



South Portland VOC Air Quality Monitoring Project Update

November 26, 2019

Andrew Johnson, Director
Division of Air Quality Assessment

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: 1st meeting of DEP & Maine CDC staff
- Nov. 20: Meeting with S.P. city officials and 2nd 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: _____

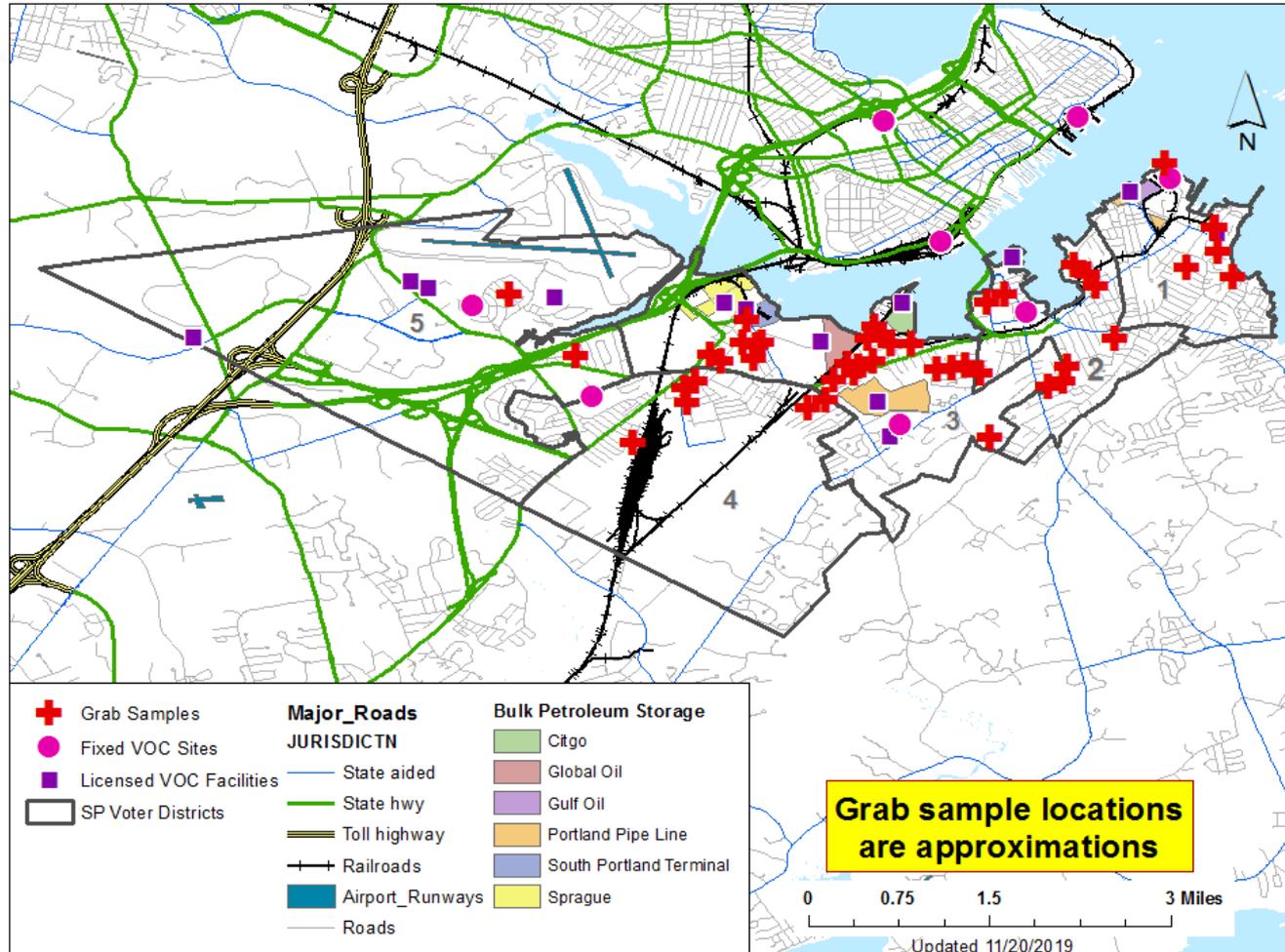


Purposes of Grab Sampling Effort

- 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.

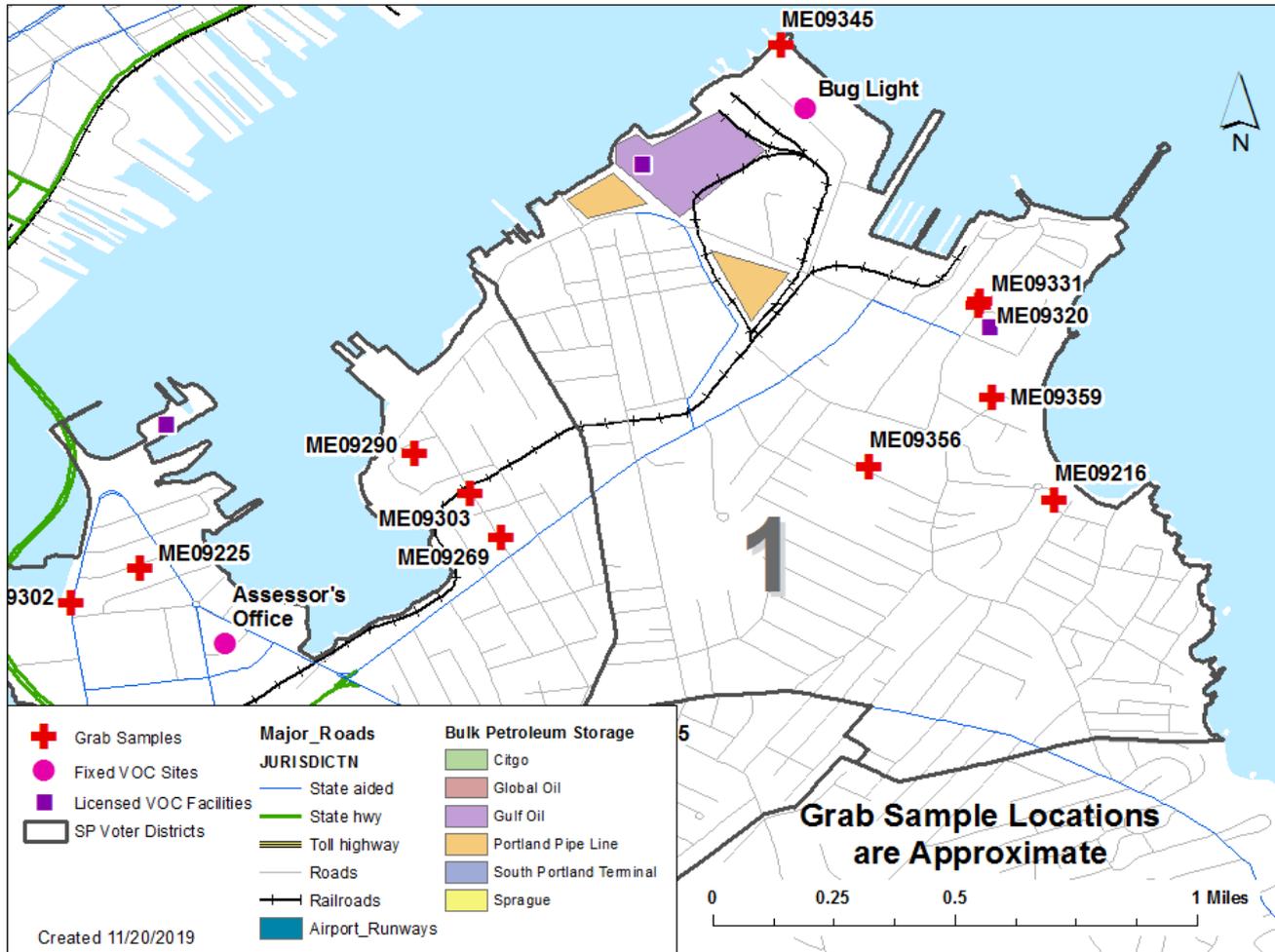


Map of All Grab Sampling Locations

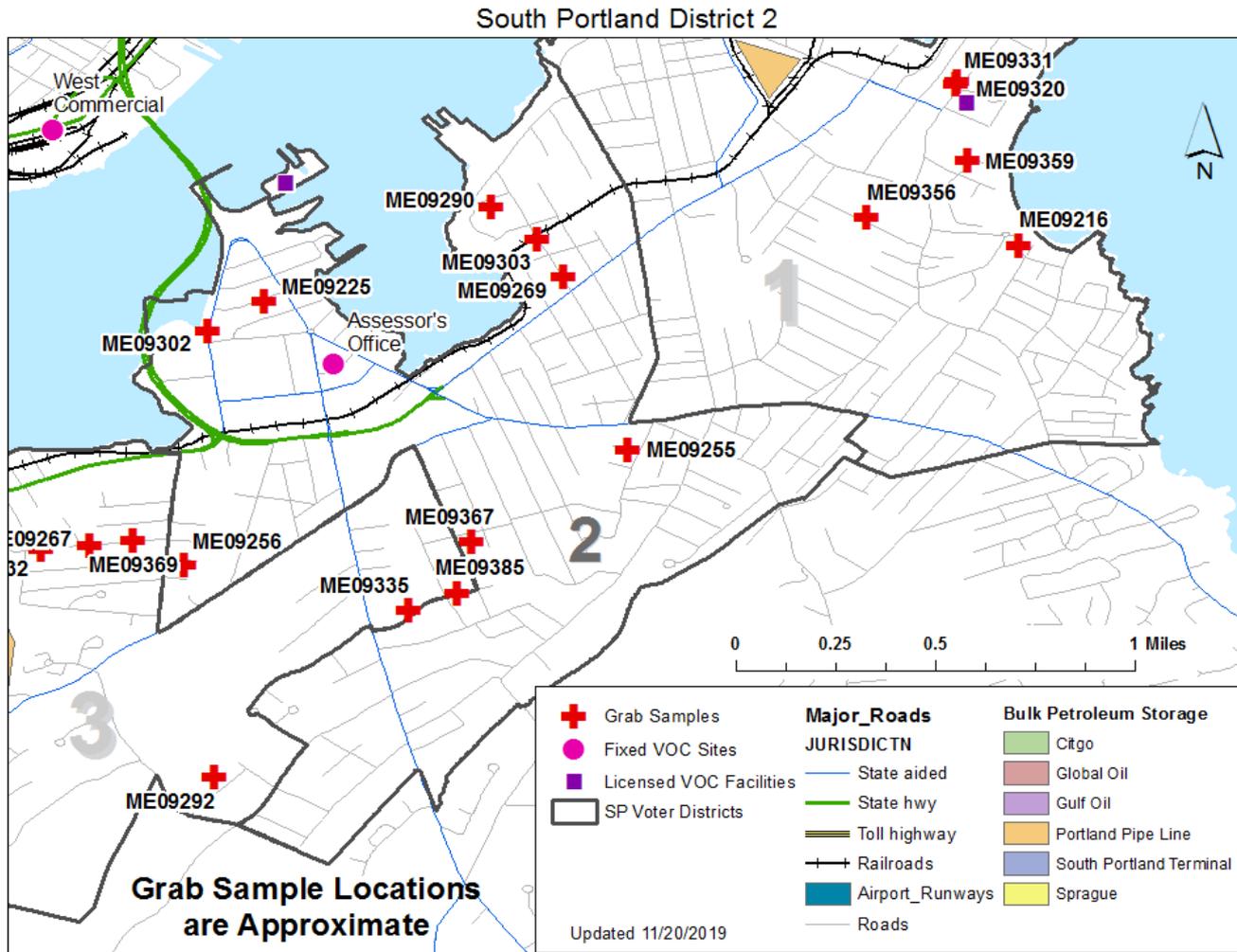


Map of Grab Sampling Locations

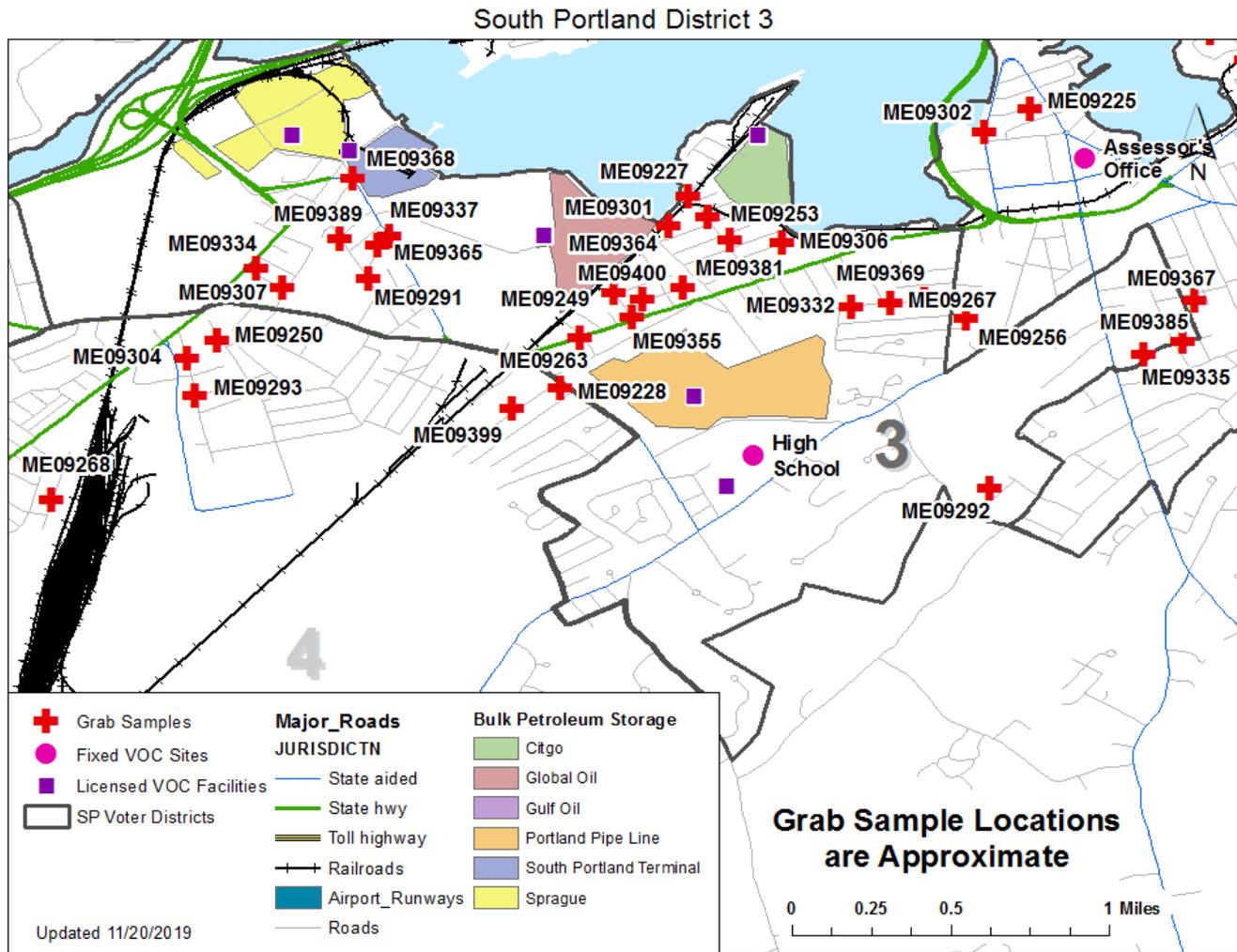
South Portland District 1



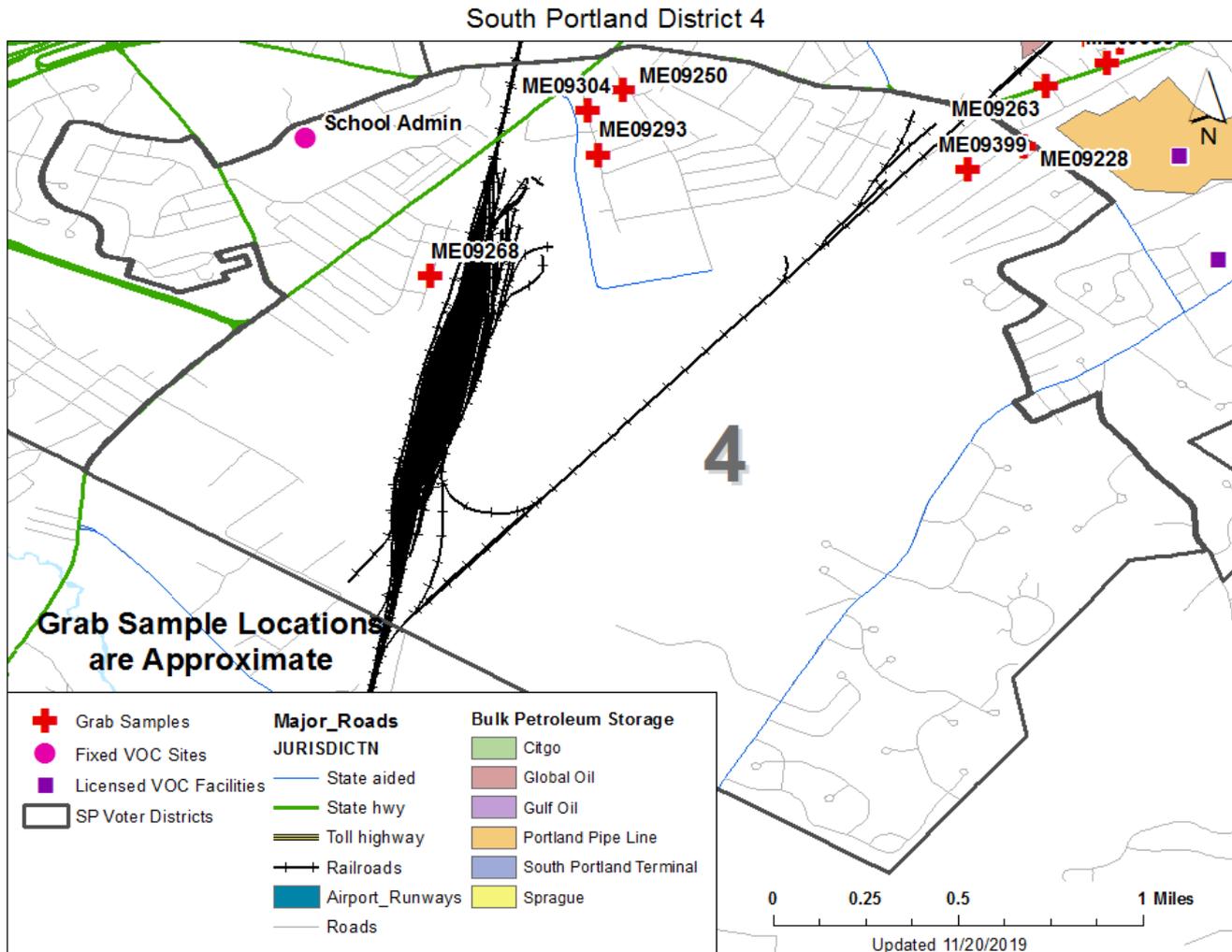
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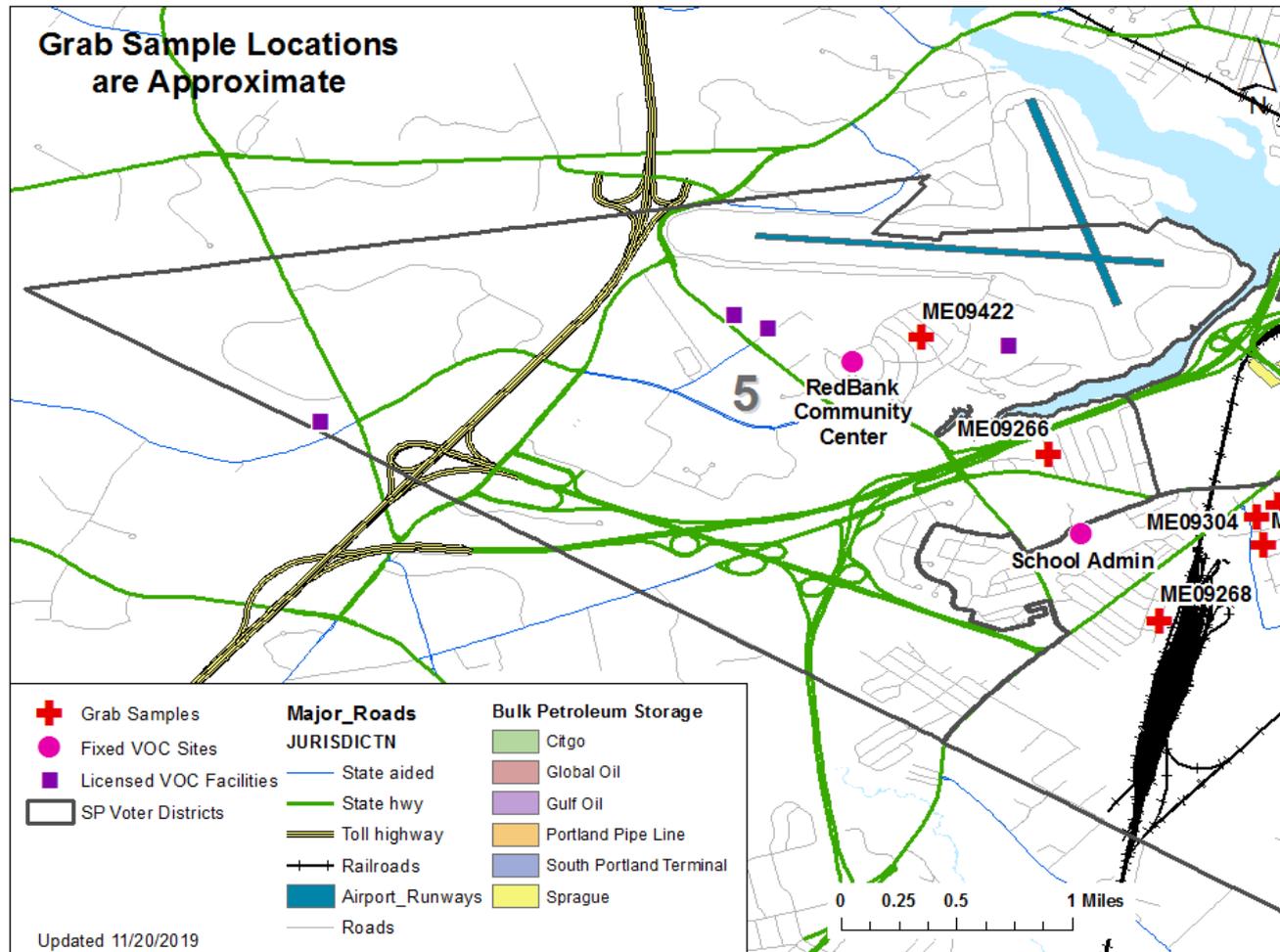


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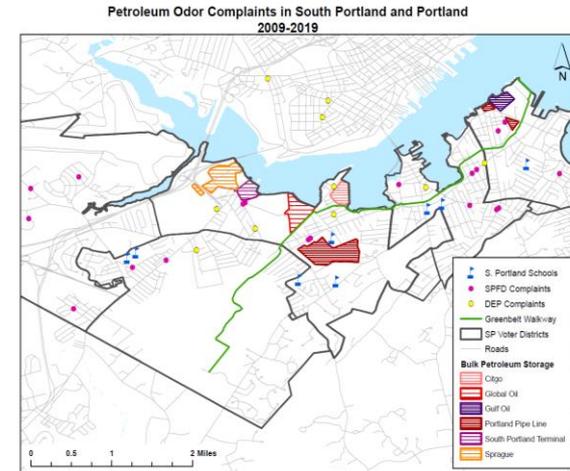
South Portland District 5



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



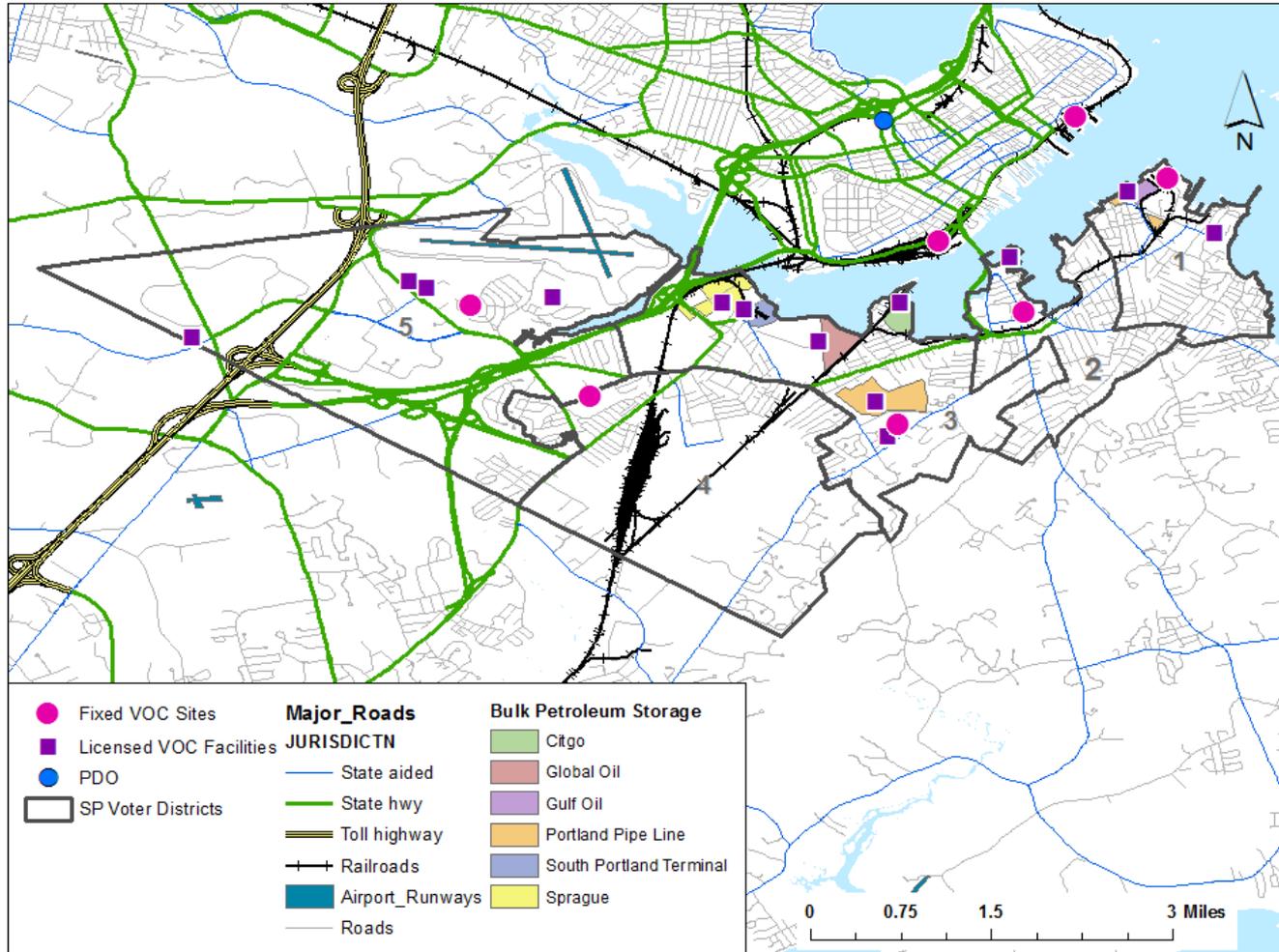
South Portland VOC 24-Hour Canister Ambient Air Monitoring Network Status

(as of November 17, 2019)

South Portland:	Installation Date / Date of 1 st 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%
Portland:								
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



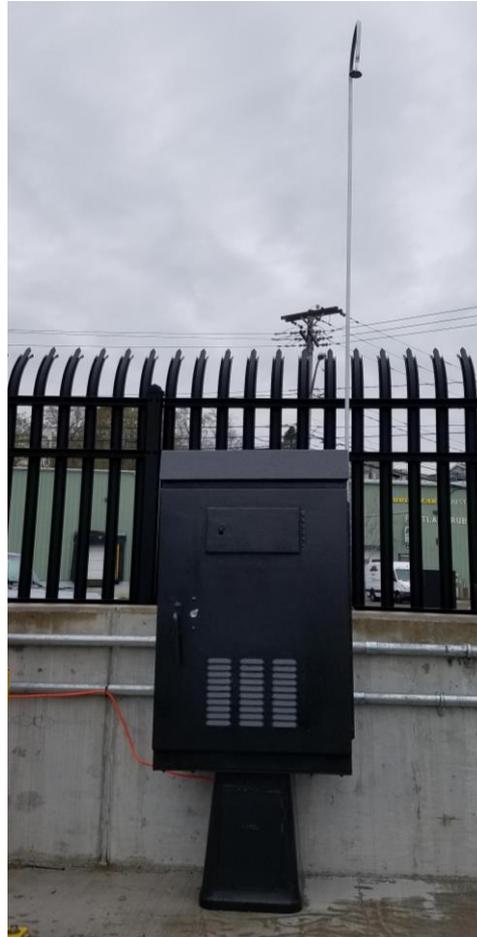
Latest Status of Fixed 24-Hour Sites

Portland: Ocean Gateway



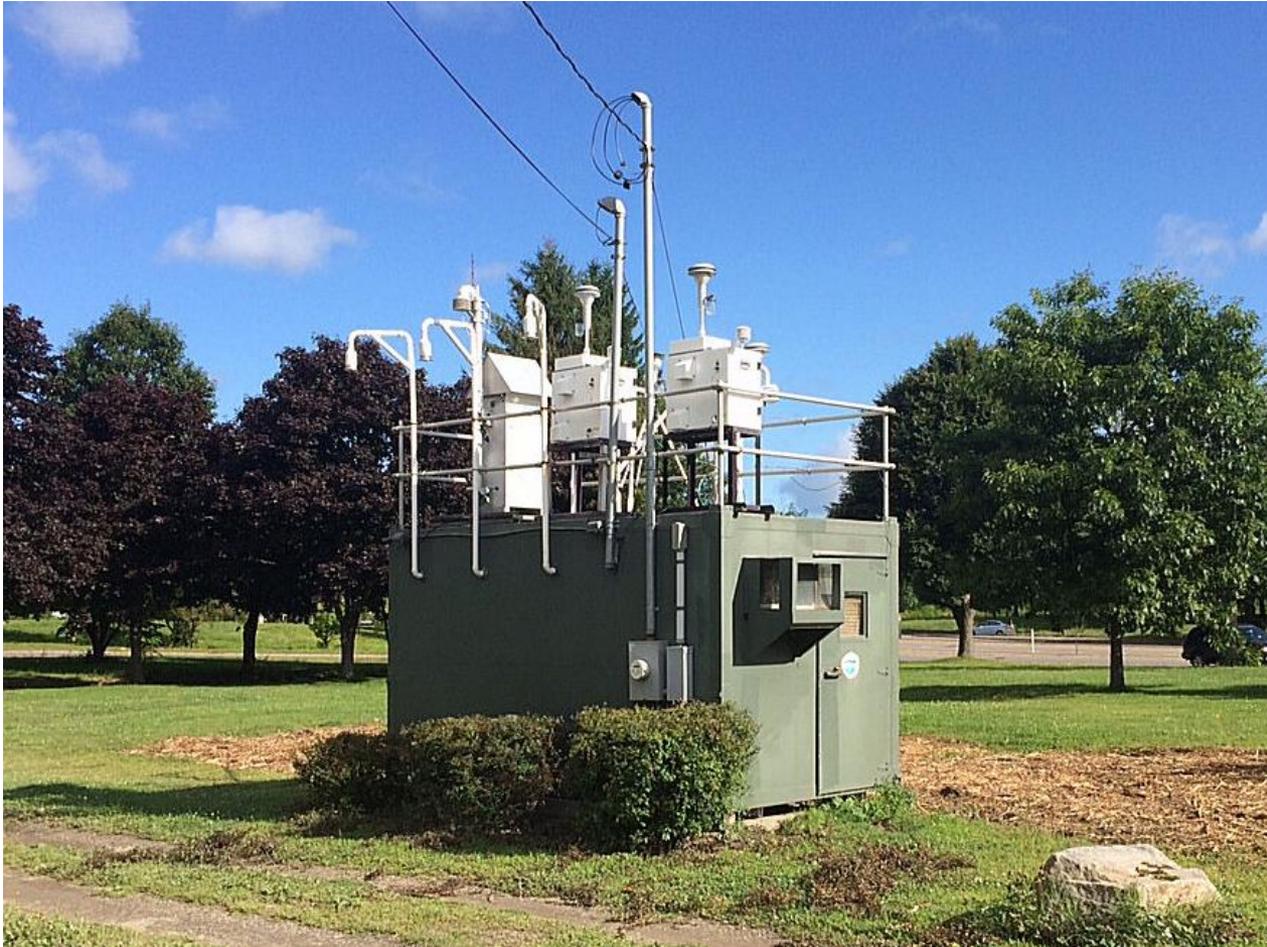
Latest Status of Fixed 24-Hour Sites

Portland: West Commercial Street



Latest Status of Fixed 24-Hour Sites

Portland: Deering Oaks

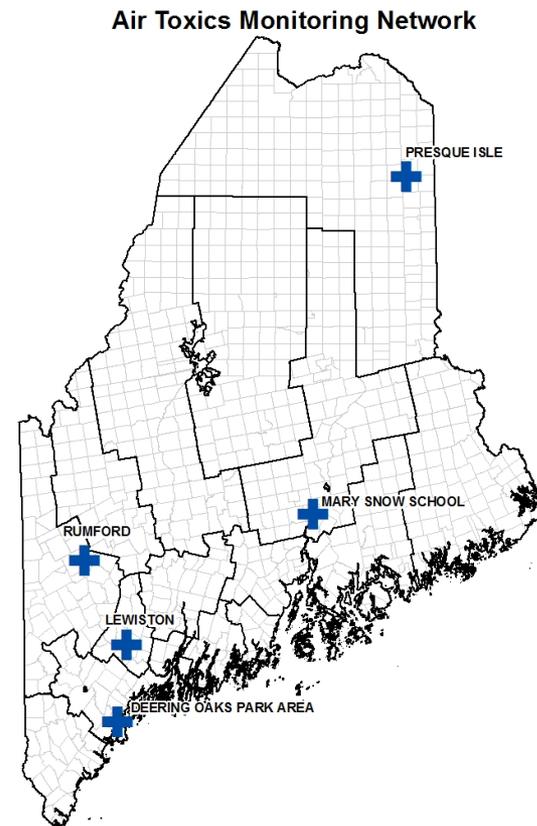


Using the Data to Categorize Emission Sources



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.





Contact:

Andrew Johnson
Andy.Johnson@maine.gov
(207) 480-0906

www.maine.gov/dep

