EPA's National Air Toxics Assessment (NATA) and the role of TRI data

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NATA Background

- NATA is a screening-level characterization of air toxics across the nation
  - Nationwide assessment with *census tract* resolution
  - Cancer and noncancer risk estimates for about 140 HAP with health data based on chronic exposures
  - Ambient concentration estimates for 180 Clean Air Act hazardous air pollutants (HAP) plus diesel particulate matter (DPM)

- NATA Uses
  - To identify locations of interest for further study
  - To prioritize pollutants and emission sources
  - To inform monitoring programs

- 2011 NATA is the 5th national-scale air toxics assessment (1996, 1999, 2002, 2005) and was released to the public Dec 17, 2015
  - Concentrations, exposures, and risks based on air quality modeling of emissions from the 2011 National Emissions Inventory (NEI)

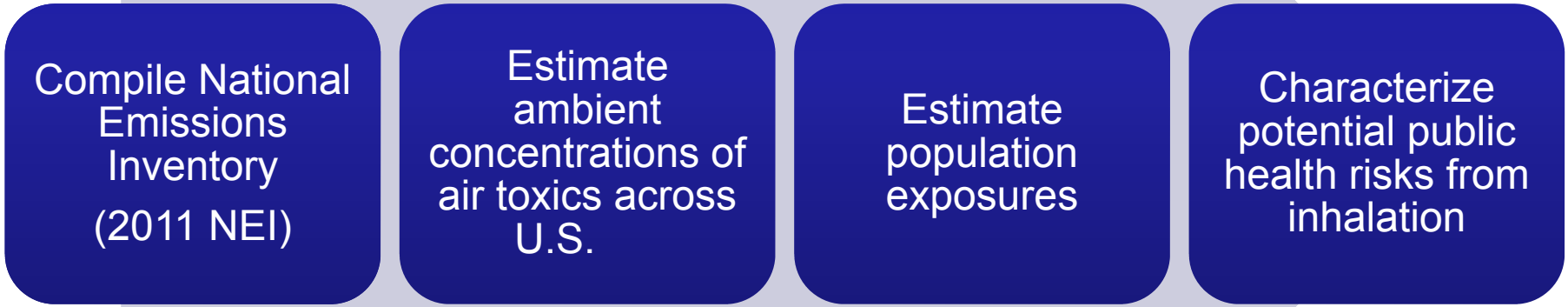
NATA Background (continued)

It's important to note that:

- Emissions, modeled ambient concentrations, and estimated inhalation exposures are only from sources of outdoor origin via the inhalation route of exposure.
- Results are more uncertain at finer geographic scales.
  - Surrogates used to allocate mobile and nonpoint source emissions
  - Results based on modeled data, not ambient monitoring data
- Results should not be used to compare risks among different areas of the country.
  - Underlying emissions data vary in level of detail from state to state
- 2011 NATA results should not be compared to previous NATAs.
  - Changes in results are due to both actual emission changes and the use of different modeling and emissions processing techniques

2011 NATA Methods

NATA Analytical Steps



2011 NEI includes stationary, mobile and natural sources (fires, biogenics).

NATA includes 178 HAPs and diesel particulate from mobile sources.

Uses CMAQ and AERMOD to predict census tract ambient concentrations nationwide.

Includes an exposure model (HAPEM7) to account for human activity data, commuting patterns, and near roadway exposures.

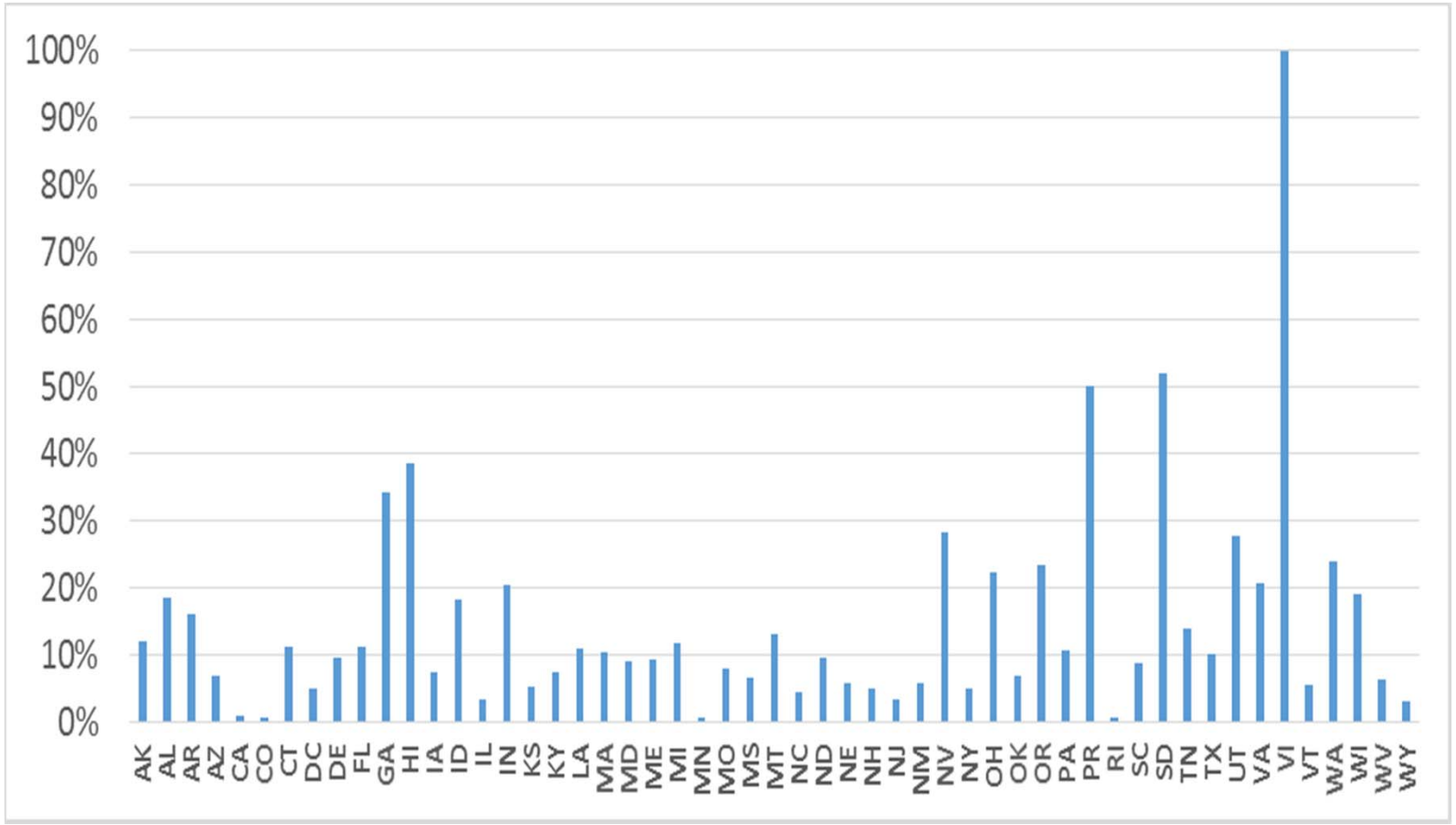
Census tract level cancer and noncancer risks nationwide.

How do TRI data get used in NATA?

- The toxics release inventory (TRI) is incorporated into EPA's Emission Inventory System, which is used to build the NEI
  - Used to QA the State/local/tribal (S/L/T) submitted data
  - Used to gap fill NEI where S/L/T missing (HAP reporting by S/L/T is voluntary)
  - Requires matching TRI and EIS facilities – special efforts taken to find matches/add TRI facilities to EIS for facilities emitting arsenic, chromium, nickel and lead
- Decisions needed when putting TRI into NEI
  - Require 1-to-1 matching of facilities
  - Assign release point parameters to TRI stack and fugitive air releases
  - Assign source classification codes (process descriptions)
  - Where there are ranges, midpoint is used *
  - Speciate chromium -- to estimate hexavalent chromium *

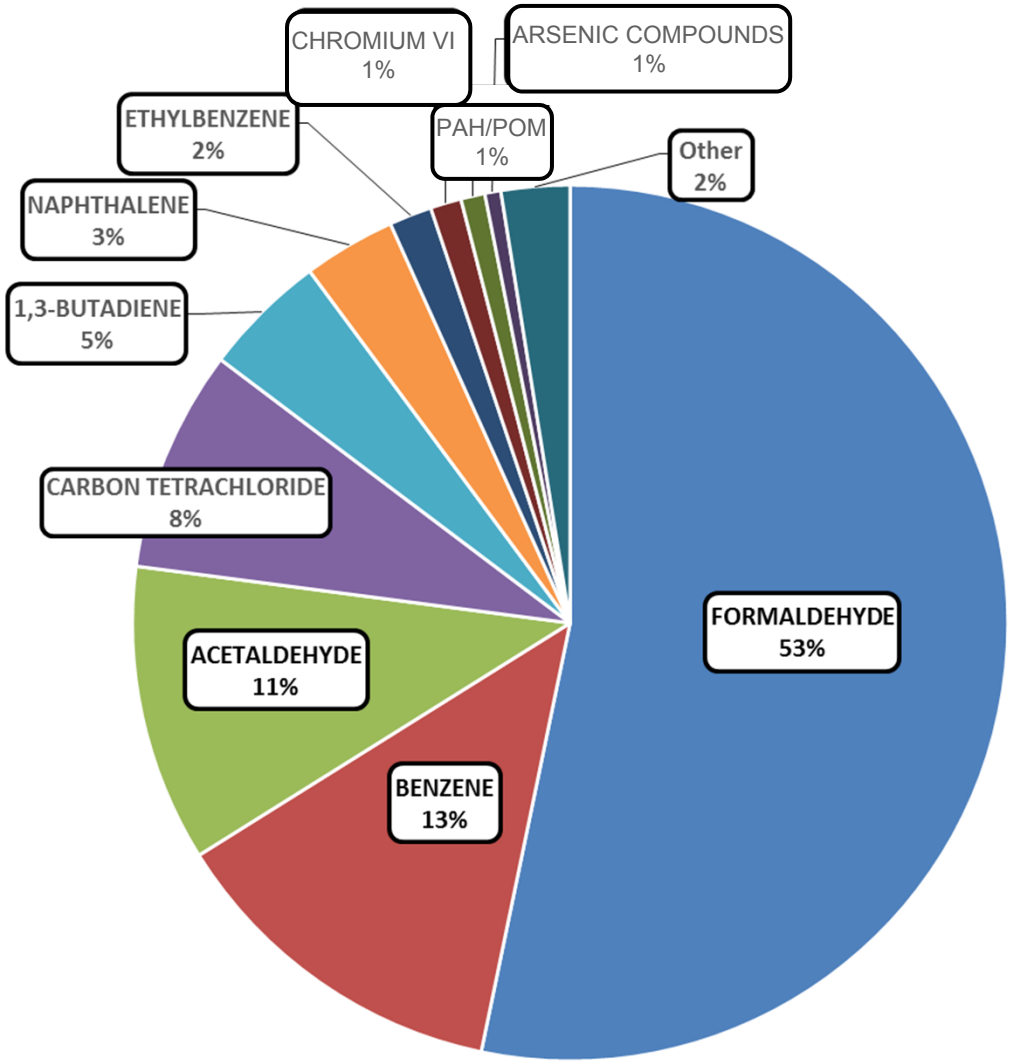
* Have been able to get more detailed information where these assumptions resulted in elevated risk areas

Percent of facilities in 2011 NATA that use TRI emissions data

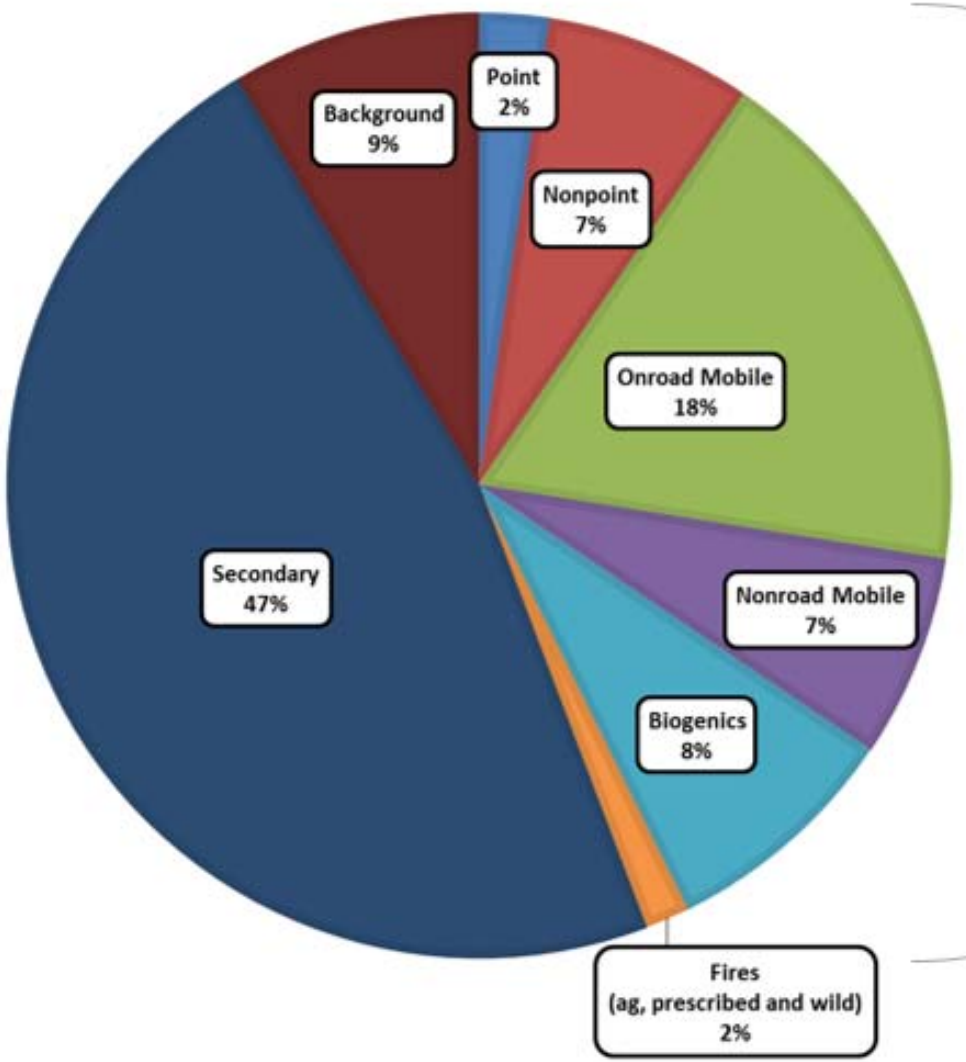


Excludes airports and lead (Pb) a criteria pollutant

2011 NATA Cancer Risks for Entire US - Pollutant Contributions

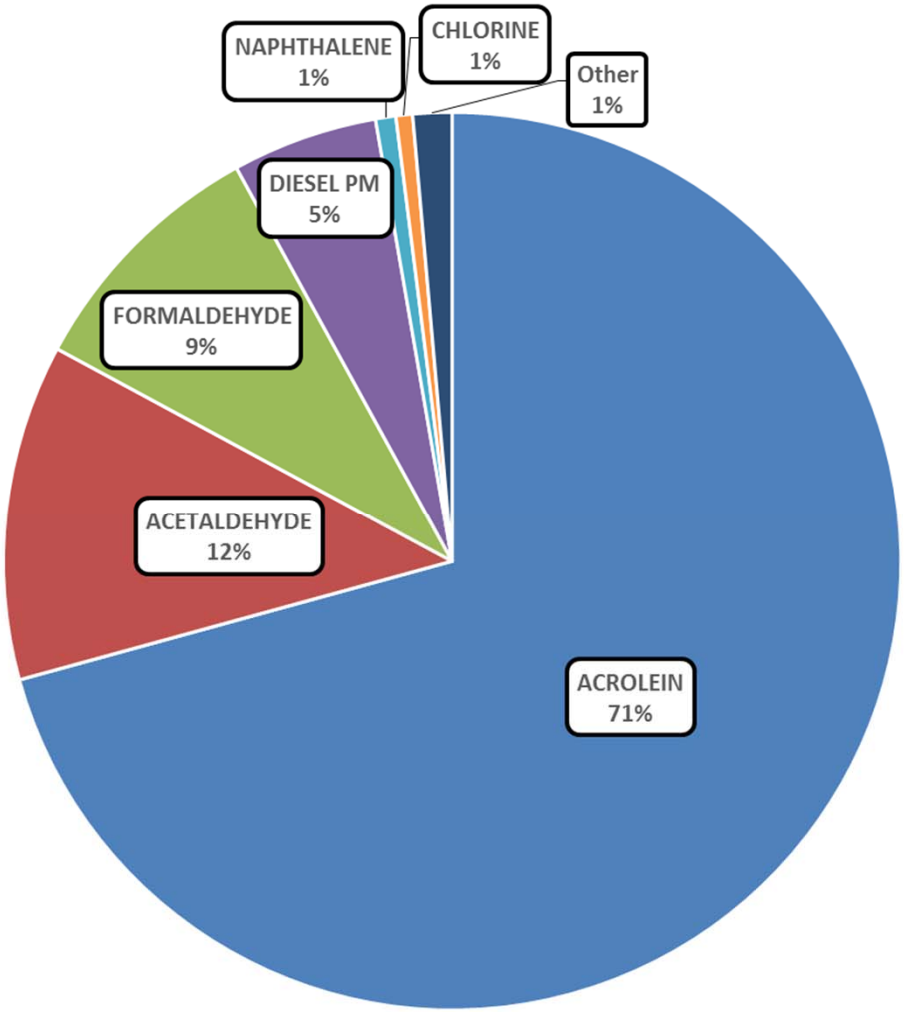


2011 NATA Cancer Risks for Entire US – Source Category Contributions

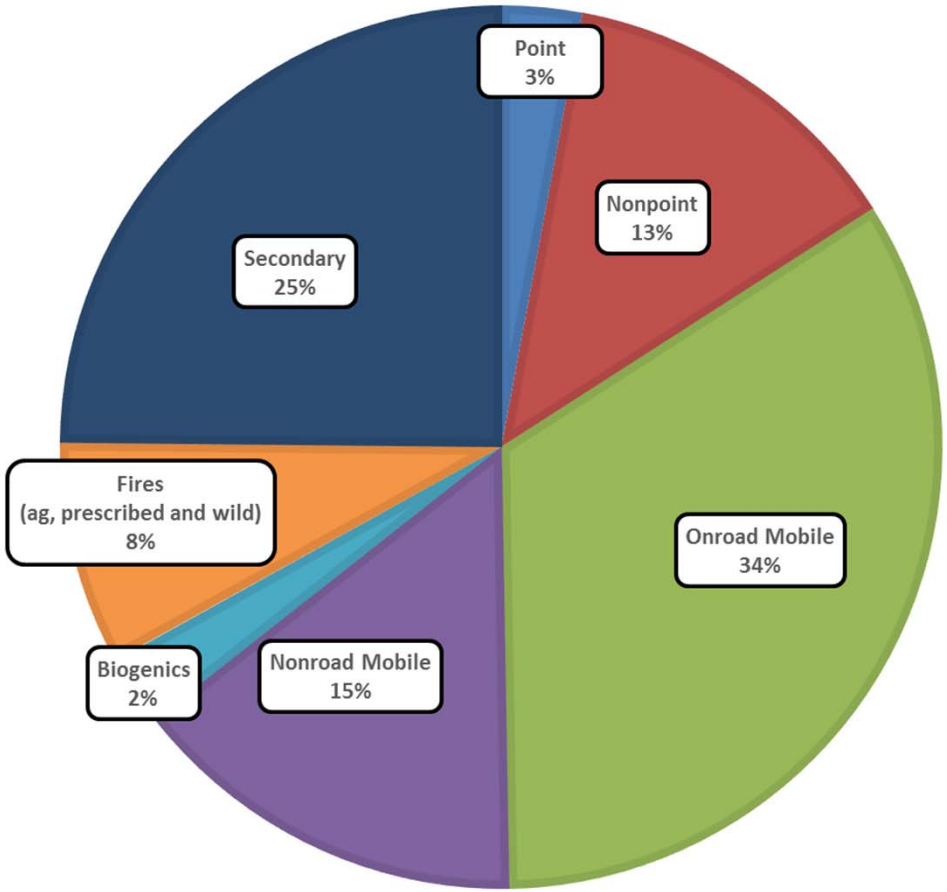


Point, Nonpoint, Onroad Mobile, Nonroad Mobile and Biogenics include the contribution from only primary emissions

2011 NATA Noncancer Respiratory Risk for Entire US - Pollutant Contributions



2011 NATA Noncancer Respiratory Risks for Entire US - Source Sector Contributions



Point, Nonpoint, Onroad Mobile, Nonroad Mobile and Biogenics include only the primary emissions contribution

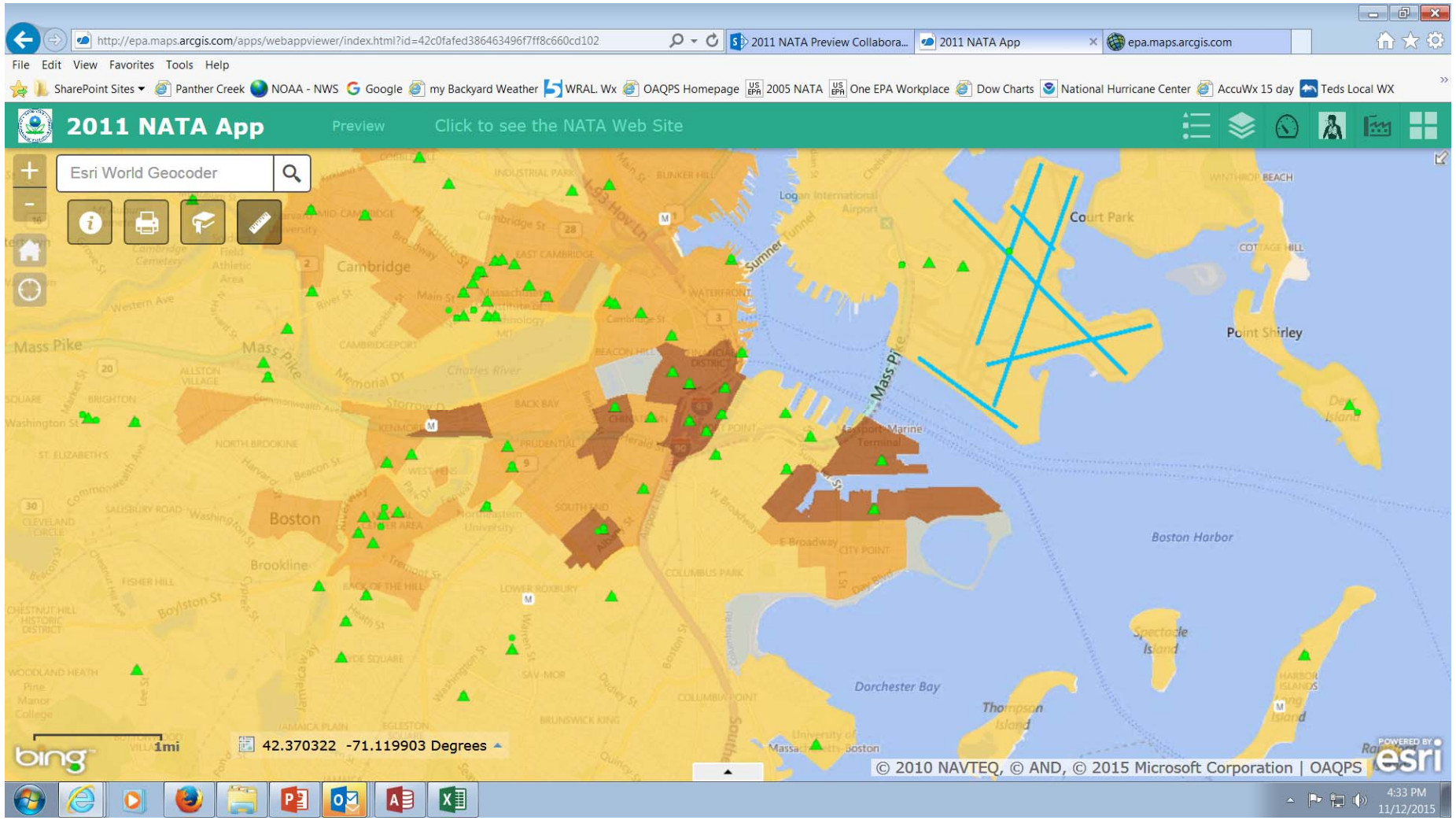
http://www.epa.gov/nata

NATA Web App

New NATA Web App - GIS Tool

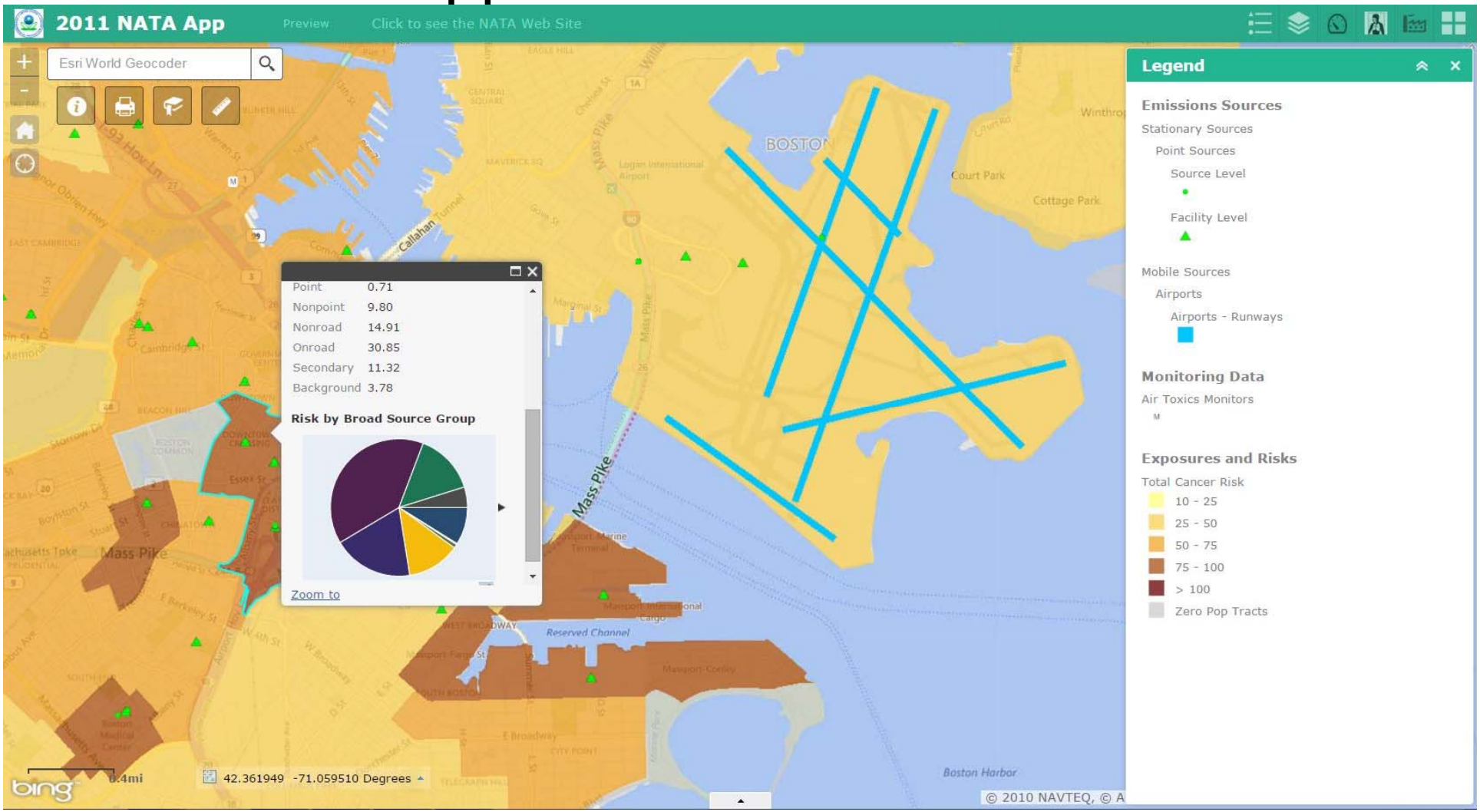
- Used to show estimated risks at the census tract level and display risks, emissions sources, and monitoring data on a map.
- The NATA web map can help a community identify the sources and pollutants that drive risks in their community.
- The tool generates pie charts and tabular results of the data you explore.
- Can compare the NATA modeling results to local ambient monitors.
- The NATA web app is also available on tablets and smartphones.

NATA Web App



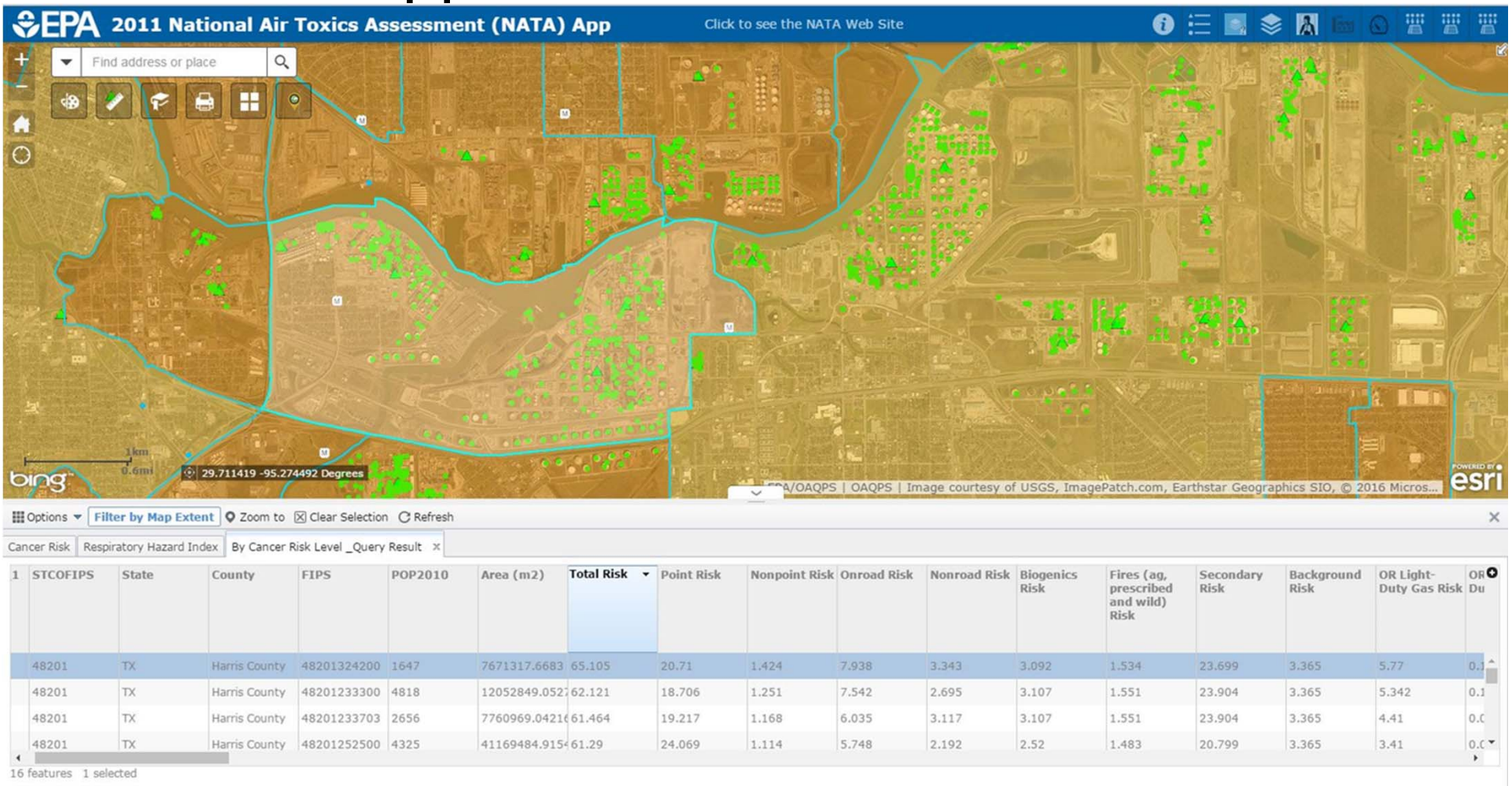
The next slide drills down on this area to show risk.

NATA Web App – Tract Risk Breakdown



This slide shows the census tract risk by broad source group (e.g., point, nonpoint).

NATA Web App - Detailed Source Information



1	STCOFIPS	State	County	FIPS	POP2010	Area (m2)	Total Risk	Point Risk	Nonpoint Risk	Onroad Risk	Nonroad Risk	Biogenics Risk	Fires (ag, prescribed and wild) Risk	Secondary Risk	Background Risk	OR Light-Duty Gas Risk	OR Du
	48201	TX	Harris County	48201324200	1647	7671317.6683	65.105	20.71	1.424	7.938	3.343	3.092	1.534	23.699	3.365	5.77	0.1
	48201	TX	Harris County	48201233300	4818	12052849.052	62.121	18.706	1.251	7.542	2.695	3.107	1.551	23.904	3.365	5.342	0.1
	48201	TX	Harris County	48201233703	2656	7760969.0421	61.464	19.217	1.168	6.035	3.117	3.107	1.551	23.904	3.365	4.41	0.0
	48201	TX	Harris County	48201252500	4325	41169484.915	61.29	24.069	1.114	5.748	2.192	2.52	1.483	20.799	3.365	3.41	0.0

Green dots are individual emission points.

2014 NATA in Progress

- Began effort with LEAN event – cut time to complete NATA
- 2014 NEI version 1 released September 23
- Reviewing 2014 NEI facility data, including S/L/T-submitted and TRI data
- Beginning to model all source categories
- Comprehensive review in Spring 2017
- 2014 NEI v2 next summer
- 2014 NATA Release in 2018

Thanks to the NATA Team

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ORD: Deborah Luecken

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