

OREGON ENVIRONMENTAL JUSTICE MAPPING TOOL

Prepared for the GIS Program Leaders Meeting
December 10, 2024

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OHA/PHD/EPH



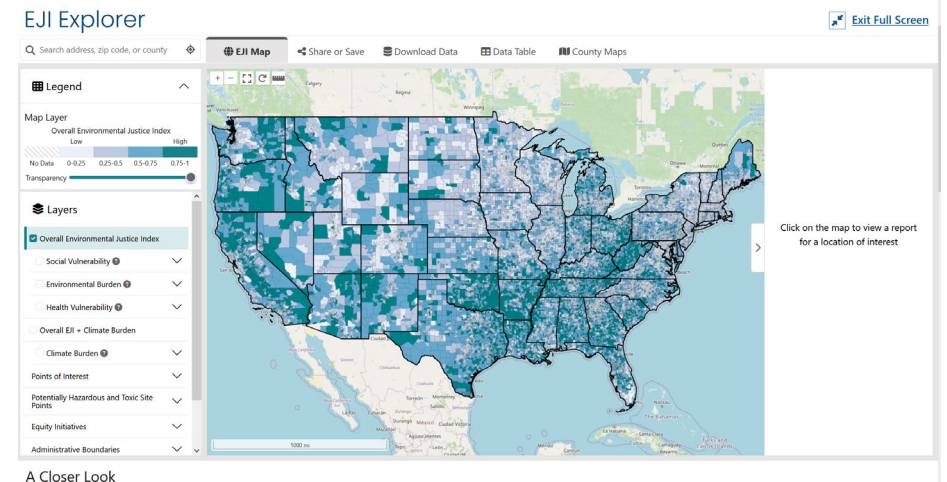
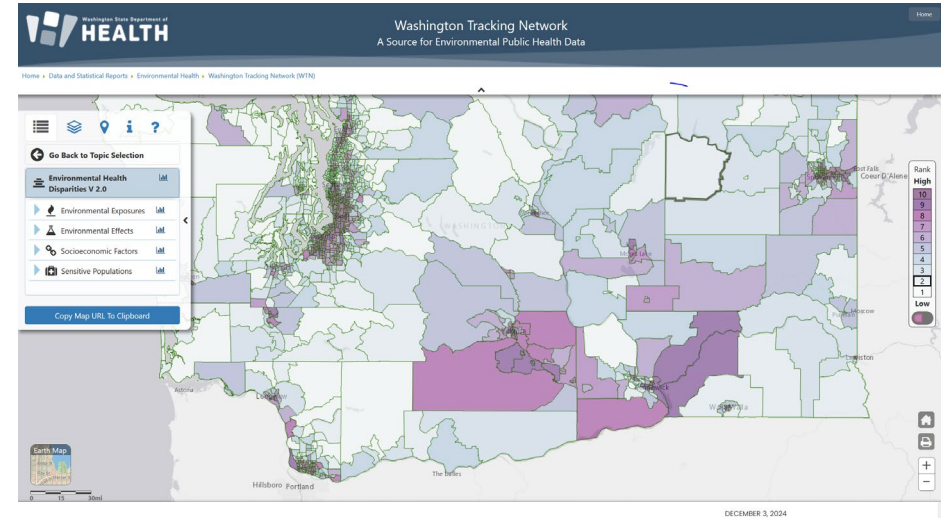
HB4077 Section 12(1)

The Environmental Justice Council shall develop an environmental justice mapping tool with staff support from:

- Department of Environmental Quality
- Oregon Health Authority
- DAS Enterprise Information Services
- Oregon State University - Institute for Natural Resources
- Portland State University - Population Research Center
- Oregon Natural Resource Agencies

STATE OF ENVIRONMENTAL JUSTICE MAPPING TOOLS

CalEnviroScreen	California
Environmental Health Disparities Map	Washington
Colorado EnviroScreen	Colorado
MiEJScreen	Michigan
Healthy Places Index	California & Utah
EJSCREEN	EPA
Climate and Economic Justice Screening Tool (CEJST)	White House Council on Environmental Quality
Environmental Justice Index	ATSDR/CDC
Climate Vulnerability Index	Environmental Defense Fund

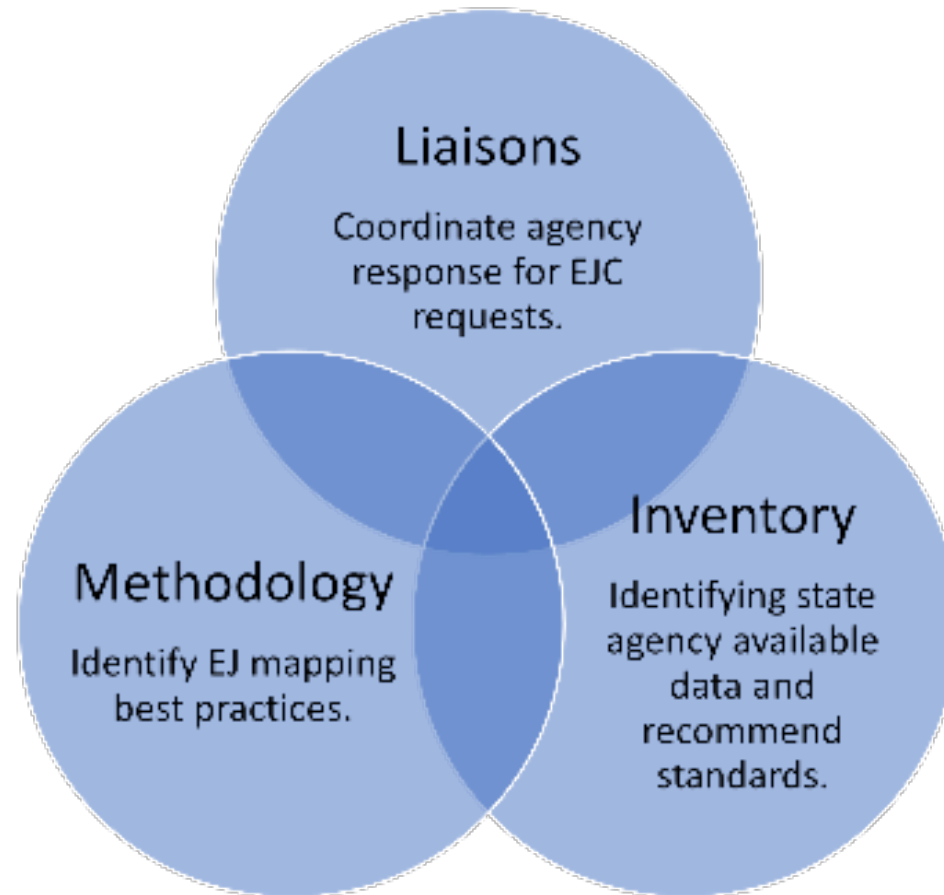


HB4077 10(4)

Environmental Justice Community

Communities of color, communities experiencing lower incomes, communities experiencing health inequities, tribal communities, rural communities, remote communities, coastal communities, communities with limited infrastructure and other communities traditionally underrepresented in public processes and adversely harmed by environmental and health hazards, including seniors, youth and persons with disabilities.

EJ Mapping Tool Leadership Team



Decision Points:

- #1 • Indicator domain selection: Completed April 2024
- #2 • Geographic units (tracts, grids, etc.): Completed April 2024
- #3 • Geographic designations: Completed June 2024
• Geographic comparisons: Completed June 2024
- #4 • Indicator weighting: Completed October 2024
- #5 • Domain aggregation (multiplicative, additive, etc.): Completed October 2024

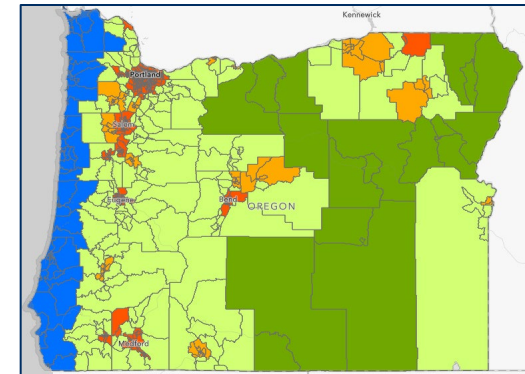
- #6 • Data standardization (percentiles, z-scores, other): Completed October 2024
- #7 • Indicator selection - community listening session priorities and data gaps: Initial Discussion Beginning December 2024
- #8 • Sensitivity analysis results - revisit indicator selection and data gaps
- #9 • EJ community thresholds/flags
- #10 • EJ mapping tool visualizations & reporting

Key Decisions: Index Domains & Subdomains

Oregon Environmental Justice Mapping Tool	
PLACE <ul style="list-style-type: none">• Environmental Exposures• Environmental Hazards• Climate Change Risks• Built Environment	PEOPLE <ul style="list-style-type: none">• Human Health Disparities• Demographic and Social Factors

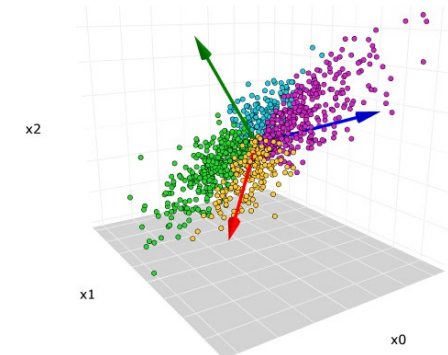
Key Decisions:

- Communities will be defined by **Census tracts**.
- Communities will be assigned a designation: **Coastal, Remote, Rural, Large City, Small City**.
- Communities will be compared **statewide** and by **designation**.



Key Decisions: Indicator Weighting

- **Principal component analysis** will be used to weight indicators for the first version of the Oregon Environmental Justice Mapping Tool because PCA measures inequities.
- **Conjoint analysis** will be used to weight indicators in future versions of the Oregon Environmental Justice Mapping Tool because it gives communities more control over indicator weighting.



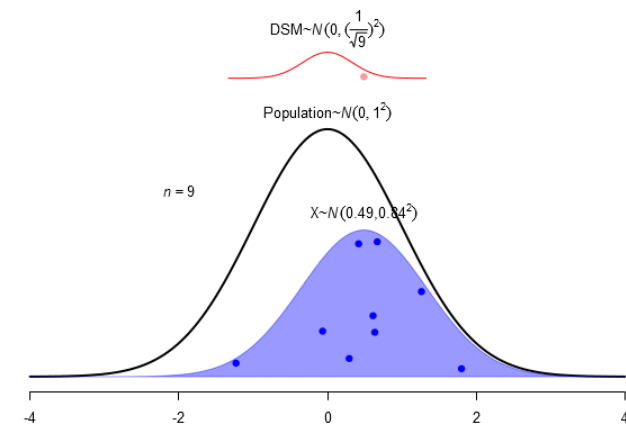
Key Decisions: Domain Aggregation

- Indicator domains will be aggregated using a multiplicative approach because environmental exposures are multiplicative in vulnerable populations.

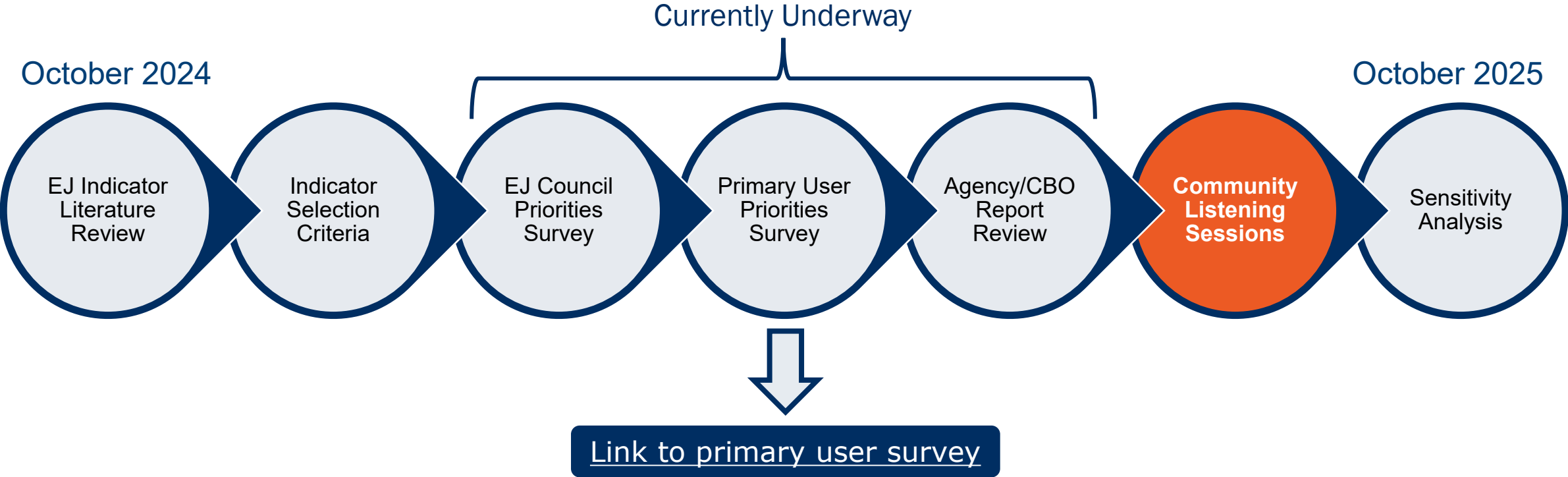
$(\text{Environmental Exposures} + \text{Environmental Hazards} + \text{Climate Change Risks} + \text{Built Environment})/4 \times (\text{Human Health} + \text{Social Factors})/2 = \text{EJ Index Score}$

Key Decisions: Data Standardization

- Z-scores will be used to standardize data because they capture magnitudes of difference better than percentiles.
- Data will be winsorized to remove extreme outliers and rescale z-scores between 1-99 for easier interpretation.



Indicator Selection Process:



Community Listening Sessions:

Six listening sessions will be held between 2025-2027

Phase 1 (2025)

- Community concerns & indicator prioritization

Phase 2 (2026)

- How communities will use the EJ Mapping Tool

Phase 3 (2027)

- Tool design and usability feedback

QUESTIONS?

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