



Albany South End Community

Air Quality Screening

August 14, 2014

New York State Department of Environmental Conservation

Outline

- Overview
 - Goals, Findings
- Details
 - Air pollutants sampled
 - USEPA sampling
 - Sampling locations
 - Meteorological conditions during sampling
 - Results and Spatial analysis
 - Conclusions and Next Steps



Air Screen Goals

- Screening assessment of current air quality
- Designed to look at worst-case air concentrations
 - Specific meteorological conditions
 - Low wind speed
 - Winds from south and southeast
 - Periods of odor episodes
- If screening indicated a concern – NYSDEC will follow-up



Findings

- Volatile organic compounds
 - Concentrations below short-term health-based air concentration values
 - Found at concentrations similar to other areas of the State and below State average
 - Therefore concentrations found – would not be considered a public health concern



Findings

- Light-weight alkanes
 - Added because they are part of the evaporative emissions from Bakken Crude Oil
 - Butane, Hexane, Pentane, Propane
 - Concentrations below health-based air concentration values and therefore not a public health concern
 - Low concentrations of evaporative emissions detected in community



Details



Air Screen Goals

- Developed air quality screening approach with community members
- Understand current air quality conditions in community for volatile organic compounds
- Use results as a screening tool to determine if:
 - Further sampling necessary
 - Enhanced facility inspections are necessary



Air Pollutants

- Volatile organic compounds
 - EPA Method (43 air toxic compounds)
 - Constituents of crude oil
 - Benzene, ethylbenzene, xylenes, toluene
 - Benzene has a more stringent health-based air concentration value
- Light-weight alkanes - added
 - Part of the evaporative emissions from Bakken crude oil
 - Butane, hexane, pentane, propane



Sampling

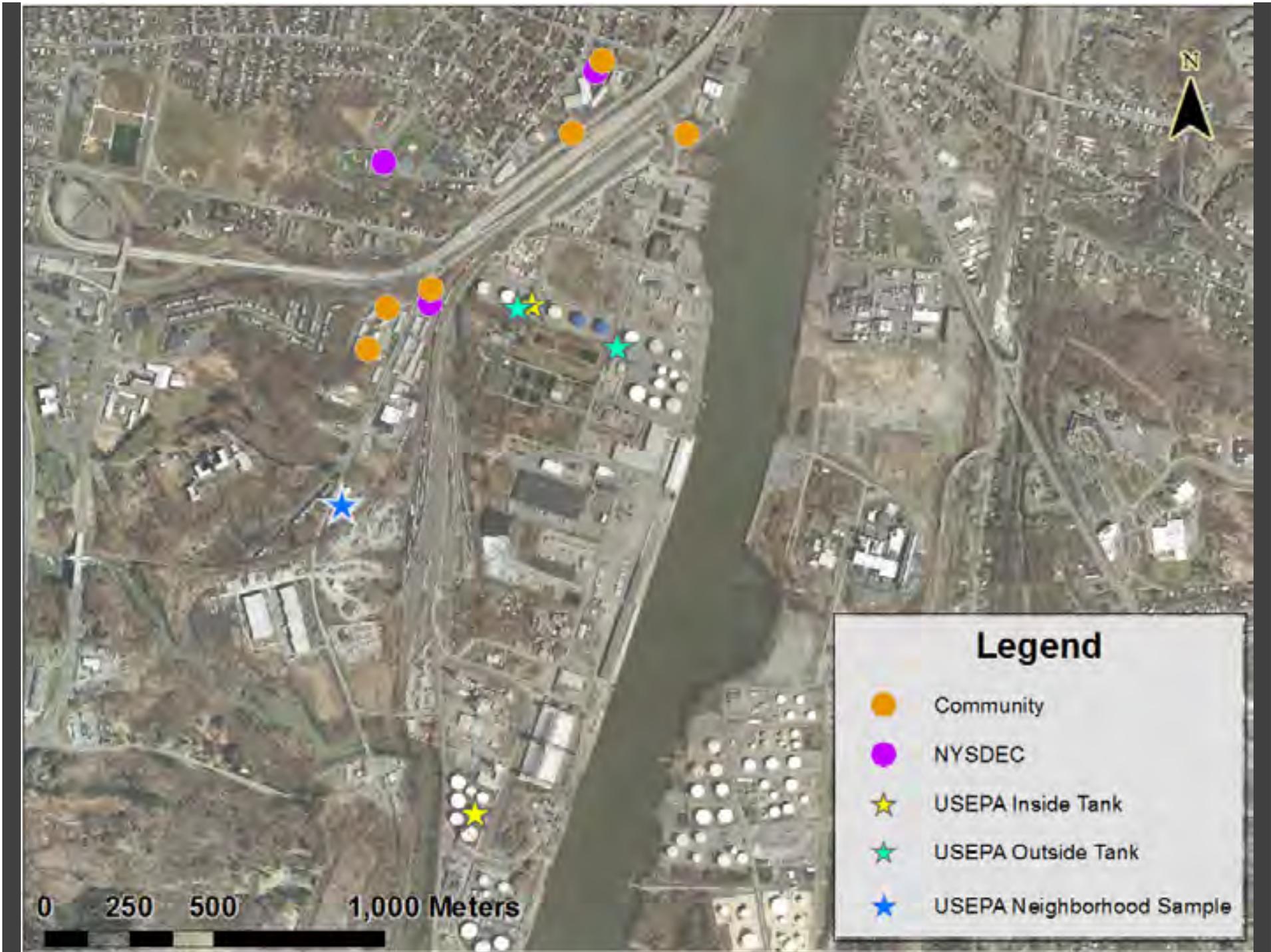
- 1-hour samples
- Sampling when and where concentrations are expected to be highest
 - Warm temperatures, low wind speed and winds from south and southeast
- NYSDEC collected samples at three fixed locations on five days
- A community volunteer collected six samples
 - Periods of public concerns/complaints such as when odors were noticeable



USEPA Sampling

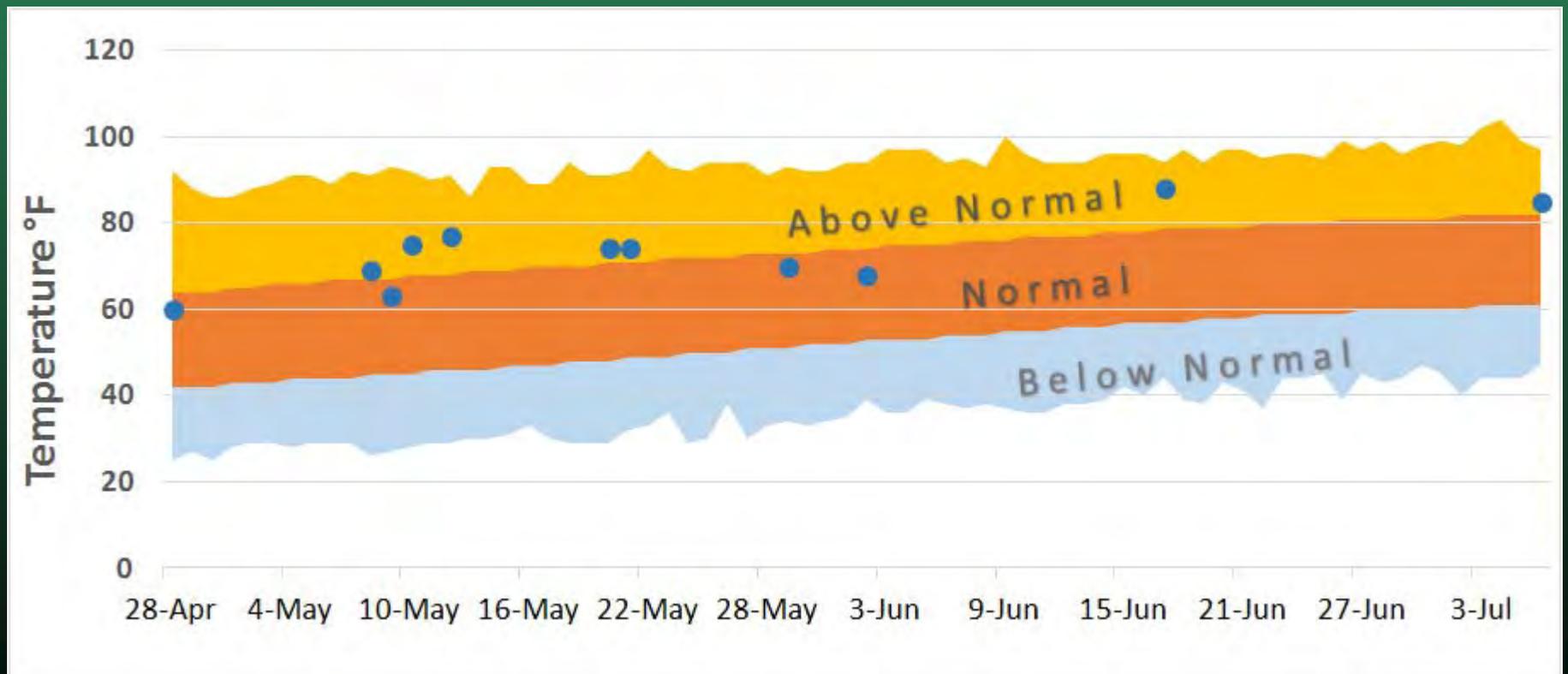
- Collected in early May
- Samples collected onsite at Global and Buckeye facilities
- One neighborhood sample south of Ezra Prentice homes on South Pearl St.
- 20 second “grab” air samples
- Same sampling equipment as used by NYSDEC





Meteorological Conditions

- All sampling events during time when winds from the south, southeast and east
- Temperatures were normal or above average



Evaluation of the Results

- Compared to NYSDEC's
 - Short-term health-based air concentration values (1 hour)
 - Derived to protect the general public from adverse effects from short-term exposures
 - The general public includes infants, children, elderly and other individuals who may be susceptible
 - Other State data
 - Community 1 hour samples
 - Statewide air toxics network



Evaluation of the Results

- Compared to NYSDEC's
 - Comparison done to evaluate need for follow-up activities such as additional monitoring or enhanced facility inspections
 - Long-term health-based air concentration values (annual)
 - Comparison (1 hour sample to long-term value) is not a conventional approach
 - Derived to protect the public from adverse health effects from long-term (e.g., continuous lifetime) exposures to air pollutants

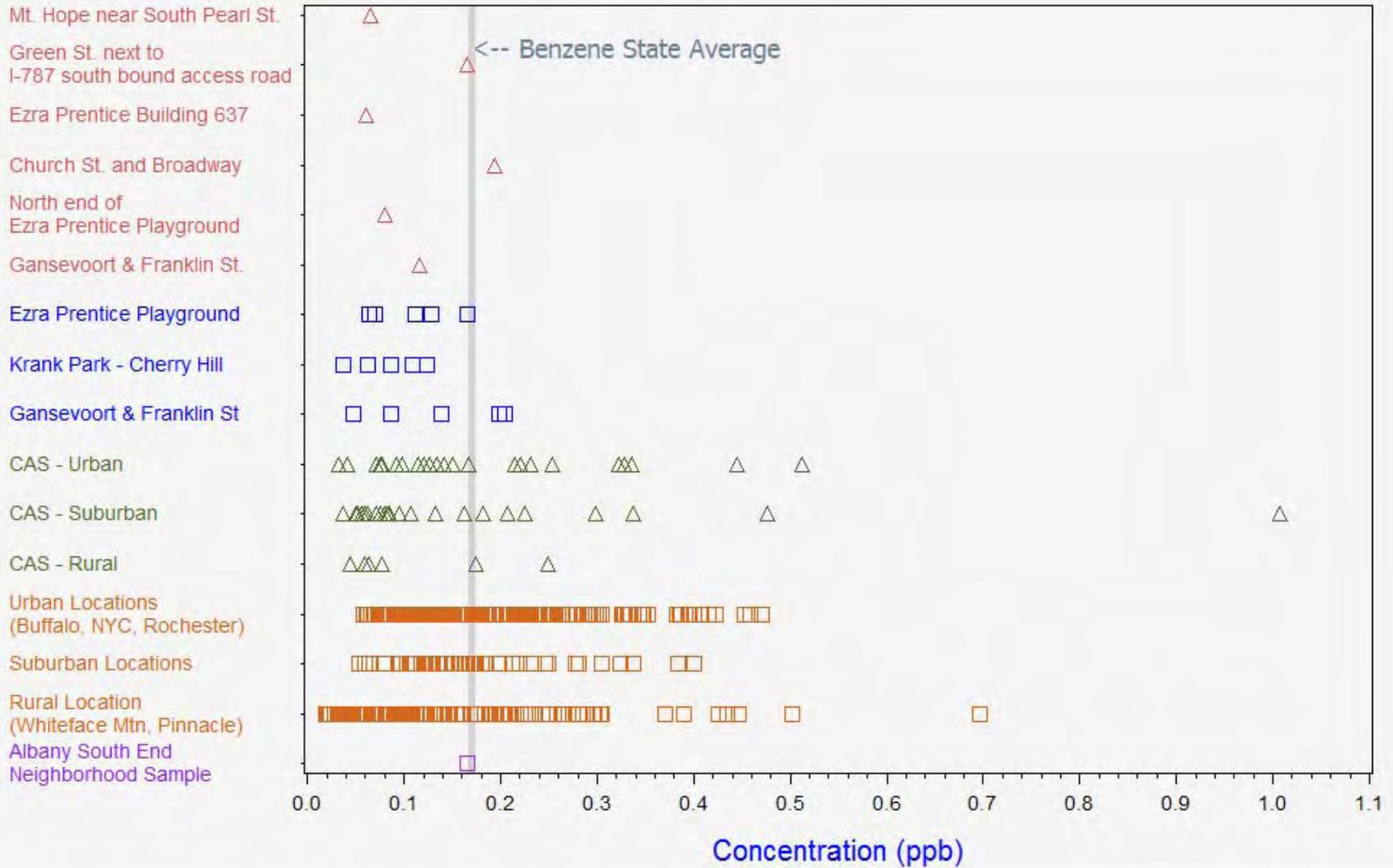


Results

- Volatile organic compounds
 - Concentrations below short-term health-based air concentration values and therefore not a public health concern
 - Benzene concentrations are similar to or below levels found in other areas of the State
 - Other VOC results found at concentrations similar to other areas of the State



Benzene Albany South End Comparisons



NYSDEC Program △△△ Albany South End - Community Sample □□□ Albany South End - NYSDEC Sample □□□ Albany South End - USEPA Sample
△△△ CAS Program - Community Sample □□□ NYSDEC Air Toxics Network

Results

- Light-weight alkanes
 - Low toxicity
 - Concentrations below health-based air concentration values and therefore not a public health concern



Spatial Analysis

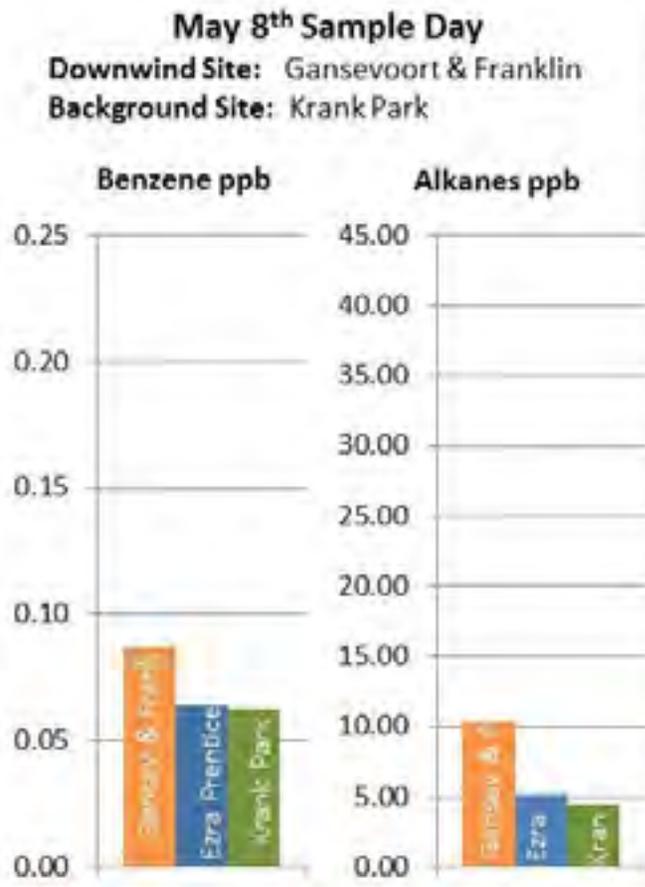
- Data from each simultaneous sample collection were used to determine if there are local sources impacting the community
- Local sources would impact one of the NYSDEC sites more than the other two
- Distant and city-wide sources (like motor vehicles) would impact the three NYSDEC sites more evenly



May 8

Local impact site - Gansevoort & Franklin is impacted by sources to the south to a higher degree than Ezra Prentice or Krank Park

Temperature 69⁰ F



May 12

Local impact site - Gansevoort & Franklin is impacted by sources to the south to a higher degree than Ezra Prentice or Krank Park

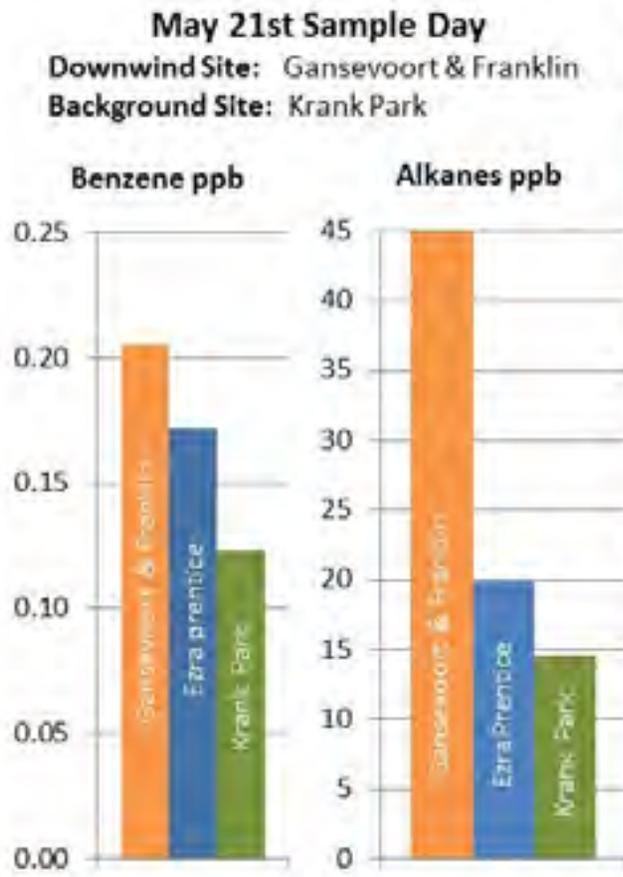
Temperature 77° F – higher temperature and benzene concentrations compared to May 8



May 21

Local impact site - Gansevoort & Franklin is impacted by sources to the southeast to a higher degree than Ezra Prentice or Krank Park

Temperature 74^o F – higher benzene concentrations compared to May 8 and 12



May 29

No local impact site was identified. Benzene concentrations are low overall. Ezra Prentice is higher than the other two sites.

Temperature 70° F



June 2

No local impact site was identified. Collected at 8:10 am to assess the impact of rush hour traffic. Benzene concentrations similar at the three sites.

Temperature 68⁰ F



Spatial Analysis

- For 3 of the 5 (1 hour) sample events, locally impacted and background (city-wide impact) sites were identified
- The addition from local sources is defined as the benzene at the local impacted site minus benzene at the background site
 - May 8 Gansev&Fr – Krank P = 0.024 ppb
 - May 12 Gansev&Fr – Krank P = 0.112 ppb
 - May 21 Gansev&Fr – Krank P = 0.082 ppb
- Background benzene concentrations were
 - May 8 (0.063 ppb), May 12 (0.086 ppb) and May 21 (0.123 ppb)



Summary of Spatial Analysis

- The additional benzene from local sources was detectable in 2 of the 3 sample events
- The spatial analysis does not account for local emissions that impact more than one sampling location
- This analysis is applicable to three 1 hour sample events, other sources such as rush hour traffic and other meteorological conditions can impact benzene levels at other times



Conclusions

- All results were below NYSDEC's short-term health-based air concentration values and most were below or within an order of magnitude of the long-term health-based air concentration values
- Results were within the range of levels found in locations in other parts of the State
- NYSDEC did not identify concentrations of air toxics that would necessitate further air sampling or enhanced facility inspections



Next Steps

- Baseline measurements
 - Formaldehyde
 - Sampler at Albany County Health Department
 - Collection May – August 2014
 - Hydrogen Sulfide
 - Portable instrument
 - Collect samples in the neighborhood



Benzene Annual Average

