Ramboll

Building EJ: Using EJ Tools to Inform Permitting

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Adriana Reynolds and Brian Glover

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Agenda

01 Defining Environmental Justice

02 EJ tools explained

03 EJ in permitting

Defining Environmental Justice

USEPA's definition of environmental justice

Environmental justice:

"The fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies."

Fair treatment requires that "no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies."

Meaningful involvement is:

- People having an opportunity to participate in decisions about activities that may affect their environment and/or health
- Community concerns will be considered in the decision-making process
- The public's contribution can influence the regulatory agency's decision
- Decision-makers will seek out and facilitate the involvement of those potentially affected

EJ tools explained

EJ tools can inform decisions

01 Guide community engagement

02 Assessment of priorities

03 Key performance indicators / measures of success

04 Identification of needs

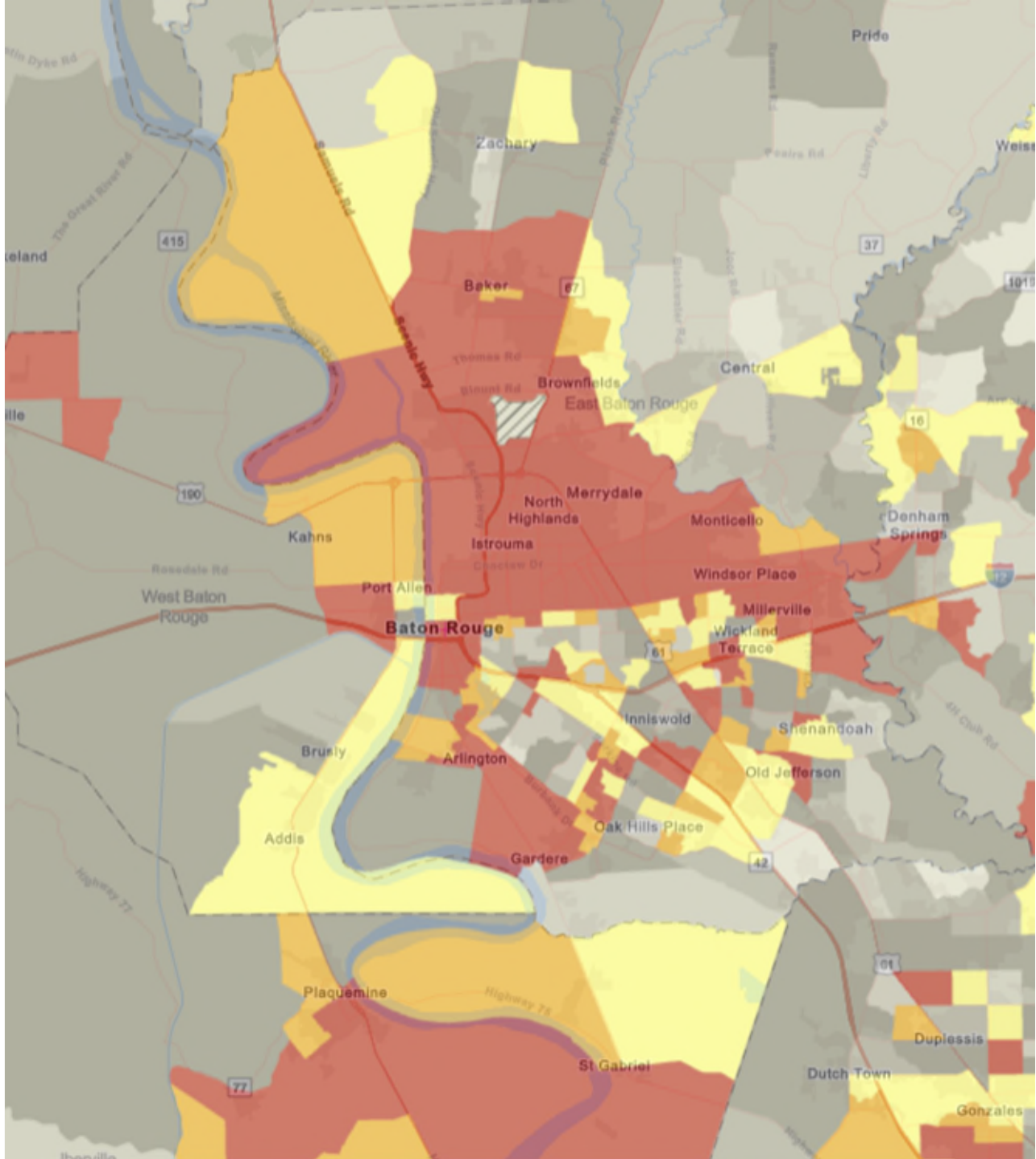
Screening for EJ factors

EJSCREEN – EJ Mapping and Screening Tool

AirToxScreen– AirToxScreen Mapping Tool

RSEI – Risk Screening Environmental Indicators Model

Tools display widespread and diverse amounts of information



Environmental Justice Screening Tool | **EJScreen**

US Environmental Project Agency's (USEPA) EJ mapping and screening tool combines environmental and demographic socioeconomic indicators to identify potential EJ concerns.

Environmental indicators, such as:

- Particulate Matter 2.5
- Ozone
- Diesel particulate matter
- Air toxics cancer risk
- Hazardous waste proximity
- Wastewater discharge

Demographic indicators, such as:

- People of color
- Low-income
- Limited English speaking households
- Unemployment rate
- Educational attainment

EJ Index =

(The **Environmental Indicator** Percentile for Block Group)

X

(**Demographic Index*** for Block Group)

*Demographic Index = average of % POC and % low-income

Output → Reports

- Index score and comparisons
- Color-coded mapping
- Standard report for selected area

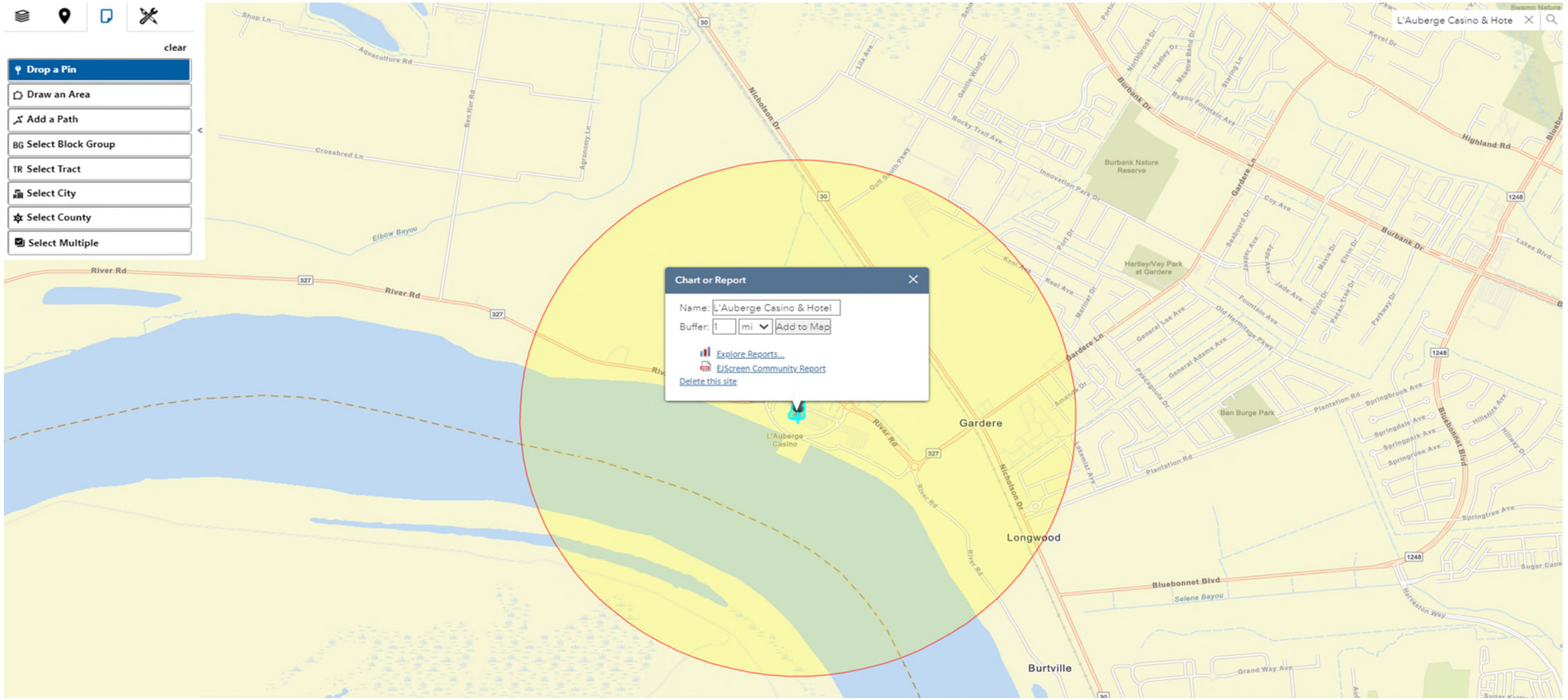
Purpose

- Identify areas that are overburdened with EJ issues
- Compare community scores with state or national figures

Limitations

- Not a detailed risk analysis
- Not reliable for small geographic areas (such as Census Block groups)

Environmental Justice Screening Tool | **EJScreen**



Community Report | **EJScreen**

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu g/m^3$)	9.55	8.62	90	8.08	84
Ozone (ppb)	62.2	59.8	94	61.6	58
Diesel Particulate Matter ($\mu g/m^3$)	0.302	0.247	72	0.261	69
Air Toxics Cancer Risk* (lifetime risk per million)	50	32	96	25	94
Air Toxics Respiratory HI*	0.5	0.38	89	0.31	92
Toxic Releases to Air	57,000	15,000	95	4,600	98
Traffic Proximity (daily traffic count/distance to road)	12	86	28	210	18
Lead Paint (% Pre-1960 Housing)	0.017	0.22	20	0.3	18
Superfund Proximity (site count/km distance)	0.04	0.076	54	0.13	36
RMP Facility Proximity (facility count/km distance)	0.17	0.62	40	0.43	50
Hazardous Waste Proximity (facility count/km distance)	1.4	1.1	70	1.9	67
Underground Storage Tanks (count/km^2)	0.74	2.2	46	3.9	44
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.013	49	76	22	70
SOCIOECONOMIC INDICATORS					
Demographic Index	62%	41%	76	35%	84
Supplemental Demographic Index	19%	17%	62	14%	76
People of Color	77%	43%	78	39%	81
Low Income	47%	40%	61	31%	77
Unemployment Rate	11%	7%	77	6%	85
Limited English Speaking Households	8%	2%	92	5%	82
Less Than High School Education	10%	15%	43	12%	58
Under Age 5	7%	6%	65	6%	68
Over Age 64	4%	17%	8	17%	7
Low Life Expectancy	0%	22%	0	20%	0

EJ Index =

Environmental Indicator

X

Demographic Index

2019 Air Toxics Screening Assessment | **AirToxScreen**

1. Compile National Emissions Inventory (NEI)
   - Point, nonpoint, and mobile sources
2. Estimate ambient concentration of air toxics
   - CMAQ model (52 air toxics within model)
   - AERMOD model (all ATS air toxics modeled)
3. Estimate population exposure
   - HAPEM7 model
4. Characterize potential health risk from inhalation
   - Cancer risk and noncancer hazard indices by pollutant

NEI: National Emissions Inventory
CMAQ: Community Multiscale Air Quality Modeling System
AERMOD: American Meteorological Society/EPA Regulatory Model
HAPEM: Hazardous Air Pollutant Exposure Model

Output → Reports and Maps

- Tables of emissions data
- Modelled concentrations, exposures & risks
- Mapping tool

Purpose

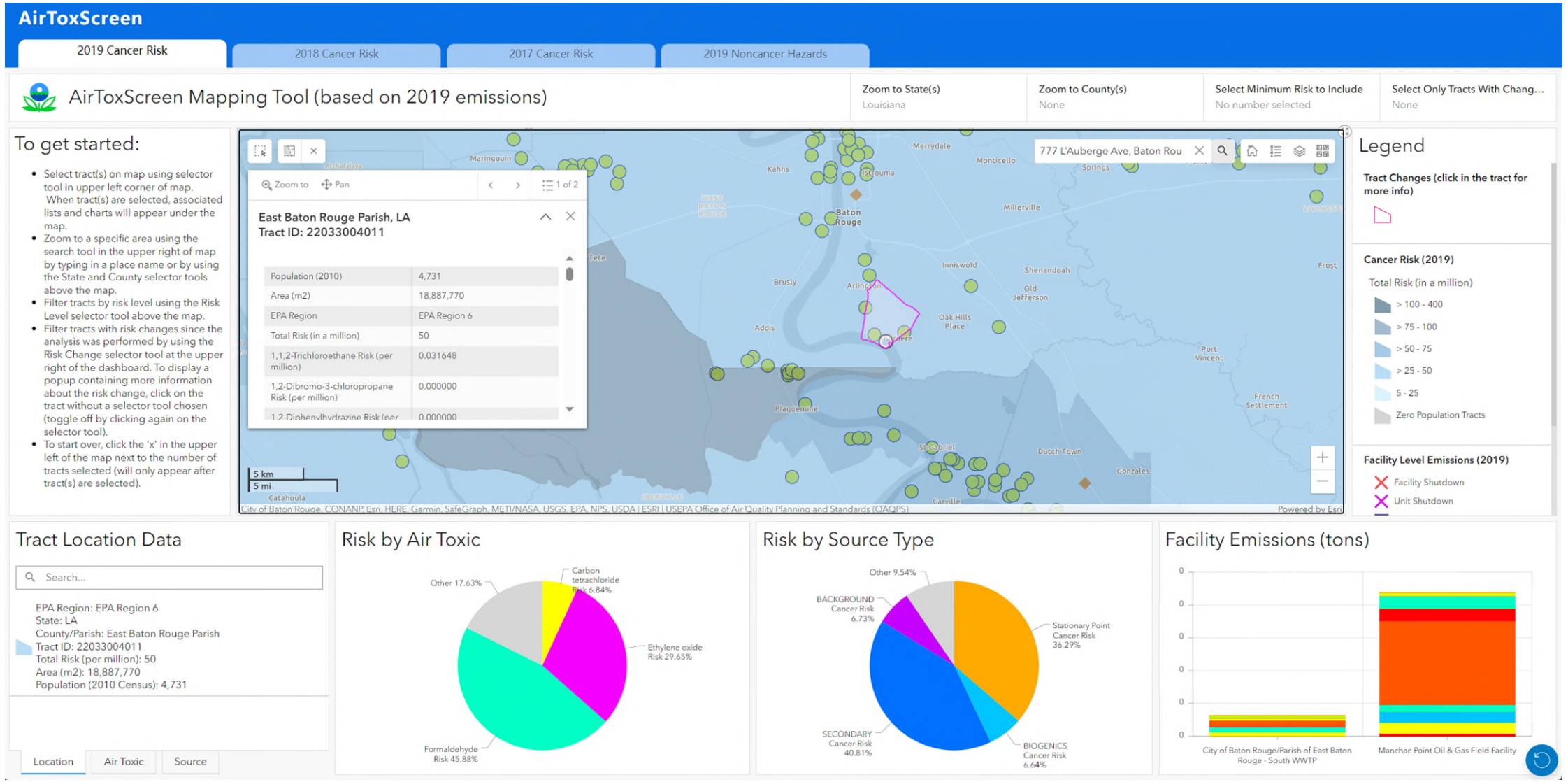
- Provide communities with information about health risks from air toxics
- Help identify emerging air toxics issues
- Inform monitoring programs

Limitations

- Data gaps
- Pollutant concentrations are not direct measurements (model simulations)
- Default assumptions
- 2010 Census tracts
- Unable to extract dataset

https://www.epa.gov/AirToxScreen/airtoxscreen-overview

AirToxScreen map and layers



Risk Screening Environmental Indicators Model | **RSEI**

Purpose
- Establish priorities for further investigation (high scores)
- Look at changes in potential human health impacts over time
- Prioritize issues related to toxics management
- Combine with demographic and income data for EJ

Output → Reports and Maps
- Charts, maps and tables
- By facility, location, chemical

Limitations
- Only as accurate as the TRI data used as a starting point
- Uses simplifying assumptions in the model
- Additional investigation may indicate less potential for concern

Purpose:

Further contextualize information on releases of toxic substances

Data from:

- Toxics Release Inventory (TRI)
- Relative toxicity
- Chemical's fate and transport
- Potential human exposure

Scores by:

- Chemical
- Industry sector
- Geographic area

RSEI Modeled Hazard

- Toxicity-adjusted value and primary descriptor of relative potential hazard to human health
- Quantity of chemical release

RSEI Score

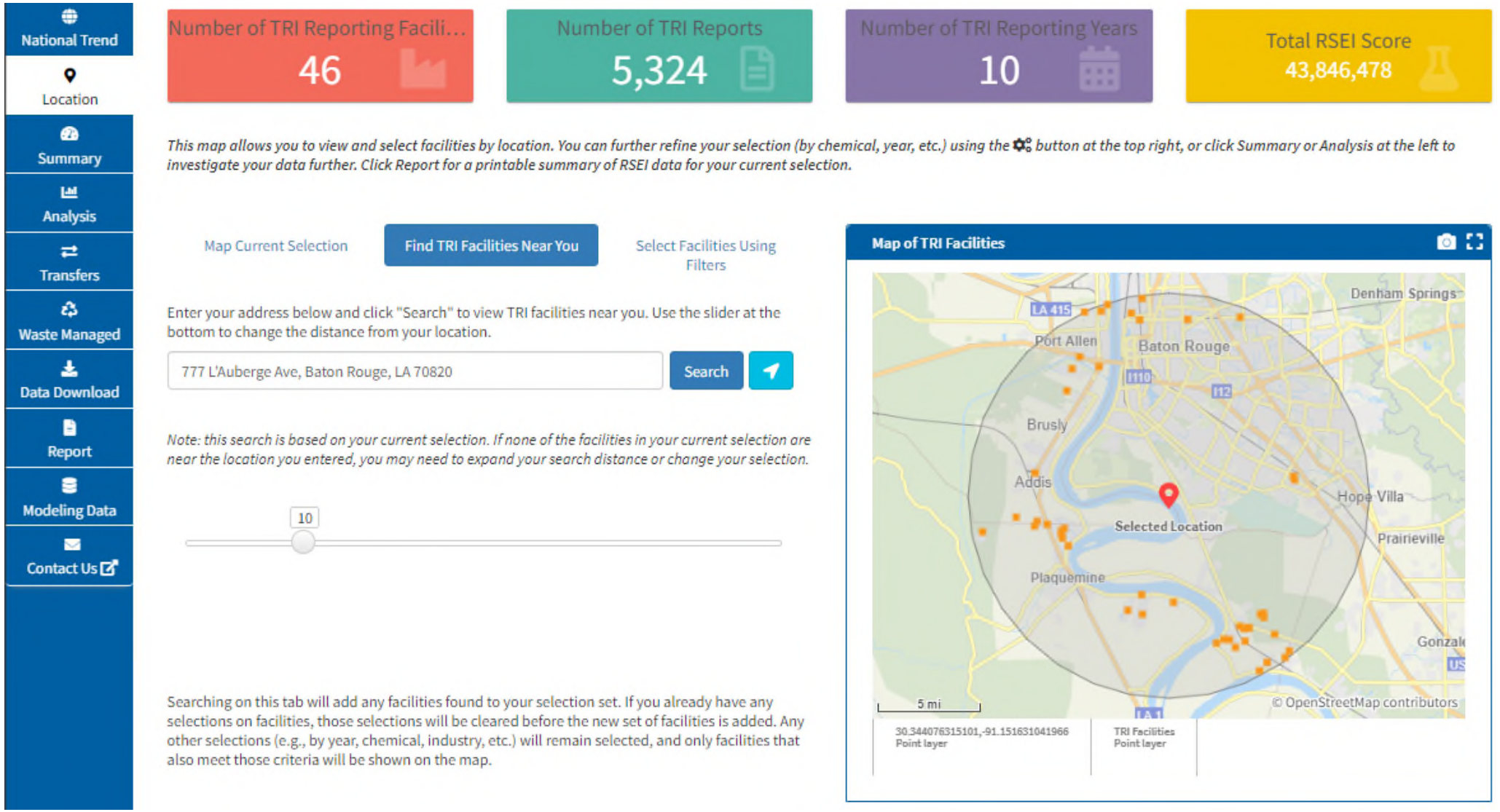
- Unitless screening-level metric

Chemical toxicity weight **X**
Estimated dose **X**
Potentially exposed population

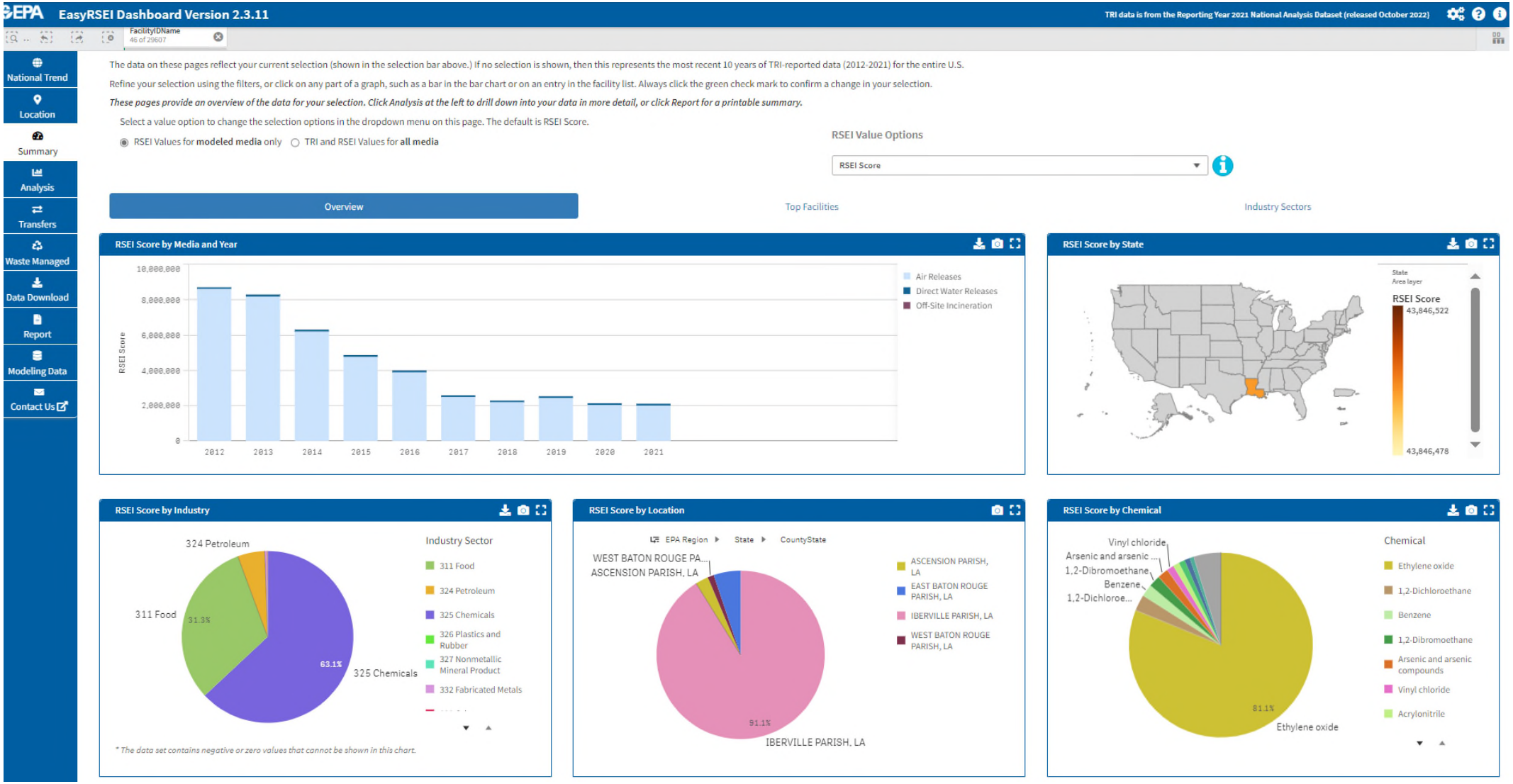
High Hazard, Low Score?

- Indicates modeling is mitigating potential risk-related impact

Risk Screening Environmental Indicators Model | **RSEI**



Risk Screening Environmental Indicators Model | **RSEI**

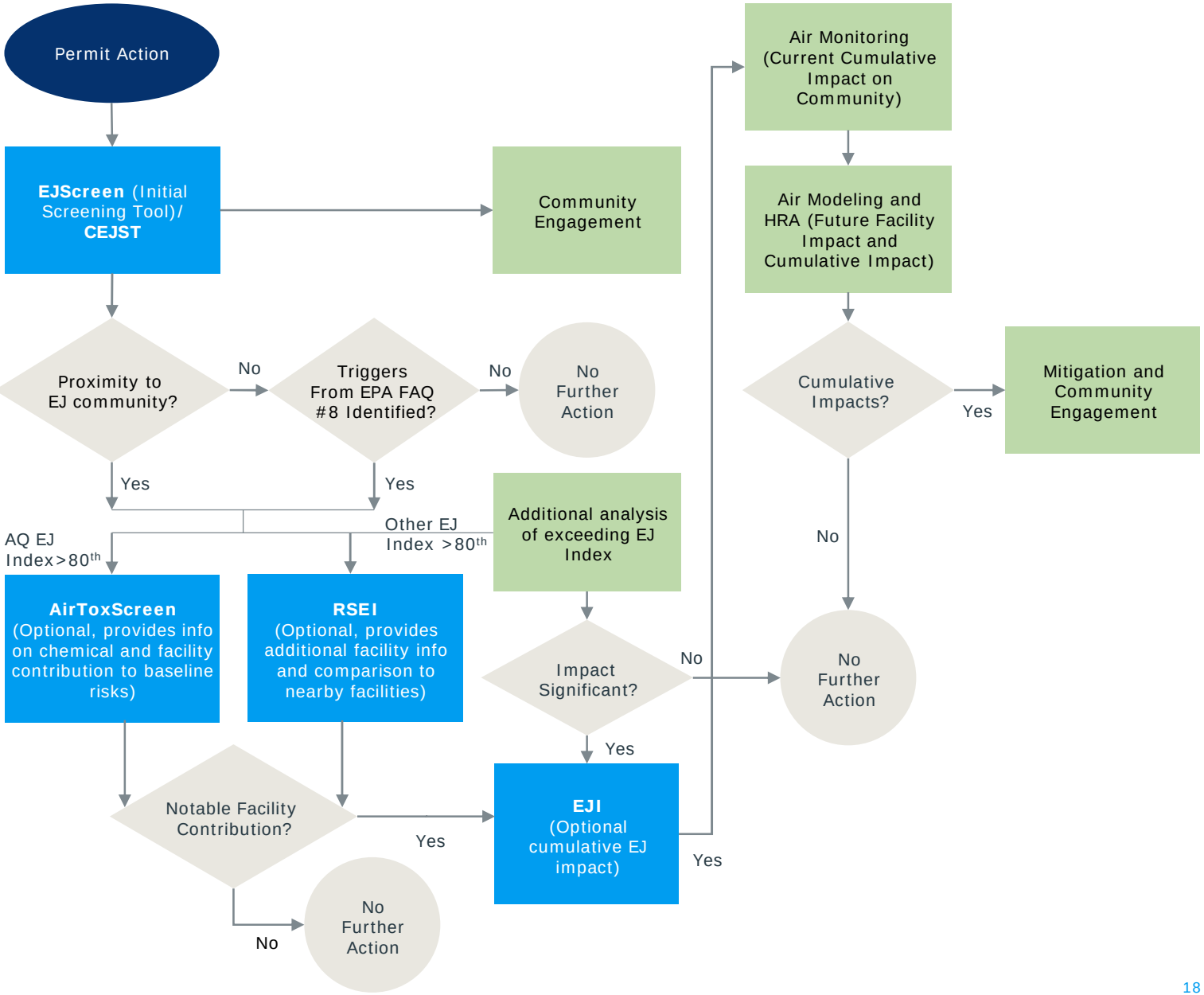


EJ in permitting

EJ analysis in the permitting process

- An EJ analysis may be triggered by different federal regulatory drivers, including:
  - National Environmental Policy Act
  - Clean Air Act
  - Water Programs
  - Waste Management and Emergency Response Programs
  - Pesticide and Toxic Substances Control Act Programs
- In addition, an EJ analysis may be triggered by state or local rules and regulations
- An EJ analysis includes:
  - ✓ Baseline Conditions
  - ✓ Meaningful Public Engagement
  - ✓ Assessment of Project Impacts, including cumulative impacts
  - ✓ Determination of Disproportionate Impacts/Disparate Impacts
  - ✓ Consideration of Mitigation

Example Air Quality Permit EJ Analysis Flowchart



Examples:

Louisiana EAS “IT Questions” & EJ

CWA Section 404d Permit & EJ

Environmental justice is addressed under Question 1 of “IT Questions”

Range in level of analyses performed, use EJScreen + facility-specific information

Air quality impacts are critical issues

Public engagement is critical

Thank You

Brian Glover, Principal
bglover@ramboll.com

Adriana Reynolds, Senior Consultant
areynolds@ramboll.com

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Additional Tools to Explore

Climate and Economic Justice Screening Tool | **CEJST**

https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5

Enforcement and Compliance History Online Clean Air Tracking Tool | **ECHO**

https://echo.epa.gov/trends/emission-screener

Energy Justice Dashboard (Beta)

https://www.energy.gov/diversity/energy-justice-dashboard-beta

Environmental Justice Index | **EJI**

https://www.atsdr.cdc.gov/placeandhealth/eji/index.html

Equitable Transportation Community Explorer | **ETC Explorer**

https://experience.arcgis.com/experience/0920984aa80a4362b8778d779b090723

Screening Tool for Equity Analysis of Projects | **STEAP**

https://hepgis.fhwa.dot.gov/fhwagis/buffertool/