

Ramboll

Building EJ: Using EJ Tools to Inform Permitting

October 26, 2023 | AWMA Fall Conference | Baton Rouge, LA

Adriana Reynolds and Brian Glover

RAMBOLL

Bright ideas.
Sustainable change.

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



The public's contribution can influence the regulatory agency's decision



Community concerns will be considered in the decision-making process



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



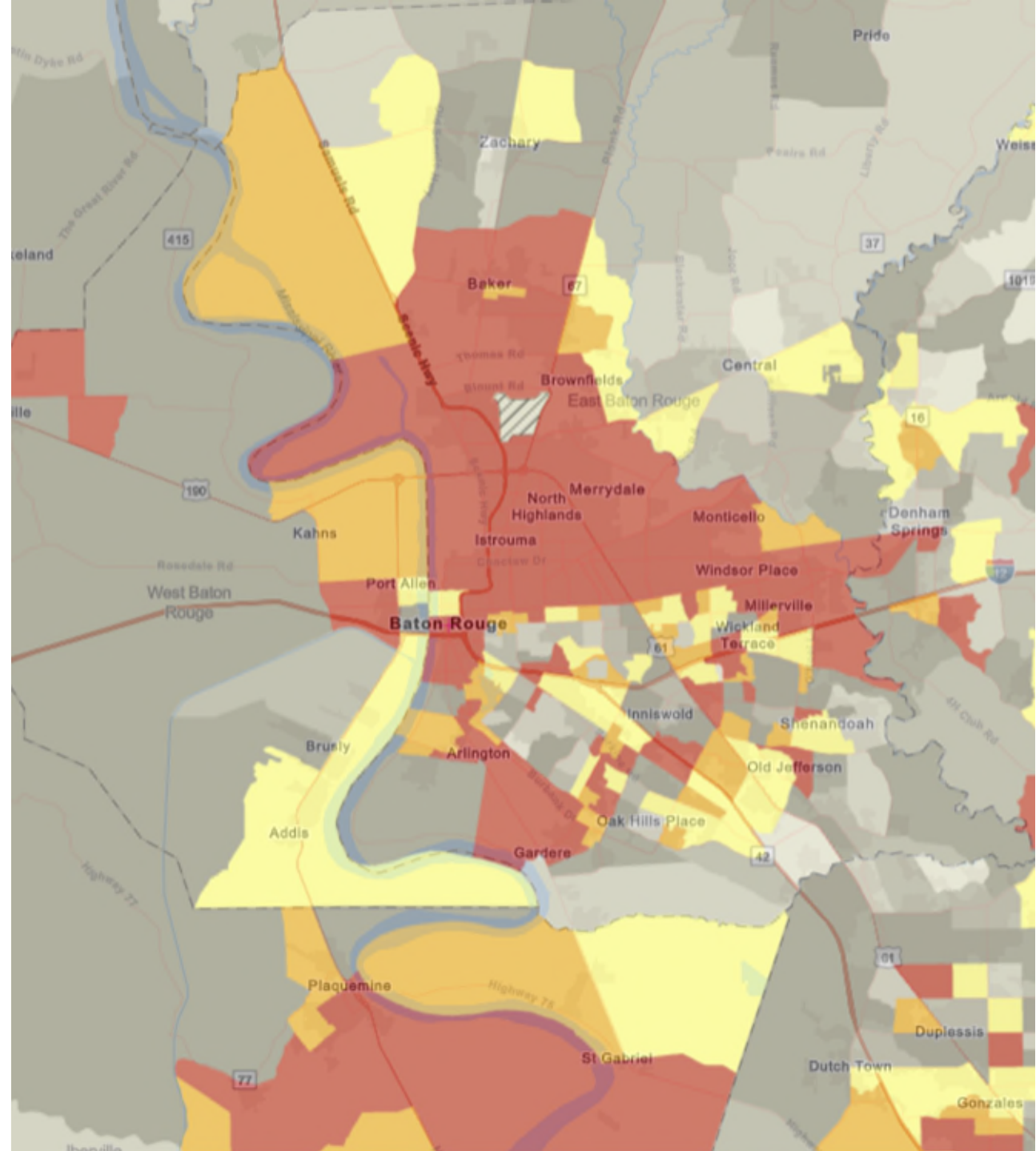
Screening for EJ factors

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 Protection 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

The screenshot displays the EJScreen web application interface. On the left, a sidebar contains a 'clear' button and a list of selection tools: 'Drop a Pin', 'Draw an Area', 'Add a Path', 'BG Select Block Group', 'TR Select Tract', 'Select City', 'Select County', and 'Select Multiple'. The main map area shows a satellite-style view of the Gardere, Longwood, and Burtville regions. A red circular buffer is centered on the L'Auberge Casino & Hotel. A 'Chart or Report' dialog box is open, showing the site name 'L'Auberge Casino & Hotel' and a buffer of 1 mile. Below the buffer information are links for 'Explore Reports...', 'EJScreen Community Report', and 'Delete this site'. The map also shows various roads, parks, and water bodies.

Community Report | EJScreen



SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (µg/m ³)	9.55	8.62	90	8.08	84
Ozone (ppb)	62.2	59.8	94	61.6	58
Diesel Particulate Matter (µg/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

AirToxScreen map and layers

AirToxScreen

2019 Cancer Risk
2018 Cancer Risk
2017 Cancer Risk
2019 Noncancer Hazards

AirToxScreen Mapping Tool (based on 2019 emissions)

Zoom to State(s): Louisiana

Zoom to County(s): None

Select Minimum Risk to Include: No number selected

Select Only Tracts With Chang...: None

777 L'Auberge Ave, Baton Rou

To get started:

- Select tract(s) on map using selector tool in upper left corner of map. When tract(s) are selected, associated lists and charts will appear under the map.
- Zoom to a specific area using the search tool in the upper right of map by typing in a place name or by using the State and County selector tools above the map.
- Filter tracts by risk level using the Risk Level selector tool above the map.
- Filter tracts with risk changes since the analysis was performed by using the Risk Change selector tool at the upper right of the dashboard. To display a popup containing more information about the risk change, click on the tract without a selector tool chosen (toggle off by clicking again on the selector tool).
- To start over, click the 'x' in the upper left of the map next to the number of tracts selected (will only appear after tract(s) are selected).

East Baton Rouge Parish, LA
Tract ID: 22033004011

Population (2010)	4,731
Area (m2)	18,887,770
EPA Region	EPA Region 6
Total Risk (in a million)	50
1,1,2-Trichloroethane Risk (per million)	0.031648
1,2-Dibromo-3-chloropropane Risk (per million)	0.000000
1,2-Dichloroethane Risk (per million)	0.000000

Legend

Tract Changes (click in the tract for more info)

Cancer Risk (2019)

Total Risk (in a million)

- > 100 - 400
- > 75 - 100
- > 50 - 75
- > 25 - 50
- 5 - 25
- Zero Population Tracts

Facility Level Emissions (2019)

- Facility Shutdown
- Unit Shutdown

Tract Location Data

Search...

EPA Region: EPA Region 6
State: LA
County/Parish: East Baton Rouge Parish
Tract ID: 22033004011
Total Risk (per million): 50
Area (m2): 18,887,770
Population (2010 Census): 4,731

Location Air Toxic Source

Risk by Air Toxic

Ethylene oxide Risk	29.65%
Formaldehyde Risk	45.88%
Carbon tetrachloride Risk	6.84%
Other	17.63%

Risk by Source Type

Stationary Point Cancer Risk	36.29%
SECONDARY Cancer Risk	40.81%
BIOGENICS Cancer Risk	6.64%
Other	9.54%
BACKGROUND Cancer Risk	6.73%

Facility Emissions (tons)

City of Baton Rouge/Parish of East Baton Rouge - South WWTP

Manchac Point Oil & Gas Field Facility

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
$$\text{Chemical toxicity weight} \times \text{Estimated dose} \times \text{Potentially exposed population}$$

High Hazard, Low Score?

- Indicates modeling is mitigating potential risk-related impact

Risk Screening Environmental Indicators Model | RSEI


- National Trend
- Location
- Summary
- Analysis
- Transfers
- Waste Managed
- Data Download
- Report
- Modeling Data
- Contact Us

Number of TRI Reporting Facilities
46

Number of TRI Reports
5,324

Number of TRI Reporting Years
10

Total RSEI Score
43,846,478

This map allows you to view and select facilities by location. You can further refine your selection (by chemical, year, etc.) using the  button at the top right, or click Summary or Analysis at the left to investigate your data further. Click Report for a printable summary of RSEI data for your current selection.

Map Current Selection

Find TRI Facilities Near You

Select Facilities Using Filters

Enter your address below and click "Search" to view TRI facilities near you. Use the slider at the bottom to change the distance from your location.

777 L'Auberge Ave, Baton Rouge, LA 70820

Search



Note: this search is based on your current selection. If none of the facilities in your current selection are near the location you entered, you may need to expand your search distance or change your selection.

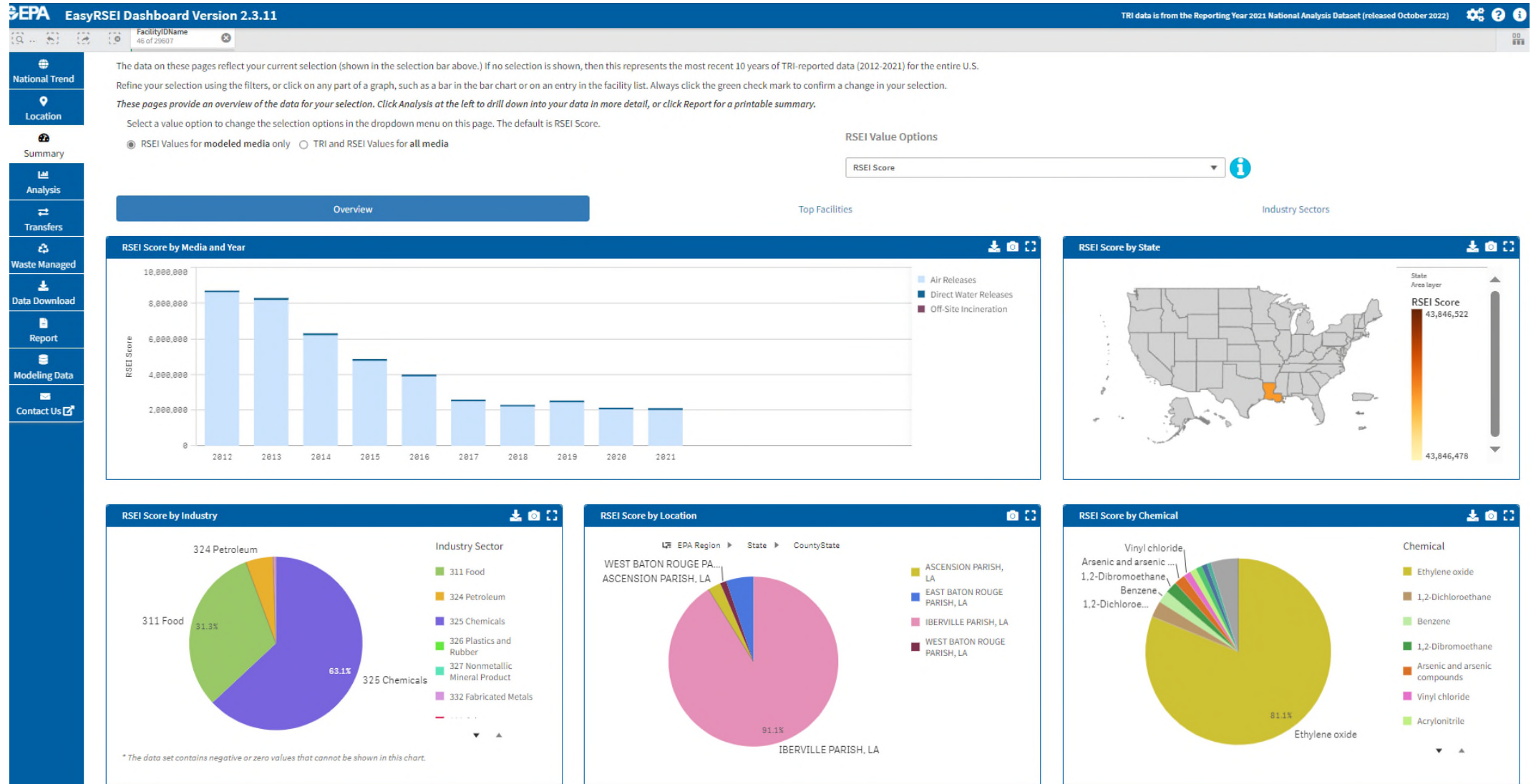
10



Searching on this tab will add any facilities found to your selection set. If you already have any selections on facilities, those selections will be cleared before the new set of facilities is added. Any other selections (e.g., by year, chemical, industry, etc.) will remain selected, and only facilities that also meet those criteria will be shown on the map.



Risk Screening Environmental Indicators Model | RSEI



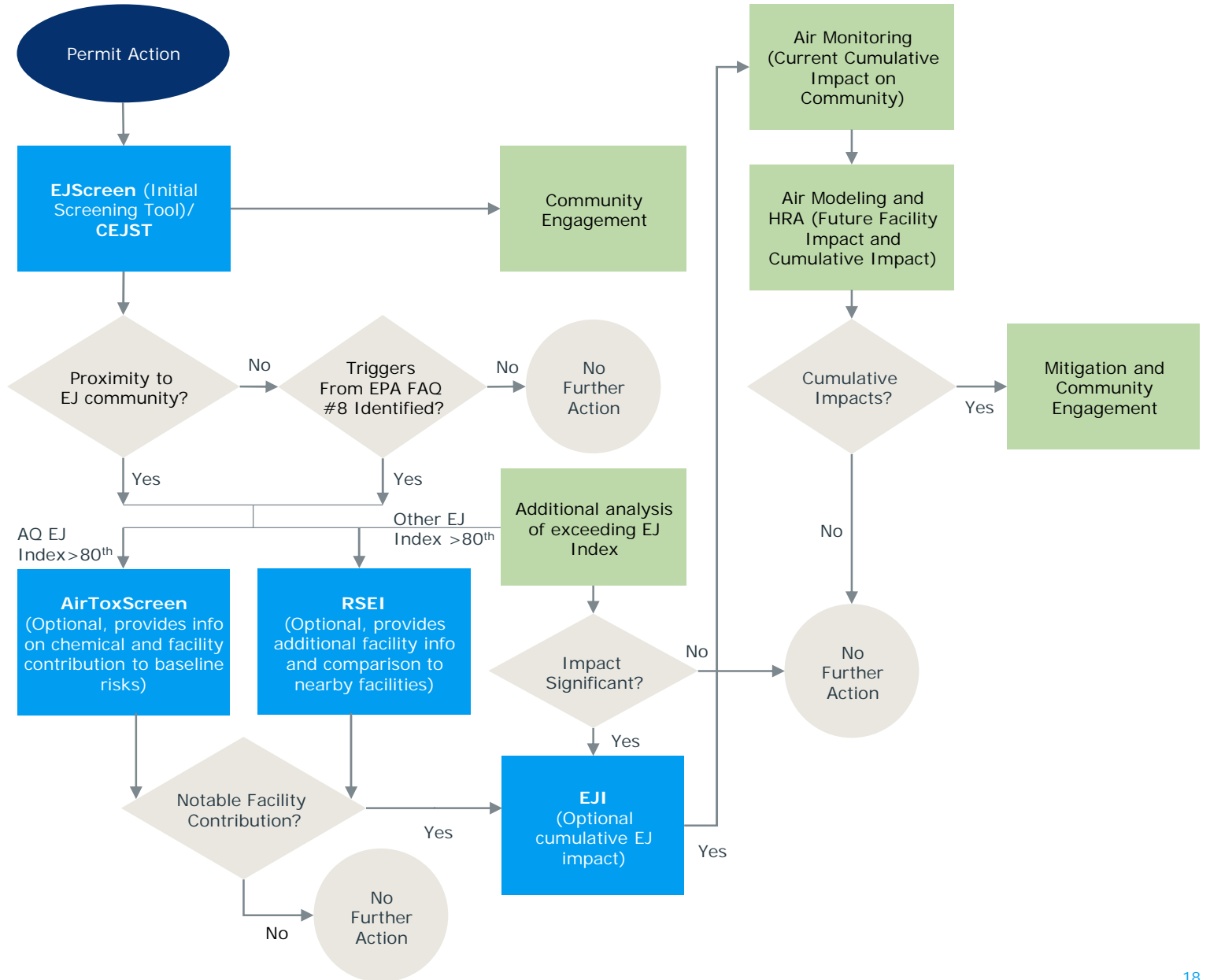
EJ in permitting



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

RAMBOLL

Bright ideas.
Sustainable change.

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/>