

# **Reducing Diesel Emissions, Improving Air Quality, and Promoting Environmental Justice in Southwest Detroit**

by

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*Abstract:*

This practicum was designed to assist Southwest Detroit Environmental Vision (SDEV) in identifying opportunities to address ongoing diesel truck emissions and idling in Southwest Detroit. This practicum utilizes a community-based participatory research (CBPR) approach that emphasizes a co-learning and reciprocal transfer of knowledge between community participants and researchers (Israel et al. 1998). In recent years, CBPR partnerships have seized opportunities to fill the gaps of traditional scientific approaches that often do not take the lay knowledge of communities into account, and may, as a result, miss critical data and/or community insights in data interpretation that could benefit disadvantaged communities (Corburn 2005, 2007; Corburn et al. 2013; Gonzalez et al. 2011; Minkler & Wallerstein 2010).

A “three-prong toolkit” was developed to collect critical data from three distinct groups; 1) trucking/logistics companies, 2) policy stakeholders, and 3) community members. Results of the trucking/logistics survey revealed that 23% of companies did not have internal policies on idling and 38% of companies were unaware of the City of Detroit’s Anti-Idling Ordinance. Results of the policy stakeholder survey revealed the critical need for a policy “champion” from within city government to foster the partnerships necessary for effective implementation and enforcement of the citywide ordinance. The third-prong of the toolkit, a community “hotspot” survey, will be conducted during the summer of 2015. This survey will utilize local knowledge in the identification of diesel truck idling hotspots. Several recommendations are offered including continuing community-based participatory research initiatives, maintaining and strengthening local, regional, and national partnerships, and increasing focus and efforts on policy analysis and advocacy. The ultimate goal of this practicum is to support the creation of a strategic plan utilizing a community-driven approach to equitably enforce the City of Detroit’s Anti-Idling Ordinance.

## Introduction

### Client Organization Background:

SDEV is a 501(c)(3) nonprofit organization with a mission to improve the environment and strengthen the economy of Southwest Detroit. Southwest Detroit is the most diverse, densely populated, and one of the fastest growing area in the City with over 77,000 residents and a vibrant local retail economy spurred by immigration. Southwest Detroit and the adjacent South Dearborn are home to some of the largest populations of minority children and immigrants in the region and country. Southwest Detroit hosts a thriving Mexican-American community and South Dearborn has a large Arab-American demographic, both with significant non-English speaking segments, and the City of Detroit is home to a large African-American population.

SDEV works together with residents, community organizations, government agencies, schools, business, and industry to combat environmental issues including indoor and outdoor air quality, blight, and incompatible land use. SDEV has done extensive work to reduce diesel emissions in the community and the city of Detroit. In 2012, SDEV received the Midwest Clean Diesel Initiative Leadership Award. Since 2009, SDEV has partnered with local industry to reduce diesel pollution and has reduced 5,500 tons of diesel emissions annually. More than 25 local businesses, municipalities, and government agencies have invested over \$11- million of private funds and matching government grants. SDEV has done extensive engagement with the community, including trainings with both community members and community youth in diesel truck observational methods and collection of diesel truck traffic measurements through “truck counts.” SDEV also partnered with a local radio station to coordinate a text-reporting systems for listeners to identify and report illegal truck-idling.

Despite many past successes in reducing truck idling and diesel emissions in the community, there is more work to be done. SDEV currently lacks the funding and capacity to continue to move forward to identify and reduce diesel emissions from idling in disproportionately impacted communities. SDEV needs support to identify and analyze idling hot-spots, engage community stakeholders, decision-makers, and trucking companies, and develop policy recommendation to guide effective implementation and enforcement of the City of Detroit’s Anti-Idling ordinance.

### Diesel Pollution and Federal Policy

Diesel exhaust is created when diesel fuel is burned by trucks, ships, rail, and other machinery that have diesel engines (Sampson 2013). Diesel exhaust is made up of a complex mix of small particles and gases. Many studies have demonstrated a spatial gradient of traffic related air pollutants (including NO<sub>x</sub>, CO, elemental or black carbon, ultrafine and coarse particles, and mobile source air toxics) with elevated concentration near roads that generally return to levels upwind of the roadway within a few hundred meters (Baldauf et al., 2008; Barzyk et al., 2009; Hagler et al., 2009; Hu et al., 2009; Kittelson et al., 2004; Reponen et al., 2003; Thoma et al., 2008; Vette 2013; Westerdahl et al., 2005; Zhou and Levy, 2007; Zhu et al., 2002, 2004, 2006). Factors such as the type of roadway, traffic volume and intensity,

meteorology and background concentrations all effect the extent of the spatial impacts (Zhou and Levy, 2007; Zhu et al., 2004, 2006). A literature review by the Health Effects Institute synthesizes hundreds of epidemiological studies between 1980 and 2008, identifying an “exposure zone within a range of up to 300 to 500 m from a highway or a major road as the area most highly affected by traffic emissions” (HEI, 2010; Sampson 2013).

Diesel particulate matter (DPM) is listed as a mobile source air toxic for which regulations are to be developed under the Mobile Source Air Toxics section of the Environmental Protection Agency’s (EPA) Clean Air Act. Starting in 2007, new regulations were introduced by the EPA to require dramatic reductions in emissions from new diesel vehicles. In 2009, EPA Administrator Lisa Jackson issued an “Endangered Finding” and “Cause or Contribute Finding” under the Clean Air Act, which required prerequisites to emissions standards and legally acknowledged the public health effect of vehicle emissions. Following this action, the EPA and National Highway Traffic Safety Administration established updated standards for both light-duty and heavy-duty vehicles.

According to the Clean Air Task Force however, these federal regulations are not enough. While EPA has mandated the phase-in of cleaner new engines and fuels for highway vehicles and heavy equipment, EPA has limited authority to mandate emissions controls on the fleet of existing diesel vehicles. Because the lifespan of the average diesel vehicle is nearly 30 years and many diesel vehicles are driven over a million miles, the Clean Air Task Force recommends clear and measurable reductions in diesel particle emissions which would help reduce emissions from older vehicles. The Clean Air Task Force also recommends that states and cities enact legislation and regulations to require reductions in diesel emissions to supplement EPA policy (CATF 2005).

### *Diesel Pollution and Environmental Health Justice*

Diesel exhaust can pose serious health risks including asthma, cardiovascular and respiratory diseases, cancers, hospitalization, and death (Schulz & Northridge 2004). Prospective studies have shown a positive relationship between traffic-related air pollution and the onset of asthma in children (Jerrett et al. 2008) as well as adverse effects on the growth of lung functioning in children ages 10-18 years (Gauderman et al, 2004). A nested case-control study in British Columbia, Canada found that elevated exposure in-utero or in infancy to traffic-related air pollutants such as nitrogen dioxide, carbon monoxide, and black carbon was associated with higher risk of asthma in children under age five (Alderson 2010). Diesel exhaust contains ultrafine particles which are shown to be especially hazardous to health due to their ability to escape the body’s defenses and quickly enter the lungs and circulatory system (Fruin et al. 2008).

Prior research has shown significant environmental health impacts from heavy-duty diesel truck container transport traffic at local levels (Houston et al. 2008). Populations most at risk for the adverse health effects of diesel exhaust include infants and children, the elderly, and persons with preexisting respiratory and other conditions. Communities near environmental sources, such as major truck routes are also at most effected (Schulz & Northridge 2004). Low-income communities with major “goods movement” activity related to international

trade are exposed to a larger proportion of diesel trucks, including those moving containers (Schulz & Northridge 2004; Houston et al. 2008).

While few known studies confirm the demographic composition near U.S. freight gateways (Rosenbaum, Hartley, & Holder, 2011), the EPA has made an exploratory “initial screening” (p. 4) study at 47 marine ports and 33 rail yards, finding that at least 13 million people are “in the vicinity” (p. 4) of these facilities. This population is disproportionately low-income, African-American, and Hispanic (EPA 2009). Racial and economic disparities in exposure to heavy-duty diesel emissions occur within the context of structural inequalities, including racial segregation, a lack of economic opportunity, disinvestment, and declining property values (Houston et al 2004). Studies in California port communities have shown that nonwhite children are about three to four times more likely to live in communities with high-density traffic compared to white children (Gunier et al 2003). Additionally, minority and high-poverty neighborhoods in Southern California bear more than twice the level of traffic density as the rest of the region and are disproportionately exposed to concentrated near-roadway air pollution (Houston et al 2004).

The emergence of environmental justice organizations, political alliances, and mobilizations led by low-income communities of color illustrates the ongoing success in addressing environmental health disparities (Schulz and Northridge 2004). These alliances have successfully advocated for both local and federal policy changes, most notably Executive Order 12898, signed by President Bill Clinton in 1994 (Lui 1997). This order requires federal agencies to “identify and address disproportionately high and adverse human or environmental effects of their programs, policies, and activities on people of color and impoverished communities in the United States and its territories and possessions” (Northridge et al 2003, p209). Sustained action and mobilization of local environmental justice organizations often prove to be successful in reducing environmental health disparities by, for example, influencing local transportation policies and encouraging enforcement of existing environmental regulations. (Schulz & Northridge 2004).

### *Community Impact in Southwest Detroit*

Southwest Detroit hosts significant environmental hazards. This section of Detroit is home to Michigan’s only oil refinery, a sewage treatment plant that serves 126 communities, and a significant clustering of the City’s point-source polluters (see *Figure 1: Map of Detroit Area Air Emissions*). In addition to these polluters, Southwest Detroit also hosts a disproportionate level of mobile source pollution from vehicles associated with the Ambassador Bridge crossing between the US and Canada and a 300 acre intermodal freight yard. The Ambassador Bridge is the busiest international border crossing between the US and Canada, with approximately 3-4 million trucks crossing the Ambassador Bridge annually (10,000 trucks daily). Detroit also has 70,000-90,000 trucks daily on major corridors (I-75, I-94, I-96, 7 Mile and M39).

Diesel emissions are likely carcinogenic, exacerbate asthma attacks and allergies, and contribute to ground level ozone. According to the Michigan Department of Health and Human Services, the average asthma hospitalization rate for Southwest Detroit children has historically been over twice the average rate of asthma hospitalization for Michigan children

(51.3 per 10,000, as compared to 23.9 per 10,000). Heart disease, cancer, and diabetes are bigger causes of death in Detroit than they are statewide or nationally. Exposure to environmental pollution is a contributor to these types of disease, along with many other illnesses and health impacts such as low birth weights, infant mortality, respiratory disease, and obesity (SDEV 2013). People near major transportation corridors experience higher exposure to hazardous pollutants (Rosenbaum, Harley, & Holder 2011) and residents in Southwest Detroit are at risk for elevated acute exposures to diesel emissions linked to truck traffic from the Ambassador Bridge (Hammond et al 2008). The Clean Air Taskforce also identifies people living near major bridges to be at higher risk for adverse health effects of diesel exhaust exposure. Children, the elderly, and people with existing heart or lung disease, asthma or other respiratory problems are most sensitive to the health effects of fine particles. Children are more susceptible to air pollution than healthy adults because their respiratory systems are still developing; they have a faster breathing rate and breathe more air per unit of body weight (ATSDR 2014).

### *The City of Detroit Anti-Idling Ordinance*

Heavy-duty truck idling occurs non-stop during crossing hours on the Ambassador Bridge and truck traffic frequently extend through Southwest Detroit neighborhoods (Hammond et al 2008). Heavy-duty trucks often idle when workers load and unload cargo. There are also many myths associated with truck idling. Some heavy-duty truck drivers often incorrectly believe that idling for extensive period of time before or after trips will increase vehicle health. Additionally, idling may occur for long period of time at truck stops and rest areas when driver keep their engines running to maintain cabin heat or air conditioning while resting (Serra 2012; Wolman 2006). In order to combat unnecessary diesel truck idling, the City of Detroit passed an “Anti-Idling” ordinance in 2010. This ordinance restrict commercial vehicles from idling for more than five minutes under most circumstances. The Anti-Idling Working Group comprised of environmental justice organizations, local councils of government, and clean energy groups played a critical role in increasing awareness and supporting enforcement efforts. Despite the success in passing this ordinance, implementation and enforcement have proven to be an ongoing challenge (Dillingham & Greenberg 2014).

### *Practicum Overview*

The planning period for this practicum included multiple meetings with faculty advisors and client organization staff to determine the appropriate approach to the research. In addition to an *observational survey* conducted at a locally identified idling “hot-spot,” a case-study analysis was conducted to facilitate discussion on best practices developing local strategies in addressing diesel truck idling from a community-based participatory research approach. The West Oakland Environmental Indicators Project (WOEIP) was identified and a case-study analysis was conducted (see *Appendix: Case Study Analysis*). In line with this case, a three-prong approach to research was established to collect information from three groups identified as critical to the success of the practicum. These groups included 1) trucking/logistics companies, 2) policy stakeholders, and 3) community members.



## Observational Survey

### Design and Approach:

Observational research methods are effective tools in documenting real world behaviors (Gray 2004). In order to observe diesel truck idling in the community, a *structured observation* survey (Robson 2007) was adapted from a prior truck count conducted by SDEV and a more comprehensive CBPR truck count conducted by the West Oakland Environmental Indicator project (BAAQMD 2009; Buchan, Jackson, and Chan 2003) (see *Appendix: Case Study Analysis*).

On October 22, 2014, the structured observational survey was conducted at a local logistics company. The company was selected because it had been identified by SDEV staff and community members as an idling “hot-spot,” meaning multiple trucks had been observed on multiple occasions lining up and idling outside the facility. The survey was designed to track the time a truck is first observed approaching the company, the amount of time spent idling, and additional identifiers including the name of the company, the approximate age of the truck, the presence of visible soot on the truck, and other observations.

During the observation, only a limited number of trucks were identified idling for long periods of time (more than 5 minutes). This illustrated a number of challenges associated with this particular approach and revealed that “existing observation schedules will often not be exactly right for your purposes” (Robson 2007, p. 84). The main challenge was the limited number of time spent observing (approx. five hours on one day). Prior studies have shown that observational methods work best when they are conducted during the times when the observed action is most likely to occur (Wilson-Doenges 2001).

### Survey Analysis & Findings:

Despite the challenges associated with the one-time observational survey approach, this survey revealed many interesting conclusions. First, because the executive director of SDEV notified the company prior to our conducting the survey, the actions of the company may have been influenced (Gray 2004). Second, this observation survey revealed the temporal nature of trucking, shipping, and logistics. We recognized that trucking volume and capacity inevitably will vary based on the time of the day, day of the week, week of the month, and month and/or season of the year. This observation revealed the need to augment any subsequent observational survey collection methods to capture and account for these temporal differences. Additionally these observations led to new lines of inquiry during the development of the *logistics survey*, including questions designed to identify the busiest times, days, and seasons. Finally, additional circumstances were observed that may contribute to truck idling outside trucking logistics companies including the number of closed and/or open loading docks, potential staffing shortages, infrastructure challenges, and other internal policies or practices.

Data from the observation revealed that:

- 7 trucks were identified as idling for 5 minutes or more
- 3 trucks were identified as idling for 20 minutes or more

- The mean time spent idling for all trucks was 12 minutes (including those idling for less than 5 minutes)
- 3 trucks were identified with visible black soot stains on their trailer

*Next Steps & Recommendations:*

Coupling observational surveys in the field with surveys completed by logistics companies may provide useful insights into trucking and logistics company practices. Observational surveys allow community-based researchers and decision makers to get beyond the opinions and/or self-interpretations of logistics companies attitudes toward careful evaluating their actions (Gray 2004). Moving forward, comprehensive “covert” observation approaches with surveyors collecting observational data from multiple sites may be needed to identify the complex nature to diesel idling in Southwest Detroit, particularly outside trucking logistics companies or other diesel idling “hot-spots.” As Robson (2007) reveals, even if the ‘right’ schedule is formed, it will take time and effort to be proficient in using observational surveying approaches. Despite the lack of significant idling on this particular day, an SDEV staff person did observe excessive idling a few weeks later on January 23, 2015 (see *Figure 2: Photo of Diesel Truck Idling in Southwest Detroit*). This indicates that idling at this particular location continues to be an ongoing issue but further research is needed to identify its patterns and potential causes or contributing factors.

## Trucking/Logistics Survey (Prong One)

### Introduction:

Based on early planning meetings with the client organization (SDEV) and practicum faculty advisory team it was determined that data from a wide range of stakeholders was an integral component to the design and successful implementation of this project. This approach was also in line with the case-study analysis of the West Oakland Environmental Indicators Project (WOEIP) (see *Appendix: Case Study Analysis*). Moving forward with project planning, the three group perspectives that were identified included 1) trucking/logistics companies, 2) policy stakeholders, and 3) community members.

To capture data from each of these groups, a “three-prong toolkit” concept was established to allow each of these groups to be uniquely targeted. This section will discuss the design and application of the first prong of the three-prong toolkit – the *trucking/logistics survey*.

### Design and Approach:

The *trucking/logistics survey* was designed primarily to collect information on whether trucking/logistics companies that operated in Southwest Detroit had internal policies on idling and were aware of the City of Detroit’s Anti-Idling Ordinance.

Questions were also asked to gauge the reasons why companies may have trucks that idle on or near their properties, whether companies have ever received complaints regarding traffic or idling, and whether any truck drivers entering or exiting their facility have ever received tickets or fines for excessive idling. A ‘yes or no’ question was also asked to identify whether respondents had ever thought about diesel pollution in Southwest Detroit to determine potential differences in responses between those who were more conscious or aware of the impacts of diesel emissions on the community and those who were not.

Additionally, drawing from the limitations identified within the observational survey, the survey was expanded to capture information based on the temporal nature of the trucking/logistics industry to identify the busiest times, days, and seasons. To gauge this information, the following questions were included:

- On average, how many individual trucks enter and exit your facility each day?
- For each day, what is the busiest time of day in terms of trucks entering and exiting your facility?
- What is the busiest season in terms of truck traffic or shipping?

Respondents were also asked to rate the significance of diesel pollution from traffic and idling, as well as pollution from industry and other sources. Finally, survey participants were asked whether they would like to learn more about the City of Detroit’s Anti-Idling Ordinance and were given the opportunity to share their contact information for future follow-up and potential partnerships.

The survey was designed using the online survey program Qualtrics. The survey was sent out via e-mail twice (once in late October 2014 and once in early November 2014). The SDEV Director of Programs sent the survey to thirty-nine (n=39) trucking/logistics companies who either worked with SDEV on past clean diesel grants or had been identified through prior SDEV truck count surveys. The trucking/logistics survey also included the SDEV logo, a statement of purpose, and a confidentiality clause on the initial page to increase credibility and confidence that participant's answers would remain anonymous and therefore increase the likelihood that participants would complete the survey (see *Figure 3: Trucking/Logistics Survey Statement of Purpose & Confidentiality Clause*).

### Survey Analysis & Findings:

Of the total number of surveys sent (n=39), a total of thirteen (n=13) surveys were completed (33%). The majority of companies (71%) identified themselves as "shipping or trucking" companies. 14 percent identified as "logistics" and 14 percent identified as "intermodal." 29 percent of respondents indicated "other" including answers such as "Material Producer," "Money delivery and pick up," "Redi-mixed concrete," and "Construction & Manufacturing." (See *Figure 4: Type of Trucking/Logistics companies*)

Principle findings from the survey indicate:

- 38% of respondents were unaware of the City of Detroit's Anti-Idling Ordinance
- 23% of respondents did not have an internal policy on idling
- 21% of respondents had not thought about the pollution that diesel trucks cause in Southwest Detroit
- 54% of respondents indicated they would like to learn more about the City of Detroit's Anti-Idling Ordinance.

Of the companies that did have internal policies on idling, a follow-up prompt asked respondent to explain their company policies. Some of the responses were vague and non-specific, for example:

*"We are to avoid unnecessary idling."*

*"Signs posted on buildings"*

"Unnecessary idling" is not defined and the second response does not provide useful details such as what the signs say, the number of signs posted, and the location of the signs. Other responses provide slightly more detail on their policies, such as

*"No idling of trucks more than 10 minutes"*

*"No idling unless cold winter nights temp below 15 degrees."*

However, only one response provided more than a one line response to the question on internal idling policy. This may indicate a general lack of a formal company policies focused specifically on idling. Further research is needed to identify the extent to which company policies are formalized and enforced.

Respondents were also asked to indicate the top reasons that trucks idle on or around their property for more than five minutes (other than heating or cooling the cabin). The responses are indicated here:

*Please check the top reason(s) (other than heating or cooling the cabin) that trucks idle on or around your facility:*

<b>Answer</b>	<b>Responses</b>	<b>Percent</b>
Delivery Schedule or Time Conflict	5	38%
We do not control what truckers do outside our gates	3	23%
Other Reason*	3	23%
Idling is required**	2	15%
Limited Loading Docks	1	8%
Limited Parking	1	8%
Limited Staffing	0	0%

\* *written responses for “other reason” included:*  
 - no idling allowed on property  
 - trucks enter our terminal then get shut off  
 - winter months to keep fuel from [BLANK]

\*\* *written responses for “Idling is required” included:*  
 - if product in mixer drum  
 - warming up the engine in cold weather

Respondents were also asked whether truck drivers entering or exiting their facilities had ever received a ticket or fine for idling in the City of Detroit. Eight percent indicated “yes,” while 46% indicated “no” and 46% indicated “unsure.” See *Figure 5*.

To gauge the potential diesel emissions generated at each site, respondents were asked the typical age of trucks entering and exiting their facilities. Older trucks were classified as 2009 model and older. The results from this question revealed that most trucks entering and exiting these facilities are older. None of the respondents indicated “almost all newer trucks” or “mostly newer trucks.” Most respondents (46%) indicated an equal ratio of older and newer trucks, while the remaining respondents indicated “mostly older” (38%) or “almost all older” (15%) trucks.

*What is the typical age of trucks that enter and exit your facility?\**

<b>Question</b>	<b>Number</b>	<b>Percent</b>
Almost all newer trucks	0	0%
Mostly newer trucks, some old trucks	0	0%
Mixed (equal number of new and old trucks)	6	46%
Mostly older trucks, some newer trucks	5	38%
Almost all older trucks	2	15%

\* older trucks are classified as 2009 model and older

Additional questions examined the patterns and volume of trucks entering and exiting facilities. The minimum and maximum number of trucks entering and exiting a facility each day ranged from 20 to 230 trucks. For each day, respondents were asked to identify the busiest time of the week. Early morning ranked as the busiest time for every day (see *Figure 6*). The busiest season was winter (38%), followed by summer (31%), other (23%), fall (8%), and no responses for spring. Other responses included “continual” and “all of the above.”

*On average, how many individual trucks enter and exit your facility each day?*

<b>Day of the Week</b>	<b>Minimum Value</b>	<b>Maximum Value</b>	<b>Average Value</b>
Monday	20	227	97
Tuesday	22	228	100
Wednesday	23	225	102
Thursday	23	230	100
Friday	23	227	99
Saturday/Sunday	0	227	65

The final questions analyzed how respondents rated diesel pollution and other sources of pollution. There was a significant difference in how respondents rated diesel *traffic* versus *idling*. Respondents viewed diesel traffic as a more significant source of pollution compared

to idling. For example, only 8% of respondents' ranked traffic as "not a significant source" or "slight source" compared to 46% for idling. Additionally, more respondents' ranked traffic as a "significant" (23%) or "excessive" (8%) source of pollution compared to idling (8% significant and 0% excessive). See *Figure 7* for a cross-comparison between pollution sources and responses.

### Limitations:

The relative small sample size of this survey indicates the need for additional information from trucking and logistics companies. Additionally, while confidentiality was assured to survey participants, based on an anecdotal conversation with a trucking company owner, additional sensitivity to company views on "proprietary" information may be needed to increase disclosure of data.

### Next Steps & Recommendations:

The data from this survey can be used to support ongoing efforts to reduce diesel idling and increase cleaner diesel options in Southwest Detroit. This survey can be used to create company "profiles" on each local trucking/logistics company to allow for the identification and ranking of key indicators and identification of specific needs for each company in addressing diesel truck idling and emissions.

Cross analysis between the volume and age of the trucks entering and exiting the facility could also be analyzed to reveal potential pollution emissions generated at each site. Additionally, survey can be analyzed to determine if differences exist between companies who recognize diesel truck idling as a more significant air pollution source and those who do not.

Key indicators could also be selected so that logistics companies could be graded based on their responses to this survey and/or follow-up surveys. For example, a "*Diesel Emissions Report Card*" could be created that grades all locally-based logistics companies based on responses to questions. This information could be useful in developing future partnerships on clean diesel and/or anti-idling policy work. This report card could also pressure logistics companies to improve their operations, increase transparency, and find solutions to reducing their diesel emissions impacts. Additionally, company profiles can assist SDEV staff in tailoring specific recommendations to specific logistics/trucking companies and providing concrete specific actions (such as increased education to drivers). Analysis of prior truck counts can be utilized to identify a list of local companies for which profiles should be created. A work plan should be developed that lays out all the key indicators, the approach to data collection, and the methodology for ranking/grading companies.

During the community forum/focus group portion of this project, community stakeholders and participants can recommend key indicators in ranking or grading trucking/logistics companies. Stakeholders can also review and co-analyze results from this survey to spark additional dialogue around improving practices and reducing idling in and around local logistics companies.

### Conclusion & Discussion:

Policies for reducing the impacts from diesel emissions around logistics companies are already in place in many other cities and municipalities (NRDC 2010). The implications of these policies can be further explored and integrated into further analysis of local anti-idling initiatives. For example, logistics companies have created policies that only allow newer trucks to enter their facilities and restrict older trucks without clean diesel upgrades. A similar policy in Detroit could provide the pressure needed to improve the diesel truck fleet serving Southwest Detroit trucking/logistics companies.

Improving logistics and scheduling can also reduce the number of trucks waiting for loading and unloading. Automating truck entry gates and locating them inside the facility and away from residential areas can reduce the number of vehicles idling in nearby neighborhoods (NRDC 2010). Logistics and trucking companies should coordinate their scheduling with shifts in the number of trucks entering and entering their facility to ensure the efficient use of staffing and loading docks. This survey can serve as a template for a review of internal scheduling to reduce diesel idling during busy times and additional observational surveys and spatial analysis could identify problematic idling hot-spots and increase opportunities to work with local trucking/logistics companies to shift these hot-spots away from residential communities or other sensitive locations.

Finally, local logistics companies can set strict idling limits to reduce emissions from trucks that are waiting, loading, unloading, or parked. Trucks can also be outfitted with auxiliary engines or batteries to operate onboard equipment (such as heating and cooling) while the main engine is off. Many new trucks are already equipped with electric connections (NRDC 2010). SDEV should work with local logistics companies to identify funding to upgrade their infrastructure to allow for electrical connections and other infrastructure improvements to reduce diesel truck idling.



## Policy Stakeholder Survey (Prong Two)

### Introduction

In 2010, the Detroit City Council passed an Anti-Idling Ordinance which restricts commercial vehicles from idling for more than 5 minutes under most circumstances<sup>1</sup>. The Anti-Idling Working Group played a critical role in working with the Detroit City Council's Green Taskforce, Detroit Police Department, local businesses, community members, and other organizations to increase awareness and support enforcement efforts by the DPD. The working group was a cross-functional team which included environmental justice organizations, local councils of government, and clean energy groups. Despite the success in getting this resolution passed, the city has struggled to effectively implement and enforce this ordinance. The policy stakeholder survey was designed to collect and analyze qualitative data from key stakeholders of the Anti-Idling Working Group for analysis of facilitating factors, challenges, and next steps in working toward more effective implementation and analysis of the Detroit Anti-Idling Ordinance.

### Policy Stakeholder Map

Prior to designing the survey, a policy stakeholder map was created to provide a visual representation of key players involved in the Anti-Idling Working Group. SDEV staff and another key policy stakeholder outside SDEV assisted in the design of the policy stakeholder map. Additional documents, including e-mails, power-point presentations, and one-page educational documents were also analyzed and integrated into the map. (See *Figure 8: Policy Stakeholder Map*)

### Design and Approach

As a researcher, it is critical to disclose the purpose of your research even if that limits participation from some stakeholders (Stewart 2000). Similar to the logistics/trucking survey, a statement of purpose was coupled with a confidentiality statement and the SDEV logo on the first page of the survey. This approach was utilized to increase credibility and confidence that participant answers would remain anonymous and communicate the importance of participation (See *Figure 9: Statement of Purpose & Confidentiality Clause*). Despite the statement of purpose and confidentiality clause, it is possible that some stakeholders declined to participate due to the political nature of the survey. Additionally, some participants completed the surveys anonymously and declined to provide their names and organizations.

The policy stakeholder survey supported the first step in a *stakeholder analysis*. The survey was designed to identify emerging themes and constructs based on responses to open-ended, semi-structured interview questions. This survey method and analysis is rooted in a single case study analysis with a specific focus on the Detroit Anti-Idling Working Group. A

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<sup>1</sup> Proposed Ordinance to Amend Chapter 55 of the 1984 Detroit City Code *Traffic and Motor Vehicles*, Article I, *In General*, and Article VI, *Stopping, Standing, and Parking*, by adding Division 5, *Idling Prohibition for Commercial Vehicles Exceeding Gross Vehicle Weight Rating of 8,500 Pounds*

hybrid approach to case study analysis was designed to that sought to identify *descriptive*, *explanatory*, and *exploratory* factors (Yin 2003).

*Hybrid Case Study Model:*

<b>Factor</b>	<b>Purpose</b>
Descriptive	<i>Describe processes and context of the working group</i>
Explanatory	<i>Identify facilitating factors and challenges to working group effectiveness and success</i>
Exploratory	<i>Feed results into community forum/focus group and ongoing action research</i>

The policy stakeholder survey was designed in collaboration with key stakeholders involved in the working group. Thirteen semi-structured, open-ended interview questions were designed to allow for qualitative analysis of responses. Due to time constraints, an online Qualtrics survey was utilized that allowed for typed responses to open-ended responses. The survey was sent to 60 stakeholders who were identified through e-mails sent to the working group.

The survey was designed to identify key strengths and weaknesses in the Anti-Idling Working Group as well as recommendation for strategies and partnerships moving forward.

Key survey questions included:

- In your opinion, what were the key strengths/weaknesses of the Anti-Idling Working Group?
- Who should have been involved in the Anti-Idling Working Group who was not?
- How could the City of Detroit’s Anti-Idling Ordinance be better implemented?
- In your opinion, who must be at the table for enforcement of the Anti-Idling Ordinance to be successful?
- What recommendations do you have for the next phase of work in implementing and enforcing the Anti-Idling Ordinance?

Additional questions asked participants to rank their level of involvement in the working group, disclose any recent changes in their positions or organizations, and determine their interest in participating in a follow-up community forum focused on anti-idling initiatives. Participants were also asked to identify other stakeholders that they recommend take the survey. A full list of survey questions is attached in *Figure 10: Policy Stakeholder Interview Questions*.

**Survey Analysis & Findings:**

Fourteen participants responded to the survey, however not every respondent answered every question. Eight respondents indicated that they participated in the working group.

Four respondents identified themselves as being “heavily involved” and four identified themselves as being “slightly involved.”

During the analysis, questions were separated into two categories, *descriptive* and *inferential*, based on the types of responses provided. Descriptive questions yielded simple lists, for example, a recommended list agencies or organizations to target for future involvement. Inferential questions revealed emerging themes that could be analyzed for content and relationships.

Inferential responses were coded and analyzed. Dependent and independent variables (emerging constructs) were also identified and are also listed below:

***In your opinion, what were the key strengths of the Anti-Idling Working Group?***

- Dependent Variable: *Working Group Strengths*
- Independent Variables: *Political Champion; Team Performance & Cohesiveness*
- Highlighted Responses
  - “*[The city stakeholder] was able to get people to the table that otherwise might take the group less seriously if requests were only made by the community or non-profits*”
  - 
  - “*[The working group was] organized, knowledgeable, and worked well together*”

***In your opinion, what were the key weaknesses of the Anti-Idling Working Group?***

- Dependent Variable: *Working Group Weaknesses*
- Independent Variables: *Problems with Enforcement; Lack of Involvement; Need for Education & Outreach; Loss of Political Champion*
- Highlighted Responses
  - “*One [key city stakeholder] left if all fell apart. There was no more momentum*”
  - “*You did not have any magistrate or judge at the meetings*”

***How could the City of Detroit’s Anti-Idling Ordinance be better implemented and/or enforced?***

- Dependent Variable: *Effective Ordinance Enforcement*
- Independent Variables: *Political Will; Improved Capacity & Education; Improved Communication & Coordination*
- Highlighted Responses
  - “*There will need to be coordination among the departments... and clear communication that this is a priority that the city is taking on*”
  - “*The city [must] decide to do it. Have the willpower to.*”

*“The ordinance should be modified with input from courts as well as DPD”*

*“Education of enforcement personnel”*

See *Figure 11* for a more comprehensive analysis of participant responses in relation to emergent themes and constructs.

#### Limitations:

A major limitation in this analysis was the lack capacity to conduct in-person, in-depth interviews. Many responses were short and lacking in depth and detail. In-person interviews could have further explored some of the emerging themes and constructs by utilizing prompts and probes to reveal a deeper and more detailed understanding of the issues and contexts (Gaskell 2000). Additionally, responses were not cross analyzed based on the participants’ level of participation in the working group or their representative organization or agency. Additionally, participant responses could be integrated back into the policy stakeholder map to provide further insights and analysis however the small sample size and the fact that many participants answered questions anonymously creates challenges for additional cross analysis between survey response groups.

#### Next Steps & Recommendations:

The Anti-Idling Working Group should reconvene and also identify a key policy stakeholder within the city government to “champion” ongoing anti-idling initiatives. This champion could address many of the critical challenges and support facilitating factors identified in the policy stakeholder survey and lead to effective implementation and enforcement of the Anti-Idling Ordinance. Additionally, descriptive responses and lists of partners provided within the survey should be integrated into ongoing strategic planning to ensure that a diverse range of representation is included. The Anti-Idling Working Group should co-analyze and discuss the policy stakeholder survey data and results. Co-analysis of data can also allow for collaborative determination of whether the results add to knowledge or increase confidence of existing knowledge (Mays & Pope 2000) and improve collaborative partnerships.

The policy stakeholder map can also be more fully integrated into ongoing analysis. Policy mapping can be an effective tool in strategic decision-making in complex policy environments by creating a holistic, comprehensive picture of the policy and operational drivers associated with complicated, multi-jurisdictional problems (Silfer, Sulek, & Mayer 2011). The policy stakeholder map can be more fully integrated with existing and future stakeholder survey data to expand and capture policy drivers.

Further analysis can also be conducted to identify differences in answers based on respondents’ level of involvement in the Anti-Idling Working Group. However, as mentioned in the limitations section, this may prove challenging without collecting additional data. In-person interviews could be conducted to further explore emerging constructs by utilizing prompts and probes to reveal a deeper and more detailed understanding of the issue and questions and future approaches can also be revised as stakeholder experiences are better understood (Bamberger 2006).

*Conclusion & Discussion:*

This analysis reveals several critical needs for improved implementation and enforcement of the City of Detroit's Anti-Idling Ordinance. Future work will need to address challenges and facilitating factors identified in this analysis and develop strategic plans for ongoing work.

Ultimately, the hope is that this survey (and practicum more generally) can facilitate movement toward an effective strategic plan to enforce the Anti-Idling Ordinance to protect vulnerable populations, improve air quality, and reduce environmental health disparities.

## Community “Hot-Spot” Survey (Prong Three)

### Introduction

Utilizing community hot-spot survey data and analysis, community hot-spot maps will be generated to allow for spatial analysis of newly collected diesel truck idling data. Often times, traditional scientific approaches do not take the lay knowledge of communities into account, and may, as a result, miss critical data and/or community insights in data interpretation that could benefit disadvantaged communities (Corburn 2005, 2007; Corburn et al. 2013; Gonzalez et al. 2011; Ibañez-Carrasco 2011; Minkler et al. 2010). The final prong of the toolkit will focus on identifying diesel truck idling hot-spots directly from the knowledge of community members. Community mapping is an important way to identify the locations within communities that may experience disproportionate levels of exposure (NRDC 2010).

In a case study in Los Angeles, data collected by community members revealed that environmental health hazards were more severe than the official data being used to guide regulatory policy. This “ground-truthing” approach expanded the capacity of community stakeholders to successfully push for improved assessment of environmental hazards and regulatory reforms (Morello-Frosch et al. 2013). Ground-truthing approaches help to bridge the divide between what city officials believe is happening and what community members knows they are experiencing. Ground-truthing approaches can also provide the critical evidence needed to reform or improve regulations to better protect marginalized communities while also building community-capacity and strengthening opportunities for community self-determination. The community hot-spot survey will strive to integrate and center local knowledge or “knowledge that does not owe its origin, testing, degree of verification, truth, status, or currency to distinctive...professional techniques, but rather to common sense, casual empiricism, or thoughtful speculation and empiricism” (Lindblom & Cohen 1979, p. 12). Local knowledge will then be “combined with insights, tools, and techniques from disciplinary science” in what has been termed “street science” (Corburn 2005, p. 12)

SDEV has already conducted considerable local data collection utilizing local knowledge. SDEV has worked with the Southwest Michigan Council of Government’s (SEMCOG) to develop and implement truck count methods for collecting diesel truck traffic data in the community. SDEV staff conducted their first set of truck observations in spring of 2009. The main purpose was to see what companies were consistently driving through the community and reach out to them to be part of a clean diesel grant project. In the summer of 2010, SDEV organized a larger effort, which involved community resident volunteers and other stakeholder volunteers. SDEV developed observation materials and held trainings for interested volunteers. They also asked people to report areas where they felt truck traffic was a major concern. Multiple sites were observed different sites. A final truck observation survey was conducted in the summer of 2011 with a focus on four new locations (See *Figure 12: SDEV Truck Observation Data*). SDEV also had a partnership with WDET (Detroit public radio) during 2009-2010 where they asked listeners to text locations of idling trucks. SDEV utilized this data to identify locations for truck observations. An initial basemap of

SDEV truck count observation has been created (see *Figure 13: Truck Observation Map*) however additional maps and spatial analysis can be conducted.

SEMCOG also hosts the Regional Traffic Counts Database (RTCD), a database collected and provided by the Michigan Department of Transportation (MDOT). MDOT also hosts Average Daily Traffic (ADT) Maps on their website (see *Figure 14: MDOT ADT Map*) Newly collected idling hotspot data can be cross analyzed with existing datasets to “groundtruth” local knowledge and support community and policy stakeholders in their ongoing efforts to improve implementation and enforcement of the Anti-Idling Ordinance.

### *Design and Approach*

This survey will be implemented during the summer of 2015. Two undergraduate interns from the Detroit Community Based Research Program (DCBRP) will join SDEV to support the ongoing project. The DCBRP places students with community based organizations in Detroit to work on community driven research projects addressing issues such as urban development, environmental justice, food security, community assessment, and sustainability. As part of this program, students also live in the City of Detroit and attend weekly seminars aimed at developing practical skills for working in a community setting and conducting research. These SDEV Anti-Idling Interns will coordinate implementation and data collection of the hot-spot survey.

A template survey has been designed and will be integrated into a final survey during the early summer. The survey will ask participants their home address (or neighborhood) to allow for strategic outreach efforts designed to capture community members from across a wide geographic area. Additional questions will focus on identifying areas in which community members notice the most 1) diesel truck traffic, and 2) diesel truck idling. The survey also include a street map of Southwest Detroit to allow participants to identify and/or circle these hotspots on a map (see *Figure 15: District 6 Map*). Participant will also be asked to identify the days and times in which they notice the most idling and will be asked to rate on a scale of 1-5 how bad diesel truck traffic and idling are in Southwest Detroit. Finally, participants will be asked if they are interested in attending the community forum where results will be disseminated and co-analyzed as well as an open-ended question about what participant believe can be done to reduce diesel traffic and idling. Additional support and funding will be sought for technical support for GIS analysis and community skills and capacity building. See *Figure 16* for the survey template.

A workplan for SDEV Anti-Idling Interns will be finalized in the early summer 2015. This workplan will detail the goals and expectations for the interns to satisfy data collection and analysis needs. The intent is to collect a relatively large number of surveys to support the identification and classification of diesel truck idling hot-spots. SDEV will work with existing partnership, form new partnerships, and identify community events to support survey data collection from a broad range of community stakeholders in Southwest Detroit.

### Survey Analysis & Findings

Survey results will be geocoded using Geographic Information Systems (GIS) to identify hot-spots throughout Southwest Detroit. These spatial data will be presented at a community in late summer 2015 to allow for co-analysis of data with community and policy stakeholders. Survey results will be analyzed, compared, and integrated with data from prior truck observations, SEMCOG's Freight and Economic Analysis Report, the Detroit Intermodal Freight Terminal (DIFT) Project Study, the New International Trade Crossing (NITC) Proposal and other relevant datasets and studies focused on diesel traffic in Southwest Detroit.

### Next Steps & Recommendations

Several key steps are needed to prepare and successfully implement the community hot-spot survey. The SDEV Anti-Idling Interns will play a critical role in this phase of the study. The following key steps will be completed early summer 2015.

1. Finalize Community Hot-Spot Survey Questions
2. Develop and Finalize Implementation Workplan
  - a. Identify Community Partners and Community Members to target
  - b. Set Data Collection Goals and Benchmarks
  - c. Establish Plan for Data Analysis and Generation of Maps
  - d. Establish Plan for Dissemination of Findings

Findings from this survey and cross analysis with prior survey data will be presented during a community forum in late summer 2015. This forum will feature opportunities for co-interpretation and co-analysis of data to support ongoing strategic planning and efforts to successfully implement and enforce the Anti-Idling Ordinance. A potential approach will include "speculating on results" (Patton 1992, p. 250). Prior to participants seeing real data, they are asked to speculate on the results. Stakeholders can be given an analysis table with all appropriate categories but no actual data (a dummy table). Participants then fill in missing data with their guesses of what the results will be and incentives can be provided for participants who guess closest to the actual results of the study. This method has shown to increase interest in seeing the actual results and allows for stakeholders with virtually no experience with research methods or statistics training to readily identify the strengths, weaknesses, and implications of the findings (Patton 1992).



## Conclusion

This practicum has revealed many interesting conclusions based not solely on the findings of the research but also from the ongoing processes through which the practicum was conducted and evolved. For example, this project helped strengthen SDEV's partnership with the Community Action to Promote Healthy Environments (CA-PHE) project, a community-based participatory research project funded by the National Institute of Environmental Health Science at the University of Michigan's School of Public Health. CA-PHE is working with multiple community-based and environmental justice organizations to develop a policy action plan focused on protecting vulnerable populations from air pollution more generally in Detroit. Because diesel emissions (and diesel idling in particular) contribute to the reduced air quality in Detroit, particularly in low-income communities of color in Southwest Detroit, the hope is that this practicum will support ongoing research within the CA-PHE program, while also supporting the policy action plan by integrating data findings and ongoing research initiatives at SDEV focused on effective implementation and enforcement of the Anti-Idling Ordinance.

The West Oakland Environmental Indicators Project (WOEIP) focused on gaining buy-in from a growing number of stakeholders. The WOEIP case study analysis (see *Appendix*) revealed many similar trends with this practicum while also revealing critical needs for ongoing research. For example, WOEIP trained residents as truck observers to count and record trucks on neighborhood streets. SDEV has already conducted prior "truck-counts." Analysis and integration of that data can support ongoing efforts to address idling in Southwest Detroit. Specific focus can be placed on identifying streets with excessive truck idling and local streets that are prohibited to truck traffic. SDEV should continue to expand and strengthen existing partnerships while also exploring the need to work directly with truck drivers to expand buy-in from a broader and more diverse range of stakeholders.

WOEIP program participants also observed and tracked truck idling at the Port of Oakland. SDEV should continue to collect observational idling data at diesel idling hotspots identified through the hot-spot survey. Additionally, WOEIP extrapolated truck idling data to determine community exposure to diesel particulate matter (DPM). This approach could also be integrated into SDEV's ongoing data collection, analysis, and partnership efforts with CAPHE.

WOEIP also worked with community members to conduct a power analysis to identify decision makers who could bring policy change and bridge gaps in the city. This practicum has taken critical steps in this direction. SDEV should continue to broaden and strengthen ongoing policy mapping to produce a more comprehensive analysis of the political landscape to assist strategic planning. WOEIP identified a key political decision maker to gain buy-in from the Port which was resistant to policy change. The SDEV policy stakeholder survey also identified the need for a policy "champion" from inside the city government to improve implementation and enforcement of the Anti-Idling Ordinance.

While WOEIP partners also faced challenges in enforcing their new truck route ordinance and faced many implementation challenges similar to those in Detroit (e.g. Oakland policy department spread too thin with enforcement a low priority) the initiative also prompted

other environmental justice initiatives addressing diesel pollution, built capacity within local organizations and residents, and helped spur local, regional, and statewide changes. For example, the California Air Resources Board (CARB) began a comprehensive health risk assessment for diesel exposure in West Oakland to formally document the sources, extent, and impact of diesel pollution on resident. Similar strategies can be integrated into strategic planning efforts at SDEV. SDEV should also consider meeting with members of the WOEIP to discuss potential partnerships and strategies to build capacity to address diesel emissions in Southwest Detroit. Additionally, an analysis of statewide efforts focused on diesel emissions and idling should be conducted to support this.

Several additional recommendations for new and ongoing initiatives at SDEV focused on reducing diesel emissions and idling are highlighted below.

*Continue Community-Driven Research:*

SDEV should continue to utilize data and findings from this practicum to build a more comprehensive strategic plan to effectively implement and enforce the City of Detroit's Anti-Idling Ordinance. SDEV staff should develop a work plan for continuing research initiatives through the summer of 2015. SDEV Anti-Idling Interns should collect community hot-spot surveys to support the third-prong of the three-prong toolkit and SDEV staff and interns should also work to organize a community forum by late summer 2015 where the results and data can be disseminated, co-analyzed, and co-interpreted with community and policy stakeholders. Community "hot-spot" surveying coupled with GIS analysis could also reveal sites for mitigation efforts such as for vegetative buffers, indoor air filtration needs for buildings, rerouting of truck routes, "no-idling zone" signs, enhanced parking or idling enforcement, and other strategies to reduce and/or eliminate neighborhood truck idling.

A "No-Idling Zone" pilot program can also be integrated into ongoing efforts to reduce diesel truck idling and improve air quality. A "no-idling zone" along the Clark Street corridor could be established as a first step in identifying and understanding the impact of posted signs to protect vulnerable populations (including an elementary school) around Clark Park in Southwest Detroit. SDEV can work with local stakeholders including the Clark Park Coalition, teachers and administrators at local schools, and others to explore this strategy.

Additional covert observational surveys can also be conducted at local logistics companies and additional trucking/logistics surveys can be collected to develop "Diesel Emissions Scorecards." Covert, independent data collection and observation would reduce the likelihood that logistics companies and others would alter their behaviors after potentially learning of idling observation initiatives. SDEV can work closely with trucking/logistics companies to identify funding and strategies to reduce idling on or around these facilities. The National Resources Defense Council's "Clean Cargo" campaign provides "gold-standard" approaches for logistics companies to reduce diesel emissions and idling.

Finally, SDEV staff should push to reconvene the anti-idling working group. The working group should actively seek a key policy “champion” from within the city government to build on past successes of the working group and effectively move toward new initiatives and strategies. SDEV can take a leadership role working to initiate this.

*Support Policies on the Local, State, Federal, and International Levels:*

SDEV can continue to take the lead on local efforts to reduce diesel emissions and idling by creating the political partnerships necessary to initiate similar diesel emissions reductions strategies that were successfully implemented elsewhere. SDEV should research, identify, and create a comprehensive analysis of local, state, federal, and international policies that effect diesel trucking and logistics in Southwest Detroit. For example, SDEV can create policy factsheets on the local logistics industry to identify key regulations and policies that influence their practices related to diesel emissions. Additional policy related questions that can be explored include:

- What are the policies and regulations for trucks crossing the Ambassador Bridge?
- How can current policies that govern diesel trucking and logistics integrate environmental justice protections?
- What has been the impact of the Gateway Project on truck traffic and idling in Southwest Detroit?
- What are the implications of the New International Trade Crossing (NITC) Bridge?
- What are the differences between diesel emissions standards and regulations in the US and Canada? How do diesel emissions reduction strategies differ on each side of the border?

Identifying the regulatory agencies and policies associated with international trade and the transport of goods over the Ambassador Bridge can support potential policy recommendations. Comparisons to policies and initiatives in other regions and states can also be made. For example, policies in California established timelines to force the retirement of older diesel trucks (Bishop, Schuchmann, & Stedman 2012). In the Port of Oakland, California, policies were implemented that removed and/or “retrofit” older trucks with diesel particulate filters (DPFs) and introduced trucks with newer model year engines already equipped with particle filters (Dallman, Harley, & Kirchstetter 2011). Additionally, older trucks were banned from operating in Los Angeles and Long Beach, California ports, significantly reducing diesel pollution (Kowawa et al 2014). Since its commencement in 2008, The Port of Los Angeles Clean Truck Program (CTP) has delivered an estimated 80 percent reduction truck emissions compared to 2007 average air emissions data. Additional policies designed to limit growth in travel demand such as fuel taxation, congestion charges, and logistics management have also shown to effectively limit long-term growth in emissions (Minjares et al 2014).

SDEV can also strengthen partnerships to already established national networks. The National Resources Defense Council’s Dump Dirty Diesel Campaign has been a leader in local, state, national, and international efforts to solve the problem of dirty diesel exhaust. This campaign has created groundbreaking programs to reduce community exposure to dirty diesel exhaust while demonstrating clean diesel and alternative fuel solutions in New York

and California, successfully advocating for the world's most protective diesel fuel and emission standards in Washington, NRDC attorneys, scientists, engineers, and advocates have scored major victories on the path to cleaner air.

SDEV can also work with the Coalition for Clean and Safe Ports. The Coalition for Clean & Safe Ports is a unique partnership of environmental, public health, community, labor, faith, business, civil rights, and environmental justice organizations that promote sustainable economic development at ports coast to coast to make the port trucking system a less polluting, more competitive generator of good quality jobs for residents, workers and business. The Coalition for Clean and Safe Ports also advocates for comprehensive federal policy change in reduce environmental health impacts not only in vulnerable populations in and near port communities but also port workers. The Clean Ports Act will give local ports the tools to more effectively reduce diesel emissions and provide local communities with the power to hold the trucking industry accountable for cleaner air and fairer labor practices.

SDEV can also build capacity by strengthening ties to the Moving Forward Network. The Moving Forward Network works to build capacity of network participants working to improve the freight transportation system in the areas of environmental justice, public health, quality of life, the environment and labor. The Network does this through communications to facilitate information sharing, sharing advocacy tools, funding research on emerging issues, peer to peer training, and facilitating regional and national workshops to unite network participants and attract new allies. The Network also seeks to create national campaigns and educational initiatives on policies, undertaking outreach to new partners, and developing international links.

SDEV can also advocate for new models and frameworks for measuring economic progress that shift economic indicators away from a constant growth model toward new indicators that can facilitate a transition toward a cleaner and greener economy. For example, the Genuine Progress Indicator (GPI) integrates a holistic ecological economic framework that more accurately measures environmental externalities and public health impacts while capturing the benefits of local non-market based exchanges and improved environmental, social, and psychological health (Bagstad & Shammin 2012).

SDEV should also advocate for the implementation of policies that focus on reregulating the trucking industry. Reregulation can lead to reduced diesel emissions and improved air quality at the local level. Deregulation of the trucking industry in the late 1970s and 1980s shifted the cost of truck maintenance directly onto an increasing number of non-union independent contractors and drivers and eliminated incentives to purchase newer, cleaner trucks. Federal policies that work to reregulate the trucking industry could raise environmental and efficiency standards (Bensman 2009). SDEV should maintain and strengthen collaborative efforts with labor and identify opportunities for collaboration and partnership with both unionized truck drivers and non-union independent owner-occupied contractors.

SDEV should also work with federal and state officials to sustain funding to critical diesel emissions reduction programs. Currently, President Obama's proposed budget includes just \$10 million dollar for the federal Diesel Emissions Reduction Act (DERA), a \$20 million cut to current funding (Bienkowski 2015). SDEV should continue to partner with industry and

environmental organizations to advocate for sustained funding for the DERA program. As a 501(c)(3) nonprofit organization SDEV is legally entitled to lobby legislators. Resources are available, including the Alliance for Justice's Bolder Advocacy Campaign, that help nonprofit organizations understand the rules governing non-profit advocacy work and lobbying. SDEV should explore how policy advocacy can be more centrally integrated into its strategic initiatives.

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# Figures

Figure 1: Map of Detroit Area Air Emissions Sources



## Facility Name and Address

- |  |   |  |
|--|---|--|
| <ul style="list-style-type: none"> <li>1 Praxair, 300 E Great Lakes St., River Rouge</li> <li>2 Detroit Edison River Rouge, 1 Belanger Park Dr, River Rouge</li> <li>3 Great Lakes Aggr Oil Storage, 800 Marion Ave, River Rouge</li> <li>4 Fritz Products, 255 Marion, River Rouge</li> <li>5 U S Steel Great Lakes Works, 1 Quality Dr, Ecorse</li> <li>6 Buckeye Terminals River Rouge, 205 Marion Ave, River Rouge</li> <li>7 Carmeuse Lime River Rouge, 25 Marion Ave, River Rouge</li> <li>8 Detroit Edison Delray Power Plant, 6603 W Jefferson, Detroit</li> <li>9 Kinder Morgan Cochlin, 7501 W Jefferson, Detroit</li> <li>10 Fabricon Products Inc, 1721 W Pleasant Ave, River Rouge</li> <li>11 United States Gypsum Co, 10090 W Jefferson Ave, River Rouge</li> <li>12 Detroit Wastewater Treat Plant, 9300 W. Jefferson Av, Detroit</li> <li>13 Detroit Public Lighting Dept, Mistersky Power Station, Detroit</li> <li>14 Buckeye Terminals Detroit Terminal, 700 S Deacon St, Detroit</li> <li>15 St Mary's Cement, 9333 Dearborn St, Detroit</li> <li>16 Great Lakes Petroleum Terminal, 12500 Stocker Rd, Detroit</li> <li>17 Marathon Petroleum Company, 1300 S Fort St, Detroit</li> <li>18 Detroit Salt Co, 12841 Sanders, Detroit</li> <li>19 Cadillac Asphalt Products, 670 S Dix Ave, Detroit</li> </ul> | <ul style="list-style-type: none"> <li>20 Sunoco Partners River Rouge Term, 500 S Dix Ave, Detroit</li> <li>21 Edward C Levy Co Plant 6, 13800 Mellon Ave, Detroit</li> <li>22 Darling International Inc, 3350 Greenfield Rd, Melvindale</li> <li>23 Magni Industries Inc, 2771 Hammond, Detroit</li> <li>24 Dearborn Industrial Generation, 2400 Miller Rd, Dearborn</li> <li>25 Dearborn Sausage Co, Inc., 2450 Wyoming Ave, Dearborn</li> <li>26 Edward C Levy Co Plant 1, 8800 Dix Ave, Detroit</li> <li>27 Ford Motor Co Rouge Complex, 3001 Miller Rd, Dearborn</li> <li>28 Severstal Dearborn, 4001 Miller Road, Dearborn</li> <li>29 Xcel Steel Pickling, 4343 Wyoming, Dearborn</li> <li>30 EnviroSolids, 6011 Wyoming Ave, Dearborn</li> <li>31 Hinkle Manufacturing, 6340 Miller Rd, Dearborn</li> <li>32 ATT, 445 State St, Detroit</li> <li>33 Detroit Thermal Beacon Heat Plant, 541 Madison Ave, Detroit</li> <li>34 Walsh-Higgins IRS Computer Ctr, 985 Michigan Ave, Detroit</li> <li>35 Detroit Thermal Henry Heating Plant, 2401 4th Street, Detroit</li> <li>36 Ajax Metal Processing Inc., 4651 Bellevue Ave, Detroit</li> <li>37 Detroit Thermal Willis Heating Plant, 42 Willis St W, Detroit</li> <li>38 John D Dingell VA Medical Center, 4646 John R Street, Detroit</li> </ul> | <ul style="list-style-type: none"> <li>39 Chemical Processing Inc, 5485 Concord, Detroit</li> <li>40 EQ-Detroit Inc., 1923 Frederick, Detroit</li> <li>41 Wayne State University, 5454 Cass Avenue, Detroit</li> <li>42 Detroit Renewable Power, 5700 Russell St, Detroit</li> <li>43 General Motors Hamtramck, 2500 General Motors Blvd, Detroit</li> <li>44 Detroit Thermal Blvd Heating Plant, 475 Baltimore St, Detroit</li> <li>45 Dynecol Inc, 6520 Georgia, Detroit</li> <li>46 Henry Ford Hospital, 2799 W Grand Blvd, Detroit</li> <li>47 Kamax L P Hamtramck, 3120 Denton St, Hamtramck</li> <li>48 Chrysler - Detroit Axle, 6700 Lynch Rd, Detroit</li> <li>49 American Axle Mfg, 1840 Holbrook, Detroit</li> <li>50 Crown Group Lynch Road Plant, 6334 Lynch Rd., Detroit</li> <li>51 Recycled Polymeric Materials, 6031 Joy Rd., Detroit</li> <li>52 Repair Industries, 6501 E Mc Nichols Rd, Detroit</li> <li>53 Fitzgerald Finishing, 17450 Filer, Detroit</li> <li>54 Great Lakes Aggr, 15150 Oakland Av, Highland Park</li> <li>55 Chrome Craft Corp, 318 Midland Ave, Highland Park</li> <li>56 Quaker Chemical, 14301 Birwood Avenue, Detroit</li> <li>57 Detroit Recycled Concrete, 14294 Meyers, Detroit</li> </ul> |
|--|---|--|



*Figure 2: Photo of Diesel Truck Idling in Southwest Detroit*



Figure 3: Survey Statement of Purpose & Confidentiality Clause (Trucking/Logistics Survey)



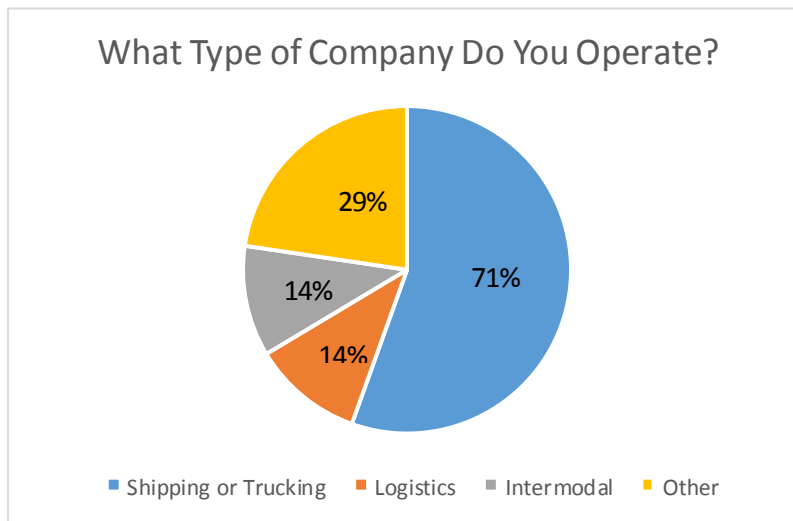
Southwest Detroit Environmental Vision (SDEV) is committed to improving air quality and the economy in Southwest Detroit. We are currently collecting information from local companies to **better understand local issues related to truck traffic and idling.**

Please take 10-15 minutes to complete this survey. Your responses will remain completely anonymous.

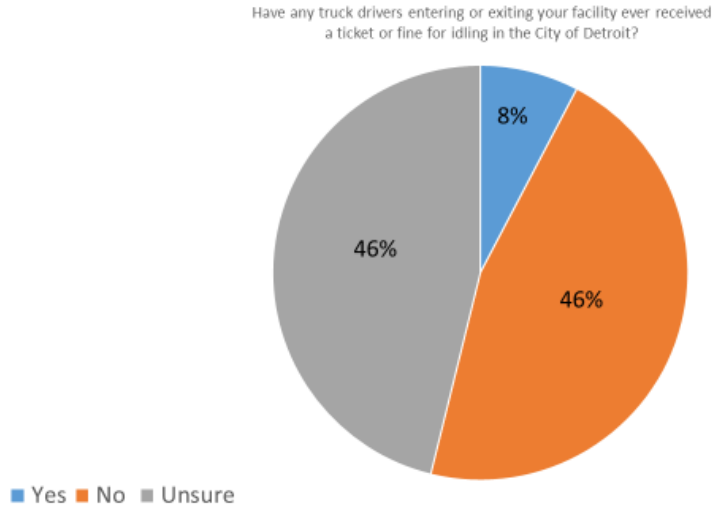
Your participation is critical as we work to better serve all stakeholders in Southwest Detroit.

Thank you!

*Figure 4: Type of Trucking/Logistics companies (Trucking/Logistics Survey)*



*Figure 5: Have any truck drivers entering or exiting your facility ever received a ticket or fine for idling in the City of Detroit? (Trucking/Logistics Survey)*



*Figure 6: For each weekday, what is the busiest time of day? (Trucking/Logistics Survey)*

<b>Day</b>	<b>Time</b>	<b>Responses</b>	<b>Percent</b>
Monday	Early Morning	7	64%
	Late Morning	2	18%
	Early Afternoon	1	9%
	Late Afternoon	0	0%
	Evening/Night	1	9%
Tuesday	Early Morning	7	54%
	Late Morning	2	15%
	Early Afternoon	1	8%
	Late Afternoon	0	0%
	Evening/Night	1	8%
	N/A	2	15%
Wednesday	Early Morning	7	64%
	Late Morning	2	18%
	Early Afternoon	1	9%
	Late Afternoon	0	0%
	Evening/Night	1	9%
Thursday	Early Morning	8	62%
	Late Morning	1	8%
	Early Afternoon	1	8%
	Late Afternoon	0	0%
	Evening/Night	1	8%
	N/A	2	15%
Friday	Early Morning	7	64%
	Late Morning	2	18%
	Early Afternoon	1	9%
	Late Afternoon	0	0%
	Evening/Night	1	9%
Weekends	Early Morning	9	90%
	Late Morning	0	0%
	Early Afternoon	1	10%
	Late Afternoon	0	0%
	Evening/Night	0	0%



*Figure 7: How would you rate the following sources of air pollution in Southwest Detroit? (Trucking/Logistics Survey)*

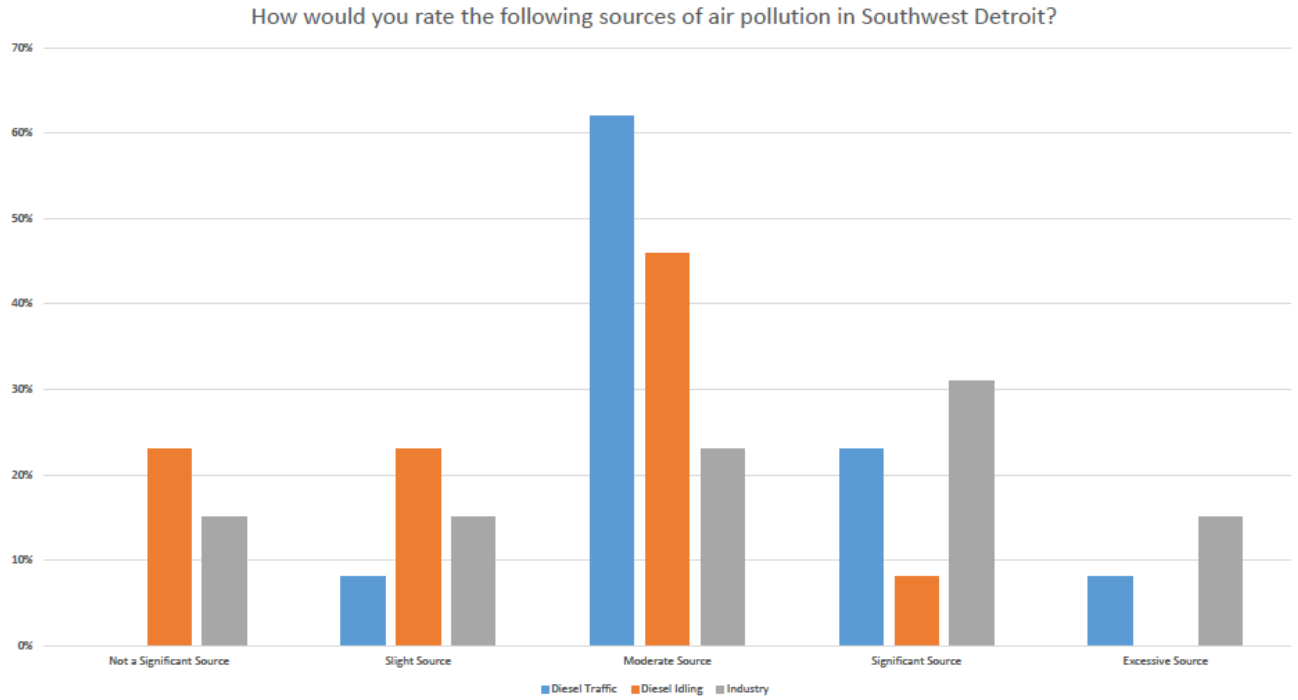
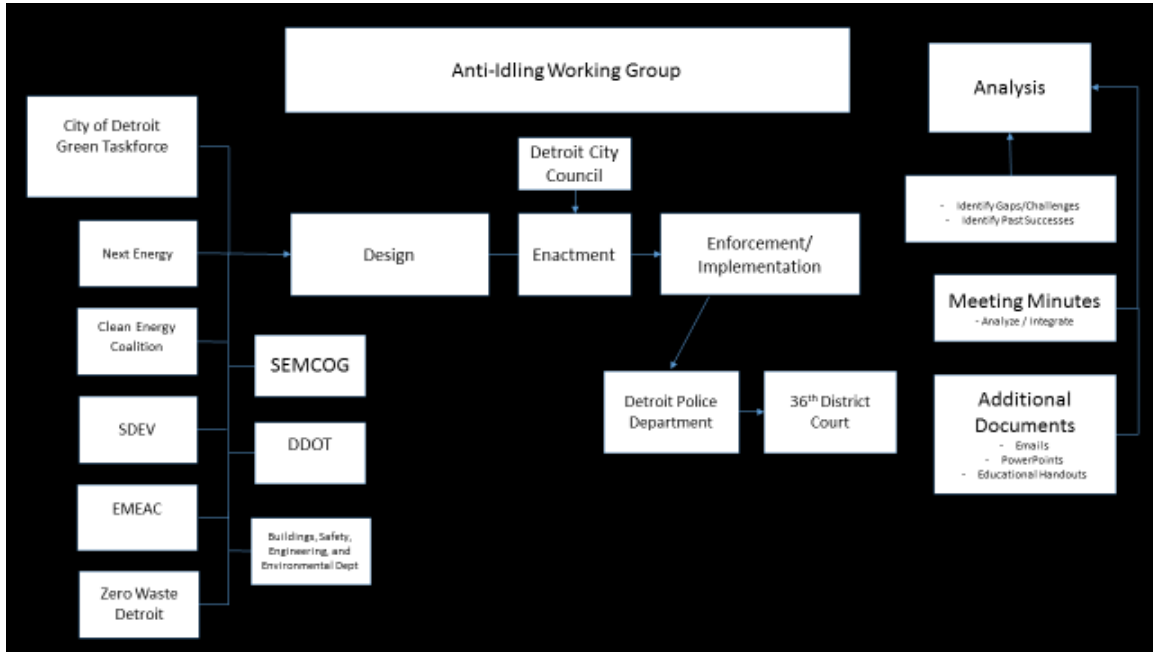


Figure 8: Policy Stakeholder Map



*Figure 9: Statement of Purpose & Confidentiality Clause (Policy Stakeholder Survey)*



Southwest Detroit Environmental Vision is committed to improving air quality in Southwest Detroit. We are currently collecting information from stakeholders to better understand issues related to the City of Detroit's Anti-Idling Ordinance.

Please take 10-15 minutes to complete this survey. Your response will remain completely anonymous.

Your participation is crucial as we work to better serve all community stakeholders in Southwest Detroit.

Thank you!

Figure 10: Policy Stakeholder Interview Questions

1. Were you involved with the Anti-Idling Working Group (subcommittee of the City of Detroit's Green Taskforce)?
  - a. Yes
  - b. No
2. If so, what was your level of involvement in the Anti-Idling Working Group?
  - a. Very Involved
  - b. Moderately Involved
  - c. Slightly Involved
3. What is your name, current position and organization?
4. Has your position or organization changed since your involvement with the Anti-Idling Working Group? If so, what was your position when you were involved in the working group?
5. In your opinion, what were the **key strengths** of the Anti-Idling Working Group?
6. In your opinion, what were the **key weaknesses** of the Anti-Idling Working Group?
7. Who should have been involved with the Anti-Idling Working Group who was not?
8. How could the Anti-Idling Ordinance have been better implemented and/or enforced?
9. What recommendations do you have for next phase of work in implementing and enforcing the Anti-Idling Ordinance?
10. In your opinion, who must be at the table for enforcement of the Anti-Idling to be successful?
11. Would you be interested in participating in a community forum focused on implementation and enforcement of the Anti-Idling Ordinance?
  - a. Yes
  - b. Maybe
  - c. No
12. Who else do you recommend take this survey?
13. Do you have any final thoughts you would like to share on this issue?

*Figure 11: Policy Stakeholder Survey Analysis*

<b>Dependent Variable</b>	<b>Independent Variable</b>	<b>Sample Response</b>
Strengths of WG	Political Champion (PC)	<p>“There was someone who worked within the City who was the strongest advocate...[and] had the clout and ability to push the ordinance along within the city”</p> <p>“She [city stakeholder] was able to get people to the table that otherwise might take the group less seriously if requests were only made by the community or non-profits”</p>
	Team Performance & Cohesiveness (TPC)	<p>“[The WG was] organized, knowledgeable, and worked well together”</p> <p>“[The WG was] a grassroots effort and the people involved were passionate about it”</p>
Weaknesses of WG	Problems with Enforcement (PE)	<p>“[There was] no direction on enforcement”</p> <p>“There was absolutely no enforcement around the main contributor of diesel pollution, the Ambassador Bridge”</p> <p>“You did not have any magistrate or judge at the meetings”</p>
	Lack of Involvement (LI)	“There was not enough support from the city, both government and residents”
	Need for Education & Outreach (NEO)	“There was also a lack of funding to sustain outreach efforts”
	Loss of Political Champion (LPC)	“One [key city stakeholder] left if all fell apart. There was no more momentum”
Effective Enforcement of Ordinance	Political Will (PW)	“The city [must] decide to do it. Have the willpower to.”
	Improved Capacity & Education (ICE)	<p>“More staffing and training”</p> <p>“Education of enforcement personnel”</p> <p>“Look at financing mechanisms and clean ports, also look at truck counts for the new bridge”</p>
	Improved Communication & Coordination (ICC)	<p>“There will need to be coordination among the departments... and clear communication that this is a priority that the city is taking on”</p> <p>“The ordinance should be modified with input from courts as well as DPD”</p>

*Figure 12: SDEV Truck Observation Data*

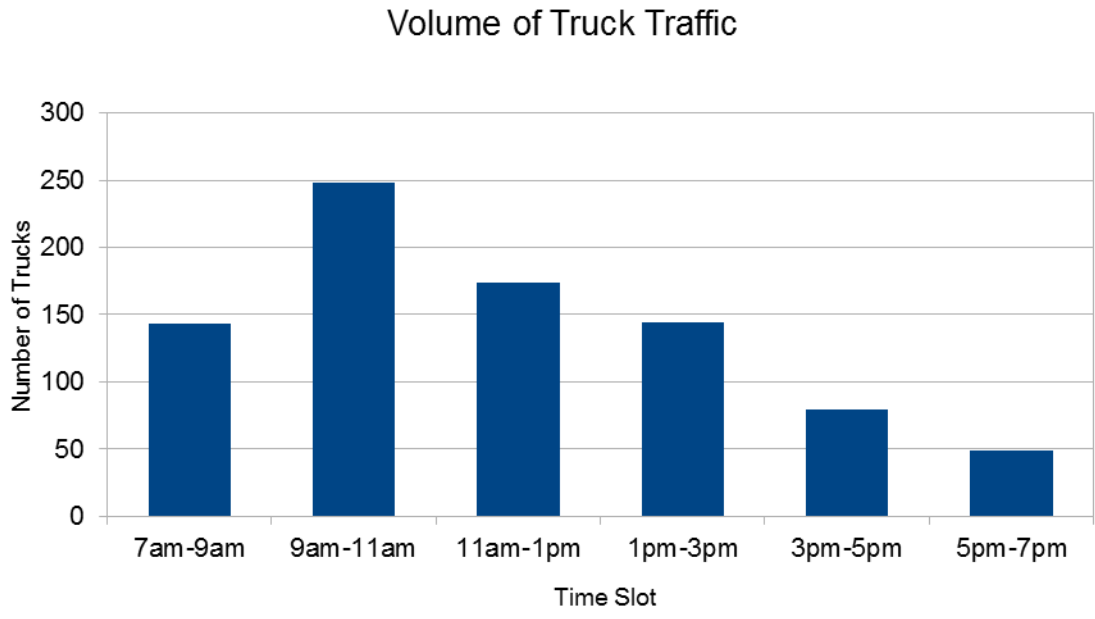
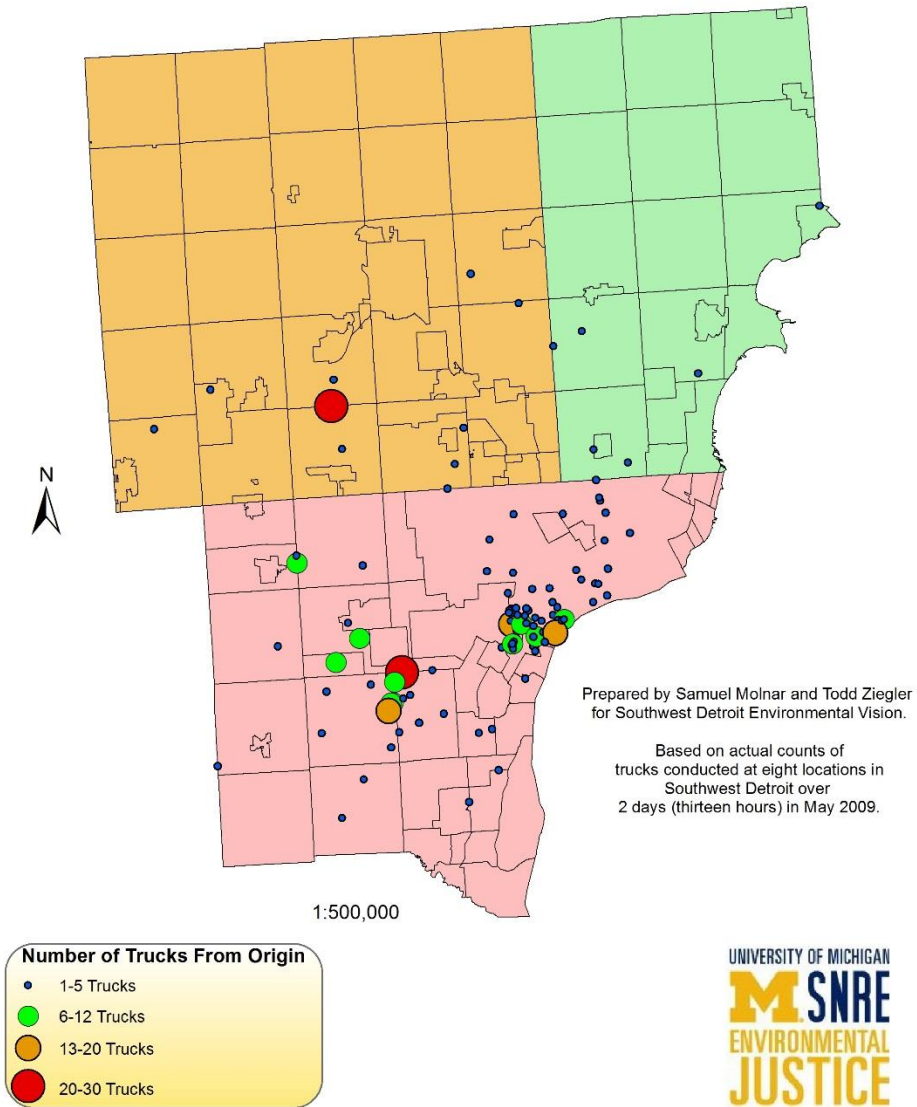


Figure 13: SDEV Truck Observation Map

### Origin of Trucks in Southwest Detroit Neighborhoods



*Figure 14: Michigan Department of Transportation (MDOT) 2013 Average Daily Traffic (ADT) Map of Detroit*

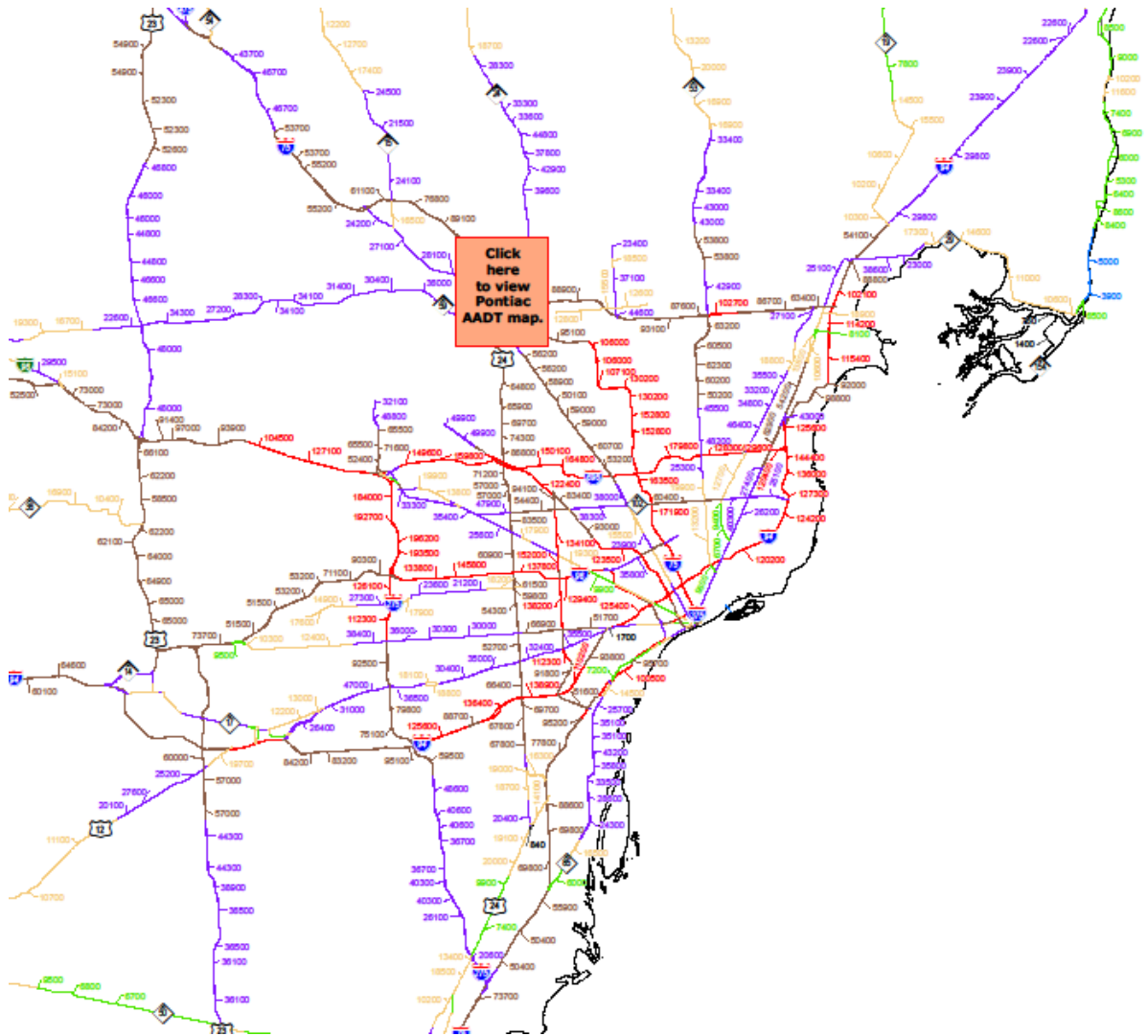




Figure 15: District 6 Map

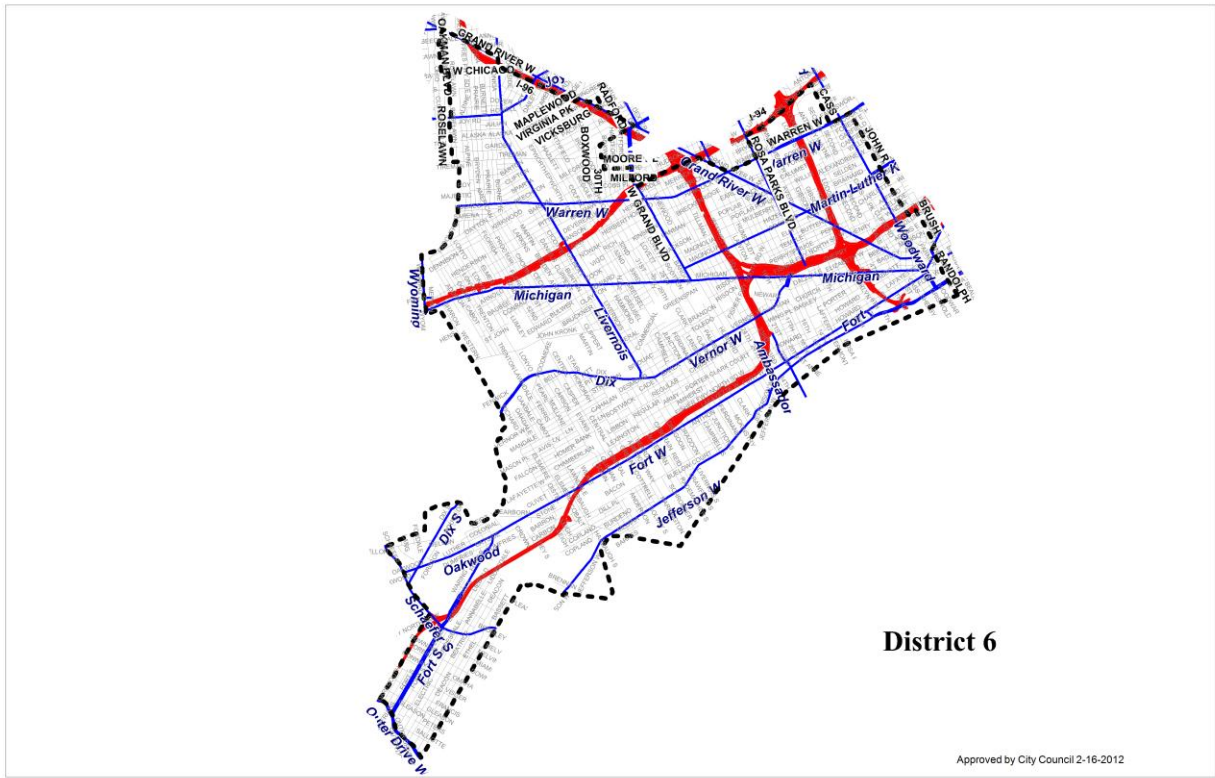


Figure 16: Community Hotspot Survey Template

1. What is your home address (or block / cross streets)
2. Where do you notice the most diesel truck **traffic**? (name streets/blocks)
  - a. What days do you notice the most truck traffic?
  - b. What times do you notice the most truck traffic?
3. Where do you notice the most diesel truck **idling**? (name streets/blocks)
  - a. What days do you notice the most truck idling?
  - b. What times do you notice the most truck idling?
4. Please circle the area with the worst diesel traffic (black) and idling (red) on this map. (INCLUDE MAP OF SW DETROIT)
5. On a scale of 1-5, how bad is diesel truck **traffic** in Southwest Detroit?
6. On a scale of 1-5, how bad is diesel truck **idling** in Southwest Detroit?
7. (Open-ended) What can be done to reduce diesel truck traffic and idling in Southwest Detroit?
8. Are you interested in attending a community forum focused on diesel truck idling? If so, please provide your name and contact information.

## Appendix:

### SDEV Practicum: Case Study Analysis

Case Study: West Oakland, CA<sup>1</sup>

Key Partners: West Oakland Environmental Indicators Project (WOEIP), Pacific Institute

#### *Abstract:*

This Case Study Analysis examines how a community-based organization (WOEIP) and an academic institute (Pacific Institute) collaborated to study a community-identified issue (diesel traffic in West Oakland) and then worked with other stakeholders to use their study findings and residents' experiences to advocate for policy change.

#### *Community Background:*

West Oakland is a predominantly African American and Latino community of about 22,000 people. The community contains thousands of moving and stationary sources of diesel pollution and residents have long experienced **disproportionate exposures to diesel exhaust and air pollutants**. Trucks and buses on the surrounding freeways and container trucks moving through the neighborhood to and from the Port of Oakland expose this community to large volumes of traffic related pollution. Among the greatest concerns to residents of West Oakland is the role of these pollutants in **exacerbating asthma** and related respiratory conditions in children and families.

#### *Partner Backgrounds*

**The Pacific Institute** is an independent, non-profit center created in 1987 to conduct research and develop solutions to the related problems of environmental protection, economic development, and human health. Their *Community Strategies for Sustainability and Justice* program was launched in 1995 to assist communities in addressing critical human health and environmental issues. Their goal is to empower community residents so that they can have a real say in their future. Program work includes technical and policy analysis, community education, and leadership development. They initiated the neighborhood environmental indicators project to support Bay Area neighborhoods to utilize data in ways that can strengthen meaningful community participation and sustainable development, influence public policies, and impact economic, social, and environmental conditions that contribute to the community's quality of life.

**The West Oakland Environmental Indicators Project (WOEIP)** is a resident-led initiative to identify and address environmental concerns began in 2000 as partnership between the Pacific Institute, an Oakland-based non-profit research organization, and the 7<sup>th</sup> St./McClymonds Corridor Neighborhood Improvement Initiative. Over the course of three years the WOEIP Committee has met to identify 17 indicators of environmental health, support three community campaigns, influence policies on redevelopment, help shut down

Red Star Yeast the largest fixed source of toxic air pollution in the neighborhood and conduct this study of diesel pollution. The EIP Committee is now a community-run initiative based at the Coalition for West Oakland Revitalization (CWOR).

### *Preliminary Data:*

The Pacific Institute collected and examined **survey data** and **secondary data** on the municipal and state levels, and drew **comparisons** between indicator data for West Oakland and that for the city and state. Drawing particular attention in the **local media** was that children under 15 in West Oakland had **asthma rates** seven times the state's average. A summary of the study findings can be found in the report *Neighborhood Knowledge for Change*<sup>ii</sup>. Project residents and staff realized there were **insufficient data** to allow for the inclusion of **diesel truck traffic indicators** during community meetings.

The WOEIP and Pacific Institute jointly designed and conducted a **truck count, truck idling**, and **indoor air quality study** with funding from the Environmental Protection Agency (EPA) and the California Department of Health Services. The truck count/idling studies were designed to “better understand **truck patterns and behaviors**” so that partners could **identify strategies** to reduce the impacts of heavy truck presence in the community.

### *Truck Count and Truck Idling Study Methods:*

A transportation technologies consulting firm, TIAX Cupertino, California, was hired to provide **technical assistance** on a truck count and truck idling study. With help from with community residents, TIAX compiled a **list of intersections** with high truck traffic and/or those where large (4.5 ton) trucks were prohibited<sup>iii</sup>. TIAX **trained residents** as truck observers, teaching them to **identify, count, and record** truck type (e.g. container and noncontainer, 2- and 3-axle trucks) and **direction** on 5 neighborhood streets over 3 days. Similarly, program participants observed and tracked truck **idling** at the Port of Oakland for different 24-hour periods.

### *Partner Roles:*

#### West Oakland Environmental Indicators Project and Community Partners

Community members provided the **critical lay knowledge** on the **location** of diesel truck idling and poor air quality. Community members assisted the process of increasing technical capacity by interviewing 2 potential subcontractors (and hiring one) to assist the truck count/idling studies.

#### Pacific Institute

The Pacific Institute preceded the project with considerable **background study**, mainly a review of existing research to determine what methods had already been employed for **estimating diesel pollution** in West Oakland and its potential sources. Secondary data was also analyzed to provide background and context for the subsequent truck count and truck idling studies. Pacific Institute helped develop a **request for application** for firms

interested in providing technical assistance with the truck count/idling studies. During the data collection phases of the truck count/idling studies, researchers remained **“behind the scenes as much as possible.”**

#### TIAX, Cupertino, California

TIAX trained 10 community residents and WOEIP staff while also learning about the community’s lay knowledge to enrich the research. TIAX worked with community residents to identify **key street intersections** at which the studies should take place and also conducted **informal interviews with truckers** from an independent trucking company and communities members to gather their opinions on and experiences with truck traffic.

#### *Study Findings:*

##### Truck Count Study:

- 6,300 truck trips occurred daily through West Oakland
- 40 trucks per day on prohibited streets.
- Trucks traveled through local neighborhoods in search of services such as fuel, truck repair, food, and overnight parking.

##### Truck Idling Study:

- Trucks idling outside the Port of Oakland terminal gates an estimated 280 truck-hours per day – the equivalent of nearly 12 trucks idling for 24 hours a day.
- Most idling occurring behind gates where access/data collection restricted
- Most trucks appeared to spend 1.5 hours per trip idling or moving at a very slow rate for container pick up or delivery

The combined results of these studies revealed that approximately 64lbs/day of diesel particulate matter (DPM) emissions were generated from both truck traffic and idling.

Although the studies were based on small samples, the partners **extrapolated** that West Oakland might be exposed to:

- 90 times more diesel particulates per square mile per year than the state of California.
- Increased risk of 1 additional case of cancer per 1000 residents over a lifetime
- 5 times more indoor DPM exposure than resident in other parts of city

#### *Policy Strategy Identification:*

For CBPR partnerships interested in influencing policy level change, relevant research findings, education, and policy advocacy are frequently used in conjunction with the key steps and activities of the policy making process which include<sup>iv,v,vi</sup>:

1. Problem Identification
2. Creating Awareness
3. Getting on the Agenda
4. Constructing Policy Alternatives
5. Deciding on a Policy to Pursue
6. Policy Enactment and Implementation

WOEIP used the studies findings to build on earlier work to further **define the problem**, **create awareness**, and **gain buy-in** from a growing number of stakeholders. The partnership, with the help of community members, crafted **initial recommendations** based on the study findings. The partners met **independently** with local organizations, businesses, truckers, and relevant government entities (e.g. the Port Commission, Department of Public Works, and the Police Department) to elicit their **feedback**.

In the words of one community member:

*“[T]here was always the potential that you would get a better perspective if you got a few more people to the table.”*

Initially there was **tension** between WOEIP and the truckers, however over the course of meetings to elicit their feedback, they began to **understand the needs of truckers**, the labor piece, and began forming relationships. Truckers were invited to the half-day study release event to receive feedback.

After this event, additional community members were trained to conduct door-to-door outreach and advertise a follow-up community **meeting** with WOEIP to further discuss and prioritize study recommendations. Approximately 3 dozen community members attended and shared their experience in relation to diesel exposure and truck traffic in their community.

Truckers felt **buy-in** at this meeting because their ideas expressed earlier in the more individualized stakeholder group meetings were represented along with community members. Truckers also heard residents’ stories of how diesel exposure was affecting their children and grandchildren and expressed more **understanding of the communities concerns** about their heavy presence in the community.

Similarly, when community members learned about the truckers’ experiences and hardships (typically as immigrants of quite modest means), they began forming better relationships and worked to find **common ground** that would be mutually beneficial.

Although there was not a formal process of weighing a range of policy alternatives, residents “voted” through dots on a collective list of finalized recommendations clarified their overwhelming priority: **designating a truck route** that would **prevent trucks** from

traveling through West Oakland neighborhoods. Residents also emphasized their desires for **community participation** in the process of determining the alternative truck route.

Residents' final 13 recommendations were highlighted, along with the partnership's report, *Clearing the Air: Reducing Diesel Pollution in West Oakland*, and an accompanying **press release**, "West Oakland residents choking on diesel," which emphasized residents' desire for a designated truck route.

### *Policy Action Strategies and Approaches:*

The partnership was strategic in **framing** their findings and policy objective explicitly in terms of health. The partnership also provided important backing for their key policy ally: a city Councilwoman with **strong roots** in West Oakland. The partnership worked with community members to conduct a **power analysis** to identify decision makers who could bring policy change and **bridge gaps** with the city.

The power analysis helped identify targets with decision making power, as well as potential **allies, opponents, and other stakeholders** and their relative strength and degrees of overlap or independence.<sup>vii</sup> With this analysis, partners created a **strategic plan of action** to neutralize or win over opponents, mobilize constituents, and bring about appropriate arguments and advocacy methods to bear on a target or group of targets.<sup>6</sup>

The analysis process highlighted the importance of the **Port** as a key decision maker, and of the district's local city councilmember as a potent ally. The role of **businesses** as an under appreciated group that would be impacted by the proposed new truck route and their need to be included in subsequent planning.

The partnership recognized the need to present **solutions** not just problems - ideally solutions that have "**buy-in**" from multiple stakeholders. The WOEIP partnership was strategic in creating a **truck route committee** that met monthly (for about 1 year) that included **diverse yet critical stakeholders** (including local residents, the Port of Oakland, an independent trucking company, the Police Department, the Department of Public Works, the District Air Board, and the West Oakland Commerce Association). The committee's **goal** was to negotiate an actual truck route that could address community concerns without unduly burdening other stakeholders. WOEIP created a **collaborative process** in which **no one entity took control of the agenda**.

While community members gained a better appreciation and understanding of the labor hardships of truckers, they also learned of the concerns of "**mom-and-pop**" store owners who **benefited** from the revenue generated by the trucker's presence. Business owners began to recognize that their **health** was also **adversely impacted** by heavy diesel traffic exposure. Truckers also became more accepting of a route that would take them out of the neighborhood.

The greatest **challenge** remained getting buy-in from the Port, whose leadership, according to one community leader, "thought that the community shouldn't be telling the Port what to do." The WOEIP's local city councilwoman (and informal policy mentor) held monthly

meetings in her office with key stakeholders including the Commerce Association, the Port, traffic department, and truckers association. The **councilwoman** was cited as the **key** to getting the Port as part of the process and eventually agreeing to support the new truck route.

WOEIP leaders and local residents continued to make **rounds** to neighborhood organizations, **getting on the agenda**, and keeping them **informed** on the routing decision and getting feedback on potential **unintended consequences**. This process also allowed for less directly involved residents to raise issues and participate in the process.

### *Policy Implementation:*

Once the committee agreed on a route and pushed for a city ordinance, WOEIP **leveraged its alliances** with **other community** and **statewide** groups organizing to combat diesel pollution, including the West Oakland Toxics Reduction Collaborative and the Ditching Dirty Diesel Collaborative.

Several town hall meetings and community forums were held to further engage the **larger community** and generate support for the ordinance. Residents were encouraged to provide **testimony** at meetings to “**put a human face on the issue.**”

In September 2005, the WOEIP partnership and its allies achieved a key victory when the City Council unanimously passed a **Truck Route ordinance**.

The **combined** presence and participation of grassroots residents and “grass-tops” level opinion leaders (e.g. CBO directors) together with researchers, and representatives of the truckers, the Port, etc helped achieve the unanimous vote.

### *Policy Implementation Challenges:*

Frustratingly, **failure to enforce** the new truck ordinance made it a somewhat hollow victory. Stakeholders pointed to the City’s police force being **spread thin** – and mostly **focused** on violent crime. It was also noted that there was **significant resistance** from the city in actually implementing the truck route because it would generate **more work** and require **additional staff time**. The Pacific Institute reflected:

*“[D]ecision makers realize that the easiest way to get a community off its back is to pass something, without being committed in any way to do all the hard work it takes to actually realize the spirit and the vision of what the community needs.”*

Despite the lack of enforcement, the project/policy helped **prompt** other environmental justice initiatives addressing diesel pollution while further **building capacity** of WOEIP and its resident leaders and activists. Policy makers credited WOEIP community partners’ advocacy, professionalism, and much cited truck studies as having helped spur other **local, regional, and statewide changes**. For example, the California Air Resources Board (CARB) began a comprehensive health risk assessment for diesel exhaust in West Oakland, a



multiyear intensive endeavor to formally document the sources, extent, and impact of diesel pollution on health risk for West Oakland residents.<sup>viii</sup>

Additionally, as WOEIP gained recognition and an increasing voice through the truck studies at the local level, it **expanded its focus** to other air quality efforts happening regionally and **reframed** them to increase their local relevance. WOEIP partnered with the Air District and the Port staff to design an **air plan** to benefit West Oakland as a part of a broader **goods movement efforts** taking place regionally, statewide, and nationally.

WOEIP's work was critical in getting the Port of Oakland to commit to an 85% reduction of the community health risk caused by diesel operations by 2020. While there are ongoing challenges, their work has improved **organizational structures** so that the community and other stakeholders are now **represented** in air planning groups.

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<sup>i</sup> Gonzalez P., Minkler M., Garcia A., Gordon M., Garzon C., Palaniappan M., Prakash S., Beveridge B. "Community-based participatory research and policy advocacy to reduce diesel exposure in West Oakland, California" *American Journal of Public Health* 2011; 101 (S1) S166-S175

<sup>ii</sup> Costa S., Palaniappan M, Wong A.K., Hays J., Landeiro C., Ronderude J., *Neighborhoods Working for Change: The West Oakland Environmental Indicators Project*. Oakland, CA: Pacific Institute; 2002

<sup>iii</sup> Buchan W., Jackson MD, Chan M. *Container Truck Assessment and Potential Mitigation Measures for the West Oakland Diesel Truck Emissions Reduction Initiative*. Cupertino, CA: TIAX, LLC; 2003. Technical Report TR-03-176. Case D5247, Sponsored by the Pacific Institute

<sup>iv</sup>Bardach E., "A Practical Guide For Policy Analysis: The Eightfold Path To More Effective Problem Solving" 2<sup>nd</sup> Ed. Washington DC: CQ Press; 2004

<sup>v</sup> Kingdon JW., "Agendas, Alternatives, and Public Policies." 2<sup>nd</sup> ed. New York NY: Addison-Wesley Educational Publishers Inc; 2003

<sup>vi</sup> Themba-Nixon M., Minkley M., Freudenberg N., "The role of CBPR in policy advocacy" In Minkley M., Wallerstein N., eds. *Community-Based Participatory Research for Health*. San Fransisco: Jossey-Bass; 2008: 307-322

<sup>vii</sup> Ritas C., Minkler M., Ni A., Halpin H., "Using CBPR to promote policy change: exercises and online resources: In: Minkler M., Wallerstein N., eds. *Community-Based Participatory Research for Health*. San Fransisco: Jossey-Bass; 2008: 459-464.

<sup>viii</sup> Pingkuan D. *Diesel Particulate Matter Health Risk Assessment for the West Oakland Community*. Sacramento CA: California Environmental Protection Agency Air Resources Board, 2008