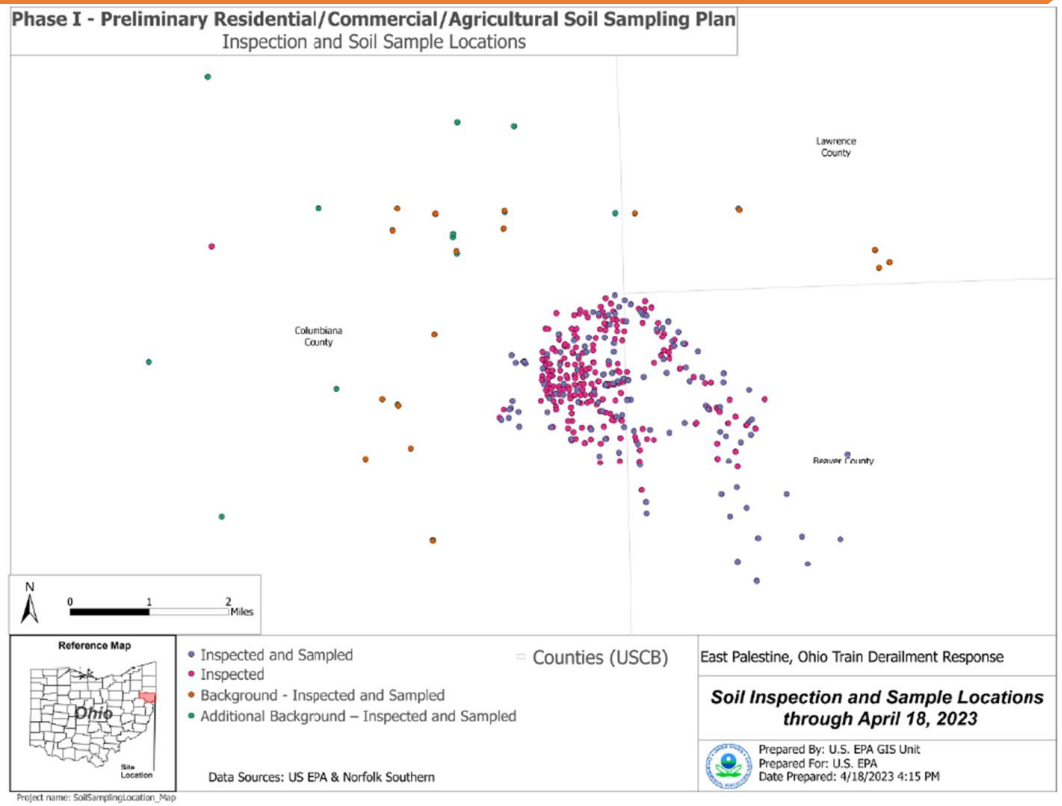

Soil Sampling Update

April 20, 2023

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Bottom Line Up Front

- Phase 1 sampling is complete
- Most preliminary data is in
- Vast majority of results are within typical soil ranges
- No noticeable difference between shallow and deeper soils
- On-property sample results look good
- A few right-of-way samples have elevated levels of compounds

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Phase 1 Sampling - Comparison Study

- Evaluate the area of interest against local background conditions
  - 1-mile radius plus 2-mile southeast extension
  - Biased/targeted samples toward ash/soot
  - Additional area of interest added due to model evaluation
- Compare shallow surface soil to deeper surface soil
  - First inch (plus soot/ash/debris if found)
  - 1-6 inches below ground surface
- Evaluate various property types
  - Residential / Commercial / Agricultural
  - Added Recreational
- NOT a risk assessment

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What is Being analyzed?

Semi-Volatile Organic Compounds (SVOCs)

- Indicator chemicals from V&B
- Common to the environment
- Other sources include pesticides, oil-based products, fire retardants.

Dioxins/Furans (Dioxins)

- Modeling predictions
- Public and elected officials concerned
- Common to environment – will never be “zero” based on risk calculation
- Sources include burning (forest fires, burn pits, smoking), car exhaust, industrial by-products

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What are Residential Screening Levels (RSLs)?

- Levels that are generally considered as lowest risk for long term exposure
  - Long term = 365 days/year & 24 hours/day
- A tool that EPA uses to determine if there is a need for further investigation
- Use of RSLs in this response ensure that proper lab analysis is conducted to achieve very low reporting limits

- For ease of reading, we'll use parts-per-trillion (ppt) to describe dioxin data tonight
- Results tables on-line are in parts-per-million (ppm) or milligrams-per-kilogram (mg/kg)

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Screening and Action Levels - Dioxins

- NOT A RISK ASSESSMENT!
- Dioxin TEQ Values
- Residential Screening Level: 4.8 ppt* / 51 ppt
- Removal Management Level: 480 ppt / 150 ppt
- Historic EPA Action Level: 1000 ppt
- Typical level in rural soil: < 20 ppt**
- Typical level in urban soil: < 60 ppt**

* Analytical reportable levels

** Literature review on-going

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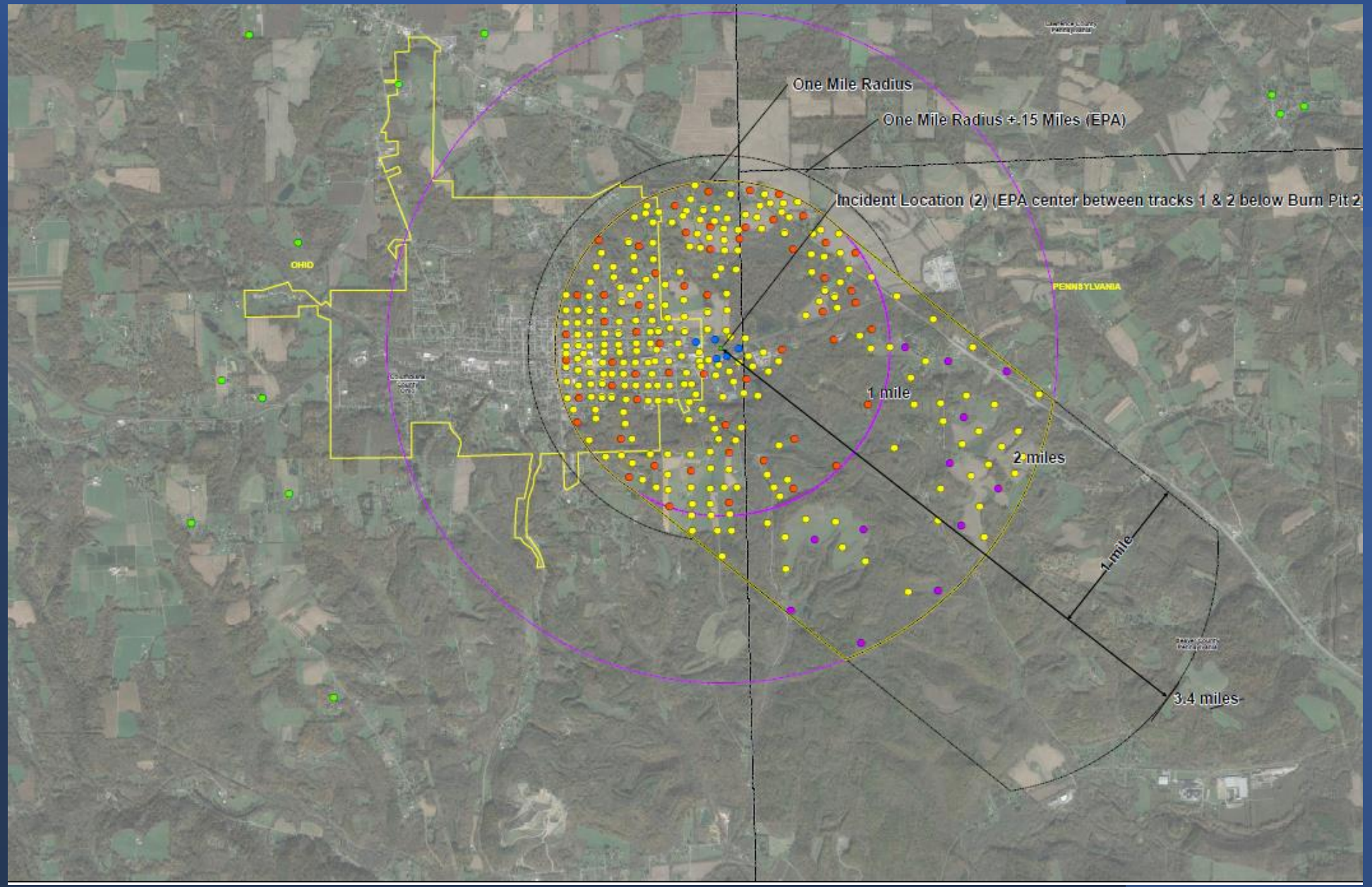

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Inspection

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Soil Sampling

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Chips (scale?)

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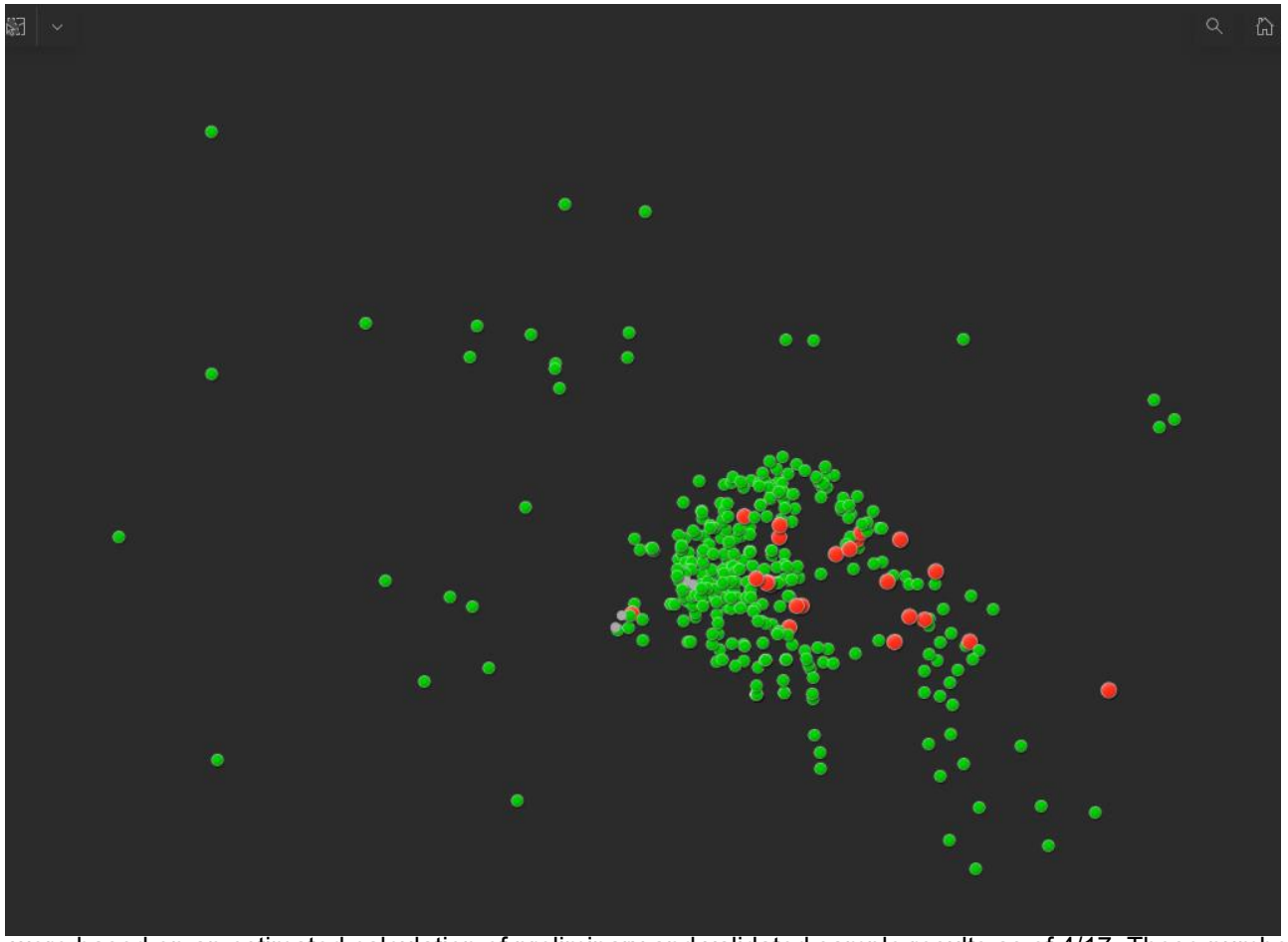
Locations of Chips/Debris



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By the Numbers

- 358 total inspections
- 148 sample locations
- 2 samples per location
- Norfolk Southern collected samples at **all** locations under direct EPA oversight
- EPA collected “split samples” at approximately **20%** of locations to verify accuracy by an independent lab.

- More coming from Pennsylvania DEP & EPA

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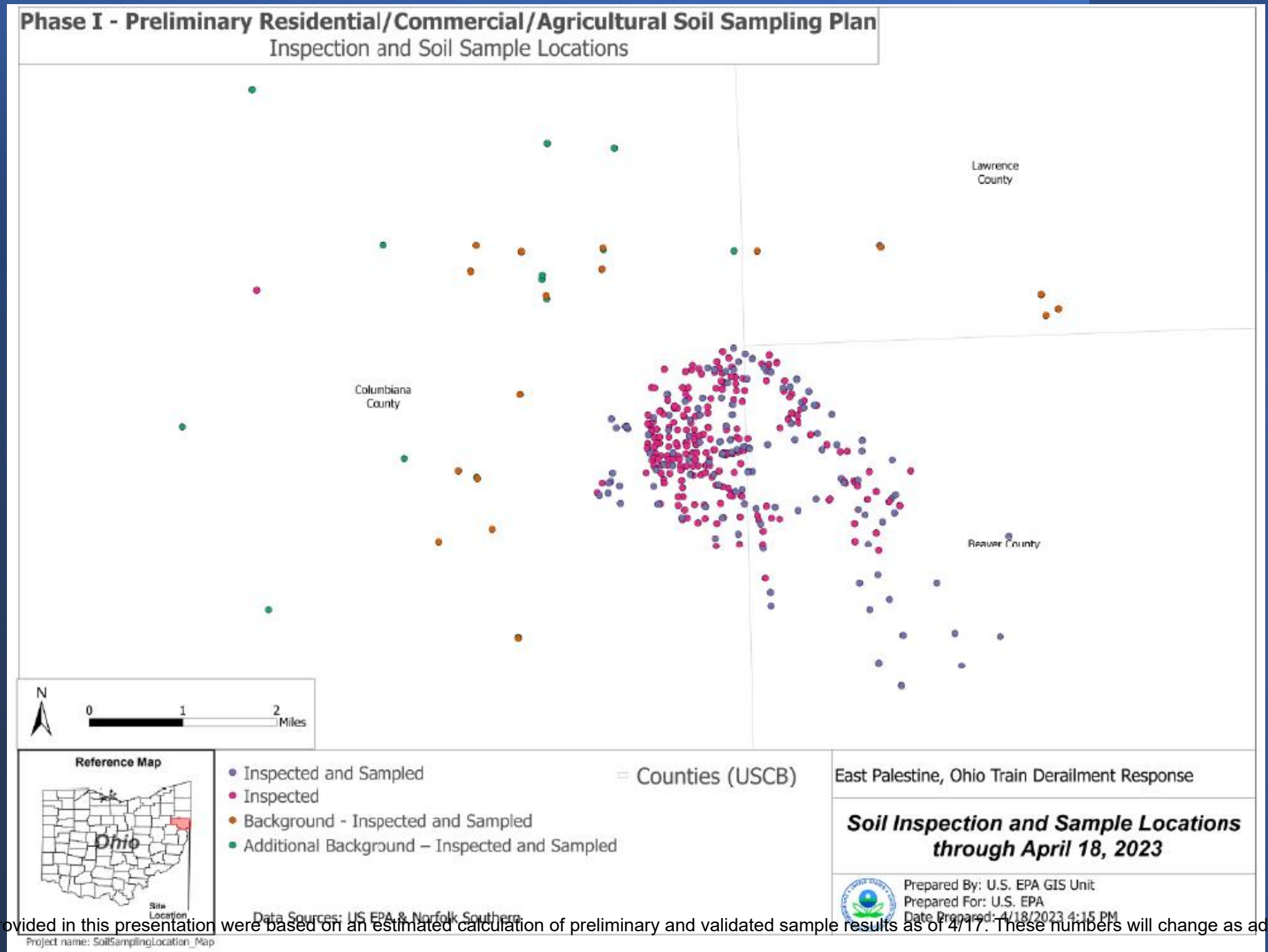

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Analysis of Samples

- Semi-Volatile Organic Compounds
  - Residential Screening Levels (RSL): Variable (0.078 – 5,980 ppm)
  - Typical Soil Levels: Variable
- Dioxins / Furans
  - Toxic Equivalent (TEQ) value vs individual congeners
  - RSL TEQ: 4.8 ppt
  - Typical Soil Levels Urban: Up to 60 ng/kg*
  - Typical soil levels rural: Up to 20 ng/kg*

    *rough estimate - still reviewing literature

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Reviewing a Data Table

Search:

Analyte	Date Sampled:	3/9/2023	3/9/2023	3/9/2023	3/9/2023	3/9/2023	3/9/2023	3/9/2023	3/9/2023	3/9/2023	3/9/20
	Sample ID:	SS-01_A_0-0.1_20230309_M5	SS-01_A_0.1-0.5_20230309_M5	SS-01_R_0-0.1_20230309_N4	SS-01_R_0.1-0.5_20230309_N4	SS-01_R_0-0.1_20230309_N5	SS-02_R_0-0.1_20230309_M5	SS-02_R_0.1-0.5_20230309_M5	SS-02_R_0-0.1_20230309_N4	SS-02_R_0.1-0.5_20230309_N4	SS-02_0.5_2023
Total Dioxin-Furan	**0.0000048**	0.0000028	0.0000026	0.0000029	0.0000027	0.0000046	0.0000028	0.0000034	0.0000033	0.0000033	0.000
Pyrene	**1790**	0.044	0.018 J	0.13	0.11	0.024 J	0.0096 J	0.02 J	0.034	0.039	0.02 J
Phenol	**1900**	U	U	U	U	U	U	U	U	U	U
Phenanthrene	**NSL**	0.23	0.09	0.78	0.68	0.012 J	0.0077 J	0.033	0.084	0.064	0.043
Naphthalene	**14**	0.19	0.061	0.57	0.46	U	U	0.022 J	0.043	0.045	0.034
Indeno[1,2,3-cd]pyrene	**14**	0.01 J	U	0.025	0.027	0.017 J	U	U	0.017 J	0.019 J	0.009
Fluorene	**230**	0.013 J	U	U	U	U	U	U	U	U	U

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Interim Data Review

- On-Property:
  - Dioxin Result Range 2.6 – 14 ppt (only one location over 8 ppt)
  - SVOC results similar
- Public Right-of-Way:
  - Vast majority of preliminary and validated samples in typical soil range
  - 3 key dioxin outliers (>100 ppt)
  - SVOC results similar

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Data - Overall

- Dioxin Average TEQ: ~17.9 ppt
  - Without outliers: ~7.7 ppt
- Dioxin Median: ~4.5 ppt
- City Park Dioxin Median: 3.3 ppt

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Community Outreach

Those who signed access agreements

- Calls being made as validated data is received
- Hard copy tables and information to follow

Public Information

- Post Updated tables as validated data is received on EPA's web site
- Questions? Drop by our Welcome Center or give us a call.

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Current Situation

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Next Steps

1. Receive and validate all data
2. Post data for public review
3. Conduct statistical / trend / comparative analysis
4. Report findings
5. Develop Phase 2 sampling plan based on Phase 1 findings

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