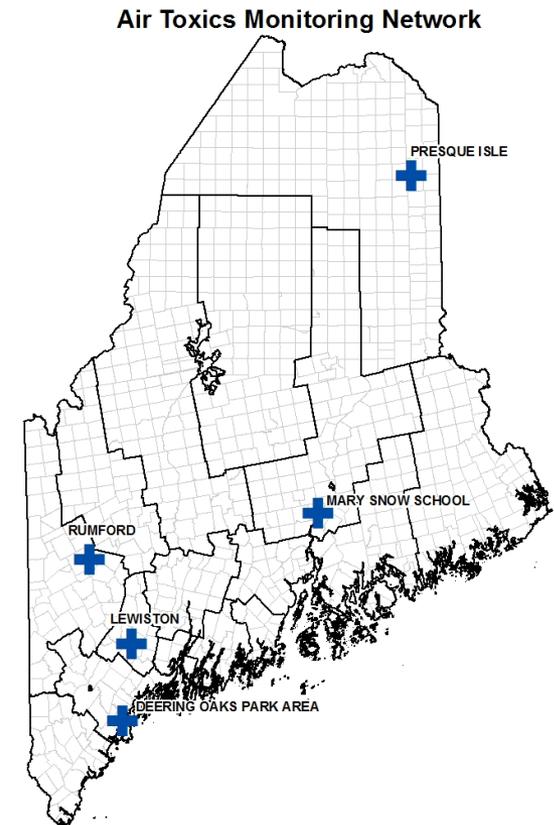


# Using the Data to Categorize Emission Sources



# Quantifying the Effort to Date

- The 7 new VOC air monitoring sites in South Portland/Portland exceed the number of other VOC sites (5) operating across the State
- 9 canister sampling systems = ~\$20,000
  - Includes “floater” and backup/spare systems
- 48 canisters = ~\$31,200
- 8 meteorological sensors units = ~\$16,000
- Analytical costs = ~\$50,000
- Total to date: ~\$117,200
- In-kind staff time to plan and implement project – priceless!



# Going Forward from Here

- Install and operate meteorological sensors units at all 24-hour canister sampling sites
- Deploy “floater” sampling system to confirm “interesting” results and/or locations (i.e. “hot spots”), and explore other project objectives as needed (e.g. Greenbelt Walkway)
- Re-establish canister sampling at Two Lights State Park
- Continue to do further assessments of all sample data and work with the State Toxicologist on interpreting findings
- Explore other pollutant categories to measure (e.g. hydrogen sulfides, particulate matter, PAHs)
- Continue to share findings and provide periodic updates and reports to the City, and upon request.





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