IMPROVING DIESEL PARTICULATE MATTER EXPOSURE ASSESSMENT FOR VULNERABLE POPULATIONS

LESSONS LEARNED FROM THE COMMUNITY-SCALE AIR TOXICS MONITORING 2017 AWARD
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Coordinated by Meenakshi Rao (DEQ)
Figure 112: Comparison of Times above Benchmark between 10 and 50 Selected Block Groups Based on Income and Percentage Minority and Average Times above Benchmark for all Block Groups within PATS Study Area.
1. Identify two communities with high vulnerability to DPM
2. Characterize DPM emissions
   a) Assess the contributions of different sources to DPM in these two vulnerable communities
   b) Inform these two communities about the sources of DPM impacting them
Goal 1
Identify two vulnerable communities

Vulnerability = exposure + socioeconomic + pop

exposure:
DPM
NO2

socioeconomic:
% non-white
% poverty
% no high school education
% under 18
% over 65

pop: # of people exposed

Identified Cully and Jade neighborhoods as vulnerable communities

Yasuyo Makido & Vivek Shandas
Goal 2a
Characterize sources of DPM
Focus on (based on PATS):
Construction
Railways
Marine
Distribution Centers
Goal 2: Characterizing DPM

Characterizing rail

Emission factors based on engine tier
Rail engine activity characterization

Engage students!
Reed ES 200 class

Rail emission factors and activity patterns
Kirsten Sarle & Linda George
Goal 2: Characterizing DPM
Characterizing construction

Attribute DPM based on construction size
Connect to PDX permit database
Tool for visualizing DPM from construction

Construction emissions and spatial patterns

Lyndsey Boyle & Linda George
Goal 2a: DPM impacting communities

DPM model
- 2020 emissions estimate*
- Improved met
- Emissions updated based on observations:
  - Rail
  - Marine
  - Construction
  - Distribution Centers

Updating PATS DPM model
Andrew Rogers & Linda George
Goal 2b: Inform communities

Original plans
* Two communities
* In-person

Pandemic-adapted plans
* All communities?
* virtual? Leveraging partnerships?

Visualizing DPM at the neighborhood scale
Cordero Ortiz, Andrew Rogers, Linda George & Vivek Shandas
Goal 2b: Inform communities

Added policy scenarios:
- Switching shore power to electric
- Clean construction
- HB 2007 (2010 compliant vehicles)
- HB 2007 + 20% vehicle electrification
- HB 2007 + 40% vehicle electrification
- HB 2007 + 60% vehicle electrification
- HB 2007 + 80% vehicle electrification
Community Engagement

Community Engagement Workgroup Members
- The Community Engagement Workgroup consists of representatives from local community based organizations, educational and governmental institutions.
  - Neighbors for Clean Air
  - Unite Oregon
  - Verde
  - Multnomah County
  - Oregon Department of Environmental Quality
  - Portland State University
Transforming the Community Engagement Approach

Initial Proposal
- 3 workshops
- build community knowledge of diesel among underserved and environmentally burdened communities
- inform policy strategies to reduce the impact of diesel pollution on these communities

Updated Approach
- Coordinate engagement efforts to
  - include more than a handful of one-off educational workshops
  - align with communities’ needs; support unique, culturally relevant engagement
  - take advantage of resources of and commitments made by County and DEQ
  - fuel deeper, long-term, transformational engagement that enhances understanding of diesel pollution, connects lived experiences with data that visualizes exposure, and share connections with each other to influence changes in policies
Community Engagement Planning and Opportunities

Planning Process
- Community Engagement Workgroup meetings began nearly one full year before both results of data collection and the visualization tool were complete
- Nearly a dozen planning meetings were held
  - discussions concerned ...
  - facilitated by ...
  - consisted of workgroup meetings and one on one meetings

Engagement Opportunities
- Unite Oregon: Listening Tour & Mapping Justice
- Verde: Lideres Verde Cohort Workshop
- NCA: Continued Engagement with Partners and Potential Partners
Partner Commitments for Successful Community Engagement

- Language Translation
- Technical Support
- Enhance Tool with Additional Layers
- Provide Resources for Understanding
- Create a Story Map Combining Lived Experiences with Diesel Mapping Data
- Constituent Convenings with Elected Officials

Evaluation

- Potential discussed but not yet finalized, focus on transformational metrics
- Quantitative Examples
- Qualitative Examples
Transition to Nakisha